Draft Supplemental Environmental Impact Report

Prior SCH # 96061052

Volume 7
Appendices V (1997 FEIR/EIS Volumes 5 - 7) through W

Golden Queen Mining Co. Inc., Soledad Mountain Project

Conditional Use Permit No. 27, Map 196
Modification of Conditional Use Permit No. 41, Map 213
Modification of Conditional Use Permit No. 22, Map 214
Nonsummary Vacation of a Portion of New Eagle Road 191-31 3 098
(PP08210)

Kern County
Planning Department
Bakersfield, California

January 2010

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Appendix W – Resolution No. 97-264 and Associated Exhibits

APPENDIX V – 1997 FEIR/EIS VOLUMES 5 - 7

GOLDEN QUEEN MINING COMPANY, INC.

SOLEDAD MOUNTAIN PROJECT

MOJAVE, KERN COUNTY, CALIFORNIA

DRAFT
ENVIRONMENTAL IMPACT REPORT /
ENVIRONMENTAL IMPACT STATEMENT

VOLUME 5
(Appendix VIII)

MAY 1997

COUNTY OF KERN
PLANNING DEPARTMENT
BAKERSFIELD, CALIFORNIA

BUREAU OF LAND MANAGEMENT
RIDGECREST RESOURCE AREA
RIDGECREST, CALIFORNIA

VOLUME 5 OF 6

PHASE I ARCHAEOLOGICAL SURVEY OF THE GOLDEN QUEEN MINE PROJECT AREA, MOJAVE, KERN COUNTY, CALIFORNIA

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28 October 1995

Management Summary

A Phase I archaeological survey was conducted for the Golden Queen Mine project area, which is located on Soledad Mountain, Mojave, Kern County, California. This involved background studies of published and unpublished reports, documents, maps and other records concerning the prehistory, ethnography and history of this area; an intensive on-foot survey of the study area; and the recording and preliminary evaluation of archaeological sites discovered during this survey. Eight archaeological sites were found to lie within this study area, with a portion of a ninth also located within the study zone. All of these sites are historical (Euro-American) in age, and result from the 20th century mining that has occurred at this locale. These sites are designated CA-KER-4446H, -4447H, -4448H, 4449H, -4450H, -4451H, -4452H, -4453H and -4454H. Due to the presence of these historical sites, the Golden Queen project has the potential to result in adverse impacts to cultural resources. It is therefore recommended that a Phase II test excavation and determination of significance be conducted at each of these sites, from which final recommendations for the management of these sites may be made.

Acknowledgements

We are indebted to Paul Blair, John Dowis and David Weiss, for their assistance on this project. We have also benefitted greatly from conversations with Mrs. Grace Wegmen Meehl and Larry Vredenburgh, both of whose knowledge of the study area has been very helpful to us. We also thank Larry for facilitating our use of his historical mining photographs, which have also aided our understanding of the history of the study area. Finally, we thank Bob Schiffman, whose assistance at the initiation of this project is greatly appreciated.

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PHASE I SURVEY OF THE GOLDEN QUEEN PROJECT AREA, MOJAVE, KERN COUNTY, CALIFORNIA

1.0
INTRODUCTION

At the request of Mr. Paul Blair, Golden Queen Mining Company, Rosamond, California, a Phase I archaeological survey was conducted for the Golden Queen project area, Kern County, CA. The Golden Queen project area comprises a block of private property totaling approximately 600 acres, located on the northern side of Soledad Mountain (Figure 1), near Mojave in the southwestern portion of the county. The inventory of this study area was conducted by W & S Consultants, Simi Valley, CA. David S. Whitley, Ph.D., served as principal investigator for this study; he was assisted by Joseph M. Simon, Robert B. Rechtman, Ph.D., and Tamara K. Whitley, M.A., during aspects of the fieldwork, archival investigations and analytical studies. D.S. Whitley is responsible for the authorship of this report.

Following the requirements of Appendix K of the California Environmental Quality Act (CEQA), the Phase I survey of the Golden Queen project area involved background studies of the prehistory, ethnography and history of the Kern County region; detailed archival studies of published and unpublished articles and documents on the study area, per se; a review of archaeological records at pertinent repositories; the recording of interviews with and oral histories from local residents; a complete (100%) survey of

the project area; and the identification and recording of sites within this approximately 600 acres study zone. The following sections of this chapter provide details on the background and contextual studies conducted for this inventory; specifically, a summary of regional prehistory, ethnography and history, and a research design for archaeological study in this portion of the Mojave Desert. We also provide details of the archival studies and interviews and oral histories recorded for this project, particularly as directed towards the mining history of the study area. In the following chapter we provide details of the archaeological records search, conducted at the California Archaeological Inventory, Southern San Joaquin Valley Information Center, followed by a description of fieldwork methodology utilized during the inventory of the property. A description of identified historical and prehistoric sites is then presented, which includes a discussion of their current integrity. We conclude with a summary of the results of the field inventory, and recommendations for additional cultural resource management studies within this project area.

1.1 Background Studies

1.11 Environmental Setting

The Golden Queen project area is located on the northern side of Soledad Mountain, which forms a northward extension of the Rosamond Hills in southeastern Kern County, California (Figure 1). It consists of the majority of Section 6, Township 10 North, Range 12 West, with minor strips (200 feet wide) of adjacent Sections 5 and 7 also included. Excluded from the current study area within Section 6 are publically owned lands

administered by the BLM. These excluded portions include three discontiguous zones: the western side of the section and northwestern corner; and two smaller zones on the east and southern side of Section 6.

Physiographically, the study area is located slightly to the south of the Garlock Fault, and thus within the Antelope Valley (or western) portion of the Mojave Desert. More specifically, the study area sits within a zone of very steep and rugged terrain, with elevations ranging from in excess of 4190 feet a.s.l. on the southeastern side of the project area to 2793 feet a.s.l. in the northeastern corner. Generally, terrain dips from south to north, with the high peaks and ridges of Soledad Mountain comprising the southern and eastern portions of the study area, and the open flats of the Mojave Desert to the north and west.

Vegetation within the study area is primarily desert sage scrub, with creosote, spiny hopsage, mormon tea and, in disturbed areas, Russian thistle, present. During the survey a series of annual wildflowers were also in evidence.

In general, the ruggedness of the terrain, combined with the absence of natural resources such as seeps and springs or riparian environments, suggest that the study area would have constituted an unlikely location for prehistoric occupation, although occasional use can be assumed (e.g., for quarrying activities). Moreover, the diurnal and seasonal extremes that characterize this area, along with the rapid downslope colluviation engendered by the steep terrain, indicate that it is a region in which prehistoric archaeological site preservation would be relatively poor, especially for sites of any antiquity. Historical (i.e., Euro-American)

archaeological sites, of course, are by definition more youthful, and thus less likely to have been destroyed by natural processes. Furthermore, historical activities in this region were much less tied to the same environmental constraints experienced by the prehistoric and ethnographic Native American populations, thus the nature of their distribution can be expected to in some cases vary significantly from that of the Native American sites.

1.12 Regional Prehistory

Recent regional summaries of the Antelope Valley prehistory have been published by Sutton (1988a, 1988b), with syntheses of the related Coso area immediately to the north published by Whitley et al (1988) and Whitley (1994). Based on these studies, as well as the more wide-ranging cultural historical frameworks for eastern California provided by Hester (1973), Bettinger and Taylor (1974), Warren (1984) and Elston (1982), regional prehistory can be discussed in terms of a series of cultural historical periods, starting with the earliest evidence for human occupation in the western hemisphere.

Pre-Clovis (earlier than 11,200 YBP)

Perhaps the most long-lived problem in New World prehistory has been the question of the antiquity of first occupation, with two positions dividing the discipline: the Pre-Clovis or long chronology, which posits a Late Pleistocene first-migration at some undetermined point prior to 11,200 YBP (years before present); and the Clovis-first or short chronology hypothesis, which argues for an initial migration at the immediate end of

the Pleistocene, now set at 11,200. Historically, the the Mojave Desert region has played an important role in this debate, due to the presence of putative early sites in the Manix Lake Basin, in Panamint Valley and around Pleistocene Lake China. E.L. Davis (e.g., 1978), in particular, argued for the presence of Pre-Clovis sites in the region based on three lines of evidence: typological similarities between surface lithic tool assemblages in this region and well-dated typologies in the Old World; the locational context of certain surface sites on well-dated Pleistocene lake terraces and sediments; and the association between surface cultural artifacts and dated paleontological remains.

Because Davis' evidence was based exclusively on surface finds that were, themselves, never directly dated using chronometric techniques, as well as typological comparisons, her conclusions were not widely accepted in the profession. However, more recently developed evidence (Whitley and Dorn 1988, 1993) suggests an occupation of the Coso Range at least as early as 19,000 YBP, and perhaps as early as 30,000 YBP in the Mojave Desert generally. These dates were obtained from the direct dating of the rock varnish coating petroglyphs and surface lithic tools, using three independent chronometric techniques: cation-ratio dating, which provides calibrated ages; AMS radiocarbon dating, which provides numerical dates; and the analysis of varnish micro-stratigraphy, which provides relative age control.

Based on these techniques, Whitley and Dorn have obtained a suite of six Pre-Clovis age petroglyphs from the Coso area, in addition to a number of Holocene-dated specimens. The Pre-Clovis petroglyphs include dates that have been confirmed by independent assays on the same petroglyph,

using each of these different techniques. For example, petroglyph CM-8 has a radiocarbon age (uncalibrated) of 14,070 ± 130 YBP (calibrated age, 14,930 YBP). The cation-ratio age on this same petroglyph is 14,200 ± 1700 YBP, thus providing independent one-sigma confirmation of the Pre-Clovis date. Most recently, advances in the analysis of varnish micro-stratigraphy allow for the identification of diagnostic temporal signals in SEM varnish thin-sections. Key micro-stratigraphic signals are present in the varnish thin-sections at the Pleistocene-Holocene transition, and at approximately 14,000 and 21,000 YBP. Coso petroglyphs dated between 14,000 and 19,000 based on AMS radiocarbon and cation-ratio dating display the 14,000 micro-stratigraphic diagnostic but not the 21,000 YBP signal, thus demonstrating that the chronometric techniques are correctly placing them in the proper part of the Pleistocene.

Similarly, a series of Pre-Clovis varnish ages have been obtained on surface artifacts from the Manic Lake Basin (Dorn et al 1986; Bamforth and Dorn 1988; Dorn et al 1992; Whitley and Dorn 1993). These include Manix Lake Lithic Industry specimens that have been independently dated with cation-ratio and AMS ^{14}C (and with confirmations provided by varnish micro-stratigraphic analyses) that include examples with CR and AMS ages falling within one-sigma standard deviations, and refit flake-core sequences that exhibit internal variances for their CR dates of less than 5%. The ages of these Manic Lake Lithic Industry dates extends back to roughly 30,000 years B.P.

Although there is some controversy concerning these early dates from the Cosos and other parts of the Mojave Desert, no cogent argument has been

advanced explaining why they may be incorrect. Indeed, the most typical problem that confronts radiocarbon dating, contamination, would in this case result in younger, not older, ages, thus substantiating the Pre-Clovis argument. Moreover, there are a certain related circumstances that greatly bolster the Pre-Clovis position (Whitley and Dorn 1993). First, attention to the geomorphology and paleoclimatology of the latest Pleistocene indicates that the Pre-Clovis period was one of net erosional degradation. Lowered eustatic sea-levels combined with a series of major flood events resulted in the stripping of sediments in major portions of North America, rather then the gentle forms of deposition that are required for archaeological site preservation. An exception to this pattern occurred in the Basin and Range Province, where stable alluvial fans preserve Late Pleistocene groundsurfaces. Boulders and cliff faces containing rock art, as well, were also not subjected to this erosional destruction. Thus, there are very few extant geomorphological contexts within which Pre-Clovis finds could be expected to be found. This explains why there is a sudden "explosion" of Clovis age sites and a relative dearth of Pre-Clovis sites in the archaeological record: the Clovis sites appear at exactly the point when the geomorphological conditions change to favor site preservation. Second, archaeological evidence from South America has included a number of well-dated Paleoindian sites falling between 10,000 and 11,200 YBP. As has been pointed out recently, it would have been physically impossible for first migrants to have entered North America sometime after 12,000 YBP and to have colonized South America within 1000 years; this would require rates of population growth unheard-of for human beings, and migration speeds that are manifestly implausible (Whitley and Dorn 1993). Thus, even the South American Paleoindian evidence tends to discount the likelihood of the short chronology for the

peopling of the New World.

Although the evidence, accordingly, is mounting for the Pre-Clovis occupation of eastern California, at this point there is relatively little that can be said about this occupation, beyond the simple fact of its presence. Until additional evidence is presented, then, we will not be able to determine whether Pre-Clovis peoples were sedentary or mobile, or big-game hunters versus foragers.

Paleoindian (11,200 - 9000 YBP)

Although the initial occupation of the continent is controversial, there is widespread agreement on the subsequent Paleoindian period, which is typically viewed as pertaining to mobile big-game hunters who exploited Pleistocene megafauna. The hallmarks of the Paleoindian period are the fluted, collaterally-flaked and basally-thinned and -ground Clovis and Folsom projectile points, during the earlier portions of the period, followed by a series of large, well-flaked but unfluted lanceolate points towards the end of the period. Some scenarios suggest that the big-game hunting practiced by these Paleoindian peoples may be responsible for the extinction of the Pleistocene megafauna, such as Imperial Mammoth, Bison antiquus, and the North American horse; however, recent evidence indicates that the earlier portions of the Paleoindian period comprised a lengthy and severe drought, thus demonstrating that the large mammal herds were already under extreme environmental stress, regardless of the effects of human predation (Haynes 1991). Regardless of the so-called Pleistocene overkill problem, the image of Paleoindians as specialized big-game hunters has become pervasive for North America.

Limited evidence of Paleoindian use of eastern California has been found in a number of areas, including Pilot Knob Valley, immediately to the south of the Garlock Fault; on the shores of Pleistocene Lake China, near Ridgecrest; Fort Irwin, east of Barstow; and, most recently, in the El Paso Mountains, southwest of the Panamints (e.g., Davis 1978; Warren and Phagan 1988; Yohe 1992b). Typically, this evidence consists of isolated (in some cases reused) Paleoindian projectile points, although there is also evidence for Paleoindian petroglyph manufacture in the Cosos (Whitley and Dorn 1987, 1988), with unpublished and at this point unverified reports of megafaunal depictions in the art. Furthermore, an obsidian Paleoindian point from the central Mojave Desert has been sourced to the Coso Sugarloaf Quarry (Sutton and Wilke 1984). These isolated finds and occurrences at a minimum are indicative of at least sporadic Paleoindian use of the region.

Although it is likely that more substantial Paleoindian habitation sites are somewhere preserved in the region, they have yet to be found and a better understanding of the Paleoindian period in this portion of eastern California will only be obtained when such sites are discovered and investigated (cf. Warren and Phagan 1988). In the meantime, growing evidence for Paleoindian occupation, in the form of two Clovis-like projectile points, has been discovered immediately northwest of the Antelope Valley (Glennan 1971; Zimmerman et al 1989), as well as on the off-shore Channel Islands (Morris and Erlandson 1993). With the maritime adaptation this last find implies, it suggests that the monolithic interpretation of all North American Paleoindian period sites as necessarily a product of specialized big-game hunting may be incorrect, and that more regional subsistence variation may emerge once better evidence from the

far west has been discovered and analyzed (cf. Willig and Aikens 1988).

Early Archaic (9000 - 6000 YBP)

The Early Archaic period, or so-called Western Pluvial Lakes Tradition, represents the early Holocene in paleoenvironmental terms. Its hallmark is the widely dispersed but ambiguously-dated Western Stemmed Tradition projectile points. These include the local variants known as Lake Mohave and Silver Lake points, which may in fact actually date between 10,500 and 7,500 YBP. Combined with studies of the lithic technologies of Early Archaic and Paleoindian sites, this chronological overlap suggests that the Western Stemmed Tradition was an in-situ development out of the earlier Paleoindian tradition (Willig and Aikens 1988).

Early Archaic sites are most commonly found on the lowest terraces above latest Pleistocene and early Holocene lake basins and stream deltas. They are, accordingly, widely regarded as part of a lacustrine-focussed adaptive strategy. Although a number of authors have cautioned against too simplistic an interpretation of these associations, pointing out the fact that Early Archaic sites are also found in other environments, it nonetheless is apparent that, in eastern California at least, this environmental association and its inferred subsistence implications maintain some verity. Indeed, it can be noted that recent research in the Great Basin has exactly emphasized the general importance of lacustrine adaptations, in contrast to Jennings' (1957) earlier model of a long-lived "desert culture" tradition.

Be these controversies as they may, Early Archaic projectile points are occasionally found in the Antelope Valley, but the sites themselves are

relatively rare, and instead are more common to the Basin and Range country proper, to the north. For example, Davis (1978; Davis, Brott and Weide 1969) has identified and discussed the importance of a number of putative Early Archaic sites in the Panamint region. These are located in both the China Lake Basin and the Panamint Valley in former lacustrine environments, and are indicative of the fact that some lakeshore use if not occupation did occur during the early Holocene in this region. However, this must be matched against the fact that Western Stemmed Tradition points have also been recovered as isolates in upland environments in the Cosos (Elston et al 1983). Thus, although lakeshore exploitation may have been an emphasis during the Early Archaic in eastern California, this apparently also incorporated mobile hunting into other environments as well.

Middle Archaic (6000 to 4000 YBP)

Be this early evidence as it may, what is incontrovertible is that, regardless of date of initial occupation, substantial inhabitation did not occur until much later, with the start of the Middle Archaic or Pinto Period, at about 6000 years B.P. This lasted until approximately 4000 years B.P. A number of sites from this time period are known from the Rosamond area, specifically associated with the prehistoric shoreline of Rosamond Lake. Notably, sites dating to this time period apparently emphasize the use of rhyolite as a lithic resource, almost to the exclusion of crypto-crystallates, such as chert and jasper.

The Middle Archaic, however, corresponds essentially to the Altithermal paleoenvironmental period, and is a controversial topic in Mojave desert prehistory due to its cultural and chronological ambiguity. Much of the

ambiguity stems from the uncertainty in the chronological placement of the Pinto series projectile points. Seemingly, there are as many chronological scenarios for the placement of Pinto points as there are archaeologists working on the problem (cf. Meighan 1981; Jenkins and Warren 1984). What this ultimately may suggest is that much more regional variation existed during certain periods of the prehistoric past than is currently being recognized.

In the Coso area to the north, but not necessarily elsewhere in eastern California, there is little if any evidence for Middle Archaic occupation, at least if Meighan's (1981) obsidian hydration date revisions for the Pinto series points from the Little Lake site are accepted. That is, existing evidence could be interpreted to signal a diminuation in occupation, if not an outright abandonment, in this region, apparently corresponding to the hot and dry climatological conditions of the Altithermal. However, it is also possible that local inhabitants may have adopted a subsistence strategy and settlement pattern with little archaeological visibility on the landscape during this period; e.g., a highly mobile pattern. Although this alternative interpretation of the apparent dearth of Middle Archaic sites must be acknowledged, it seems implausible in light of the fact that extremely dry conditions would be more commonly predicted to result in a stronger form of "tethered nomadism", and thus greater archaeological visibility, around water sources. Moreover, there is clear evidence for Middle Archaic settlements in the Fort Irwin area (e.g., Jenkins and Warren 1984), to the east of Barstow, suggesting that not all portions of eastern California were abandoned at this time; again, emphasizing the possibility of more regional variability than heretofore acknowledged.

Late Archaic (4000 to 1500 YBP)

Much less controversy surrounds the subsequent Late Archaic period, or Elko Period, lasting from about 4000 to 1500 years B.P., which correlates with improved and wetter environmental conditions across the far west. Although sites from this time period are sometimes considered rare in the Mojave Desert, it is notable that many of the subsequent Rose Spring Period villages (see below) were first occupied during this earlier phase. That is, as has been noted by a number of authors, there seems to be a strong continuity between the Elko Period and subsequent times, with the latter period materials masking or burying the Elko remains. In the Antelope Valley region this begins with a major increase in population beginning about 3000 years B.P. (Sutton 1988b:23).

Similar patterns have been noted in surrounding regions. For example, the start of the Late Archaic in the Coso Range region is posited to represent the initial establishment of the primary settlement and subsistence systems that are currently archaeological visible (Whitley 1994), while this same period has been recognized as experiencing a major, far western North American-wide expansion of settlements into new environments and increases in population, stretching from the Great Basin of eastern California, through the southern Sierra Nevada, across the Transverse Ranges, and down to the coast (Whitley, Gumerman and Simon n.d.). The primary temporal diagnostics for the Late Archaic are Elko and Gypsum series projectile points.

In the Coso Range, the Late Archaic is signaled by the establishment of major winter villages, typically at springs, in valley bottoms on the western and wetter side of the range. Analyses of paleoethnobotanical and

faunal remains suggest a generalized foraging strategy, emphasizing all available resources (e.g., Gumerman 1985), including buckwheat stands around small mud-playas (Whitley et al 1988). This evidence is complemented by an extensive but seemingly non-logistically organized use of all upland environments. Included here is a significant quantity of isolated projectile points in the uplands, suggesting mobile hunting patterns (Elston et al 1983). Furthermore, the Late Archaic witnessed the beginning of the intensive exploitation of the Coso Sugarloaf obsidian quarry, an event that apparently correlates with the beginning of the inland-to-coastal obsidian trade in south-central California (Whitley, Gumerman and Simon n.d.).

Rose Spring (1500 - 800 YBP)

The Rose Spring Period is differentiated from the earlier Late Archaic/Elko Period by the introduction of the bow and arrow and a change from spear points to arrow points at circa AD 500 (cf. Yohe 1992). This transition is, in technical terms, dramatic. In fact, the introduction of this new weaponry technology probably did not have any immediate major impacts on social or cultural systems. At least initially, the settlement and subsistence systems were stable, and lithic technology and production did not noticeably change (Allen 1986).

Moreover, and as implied above, in all other respects Rose Spring times appear to have been a continuum from the earlier patterns, so that the change in hunting technology was probably less important than we might otherwise presume. Within the Antelope Valley area, Desert Village Complexes, representing a major change in magnitude of settlements, were founded at least by Rose Spring times, and perhaps towards the end of the

earlier Elko phase. Two of these have been identified by Sutton (1988a, 1988b) in the foothills of the Antelope Valley, with a third between Rosamond and Rogers Dry Lake, and a possible fourth at Koehn Lake. It is possible, if not likely, that these represent the founding of the tribelet system of political organization in the region.

At approximately AD 1000 - 1200, however, a shift in settlement and subsistence practices began that, ultimately, culminated in the protohistoric/ethnographic patterns referred to as the Latre Prehistoric or Numic Period (discussed below). This involved the abandonment of some winter villages (or at least a reduction in the intensity of their use); the establishment of logistical base camps around springs in the upland environments; an increasing emphasis on a relatively specialized diet focused on seeds and the pinyon nut; and a great increase in the production of petroglyphs (Whitley 1994). That is, settlement patterns became more organized and focused, while subsistence was increasingly specialized, and ritual became more common.

The causes for this transition are not yet fully understood. Bettinger and Baumhoff (1982), for example, have accepted it as an empirical fact, with the subsistence change then linked to the putative spread of Numic peoples out of eastern California at about this time. They have then taken the position that the phenomenon to be explained is not the cause of the subsistence change, but the reasons why such a change was adaptively more successful, and how it can then be used to account for the historical distribution of Numic languages. The implicit assumption in such an approach is that evolutionary transitions are to be expected due to the inherent tendency for greater fitness to emerge in populations.

While this last tendency may or may not be so, it overlooks pertinent related evidence; namely, that this same time period experienced a major drought that effected all portions of western North America, from northern Mexico through the Southwest, across the Great Basin, and even into the Channel Islands. Moreover, the environmental stress engendered by this drought has been cited as a causal factor in the abandonment of Anasazi pueblos in the Southwest, as well as the southward retreat of Mesoamerican civilization with the collapse of Tula. Perhaps more to the point, Arnold (1993) has noted the influence of this drought in creating resource stress that was a contributing factor to the appearance of a simple chiefdom in the Chumash region near Santa Barbara. Similarly, Whitley (1994) has argued that this transition in eastern California represents the first appearance of Numic bands and headmen; specifically, that it was the increasing perceived need for ritual specialists in the form of rain shamans during this period of environmental degradation that led to the establishment of bands and the creation of headmen. In this interpretation, the accelerated production of Coso petroglyphs (which are know ethnographically to have been tied to rain shamanism) is taken as a reflection of the growing number of ritual specialists, with the appearance of a logistically-oriented settlement pattern a sign of increasing sociopolitical control and organization.

Late Prehistoric (800 - 140 YBP)

The Late Prehistoric (or, in some areas, Numic) Period, from 800 years B.P. to the Historic Period, represents a continued growth in local population, with numbers of people apparently quite high. It is distinguished from

previous Rose Spring times by the introduction of brownware ceramics and a change in projectile point types: from Rose Springs types to Desert Side-Notched and Cottonwood Triangular. Sutton (1988a, 1988b) notes that a boundary of some sort developed during this period: Desert Side-Notched points, brownware ceramics and obsidian are all common from the Fremont Valley northward; south of this area, in the Antelope Valley proper, ceramics and obsidian are rare, and Cottonwood Triangular points are the predominant projectile point type. This apparently correlates with similar patterns further towards the coast: at about 800-1000 years ago the desert-to-coast obsidian trade dried up, and Rose Spring-like projectile points were replaced by Cottonwood-like points, with Desert Side-Notched points rare.

The Protohistoric/Historic phase of the Late Prehistoric, representing the last 300 years, is apparently marked by a major disruption in indigenous settlement, and a corresponding paucity of sites. According to Earle (1990), missionization pulled many of the region's inhabitants away. Subsequently, the Antelope Valley area was used as a staging ground for rustlers and other miscreants, who were raiding the missions' livestock. The result was that the area became somewhat of a no-man's land which, no doubt, has also contributed to the paucity of ethnographic information on it.

1.13 Regional Ethnography

The Antelope Valley and environs are, unfortunately, one of the most poorly known regions, ethnographically speaking, in California, which is a

state that is generally renowned for the detail of its ethnographic record (cf. Kroeber 1925). Thus, the valley contrasts quite sharply with certain of its immediately surrounding areas, such as the southern Sierra Nevada to the north, for which there is a wealth of ethnographic reports and data, and even the Santa Barbara Channel region to the west/southwest. Even though the ethnographic inhabitants of this last area were disrupted very early-on by missionization, our record of their life ways is nonetheless more complete than for the groups that inhabited the Antelope Valley. Luckily, some of the early confusions and misconceptions concerning even such fundamental problems as who the ethnographic inhabitants of the Western Mojave Desert area actually were are now becoming clarified. Earle (1990), in particular, has done much to disentangle previous misconceptions concerning the ethnolinguistic affiliations of the Antelope Valley's inhabitants, and a summary of his recent ethnohistorical conclusions provides an appropriate overview for the aboriginal history of the region.

According to Earle's reconstruction, the Valley was inhabited during the Historic/Protohistoric period by three distinct language-speakers, one group of whom could be further subdivided into two (and perhaps three) fairly distinctive dialects. The most significant linguistic division existed between the Kawaiisu speakers, who lived in Tehachapi Valley, through the southern Sierra Nevada and eastward across Fremont Valley towards Red Mountain and into southern Panamint Valley, and the groups to the south and west in Antelope Valley per se. The Kawaiisu language is a member of the Numic branch of the Uto-Aztecan language family, and is thereby most closely related to the Shoshonean and Paiute languages of the Great Basin.

South and westward of the Kawaiisu were two other members of the Uto-Aztecan language family, but in this instance both were distinct languages belonging to the Takic (as opposed to Numic) branch, specifically to the Serran Takic branch. Along the southwesternmost side of the valley, including the northern foothills of the Liebre Mountains and the southern side of the Sierra Pelona, were the Tataviam, a little-known group identified due to the existence of a few early word lists. Related to them linguistically, but speaking a distinct language, were the better-known Kitanemuk, who occupied the western Antelope Valley and the Tehachapi Mountains west of Tehachapi Pass. Living to the east of the Kitanemuk, who extended to approximately the current location of Highway 14 where it heads north across the Valley, were a group of closely related peoples that Earle (1990) has identified as the Haminat. Apparently, Haminat and Kitanemuk represent dialects of the Serrano language, which also included Serrano proper and Vanyume (or Beñemé).

According to Earle's analysis, there was a linguistic continuum along the northern side of the San Gabriel Mountains in the Western Mojave Desert, from the Serrano through the Vanyume and Haminat to the Kitanemuk, at the western end. Haminat, apparently, was more closely linked with Vanyume/Serrano proper than Kitanemuk, although it was still simply a dialectical variant of it. But, with the Serran continuum along the northern side of the San Gabriels, and with all of this linguistic variation present during the Historic period, it is easy to understand how ethnographic confusion developed in regards to this region.

The Golden Queen study area falls near the boundary of Kitanemuk and

Haminat territories, and may have, at different times, been used by both groups. Perhaps more important than these minor linguistic distinctions, similar cultural patterns were followed by all the inhabitants of the region, with certain minor distinctions. In terms of subsistence, for example, all groups were foragers, with food sources derived principally from gathering. The exact plant species exploited was dependent on seasonal availability, as well as geographical/environmental location. In the higher, montane portions of the region (e.g., towards Tehachapi and along the slopes of the San Gabriels), acorn-bearing oak and pinyon pine nuts were staples. In the lower lying, more desertic zones, mesquite, yucca and a variety of other edible plants were emphasized. Hunting also contributed meat protein, and principally emphasized small game, such as hares, rabbits and rodents. However, the notion that these hunter-gatherers based their subsistence to large degree on big-game hunting (such as deer, antelope and mountain sheep) has proven to be an anthropological myth.

Cultural commonalities were also maintained in religious beliefs and practices, which were uniformly based on shamanism. This is predicated upon perceived direct and personal interactions between an individual and the supernatural world, with this interaction founded on entering an altered state of consciousness. Shamans, per se, were ritual specialists who held an unusual degree of interaction with the supernatural world, and thereby acquired a high degree of supernatural power. Although formal rituals and ceremonies were limited in number and elaboration, the shamans served as the ritual officers for these. Further, the shamans also were responsible for painting and pecking the rock art that is found in this region: rock art sites served as their vision quest locales, where the shamans entered trances to have visions and thereby acquire supernatural

power. And, the art depicted at these sites displayed the visions and spirits they saw in their altered states of consciousness (Whitley 1988, 1992).

Following general California patterns, there were also a number of similarities in social and political organization across the Antelope Valley. Earle (1990) has suggested that the Haminat may have been organized into exogomous clans and moieties, whereas the western groups might have lacked these, and in this sense the Haminat could have been more like the southern California Desert groups like the Serrano and Cahuilla, with the other groups more similar to the south-central California culture of the Chumash and related peoples. However, given that the exact social organizational systems of the Chumash have yet to be defined (for example, there is still debate whether they were matrilineal or patrilineal), and since we do not yet know whether they had a moiety system or lacked it entirely, it may be too early to draw such fine-grained distinctions concerning social organization.

What is apparent, however, is that the region as a whole apparently lacked any political organization beyond that of the tribelet, or what Earle has identified in the Spanish records as naciones. These were autonomous land-owning groups, focused on a principal village and led by a a headman or chief, and probably comprising a lineage system or clan. In this sense, the Antelope Valley can be said to follow the political organizational pattern found throughout most of Native California. This, of course, further links it with Californian, as opposed to Great Basin, cultural patterns.

1.14 Historical Background

Perhaps because of the use of the Antelope Valley as a staging area for Indian raids on the estancias and missions closer to the coast, Euro-American settlement and development of the area was a little later dating than in other parts of southern California. As a result, the history of the Antelope Valley to about the 1860s principally involved various explorers who traversed it: for example, Pedro Fages crossed the southern valley in 1772; Fr. Garcés crossed the west end and went through Willow Springs (southwest of the Golden Queen study area) in 1776; Jedediah Smith, similarly, went across the western valley in 1827 and also visited Willow Springs, as did John C. Fremónt and his guide Kit Carson in 1844. The Rogers and Manly party - the Jayhawkers or Death Valley '49ers - camped at Willow Springs towards the end of their dramatic 1849 expedition across the Mojave Desert, as well. And Lt. Edward Beale, at the lead of a caravan of camels, came across the southern side of the valley in his 1857 trip to Fort Tejon (Bancroft 1963; Settle 1963:61; Boyd et al 1982).

It was not until the 1860s that the first settlers moved into this region, settling mostly in the Elizabeth Lake region and the southern foothills of the Tehachapi Mountains, and involved principally in ranching. With the development in 1868 of the Cerro Gordo silver mine in Inyo County, however, the Antelope Valley became a major thoroughfare for the movement of bullion and goods between Los Angeles and the Owens Valley (Chalfant 1933); indeed, efforts to wrestle control over the Inyo silver trade away from Los Angeles became a major theme of California economic history in the 1870s (Nadeau 1965). Los Angeles managed to

maintain its monopolization of this trade, nonetheless, with Remi Nadeau's freight-line playing a major part in the transshipment of goods and ore across the valley. Willow Springs and its adobe tavern, again, served as a major stop on this route, with the stage line then essentially heading south (on the route that would eventually be adopted by the railroad), for a 28 mile stretch through Cow Hole to Barrel Springs, at the mouth of Soledad Canyon, and subsequently through the canyon for the uphill climb through the San Gabriel Mountains. Old Nadeau Road, which parallels Pearblossom Highway near the Vincent Hills at the southern end of Palmdale, is apparently a remnant of this original freight-line route, which proved so instrumental in the growth of Los Angeles as the economic center of southern California.

Shortly after the establishment of the first permanent school in the region, in 1869 at Elizabeth Lake, a number of settlers' colonies sprang-up within the valley, including Wicks, Manzana, Chicago, Kingsbury, John Brown, Old Palmdale, Almondale and Llano (Settle 1963). However, the major impetus to settlement resulted with the completion of the Southern Pacific railway through the valley in 1876. One immediate result of the rail line was the establishment of the town of Mojave in this same year. The coming of the rails also fostered the establishment of towns such as Rosamond, Lancaster and Palmdale, which appeared by 1882.

The Southern Pacific Railroad arrived in Mojave on August 8, 1876. The location of the current depot, on the west side of Highway 14, was the location of the original depot site, although the existing depot building is a later construction. A freight depot was added on August 20 of the same year and, before long, the town turned into a division point for the rail

line. With the railhead at Mojave, the San Bernardino Borax Company began hauling its borax to the town on mule teams; the Baldheaded Eagle Borax Company began using the town as its railhead a few years later, in 1881. The Santa Fe Railroad arrived in 1884, as did the famous "20 Mule Teams" of the Pacific Borax Company, truly making the town a transportation hub for the region. The Pacific Borax Company continued with its mule team loads to the railhead until 1889, when a spur line reached their mining operations (Deaver 1967).

The original town site of Mojave was lay-out by the Southern Pacific at the time that the rail went through. Initially it was simply a residential camp for railroad employees consisting of a few wooden shacks, but it was of sufficient importance that a post office was opened in October, 1876. Because of its position as a transportation hub, Mojave quickly attracted additional residents but was not filed as a subdivision until 1905 (ibid). Growth at and after that point was spurred by two early twentieth century developments. The first was the increasingly important mining activities at Standard Hill and Soledad Mountain, south of town. The second was the construction of the Los Angeles Aqueduct, built between 1907 and 1913, which brought literally thousands of workers into the region. In addition to its function as a transport hub, Mojave served as the "watering hole" for the mine and aqueduct crews, and was widely renowned for its saloons and brothels, which were said to outnumber the churches in town by10 to one.

The historical importance of the Golden Queen study area, of course, primarily concerns the mining history of the Mojave Desert. This has been summarized in period and more recent publications, with Brown (1915),

Clark (1970), Hensher and Vredenburgh (1991), Miller and Miller (1976), Settle (1963, 1967), Settle and Settle (1984) Troxel and Morton (1962), Tucker (1923, 1935), Tucker and Sampson (1933), and Tucker, Sampson and Oareshott (1949) constituting the primary sources. The history of this area has been synthesized from these and other sources.

The first recorded mining activity in the region occurred on March 8, 1894, when W.W. Bowers found gold on a promontory south of Mojave, then known as Little Buttes (subsequently changed to Bower's Hill and now Standard Hill). His first claim was the famous Exposed Treasure mine, which he brought into operation shortly thereafter, shipping ore worth $60/ton. By 1896 a camp had sprung up around this site (Hensher and Vredenburgh 1991). The Exposed Treasure discovery apparently spurred local interest in prospecting as, later in 1894, Ezra M. Hamilton discovered gold in the Rosamond Hills, to the south, at a location that would eventually become known as Tropico (Settle 1963, 1967).

Mining activities within the Golden Queen study area were apparently stimulated by the Exposed Treasure discovery, and can be divided generally into three periods. The first, stretching from 1894 to about 1910, was an era of prospecting and the development of a series of early properties and mills (Tucker 1935). The three primary mines in operation during this period were the Karma, Queen Esther and Echo, each of which had their own mills, with lesser amounts of mining at the Eagle Group and Bobtail claims, both of which fall outside of the current study area, and neither of which had mills during this period. Activity was minimal from about 1922 to the start of the Depression when, like many mining regions in the west, numerous small scale mining efforts were started. According

to Tucker (speaking of the Mojave mining district as a whole, which included the Tropico area 17 miles to the south and Standard Hill to the north), about 50 to 70 leasers worked old mines from 1931 to 1934, hauling their ore to the Tropico for milling (Tucker 1935). Activity accelerated dramatically during the mid-1930s on Soledad Mountain, however, when the Mojave Mining District was revived by the discovery of the Silver Queen vein, leading subsequently to the establishment of the Golden Queen mine and mill. This represented the second primary period of mining within the study area, with the Golden Queen building a major cyanide plant, and consolidating a number of the earlier claims and patents. Depression era mining terminated in 1942 with the official closure of all gold mines by the War Production Board. The final period of activity has occurred in recent years, during which time a limited amount of mining has been conducted on different claims on Soledad Mountain.

Queen Esther

The Queen Esther mine and mill appear to represent the first mining activity on Soledad Mountain, with Troxel and Morton (1962) claiming that the mine was first discovered in 1894; like all properties within the study area, however, existing documents at the Kern County Hall of Records only begin about 1900, so the initial date of the claim is unknown.

What is certain is that the mine was originally called the Thomson and Boyle, for its first owners Henry D. Thomson and J.L. Boyle, but its name was relatively quickly changed to the Queen Esther. A partner with Thomson and Boyle in the mine and mill was Harvey S. Mudd, of the Pomona colleges fame, who most likely was the partner who funded the

mill construction.

Initial work at the mine, which is located on the north face of Soledad Mountain, yielded small tonnages of high grade shipping ore. A 1901 account in the Mining and Science Press (2/2/01) states that ore ran at $180/ton. In 1903 a mill was constructed on site. According to a period account in this same weekly (Mining and Science Press 4/11/03), a 100 ton roller mill was put in, apparently with a cyanide plant. This was increased to 150 tons in 1904 (Troxel and Morton 1962), but not without difficulties: Mining and Science Press reported on 11/14/03 that "The Queen Esther mill at Mojave is shut down on account of the breaking of some machinery."

A (somewhat florid) period account of the Queen Esther mill in operation was published by Margaret Troili in the Overland Monthly in 1908. She stated:

> [H]ere on the steep slope the big mills shook as they devoured the gold ore. Cottages of lumber and stone trailed down the slope; some sat squarely on the level, but the mills lorded over it all. Inside the mill, the shaking seizes one, and a cloak of dust whirls around and refuses to settle. In the engine room, vast power is created, vast work is done. .It makes me wonder at man - the big wheels whirling, nice parts doing their work with precise regularity, tremendous beltings rushing up through the timbers and making a great roar and tumult up there, rushing down again like a demon, seizing the great wheels for a frolic, and oozing upward like a never-ending brown genius from a little bottle.

(Troili 1908:401)

Troili's references to the cottages and the mills in plural concern a nearby residential area and the adjacent Karma mill, respectively, which are discussed subsequently.

Period photographs of the exterior and interior of the Queen Esther, taken by John A. Gerner around 1904, are included as Figures 2a and 2b. Note the fact that the Queen Esther mill was set-up so that its cyanidation vats were alongside, rather than downslope from, the roller mill structure. Mrs Meehl (personal communication, 1995) also recalled that a barn, for draft anaimals, and boarding house for miners, were located above the mill, though these are not clearly shown in the photos.

The Queen Esther was shut down in 1910, by which time 286 tons of ore had been mined. No accurate production figures for the mine exist, though it is estimated to have produced millions of dollars worth of gold (Troxel and Morton 1962). The Queen Esther was consolidated with the Golden Queen mine in 1935, with its veins apparently worked and perhaps some of its tailings rerun at the Golden Queen mill. The original Golden Queen mill, however, was apparently never used after 1910, and was probably dismantled some time after it closed.

Karma Mine

The Karma mine, due east of the Queen Esther, was apparently also first discovered in 1896 and was quickly put into operation, with ore averaging 7 ounces of silver/ton alone during the first seven years of its production (Troxel and Morton 1962). By 1899 a large boarding house and bunk

house had been built for mine employees, "and cabins sprouted like wildflowers along the slopes" (Hensher and Vredenburgh 1991:55) below the mine. According to Mrs. Grace Wegmen Meehl (personal communication, 1995), the Karma Mining Company spared no expense in housing its employees, and built a number of well-made wooden buildings for their use, some of which are still standing.

The mine was owned by the Karma Mining Company until 1918, but this company itself changed hands a number of times during the early years. One of the more notable owners of the Karma, from the perspective of historical records and documents, was John A. Gerner, who served as President and Superintendent around 1904. While so employed, he documented the Karma, Queen Esther and Echo mills photographically, the results of which (in the Larry Vredenburgh photo collection) have greatly aided our interpretation of the archaeology of the study area, and are included here relative to a number of archaeological features. The Gerner residence, or superintendent's house for the Karma mine (Figure 3), along with a boarding house, was at some point moved to Tropico, and is still standing there. According to Mrs. Meehl, the superintendent's was originally located east of the Wegmen residence, near the boundary with Section 5.

According to period accounts of the Karma published in the Mining and Science Press (2/2/01), by early 1901 "the shaft is down 280 feet. Four hundred feet of drifting is completed". Due to increasing lower yielding ore, construction of a mill was begun in 1903 but, like most such undertakings, things did not go as smoothly as optimistically predicted. Again, the Mining and Science Press tells us on August 29, 1903, that the

"Machinery for the Karma mill, near Mojave, is on the ground and building will begin Sept. 1. More men will be put into the mine". Almost two months later (10/17/03), the same source stated: "The Karma M[ine] Co. at Mojave has bought a second-hand 10-stamp mill and will add to it 10-stamps more. J. Gerner is president and superintendent". And one month later (11/14/03) Mining and Science Press reported that "J. Gerner, superintendent of the Karma M. Co., says the mill will be in operation this month". Other records indicate that the 20-stamp mill was finally in operation sometime in 1904. This was effective until 1909, when the mine and mill were shut-down due to poor recovery (Troxell and Morton 1962). The mill was apparently never reopened, and the stamps and stamp boxes are still on site (see below).

Figures 4a and 4b show the Karma Mill shortly after construction. A notable feature of the mill was the long and high trestle that connected the mill structure with the haulage level adit and vertical shaft. According to Mrs. Meehl, this trestle was used in the filming of a number of movies, including one starring Charlie Chaplin in 1926, and another featuring Gene Tunney. Figure 5a shows the head frame and hoist house of the Karma mine in 1904, which are still standing. The head frame sits over a vertical shaft; the corner of the hoist house shown in this picture has been altered to accommodate the turning radius of a narrow gauge rail line running from the haulage level adit to the trestle. Figure 5b was taken when the stamp batteries were being installed in the mill. As can be seen from this photo, although these concrete batteries are massive, they were not poured on-site, but instead were apparently brought in, ready-made.

The mine was reactivated following World War I when the US Smelting and Mining Company at Kennett agreed to purchase low grade ore with

high silica content. As is clear, the mill itself was not reactivated. Ore shipped from the Karma to Kennett between 1917 and 1926 averaged between 5 and 9 ounces of silver/ton (Troxell and Morton 1962). The mill building of the Karma Mine was still standing until 1947, when a fire was accidentally started by visiting teen-agers, which burned it down (Mrs. Meehl, personal communication, 1995).

In 1926 the Karma was purchased by E.L. Wegmen, becoming part of the Wegmen Group (consisting of the Karma, Eureka and Grace Groups). Engelbert (Bert) Louis Wegmen was born on February 10, 1873, in Oedding, Germany, and moved to the U.S. with his family when he was seven years old. Due to a case of malaria, he moved out west as an adult, arriving in the Mojave area on November 11, 1903. Having worked with steam engines back east, he was hired to work in the steam plant at the Karma mill. Initially the lack of housing on the hill forced him to live in a lean-to attached to the superintendent's house (Mrs. Grace Wegmen Meehl, personal communication, 1995). But with small cabins appearing on the north slope of Soledad Mountain, built by the company and providing homes for men with families, he was able to send for his wife and two children, who arrived on May 25, 1904. Subsequently, he and his wife had three more children, all of whom were born on Soledad Mountain, including Grace Eleanor Wegmen Meehl. In addition to his work at the mill, Wegmen was apparently active in the development of a school at Soledad City, serving as the clerk of the school board for many years (ibid; Settle and Settle 1984; see below).

Exposure to the Karma mill apparently strongly motivated Wegmen to pursue mining, as it subsequently became his career. When the Karma

mill shut down in 1909, Wegmen stayed on as a guardian, according to the his statement of occupation in the1910 census (see Table 1). Thereafter he continued his own mining pursuits, eventually becoming involved with the Exposed Treasure Mine, on Standard Hill, and the Randsburg mines, where he served as superintendent (Settle and Settle 1984). In the 1920s and 1930s, however, he used the assay office of the Karma Mine (located near the hoist house) to run samples from Randsburg (Mrs. Meehl, pesonal communication, 1995). He maintained his residence within the study area throughout his life, however, with his wife living at the Wegmen home into the 1950s, and other family members occupying the homestead into the 1990s.

Following the acquisition of the Karma mine and mill, Wegmen began mining operations. In 1933, he patented the Karma property (Kern County Hall of Records M.S. #6140), thereby strengthening his claim to the property. According to Settle and Settle, however, the processing of the ore was conducted off site: "Ore was sledded down the hillsides to ore-bins from which bulk and sacked ore was shipped by gondola car-loads to smelters" (1984:91), with the ore shipped to the Golden Queen mill, one-half mile west from 1937 to 1941. In 1951 a new small vein was discovered. From the 27 tons of ore extracted from this operation, 10 ounces of gold, seven ounces of silver, 251 pounds of lead and 40 pounds of copper were extracted. This played out relatively quickly so that, by 1958, the only mining activity at the site was a two man cross-cutting operation (Troxel and Morton 1962). Clark (1970) estimated that the Wegmen Group as a whole produced around $100,000 in total during the life of its operation.

Echo Mine

The Echo mine and mill, located on the northwestern side of Soledad Mountain, was first discovered during the 1890s, and was worked until about 1905 by the Echo Mining Company, producing about $200,000 in ore (Troxel and Morton 1962). As with the Queen Esther and Karma, a stamp mill was constructed at the Echo in 1903, a process that apparently went fairly smoothly, judging from period accounts. According to the Mining and Science Press of March 7, 1903, "The 10-stamp mill building at the Echo Mine, 5 miles from Mojave, will be completed by March 10. Development of the mine is in progress". One month later, the same source reported that "The 10-stamp mill of the Echo Mine Company of Los Angeles, Cal, 5 miles west of the village of Mojave, is running steadily on good ore. A cyanide plant is being built to work the tailings direct, there being no intermediate concentration, all the ore being oxidized" (Mining and Science Press, 4/11/03). Later in the year the Mining and Science Press stated that "The Echo M. Co. at Mojave propose to add a centrifugal or rotary mill to its 10-stamp mill. Superintendent J. Keith reports opening a rich shoot in the mine carrying horn silver and black sulfide of silver. G.H. Hooper is president and manager" (10/17/03). Finally, of November 3, 1903, the Mining and Science Press reported that " J. Frank Walters, of Los Angeles, has bought the Echo Mine at Mojave, and will soon resume working the mine and the mill with A.M. Peck as superintendent. The Bobtail mine has been purchased by the same company. The new group consists of 17 claims and has a 20-stamp mill and cyanide plant".

The implications of the above reports seem to be that the Echo mine and mill was operating quite smoothly, with consideration being given to

expansion. In less than a one month period, however, the mine and mill apparently shut down, and were purchased by a new outfit, with the mill doubled in capacity during this same period. Records at the Kern County Hall of Recorders indicate, in fact, that the mine experienced 11 deed changes between 1902 and 1906, suggesting that purchase and resale were a common process at the Echo.

According to Troxel and Morton (1962), the mine closed around 1905, with the mill dismantled in 1906. Carroll Allen is listed as owner from 1906 to November, 1910, at which time it was purchased by George McBryant, who was listed as a mine watchman in the 1910 census (see Table 1). McBryant apparently lost the mine for unpaid property taxes the next year (Kern County Hall of Recorders Tax Deed #256-8).

The Echo mine was idle except for minor activity until 1935 when, with the discovery of the Silver Queen, the Mojave Mining District was revitalized. Subsequently, it was incorporated into the Golden Queen Group (Troxel and Morton 1962).

A 1903 photograph, taken by Marion Auberry, shows the Echo Mill and related wooden structures during its operation (Figure 6). As is immediately apparent, this mill operation was much more modest in size than that at either the Karma or Queen Esther. This inference is confirmed by other photos of the Echo Mill, also taken circa 1903 - 1904 (Figures 7a and 7b), including one by John A. Gerner. Photos by Gerner of the interior workings of the mill (Figures 8a, 8b, 9a and 9b) provide an indication of the machine works, and lay-out of the zinc tanks, at this facility.

Golden Queen

The Golden Queen mine has its origin in 1933, when George Holmes discovered the Silver Queen vein, high on the north slope of Soledad Mountain. This discovery revitalized the Mojave Mining District generally, with approximately $300,000 removed from the mine between 1933 and 1935. In this later year, Holmes and his partners sold their mining interests to the Gold Fields American Development Company, a subsidiary of the English company Gold Fields of South Africa Mining Corporation, for the sum of $3.5 million. The resulting Golden Queen Mining Company represented a consolidation of a series of groups on Soledad Mountain, including the Silver Queen, Queen Esther, Echo, Gray Eagle and Soledad Extension properties (Tucker 1935; Troxell and Morton 1962). A state of the art mill and cyanide plant was also built in 1935, starting in operation in October of that year.

According to a period account (Tucker 1935), the main haulage tunnel at the Golden Queen held 30 pound rails supporting 12 Westinghouse Electric two-ton locomotives and cars. Mine equipment included three Imperial-type Ingersoll-Rand compressors, a blacksmith shop and a machine shop. The mill and cyanide plant ran 24 hours per day with a 350 tons/day capacity. It had 700 tons coarse ore bins, primary and secondary gyratory crushers, Marcy ball mills, Dorr classifiers, and then a series of Dorr agitator and thickener tanks, with Oliver drum filters at the end to dewater the slimes (ibid:478). Two hundred men were employed at that time: 150 on construction, and 50 on mine development. A California Division of Mines and Geology picture of the mill in 1935 is included here as Figure 10.

By mid-1937, it is estimated that the mine was producing 300 tons of ore per day. Between 1936 and 1942, approximately one half-million tons of ore were processed, yielding $6 million in gold and silver. Increased mining costs after the war prevented its reopening, and the mill was dismantled in about 1950, and it burned sometime subsequently. However, minor activity continued into the 1950s, and the total production for the mine has been estimated at about $10 million (Troxel and Morton 1962).

This figure has been grossly confirmed through the acquisition of copies of the original accounting ledger sheets for the mine and mill. Based on records for 64 months dating between early 1936 and June 1941 (i.e., for less than the total period of production), the actual receipts for gold bullion sold by the Golden Queen Mining Company totaled $7,867,782, thereby averaging about $123,000/month. However, these records indicate that the mill was processing and purchasing a considerable amount of ore from other mines during this period (including, according to Mrs. Meehl, from the Wegmen mines). Custom milling apparently accounted for $2,200,736 of the Golden Queen's bullion sales, representing fully 29% of the total for the 64 months. Where all of this ore originated is unknown, especially given that the Elephant-Eagle Mill was also operating on Soledad Mountain at this same time.

"Soledad City"

In addition to the mines and mill, per se, the historical records also indicate the development of a residential settlement on Soledad Mountain, which has been referred to above. In two documents (one historical and one recent) this is referred to as "Soledad City". However, it needs be

noted that Mrs. Grace Wegmen Meehl, who was born, raised and lived on the Wegmen property for most of her life, had never heard the term "Soledad City" used while she lived there (personal communication, 1995), so this is apparently a slight misnomer. Regardless of toponym, this residential area is described very briefly in a few reports as consisting of a series of wood and stone cabins on the side of the mountain which first started to develop around the Karma mine in about 1899 (e.g., Troili 1908; Settle and Settle 1984; Hensher and Vredenburgh 1991). An oral history of the Wegmen family also indicates that it included a school; apparently, the local population of children was sufficient to keep this school open until just a few years before the opening of the Golden Queen mine in the mid-1930s. According to Mrs. Meehl (personal communication, 1995), who went through the tenth grade at this school, it was originally located near the Queen Esther Mill, but was moved downslope around 1910 to a building on the north side of Silver Queen Road, north of the study area, which was recently bulldozed. Attendance averaged about 15 students in this one-room school, although it had been as high as approximately 25 when the mines were in operation. In order to keep the attendance up, and therefore continue to qualify for state funding, children were also brought in from Vreda, the nearby rail siding near the intersection of what are now Silver Queen Road and Highway 14. Furthermore, Mr. Engelbert Wegmen, who was on the school board, always insured that the teacher hired for the school herself had a family of children to boost enrollment.

The most significant documentation of this residential district is the U.S. Census of 1910. Due to extremely good luck, the census taker for the township of Mojave happened to write the camp or locale of the inhabitants he was recording in the left margin of the census. Included are

about four pages of entries annotated "Soledad and Queen Esther". These have been transcribed in Table 1.

According to the census, the total population of Soledad in 1910 was 95 individuals, the majority of which were unmarried males, but also including a significant number of women and children. Note that this total represents the period after the closing of the Karma and Echo mines, at a minimum, therefore it probably does not represent the local population peak, which presumably would have occurred around 1904 - 1905; according to Mrs. Meehl (personal communication, 1995), family tradition maintained that the population was as high as 200 people at the peak of mining activities around 1905, which seems entirely plausible, given the 1910 census figures. Subsequently, the population dropped dramatically, with very few people living here in the 1920s and 1930s; sometimes it was limited to only two or three family groups homesteading on the mountainside.

The majority of the adult males, not too surprisingly, list their occupations as "quartz miners". A series of other occupations - almost all mining related - are also represented, including waitress and housekeeper, presumably at the boarding house and dining hall for the unmarried miners. As regards ethnicity, a significant number of the miners originated in Slovenia, eastern Europe. Probably reflecting the local mining slang of the time, almost all of the Slovenian miners are listed as having the first name of "Mike". Another significant ethnic group represented are Italians. According to Mrs. Meehl (personal communication, 1995), the residential area centered in a series of cobble structures downslope from the Queen Esther Mill was known as "Little Italy", in recognition of the

ethnicity of the inhabitants of this area. Although greater written documentation would be helpful, the census nonetheless indicates a considerable amount concerning the size, socioeconomic breakdown, and ethnicity of the population associated with the early historical mining within the study area.

Judging from the historical records and Mrs. Meehl's recollections, the residential area on the mountainside can be divided into two areas: on the northeastern side of the study area there were a series of wood frame cabins and structures built by the Karma Mining Company; this area eventually became the Wegmen homestead. Towards the west, and essentially north and west of the Queen Esther Mill, was "Little Italy", the cobble structures built by the miners working for the Queen Esther Mine. These self-made structures reflected the Queen Esther corporate policy of "extreme frugality". Figures 11a and 11b show the structures making up these residential areas, albeit from a distance. What is clear from these photos, however, is the sequence of construction or development of these various structures. Initial construction of wooden buildings clearly occurred on the northeastern side of the study area, along the N-S Sections 5 and 6 boundary, as shown in Figure 11a. Approximately ten wooden buildings were constructed in this area, which is east of a low rocky ridge that is, itself, immediately east of the Wegmen house and homestead area. These appear to front the dirt road that runs along the section boundary, and apparently was thr road into the Karma and Queen Esther. These mills are both shown in the photo, which is a California Division of Mines and Geology print, probably taken by Auberry in October, 1903. (Since the mills were built in 1903, this photo cannot be earlier than 1903, although the wooden structures themselves certainly could pre-date the mills).

Figure 11b, a Gerner photo of approximately the same vista, shows a somewhat changed landscape taken about 1904. A row of five wooden houses or cabins has been built below the Karma mill; one of these was eventually remodeled into the Wegmen house. There are also a series of indistinct but still clearly present structures in the area of "Little Italy", below the Queen Esther. Although the antiquity of these different habitation areas may only vary by a few months, these two photos nonetheless demonstrate that the oldest habitation area on the mountain is on the northeastern side of the study area, and that the wooden row houses and "Little Italy" housing area post-date this initial settlement by at least a few months, if not about a year.

2.0
ARCHIVAL RECORDS SEARCH

The background research for the Golden Queen inventory required two kinds of archival research. First, in order to develop an adequate understanding of the documented history of the study area, published and unpublished maps, documents and records were examined at the Kern County Recorder's Office, the UCLA Earth and Space Sciences Library, and the BLM offices in Bakersfield and Ridgecrest. These sources provided data in the form of mineral claim, sales and patent documents on the property, period newspaper articles on mining activities at these mines and in the region generally and, through the assistance of Larry Vredenburgh, the Gerner photo collection of the property, which consists of a series of black and white pictures of the mines and residential areas taken about 1904 (discussed above). The information taken from these sources has been summarized in the historical background presented above. The second type of archival review concerns a study of the archaeological site records, maps and files housed at the California Archaeological Inventory, Southern San Joaquin Valley Archaeological Information Center (AIC), at California State University, Bakersfield.

An archaeological records search was conducted by AIC staff to determine whether the study area had been previously surveyed by archaeologists, and whether any archaeological sites had been previously recorded on it. The complete results of this records search are included as Appendix A to this report.

Based on AIC files, the Golden Queen study area had never been systematically surveyed by archaeologists in its entirety, and no sites had been recorded on it, although two sites had been recorded on adjacent public lands within Section 6. Thus, it was apparent that an intensive Phase I survey was required for this property, especially given the documented history of mining activities summarized above.

3.0
FIELD METHODS

3.1 Field Methods

Field methods employed during the Phase I survey of the approximately 600 acres Golden Queen study area were designed to obtain complete (100%) survey coverage of the study area. They included intensive, on-foot examination of the groundsurface of the study area; the identification and location of discovered sites; tabulation and recording of surface diagnostic artifacts; site mapping, using Brunton compass, surveyor's tape and a Magellan Pathfinder GPS; preliminary evaluation of site integrity; site recording, using established procedures and forms (see Office of Historic Preservation 1986); and the photographic recording of a selection of the sites. No collection of archaeological remains was made during the Phase I survey.

Because the study area contains considerable topographic variability, different surveying strategies were employed during the inventory. In the areas of flat terrain to moderate slopes (typically on the northern side of the study area), the groundsurface was examined with the crew spaced at approximate 15 - 20 meter intervals, walking transects across the study area to identify artifacts or other archaeological indicators that might be present on the groundsurface. Ridge lines were covered in a similar manner. Steep slopes (generally exceeding the angle of repose), which comprised a large portion of the central section of the study area, were covered by crew-members walking zigzag transects that traversed the

slope faces.

In all cases, special attention was paid to depositional environments, such as saddles, swales and toe slopes, where the likelihood of archaeological preservation is enhanced. Further, rock faces, amenable for the creation of rock art or providing locales for rhyolite quarries, and rock shelters, usable for prehistoric habitation, were carefully examined as high likelihood spots for the presence of prehistoric archaeological remains.

3.2 Field Conditions

Field conditions for the Phase I survey of the Golden Queen study area were, in general, good as regards groundsurface visibility and therefore the ease of site recognition. Vegetative cover varied from moderate to sparse, in areas of flat to moderate slope, to non-existent, on cliff faces, bedrock outcrops and scree slopes, with only a few exceptions (these exceptions have been noted on the site descriptions provided below). Furthermore, archaeological sites within the study area tended to include large quantities of structural remains, which were themselves easy to recognize, and the sites tended to cover relatively large areas, further facilitating site recognition. On the other hand, the extreme slope of portions of the study area made surveying difficult, if not outright dangerous, in some areas.

4.0
SURVEY RESULTS

4.1 Introduction

The field survey of the Golden Queen study area resulted in the discovery and recording of a series of new site localities. All of these are historical (Euro-American) in age and are a product of the mining history of the property. We discuss these sites in turn below; site records and updates are provided in Appendix B of this report.

4.2 Newly Discovered Sites

As was expected, given the mining history of the study area documented above, a series of historical sites were discovered and recorded during the 1995 field survey. These fall within three general categories of sites, with some sites comprising a combination of the types: turn-of-the-century/early 20th century mining facilities (mill complexes, head-frames, ore chutes, adits, prospects and other features); Depression era mining facilities; and residential debris (structures, dumps, privies and related remains). Because of the complexity of these remains (in terms of history of ownership and period[s] of use), we have grouped them into clerical "sites", which are based primarily on geographical clustering. That is, at this point in our understanding of these historical cultural resources, these "sites" should not be taken to necessarily represent functionally related units (though in some cases they clearly were) so much as historical

features and remains in close locational proximity. We describe these sites below; site locations are provided in Figure 12.

4.21 Cobble City (CA-KER-4446H)

A historical town or hamlet (mentioned in the historical documents discussed previously) is located on the northern flank of Soledad Mountain, immediately downslope of the Queen Esther mine (Figure 12); indeed, downslope movement of the tailings from the Queen Esther mill is encroaching on, and (according to Mrs. Meehl) has already covered, portions of this site. This apparently represents the residential area which was referred to as "Little Italy", according to Mrs. Meehl (personal communication, 1995), due to the ethnicity of its inhabitants. We have referred to it simply as "Cobble city", reflecting the nature of the strucutral remains at this locale.

Extant remains of Cobble City extend from the mill tailings downslope approximately to the northern border of Section 6, a distance of about 430 m N-S, with an E-W dimension of roughly 250 m. This represents 107,500 square meters. It is important to emphasize, however, that the density of historical archaeological remains within this very large area varies considerably, and is certainly not continuous. As a general rule, the nature of the site density may be characterized as consisting of a series of relatively discrete, dense concentrations of artifacts and structural features, with very little or no remains in-between. Furthermore, the density of remains is greatest on the southern (up slope) end of the site, diminishing considerably towards the north, as well as to the east and west

from the core of the settlement. Figure 13 presents a schematic lay-out of the features on the site.

Features found in Cobble City are summarized in Table 2. Our preliminary tally recorded the remains of 18 buildings or buildings complexes, representing minimally 34 separate rooms or buildings on the site (in some cases building complexes consisted of multi-room structures; in others, separate buildings with abutting walls); four leveled pads; one cobble-edged walkway; five dumps; five privies; two vertical shafts; one water tank facility; and a water line.

Typically, the buildings on the site were either masonry, made of uncut or unfaced fieldstone cobbles that are mortared with adobe, or unmortared cobble foundations that supported wood frame structures. None of the wood frame structures are currently still present at the site, and only a few remnants of timbers are present at most of them. Cobble walls of the masonry structures range in height from eight feet (fully preserved gable wall) to a foot or less (wall remnants). Some of the walls are plastered with an adobe coating and whitewash; a few walls are plastered with what appears to be a coating of concrete or cement. None of the masonry buildings retain their roofs, although roof remnants (timber and sheet metal) are still present, littering the groundsurface, in a few cases. Furthermore, one of the structures has walls that are completely preserved, indicating that the building was gable-fronted. Many of them may have been similarly constructed; although the majority of the structural remains for the masonry structures that are currently standing are only a few feet tall.

Internal structural features for these masonry buildings are minimal, although the fact that most of the walls are only a few feet high (and thus below the level of windows and shelving), makes any generalization about relative frequency meaningless. Some have window openings, a few of which are framed with wood; a few also have built-in shelving made from packing crates set-in to the stone walls. But perhaps more importantly, the constructional features of these cobble structures indicate primary reliance on locally available building materials (field cobbles and adobe mortar), paired against the used of recycled materials (packing crates for built-in shelving; flattened tin cans for roofing shingles). In a few cases, "store-bought" construction materials were also employed, notably in the use of corrugated tin roofing, but this seems to have been the exception rather than the rule. The less common wood frame structures, of course, were made with milled lumber and thus represented entirely "store-bought" building materials.

Both types of buildings are assumed, at this point, to have served as residences, an inference based on historical accounts, and substantiated by the residential debris found around many of the structures. Some of them contain in-situ artifacts (e.g., a wood burning stove, barrels); others have had their floors buried by downslope colluvium and may contain artifacts on their groundsurface. A few of the structures also appear to have been burned, based on the presence of charred wood (presumably, roof timbers) and melted glass in and around them. Notably, the burnt structures tend to be concentrated towards the northern (downslope) end of the site.

Artifacts associated with the structures (and with other features at the site; see below) fall temporally within two categories: the majority appear

to be early 20th century in age, indicating that the primary occupation of the site fell roughly between 1900 and 1920 with, we believe most of it before World War I; a few of the structures contain Depression era or later remains. Based on similarity in construction techniques, we assume that the Depression era and later remains reflect the use of some of the structures beyond the period of construction and primary occupation. Notably, the Depression era and later remains concentrate in three of the better preserved masonry structures located at the southeastern or downslope end of the site, thus closest to the Silver Queen Road. The majority of the structures (masonry and wood frame), however, appear to have been purely early 20th century in occupation.

In addition to the structural remains, four leveled pads were also identified. One of these (Feature #19) is quite large (roughly 11 x 9 m in size) and, judging from timber remnants, probably also once contained a wood-frame structure. Presumably it had a wood pier foundation, rather than cobble foundation, like the majority of the other wood buildings on site. Three metal overall buttons were found on the groundsurface of this pad; they are marked with two different "Car Hearts" brand logos. Another Car Hearts button was found at the Queen Esther mill site (see below), suggesting a chronological tie between this feature in Cobble City and the mill (as also indicated by historical accounts). Two privies (Feature #27) are located adjacent to this pad, at the northeast and southeast corners, respectively. One of these privies still has a small portion of the framing of its southern wall standing; otherwise, they have been identified (as with other privies within the study area) by the presence of a square depression exhibiting differential vegetative vigor, surrounded by a single coarse of field cobbles, and containing a few surface artifacts. Given the

large size, evidence of a wood frame structure, and presence of two privies, we assume that this pad represents either a boarding house or dining hall (since historical documents indicate both were present on the site).

Notably, no kitchen midden or dump is associated with Feature #19, which would support its interpretation as a dining hall, but in general dumps are relatively rare on the site. That is, we failed to find a dump of any consequential size at the site, although five smaller dumps were recorded. The absence of a dump commensurate with the size of the settlement as a whole may be due to any of a series of factors. First, many of the structures are relatively dispersed, thereby diminishing the logic of a single, concentrated town dump. The dumps that were recorded, in fact, appear to be small trash piles associated with one or a few dispersed structures. Second, the site sits on a relatively steeply sloping hillside, indicating that downslope movement of materials is likely; thus, in-situ preservation of single artifacts is unlikely. Again, at least one of the identified dumps has clearly spread downslope for a considerable distance, and garbage on the site is generally spread out, rather than concentrated, for this same reason. Third, and similarly, if the dump were placed in the moderate sized arroyo on the eastern side of the site it would have eroded away; alternatively, if it were located on the western side of the site it might now be covered by the downslope movement of the Queen Esther tailings. The most intact dump on the site, in fact, is located on the edge of the arroyo; this may be all that is left of the main town dump. Fourth, there are two vertical shafts in the general vicinity of the town. Currently we do not know if these are contemporaneous with the primary occupation of the site, but if they were and were abandoned during the town occupation, they may have served as dumps themselves.

Four of the dumps date entirely or primarily to the early 20th century. A fifth dump (Feature #29), in contrast, appears to be essentially modern or recent (post-World War II). It is located at the southern end of the site, relatively close to the Wegmen ranch, and consists of a large hole that has been filled with debris (modern cans, old appliances, etc.). Although under normal circumstances this feature would not qualify as archaeological in nature, there is a small concentration of early 20th century remains present immediately surrounding this modern dump, suggesting that an earlier trash pit was reused more recently; that the modern trash pit disturbed an earlier site component; and/or that an early dug-out structure was filled with modern trash.

As implied above, a series of five privies were found on the site. Given the number of structures present, we suspect that more are present and that they have either been buried by colluvial movement or that they may be discovered with more intensive studies. Evidence of early 20th century artifacts was found around each privy; typically hole-in-top tin cans and broken bottle glass.

The final category of features at the site are the water works. This consisted of two large water tanks (Feature #24); an associated collapsed wood structure (presumably, a pump house); and a 2" iron water line (#34), which we infer runs from the tanks to the Queen Esther mill (the line is buried by the mill tailings along its upper stretch, so its final termination could not be determined). The water tanks included an iron, hand-riveted tank that is probably early 20th century in age, and a more recent galvanized tank (which is now in poorer condition than the hand-

riveted iron tank). Presumably, this represents the water system for the mill and the settlement.

Artifacts found on the site included large quantities of tin cans, the majority of which were hole-in-top or, more properly, "vent hole" cans. Sanitary seal cans, which were actually introduced at the turn of the century but did not immediately replace hole in top cans (see Rock 1987), are less common; most of this type were found towards the southern end of the site, associated with the structures that were occupied at least into the Depression era. Can varieties included the range of cylindrical fruit and vegetable cans, oval 'sardine' cans, rectangular tapered meat tins, internal friction-closing carbide powder cans, tobacco cans and large kerosene or oil cans. Glass, particularly bottle glass, was also present in large quantities. It included amber, clear, green and "amethyst" glass (indicating manufacture before roughly 1920). In general, the glass was very fragmentary. However, a relative large number of bottle bottoms, containing wine or champagne kick-ups, were noted towards the northern end of the site. Limited evidence of hand blown bottles or hand applied lips was found. One amber magnum-sized bottle bottom (with no kick-up) contained the embossed mark "SOUTHERN CAL" over "WINE CO" over "LOS ANGELES". Another amber pint bottle bottom was embossed with "PAT$\underline{D}$ AUG 24" over "2" over "1886"; presumably, this is either an heirloom bottle, or the patent date was retained for a lengthy time on the bottle mold, as this date appears to predate the occupation of the site by about two decades.

Ceramic tableware was also highly fragmentary and relatively rare. Only

three maker's marks were discovered, all of which were on whiteware. The first is a printed "K.T. & K" over a line over "S----V" over a line over "CHINA". This is a Knowles, Tayler and Knowles, Company, of East Liverpool, Ohio, mark, who made whiteware from 1872 to 1929 (DeBolt 1988:41). Although the exact duplicate of this mark has not been found in the published literature, it is clearly part of a series of very similar marks made after 1905 (see ibid:43; Praetzellis et al 1983:47).

The second mark is Dutch in origin, and has not been found in the published literature. It is also printed and consists of "SOCIETE CERAMIQUE" over a griffin over "MUSTRICHT" over "MADE IN HOLLAND". The final printed maker's mark is fragmentary, consisting only of a crown over "C.P. C", with the final "C" terminating in a break in the sherd. It is possible that this mark is either from the Chester Pottery Company of Phoenixville, PA, which made whiteware from 1894 to 1902, or the Chittenango Pottery Company of Chittenango, N.Y., which was in production from 1897 to ca. 1901 (DeBolt 1988:22) both of which used "C.P. Co." as part of their marks. In either case, a turn of the century age is indicated which, given the shelf life of tableware, would be appropriate for a site occupied during the early 20th century.

Other artifacts noted on the site included barrel hoops, wire nails, stove pipes, metal tools (saw blades, pick tips), narrow gauge rail spikes, metal stoves and stove parts, metal bed and cot-frames, pearl buttons, shoe leather, enamel ware pots, wash tubs and assaying crucibles. These included a 20 gm earthenware crucible with a base stamp of "BATTERSEA WORKS" over "20 Grms." over "ENGLAND". Identical assay crucibles were found in the assay offices of the Queen Esther and Karma mills, further

linking the occupation of these sites.

In general, Cobble City is in a good state of preservation and is relatively intact from the point of view of archaeological remains. That is, it appears to have suffered relatively little from vandalism and looting (e.g., no bottle collectors' holes were noted on the site), and the archaeological deposits and features are largely intact. On the other hand, from the perspective of architectural features, it has suffered greatly due to natural erosional processes in that the large majority of the buildings on the site have been reduced to low wall remnants or cobble foundations in less than 100 years. Furthermore, the rapid downslope movement of the Queen Esther tailings is endangering the site: portions of the site are already buried by these tailings, which are immediately up slope of the primary concentration of buildings. Clearly the extant buildings will be buried in the future if this downslope erosion continues unabated.

4.22 Wegmen Ranch/Site Complex (CA-KER-4447H)

Another complex of historical structures and features is located in and around the Wegmen property, which forms the northeastern corner of Section 6 (see Figure 12), roughly on the northeastern edge of Soledad Mountain. This is a complicated series of archaeological remains in that it contains features dating to the turn-of-the-century, as well as to the Depression era, and also includes two house complexes that were occupied until about 1991. Thus, it appears to have been intensively used for about 90 years. The features identified within this complex have been summarized in Table 3. Overall, the Wegmen complex extends about 345

m N - S by 245 m E - W, for an area of approximately 84,525 square meters.

This site complex is best conceptualized geographically in terms of three areas (see Figure 14), the middle of which is a low, north-south trending ridge containing historical and modern mining facilities. To the west of this ridge area are a series of houses and ranch outbuildings. Starting at the southern end of this western portion of the site, immediately downslope (north) of the east-west road below the Karma and Queen Esther mills, is a collapsed wooden structure (Feature #16). This consists of a large, unmortared cobble foundation measuring about 15x6 m in size, with a few remnant pieces of milled lumber, indicating that this was a wood frame building foundation. It is shown in a1904 Gerner photo of the Karma mill, and apparently served as one of the Karma Mine residences. Two privies (Feature #17) are associated with this structure: one located towards the northeast corner; the other about 17 m west of the structure. The privies currently consist only of square depressions surrounded by a single coarse of cobbles. Artifacts associated with these features are limited in number but are early 20th century in age.

A (barely) standing wood frame house (Feature #1) is located slightly southeast of the above features. This is a single story, gable front, board and batten house of three rooms, with a porch probably encircling three sides (the west side of the house has collapsed making precise configuration difficult to determine). The roof of this house, which is also collapsing, is wood shake and tin. The foundation of the house consists of wood piers sitting on an unmortared cobble pad. In general, the architectural style of the house conforms with a ranch-house variant of a

California bungalow. These were commonly constructed from the turn of the century into the 1920s. Again, a 1904 photo of the Karma Mine shows this structure, along with Features #2 and 16, as part of a line of mine residences.

This structure is filled with 11 metal, wood and wire bed frames, while artifacts immediately around and nearby it include Depression era in age. Although the house was built earlier in the century, the last significant occupation of it appears to have occurred sometime during the 1930s (see below), and it seems to have been used as a boarding house, given the large number of beds stored in it. The structure is in very poor condition.

Another example of structural remains, consisting of a collapsed wood-frame building, is located due north of the last house (#1). This structure (#2) represents a building equivalent to Feature #1; that is, a board and batten, wood-frame house, and is depicted in the 1904 photo of the Karma mine.

Note that Features #1, 2, 16 and 17 fall outside of the Wegmen Estate lands, per se, actually lying within the Silver Girl No. 2 ("Karma") property. Features #1, 2 and 16, furthermore, appear to be three structures mapped and designated as houses on the mineral survey of the property by Louis D. Rasor, dated January 26-29, 1933 (U.S. Mineral Survey No. 6140), which is included here as Figure 15. This indicates that they were still standing in 1933.

South of the above structures, and within the Wegmen Estate, per se, are two houses that were occupied until about 1991: the Wegmen house

complex (Feature #14), and the Meehl house complex/ranch (Feature #15). The Wegmen house is a primarily wood-frame structure with wood-siding on the north and east sides, and board and batten construction on the south and west. It is a single story, gabled, three room plus bathroom house, with a stucco addition (serving as a kitchen) connected by a covered breezeway to the west, and a frame addition of a single room on the southeastern corner of the building. A porch is present on the north and east sides, and the foundation is wood pier. Five outbuildings are associated with the house: four made of tin and one made of stucco. The original architecture of the house indicates that it was one of the five sructures in the 1904 Karma Mine photo. It was apparently remodeled circa 1920, with a series of architectural additions reflecting the then-popular California bungalow style design (such as elephantine porch columns). However, it has been inhabited into very recent times, with additions of different ages, and artifacts in and surrounding the house are modern in origin.

The Meehl house complex is another single story, wood-frame, gabled house essentially equivalent to the Wegmen house, although clearly more recent in age. Accordingly to Mrs. Meehl, who occupied this house until 1968, it was built in 1939, at the time of her marriage. The house has a tin roof and modern metal-sided porch on its south side. It is associated with a large, extensive complex of ranch outbuildings: chicken coops, animal pens and corrals, a barn made of railroad ties, and a large pig-sty at the southernmost end of the complex (furthest away from the house). Artifacts found within this complex are all essentially modern in age, although occasional examples of earlier materials (primarily Depression era) are also present.

The central portion of the Wegmen site complex is the low N - S trending ridge line area. It can be said to contain three archaeological features. The first (Feature #3) is a standing, wood-frame, shake-roof privy. This is a two room, three-hole structure, with a single coarse of cobbles lining the base of the board sides. The long-drops have fully silted-in, and the structure has been used to store a collection of glass insulators and other pieces of broken glass; that is, it does not appear to have been used for its primary function in some time. Absent the standing wood frame structure, this privy is identical to the archaeological remains of such found at Cobble City, and it appears to date to the early part of the century. It is fully intact.

A second archaeological feature in this middle portion of the site is a moderate-sized but dense dump (Feature #4), which appears to be turn-of-the-century or early 20th century in age, and appears to have been sorted by material. This consists of a large quantity (probably more than a thousand) of tin cans, all of which are hole-in-top, a smaller amount of broken glass, some whiteware ceramics and a few miscellaneous items. The ceramics include two identifiable makers' marks, both of which are printed. The first is "K T & K" over a line over "CHINA", which dates between 1890 and about 1905 (DeBolt 1988:43), and derives from Knowles, Taylor and Knowles of East Liverpool, Ohio. The second has "IRONSTONE CHINA" over the standing lion and unicorn Victorian English crest over "J. & G. MEAKIN." over "HANLEY." over "ENGLAND.". This is from the J. & G Meakin Company of Hanley, Staffordshire, England, which has made whiteware from 1851 to the present. The mark found in Feature #3 is illustrated by Praetzellis et al (1983:102, Figure 14, Mark 184) and has

been found in archaeological contexts as early as 1883 (ibid:57). The specimen from the Wegmen site, therefore, either represents an heirloom piece, or the mark had a considerable span of use (possibly into this century) for the J. & G. Meakin Company.

Immediately to the north and east of this dump is Feature #5. This is a vertical mine shaft, accessed by a trench entering the ridge from the east, and a wooden head frame and winch. Narrow gauge rail lines are in-place within the east-west trench, running out to an ore ramp. A completion of assessment notice on the head frame timbers indicates that this represents the Reymert-Fraction claim, dating the most recent activity to April 30, 1994. That is, this is essentially a modern mining facility, although it may have first been in use somewhat earlier. An open prospect is located immediately northwest of the head frame.

The remaining archaeological features within the property are located east of the ridge, and consist of a series of wood cabins and related remains (see Table 3). These include two collapsing, wood frame cabins (Features #6 and 7) that are early 20th century in age; a collapsed wood structure (Feature #9) that appears to have been used into the Depression era; a dump (Feature #10) associated with this last structure; and other miscellaneous features (including cobble foundations for other wood frame structures). Note that the 1904 Gerner photo shows a series of these wood frame structures standing in this portion of the site. Thus, the construction and initial use of these features was conterminous with the early 20th century activities at Soledad Mountain. In general, however, features on this eastern side of the site complex are in very poor condition. In part this may reflect the fact that this portion of the site, lying alongside a

public access road, is most accessible to the public, and thus has probably experienced the greatest visitor pressure.

In summary, the Wegmen site complex is a fairly complicated mixture of time periods and uses. Most but not all of the features within the site are habitation-related, and recent use of the property has of course impacted some of the earlier aspects of the archaeological record. In particular, built structures on the site are generally in poor condition and lack integrity. Certain individual features (such as the privy, #3, and the dump #4), nonetheless, appear quite intact.

4.23 Karma Mill and Mine (CA-KER-4448H)

The Karma mill site and mine is approximately due south of the Wegmen Complex, and is thus on the northern slope of Soledad Mountain (Figure 12). Like other mine and mill sites, the Karma covers a considerable surface area, but most of the archaeological features are concentrated around the mill area with other features concentrated around adit portals at some distance from the mill site. The primary concentration of archaeological remains at the Karma falls around the mill area at the northern, downslope end of the site (Figure 16). This comprises an area about 10,000 square meters in size.

Archaeological features at the Karma site are summarized in Table 4. In the mill site area the most intact features are a concentration of structural remains and artifacts centered on a standing head frame, vertical shaft, and hoist and pump house (Feature #1; see Figure 16). The head frame

and hoist house are shown in the 1904 Gerner photo and are thus clearly turn-of-the-century in age. A small metal structure is also shown behind the house hoist in this photo; remnants of it are still present. It may represent a blacksmith's shop. An adit and narrow gauge railroad track is also shown to the southeast of these structures; these are still present on the site, and appear to be part of the haulage level infrastructure of the site. In addition to these early structural remains, a series of later (presumably Depression era) additions are present. These include a small complex of metal and concrete buildings/rooms, southeast of the hoist house; water tanks to the southwest; and a fake adit (dead-ending a few feet into the slope) and false narrow gauge rail track (e.g., rails bolted in place with red-painted sheet metal washers and wood screws) immediately southwest of the hoist house. We presume these last features were constructed for a film set. Aside from the additions, the structural remains of Feature #1 are largely intact.

A large wooden and metal truck ore chute and jaw crusher (Feature #2) are located immediately north of Feature #1, at the end of a haulage ramp. These are modern age, as they are not shown in the early photos of the mill, and have a date scribed into the concrete jaw crusher foundation of 1980. The jaw crusher was made by Alloy Steel and Metals Co., 55th and Alameda, Los Angeles, and is Model 10x20, Type KH, Serial #490.

The remains of an assay office/laboratory (Feature #3) were found to the northwest of the ore chute. These consisted of a cobble foundation, a few pieces of milled lumber, and a large quantity of crucibles, cupules, fused silica and broken bottle glass. This assay office is depicted on the 1933 mineral survey plat for the patent of the property, noted previously (U.S.

Mineral Survey No. 6140; Figure 15). Many of the crucibles are embossed with "BATTERSEA WORKS ENGLAND", equivalent to examples found in Cobble City.

Below and to the north of these features is the area of the original mill (Features #4, 5 and 6). Extant remnants of the mill consist of the foundation and a small amount of the original machinery; the mill building, per se, is no longer in existence. Original machinery includes four sets of five-stamp mills, miscellaneous parts of hoppers and (presumably) agitators. The stamps are not in original position nor intact, with the cams and other upper parts missing; all that is currently present are the stamps themselves and the stamp boxes. These are embossed with "RISDON IRON WORKS" over "S.F. CAL 1890" or "S.F. CAL 1889". This is consistent with the historical accounts (summarized previously), which indicate that used equipment was purchased for the mill, and that it was brought on-line in two separate events.

Cyanide tank foundations (Feature #5) are present immediately downslope (north) of the stamp area. This consists of a large, raised concrete and fieldstone pad which originally supported two or three cyanide tanks. The only remnants of these barrels still present are piles of metal hoops. A series of ground-level chutes or aisles containing narrow gauge rails run into the pad, and therefore under where the tanks originally sat; these presumably were used for removing concentrate from the tanks.

The rails extend to a large furnace or retort (Feature #6) to the northwest of the tank foundations. This contains a series of intact fire-boxes, along with a crucible dump, but no extant structural remains (i.e., in the sense of

building walls). The crucibles, again, are embossed "BATTERSEA WORKS", as with other examples from the assay office and Soledad City. Firebricks present around the furnace include examples embossed with "St L FB & C Co" over "LA CAL" and "DENVER FIRE CLAY CO". What looks to be the remnants of a small, burned structure, consisting of a partly buried level pad and burned lumber, is present to the east of the furnace. Mill tailings extend from this area to the north and northeast.

Other features associated with the Karma mill are all to the south of the head frame and hoist house, and are related to the mining, per se. They include a large glory hole and various adits (Features #7, 8 and 9).

Artifacts noted at the Karma site were all primarily industrial/mining related; that is, we noted no dumps or residential debris. With the exception of some of the large mechanical remains (e.g., the stamp mills) and the artifacts surrounding the assay office and the furnace, the surface artifacts appeared primarily to be Depression era or later in age. For example, the hoist house and some of the structures immediately around it contain a large quantity of remains in the form of nuts, bolts and so on; many of these were galvanized and appeared relatively recent in age. Furthermore, Mrs. Meehl (personal communication, 1995) and other sources indicate that the mine was operated during the 1930s, with ore processed at the Golden Queen Mill.

The condition of the Karma site is quite variable, with the specifics of condition dependent upon the individual feature considered. The head frame and hoist house, for example, appear to be very intact, even though built in the early 20th century. On the other hand, the mill, which burned

in 1947, is now limited to its foundations with a few remnants of the mill machinery. Overall, then, condition varies from good to very poor, but in general there is more missing than is present.

4.24 Queen Esther Mill and Mine (CA-KER-4449H)

The Queen Esther mill and mine site is located immediately west of the Karma, with the original claims abutting one another. Like the Karma, the Queen Esther consists of a dense concentrations of features around the original mill, with a series of mine features scattered at some distance up the slope of Soledad Mountain to the south (Figure 16). The mill area falls within a zone about 175 by 175 meters in size, for 30,625 square meters. Ore chutes and adits extend intermittently up slope (south) for at least 250 linear meters. A very large tailings pile extends to the north (downslope) of the mill. At least one wood frame building is buried in these tailings, currently with just its roof extending above the tailings. Judging from the 1904 Gerner photos, a series of other buildings may also be buried in these tailings, but this one evident building is approximately 100 meters north of the mill area per se.

The archaeological features observed at the Queen Esther site are summarized in Table 4; see also Figure 16). The mill structure itself (Feature #1) is a large wooden multi-story building that it in the process of collapsing. Almost all of the internal machinery for the mill was removed at some point; the only part of the mill machinery we observed was at the top of the upper ore chute leading into the mill (a location that could not, for safety reasons, be approached), where a large jaw crusher is present.

Two collapsing wooden buildings (Features #2 and 3) are located immediately downslope of the main mill structure. These are quickly being buried with mill tailings. The upper of these two buildings (Feature #2) apparently served as the assay office/laboratory, judging from the crucible dump and furnace at the northern side of this structure. It consists of three rooms. Again, the crucibles are stamped with "BATTERSEA WORKS ENGLAND", as with other crucibles found at the Karma and Soledad City sites. A third wooden structure (Feature #4), alluded to earlier, is nearly buried by the downslope movement of tailings, about 100 meters north of the mill area. It is a board and batten (?), gabled structure with a sheet metal roof, and is apparently one of a series of such buildings that once existed below the mine, judging from the 1904 Gerner photo.

A series of tanks, and the remnants of a large rectangular building (Feature #5) that held these tanks, are located immediately east of the mill building proper. (The rectangular building is evident in a Gerner photo; its use for tanks is inferred from the presence of tank hoops on the floor; see Figure 2a). This building has entirely collapsed, but the milled lumber of the walls is still lying in place.

A series of features is located immediately to the east of the mill building (Feature #6). At some point, this area of the site was used to stockpile tar, presumably to tar the roads, or as low-grade fuel for the mill. The result is that this area includes a number of piles and ponds of tar, making certain identification of archaeological features difficult. Still, it is apparent that a collapsed wood building, a cobble and wood foundation for tanks, two cobble structure foundations and a small dump of industrial and habitation

debris (e.g., tin food cans) are present in this area.

Because of the rapid downslope movement of mill tailings in and around the Queen Esther site, few areas of exposed groundsurface are present, and so the number of artifacts observed was relatively limited. As implied above, a dense concentration of cupules and crucibles is present in the area of the assay office. The dump area contained with Feature #6 contained a quantity of hole-in-top cans, wire and broken glass, mixed with charcoal and tar. We also noted to embossed bottle bottoms: a green pint bottle bottom with "ABC" over "B20"; and "IPCCo" in a diamond over "2035" on an amber 16 ounces bottle. We also noted an overall button with "STRONG" over "HOLD", and a heart-shaped Car Hearts brand button. This had "UNION MADE" over a trolley car. Car Hearts buttons were also found in Cobble City, as noted above.

Generally, the archaeological remains at the Queen Esther site are in fair to poor condition, again depending upon specific feature. The architectural integrity of the various buildings at the site are now close to entirely lost, but the site maintains integrity as an archaeological as opposed architectural cultural resource.

4.25 Golden Queen Mill (CA-KER-4451H)

The Golden Queen mill area is depicted in Figures 12 and 17, with noted features summarized in Table 5. Barring two outlying features (discussed below), the site covers an area that is approximately 175 meters E-W by 90 meters N-S, or 15,750 square meters. All of the archaeological remains

at the Golden Queen locality are Depression era or later in age, as well-documented in the historical records summarized previously. Furthermore, little of the Depression era mill is still in existence, the primary remnants of it being simply concrete foundations and pads.

The primary extant archaeological remains are all in the mill area below the haulage level adit (Feature #3). These are limited to five large agitator tanks (Feature #5); two Oliver drums (Feature #7); and a standing concrete structure (Feature #6). This is a large building made from concrete forms, with a wood roof, which is still intact. It is located immediately northeast of the site of the mill structure, per se, and appears to have been used, in the recent past, as a shop building. Originally it may have served to hold concentrating tables, judging from the interior floor drainage system. It is also worth noting that a third large Oliver drum is located about 200 meters downslope, having apparently been rolled or fallen off its foundation.

Two outlying features were also recorded as part of the Golden Queen complex based on a similarity in age to the mill; arguably, they could be considered separate sites. The first of these (Feature #8) is a small leveled pad and vertical shaft located a short distance west of the edge of the Golden Queen mill tailings. There is a very small quantity of Depression era trash next to this small pad (approximately 10 x 10 m in size), consisting of some ceramic shards and sanitary seal cans. One of the sherds is a piece of whiteware with a maker's mark. This consists of a printed HLC monogram over "HOMER LAUGHLIN" over "VIRGINIA ROSE" over "MADE IN USA" over "A34N.8". This derives from the Homer Laughlin China Company of East Liverpool, Ohio, which has made whiteware

ceramics from 1877 to the present (DeBolt 1988:43-45). The HLC monogram on this specimen is characteristic of 1930s production for this company; Virginia Rose is the transfer pattern for the tableware; and the bottom code indicates that it was produced in January, 1934, at Homer Laughlin factory #8. It is a clear indicator of middle to late 1930s age for this archaeological locality.

The second outlying feature (#9) is a a one room, concrete and fieldstone cobble structure, located along the road near the western entrance to the Golden Queen mill site. It is a gabled structure, currently roofless, that appears to have been burned. No artifacts were found on the groundsurface at this locale but, based on the construction techniques, it appears to be Depression era or later in age. Furthermore, based on the presence of two doors (into a one room structure), it seems most likely that it served as an office, perhaps at the entrance to the facility.

The large majority of the Golden Queen mill site is in very poor condition. From the perspective of architectural or industrial remains, essentially all integrity has been lost, and there is only a minimal amount of archaeological information that appears extant at this locale.

4.26 Echo Mill Site (CA-KER-4450H)

The Echo Mill site is located west of the Golden Queen, at the base of a large arroyo leading up Soledad Mountain (see Figures 12 and 17). Extant remains at this locality currently cover an area that is approximately 85 meters in diameter, representing roughly 5670 areal meters square.

Archaeological features noted at this locality are summarized in Table 5.

As is immediately evident in this table, very little is left of the original structures and other features that were once present at this site. The 1904 Gerner photo of the site shows a ramp and haulage bridge leading to a mill structure, surrounded by a series of mill outbuildings, cabins and outhouses. None of these are still standing and, in fact, barely any extant remnants of these are still present. This appears primarily to reflect the fact that the mill tailings from the site have enveloped the area once occupied by cabins, outbuildings and other structures, and the fact that the mill itself was, circa 1905, entirely dismantled. It is possible, of course, that additional features are buried under the mill tailings.

Currently, the only features of archaeological interest on the site is the remnant foundation for the mill (Feature #4), which consists of concrete and mortared-cobble foundations; an assay dump area (Feature #5) and possible privy (Feature #6). We noted foundations for stamps, a boiler and a possible foundation for tank support. It is possible that additional, smaller structural remains may be present immediately adjacent to the mill foundations.

The Echo Mine and Mill site is currently in very poor condition and retains little of its original integrity.

4.27 Gypsy Starlight Adit and Chutes (CA-KER-4453H)

This is a small site located on the eastern side of a northwestern ridge off

Soledad Mountain (see Figures 12 and 17); the Echo Mine is immediately below it. The Gypsy Starlight site consists of an adit, a long open-cut, three ore haulage ramps, and a small dump, which extends down the side of one of the ore ramps. With the exclusion of the long, linear open cut, the site measures approximately 60 by 60 meters, or 3600 square meters in size.

Although it is likely that this locality was first worked earlier, extant remains at the Gypsy Starlight site appear to be Depression era or later in age. Features at this site are in moderate to poor condition.

4.28 Silver Queen Area Features (CA-KER-4452H)

A final archaeological locality was identified high towards the western side of Soledad Mountain, within the Silver Queen claim, and thus has been designated the Silver Queen area (Figures 12 and 17). It consists of only a few features: an adit and concrete compressor foundation, a "double" glory hole or open cut, an ore chute and, on the edge of a tailings pile, a small metal building; and a collapsed wooden structure and ore chute. All of these features are Depression era or later in age and are in poor condition.

4.29 Bobtail Area Features (CA-KER-4454H)

The Bobtail Area mining features fall primarily outside of the current study area. However, four of the miscellaneous features which comprise this clustering of historical mining features on the west side of Soledad Mountain are within the study area (see Figures 12 and 17, and Table 5).

One of these (Feature B7) is a small unmortared cobble structure that resembles the buildings at Cobble City, and therefore may be early 20th century in age. No artifacts were noted in association with it. A second feature (Feature B5) is a Depression era single-bin truck ore chute. The Soledad Extension Mine, associated with the 1930s activity at the Golden Queen, is represented by a concrete foundation to a changing room and/or compressor shop (Feature B6). Finally, a small head frame/hoist is also present (Feature B8). This may be modern in age, and does not appear to have ever been operable, due to faulty design. All of these features are in poor condition.

5.0
SUMMARY AND RECOMMENDATIONS

5.1 Summary

An intensive Phase I survey was conducted for the Golden Queen Mine project area on Soledad Mountain, Mojave, Kern County, California. This involved background studies of published and unpublished documents, reports and other sources pertaining to the prehistory, ethnography and history of the study area; a complete (100%) intensive survey of the study area; and the recording and preliminary evaluation of archaeological sites within this study zone.

The Phase I survey resulted in the discovery and recording of nine archaeological sites, all of which are historical (Euro-American) in nature, and resulted from the mining activities on the mountain. These can be summarized as follows:

CA-KER-4446H - "Cobble City" is a large residential area that was associated with the Queen Esther Mine and Mill, and dates from about 1904 to 1920.

CA-KER-4447H - The Wegmen homestead, which includes a series of features and structures associated with the Karma Mine and Mill, and date from about 1903 into the recent past.

CA-KER-4448H - The Karma Mill, which was in operation from 1903

to 1909, with the mill structure burning in 1947.

CA-KER-4449H - The Queen Esther Mill, portions of which are still standing, and was operated from 1903 to 1910.

CA-KER-4450H - The Echo Mill, which ran from 1903 to 1905, when it was dismantled.

CA-KER-4451H - This is the Golden Queen Mine and Mill, which was constructed during the 1930s and was dismantled about 1950.

CA-KER-4452H - The Silver Queen area features, which consist of a small clustering of Depression era or later mine features.

CA-KER-4453H - The Gypsy Starlight Features, which comprise a small grouping of ore chutes and ramps.

CA-KER-4454H - The Bobtail Area features, four of which fall within the current study area, and which consist of one probable turn-of-the-century cobble structure, and three Depression era or later mining features related to the Soledad Extension Mine.

5.2 Recommendations

The Phase I archaeological survey of the Golden Queen Mine study area resulted in the discovery of nine historical archaeological sites, eight of which are entirely within the study area, with one falling partly within the

study zone. Development of the Golden Queen Mine, accordingly, has the potential to result in adverse impacts to cultural resources. Based on the guidelines provided by Appendix K of the California Environmental Quality Act, therefore, we recommend that a Phase II test excavation and determination of site signficance be conducted, from which final recommendations for the treatment of these cultural resources may be made.

6.0

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7.0
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TABLE 1: THIRTEENTH CENSUS (1910) - SOLEDAD & QUEEN ESTHER MINE

Name	Male/Female	Age	Mar. status	Occupation	Origin
Esquival (?), Bernardo (?)	M	30	S	Miner	Spain
E....., Nikita (?)	M	30	S	Miner	Slovania
Rustiniak (?), John	M	22	S	Miner	Slovania
Knox, Robert	M	25	S	Miner	Canada
(?), Charles	M	52	M (12)	Miner	Pennsylvania
Conroy, William	M	21	S	Miner	Massachussetts
Woodward, (?)	M	50	M (11)	Miner	Ohio
Woodward, Louis (?)	F	36	M (11)	None	Iowa
Williams, Jon	M	32	S	Miner	England
Bass, William H.	M	43	S	Miner	Ohio
Ryan, John	M	30	S	Miner	Illinois
Ruseniak (?), Mike	M	37	S	Miner	Slovenia
Moriarty (?), C...(?), Jr.	M	47	Wd	Miner	England
Malatin (?), Mike	M	21	S	Miner	Slovenia
Baker, John M.	M	52	S	Bookkeeper	Illinois
Borden (?). Charles S.	M	42	M (0)	Engineer	England
Borden (?), Harriet L.	F	30	M (0)	None	Canada
Skrissler (?), Anton	M	30	S	Miner	Slovenia
Wegmen, Engelbert	M	37	M (12)	Watchman	Germany
Wegmen, Margaret	F	32	M (12)	None	Mississippi
Wegmen, Percy	M	10	S	None	Mississippi
Wegmen, Engelbert JR.	M	8	S	None	Mississippi
Wegmen, Margaret	F	4	S	None	Mississippi
Wegmen, Grace	F	3	S	None	Mississippi
Wegmen, Esthel (?)	F	1	S	None	California
Feldt, Benjamin	M	52	M (0)	Miner	Germany
Feldt, Bertha	F	32	M (0)	None	Iowa
Corvich (?), Mike	M	37	M (10)	Miner	Slovenia
Corvich (?), Kate	F	45	M (10)	None	Slovenia
Corvich (?), Cris	M	11	S	None	Slovenia
Corvich (?), Mary	F	9	S	None	Slovenia
Nichols, Russ	M	10	S	None	Oregon
Rogenovich (?), Mike	M	45	S	Miner	Slovenia
Cranston, John	M	45	S	Miner	England
Barra (?), John	M	29	S	Miner	Italy
Knapp, (?) R.	M	58	M (8)	Miner	Ohio
Hardey, Analee (?)	F	35	S	Teacher	California
Hoss (?). E...(?)	M	24	S	Teamster	Minnesota
Leonis, Elbert	M	47	M (19)	Laborer	Colorado
Leonis, Alma (?)	F	36	M (19)	None	Illinois
Leonis,Viola	F	16	S	None	California
Leonis, Ida	F	13	S	None	California
Leonis, Gladys	F	12	S	None	California
Leonis, Elbert	M	8	S	None	California
Monroe, Edward	M	27	S	Teamster	California
Johnston, Edward	M	28	S	Teamster	Missouri
Reardon, John J.	M	40	S	Miner	New York

Walsh, W...(?) O.	M	63	Wd	Miner	Connecticut
Goldsmithy (?), George	M	27	S	Miner	Colorado
McBryant, Geo.	M	45	M (8)	Watchman	Ohio
McBryant, Agnes	F	34	M (8)	None	Ohio
McBryant, Harold	M	6	S	None	Arizona
McBryant, George	M	5	S	None	California
McBryant, Dorothy	F	4	S	None	California
McBryant, Roy	M	2	S	None	California
Nussbaum, George	M	32	M (2)	Superintendent	Colorado
Nussbaum, Bessie	F	26	M (2)	None	Colorado
Lytle, Myrtle	F	38	M (19)	Manager	Iowa
Lytle, William G.	M	47	M (19)	Foreman	Iowa
Lytle, William G.	M	15	S	None	Colorado
Stimman (?), Lena	F	30	S	Waitress	Germany
Hoyt (?), Charles A.	M	64	M (42)	Chemist	Massuchussetts
Hoyt (?), Laura J.	F	60	M (42)	Housekeeper	New York
Urban, John	M	21	S	Waiter	California
Snelldon (?), Thomas	M	40	S	Camp collier ?	Indiana
Shelton, Chas. H.	M	46	M (13)	Mine foreman	California
Shelton, Ruth (?)	F	34	M (13)	None	California
Shelton, Chester	M	12	S	None	California
West, Frank S.	M	35	M (5)	Machinist	England
West, Maria	F	35	M (5)	None	Iowa
West, Ruth	F	4	S	None	California
Hiddon (?), Horace	M	54	S	Blacksmith	Kentucky
Distefano, Dominic	M	41	M (17)	Blacksmith asst	Italy
Hanson, Armstrong (?)	M	36	S	Assayer	England
Bern (?), Maron (?) L.	M	24	S	Mine carpenter	Pennsylvania
Garibaldi, Joe	M	22	S	Mine helper	Italy
McColville (?), John	M	31	M (2)	Assayer	Iowa (?)
McColville (?), Freda	F	24	M (2)	None	Germany
Esquidora, Augustin	M	25	S	Mine laborer	Italy
Abbona (?), George	M	22	S	Mill hand	Italy
Castamaria, John	M	26	S	Mill hand	Italy
Camon (?), John	M	34	M (5)	Mine laborer	Mexico
Esquimena (?), Andres	M	32	S	Mill laborer	Mexico
Hass, Mary	F	37	S	Waitress	New York
Bringas (?), Anton	M	30	S	Miner	Slovenia
Stam (?), George	M	45	S	Miner	Slovenia
Baldo, C...(?)	M	32	S	Miner	Slovenia
G...(?), Mircea (?)	M	24	S	Miner	Slovenia
Mossman (?), Anton	M	26	S	Miner	Italy
Diondo (?), Piggo (?)	M	28	S	Miner	Italy
Parith (?), Pando	M	20	S	Miner	Slovenia
Parith (?), Pita	M	28	S	Miner	Slovenia
Panotovich (?), Louis	M	25	S	Miner	Slovenia
Carlson, Charley	M	41	S	Miner	Sweden
Nolan, George	M	47	M (0)	Miner	Pennsylvania
Nolan, Esther	F	40	M (0)	None	Connecticut
Gregory, Anton	M	45	S	Miner	Wisconsin

TABLE 2: FEATURES AT COBBLE CITY (CA-KER-4446H)

Feature #	Description	Size	Comments
1	Cobble structure	4x5m	3 standing walls; burnt; Depression era trash
2	Leveled pad	9x7m	Edged by fieldstone, w/cobble path uphill
3	Cobble structure	6x4m	Burnt; post-1947 trash present
4	Cobble structure	6x4m	Cement plastered; Depression era trash
5	Cobble structure	5x4m	Burnt; Depression era trash
6	Cobble structure	5x3m	Assoc'd w/ #8; terraced
7	Leveled pad	9x4m	Assoc'd w/ #2; edged by cobbles
8	Cobble structure	6x4m	Assoc'd w/ ~1900-1920 remains
9	Cobble structure	4x5m	Partial dug-out; ~1900-1920 artifacts
10	Cobble structure	8x7m	W/ dense artifact scatter; ~1900-1930s
11	Cobble structure	10x7m	2 or 3 room structure; ~1900-1920 artifacts
12	Cobble structure	8x5m	Lg single room, partly buried
13	Cobble structure	4x5m	Interior overgrown w/ plants
14	Cobble structure	4x10m	Lg single room; ~1900-1920 artifacts
15	Cobble structure complex	17x13m	4 abutting bldgs; gabled; burnt; ~1900-1920
16	Cobble structure & dug-out	4x7m	Collapsed; ~1900-1920 artifacts
17	Cobble structure complex	15x18m	8 abutting rooms; ~1900-1920 artifacts
18	Cobble structure complex	10x7m	2 rooms; ~1900-1920 artifacts
19	Leveled pad	11x9m	Lg; ~1900-1920 artifacts; assoc'd w/ #27
20	Cobble structure complex	6x11m	3 rooms + terrace; ~1900-1920 artifacts
21	Cobble structure complex	8x9m	3 rooms + terrace; ~1900-1920 artifacts
22	Dump	10x10m	Small dump near #4; ~1900-1930s
23	Dump	12x10m	Small dump below #8; ~1900-1920
24	Water tanks	20x20m	2, assoc'd w/ collapsed structure & debris
25	Dump	15x15m	Near #33; ~1900-1920 artifacts
26	Privy	2x2m	Assoc'd w/ #17
27	2 Privies	2x2m & 2x2m	Assoc'd w/ #19, on either side of E end
28	Privy	2x2m	Closest to #21
29	Dump	30x30m	Modern, but assoc'd w/ ~1900-1920 scatter
30	Pad & Privy	3x2m & 2x2m	~1900-1920 artifacts; near #29
31	Dump	20x20m	~1900-1920 artifacts
32	Vertical shaft	10x10m	On USGS topo; covered w/ timbers
33	Vertical shaft	10x10m	On USGS topo; covered w/ timbers
34	Water line	500m long (?)	Runs from #24 to Queen Esther
35	Cobble fdn & shaft	20x20m	Near Wegmen House
36	Level pad	5x3m	Edged w/ cobble, ~1900-1920

TABLE 3: FEATURES ON THE WEGMEN SITE COMPLEX (CA-KER-4447H)

Feature #	Description	Size	Comments
1	Standing woodframe house	10x15m	Single-story, gable front, board & batten shake & tin roof, 3 rooms, w/ assoc'd Depression era trash & artifacts
2	Fallen wood structure	7x15m	Probably house similar to #1
3	Standing 3-hole privy	4x3m	Standing 2 room, 3-hole privy, wood constr.
4	Dump	30x45m	Turn-of-century artifacts
5	Vertical shaft & headframe	20x20m	Reymert Fraction (modern)
6	Collapsing wood structure	7x5m	1 room w/ ~1900-1920 artifacts
7	Board & batten cabin	3x4m	1 room, no roof, ~1900-1920 artifacts
8	Timber & artifact pile	5x5m	Collapsed wood structure?
9	Wood structure	10x6m	Collapsed, assoc'd w/Depression era remains
10	Dump - Depression era	9x20m	Prob. assoc's w/ #9
11	Collapsed wood structure	8x12m	On terraced pad; age ?
12	Cobble foundation	6x10m	Assoc'd w/ 1910-1930s cans
13	Vertical shaft & dug-out (?)	10x10m	Assoc'd w/ #5 (?)
14	Wegmen house complex	---	Wood-sided frame w/ stucco addition, occupied to 1991; 5 assoc'd outbldgs
15	Meehl house complex (ranch)	---	Wood-sided house occupied to 1991, w/ misc ranch outbldgs, incl barn made of RR ties, concrete-bottomed pig-sties, corrals, etc.
16	Collapsed structure	15x6m	Cobble foundation w/ fallen timbers
17	Privies	2x2m each	2 assoc'd w/ #16

TABLE 4: FEATURES AT KARMA AND QUEEN ESTHER MILLS (CA-KER-4448H & 4449H)

Feature #	Description	Comments
KARMA MILL & MINE		
1	Headframe, Hoist house, Haulage adit, etc	Early 20th century + later additions
2	Ore chute & jaw crusher	Depression era
3	Assay office	Early 20th century
4	Stamp mill area	Foundation & stamps only; Early 20th century
5	Tank area	Foundations
6	Retort (?)	
7	Glory hole	
8	Adit	
QUEEN ESTHER MINE & MILL		
1	Mill structure	Collapsing
2	Assay lab	Filling with tailings
3	Wood structure	Collapsed
4	Wood structure	Buried by tailings
5	Tank foundation	
6	Dump & Asphalt work area	Tar barrels and piles
7	Ore haulage ramp	Depression era

TABLE 5: GOLDEN QUEEN, ECHO, GYPSY STARLIGHT, AND SILVER QUEEN AREA FEATURES

FEATURE #	DESCRIPTION	COMMENTS
Golden Queen Mill		
1	Metal Building	Modern
2	Concrete foundation	Depression era
3	Haulage level adit	
4	Concrete mill foundation	Remnants only; Depression era; burnt
5	5 Agitator vats	Depression era
6	Concrete & wood bldg	Shop structure; Depression era
7	2 Oliver drums	3rd drum ca. 200 m downslope
8	Pad & prospect	Depression era
9	Concrete structure	5x6 m, 1 room; Depression era (?)
Echo Mill		
1	Metal structure	Modern
2	Haulage level (?) adit	
3	Concrete foundation	Changing house (?); Depression era (?)
4	Stamp mill foundations	Early 20th century
5	Assay office dump	Disturbed
6	Privy	Early 20th century
Gypsy Starlight		
1	Truck ore chute	Depression era or later
2	Truck ore chute	Depression era or later
3	truck ore chute	Depression era or later
4	Adit and open cut	
5	Dump	Depression era or later
Silver Queen Mine Area		
1	Glory hole	
2	Ore chute	Depression era
3	Metal structure	Privy, modern
4	Adit & concrete foundation	Compressor room
5	Wood structure	Collapsed; Depression era or later
Bobtail Area		
B1	Pad, cobble wall & dump	Turn-of-century
B2a	Truck ore chute	Depression era or later (Bobtail)
B2b	Truck ore chute	Depression era or later
B3a	Adit and wood trestle	Depression era or later
B3b	Wood landing/ramp	Depression era or later
B4	Concrete structure	2 room, Depression era
B5	Ore chute, ramp and adit	Starlight (?)
B6	Soledad Ext Machine Rm Fdn	Concrete foundations; post-Depression + earlier remains
B7	Cobble structure	2x4 m, no roof, no artifacts
B8	Headframe on open cut	Deadman below using cable & 55 gal drums, modern

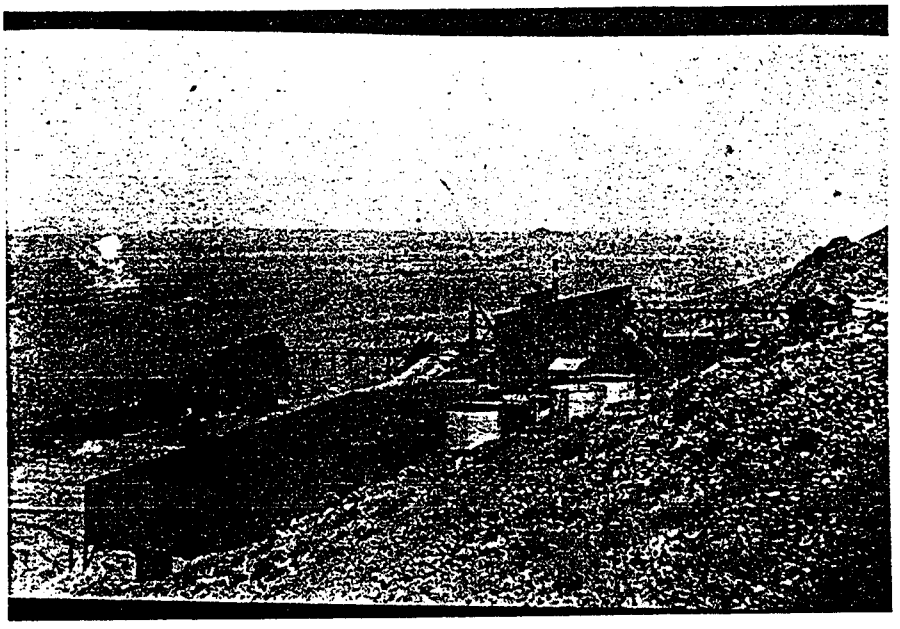
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FIGURES

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4 - The Karam Mill, ca. 1904
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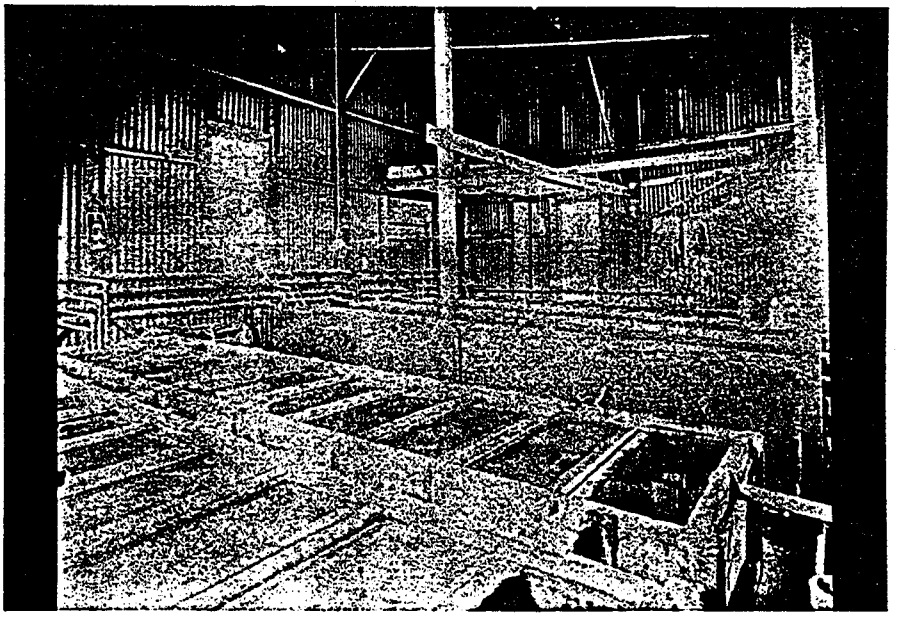
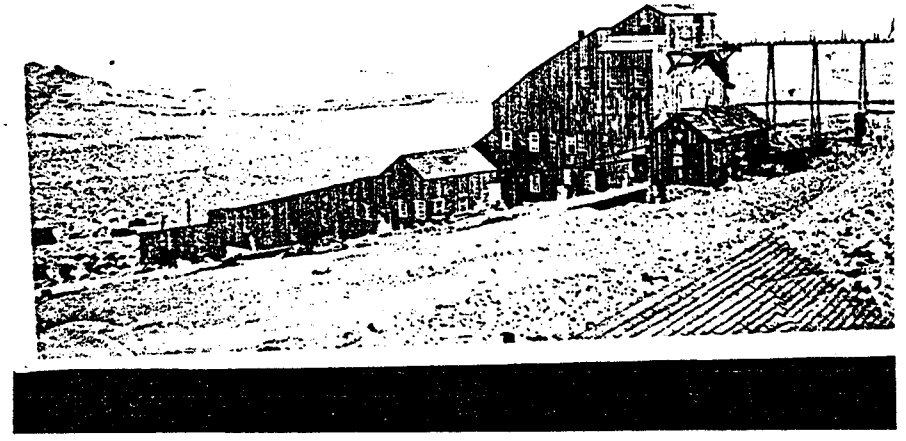


FIGURE 2 - The Queen Esther Mill, taken about 1904. **(a)** - Upper - The mill, from the southwest. the long, rectangular building in the foreground contained the cyanide vats. In the background is the Karma head frame and mill. **(b)** - Lower - Zinc tanks at the Queen Esther. Note the metal walls, which was a characteristic of this mill. (Photos by John Gerner)



FIGURE 3 - The Karma Mine and Mill superintendent's house, circa 1904, showing the Gerner family. This house, located east of the Wegmen house near the Sections 5 and 6 boundary, has been moved to the Tropico Mine, Rosamond, where it still stands. (Photo by John Gerner).



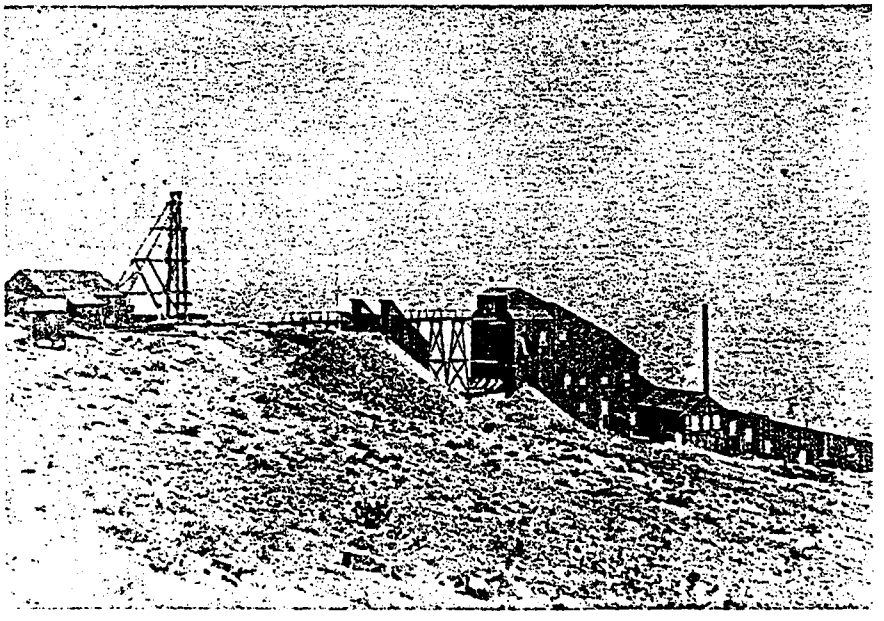
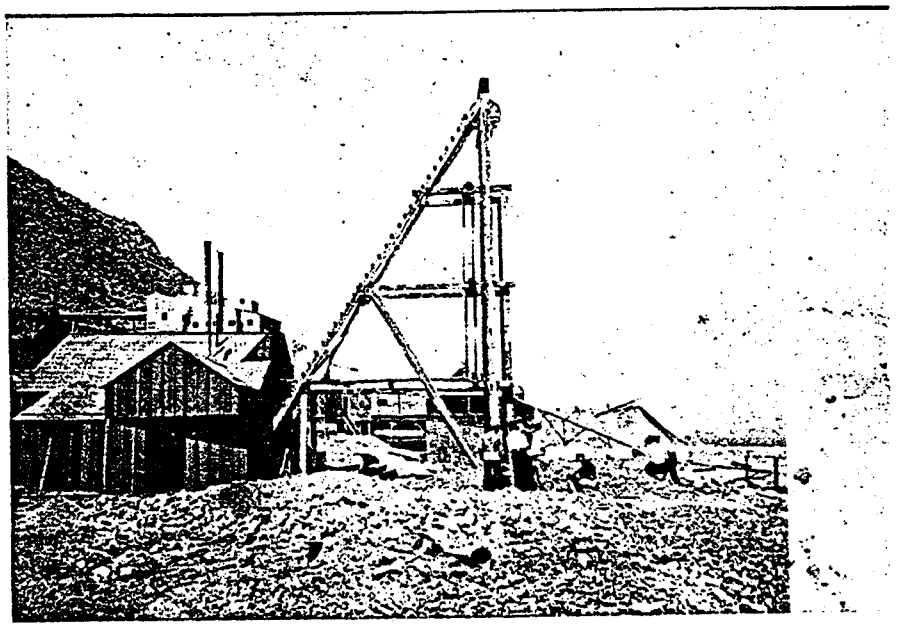


FIGURE 4 - The Karma Mill and Mine, circa 1904. **(a)** - Upper - Trestle and mill structure, viewed from southwest. **(b)** - Lower - Hoist house (left), head frame, trestle and mill structure (right), viewed from southeast. (Photo by John Gerner).



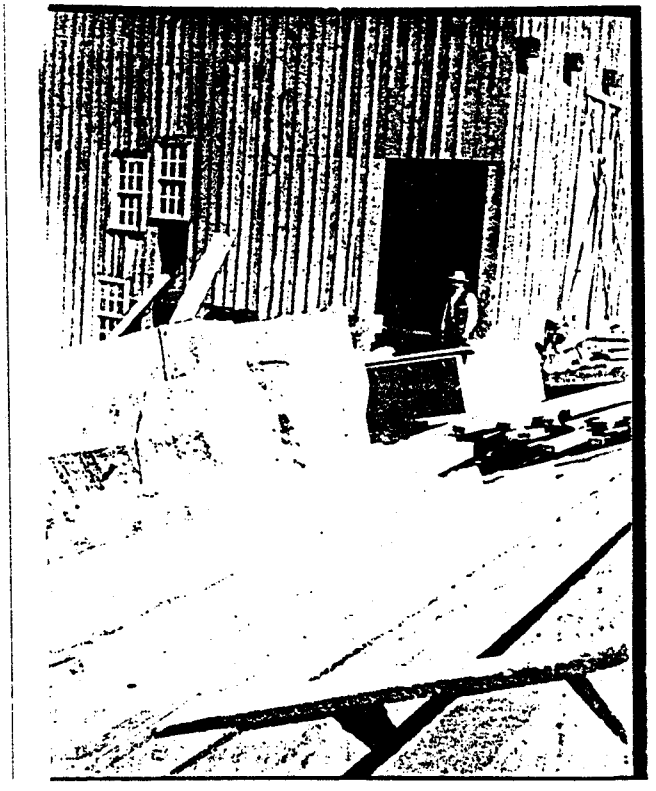


FIGURE 5 - Karma Mine and Mill, circa 1904. **(a)** - Upper - Head frame and hoist hous (with Queen Esther Mill in background left). Note modification to corner of hoist house, required to accommodate the turning radius of a narrow gauge rail line. **(b)** - Lower - Installation of the concrete stamp batteries at the Karma mill. (Gerner photos).

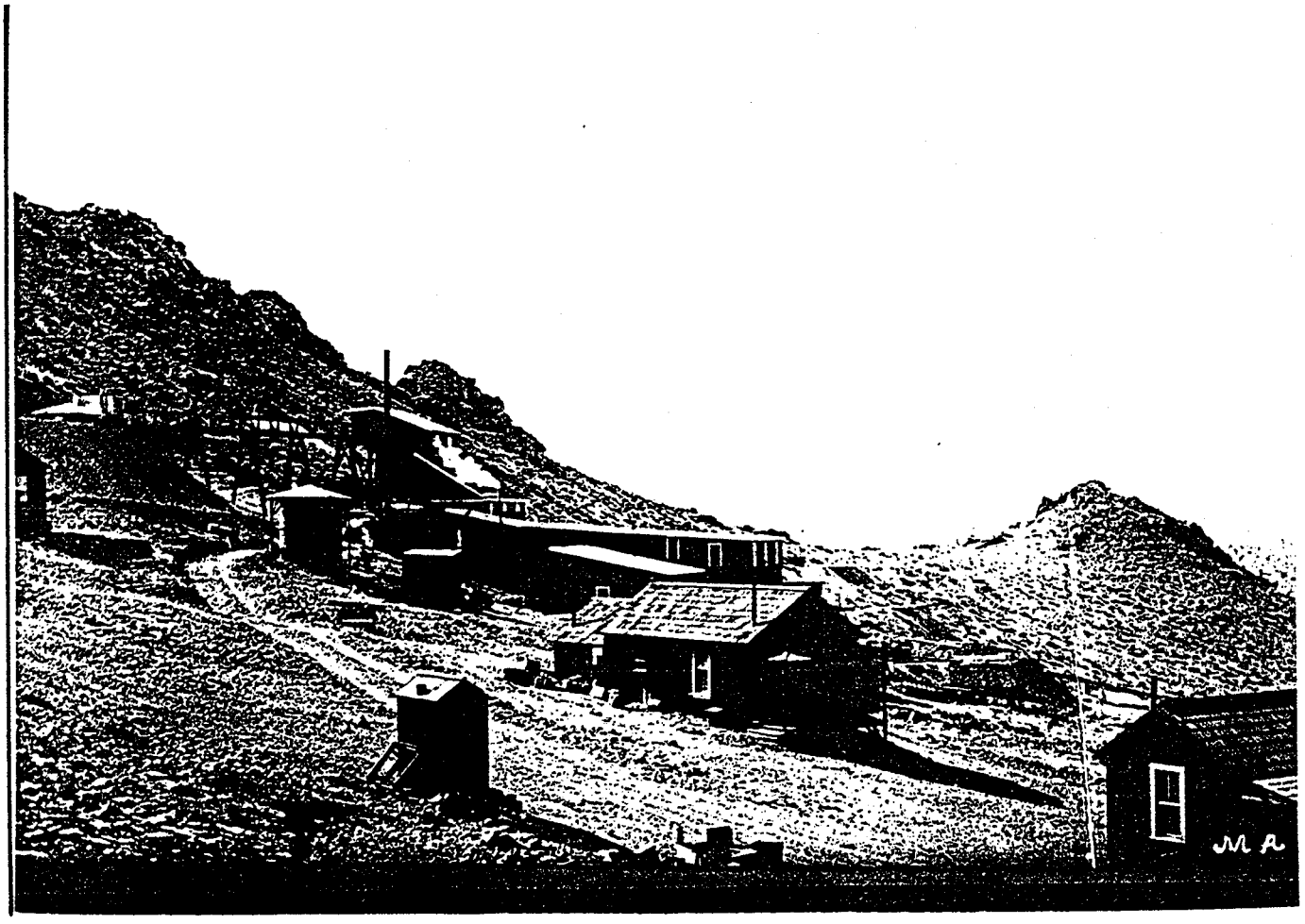


FIGURE 6 - Echo Mill (CA-KER-4450H), October, 1903, viewed from east. Note small size of mill relative to Karma and Queen Esther. Also note saddle or notch in ridgeline, right side of photo. This is the location of the Elephant - Eagle Mill and Mine. As is clear in this photo, no development, beyond possible adits, had occurred at this location at this time. (Marion Auberry photo, CDMG).

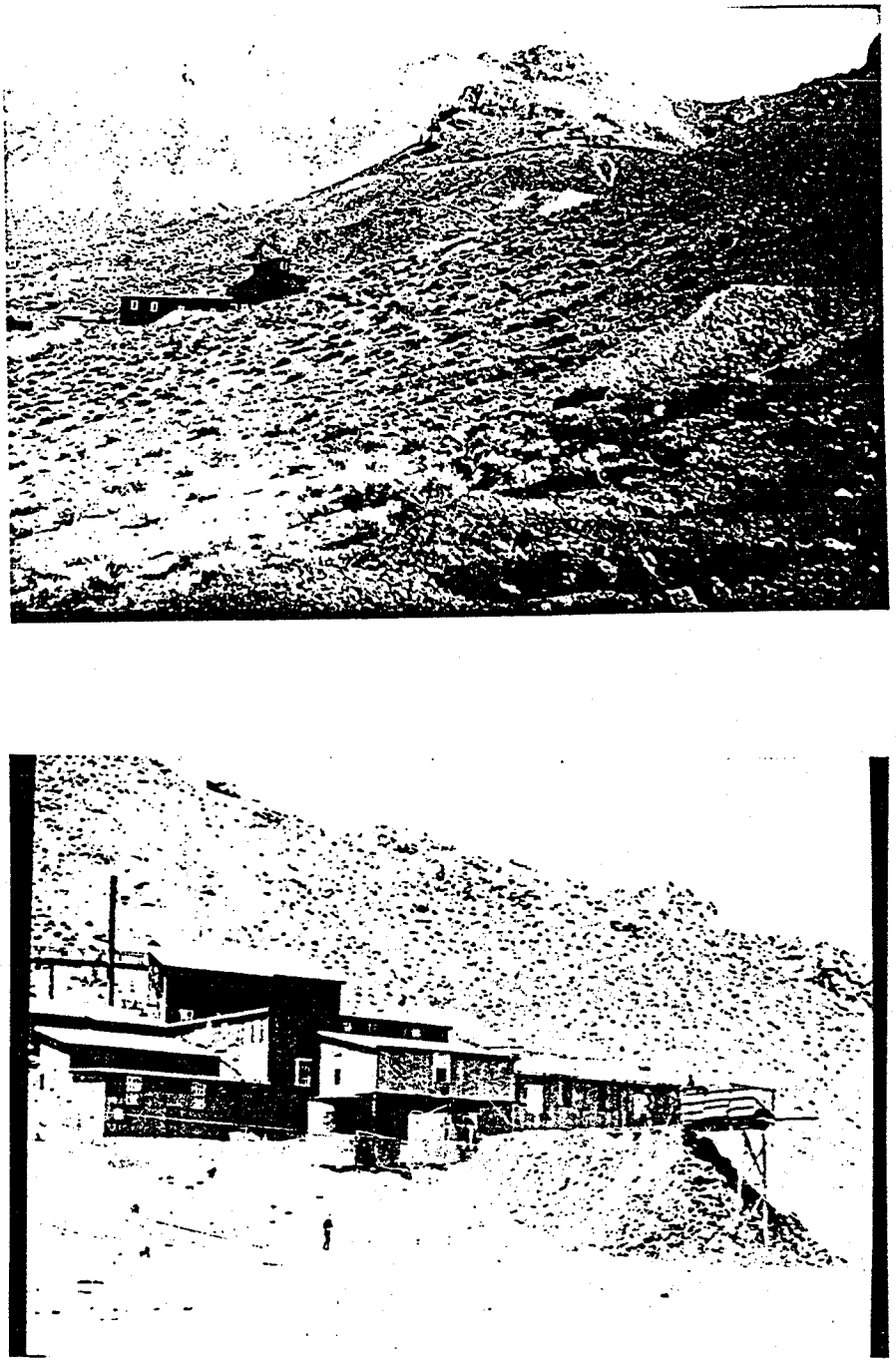
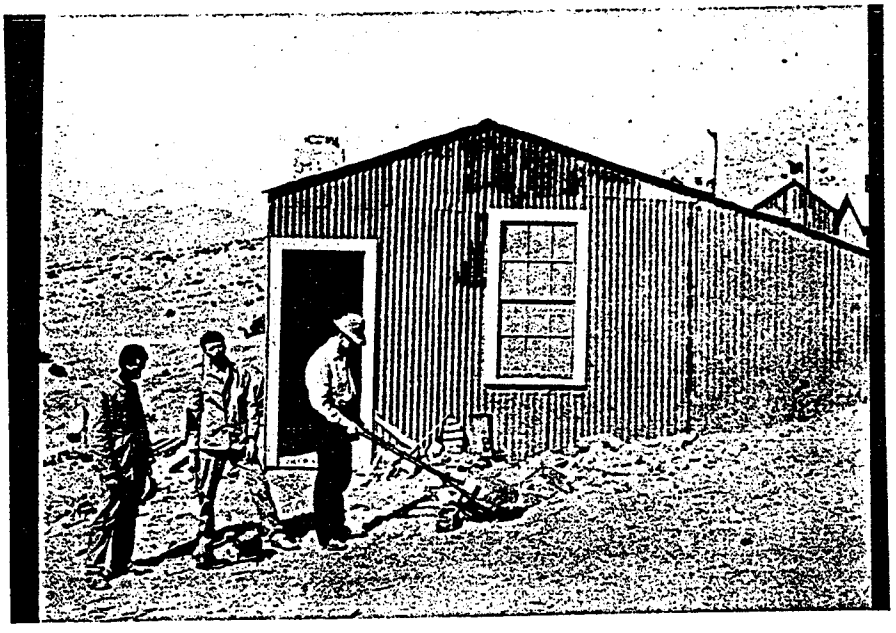


FIGURE 7 - Echo Mine and Mill, circa 1903 - 1904. **(a)** - Upper - View from northwest, in area of future Elephant - Eagle Mill (CDMG photo). **(b)** - Lower - View from northeast (Gerner photo).



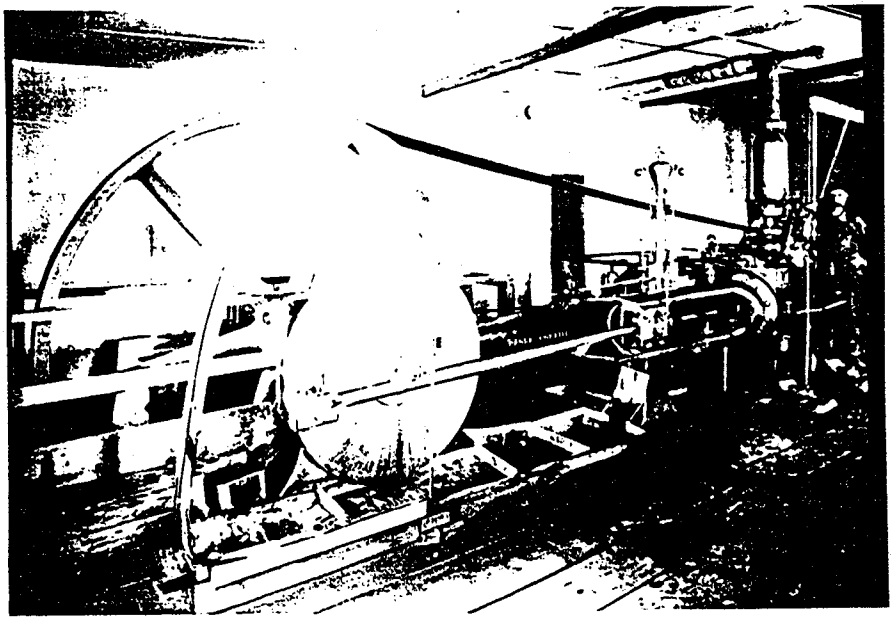
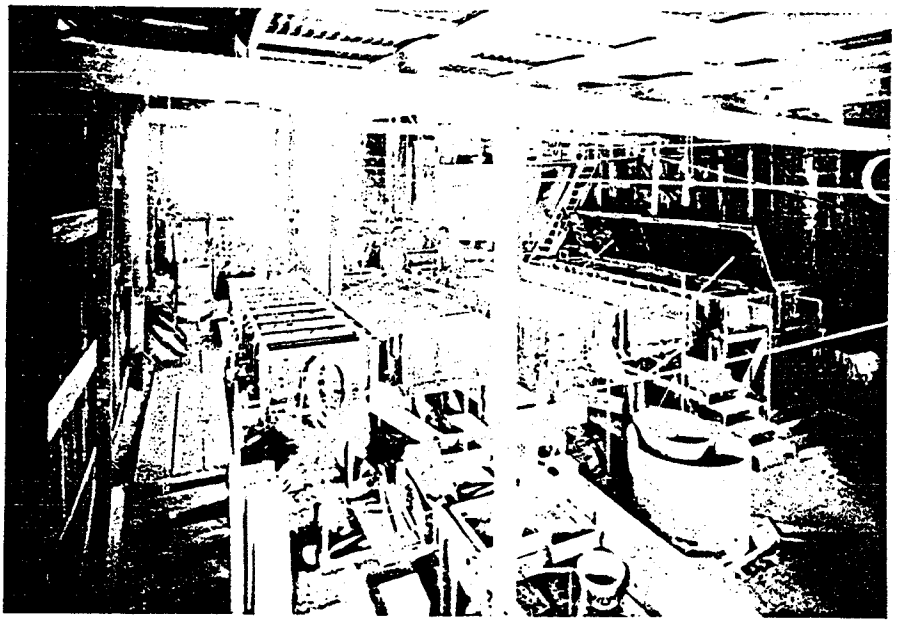


FIGURE 8 - Echo Mill, circa 1903 - 1904. **(a)** - Upper - "Clean-up" at the Echo; **(b)** - Lower - Engine room at the Echo Mill, showing large belt drive. (Gerner photos).



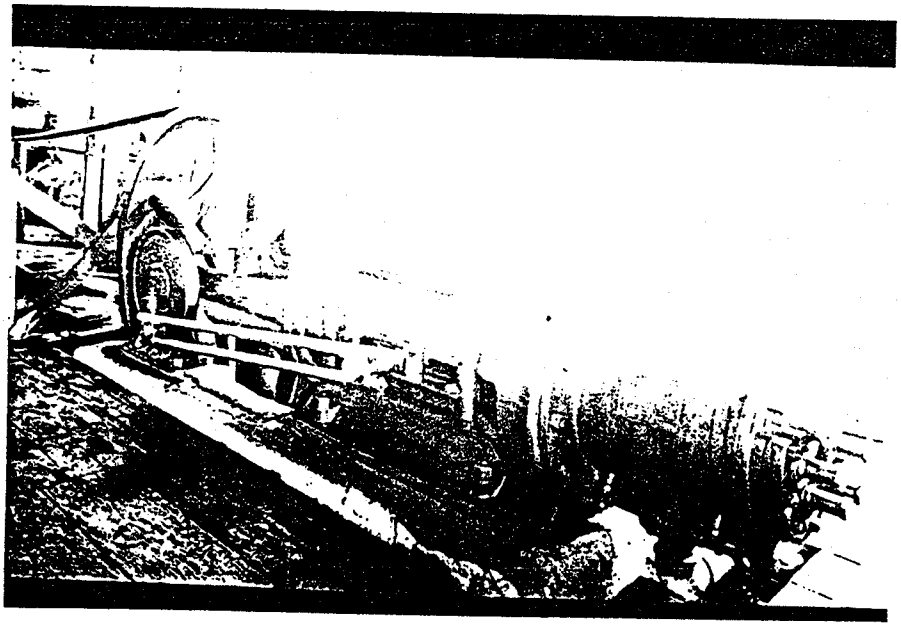


FIGURE 9 - Echo Mill, circa 1903 - 1904. **(a)** - Upper - Zinc tanks. **(b)** - Lower - Air compressor. (Gerner photos).

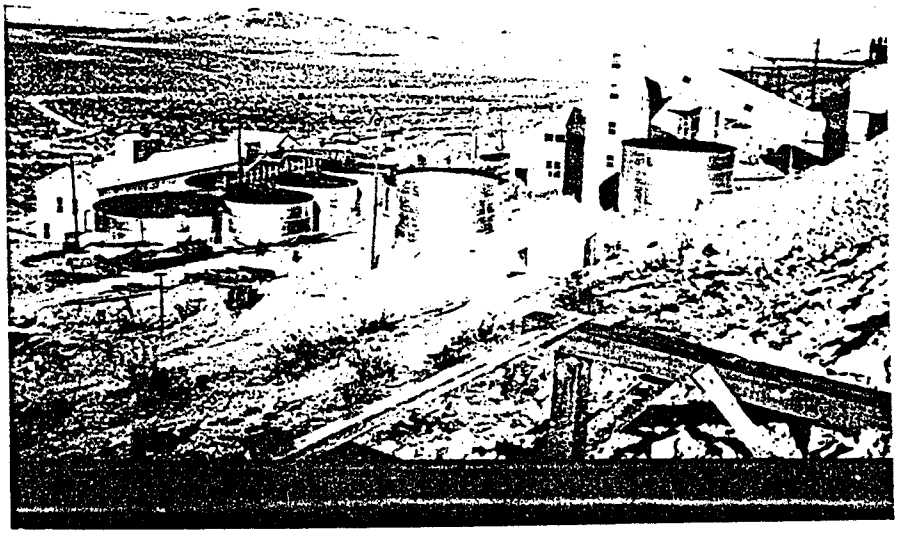


FIGURE 10 - Golden Queen 300 tons mill, looking northeast, 1935, shortly after opening (Walter Bradley photo, CDMG).



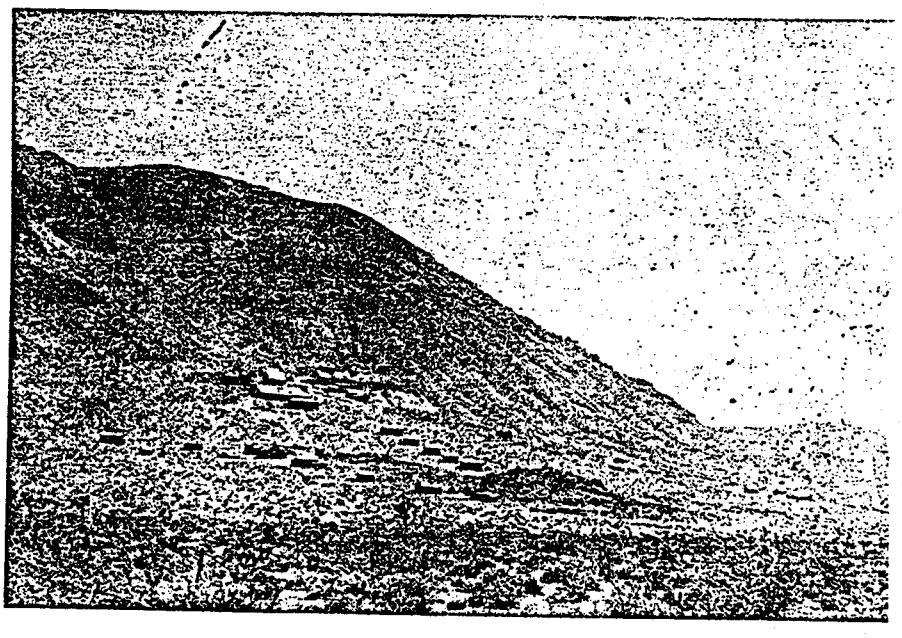


FIGURE 11 - Residential areas on Soledad Mountain, circa 1904. **(a)** - Upper - Wooden structures east of the Wegmen house, with Karma and Queen Esther Mills in the background. Viewed from northeast. (CDMG, Auberry? photo). **(b)** - Lower - Same view, slightly later. Note row of five wooden houses, lower middle of photo, and structures further west (representing "Cobble City"). (Gerner photo).

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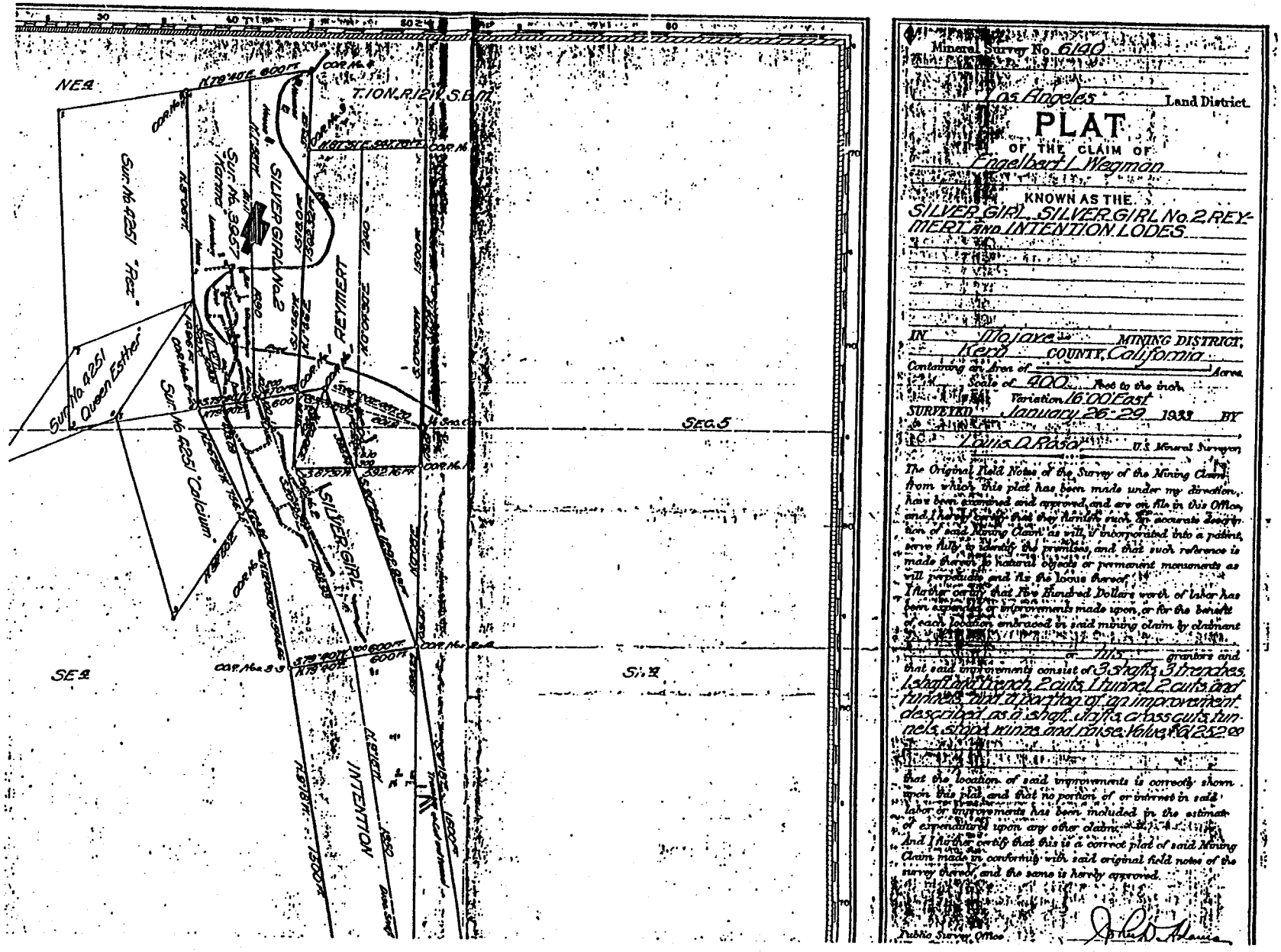


FIGURE 15: 1933 Mineral Survey plat of the Karma mill and property, showing some of the row of houses on the Wegmen site complex.

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APPENDIX A: ARCHIVAL RECORD SEARCH

California
Archaeological
Inventory

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KINGS
MADERA
TULARE

Southern San Joaquin Valley
Information Center
California State University, Bakersfield
9001 Stockdale Highway
Bakersfield, California 93311-1099
805/664-2289 FAX 805/664-2415

To: Robert R. Schiffman (RS# 303)

RE: Golden Queen Mining Co. Project

County: Kern

Map(s): Soledad Mountain 7.5'

The Information Center is under contract to the State Office of Historic Preservation and is responsible for the local management of the California Historical Resources Inventories. The Center is funded solely by research fees, and a grant from the State Office of Historic Preservation. The Information Center does not conduct fieldwork and is not affiliated with any archaeological consultants who conduct fieldwork.

CULTURAL RESOURCES RECORDS SEARCH

The following are the results of a search of the cultural resources site record files at the Southern San Joaquin Valley Information Center. These files include known and recorded archaeological and historic sites, inventory and excavation reports filed with this office, and properties listed on the National Register of Historic Places, the California Historical Landmarks, The California Inventory of Historic Resources, The California Points of Historical Interest and The California Historic Resources Inventory.

The following summarizes the current information available on the subject property based on the records outlined above.

PRIOR CULTURAL RESOURCE INVENTORIES OF THE SUBJECT PROPERTY AND SURROUNDING AREAS

There have been no previous archaeological inventories on the subject property or on the immediately adjacent property. There have been two surveys conducted within one-mile radius of the subject property. Your survey for the Shell Mining Project and a survey done in 1994 by Dorothy Fleagle for Alex Sokolow. According to your map, submitted with your records search request, there was a survey conducted by you in 1988 for Parcel Map # 8686, just southeast of the project area. The report for that survey is not in our files. Please send us a copy of that report so we may incorporate it into our system.

KNOWN CULTURAL RESOURCES ON THE SUBJECT PROPERTY

There are two recorded archaeological sites on the subject property. CA-KER-764H & CA-KER-765. The historic site is a mine related site from the early 1900's. The prehistoric site consists of bedrock milling features. Both were recorded in 1977 by Montizambert & Portillo. It would be advisable to relocate these sites and update the records accordingly.

KNOWN CULTURAL RESOURCES IN THE VICINITY OF THE PROJECT PROPERTY

There are no recorded archaeological sites on the immediately adjacent property. However, there are three recorded sites within a one-mile radius of the project area, (copies of site records are included).

There are no listed properties on the National Register of Historic Places, The California Historical Landmarks, The California Inventory of Historic Resources, California Points of Historical Interest or on the Historical Resources Inventory.

CULTURAL RESOURCE SENSITIVITY OF THE PROJECT PROPERTY

The Soledad Mountain area of Kern County has long been considered to be sensitive for cultural remains, both historic and prehistoric. Mining operations have been ongoing since before the turn of the century.

RECOMMENDATIONS

A field survey should be conducted by qualified archaeologist of the entire project area. An historian that meets Secretary of Interior standards, with experience in evaluating mining-related resources, should be consulted for recommendations and appropriate mitigation measures during the course of the survey.

As mentioned above, CA-KER-764H and CA-KER-765 should be field checked and the records updated to reflect any changes since they were recorded in 1977.

According to William Seidel, archaeologist for the State Office of Historic Preservation, research of written histories and documents relating to this area should be undertaken, and all major features, such as homesteads, mine entrances, shafts, and foundations, etc., should be recorded and assessed for historical and/or archaeological significance. Features of minor value, such as tailings, cairns, glory holes, and minor ditches should be noted on the 523 Primary Record test form. I have enclosed a copy of the form for your convenience.

(RS# 303)

As you are know, any resources 50 years or older should be recorded on the appropriate forms and assessed for historical significance, as mentioned above.

A technical report should be submitted to our office within 30 days of completion of the field survey.

You stated in our phone conversation today, that you had a "very in depth" conversation with William Seidel at The Office of Historic Preservation regarding this project. Any additional recommendations made by Mr. Seidel, if not outlined above, should be implemented.

If you have any questions or comments, please contact me.

By: Adele Baldwin

Adele Baldwin
Assistant Coordinator

Date: January, 5, 1995

Fee: $90.00/hr. fee

Invoice #: 5796

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SITE RECORD FORMS AND UPDATES

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36. **Photos:** Yes **Taken by:** Whitley
37. **Photo accession no.:** GQ/CC **On file at:** W&S

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CA-KER-44474, CONT'D
Wegmen site

35. Site accession no.: GQ/95-
36. Photos: Yes
37. Photo accession no.: GQ

Curated at: W&S
Taken by: Whitley
On file at: W&S

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FEATURES ON THE WEGMEN SITE COMPLEX

Feature #	Description	Size	Comments
1	Standing woodframe house	10x15m	Single-story, gable front, board & batten shake & tin roof, 3 rooms, w/ assoc'd Depression era trash & artifacts
2	Fallen wood structure	7x15m	Probably house similar to #1
3	Standing 3-hole privy	4x3m	Standing 2 room, 3-hole privy, wood constr.
4	Dump	30x45m	Turn-of-century artifacts
5	Vertical shaft & headframe	20x20m	Reymert Fraction (modern)
6	Collapsing wood structure	7x5m	1 room w/ ~1900-1920 artifacts
7	Board & batten cabin	3x4m	1 room, no roof, ~1900-1920 artifacts
8	Timber & artifact pile	5x5m	Collapsed wood structure?
9	Wood structure	10x6m	Collapsed, assoc'd w/Depression era remains
10	Dump - Depression era	9x20m	Prob. assoc's w/ #9
11	Collapsed wood structure	8x12m	On terraced pad; age ?
12	Cobble foundation	6x10m	Assoc'd w/ 1910-1930s cans
13	Vertical shaft & dug-out (?)	10x10m	Assoc'd w/ #5 (?)
14	Wegmen house complex	---	Wood-sided frame w/ stucco addition, occupied to 1991; 5 assoc'd outbldgs
15	Meehl house complex (ranch)	---	Wood-sided house occupied to 1991, w/ misc ranch outbldgs, incl barn made of RR ties, concrete-bottomed pig-sties, corrals, etc.
16	Collapsed structure	15x6m	Cobble foundation w/ fallen timbers
17	Privies	2x2m each	2 assoc'd w/ #16

(FEATURES SHOWN ON SITE SKETCH MAP)

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FEATURES AT KARMA Mill

Feature #	Description	Comments
KARMA MILL & MINE		
1	Headframe, Hoist house, Haulage adit, etc	Early 20th century + later additions
2	Ore chute & jaw crusher	Depression era
3	Assay office	Early 20th century
4	Stamp mill area	Foundation & stamps only; Early 20th century
5	Tank area	Foundations
6	Retort (?)	
7	Glory hole	

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FEATURES AT QUEEN ESTHER MILL

Feature #	Description	Comments
QUEEN ESTHER MINE & MILL		
1	Mill structure	Collapsing
2	Assay lab	Filling with tailings
3	Wood structure	Collapsed
4	Wood structure	Buried by tailings
5	Tank foundation	
6	Dump & Asphalt work area	Tar barrels and piles
7	Ore haulage ramp	Depression era (?)

(See Sketch Map for Feature Locations).

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CA-KER-4450H, CONT'D
ECHO MILL

35. Site accession no.: GQ/95-
36. Photos: Yes
37. Photo accession no.: GQ

Curated at: W&S
Taken by: Whitley
On file at: W&S

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SITE FEATURES

PAGE 5 OF 5.

ECHO MILL SITE AREA.

FEATURE #	DESCRIPTION	COMMENTS
Echo Mill		
1	Metal structure	Modern
2	Haulage level (?) adit	
3	Concrete foundation	Changing house (?); Depression era (?)
4	Stamp mill foundations	Early 20th century
5	Assay office dump	Disturbed
6	Privy	

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SITE FEATURES

FEATURE #	DESCRIPTION	COMMENTS
Golden Queen Mill		
1	Metal Building	Modern
2	Concrete foundation	Depression era (?)
3	Haulage level adit	
4	Concrete mill foundation	Remnants only; Depression era
5	5 Agitator vats	Depression era
6	Concrete & wood bldg	Shop structure (?); Depression era
7	2 Oliver drums	3rd drum ca. 200 m downslope
8	Pad & prospect	Depression era
9	Concrete structure	5x6 m, 1 room; Depression era (?)

(SEE ATTACHED SKETCH MAP FOR FEATURE LOCATIONS)

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SITE FEATURES

SILVER QUEEN MINE AREA

FEATURE #	DESCRIPTION	COMMENTS
Silver Queen Mine Area		
1	Glory hole	
2	Truck ore chute	Depression era or later
3	Metal structure	Privy, modern (?)
4	Adit & concrete foundation	Compressor Room
5	Wood structure	Collapsed

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SITE FEATURES

PAGE 4 OF 4.

GYPSY - STARLIGHT MINE AREA

FEATURE #	DESCRIPTION	COMMENTS
Gypsy Starlight		
1	Ore ramp and chute	Depression era or modern; truck
2	Ore ramp and chute	Depression era or modern; truck
3	Ore ramp and chute	Depression era or modern; truck
4	Adit and open cut	
5	Dump	Depression era (?) or later

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CA-KER-4454H, CONT'D
BOBTAIL AREA

32. **References:** Class III inventory of Soledad Mtn; see also Tucker, 1935, Mining Activity at Soledad Mountain..., CA Div Mines Report 31:465-85.
33. **Name of project:** as above
34. **Type of investigation:** Class III inventory
35. **Site accession no.:** GQ/95- **Curated at:** W&S
36. **Photos:** Yes **Taken by:** Whitley
37. **Photo accession no.:** GQ **On file at:** W&S

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SITE FEATURES

PAGE 5 OF 5.

BOBTAIL MINES AREA FEATURES.

FEATURE #	DESCRIPTION	COMMENTS
Bobtail Area		
B1	Pad, cobble wall & dump	Turn-of-century
B2a	Truck ore chute	Depression era or later
B2b	Truck ore chute	Depression era or later
B3a	Adit and wood trestle	Depression era or later
B3b	Wood landing/ramp	Depression era or later
B4	Concrete structure	2 room, Depression era
B5	Ore chute, ramp and adit	Starlight (?)
B6	Soledad Ext Machine Rm fdn.	Concrete foundations; post-Depression + earlier remains
B7	Cobble structure	2x4 m, no roof, no artifacts
B8	Headframe on open cut	Deadman below using cable & 55 gal drums, modern

(FEATURE LOCATIONS ON SKETCH MAP).

ADDENDUM TO PHASE I ARCHAEOLOGICAL SURVEY OF THE GOLDEN QUEEN PROJECT AREA, MOJAVE, KERN COUNTY, CALIFORNIA

Prepared for:

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21 July 1996

Management Summary

An addendum Phase I archaeological survey was conducted on 420 acres for the Golden Queen project area, Mojave, Kern County, California. This involved background studies of published and unpublished reports, documents, maps and other records concerning the prehistory, ethnography and history of this area; an intensive on-foot survey of the study area; and the recording and preliminary evaluation of archaeological sites discovered during this survey. Three archaeological sites were found to lie within the addendum study area, two of which are historical (Euro-American) in age, and the third a prehistoric (aboriginal) site. Due to the presence of these three cultural resources within the addendum study area, the Golden Queen project has the potential to result in adverse impacts to cultural resources. It is therefore recommended that a Phase II test excavation and determination of significance be conducted at each of these sites, from which final recommendations for the management of these sites may be made.

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ADDENDUM TO PHASE I ARCHAEOLOGICAL SURVEY OF THE GOLDEN QUEEN PROJECT AREA, MOJAVE, KERN COUNTY, CALIFORNIA

1.0
INTRODUCTION

At the request of Mr. David Weiss, WZI, Inc., Bakersfield, CA, an addendum survey was completed to augment the previous Phase I archaeological survey of the Golden Queen project area, Kern County, CA. The Golden Queen project area surveyed during the previous archaeological study, completed in October, 1995 (W&S Consultants 1995), comprised a block of private property totaling approximately 600 acres. The additional archaeological survey area, reported on in this manuscript, consists of three private parcels abutting the previous study area. In total, these three properties consist of 420 acres.

The three parcels constituting the 420 acres addendum study area are located in the central portion and western and eastern sides of Soledad Mountain (Figure 1), near Mojave in the southwestern portion of the county. The inventory of this study area was conducted by W & S Consultants, Simi Valley, CA. David S. Whitley, Ph.D., served as principal investigator for this study; he was assisted by Joseph M. Simon, and Tamara K. Whitley, M.A., during aspects of the fieldwork, archival investigations and analytical studies. D.S. Whitley is responsible for the authorship of this report. This addendum survey was completed in July,

1996.

Following the requirements of Appendix K of the California Environmental Quality Act (CEQA), the Phase I addendum survey of the Golden Queen project area involved background studies of the prehistory, ethnography and history of the southeastern Kern County region; detailed archival studies of published and unpublished articles and documents on the study area, per se; a review of archaeological records at pertinent repositories; a complete (100%) survey of the project area; and the identification and recording of sites within the 420 acres addendum study zone. The following sections of this chapter provide details on the background and contextual studies conducted for this inventory; specifically, a summary of regional prehistory, ethnography and history, and a research design for archaeological study in this portion of the Mojave Desert. We also provide details of the archival studies and interviews and oral histories recorded for this project, particularly as directed towards the mining history of the study area. In the following chapter we provide details of the archaeological records search, conducted at the California Archaeological Inventory, Southern San Joaquin Valley Information Center, followed by a description of fieldwork methodology utilized during the inventory of the property. A description of identified historical and prehistoric sites is then presented, which includes a discussion of their current integrity. We conclude with a summary of the results of the field inventory, and recommendations for additional cultural resource management studies within this project area.

1.1 Background Studies

1.11 Environmental Setting

The current study area is located in the central portions and western and eastern sides of Soledad Mountain, which forms a northward extension of the Rosamond Hills in southeastern Kern County, California (Figure 1). As noted above, this addendum study area consists of three discontiguous properties which total 420 acres. The largest of these, designated the "central parcel" in this report, is situated in Section 7, Township 10 North/Range 12 West, and comprises the majority of the northern half of this section. Elevation in this property ranges from below 2900 to over 3600 feet a.m.s.l., and consists of a small valley area, low saddle and the steep western sides of Soledad Mountain. A second study property, designated the "western parcel", lies on the open slopes and flats along the northwestern side of Soledad Mountain, in the eastern half of Section 1, Township 10 North/Range 13 West. Although primarily open and relatively gentle but rocky slopes, this western parcel also includes at its southern end the northern portion of a mud playa. Elevation within this parcel ranges from 2829 a.m.s.l., in the southwestern corner (within the mud playa), to about 2960 feet in the northeast. The third and smallest study property, referred to as the "eastern parcel", is located on the northeastern slopes of Soledad Mountain. Elevation in this parcel ranges from about 2900 to almost 3500 feet a.m.s.l., and comprises the steeply sided northeastern slopes of Soledad Mountain.

Vegetation within the study area is primarily desert sage scrub, with creosote, spiny hopsage, Joshua tree, mormon tea and, in disturbed areas,

Russian thistle, present. Within and immediately adjacent to the mud playa in the western study area, various buckwheat and saltbrush species are also locally present.

In general, the ruggedness of the terrain, combined with the absence of natural resources such as seeps and springs or riparian environments, suggest that the study area would have constituted an unlikely location for prehistoric occupation. Occasional use, however, may have occurred, such as quarrying activities, or opportunistic use of the mud playa when seasonally filled with water. Moreover, the diurnal and seasonal extremes that characterize this area, along with the rapid downslope colluviation engendered by the steep terrain, indicate that it is a region in which prehistoric archaeological site preservation would be relatively poor, especially for sites of any antiquity. Historical (i.e., Euro-American) archaeological sites, of course, are by definition more youthful, and thus less likely to have been destroyed by natural processes. Furthermore, historical activities in this region were much less tied to the same environmental constraints experienced by the prehistoric and ethnographic Native American populations, thus the nature of their distribution can be expected to in some cases vary significantly from that of the Native American sites.

1.12 Regional Prehistory

Recent regional summaries of the Antelope Valley prehistory have been published by Sutton (1988a, 1988b), with syntheses of the related Coso area immediately to the north published by Whitley et al (1988) and

Whitley (1994). Based on these studies, as well as the more wide-ranging cultural historical frameworks for eastern California provided by Hester (1973), Bettinger and Taylor (1974), Warren (1984) and Elston (1982), regional prehistory can be discussed in terms of a series of cultural historical periods, starting with the earliest evidence for human occupation in the western hemisphere.

Pre-Clovis (earlier than 11,200 YBP)

Perhaps the most long-lived problem in New World prehistory has been the question of the antiquity of first occupation, with two positions dividing the discipline: the Pre-Clovis or long chronology, which posits a Late Pleistocene first-migration at some undetermined point prior to 11,200 YBP (years before present); and the Clovis-first or short chronology hypothesis, which argues for an initial migration at the immediate end of the Pleistocene, now set at 11,200. Historically, the the Mojave Desert region has played an important role in this debate, due to the presence of putative early sites in the Manix Lake Basin, in Panamint Valley and around Pleistocene Lake China. E.L. Davis (e.g., 1978), in particular, argued for the presence of Pre-Clovis sites in the region based on three lines of evidence: typological similarities between surface lithic tool assemblages in this region and well-dated typologies in the Old World; the locational context of certain surface sites on well-dated Pleistocene lake terraces and sediments; and the association between surface cultural artifacts and dated paleontological remains.

Because Davis' evidence was based exclusively on surface finds that were, themselves, never directly dated using chronometric techniques, as well as typological comparisons, her conclusions were not widely accepted in the

profession. However, more recently developed evidence (Whitley and Dorn 1988, 1993; Whitley et al 1996) suggests an occupation of the Coso Range at least as early as 19,000 YBP, and perhaps as early as 30,000 YBP in the Mojave Desert generally. These dates were obtained from the direct dating of the rock varnish coating petroglyphs and surface lithic tools, using three independent chronometric techniques: cation-ratio dating, which provides calibrated ages; AMS radiocarbon dating, which provides numerical dates; and the analysis of varnish micro-stratigraphy, which provides relative age control.

Based on these techniques, Whitley and Dorn have obtained a suite of six Pre-Clovis age petroglyphs from the Coso area, in addition to a number of Holocene-dated specimens. The Pre-Clovis petroglyphs include dates that have been confirmed by independent assays on the same petroglyph, using each of these different techniques. For example, petroglyph CM-8 has a radiocarbon age (uncalibrated) of 14,070 $\pm$ 130 YBP (calibrated age, 14,930 YBP). The cation-ratio age on this same petroglyph is 14,200 $\pm$ 1700 YBP, thus providing independent one-sigma confirmation of the Pre-Clovis date. Most recently, advances in the analysis of varnish micro-stratigraphy allow for the identification of diagnostic temporal signals in SEM varnish thin-sections. Key micro-stratigraphic signals are present in the varnish thin-sections at the Pleistocene-Holocene transition, and at approximately 14,000 and 21,000 YBP. Coso petroglyphs dated between 14,000 and 19,000 based on AMS radiocarbon and cation-ratio dating display the 14,000 micro-stratigraphic diagnostic but not the 21,000 YBP signal, thus demonstrating that the chronometric techniques are correctly placing them in the proper part of the Pleistocene.

Similarly, a series of Pre-Clovis varnish ages have been obtained on surface artifacts from the Manic Lake Basin (Dorn et al 1986; Bamforth and Dorn 1988; Dorn et al 1992; Whitley and Dorn 1993). These include Manix Lake Lithic Industry specimens that have been independently dated with cation-ratio and AMS ^{14}C (and with confirmations provided by varnish micro-stratigraphic analyses) that include examples with CR and AMS ages falling within one-sigma standard deviations, and refit flake-core sequences that exhibit internal variances for their CR dates of less than 5%. The ages of these Manic Lake Lithic Industry dates extends back to roughly 30,000 years B.P.

Although there is some controversy concerning these early dates from the Cosos and other parts of the Mojave Desert, no cogent argument has been advanced explaining why they may be incorrect. Indeed, the most typical problem that confronts radiocarbon dating, contamination, would in this case result in younger, not older, ages, thus substantiating the Pre-Clovis argument. Moreover, there are a certain related circumstances that greatly bolster the Pre-Clovis position (Whitley and Dorn 1993). First, attention to the geomorphology and paleoclimatology of the latest Pleistocene indicates that the Pre-Clovis period was one of net erosional degradation. Lowered eustatic sea-levels combined with a series of major flood events resulted in the stripping of sediments in major portions of North America, rather then the gentle forms of deposition that are required for archaeological site preservation. An exception to this pattern occurred in the Basin and Range Province, where stable alluvial fans preserve Late Pleistocene groundsurfaces. Boulders and cliff faces containing rock art, as well, were also not subjected to this erosional

destruction. Thus, there are very few extant geomorphological contexts within which Pre-Clovis finds could be expected to be found. This explains why there is a sudden "explosion" of Clovis age sites and a relative dearth of Pre-Clovis sites in the archaeological record: the Clovis sites appear at exactly the point when the geomorphological conditions change to favor site preservation. Second, archaeological evidence from South America has included a number of well-dated Paleoindian sites falling between 10,000 and 11,200 YBP. As has been pointed out recently, it would have been physically impossible for first migrants to have entered North America sometime after 12,000 YBP and to have colonized South America within 1000 years; this would require rates of population growth unheard-of for human beings, and migration speeds that are manifestly implausible (Whitley and Dorn 1993). Thus, even the South American Paleoindian evidence tends to discount the likelihood of the short chronology for the peopling of the New World.

Although the evidence, accordingly, is mounting for the Pre-Clovis occupation of eastern California, at this point there is relatively little that can be said about this occupation, beyond the simple fact of its presence. Until additional evidence is presented, then, we will not be able to determine whether Pre-Clovis peoples were sedentary or mobile, or big-game hunters versus foragers.

Paleoindian (11,200 - 9000 YBP)

Although the initial occupation of the continent is controversial, there is widespread agreement on the subsequent Paleoindian period, which is typically viewed as pertaining to mobile big-game hunters who exploited Pleistocene megafauna. The hallmarks of the Paleoindian period are the

fluted, collaterally-flaked and basally-thinned and -ground Clovis and Folsom projectile points, during the earlier portions of the period, followed by a series of large, well-flaked but unfluted lanceolate points towards the end of the period. Some scenarios suggest that the big-game hunting practiced by these Paleoindian peoples may be responsible for the extinction of the Pleistocene megafauna, such as Imperial Mammoth, Bison antiquus, and the North American horse; however, recent evidence indicates that the earlier portions of the Paleoindian period comprised a lengthy and severe drought, thus demonstrating that the large mammal herds were already under extreme environmental stress, regardless of the effects of human predation (Haynes 1991). Regardless of the so-called Pleistocene overkill problem, the image of Paleoindians as specialized big-game hunters has become pervasive for North America.

Limited evidence of Paleoindian use of eastern California has been found in a number of areas, including Pilot Knob Valley, immediately to the south of the Garlock Fault; on the shores of Pleistocene Lake China, near Ridgecrest; Fort Irwin, east of Barstow; and, most recently, in the El Paso Mountains, southwest of the Panamints (e.g., Davis 1978; Warren and Phagan 1988; Yohe 1992b). Typically, this evidence consists of isolated (in some cases reused) Paleoindian projectile points, although there is also evidence for Paleoindian petroglyph manufacture in the Cosos (Whitley and Dorn 1987, 1988), with unpublished and at this point unverified reports of megafaunal depictions in the art. Furthermore, an obsidian Paleoindian point from the central Mojave Desert has been sourced to the Coso Sugarloaf Quarry (Sutton and Wilke 1984). These isolated finds and occurrences at a minimum are indicative of at least sporadic Paleoindian use of the region.

Although it is likely that more substantial Paleoindian habitation sites are somewhere preserved in the region, they have yet to be found and a better understanding of the Paleoindian period in this portion of eastern California will only be obtained when such sites are discovered and investigated (cf. Warren and Phagan 1988). In the meantime, growing evidence for Paleoindian occupation, in the form of two Clovis-like projectile points, has been discovered immediately northwest of the Antelope Valley (Glennan 1971; Zimmerman et al 1989), as well as on the off-shore Channel Islands (Morris and Erlandson 1993). With the maritime adaptation this last find implies, it suggests that the monolithic interpretation of all North American Paleoindian period sites as necessarily a product of specialized big-game hunting may be incorrect, and that more regional subsistence variation may emerge once better evidence from the far west has been discovered and analyzed (cf. Willig and Aikens 1988).

Early Archaic (9000 - 6000 YBP)

The Early Archaic period, or so-called Western Pluvial Lakes Tradition, represents the early Holocene in paleoenvironmental terms. Its hallmark is the widely dispersed but ambiguously-dated Western Stemmed Tradition projectile points. These include the local variants known as Lake Mohave and Silver Lake points, which may in fact actually date between 10,500 and 7,500 YBP. Combined with studies of the lithic technologies of Early Archaic and Paleoindian sites, this chronological overlap suggests that the Western Stemmed Tradition was an in-situ development out of the earlier Paleoindian tradition (Willig and Aikens 1988).

Early Archaic sites are most commonly found on the lowest terraces above latest Pleistocene and early Holocene lake basins and stream deltas. They are, accordingly, widely regarded as part of a lacustrine-focussed adaptive strategy. Although a number of authors have cautioned against too simplistic an interpretation of these associations, pointing out the fact that Early Archaic sites are also found in other environments, it nonetheless is apparent that, in eastern California at least, this environmental association and its inferred subsistence implications maintain some verity. Indeed, it can be noted that recent research in the Great Basin has exactly emphasized the general importance of lacustrine adaptations, in contrast to Jennings' (1957) earlier model of a long-lived "desert culture" tradition.

Be these controversies as they may, Early Archaic projectile points are occasionally found in the Antelope Valley, but the sites themselves are relatively rare, and instead are more common to the Basin and Range country proper, to the north. For example, Davis (1978; Davis, Brott and Weide 1969) has identified and discussed the importance of a number of putative Early Archaic sites in the Panamint region. These are located in both the China Lake Basin and the Panamint Valley in former lacustrine environments, and are indicative of the fact that some lakeshore use if not occupation did occur during the early Holocene in this region. However, this must be matched against the fact that Western Stemmed Tradition points have also been recovered as isolates in upland environments in the Cosos (Elston et al 1983). Thus, although lakeshore exploitation may have been an emphasis during the Early Archaic in eastern California, this apparently also incorporated mobile hunting into other environments as well.

Middle Archaic (6000 to 4000 YBP)

Be this early evidence as it may, what is incontrovertible is that, regardless of date of initial occupation, substantial inhabitation did not occur until much later, with the start of the Middle Archaic or Pinto Period, at about 6000 years B.P. This lasted until approximately 4000 years B.P. A number of sites from this time period are known from the Rosamond area, specifically associated with the prehistoric shoreline of Rosamond Lake. Notably, sites dating to this time period apparently emphasize the use of rhyolite as a lithic resource, almost to the exclusion of crypto-crystallates, such as chert and jasper.

The Middle Archaic, however, corresponds essentially to the Altithermal paleoenvironmental period, and is a controversial topic in Mojave desert prehistory due to its cultural and chronological ambiguity. Much of the ambiguity stems from the uncertainty in the chronological placement of the Pinto series projectile points. Seemingly, there are as many chronological scenarios for the placement of Pinto points as there are archaeologists working on the problem (cf. Meighan 1981; Jenkins and Warren 1984). What this ultimately may suggest is that much more regional variation existed during certain periods of the prehistoric past than is currently being recognized.

In the Coso area to the north, but not necessarily elsewhere in eastern California, there is little if any evidence for Middle Archaic occupation, at least if Meighan's (1981) obsidian hydration date revisions for the Pinto series points from the Little Lake site are accepted. That is, existing evidence could be interpreted to signal a diminuation in occupation, if not an outright abandonment, in this region, apparently corresponding to the

hot and dry climatological conditions of the Altithermal. However, it is also possible that local inhabitants may have adopted a subsistence strategy and settlement pattern with little archaeological visibility on the landscape during this period; e.g., a highly mobile pattern. Although this alternative interpretation of the apparent dearth of Middle Archaic sites must be acknowledged, it seems implausible in light of the fact that extremely dry conditions would be more commonly predicted to result in a stronger form of "tethered nomadism", and thus greater archaeological visibility, around water sources. Moreover, there is clear evidence for Middle Archaic settlements in the Fort Irwin area (e.g., Jenkins and Warren 1984), to the east of Barstow, suggesting that not all portions of eastern California were abandoned at this time; again, emphasizing the possibility of more regional variability than heretofore acknowledged.

Late Archaic (4000 to 1500 YBP)

Much less controversy surrounds the subsequent Late Archaic period, or Elko Period, lasting from about 4000 to 1500 years B.P., which correlates with improved and wetter environmental conditions across the far west. Although sites from this time period are sometimes considered rare in the Mojave Desert, it is notable that many of the subsequent Rose Spring Period villages (see below) were first occupied during this earlier phase. That is, as has been noted by a number of authors, there seems to be a strong continuity between the Elko Period and subsequent times, with the latter period materials masking or burying the Elko remains. In the Antelope Valley region this begins with a major increase in population beginning about 3000 years B.P. (Sutton 1988b:23).

Similar patterns have been noted in surrounding regions. For example, the

start of the Late Archaic in the Coso Range region is posited to represent the initial establishment of the primary settlement and subsistence systems that are currently archaeological visible (Whitley 1994), while this same period has been recognized as experiencing a major, far western North American-wide expansion of settlements into new environments and increases in population, stretching from the Great Basin of eastern California, through the southern Sierra Nevada, across the Transverse Ranges, and down to the coast (Whitley, Gumerman and Simon n.d.). The primary temporal diagnostics for the Late Archaic are Elko and Gypsum series projectile points.

In the Coso Range, the Late Archaic is signaled by the establishment of major winter villages, typically at springs, in valley bottoms on the western and wetter side of the range. Analyses of paleoethnobotanical and faunal remains suggest a generalized foraging strategy, emphasizing all available resources (e.g., Gumerman 1985), including buckwheat stands around small mud-playas (Whitley et al 1988). This evidence is complemented by an extensive but seemingly non-logistically organized use of all upland environments. Included here is a significant quantity of isolated projectile points in the uplands, suggesting mobile hunting patterns (Elston et al 1983). Furthermore, the Late Archaic witnessed the beginning of the intensive exploitation of the Coso Sugarloaf obsidian quarry, an event that apparently correlates with the beginning of the inland-to-coastal obsidian trade in south-central California (Whitley, Gumerman and Simon n.d.).

Rose Spring (1500 - 800 YBP)

The Rose Spring Period is differentiated from the earlier Late

Archaic/Elko Period by the introduction of the bow and arrow and a change from spear points to arrow points at circa AD 500 (cf. Yohe 1992). This transition is, in technical terms, dramatic. In fact, the introduction of this new weaponry technology probably did not have any immediate major impacts on social or cultural systems. At least initially, the settlement and subsistence systems were stable, and lithic technology and production did not noticeably change (Allen 1986).

Moreover, and as implied above, in all other respects Rose Spring times appear to have been a continuum from the earlier patterns, so that the change in hunting technology was probably less important than we might otherwise presume. Within the Antelope Valley area, Desert Village Complexes, representing a major change in magnitude of settlements, were founded at least by Rose Spring times, and perhaps towards the end of the earlier Elko phase. Two of these have been identified by Sutton (1988a, 1988b) in the foothills of the Antelope Valley, with a third between Rosamond and Rogers Dry Lake, and a possible fourth at Koehn Lake. It is possible, if not likely, that these represent the founding of the tribelet system of political organization in the region.

At approximately AD 1000 - 1200, however, a shift in settlement and subsistence practices began that, ultimately, culminated in the protohistoric/ethnographic patterns referred to as the Latre Prehistoric or Numic Period (discussed below). This involved the abandonment of some winter villages (or at least a reduction in the intensity of their use); the establishment of logistical base camps around springs in the upland environments; an increasing emphasis on a relatively specialized diet focused on seeds and the pinyon nut; and a great increase in the

production of petroglyphs (Whitley 1994). That is, settlement patterns became more organized and focused, while subsistence was increasingly specialized, and ritual became more common.

The causes for this transition are not yet fully understood. Bettinger and Baumhoff (1982), for example, have accepted it as an empirical fact, with the subsistence change then linked to the putative spread of Numic peoples out of eastern California at about this time. They have then taken the position that the phenomenon to be explained is not the cause of the subsistence change, but the reasons why such a change was adaptively more successful, and how it can then be used to account for the historical distribution of Numic languages. The implicit assumption in such an approach is that evolutionary transitions are to be expected due to the inherent tendency for greater fitness to emerge in populations.

While this last tendency may or may not be so, it overlooks pertinent related evidence; namely, that this same time period experienced a major drought that effected all portions of western North America, from northern Mexico through the Southwest, across the Great Basin, and even into the Channel Islands. Moreover, the environmental stress engendered by this drought has been cited as a causal factor in the abandonment of Anasazi pueblos in the Southwest, as well as the southward retreat of Mesoamerican civilization with the collapse of Tula. Perhaps more to the point, Arnold (1993) has noted the influence of this drought in creating resource stress that was a contributing factor to the appearance of a simple chiefdom in the Chumash region near Santa Barbara. Similarly, Whitley (1994) has argued that this transition in eastern California represents the first appearance of Numic bands and headmen; specifically, that it was the

increasing perceived need for ritual specialists in the form of rain shamans during this period of environmental degradation that led to the establishment of bands and the creation of headmen. In this interpretation, the accelerated production of Coso petroglyphs (which are know ethnographically to have been tied to rain shamanism) is taken as a reflection of the growing number of ritual specialists, with the appearance of a logistically-oriented settlement pattern a sign of increasing sociopolitical control and organization.

Late Prehistoric (800 - 140 YBP)

The Late Prehistoric (or, in some areas, Numic) Period, from 800 years B.P. to the Historic Period, represents a continued growth in local population, with numbers of people apparently quite high. It is distinguished from previous Rose Spring times by the introduction of brownware ceramics and a change in projectile point types: from Rose Springs types to Desert Side-Notched and Cottonwood Triangular. Sutton (1988a, 1988b) notes that a boundary of some sort developed during this period: Desert Side-Notched points, brownware ceramics and obsidian are all common from the Fremont Valley northward; south of this area, in the Antelope Valley proper, ceramics and obsidian are rare, and Cottonwood Triangular points are the predominant projectile point type. This apparently correlates with similar patterns further towards the coast: at about 800-1000 years ago the desert-to-coast obsidian trade dried up, and Rose Spring-like projectile points were replaced by Cottonwood-like points, with Desert Side-Notched points rare.

The Protohistoric/Historic phase of the Late Prehistoric, representing the

last 300 years, is apparently marked by a major disruption in indigenous settlement, and a corresponding paucity of sites. According to Earle (1990), missionization pulled many of the region's inhabitants away. Subsequently, the Antelope Valley area was used as a staging ground for rustlers and other miscreants, who were raiding the missions' livestock. The result was that the area became somewhat of a no-man's land which, no doubt, has also contributed to the paucity of ethnographic information on it.

1.13 Regional Ethnography

The Antelope Valley and environs are, unfortunately, one of the most poorly known regions, ethnographically speaking, in California, which is a state that is generally renowned for the detail of its ethnographic record (cf. Kroeber 1925). Thus, the valley contrasts quite sharply with certain of its immediately surrounding areas, such as the southern Sierra Nevada to the north, for which there is a wealth of ethnographic reports and data, and even the Santa Barbara Channel region to the west/southwest. Even though the ethnographic inhabitants of this last area were disrupted very early-on by missionization, our record of their life ways is nonetheless more complete than for the groups that inhabited the Antelope Valley. Luckily, some of the early confusions and misconceptions concerning even such fundamental problems as who the ethnographic inhabitants of the Western Mojave Desert area actually were are now becoming clarified. Earle (1990), in particular, has done much to disentangle previous misconceptions concerning the ethnolinguistic affiliations of the Antelope Valley's inhabitants, and a summary of his recent ethnohistorical

conclusions provides an appropriate overview for the aboriginal history of the region.

According to Earle's reconstruction, the Valley was inhabited during the Historic/Protohistoric period by three distinct language-speakers, one group of whom could be further subdivided into two (and perhaps three) fairly distinctive dialects. The most significant linguistic division existed between the Kawaiisu speakers, who lived in Tehachapi Valley, through the southern Sierra Nevada and eastward across Fremont Valley towards Red Mountain and into southern Panamint Valley, and the groups to the south and west in Antelope Valley per se. The Kawaiisu language is a member of the Numic branch of the Uto-Aztecan language family, and is thereby most closely related to the Shoshonean and Paiute languages of the Great Basin.

South and westward of the Kawaiisu were two other members of the Uto-Aztecan language family, but in this instance both were distinct languages belonging to the Takic (as opposed to Numic) branch, specifically to the Serran Takic branch. Along the southwesternmost side of the valley, including the northern foothills of the Liebre Mountains and the southern side of the Sierra Pelona, were the Tataviam, a little-known group identified due to the existence of a few early word lists. Related to them linguistically, but speaking a distinct language, were the better-known Kitanemuk, who occupied the western Antelope Valley and the Tehachapi Mountains west of Tehachapi Pass. Living to the east of the Kitanemuk, who extended to approximately the current location of Highway 14 where it heads north across the Valley, were a group of closely related peoples that Earle (1990) has identified as the Haminat. Apparently, Haminat and

Kitanemuk represent dialects of the Serrano language, which also included Serrano proper and Vanyume (or Beñemé).

According to Earle's analysis, there was a linguistic continuum along the northern side of the San Gabriel Mountains in the Western Mojave Desert, from the Serrano through the Vanyume and Haminat to the Kitanemuk, at the western end. Haminat, apparently, was more closely linked with Vanyume/Serrano proper than Kitanemuk, although it was still simply a dialectical variant of it. But, with the Serran continuum along the northern side of the San Gabriels, and with all of this linguistic variation present during the Historic period, it is easy to understand how ethnographic confusion developed in regards to this region.

The Golden Queen study area falls near the boundary of Kitanemuk and Haminat territories, and may have, at different times, been used by both groups. Perhaps more important than these minor linguistic distinctions, similar cultural patterns were followed by all the inhabitants of the region, with certain minor distinctions. In terms of subsistence, for example, all groups were foragers, with food sources derived principally from gathering. The exact plant species exploited was dependent on seasonal availability, as well as geographical/environmental location. In the higher, montane portions of the region (e.g., towards Tehachapi and along the slopes of the San Gabriels), acorn-bearing oak and pinyon pine nuts were staples. In the lower lying, more desertic zones, mesquite, yucca and a variety of other edible plants were emphasized. Hunting also contributed meat protein, and principally emphasized small game, such as hares, rabbits and rodents. However, the notion that these hunter-gatherers based their subsistence to large degree on big-game hunting (such as deer,

antelope and mountain sheep) has proven to be an anthropological myth.

Cultural commonalities were also maintained in religious beliefs and practices, which were uniformly based on shamanism. This is predicated upon perceived direct and personal interactions between an individual and the supernatural world, with this interaction founded on entering an altered state of consciousness. Shamans, per se, were ritual specialists who held an unusual degree of interaction with the supernatural world, and thereby acquired a high degree of supernatural power. Although formal rituals and ceremonies were limited in number and elaboration, the shamans served as the ritual officers for these. Further, the shamans also were responsible for painting and pecking the rock art that is found in this region: rock art sites served as their vision quest locales, where the shamans entered trances to have visions and thereby acquire supernatural power. And, the art depicted at these sites displayed the visions and spirits they saw in their altered states of consciousness (Whitley 1988, 1992).

Following general California patterns, there were also a number of similarities in social and political organization across the Antelope Valley. Earle (1990) has suggested that the Haminat may have been organized into exogomous clans and moieties, whereas the western groups might have lacked these, and in this sense the Haminat could have been more like the southern California Desert groups like the Serrano and Cahuilla, with the other groups more similar to the south-central California culture of the Chumash and related peoples. However, given that the exact social organizational systems of the Chumash have yet to be defined (for example, there is still debate whether they were matrilineal or patrilineal),

and since we do not yet know whether they had a moiety system or lacked it entirely, it may be too early to draw such fine-grained distinctions concerning social organization.

What is apparent, however, is that the region as a whole apparently lacked any political organization beyond that of the tribelet, or what Earle has identified in the Spanish records as naciones. These were autonomous land-owning groups, focused on a principal village and led by a a headman or chief, and probably comprising a lineage system or clan. In this sense, the Antelope Valley can be said to follow the political organizational pattern found throughout most of Native California. This, of course, further links it with Californian, as opposed to Great Basin, cultural patterns.

1.14 Historical Background

Perhaps because of the use of the Antelope Valley as a staging area for Indian raids on the estancias and missions closer to the coast, Euro-American settlement and development of the area was a little later dating than in other parts of southern California. As a result, the history of the Antelope Valley to about the 1860s principally involved various explorers who traversed it: for example, Pedro Fages crossed the southern valley in 1772; Fr. Garcés crossed the west end and went through Willow Springs (southwest of the Golden Queen study area) in 1776; Jedediah Smith, similarly, went across the western valley in 1827 and also visited Willow Springs, as did John C. Fremónt and his guide Kit Carson in 1844. The Rogers and Manly party - the Jayhawkers or Death Valley '49ers - camped

at Willow Springs towards the end of their dramatic 1849 expedition across the Mojave Desert, as well. And Lt. Edward Beale, at the lead of a caravan of camels, came across the southern side of the valley in his 1857 trip to Fort Tejon (Bancroft 1963; Settle 1963:61; Boyd et al 1982).

It was not until the 1860s that the first settlers moved into this region, settling mostly in the Elizabeth Lake region and the southern foothills of the Tehachapi Mountains, and involved principally in ranching. With the development in 1868 of the Cerro Gordo silver mine in Inyo County, however, the Antelope Valley became a major thoroughfare for the movement of bullion and goods between Los Angeles and the Owens Valley (Chalfant 1933); indeed, efforts to wrestle control over the Inyo silver trade away from Los Angeles became a major theme of California economic history in the 1870s (Nadeau 1965). Los Angeles managed to maintain its monopolization of this trade, nonetheless, with Remi Nadeau's freight-line playing a major part in the transshipment of goods and ore across the valley. Willow Springs and its adobe tavern, again, served as a major stop on this route, with the stage line then essentially heading south (on the route that would eventually be adopted by the railroad), for a 28 mile stretch through Cow Hole to Barrel Springs, at the mouth of Soledad Canyon, and subsequently through the canyon for the uphill climb through the San Gabriel Mountains. Old Nadeau Road, which parallels Pearblossom Highway near the Vincent Hills at the southern end of Palmdale, is apparently a remnant of this original freight-line route, which proved so instrumental in the growth of Los Angeles as the economic center of southern California.

Shortly after the establishment of the first permanent school in the region,

in 1869 at Elizabeth Lake, a number of settlers' colonies sprang-up within the valley, including Wicks, Manzana, Chicago, Kingsbury, John Brown, Old Palmdale, Almondale and Llano (Settle 1963). However, the major impetus to settlement resulted with the completion of the Southern Pacific railway through the valley in 1876. One immediate result of the rail line was the establishment of the town of Mojave in this same year. The coming of the rails also fostered the establishment of towns such as Rosamond, Lancaster and Palmdale, which appeared by 1882.

The Southern Pacific Railroad arrived in Mojave on August 8, 1876. The location of the current depot, on the west side of Highway 14, was the location of the original depot site, although the existing depot building is a later construction. A freight depot was added on August 20 of the same year and, before long, the town turned into a division point for the rail line. With the railhead at Mojave, the San Bernardino Borax Company began hauling its borax to the town on mule teams; the Baldheaded Eagle Borax Company began using the town as its railhead a few years later, in 1881. The Santa Fe Railroad arrived in 1884, as did the famous "20 Mule Teams" of the Pacific Borax Company, truly making the town a transportation hub for the region. The Pacific Borax Company continued with its mule team loads to the railhead until 1889, when a spur line reached their mining operations (Deaver 1967).

The original town site of Mojave was laid-out by the Southern Pacific at the time that the rail went through. Initially it was simply a residential camp for railroad employees consisting of a few wooden shacks, but it was of sufficient importance that a post office was opened in October, 1876. Because of its position as a transportation hub, Mojave quickly attracted

additional residents but was not filed as a subdivision until 1905 (ibid). Growth at and after that point was spurred by two early twentieth century developments. The first was the increasingly important mining activities at Standard Hill and Soledad Mountain, south of town. The second was the construction of the Los Angeles Aqueduct, built between 1907 and 1913, which brought literally thousands of workers into the region. In addition to its function as a transport hub, Mojave served as the "watering hole" for the mine and aqueduct crews, and was widely renowned for its saloons and brothels, which were said to outnumber the churches in town by 10 to one.

The historical importance of the Golden Queen study area, of course, primarily concerns the mining history of the Mojave Desert. This has been summarized in period and more recent publications, with Brown (1915), Clark (1970), Hensher and Vredenburgh (1991), Miller and Miller (1976), Settle (1963, 1967), Settle and Settle (1984) Troxel and Morton (1962), Tucker (1923, 1935), Tucker and Sampson (1933), and Tucker, Sampson and Oakeshott (1949) constituting the primary sources. The history of this area has been synthesized from these and other sources.

The first recorded mining activity in the region occurred on March 8, 1894, when W.W. Bowers found gold on a promontory south of Mojave, then known as Little Buttes (subsequently changed to Bower's Hill and now Standard Hill). His first claim was the famous Exposed Treasure mine, which he brought into operation shortly thereafter, shipping ore worth $60/ton. By 1896 a camp had sprung up around this site (Hensher and Vredenburgh 1991). The Exposed Treasure discovery apparently spurred local interest in prospecting as, later in 1894, Ezra M. Hamilton discovered

gold in the Rosamond Hills, to the south, at a location that would eventually become known as Tropico (Settle 1963, 1967).

Mining activities within the Golden Queen study area were apparently stimulated by the Exposed Treasure discovery, and can be divided generally into three periods. The first, stretching from 1894 to about 1910, was an era of prospecting and the development of a series of early properties and mills (Tucker 1935). The three primary mines in operation during this period were the Karma, Queen Esther and Echo, each of which had their own mills, with lesser amounts of mining at the Eagle Group and Bobtail claims, neither of which had mills during this period. These mines and mills were all located along the northern face of Soledad Mountain, outside of the addendum study area.

Activity was minimal from about 1922 to the start of the Depression when, like many mining regions in the west, numerous small scale mining efforts were started. According to Tucker (speaking of the Mojave mining district as a whole, which included the Tropico area 17 miles to the south and Standard Hill to the north), about 50 to 70 leasers worked old mines from 1931 to 1934, hauling their ore to the Tropico for milling (Tucker 1935). Activity accelerated dramatically during the mid-1930s on Soledad Mountain, however, when the Mojave Mining District was revived by the discovery of the Silver Queen vein, leading subsequently to the establishment of the Golden Queen mine and mill. This represented the second primary period of mining within the study area, with the Golden Queen building a major cyanide plant, and consolidating a number of the earlier claims and patents. Again, this mine was located on the northern side of the mountain, and outside of the addendum study area. Depression

era mining terminated in 1942 with the official closure of all gold mines by the War Production Board. The final period of activity has occurred in recent years, during which time a limited amount of mining has been conducted on different claims on Soledad Mountain. These tend to concentrate on the northern and eastern side of the mountain.

As is clear from the above-referenced records and publications, the addendum study area falls outside of the primary areas of historical mining activities on Soledad Mountain. However, it can be expected that the mountain in its entirety was intensively prospected, especially during the initial phase of exploration and development around the turn-of-the-century. This would suggest that, even while major historical sites are unlikely to exist within the addendum study area, it is possible that small prospects and prospectors' camps may be present in this area.

2.0
ARCHIVAL RECORDS SEARCH

The background research for the addendum survey of the Golden Queen study area required two kinds of archival research. First, in order to develop an adequate understanding of the documented history of the study area, published and unpublished maps, documents and records were examined at the Kern County Recorder's Office, the UCLA Earth and Space Sciences Library, and the BLM offices in Bakersfield and Ridgecrest. These sources provided data in the form of mineral claim, sales and patent documents on the property, period newspaper articles on mining activities at these mines and in the region generally and, through the assistance of Larry Vredenburgh, the Gerner photo collection of the property, which consists of a series of black and white pictures of the mines and residential areas taken about 1904. The information taken from these sources has been summarized in the historical background presented above, and in the initial Phase I survey of the study area (W&S Consultants 1995). The second type of archival review concerns a study of the archaeological site records, maps and files housed at the California Archaeological Inventory, Southern San Joaquin Valley Archaeological Information Center (AIC), at California State University, Bakersfield.

An archaeological records search was conducted by AIC staff to determine whether the 420 acres addendum study area had been previously surveyed by archaeologists, and whether any archaeological sites had been previously recorded on it. The complete results of this records search are included as Appendix A to this report.

Based on the AIC files, the Golden Queen addendum study area had never been systematically surveyed by archaeologists in its entirety, and no sites had been recorded on any of the three properties composing this 420 acres study zone. Thus, it was apparent that an intensive Phase I survey was required for this property, especially given the documented history of mining activities summarized above.

3.0
FIELD METHODS

3.1 Field Methods

Field methods employed during the addendum survey of the 420 acres Golden Queen study area were intended to duplicate the procedures and techniques employed in the previous Phase I survey (W&S Consultants 1995), and to thereby obtain complete (100%) survey coverage of the study area. They included intensive, on-foot examination of the groundsurface of the 420 acres study area; the identification and location of discovered sites; tabulation and recording of surface diagnostic artifacts; site mapping, using Brunton compass, surveyor's tape and a Magellan Pathfinder GPS; preliminary evaluation of site integrity; site recording, using established procedures and forms (see Office of Historic Preservation 1995); and the photographic recording of a selection of the sites. No collection of archaeological remains was made during the Phase I survey.

Because the study area contains considerable topographic variability, different surveying strategies were employed during the inventory. In the areas of flat terrain to moderate slopes (typically in the "western parcel" study area), the groundsurface was examined with the crew spaced at approximate 15 - 20 meter intervals, walking transects across the study area to identify artifacts or other archaeological indicators that might be present on the groundsurface. Ridge lines were covered in a similar manner. Steep slopes (generally exceeding the angle of repose), which comprised a large portion of the "central" and "eastern" parcels of the

addendum study area, were covered by crew-members walking zigzag transects that traversed the slope faces.

In all cases, special attention was paid to depositional environments, such as saddles, swales and toe slopes, where the likelihood of archaeological preservation is enhanced. Further, rock faces, amenable for the creation of rock art or providing locales for rhyolite quarries, and rock shelters, usable for prehistoric habitation, were carefully examined as high likelihood spots for the presence of prehistoric archaeological remains.

3.2 Field Conditions

Field conditions for the addendum Phase I survey of the 420 acres study area were, in general, excellent as regards groundsurface visibility and therefore the ease of site recognition. Vegetative cover varied from moderate to sparse, in areas of flat to moderate slope, to non-existent, on cliff faces, bedrock outcrops and scree slopes. Furthermore, archaeological sites within the study area tended to include structural remains, which were themselves easy to recognize, thereby facilitating site recognition. On the other hand, the extreme slope of portions of the study area made surveying difficult, if not outright dangerous, in some areas.

4.0
SURVEY RESULTS

4.1 Introduction

The survey of the Golden Queen 420 acres addendum study area resulted in the discovery and recording of a three new archaeological site localities. Two of these are historical (Euro-American) in age and are a product of the mining history of the property. The third is a prehistoric (aboriginal) site. We discuss each of these sites in turn below; site records for the three sites are provided in Appendix B of this report. Locations of these sites are provided in Figure 2.

4.2 CA-KER-4693H

The first site discovered and recorded during the addendum survey was located within the "central parcel" portion of the study area; specifically at the eastern end of a small valley which cuts into Soledad Mountain from the west. The site, designated CA-KER-4693H, consists of a series of historical structure foundations, tent pads, trash dumps and possible privy holes, all of which appear to date to the turn-of-the-century period.

At least six structural remains are present on the site, two of which are unmortared fieldstone huts. In both cases these are three-walled ("U-shaped") structures, with smaller abutting U-shaped rooms. Four leveled areas, probably representing tent pads, were also noted. Five small

depressions, which appear to be filled-in privies, were located near the structures and pads. Two dispersed dump areas were also observed. These included hole-in-top tin cans, purple and brown bottle glass, and whiteware ceramics. No makers' marks were noted on ceramics or glass, but the whiteware glaze is "crazed" on a number of specimens, indicating pre-1920 manufacture. This age estimate, moreover, is in concordance with the tin cans and purple glass found on the site.

In general terms, the structural remains are dispersed and the surface artifacts are relatively limited in number and density. Furthermore, there is little evidence of historical mining in the immediate vicinity: we observed a few examples of shallow prospects but no evidence of mining production or even intensive exploration. The conclusion derived from the visual examination during the survey, then, is that CA-KER-4693H represents a small mining camp occupied for a short period during the early exploratory phases of activity on Soledad Mountain, and that the site was quickly abandoned when no important deposits were found on this side of the mountain, and all economic activity shifted to the northern area.

The site area is estimated to be about 100 meters N-S by 50 m E-W. The site is in fair condition: although unlooted, it sits at a sufficiently steep slope to result in significant downslope colluvial movement of artifacts and structural remains.

4.3 CA-KER-4694

The second site discovered during the addendum survey was identified

and recorded in the "western parcel" portion of the 420 acres, near to the southwestern corner of this study zone. The site consists of a low density prehistoric plant processing station located along the northern margin of a dry mud playa. Artifacts present at CA-KER-4694 include three unshaped manos, one lightly used metate fragment, a hammer-grinder-abrader, and a primary flake. Site size is estimated at 100 by 100 meters and it appeared to be in fair condition: the playa location of the site is immediately adjacent to Mojave-Tropico Road and is currently used as an illicit dump area, which has spread trash across portions of the site.

Similar associations of plant grinding stations with dry mud playas have been noted in other portions of the Mojave Desert (e.g., Whitley et al 1988), and appear to reflect seasonal and/or opportunistic exploitation of plant resources in these very localized micro-environments, perhaps buckwheat (Eriogonum sp.), which seasonally fill with water. No temporal diagnostics were observed on the site. Based on studies elsewhere in the Mojave Desert, however, we believe that these sites date to the Late Archaic and later.

4.4 CA-KER-4695H

The final site discovered during the Golden Queen addendum survey was found in the "eastern parcel". Designated CA-KER-4695H, it is a small turn-of-the-century mining camp. Structural remains are limited to a single leveled tent pad adjacent to a historical road or trail, located on the northeastern slope of Soledad Mountain. A low density surface scatter of artifacts is associated with the pad, consisting of brown bottle and window

glass, hole-in-top cans, and unmarked fragments of whiteware ceramics. A filled-in depression is located at the southwest corner of the pad and probably represents the remains of a privy. The site area is estimated at about 7 meters N-S by 13 meters E-W. The grading of a dirt road immediately east of the pad area combined with downslope colluvial movement have impacted the site to some degree: it is estimated to be in fair condition at this point.

Judging from the size, density of artifacts present, and location of CA-KER-4695H, it appears to represent a turn-of-the-century prospector's campsite, resulting from the initial period of exploration on Soledad Mountain. Although a variety of minor prospects and test areas are present in this general area, there is no nearby evidence for significant prospecting or mining, and the size of the site supports the interpretation that it was only occupied for a short time. Thus, CA-KER-4695H parallels in many respects CA-KER-4694H in that both appear to reflect the prospecting rather than mining production period on Soledad Mountain.

5.0
SUMMARY AND RECOMMENDATIONS

5.1 Summary

An intensive Phase I survey was conducted for the Golden Queen 420 acres addendum survey project area on Soledad Mountain, Mojave, Kern County, California. This involved background studies of published and unpublished documents, reports and other sources pertaining to the prehistory, ethnography and history of the study area; a complete (100%) intensive survey of the study area; and the recording and preliminary evaluation of archaeological sites within this study zone.

The Phase I survey resulted in the discovery and recording of three archaeological sites, two of which are historical (Euro-American) in nature, and one of which is prehistoric (aboriginal). These sites can be summarized as follows:

CA-KER-4694H - This site is a small prospecting camp containing six structures, located in the central western portion of Soledad Mountain. It dates to the turn-of-the-century and probably resulted from the initial period of prospecting on the mountain. It is in fair condition.

CA-KER-4695 - The second site is a prehistoric plant processing station located on the western side of the study area and associated with a dry mud playa. It represents the seasonal exploitation of locally available plant resources, probably buckwheat, and is believed to date sometime

after the start of the Late Archaic period. It is in fair condition.

CA-KER-4695H - The final site within the addendum study area is a small prospector's camp consisting of a single tent pad, privy pit and associated artifacts. It is located on the eastern side of Soledad Mountain and appears to date to the turn-of-the-century, from the period during which initial prospecting was conducted on the mountain. It is in fair condition.

5.2 Recommendations

The Phase I archaeological survey of the Golden Queen Mine addendum study area resulted in the discovery of three archaeological sites. Development of this 420 acres area, accordingly, has the potential to result in adverse impacts to cultural resources. Based on the guidelines provided by Appendix K of the California Environmental Quality Act, therefore, we recommend that Phase II test excavations and determinations of site significance be conducted on each of these sites, from which final recommendations for the treatment of these cultural resources may be made.

6.0

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1 - The 420 acres addendum study area

2 - Sites within the addendum study area

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APPENDIX A: ARCHIVAL RECORD SEARCH

California
Archaeological
Inventory



FRESNO
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KINGS
MADERA
TULARE

Southern San Joaquin Valley
Information Center
California State University, Bakersfield
9001 Stockdale Highway
Bakersfield, California 93311-1099
805/664-2289 FAX 805/664-2415

To: W & S Consultants (RS# 96-383)
David Whitley and Joe Simon

RE: 3 Parcels at the Soledad Mountain Project Site

County: Kern

Map(s): Soledad Mountain 7.5'

The Information Center is under contract to the State Office of Historic Preservation and is responsible for the local management of the California Historical Resources Inventories. The Center is funded solely by research fees, and a grant from the State Office of Historic Preservation. The Information Center does not conduct fieldwork and is not affiliated with any archaeological consultants who conduct fieldwork.

CULTURAL RESOURCES RECORDS SEARCH

The following are the results of a search of the cultural resources site record files at the Southern San Joaquin Valley Information Center. These files include known and recorded archaeological and historic sites, inventory and excavation reports filed with this office, and properties listed on the National Register of Historic Places (3/96), the California Historical Landmarks, The California Inventory of Historic Resources, and The California Points of Historical Interest.

The following summarizes the current information available on the subject property based on the records outlined above.

PRIOR CULTURAL RESOURCE INVENTORIES OF THE SUBJECT PROPERTY AND SURROUNDING AREAS

There have been no previous archaeological surveys conducted on the above referenced three parcels. There has been one survey conducted immediately adjacent to all three parcels. Areas surveyed included all of section 6 and portions of sections 5 and 7, and was conducted by W & S Consultants in 1995, as part of the Soledad Mountain Project. There are no additional surveys within a mile radius of the project areas.

(RS# 96-383)

KNOWN CULTURAL RESOURCES ON THE SUBJECT PROPERTY AND SURROUNDING AREAS

There are no recorded archaeological sites on the project parcels, and it is not known if sites exist there. There are 10+ sites, immediately adjacent within section 6, that were located and recorded by Whitley and Simon during the 1995 Soledad Mountain Project Survey.

There are no resources in the project area that are listed on the National Register of Historic Places, The California Historical Landmarks, The California Inventory of Historic Resources, or California Points of Historical Interest within the project boundaries.

COMMENTS

The Golden Queen Mine and surrounding areas are considered sensitive for cultural resources, both prehistoric and historic. I have not sent copies of the records for the sites in section 6, as you probably already have them since they were recorded by your company.

If you need any further information regarding this project, please don't hesitate to contact me at (805) 664-2289.

By: Adele Baldwin

Adele Baldwin
Assistant Coordinator

Date: June 13, 1996

Fee: $90.00/hr.

Invoice # 6655

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SITE RECORD FORMS

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SUPPLEMENTAL PHASE I ARCHAEOLOGICAL SURVEY OF FENCE LINES AND ANCILLARY AREAS FOR THE GOLDEN QUEEN MINE PROJECT AREA, MOJAVE, KERN COUNTY, CALIFORNIA

Prepared for:

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17 April 1997

Management Summary

A supplemental Phase I archaeological survey was conducted for the proposed Golden Queen Mine project, Soledad Mountain, Mojave, Kern County, California. This involved background studies of published and unpublished reports, documents, maps and other records concerning the prehistory, ethnography and history of this area; an intensive on-foot survey of three discontiguous study areas; and the recording and preliminary evaluation of any archaeological sites discovered during this survey. No archaeological sites of any kind were found to lie within these study areas. Development and use of the fence corridor and two ancillary work/well-site areas, therefore, has no potential to result in adverse impacts to cultural resources. It is recommended that no additional archaeological work be required for these three supplemental study areas.

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SUPPLEMENTAL PHASE I ARCHAEOLOGICAL SURVEY OF FENCE LINES AND ANCILLARY AREAS FOR THE GOLDEN QUEEN PROJECT AREA, MOJAVE, KERN COUNTY, CALIFORNIA

1.0
INTRODUCTION

At the request of Mr. Dick Graeme, Golden Queen Mining Company, Inc., Mojave, CA, a supplemental survey of fence lines and ancillary work areas was completed to augment the previous Phase I archaeological surveys of the Golden Queen project area, near Mojave in the southwestern portion of Kern County, CA. The Golden Queen project area surveyed during the previous archaeological studies, completed in October, 1995 (W&S Consultants 1995), and July, 1996 (W&S Consultants 1996), covered 1020 acres of private property. This supplemental Phase I survey involved the inspection of an additional 2.3 miles of proposed fence corridor and 18 acres of patented land. The fence corridor study area is located on the southern side of Soledad Mountain while the patented acreage consists of two small parcels of land located northwest and northeast of Soledad Mountain proper (Figure 1). The survey of this study area was conducted by W & S Consultants, Simi Valley, CA. David S. Whitley, Ph.D., served as principal investigator for this study; he was assisted by Joseph M. Simon, and Tamara K. Whitley, M.A., during aspects of the fieldwork, archival investigations and analytical studies. D.S. Whitley is responsible for the authorship of this report. This supplemental survey was completed in April, 1997.

Following the requirements of Appendix K of the California Environmental Quality Act (CEQA), the Phase I supplemental survey of the Golden Queen fence line and ancillary work areas involved background studies of the prehistory, ethnography and history of the southeastern Kern County region; detailed archival studies of published and unpublished articles and documents on the study area, per se; a review of archaeological records at pertinent repositories; a complete (100%) survey of the project area; and the identification and recording of sites within the supplemental study zone. The following sections of this chapter provide details on the background and contextual studies conducted for this inventory; specifically, a summary of regional prehistory, ethnography and history, and a research design for archaeological study in this portion of the Mojave Desert. We also provide details of the archival studies and interviews and oral histories recorded for this project, particularly as directed towards the mining history of the study area. In the following chapter we provide details of the archaeological records search, conducted at the California Archaeological Inventory, Southern San Joaquin Valley Information Center, followed by a description of fieldwork methodology utilized during the inventory of the property. We conclude with a summary of the results of the field inventory, and final recommendations for this supplemental study area.

1.1 Background Studies

1.11 Study Area Descriptions and Environmental Setting

The supplemental Phase I archaeological survey of the fence line corridor and two ancillary project areas involved properties located in and around Soledad Mountain, which forms a northward extension of the Rosamond Hills in southeastern Kern County, California (Figure 1). The fence line corridor survey area is restricted to Section 7, Township 10 North, Range 12 West, and involved two discontiguous segments. This was intended to fill-in gaps in survey coverage from previous studies for the project (see W&S Consultants 1995, 1996).

The first segment is located in the central-eastern portion of Section 7 and involves a transect extending west from the middle of the section boundary for a distance of 1200 feet (approximately 370 meters). The second segment is a "U" shaped transect that follows the boundary of the southwestern quarter of Section 7. It is approximately 2277 meters in total length. Both fence line corridor transects cross extremely rugged terrain, thereby minimizing their suitability for human occupation or use.

The two parcels of private property intended for ancillary project purposes are located northwest and northeast of Soledad Mountain proper. The northwestern parcel is the larger of the two. It is located immediately northwest of the northwesternmost spur of the mountain, across the paved Silver Queen - Tropico Road from the mountain. It contains a small rock outcrop but otherwise consists of desert colluvial flats. the northeastern

parcel is located along Goldtown Road near Standard Hill. It is also on colluvial desert flats and currently contains an occupied residence.

Vegetation within the supplemental study area is primarily desert sage scrub, with creosote, spiny hopsage, Joshua tree, mormon tea and, in disturbed areas, Russian thistle, present.

In general, the ruggedness of the terrain, combined with the absence of natural resources such as seeps and springs or riparian environments, suggest that the study area would have constituted an unlikely location for prehistoric occupation. Occasional use, however, may have occurred, such as quarrying activities, or opportunistic use of mud playas found in areas around the base of the mountain, when seasonally filled with water. Moreover, the diurnal and seasonal extremes that characterize this area, along with the rapid downslope colluviation engendered by the steep terrain, indicate that it is a region in which prehistoric archaeological site preservation would be relatively poor, especially for sites of any antiquity. Historical (i.e., Euro-American) archaeological sites, of course, are by definition more youthful, and thus less likely to have been destroyed by natural processes. Furthermore, historical activities in this region were much less tied to the same environmental constraints experienced by the prehistoric and ethnographic Native American populations, thus the nature of their distribution can be expected to in some cases vary significantly from that of the Native American sites.

1.12 Regional Prehistory

Recent regional summaries of the Antelope Valley prehistory have been published by Sutton (1988a, 1988b), with syntheses of the related Coso area immediately to the north published by Whitley et al (1988) and Whitley (1994). Based on these studies, as well as the more wide-ranging cultural historical frameworks for eastern California provided by Hester (1973), Bettinger and Taylor (1974), Warren (1984) and Elston (1982), regional prehistory can be discussed in terms of a series of cultural historical periods, starting with the earliest evidence for human occupation in the western hemisphere.

Pre-Clovis (earlier than 11,200 YBP)

Perhaps the most long-lived problem in New World prehistory has been the question of the antiquity of first occupation, with two positions dividing the discipline: the Pre-Clovis or long chronology, which posits a Late Pleistocene first-migration at some undetermined point prior to 11,200 YBP (years before present); and the Clovis-first or short chronology hypothesis, which argues for an initial migration at the immediate end of the Pleistocene, now set at 11,200. Historically, the the Mojave Desert region has played an important role in this debate, due to the presence of putative early sites in the Manix Lake Basin, in Panamint Valley and around Pleistocene Lake China. E.L. Davis (e.g., 1978), in particular, argued for the presence of Pre-Clovis sites in the region based on three lines of evidence: typological similarities between surface lithic tool assemblages in this region and well-dated typologies in the Old World; the locational context of certain surface sites on well-dated Pleistocene lake terraces and sediments; and the association between surface cultural artifacts and dated

paleontological remains.

Because Davis' evidence was based exclusively on surface finds that were, themselves, never directly dated using chronometric techniques, as well as typological comparisons, her conclusions were not widely accepted in the profession. However, more recently developed evidence (Whitley and Dorn 1988, 1993; Whitley et al 1996) suggests an occupation of the Coso Range at least as early as 19,000 YBP, and perhaps as early as 30,000 YBP in the Mojave Desert generally. These dates were obtained from the direct dating of the rock varnish coating petroglyphs and surface lithic tools, using three independent chronometric techniques: cation-ratio dating, which provides calibrated ages; AMS radiocarbon dating, which provides numerical dates; and the analysis of varnish micro-stratigraphy, which provides relative age control.

Based on these techniques, Whitley and Dorn have obtained a suite of six Pre-Clovis age petroglyphs from the Coso area, in addition to a number of Holocene-dated specimens. The Pre-Clovis petroglyphs include dates that have been confirmed by independent assays on the same petroglyph, using each of these different techniques. For example, petroglyph CM-8 has a radiocarbon age (uncalibrated) of 14,070 $\pm$ 130 YBP (calibrated age, 14,930 YBP). The cation-ratio age on this same petroglyph is 14,200 $\pm$ 1700 YBP, thus providing independent one-sigma confirmation of the Pre-Clovis date. Most recently, advances in the analysis of varnish micro-stratigraphy allow for the identification of diagnostic temporal signals in SEM varnish thin-sections. Key micro-stratigraphic signals are present in the varnish thin-sections at the Pleistocene-Holocene transition, and at approximately 14,000 and 21,000 YBP. Coso petroglyphs dated between

14,000 and 19,000 based on AMS radiocarbon and cation-ratio dating display the 14,000 micro-stratigraphic diagnostic but not the 21,000 YBP signal, thus demonstrating that the chronometric techniques are correctly placing them in the proper part of the Pleistocene.

Similarly, a series of Pre-Clovis varnish ages have been obtained on surface artifacts from the Manix Lake Basin (Dorn et al 1986; Bamforth and Dorn 1988; Dorn et al 1992; Whitley and Dorn 1993). These include Manix Lake Lithic Industry specimens that have been independently dated with cation-ratio and AMS ^{14}C (and with confirmations provided by varnish micro-stratigraphic analyses) that include examples with CR and AMS ages falling within one-sigma standard deviations, and refit flake-core sequences that exhibit internal variances for their CR dates of less than 5%. The ages of these Manix Lake Lithic Industry dates extends back to roughly 30,000 years B.P.

Although there is some controversy concerning these early dates from the Cosos and other parts of the Mojave Desert, no cogent argument has been advanced explaining why they may be incorrect. Indeed, the most typical problem that confronts radiocarbon dating, contamination, would in this case result in younger, not older, ages, thus substantiating the Pre-Clovis argument. Moreover, there are a certain related circumstances that greatly bolster the Pre-Clovis position (Whitley and Dorn 1993). First, attention to the geomorphology and paleoclimatology of the latest Pleistocene indicates that the Pre-Clovis period was one of net erosional degradation. Lowered eustatic sea-levels combined with a series of major flood events resulted in the stripping of sediments in major portions of

North America, rather then the gentle forms of deposition that are required for archaeological site preservation. An exception to this pattern occurred in the Basin and Range Province, where stable alluvial fans preserve Late Pleistocene groundsurfaces. Boulders and cliff faces containing rock art, as well, were also not subjected to this erosional destruction. Thus, there are very few extant geomorphological contexts within which Pre-Clovis finds could be expected to be found. This explains why there is a sudden "explosion" of Clovis age sites and a relative dearth of Pre-Clovis sites in the archaeological record: the Clovis sites appear at exactly the point when the geomorphological conditions change to favor site preservation. Second, archaeological evidence from South America has included a number of well-dated Paleoindian sites falling between 10,000 and 11,200 YBP. As has been pointed out recently, it would have been physically impossible for first migrants to have entered North America sometime after 12,000 YBP and to have colonized South America within 1000 years; this would require rates of population growth unheard-of for human beings, and migration speeds that are manifestly implausible (Whitley and Dorn 1993). Thus, even the South American Paleoindian evidence tends to discount the likelihood of the short chronology for the peopling of the New World.

Although the evidence, accordingly, is mounting for the Pre-Clovis occupation of eastern California, at this point there is relatively little that can be said about this occupation, beyond the simple fact of its presence. Until additional evidence is presented, then, we will not be able to determine whether Pre-Clovis peoples were sedentary or mobile, or big-game hunters versus foragers.

Paleoindian (11,200 - 9000 YBP)

Although the initial occupation of the continent is controversial, there is widespread agreement on the subsequent Paleoindian period, which is typically viewed as pertaining to mobile big-game hunters who exploited Pleistocene megafauna. The hallmarks of the Paleoindian period are the fluted, collaterally-flaked and basally-thinned and -ground Clovis and Folsom projectile points, during the earlier portions of the period, followed by a series of large, well-flaked but unfluted lanceolate points towards the end of the period. Some scenarios suggest that the big-game hunting practiced by these Paleoindian peoples may be responsible for the extinction of the Pleistocene megafauna, such as Imperial Mammoth, Bison antiquus, and the North American horse; however, recent evidence indicates that the earlier portions of the Paleoindian period comprised a lengthy and severe drought, thus demonstrating that the large mammal herds were already under extreme environmental stress, regardless of the effects of human predation (Haynes 1991). Regardless of the so-called Pleistocene overkill problem, the image of Paleoindians as specialized big-game hunters has become pervasive for North America.

Limited evidence of Paleoindian use of eastern California has been found in a number of areas, including Pilot Knob Valley, immediately to the south of the Garlock Fault; on the shores of Pleistocene Lake China, near Ridgecrest; Fort Irwin, east of Barstow; and, most recently, in the El Paso Mountains, southwest of the Panamints (e.g., Davis 1978; Warren and Phagan 1988; Yohe 1992b). Typically, this evidence consists of isolated (in some cases reused) Paleoindian projectile points, although there is also evidence for Paleoindian petroglyph manufacture in the Cosos (Whitley and Dorn 1987, 1988), with unpublished and at this point unverified reports of

megafaunal depictions in the art. Furthermore, an obsidian Paleoindian point from the central Mojave Desert has been sourced to the Coso Sugarloaf Quarry (Sutton and Wilke 1984). These isolated finds and occurrences at a minimum are indicative of at least sporadic Paleoindian use of the region.

Although it is likely that more substantial Paleoindian habitation sites are somewhere preserved in the region, they have yet to be found and a better understanding of the Paleoindian period in this portion of eastern California will only be obtained when such sites are discovered and investigated (cf. Warren and Phagan 1988). In the meantime, growing evidence for Paleoindian occupation, in the form of two Clovis-like projectile points, has been discovered immediately northwest of the Antelope Valley (Glennan 1971; Zimmerman et al 1989), as well as on the off-shore Channel Islands (Morris and Erlandson 1993). With the maritime adaptation this last find implies, it suggests that the monolithic interpretation of all North American Paleoindian period sites as necessarily a product of specialized big-game hunting may be incorrect, and that more regional subsistence variation may emerge once better evidence from the far west has been discovered and analyzed (cf. Willig and Aikens 1988).

Early Archaic (9000 - 6000 YBP)

The Early Archaic period, or so-called Western Pluvial Lakes Tradition, represents the early Holocene in paleoenvironmental terms. Its hallmark is the widely dispersed but ambiguously-dated Western Stemmed Tradition projectile points. These include the local variants known as Lake Mohave and Silver Lake points, which may in fact actually date between 10,500 and 7,500 YBP. Combined with studies of the lithic

technologies of Early Archaic and Paleoindian sites, this chronological overlap suggests that the Western Stemmed Tradition was an in-situ development out of the earlier Paleoindian tradition (Willig and Aikens 1988).

Early Archaic sites are most commonly found on the lowest terraces above latest Pleistocene and early Holocene lake basins and stream deltas. They are, accordingly, widely regarded as part of a lacustrine-focussed adaptive strategy. Although a number of authors have cautioned against too simplistic an interpretation of these associations, pointing out the fact that Early Archaic sites are also found in other environments, it nonetheless is apparent that, in eastern California at least, this environmental association and its inferred subsistence implications maintain some verity. Indeed, it can be noted that recent research in the Great Basin has exactly emphasized the general importance of lacustrine adaptations, in contrast to Jennings' (1957) earlier model of a long-lived "desert culture" tradition.

Be these controversies as they may, Early Archaic projectile points are occasionally found in the Antelope Valley, but the sites themselves are relatively rare, and instead are more common to the Basin and Range country proper, to the north. For example, Davis (1978; Davis, Brott and Weide 1969) has identified and discussed the importance of a number of putative Early Archaic sites in the Panamint region. These are located in both the China Lake Basin and the Panamint Valley in former lacustrine environments, and are indicative of the fact that some lakeshore use if not occupation did occur during the early Holocene in this region. However, this must be matched against the fact that Western Stemmed Tradition points have also been recovered as isolates in upland environments in the

Cosos (Elston et al 1983). Thus, although lakeshore exploitation may have been an emphasis during the Early Archaic in eastern California, this apparently also incorporated mobile hunting into other environments as well.

Middle Archaic (6000 to 4000 YBP)

Be this early evidence as it may, what is incontrovertible is that, regardless of date of initial occupation, substantial inhabitation did not occur until much later, with the start of the Middle Archaic or Pinto Period, at about 6000 years B.P. This lasted until approximately 4000 years B.P. A number of sites from this time period are known from the Rosamond area, specifically associated with the prehistoric shoreline of Rosamond Lake. Notably, sites dating to this time period apparently emphasize the use of rhyolite as a lithic resource, almost to the exclusion of crypto-crystallates, such as chert and jasper.

The Middle Archaic, however, corresponds essentially to the Altithermal paleoenvironmental period, and is a controversial topic in Mojave desert prehistory due to its cultural and chronological ambiguity. Much of the ambiguity stems from the uncertainty in the chronological placement of the Pinto series projectile points. Seemingly, there are as many chronological scenarios for the placement of Pinto points as there are archaeologists working on the problem (cf. Meighan 1981; Jenkins and Warren 1984). What this ultimately may suggest is that much more regional variation existed during certain periods of the prehistoric past than is currently being recognized.

In the Coso area to the north, but not necessarily elsewhere in eastern

California, there is little if any evidence for Middle Archaic occupation, at least if Meighan's (1981) obsidian hydration date revisions for the Pinto series points from the Little Lake site are accepted. That is, existing evidence could be interpreted to signal a diminution in occupation, if not an outright abandonment, in this region, apparently corresponding to the hot and dry climatological conditions of the Altithermal. However, it is also possible that local inhabitants may have adopted a subsistence strategy and settlement pattern with little archaeological visibility on the landscape during this period; e.g., a highly mobile pattern. Although this alternative interpretation of the apparent dearth of Middle Archaic sites must be acknowledged, it seems implausible in light of the fact that extremely dry conditions would be more commonly predicted to result in a stronger form of "tethered nomadism", and thus greater archaeological visibility, around water sources. Moreover, there is clear evidence for Middle Archaic settlements in the Fort Irwin area (e.g., Jenkins and Warren 1984), to the east of Barstow, suggesting that not all portions of eastern California were abandoned at this time; again, emphasizing the possibility of more regional variability than heretofore acknowledged.

Late Archaic (4000 to 1500 YBP)

Much less controversy surrounds the subsequent Late Archaic period, or Elko Period, lasting from about 4000 to 1500 years B.P., which correlates with improved and wetter environmental conditions across the far west. Although sites from this time period are sometimes considered rare in the Mojave Desert, it is notable that many of the subsequent Rose Spring Period villages (see below) were first occupied during this earlier phase. That is, as has been noted by a number of authors, there seems to be a strong continuity between the Elko Period and subsequent times, with

the latter period materials masking or burying the Elko remains. In the Antelope Valley region this begins with a major increase in population beginning about 3000 years B.P. (Sutton 1988b:23).

Similar patterns have been noted in surrounding regions. For example, the start of the Late Archaic in the Coso Range region is posited to represent the initial establishment of the primary settlement and subsistence systems that are currently archaeological visible (Whitley 1994), while this same period has been recognized as experiencing a major, far western North American-wide expansion of settlements into new environments and increases in population, stretching from the Great Basin of eastern California, through the southern Sierra Nevada, across the Transverse Ranges, and down to the coast (Whitley, Gumerman and Simon n.d.). The primary temporal diagnostics for the Late Archaic are Elko and Gypsum series projectile points.

In the Coso Range, the Late Archaic is signaled by the establishment of major winter villages, typically at springs, in valley bottoms on the western and wetter side of the range. Analyses of paleoethnobotanical and faunal remains suggest a generalized foraging strategy, emphasizing all available resources (e.g., Gumerman 1985), including buckwheat stands around small mud-playas (Whitley et al 1988). This evidence is complemented by an extensive but seemingly non-logistically organized use of all upland environments. Included here is a significant quantity of isolated projectile points in the uplands, suggesting mobile hunting patterns (Elston et al 1983). Furthermore, the Late Archaic witnessed the beginning of the intensive exploitation of the Coso Sugarloaf obsidian quarry, an event that apparently correlates with the beginning of the

inland-to-coastal obsidian trade in south-central California (Whitley, Gumerman and Simon n.d.).

Rose Spring (1500 - 800 YBP)

The Rose Spring Period is differentiated from the earlier Late Archaic/Elko Period by the introduction of the bow and arrow and a change from spear points to arrow points at circa AD 500 (cf. Yohe 1992). This transition is, in technical terms, dramatic. In fact, the introduction of this new weaponry technology probably did not have any immediate major impacts on social or cultural systems. At least initially, the settlement and subsistence systems were stable, and lithic technology and production did not noticeably change (Allen 1986).

Moreover, and as implied above, in all other respects Rose Spring times appear to have been a continuum from the earlier patterns, so that the change in hunting technology was probably less important than we might otherwise presume. Within the Antelope Valley area, Desert Village Complexes, representing a major change in magnitude of settlements, were founded at least by Rose Spring times, and perhaps towards the end of the earlier Elko phase. Two of these have been identified by Sutton (1988a, 1988b) in the foothills of the Antelope Valley, with a third between Rosamond and Rogers Dry Lake, and a possible fourth at Koehn Lake. It is possible, if not likely, that these represent the founding of the tribelet system of political organization in the region.

At approximately AD 1000 - 1200, however, a shift in settlement and subsistence practices began that, ultimately, culminated in the protohistoric/ethnographic patterns referred to as the Later Prehistoric or

Numic Period (discussed below). This involved the abandonment of some winter villages (or at least a reduction in the intensity of their use); the establishment of logistical base camps around springs in the upland environments; an increasing emphasis on a relatively specialized diet focused on seeds and the pinyon nut; and a great increase in the production of petroglyphs (Whitley 1994). That is, settlement patterns became more organized and focused, while subsistence was increasingly specialized, and ritual became more common.

The causes for this transition are not yet fully understood. Bettinger and Baumhoff (1982), for example, have accepted it as an empirical fact, with the subsistence change then linked to the putative spread of Numic peoples out of eastern California at about this time. They have then taken the position that the phenomenon to be explained is not the cause of the subsistence change, but the reasons why such a change was adaptively more successful, and how it can then be used to account for the historical distribution of Numic languages. The implicit assumption in such an approach is that evolutionary transitions are to be expected due to the inherent tendency for greater fitness to emerge in populations.

While this last tendency may or may not be so, it overlooks pertinent related evidence; namely, that this same time period experienced a major drought that effected all portions of western North America, from northern Mexico through the Southwest, across the Great Basin, and even into the Channel Islands. Moreover, the environmental stress engendered by this drought has been cited as a causal factor in the abandonment of Anasazi pueblos in the Southwest, as well as the southward retreat of Mesoamerican civilization with the collapse of Tula. Perhaps more to the

point, Arnold (1993) has noted the influence of this drought in creating resource stress that was a contributing factor to the appearance of a simple chiefdom in the Chumash region near Santa Barbara. Similarly, Whitley (1994) has argued that this transition in eastern California represents the first appearance of Numic bands and headmen; specifically, that it was the increasing perceived need for ritual specialists in the form of rain shamans during this period of environmental degradation that led to the establishment of bands and the creation of headmen. In this interpretation, the accelerated production of Coso petroglyphs (which are know ethnographically to have been tied to rain shamanism) is taken as a reflection of the growing number of ritual specialists, with the appearance of a logistically-oriented settlement pattern a sign of increasing sociopolitical control and organization.

Late Prehistoric (800 - 140 YBP)

The Late Prehistoric (or, in some areas, Numic) Period, from 800 years B.P. to the Historic Period, represents a continued growth in local population, with numbers of people apparently quite high. It is distinguished from previous Rose Spring times by the introduction of brownware ceramics and a change in projectile point types: from Rose Springs types to Desert Side-Notched and Cottonwood Triangular. Sutton (1988a, 1988b) notes that a boundary of some sort developed during this period: Desert Side-Notched points, brownware ceramics and obsidian are all common from the Fremont Valley northward; south of this area, in the Antelope Valley proper, ceramics and obsidian are rare, and Cottonwood Triangular points are the predominant projectile point type. This apparently correlates with similar patterns further towards the coast: at

about 800-1000 years ago the desert-to-coast obsidian trade dried up, and Rose Spring-like projectile points were replaced by Cottonwood-like points, with Desert Side-Notched points rare.

The Protohistoric/Historic phase of the Late Prehistoric, representing the last 300 years, is apparently marked by a major disruption in indigenous settlement, and a corresponding paucity of sites. According to Earle (1990), missionization pulled many of the region's inhabitants away. Subsequently, the Antelope Valley area was used as a staging ground for rustlers and other miscreants, who were raiding the missions' livestock. The result was that the area became somewhat of a no-man's land which, no doubt, has also contributed to the paucity of ethnographic information on it.

1.13 Regional Ethnography

The Antelope Valley and environs are, unfortunately, one of the most poorly known regions, ethnographically speaking, in California, which is a state that is generally renowned for the detail of its ethnographic record (cf. Kroeber 1925). Thus, the valley contrasts quite sharply with certain of its immediately surrounding areas, such as the southern Sierra Nevada to the north, for which there is a wealth of ethnographic reports and data, and even the Santa Barbara Channel region to the west/southwest. Even though the ethnographic inhabitants of this last area were disrupted very early-on by missionization, our record of their life ways is nonetheless more complete than for the groups that inhabited the Antelope Valley. Luckily, some of the early confusions and misconceptions concerning even

such fundamental problems as who the ethnographic inhabitants of the Western Mojave Desert area actually were are now becoming clarified. Earle (1990), in particular, has done much to disentangle previous misconceptions concerning the ethnolinguistic affiliations of the Antelope Valley's inhabitants, and a summary of his recent ethnohistorical conclusions provides an appropriate overview for the aboriginal history of the region.

According to Earle's reconstruction, the Valley was inhabited during the Historic/Protohistoric period by three distinct language-speakers, one group of whom could be further subdivided into two (and perhaps three) fairly distinctive dialects. The most significant linguistic division existed between the Kawaiisu speakers, who lived in Tehachapi Valley, through the southern Sierra Nevada and eastward across Fremont Valley towards Red Mountain and into southern Panamint Valley, and the groups to the south and west in Antelope Valley per se. The Kawaiisu language is a member of the Numic branch of the Uto-Aztecan language family, and is thereby most closely related to the Shoshonean and Paiute languages of the Great Basin.

South and westward of the Kawaiisu were two other members of the Uto-Aztecan language family, but in this instance both were distinct languages belonging to the Takic (as opposed to Numic) branch, specifically to the Serran Takic branch. Along the southwesternmost side of the valley, including the northern foothills of the Liebre Mountains and the southern side of the Sierra Pelona, were the Tataviam, a little-known group identified due to the existence of a few early word lists. Related to them linguistically, but speaking a distinct language, were the better-known

Kitanemuk, who occupied the western Antelope Valley and the Tehachapi Mountains west of Tehachapi Pass. Living to the east of the Kitanemuk, who extended to approximately the current location of Highway 14 where it heads north across the Valley, were a group of closely related peoples that Earle (1990) has identified as the Haminat. Apparently, Haminat and Kitanemuk represent dialects of the Serrano language, which also included Serrano proper and Vanyume (or Beñemé).

According to Earle's analysis, there was a linguistic continuum along the northern side of the San Gabriel Mountains in the Western Mojave Desert, from the Serrano through the Vanyume and Haminat to the Kitanemuk, at the western end. Haminat, apparently, was more closely linked with Vanyume/Serrano proper than Kitanemuk, although it was still simply a dialectical variant of it. But, with the Serran continuum along the northern side of the San Gabriels, and with all of this linguistic variation present during the Historic period, it is easy to understand how ethnographic confusion developed in regards to this region.

The Golden Queen study area falls near the boundary of Kitanemuk and Haminat territories, and may have, at different times, been used by both groups. Perhaps more important than these minor linguistic distinctions, similar cultural patterns were followed by all the inhabitants of the region, with certain minor distinctions. In terms of subsistence, for example, all groups were foragers, with food sources derived principally from gathering. The exact plant species exploited was dependent on seasonal availability, as well as geographical/environmental location. In the higher, montane portions of the region (e.g., towards Tehachapi and along the slopes of the San Gabriels), acorn-bearing oak and pinyon pine nuts were

staples. In the lower lying, more desertic zones, mesquite, yucca and a variety of other edible plants were emphasized. Hunting also contributed meat protein, and principally emphasized small game, such as hares, rabbits and rodents. However, the notion that these hunter-gatherers based their subsistence to large degree on big-game hunting (such as deer, antelope and mountain sheep) has proven to be an anthropological myth.

Cultural commonalities were also maintained in religious beliefs and practices, which were uniformly based on shamanism. This is predicated upon perceived direct and personal interactions between an individual and the supernatural world, with this interaction founded on entering an altered state of consciousness. Shamans, per se, were ritual specialists who held an unusual degree of interaction with the supernatural world, and thereby acquired a high degree of supernatural power. Although formal rituals and ceremonies were limited in number and elaboration, the shamans served as the ritual officers for these. Further, the shamans also were responsible for painting and pecking the rock art that is found in this region: rock art sites served as their vision quest locales, where the shamans entered trances to have visions and thereby acquire supernatural power. And, the art depicted at these sites displayed the visions and spirits they saw in their altered states of consciousness (Whitley 1988, 1992).

Following general California patterns, there were also a number of similarities in social and political organization across the Antelope Valley. Earle (1990) has suggested that the Haminat may have been organized into exogomous clans and moieties, whereas the western groups might have lacked these, and in this sense the Haminat could have been more like the

southern California Desert groups like the Serrano and Cahuilla, with the other groups more similar to the south-central California culture of the Chumash and related peoples. However, given that the exact social organizational systems of the Chumash have yet to be defined (for example, there is still debate whether they were matrilineal or patrilineal), and since we do not yet know whether they had a moiety system or lacked it entirely, it may be too early to draw such fine-grained distinctions concerning social organization.

What is apparent, however, is that the region as a whole apparently lacked any political organization beyond that of the tribelet, or what Earle has identified in the Spanish records as naciones. These were autonomous land-owning groups, focused on a principal village and led by a a headman or chief, and probably comprising a lineage system or clan. In this sense, the Antelope Valley can be said to follow the political organizational pattern found throughout most of Native California. This, of course, further links it with Californian, as opposed to Great Basin, cultural patterns.

1.14 Historical Background

Perhaps because of the use of the Antelope Valley as a staging area for Indian raids on the estancias and missions closer to the coast, Euro-American settlement and development of the area was a little later dating than in other parts of southern California. As a result, the history of the Antelope Valley to about the 1860s principally involved various explorers who traversed it: for example, Pedro Fages crossed the southern valley in

1772; Fr. Garcés crossed the west end and went through Willow Springs (southwest of the Golden Queen study area) in 1776; Jedediah Smith, similarly, went across the western valley in 1827 and also visited Willow Springs, as did John C. Fremónt and his guide Kit Carson in 1844. The Rogers and Manly party - the Jayhawkers or Death Valley '49ers - camped at Willow Springs towards the end of their dramatic 1849 expedition across the Mojave Desert, as well. And Lt. Edward Beale, at the lead of a caravan of camels, came across the southern side of the valley in his 1857 trip to Fort Tejon (Bancroft 1963; Settle 1963:61; Boyd et al 1982).

It was not until the 1860s that the first settlers moved into this region, settling mostly in the Elizabeth Lake region and the southern foothills of the Tehachapi Mountains, and involved principally in ranching. With the development in 1868 of the Cerro Gordo silver mine in Inyo County, however, the Antelope Valley became a major thoroughfare for the movement of bullion and goods between Los Angeles and the Owens Valley (Chalfant 1933); indeed, efforts to wrestle control over the Inyo silver trade away from Los Angeles became a major theme of California economic history in the 1870s (Nadeau 1965). Los Angeles managed to maintain its monopolization of this trade, nonetheless, with Remi Nadeau's freight-line playing a major part in the transshipment of goods and ore across the valley. Willow Springs and its adobe tavern, again, served as a major stop on this route, with the stage line then essentially heading south (on the route that would eventually be adopted by the railroad), for a 28 mile stretch through Cow Hole to Barrel Springs, at the mouth of Soledad Canyon, and subsequently through the canyon for the uphill climb through the San Gabriel Mountains. Old Nadeau Road, which parallels Pearblossom Highway near the Vincent Hills at the southern end of Palmdale, is

apparently a remnant of this original freight-line route, which proved so instrumental in the growth of Los Angeles as the economic center of southern California.

Shortly after the establishment of the first permanent school in the region, in 1869 at Elizabeth Lake, a number of settlers' colonies sprang-up within the valley, including Wicks, Manzana, Chicago, Kingsbury, John Brown, Old Palmdale, Almondale and Llano (Settle 1963). However, the major impetus to settlement resulted with the completion of the Southern Pacific railway through the valley in 1876. One immediate result of the rail line was the establishment of the town of Mojave in this same year. The coming of the rails also fostered the establishment of towns such as Rosamond, Lancaster and Palmdale, which appeared by 1882.

The Southern Pacific Railroad arrived in Mojave on August 8, 1876. The location of the current depot, on the west side of Highway 14, was the location of the original depot site, although the existing depot building is a later construction. A freight depot was added on August 20 of the same year and, before long, the town turned into a division point for the rail line. With the railhead at Mojave, the San Bernardino Borax Company began hauling its borax to the town on mule teams; the Baldheaded Eagle Borax Company began using the town as its railhead a few years later, in 1881. The Santa Fe Railroad arrived in 1884, as did the famous "20 Mule Teams" of the Pacific Borax Company, truly making the town a transportation hub for the region. The Pacific Borax Company continued with its mule team loads to the railhead until 1889, when a spur line reached their mining operations (Deaver 1967).

The original town site of Mojave was laid-out by the Southern Pacific at the time that the rail went through. Initially it was simply a residential camp for railroad employees consisting of a few wooden shacks, but it was of sufficient importance that a post office was opened in October, 1876. Because of its position as a transportation hub, Mojave quickly attracted additional residents but was not filed as a subdivision until 1905 (ibid). Growth at and after that point was spurred by two early twentieth century developments. The first was the increasingly important mining activities at Standard Hill and Soledad Mountain, south of town. The second was the construction of the Los Angeles Aqueduct, built between 1907 and 1913, which brought literally thousands of workers into the region. In addition to its function as a transport hub, Mojave served as the "watering hole" for the mine and aqueduct crews, and was widely renowned for its saloons and brothels, which were said to outnumber the churches in town by 10 to one.

The historical importance of the Golden Queen study area, of course, primarily concerns the mining history of the Mojave Desert. This has been summarized in period and more recent publications, with Brown (1915), Clark (1970), Hensher and Vredenburgh (1991), Miller and Miller (1976), Settle (1963, 1967), Settle and Settle (1984) Troxel and Morton (1962), Tucker (1923, 1935), Tucker and Sampson (1933), and Tucker, Sampson and Oakeshott (1949) constituting the primary sources. The history of this area has been synthesized from these and other sources.

The first recorded mining activity in the region occurred on March 8, 1894, when W.W. Bowers found gold on a promontory south of Mojave, then known as Little Buttes (subsequently changed to Bower's Hill and now

Standard Hill). His first claim was the famous Exposed Treasure mine, which he brought into operation shortly thereafter, shipping ore worth $60/ton. By 1896 a camp had sprung up around this site (Hensher and Vredenburgh 1991). The Exposed Treasure discovery apparently spurred local interest in prospecting as, later in 1894, Ezra M. Hamilton discovered gold in the Rosamond Hills, to the south, at a location that would eventually become known as Tropico (Settle 1963, 1967).

Mining activities within the Golden Queen study area were apparently stimulated by the Exposed Treasure discovery, and can be divided generally into three periods. The first, stretching from 1894 to about 1910, was an era of prospecting and the development of a series of early properties and mills (Tucker 1935). The three primary mines in operation during this period were the Karma, Queen Esther and Echo, each of which had their own mills, with lesser amounts of mining at the Eagle Group and Bobtail claims, neither of which had mills during this period. These mines and mills were all located along the northern face of Soledad Mountain, outside of the supplemental study area.

Activity was minimal from about 1922 to the start of the Depression when, like many mining regions in the west, numerous small scale mining efforts were started. According to Tucker (speaking of the Mojave mining district as a whole, which included the Tropico area 17 miles to the south and Standard Hill to the north), about 50 to 70 leasers worked old mines from 1931 to 1934, hauling their ore to the Tropico for milling (Tucker 1935). Activity accelerated dramatically during the mid-1930s on Soledad Mountain, however, when the Mojave Mining District was revived by the discovery of the Silver Queen vein, leading subsequently to the

establishment of the Golden Queen mine and mill. This represented the second primary period of mining within the study area, with the Golden Queen building a major cyanide plant, and consolidating a number of the earlier claims and patents. Again, this mine was located on the northern side of the mountain, and outside of the supplemental study area. Depression era mining terminated in 1942 with the official closure of all gold mines by the War Production Board. The final period of activity has occurred in recent years, during which time a limited amount of mining has been conducted on different claims on Soledad Mountain. These tend to concentrate on the northern and eastern side of the mountain.

As is clear from the above-referenced records and publications, the fence line corridor and ancillary project areas considered in this supplemental study fall outside of the primary areas of historical mining activities on Soledad Mountain. However, it can be expected that the mountain in its entirety was intensively prospected, especially during the initial phase of exploration and development around the turn-of-the-century. This would suggest that, even while major historical sites are unlikely to exist within the supplemental study area, it is possible that small prospects and prospectors' camps may be present.

2.0
ARCHIVAL RECORDS SEARCH

The background research for the supplemental survey of the fence line corridor and two ancillary work areas for the proposed Golden Queen project required two kinds of archival research. First, in order to develop an adequate understanding of the documented history of the study area, published and unpublished maps, documents and records were examined at the Kern County Recorder's Office, the UCLA Earth and Space Sciences Library, and the BLM offices in Bakersfield and Ridgecrest. These sources provided data in the form of mineral claim, sales and patent documents on the property, period newspaper articles on mining activities at these mines and in the region generally and, through the assistance of Larry Vredenburgh, the Gerner photo collection of the property, which consists of a series of black and white pictures of the mines and residential areas taken about 1904. The information taken from these sources has been summarized in the historical background presented above, and in the initial Phase I survey of the primary portion of the study area (W&S Consultants 1995). The second type of archival review concerns a study of the archaeological site records, maps and files housed at the California Archaeological Inventory, Southern San Joaquin Valley Archaeological Information Center (AIC), at California State University, Bakersfield.

An archaeological records search was conducted by AIC staff to determine whether the supplemental study area had been previously surveyed by archaeologists, and whether any archaeological sites had been previously recorded on it. The complete results of this records search are included as

Appendix A to this report.

Based on the AIC files, with the exception of the northeastern ancillary work area, the supplemental study area had never been systematically surveyed by archaeologists in its entirety, and no sites had been recorded within the fence line corridor and ancillary project areas study zone. Thus, it was apparent that an intensive Phase I survey was required for this property, especially given the documented history of mining activities summarized above.

3.0
FIELD METHODS

3.1 Field Methods

Field methods employed during the supplemental survey of the fence line corridor and two ancillary work areas for the proposed Golden Queen project were intended to duplicate the procedures and techniques employed in the previous Phase I surveys for the project (W&S Consultants 1995, 1996), and to thereby obtain complete (100%) survey coverage of these study areas. They included intensive, on-foot examination of the groundsurface of the fence corridor and the two ancillary work areas; the identification and location of any discovered sites, should they be present within these areas; tabulation and recording of surface diagnostic artifacts; site mapping, using Brunton compass, surveyor's tape and a Magellan Pathfinder GPS; preliminary evaluation of site integrity; site recording, using established procedures and forms (see Office of Historic Preservation 1995); and the photographic recording of the sites. No collection of archaeological remains was made during the Phase I survey.

Because the study area contains considerable topographic variability, different surveying strategies were employed during the inventory. In the areas of flat terrain to moderate slopes, specifically the two ancillary parcels located to the northwest and northeast of the mountain, the groundsurface was examined with the crew spaced at approximate 15 - 20 meter intervals, walking transects across the study area to identify

artifacts or other archaeological indicators that might be present on the groundsurface. A 30 foot wide corridor was surveyed for the fence line, involving crew spaced at about 10 meter intervals. The steeper slopes (generally exceeding the angle of repose) within the fence corridor were covered by crew-members walking zigzag transects that traversed the slope faces; again, however, providing 30 foot wide corridor coverage.

In all cases, special attention was paid to depositional environments, such as saddles, swales and toe slopes, where the likelihood of archaeological preservation is enhanced. Further, rock faces, amenable for the creation of rock art or providing locales for rhyolite quarries, and rock shelters, usable for prehistoric habitation, were carefully examined as high likelihood spots for the presence of prehistoric archaeological remains.

3.2 Field Conditions

Field conditions for the supplemental Phase I survey of fence line corridor and two ancillary work areas were, in general, excellent as regards groundsurface visibility and therefore the ease of site recognition. Vegetative cover varied from moderate to sparse, in areas of flat to moderate slope, to non-existent, on cliff faces, bedrock outcrops and scree slopes. However, the extreme slope of portions of the fence line corridor study area made surveying difficult, if not outright dangerous, in some areas.

4.0
SURVEY RESULTS

4.1 Introduction

The survey of the Golden Queen supplemental fence line corridor and ancillary project areas failed to result in the discovery or identification of cultural resources of any kind, prehistoric or historical. The fence line corridor survey, located on the south and southwestern sides of Soledad Mountain, traversed extremely rugged terrain, most of which involved slopes that exceeded the angle of repose. The absence of cultural resources within the fence line corridor can be explained by this circumstance and a related fact: the large majority of the historical mining activities on the mountain were concentrated on its northwestern side. Likewise, the two ancillary project areas are somewhat removed from the mountain and area of historical mining. The northwestern parcel is located immediately adjacent to the Tropico - Silver Queen Road, and thus has suffered from considerable roadside disturbance: the dumping of trash, graffiti, target practice and so on. In contrast, the northeastern parcel contains an occupied modern residence, with the groundsurface bladed and therefore devoid of cultural resources.

5.0
SUMMARY AND RECOMMENDATIONS

5.1 Summary

An intensive Phase I archaeological survey was conducted for the Golden Queen supplemental fence line corridor and two ancillary project areas, on and around Soledad Mountain, Mojave, Kern County, California. This involved background studies of published and unpublished documents, reports and other sources pertaining to the prehistory, ethnography and history of the study area; and a complete (100%) intensive survey of these study areas.

No cultural resources of any kind were found during this supplemental Phase I survey.

5.2 Recommendations

The supplemental Phase I archaeological survey of a fence line corridor and two ancillary areas for the proposed Golden Queen Mine project failed to result in the discovery of cultural resources of any kind. Any use and development of these studied areas, accordingly, will not have the potential to result in adverse impacts to cultural resources. Based on the guidelines provided by Appendix K of the California Environmental Quality Act, therefore, we recommend that no additional archaeological work be required for the fence line or two ancillary project areas.

6.0

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7.0
FIGURES

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Confidential Information

8.0
APPENDIX A: ARCHIVAL RECORD SEARCH

CALIFORNIA
HISTORICAL
RESOURCES
INFORMATION
SYSTEM



FRESNO
KERN
KINGS
MADERA
TULARE

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To: David S. Whitley, Ph.D.
W & S Consultants
2242 Stinson Street
Simi Valley, CA 93065

(RS# 97-76)

RE: Golden Queen Well & Fence Survey

County: Kern

Map(s): Soledad Mountain and Mojave 7.5's

The Information Center is under contract to the State Office of Historic Preservation and is responsible for the local management of the California Historical Resources Inventories. The Center is funded solely by research fees, and a grant from the State Office of Historic Preservation. The Information Center does not conduct fieldwork and is not affiliated with any archaeological consultants who conduct fieldwork.

CULTURAL RESOURCES RECORDS SEARCH

The following are the results of a search of the cultural resources site files at the Southern San Joaquin Valley Information Center. These files include known and recorded archaeological and historic sites, inventory and excavation reports filed with this office, and properties listed on the National Register of Historic Places (3/97), the California Historical Landmarks, The California Inventory of Historic Resources, and The California Points of Historical Interest.

The following summarizes the current information available on the subject property based on the records outlined above.

PRIOR CULTURAL RESOURCE INVENTORIES OF THE SUBJECT PROPERTY AND SURROUNDING AREAS

There has been one previous archaeological survey conducted on a portion of one of the project locations, in Section 32. There have been seven surveys conducted in the project vicinity. Survey locations and references are enclosed.

(RS# 97-76)

KNOWN CULTURAL RESOURCES ON THE SUBJECT PROPERTY AND SURROUNDING AREAS

There is one recorded historic site within the corridor survey area in section 8. There are 19 recorded sites within a mile radius. Nine of those sites were excavated by W & S in 1995, and are noted as E-8.

Currently there are no resources in the project area that are listed on the National Register of Historic Places, The California Historical Landmarks, The California Inventory of Historic Resources, or California Points of Historical Interest.

COMMENTS

I have enclosed a copies of the site records not previously recorded by W & S. If you need any additional information for this project, please don't hesitate to contact me at (805) 664-2289.

By:

Adele Baldwin
Assistant Coordinator

Date: April 7, 1997

Fee: $90.00/hr.

Invoice # 7087

RS # 97-76
INV. # 7087

SOLEDAD MTN. 7.5'

S-50) FLEAGLE, DOROTHY - 1994 - ARCHAEOLOGICAL ASSESSMENT FOR PARCEL #427-334-06, 2.5 ACRES WEST OF MOJAVE FOR ALEX SOKOLOW.

S-53) W & S CONSULTANTS - 1995 - PHASE I SURVEY OF SOLEDAD MTN.

S-54) W & S CONSULTANTS - 1995 - CLASS III INVENTORY OF THE GOLDEN QUEEN MINE PROJECT AREA

S-55) W & S CONSULTANTS - 1996 - ADDENDUM TO PHASE I SURVEY OF THE GOLDEN QUEEN MINE

EXCAVATION REPORT

E-8) W & S CONSULTANTS - 1995 - PHASE II TEST EXCAVATIONS AND DETERMINATIONS OF SIGNIFICANCE AT GOLDEN QUEEN MINING COMPANY [CA-KER-4446H, 4447H, 4448H, 4449H, 4450H, 4451H, 4452H., 4453H, 4454H]

ADDITIONAL SITES (in addition to above):

CA-KER-4693H, 4694, 755, 762H, 763H, 4695H, 765,

RS # 97-76

INV. # 7087

MOJAVE 7.5'

S-10) SCHIFFMAN, R. - 1985 - ARCHAEOLOGICAL INVESTIGATION OF SHELL MINING COMPANY'S STANDARD HILL MINING PROJECT

S-19) SCHIFFMAN, R. - 1986 - SUPPLEMENT TO ARCHAEOLOGICAL INVESTIGATION OF SHELL MINING COMPANY'S STANDARD HILL MINING PROJECT - THE SMITH PROPERY

S-24) SCHIFFMAN, R. - 1989 - ARCHAEOLOGICAL INVESTIGATION FOR PARCEL MAP No. 9020.

SITES

CA-KER-570

PHASE II TEST EXCAVATIONS AND DETERMINATIONS OF SIGNIFICANCE ON SOLEDAD MOUNTAIN, MOJAVE, KERN COUNTY, CALIFORNIA

Prepared for:

Mr. John Dowis
Golden Queen Mining Company, Inc.
P.O. Box 878
Rosamond, California 93560

Prepared by:

W & S Consultants
2242 Stinson Street
Simi Valley, California 93065

5 November 1995

Management Summary

Phase II test excavations and determinations of significance were conducted for sites CA-KER-4446H, -4447H, -4448H, 4449H, -4450H, -4451H, -4452H, -4453H and -4454H, all of which are historical (Euro-American) sites dating from the beginning the twentieth century or later. These sites are located on the Golden Queen Mine project area, Soledad Mountain, Mojave, Kern County, California. The Phase II test involved mapping, intensive field recording, surface collecting, limited subsurface testing, and the processing and analysis of the recovered artifacts assemblages. Final recommendations for the management and treatment of each of these sites were developed, based on the results of this study, and are presented.

Acknowledgements

We are indebted to John Dowis and David Weiss, for their assistance on this project. We have also benefitted greatly from conversations with Mrs. Grace Wegmen Meehl and Larry Vredenburgh, both of whose knowledge of the study area has been very helpful to us. We also thank Larry for facilitating our use of his historical mining photographs, which have also aided our understanding of the history of the study area.

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PHASE II TEST EXCAVATIONS AND DETERMINATIONS OF SIGNIFICANCE ON SOLEDAD MOUNTAIN, MOJAVE, KERN COUNTY, CALIFORNIA

1.0
INTRODUCTION

1.1 Introduction

At the request of Mr. John Dowis, of the Golden Queen Mining Company, Inc., Rosamond, California, a Phase II program of archaeological testing was conducted on a series of historical (Euro-American) sites located on Soledad Mountain, Mojave, Kern County, California. The sites tested and evaluated during this project include CA-KER-4446H ("Cobble City"); CA-KER-4447H ("Wegmen complex"); CA-KER-4448H ("Karma Mill"); CA-KER-4449H ("Queen Esther Mill"); CA-KER-4450H ("Echo Mill"); CA-KER-4451H ("Golden Queen Mill"); CA-KER-4452H ("Silver Queen Mine"); CA-KER-4453H ("Gypsy-Starlight"); and portions of CA-KER-4454H ("Bobtail") lying within the study area. This project was conducted by W & S Consultants, Simi Valley, California, with the fieldwork directed by David S. Whitley, Ph.D., and Joseph M. Simon, and the lab work directed by Tamara K. Whitley, M.A.

This project was designed to yield sufficient data to adequately characterize the nature, size and significance of the extant cultural resources located within these nine archaeological sites, and to thereby provide final recommendations for the treatment and disposition of these cultural resources. The determinations of site significance for these nine sites have been performed following Section III, Appendix K, California Environmental Quality Act, Law and Guidelines, June 1986. In addition, federal criteria contained within Title 36, Part 60.4 (36 CFR 60.4), "Criteria for Evaluation of Archaeological Sites and Historical Places", Code of Federal Regulations, July 1989, were consulted and applied, as appropriate, during the determination of significance process.

The following section of this chapter provides a brief background to this project. The subsequent chapter is a summary of the field techniques employed during the Phase II testing program. Next we turn to a summary of the results for each site. We then present the artifact assemblages recovered from each of these nine sites. We conclude with final recommendations for the treatment of these historical cultural resources.

1.2 Background to the Study

The nine sites considering in this Phase II study are located on the northwestern side of Soledad Mountain, which is a northern extension of the Rosamond Hills located about five miles south of the town of Mojave, in southeastern Kern County (Figure 1). All nine sites fall within Section 6, Township 10 North, Range 12 West, with an average site elevation of approximately 3000 feet a.s.l. Environmentally speaking, the northern side of Soledad Mountain is an area of relatively steep terrain, which dips from south to north. Currently, this area is covered by a creosote scrub plant community, with zones of bare rock and historical mine tailings also common.

The current Phase II project, completed in August and September, 1995, consisted of a follow-up on a Phase I survey conducted earlier in the year for the Golden Queen project (see W & S Consultants 1995a, 1995b). The Phase I survey resulted in the discovery and recording of nine archaeological sites, all of which are historical (Euro-American) in nature, and each of which resulted from the mining activities on the mountain. These sites can be summarized as follows:

CA-KER-4446H - This is a large residential area that we believe was

associated with the Queen Esther Mine and Mill, and we have labeled "Cobble City". It dates primarily from about 1904 to 1910, although a small amount of Depression era use is evident at this locale.

CA-KER-4447H - This site is the Wegmen homestead. It includes a series of features and habitation structures associated with the Karma Mine and Mill, which date from about 1903 to 1904. However, portions of the site were occupied continuously into the 1990s.

CA-KER-4448H - This is the Karma Mill, which was in operation from 1903 to 1909. The mill structure, however, burned in 1947.

CA-KER-4449H - Adjacent to the Karma Mill, this is the Queen Esther Mill, was operated from 1903 to 1910.

CA-KER-4450H - This site is the Echo Mill, located towards the northwestern extreme of Soledad Mountain. It ran from 1903 to 1905, when it was dismantled and abandoned.

CA-KER-4451H - This is the Golden Queen Mine and Mill, which was constructed during the 1930s and was dismantled about 1950.

CA-KER-4452H - The site consists of a series of mining features on the Silver Queen claim, which consist of a small clustering of Depression era and later mining remains. the silver Queen was operated as part of the Depression era Golden Queen activities.

CA-KER-4453H - This site consists of mining features on the Gypsy Starlight claim. These comprise a small grouping of ore chutes and ramps dating from the Depression era.

CA-KER-4454H - This is a large site consisting of miscellaneous mining features on the western side of Soledad Mountain, largely but not entirely within the area of the Bobtail group claims. Four features within this larger site fall within the current study area; they consist of one probable turn-of-the-century cobble structure, and three Depression era or later mining features related to the Soledad Extension Mine.

1.21 Historical Summary

Considerable background to this region and the sites, per se, has been provided in the reports resulting from the earlier Phase I work within the Golden Queen study area (see W& S Consultants 1995a, 1995b). We

summarize briefly here the pertinent aspects of these detailed background studies, which concern the mining history of this portion of the Mojave Desert. This history has been summarized in period and more recent publications, with Brown (1915), Clark (1970), Hensher and Vredenburgh (1991), Miller and Miller (1976), Settle (1963, 1967), Settle and Settle (1984), Starr (1988), Troxel and Morton (1962), Tucker (1923, 1935), Tucker and Sampson (1933), and Tucker, Sampson and Oakeshott (1949) constituting the primary sources. The mining history of this area, summarized below, has been synthesized from these and other unpublished sources and documents.

The first recorded mining activity in the region occurred on March 8, 1894, when W.W. Bowers found gold on a promontory south of Mojave, then known as Little Buttes (subsequently changed to Bower's Hill and now Standard Hill). His first claim was the famous Exposed Treasure mine, which he brought into operation shortly thereafter, shipping ore worth $60/ton. By 1896 a camp had sprung up around this site (Hensher and Vredenburgh 1991). The Exposed Treasure discovery apparently spurred local interest in prospecting as, later in 1894, Ezra M. Hamilton discovered gold in the Rosamond Hills, to the south, at a location that would eventually become known as Tropico (Settle 1963, 1967).

Mining activities within the Golden Queen study area were apparently stimulated by the Exposed Treasure discovery, and can be divided generally into three periods. The first, stretching from 1894 to about 1910, was an era of prospecting and the development of a series of early properties and mills (Tucker 1935). The three primary mines in operation during this period were the Karma, Queen Esther and Echo, each of which had their own mills, with lesser amounts of mining at the Eagle Group and Bobtail claims, both of which fall outside of the current study area, and neither of which had mills during this period. Activity was minimal from about 1922 to the start of the Depression when, like many mining regions in the west, numerous small scale mining efforts were started. According to Tucker (speaking of the Mojave mining district as a whole, which included the Tropico area 17 miles to the south and Standard Hill to the north), about 50 to 70 leasers worked old mines from 1931 to 1934, hauling their ore to the Tropico for milling (Tucker 1935). Activity accelerated dramatically during the mid-1930s on Soledad Mountain, however, when the Mojave Mining District was revived by the discovery of the Silver Queen vein, leading subsequently to the establishment of the Golden Queen mine and mill. This represented the second primary period of mining within the study area, with the Golden Queen building a major cyanide plant, and consolidating a number of the earlier claims and patents. Depression era mining terminated in 1942 with the official

closure of all gold mines by the War Production Board. The final period of activity has occurred in recent years, during which time a limited amount of mining has been conducted on different claims on Soledad Mountain.

Queen Esther

The Queen Esther mine and mill appear to represent the first mining activity on Soledad Mountain, with Troxel and Morton (1962) claiming that the mine was first discovered in 1894; like all properties within the study area, however, existing documents at the Kern County Hall of Records only begin about 1900, so the initial date of the claim is unknown.

What is certain is that the mine was originally called the Thomson and Boyle, for its first owners Henry D. Thomson and J.L. Boyle, but its name was relatively quickly changed to the Queen Esther. A partner with Thomson and Boyle in the mine and mill was Harvey S. Mudd, of the Pomona colleges fame, who most likely was the partner who funded the mill construction.

Initial work at the mine, which is located on the north face of Soledad Mountain, yielded small tonnages of high grade shipping ore. A 1901 account in the Mining and Science Press (2/2/01) states that ore ran at $180/ton. In 1903 a mill was constructed on site. According to a period

account in this same weekly (Mining and Science Press, 4/11/03), a 100 ton roller mill was put in, apparently with a cyanide plant. This was increased to 150 tons in 1904 (Troxel and Morton 1962), but not without difficulties: Mining and Science Press reported on 11/14/03 that "The Queen Esther mill at Mojave is shut down on account of the breaking of some machinery."

A (somewhat florid) period account of the Queen Esther mill in operation was published by Margaret Troili in the Overland Monthly in 1908. She stated:

> [H]ere on the steep slope the big mills shook as they devoured the gold ore. Cottages of lumber and stone trailed down the slope; some sat squarely on the level, but the mills lorded over it all. Inside the mill, the shaking seizes one, and a cloak of dust whirls around and refuses to settle. In the engine room, vast power is created, vast work is done. It makes me wonder at man - the big wheels whirling, nice parts doing their work with precise regularity, tremendous beltings rushing up through the timbers and making a great roar and tumult up there, rushing down again like a demon, seizing the great wheels for a frolic, and oozing upward like a never-ending

brown genius from a little bottle.

(Troili 1908:401)

Troili's references to the cottages and the mills in plural concern a nearby residential area and the adjacent Karma mill, respectively, which are discussed subsequently.

The Queen Esther was shut down in 1910, by which time 286 tons of ore had been mined. No accurate production figures for the mine exist, though it is estimated to have produced millions of dollars worth of gold (Troxel and Morton 1962). The Queen Esther was consolidated with the Golden Queen mine in 1935, with its veins apparently worked and perhaps some of its tailings rerun at the Golden Queen mill. The original Golden Queen mill, however, was apparently never used after 1910, and was probably dismantled some time after it closed.

Karma Mine

The Karma mine, due east of the Queen Esther, was apparently also first discovered in 1896 and was quickly put into operation, with ore averaging 7 ounces of silver/ton alone during the first seven years of its production (Troxel and Morton 1962). By 1899 a large boarding house and bunk house had been built for mine employees, "and cabins sprouted like

wildflowers along the slopes" (Hensher and Vredenburgh 1991:55) below the mine. According to Mrs. Grace Wegmen Meehl (personal communication, 1995), the Karma Mining Company spared no expense in housing its employees, and built a number of well-made wooden buildings for their use, some of which are still standing.

According to period accounts of the Karma published in the Mining and Science Press (2/2/01), by early 1901 "the shaft is down 280 feet. Four hundred feet of drifting is completed". Due to increasing lower yielding ore, construction of a mill was begun in 1903 but, like most such undertakings, things did not go as smoothly as optimistically predicted. Again, the Mining and Science Press tells us on August 29, 1903, that the "Machinery for the Karma mill, near Mojave, is on the ground and building will begin Sept. 1. More men will be put into the mine". Almost two months later (10/17/03), the same source stated: "The Karma M[ine] Co. at Mojave has bought a second-hand 10-stamp mill and will add to it 10-stamps more. J. Gerner is president and superintendent". And one month later (11/14/03) Mining and Science Press reported that "J. Gerner, superintendent of the Karma M. Co., says the mill will be in operation this month". Other records indicate that the 20-stamp mill was finally in operation sometime in 1904. This was effective until 1909, when the mine and mill were shut-down due to poor recovery (Troxell and Morton 1962).

The mill was apparently never reopened, and the stamps and stamp boxes are still on site (see below).

The mine was reactivated following World War I when the US Smelting and Mining Company at Kennett agreed to purchase low grade ore with high silica content. As is clear, the mill itself was not reactivated. Ore shipped from the Karma to Kennett between 1917 and 1926 averaged between 5 and 9 ounces of silver/ton (Troxell and Morton 1962). The mill building of the Karma Mine was still standing until 1947, when a fire was accidentally started by visiting teenagers, which burned it down (Mrs. Meehl, personal communication, 1995).

In 1926 the Karma was purchased by E.L. Wegmen, becoming part of the Wegmen Group (consisting of the Karma, Eureka and Grace Groups). Engelbert (Bert) Louis Wegmen was born on February 10, 1873, in Oedding, Germany, and moved to the U.S. with his family when he was seven years old. Due to a case of malaria, he moved out west as an adult, arriving in the Mojave area on November 11, 1903. Having worked with steam engines back east, he was hired to work in the steam plant at the Karma mill. Initially the lack of housing on the hill forced him to live in a lean-to attached to the superintendent's house (Mrs. Grace Wegmen Meehl, personal communication, 1995). But with small cabins appearing on the

north slope of Soledad Mountain, built by the company and providing homes for men with families, he was able to send for his wife and two children, who arrived on May 25, 1904. Subsequently, he and his wife had three more children, all of whom were born on Soledad Mountain, including Grace Eleanor Wegmen Meehl. In addition to his work at the mill, Wegmen was apparently active in the development of a school at Soledad City, serving as the clerk of the school board for many years (ibid; Settle and Settle 1984; see below).

Exposure to the Karma mill apparently strongly motivated Wegmen to pursue mining, as it subsequently became his career. When the Karma mill shut down in 1909, Wegmen stayed on as a guardian, according to the his statement of occupation in the1910 census (W & S Consultants 1995a). Thereafter he continued his own mining pursuits, eventually becoming involved with the Exposed Treasure Mine, on Standard Hill, and the Randsburg mines, where he served as superintendent (Settle and Settle 1984). In the 1920s and 1930s, however, he used the assay office of the Karma Mine (located near the hoist house) to run samples from Randsburg (Mrs. Meehl, personal communication, 1995). He maintained his residence within the study area throughout his life, however, with his wife living at the Wegmen home into the 1950s, and other family members occupying the homestead into the 1990s.

Following the acquisition of the Karma mine and mill, Wegmen began mining operations. In 1933, he patented the Karma property (Kern County Hall of Records M.S. #6140), thereby strengthening his claim to the property. According to Settle and Settle, however, the processing of the ore was conducted off site: "Ore was sledded down the hillsides to ore-bins from which bulk and sacked ore was shipped by gondola car-loads to smelters" (1984:91), with the ore shipped to the Golden Queen mill, one-half mile west from 1937 to 1941. In 1951 a new small vein was discovered. From the 27 tons of ore extracted from this operation, 10 ounces of gold, seven ounces of silver, 251 pounds of lead and 40 pounds of copper were extracted. This played out relatively quickly so that, by 1958, the only mining activity at the site was a two man cross-cutting operation (Troxel and Morton 1962). Clark (1970) estimated that the Wegmen Group as a whole produced around $100,000 in total during the life of its operation.

Echo Mine

The Echo mine and mill, located on the northwestern side of Soledad Mountain, was first discovered during the 1890s, and was worked until about 1905 by the Echo Mining Company, producing about $200,000 in ore

(Troxel and Morton 1962). As with the Queen Esther and Karma, a stamp mill was constructed at the Echo in 1903, a process that apparently went fairly smoothly, judging from period accounts. According to the Mining and Science Press of March 7, 1903, "The 10-stamp mill building at the Echo Mine, 5 miles from Mojave, will be completed by March 10. Development of the mine is in progress". One month later, the same source reported that "The 10-stamp mill of the Echo Mine Company of Los Angeles, Cal, 5 miles west of the village of Mojave, is running steadily on good ore. A cyanide plant is being built to work the tailings direct, there being no intermediate concentration, all the ore being oxidized" (Mining and Science Press, 4/11/03). Later in the year the Mining and Science Press stated that "The Echo M. Co. at Mojave propose to add a centrifugal or rotary mill to its 10-stamp mill. Superintendent J. Keith reports opening a rich shoot in the mine carrying horn silver and black sulfide of silver. G.H. Hooper is president and manager" (10/17/03). Finally, of November 3, 1903, the Mining and Science Press reported that " J. Frank Walters, of Los Angeles, has bought the Echo Mine at Mojave, and will soon resume working the mine and the mill with A.M. Peck as superintendent. The Bobtail mine has been purchased by the same company. The new group consists of 17 claims and has a 20-stamp mill and cyanide plant".

The implications of the above reports seem to be that the Echo mine and

mill was operating quite smoothly, with consideration being given to expansion. In less than a one month period, however, the mine and mill apparently shut down, and were purchased by a new outfit, with the mill doubled in capacity during this same period. Records at the Kern County Hall of Recorders indicate, in fact, that the mine experienced 11 deed changes between 1902 and 1906, suggesting that purchase and resale were a common process at the Echo.

According to Troxel and Morton (1962), the mine closed around 1905, with the mill dismantled in 1906. Carroll Allen is listed as owner from 1906 to November, 1910, at which time it was purchased by George McBryant, who was listed as a mine watchman in the 1910 census (W & S Consultants 1995a). McBryant apparently lost the mine for unpaid property taxes the next year (Kern County Hall of Recorders Tax Deed #256-8).

The Echo mine was idle except for minor activity until 1935 when, with the discovery of the Silver Queen, the Mojave Mining District was revitalized. Subsequently, it was incorporated into the Golden Queen Group (Troxel and Morton 1962).

Golden Queen

The Golden Queen mine has its origin in 1933, when George Holmes discovered the Silver Queen vein, high on the north slope of Soledad Mountain. This discovery revitalized the Mojave Mining District generally, with approximately $300,000 removed from the mine between 1933 and 1935. In this later year, Holmes and his partners sold their mining interests to the Gold Fields American Development Company, a subsidiary of the English company Gold Fields of South Africa Mining Corporation, for the sum of $3.5 million. The resulting Golden Queen Mining Company represented a consolidation of a series of groups on Soledad Mountain, including the Silver Queen, Queen Esther, Echo, Gray Eagle and Soledad Extension properties (Tucker 1935; Troxell and Morton 1962). A state of the art mill and cyanide plant was also built in 1935, starting in operation in October of that year.

According to a period account (Tucker 1935), the main haulage tunnel at the Golden Queen held 30 pound rails supporting 12 Westinghouse Electric two-ton locomotives and cars. Mine equipment included three Imperial-type Ingersoll-Rand compressors, a blacksmith shop and a machine shop. The mill and cyanide plant ran 24 hours per day with a 350 tons/day capacity. It had 700 tons coarse ore bins, primary and secondary gyratory crushers, Marcy ball mills, Dorr classifiers, and then a series of Dorr

agitator and thickener tanks, with Oliver drum filters at the end to dewater the slimes (ibid:478). Two hundred men were employed at that time: 150 on construction, and 50 on mine development.

By mid-1937, it is estimated that the mine was producing 300 tons of ore per day. Between 1936 and 1942, approximately one half-million tons of ore were processed, yielding $6 million in gold and silver. Increased mining costs after the war prevented its reopening, and the mill was dismantled in about 1950, and it burned sometime subsequently. However, minor activity continued into the 1950s, and the total production for the mine has been estimated at about $10 million (Troxel and Morton 1962).

This figure has been grossly confirmed through the acquisition of copies of the original accounting ledger sheets for the mine and mill. Based on records for 64 months dating between early 1936 and June 1941 (i.e., for less than the total period of production), the actual receipts for gold bullion sold by the Golden Queen Mining Company totaled $7,867,782, thereby averaging about $123,000/month. However, these records indicate that the mill was processing and purchasing a considerable amount of ore from other mines during this period (including, according to various sources, the Wegmen mines). Custom milling apparently accounted for $2,200,736 of

the Golden Queen's bullion sales, representing fully 29% of the total for the 64 months. Where all of this ore originated is unknown, especially given that the Elephant-Eagle Mill was also operating on Soledad Mountain at this same time.

"Cobble City"

In addition to the mines and mill, per se, the historical records also indicate the development of a residential settlement on Soledad Mountain, which has been referred to above. In two documents (one historical and one recent) this is referred to as "Soledad City". However, it needs be noted that Mrs. Grace Wegmen Meehl, who was born, raised and lived on the Wegmen property for most of her life, had never heard the term "Soledad City" used while she lived there (personal communication, 1995), so this is apparently a slight misnomer; in an effort to avoid introducing additional ambiguity into the historical record, we have referred to this residential area as "Cobble City", reflecting the primary building material there employed.

Regardless of toponym, this residential area is described very briefly in a few reports as consisting of a series of wood and stone cabins on the side of the mountain, which first started to develop around the Karma mine in about 1899 (e.g., Troili 1908; Settle and Settle 1984; Hensher and

Vredenburgh 1991). An oral history of the Wegmen family also indicates that it included a school; apparently, the local population of children was sufficient to keep this school open until just a few years before the opening of the Golden Queen mine in the mid-1930s. According to Mrs. Meehl (personal communication, 1995), who went through the tenth grade at this school, it was originally located near the Queen Esther Mill, but was moved downslope around 1910 to a building on the north side of Silver Queen Road, north of the study area, which was recently bulldozed. Attendance averaged about 15 students in this one-room school, although it had been as high as approximately 25 when the mines were in operation. In order to keep the attendance up, and therefore continue to qualify for state funding, children were also brought in from Vreda, the nearby rail siding near the intersection of what are now Silver Queen Road and Highway 14. Furthermore, Mr. Engelbert Wegmen, who was on the school board, always insured that the teacher hired for the school herself had a family of children to boost enrollment.

According to the 1910 census (see W & S Consultants 1995a), the total population living on Soledad Mountain at that time was 95 individuals, the majority of which were unmarried males, but also including a significant number of women and children. Note that this total represents the period after the closing of the Karma and Echo mines, at a minimum, therefore it

probably does not represent the local population peak, which presumably would have occurred around 1904 - 1905. According to Mrs. Meehl (personal communication, 1995), family tradition maintained that the population was as high as 200 people at the peak of mining activities around 1905, which seems entirely plausible, given the 1910 census figures. Subsequently, the population dropped dramatically, with very few people living here in the 1920s and 1930s; sometimes it was limited to only two or three family groups homesteading on the mountainside.

The majority of the adult males, not too surprisingly, list their occupations in the census as "quartz miners". A series of other occupations - almost all mining camp related - are also represented, including waitress and housekeeper, presumably at the boarding house and dining hall for the unmarried miners. As regards ethnicity, a significant number of the miners originated in Slovenia, eastern Europe. Probably reflecting the local mining slang of the time, almost all of the Slovenian miners are listed as having the first name of "Mike". Another significant ethnic group represented are Italians. According to Mrs. Meehl (personal communication, 1995), the residential area centered in a series of cobble structures downslope from the Queen Esther Mill was known as "Little Italy", in recognition of the ethnicity of the inhabitants of this area. Although greater written documentation would be helpful, the 1910

census nonetheless indicates a considerable amount concerning the size, socioeconomic breakdown, and ethnicity of the population associated with the early historical mining within the study area.

Judging from the historical records and Mrs. Meehl's recollections, the residential area on the mountainside can be divided into two areas: on the northeastern side of the study area there were a series of wood frame cabins and structures built by the Karma Mining Company; this area eventually became the Wegmen homestead. Towards the west, and essentially north and west of the Queen Esther Mill, was "Little Italy", the cobble structures built by the miners working for the Queen Esther Mine. These self-made structures reflected the Queen Esther corporate policy of "extreme frugality",as described by Mrs. Meehl (personal communication, 1995).

Based on an examination and analysis of 1903 and 1904 photos, presented elsewhere (see W & S Consultants 1995a), it is clear that the oldest habitation area on the mountain is on the northeastern side of the study area; that is, the eastern structures within the Wegmen complex. The row of wooden cabins extending downhill from the Karma Mill and "Little Italy", in contrast, post-date this initial settlement by at least a few months, if not about a year, and clearly were not in place before 1903.

The majority of the habitation on Soledad Mountain, then fell within a fairly narrow time span of less than a decade, running from 1903 to 1910, albeit Depression era and modern habitation has contributed an overlay to these early twentieth century remains.

2.0

FIELD METHODS

2.1 Introduction

Phase II archaeological fieldwork at the nine sites within the Golden Queen Mine study area was intended to establish the nature and significance of each of these sites, and to thereby provide baseline data from which a determination of the ultimate disposition of each cultural resource could be made. This required the collection of a representative sample of artifacts and archaeological indicators from the sites, the establishment of the vertical and horizontal boundaries of any cultural deposits that might be present on the sites, and an analysis of the recovered artifact assemblage from each archaeological locality, should such be present at each site.

Procedures followed in the collection of data useful for establishing the nature and significance of the site included mapping, surface collecting of artifacts lying on the groundsurface, and test excavation of pits to establish the presence or absence of a subsurface archaeological deposit, as well as to characterize such a deposit if found to be present. Because it was immediately obvious that the sites considered during this study were

primarily surface manifestations, as is common with many twentieth century historical sites, the majority of the field work was directed towards mapping, surface recording and collecting. We discuss each of these field methods below.

2.2 Mapping and Surface Collection

In order to determine the maximum areal extent of each site, the initial field procedure was to locate and map all extant features on each site. These included habitation remains such as buildings, foundation and wall remnants, privies and dumps, and mining features such as adits, glory holes, stopes, buildings, head frames and ore chutes, among others. The mapping itself involved two different levels of data recording: locational mapping of all features across each site, thereby creating a site map; and the finer-detailed mapping of each feature, thus resulting in a series of feature maps or sketches. A transit, stadia and chain were used for the site mapping; feature mapping involved the use of a surveyor's chain, 50 and 10 meter tapes, and a Brunton compass.

Once the various features on each site were identified and mapped, a sample of the surface artifacts present on the groundsurface in or around

each feature were mapped and collected. Generally, these were restricted to functionally and especially temporally diagnostic artifacts. (Because of this restriction, and because not all features had associated artifacts, surface collection was further restricted to a sample of the features). In order to identify all such diagnostic remains, the general area of each site was walked by crew members, spaced in two meter transects. Identified artifacts and archaeological indicators were then marked with flagging tape. Remains found within an area of approximately 3 meters-square in size (i.e., within a circle with a one-meter radius) were treated as discrete artifact associations and collected as clusters.

2.3 Test Excavations

In order to ascertain whether or not subsurface archaeological deposits were present at each of the nine sites, and to allow for the characterization of such cultural deposits should they prove to be present, subsurface testing was conducted. Because of the location of these nine sites (generally on steep, rocky slopes, including in some places on areas of exposed bedrock) and the general nature of the remains contained therein (historical remains less than 100 years old), it was immediately apparent that any subsurface deposits would be localized and rare. This is because

such locations are generally unfavorable for the subsurface burial of artifacts and because little time had passed, archaeologically speaking, since the remains were originally deposited. Subsurface testing, accordingly, targeted localized areas where the burial of artifacts was most likely, such as within buildings, in privies and on dumps.

Further reflecting the nature of these sites, subsurface testing involved two procedures. The first, in areas where subsurface remains were likely, involved the hand excavation of 0.25x0.25 meter test pits. These were dug with mattock and trowel in arbitrary 10 centimeter levels. Spoils from each of these levels were screened through one-eighth inch mesh. All artifacts/archaeological indicators were collected and bagged by unit and level. Excavation was continued through two culturally sterile levels (i.e., 20 centimeters), or until decomposing bedrock was encountered.

The second procedure, employed in site areas deemed unlikely to contain subsurface deposits, involved the excavation of shovel test pits (STPs), approximately 30 centimeters in diameter and a minimum of 40 centimeters deep. These were dug with round point shovels, with spoils also screened through one-eighth inch mesh.

The following allocation of subsurface pits, per site, was made, based on

the conditions at each locale, with the larger number of units reflective of conditions more favorable for subsurface deposition:

CA-KER-4446H (Cobble City) - 8 units;

CA-KER-4447H (Wegmen) - 4 units;

CA-KER-4448H (Karma) - 1 unit;

CA-KER-4449H (Queen Esther) - 1 unit; and

CA-KER-4450H (Echo) - 2 units.

That is, a total of 16 test pits were excavated on five of the nine sites. For the remaining four sites, which consisted exclusively of mill and mining (as opposed to habitation) areas, and which appeared to date to the Depression era or later, STPs were employed. Two of these were excavated on each of these four remaining sites, for a total of eight STPs.

3.0

FIELD RESULTS

3.1 Introduction

The field tasks involved in a Phase II test excavation and determination of significance can be conceptualized in terms of four activities: first, establishing the size of each site through mapping and feature recording; second, determining the presence or absence of subsurface deposits on each site through subsurface testing; and third, characterizing the nature of each site in functional and temporal terms through an analysis of the recovered artifact assemblage. Finally, information derived from the above activities are synthesized to determine the significance of each site in terms of integrity, uniqueness, research potential and other heritage values. In this chapter, we discuss the results of the fieldwork relative to mapping and feature recording, and subsurface testing. In the following chapter we consider in some detail the artifact assemblages recovered from various of the sites, and reserve the determination of significance for the final chapter.

3.2 Mapping and Feature Recording

3.21 CA-KER-4446H (Cobble City)

Mapping resulted in the recording of 53 surface features at this site: 31 structures/building foundations; 12 privies; four leveled pads/terraces; and four dumps/tin can scatters (Table 1). The distribution of these features is illustrated in Figure 2. As is apparent in this map, the site covers an area established at 215 meters N-2 by 154 meters E-W, or 33,110 meters square. We discuss the individual features at this site below.

Structure A1 (Figure 3) - This feature, towards the north end of the site, is a small single room, measuring 10 feet E-W by 11 feet N-S, that has been dug-out into the slope of the hillside. It has unmortared, natural fieldstone cobble walls that are a maximum of 30" high lining three sides, with the opening to the north (downslope). A 20 feet long retaining wall, consisting of a single coarse of unmortared cobbles, abuts the SE corner of the dug-out. A considerable scatter of surface artifacts (early twentieth century in age) is present south and west of the dug-out; however, this room sits at approximately the northernmost, downslope end of the site, and it is unclear whether this represents an intentional dump, or simply

the downslope accumulation of debris at the far end of the site. Structure A1 appears to be associated with B1, which represents the water works for the Queen Esther Mill.

Structure B1 Complex (Figure 3) - B1, a complex of three features, is located eight meters north of A1 and is the northernmost feature at Cobble City. This complex consists of two metal water tanks, seven feet in diameter and 10 feet high, and a wooden plank flooring foundation for what appears to have been a pump house, measuring 15 feet E-W by 11 feet N-S. A four inch riveted iron pipe runs from the tanks through the site and appears to continue to the Queen Esther Mill, although mill tailings have buried the some of the upper portions of pipe. A wooden machine stanchion is present on the wooden plank foundation, while miscellaneous pipes, some tin cans and metal and wood pulleys are present around this feature complex. A slate electrical insulator and a porcelain electrical throw-switch (marked "BECo" over "15 Amp" over "125 W") were also found around the foundation, indicating that it was electrified.

Structure C1 (Figure 4) - This feature is a small, three-walled single room structure made from mud mortared cobbles, measuring 12 feet N-S by 11 feet E-W, and located in the northwestern portion of the site. It is unclear whether these walls served as a windbreak for a tent, or if the

upper portions of the walls were made of now missing wood, although the first seems more likely. A rectangular terrace or pad is located in front (E) of the opening to the structure, with a rock and dirt berm forming its southern (up slope) edge and a single coarse cobble edging forming the northern sides of the terrace. A considerable quantity of debris is present in front (E) of this structure, stretching towards A1; again, it is unclear whether this represents downslope movement from structures higher up on the slope, or a true, in place dump. However, they are early twentieth century in age.

Structure D1 (Figure 5) - This structure is close to identical in form, and is located near to, Structure C1, although slightly larger in size; in this case13 by 12 feet. Again, it consists of a three walled, mud mortared single room, opening to the east and fronted by a long rectangular terrace that is edged by a single coarse of fieldstone cobbles, containing associated artifacts of the same age. The proximity of these two structures on the northwestern end of the site, and the fact that they are so similar in form and age argues that they were built by the same individual and/or served some purpose slightly different than the other structures on the site.

Structure E1 (Figure 6) - This structure is a single room enclosure that has filled with colluvium. It is the largest single room on the site (17

feet N-S by 26 feet E-W), and is made with unmortared fieldstone cobbles wall that are ~14 inches wide and ~20 inches high. It is entered through a relatively narrow passage near its NE corner. The large size of this structure, absence of associated artifacts, and its relative isolation towards the westernmost side of the site suggest the possibility that it may have served as an animal pen or corral. However, it is also possible that the absence of associated artifacts is attributable to the rapid colluviation occurring in the area of this feature.

Structure F1 (Figure 7) - This structure is also a single room, four wall cobble house, although much smaller in size than E1. It is the westernmost feature on the site. F1 measures 12 feet N-S by 13 feet E-W, with mortared cobble walls that are ~28 inches wide and now have a maximum height of ~40 inches. An entry/door is located in the approximate middle of the downslope (N) side of the structure. This feature is overgrown with creosote and no associated artifacts were noted, although this fact is probably a function of the vegetation.

Structure G1 (Figure 8) - This feature consists of the low cobble foundations of a wooden building which, judging from the charred timbers and charcoal, burnt at some point at this locale. It is the southernmost structure at Cobble City, and therefore the highest up slope. The

foundations measure 34 feet N-S by 15 feet E-W, and are highest at the downslope (N) end, where they currently reach 36 inches in height, receding to ground level at the southern end. Considerable structural debris is located along the eastern side of the foundations, including nails, burnt wood and broken and (in some cases) melted glass. We also noted a ceramic light bulb socket with an 1890 patent date embossed on it, indicating that this structure had electrical lighting. Although there is some modern debris at this location (it is immediately alongside an existing dirt road), the majority of the remains appear early twentieth century in age. The unmortared cobble foundations of this structure are similar to ones noted as portions of standing wooden structures at the Wegmen complex (CA-KER-4447H; see below): in some cases these served as true foundations, upon which floor joists rested; in other cases these piles of cobbles appear to have served instead as wall edgings. That is, they helped to keep the walls of the structures in place, with floors that rested directly on the ground. In the case of Structure G1, the extant cobble walls are clearly intended to create a flat surface on sloping ground, and therefore most likely served as true foundations, rather than wooden structure edgings.

Structure H1 Complex (Figures 9 and 10) - This feature, located at the southern end of the site, consists of a complex of four rooms abutting a

terrace complex to the north and a privy. The overall dimensions of this complex are 52 feet N-S by 48 feet E-W. In fact, this complex consists of three primary proximate structures, forming four rooms. On the west is the largest of the three, which is 40 feet N-S by 15 feet E-W. It consists of a large single "back" room (32' by 15'), made of unmortared cobble walls that are 28 inches wide and a maximum of 44 inches high. At the far (S) end of this room three decomposing wood barrels are still in place. A partial dug-out forms a small (8' by 12') room immediately to the north of this larger room. The sides of this dug-out are made of large metal cyanide cans (rectangular in shape) that have been filled with dirt and stacked up. Two gable front, mortared cobble and interior plastered and whitewashed single room structures are located immediately to the east (Figure 10). The building that forms the central structure in this complex is 22 feet N-S and 12 feet E-W. The building immediately east, which is the easternmost portion of this complex, is slightly larger: 21 feet N-S by 15.5 feet E-W. It abuts a small but steep banked arroyo immediately to its east. The central of these structures currently lacks a north wall, which most likely has fallen; the easternmost structure has a door in its northern wall, and windows on the northern, eastern and southern sides. In both structures there are remnants of the original roofing: wood beams covered with flattened metal cyanide cans. These are embossed with "THE ROESSLER & HASSLACHER CHEM. CO" over "NEW YORK" on one side, and

"CYANIDE PURE" on the other. Charred window headers and sills, along with a considerable amount of charred wood within these two structures, indicate that they burned at some point. Artifacts associated with this complex are early twentieth century in age.

Structure I1 (Figure 11) - This feature is a small complex consisting of a large, single room building with an associated cellar at its southwestern corner, located at the southern end of the site. The building is 20 feet N-S by 12 feet E-W, with a door on the north wall, yet it is side gabled, and has windows on the west and east walls. The walls are mud mortared fieldstone cobbles (unplastered) and are ~18 inches wide; current maximum height of the walls is 54 inches from the floor of the room. The roof of this structure is laying in a scatter immediately to the west. It consists of a 4"x4" gable beam and one inch thick planks that are ~8 - 10 inches wide and 49 inches long, covered with corrugated sheet metal and flattened cyanide cans. The beams and planks are charred, indicating that the structure burned at some point. The associated cellar is semi-subterranean, having been dug into the slope to the south. It is eight feet N-S by five feet E-W, and is covered by a ground-level roof made of wood and metal and covered with dirt. A small door opens to the north. However, the cellar is collapsing, and we could not examine its interior. Artifacts associated with this complex are early twentieth century in age.

Structure J1 Complex (Figures 12 and 13) - J1, located at the southwestern side of the site, is the most complex arrangement of rooms at Cobble City. Depending upon how one classifies a "room", it contains between five and eight separate rooms, and appeàrs to have developed from a rather haphazard accretion of abutting walls and rooms, rather than through a single planned construction event. The rooms range from two adjoining, 12 by 12 feet rooms, to a large low walled room, about 20 by 25 feet in size, to a kitchen area that is 12 by 20 feet in dimension. Generally, the walls of this complex are made of mud mortared cobbles; the northernmost room in this complex, which apparently is the kitchen area, has also had its interior walls plastered and whitewashed, and has a built-in shelf unit, made of wooden crates, set-into the southern wall (Figure 13). An accumulation of ash, charcoal and calcined bone in the southwestern corner of this room suggests that a stove or hearth was once placed in this spot; most likely a metal wood-burning stove. (In fact, a four burner, sheet metal stove is located in the southernmost of the rooms that comprise J1; whether or not this was used in the kitchen area or instead where it currently rests is, of course, unknown). Four of the rooms maintain portions of their collapsed roofs, consisting of wood beams, corrugated metal and flattened cans. Given the density of the rooms at this location, it is not surprising that three privies are located immediately

nearby. Artifacts associated with this complex are early twentieth century in age.

Structure K1 (Figure 7) - Structure K1, located in the central - western portion of the site, consists of a small, three walled structure and associated, cobble edged terraced pad. The three walled structure is a partial dug-out, opening to the north (downslope), with mud mortared cobble walls that currently reach a maximum height of 48 inches. It measures 12 feet N-S by eight feet E-W. The terraced pad, immediately NE of the dug-out is 23 feet N-S by 14 feet E-W. The metal portions of a wooden sea chest were present on this pad, including an ornate clasp embossed with "PAT'D OCT. '71". Other artifacts associated with this structure are also early twentieth century in age.

Structure L1 (Figure 14) - This is a large terraced pad, located towards the western side of the site. The pad, which measures 30 feet N-S by 36 feet E-W is unedged, but nonetheless is clear in form because it required leveling the slope, and cutting into the up slope, southern side. Two privies are located at the eastern corners of this pad, both of which are cobble edged depressions. The northern of these still has a standing southern wall, which consists of the wood frame of a slant roof structure that was 64 inches high to the east, 52 inches high on the west, and 55

inches wide; clearly, the door to this privy was on the east. A scatter of wood and tin privy parts are located near the SE privy. A low density scatter of early twentieth century artifacts is present on the pad, including a series of Car Hearts brand metal overall buttons. The size of this feature and the presence of two privies here suggests that it was more than simply a tent pad. The absence of any other structural remains suggests that a freestanding wooden structure may have once been present at this spot; that is, one on a wooden foundation. According to Mrs. Grace Meehl (personal communication, 1995), who was born and grew up on Soledad Mountain, a number of wooden buildings were moved off the mountain to the town of Mojave when the mines closed. It is possible that such pertains in the case here.

Structure M1 (Figure 15) - This is a complex of two structures made with mud mortared fieldstone cobbles, connected by a leveled and edged terrace pad, and located in the central - western portion of the site. The southern (up slope) of the two structures consists of two connected rooms: a large, open fronted room to the north that is 14 feet wide (E-W) and 14 feet deep (N-S) with a curved west wall; and, at its southeast corner, a small dug-out cut into the back slope that is 7 by 7 feet in size. Maximum height of the walls of this structure are currently 58 inches. We noted wire cot mesh within the dug-out, suggesting that it served as a sleeping

alcove. Portions of the collapsed roof, made of wood and corrugated sheet metal, are also present in this alcove. The second structure is located on the northwestern corner of the pad and consists of a small single room dug-out with mud mortared cobble walls. These reach a maximum height on the exterior of 30 inches, but were obviously higher from the interior floor, which is currently covered with a collapsed sheet metal roof. The pad area is edged with a dirt and cobble berm around its southwestern corner. In addition to a variety of miscellaneous metal artifacts, including portions of a stove pipe, we noted a number of metal grommets, probably tent grommets, on the pad, suggesting that a tent may have been placed here. Artifacts associated with this complex are early twentieth century in age.

Structure N1 (Figure 16) - This is a crudely built feature consisting of a three walled, one room structure, opening to the north, which overlooks a small terraced pad. The walls of the three walled building are crudely stacked unmortared cobbles, currently four feet high. It measures 20 feet N-S, but its E-W dimensions are 20 feet, along the north side, and 18 feet along the south. A small retaining wall separates it from the terraced pad, which is 13 feet wide (N-S), but varies from 20 feet E-W at the south to 16 feet E-W along its north border. It is edged along its east and west walls with loosely stacked low cobble walls. A small rock edged depression is

located along the east wall of the three room structure; this is either a small dug-out or a privy, although it does not really resemble other examples of these features found at the site. Artifacts associated with this structure are early twentieth century in age.

Structure R (Figure 17) - This is an unmortared single room cobble wall enclosure located on the northeastern side of the site. It measures 16 by 16 feet. The eastern wall is partly fallen, but appears to have contained a door or entry way. The walls are currently four feet high and two feet wide. Two narrower abutments, also made of unmortared cobbles but one foot wide, project to the east for five feet from the Ne and Se corners of the building. Although this structure resembles many others on the site in terms of construction techniques, a concentration of sanitary seal tin cans is located immediately to the west. As with the other structures on the northeastern side of the site, this reflects the Depression era use of this portion of the site (see below).

Structure S (Figure 18) - Also in the northeastern section of the site, this feature consists of a three walled structure abutting a terraced pad. The structure consists of a mud mortared cobble wall that is one foot wide and now 18 inches high, with the opening to the structure on the east and a possible door (or perhaps just collapsed wall section) along the south

side. The structure measures 13 feet N-S by 18 feet E-W. A small concrete pad, four feet N-S by 52 inches E-W, is located just off the southeastern corner of the structure. The terraced pad extends another 20 feet east from the opening of the three walled room. The pad area and room contains a moderate concentration of Depression era and later remains. These include aerosol spray cans (post-1947 in age; Rock 1987); a tubular steel chair frame (post-late1920s); sanitary seal cans; and a metal wall hanging paper towel dispenser, embossed with "EVERGREEN" over "SPRUCE" over "ROBERG PAPER AND FIBRE CO." over "GREEN BAY, WIS." ; along with a considerable quantity of broken glass. There is also a significant amount of charcoal and melted glass, indicating that the structure burned.

Structure S2 (Figure 17) - Also located in the northeastern quadrant of the site, this is a terraced pad edged with a single coarse of unmortared cobbles. It measures 10 feet N-S by 26 feet E-W. Like the other features in this portion of the site, this structure contained a moderate density of Depression era and later remains. However, we also noted the metal remnants of an Engineer's scale, and the metal back-plate of a pocket watch. This is engraved with the following makers inscription:

MFD. BY THE ANSONIA CLOCK Cº
NEW YORK, U.S. OF AMERICA
PAT. APRIL 17, 1888

Again, the features in this portion of the site appear to have been first constructed around 1903 - 1904, like the other features on the site, but to have experienced reuse during the Depression and subsequently. It is most likely that this watch back plate dates to the initial use of this feature after the turn of the century, although it is also possible that it was deposited at this feature more recently.

Structure T (Figure 19) - Located in the northeastern quadrant of Cobble City, this feature is a one room, mortared cobble wall structure with associated terraced pad. The building measures 13 feet N-S by 15 feet E-W, has interior plastered walls that are 18 inches wide and currently four feet high, with a two foot wide window on the west wall and a doorway on the east. A 55 gallon metal drum, laid on its side, has been bricked-in along the northeast exterior wall. This was apparently used for water storage, with a short pipe extending to the north. The terrace extends 16 feet to the east and 6.5 feet to the north of the structure, with a cobbled retaining wall running along the south (up slope) side. Like the other structures in this portion of the site, associated artifacts are largely Depression era or later. However, we noticed fragments of an electrical insulator and a metal, screw-in light bulb base, suggesting that the feature may have been electrified during the Depression. A Depression era dump,

V, is located to the southeast of the structure.

Structure U (Figures 20 and 21) - This feature is a single room building constructed with mortared fieldstone cobbles. It measures 13 feet N-S by 14 feet E-W, and has windows on its north, south and west walls, with a doorway on the east (Figure 21). The interior walls of this building are plastered and were whitewashed. They are two feet wide and, in places, seven feet high; indeed, the lintel over the doorway (a wooden header capped with fieldstones) is still in place. Burnt roofing materials litter the floor of the structure, suggesting that it was burned. A terraced pad surrounds the structure on its north, east and south sides. This is edged with a single coarse of unmortared cobbles. A cobble lined walkway runs from the terrace a few feet to the north, to the remnants of an old E-W road bed, which appears to have been the primary historical access to the site. Artifacts associated with this structure are primarily Depression era or later in age, and include sanitary seal cans and two tubular steel folding chair frames. Like other features in this northeastern side of the site, this structure appears to have been inhabited during the Depression. A Depression era dump, V, is located to the northeast of the structure.

Structure V1 (Figure 22) - This structure is a semi-circular terraced

pad. Located on the west side of the small arroyo running through the site, it is situated in the central area of Cobble City. The pad has a maximum dimension of 40 feet E-W. It is edged with a single coarse of unmortared cobbles. On old road bed, which appears to have been macadamized or oiled at one time, enters or terminates at the east side of the pad; this is the same road bed that runs immediately north of Structure U (see above). Additionally, a cobble edged walkway extends northwards from the southeastern side of this pad up slope to Structure V2 (see below). This walkway is unusual in that it follows a sinuous path to this associated pad. With the possible exception of some fragments of milled lumber, there are no true structural remains on pad V1, although the moderate artifact density is sufficient to suggest that a structure of some kind, perhaps a tent, once stood at this locale. Associated artifacts are primarily early twentieth century in age, including lavender glass fragments, a bottle fragment with a hand applied lip, and hole-in-top cans. There are also a series of crown cap bottle tops. For glass bottles these were first introduced in 1897 (Polak 1994), revolutionizing the beer and soft drink industries. What is most notable about the crown caps at Structure V1 is simply the fact that they are more common here than on the remainder of the site, where remnants of wine bottles predominate as evidence of the alcohol preference of the site's inhabitants.

Structure V2 (Figure 23) - As implied above, this pad is associated with downslope structure V1 inasmuch as a cobble lined sinuous walkway connects the two. It is oblong, measuring 27 feet E-W by 15 feet N-S, and edged with a single coarse of unmortared cobbles. We noted tent grommets on the ground at this location, suggesting that it was used for a tent. However, the associated artifacts are somewhat mixed in age, including a blue California ware plate, lavender glass, a cold cream jar with "PONDS" over "4" and fragments of carnival or Depression glass.

Structure V3 (Figure 24) - This is an oddly shaped structure located in the central - northwestern portion of the site. It consists of two crudely built N-S walls that are a double coarse of unmortared fieldstone cobbles, currently two feet high maximum. These walls are eight feet wide at the southern end and 11 feet wide to the north. A cobble lined privy is located off center, at the northwestern end of this walled structure. Artifacts associated with this structure appear to be early twentieth century in age. Included among them is a false tooth bridge consisting of two molars.

Structures W & X (Figure 25) - This a complex of two walled structures with an intervening terraced pad, located towards the northwestern side of the site. Structure W, on the southeastern side of the

complex, is a small single room that is 11.5 feet N-S and 11 feet E-W, with a door opening to the north. Its walls are mud mortared cobbles that are currently 64 inches high and two feet thick. A small alcove is located along the eastern side of Structure W. This is made of a low coarse unmortared cobbles, currently two feet high. This alcove is five feet wide (E-W) and ten feet long (N-S). Structure X is located about ten feet NW of W. It is a three walled construction with unmortared cobble walls that are two feet high. It measures 20 feet (E-W) by 16 feet (N-S), and opens to the east; thus the openings of W and X both face out onto a common terraced pad area. In addition, a second terrace, in this case cobble edged, is located immediately north of Structure X. A small step leads down to this lower terrace. Artifacts associated with this complex are early twentieth century in age.

Privies - In addition to the structural remains described above, 12 privies were identified on the site (Table 1). With two exceptions, these are small (typically ~5 feet in diameter) cobble ringed depressions. The exceptions (V4 and V5) are slightly larger (8 by 8 and 6 by 6 feet, respectively), cobble edged U-shaped depressions, which may or may not prove to also be privies. The cobble edging of these various features resembles the cobble edging found at the standing privy at the Wegmen site (CA-KER-4447H; see below), which served as a footings against which

the privy walls were placed. In staking these and other features on the site prior to mapping, we noted that the site soil was very rocky colluvium, making digging quite difficult. We suspect that these privies, accordingly, are fairly shallow and therefore would have had a relatively short use-life. This being so, we also suspect that additional privies exist on the site but have not yet been located. We discern no clear pattern for the placement of the privies; many are located near to other structures. Certainly, no effort was made to keep the privies at a distance from the living area of the site. This last fact is a reflection of the general lack of any planned development for this habitation area. As is quite clear, it developed randomly.

Dumps - Dumps are of course important archaeological features, because they contain large quantities of artifacts. Unfortunately, real dumps in the sense of dense accumulations of trash were all but non-existent at Cobble City: only one true dump, V, is present. This is a small accumulation of trash, about 10 meters in diameter, located on the northeastern side of the site, on the east side of the arroyo that crosses N-S through the site. It is associated with Structures T and U and appears to be Depression era in age, as was the last occupation of these two dwellings. The remaining dumps recorded on the site (A2, F2 and M2) are in fact all moderate density surface scatters which clearly have no subsurface

components. They are located in and among the living structures on the site, and are clearly moving downslope over time. Indeed, A2 is located at the toe slope of the hill, which forms the northern end of the site, precisely where the grade flattens out (and hence where the pump house for the water works was located). It is likely that this accumulation of trash at A2 may in part simply represent the natural downslope concentration of materials at the slope break. Assuming that a denser dump or dumps once existed at the site, as the quantity of habitation structures suggest, it is likely that these were placed in the small arroyos found on either sides of the site, and/or in the southeastern corner of the site, which is now being buried by mill tailings from the Queen Esther.

CA-KER-4446H Summary - Cobble City can be characterized as a relatively dense concentration of small habitation structures, all of which appear to have been built around 1903 - 1904. The majority of these habitations appear to have been abandoned before the first World War; however, there is a concentration of structures and a dump in the northeastern quadrant of the site that were also used during the Depression era, and perhaps later. None of the structures on the site maintain their architectural integrity: all lack roofs and none have completely intact walls, although there is considerable variability in the degree to which the walls are preserved, both between structures and

within the same structure. A number of the structures appear to have been burned, though whether this occurred before or after site abandonment is unknown. Finally, there is considerable variability in construction techniques and structure lay-out, and no evidence of internal site organization. Given that the majority of these structures were primarily made of locally available building materials (fieldstone cobbles, mud mortar), with a minimum of imported, manufactured building supplies (sawn lumber, bricks), it is likely that these structures were built by the individual miners themselves, rather than by the mining company. This inference is supported when the structures from Cobble City are compared with those from the Wegmen complex (see below), which were provided as company housing by the Karma Mining Company. As recalled by Mrs. Grace Wegmen Meehl (personal communication, 1995), the Karma Mining Company spared no expense in caring for its staff. In contrast, the Queen Esther Mine, with which Cobble City was apparently associated, was noted for its corporate "frugality", which can be taken as a polite way of stating that they did little for their workers, leaving them to care for themselves on their own.

3.22 CA-KER-4447H (Wegmen complex)

A total of 30 features were mapped and recorded at the Wegmen site complex (Table 2). The Wegmen and Meehl houses, and associated shop and ranch outbuildings, as well as the Reymart-Fraction head frame, were in use into the 1990s, are not archaeological in nature and were not further considered during the fieldwork. The remaining 27 features include 15 structures/pads, nine privies and three dumps. These cover an area that measures 250 meters N-S by 185 meters E-W, or 46,250 meters square (Figure 26). However, the site area is in fact elliptical rather than square, so total site area is probably almost one-half less than the calculated figure. Furthermore, the archaeological features on the site are localized and dispersed, so the large majority this site area is actually devoid of archaeological remains. We discuss these features, in turn, below.

Structure A (Figures 27, 28 and 29) - This building is a standing three room, gable sided wooden cabin, located near the southern end of the site. It is unframed board and batten construction with tongue and groove interior wall paneling. The floors are tongue and groove planks, and the foundation is wooden pins and rock piers, with board and batten skirting. The roof is shake on the north side, and corrugated metal on the south

(Figure 28), suggesting that the structure was re-roofed at some point. A porch surrounds the cabin on three sides (N, S and E), with wooden steps leading to the porch and front door on the north side. It appears that an addition was appended to the west wall at some time; however, this has collapsed so its dimensions are unclear (Figure 29). the three rooms include a 7 by 12 feet living room and bedroom of the same dimensions, and a 6 by 12 feet kitchen/bathroom. A closet and small pantry are also present. All of the windows and other finishing features of the cabin are exactly the same dimensions, with features such as stove pipe holes appearing to be precut, suggesting that the cabin may have been prefabricated. The south wall of the structure is currently collapsing. Currently, the cabin is filled with a series of wood and wire mesh cots. Three privies are located northwest of the structure. Associated artifacts include a mix of early twentieth century and Depression era remains.

This represents one of a line of five such cabins that were built in 1904 by the Karma Mining Company to house their employees (see photos in W & S Consultants 1995a). According to Mrs. Meehl (personal communication), portions of the Wegmen family lived in various of these cabins during her youth, so they were occupied at least into the 1930s. Furthermore, the Wegmen house, per se, is an extensively remodeled example of one of these cabins. However, Structure A is the last remaining cabin still in its original architectural condition.

Structure A2 (Figure 30) - This is the southernmost feature on the site, and consists of an unmortared cobble building foundation. It measures 20 feet N-S by 43 feet E-W. Although it is in-line with and equidistantly spaced from Structures A, B and the Wegmen house, suggesting that it may represent one of the original row of five wooden cabins built by the Karma Mining Company, it is neither of the same dimensions nor the same orientation as these other structures, making such an inference uncertain. There are few artifacts associated with this structure although those that are present are primarily early twentieth century in age. However, there is evidence of burned timbers within the structure, suggesting that it may represent a burnt wooden building. A privy, located some distance to the west, is associated with the structure. A modern dirt road berm has disturbed the southeastern corner of the structure.

Structure A3 - This is an ambiguous feature located northwest of Structure A, which consists of an eight by eight foot, two feet deep pit. It is lined on its north and south sides with large rocks and has 2x8 timbers running across it. With the exception of two iron pipe fragments, no artifacts are associated with this feature, and it is unclear whether or not it is historical in age.

Structure B (Figure 31) - This is a collapsed wooden structure lying intermediate between Structure A and the Wegmen house. It appears to represent one of the row of 1903 - 1904 Karma cabins. Its current status is that of a pile of timbers.

Structure H (Figures 32 and 33) - This is a collapsing one room, wooden cabin located on the eastern side of the site. It measures 12 feet E-W by 13 feet N-S, and is wood frame with a gable front. The exterior wall is horizontal board and batten and the interior wall is vertical board and batten, with an intermediate tar paper moisture barrier. The foundation consists of an unmortared cobble wall around the exterior of the cabin walls; that is, the cobble walls served as footings rather than a foundation, per se. The cabin has no floor; instead, sheet linoleum was placed directly on top of dirt. The west and north walls have windows; the south wall has collapsed and the east wall, with the doorway, is collapsing, so the status of these walls vis-a-vis windows is unclear. The structure of course has no roof, although roof beams have fallen onto the floor. A metal and porcelain sink is located in the northeast corner of the structure, with a gray water drain leading to the outside; no other evidence of plumbing was noted. artifacts associated with this structure include a mix of early twentieth century and Depression era remains. However, it is clear that

this structure was constructed circa 1903 (see photos in W & S Consultants 1995a) and, like the other structures in this portion of the site, are the earliest habitation evidence on Soledad Mountain.

Structure I (Figures 34 and 35a) - This is a standing, one room wooden cabin, also located on the eastern side of the site. It is unframed board and batten construction, with no interior wall, and is gable fronted. It measures ten feet N-S by 12 feet E-W. The south wall has collapsed, but windows are present on the west and north walls, with the door on the east (Figure 35a). The roof consists of shakes over beams, although most of it is now missing. The floor consists of two inch thick planks of various widths and lengths over floor beams. These rest on a low cobble foundation. A mortared brick pad, approximately three by four feet in size, is located immediately southeast of the door, and may have served as a hearth area; the remnants of a sheet metal oven are located about 20 meters southeast of the structure, which may have once been placed on this pad. A deep depression, measuring 18 feet N-S by nine feet E-W and containing some wood framing, is present about 24 feet east of the building. It is unclear whether this represents an additional structure (e.g., a dug-out), or the caved-in collar of a vertical shaft (because of this latter possibility, we did not explore the bottom of this feature). A more or less continuous scatter of artifacts runs northwards from Structure I to H. As

noted with reference to this last structure, these are of mixed age but are predominated by Depression era remains. However, Structure I appears to be one of the buildings shown in the 1903 photo of the site (see W & S Consultants 1995a).

Structure K (Figure 35b) - This is an entirely collapsed wooden building, with the walls and roof having fallen-in on themselves into the structure, resulting in a rubble pile. The outside foundations of this building measure 15.5 feet N-S by 28.6 feet E-W. This "foundation" consists of unmortared fieldstone cobbles used as footings for the wooden walls. The walls are covered by shingle siding, with some of shingles scavenged from fruit crates. The collapsed roof appears to be wood beams covered with sheet metal, coated with a hot mop mixture of tar and gravel. This building fronts the old N-S road which ran along the Sections 5 and 6 boundary, and is probably illustrated in the 1903 photo of the site (see W & S Consultants 1995a). However, artifacts in and around this structure are largely Depression era, and the constructional alterations (e.g., shingle siding, hot mop roofing) suggest substantial use after the period of original occupation.

Structure L (Figure 36) - This is a small three walled structure located on the east side of the site. It consists of two walls of unmortared

cobbles and a third wall consisting of a rock and dirt berm. It is dug-out, and this berm wall is probably the back dirt from the excavation. The height of the cobble walls, from the interior dirt floor, is 64 inches, and these walls are two feet wide. The structure opens to the east and measures eight feet N-S by 12 feet E-W. A collapsing privy is located about 15 feet in front (E) of this structure. However, this privy appears relatively recent, and certainly does not date to the early twentieth century. No artifacts were found associated with this structure.

Structures N2, N3 and N4 (Figures 37 and 38a) - Structures N2, N3 and N4 are adjacent terraced pads, located on the eastern side of the site. N2 measures 27 feet N-S by 24 feet E-W, and is cobble edged, with a cobble retaining wall along its south (up slope) side. It contains a small cobble wall, shaped like the letter "F" when viewed from the north (Figure 38a), along its western side. This is made of mud mortared cobbles, and is two feet wide and four feet high. The function of this wall is unknown; although it creates a small three walled room, the size of this "room" (five by six feet) seems small for a habitation.

Structure N3 is located five feet north of N2. It is a cobble edged pad measuring 20 feet N-S by 18 feet E-W. A small rock edged depression, probably a privy, is located in its SW corner. Structure N4, located 45 feet W of N2, is a 36 feet (N-S) by 32 feet (E-W) terraced pad, and also contains

a cobble edged depression, which is probably a privy. Vegetation was thick on these pads, and few artifacts could be seen. We did notice a "POWELL" cast iron, rebuildable truck muffler associated with the pads, which is Depression era in age.

Structure N5 (Figures 38b and 39) - This structure consists of two abutting rooms made from unmortared cobble walls that are two feet thick and 3.5 feet high, located on the east side of the Wegmen complex. Overall, the structure measures 12 by 12 feet. The larger room, which is a three walled room opening to the east, measures eight feet N-S by 12 feet E-W. The smaller room opens to the north, appears to have four walls, and measures four feet N-S by eight feet E-W. Part of a sheet metal stove and some (modern) roofing metal were noticed associated with this structure.

Structure O (Figure 39) - Also located on the east side of the site, this is a small three walled structure with associated can scatter and privy. The walled structure open to the east, measures 15 feet N-S by 19 feet E-W and has unmortared cobble walls that are 20 inches high and two feet wide. The can scatter is circa five by 15 feet in size, and consists of hole-in-top cans and some ceramics; it is located immediately behind (W) of the structure. A small cobble edged privy is located immediately SW of the structure, within the can scatter.

Structure P (Figure 40) - This is a small terraced pad measuring eight by eight feet in size, edged by cobbles, and with a 2.5 feet wide opening or break in the edging to the north. Located on the east side of the site, it is associated with hole-in-top cans.

Structure X11 (Figure 40) - Located on the east side of the site, this figure consists of an unedged terraced pad, rock edged privy, and a scatter of hole-in-top cans, glass and whiteware extending towards the SE. The pad measures 6.5 feet N-S by 15 feet E-W. Included in the artifacts within the scatter is a whiteware bowl fragment with a green printed maker's mark consisting of a fleur-de-lis over "BELMAP". This is a mark produced by the Sevres China Company of East Liverpool, Ohio, which was in operation from 1900 to 1908 (Gates and Ormerod 1982:241), thus dating this scatter to the early twentieth century.

Privies - As noted previously, nine privies were found on CA-KER-4447H. One of these (Structure D) is still standing, and is a two room, three hole board and batten structure with a shake roof. The remaining privies, with one exception, are all shallow depressions with cobble edging; similar cobble edging is visible on privy D, with these cobbles serving as footings for the wooden sidings of the structure. The exception is a large privy hole

and fallen walls associated (or, at least, nearby Structure L). Based on construction techniques and the nature of the building materials evident at this privy, we believe it is relatively recent, if not essentially modern, in age.

Dumps - Three archaeological dumps were recorded on the site, along with two smaller can scatters associated with Structures O and X11 (see above). Two of the dumps (M and M2) are clearly Depression era in age, are located on the east side of the site, and appear to be associated with the Depression era occupation of Structure K, as well perhaps as some of the other cabins in this portion of the site. Given the proximity of these to the road and the eastern edge of the property, it is not surprising that one of these (M2) shows evidence of recent pot hunting. The third dump is located in the central portion of the site, and consists of a dense concentration of hole-in-top cans, with lesser quantities of broken glass and ceramics (Figure 41). These give the appearance of having been sorted, concentrated and purposely placed, as if recycling was planned for these materials. As discussed below, a number of examples of ceramics makers' marks were located within this dump. In general, however, it is clear that systematic trash and garbage control was practiced at this site, with the exception of the Depression era occupation of the eastern cabins. In this area there is a considerable scatter of miscellaneous artifacts

throughout the occupied area, as well as dumping near the habitation areas.

Wegmen Complex Summary - Judging from an analysis of early photos (see W & S Consultants 1995a), the Wegmen site contains the earliest habitation on Soledad Mountain. However, this area continued to be occupied into the recent past, so the features at the site tend to be temporally mixed. A series of standing wooden structures are present, and are in various stages of decay and collapse. Evidence suggests that these were reused, in some cases intensively, during the Depression. However, their initial construction, by the Karma Mining Company circa 1903, involved considerable use of imported store bought building materials. Indeed, we suspect that some of the cabins on the site were prefabricated structures. Furthermore, there is considerably more internal order and organization to this site than was found at Cobble City. Structures tend to line up at CA-KER-4447H in three rows: fronting the N-S section line road; then to the west in a row along the eastern side of the low ridge that divides the site; and finally in a western row that extends from the Wegmen house southwards and up slope towards the Karma Mill. In the case of the last row of cabins, photographic evidence documents the construction of these buildings in an intentional row (ibid). Furthermore, more care was taken in the placement of the privies at this site, which are

generally located to the west of the structures. Since most of the structures face east, this places them to the rear of the buildings. The Wegmen site complex, in other words, appears to have been a somewhat planned mining camp, which contrasts with the haphazard and random arrangement of Cobble City, immediately nearby.

3.23 CA-KER-4448H (Karma Mill)

As noted previously, the Karma Mill was burned in 1947, leaving only foundations and occasional artifacts. However, the original hoist house and and some related structures are still standing, resulting in a series of essentially industrial features and remains at this site (Table 3 and Figure 42). These cover an area measuring 135 meters N-S by 85 meters E-W, or 11,475 meters square. We discuss each of these features below.

Hoist house area features - The most intact portion of the Karma Mill is the hoist house and related features, located near the haulage level adit at the top (S or up slope end) of the site. Indeed, these are sufficiently intact that they have been used in the last decade for a movie set, albeit the set constructors felt it necessary to paint the hoist house, to make it look "old". We consider this portion of the site in terms of three

components: the hoist house itself; the mine head frame and ore chute; and a series of outbuildings SE of the hoist house.

The hoist house (Figures 43 and 44) is a wood frame, board and batten gable front building measuring 24 feet N-S by 40 feet E-W. Existing photos indicate it was built around 1903 (see W & S Consultants 1995a). It is divided into three rooms. On the west is a machine room, which still contains a water pump and engine dating from the Depression era use of this structure which, according to Mrs. Meehl (personal communication), was conducted by her father, Engelbert Wegmen. The central portion of the building is the hoist room proper, which contains a series of concrete hoist stanchions, and ports through which cables would run to the head frame. On the east is a small work room. This eastern room was modified shortly after its construction to accommodate the turning radius of a narrow gauge line coming out of a haulage level adit immediately SE of the building. This required knocking-out the NE corner of the building, and supporting the roof line with an internal truss (Figure 44b).

The head frame (Figure 45) is a wooden two post frame with back braces, which abut the hoist house to the north. As such, it is relatively light weight, and was not constructed to carry major loads (cf. Peele 1941). In keeping with this fact, it contains only a single hoisting head sheave, or pulley, and appears to have been a front lift system. It sits over a vertical

shaft which contains a light weight metal cage.

A ramp and ore chute is located immediately north of the head frame. Although this likely incorporates scavenged material from the original trestle to the mill, it is nonetheless primarily modern: portions of the chute are made of used telephone poles, and an electrical Pacific jaw crusher (model KH-1, serial number 490) has been placed on a brick and concrete foundation, which is inscribed "8/13/80 BOB & MARIA BAILEY".

Immediately SE of the hoist house is a blacksmith shop within a collapsing sheet metal structure (Figure 46). This appears to be Depression era in age. To the SE of this structure is the haulage level adit. Immediately to the east of this adit is a concrete and metal structure of mixed age, measuring 18 by 19 feet (Figure 47). It appears to represents a sheet metal front building (Figure 47a), probably dating from the Depression era, which was added on to an earlier and smaller concrete structure (Figure 47b): among other things, the sheet metal building blocks off a small storage room in the concrete structure. Concrete assay scale pedestals and the remnants of fume hoods are present in the eastern side of this compound structure, where a front metal sided room opens onto the back concrete walled room. According to Mrs. Meehl (personal communication, 1995), her father Engelbert Wegmen ran assays from the Randsburg mines in these rooms during her childhood (presumably during the 1920s and 1930s), and their is assay debris present in these rooms.

Assay dump - A 1932 plat of the Karma mill (see W & S Consultants 1995a) shows the existence of a laboratory towards the NE of the hoist house area. This apparently is the location of the original assay office, which was a wood frame structure which presumably burnt at the time the mill, per se, burned in 1947. Evidence of this assay office is present in the form of a dense dump of assay debris (cupules, crucibles and slag; see Figure 46b), along with remnants of an unmortared cobble wall foundation, and burnt timbers. These are spread over an area approximately 20 meters E-W by 10 meters N-S.

Karma Mill - As noted a number of times above, the Karma Mill burned in 1947, leaving only its foundations and some remnant features. These cover an area that is approximately 250 feet N-S by 120 feet E-W (Figure 48). The mill area can be divided into four levels. The uppermost level (Figure 49a), at the southern (up slope) end of the mill, consists of a large pile of waste rock, probably dumped during the Depression; some remnant concrete and concrete and cobble foundations; and the 20 stamp mill stems, cams, boxes and batteries or mortar blocks (the wooden support framework for the stamps having burned). The stamp mills consist of four five-stamp sets, two of which are still standing on their concrete batteries (Figure 50). The stamp box of each of these five stamp

sets is embossed with "RISDON IRON WORKS" over "S F CAL" followed by a date (Figure 51). Three of these are dated 1890; the fourth is dated 1889. As noted in the historical review, these stamps were purchased used and set up in 1903. A fallen cam shaft behind one of these stamps is embossed "CANADA SELF-LOCKING CAM" over "PATENT MCH. 14., 1899". Stamp mills such as these were known as "California stamps", because they were commonly used at mines in the state (Richards 1909). They were gravity mills, in the sense that the cam lifted the stamp stems and shoes, and then let them drop by their own weight onto the ore resting on the anvil plate in the mortar box. Risdon was a common manufacturer of these stamps around the turn of the century; e.g., Risdon supplied the stamps for the Standard Mill at Bodie in 1899 (McDonald 1988:29).

In addition to the stamps, a large, V-shaped sheet metal tank is located at the northwestern side of the first level. This is labeled "DIMMICK SIZER" over "U.S. PATENT JULY 10 1900" over "JULY 10 1901" over "MEXICO PAT. MARCH 25 1902" over "108". This more precisely archaeologically dates the construction of the mill after 1902, thereby verifying the historical records. Sizers and classifiers were used to prepare the crushed ore for concentration. The Dimmick Sizer or Classifier is described by Richards (1909:248) as classifying "the pulp [crushed ore and water slurry] by allowing the grains to fall in a gradually moving current of water. The heavier grains drop out first, the lighter ones following".

The second level of the mill comprises the machine and boiler room. It is concrete floored and contains a series of concrete machine stanchions or foundations. One of these has an inscribed date, "July 17 1907", indicating that mill modification continued at least until mid-1907. The boiler is located in the SE corner of level 2. It consists of a metal braced, three wall brick enclosure measuring 20 feet N-S by 8'2" E-W, opening to the north. The boiler tank is currently missing, although an apparently smaller tank is located outside of the boiler room. The fire bricks in the boiler room are embossed with "LAFB Co" over three stars, presumably standing for Los Angeles Fire Brick Company. The fallen sheet metal boiler chimney stack is lying to the northeast of level 2.

The third level of the mill is the cyanide tank area, which consists of a large platform cut by sub-grade narrow gauge rail lines within five feet deep channels or alleys. This platform, with the channels and tracks leading to the tailings dump NE of the mill, supported seven large (24 feet diameter) and six small (10 feet diameter) tanks. These tanks were presumably wooden; all that is left of them are the metal bands (Figure 49b). A centrifugal water pump, embossed "BYRON JACKSON" over "MACHINE WORKS" over "S. F." over "#2", is present on the west side of this level.

The fourth and last level of the mill consists of three small platforms at the NW end of the mill; that is, out of line of the tailings dump. This

apparently represents the area of final processing and concentration, and consists of two small tanks, three rectangular vats (presumably zinc vats) and a furnace area. Since this is located some considerable distance from the assay office, our presumption is that this was for final ore refining.

Karma Mill Summary - CA-KER-4448H can be characterized as the foundation remnants of an early twentieth century mill, still containing some of its larger artifacts (such as the stamps), and related features, including an early assay dump, head frame, and hoist house with related structures. Although used into the Depression, the hoist house and head frame are largely intact and maintain their architectural integrity.

3.24 CA-KER-4449H (Queen Esther Mill)

The Queen Esther Mill (Table 3 and Figure 42) is located immediately west of the Karma. It extends to the north approximately 140 meters, and has a maximum E-W extent of 125 meters. This, however, creates an L-shaped area, with the majority of the archaeological features concentrated at the southern end. The features at this site are either dismantled, collapsing, or are being inundated by the downslope movement of mill tailings which, because of the slope at this locale is moving both north and eastwards, into

the lower portions of the mill complex. We discuss these features in terms of four components below: the mill structure; the tank building; the assay office area; and the asphalt dump area.

Mill Structure - The Queen Esther mill structure is a multi-story wooden and sheet metal building that is still standing, although just barely so (Figures 52, 53 and 54); it is sufficiently unstable that safety precluded intensive investigation of its internal structure. It measures 80 by 80 feet, and is L-shaped. An ore bin and jaw crusher is located at the top of the mill, at its southern end, and the boiler room is located on the southeastern side. It contains bricks embossed with "C.S.P. CO." over "LOS ANGELES"; and "CARNEGIE", indicating that different sources were used for the building materials for this structure. A large wooden ore hopper or bin is located at the north end of the mill structure. Three narrow gauge rail tracks emerge from this bin, two of which trend sharply west, towards the remnants of the tank building, and the other which heads towards two tanks immediately north of the mill.

Tank Building - Period photos of the mill (see W & S Consultants 1995a) show a long, low rectangular building extending west from the mill structure. This is the cyanide tank building, which was set-up at the same elevation as the mill, rather than downslope from the milling and

concentrating area, as is typical in most mills. This tank area currently consists of two components: an upper (southern area) of small tank pads, foundations and supports, and the tank building remnants, per se. Originally this building was 48 feet N-S by 190 feet E-W. The building has been entirely removed; given the absence of any remnant parts, burned or otherwise, it appears that it was dismantled. All that remains of tank building is the dirt terrace upon which it was built; a series of sub-grade channels or alleys cut N-S into the terrace; the bases of 12 metal tanks; and three fallen trestle lines that ran E-W through the building (Figure 54b). The sub-grade channels, which were used to clean the tanks and remove the mill tailings are six feet wide, with their entrances framed with three piece wood sets that are four feet high and five feet wide. The interiors of these channels consists of fieldstone walls shored with timbers. Electrical wires, insulators and fixtures run through these channels, so they were lighted. Given the location of these channels, mill tailing start immediately below this tank building.

The 12 tank remnants overlying these channels consist of metal tank bases, with cut sides about three inches high. Wooden slats 2"x1" in size cover tar and canvas linings over the tank bottoms, which have large punched drain holes in their middles. According to Mrs. Meehl (personal communication, 1995), the metal tanks on the mountain were all cut off by ranchers after the mills were abandoned, with the metal being recycled

into cattle watering troughs. These then are apparently the remnants of the metal tanks used for cyaniding the ore. A large tank, sitting on a free standing wooden foundation, is also located immediately north of the tank building; its function is uncertain.

The remnants of three wooden trestles cross the tank building. These were presumably used to fill the tanks with concentrated ore prior to cyanidation. Although essentially fallen, these trestles appear to have been about ten feet high, suggesting that the tanks may have been eight feet in height. Judging from their connectors on the mill structure, the trestles apparently supported narrow gauge rail, although this is now missing from the building area.

Assay Office Area - Three partially standing wooden structures are located north of the mill. Two of these are within about 200 feet of the mill building; the third is about four hundred feet downslope. It is completely enveloped by mill tailings, with only portions of its roof showing. It appears to have been gabled, with a sheet metal roof, and to have measured 18 feet N-S by 12 feet E-W. Its foundation consisted of wood flooring resting on wood pins. Two 4" riveted iron water pipes, originating at the two tanks at the northernmost end of Cobble City, pass on either side of this fallen building; one heading for the Karma Mil, and the other towards the Queen Esther. There are also a series of riveted

metal buckets, filled with tar, associated with the structure.

The two uphill structures are also being covered with tailings, though they are somewhat more intact. The best preserved of these is the southernmost wood frame structure. This is the Queen Esther assay office (Figure 55a), which is an unframed board and batten cabin of four rooms. It originally measured 20 by 20 feet in size, and appears to have been a gable front structure opening to the east but, because it is collapsing and filling with tailings, it is impossible to be certain. It sits on an unmortared cobble foundation.

The muffle furnace for the assaying operation is still standing in the northwest room of this cabin, which has lost its north wall. The muffle furnace is made with Denver Clay Company fire bricks, is 44 inches wide by four feet deep, and is 18.5 feet high to the top of the stack. A small scatter of assay debris is located immediately outside of this room (presumably there was a window in the missing wall). A series of more substantial assay dumps are located east of the structure, essentially at an arm's throw from the front door of the building.

A large unframed board and batten structure is located 14 feet north of the assay office. This has fallen and been enveloped by tailings, but apparently was 42 feet N-S by 22 feet E-W. It appears to have had tongue and groove planks flooring, with wooden floor beams resting on an unmortared cobble foundation. The roof of this building may have been

flat, and it is impossible to tell whether it was divided into internal rooms.

Asphalt Dump Area - An area of asphalt dumps, small tank foundations, and fallen structure foundations is located E/NE of the mill building proper. This includes a wooden platform over a low metal tank, supporting another metal tank above; a metal tank base supported by a cobble retaining wall; the floor and foundation of a wood structure; a small cobble structure; and a large dump of asphalt. The wood structure foundation, on the easternmost side of the site near to the road between the Karma and Queen Esther, consists of tongue and groove plank flooring supported by wooden pins, and measures 13 feet N-S by ten feet E-W. A small metal gas line is associated with this structure. The cobble structure is seven feet south of this wood floor. It is made of unmortared cobbles, is ten feet long (NW-SE) by eight feet (SW-NE), and contains the remnants of a large wooden barrel, filled with asphalt or tar (Figure 55b). The walls of this structure are three feet high and 14 inches wide.

A very significant dump of asphalt/tar is located between these two structure remnants and the mill. This includes large, solid heaps as well as liquid pools. The purpose and significance of this asphalt dump are uncertain. A number of the old roads on this side of Soledad Mountain were macadamized, so it may have been used for road work. We also noticed that areas of the tailings pile immediately below the tank building

had a coating of asphalt, so it is possible that this asphalt was used to aid the movement of the tailings downslope more quickly (especially in that it is obvious that the tailings also moved laterally to the east into the mill complex of buildings). This asphalt dump may also represent the less volatile remnants of low grade petroleum that might have been used as a cheap fuel for some of the mill machinery, such as the boiler furnace. This is, of course, conjecture. What is obvious, however, is that a substantial amount of asphalt was stored on the site and why so much was brought in here is somewhat of a mystery.

Finally, a dump of machine shop debris is located immediately east of the boiler room. This contains numerous scraps of iron and metal, and broken tools, mixed in with the asphalt that is ubiquitous in this portion of the site.

Queen Esther Mill Summary - The Queen Esther Mill can be characterized as the remnants of an early twentieth century mill that has largely lost its integrity. Portions of the site, such the mill structure and some of the dumps, however, retain archaeological interest.

3.25 CA-KER-4450H (Echo Mill)

A third mill complex, dating between 1903 and 1905, is located towards the northwestern side of Soledad Mountain. This is the Echo Mill, which was dismantled circa 1906. Extant features at this site currently cover an area extending 100 meters N-S by 150 meters E-W (Figure 56); however, the early twentieth century remains are concentrated in the northern half of the site, with features to the south consisting of modern mining remains and a circa 1940 concrete foundation, built as part of the Golden Queen operation. We consider here the earlier archaeological remains, which we discuss below in terms of two components: the mill area; and related structures and features to the east.

Echo Mill - As is evident from period photos of the Echo Mill (see W & S Consultants 1995a), this was a relatively small (and, of course, short lived) structure, relative to the other mills on Soledad Mountain. Archaeological remains of the early twentieth century mill, correspondingly, are restricted to an area about 50 feet N-S by 80 feet E-W in size (Figure 57). The mill area consists of three levels. At the top (S), immediately adjacent to an old dirt road (that once led to the Elephant-Eagle claims to the NW, but is now covered with waste rock), are three concrete stanchions and two concrete lined pits. These presumably served

as foundations for the trestle that ran from the haulage level adit into the mill. The second level of the mill, 8.5 feet below the first, is a large rectangular terraced pad cut into the hill side (Figure 58a). It measures 40 feet N-S by 44 feet E-W, and is supported to the north by a cobble retaining wall. It is dirt floored, though it once presumably supported a wooden floor that was removed when the mill was dismantled. To the north of this pad is the third level of the mill, which consists of a large open area, three feet lower than the terraced pad. This contains a series of 19 low concrete machine stanchions in the center and, at the northeast extreme of the mill area, mortared cobble walls forming a three walled enclosure, opening to the west (Figure 58b). These walls are currently six feet high, and most likely held the boiler room for the mill. A pit for a 15 feet in diameter tank is located six feet behind (E) of this walled structure. A second area of concrete machine stanchions is located about 30 west and up slope of the second mill level (Figure 59a). This contains three large concrete foundations, at least one of which held a fly wheel.

Eastern Features - In addition to the features comprising the original mill remnants, three other features were noted to the east of the mill. These consist of a leveled pad; a scatter of assay debris further east (Figure 59b); and, near the modern paved road, a cobble edged privy depression. The leveled pad measures 12 feet N-S by 20 feet E-W, and is located due

east of the "boiler room". A flat concrete pad measuring seven feet N-S by eight feet E-W is located on the NW end of this pad, but no other structural features were noticed, and nearby artifacts were Depression era/modern in age. The assay room dump covers an area about 20 feet in diameter, and has been heavily disturbed: we noticed three pot hunters' pits in the scatter, and a bulldozer has driven through the middle of it. No structural remains could be identified near this small dump. Likewise, we found no associated structure near the privy.

Echo Mill Summary - The extant remains of the 1903 - 1905 Echo Mill consist of the barest remnants of the mill structure, and a few fragmentary aspects of related structures that once stood at this short lived site. As is clear from the nature of these remains, when the Echo Mill was dismantled, anything that was movable was taken away, leaving only the minimum behind.

3.26 CA-KER-4451H (Golden Queen Mill)

The Golden Queen Mill, built in 1935 and dismantled around 1950, is sufficiently recent in age that considerable documentation on it exists, including original accounting records, summarized earlier; a published flow

chart for the mill operation (Tucker 1935:479); and a scale plan of the mill structure, which we include here as Figure 60. This compares with a map of the archaeological features on the site (Figure 61; see also Table 4), which are limited largely to concrete foundations, tanks and drums, and related ore chutes and bins, the main concentration of which cluster in an area that is 200 feet N-S by 400 feet E-W.

The ore chutes are of two kinds. At the mill itself they consist of a series of long concrete structural remains that abut the primary and secondary crushers, which were Taylor gyratory crushes (ibid). The ore chutes and crushing areas have been burned, have had any removable parts taken away, and are starting to decompose (Figure 62a). Not shown on the two above referenced maps are the truck ore chutes that were associated with the operation of this mill, but are located elsewhere on the mountain. These include three wooden ore chutes lying within the Independent Claim, which is uphill from the Karma Mill but which was worked by the Golden Queen during the late 1930s and early 1940s and, therefore, are correctly part of this site; the Soledad Extension workings, recorded as part of the Bobtail Area features; and most likely the Gypsy-Starlight and Silver Queen sites (see below). In general, these wooden ore chutes, like the concrete chutes at the mill proper, are in various stages of collapse.

Immediately below the chute and primary crusher levels at the mill is the grinding and classifying area, which employed Marcy ball mills and Dorr classifiers. The archaeological remnants of this grinding and classifying process consist of a concrete foundation and series of machine stanchions (Figure 62b). The concentrated ore then was moved to lixiviation in large metal Dorr agitator tanks. These are still standing, as shown in Figure 63a). Finally, the pregnant cyanide solution was cleaned and separated in two Oliver drum filters, which are also standing on the site (Figure 63b). the only remaining standing structure within the mill complex is the concrete refinery room, at the NE side of the site. The remaining features within the Golden Queen mill complex are various ancillary structures in different stages of collapse.

Golden Queen Mill Summary - The remains at the Golden Queen Mill consist entirely of industrial mining remains. Although constructed in 1935, the mill was dismantled about 40 years ago, and currently lacks any form of integrity.

3.27 CA-KER-4452H (Silver Queen)

The Silver Queen mine area is located SE of the Golden Queen and its discovery was the impetus for the Golden Queen operation. However, the extant features at this site (Figure 64; see also Table 4) appear to largely post-date the Depression era workings on the mountain; thus they are most likely 1950s or later in age, and not of archaeological interest. They include a glory hole and ore chute at the southern end of the site. A series of features are clustered below the glory hole, on a large pile of waste rock. that itself probably dates to the Depression era workings.

These latter remains include a collapsed wood frame building, measuring 15 by 25 feet; a sheet metal sided privy perched on the edge of the waste rock dump; and a scavenged wood, single bin ore chute. These are associated with a concrete haulage level adit portal (leading to the glory hole), which is painted "VARGA MINING"; a short narrow gauge rail line leads from the adit to the truck chute. But inasmuch as these features are superimposed over the major Depression era waste rock dump activities, it is clear that they must post-date the Depression. Since "Varga Mining" has no known association with the Golden Queen operation, it is most likely that these remains post-date the Golden Queen operation, and thus may date from the late 1950s and 1960s. Finally, at the northernmost end of

the site we recorded two concrete machine stanchion areas, associated with an adit. One of these consists of two machine foundations within a three walled concrete structure measuring 24 feet by 10 feet in size. The second consists of two 8 feet long, freestanding but adjacent concrete machine foundations.

Silver Queen Summary - The Silver Queen area features are industrial mining features, were determined to be essentially modern in age, and thus are of little archaeological interest.

3.28 CA-KER-4453H (Gypsy Starlight)

The features found at the Gypsy Starlight site are shown in Figure 65 (see also Table 4). These are all Depression era or later in age. They include an abandoned sheet metal, V-shaped tank classifier, similar to the Dimmick Sizer at the Karma Mill (Figure 66a); two wooden waste rock trestle dumps; two collapsing truck ore chutes (Figures 66a, 67a and 67b); and a small quantity of Depression era or later remains running down the side of the larger waste rock dump. The ore chutes and waste rock trestles are all in a state of near-complete collapse. These dump consists primarily of a small concentration of mining debris (pipes, timbers, wire spools) thrown down

the side of the waste rock pile, but also includes a small quantity of sanitary seal cans.

Gypsy Starlight Summary - The remains at the Gypsy Starlight site consist of industrial mining features, dating to the Depression era of later. They are essentially all lacking in integrity.

3.29 CA-KER-4454H (Bobtail Area)

The Bobtail Area features site (Figure 68; see also Table 4), consisting of a dispersed series of mining features on the west side of Soledad Mountain, is only partly within the current study area, with only four of the features recorded as part of this site of concern. These four features have been designated B5, B6, B7 and B8. We discuss these in turn below.

Feature B5 - This consists of a Depression era or later truck ore chute. It is a single bin, made from wood scavenged from earlier constructions (as demonstrated by the odd sizes of the lumber, and the presence of preexisting holes and fittings), and is 17 feet long, nine feet wide and 9.5 feet high. Given its location downslope from the Gypsy Starlight site, it may have been associated with the working of the

Starlight claim during the Depression and/or after the war.

Feature B6 - This is a concrete pad which served as the machine room/compressor house for the Soledad Extension Mine, which was operated by the Golden Queen during the late 1930s and early 1940s, and the haulage level adit to which is adjacent to this feature. This feature consists of a poured concrete pad measuring 34 feet N-S by 20 feet E-W. It contains two concrete machine stanchions in the SE corner, and has electrical conduit emerging from the floor. With the exception of broken glass and an occasional nail, there are no artifacts associated with this feature.

Feature B7 - This is a small cobble structure made of unmortared fieldstone cobbles that form a wall two feet wide and five feet high. The walls form a U-shaped structure, with the western wall 10 feet in length, the central (northern) wall eight feet long, and the eastern wall five feet long; the south, which is up slope, is open. No artifacts could be found in association with this structure, although the immediately surrounding area has been heavily disturbed by road construction. In terms of architecture and construction techniques, however, the structure resembles the early twentieth century buildings at Cobble City.

Feature B8 - This is a small wood and metal head frame/hoist over an open stope. It is apparent that it is made out of cannibalized parts. It is also apparent that this hoist was never used, as it is designed in such a way so as to guarantee that the cable will ride off the pulley sheave if engaged. It is attached to a dead man made of 55 gallon drums on the slope below. This feature appears to be modern in age.

Bobtail Area Summary - The features within the study area falling in the limits of the recorded Bobtail Area site consist of a mix of industrial mining features that are probably unrelated temporally or functionally. They also tend to lack any concentrations of artifacts allowing for certain temporal assignments.

3.3 Excavation Results

In addition to mapping, recording and surface collecting test excavations were also conducted to determine whether subsurface deposits are present at these sites, and to characterize such deposits if present. The results of the test excavation, per each site, are summarized below.

3.31 CA-KER-4446H (Cobble City)

Excavation units were excavated in the following features on this site: H1 privy; H1 east structure; J1 privy; J1 kitchen area; M1 privy; V dump; V2 pad; and V3 privy. We discuss these results of these excavations in general terms below.

Unit 1 (H1 privy) - This unit contained cultural remains to 30 cm depth, at which point a dense concentration of sterile colluvial rock debris was encountered. The relative shallowness of this privy is typical of these features at this site, which sits on a rocky slope with a very thin mantle of top soil. Soils in this unit were silty sand, with mill tailings mixed in. They are Munsell 7.5 YR 6/2, pinkish-grey.

Unit 2 (H1, east structure, floor) - This unit was placed in the floor of the easternmost structure in this complex.. Soils in this unit were derived from the mud mortared and plastered walls, combined with blown in eolian sands and tailings. They were 10 cm thick, at which point a burnt wood plank floor was encountered. The soils were Munsell 7.5 YR 6/6, reddish yellow.

Unit 3 (J1 privy) - As with Unit 1, cultural material extended only to

30 cm in this unit, at which point sterile rocky colluvium was encountered. Soils in this unit are sandy rocky colluvium, and are Munsell 7.5 YR 5/4, brown.

Unit 4 (JI kitchen) - This unit was placed in what was believed to be the hearth area of the north easternmost room in the J1 complex, which is thought to be a kitchen. Cultural material was present in sandy colluvium, derived from wind blown fines and wall mortar, to 10 cm depth, at which point a packed, culturally sterile dirt floor was encountered. At 20 cm a dense concentration of colluvial cobbles was encountered. Soils in this unit were Munsell 7.5 YR 7/6, reddish brown.

Unit 5 (M1 privy) - Bedrock, or at least a very large fieldstone boulder, was encountered at 40 cm below ground level in this unit, which represented both the maximum depth of the cultural material, and the privy itself. Soils were sandy rocky colluvium, and were Munsell 7/5 YR 4/4, brown.

Unit 6 (V dump) - This unit was placed within the Depression era dump on the east side of the arroyo, near the Depression era habitation in the northeastern quadrant of the site. This proved that this dump was primarily a surface deposit, with little subsurface deposition: the majority

of the remains were recovered in the top 10 cm of the unit, with a smaller quantity in the 10 to 20 cm level, but most of which derived from the top half of this level. Soils were entirely sterile below 20 cm, and bedrock was encountered at ~25 cm. Soils were very sandy mine tailings, and were Munsell 7.5 8/4, pink.

Unit 7 (V2 pad) - A very small quantity of remains were recovered in the top 10 cm level of this unit, indicating that no subsurface deposit is present at this locale. Soils were sandy colluvium, Munsell 7.5 YR 5/4, brown.

Unit 8 (V3 privy) - This unit was excavated to bedrock at ~30 cm. Cultural materials were present throughout this depth, although in low quantities. Soils were silty sandy colluvium, Munsell 7.5 YR 5/4, brown.

Cobble City Summary - Test excavations at Cobble City demonstrated that subsurface deposits are present but are very localized and shallow on the site. Generally, the presence of high bedrock has resulted in privies that are only about 30 cm (one foot) deep. This would suggest that there should be a large number of privies on the site, since they would fill fairly rapidly. A thin layer of buried material also appears to be present within the structures, although this looks to be limited to about 10 cm in depth.

The terraced pads and dumps, on the other hand, are apparently solely surface manifestations, with no subsurface deposition to any consequential degree.

3.32 CA-KER-4447H (Wegmen complex)

Four units were excavated at this site. These were placed in the structure A2, A4 and O privies, and the M dump. They are discussed below in turn.

Unit 1 (A2 privy) - This unit was dug into culturally sterile colluvium, encountered at 70 cm below ground level. cultural materials were present to this depth. Spoils consisted of silty sand, Munsell 7.5 YR 5/4, brown.

Unit 2 (A4 privy) - This unit was placed in one of the privies associated with Structure A, the standing wood cabin dating from 1904. It was excavated to 100 cm in depth, at which point excavation was stopped because it was impossible to dig any deeper, given the size of the excavation unit (0.25 by 0.25 m). However, cultural materials were present throughout these levels, with the top ~40 cm having minimal materials and a considerable quantity of rocks, and the amount of cultural

debris picking up dramatically below that depth. Soil density and color also changed at that level, with a lens of ash and organic material evident in the sidewall. However, the matrix soils is primarily rocky, sandy silt, Munsell 7.5 YR 5/4, brown, with the ash lens 7.5 YR 4/2, dark brown.

Unit 3 (M dump) - This unit was placed is a dump associated with Depression era habitation on the east side of the site. It was excavated to sterile rocky colluvium, at 30 cm. Cultural material was present to this depth. Soils were rocky colluvium, Munsell 7.4 YR 4/2, brown.

Unit 4 (O privy) - Located on the east side of the site, this unit was dug to bedrock at 20 cm. Cultural materials were present throughout the two levels of the pit. Soils were rocky colluvium, Munsell 7.5 YR 4/4, brown.

Wegmen Summary - Subsurface deposition is variable at this site: on the west side of the site the privies are fairly deep, whereas the east side of the site sits upon an area of high bedrock. Even when cultural deposition occurs in dump areas here, the deposits are shallow.

3.33 CA-KER-4448H (Karma Mill)

A single pit, designated Unit 1, was dug on this site. It was placed within the upper assay office. Soils were present in this room to a depth of 10 cm, at which point a wood plank floor was encountered. A small quantity of cultural material was present within this thin soil lens. This soil is aeolian sand, Munsell 7.5 YR 6/4, light brown. A thin, localized subsurface deposit is present, therefore, within some of the structures at this site.

3.34 CA-KER-4449H (Queen Esther Mill)

As with the Karma, a single pit was excavated at this site. It was placed in an assay dump and was dug into sterile sand, encountered at 30 cm. However, cultural materials were limited to the top 20 cm of this unit, indicating that thin, localized subsurface deposits are present at this site. Soils in this unit are silty sand derived from tailings, Munsell 7.5 Yr 7/6, reddish yellow.

3.35 CA-KER-4450H (Echo Mill)

Two units were excavated on this site, each of which is discussed below.

Unit 1 (Assay dump) - This unit was placed in the assay dump area on the eastern side of the site. Cultural materials were present to 30 centimeters in depth, below which sterile colluvium was encountered. However, this area was highly disturbed by pot hunting and bulldozer activity. Soils in this unit were sandy colluvium, Munsell 7.5 YR 7/4, pink.

Unit 2 (Privy) - This pit was placed in the privy located at the eastern extreme of the Echo Mill site. Cultural materials were recovered to 50 cm, at which point sterile rocky colluvium was encountered. The soils in this unit were sandy colluvium, Munsell 7.5 YR 7/4, pink.

Echo Mill Summary - Test excavations demonstrated the presence of subsurface materials at this site, albeit in localized areas, one of which proved to be disturbed.

3.36 CA-KER-4451H (Golden Queen Mill)

Two shovel test pits (STPs) were excavated at this site. Both were sterile, indicating that there is no subsurface deposit at this site.

3.37 CA-KER-4452H (Silver Queen)

The two STPs excavated at this site were also culturally sterile, demonstrating an absence of subsurface deposition.

3.38 CA-KER-4453H (Gypsy Starlight)

No subsurface materials were discovered in the two STPs completed at this locale, indicating that it lacks a subsurface deposit.

3.39 CA-KER-4454H (Bobtail Area)

An STP was excavated at features B6 and B7, which were deemed most likely to contain subsurface remains, should any exist at this site. Both were culturally sterile. The Bobtail Area site, therefore, lacks a subsurface deposit.

4.0

ARTIFACT ASSEMBLAGE

4.1 Introduction

A total of 4769 artifacts were recovered during the Soledad Mountain Phase II project; 4363 of these from the excavations at the sites, and 406 from surface collecting. In this chapter we discuss the laboratory procedures used to process and analyze this assemblage, and then considered the recovered collection on a site by site basis.

4.2 Laboratory and Analytical Procedures

Following the completion of the Phase II fieldwork on Soledad Mountain, the recovered artifact assemblages were taken to the W & S Consultants' laboratory for washing, processing and analysis. After each specimen was washed and labeled, metrical and typological analyses were performed. We provide proveniences, measurements and weights for the various artifacts, as appropriate, in the site catalog for the project (Table 5) included in this report.

Typological analysis of the recovered assemblage emphasized the ultimate function of the artifacts, in an effort to derive a sense of the function of each sites as a whole, and their probable age, in order to provide chronological placement for each of the sites considered in this study. Initially, we categorized each artifact by major material class (metal, ceramic, glass, leather, bone), and then certain key functional classes, such as assay debris and buttons. Within certain of the material classes we also identified mode of manufacture, particularly with reference to glass, but also including nails and cans. Manufacturing technology is of particular importance in historical analyses because it often provides clues to chronological placement. For example, significant changes in the manufacturing techniques for glass bottles, metal nails and tinned cans occurred during the nineteenth century. These are key indicators of an artifact's age. Subsequently, functional identification within these classes was undertaken. Because the sites are Euro-American historical resources, functional interpretations could be partly based on a general knowledge of historical material culture use, as well as published typologies and analyses.

With regard to glass artifacts, we have employed Herskovitz's (1978) typology and identification of bottle forms and functions, along with neck forms and types. These are illustrated in Figures 69 and 70. We also note

that in the glass analysis that follows we use the color term "lavender" to refer to bottle coloration that has altered from clear due to the inclusion of manganese as a de-coloring and clarifying agent; this is sometimes referred to as "amethyst" glass. This process was followed from approximately 1880 to 1916, and thus it serves as a general temporal indicator. We use the term "purple", however, to apply to glass that was intentionally manufactured with this darker hue. For tin cans, we consulted the period official standards and measurements published by Rock (1987).

4.3 CA-KER-4446H (Cobble City)

The artifact assemblage recovered and analyzed from Cobble City totaled 1338 individual specimens, 1094 of which were recovered during the test excavations and 244 surface collected (see Table 5). We discuss this assemblage, by major analytical category, below.

4.31 Metal Artifacts

Metal artifacts from Cobble City are summarized in Table 6. A total of 793 of these were recovered on the site, representing fully 59% of the assemblage from this locality; as is clear, this was the largest major class of remains recovered at this site.

The largest category of metal artifacts is, not surprisingly, metal cans and can fragments. In fact, the can assemblage was extremely fragmentary, which is partly a reflection of the nature of the assemblage, and partly due to the recovery strategy (e.g., true dump sampling was minimal). A total of 579 can/can fragments was recovered, which is 73% of the site metal total. Unfortunately, 570 of these were too fragmentary for even the most rudimentary identification (for example, sanitary seal versus hole-in-top). The remaining nine cans were only slightly more identifiable: two are hole-in-top, thus generally pre-1920 in age, but of undeterminable size or form; the remaining seven are fragments of one gallon paint pail-type cans.

Other common metal artifacts include 73 wire nails (9%); 39 pieces of screen and mesh (5%); 31 clothing fasteners (~4%); and 12 lids and tops (1.5%); with a wide variety of miscellaneous or unique specimens. The

clothing fasteners included 19 buttons (see below), four eyelets (probably from shoes/boots); two snaps; two metal corset stays; and one each of a buckle, overall bib clip, safety pin and a garter holder. This last artifact is embossed with "Velvet Grip, Boston Garter, Pat. 12-13-92, c. 12-31-95", indicating general turn of century age. We have recovered other examples of this same garter clasp at other, turn of the century sites in southern California (e.g., W & S Consultants 1993:69), so it was apparently commonly employed in women's undergarments.

The metal jar and bottle tops and lids include four jar lids; two champagne cork holders; three bottle crown tops; one rectangular friction lid; and one salt/pepper lid. Two of the jar lids are embossed with "Genuine Boyd Cap for Mason Jars", and have a crescent moon and star in the center. Another jar lid is a cosmetic bottle embossed with "Mrs. Nellie(?) Harrison, San Francisco, Cal." around the edge, with a woman's profile over "Dermatologist" in the center. A fourth jar lid is marked with "Schilling's Best, 16 oz.", and is clearly a food lid.

Note that all of the above jars, the corset stays, garter holder, a champagne cork holder and crown bottle top were found in the same area: around Structures A1 and C1, at the northernmost end of the site, near the water tanks and pump house. Furthermore, our subjective impression is that this

area contains a relatively high quantity of liquor bottles. The relative isolation of this portion of the site and seemingly high proportion of liquor bottles, matched against the clear presence of women's remains, including "fancy" undergarments, leads us to conjecture that one or more of the structures in this area may have served as a brothel.

Although numerically relatively insignificant, there were nonetheless a noticeable number of watch parts recovered from the site: nine, or slightly more than 1% of the metal artifacts. Clearly the occupants of the site were both concerned with time keeping, and were relatively hard on time pieces, because the watch parts are all fragmentary. Six of the clock pieces appear to be portions of a single, large, bedside alarm clock; these too were recovered in the area of the putative brothel. The remaining watch fragments were from pocket watches. Two of these were from the same watch, which was engraved as follows:

MFD. BY THE ANSONIA CLOCK Cº
NEW YORK, U.S. OF AMERICA
PAT. APRIL 17, 1888

Again, this is suggestive of general turn of the century temporal placement for the site, and thereby is in agreement with the historical records.

Kitchen utensils, equipment and supplies were common on the site,

although are relatively limited in the recovered assemblage, once cans are excluded. We noted a number of examples of sheet metal stoves, cast iron stove parts and stove pipes that were not collected. Collected specimens were limited to one dinner knife fragment; a decorated cast-iron stove leg; an enamel coffee pot; and a kerosene stove burner.

Electrical fixtures were also quite rare, with the majority recovered originating in the area of the Depression occupation of the northeastern quadrant of the site. For the remainder of Cobble City, electrical fixtures were localized around the pump house, at the northern end of the site, and in Structure G1, a burned wooden frame building at the southern end. Most likely, these were company buildings and were lighted, while during the primary, early twentieth century occupation of Cobble City, the remainder of the structures had no electricity.

Bullets and cartridges were also relatively rare, especially when compared to other sites of similar age in southern California. They were limited to three examples: two shotgun shells, with no markings; and a .32 cartridge marked with "WRA Co. 32 WCF"; that is, Winchester Repeating Arms Company.

Idiosyncratic or unique metal artifacts included two metal clips or hook

stays for a ledger book; a cast iron door hinge fragment; and the metal edging to an engineer's scale. In addition, a miscellaneous variety of nuts, bolts, screws, washers and other small industrial artifacts, as well as unidentifiable rusted specimens, was also recovered at the site.

4.32 Ceramic Artifacts

Ceramic artifacts from Cobble City are summarized in Table 7. They totaled 43 specimens, which represent 3% of the site assemblage. Inasmuch as most of these are derived from surface collecting, and we intentionally sampled for sherds with maker's marks or decoration and therefore the rarer ceramic artifacts, this number is probably not representative of the numerical significance of ceramics as a whole on the site. That said, it is nonetheless important to emphasize that, based on subjective impressions, ceramics are still relatively rare at Cobble City.

Although we have identified the ceramics by ware (whiteware, creamware, porcelain, earthenware) in Table 7, for analytical purposes here we have combined whiteware, creamware and ironstone, because "ironstone" was a commercial rather than technical designation that overlapped both whiteware and creamware (cf. DeBolt 1988). The breakdown of the

assemblage then is as follows:

- whiteware/creamware/ironstone - 61%;
- porcelain, dinnerware - 16.5%;
- porcelain, other (e.g., electrical fixtures) - ~5%; and
- earthenware - 6.6%.

Six of the ceramic sherds contained maker's marks, which are important determinants of artifact age; five of these marks are on whitewares, as defined above. These include the following makers:

Knowles, Taylor and Knowles - This was an East Liverpool, Ohio pottery factory that was in operation from 1870 to 1929 (Gates and Ormerod 1982; Praetzellis et al 1983; DeBolt 1988). Two "K. T. & K." marks were recovered; one dating between 1890 and 1907; and the other from 1905 to 1929.

Crown Pottery Company - This is an Evansville, Indiana, company that was in operation from 1890 to ca. 1960. One mark, consisting of a "C.P.C.", was recovered on the site. This dates to ca. 1910 (DeBolt 1988:25).

A.J. Wilkinson Ltd - One example from the Arthur J. Wilkinson ceramic factory, in Burslem, Staffordshire, England, was recovered. This

dates between 1890 and 1907 (see Praetzellis et al 1983:80).

Societe Ceramique Muistricht - An undated mark from this factory, presumably in Muistricht, Holland, was also recovered. Given that the mark includes "Made in Holland", this was clearly intended for export to English speaking countries.

Macomb - One sherd of brownware was tamped with "Macomb Stone..." and "2" in a circular cartouche. This is unidentified.

Decoration on the ceramics included examples of raised relief designs, transfer patterns, and hand-painting. Six of the whiteware sherds and four of the porcelain dinnerware had transfer patterns, generally floral in design. Hand painting was of course rare. One whiteware sherd had a hand painted glaze along the rim; three of the porcelain dinnerware sherds were hand painted, two of which were Chinese designs. Decorative treatment on the earthenware was limited to glaze. Glazing was split between two brown and two buff examples.

Finally, a glass and metal partial denture plate, consisting of two molars, was also found on the site. We include it here both because it is partly made of ceramics, and also because it truly functioned as "dinnerwear".

As should be clear, the ceramics from Cobble City are fully in keeping with an early twentieth century age for the site, both in terms of general characteristics (e.g., whiteware with crazing on the glaze), and in terms of the specifics of the maker's marks. With the exception of the Societe Ceramique Muistricht and Macomb marks, the manufacturers represented in the site assemblage are common components of historical archaeological assemblages in California, with Knowles, Taylor and Knowles particularly common, as is evident when the ceramics for the other sites on the mountain are considered (see below).

4.33 Glass Artifacts

The glass artifacts recovered from Cobble City are summarized and described in Table 9. A total of 379 glass specimens were found at the site, representing 28% of the total artifact assemblage. These are primarily broken shards of bottle glass, although one electrical insulator was also recovered.

No complete bottle specimens were found at the site. However, 69 glass artifacts were of sufficient size and/or maintained diagnostic attributes

that allowed for at least typological identification. We have used the typology and identifications of bottle and neck form published by Herskovitz (1978) for the Soledad Mountain collection; these types are illustrated in Figures 69 and 70. Note that these named types were not exclusively used for the product for which they are named; for example, champagne bottles could also serve for wine. The glass artifacts included the following types, using Herskovitz's classificatory system:

Champagne bottles (Type b bodies and necks) - 1 body, 8 necks, all dark green;

Brandy necks - (Type c necks) - 3 necks, 1 lavender and 2 clear;

Beer necks (Type d necks) - 5 necks, 3 amber and 2 light green;

Double bead necks (Type f necks) - 8 necks, 5 dark green, 2 amber and 1 lavender;

Patent/extract necks (Type f necks) - 7 necks, 5 lavender, 1 light green and 1 amber;

Wide-mouth patent/extract (Type h necks) - 3, 2 blue and 1 clear;

Oil necks (Type i necks) - 1 neck, clear;

Crown necks (Type k necks) - 6, 3 clear, 2 bright green and 1 amber;

Club sauce necks (Type l necks) - 2, both dark green;

Round ink body (Type mm body) - 1, clear.

In addition to these specimens classifiable using Herskovitz's (1978) typology, the assemblage also included more recent specimens that are not part of this historical artifact typology. These include a small amber medicine bottle and rubber topped glass dropper; a milk glass cold cream jar labeled "PONDS" on the bottom; five amber bleach jugs; and eight modern screw top necks. All of these specimens that cannot be classified using the Herskovitz' typology were recovered from the area of Depression era habitation, at the northeastern side of the site.

Identifiable attributes beyond body and neck form are also present with reference to molded marks on bottle bases. These included the following specimens:

- Light green bottle base with "PAT. AUG 22. 05";
- Amber bottle base with "SOUTHERN CAL., LOS ANGELES" around rim and "WINE CO." in center;
- Light green base with "A. B. Co" over "A6";
- Light green base with "A. B. Co." over "16";
- Amber base with "Pat.D Aug 24 1886" around rim and "2" in center;
- Clear base with "Table Products Co., Los Angeles, 118 41"; and
- Light green base with "A. B. Co." over "J4".

The two patent dates are in agreement with a turn of the century/early twentieth century age for the site. The Southern California Wine Company bottle is clearly in keeping with the dominance of viticultural bottles in the glass assemblage. The "A. B. Co" marks indicate manufacture by the American Bottle Company of Chicago, which was in operation from 1905 to 1930 (Polak 1994:421); dates which also fit within the temporal placement of the site as indicated by the historical records. And the Table Products Co., Los Angeles" mark, found in the Depression occupation area, appears to be a 1930s food bottle.

In addition to the bottles, per se, a small number of other glass artifacts were recovered at Cobble City. These included an electrical wire insulator; and a milk glass bowl with a gold rim band and a bottom mark of "FIRE KING" over "OVEN WARE" over "MADE IN USA", which was found in the Depression era occupation area. No glass identifiable as window glass was collected from the site, although a small amount was noted in the area of burnt wooden structure G1, at the southernmost end of the site. Clearly, the large majority of the structures on this site did not have glass windows.

In general, the glass assemblage is dominated by bottles that are, themselves, predominated by liquor bottles, many of which appear to have

been used for wine or champagne. Inasmuch as the 1910 census indicates that essentially all of the immigrant Italian and Slovenian miners were bachelors (or at least did not have their wives with them on the property; see W & S Consultants 1995a), and Cobble City was known as "Little Italy" by the local inhabitants because of its ethnic make-up, this apparent pattern is probably attributable to the ethnic composition of the site's residents.

4.34 Buttons

Buttons are useful artifacts because they are both indicative of the types of clothing worn by the inhabitants of a site, and because they may be time sensitive (cf. Albert and Kent 1949; Kirk 1976). Buttons found at Cobble City are summarized in Table 10. Nineteen of these were recovered, representing about 1% of the artifact assemblage from the site.

The most common class of button from Cobble City are metal (16 of the 19 total). With only one exception, the metal buttons comprise two types: overall (12) and pant fly (4). The overall buttons are primarily tubular stemmed, although one wire loop shank was also recovered. Four of the overall buttons, including the wire loop shank example, have a plain front

plate. The remainder are embossed; presumably, as was typical for overall buttons, with the clothing manufacturer's trademark or slogan (Kirk 1976:405). The most common overall maker's mark is some variant of a Carhartt's design, one example of which is illustrated by Albert and Kent (1949:391, Figure 12). According to these last authors, the Carhartt's overall buttons were produced by the Scoville Manufacturing Company in Waterbury, Connecticut. Scoville was apparently one of the largest, and the oldest, overall button manufacturer in the country, having first started producing these types of buttons as early as the 1820s (Kirk 1976:405). The Carhartt's company, however, was located in San Francisco. The remaining embossed overall buttons include one with "Head Light", and another with "Red Seal" and a star burst design.

The pant fly buttons are all iron, and are embossed with "Levi-Strauss Co.", which of course is the famous and still in business San Francisco blue jeans manufacturer.

The one variant among the metal buttons is a large brass coat button, embossed with a nautical rope and anchor design. This was recovered in the Depression era remains in the northeastern portion of the site.

Only three non-metal were found at Cobble City, two of which are made of

white "milk glass" and the third of which is mother-of-pearl. These are all shirt sized buttons.

As is clear, the button assemblage is dominated by examples from men's work clothes, as is perhaps befitting a mining camp. However, it is certainly known that women and children also occupied this camp, and so the dominance of work clothes buttons is only partly attributable to demographics. As is also clear, sewn-on non-work clothes buttons can be easily reattached if they fall off. Overall and metal pant fly buttons, on the other hand, are attached in a fashion analogous to riveting, and cannot be reattached once they have pulled through the cloth. Thus, such buttons may be more readily discarded than non-work clothes buttons, which could be reused or recycled. With this fact in mind, it then warrants noting that while the Carhartt's brand overalls may at first glance appear to the be most common brand used by the occupants of the site, it is also possible that this brand simply represents the overalls with the worst button attachments.

4.35 Leather Artifacts

Leather artifacts from Cobble City are summarized in Table 11. A total of

69 leather specimens, representing 5% by count of the site assemblage, was recovered from the site. The majority of these specimens were fragmentary and unidentifiable. The only identifiable leather artifacts are 24 shoe fragments. Judging from the locational association of these fragments within three collection units, these appear to represent portions of three separate shoes or boots. One of these is a fragment of a small shoe, probably a woman's, and the remaining two are so fragmentary as to be otherwise any further unidentifiable.

4.36 Faunal Remains

Faunal remains are particularly useful indicators of diet and subsistence, as practiced by a site's inhabitants. This being so, an effort was made to include some indication of subsistence remains from Cobble City during the test excavation; in particular, by the placement of one of the test pits in an area of Structure J1 believed to have served as a kitchen. Although this area actually proved to have relatively little in the way of discarded bone (presumably because food was prepared but not eaten or discarded at this locale), a small sample of faunal remains was nonetheless obtained from Cobble City. This is summarized in Table 12.

The faunal assemblage from the site consists of 35 specimens, representing 2.6% of the total site artifact assemblage by count, weighing 333.2 gms. The majority (~66%) of the faunal assemblage derives from large mammals, which appear to be bovid in origin. All of these also represent long bones or shafts, and at least two specimens show clear evidence of butcher's saw cuts. From the point of view of butchering and cooking, the long bones of cows are generally lacking in much meat, are usually "tough" cuts of meat and, accordingly, are not considered choice cuts. They are best suited for stews, soups and similar dishes.

The exception to the large mammal bones are 12 small mammal bones, recovered from a single provenience. These appear to be rabbit. Their presence in a shallow privy on the site is a clear indication that they were consumed (rather than having been accidentally introduced into the site through natural processes). Although rabbits were commonly raised for food at the turn of the century, the presence of these bones exclusively within a single provenience suggests that they may have been hunted by site inhabitants, and thus that subsistence practices also included a certain amount of exploitation of local resources.

In either case, the complete absence of bones from the more select cuts of beef in the faunal assemblage from Cobble City is a clear indicator that the

site inhabitants were restricted to the less expensive foodstuffs. This is certainly in keeping with the general tenor of the site features and artifacts, which reflect a general disregard (or perhaps absence of concern) for the miners on the part of the mining company.

4.37 Cobble City - Summary

The artifacts from Cobble City derive from two time periods. The majority of the temporally diagnostic artifacts are early twentieth century in age. A small quantity of Depression era remains was also recovered. These, however, were essentially restricted to the northeastern section of the site which, as noted previously, appears to have experienced intensive later use. That is, the majority of the site appears to maintain its temporal integrity. That being said, we have noted previously that no substantial dumps appear to exist on the site, regardless of time period of concern. This has limited the artifact assemblage in terms of certain key analytical artifact classes, such as subsistence remains. Nonetheless, the existing assemblage appears adequate to discern spatial variation in the material culture assemblage at the site, even if in very preliminary form.

4.4 CA-KER-4447H (Wegmen Complex)

The artifact assemblage recovered from this site totaled 2509 specimens, of which 2459 were obtained during the excavations and 50 were collected from the ground surface (see Table 5). This large artifact assemblage is discussed, by major class, below.

4.41 Metal Artifacts

A total of 1420 metal artifacts were collected at the Wegmen site; these are summarized in Table 6. As is typically the case, the large majority of these are tin can/can fragments; 1122 of these were recovered from the site, representing fully 56% of the site assemblage. For purposes of comparison, the same proportion from Cobble City was 59%, suggesting that the inhabitants of both sites had essentially equal access to packaged foods. Seventy of the cans, or about 5% of the metal artifacts, are identifiable to some degree. Seven of these are portions of rectangular tobacco tins; the remainder are hole-in-top cans, and are thus generally pre-1920 in age. Forty-one of these cans are sufficiently complete to allow accurate measurements. These fall within five size ranges, as indicated in

Table 6. Over 75% of the measurable cans are one size: 11 by 7.5 cm, or $4^{3/8}$ by $2^{7/8}$ inches. Unfortunately, this does not correspond to a known, standard can size or type (cf. Rock 1987), although whatever this sized can held was clearly a favorite at the site.

Other common metal artifacts on the site include wire cut nails (144 for 10% of the metal artifacts); wire mesh and screening fragments (33 or ~2%); and wire fragments (27 or ~2%).

Lids and tops were limited to seven examples. Two of these are crown tops, used for beer and soft drink bottles, and one is the metal holder for a champagne cork. Another bottle top is embossed with a partially legible logo. This is a star surrounded by circular lettering that includes "...Angeles S...", which is most likely a reference to a Los Angeles company. The last category of lids found at the site is the metal Mason or fruit jar top, of which three examples were collected.

Only two gun cartridges were recovered from the site. One cartridge is marked "EP". The other is a Winchester Repeating Arms Company .32 caliber shell marked "W.R.A. Co. 32 W.8". A similar cartridge was found at Cobble City.

Idiosyncratic, unique or rare metal artifacts included a bicycle wheel spoke, one hand-made nail, a piece of decorative cast iron (stove part?), a lock mechanism, an ornate iron door hinge fragment, a clock gear, and a thermostat cover and thermometer. This last specimen was recovered in the area of the Depression occupation, on the east side of the site, and derives from a gas heater. Finally, an iron spoon, engraved on the backside of the handle with W1 over V1, was also recovered. In addition, a miscellany of unidentifiable rusty metal pieces, screws, washers and other minor items were also found on the site.

4.42 Ceramic Artifacts

A total of 85 ceramic artifacts were recovered from the Wegmen site. these are summarized and described in Table 7. This total represents slightly more than 3% of the artifact assemblage as a whole from the site; for purposes of comparison, 3% of the Cobble City assemblage was also ceramic. Per the identifications and combinations thereof noted for the ceramic collection from this previously discussed site, the ceramic assemblage breakdown at the Wegmen site is as follows:

- Whiteware (including creamware and ironstone) - 67 (79%);

- Porcelain dinnerware - 4 (5%);
- Porcelain, other - 2 (2%); and
- Earthenware - 12 (14%).

This breakdown differs somewhat from that at Cobble City, but is within the same general pattern; the figures for the former site are 61%, 16.5%, 5% and 6.6%, respectively. In both cases the general category of whiteware greatly predominates. Perhaps surprisingly, however, earthenware is more common at the Wegmen site, and porcelain at Cobble City.

Eleven makers' marks were found on the sherds from the Wegmen site; however, only nine of these could be deciphered. Of these, the most common by far are variants of Knowles, Taylor and Knowles marks, which contributed six of the nine readable marks. These include two marks which were used after 1905; three that were used between 1890 and 1910; and one used between 1890 and 1907; all of which are in substantial agreement with an early twentieth century occupation for the site.

A second American manufacturer's mark was produced by the D.E. McNichol Pottery Company of East Liverpool, Ohio, and dates from 1892 to 1910 (Gates and Ormerod 1982:186).

Two ceramic maker's marks are foreign, in this case both English. The first was used by the J. and G. Meakin Company, of Hanley, England, between 1875 and 1883 (Praetzellis et al 1983:57). The second was employed between 1891 and 1925 by W.H. Grindley and Company, Tunstall, Staffordshire, England (ibid:41). Both of these marks are common in California historical archaeological sites, reflecting the importance of the English ceramic industry around the turn of the century. Again, their ages are in agreement with an early twentieth century age for this site, especially when the potential shelf-life of ceramic vessels is considered.

Decoration was limited to transfer patterns on the whiteware and porcelain, and glaze (typically brown) on the earthenware crockery. Twelve of the whiteware sherds had transfer patterns of some kind (typically floral), albeit four of these were sherds from the same bowl. Similarly, three of the porcelain sherds were decorated. No hand-painting was noted on any of the ceramics.

4.43 Glass Artifacts

The glass artifacts from the Wegmen site are summarized and described in Table 9. A total of 869 glass specimens were recovered from the site,

thereby constituting 35% of the site assemblage total. In contrast, glass was only 28% of the assemblage from Cobble City.

Identifiable glass artifacts, based on form, markings and other attributes, totaled 33 specimens. Using Herskovitz's (1978) typology of bottle form and neck types, nine could be classified by body form or neck. The following bottles types are present at the site:

Champagne necks (Type b necks) - 2 necks, both dark green;

Brandy necks (Type c necks) - 3 necks, 2 lavender and one dark green;

Beer necks (Type d necks) - 1 neck, light green;

Patent/extract necks (Type g necks) - 1 neck, amber;

Blake necks (Type r necks) - 1 neck, lavender; and

French mustard barrel bodies (Type ff bodies) - 1 body, lavender.

In addition to these identifiable bottle types, 17 specimens had maker's marks, allowing for some form of identification. These are as follows:

- Amber base with "9" and "2" separated by a diamond;
- Amber base with "P. D. Co." over "10" over "19";
- Small clear base with "...IOMONO..." in outer circle around "...MADE IN...";

- Amber base with "SPRUA..." around "...WH...", "SAC..." and "LIQUOR...";

- Clear rectangular body with side mark of "GORDON'S DRY GIN" over "ENGLAND";

- Lavender neck with side mark of "SHASTA WATER Co.";

- Lavender glass bottle stopper, with flat disc shaped handle with "Canad..." and "...SEPT...";

- Clear screw top bottle with printed decal (Heinz shape) of "Sweet Relish";

- Light green base with "A. B. Co.";

- Light green body fragment with a portions of "GORDON'S DRY GIN" over "ENGLAND";

- Clear octagonal bottle with "Libby's" on side;

- Clear base with "A Winarich..." over "USA";

- Amber base with "W F & S" over "T 1" over "MIL";

- Clear base with "Best Foods" over "Registered";

- Light green base with "AB" over "S[?]";

- Milk glass jar base with "Menley-James, New York, London, Made in USA";

- Clear body fragment with "...INGHA..."; and

- Clear base with reverse (interior) printed "No. 77, Pat. in U.S., Dec. 22 1803, July 17 1808, E2".

The food jars (Heinz, Best Foods, Libby's) were found in the Depression era material on the east side of the site and are either of that age, or are modern and intrusive. The "W F & S" mark was produced by William Franzen and Son, Milwaukee, Wisconsin, from 1900 to 1929 (Polak 1994:427. As noted concerning the Cobble City artifacts, the "A. B. Co" mark was manufactured by the American Bottle Company of Chicago, which was in operation from 1905 to 1930 (ibid:421). The "AB" mark is most likely from the Adolphus Busch Glass Manufacturing Company, which operated from 1904 to 1907 (ibid:421). Gordon's Gin marks are obviously from the distinctive Gordon's gin bottles, while the "SHASTA WATER Co." mark is presumably from a company of that name. The Menley-James milk glass jar is likely a cosmetics container; while the very early patent date on one bottle probably just reflects a bottle mold that itself had a long use life. The "P. D. Co." mark and other marks, partial and complete, are unidentified.

In addition to these marked specimens, seven other glass artifacts could be identified based on various other attributes. These included: another milk glass cosmetics jar, probably cold cream; a milk glass cosmetics jar lid; a medicine jar glass stopper; an amber bleach jug; a fragment of a Mason jar; an electrical wire insulator; and a milk glass bead. Finally, some window

glass and drinking vessel glass was also present with the bottle glass in this assemblage.

The glass assemblage from the Wegmen site is proportionally bigger than that from Cobble City. It also displays more diversity. both in terms of the kinds of glass artifacts present, and the variability within specific categories. Perhaps most notably, the assemblage is neither so heavily dominated by liquor bottles nor, within the liquor bottles themselves, predominated by champagne style bottles. Again, this may be reflective of different ethnic compositions of the inhabitants of the two sites.

4.44 Buttons

Only four buttons were recovered from the Wegmen site (see Table 10). These include one tubular stemmed, plain front overall button; one milk glass button; and two mother-of-pearl buttons. With the exception of the overall example, these are shirt sized.

4.45 Leather Artifacts

Leather artifacts from the site are summarized and described in Table 11. Although numerous in number, in fact these appear to represent only four artifacts: one leather glove, which disintegrated into 52 pieces within a privy, and three shoe fragments. Two of these are from small sized foot wear; perhaps women's or children's. The other is the upper legging portion of a man's boot, which appears to have been intentionally cut off at the ankle.

4.46 Faunal Remains

The faunal remains from the Wegmen site totaled 76 pieces by count, weighing 144.1 gms. This represents 3% of the total site assemblage by count, compared to 2.6% at Cobble City - again, indicating strong comparability between the two sites. As at the former site, the animal bone is dominated by large mammal long bones, probably bovid in origin. there are, however, a few exceptions at the Wegmen site, perhaps suggesting slightly greater variability in the diet. These include an immature long bone from a medium sized mammal (i.e., deer - sheep - goat size); a metapodial from an immature artiodactyl (again, deer, sheep

or goat); and a fragment of a large mammal skull. As is clear, however, the occupants of the Wegmen site were also not obtaining the better grades of meat, as also characterized Cobble City.

4.47 Wegmen site - Summary

The analysis of the artifacts at the Wegmen sites demonstrates that although the architecture differs considerably between the two sites, the basic artifact assemblages are in general quite comparable, even while they differ in certain specific details. The most notable of these concerns the glass assemblage and particularly the liquor bottle remains. As at Cobble City, the Wegmen site contains a significant amount of early twentieth century remains, although it also has a Depression era component. Furthermore, this late component is less localized at this site than at Cobble City.

4.5 CA-KER-4448H (Karma Mill)

A small artifact assemblage, consisting of only slightly more than 100 specimens, was recovered during the surface collecting and limited excavation at the Karma Mill. These are summarized in Table 5. We discuss the major classes of artifacts from the site below.

4.51 Metal Artifacts

Metal artifacts, exclusive of assay debris from the site (see below), are described in Table 6, and total 22 specimens. They include: four wire cut nails; one screw; one nut; one buckle fragment; 11 can fragments; a small brass funnel; one hand-wrought bar; one narrow gauge rail spike; and a bullet cartridge. This is marked with "U.S.C. Co. Gov.". The funnel, in fact, is most likely part of the assaying equipment, as it was collected from the upper assay office.

4.52 Ceramic Artifacts

A considerable number of ceramics artifacts associated with assaying were

recovered from the Karma Mill; these are discussed below. Other (non-assay) ceramic artifacts were limited to two specimens, both of which nonetheless were collected from the lower assay dump (see Table 7). They are both fine ware ceramics. One is a fragment of a thin walled porcelain vessel, probably a tea cup. The other is a fragment of a hand painted vessel, which appears to have been a small cut flower vase with built in frog.

4.53 Assay Debris

The largest category of remains from the Karma Mill consists of assay debris. We have summarized and described this material in Table 8. A total of 55 assay specimens were recovered from the site. These fall into three categories: dore buttons; slag; and crucibles and cupules. A total of 32 dore buttons, weighing 32.4 grams, were recovered from the upper assay office. According to Mrs. Grace Wegmen Meehl, her father, Engelbert Wegmen, used this office for assaying ore from the Randsburg Mines, where he worked, during the 1930s, so the dore buttons recovered in this room are probably from the Randsburg and not Karma mines. Some slag was also recovered from this upper office.

A small surface collection was also made at the lower assay office, which appears to date to the operation of the original Karma Mill, between 1903 and 1909. Three slag buttons and one dore button were collected from this feature, along with three cupules and three crucibles. One of the crucibles is embossed with "BATTERSEA WORKS ENGLAND" around the bottom rim, with "30" over "gms" in the middle. All crucibles/fragments at this feature had the Battersea mark; however, the vast majority of them were 20 gm sizes.

4.54 Glass

A total of 22 glass artifacts were recovered from the Karma Mill, as are summarized and described in Table 9. These include clear window glass, vessel glass and one screw top jar fragment from the upper assay house, all of which appear Depression era or later in age; and three pieces of glass laboratory tubing.

4.55 Karma Mill - Summary

The artifacts recovered from the Karma Mill are all industrial artifacts

related to the mining and milling process, or ancillary specimens resulting therefrom. They include a mix of early twentieth century and Depression era remains, reflecting the long even if sporadic use which this site experienced.

4.6 CA-KER-4449H (Queen Esther Mill)

As with the Karma Mill, artifacts from the Queen Esther Mill were largely restricted to industrial mining tools and by products. They totaled over 400 specimens, however, which are summarized in Table 5 and discussed, by major class, below.

4.61 Metal Artifacts

With the exception of buttons and assay debris, discussed below, the metal artifacts from the site include seven specimens (Table 6). These include the following:

- Cast iron door from the assay office muffle furnace, embossed with

"Pat June 16 1886";

- Two electrical light bulb sockets;
- A lubricated star bit;
- One prospector's type metal canteen; and
- Gun cartridge marked "U. M. C. 32 S & W".

The cartridge is a Union Metallic Cartridge Company, which became the Remington Company after World War I, indicating that this cartridge most likely dates to the early twentieth century.

4.62 Ceramic Artifacts

The ceramic artifacts from the Queen Esther Mill, described in Table 7, are limited to three fragments of a porcelain electrical insulator, and a scorifier, which rightly is part of the assay artifact assemblage.

4.63 Assay Debris

A large quantity of assay debris was recovered from the site, as

summarized and described in Table 8. This includes crucibles and crucible fragments; cupules and cupule fragments; slag; and dore. A total of 22 crucible/crucible fragments and 98 cupules were recovered. Three crucibles are embossed with "BATTERSEA WORKS ENGLAND" around "20" over "gms". There is also one crucible stamped with "Denver Fire Clay Co.". A large bar of what appears to be dore, weighing 76.2 gm, was also recovered from the cracks in the muffle furnace.

4.64 Glass Artifacts

Nineteen glass artifacts were recovered from the site, as summarized and described in Table 9. Following Herskovitz's (1978) typology, identifiable bottles from the site included:

- 1 type d amber beer neck;
- 2 type f double bead necks, one lavender and one light green;
- 1 type g lavender patent/extract neck; and
- 2 type h wide mouth patent/extract necks, one light green and one clear.

The glass assemblage also included a series of maker's marks. These are as

follows:

- "R&CO., 32" on an amber base, which was produced by Roth and Company, San Francisco, from 1879 to 1888 (Polak 1994:427);

- "I P G Co." in a diamond over "3095" on an amber base, which is the Illinois Pacific Glass Company, in operation in San Francisco from 1902 to 1932 (ibid:425);

- Two large light green bases with "W T & Co.", from Whitail-Tatum & Company, Millville, New Jersey, 1857 to 1935 (ibid:428); and

- An amber base with "A.B.Co.", which again is the American Bottle Company of Chicago, in operation from 1905 to 1930 (ibid:421).

The variety of maker's marks relative to the small number of glass specimens reflects the fact that specialized kinds of supplies, such as chemicals, were being brought into the site from various parts of the country.

4.65 Buttons

Although one might not expect a button assemblage from a mill site, the problem with buttons that the inhabitants of Cobble City seem to have had apparently followed them up the hill to their place of employment. The

nine buttons from the site are summarized and described in Table 10, and are briefly reviewed here.

Seven of the buttons are metal, and include three overall and four pant fly examples. The plant fly buttons (in fact, one is actually a rivet) are marked "Levi-Strauss Co." (with the river having "L.S. & Co."), paralleling the examples from the residential area. One of the overall buttons is a wire loop back. It is heart shaped and portrays a cable car under "UNION MADE". This is a variation of the Carhartt's overall button, which was made by the Scoville Manufacturing Company of Waterbury, Connecticut, and a number of which were found at Cobble City. This button type is illustrated by Albert and Kent (1949:391, Figure 12). The remaining two overall buttons are both tubular stemmed. One is embossed "Strong Hold". The other has "Cone's Boss" over a lantern motif.

The remaining two buttons on the site are mother of pearl, shirt sized specimens.

4.66 Queen Esther Mill - Summary

Like the artifacts from the Karma Mill, those from the Queen Esther are

largely industrial remains pertaining to mining and milling, or appurtenances thereof. Two facts stand out about this assemblage, however. This first is that it appears entirely early twentieth century in age, with no later materials mixed in, as is common at the three sites discussed previously. The second point is simply that some of the artifacts at the mill - particularly the overall buttons - directly link the site with the inhabitants of Cobble City.

4.7 CA-KER-4450H (Echo Mill)

The artifacts recovered from the Echo Mill numbered almost 400 in total, as summarized in Table 5. They include a moderate assemblage of metal, one piece of ceramic, a large quantity of glass, and an even more substantial collection of assay debris, as discussed below.

4.71 Metal Artifacts

The 33 metal artifacts recovered from the Echo Mill site are described In Table 6. Almost all of these are miscellaneous, unidentifiable rusted

specimens. However, they also include one wire nail; one hand wrought nail; one washer; and one cartridge, marked "U M C SH .38 LONG". This is a Union Metallic Cartridge Company rifle cartridge, which is late nineteenth century in age.

4.72 Ceramic Artifacts

Only a single ceramic artifact (exclusive of assay debris) was recovered from the Echo Mill (see Table 7). This is a creamware sherd fragment.

4.73 Assay Debris

The assay debris, mostly recovered from excavations at a disturbed assay dump, numbered 224 specimens (Table 8). These included 139 crucible fragments; 23 cupules; and 62 slag buttons/button fragments. Three of the crucibles are stamped "Denver Fire Clay Co." over "20".

4.74 Glass Artifacts

The glass artifacts from the Echo Mill are summarized and described in Table 9. They include 112 specimens. While the majority of these are miscellaneous fragments, a number are identifiable as to type or maker. The glass assemblage includes the types listed below, following Herskovitz's (1978) typology:

- Brandy (Type c) neck - 1 neck, clear bottle, with metal collar below neck embossed with "Gooderham and Worts - Limited" over "Toronto" over "Registered";
- Double bead (Type f neck) - 1 lavender neck;
- Patent/extract (Type g) neck - 1 amber neck;
- Oil (Type i) neck - 1 amber neck;
- Crown top (Type l) neck - 1 clear neck;
- Club sauce (Type l) neck - 1 light green neck; and
- Blake (Type r) body - 1 lavender body.

In addition to these bottle types, there are also a series of bottle marks on the specimens from the site. These are as follows:

- Clear bottle base with "Gooderham and Worts" over "Toronto,

Canada, Limited", which is obviously related to the brandy neck described above;

- Clear bottle base with cross-hatched design around rim and "Liquor Bottle" in center;

- Small rectangular base with side mark "Chili Powder";

- Light green base with "R&CO" over "23", which was produced by Roth and Company, San Francisco, from 1879 to 1888 (Polak 1994:427);

- Lavender base with "398"; and

- Purple glass atomizer, 2 seams, with "Fill to this line" on one side, and "The tube of this atomizer is made of one piece, pat. May 8th - 1894" on the other, with screw on lip.

In addition to the bottles, a small glass stirring rod was also recovered from the assay area.

In general, the glass assemblage supports an early twentieth century age for the site. It also appears somewhat more heterogeneous than the glass assemblages from the other sites, but this may simply be a function of sample sizes.

4.75 Echo Mill - Summary

The artifact assemblage from the Echo Mill, like those from the other two mills, is dominated by mining and milling industrial remains. It appears to be restricted entirely to the turn of the century, however, with no later materials mixed in.

5.0

SUMMARY AND CONCLUSIONS

5.1 Introduction

Phase II test excavations and determinations of significance were conducted at eight sites and portions of a ninth on Soledad Mountain, Mojave, Kern County California. These sites are CA-KER-4446H (Cobble City), CA-KER-4447H (Wegmen), CA-KER-4448H (Karma), CA-KER-4449H (Queen Esther), CA-KER-4450H (Echo), CA-KER-4451H (Golden Queen), CA-KER-4452H (Silver Queen), CA-KER-4453H (Gypsy Starlight) and CA-KER-4454H (Bobtail). The Phase II test excavations involved recording, mapping, surface collection, and limited subsurface testing, and were intended to obtain sufficient data to adequately characterize the nature and extent of each site, including age, function, size, presence or absence of subsurface deposits and integrity. We summarize our findings, and provide final recommendations for the management of each of these sites, following Appendix K of the California Environmental Quality Act (CEQA), below.

5.2 CA-KER-4446H (Cobble City)

Site CA-KER-4446H (Cobble City) is a large residential area that was constructed and initially occupied in the first decade of this century. The inhabitation of the site primarily occurred between 1903 and about 1910; however, a small degree of later occupation, dating to the Depression era and perhaps slightly later, was localized in the northeastern section of the site. The initial occupation appears to have been associated with the Queen Esther Mine and Mill. Documentary and oral history sources suggest that the site largely contained a group of male immigrant miners from Slovenia and Italy, and that it was referred to as "Little Italy" by local residents of Soledad Mountain. In terms of architecture, the site is dominated by cobble walled structures, cobble foundations for wooden cabins, and leveled tent pads. All of these features now lack architectural integrity, with many of them threatened with complete destruction due to the downslope movement of mill tailings from the Queen Esther Mill. However, the site nonetheless has the potential to contribute to our scientific understanding of a poorly documented period of Kern County history.

Development at the location of site CA-KER-4446H, therefore, will result in adverse impacts to cultural resources. Following the guidelines of CEQA,

we recommend accordingly that the mitigation of such impacts be achieved by avoidance and site preservation. If such is not feasible, we recommend that a Phase III data recovery (salvage excavation) be conducted at this site, to collect and preserve the scientific information contained therein.

5.3 CA-KER-4447H (Wegmen)

Site CA-KER-4447H (Wegmen complex) is a residential complex that was first occupied in 1903, with use and inhabitation continuing into the current decade. In particular, the inhabitation of the site can be characterized in terms of three trends: initial construction and intensive occupation from about 1903 to 1910; a second period of intensive occupation in many but not all of the structural remains during the Depression era; and a continuous occupation, from 1903 into the 1990s, in the northwestern portion of the site. Architecturally speaking, the site differs from the previous site in that it largely consists/consisted of wood cabins; that is, purchased building materials rather than locally available fieldstone cobbles. One of these wood cabins is still standing, although in a very poor state of preservation; two other cabins are in the process of collapsing. Sources indicate that the site was associated with the Karma Mill, and that many of the structures were built by the mining company

for its employees. With the exception of the standing cabin and a standing privy, the architectural features at the site lack integrity. However, the site still contains features and archaeological remains, especially on its southern and eastern sides, with scientific information useful for the reconstruction of early twentieth century mining patterns in the Mojave Desert.

Based on this last fact, development at the locale of CA-KER-4447H will result in adverse impacts to cultural resources. Following CEQA guidelines, accordingly, we recommend that these impacts be mitigated by site avoidance and preservation. Should this prove not feasible, we recommend that a Phase III Data Recovery (salvage excavation and architectural recording) be conducted as an alternative form of mitigation.

5.4 CA-KER-4448H (Karma)

Site CA-KER-4448H (Karma Mill) is a mill structure complex that was constructed in 1903, aspects of which have been used sporadically into the 1980s. The mill structure itself burned in 1947, now consisting solely of foundational remains, and therefore is completely lacking in integrity. However, the original hoist house and head frame are still standing and,

though used at various times in the past (and stripped of their original machine works), nonetheless maintain their architectural integrity, while a few archaeological features on the site (e.g., assay office dump) contain information useful for the reconstruction of early mining practices and patterns. Development at the location of this site, therefore, will result in adverse impacts to cultural resources. We recommend that these impacts be mitigated by avoidance and site preservation. If this is not feasible then, as an alternative and following the guidelines of CEQA, we recommend that a Phase III Data Recovery (architectural recording and salvage excavation) be conducted at CA-KER-4448H, to mitigate the adverse effects to this site.

5.5 CA-KER-4449H (Queen Esther)

Site CA-KER-4449H (Queen Esther Mill) was built in 1903 and used until 1910, at which point it was shut down and never re-opened or used, although much of the site appears to have been salvaged for re-use at some point in the past. It consists of a (barely) standing mill structure, a wooden building that is in the process of collapsing, and various related features. Architecturally speaking, the site lacks integrity; however, the now collapsing structures and a few archaeological features on the site

(e.g., assay dump, machine shop dump) contain scientific information useful for the reconstruction of poorly documented aspects of turn of the century mining history. Development at CA-KER-4449H, therefore, will result in adverse impacts to cultural resources. Following the guidelines of CEQA, we recommend that such impacts be mitigated by avoidance and site preservation. As an alternative, should avoidance be unfeasible, we recommend that a Phase III Data Recovery program (architectural recording and salvage excavation) be conducted at this site to mitigate any adverse impacts to it.

5.6 CA-KER-4450H (Echo)

Site CA-KER-4450H (Echo Mill) was constructed in 1903 and dismantled and apparently carted away in 1906. Extant archaeological remains at the site are currently limited to the foundational remnants of the mill, a heavily disturbed assay dump, a privy pit, and a very low density scatter of related debris. Intensive mapping and recording of the mill remnants and excavations at the dump and privy have resulted in the acquisition of scientifically consequential information from and about this site. Following Appendix K of CEQA, this has served to completely and adequetely mitigate any adverse impacts to this site that might result from development. We

therefore recommend that no additional work be required at CA-KER-44450H. However, and also following CEQA guidelines, we recommend that an archaeological monitor be present if this site is graded, to record and collect any additional archaeological information that may be uncovered during such an activity.

5.7 CA-KER-4451H (Golden Queen)

Site CA-KER-4451H (Golden Queen Mill) is a large mill site that was constructed in 1935 and dismantled about 1950, and which is well documented in published historical references. The site currently consists of concrete building foundations, and concrete and wood ore chute remains and related features. These are entirely lacking in integrity, and do not contain scientific information of archaeological or historical interest. They therefore do not meet the criteria of importance as outlined in Appendix K of CEQA. Development at the locale of CA-KER-4451H, accordingly, will not result in adverse impacts to significant cultural resources. We recommend that no additional archaeological work or protection measures be conducted or required at this site.

5.8 CA-KER-4452H (Silver Queen)

Phase II studies at site CA-KER-4452H (Silver Queen Mine) determined that this locale is a small post-World War II mining complex which post-dates the operation of the Golden Queen Mine and Mill. It therefore either does not meet, or minimally meets, the age criterion for consideration as a cultural resource. In either case, it is lacking in integrity and does not contain information of archeological or historical interest. Inasmuch as CA-KER-4452H does not satisfy the criteria of importance specified by Appendix K of CEQA, development at this location will not result in adverse impacts to significant cultural resources. We recommend that no additional archaeological work or protection measures be conducted or required at this site.

5.9 CA-KER-4453H (Gypsy Starlight)

Site CA-KER-4453H (Gypsy Starlight) is a small cluster of wooden ore chutes and related mine features that date to the Depression era, and whose use was related to the operation of the Golden Queen Mine and Mill. The features at this site are either fully collapsed or in the process of collapsing, and therefore are lacking in integrity. Furthermore, this site

does not contain information of archaeological or historical importance. Based on these facts, CA-KER-4453H does not satisfy the criteria of importance as specified by Appendix K of CEQA. Development at this locale, accordingly, will not result in adverse impacts to significant cultural resources. We recommend that no additional archaeological work or protection measures be conducted or required at this locale.

5.11 CA-KER-4454H (Bobtail)

The CA-KER-4454H (Bobtail) site consists of a large area containing dispersed but unrelated mining features of different ages, such as stopes, adits and ore chutes. Four mining features from the site were located within the current study area and were evaluated during the Phase II program. These consist of an undated cobble wall, a Depression era concrete pad, a Depression era or later wooden ore chute, and a small modern head frame. These features are either lacking in integrity and/or do not contain information of archaeological or historical interest. They therefore do not meet the criteria of importance as specified in Appendix K of CEQA. Development within the area of CA-KER-4454H contained within the current study area, accordingly, will not result in adverse impacts to significant cultural resources. We recommend that no additional

archaeological work or protection measures be conducted or required within the portions of CA-KER-4454H falling within the current study area.

6.0

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7.0
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TABLE 1: CA-KER-4446/H (Cobble City), Features and Feature Complexes

Designation	Type	Size NSxEW	Notes
Structures/foundations/pads:			
A1	Dug-out w/ cobble sidewalls	11x10 ft	Assoc's w/water tanks & pump house
B1	Water tanks & pump house	11X15	2 tanks, radius = 7 ft
C1	1 room mortared cobbles	12x11	Assoc'd w/cobble edged pad
D1	1 room mortared cobbles	13x12	Assoc'd w/cobble edged pad
E1	Rock wall enclosure, 1 room	17x26	Filled w/ colluvium
F1	1 room mortared cobbles	12x13	Filled w/ colluvium
G1	Cobble foundation, burnt bldg	34x15	Remnants of burnt timber
H1	Bldg complex, mortared walls	52x48	4 rooms + 3 terraces
I1	1 room mortared cobbles	20x12	Assoc'd w/8x5 collapsed dug-out
J1	8 room complex	76x45	Complex arrangement of add-on bldgs
K1	Dug-out & pad	30x28	
L1	Terraced pad	30x36	Assoc'd w/ P3 & P4
M1	3 room + terrace complex	46x32	2 rooms = dug-outs
N1	1 room rock walls	33x30	1 small dug-out + terrace
R	1 room cobble wall enclosure	16x16	Assoc'd w/ Depression era artifacts
S	1 room cobble wall enclosure	13x38	Assoc'd w/ Depression era artifacts
S2	Terraced pad	10x26	
T	1 room mortared cobble	18.5x31	Assoc'd w/ terrace/pad
U	I room mortared cobbles	26x36	Assoc'd w/ terrace/pad
V1	Terraced pad	30x38	
V2	Terraced pad	15x27	Oblong in shape
V3	1 room cobble wall enclosure	28x12	Privy @ N end
W	1 room cobble walls	12x16	Assoc'd w/ X
X	1 room cobble walls	16x20	Assoc'd w/ terraced pad
Privies:			
C1 Privy	Privy		Assoc'd w/ C1/D1
H1 Privy	Privy		Assoc'd w/ H1 complex
J2	Privy		Assoc'd w/ J1
J3	Privy		Assoc'd w/ J1
O1	Privy		
P1	Privy		Assoc'd w/ J1
P2	Privy		
P3	Privy		Assoc'd w/ L1
P4	Privy		Assoc'd w/ L1; 1 standing wood wall
V3 Privy	Privy		Assoc'd w/ V3
V4	Privy (?)	8x8	U-shaped rock enclosure
V5	Privy (?)	6x6	U-shaped rock enclosure
Dumps/Scatters:			
A2	Scatter, misc.		Between A1, C1 & D1
F2	Can scatter		NW of X; N of F1
M2	Scatter, misc.		E of M1; extends SE to H1
V	Dump		SE of T, Depression era

TABLE 2: CA-KER-4447/H (Wegmen), Features and Feature Complexes

Designation	Type	Size NSxEW	Notes
Structures:			
A	Standing cabin, board & batten	20.5x29.5 ft	3 rooms, gable front w/ porch
A2	Cobble foundation	22x43	Assoc'd privy
A3	Cobble lined depression	8x8	Dug-out (?)
B	Fallen wood cabin	22x40	Pile of broken timbers
C	Wegmen house		Occupied to 1991, remodeled Karma cabin
E	Meehl house		Occupied to 1991, modern
G	Reymert-Fraction headframe	30x50	In use into 1990s
H	1 room cabin, collapsed	12x14	Wood frame, gabled, cobble fdn
I	1 room cabin, standing	10x12	Board & batten, unframed, gabled
K	Collapsed wood cabin	15'6"x28'6"	Roof and walls caved-in on floor
L	Dug-out	8x12	Privy (modern?), 10' E of dug-out
N2	Cobble wall & pad	27x24	
N3	Pad	20x18	Assoc'd privy (?) SW corner
N4	Pad	36x32	Assoc'd privy
N5	2 room cobble wall structure	13x12	Assoc'd privy, 9 ft S
O	1 room cobble wall/fdn	15x19	Assoc'd privy, 6' W
P	1 room cobble enclosure	8x8	
X11	Terraced pad	12x15	Assoc'd w/ privy
Privies:			
A4	3 privy holes		To W and assoc'd w/ Structure A
D	Standing privy		2 room, 3 holer
L	Fallen privy		Modern (?)
N4	Rock-lined privy		On pad N4
N5	Rock-lined privy		On pad N5
O	Privy		W of Structure O
X11	Privy		Assoc'd w/ pad X11
Dumps/scatters:			
F	Can scatter		Sorted, turn of century
M	Dump		Primarily Depression era, NW of K
M2	Dump		Pot-hunted, Depression era, SE of K

TABLE 3: FEATURES AT KARMA AND QUEEN ESTHER MILLS (CA-KER-4448H & 4449H)

Feature #	Description	Comments
KARMA MILL & MINE		
1	Headframe, Hoist house, Haulage adit, etc	Early 20th century + later additions
2	Ore chute & jaw crusher	Modern
3	Assay office	Early 20th century
4	Stamp mill area	Foundation & stamps only; Early 20th century
5	Assay office	Sheet metal & concrete building
6	Blacksmith shop	Sheet metal building
7	Tank area	
QUEEN ESTHER MINE & MILL		
1	Mill structure	Collapsing
2	Assay lab	Wood frame filling with tailings
3	Wood structure	Collapsed
4	Wood structure	Buried by tailings
5	Tank foundation	
6	Dump & Asphalt work area	Tar barrels and piles
7	Ore haulage ramp	Depression era

TABLE 4: GOLDEN QUEEN, ECHO, GYPSY STARLIGHT, SILVER QUEEN AND BOBTAIL FEATURES

FEATURE #	DESCRIPTION	COMMENTS
Golden Queen Mill		
1	Metal Building	Modern
2	Concrete foundation	Depression era
3	Haulage level adit	
4	Concrete mill foundation	Remnants only; Depression era; burnt
5	5 Agitator vats	Depression era
6	Concrete & wood bldg	Shop structure; Depression era
7	2 Oliver drums	3rd drum ca. 200 m downslope
8	Pad & prospect	Depression era
9	Concrete structure	5x6 m, 1 room; Depression era or later
Echo Mill		
1	Metal structure	Modern
2	Haulage level adit	
3	Concrete foundation	Changing house; Depression era
4	Stamp mill foundations	Early 20th century
5	Assay office dump	Disturbed
6	Privy	Early 20th century
Gypsy Starlight		
1	Waste rock ramp	Depression era or later
2	Truck ore chute	Depression era or later
3	Truck ore chute	Depression era or later
4	Adit and open cut	Abandoned sheet metal classifier to W
5	Dump	Depression era or later
Silver Queen Mine Area		
1	Glory hole	
2	Ore chute	Depression era
3	Metal structure	Privy, modern
4	Adit & concrete foundation	Compressor room
5	Wood structure & truck chute	Collapsed; modern
Bobtail Area		
B1	Pad, cobble wall & dump	Turn-of-century
B2a	Truck ore chute	Depression era or later (Bobtail)
B2b	Truck ore chute	Depression era or later
B3a	Adit and wood trestle	Depression era or later
B3b	Wood landing/ramp	Depression era or later
B4	Concrete structure	2 room, Depression era
B5	Ore chute, ramp and adit	Starlight (?)
B6	Soledad Ext Machine Rm Fdn	Concrete foundations; post-Depression + earlier remains
B7	Cobble structure	2x4 m, no roof, no artifacts
B8	Headframe on open cut	Deadman below using cable & 55 gal drums, modern

TABLE 5: ARTIFACT CATALOG, SOLEDAD MOUNTAIN

Cat. #-	Site/Locus*	Unit/Depth	Material	#/Weight	Description
1	SC/A-2	1/0-10	Metal	5/20.9	Misc.
2	(Privy)	1/10-20	Wood	*sampled	Architectural debris
3		1/20-30	Wood	*sampled	Architectural debris
4		1/30-40	Metal	4/13.6	Misc.
5			Wood	*sampled	Architectural debris
6			Glass	1/.3	Button
7		1/40-50	Metal	7/41.1	Misc.
8			Wood	*sampled	Architectural debris
9			Paper	5/0.2	Newspaper fragments
10			Plant material	3/0.4	Fruit pit
11		1/50-60	Metal	17/50.0	Misc.
12			Wood	*sampled	Architectural debris
13			Paper	19/1.8	Newspaper fragments
14		1/60-70	Wood	*sampled	Architectural debris
15			Paper	5/.3	Newspaper fragments
16	SC/A-4	2/0-10	Metal	2/1.0	Misc.
17	(Privy)		Metal	1/2.6	Button
18			Glass	14/41.7	Misc.
19			Glass	1/55.1	Bottle base fragment
20			Glass	1/64.4	Bottle neck fragment
21			Ceramic	1/4.4	Bowl fragment
22		2/10-20	Glass	27/95.8	Misc.
23			Wood	5/13.7	Misc.
24		2/20-30	Metal	20/38.9	Misc.
25			Glass	9/32.2	Misc.
26			Ceramic	1/7.6	Bowl fragment
27			Wood	7/2.4	Misc.
28			Cork	1/.8	Stopper fragment
29		2/30-40	Metal	72/90.2	Misc.
30			Glass	43/213.8	Misc.
31			Glass	1/8.3	Bottle fragment
32			Ceramic	1/37.2	Bowl fragment
33			Ceramic	2/294.3	Bottle fragments
34			Ceramic	2/12.8	Misc.
35			Wood	62/14.7	Misc.
36			Bone	4/2.3	Faunal remains
37			Leather	5/20.5	Glove fragments
38		2/40-50	Metal	196/400.0	Misc.
39			Glass	78/548.2	Misc.
40			Glass	1/45.8	Bottle fragment
41			Glass	1/18.7	Bottle fragment
42			Glass	1/51.5	Bottle fragment
43			Glass	1/18.1	Jar fragment
44			Glass	1/33.8	Bottle fragment
45			Ceramic	1/143.5	Misc.
46			Ceramic	7/236.0	Misc.
47			Wood	47/8.1	Misc.

TABLE 5: ARTIFACT CATALOG, SOLEDAD MOUNTAIN

48			Bone	4/2.3	Faunal remains
49		2/50-60	Metal	72/248.2	Misc.
50			Glass	26/151.4	Misc.
51			Glass	1/34.7	Bottle fragment
52			Ceramic	1/7.4	Cup fragment
53			Bone	3/2.5	Faunal remains
54			Cork	2/1.7	Stopper fragments
55		2/60-70	Metal	81/159.9	Misc.
56			Glass	36/218.0	Misc.
57			Glass	7/69.0	Vessel fragment
58			Ceramic	1/6.1	Misc.
59			Wood	9/3.1	Misc.
60			Bone	4/5.9	Faunal remains
61		2/70-80	Metal	85/724.2	Misc.
62			Glass	28/110.0	Misc.
63			Glass	2/29.5	Bottle stopper
64			Glass	1/14.5	Bottle fragment
65			Wood	4/1.8	Misc.
66			Leather	25/12.4	Glove fragments
67			Cork	1/1.2	Bottle stopper
68		2/80-90	Metal	207/699.0	Misc.
69			Glass	68/342.1	Misc.
70			Glass	7/57.1	Vessel fragment
71			Glass	1/52.2	Bottle fragment
72			Glass	5/346.1	Bottle fragments
73			Ceramic	3/160.8	Misc.
74			Wood	9/4.9	Misc.
75			Leather	2/2.1	Glove fragments
76			Shell	1/.4	Button fragment
77		2/90-100	Metal	233/379.2	Misc.
78			Glass	51/414.5	Misc.
79			Glass	1/347.1	Bottle fragment
80			Glass	1/36.0	Bottle fragment
81			Glass	1/56.4	Bottle fragment
82			Glass	1/8.3	Vessel fragment
83			Glass	1/4.9	Stopper fragment
84			Glass	4/65.6	Vessel fragment
85			Ceramic	3/17.7	Misc.
86			Ceramic	1/71.7	Assay material
87			Wood	8/7.9	Misc.
88			Bone	4/16.1	Faunal remains
89			Leather	25/11.1	Glove fragments
90	SC/M	3/0-10	Metal	108/624.8	Misc.
91	(Dump)		Glass	107/1,247.1	Misc.
92			Glass	1/196.4	Bottle
93			Ceramic	10/18.9	Misc.
94			Wood	11/25.6	Misc.
95			Bone	2/24.8	Faunal remains

TABLE 5: ARTIFACT CATALOG, SOLEDAD MOUNTAIN

96			Rubber	6/19.0	Misc.	
97			Plant remains	2/5.5	Fruit pits	
98			Shell	1/.8	Button	
99		3/10-20	Metal	38/125.3	Misc.	
100			Glass	62/344.6	Misc.	
101			Ceramic	1/3.0	Misc.	
102			Wood	2/7.2	Misc.	
103			Plant remains	1/7.8	Fruit pit	
104		3/20-30	Metal	20/13.6	Misc.	
105			Glass	5/8.1	Misc.	
106	SC/O	4/0-10	Metal	190/5,104	Misc.	
107	(Privy)		Glass	42/475.9	Misc.	
108			Ceramic	18/382.0	Misc.	
110			Bone	45/73.9	Faunal remains	
111		4/10-20	Metal	57/92.0	Misc.	
112			Glass	36/417.7	Misc.	
113			Glass	1/14.0	Bottle fragment	
114			Ceramic	10/286.5	Misc.	
115			Wood	3/5.4	Misc.	
116			Bone	10/16.3	Faunal remains	
117			Leather	1/.5	Glove fragment	
118	SC/A	Surface	Glass	3/113.4	Misc.	
119			Glass	1/30.4	Bottle fragment	
120			Glass	1/9.8	Bottle fragment	
121			Ceramic	1/127.6	Saucer fragment	
122			Ceramic	1/102.9	Plate fragment	
123			Leather	1/128.7	Shoe fragment	
124			Leather	1/60.8	Shoe fragment	
125			Leather	1/178.4	Shoe fragment	
126	SC/A-2	Surface	Metal	1/71.3	Iron fragment	
127			Metal	1/19.6	Spoon	
128			Glass	1/23.2	Bottle fragment	
129			Glass	1/223.8	Bottle fragment	
130	SC/D	Surface	Glass	2/569.8	Insulators	
131			Ceramic	1/1.1	Misc.	
132	SC/F	Surface	Glass	1/191.3	Bottle fragment	
133			Glass	1/104.9	Bottle fragment	
134			Glass	1/296.8	Bottle fragment	
135			Ceramic	1/237.8	Plate fragment	
136			Ceramic	1/192.3	Saucer fragment	
137			Ceramic	1/73.7	Cup fragment	
138			Ceramic	1/240.7	Plate fragment	
139			Ceramic	1/67.1	Bowl fragment	
140			Ceramic	1/3.1	Fragment w/ mark	
141			Ceramic	1/9.4	Fragment w/ mark	
142			Ceramic	1/1.4	Fragment w/ mark	
143	SC/H	Surface	Metal	1/9.8	Bullet shell	
144			Ceramic	7/61.2	Misc.	

TABLE 5: ARTIFACT CATALOG, SOLEDAD MOUNTAIN

145			Ceramic	1/4.8	Fragment w/ mark
146	SC/I	Surface	Metal	1/3.8	Bottle cap
147			Metal	1/89.7	Thermostat
148			Glass	4/304.3	Misc.
149			Ceramic	1/23.8	Misc.
150	SC/O	Surface	Metal	1/10.3	Clock mechanism
151			Glass	1/104.1	Bottle fragment
152			Glass	3/103.9	Misc.
153	SC/Reymert	Surface	Glass	1/115.0	Bottle fragment
154	Echo Mill	1/0-10	Metal	8/43.8	Misc.
155	(Assay dump)		Glass	12/33.3	Misc.
156			Glass	2/66.3	Bottle fragments
157			Ceramic	55/906.3	Assay debris
158			Ceramic	1/150.0	Crucible fragment
159			Slag	11/29.3	Assay debris
160		1/10-20	Metal	7/10.5	Misc.
161			Glass	20/10.4	Misc.
162			Glass	1/.5	Stirring rod fragment
163			Ceramic	52/561.8	Assay debris
164			Ceramic	1/202.8	Crucible fragment
165			Slag	34/47.9	Assay debris
166		1/20-30	Metal	5/31.8	Misc.
167			Glass	14/47.0	Misc.
168			Ceramic	49/704.7	Assay debris
169			Slag	6/7.2	Assay debris
170	Echo Mill	2/0-10	Metal	1/.7	Misc.
171	(Privy)		Glass	16/28.9	Misc.
172			Glass	1/2.6	Bottle fragment
173			Ceramic	1/1.1	Assay debris
174		2/10-20	Glass	20/37.5	Misc.
175			Ceramic	1/3.9	Misc.
176			Slag	10/11.4	Assay debris
177		2/20-30	Metal	3/16.8	Misc.
178			Metal	1/3.6	Bullet cartridge
179			Glass	5/2.5	Misc.
180			Wood	1/2.1	Misc.
181		2/30-40	Metal	6/4.1	Misc.
182			Glass	11/5.1	Misc.
183			Shell	1/.3	Button
184			Slag	1/5.5	Assay debris
185		2/40-50	Metal	2/.9	Misc.
186			Glass	10/5.2	Misc.
187			Ceramic	1/8.2	Assay debris
188	Echo Mill	Surface	Glass	1/124.1	Bottle fragment
189			Glass	1/16.7	Bottle fragment
190			Glass	1/140.1	Bottle fragment
191			Glass	1/124.9	Bottle fragment
192			Glass	2/70.2	Jar fragments

TABLE 5: ARTIFACT CATALOG, SOLEDAD MOUNTAIN

193			Glass	1/36.7	Bottle fragment
194			Glass	3/148.0	Misc.
195	Echo/Assay Of	Surface	Glass	1/67.7	Bottle
196			Glass	1/26.8	Bottle fragment
197			Glass	1/27.5	Bottle fragment
198			Glass	1/15.9	Stopper fragment
199			Glass	1/43.5	Bottle fragment
200			Ceramic	3/543.4	Assay debris
201	QER/H-1	1/0-10	Metal	57/285.8	Misc.
202	(Privy)		Glass	35/163.0	Misc.
203			Ceramic	4/10.2	Misc.
204			Wood	12/7.7	Misc.
205			Leather	4/23.4	Misc.
206		1/10-20	Metal	61/100.1	Misc.
207			Glass	12/47.5	Misc.
208			Ceramic	1/1.1	Misc.
209			Wood	4/3.8	Misc.
210			Bone	21/26.7	Faunal remains
211			Leather	19/15.5	Misc.
212		1/20-30	Metal	27/33.0	Misc.
213			Glass	8/17.4	Misc.
214			Wood	5/2.9	Misc.
215			Bone	5/5.2	Faunal remains
216			Leather	18/7.9	Misc.
217	QER/H-1	2/0-10	Metal	31/92.4	Misc.
218	(East rm floor)		Glass	2/2.1	Misc.
219			Wood	28/19.8	Misc.
220			Bone	1/2.9	Faunal remains
221			Shell	1/1.1	Button
222	QER/J-1	3/0-10	Metal	2/232.1	Misc.
223	(Privy)		Glass	9/30.9	Misc.
224		3/10-20	Metal	37/85.9	Misc.
225			Glass	100/311.9	Misc.
226			Glass	1/69.1	Bottle fragment
227			Glass	1/20.2	Molded fragment
228			Wood	10/8.2	Misc.
229			Leather	4/28.4	Shoe fragments
230			Bone	5/23.7	Faunal remains
231			Plant material	2/2.1	Fruit pits
232		3/20-30	Metal	26/22.1	Misc.
233			Glass	14/37.3	Misc.
234	QER/J-1	4/0-10	Glass	3/152.7	Misc.
235	(Kitchen floor)		Bone	1/266.0	Faunal remains
236			Plant remains	2/1.9	Fruit pits
237	QER/M-1	5/0-10	Metal	54/51.2	Misc.
238	(Privy)		Glass	6/12.9	Misc.
239			Wood	5/2.2	Misc.
240			Leather	4/1.3	Misc.

TABLE 5: ARTIFACT CATALOG, SOLEDAD MOUNTAIN

241		5/10-20	Metal	26/14.9	Misc.	
242			Glass	13/33.2	Misc.	
243		5/20-30	Metal	42/47.9	Misc.	
244			Glass	2/1.6	Misc.	
245			Leather	17/32.9	Misc.	
246			Metal	3/7.4	Buttons	
247		5/30-40	Metal	38/28.6	Misc.	
248			Leather	3/134.7	Shoe	
249	QER/V	6/surface	Metal	37/75.3	Misc.	
250	(Dump)	6/0-10	Metal	221/236.2	Misc.	
251			Glass	2/9.6	Misc.	
252			Ceramic	1/18.2	Misc.	
253			Fabric	27/3.3	Misc.	
254			Shell	1/.7	Button	
255		6/10-20	Metal	29/31.8	Misc.	
256			Glass	6/64.2	Misc.	
257	QER/V-2	7/0-10	Metal	2/35.4	Misc.	
258	(Pad)		Glass	2/52.4	Misc.	
259	QER/V-3	8/0-10	Metal	7/169.2	Misc.	
260	(Privy)		Wood	6/6.1	Misc.	
261			Bone	3/4.8	Faunal remains	
262		8/10-20	Metal	4/8.7	Misc.	
263		8/20-30	Metal	3/5.4	Misc.	
264			Bone	2/8.7	Faunal remains	
265	QE/Assay D.	1/Surface	Ceramic	93/2000.8	Assay debris	
266			Slag	3/7.6	Assay debris	
267		1/0-10	Ceramic	239/2958.9	Assay debris	
268		1/10-20	Ceramic	52/977.8	Assay debris	
269		Surface	Ceramic	1/68.6	Crucible frag.	
270			Slag	1/47.2	Slag button	
271			Slag	1/30.9	Slag button	
272			Dore	1/76.2	Dore debris	
273	QER/C-1	Surface	Metal	34/334.3	Misc.	
274			Glass	23/897.6	Misc.	
275			Ceramic	16/157.8	Misc.	
276	QER/G-1	Surface	Ceramic	1/63.1	Electrical insulator	
277-S.A. #1	QER/H-1	Surface	Metal	3/6.1	Misc.	
278-S.A. #2			Metal	1/885.7	Stove fragment	
279-S.A. #3			Metal	1/359.8	Coffee pot	
280-S.A. #3			Glass	3/319.0	Misc.	
281	QER/I-1	Surface	Glass	1/33.7	Bottle fragment	
282-S.A. #1	QER/J-1	Surface	Metal	5/31.3	Misc.	
283-S.A. #2			Glass	3/150.9	Misc.	
284-S.A. #3			Metal	3/180.3	Misc.	
285-S.A. #4			Metal	3/56.1	Misc.	
286-S.A. #4			Glass	1/165.6	Bottle base	
287	QER/K-1	Surface	Metal	2/134.0	Misc.	
288			Glass	1/ 324.7	Misc.	

TABLE 5: ARTIFACT CATALOG, SOLEDAD MOUNTAIN

289	QER/L-1	Surface	Metal	6/17.0	Buttons	
290-S.A. #1	QER/M-1	Surface	Metal	1/164.7	Stove burner	
291-S.A. #1			Glass	1/133.2	Glass insulator	
292-S.A.#2			Metal	1/2.7	Snap	
293-S.A.#2			Glass	1/.5	Misc.	
294	QER/N-1	Surface	Glass	14/872.2	Misc. bottle fragments	
295			Glass and shell	2/1.7	Buttons	
296	QER/O-1	Surface	Glass	2/160.1	Misc.	
297	QER/S-2	Surface	Metal	7/65.3	Misc.	
298			Glass	14/648.1	Misc.	
299	QER/T	Surface	Metal	6/270.2	Misc.	
300			Glass	2/119.5	Misc.	
301			Ceramic	2/23.6	Misc.	
302	QER/U	Surface	Metal	1/4.1	Button	
303	QER/V	Surface	Glass	9/599.8	Misc.	
304			Ceramic	8/508.4	Misc.	
305			Ceramic	1/138.3	Crucible fragment	
306	QER/V-1	Surface	Metal	8/78.0	Misc.	
307			Glass	6/196.2	Misc.	
308			Ceramic	5/28.4	Misc.	
309	QER/V-2	Surface	Glass	1/74.7	Jar fragment	
310			Ceramic	2/615.2	Plate fragments	
311	QER/V-3	Surface	Glass	1/120.6	Bottle fragment	
312			Glass	1/1.6	Bottle fragment	
313	QER/W	Surface	Metal	4/188.4	Misc.	
314	QE/Assay Of.	Surface	Metal	1/307.3	Furnace plate	
315	QE/Mill	Surface	Metal	11/723.5	Misc.	
316			Glass	19/1830.8	Misc.	
317			Ceramic	4/131.0	Misc.	
318			Slag	1/31.7	Assay button	
319			Shell	2/1.1	Buttons	
320	Karma/Assay1	1/0-10	Metal	18/118.6	Misc.	
321			Glass	19/108.5	Misc.	
322			Ceramic	1/1.4	Misc.	
323			Wood	12/11.8	Misc.	
324			Slag	13/18.1	Assay debris	
325		Workbench	Dore	32/32.4	Assay debris	
326			Metal	1/1.2	Funnel	
327	Karma/Assay2	Surface	Slag and Dore	2/74.2	Assay buttons	
328		Dump-surface	Ceramic	6/669.4	Assay debris	
329			Ceramic	1/64.8	Porcelain frag.	
330			Slag	2/50.7	Assay buttons	
331	Karma/Mill	Surface	Metal	3/590.2	Misc.	
332			Glass	3/15.7	Misc.	
333	SC/A-4	Surface	Glass	1/1.0	Bead	
334	Independant	Surface	Metal	1/174.9	Drill bit	
335	QE Mill	Surface	Metal	1/222.3	Drill bit	

TABLE 5: ARTIFACT CATALOG, SOLEDAD MOUNTAIN

	*KEY:					
		SC - CA-KER-4447H (Wegmen)				
		QER - CA-KER-4446H (Cobble City)				
		QE - CA-KER-4449H (Queen Esther Mill)				
		Karma/Assay1 = Upper Assay Building				
		Karma Assay2 = Lower Assay Dump				

TABLE 6: METAL ARTIFACTS

Catalog #	#/wt (gms)	Description
(Site/Feature)		
SC/Wegman		
SC/A-2 (Unit 1)		
1	5/20.9	Wire cut nails.
4	4/13.6	Wire cut nails.
7	7/41.7	Wire cut nails.
10	17/50.0	Wire cut nails.
SC/A-4 (Unit 2)		
16	2/1.0	Misc. non-i.d.
24	20/38.9	4 wire cut nails, 1 bicycle spoke, 16 can fragments.
29	72/90.2	5 wire cut nails, 5 wire fragments, 2 pieces foil, 2 metal bands, ? i.d., 54 can fragments, 4 non-i.d.
38	196/400.0	2 wire cut nails, 1 eyelet, 1 champagne bottle wire cork cover, 185 can fragments, 7 non-i.d.
49	72/248.2	2 wire nails, 1 hand-hewn nail, 2 wire fragments, 67 can fragments, 1 non-i.d.
55	81/159.9	6 wire cut nails, 3 wire fragments, 68 can fragments, 3 non-i.d.
61	85/729.2	2 large wire cut nails, 1 large metal band, 1 metal fruit jar type lid, 78 can fragments
68	207/699.0	5 wire cut nails, 5 wire fragments, 2 eyelets, 1 bullet cartridge marked with an "E P" on the base, 1 piece foil,190 can fragments, 3 non-i.d.
77	233/379.2	4 wire cut nails, 4 wire fragments, 220 can fragments, 5 non-i.d.
SC/M (Unit 3)		
90	108/624.8	21 wire cut nails, 3 pieces wire, 7 rectangular tobacco tin fragments, 2 key type can openers, 2 washers, 1 small metal ring, 1 piece decorative cast-iron- decorative, 2 jar lids, i piece of a lock mechanism, 2 hole-in-top milk cans (6.0x6.5x6.5), 1 ? i.d. hole-in-top can (10.8x7.8x7.5), 3 pieces foil, 1 non-i.d. metal band
99	38/25.3	2 wire cut nails, 1 eyelet, 1 flat handle, 1 screw, 33 can fragments
104	20/13.6	19 can fragments, 1 fence staple
106	190/5104.0	18 wire cut nails, 1 large nut, 1 rivet, 2 crimped bottle caps, 25 pieces wire mesh screen, 5 pieces wire, 63 hole-in-top cans: 31- 11.0x7.5x7.5, 5- 11.5x10.0x10.0, 2- 10.0x8.0x1.0, 25- ? dimensions, 75 non-i.d. can fragments
111	57/92.0	7 wire cut nails, 8 pieces screen, 42 can fragments
SC/A-2 (Surface)		
126	1/71.3	Ornate, cast-iron door hinge fragment
127	1/19.6	Spoon, mark on back of handle- "WI" over "VI"
SC/H (Surface)		
143	1/9.8	Bullet cartridge with mark on base- "W.R.A.Co., 32 W.8."
SC/I (Surface)		
146	1/3.8	Bottle top with mark- a star surrounded by lettering, largely illegible, "....Angeles S..."
147	1/89.7	Thermostat cover with thermometer
SC/O (Surface)		
150	1/10.3	Small cogged wheel- clock mechanism

TABLE 6: METAL ARTIFACTS

Echo Mill (Unit 1)		
154	8/43.8	1 hand-hewn nail, 1 washer, 6 misc. non-i.d. fragments
160	7/10.5	Misc. non-i.d.
166	5/31.8	Misc. non.-i.d.
170	1/.7	Misc. non-i.d.
177	3/16.8	1 wire cut nail, 2 non-i.d.
178	1/3.6	Bullet cartridge with mark- "U.M.C. S H .38 LONG."
181	6/4.1	Misc. non-i.d.
185	2/.9	Misc. non-i.d.
QER/Cobble City		
QER/H-1 (Unit 1)		
201	57/285.8	18 wire cut nails, 37 can fragments, 2 shotgun shell cartridges
206	61/100.1	16 wire cut nails, 5 screw fragments, 1 piece wire, 3 eyelets, 38 can fragments
212	27/33.0	5 wire cut nails, 2 pieces window screen, 20 can fragments
QER/H-1 (Unit 2)		
217	31/92.4	25 wire cut nails, 9 can fragments
QER/J-1 (Unit 3)		
222	2/232.1	2 hole-in-top cans
224	37/85.9	2 wire cut nails, 2 wire fragments, 1 button, 31 can fragments, 1 non-i.d.
232	26/22.1	3 pieces screen, 23 can fragments
QER/M-1 (Unit 5)		
237	54/51.2	2 pieces screen, 1 eyelet, 52 can fragments
241	26/14.9	26 can fragments
243	42/47.9	42 can fragments
246	3/7.4	Buttons
247	38/28.6	38 can fragments
QER/V (Unit 6)		
249	37/75.3	Can fragments
250	221/236.2	32 pieces screen, 187 can fragments
255	29/31.8	Can fragments
QER/V-2 (Unit 7)		
257	2/35.4	2 large wire cut nails
QER/V-3 (Unit 8)		
259	7/169.2	7 fragments of a large "paint-type" can
262	4/8.7	3 wire cut nails, 1 can fragment
263	3/5.4	1 hand-hewn nail, 1 snap fragment, 1 buckle fragment
QER/C-1 (Surface)		
273	34/334.3	6 pieces of clockwork mechanism, 2 wire cut nails pushed through metal discs - roofing nails, 1 garter-holder ("Velvet Grip, Boston Garter, Pat. 12-13-92, c. 12-31-95"), 1 button, 2 jar lids ("Genuine Boyd Cap for Mason Jars" with a crescent moon and star in the center), 1 cosmetic jar lid with mark- "Mrs. Nellie(?) Harrison, San Francisco, Cal." around edge with a woman's profile in the center over "Dermatologist", 1 jar lid with mark- "Schilling's Best, 16 oz.", 1 champagne cork holder, 1 crimped bottle cap, 1 cast-iron hinge fragment, 1 electrical object (? i.d.), 2 corset stays, 1 kitchen knife, 2 ledger hook stays, 6 non-i.d.

TABLE 6: METAL ARTIFACTS

QER/H-1 (Surface)		
277	3/6.1	2 buttons, 1 cover-all bib clip
278	1/885.7	Ornate cast-iron stove leg
279	1/359.8	Coffee pot
QER/J-1 (Surface)		
282	5/31.3	1 screw-on bottle top, 1 pocket watch cover, 3 buttons
284	3/180.3	1 ? i.d. ornate cast-iron fragment, 1 pulley, 1 conveyor belt clip
285	3/56.1	3 conveyor belt clips
QER/K-1 (Surface)		
287	2/134.0	2 chest latches
QER/L-1 (Surface)		
289	6/17.0	Buttons
QER/M-1 (Surface)		
290	1/164.7	Stove burner, kerosene
292	1/2.7	Clothing snap
QER/S-2 (Surface)		
297	7/65.3	2 pocket watch parts, 1 with inscribed markings- "Mfg. by the Ansonia Clock Co., New York, U.S. of America, Pat. April 17, 1888", 2 fragments of an engineering scale, 2 washers, 1 bullet cartridge with mark-"W.R.A. Co. 32 W.C.F."
QER/T (Surface)		
299	6/270.2	1 electrical lamp socket, 2 auto spark plugs (metal and porcelain), 1 faucet key, 1 large fence staple, 2 buttons
QER/U (Surface)		
302	1/4.1	Button
QER/V-1 (Surface)		
306	8/98.0	3 crimped bottle caps, 1 champagne cork holder, 1 rectangular cap, 1 salt and pepper top, 1 bent thick wire handle, 1 coiled wire spring
QER/W (Surface)		
313	4/188.9	2 washers, 1 safety pin, 1 cast-iron ? i.d. object
QE/Assay Office (Surface)		
314	1/307.7	Muffel furnace cast-iron plate with mark, "Pat June 16 1886"
QE/Mill (Surface)		
315	11/723.5	7 buttons, 2 electrical light-bulb sockets, 1 canteen, 1 bullet cartridge with mark "U.M.C. 32 S&W"
Karma/Assay1 (Unit 1)		
320	18/118.6	4 wire cut nails, 1 large screw, 1 large nut, 1 buckle fragment, 11 can fragments
326	1/1.2	Small funnel
Karma/Mill (Surface)		
331	3/590.2	1 large hand-hewn metal bar, a large hand-hewn nail, 1 bullet cartridge with mark- "U.S.C. Co. Gov."
Independant (Surface)		
334	1/174.9	Lubricated chisel type drill bit
QE/Mill (Surface)		
335	1/222.3	Lubricated star type drill bit

TABLE 7: CERAMIC ARTIFACTS

Catalog # (Site/Feature)	#/wt (gms)	Description
SC/Wegmen		
SC/A-4		
21	1/4.4	Creamware bowl fragment with a scalloped edge.
26	1/7.6	Creamware bowl fragment, base.
32	1/37.2	Creamware bowl fragment with portion of mark- "...N", over an arrow.
33	2/294.3	Fragments of an earthenware crock with a handle at the neck, like that commonly used for whiskey; dark brown glaze with an unglazed ring around the shoulder.
34	2/12.8	Creamware fragments.
45	7/236.0	5 pieces of creamware fragments; 2 pieces of earthenware crock, probably associated with cat. #33.
46	1/143.5	Ironstone fragment with mark- "K.T.&K." (Knowles, Taylor, Knowles) - Mark used after 1905 (DeBolt 1988).
52	1/7.4	Whiteware cup fragment with a gold transfer print pattern along the interior rim.
58	1/6.1	Creamware fragment
73	3/160.8	1 whiteware cup fragment; 2 earthenware fragments with brown glaze (probably part of #33).
85	3/17.7	1 whiteware cup fragment, 1 creamware cup fragment, 1 crock fragment.
SC/M		
93	10/18.9	7 pieces whiteware, 3 with floral transfer print, 1 with a green glaze; 2 pieces of porcelain cups, 1 with a red transfer print, 1 with an irridescent blue band; 1 piece of a porcelain insulator.
SC/O		
101	1/3.0	Creamware fragment
108	18/382.0	15 ironstone fragments; 3 brown-glazed earthenware crock fragments.
114	10/286.5	6 pieces, thick-walled ironstone, 1 yellow glazed creamware, 1 white porcelin fragment, 2 fragments of brown glazed earthenware.
SC/O		
121	1/127.6	Ironstone saucer fragment with mark- "K.T.&K." under "Semi-vitreous", dates to post 1905 (Praetzellis et. al. 1983).
122	1/102.9	Ironstone plate fragment with a mark- "K.T.&K." over "s-v" over "China", dates to 1890-1910 (Praetzellis et. al. 1983)
SC/D		
131	1/1.1	Porcelain fragment with a blue transfer print design.
SC/F		
135	1/237.8	Ironstone plate fragment with a mark- "K.T.&K." over "China", dates to 1890-1910 (Gates and Ormerod 1982:125).
136	1/192.3	Ironstone saucer fragment with a stamped mark- illegible.
137	4/73.7	4 whiteware cup fragments with red transfer print pattern covering the exterior.
138	1/240.7	Ironstone plate fragment with scalloped rim and mark- "Ironstone China" over a rampant lion and horse, over "J.&G. Meakin, Hanley. England", dates to 1875-1883 (Praetzellis et. al. 1983:57).
139	1/67.1	Ironstone bowl fragment with mark- "Semi-Vitreous" over "K.T.&K.", dates to 1890-1910 (Praetzellis et. al. 1983).

TABLE 7: CERAMIC ARTIFACTS

140	1/3.1	Ironstone plate fragment with mark- rampant lion and horse under "Iron-
		stone", dates to 1891-1925. W.H. Grindley & Co., England,
		(Praetzellis et. al. 1983:41)
141	1/9.4	Ironstone plate fragment with mark- "Warranted" over a crest with a pedi-
		ment over a shield; from the D.E. McNichol Pottery Co., dating to 1892-1910
		(Gates and Ormerod 1982:186).
142	1/1.4	Small ironstone fragment with portion of mark- similar to mark used
		by Knowles, Taylor and Knowles from 1890-1907
		(Gates and Ormerod 1982:119).
SC/H		
144	7/61.2	4 pieces of shallow creamware bowl with a transfer print pattern on the
		interior in black of leaves and flowers; 1 piece of whiteware with a raised
		pattern along the rim (plate fragment); 1 piece of a creamware bowl (large
		size) with raised pattern on exterior and cream and green glaze;
		electrical insulator fragment of white porcelain.
145	1/4.8	Small fragment of whiteware with a portion of a mark- "HOP" over "Semi-
		porcelain" over a portion of a design which includes the top of a crown
SC/I		
149	1/23.8	Ironstone bowl fragment, white with a green patterned glaze on the exterior
		and a scalloped rim.
Echo Mill		
175	1/3.9	Creamware fragment
QE/Cobble City		
QE/H-1		
203	4/10.2	4 pieces creamware- green, white and blue striped pattern on exterior,
		white interior (painted glaze)
208	1/1.1	Piece of glazed creamware with pattern similar to #203.
252	1/18.2	Ironstone plate fragment, no mark.
QER/C-1		
275	16/157.8	5 pieces of whiteware with a floral transfer print; 6 pieces porcelain, 2 w/
		a dark-green transfer print, 1 with a handpainted orange stripe, also 1 tiny
		"doll-sized" plate fragment; 6 pieces creamware and ironstone, 3 with
		marks- 1 "Societe Ceramique Muistricht" surrounding a rampant lion over
		"Made in Holland", 1 "K.T.&K." mark dating to1890-1907 (Praetzellis, et. al.
		1983:47), 1 with an "A.J. Wilkenson" mark, dating to 1885-1896 (Praet-
		zellis et. al. 1983:80); 2 pieces brown glazed earthenware.
QER/G-1		
276	1/63.1	Porcelain electrical insulator fragment.
QER/T		
301	2/23.6	1 porcelain spark plug fragment, 1 porcelain electrical insulator fragment.
QER/V		
304	8/508.4	5 pieces ironstone, 1 with ornate, multicolored transfer print around the
		rim with the fragment of a stamped mark- a crown over "C.P.C.", from the
		Crown Pottery Co., Evansville, Indiana, dating to ca. 1910 (DeBolt 1988:25),
		this crown pattern was limited to dinnerware, 1 with "K.T.&K." over three
		lines (one with "s-v") over "China" dating to 1905-1929 (Praetzelllis et. al.
		1983:49); 1 piece porcelain with a floral transfer print; 2 pcs earthenware
		with buff glaze, 1 stamped with a mark- "Macomb Stone..." in a circle with

TABLE 7: CERAMIC ARTIFACTS

		part of a "2".
QER/V-1		
308	5/28.4	2 pieces whiteware, both with raised pattern of dots along the external rim;
		3 pieces porcelain, 2 hand-painted with a "Chinese" house pattern in multi-
		colors, 1 with a floral transfer print.
QER/V-2		
310	2/615.2	2 fragments of a creamware plate with a blue glaze.
312	1/1.6	Dental partial plate.
QE/Mill		
317	4/131.0	3 pieces of a porcelain electrical insulator; 1 fragment of a scorifier.
Karma/Assay1		
322	1/1.4	Piece of thin-walled porcelain.
Karma/Assay2		
329	1/64.8	Fragment of an unknown object, a cup-like form with small perforations
		through a middle plate; hand-painted in a floral pattern with gold high-
		lights.

TABLE 8: ASSAY DEBRIS

Catalog #	#/wt (gms)	Description
Echo Mill - Assay Dump Excavation & surface Collection		
157	55/906.3	47 crucible fragments, 8 cupule fragments
159	11/29.3	Slag button fragments.
163	52/561.8	44 crucible fragments, 8 cupule fragments
164	1/202.8	Crucible fragment with stamped mark on bottom- "Denver Clay Co", over "20"
165	34/47.9	Slag button fragments.
168	49/704.7	42 crucible fragments, 7 cupule fragments
169	6/6.7	Slag button fragments.
173	1/1.1	Crucible fragment
176	10/11.4	Slag button fragments.
184	1/5.5	Slag button fragments.
187	1/8.2	Crucible fragment
200	3/543.4	Crucibles, 2 with stamped marks on the bottom- "Denver Fire Clay", "20".
Queen Esther Mill/Assay Excavation		
265	93/2,000.8	11crucible fragments, 3 with embossed marks-"BATTERSEA WORKS",
		"ENGLAND", "20 Grams"; 1 with a stamped mark- "Denver Fire Clay Co",
		over "30".
266	3/7.6	Slag button fragments.
267	239/2,958.9	7 crucible fragments, 49 cupules and fragments.
268	52/977.8	3 crucible fragments, 49 cupules and fragments.
269	1/68.6	Crucible with slag button in place.
270	1/47.2	Complete slag button.
271	1/30.9	Complete slag button.
272	1/76.2	Dore' "bar" composed of accumulated run-off from beneath floor boards.
Queen Esther Mill - Assay Office Area		
317	1/210.2	Scorifier fragment.
318	1/31.7	Complete slag button.
Cobble City - QER/V		
305	1/138.3	Crucible fragment with embossed mark- "BATTERSEA WORKS", "ENGLAND",
		"20 Grams".
Karma Mill - Upper Karma Assay Office (Unit 1)		
324	13/18.1	Slag button fragments.
325	32/32.4	Dore' buttons.
Karma Mill Lower Assay Surface Scatter		
327	2/74.2	Slag and Dore' button fragments.
328	6/669.4	3 crucibles, 1 with embossed mark- "BATTERSEA WORKS", "ENGLAND",
		"30 Grams", and 3 cupules.
330	2/50.7	2 complete slag buttons.

TABLE 9: GLASS ARTIFACTS

Catalog #	#/wt (gms)	Description
(Site/Feature)		
SC/Wegman		
SC/A-4		
18	14/41.7	Misc. fragments- 6 clear, 2 amber, 1 blue, 5 lavender.
19	1/55.1	Amber bottle-base fragment w/ portion of a mark- a "9" and a "2" with an
		oval enclosing a diamond in between.
20	1/64.4	Dark green bottle neck fragment, type b (Champagne).
22	27/95.8	Misc. fragments-10 clear, 7 dark green, 1 blue, 9 lavender.
25	9/32.2	Misc.fragments- 3 clear, 3 dark green, 1 milk, 3 lavender.
30	43/143.2	Misc. fragments- 19 clear, 2 dark green, 10 amber, 2 blue, 1 milk, 9 lavender
31	1/8.3	Pale lavender molded bottle shoulder fragment; vessel appears to have been
		rectangular with fluting on the short sides.
39	78/548.2	Misc. fragments- 26 clear, 11 dark green, 15 amber, 14 light green, 1 blue,
		13 lavender
40	1/45.8	Lavender French barrel mustard bottle (type ff) fragment (Wilson 1981:110).
41	1/18.7	Amber bottle base with mark- "P.D.&Co." over "10" over "19".
42	1/51.5	Pale lavender bottle neck fragment, "Blake" style (type r).
43	1/18.1	Milk glass cosmetic jar.
44	1/33.8	Amber beer bottle shoulder fragment.
50	26/151.4	Misc. fragments- 8 clear, 7 dark green, 3 amber, 5 light green, 1 milk,
		2 lavender.
51	1/34.7	Lavender bottle neck- type c (Brandy).
56	36/218.0	Misc. fragments- 15 clear (including 1 piece window glass), 9 dark green,
		2 amber, 5 light green, 4 blue, 4 lavender.
57	7/69.0	Clear, molded glass fragments, very thick and flat with a cut-glass pattern
		of starbursts; unknown vessel shape or type.
62	28/110.0	Misc. fragments- 16 clear, 2 dark green, 7 amber, 1 light green, 1 blue,
		1 lavender.
63	2/29.5	Clear bottle stopper, medicine bottle type.
64	1/14.5	Small clear glass rectangular bottle fragment with portion of a mark molded
		onto the base- ".....IAMONO.....", on the outer portion of a circle, over
		".....MADE IN.....", also in a circle.
69	69/342.1	Misc. fragments- 6 clear (1 window), 9 dark green, 17 amber, 23 light
		green, 1 blue, 13 lavender.
70	7/57.1	Clear, molded glass, probably part of #57.
71	1/52.2	Amber bottle base fragment with portion of a molded mark- "SPRUA...."
		around "WH....", "SAC....", and "LIQUOR.....".
72	5/346.1	Clear rectangular bottle fragments with molded lettering on the side-
		"Gordon's Dry Gin", "England".
78	51/414.5	Misc. fragments- 9 clear, 8 amber, 5 dark green, 12 light green, 7 lavender.
79	1/347.1	Lavender, thick walled bottle neck fragment with molded lettering around
		the sides at the base- "Shasta Water Co."; molded- 2 seams.
80	1/36.0	Lavender bottle base.
81	1/56.4	Lavender bottle neck, type c (Brandy).
82	1/8.3	Clear thin-walled drinking vessel with incised rim.
83	1/4.9	Lavender glass bottle-stopper fragment; molded lettering on top of flat
		disc-shaped handle- "Canad.....", and "...SEPT....".

TABLE 9: GLASS ARTIFACTS

84	4/65.6	Thick, molded clear glass fragments, probably associated with vessel #57.
91	107/1,247.1	Misc. fragments- 47 clear (including 22 pieces from screw top vessels),
		7 dark green, 29 amber, 9 light green, 6 blue, 2 milk, 5 lavender, 2 clear
		with blue paint on the exterior, 1 with small blue stars.
SC/M		
92	1/196.4	Clear, molded glass screw-top bottle with printed lettering on the side
		(decal)- "Sweet Relish"; rough outline of label is similar to that used by the
		Heinz Co.
100	62/344.6	Misc. fragments- 42 clear (including one Ball jar fragment), 2 dark green,
		5 amber, 5 light green, 5 blue, 1 milk with red painted lettering (illegible).
105	5/8.1	Misc. fragments- 5 clear.
SC/O		
107	42/475.9	Misc. fragments-15 clear, 6 dark green, 14 amber, 6 light green, 14 lavender.
112	36/417.7	Misc. fragments- 11 clear, 5 dark green,12 amber, 3 light green, 5 lavender.
113	1/14.0	Amber bottle neck, type g (Patent/extract); molded, with seam running
		up neck and onto side of lip.
SC/A		
118	3/113.4	Misc.fragments- 2 lavender, 1 milk- fragment of a flat lid of a cosmetic
		jar.
119	1/30.4	Light green bottle neck, type d (Beer).
120	1/9.8	Dark green bottle neck, type c (Brandy).
SC/A-2		
128	1/23.2	Light green base fragment with portion of a molded mark- "A.B.Co.".
129	1/223.8	Light green fragment of a square shaped bottle with a portion of a molded
		mark- "GORDON'S DRY GIN, ENGLAND".
SC/D		
130	2/569.8	2 light green electrical insulator fragments, one with a molded mark-
		"Hemingway".
SC/F		
132	1/191.3	Clear, octagonal bottle base with molded mark- "Libby's" on side.
133	1/104.9	Clear, rectangular bottle base with molded mark on bottom- "A Winarich....",
		and "USA".
134	1/296.8	Amber beer bottle type neck; molded with 2 seams and mark on bottom-
		"W F & S", "T 1", "MIL".
SC/I		
148	4/303.3	Misc. fragments with marks- 1 clear jar/bottle base with "Best Foods",
		above "Registered"; 1 light green bottle base with "AB" and "S?"; also
		1 amber jug type bottle with handle at neck and screw on top; milk glass
		jar base with molded mark- "Menley-James, New York, London, Made in USA".
SC/O		
151	1/104.1	Clear bottle base with molded mark on base, printed in reverse- "No. 77,
		Pat. in U.S., Dec. 22 1803, July 17 1808, E2".
152	3/103.9	Purple bottle base, bottle would have been ovoid in profile; light blue jar
		rim, screw top; small fragment of clear glass with "....INGHA....", molded
		onto side of vessel.
SC/Raymert		
153	1/115.0	Dark green bottle neck fragment type b (Champagne).

TABLE 9: GLASS ARTIFACTS

Echo Mill		
155	12/33.3	Misc. fragments- 6 clear (4 thin-walled vessel, 2 window), 5 dark green, 1 lavender.
156	2/66.3	Fragments of a lavender rectangular Blake (type r) bottle.
161	20/10.4	Misc. fragments- 20 clear (12 thin-walled vessel, 8 window).
162	1/.5	Fragment of a clear glass chemical stirring rod.
167	14/47.0	Misc. fragments- 7 clear (3 vessel fragments, 4 window), 3 dark green, 4 lavender.
171	16/28.9	Misc. fragments- 10 clear, 6 amber.
172	1/2.6	Clear bottle neck with Crown type top.
174	20/37.5	Misc. fragments- 6 clear, 6 amber, 8 lavender.
179	5/2.5	Misc. fragments- clear.
182	11/5.1	Misc. fragments- 9 clear, 2 amber.
188	1/124.1	Clear bottle neck, type c (Brandy), with a metal collar around the neck below the lip; with raised markings- "Gooderham and Worts - Limited", over "Toronto", "Registered".
189	1/116.7	Large, thick-walled amber bottle neck with type i (Oil) top.
190	1/140.1	Clear bottle base, molded (2 seams), with molded mark "Gooderham & Worts", "Toronto Canada, Limited".
191	1/124.9	Clear bottle base with cross-hatched pattern around rim, "Liquor Bottle" mark in center.
192	2/70.2	Bright green jar/bottle fragments, one is from a vessel lid with a knob-type top, both are molded.
193	1/36.7	Small, rectangular bottle base with molded lettering on side- "Chili Powder".
194	3/148.0	Light green bottle fragments- 1 neck, type l (Club sauce); 1 base fragment, 1 base fragment with "R&CO" over "23".
Echo Assay		
195	1/67.7	Purple glass spherical atomizer; molded (2 seams), with lettering- "Fill to this line", on one side, and on the other- "The tube of this atomizer is made of one piece, pat. May 8th - 1894"; screw on type lip.
196	1/26.8	Amber bottle neck, type g (Patent/extract).
197	1/27.5	Lavender bottle neck, type f (Double bead).
198	1/15.9	Clear, molded medicine-type bottle stopper handle top, flat, round shape.
199	1/43.5	Lavender bottle base with molded "398" on bottom.
QER/Cobble City		
QER/H-1		
202	35/285.8	Misc. fragments- 6clear, 19 dark green, 1 amber, 1 light green, 8 lavender.
207	12/47.5	Misc. fragments- 3 clear, 5 dark green, 2 light green, 2 lavender.
213	8/17.4	Misc. fragments- 2 clear, 1 dark green, 1 amber, 4 light green.
218	2/2.1	Misc. fragments- 2 amber.
QER/J-1		
223	9/30.9	Misc. fragments- 8 dark green, 1 blue.
225	100/311.9	Misc. fragments- 9 clear, 34 dark green, 10 amber, 5 light green, 28 blue, 4 lavender.
226	1/69.1	Dark green bottle neck type b (Champagne).
227	1/20.2	Clear, molded glass fragment with cross-hatched design, ? type vessel.
233	14/37.3	Misc. fragments- 2 clear, 3 dark green, 2 amber, 5 blue, 2 lavender.

TABLE 9: GLASS ARTIFACTS

234	3/152.7	Misc. fragments- 2 clear, 1 dark green champagne-type b bottle base.
QER/M-1		
238	6/12.9	Misc. fragments- 2 clear, 2 dark green, 2 amber.
242	13/33.2	Misc. fragments- 10 dark green, 3 amber.
244	2/1.6	Misc. fragments- 2 amber.
QER/V		
251	2/9.6	Misc. fragments- 1 clear, 1 dark green.
256	6/64.2	Misc. fragments- 3 clear, 2 light green, 1 milk.
QER/V-2		
258	2/52.4	Misc. fragments- 1 light green, 1 lavender.
QER/C-1		
274	23/897.6	Misc. bottle fragments- 10 pieces amber, including four necks- 3 type d,
		1 type g (Patent/extract), 4 lavender, including 2 type g (Patent/extract)
		necks and one type c (Brandy); 1 dark green, type f (Double bead); 6 light
		green necks, 1 with type g, 2 type d(Beer), 1 base with molded mark-
		"Pat. Aug. 22. 05"; 1 clear neck, type i (Oil); 1 blue neck, type h (Wide mouth
		patent/extract).
QER/H-1		
280	3/319.0	Bottle neck fragments- 2 dark green, 1 type l, 1 type b; 1 clear, type c.
QER/I-1		
281	1/33.7	Lavender bottle neck, type g.
QER/J-1		
283	3/150.9	Bottle neck fragments- 2 dark green type l and type b; 1 amber type k.
286	1/165.6	Amber bottle base fragment with molded mark- "Southern Cal., Los
		Angeles", around rim, "Wine Co." in center.
QER/K-1		
288	1/324.7	Light green base with molded mark- "A.B.Co., A 6".
QER/M-1		
291	1/133.2	Electrical insulator
QER/N-1		
294	14/872.2	Bottle neck fragments- 5 dark green type b, 4 type f; 1 lavender type f, on
		a molded rectangular bottle; 2 clear, 1 type k, 1 type c; 1 blue type h; also
		1 light green base with molded mark- "A.B.Co. 18".
QER/O-1		
296	2/160.1	Misc.vessel fragments- 1 amber bottle base with molded mark- "Pat.
		D Aug. 24. 1886" around rim, "2" in center; 1 ink bottle with 4 mold seams,
		bottle type mm.
QER/S-2		
298	14/648.1	Misc. bottle neck fragments- 2 bright green with type k neck; 3 amber with
		1 type f, 2 screw-on tops, one being a jug-type with a small handle on the
		neck; 1 clear with a painted green exterior and screw top; 8 clear, 7
		screw-ons and one with a metal crimped top.
QER/T		
300	2/119.5	Misc. vessel fragments- 1 clear bottle neck type k; 1 milk glass bowl frag-
		ment with a gold rim, molded mark on base- "Fire King, Oven Ware, Made
		in U.S.A.".
QER-V		
303	9/599.8	Misc. vessel fragments- 1 clear jar/bottle base, "Table Products Co., Los

TABLE 9: GLASS ARTIFACTS

		Angeles, 118 41"; 3 amber bases, 2 marked with "PUREX"; a small amber
		bottle neck with "Clorox" molded around neck; also a small amber square
		dropper bottle with a screw-on rubber handled glass dropper in place;
		1 light-blue small rectangular bottle fragment; 2 pieces of a dark blue
		glass plate.
QER/V-1		
307	6/196.2	Misc. vessel fragments- 2 clear bottle necks, 1 type k, 1 type h; 2 clear
		small rectangular bases; 2 lavender necks, both type g.
QER/V-2		
309	1/74.7	Milk glass cosmetic jar with screw-on top, "Pond's" molded onto the base.
QER/V-3		
311	1/120.6	Light green bottle base with mark- "A.B.Co., J 4".
QE/Mill		
316	19/1,830.8	Misc. vessel fragments- 2 amber bases with marks, 1 with "R&Co., 32" , 1
		with "I P G Co." in a diamond over "3095"; 1 amber type d bottle neck, 2
		fragments from a thin-walled vessel with "Uricsol" molded onto the side;
		2 lavender bottle necks, 1 type f, 1 type g; 1 blue base; 11 light green pieces
		including 2 large vessel bases with "W T & Co.", molded onto the bottom,
		also 2 standard sized bases, "A.B.Co." molded onto one, also 2 necks, 1 type
		h, 1 type f, also 2 pieces of glass chemical tubing, in addition to
		3 fragments of a large chemist's type jar (type h top).
Karma/Assay		
321	19/100.5	Misc. fragments, all clear- 1 screw-on type jar piece, 4 pieces window glass,
		14 pieces of a thin-walled vessel, ? i.d.
Karma/Mill		
332	3/15.7	Light green glass tubing fragments- laboratory equipment.
SC/A-4		
333	1/1.0	Milk glass bead.

TABLE 10: BUTTONS

Catalog # (Site/Feature)	#/wt (gms)	Description
SC/Wegmen		
SC/A-2 (Unit 1)		
6	1/.3	Milk glass with four-perforations.
SC/A-4 (Unit 2)		
17	1/2.6	Metal stemmed with no mark.
76	1/.4	Fragment of a mother-of pearl button, ? type
SC/M (Unit 3)		
98	1/.8	Small shell button with two perforations
QER/Cobble City		
QER/J-1 (Unit 3)		
224	1/2.8	Metal stemmed with no mark.
QER/M-1 (Unit 5)		
246	1/2.8	Stemmed, metal, with mark- "Head light"
QER/C-1 (Surface)		
273	1/2.5	Stemmed, metal, with mark- "Red Seal" within a sunburst design.
QER/H-1 (Surface)		
277	1/2.1	Stemmed, metal, with no mark.
QER/J-1 (Surface)		
282	3/7.9	3 stemmed, metal, with marks- 1 "Levi-Strauss Co.", 2 "Carhartt's".
QER/L-1 (Surface)		
289	6/17.0	6 stemmed, metal, with marks- 2 "Levi-Strauss Co.", 4 "Carhartt's".
QER/M-1 (Surface)		
293	1/.5	Milk glass with four perforations
QER/N-1 (Surface)		
295	2/1.7	1 Milk glass with four perforations; 1 mother-of-pearl with 2 perforations.
QER/T (Surface)		
299	2/3.9	1 stemmed, metal, no mark, 1 flat metal with a wire loop at back.
QER/U (Surface)		
302	1/4.1	Large brass(?) button with wire loop at back, with a rope ,and anchor design.
QE/Mill (Surface)		
315	7/19.8	6 metal stemmed with marks- 1 "Strong Hold", 1 "Cone's Boss" with lantern design, 3 "Levi-Strauss Co.", 1 heart-shaped with a cablecar design under "Union Made" (Carharrt's), also 1 rivet with "L.S.&Co. , S.F.".
319	2/1.1	2 mother-of-pearl, one with two perforations, one with four.

TABLE 11: LEATHER ARTIFACTS

Catalog #	#/wt (gms)	Description
(Site/Feature)		
SC/Wegmen		
SC/A-4 (Unit 2)		
66	25/12.4	Glove fragments
75	2/2.1	Glove fragments
89	25/11.1	Glove fragments
SC/A (Surface)		
123	1/128.7	Fragment of a small sized shoe sole.
124	1/60.8	Fragment of a small sized shoe, a woman's or child's.
125	1/178.4	Upper portion of a boot, a lace-up type with hooks up the front and eyelets at the top; size and style correspond to that common to men at the turn-of-the-century.
QER/Cobble City		
QER/H-1 (Unit 1)		
205	4/23.4	Non-i.d. fragments
211	19/15.5	Non-i.d. fragments
216	18/7.9	Non-i.d. fragments
QER/J-1 (Unit 3)		
229	4/28.4	Shoe fragments of ? type.
QER/M-1 (Unit 5)		
240	4/1.3	Non-i.d. fragments
245	17/32.9	Shoe fragments of ? type.
248	3/134.7	Fragments of a small shoe, probably a woman's.

TABLE 12: FAUNAL REMAINS

Catalog # (Site/Feature)	#/wt (gms)	Description
SC/Wegmen		
SC/A-4 (Unit 2, privy)		
36	4/2.3	4 large mammal longbone fragments, probably bovid, 1 with a saw cut.
48	4/2.3	4 large mammal fragments (probably bovid); 1 medium sized mammal, im-
		mature longbone fragment, burned.
53	3/2.5	3 large mammal longbone fragments (probably bovid), 1 with saw cut.
60	4/5.9	3 large mammal longbone fragments; 1 artiodactyl (deer/sheep/goat) juve-
		nile metapodial fragment.
88	4/16.1	3 large mammal longbone fragments,1 large mammal skull fragment
SC/M (Unit 3, dump)		
95	2/24.8	2 large mammal longbone fragments, including 1 O-bone.
SC/O (Unit 4, privy)		
110	45/73.9	45 large mammal longbone fragments, including shaft pieces and articular
		ends, all highly weathered.
116	10/16.3	2 large mammal longbone fragments; 8 non-i.d. fragments, all highly
		weathered.
QER/Cobble City		
QER/H-1 (Unit 1, privy)		
210	21/26.7	9 large mammal (15.5), 12 small mammal (11.2) - rabbit?
215	5/5.2	5 large mammal longbone fragments.
QER/H-1 (Unit 2, kitchen)		
220	1/2.9	1 large mammal
QER/J-1 (Unit 3, privy)		
230	5/23.7	5 large mammal longbone fragments, 2 saw-cut.
235	1/266.0	1 large mammal distal humerus fragment, probably bovid.
QER/V-3 (Unit 8, privy)		
264	2/8.7	2 large mammal longbone shaft fragments

8.0
FIGURES

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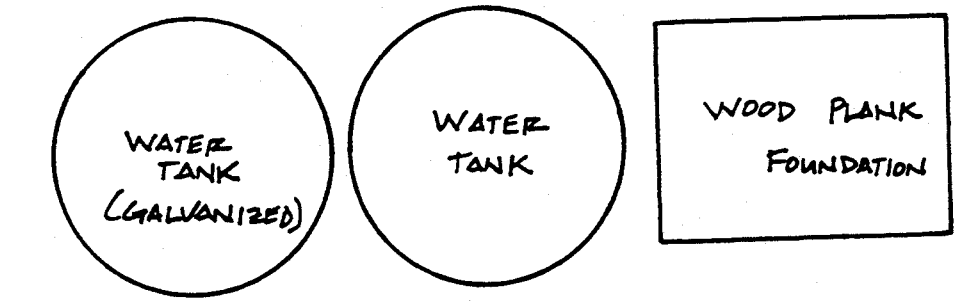
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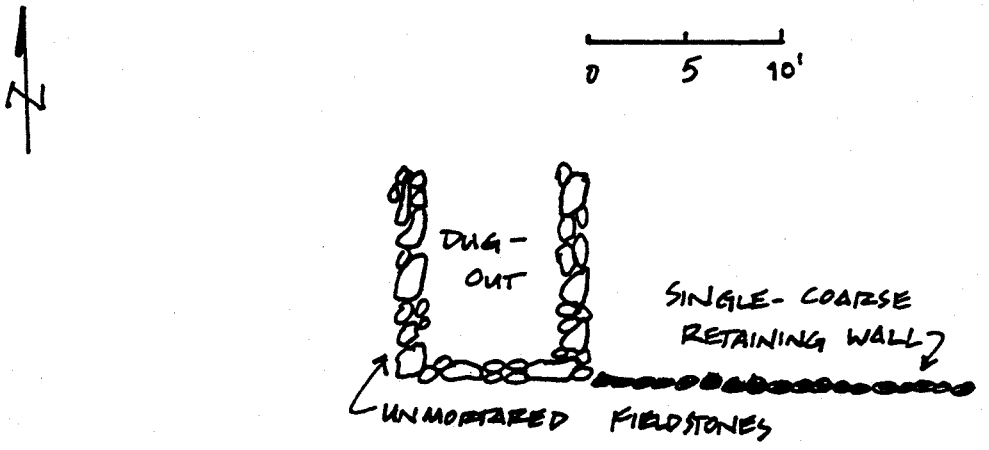
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KEY TO FIGURE 2: FEATURES AT CA-KER-4446H (Cobble City)

Map Designation	Feature
1	Structure G1, NE corner
2	J1 privy & excavation unit
3	Structure I1, NE corner
4	Structure J1, NE corner
5	Structure H1, NE corner
6	H1 privy & excavation unit
7	Structure K1, NE corner
8	J3 privy
9	J2a privy
10	J2b privy
11	L1 privy
12	Structure M1, NE corner
13	M1 privy & excavation unit
14	O1 privy
15	V2 pad, NE corner
16	V3 pad, NE corner
17	Structure V3, NE corner
18	V1 pad, NE corner
19	V dump & excavation unit
20	Structure T, NW corner
21	Structure U, NW corner
22	Structure S, NW corner
23	Structure R, NW corner
24	Structure S2, NW corner
25	V4 privy
26	(deleted)
27	Structure F1, NE corner
28	Structure E1, NE corner
29	Structure W, NE corner
30	Structure X, NE corner
31	Structure D1, NE corner
32	Structure C1, NE corner
33	Structure A1, NW corner
34	E water tank, S side, center
35	Structure B1, NW corner



STRUCTURE B1 & WATER TANKS



STRUCTURE A1

FIGURE 3: Features A1 and B1 at CA-KER-4446H, Cobble City.

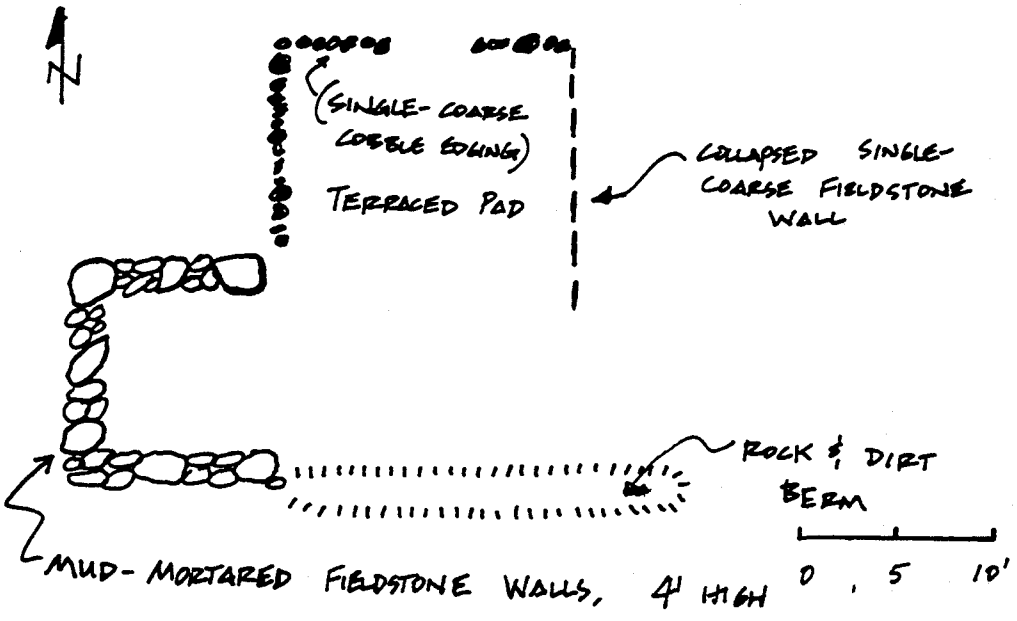


FIGURE 4: Feature C1 at CA-KER-4446H, Cobble City.

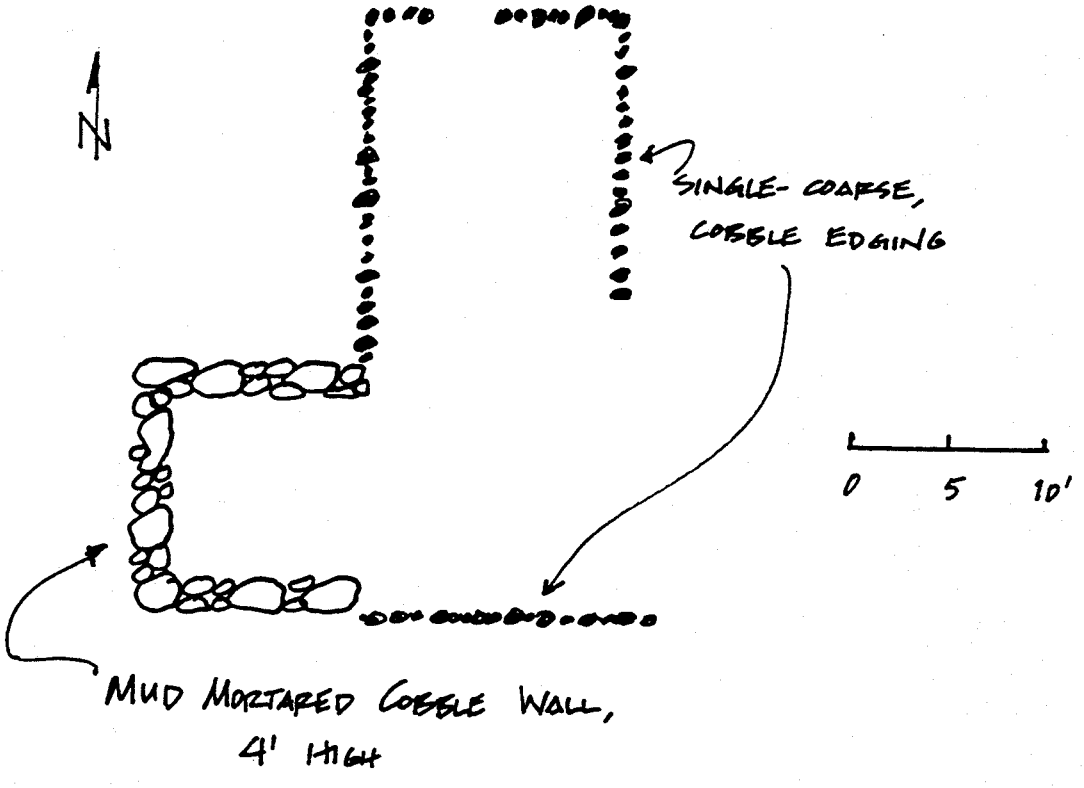


FIGURE 5: Feature D1 at CA-KER-4446H, Cobble City.

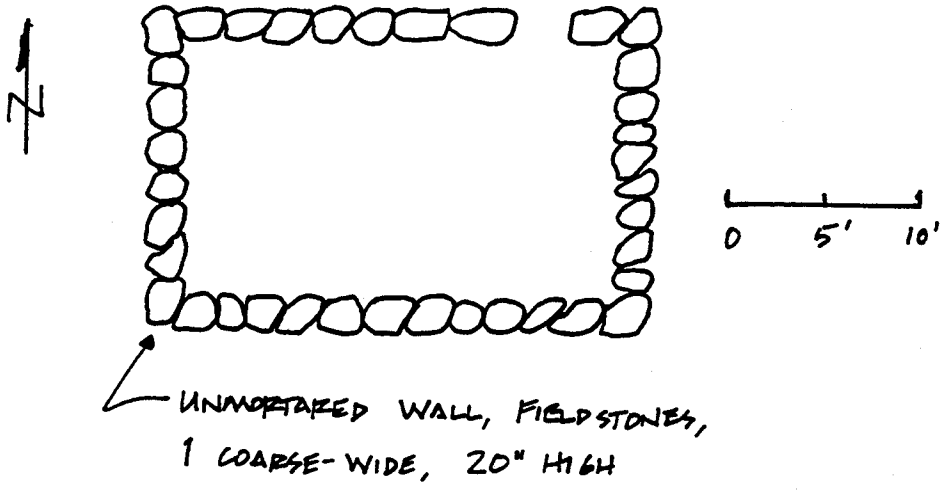


FIGURE 6: Feature E1 at CA-KER-4446H, Cobble City.

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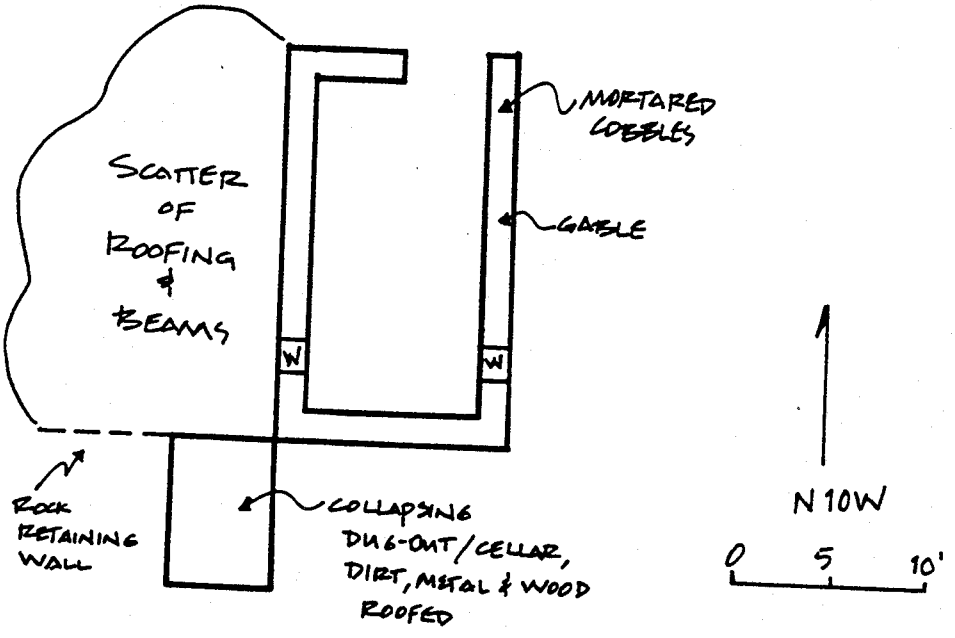


FIGURE 11: Feature I1 at CA-KER-4446H, Cobble City.

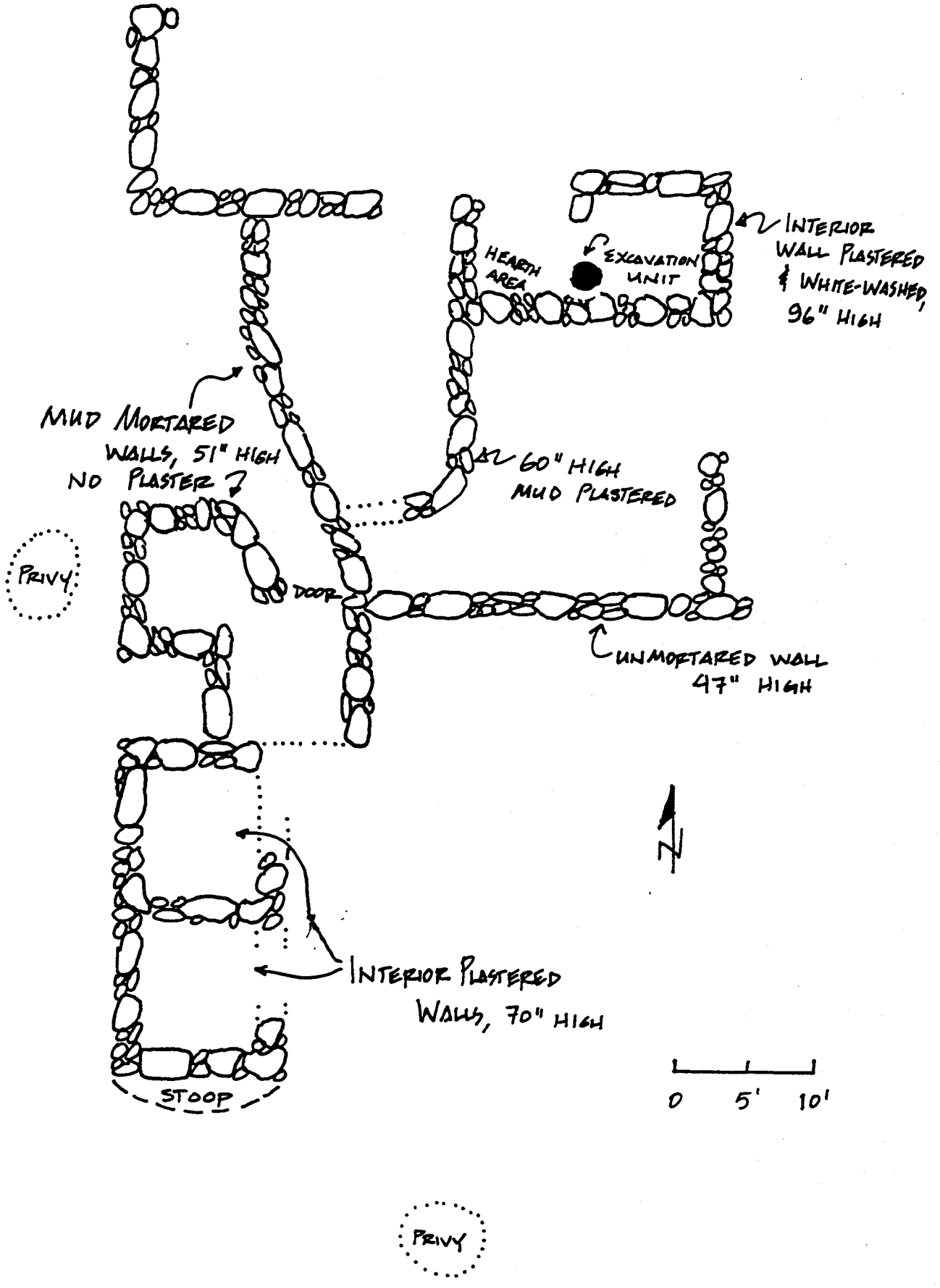


FIGURE 12: Feature J1 complex at CA-KER-4446H, Cobble City.

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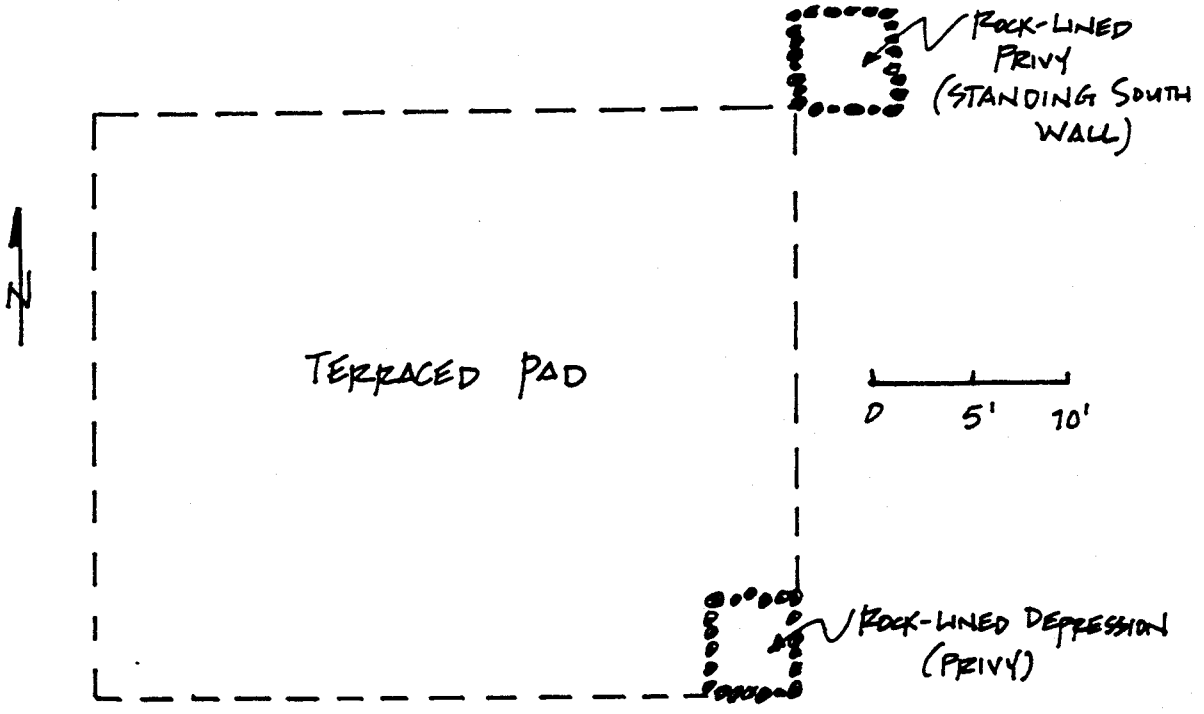


FIGURE 14: Pad L1 at CA-KER-4446H, Cobble City.

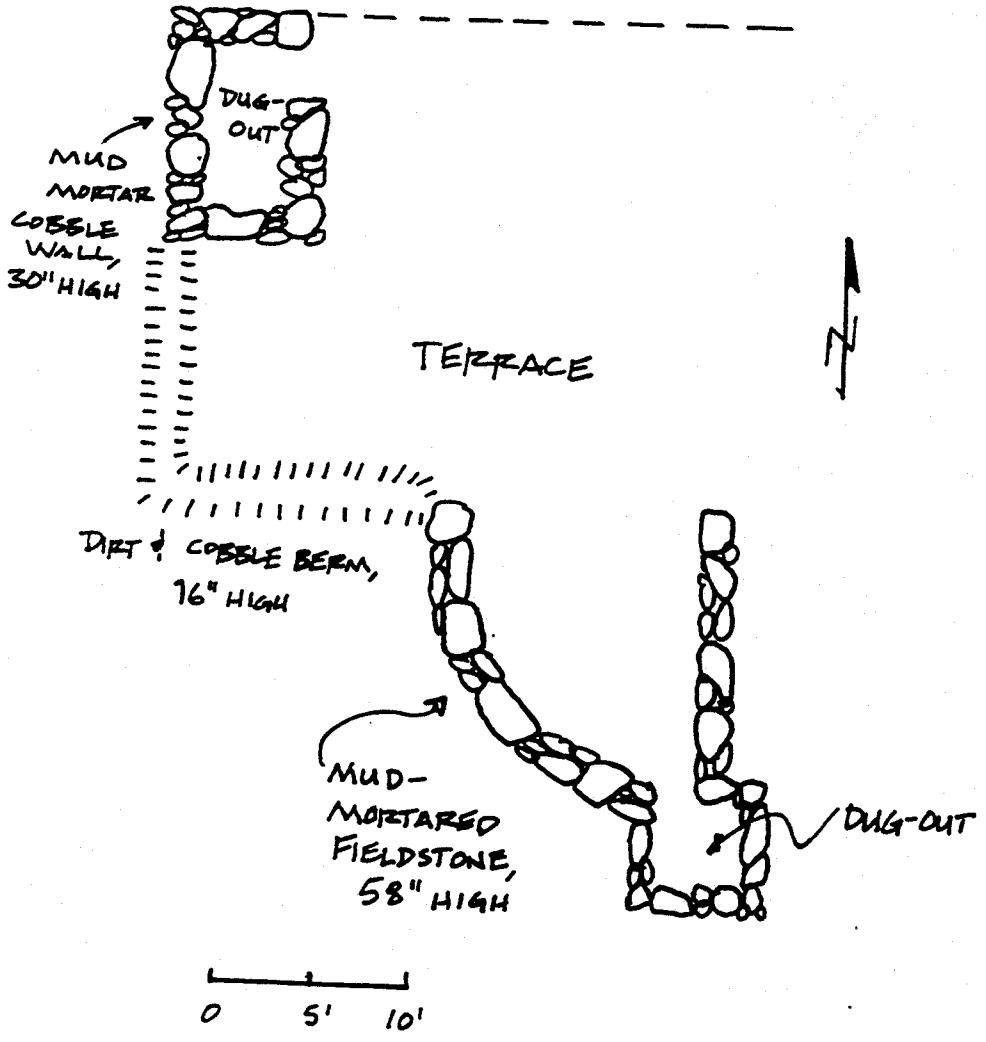


FIGURE 15: Feature M1 at CA-KER-4446H, Cobble City.

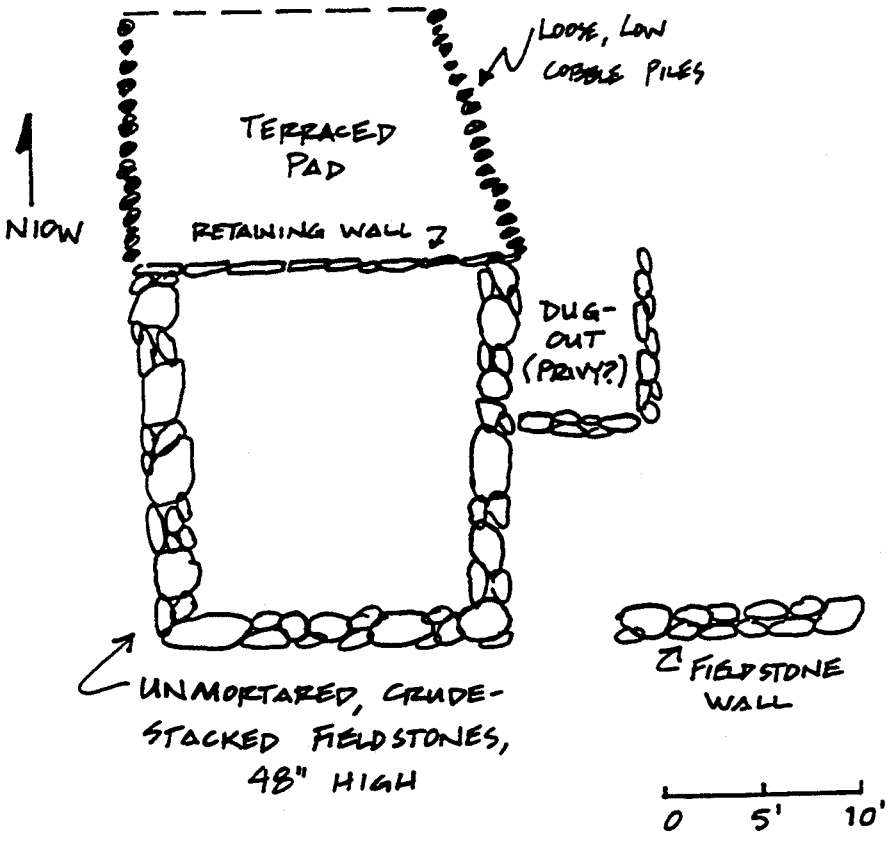


FIGURE 16: Feature N1 at CA-KER-4446H, Cobble City.

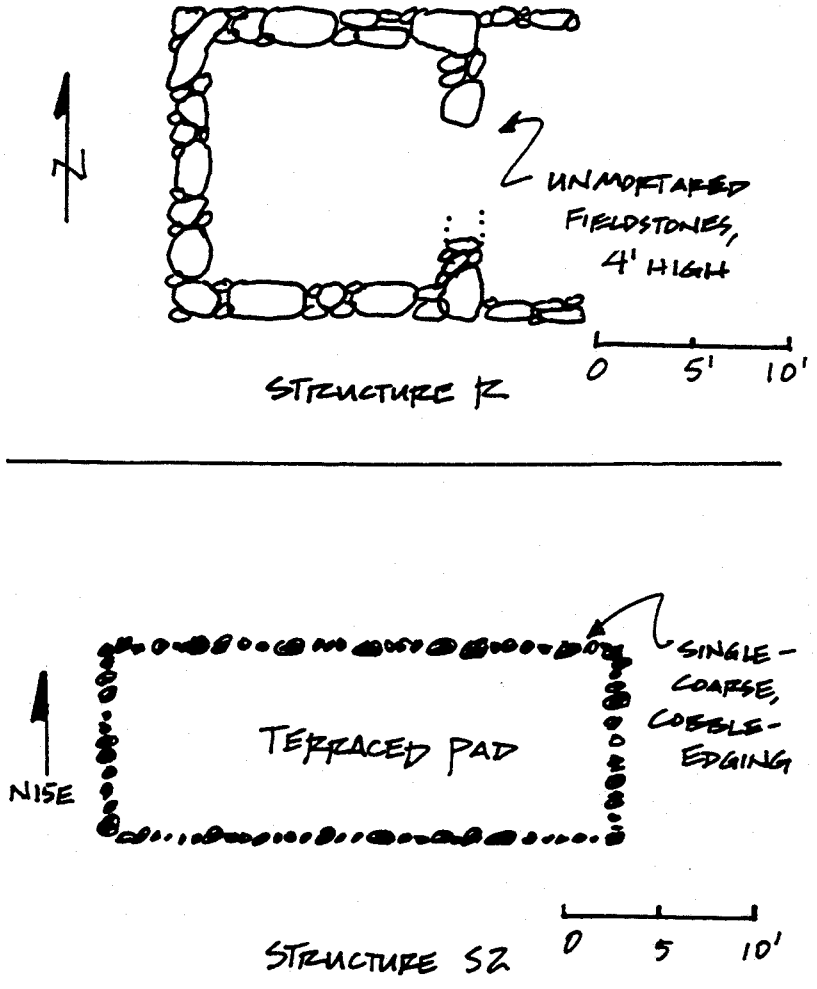


FIGURE 17: Features R and S2 at CA-KER-4446H, Cobble City.

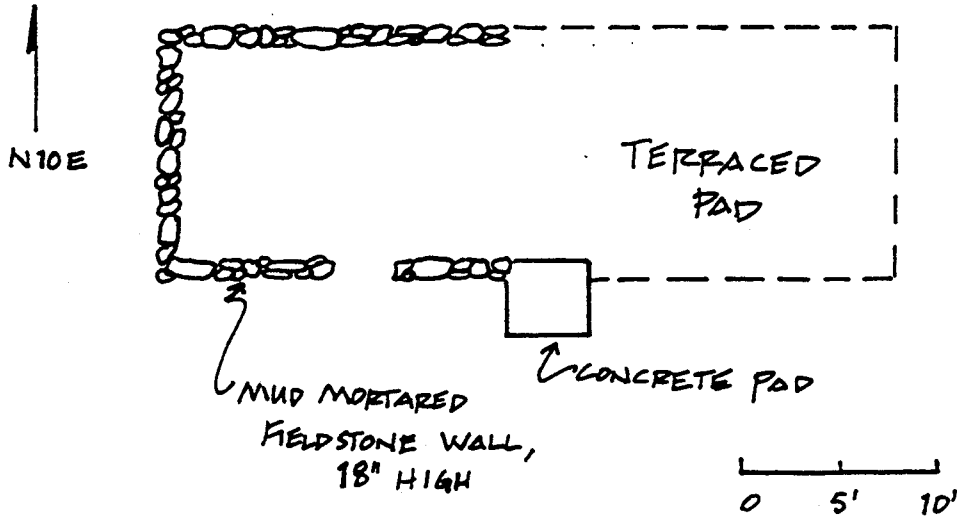


FIGURE 18: Feature S at CA-KER-4446H, Cobble City.

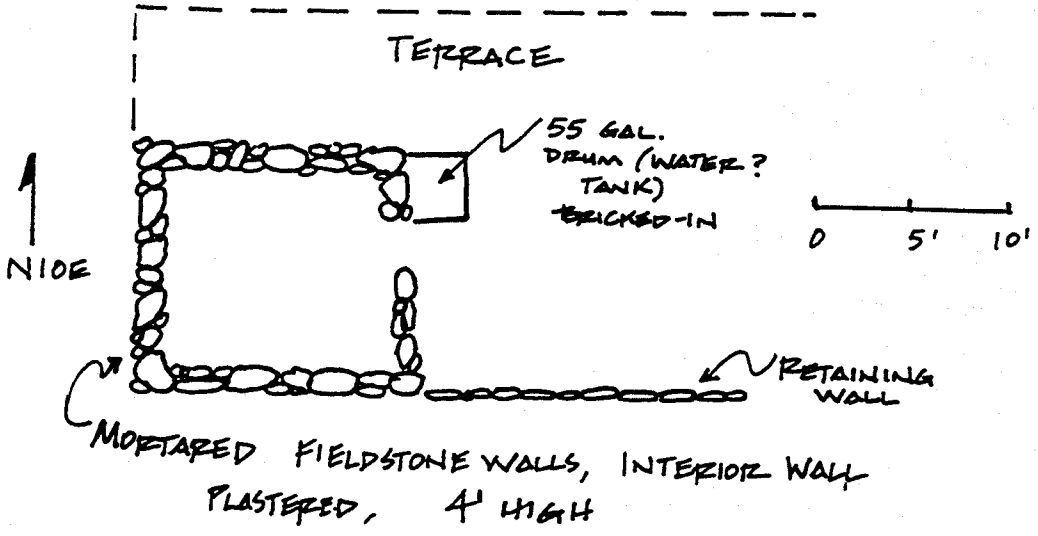


FIGURE 19: Feature T at CA-KER-4446H, Cobble City.

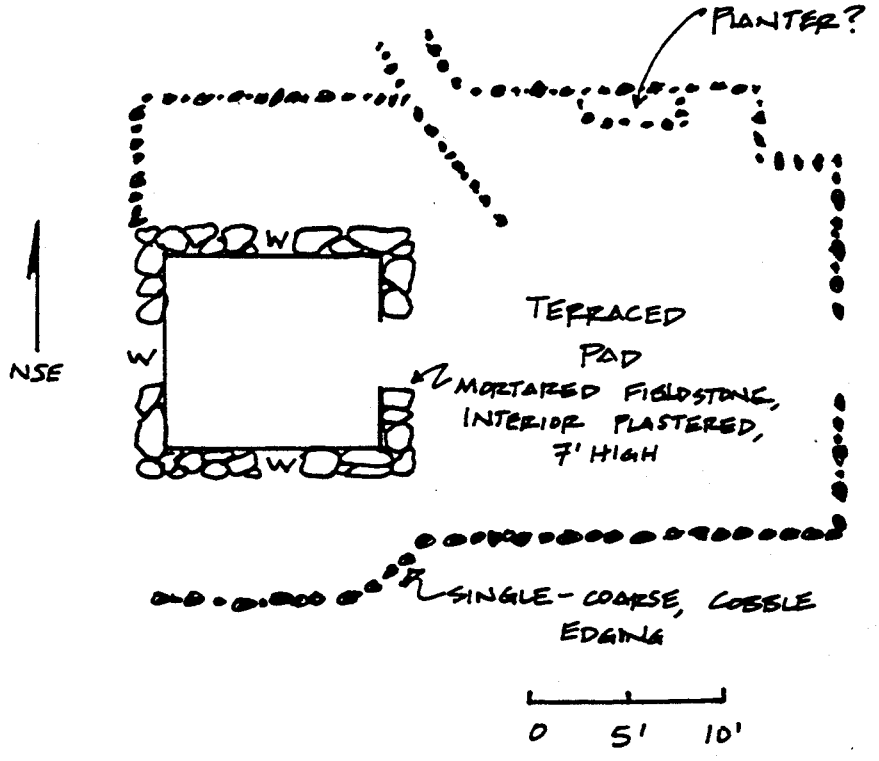


FIGURE 20: Feature U at CA-KER-4446H, Cobble City.

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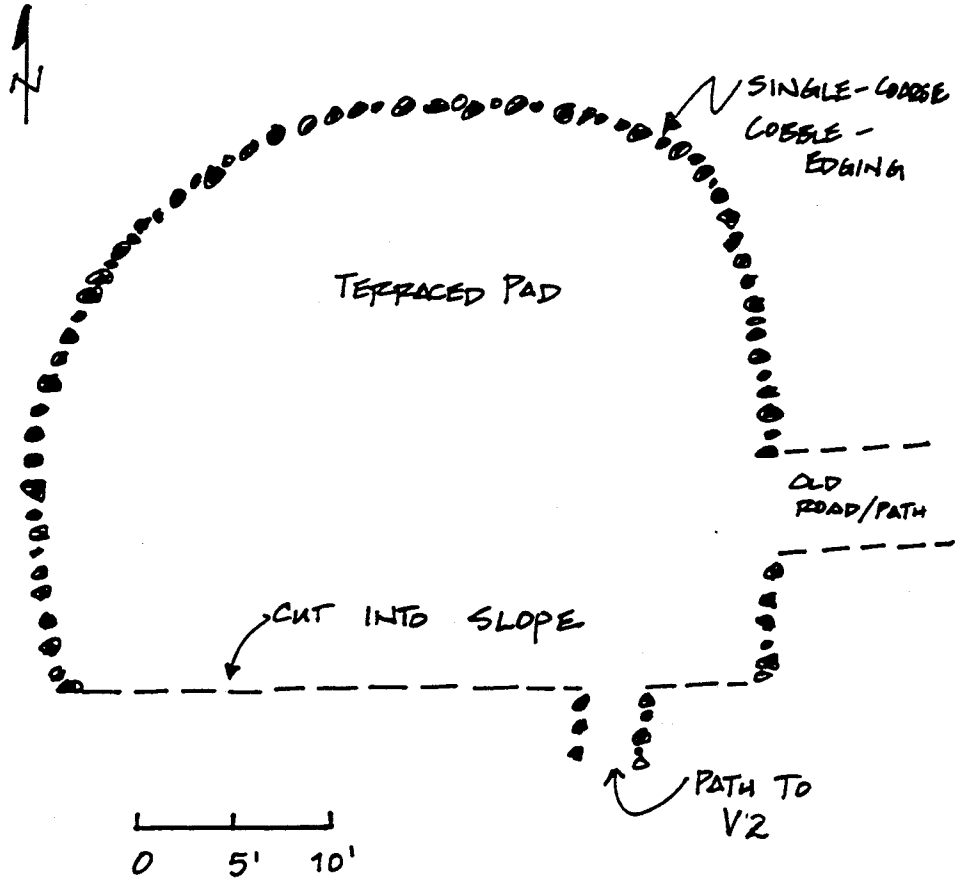


FIGURE 22: Feature 22 at CA-KER-4446H, Cobble City.

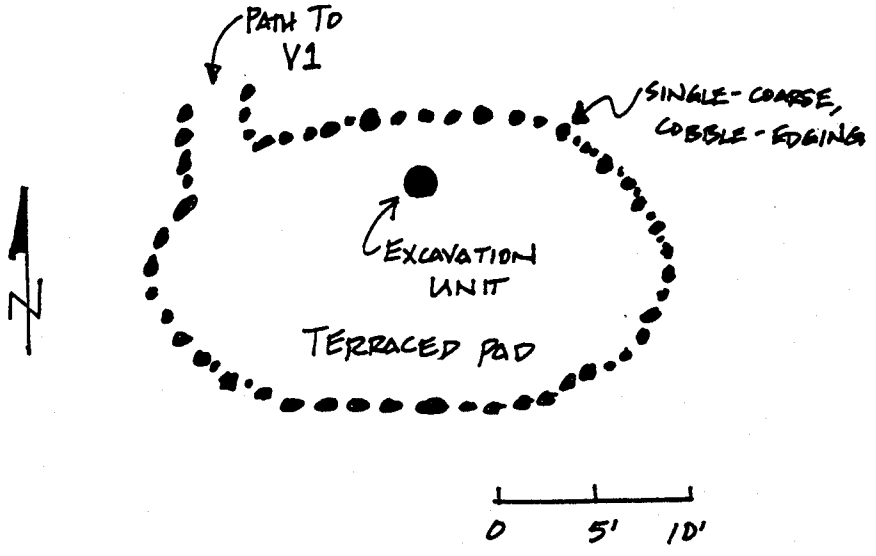


FIGURE 23: Pad V2 at CA-KER-4446H, Cobble City.

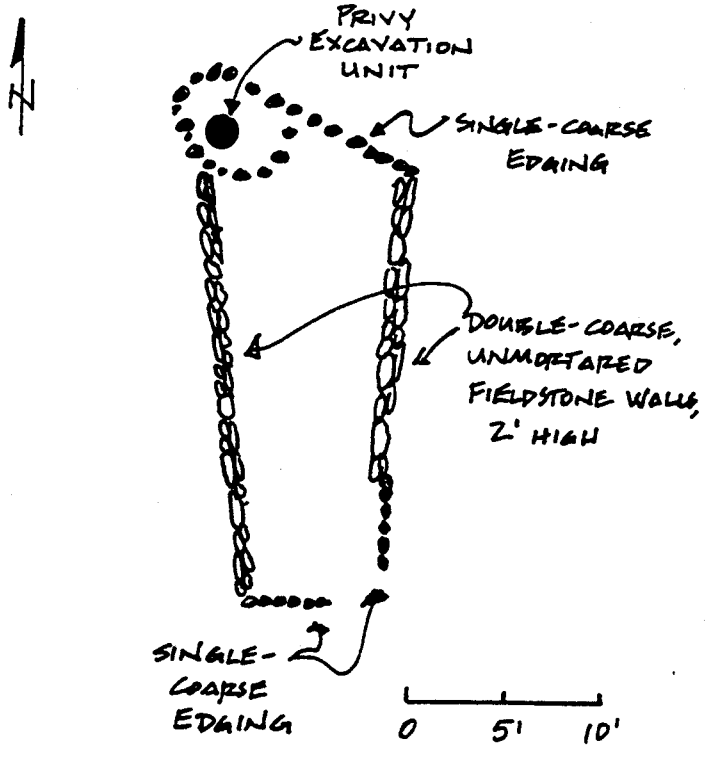


FIGURE 24: Feature V3 at CA-KER-4446H, Cobble City.

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KEY TO FIGURE 26: FEATURES AT CA-KER-4447H (Wegmen)

Map	Designation	Feature
1		Structure C (Wegmen house), NE corner
2		Survey marker
3		Structure A, NE corner
4		Privy D, NE corner
5		Dump F, S side
6		Reymart-Fraction head frame, NW side
7		Privy L, NW corner
8		Structure O privy & excavation unit
9		Structure O, NW corner
10		N4 privy
11		Structure N5, SE corner
12		Structure N3, SW corner
13		Structure N2, SW corner
14		Structure N, Sw corner
15		Dump M excavation unit
16		Structure K, NW corner
17		Dump M2
18		Wood-framed hole, SE corner
19		Structure I, NW corner
20		Structure J, SE corner
21		Structure H, NW corner
22		Structure A2, NE corner
23		Structure B, NE corner
24		A4 privy & excavation unit

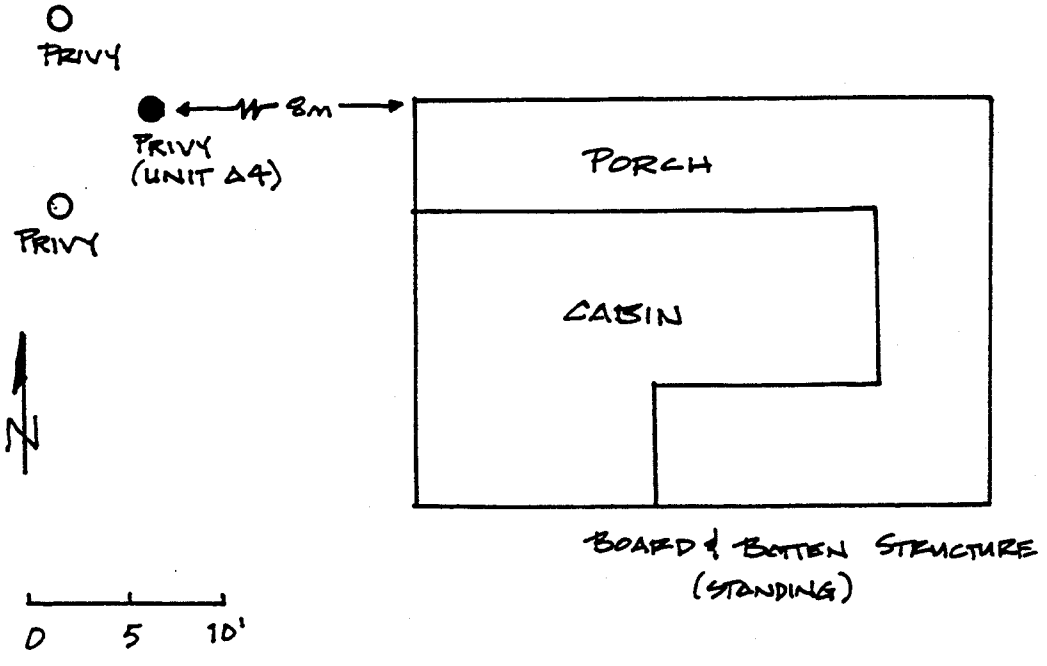


FIGURE 27: Structure A at CA-KER-4447H, Wegmen complex.

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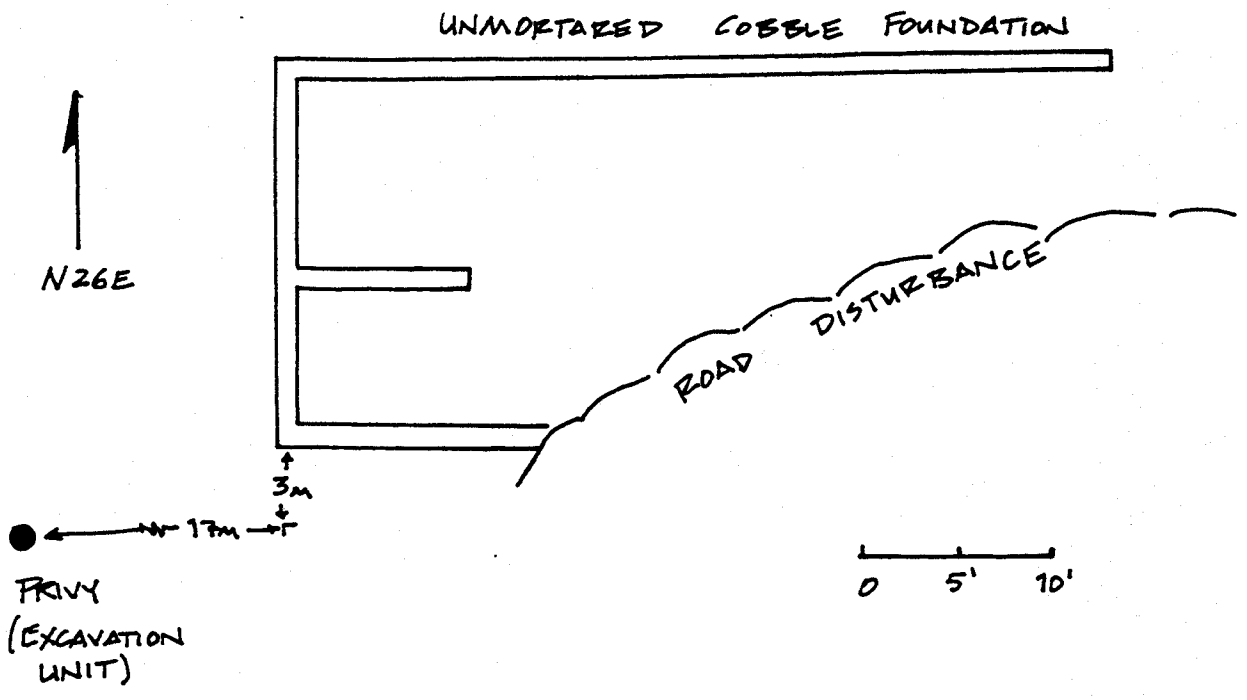


FIGURE 30: Structure A2 at CA-KER-4447H, Wegmen complex.

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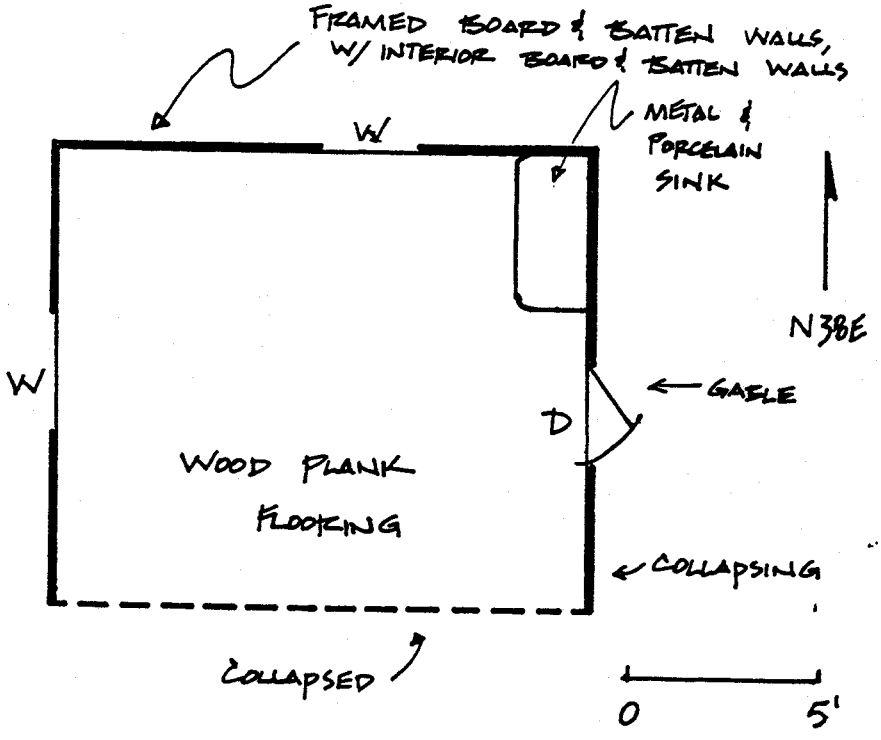


FIGURE 32: Structure H at CA-KER-4447H, Wegmen complex.

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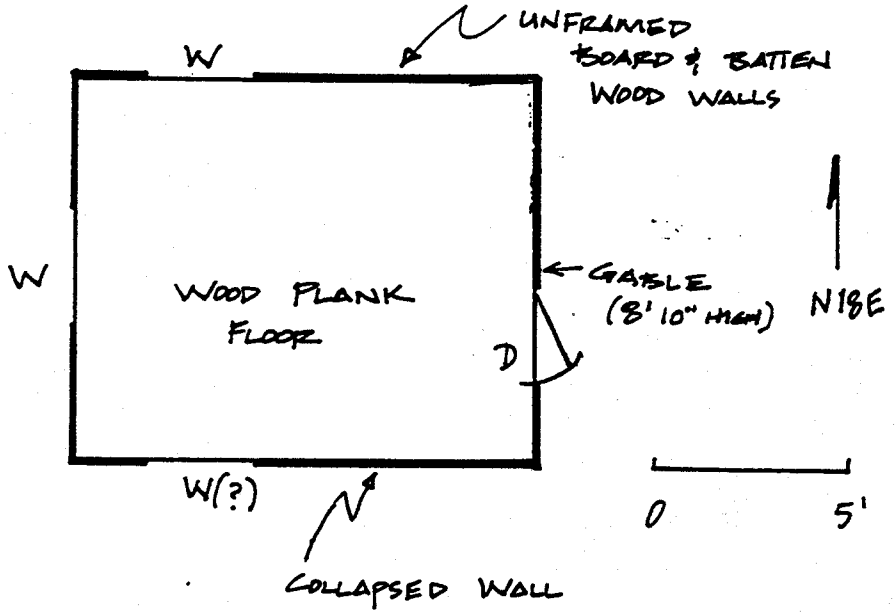


FIGURE 34: Structure I at CA-KER-4447H, Wegmen complex.

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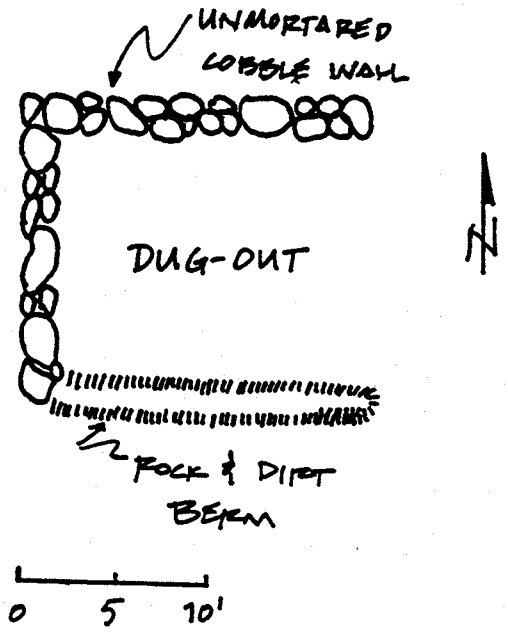


FIGURE 36: Structure L at CA-KER-4447H, Wegmen complex.

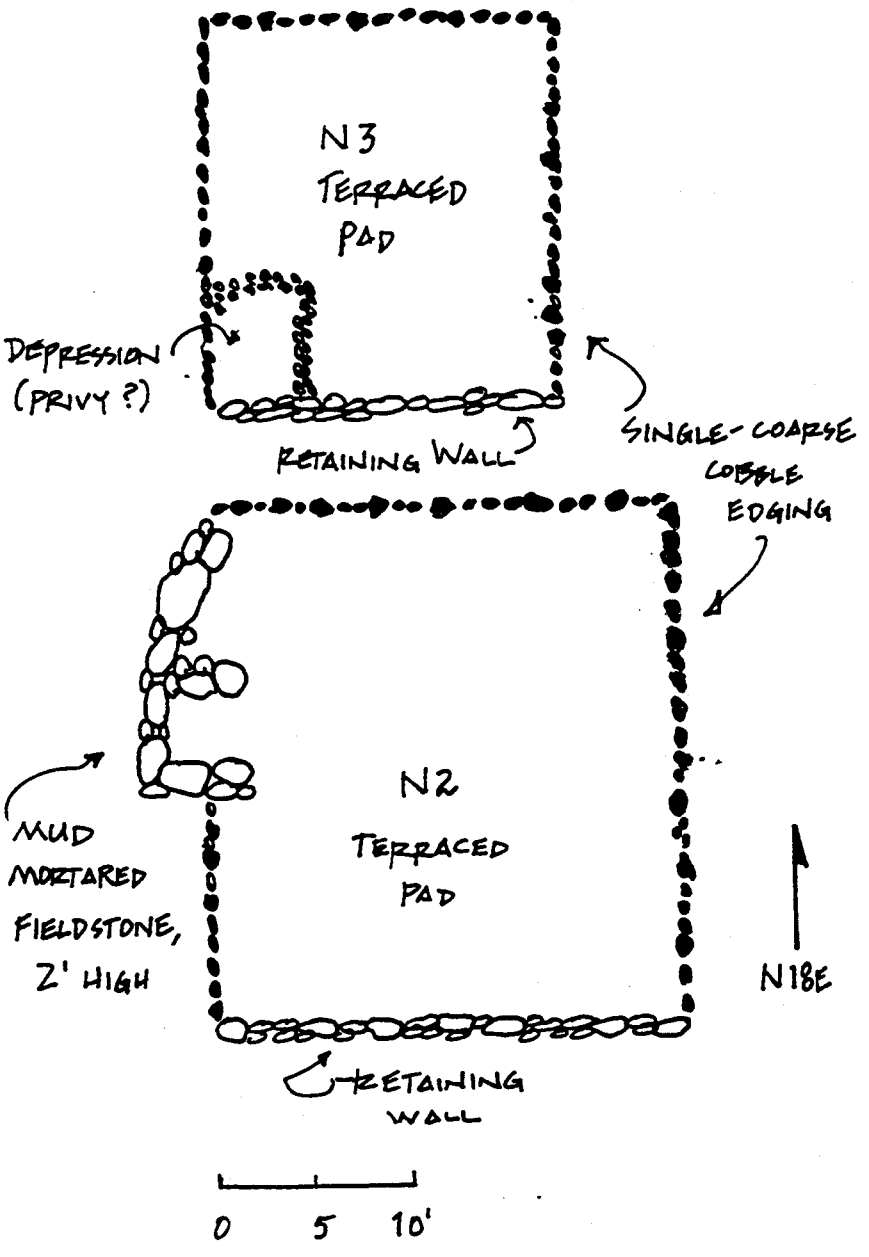


FIGURE 37: N2 and N3 complex at CA-KER-4447H, Wegmen complex.

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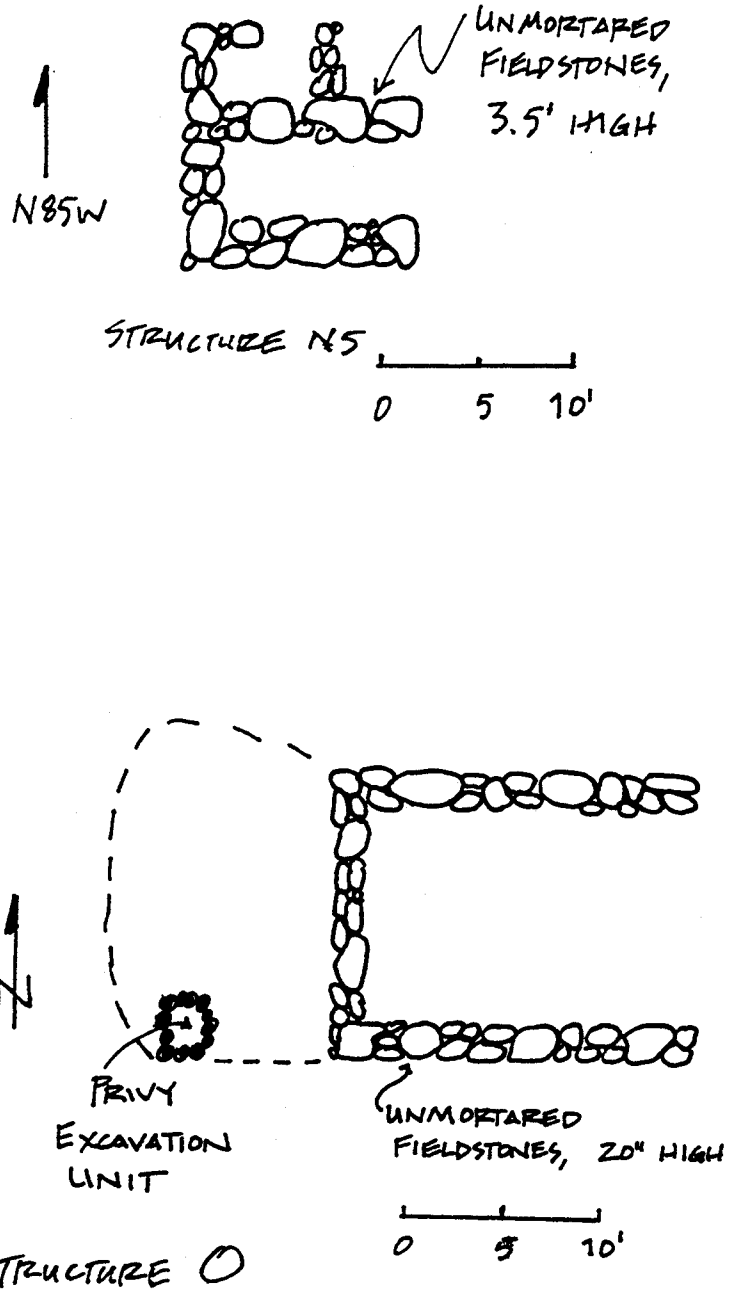


FIGURE 39: Structures N5 and O at CA-KER-4447H, Wegmen complex.

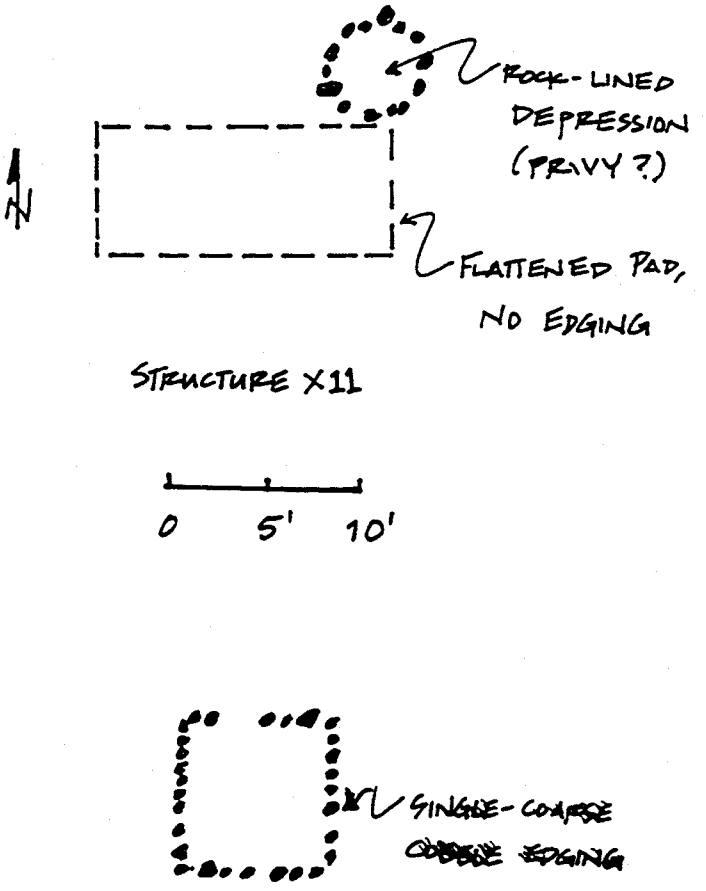


FIGURE 40: Structures P and X11 at CA-KER-4447H, Wegmen complex.

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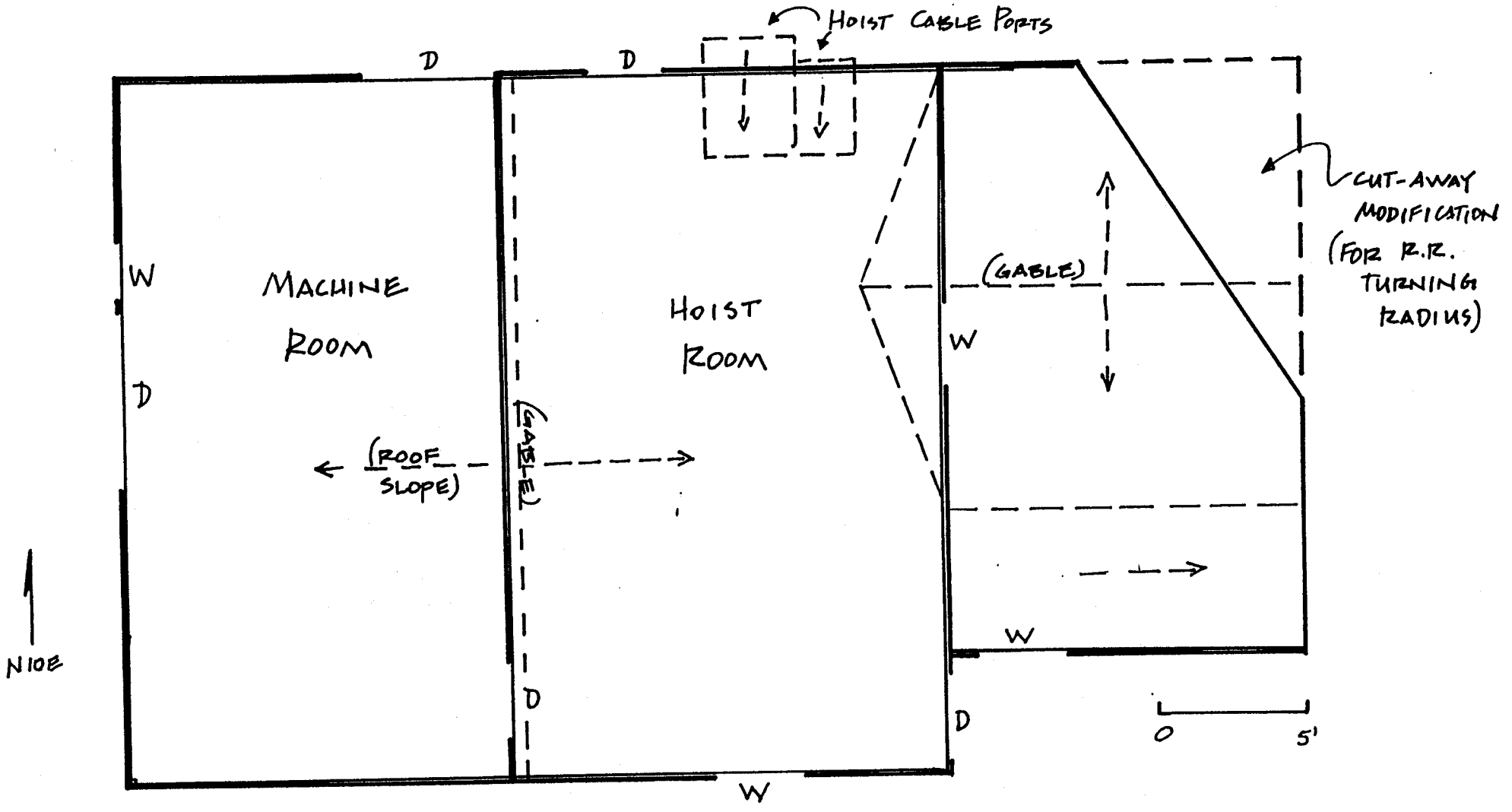


FIGURE 43: Plan of Hoist house at the Karma site, CA-KER-4448H.

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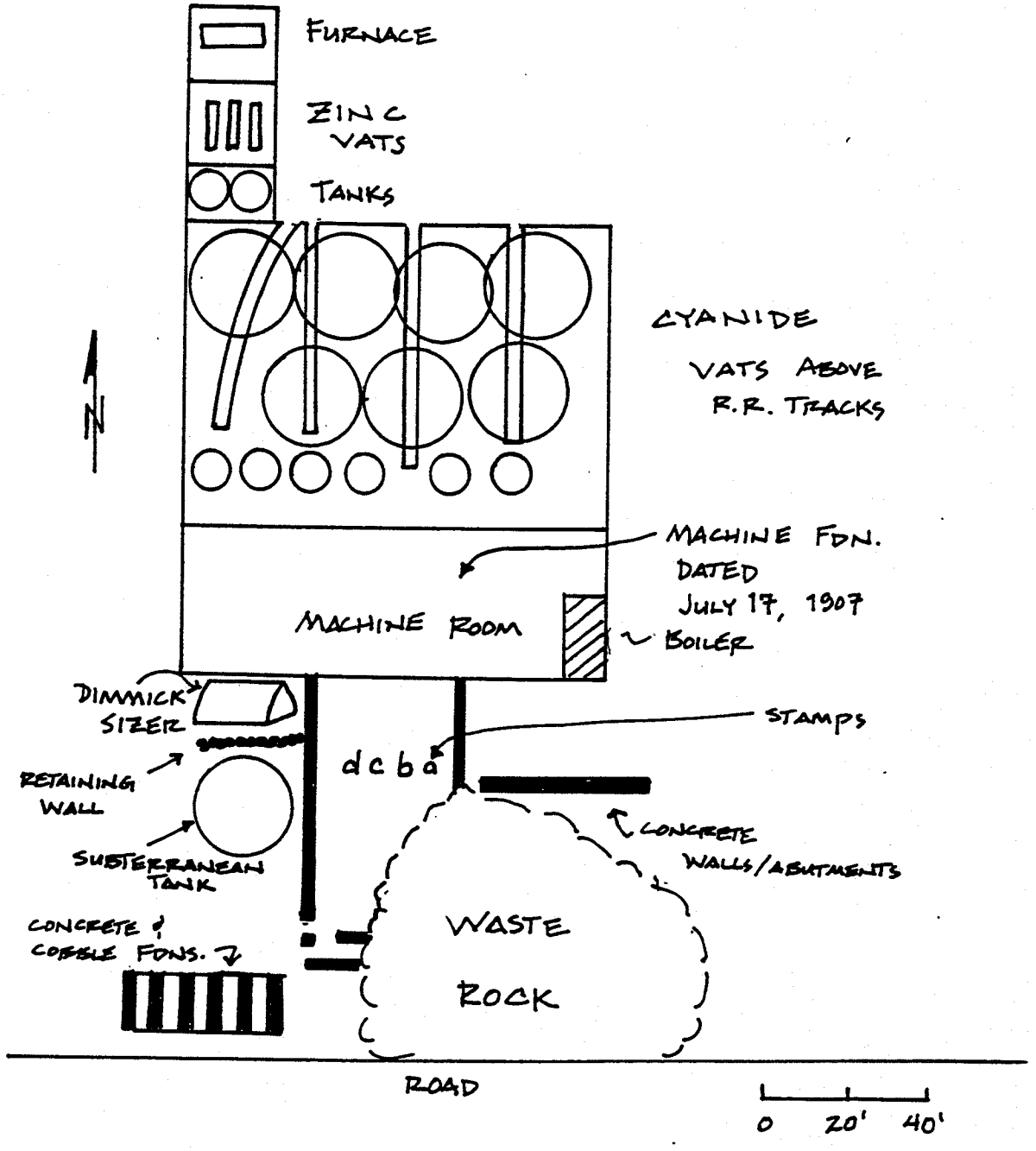


FIGURE 48 - Karma site, plan of extant mill foundations. a - d = stamps and batterries.

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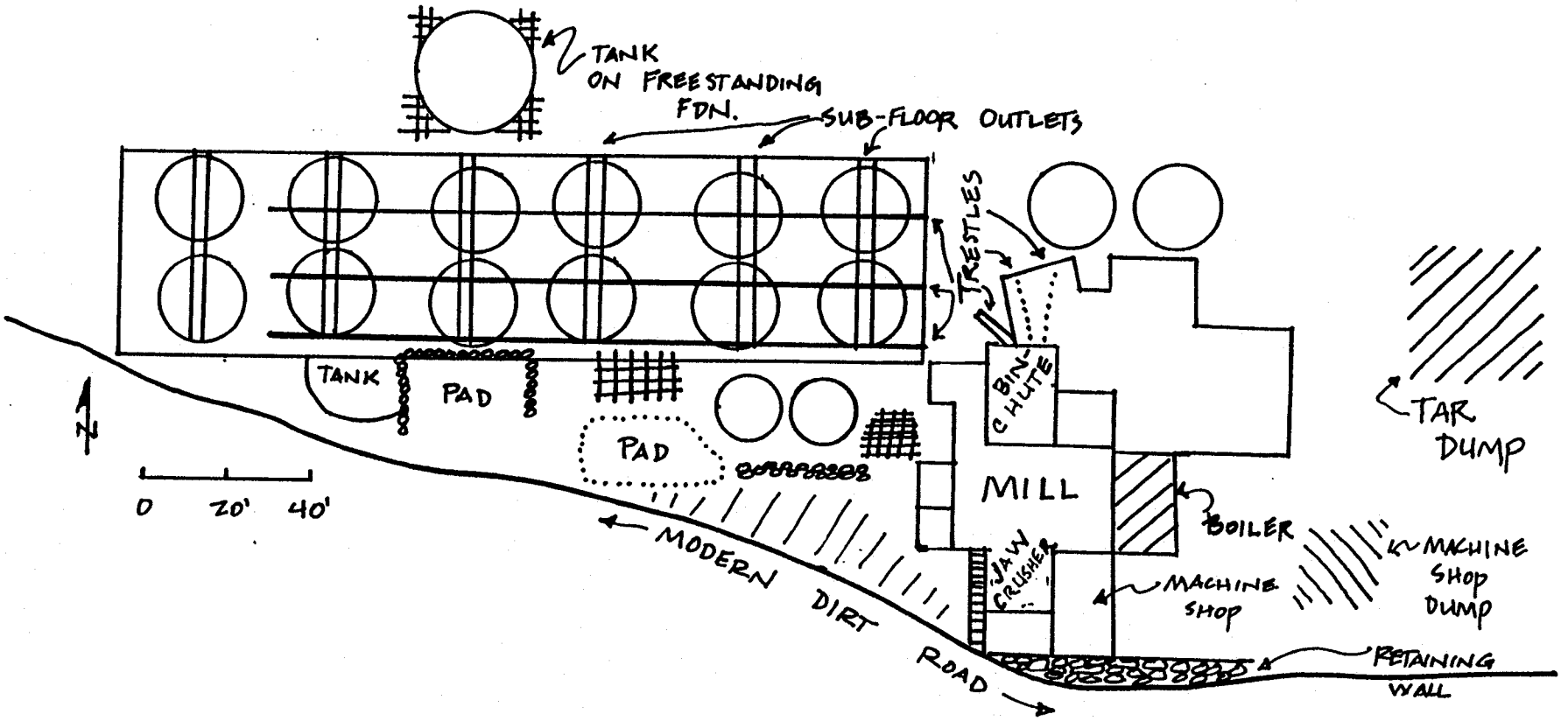


FIGURE 52: Plan of the extant remains of the Queen Esther Mill, CA-KER-4449H.

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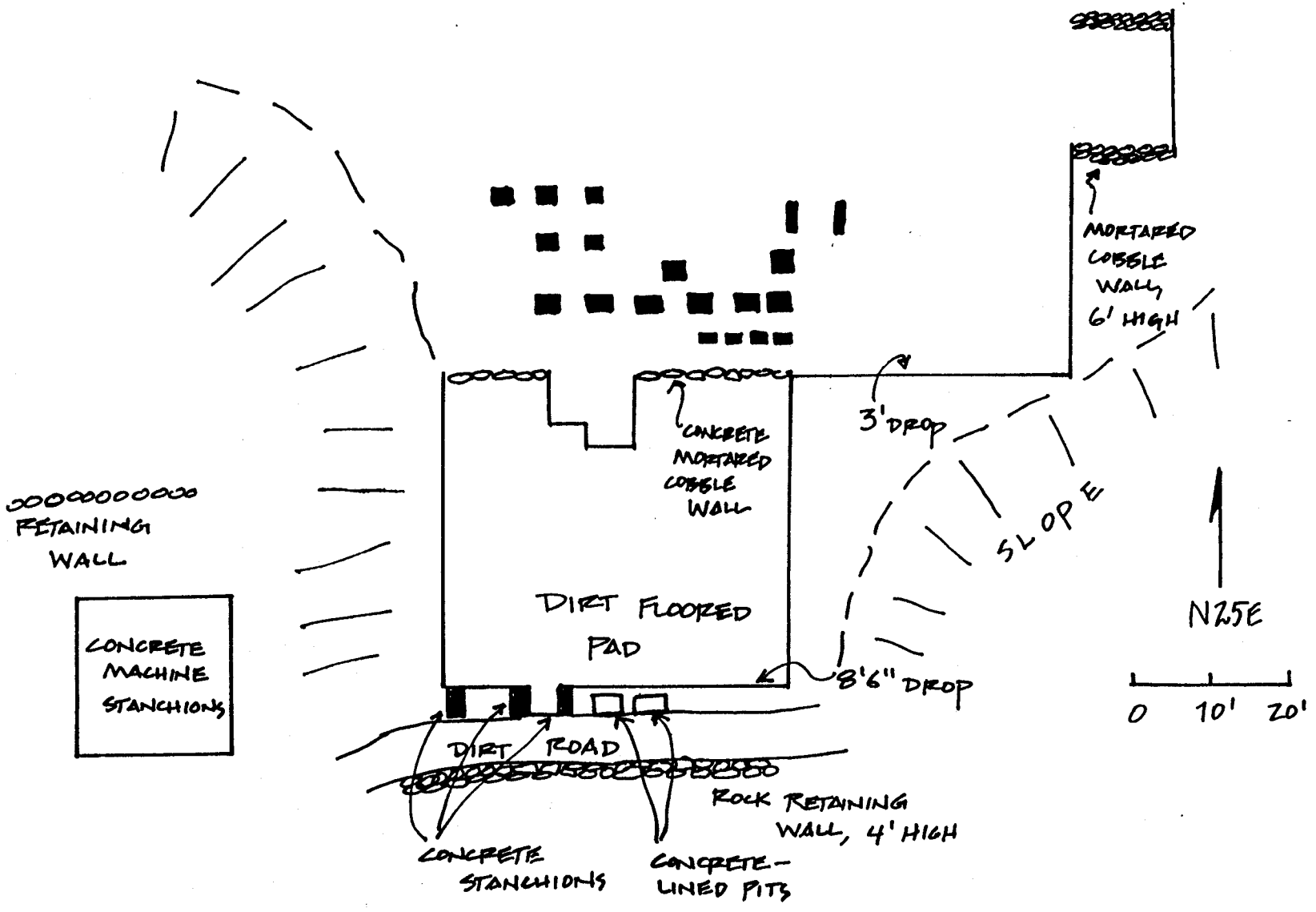


FIGURE 57: Plan of the extant remains of the Echo Mill, CA-KER-4450H.

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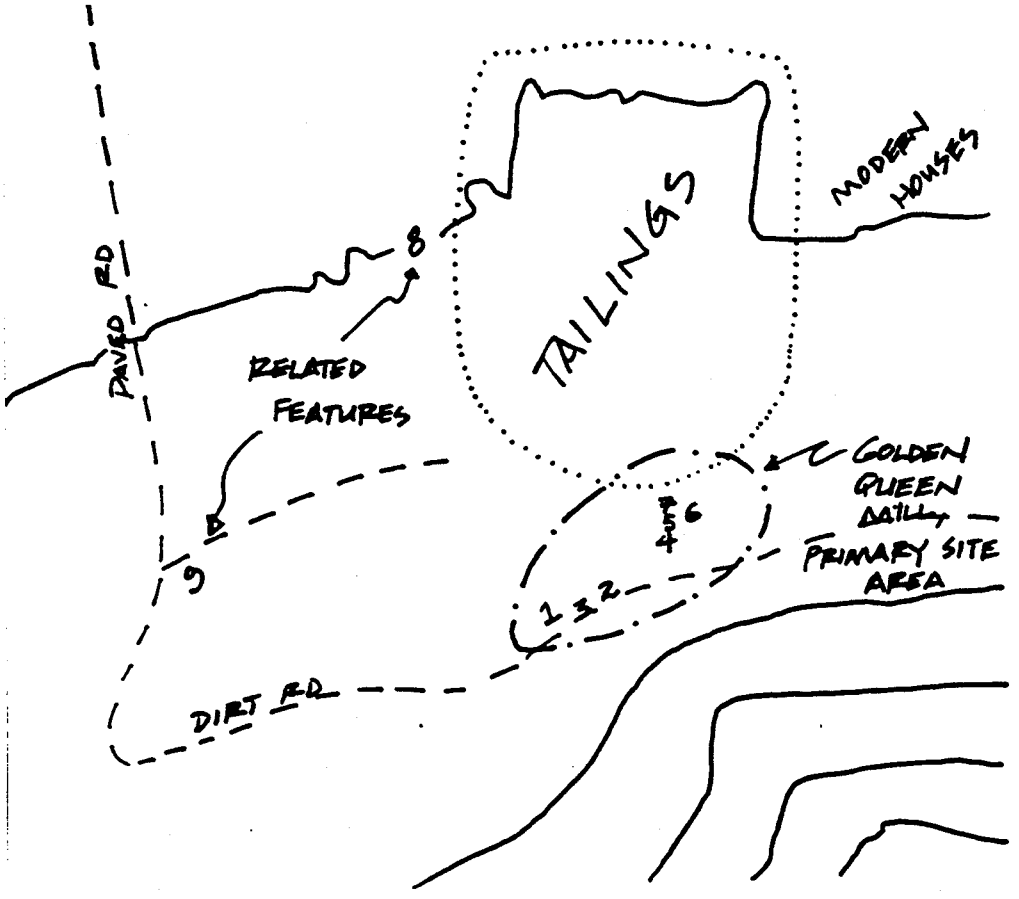


FIGURE 61: Archaeological map of Golden Queen Mill reamins (key - see Table 4; scale - 1 : 400).

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Not to scale

a. Beer
b. Champagne
c. Case
d. Jo Jo flask
e. Shoofly flask
f. Union oval flask
g. Picnic flask
h. Soda water
i. Packing
j. Round prescription
k. Fluted prescription
l. Pomade/morphine
m. Panel
n. Ball neck panel
o. Baltimore oval
p. Union oval
q. Philadelphia oval
r. Blake
s. Oblong tooth powder
t. French square
u. Plain oval
v. Vial
w. Oval castor oil
x. Club sauce
y. Olive oil
z. Olive bottle
aa. Eclipse olive oil
bb. American square pickle
cc. Octagonal peppersauce/spice
dd. Gothic peppersauce
ee. Square ring peppersauce
ff. French barrel mustard
gg. Round horseradish
hh. Florida water
ii. Oval polish
jj. Snuff jar
kk. Carmine ink
ll. Conical ink
mm. Round ink
nn. Igloo ink

FIGURE 69: Typology of bottle forms, from Herskovitz (1978).

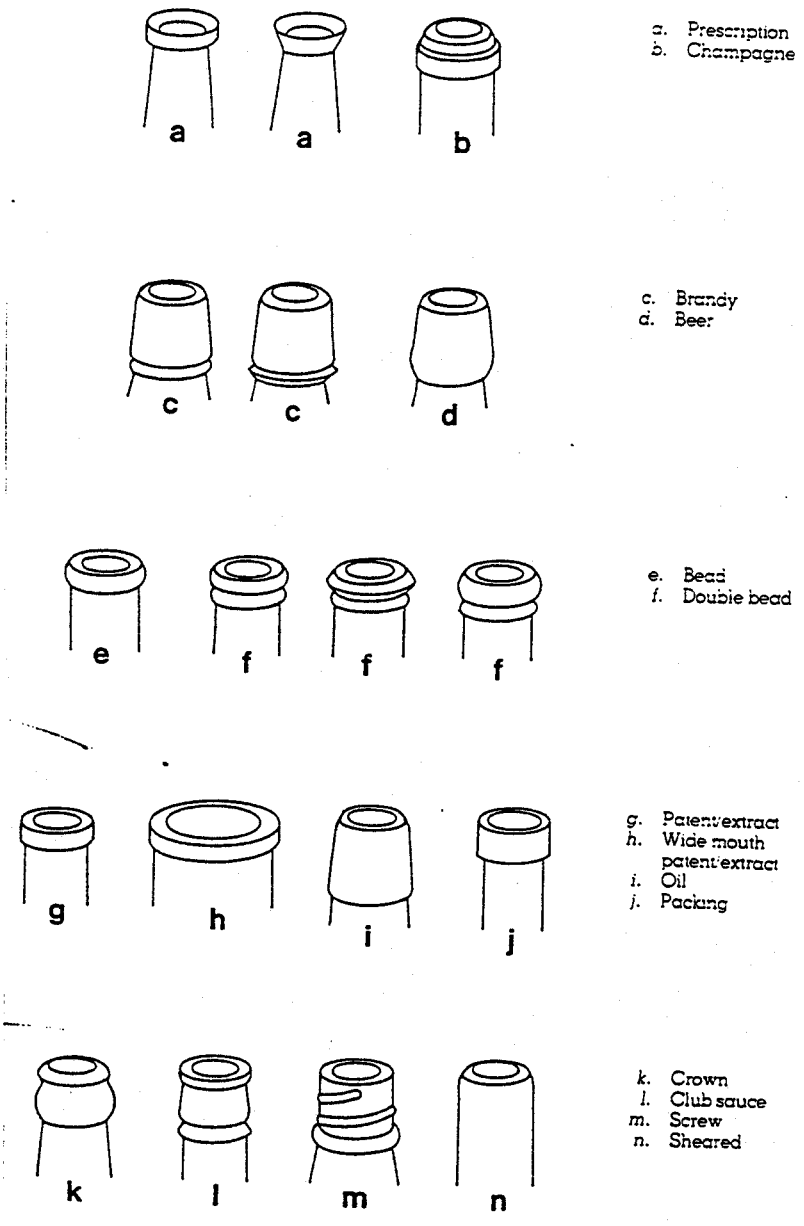


FIGURE 70: Typology of neck forms, from Herskovitz (1978).

PHASE II TEST EXCAVATIONS AND DETERMINATIONS OF SIGNIFICANCE AT CA-KER-4693H AND -4695H, SOLEDAD MOUNTAIN, MOJAVE, KERN COUNTY, CALIFORNIA

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Management Summary

Phase II test excavations and determinations of significance were conducted for sites CA-KER-4693H, and -4695H, both of which are historical (Euro-American) sites dating from the beginning the twentieth century, or slightly later. These sites are located in the addendum study area of the Golden Queen Mine project area, Soledad Mountain, Mojave, Kern County, California. The Phase II test involved mapping, intensive field recording, surface collecting, subsurface testing, and the processing and analysis of the recovered artifact assemblages. Both sites were found to comprise small prospectors' camps, probably occupied by small numbers of individuals, for short periods of time. Phase II test excavations at these small sites resulted in the recovery of scientifically consequential information from and about these cultural resources. Following Appendix K of CEQA, this has served to completely and adequately mitigate any adverse impacts that might occur at these locales through development or use. No additional archaeological work is recommended at these two sites.

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PHASE II TEST EXCAVATIONS AND DETERMINATIONS OF SIGNIFICANCE AT CA-KER-4693H AND -4695H, SOLEDAD MOUNTAIN, MOJAVE, KERN COUNTY, CALIFORNIA

1.0
INTRODUCTION

1.1 Introduction

At the request of the Golden Queen Mining Company, Inc., Rosamond, California, a Phase II program of archaeological testing and determination of significance was conducted at two historical (Euro-American) sites located on Soledad Mountain, Mojave, Kern County, California. The sites tested and evaluated during this project are CA-KER-4693H and -4695H, both of which are located within portions of the Golden Queen project area. This project was conducted by W & S Consultants, Simi Valley, California, with the fieldwork directed by David S. Whitley, Ph.D., and Joseph M. Simon, and the lab work directed by Tamara K. Whitley, M.A.

This project was designed to yield sufficient data to adequately characterize the nature, size and significance of the extant cultural resources located within these two archaeological sites, and to thereby

provide final recommendations for the treatment and disposition of these cultural resources. The determinations of site significance for these two sites have been performed following Section III, Appendix K, California Environmental Quality Act, Law and Guidelines, June 1986. In addition, federal criteria contained within Title 36, Part 60.4 (36 CFR 60.4), "Criteria for Evaluation of Archaeological Sites and Historical Places", Code of Federal Regulations, July 1989, were consulted and applied, as appropriate, during the determination of significance process.

The following section of this chapter provides a brief background to this project. The subsequent chapter is a summary of the field techniques employed during the Phase II testing program. Next we turn to a summary of the results for each site. We then present the artifact assemblages recovered from these two sites. We conclude with final recommendations for the treatment of these two historical cultural resources.

1.2 Background to the Study

The current Phase II project, completed in September, 1996, consisted of a follow-up to an addendum Phase I survey conducted earlier in the year for

the Golden Queen project (W & S Consultants 1996). This examined three discontiguous study parcels which had been added to the project area subsequent to the completion of surveying and testing on other portions of Soledad Mountain (see W & S Consultants 1995a, 1995b, 1995c). The addendum Phase I survey resulted in the discovery and recording of three archaeological sites, two of which are historical (Euro-American) in nature, and one which is prehistoric (Native American). The prehistoric site was subsequently determined to fall outside the area of potential adverse impact and was therefore excluded from additional archaeological examination. However, the two historical sites fall within the limits of the proposed Golden Queen project area, and were therefore tested and evaluated during this current project.

These two historical sites are located on the sides of Soledad Mountain, which is a northern extension of the Rosamond Hills located about five miles south of the town of Mojave, in southeastern Kern County. Site CA-KER-4693H is located within a small E-W trending valley in Section 7, Township 10 North, Range 12 West, and sits at about 3040 feet a.m.s.l. CA-KER-4695H is located on the other side of Soledad Mountain, on its northeast slope, in Section 5, Township 10 North, Range 12 West, at about 3090 feet a.m.s.l. (Figure 1).

The status and characteristics of these two sites can be summarized as follows:

CA-KER-4693H: At the time of discovery and recording, this site was believed to consist of a series of historical structure foundations, tent pads, trash dumps and possible privy holes. These features and the site generally were thought to date to the turn-of-the-century period.

Six structural remains were originally recorded on the site, two of which were unmortared fieldstone huts. In both cases these were recorded as three-walled ("U-shaped") structures, with smaller abutting U-shaped rooms. Four leveled areas, probably representing tent pads, were also thought to be present. Five small depressions, which appeared to be filled-in privies, were identified near the structures and pads. Two dispersed "dump" areas were also observed. These included hole-in-top tin cans, purple and brown bottle glass, and whiteware ceramics. No makers' marks were noted on ceramics or glass when originally recorded, but the whiteware glaze is "crazed" on a number of specimens, suggesting pre-1920 manufacture. This age estimate, moreover, agreed with the tin cans and purple glass found on the site.

In general terms, the structural remains were found to be dispersed and the surface artifacts were relatively limited in number and density. Furthermore, there was little evidence noted of historical mining in the immediate vicinity. Although a few examples of shallow prospects were

observed, no indications of mining production or even intensive exploration were noted. The conclusion derived from the visual examination during the Phase I survey, then, was that CA-KER-4693H represented a small mining camp occupied for a short period during the early exploratory phases of activity on Soledad Mountain, and that the site was quickly abandoned when no important deposits were found on this side of the mountain and all economic activity shifted to the northern area. This is to say that the site was believed to date to the turn-of-the-century, or roughly between 1895 to 1905.

The site area was estimated to be about 100 meters N-S by 50 m E-W, and the site was thought to be in fair condition.

CA-KER-4695H: The second site considered in the current study was initially interpreted as a very small, turn-of-the-century mining camp. At the time of recording, observed structural remains were limited to a single leveled pad, believed to be for a tent, adjacent to a historical road or trail, located on the northeastern slope of Soledad Mountain. A low density surface scatter of artifacts was found in association with the pad, consisting of brown bottle and window glass, hole-in-top cans, and unmarked fragments of whiteware ceramics. A filled-in depression was observed at the southwest corner of the pad and was thought to represent the remains of a privy. Site area was estimated at about 7 meters N-S by 13 meters E-

W. CA-KER-4695H was estimated to be in fair condition, inasmuch as the grading of a dirt road immediately east of the pad area combined with downslope colluvial movement had resulted in some adverse impacts to it.

Judging from the size, density of artifacts present, and location of CA-KER-4695H, it was believed to represent a turn-of-the-century prospector's campsite, resulting from the initial period of exploration on Soledad Mountain. Although a variety of minor prospects and test areas were observed in this general area, no nearby evidence for significant prospecting or mining could be identified, and the size of the site supports the interpretation that it was only occupied for a short time. Thus, CA-KER-4695H was thought to parallel CA-KER-4693H in that both appeared to reflect the prospecting rather than the mining production period on Soledad Mountain, and to date from roughly 1895 to 1905.

1.21 Historical Summary

Considerable background to this region and nearby historical sites has been provided in the reports resulting from the earlier Phase I and II work within the primary portions of the Golden Queen study area (see W& S Consultants 1995a, 1995b, 1995c, 1996). We summarize briefly here the pertinent aspects of these detailed background studies, which concern the mining history of this portion of the Mojave Desert. This history has been

summarized in period and more recent publications, with Brown (1915), Clark (1970), Hensher and Vredenburgh (1991), Miller and Miller (1976), Settle (1963, 1967), Settle and Settle (1984), Starr (1988), Troxel and Morton (1962), Tucker (1923, 1935), Tucker and Sampson (1933), and Tucker, Sampson and Oakeshott (1949) constituting the primary sources. The mining history of this area, summarized below, has been synthesized from these and other unpublished sources and documents.

The first recorded mining activity in the region occurred on March 8, 1894, when W.W. Bowers found gold on a promontory south of Mojave, then known as Little Buttes (subsequently changed to Bower's Hill and now called Standard Hill). His first claim was the famous Exposed Treasure mine, which he brought into operation shortly thereafter, shipping ore worth $60/ton. By 1896 a camp had sprung up around this site (Hensher and Vredenburgh 1991). The Exposed Treasure discovery apparently spurred local interest in prospecting as, later in 1894, Ezra M. Hamilton discovered gold in the Rosamond Hills, to the south, at a location that would eventually become known as Tropico (Settle 1963, 1967).

Mining activities on Soledad Mountain were apparently stimulated by the Exposed Treasure discovery, and can be divided generally into three periods. The first, stretching from 1894 to about 1910, was an era of

prospecting and the development of a series of early properties and mills (Tucker 1935). The three primary mines in operation during this period were the Karma, Queen Esther and Echo, each of which had their own mills, with lesser amounts of mining at the Eagle Group and Bobtail claims, neither of which had mills during this period. All of these mines and mills were located along the northern and northwesternmost faces of Soledad Mountain, with little significant mining to the south and east.

Activity was minimal from about 1922 to the start of the Depression when, like many mining regions in the west, numerous small scale mining efforts were restarted. According to Tucker (speaking of the Mojave mining district as a whole, which included the Tropico area 17 miles to the south and Standard Hill to the north), about 50 to 70 leasers worked old mines from 1931 to 1934, hauling their ore to the Tropico for milling (Tucker 1935). Activity accelerated dramatically during the mid-1930s on Soledad Mountain, however, when the Mojave Mining District was revived by the discovery of the Silver Queen vein, leading subsequently to the establishment of the Golden Queen mine and mill. This represented the second primary period of mining on Soledad Mountain, with the Golden Queen building a major cyanide plant, and consolidating a number of the earlier claims and patents. Depression era mining terminated in 1942 with the official closure of all gold mines by the War Production Board. The

final period of activity has occurred in recent years, during which time a limited amount of mining has been conducted on different claims on Soledad Mountain.

The major commercial mines and mills on Soledad Mountain are the following.

Queen Esther (CA-KER-4449H)

The Queen Esther mine and mill appear to represent the first mining activity on Soledad Mountain, with Troxel and Morton (1962) claiming that the mine was first discovered in 1894. Like all properties within the study area, however, existing documents at the Kern County Hall of Records only begin about 1900, so the initial date of the claim is unknown.

What is certain is that the mine was originally called the Thomson and Boyle, for its first owners Henry D. Thomson and J.L. Boyle, but its name was relatively quickly changed to the Queen Esther. A partner with Thomson and Boyle in the mine and mill was Harvey S. Mudd, of the Pomona Colleges fame, who most likely was the partner who funded the mill construction.

Initial work at the mine, which is located on the north face of Soledad

Mountain, yielded small tonnages of high grade shipping ore. A 1901 account in the Mining and Science Press (2/2/01) states that ore ran at $180/ton. In 1903 a mill was constructed on site. According to a period account in this same weekly (Mining and Science Press, 4/11/03), a 100 ton roller mill was put in, apparently with a cyanide plant. This was increased to 150 tons in 1904 (Troxel and Morton 1962), but not without difficulties: Mining and Science Press reported on 11/14/03 that "The Queen Esther mill at Mojave is shut down on account of the breaking of some machinery."

A (somewhat florid) period account of the Queen Esther mill in operation was published by Margaret Troili in the Overland Monthly in 1908. She stated:

> [H]ere on the steep slope the big mills shook as they devoured the gold ore. Cottages of lumber and stone trailed down the slope; some sat squarely on the level, but the mills lorded over it all. Inside the mill, the shaking seizes one, and a cloak of dust whirls around and refuses to settle. In the engine room, vast power is created, vast work is done. It makes me wonder at man - the big wheels whirling, nice parts doing their work with precise regularity, tremendous beltings rushing up

> through the timbers and making a great roar and tumult up there, rushing down again like a demon, seizing the great wheels for a frolic, and oozing upward like a never-ending brown genius from a little bottle.
>
> (Troili 1908:401)

Troili's references to the cottages and the mills in plural concern a nearby residential area and the adjacent Karma mill, respectively, which are discussed below.

The Queen Esther was closed in 1910, by which time 286 tons of ore had been mined. No accurate production figures for the mine exist, though it is estimated to have produced millions of dollars worth of gold (Troxel and Morton 1962). The Queen Esther was consolidated with the Golden Queen mine in 1935, with its veins apparently worked and perhaps some of its tailings rerun at the Golden Queen mill. The original Golden Queen mill, however, was apparently never used after 1910, and was probably dismantled some time after it closed.

Karma Mine (CA-KER-4448H)

The Karma mine, due east of the Queen Esther, was apparently also first discovered in 1896 and was quickly put into operation, with ore averaging

7 ounces of silver/ton alone during the first seven years of its production (Troxel and Morton 1962). By 1899 a large boarding house and bunk house had been built for mine employees, "and cabins sprouted like wildflowers along the slopes" (Hensher and Vredenburgh 1991:55) below the mine. According to Mrs. Grace Wegmen Meehl (personal communication, 1995), the Karma Mining Company spared no expense in housing its employees, and built a number of well-made wooden buildings for their use, some of which are still standing.

According to period accounts of the Karma published in the Mining and Science Press (2/2/01), by early 1901 "the shaft is down 280 feet. Four hundred feet of drifting is completed". Due to increasing lower yielding ore, construction of a mill was begun in 1903 but, like most such undertakings, things did not go as smoothly as optimistically predicted. Again, the Mining and Science Press tells us on August 29, 1903, that the "Machinery for the Karma mill, near Mojave, is on the ground and building will begin Sept. 1. More men will be put into the mine". Almost two months later (10/17/03), the same source stated: "The Karma M[ine] Co. at Mojave has bought a second-hand 10-stamp mill and will add to it 10-stamps more. J. Gerner is president and superintendent". And one month later (11/14/03) Mining and Science Press reported that "J. Gerner, superintendent of the Karma M. Co., says the mill will be in operation this

month". Other records indicate that the 20-stamp mill was finally in operation sometime in 1904. This was effective until 1909, when the mine and mill were shut-down due to poor recovery (Troxell and Morton 1962). The mill was apparently never reopened, and the stamps and stamp boxes are still on site.

The mine was reactivated following World War I when the US Smelting and Mining Company at Kennett agreed to purchase low grade ore with high silica content. As is clear, the mill itself was not reactivated. Ore shipped from the Karma to Kennett between 1917 and 1926 averaged between 5 and 9 ounces of silver/ton (Troxell and Morton 1962). The mill building of the Karma Mine was still standing until 1947, when a fire was accidentally started by visiting teenagers, which burned it down (Mrs. Meehl, personal communication, 1995).

In 1926 the Karma was purchased by E.L. Wegmen, becoming part of the Wegmen Group (consisting of the Karma, Eureka and Grace Groups). Engelbert (Bert) Louis Wegmen was born on February 10, 1873, in Oedding, Germany, and moved to the U.S. with his family when he was seven years old. Due to a case of malaria, he moved out west as an adult, arriving in the Mojave area on November 11, 1903. Having worked with steam engines back east, he was hired to work in the steam plant at the

Karma mill. Initially the lack of housing on the hill forced him to live in a lean-to attached to the superintendent's house (Mrs. Grace Wegmen Meehl, personal communication, 1995). But with small cabins appearing on the north slope of Soledad Mountain, built by the company and providing homes for men with families, he was able to send for his wife and two children, who arrived on May 25, 1904. Subsequently, he and his wife had three more children, all of whom were born on Soledad Mountain, including Grace Eleanor Wegmen Meehl. In addition to his work at the mill, Wegmen was apparently active in the development of a school at Soledad City, serving as the clerk of the school board for many years (ibid; Settle and Settle 1984; see below).

Exposure to the Karma mill apparently strongly motivated Wegmen to pursue mining, as it subsequently became his career. When the Karma mill shut down in 1909, Wegmen stayed on as a guardian, according to the his statement of occupation in the 1910 census (W & S Consultants 1995a). Thereafter he continued his own mining pursuits, eventually becoming involved with the Exposed Treasure Mine, on Standard Hill, and the Randsburg mines, where he served as superintendent (Settle and Settle 1984). In the 1920s and 1930s, however, he used the assay office of the Karma Mine (located near the hoist house) to run samples from Randsburg (Mrs. Meehl, personal communication, 1995). He maintained his residence

within the study area throughout his life, with his wife living at the Wegmen home into the 1950s, and other family members occupying the homestead into the 1990s.

Following the acquisition of the Karma mine and mill, Wegmen began mining operations. In 1933, he patented the Karma property (Kern County Hall of Records M.S. #6140), thereby strengthening his claim to the property. According to Settle and Settle, however, the processing of the ore was conducted off site: "Ore was sledded down the hillsides to ore-bins from which bulk and sacked ore was shipped by gondola car-loads to smelters" (1984:91), with the ore shipped to the Golden Queen mill, one-half mile west, from 1937 to 1941. In 1951 a new small vein was discovered. From the 27 tons of ore extracted from this operation, 10 ounces of gold, seven ounces of silver, 251 pounds of lead and 40 pounds of copper were extracted. This played out relatively quickly so that, by 1958, the only mining activity at the site was a two man cross-cutting operation (Troxel and Morton 1962). Clark (1970) estimated that the Wegmen Group as a whole produced around $100,000 in total during the life of its operation.

Echo Mine (CA-KER-4450H)

The Echo mine and mill, located on the northwestern side of Soledad

Mountain, was first discovered during the 1890s, and was worked until about 1905 by the Echo Mining Company, producing about $200,000 in ore (Troxel and Morton 1962). As with the Queen Esther and Karma, a stamp mill was constructed at the Echo in 1903, a process that apparently went fairly smoothly, judging from period accounts. According to the Mining and Science Press of March 7, 1903, "The 10-stamp mill building at the Echo Mine, 5 miles from Mojave, will be completed by March 10. Development of the mine is in progress". One month later, the same source reported that "The 10-stamp mill of the Echo Mine Company of Los Angeles, Cal, 5 miles west of the village of Mojave, is running steadily on good ore. A cyanide plant is being built to work the tailings direct, there being no intermediate concentration, all the ore being oxidized" (Mining and Science Press, 4/11/03). Later in the year the Mining and Science Press stated that "The Echo M. Co. at Mojave propose to add a centrifugal or rotary mill to its 10-stamp mill. Superintendent J. Keith reports opening a rich shoot in the mine carrying horn silver and black sulfide of silver. G.H. Hooper is president and manager" (10/17/03). Finally, of November 3, 1903, the Mining and Science Press reported that "J. Frank Walters, of Los Angeles, has bought the Echo Mine at Mojave, and will soon resume working the mine and the mill with A.M. Peck as superintendent. The Bobtail mine has been purchased by the same company. The new group consists of 17 claims and has a 20-stamp mill and cyanide plant".

The implications of the above reports seem to be that the Echo mine and mill was operating quite smoothly, with consideration being given to expansion. In less than a one month period, however, the mine and mill apparently shut down, and were purchased by a new outfit, with the mill doubled in capacity during this same period. Records at the Kern County Hall of Recorders indicate, in fact, that the mine experienced 11 deed changes between 1902 and 1906, suggesting that purchase and resale were a common process at the Echo.

According to Troxel and Morton (1962), the mine closed around 1905, with the mill dismantled in 1906. Carroll Allen is listed as owner from 1906 to November, 1910, at which time it was purchased by George McBryant, who was listed as a mine watchman in the 1910 census (W & S Consultants 1995a). McBryant apparently lost the mine for unpaid property taxes the next year (Kern County Hall of Recorders Tax Deed #256-8).

The Echo mine was idle except for minor activity until 1935 when, with the discovery of the Silver Queen, the Mojave Mining District was revitalized. Subsequently, it was incorporated into the Golden Queen Group (Troxel and Morton 1962).

Golden Queen (CA-KER-4451H)

The Golden Queen mine has its origin in 1933, when George Holmes discovered the Silver Queen vein, high on the north slope of Soledad Mountain. This discovery revitalized the Mojave Mining District generally, with approximately $300,000 removed from the mine between 1933 and 1935. In this later year, Holmes and his partners sold their mining interests to the Gold Fields American Development Company, a subsidiary of the English company Gold Fields of South Africa Mining Corporation, for the sum of $3.5 million. The resulting Golden Queen Mining Company represented a consolidation of a series of groups on Soledad Mountain, including the Silver Queen, Queen Esther, Echo, Gray Eagle and Soledad Extension properties (Tucker 1935; Troxell and Morton 1962). A state-of-the-art mill and cyanide plant was also built in 1935, starting in operation in October of that year.

According to a period account (Tucker 1935), the main haulage tunnel at the Golden Queen held 30 pound rails supporting 12 Westinghouse Electric two-ton locomotives and cars. Mine equipment included three Imperial-type Ingersoll-Rand compressors, a blacksmith shop and a machine shop. The mill and cyanide plant ran 24 hours a day with a 350 tons/day capacity. It had 700 tons coarse ore bins, primary and secondary gyratory crushers, Marcy ball mills, Dorr classifiers, and then a series of Dorr

agitator and thickener tanks, with Oliver drum filters at the end to dewater the slimes (ibid:478). Two hundred men were employed at that time: 150 on construction, and 50 on mine development.

By mid-1937, it is estimated that the mine was producing 300 tons of ore per day. Between 1936 and 1942, approximately one half-million tons of ore were processed, yielding $6 million in gold and silver. Increased mining costs after the war prevented its reopening, and the mill was dismantled in about 1950, and its remnants burned sometime subsequently. However, minor activity continued into the 1950s, and the total production for the mine has been estimated at about $10 million (Troxel and Morton 1962).

This figure has been grossly confirmed through the acquisition of copies of the original accounting ledger sheets for the mine and mill. Based on records for 64 months dating between early 1936 and June 1941 (i.e., for less than the total period of production), the actual receipts for gold bullion sold by the Golden Queen Mining Company totaled $7,867,782, thereby averaging about $123,000/month. However, these records indicate that the mill was processing and purchasing a considerable amount of ore from other mines during this period (including, according to various sources, the Wegmen mines). Custom milling apparently accounted for $2,200,736 of

the Golden Queen's bullion sales, representing fully 29% of the total for the 64 months. Where all of this ore originated is unknown, especially given that the Elephant-Eagle Mill was also operating on Soledad Mountain at this same time.

"Cobble City" (CA-KER-4446H)

In addition to the mines and mill, per se, the historical records also indicate the development of a residential settlement on Soledad Mountain, which has been referred to above. In two documents (one historical and one recent) this is referred to as "Soledad City". However, it needs be noted that Mrs. Grace Wegmen Meehl, who was born, raised and lived on the Wegmen property for most of her life, had never heard the term "Soledad City" used while she lived there (personal communication, 1995), so this is apparently a slight misnomer. In an effort to avoid introducing additional ambiguity into the historical record, we have referred to this residential area as "Cobble City", reflecting the primary building material there-employed.

Regardless of toponymic, this residential area is described very briefly in a few reports as consisting of a series of wood and stone cabins on the side of the mountain, which first started to develop around the Karma mine in about 1899 (e.g., Troili 1908; Settle and Settle 1984; Hensher and

Vredenburgh 1991). An oral history of the Wegmen family also indicates that it included a school. Apparently, the local population of children was sufficient to keep this school open until just a few years before the opening of the Golden Queen mine in the mid-1930s. According to Mrs. Meehl (personal communication, 1995), who went through the tenth grade at this school, it was originally located near the Queen Esther Mill, but was moved downslope around 1910 to a building on the north side of Silver Queen Road, north of the Golden Queen project area, and was relatively recently bulldozed. Attendance averaged about 15 students in this one-room school, although it had been as high as approximately 25 when the mines were in operation. In order to keep the attendance up, and therefore continue to qualify for state funding, children were also brought in from Vreda, the nearby rail siding near the intersection of what are now Silver Queen Road and Highway 14. Furthermore, Mr. Engelbert Wegmen, who was on the school board, always insured that the teacher hired for the school herself had a family of children, to boost enrollment.

According to the 1910 census (see W & S Consultants 1995a), the total population living on Soledad Mountain at that time was 95 individuals, the majority of which were unmarried males, but also including a significant number of women and children. Note that this total represents the period after the closing of the Karma and Echo mines; at a minimum, therefore, it

probably does not represent the local population peak, which presumably would have occurred around 1904 - 1905. According to Mrs. Meehl (personal communication, 1995), family tradition maintained that the population was as high as 200 people at the peak of mining activities around 1905, which seems entirely plausible, given the 1910 census figures. Subsequently, the population dropped dramatically, with very few people living here in the 1920s and 1930s. Sometimes it was limited to only two or three family groups homesteading on the mountainside.

The majority of the adult males, not too surprisingly, list their occupations in the census as "quartz miners". A series of other occupations - almost all mining camp related - are also represented, including waitress and housekeeper, presumably at the boarding house and dining hall for the unmarried miners. As regards ethnicity, a significant number of the miners originated in Slovenia, eastern Europe. Probably reflecting the local mining slang of the time, almost all of the Slovenian miners are listed as having the first name of "Mike". Another significant ethnic group represented are Italians. According to Mrs. Meehl (personal communication, 1995), the residential area centered in a series of cobble structures downslope from the Queen Esther Mill was known as "Little Italy", in recognition of the ethnicity of the inhabitants of this area. Although greater written documentation would be helpful, the 1910

census nonetheless indicates a considerable amount concerning the size, socioeconomic breakdown, and ethnicity of the population associated with the early historical mining within the study area.

Judging from the historical records and Mrs. Meehl's recollections, the residential area on the mountainside can be divided into two areas: on the northeastern side of the study area there were a series of wood frame cabins and structures built by the Karma Mining Company; this area eventually became the Wegmen homestead. Towards the west, and essentially north and west of the Queen Esther Mill, was "Little Italy", the cobble structures built by the miners working for the Queen Esther Mine. These self-made structures reflected the Queen Esther corporate policy of "extreme frugality", as described by Mrs. Meehl (personal communication, 1995), contrasting with the policy of the Karma Mine, which provided wood-frame housing for its employees.

Based on an examination and analysis of 1903 and 1904 photos, presented elsewhere (see W & S Consultants 1995a), it is clear that the oldest habitation area on the mountain is on the northeastern side of the study area; that is, the eastern structures within the Wegmen complex. The row of wooden cabins extending downhill from the Karma Mill and "Little Italy", in contrast, post-date this initial settlement by at least a few

months, if not about a year, and clearly were not in place before 1903. The majority of the habitation on Soledad Mountain, then fell within a fairly narrow time span of less than a decade, running from 1903 to 1910, albeit Depression era and modern habitation has contributed an overlay to these early twentieth century remains.

As should be clear from the above discussion, existing historical documentation is concerned with what eventually became the primary area of mining development and occupation on Soledad Mountain: its northern and northwestern sides. Essentially no mention can be found in the published and unpublished accounts of mining activities elsewhere on the mountain. Yet it almost goes without saying that once the initial discovery of ore was made in what was to become the Mojave Mining District, the entire region was intensively prospected. Likewise, it can also be expected that archaeological remnants of prospecting activities would be present throughout this area. This circumstance, then, immediately allows us to infer that sites CA-KER-4693H and -4695H are the result of prospecting activities away from the main areas of mining exploitation and, because they fall in areas where no significant ore discoveries were ever made, they are also likely to represent relatively short-term occupations.

2.0

FIELD METHODS

2.1 Introduction

Phase II archaeological fieldwork at the two sites within the Golden Queen Mine addendum study area was intended to establish the nature and significance of each of these sites, and to thereby provide baseline data from which a determination of the ultimate disposition of each cultural resource could be made. This required the collection of a representative sample of artifacts and archaeological indicators from the sites, the establishment of the vertical and horizontal boundaries of any cultural deposits that might be present on the two sites, and an analysis of the recovered artifact assemblage recovered from each of these archaeological localities.

Procedures followed in the collection of data useful for establishing the nature and significance of the site included mapping, surface collecting of artifacts lying on the groundsurface, and test excavation of pits to establish the presence or absence of a subsurface archaeological deposit, as well as to characterize such a deposit if found to be present. Because it was

immediately obvious that the sites considered during this study were primarily surface manifestations, as is common with many twentieth century historical sites, the majority of the field work was directed towards mapping, surface recording and collecting. We discuss each of these field methods below.

2.2 Mapping and Surface Collection

In order to determine the maximum areal extent of each site, the initial field procedure was to locate and map all extant features on each site. These included habitation remains such as buildings, foundation and wall remnants, privies and dumps, and mining features such as adits, glory holes, stopes, buildings, head frames and ore chutes, among others. The mapping itself involved two different levels of data recording: locational mapping of all features across each site, thereby creating a site map; and the finer-detailed mapping of each feature, thus resulting in a series of feature maps or sketches. A transit, stadia and chain were used for the site mapping; feature mapping involved the use of a surveyor's chain, 50 and 10 meter tapes, and a Brunton compass.

Once the various features on each site were identified and mapped, a sample of the surface artifacts present on the groundsurface in or around

each feature were mapped and collected. Generally, these were restricted to functionally and especially temporally diagnostic artifacts. In order to identify all such diagnostic remains, the general area of each site was walked by crew members spaced in two meter transects. Identified artifacts and archaeological indicators were then marked with flagging tape. Remains found within an area of approximately 3 meters-square in size (i.e., within a circle with a one-meter radius) were treated as discrete artifact associations and collected as clusters.

2.3 Test Excavations

In order to ascertain whether or not subsurface archaeological deposits were present at CA-KER-4693H and/or -4695H, and to allow for the characterization of such cultural deposits should they prove to be present, subsurface testing was conducted. Because of the location of the two sites on rocky slopes, and the general nature of the remains contained therein (historical remains less than 100 years old), it was immediately apparent that subsurface deposits would be localized and, relatively speaking, rare. This is because such locations are generally unfavorable for the subsurface burial of artifacts and because little time had passed, archaeologically speaking, since the remains were originally deposited. Subsurface testing,

accordingly, targeted localized areas where the burial of artifacts was most likely, such as within buildings, in privies and on dumps.

Subsurface testing involved the hand excavation of 1x0.5 meter test pits. These were dug with mattock and trowel in arbitrary 10 centimeter levels. Spoils from each of these levels were screened through one-eighth inch mesh. All artifacts/archaeological indicators were collected and bagged by unit and level. Excavation was continued through two culturally sterile levels (i.e., 20 centimeters), or until sterile soil (e.g., decomposing bedrock or intact alluvium) was encountered. Three excavation units were placed on CA-KER-4693H, the larger of the two sites, whereas one test pit was dug on CA-KER-4695H.

3.0

FIELD RESULTS

3.1 Introduction

The field tasks involved in a Phase II test excavation and determination of significance can be conceptualized in terms of four activities: first, establishing the size of each site through mapping and feature recording; second, determining the presence or absence of subsurface deposits on each site through subsurface testing; and third, characterizing the nature of each site in functional and temporal terms through an analysis of the recovered artifact assemblage. Finally, information derived from the above activities are synthesized to determine the significance of each site in terms of integrity, uniqueness, research potential and other heritage values. In this chapter, we discuss the results of the fieldwork relative to mapping and feature recording, and subsurface testing. In the following chapter we consider in some detail the artifact assemblages recovered from CA-KER-4693H and -4695H, and reserve the determinations of significance for these two sites for the final chapter.

3.2 Mapping and Feature Recording

3.21 CA-KER-4693H

Mapping resulted in the recording of six surface features or feature complexes at this site: three structure complexes (building foundations, walls and leveled pads or terraces combined with miscellaneous remains); one isolated privy; and one rock cairn. In addition, three areas representing very low density tin can scatters were also noted on the site. The distribution of these features is illustrated in Figure 2. As is apparent in this map, the site covers an area established at 150 meters N-S by 44 meters E-W, or 6,600 meters square. Note, however, that feature and artifact density within this large area is highly variable. It essentially consists of two loci: a northern zone containing Features #4, 5 and 6 and two relatively large tin can scatters; and, 50 meters away, a southern locus consisting of Features #1, 2 and 3, and a small area of tin can scatter.

We discuss the individual features at this site below.

Feature #1 - This feature is a structure complex and associated remains located at the southernmost end of the site, immediately alongside an existing E-W dirt road (Figure 3). It consists of a variety of associated

structural remains and surface artifacts. The largest of these is an unmortared fieldstone cobble structure consisting of a three-walled U-shaped room opening to the north and measuring about 8 meters E-W by 6 meters N-S. Maximum height of the existing cobble walls is currently 75 cm. Wire roofing anchors are still present in five locations along this wall, and a rock-ringed hearth (probably modern) is present in the middle of the room. A smaller three-walled U-shaped room abuts this large room on its northwest corner, thereby opening to the west. This measures 4 m N-S by 2 m E-W, and opens on a flattened terrace, measuring 4 by 4 m in size, which may represent a tent pad. This pad ends on its western side in a low cobble wall (maximum height, 20 cm). Judging from a declivity in the groundsurface immediately west of this low wall, along with a scatter of cobbles around this declivity, this appears to represent the remnants of a small privy associated with these structures.

Three small surface concentrations of tin cans and other artifacts are located about 4 to 5 m north of the cobble structures, on the north side of the dirt road bisecting this feature complex. These measure 10 by 4m, 2 by 2m, and 6 by 2 m, E-W by N-S respectively. These are low density concentrations of mostly hole-in-top ("vent-hole") cans. As a general rule, these are common around the turn-of-the-century and into the 1920s, with sanitary seam cans largely replacing these during the 1930s (cf. Rock 1987).

A small quantity of functionally and/or temporally diagnostic surface artifacts was collected from the Feature #1 complex area, including a knife handle; two gun cartridges; rifle barrel; two buckles/clasps; a canteen; and bottle glass fragments. In general, however, the density and total numbers of surface artifacts associated with this feature complex are low, suggested a relatively limited period of occupation.

Feature #2 - This feature is an isolated privy pit located about 14 meters N/NE of Feature #1 (see Figure 2). It consists of a relatively shallow elliptical depression, measuring 4 m N-S by 3 m E-W, containing two deeper, circular depressions. These are 20 - 25 cm in depth below modern groundsurface, and approximately 1 m in diameter (Figure 4). A small concentration of rocks is present around the outside of the large elliptical depression. A single hole-in-top can was also present on the groundsurface in the northern of the two deeper pits.

This feature apparently represents a "two-hole" privy, with the extant cobbles around the edge of the shallow elliptical depression representing the remnants of a rock lining which probably existed at the base of the privy walls, which may have been made of wood. The single can on the groundsurface, partly buried in surficial colluvium, suggests that this feature is generally coterminous with Feature #1.

Feature #3 - Located 16 m due north of Feature #1 (Figure 2), Feature #3 is an isolated, rock-ringed hearth. It measures 1.2 m N-S by 1.025 m E-W, is roughly circular in shape, and has a maximum depth of 25 cm (Figure 5). A single, partly buried hole-in-top can was associated with the hearth suggesting, again, that it is generally coterminous with Feature #1.

Feature #4 - This feature is a rock cairn which is located in the approximate middle of a large but low density tin can scatter which forms a portion of the northern locus of the site (Figure 2). The cairn is 2.25 m N-S by 1.5 m E-W, and is generally one course of fieldstone cobbles high (Figure 6). Surface indications failed to reveal the function of this feature, but it was initially posited to represent either a fallen mining claim corner marker or a cobble covering for a grave.

Feature #5 - Feature #5 is a cobble structure complex located towards the northern end of CA-KER-4693H (Figure 2), which is to say within the northern locus of the site. It consists of an unmortared, N-S fieldstone wall abutted by the remnants of two or probably three E-W walls, thereby creating a series of three-walled, U-shaped rooms, opening to the east (Figure 7). This complex measures 13 m N-S by 6 m E-W.

The best preserved portion of this complex is located at its northern

end. The N-S wall within this area ranges from 1 to 2 m in height, while the E-W wall is 2 to 0.5 m high. Wire roofing attachments are also present at two locations in this room area, which measures 4 m N-S by 5 m E-W. To the south of this northern "room" the walls of the structure are lower and appear to have partially collapsed, leaving miscellaneous scatters of cobbles around them, and making the interpretation of the structure in this area less certain. For example, the central of the three putative E-W walls is currently very short (~1 m in length) and terminates in a small scatter of period hole-in-top cans, suggesting that it may never have extended beyond this point. Similarly, the southernmost of the three E-W walls is largely collapsed with a series of cobbles scattered in this area. It is unclear whether it represents a single collapsed E-W wall or, instead, an E-W wall and low enclosed elliptical area which may have served as a privy. Finally, no E-W wall is present at the southern end of the N-S wall, perhaps indicating that the southernmost "room" contained only two walls, one to the west and the other to the north. However, if we are correct in our reconstruction of this complex as a line of three rooms, each of these rooms measures 4 m N-S. It can also be noted that the structure may have represented mixed construction: a cobble-walled room at the northern end alongside one or two tent pads, which included wind blocks provided by lower cobble walls around portions of their peripheries, and/or a privy at the southern end.

A low density scatter of turn-of-the-century artifacts, primarily hole-in-top tin cans, is present in and around this feature complex. This includes the minor surface concentration of cans noted above. In addition, however, larger but low density scatters of cans and other artifacts are present SE and SW of this feature complex. A footpath approaches the feature from the south and northeast, and a low E-W cobble wall is present about 10 m E of the northern E-W wall of the structure. Finally, a pothole, probably dug by bottle collectors, is present within the structure.

Surface collecting within the can structures associated with Feature #5 resulted in the recovery of a series of temporally and functionally diagnostic artifacts, including bottle and china fragments and a bullet cartridge. All of these fall within the general turn-of-the-century time period.

Feature #6 - The final feature recorded at CA-KER-4693H is a three-walled, U-shaped cobble structure, located 4 m north of Feature #5 (Figure 2). It opens to the E/SE, measures 8 m N-S by 10 m E-W, and has extant unmortared fieldstone walls which range from 30 cm to 1.2 m in height. A pothole is also present in the middle of this room structure (Figure 8).

CA-KER-4693H Summary - Surface recording and artifact mapping and collecting indicate that this site is a small, somewhat dispersed

habitation area. Although structural remnants are in some cases ambiguous, the site appears to contain a maximum of seven "rooms" and/or tent pads, two or three privies, one or more hearths and a rock cairn. The extant structural remnants are all locally available fieldstones, while the structures themselves evidence minimal investment in constructions activities; that is, they appear to represent quickly built habitations not intended for long-term residence. This supposition is supported by the can scatters: these are extensive, very low density distributions of surface artifacts that lack the concentrated deposition characteristics of "true" trash dumps, and that generally do not display the kinds of heavy damaged (e.g., due to trampling) that would have resulted from intensive site occupation. Again, they are indicative of short-term site occupation and use.

Construction techniques and materials, in general terms, are similar to those reported for "Cobble City" (CA-KER-4446H), discussed above (see also W & S Consultants 1995 a, 1995b), thereby suggesting an equivalence in age. This is supported by the artifacts collected from the surface of the site: these too fall within the parameters of a general turn-of-the-century temporal affiliation.

3.22 CA-KER-4695H

Site CA-KER-4695H consists of three archaeological features in close association: a hearth, privy pit, and leveled terrace or pad (Figure 9). These are located within a relatively restricted area which we mapped as 6 m N-S by 12 m E-W, or 72 square meters; indeed, the privy is located within the terraced pad area, with the hearth placed a few meters away. A very low density surface artifact scatter associated with these features, however, increases the overall size of the site to 12 by 12 meters, or 144 square meters total. We discuss each of these features below, in turn.

Feature #1 - This is a rock-ringed hearth located 3.25 m west of the SW corner of the terraced pad (Feature #3). The hearth is 1.75 m N-S and 1.5 m E-W. Currently it is primarily one-course of unmortared fieldstones high; however, some stones have fallen towards the west and, at one point, it was probably higher. A few pieces of charcoal are visible on the groundsurface within the hearth. This feature appears to be modern.

Feature #2 - The second feature recorded at CA-KER-4695H is a privy pit located in the SW corner of the terrace pad. It consists of a rock-lined depression that is approximately 1 m in diameter, and which abuts against an upslope portion of the pad.

Feature #3 - The third feature at the site is the terraced pad itself, perhaps having served as tent pad. It is trapezoidal in shape, measuring 11.25 m E-W along its northern side, 7.5 m E-W on the south, and 6 m N-S. The northern edge of this pad consists of a single-course of unmortared fieldstones which are 25 cm in height. The southern side essentially constitutes the back wall of the pad and consists of a cut slope that is approximately 25 cm high. Thus, the pad was constructed by cutting into the upslope area and using this fill to level out the front half of the pad. As noted above, the privy (Feature #2) is located in the SW corner of the pad.

Aside from the presence of the privy, the pad area was largely devoid of artifactual remains. A small number of surface artifacts were present at the site however, but these were primarily located to the south and to the north of the pad itself. These artifacts include hole-in-top tin cans and whiteware ceramic fragments, and are generally turn-of-century in age.

CA-KER-4695H Summary - The features and surface artifacts recorded at this site appear to consist of a single habitation area and a very small amount of resulting debris. This is suggestive of a short term occupation by a very small population (perhaps as small as a single

prospector or miner). Moreover, all existing evidence suggests a general turn-of-the-century age for this site.

3.3 Excavation Results

In addition to mapping, recording and surface collecting, test excavations were also conducted at CA-KER-4693H and -4695H to determine whether subsurface deposits are present at these sites, and to characterize such deposits if present. The results of these test excavations are summarized below.

3.31 CA-KER-4693H

Three test pits, measuring 0.5 by 1 m in size, were excavated at CA-KER-4693H. These were placed in Features #2, 4 and 5 at the site. We discuss these results of these excavations in general terms below.

Unit #1 - This test pit was placed in Feature #2 at the site, a privy (Figures 2 and 4). It was excavated to a depth of 10 cm, where intact, sterile rocky alluvium was encountered. Artifact-bearing soils in the unit

consisted of rocky, sandy alluvium that is light yellowish brown in color (Munsell 10YR6/4); as implied above, these soils were only 10 cm deep. Moreover, artifacts within them were restricted to a fragmentary tin can.

Based on the results of Unit #1, Feature #2 represents a very small and shallow privy. Its lack of any consequential depth or significant artifact assemblage, moreover, is indicative of a very short and light use. This further supports the inference, noted above, that CA-KER-4693H represents a short period of occupation and use.

Unit #2 - This pit was placed within Feature #4, a rock cairn (Figures 2 and 6). It was excavated to intact, sterile alluvium, which was encountered at 20 cm depth. Soils above the sterile lens consist of rocky, sandy alluvium and are light, yellowish brown (Munsell 10YR6/4) in color. Miscellaneous metal and glass fragments were recovered from the first ten centimeter level of this unit but soils below 10 cm are culturally sterile.

The nature of this feature and the artifacts associated with it are somewhat ambiguous. It is, however, clear that this feature does not represent a burial cairn, and it seems unlikely (given its shape) that it is a fallen mining claim cairn. The most likely interpretation of this feature then is that it represents an intentional pile of small cobbles, probably resulting from the clearing of the walkways around Feature #5 at the site.

Unit #3 - The final test pit excavated at CA-KER-4693H was placed within the floor of the northern room of Feature #5, the structure complex at the north end of the site (Figures 2 and 7). Although it may not be immediately apparent in the map of this feature, this unit was placed in the location that, based on micro-morphological features, was deemed most likely to contain subsurface deposition. The pit was dug to intact, sterile alluvium, encountered at 20 cm in depth. Soils above this contact are rocky, sandy alluvium, and are light yellowish brown (Munsell 10YR6/4) in color.

Artifacts, consisting of miscellaneous nails, broken glass and china fragments, were present within the top 10 cm of the unit. the 10 - 20 cm level of Unit #3 was culturally sterile.

CA-KER-4693H - Summary - Test excavations at CA-KER-4693H yielded a very low density and number of artifacts from the 0 - 10 cm level of the site, within specific areas having a potential high likelihood for containing subsurface remains. The 0 - 10 cm level of a site represents the groundsurface and the area in which natural soil processes result in some mixing and artifact movement; that is, it is common for surface remains to be recovered during the excavation of the first 10 centimeters of a site but, if a true subsurface component is present, artifacts can be expected deeper within the stratigraphic profile. Thus, the artifacts recovered during the

test excavation can be interpreted as essentially surface remains on the site. No evidence for a significant or substantial subsurface deposit, therefore, is present at this site, including within features (such as privies) which normally would contain such subsurface remains.

That CA-KER-4693H is limited to a surface deposit, moreover, further supports the interpretation suggested above that the site as a whole reflects a short-term and limited occupation and use.

3.32 CA-KER-4695H

Because of its very small size, only one test pit was excavated at CA-KER-4695H, designated Unit #1. This was placed within Feature #2, the privy pit (Figure 9); surface features on the leveled terrace (Feature #3), as well as the slope of the surrounding terrain, preclude the development of any subsurface archaeological deposits in these other portions of the site.

Unit #1 was excavated to bedrock, which was encountered at 20 cm in depth. Soils within this unit were uniformly a soft silty sand with common small (~2 mm) vesicular pores. This soil was Strong Brown (Munsell 7.5YR4/6) in color.

Artifacts were present in small quantities to bedrock in this unit. They included window and bottle glass fragments, wire nails, tin can fragments, eggshells and whiteware china shards.

The nature of the soils and artifactual remains recovered from Unit #1 are typical of the conditions encountered at other privies on Soledad Mountain (see W & S Consultants 1995b). This privy is, however, very shallow, essentially only 8 inches deep. Hence, the use of it was necessarily limited in intensity and either reflects a very short term of use by a number of individuals, or a somewhat longer use by a smaller number of persons, perhaps only a single individual.

CA-KER-4695H - Summary - The subsurface remains recovered from the privy at CA-KER-4695H support the inferences concerning the nature of this site made in reference to the surface remains; namely, that it was a small habitation, probably occupied for a relatively short period. Similarly, the artifacts recovered from the test pit are also consonant with a turn-of-the-century age assignment for the site.

4.0

ARTIFACT ASSEMBLAGE

4.1 Introduction

A total of 251 artifacts was recovered during the Soledad Mountain Phase II addendum project; 179 of these from the excavations at the two sites, and the remaining 72 from surface collecting. These artifacts include specimens of metal (32%), glass (34%), ceramic (14%), and organic materials (19%). In this chapter we discuss the laboratory procedures used to process and analyze this assemblage, and then consider the recovered collection by site and by artifact material class.

4.2 Laboratory and Analytical Procedures

Following the completion of the Phase II addendum fieldwork on Soledad Mountain, the two recovered artifact assemblages from CA-KER-4693H and -4695H were taken to the W & S Consultants' laboratory for washing, processing and analysis. After each specimen was washed and labeled, metrical and typological analyses were performed. We provide proveniences, measurements and weights for the various artifacts, as

appropriate, in the site catalog for the project (Table 1) included in this report.

Typological analysis of the recovered assemblage was undertaken in a fashion fully equivalent to our previous work on Soledad Mountain historical sites (W & S Consultants 1995b), in order to provide comparability between the different site assemblages and studies. This approach emphasized the ultimate function of the artifacts, in an effort to derive a sense of the function of each site as a whole, and their probable age, in order to provide chronological placement for each of the sites considered in this study. Initially, we categorized each artifact by major material class (metal, ceramic, glass, leather, bone, etc.), and then certain key functional classes, such as tin cans or cooking utensils. Within certain of the material classes we also identified mode of manufacture, particularly with reference to glass, but also including nails and cans. Manufacturing technology is of particular importance in historical analyses because it often provides clues to chronological placement. For example, significant changes in the manufacturing techniques for glass bottles, metal nails and tinned cans occurred during the nineteenth century. These are key indicators of an artifact's age. Subsequently, functional identification within these classes was undertaken. Because the sites are Euro-American historical resources, functional interpretations could be partly based on a

general knowledge of historical material culture use, as well as published typologies and analyses.

With regard to glass artifacts, we have employed Herskovitz's (1978) typology and identification of bottle forms and functions, along with neck forms and types. These are illustrated in Figures 10 and 11. We also note that in the glass analysis that follows we use the color term "lavender" to refer to bottle coloration that has altered from clear due to the inclusion of manganese as a de-coloring and clarifying agent; this is sometimes referred to as "amethyst" glass. This process was utilized from approximately 1880 to 1916, and thus it serves as a general temporal indicator. We use the term "purple", however, to apply to glass that was intentionally manufactured with this darker hue. For tin cans, we consulted the period official standards and measurements published by Rock (1987).

4.3 CA-KER-4695H

The artifact assemblage recovered and analyzed from CA-KER-4693H totaled 140 individual specimens, 77 of which were recovered during the test excavations and 63 surface collected (see Table 1). We discuss this

assemblage, by major analytical category, below

4.31 Metal Artifacts

Metal artifacts from CA-KER-4693H are summarized in Table 2. A total of 53 of these were recovered, representing fully 38% of the assemblage total from this site. These metal artifacts include 34 wire nails and tacks (64%); 4 gun cartridges and parts (8%); 3 clothing fasteners (snaps/buckles) (6%); 2 square nail fragments (~4%); 2 kitchen utensils/cookware (~4%); and a number of miscellaneous or unique specimens, including fragmentary metal cans. The metal can fragments, as well as those observed on the site but not collected, are primarily hole-in-top ("vent hole") cans. These were introduced around the turn-of-the-century. Although they continued to be used for specialty canned items (such as condensed milk), they were largely superseded by sanitary seal cans in California after about 1911 (Rock 1987). This suggests that CA-KER-4693H dates to the first decade of this century.

Nails, including both machine made wire and square cut examples, were the most common artifact class from the site. Machine-made wire nails and tacks were first made about 1850, but became common between 1880 and 1890, displacing machine-cut square nails. Nails, like many other

metal artifacts, however, have a long "shelf-life" in the sense that a considerable lag may exist between their manufacture and their final use. The assemblage from CA-KER-43693H, which includes a mix of both types, is then generally characteristic of a turn-of-the-century collection of nails.

The gun-related artifacts include one rifle barrel, and three cartridges/shell casings. The rifle barrel has been flattened and appears to have been reused as a pry-bar. It is a failed Damascus barrel, apparently from a high caliber rifle, although its current condition precludes more precise identification. Damascus barrels were hand-forged from strips of metal and could not withstand the high combustion pressures of smokeless gun powder, introduced before the turn-of-the-century. The cartridges and shells include two rifle cartridges and one shotgun shell. The cartridges are stamped "W.R.A. Co." over "90 W.C.F.", and "W.R.A. Co." over "44 W.C.F.". Both were made by the Winchester Repeating Arms Company, and represent .44 and .45-90 caliber loads. The shotgun shell is stamped "1901" over "No. 12" over "Repeater". This, too, is a Winchester Repeating Arms Company stamp for a 12 gauge shell which predates World War I (W & S Consultants 1994). All of these cartridges/shells are advertised in the Sears, Roebuck and Company catalog for 1900, but were not sold by 1923, again supporting an early twentieth century age for these gun supplies.

The clothing fasteners include one strap adjustor and two small, spring-loaded clothing clasps. All of these are small, light garment items, with the strap adjustor perhaps derived from a man's vest. The two clasps are from unidentified clothing items but, in all three cases, none of this clothing hardware can be interpreted as work clothes-derived.

Kitchen utensils and cookware are limited to two specimens: the handle of a metal dinner knife; and a metal canteen. This was converted to a pan by removing one side, and soldering a plug over the neck hole. The remaining metal artifacts are all miscellaneous fragments or unique pieces.

Two characteristics of this metal artifact assemblage are notable. The first is simply that all chronological evidence which may be derived from these artifacts is in agreement with an early twentieth century age for this site. The second is that essentially no mining or prospecting related tools were recovered, such as used rock bits, broken picks and shovels, etc. While we do not take this to mean that no mining or prospecting was undertaken by the site inhabitants, what it does suggest is that any such activity was relatively short-lived (hence no broken or depleted tools), and that the tools that they used were taken with them, when they abandoned the site.

4.32 Ceramic Artifacts

Ceramic artifacts from CA-KER-4693H are summarized in Table 3. They totaled 29 specimens, which represent 21% of the site assemblage. Inasmuch as most of these are derived from surface collecting, and we intentionally sampled for sherds because many of them contain maker's marks or decoration and are therefore identifiable, this number is not representative of the numerical significance of ceramics as a whole on the site. That is, ceramics are much less common at the site than this number would suggest.

Although we have identified the ceramics by ware (whiteware, creamware, porcelain, earthenware) in Table 3, for analytical purposes here we have combined whiteware, creamware and ironstone, because "ironstone" was a commercial rather than technical designation that overlapped both whiteware and creamware (cf. DeBolt 1988). The breakdown of the assemblage then is whiteware - 45%; and porcelain dinnerware - 65%. This is a relatively high proportion of porcelain, essentially representing finer dinnerware.

Only one of the ceramic sherds contains a maker's marks. This is a whiteware plate fragment marked with "ROYAL IRONSTO[NE]" over a

standing Victorian Royal Arms. It is attributed to the Charles Meaken Company from Burslem and Hanley, Staffordshire, England. This mark dates from 1876 to 1889 (Praetzellis et al 1983:55). Again, given the shelf-life of dinnerware, this date is consonant with a general turn-of-the-century age for the site.

Plates are the most commonly represented type of ceramic vessel found at the site: eight of the whiteware shards are from plates; one is from a cup; one of the porcelain sherds is from a dish; and the remainder (which are small fragments) are either from plates or cups.

Decoration on the ceramics included examples of raised relief (molded) designs, transfer patterns, and hand-painting. Six of the whiteware sherds have the same scalloped rim with a raised "feather" design, and may all derive from the same plate. Transfer patterns are the most common decorative technique: four of the whiteware shards had transfer patterns, which are green floral in design; and 14 of the porcelain shards exhibit transfer prints. These are of two types: three have a multicolor floral print; and 11 have a blue "Chinese" pattern. These last shards appear to derive from two or more cups and plates from the same set. Hand painting was of course rare but two of the porcelain sherds were hand painted: one with a gold and opaline design; the other with a gold shell pattern.

In general terms the ceramic assemblage represents a very mixed variety of pieces of dinnerware. It is not, in certain respects, the kind of assemblage expected in an organized, functioning mining or prospecting camp, which would be more consistent with regard to type and should contain more enamel-ware than ceramics. Moreover, it contains a significant proportion of finer porcelain rather than more common whiteware, and it lacks the large serving vessels that are usually associated with feeding numbers of people communally. This ceramic assemblage, then, more resembles the miscellaneous dinnerware-set remnants of a series of households, brought into the field by individuals responsible for preparing their own sustenance. This suggests that the occupants of the camp had recently taken-up prospecting and mining, bringing certain household items with them in this endeavor, and that there was little organized effort at the camp level in food preparation.

This inference is supported when the ceramic assemblage from this site is compared with the assemblages recovered from the nearby Wegmen (CA-KER-4447H) and Cobble City (CA-KER-4446H) sites (W & S Consultants 1995b). Bearing in mind that the ceramic assemblage at CA-KER-4693H is restricted to 45% whiteware and 65% porcelain, it is then worth noting that whiteware constituted 79% and 61% of the Wegmen and Cobble City

assemblages, respectively, with porcelain dinnerware at 5% and 16.5%; other porcelain ceramics constituting 2% and 5%, and earthenware representing 14% and 6.6% of each site's ceramic total. CA-KER-4693H stands-out, then, both because of the lack of diversity in its ceramic artifacts but, as well, due to the high proportion of finer porcelain artifacts, and the complete absence of true utilitarian earthenwares.

4.33 Glass Artifacts

The glass artifacts recovered from CA-KER-4693H are summarized and described in Table 4. A total of 58 glass specimens were found at the site, representing 41% of the total artifact assemblage. The majority of these (57%) are small glass fragments or shards, with the following colors represented: amber - 11; dark green - 8; light green - 7; clear - 4; amethyst - 2; and white - 1. All of these appear to be bottle fragments.

No complete bottle specimens were found at the site. However, one specimen is nearly complete. It consists of a small (pint-sized) clear liquor flask, which retains its screw-on pewter top. One bottom corner of this bottle is broken, as if it were dropped, which may explain why it was abandoned at the site.

The remaining 24 glass artifacts are all bottle fragments which are of sufficient size and/or maintain diagnostic attributes that allow for at least some level of identification. As noted in our previous report on other Soledad Mountain sites (W & S Consultants 1995b), we have used the typology and identifications of bottle and neck form published by Herskovitz (1978; see also Wilson 1981) for this collection; these types are illustrated in Figures 10 and 11. Note that these named types were not exclusively used for the product for which they are named; for example, champagne bottles could also serve for wine.

Two of the glass artifacts from CA-KER-4693H are identifiable per these published types. One is an amber bottle neck with seams along either side. This corresponds to a Type a Beer Bottle. The second is a light green neck, which represents a Type i Packing Bottle, presumably used for some kind of bottled foodstuffs.

Six of the bottle fragments have embossed or molded lettering. Two amber bottle bases, for example, have a central "8" present. Although these are common in historical sites (see Wilson 1981:127), their manufacturer is unknown. Another amber bottle base is marked with "...UG.24" over "10" over "...1886". This appears to be a patent date, August 24, 1886, presumably of either the bottle manufacturing technique or the

contents of the bottle itself. It correlates with a similar base found at Cobble City (W & S Consultants 1995b:106), pointing to general contemporaneity between the two sites.

Other molded bottle fragments included an amber body shard marked with "...R...RYE...", which may be inferred to represent a rye whisky bottle; another amber body fragment with "MANUFACTU...THE LIQU...CHIC..." which, again, appears to be a liquor (probably whisky) bottle; and a small, square, purple bottle base with a molded "...SCHIL...". This, presumably, is a condiment bottle made by the Schillings Company.

The remaining bottle fragments include the following types and classes: 1 - light green jar rim; 4 - light green bottle bases; 2 - light green necks; 4 - plain amber bases; 1 - amber body fragment with a side seam; 1 - flat-sided clear flask; 2 - oval clear flasks; and 1 - dark green bottle base.

Although fragmentary, the amber specimens appear to correspond in general form (thickness, size, etc.) to beer bottles. Likewise, the flasks represent hard-liquor containers, probably filled on request at a suttler's store. Although some light and dark green bottle fragments were recovered, none of these are clearly champagne or wine bottles, as would be indicated by deep kick-ups in the base. Instead, liquor consumption on

the site seems to have emphasized beer and various kinds of whiskey, including rye.

This circumstance varies from the results of the test excavations at Cobble City, CA-KER-4446H, where champagne/wine and brandy bottles were most common (W & S Consultants 1995b). As noted above, the 1910 census and oral interviews indicate that Cobble City was occupied by a significant number of Italian and Eastern European miners. The difference in the emphasis in the types of liquor bottles used at these two sites may reflect different ethnic tastes with regard to liquor consumption.

4.34 CA-KER-4693H - Summary

As is common in many historical sites, artifactual evidence for the chronology of this site is straightforward and very coherent. tin cans, gun cartridges and shells, bottle types and other artifacts all are of indicative of general turn-of-the-century use and occupation of this site. Moreover, no clearly more-recent materials were noted in the assemblage, suggesting that CA-KER-4693H represents essentially a pure temporal component. Although it is difficult to be certain, we estimate the age of this site to fall somewhere within a roughly ten to fifteen year period, running from about

1895 to 1905 or 1910.

Aside from the metal, glass and ceramics discussed above, no other class of artifact, such a faunal remains, was recovered during the test excavations at CA-KER-4693H, further emphasizing the general lack of diversity in remains at this locale. This lack of diversity supports the contention that the site was occupied by a relatively small group of people for a relatively short period of time.

We take as a given that the function of the site was related to mining and prospecting, simply because of its age and location on Soledad Mountain: the documentary and other evidence makes clear that prospecting and mining were the primary activities conducted at this location during this period, even though there is no direct evidence for mining activities at the site, per se. Similarly, there is minimal evidence of mining (e.g., adits, open cuts, stopes, waste rock and tailings piles) in the vicinity of CA-KER-4693H. The inference that then results from these circumstances is that CA-KER-4693H was a prospectors' camp, per se, rather than a miners' habitation or village. That is, that it was used during the period when this portion of the mountain was being explored for ore veins and, given that none of consequence were apparently ever found, was relatively quickly abandoned.

In part this interpretation may explain the nature of some additional characteristics of the artifact assemblage; specifically, the ceramics and liquor bottles. As noted previously, the ceramics appear to reflect a cleaning-out of the broken dinnerware sets of a series of households, rather than the kinds of ceramics normally associated with operating and organized mining camps. Similarly, the liquor bottles appear to represent those kinds of spirits usually associated with Euro-Americans (whiskey and beer), rather than the wine, champagne and brandy more heavily favored by southern and eastern European miners, as suggested by the results of the test excavations at other Soledad Mountain sites (see W & S Consultants 1995b). It seems reasonable to assume, first, that a prospecting camp might reflect an initial effort at field camp living, and therefore that its material cultural remains would be more similar to those found at home rather than at permanent field camps. Or, at least, prospectors recently entering the field would be more likely to include larger proportions of home items in their field kits than those that had been away from home for a longer period. Second, it seems most likely that prospectors, per se, would be of local Euro-American origin, rather than of then-recent immigrant stock, who would be more likely to come in search of wage-labor at established mines, thus explaining the nature of the liquor bottle assemblage.

4.4 CA-KER-4695H

The artifact assemblage recovered from site CA-KER-4695H was relatively small, totaling 111 specimens, of which 102 were obtained during the excavation of the privy, and eight were collected from the ground surface (see Table 1). This imbalance points to the fact that the site is on a relatively steep slope, with little chance for the in-situ preservation of surficial remains. The recovered artifact assemblage from the site is discussed, by major class, below.

4.41 Metal Artifacts

A total of 28 metal artifacts was recovered from CA-KER-4695H; these are summarized in Table 2. As is often the case, tin cans are the most common class of metal artifacts: 14, or fully one-half of the metal artifacts, are tin can or can fragments. One of these is a sanitary seal can base; the remainder are either definitely, or appear to be, hole-in-top ("vent hole") cans. As noted previously, sanitary seal cans were introduced commercially around 1904 and began to replace the older hole-in-top cans by about 1911 (Rock 1987). Thus, the tin can assemblage from CA-KER-4695H alone is indicative of a turn-of-the-century or first decade of the

twentieth century age-assignment for the site.

Five of the cans are identifiable as meat cans; specifically, three canned fish and two canned meat tins. The fish cans are rectangular, key-opened tins, stamped with "KIPPERED HERRING" over "PACKED IN NORWAY". The other two specimens are the rectangular bases of tapered meat tins. One is stamped "BRASIL" (i.e., Brazil) over "INSPECCIONADO" (Inspected) over "7" over "S.I.E.". The second, of similar size, is stamped "Y A O" in a circular pattern. Tapered meat tins with key-wind openers became common after about 1891, whereas canned meat imported from South America became common after 1906, when Upton Sinclair's book about the U.S. meat-packing industry, The Jungle, resulted in troubles for U.S. products (Rock 1987). The meat and fish tins, in other words, suggest a use of the site in the first decade of this century, most likely after 1906.

Another common metal artifact on the site is wire cut nails (7 for 25% of the metal artifacts); two tacks (7%) were also recovered. Single examples of a fragment of door hardware, a lead pipe fragment, a crown bottle top, a wood screw and a door hinge were also collected from the site.

Only one gun cartridge, a shotgun shell, was recovered from the site. This is marked "SEARS" over "12 Ga" over "SPORTLOAD". This appears to be a

modern (intrusive) specimen, as neither the Sears, Roebuck and Company 1900 nor 1923 catalogs list this shell variety.

Aside from the chronological information provided by the metal artifacts, little can be inferred about these items. Again, direct evidence for mining and prospecting activities is missing. The emphasis in the tin cans on imported meats (fish and presumably beef), however, is suggestive of a well-funded campsite.

4.42 Ceramic Artifacts

A total of only six ceramic artifacts was recovered from CA-KER-4695H. These are summarized and described in Table 3. This total represents slightly less than 2% of the artifact assemblage as a whole from this site. For purposes of comparison, 3% of the artifact assemblages from Cobble City (CA-KER-4446H) and the Wegmen (CA-KER-4447H) sites respectively were also ceramic (W & S Consultants 1995b), thereby providing general equivalence to the numbers at this site, whereas 21% of the assemblage from CA-KER-4693H is ceramic.

In further contrast to this other small site, the ceramics from CA-KER-4695H are entirely whiteware, with no finer porcelain present. The

collection includes three plate fragments; one dish fragment; one sherd from a bowl or pitcher; and one cup fragment. However, the six potsherds recovered represent only five different vessels: two of the plate fragments are from the same article. Interestingly, one of these was collected from the groundsurface, whereas the other was excavated from the 10 - 20 cm level of the privy. Among other things, this serves to temporally associate the surface and privy artifacts at the site.

No makers' marks are present on any of the ceramic specimens, thereby impeding any chronological evaluation of or place of origin for these remains. Five of the shards are, however, decorated, as follows: silver double line at rim - 2; fluted rim with blue rim design - 1; gold trim at rim - 1; and pink floral transfer pattern - 1. That is, at least four of the six potsherds represent different dinnerware patterns. This great heterogeneity, especially in such a small assemblage, suggests that the dinnerware used by the inhabitants of this site was a very mixed collection of household remnants and leftovers, rather than a matched set.

4.43 Glass Artifacts

The glass artifacts from CA-KER-4695H are summarized and described in Table 4. A total of 28 glass specimens was recovered from the site, thereby constituting 25% of the site assemblage total. In comparison, glass contributed 28% of the assemblage from Cobble City (CA-KER-4446H), and 35% from the Wegmen site (CA-KER-4447H; see W & S Consultants 1995b); again, providing general equivalence in magnitude between these sites, whereas glass was fully 41% of the assemblage at CA-KER-4693H.

The glass from the site was entirely derived from the privy excavation, and consisted of only three classes or remains. First, three of the glass specimens are fragments of one or more dark green bottles; probably champagne or wine bottles. Second, three fragments were derived from one or more moderately thick vessels, including one glass plate base. Third, and finally, 22 of the glass fragments are clear window glass. These were primarily derived from the 0 - 10 cm level of the privy, but two fragments were obtained in the lower level.

The presence of window glass is important inasmuch as it is suggestive of the kind of structure that may once have been present at this site; namely, a wooden cabin or building placed on the leveled pad, rather than a tent.

This inference is supported by presence of a significant number of wire nails in the metal assemblage, as well as items such as a wood screw and pieces of door hardware. However, the relatively low numbers of these items suggest that, if this inference is correct, then this structure was moved from this location and that it did not either fall down in abandonment, or burn at this location, for either of these alternatives would have resulted in much more in the way of structural debris. Moreover, the possible existence of a wooden structure on this terrace serves to explain two other characteristics of this site: the absence of surface artifacts on the pad itself, which would have been covered by the structure; and the proximity of the privy to the "living area" on the terrace. Obviously, such propinquity would have been much more easily accommodated if the inhabitants of the site had been residing in a wooden structure, rather than a tent placed immediately against the privy hole.

4.44 Organic Materials

In addition to the artifactual materials described above, a significant number of organic remains was collected during the privy excavation. These are of two types: miscellaneous pieces of wood; and eggshell fragments. The wood consists of small fragments, presumably of milled lumber, which were recovered from the 0 - 10 cm level of the privy. The

eggshell fragments, in contrast, were found at 10 - 20 cm depth. There were 32 of these fragments recovered, weighing only 1.2 grams, and it is not inconceivable that they are all derived from the same egg. Regardless, however they are indicative of the fact that the inhabitants of this site had at least occasional access to fresh farm products. Combined with the imported fish and meat cans noted above, this is further supportive of the conclusion that this site's inhabitants were relatively well-financed.

4.45 CA-KER-4695H - Summary

CA-KER-4695H is a very small site consisting of a single habitation isolated from other mining activities on Soledad Mountain. Chronological data, while limited, suggest that the site was utilized around the turn-of-the-century, probably during the first decade of this century, with some indication of an occupation after about 1906. Subsistence remains include imported canned meats and fish, along with fresh farm products, further suggesting that the site inhabitants were relatively well-financed. Furthermore, evidence exists which suggests that the site originally contained a wooden structure with glass windows which was, at some point, removed from this location. Finally, the very limited quantity of remains from this site is indicative of a short-term occupation, by a small number of individuals.

CA-KER-4695H, then, may be most reasonably interpreted as a small but well-financed prospector's camp, correlating in time with the majority of the prospecting and mining activities which occurred on Soledad Mountain between about 1895 and 1910. An absence of significant occupational debris as well as significant evidence of mining or prospecting activities in this general vicinity attest to the fact that this activity on the eastern side of Soledad Mountain was largely unsuccessful. In many ways, then, CA-KER-4695H provides an analog to CA-KER-4693H. Both then reflect the range of variability which may be expected in small turn-of-the-century prospectors' camps, and contrast dramatically with the historical archaeological remains on other parts of Soledad Mountain, where large and successful mining ventures were completed.

5.0

SUMMARY AND CONCLUSIONS

5.1 Introduction

Phase II test excavations and determinations of significance were conducted at two sites on Soledad Mountain, Mojave, Kern County California, in an addendum study area for the Golden Queen Mine project. These sites are CA-KER-4693H and -4695H. The Phase II test excavations involved recording, mapping, surface collection, and limited subsurface testing, and were intended to obtain sufficient data to adequately characterize the nature and extent of each site, including age, function, size, presence or absence of subsurface deposits, and integrity. We summarize our findings, and provide final recommendations for the management of each of these sites, following Appendix K of the California Environmental Quality Act (CEQA), below.

5.2 CA-KER-4693H

Site CA-KER-4693H is a small prospectors' camp which was occupied in the first decade of this century. It appears to have been inhabited by a small

group of prospectors, who lived at this location for a relatively short period of time: not only does the site contain a relatively small assemblage of artifacts, but there is only limited evidence of prospecting and mining activities in the vicinity of this site. Phase II testing failed to uncover evidence of any significant intact subsurface deposits at this locale, while the architectural remains present at this site, limited to unmortared fieldstone cobble walls, are in various stages of collapse, therefore lack integrity, and are not good candidates for preservation.

Phase II fieldwork at this site, however, has resulted in the recovery of scientifically consequential information from and about this cultural resource. This has served to completely and adequately mitigate any adverse impacts that might result from the development and use of this location. Following the guidelines of CEQA, therefore, we recommend that no additional archaeological work be conducted or required at this site. Furthermore, and based on CEQA guidelines, we recommend that an archaeological monitor be present during any topsoil grading or cutting at this site, to identify and recover any artifacts which might be uncovered by such activities, in the unlikely event that such may be present at this locale.

5.3 CA-KER-4695H

Site CA-KER-4695H similarly is a small, turn-of-the-century mining camp which was used by a small group of individuals for a relatively short period of time. There are currently no intact structural remains present at this site, although we believe that it once contained a wooden cabin which was removed at some point in the past. The site contained one intact subsurface feature, a privy pit, which only extended to a depth of 20 cm (~8 inches). Test excavation of this pit, however, has served to obtain and salvage the scientific information contained therein.

The test excavations conducted at CA-KER-4695H, therefore, have resulted in the collection of scientifically consequential information from and about this site, and this has served per CEQA guidelines to completely and adequately mitigate any adverse impacts that might result from the development or use of this location. We recommend, accordingly, that no additional archaeological work be conducted or required at this site, but that, again following CEQA guidelines, an archaeological monitor be present during any topsoil removals and grading at this locale.

6.0

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7.0
TABLES

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TABLE 1: ARTIFACT CATALOG, SOLEDAD MOUNTAIN

Cat. #-	Site/Locus*	Unit/Depth	Material	#/Weight	Description
1	SC/A-2	1/0-10	Metal	5/20.9	Misc.
2	(Privy)	1/10-20	Wood	*sampled	Architectural debris
3		1/20-30	Wood	*sampled	Architectural debris
4		1/30-40	Metal	4/13.6	Misc.
5			Wood	*sampled	Architectural debris
6			Glass	1/.3	Button
7		1/40-50	Metal	7/41.1	Misc.
8			Wood	*sampled	Architectural debris
9			Paper	5/0.2	Newspaper fragments
10			Plant material	3/0.4	Fruit pit
11		1/50-60	Metal	17/50.0	Misc.
12			Wood	*sampled	Architectural debris
13			Paper	19/1.8	Newspaper fragments
14		1/60-70	Wood	*sampled	Architectural debris
15			Paper	5/.3	Newspaper fragments
16	SC/A-4	2/0-10	Metal	2/1.0	Misc.
17	(Privy)		Metal	1/2.6	Button
18			Glass	14/41.7	Misc.
19			Glass	1/55.1	Bottle base fragment
20			Glass	1/64.4	Bottle neck fragment
21			Ceramic	1/4.4	Bowl fragment
22		2/10-20	Glass	27/95.8	Misc.
23			Wood	5/13.7	Misc.
24		2/20-30	Metal	20/38.9	Misc.
25			Glass	9/32.2	Misc.
26			Ceramic	1/7.6	Bowl fragment
27			Wood	7/2.4	Misc.
28			Cork	1/.8	Stopper fragment
29		2/30-40	Metal	72/90.2	Misc.
30			Glass	43/213.8	Misc.
31			Glass	1/8.3	Bottle fragment
32			Ceramic	1/37.2	Bowl fragment
33			Ceramic	2/294.3	Bottle fragments
34			Ceramic	2/12.8	Misc.
35			Wood	62/14.7	Misc.
36			Bone	4/2.3	Faunal remains
37			Leather	5/20.5	Glove fragments
38		2/40-50	Metal	196/400.0	Misc.
39			Glass	78/548.2	Misc.
40			Glass	1/45.8	Bottle fragment
41			Glass	1/18.7	Bottle fragment
42			Glass	1/51.5	Bottle fragment
43			Glass	1/18.1	Jar fragment
44			Glass	1/33.8	Bottle fragment
45			Ceramic	1/143.5	Misc.
46			Ceramic	7/236.0	Misc.
47			Wood	47/8.1	Misc.

TABLE 1: ARTIFACT CATALOG, SOLEDAD MOUNTAIN

48			Bone	4/2.3	Faunal remains
49		2/50-60	Metal	72/248.2	Misc.
50			Glass	26/151.4	Misc.
51			Glass	1/34.7	Bottle fragment
52			Ceramic	1/7.4	Cup fragment
53			Bone	3/2.5	Faunal remains
54			Cork	2/1.7	Stopper fragments
55		2/60-70	Metal	81/159.9	Misc.
56			Glass	36/218.0	Misc.
57			Glass	7/69.0	Vessel fragment
58			Ceramic	1/6.1	Misc.
59			Wood	9/3.1	Misc.
60			Bone	4/5.9	Faunal remains
61		2/70-80	Metal	85/724.2	Misc.
62			Glass	28/110.0	Misc.
63			Glass	2/29.5	Bottle stopper
64			Glass	1/14.5	Bottle fragment
65			Wood	4/1.8	Misc.
66			Leather	25/12.4	Glove fragments
67			Cork	1/1.2	Bottle stopper
68		2/80-90	Metal	207/699.0	Misc.
69			Glass	68/342.1	Misc.
70			Glass	7/57.1	Vessel fragment
71			Glass	1/52.2	Bottle fragment
72			Glass	5/346.1	Bottle fragments
73			Ceramic	3/160.8	Misc.
74			Wood	9/4.9	Misc.
75			Leather	2/2.1	Glove fragments
76			Shell	1/.4	Button fragment
77		2/90-100	Metal	233/379.2	Misc.
78			Glass	51/414.5	Misc.
79			Glass	1/347.1	Bottle fragment
80			Glass	1/36.0	Bottle fragment
81			Glass	1/56.4	Bottle fragment
82			Glass	1/8.3	Vessel fragment
83			Glass	1/4.9	Stopper fragment
84			Glass	4/65.6	Vessel fragment
85			Ceramic	3/17.7	Misc.
86			Ceramic	1/71.7	Assay material
87			Wood	8/7.9	Misc.
88			Bone	4/16.1	Faunal remains
89			Leather	25/11.1	Glove fragments
90	SC/M	3/0-10	Metal	108/624.8	Misc.
91	(Dump)		Glass	107/1,247.1	Misc.
92			Glass	1/196.4	Bottle
93			Ceramic	10/18.9	Misc.
94			Wood	11/25.6	Misc.
95			Bone	2/24.8	Faunal remains

TABLE 1: ARTIFACT CATALOG, SOLEDAD MOUNTAIN

96			Rubber	6/19.0	Misc.
97			Plant remains	2/5.5	Fruit pits
98			Shell	1/.8	Button
99		3/10-20	Metal	38/125.3	Misc.
100			Glass	62/344.6	Misc.
101			Ceramic	1/3.0	Misc.
102			Wood	2/7.2	Misc.
103			Plant remains	1/7.8	Fruit pit
104		3/20-30	Metal	20/13.6	Misc.
105			Glass	5/8.1	Misc.
106	SC/O	4/0-10	Metal	190/5,104	Misc.
107	(Privy)		Glass	42/475.9	Misc.
108			Ceramic	18/382.0	Misc.
110			Bone	45/73.9	Faunal remains
111		4/10-20	Metal	57/92.0	Misc.
112			Glass	36/417.7	Misc.
113			Glass	1/14.0	Bottle fragment
114			Ceramic	10/286.5	Misc.
115			Wood	3/5.4	Misc.
116			Bone	10/16.3	Faunal remains
117			Leather	1/.5	Glove fragment
118	SC/A	Surface	Glass	3/113.4	Misc.
119			Glass	1/30.4	Bottle fragment
120			Glass	1/9.8	Bottle fragment
121			Ceramic	1/127.6	Saucer fragment
122			Ceramic	1/102.9	Plate fragment
123			Leather	1/128.7	Shoe fragment
124			Leather	1/60.8	Shoe fragment
125			Leather	1/178.4	Shoe fragment
126	SC/A-2	Surface	Metal	1/71.3	Iron fragment
127			Metal	1/19.6	Spoon
128			Glass	1/23.2	Bottle fragment
129			Glass	1/223.8	Bottle fragment
130	SC/D	Surface	Glass	2/569.8	Insulators
131			Ceramic	1/1.1	Misc.
132	SC/F	Surface	Glass	1/191.3	Bottle fragment
133			Glass	1/104.9	Bottle fragment
134			Glass	1/296.8	Bottle fragment
135			Ceramic	1/237.8	Plate fragment
136			Ceramic	1/192.3	Saucer fragment
137			Ceramic	1/73.7	Cup fragment
138			Ceramic	1/240.7	Plate fragment
139			Ceramic	1/67.1	Bowl fragment
140			Ceramic	1/3.1	Fragment w/ mark
141			Ceramic	1/9.4	Fragment w/ mark
142			Ceramic	1/1.4	Fragment w/ mark
143	SC/H	Surface	Metal	1/9.8	Bullet shell
144			Ceramic	7/61.2	Misc.

TABLE 1: ARTIFACT CATALOG, SOLEDAD MOUNTAIN

145			Ceramic	1/4.8	Fragment w/ mark
146	SC/I	Surface	Metal	1/3.8	Bottle cap
147			Metal	1/89.7	Thermostat
148			Glass	4/304.3	Misc.
149			Ceramic	1/23.8	Misc.
150	SC/O	Surface	Metal	1/10.3	Clock mechanism
151			Glass	1/104.1	Bottle fragment
152			Glass	3/103.9	Misc.
153	SC/Reymert	Surface	Glass	1/115.0	Bottle fragment
154	Echo Mill	1/0-10	Metal	8/43.8	Misc.
155	(Assay dump)		Glass	12/33.3	Misc.
156			Glass	2/66.3	Bottle fragments
157			Ceramic	55/906.3	Assay debris
158			Ceramic	1/150.0	Crucible fragment
159			Slag	11/29.3	Assay debris
160		1/10-20	Metal	7/10.5	Misc.
161			Glass	20/10.4	Misc.
162			Glass	1/.5	Stirring rod fragment
163			Ceramic	52/561.8	Assay debris
164			Ceramic	1/202.8	Crucible fragment
165			Slag	34/47.9	Assay debris
166		1/20-30	Metal	5/31.8	Misc.
167			Glass	14/47.0	Misc.
168			Ceramic	49/704.7	Assay debris
169			Slag	6/7.2	Assay debris
170	Echo Mill	2/0-10	Metal	1/.7	Misc.
171	(Privy)		Glass	16/28.9	Misc.
172			Glass	1/2.6	Bottle fragment
173			Ceramic	1/1.1	Assay debris
174		2/10-20	Glass	20/37.5	Misc.
175			Ceramic	1/3.9	Misc.
176			Slag	10/11.4	Assay debris
177		2/20-30	Metal	3/16.8	Misc.
178			Metal	1/3.6	Bullet cartridge
179			Glass	5/2.5	Misc.
180			Wood	1/2.1	Misc.
181		2/30-40	Metal	6/4.1	Misc.
182			Glass	11/5.1	Misc.
183			Shell	1/.3	Button
184			Slag	1/5.5	Assay debris
185		2/40-50	Metal	2/.9	Misc.
186			Glass	10/5.2	Misc.
187			Ceramic	1/8.2	Assay debris
188	Echo Mill	Surface	Glass	1/124.1	Bottle fragment
189			Glass	1/16.7	Bottle fragment
190			Glass	1/140.1	Bottle fragment
191			Glass	1/124.9	Bottle fragment
192			Glass	2/70.2	Jar fragments

TABLE 1: ARTIFACT CATALOG, SOLEDAD MOUNTAIN

193			Glass	1/36.7	Bottle fragment
194			Glass	3/148.0	Misc.
195	Echo/Assay Of	Surface	Glass	1/67.7	Bottle
196			Glass	1/26.8	Bottle fragment
197			Glass	1/27.5	Bottle fragment
198			Glass	1/15.9	Stopper fragment
199			Glass	1/43.5	Bottle fragment
200			Ceramic	3/543.4	Assay debris
201	QER/H-1	1/0-10	Metal	57/285.8	Misc.
202	(Privy)		Glass	35/163.0	Misc.
203			Ceramic	4/10.2	Misc.
204			Wood	12/7.7	Misc.
205			Leather	4/23.4	Misc.
206		1/10-20	Metal	61/100.1	Misc.
207			Glass	12/47.5	Misc.
208			Ceramic	1/1.1	Misc.
209			Wood	4/3.8	Misc.
210			Bone	21/26.7	Faunal remains
211			Leather	19/15.5	Misc.
212		1/20-30	Metal	27/33.0	Misc.
213			Glass	8/17.4	Misc.
214			Wood	5/2.9	Misc.
215			Bone	5/5.2	Faunal remains
216			Leather	18/7.9	Misc.
217	QER/H-1	2/0-10	Metal	31/92.4	Misc.
218	(East rm floor)		Glass	2/2.1	Misc.
219			Wood	28/19.8	Misc.
220			Bone	1/2.9	Faunal remains
221			Shell	1/1.1	Button
222	QER/J-1	3/0-10	Metal	2/232.1	Misc.
223	(Privy)		Glass	9/30.9	Misc.
224		3/10-20	Metal	37/85.9	Misc.
225			Glass	100/311.9	Misc.
226			Glass	1/69.1	Bottle fragment
227			Glass	1/20.2	Molded fragment
228			Wood	10/8.2	Misc.
229			Leather	4/28.4	Shoe fragments
230			Bone	5/23.7	Faunal remains
231			Plant material	2/2.1	Fruit pits
232		3/20-30	Metal	26/22.1	Misc.
233			Glass	14/37.3	Misc.
234	QER/J-1	4/0-10	Glass	3/152.7	Misc.
235	(Kitchen floor)		Bone	1/266.0	Faunal remains
236			Plant remains	2/1.9	Fruit pits
237	QER/M-1	5/0-10	Metal	54/51.2	Misc.
238	(Privy)		Glass	6/12.9	Misc.
239			Wood	5/2.2	Misc.
240			Leather	4/1.3	Misc.

TABLE 1: ARTIFACT CATALOG, SOLEDAD MOUNTAIN

241		5/10-20	Metal	26/14.9	Misc.	
242			Glass	13/33.2	Misc.	
243		5/20-30	Metal	42/47.9	Misc.	
244			Glass	2/1.6	Misc.	
245			Leather	17/32.9	Misc.	
246			Metal	3/7.4	Buttons	
247		5/30-40	Metal	38/28.6	Misc.	
248			Leather	3/134.7	Shoe	
249	QER/V	6/surface	Metal	37/75.3	Misc.	
250	(Dump)	6/0-10	Metal	221/236.2	Misc.	
251			Glass	2/9.6	Misc.	
252			Ceramic	1/18.2	Misc.	
253			Fabric	27/3.3	Misc.	
254			Shell	1/.7	Button	
255		6/10-20	Metal	29/31.8	Misc.	
256			Glass	6/64.2	Misc.	
257	QER/V-2	7/0-10	Metal	2/35.4	Misc.	
258	(Pad)		Glass	2/52.4	Misc.	
259	QER/V-3	8/0-10	Metal	7/169.2	Misc.	
260	(Privy)		Wood	6/6.1	Misc.	
261			Bone	3/4.8	Faunal remains	
262		8/10-20	Metal	4/8.7	Misc.	
263		8/20-30	Metal	3/5.4	Misc.	
264			Bone	2/8.7	Faunal remains	
265	QE/Assay D.	1/Surface	Ceramic	93/2000.8	Assay debris	
266			Slag	3/7.6	Assay debris	
267		1/0-10	Ceramic	239/2958.9	Assay debris	
268		1/10-20	Ceramic	52/977.8	Assay debris	
269		Surface	Ceramic	1/68.6	Crucible frag.	
270			Slag	1/47.2	Slag button	
271			Slag	1/30.9	Slag button	
272			Dore	1/76.2	Dore debris	
273	QER/C-1	Surface	Metal	34/334.3	Misc.	
274			Glass	23/897.6	Misc.	
275			Ceramic	16/157.8	Misc.	
276	QER/G-1	Surface	Ceramic	1/63.1	Electrical insulator	
277-S.A. #1	QER/H-1	Surface	Metal	3/6.1	Misc.	
278-S.A. #2			Metal	1/885.7	Stove fragment	
279-S.A. #3			Metal	1/359.8	Coffee pot	
280-S.A. #3			Glass	3/319.0	Misc.	
281	QER/I-1	Surface	Glass	1/33.7	Bottle fragment	
282-S.A. #1	QER/J-1	Surface	Metal	5/31.3	Misc.	
283-S.A. #2			Glass	3/150.9	Misc.	
284-S.A. #3			Metal	3/180.3	Misc.	
285-S.A. #4			Metal	3/56.1	Misc.	
286-S.A. #4			Glass	1/165.6	Bottle base	
287	QER/K-1	Surface	Metal	2/134.0	Misc.	
288			Glass	1/ 324.7	Misc.	

TABLE 1: ARTIFACT CATALOG, SOLEDAD MOUNTAIN

289	QER/L-1	Surface	Metal	6/17.0	Buttons
290-S.A. #1	QER/M-1	Surface	Metal	1/164.7	Stove burner
291-S.A. #1			Glass	1/133.2	Glass insulator
292-S.A.#2			Metal	1/2.7	Snap
293-S.A.#2			Glass	1/.5	Misc.
294	QER/N-1	Surface	Glass	14/872.2	Misc. bottle fragments
295			Glass and shell	2/1.7	Buttons
296	QER/O-1	Surface	Glass	2/160.1	Misc.
297	QER/S-2	Surface	Metal	7/65.3	Misc.
298			Glass	14/648.1	Misc.
299	QER/T	Surface	Metal	6/270.2	Misc.
300			Glass	2/119.5	Misc.
301			Ceramic	2/23.6	Misc.
302	QER/U	Surface	Metal	1/4.1	Button
303	QER/V	Surface	Glass	9/599.8	Misc.
304			Ceramic	8/508.4	Misc.
305			Ceramic	1/138.3	Crucible fragment
306	QER/V-1	Surface	Metal	8/78.0	Misc.
307			Glass	6/196.2	Misc.
308			Ceramic	5/28.4	Misc.
309	QER/V-2	Surface	Glass	1/74.7	Jar fragment
310			Ceramic	2/615.2	Plate fragments
311	QER/V-3	Surface	Glass	1/120.6	Bottle fragment
312			Glass	1/1.6	Bottle fragment
313	QER/W	Surface	Metal	4/188.4	Misc.
314	QE/Assay Of.	Surface	Metal	1/307.3	Furnace plate
315	QE/Mill	Surface	Metal	11/723.5	Misc.
316			Glass	19/1830.8	Misc.
317			Ceramic	4/131.0	Misc.
318			Slag	1/31.7	Assay button
319			Shell	2/1.1	Buttons
320	Karma/Assay1	1/0-10	Metal	18/118.6	Misc.
321			Glass	19/108.5	Misc.
322			Ceramic	1/1.4	Misc.
323			Wood	12/11.8	Misc.
324			Slag	13/18.1	Assay debris
325		Workbench	Dore	32/32.4	Assay debris
326			Metal	1/1.2	Funnel
327	Karma/Assay2	Surface	Slag and Dore	2/74.2	Assay buttons
328		Dump-surface	Ceramic	6/669.4	Assay debris
329			Ceramic	1/64.8	Porcelain frag.
330			Slag	2/50.7	Assay buttons
331	Karma/Mill	Surface	Metal	3/590.2	Misc.
332			Glass	3/15.7	Misc.
333	SC/A-4	Surface	Glass	1/1.0	Bead
334	Independant	Surface	Metal	1/174.9	Drill bit
335	QE Mill	Surface	Metal	1/222.3	Drill bit
336	K4693/F2	1/0-10	Metal	1/380.4	Can fragment

TABLE 1: ARTIFACT CATALOG, SOLEDAD MOUNTAIN

337	K4693/F4	2/0-10	Glass	24/32.6	Misc. fragments
338	K4693/F4	2/0-10	Metal	2/15.2	Tin fragments, melted
339	K4693/F5	3/0-10	Glass	8/16.3	Misc. fragments
340	K4693/F5	3/0-10	Metal	40/176.1	Misc. nails
341	K4693/F5	3/0-10	Ceramic	2/11.8	Misc. fragments
342	K4693	Surface #1a	Metal	1/63.4	Knife fragment
343	K4693	Surface #1b	Metal	1/10.8	Bullet cartridge
344	K4693	Surface #2	Metal	1/238.8	Rifle barrel
345	K4693	Surface #3	Metal	1/428.3	Pan
346	K4693	Surface #4	Metal	1/0.8	Buckle
347	K4693	Surface #5	Glass	1/2.1	Jar rim
348	K4693	Surface #6	Metal	1/8.9	Shotgun cartridge
349	K4693	Surface #7	Metal	2/5.2	Clothing snaps
350	K4693	Surface #8	Glass	5/368.5	Misc. fragments
351	K4693	Surface #9	Glass	1/40.2	Bottle neck
352	K4693	Surface #10	Glass	1/73.2	Bottle base
353	K4693	Surface #11	Glass	1/75.3	Bottle base
354	K4693	Surface #12	Glass	1/35.2	Bottle fragment
355	K4693	Surface #13	Glass	3/128.2	Misc. fragments
356	K4693	Surface #14	Glass	3/158.8	Misc. fragments
357	K4693	Surface #15	Ceramic	4/75.8	Misc. fragments
358	K4693	Surface #16a	Ceramic	5/68.2	Misc. fragments
359	K4693	Surface #16b	Metal	1/35.8	Bullet cartridge
360	K4693	Surface #17	Ceramic	4/87.2	Misc. fragments
361	K4693	Surface #18a	Glass	4/210.5	Misc. fragments
362	K4693	Surface #18b	Ceramic	14/195.3	Misc. fragments
363	K4693	Surface #18c	Metal	1/15.2	Square nail
364	K4693	Surface #19	Glass	4/225.8	Misc. fragments
365	K4693	Surface #20	Glass	1/295.1	Clear bottle flask
366	K4693	Surface #21	Glass	1/22.8	Bottle base
367	K4695	Surface #1	Ceramic	1/33.5	Whiteware plate fragment
368	K4695	Surface #2	Metal	1/52.0	Herring can
369	K4695	Surface #3	Ceramic	1/15.2	Whiteware dish fragment
370	K4695	Surface #4	Metal	1/52.5	Herring can
371	K4695	Surface #5	Metal	1/51.7	Herring can
372	K4695	Surface #6	Metal	1/1.2	Meat tin
373	K4695	Surface #7	Ceramic	1/9.2	Whiteware bowl/pitcher frag
374	K4695	Surface #8	Ceramic	1/21.2	Whiteware plate fragment
375	K4695	Surface #9	Metal	1/31.6	Meat tin
376	K4695	1/0-10	Metal	19/73.2	Misc. metal frags.
377	K4695	1/0-10	Glass	26/108.2	Misc glass frags.
378	K4695	1/0-10	Ceramic	1/4.1	Whiteware cup rim
379	K4695	1/0-10	Wood	17/457.6	Misc. wood frags.
380	K4695	1/10-20	Metal	4/11.2	Misc. metal frags.
381	K4695	1/10-20	Glass	2/2.8	Window glass frags.
382	K4695	1/10-20	Ceramic	1/8.2	Whiteware vessel rim frag.
383	K4695	1/10-20	Organic	32/1.2	Egg shell fragments

TABLE 1: ARTIFACT CATALOG, SOLEDAD MOUNTAIN

		*KEY:				
			SC - CA-KER-4447H (Wegmen)			
			QER - CA-KER-4446H (Cobble City)			
			QE - CA-KER-4449H (Queen Esther Mill)			
			Karma/Assay1 = Upper Assay Building			
			Karma Assay2 = Lower Assay Dump			
			K4693 = CA-KER-4693H			
			K4693 = CA-KER-4695H			

TABLE 2: METAL ARTIFACTS

Catalog # (Site/Feature)	#/wt (gms)	Description
SC/Wegman		
SC/A-2 (Unit 1)		
1	5/20.9	Wire cut nails.
4	4/13.6	Wire cut nails.
7	7/41.7	Wire cut nails.
10	17/50.0	Wire cut nails.
SC/A-4 (Unit 2)		
16	2/1.0	Misc. non-i.d.
24	20/38.9	4 wire cut nails, 1 bicycle spoke, 16 can fragments.
29	72/90.2	5 wire cut nails, 5 wire fragments, 2 pieces foil, 2 metal bands, ? i.d., 54 can fragments, 4 non-i.d.
38	196/400.0	2 wire cut nails, 1 eyelet, 1 champagne bottle wire cork cover, 185 can fragments, 7 non-i.d.
49	72/248.2	2 wire nails, 1 hand-hewn nail, 2 wire fragments, 67 can fragments, 1 non-i.d.
55	81/159.9	6 wire cut nails, 3 wire fragments, 68 can fragments, 3 non-i.d.
61	85/729.2	2 large wire cut nails, 1 large metal band, 1 metal fruit jar type lid, 78 can fragments
68	207/699.0	5 wire cut nails, 5 wire fragments, 2 eyelets, 1 bullet cartridge marked with an "E P" on the base, 1 piece foil,190 can fragments, 3 non-i.d.
77	233/379.2	4 wire cut nails, 4 wire fragments, 220 can fragments, 5 non-i.d.
SC/M (Unit 3)		
90	108/624.8	21 wire cut nails, 3 pieces wire, 7 rectangular tobacco tin fragments, 2 key type can openers, 2 washers, 1 small metal ring, 1 piece decorative cast-iron- decorative, 2 jar lids, i piece of a lock mechanism, 2 hole-in-top milk cans (6.0x6.5x6.5), 1 ? i.d. hole-in-top can (10.8x7.8x7.5), 3 pieces foil, 1 non-i.d. metal band
99	38/25.3	2 wire cut nails, 1 eyelet, 1 flat handle, 1 screw, 33 can fragments
104	20/13.6	19 can fragments, 1 fence staple
106	190/5104.0	18 wire cut nails, 1 large nut, 1 rivet, 2 crimped bottle caps, 25 pieces wire mesh screen, 5 pieces wire, 63 hole-in-top cans: 31- 11.0x7.5x7.5, 5- 11.5x10.0x10.0, 2- 10.0x8.0x1.0, 25- ? dimensions, 75 non-i.d. can fragments
111	57/92.0	7 wire cut nails, 8 pieces screen, 42 can fragments
SC/A-2 (Surface)		
126	1/71.3	Ornate, cast-iron door hinge fragment
127	1/19.6	Spoon, mark on back of handle- "WI" over "VI"
SC/H (Surface)		
143	1/9.8	Bullet cartridge with mark on base- "W.R.A.Co., 32 W.8."
SC/I (Surface)		
146	1/3.8	Bottle top with mark- a star surrounded by lettering, largely illegible, "....Angeles S...."
147	1/89.7	Thermostat cover with thermometer
SC/O (Surface)		
150	1/10.3	Small cogged wheel- clock mechanism

TABLE 2: METAL ARTIFACTS

Echo Mill (Unit 1)		
154	8/43.8	1 hand-hewn nail, 1 washer, 6 misc. non-i.d. fragments
160	7/10.5	Misc. non-i.d.
166	5/31.8	Misc. non.-i.d.
170	1/.7	Misc. non-i.d.
177	3/16.8	1 wire cut nail, 2 non-i.d.
178	1/3.6	Bullet cartridge with mark- "U.M.C. S H .38 LONG."
181	6/4.1	Misc. non-i.d.
185	2/.9	Misc. non-i.d.
QER/Cobble City		
QER/H-1 (Unit 1)		
201	57/285.8	18 wire cut nails, 37 can fragments, 2 shotgun shell cartridges
206	61/100.1	16 wire cut nails, 5 screw fragments, 1 piece wire, 3 eyelets, 38 can fragments
212	27/33.0	5 wire cut nails, 2 pieces window screen, 20 can fragments
QER/H-1 (Unit 2)		
217	31/92.4	25 wire cut nails, 9 can fragments
QER/J-1 (Unit 3)		
222	2/232.1	2 hole-in-top cans
224	37/85.9	2 wire cut nails, 2 wire fragments, 1 button, 31 can fragments, 1 non-i.d.
232	26/22.1	3 pieces screen, 23 can fragments
QER/M-1 (Unit 5)		
237	54/51.2	2 pieces screen, 1 eyelet, 52 can fragments
241	26/14.9	26 can fragments
243	42/47.9	42 can fragments
246	3/7.4	Buttons
247	38/28.6	38 can fragments
QER/V (Unit 6)		
249	37/75.3	Can fragments
250	221/236.2	32 pieces screen, 187 can fragments
255	29/31.8	Can fragments
QER/V-2 (Unit 7)		
257	2/35.4	2 large wire cut nails
QER/V-3 (Unit 8)		
259	7/169.2	7 fragments of a large "paint-type" can
262	4/8.7	3 wire cut nails, 1 can fragment
263	3/5.4	1 hand-hewn nail, 1 snap fragment, 1 buckle fragment
QER/C-1 (Surface)		
273	34/334.3	6 pieces of clockwork mechanism, 2 wire cut nails pushed through metal discs - roofing nails, 1 garter-holder ("Velvet Grip, Boston Garter, Pat. 12-13-92, c. 12-31-95"), 1 button, 2 jar lids ("Genuine Boyd Cap for Mason Jars" with a crescent moon and star in the center), 1 cosmetic jar lid with mark- "Mrs. Nellie(?) Harrison, San Francisco, Cal." around edge with a woman's profile in the center over "Dermatologist", 1 jar lid with mark- "Schilling's Best, 16 oz.", 1 champagne cork holder, 1 crimped bottle cap, 1 cast-iron hinge fragment, 1 electrical object (? i.d.), 2 corset stays, 1 kitchen knife, 2 ledger hook stays, 6 non-i.d.

TABLE 2: METAL ARTIFACTS

QER/H-1 (Surface)		
277	3/6.1	2 buttons, 1 cover-all bib clip
278	1/885.7	Ornate cast-iron stove leg
279	1/359.8	Coffee pot
QER/J-1 (Surface)		
282	5/31.3	1 screw-on bottle top, 1 pocket watch cover, 3 buttons
284	3/180.3	1 ? i.d. ornate cast-iron fragment, 1 pulley, 1 conveyor belt clip
285	3/56.1	3 conveyor belt clips
QER/K-1 (Surface)		
287	2/134.0	2 chest latches
QER/L-1 (Surface)		
289	6/17.0	Buttons
QER/M-1 (Surface)		
290	1/164.7	Stove burner, kerosene
292	1/2.7	Clothing snap
QER/S-2 (Surface)		
297	7/65.3	2 pocket watch parts, 1 with inscribed markings- "Mfg. by the Ansonia Clock Co., New York, U.S. of America, Pat. April 17, 1888", 2 fragments of an engineering scale, 2 washers, 1 bullet cartridge with mark-"W.R.A. Co. 32 W.C.F."
QER/T (Surface)		
299	6/270.2	1 electrical lamp socket, 2 auto spark plugs (metal and porcelain), 1 faucet key, 1 large fence staple, 2 buttons
QER/U (Surface)		
302	1/4.1	Button
QER/V-1 (Surface)		
306	8/98.0	3 crimped bottle caps, 1 champagne cork holder, 1 rectangular cap, 1 salt and pepper top, 1 bent thick wire handle, 1 coiled wire spring
QER/W (Surface)		
313	4/188.9	2 washers, 1 safety pin, 1 cast-iron ? i.d. object
QE/Assay Office (Surface)		
314	1/307.7	Muffel furnace cast-iron plate with mark, "Pat June 16 1886"
QE/Mill (Surface)		
315	11/723.5	7 buttons, 2 electrical light-bulb sockets, 1 canteen, 1 bullet cartridge with mark "U.M.C. 32 S&W"
Karma/Assay1 (Unit 1)		
320	18/118.6	4 wire cut nails, 1 large screw, 1 large nut, 1 buckle fragment, 11 can fragments
326	1/1.2	Small funnel
Karma/Mill (Surface)		
331	3/590.2	1 large hand-hewn metal bar, a large hand-hewn nail, 1 bullet cartridge with mark- "U.S.C. Co. Gov."
Independant (Surface)		
334	1/174.9	Lubricated chisel type drill bit
QE/Mill (Surface)		
335	1/222.3	Lubricated star type drill bit
CA-KER-4693H		
336	1/380.4	Fragment of can cut into band.
338	2/15.2	Tin fragments; melted.

TABLE 2: METAL ARTIFACTS

340	40/176.1	22 large (8 cm) & 10 small (4 cm) wire cut nails; 2 wire cut tacks (1.2 cm);
		1 square cut nail; 1 wire fragment; 4 misc. flat pieces of metal.
342	1/63.4	Tableware knife handle/tang broken at base of blade; 11.4x1.7x0.4 cm.
343	1/10.8	Rifle cartridge, stamped "W.R.A. Co." over "90 W.C.F."
344	1/238.8	Rifle barrel, flattened and split, with threads present at one end; total
		length - 36.8 cm; approx. diameter - 1.5 cm.
345	1/428.3	Tin metal "pan" made out of metal canteen, with cork hole covered w/
		soldered patch. (Dimensions 25.6x25.2x6.4).
346	1/0.8	Strap buckle/adjustor for light clothing
348	1/8.9	Shotgun shell cartridge, stamped w/ "1901" over "No. 12" over "REPEATER".
349	2/5.2	2 small clothing snaps
359	1/35.8	Rifle cartridge w/ stamp "W.R.A. Co." over "44 W.C.F."
363	1/15.2	Fragment of hand-made square nail
CA-KER-4695H		
368	1/52.0	Tin herring can; rectangular (15.0x4.8x2.1) w/ key opener; stamped
		"KIPPERED HERRING" over "PACKED IN NORWAY".
370	1/52.5	Tin herring can; identical to #368.
371	1/51.7	Tin herring can; identical to #368.
372	1/1.2	Base of small rectangular tin can; stamped "BRASIL" over "INSPECCIONADO"
		over "7" over "S.I.E."; probably a meat tin. (8.0x6.4x1.9)
375	1/31.6	Base of small rectangular tin; stamped in circular pattern "Y A O";
		(8.0x5.8x2.0).
376	19/73.2	Misc. metal objects: 7 wire cut nails; 8 can frags.; 1 sanitary seal
		can base; 1 frag. door hardware; 1 crown bottle top; 1 frag. lead pipe;
		1 shotgun shell cartridge stamped 'SEARS" over "12 Ga" over "SPORTLOAD".
380	4/11.2	Misc. metal objects: 2 tacks; 1 wood screw; 1 spring-loaded hinge.

TABLE 3: CERAMIC ARTIFACTS

Catalog # (Site/Feature)	#/wt (gms)	Description
SC/Wegmen		
SC/A-4		
21	1/4.4	Creamware bowl fragment with a scalloped edge.
26	1/7.6	Creamware bowl fragment, base.
32	1/37.2	Creamware bowl fragment with portion of mark- "...N", over an arrow.
33	2/294.3	Fragments of an earthenware crock with a handle at the neck, like that commonly used for whiskey; dark brown glaze with an unglazed ring around the shoulder.
34	2/12.8	Creamware fragments.
45	7/236.0	5 pieces of creamware fragments; 2 pieces of earthenware crock, probably associated with cat. #33.
46	1/143.5	Ironstone fragment with mark- "K.T.&K." (Knowles, Taylor, Knowles) - Mark used after 1905 (DeBolt 1988).
52	1/7.4	Whiteware cup fragment with a gold transfer print pattern along the interior rim.
58	1/6.1	Creamware fragment
73	3/160.8	1 whiteware cup fragment; 2 earthenware fragments with brown glaze (probably part of #33).
85	3/17.7	1 whiteware cup fragment, 1 creamware cup fragment, 1 crock fragment.
SC/M		
93	10/18.9	7 pieces whiteware, 3 with floral transfer print, 1 with a green glaze; 2 pieces of porcelain cups, 1 with a red transfer print, 1 with an irridescent blue band; 1 piece of a porcelain insulator.
SC/O		
101	1/3.0	Creamware fragment
108	18/382.0	15 ironstone fragments; 3 brown-glazed earthenware crock fragments.
114	10/286.5	6 pieces, thick-walled ironstone, 1 yellow glazed creamware, 1 white porcelin fragment, 2 fragments of brown glazed earthenware.
SC/O		
121	1/127.6	Ironstone saucer fragment with mark- "K.T.&K." under "Semi-vitreous", dates to post 1905 (Praetzellis et. al. 1983).
122	1/102.9	Ironstone plate fragment with a mark- "K.T.&K." over "s-v" over "China", dates to 1890-1910 (Praetzellis et. al. 1983)
SC/D		
131	1/1.1	Porcelain fragment with a blue transfer print design.
SC/F		
135	1/237.8	Ironstone plate fragment with a mark- "K.T.&K." over "China", dates to 1890-1910 (Gates and Ormerod 1982:125).
136	1/192.3	Ironstone saucer fragment with a stamped mark- illegible.
137	4/73.7	4 whiteware cup fragments with red transfer print pattern covering the exterior.
138	1/240.7	Ironstone plate fragment with scalloped rim and mark- "Ironstone China" over a rampant lion and horse, over "J.&G. Meakin, Hanley, England", dates to 1875-1883 (Praetzellis et. al. 1983:57).
139	1/67.1	Ironstone bowl fragment with mark- "Semi-Vitreous" over "K.T.&K.", dates to 1890-1910 (Praetzellis et. al. 1983).

TABLE 3: CERAMIC ARTIFACTS

140	1/3.1	Ironstone plate fragment with mark- rampant lion and horse under "Iron-
		stone", dates to 1891-1925. W.H. Grindley & Co., England,
		(Praetzellis et. al. 1983:41)
141	1/9.4	Ironstone plate fragment with mark- "Warranted" over a crest with a pedi-
		ment over a shield; from the D.E. McNichol Pottery Co., dating to 1892-1910
		(Gates and Ormerod 1982:186).
142	1/1.4	Small ironstone fragment with portion of mark- similar to mark used
		by Knowles, Taylor and Knowles from 1890-1907
		(Gates and Ormerod 1982:119).
SC/H		
144	7/61.2	4 pieces of shallow creamware bowl with a transfer print pattern on the
		interior in black of leaves and flowers; 1 piece of whiteware with a raised
		pattern along the rim (plate fragment); 1 piece of a creamware bowl (large
		size) with raised pattern on exterior and cream and green glaze;
		electrical insulator fragment of white porcelain.
145	1/4.8	Small fragment of whiteware with a portion of a mark- "HOP" over "Semi-
		porcelain" over a portion of a design which includes the top of a crown
SC/I		
149	1/23.8	Ironstone bowl fragment, white with a green patterned glaze on the exterior
		and a scalloped rim.
Echo Mill		
175	1/3.9	Creamware fragment
QE/Cobble City		
QE/H-1		
203	4/10.2	4 pieces creamware- green, white and blue striped pattern on exterior,
		white interior (painted glaze)
208	1/1.1	Piece of glazed creamware with pattern similar to #203.
252	1/18.2	Ironstone plate fragment, no mark.
QER/C-1		
275	16/157.8	5 pieces of whiteware with a floral transfer print; 6 pieces porcelain, 2 w/
		a dark-green transfer print, 1 with a handpainted orange stripe, also 1 tiny
		"doll-sized" plate fragment; 6 pieces creamware and ironstone, 3 with
		marks- 1 "Societe Ceramique Muistricht" surrounding a rampant lion over
		"Made in Holland", 1 "K.T.&K." mark dating to1890-1907 (Praetzellis, et. al.
		1983:47), 1 with an "A.J. Wilkenson" mark, dating to 1885-1896 (Praet-
		zellis et. al. 1983:80); 2 pieces brown glazed earthenware.
QER/G-1		
276	1/63.1	Porcelain electrical insulator fragment.
QER/T		
301	2/23.6	1 porcelain spark plug fragment, 1 porcelain electrical insulator fragment.
QER/V		
304	8/508.4	5 pieces ironstone, 1 with ornate, multicolored transfer print around the
		rim with the fragment of a stamped mark- a crown over "C.P.C.", from the
		Crown Pottery Co., Evansville, Indiana, dating to ca. 1910 (DeBolt 1988:25),
		this crown pattern was limited to dinnerware, 1 with "K.T.&K." over three
		lines (one with "s-v") over "China" dating to 1905-1929 (Praetzelllis et. al.
		1983:49); 1 piece porcelain with a floral transfer print; 2 pcs earthenware
		with buff glaze, 1 stamped with a mark- "Macomb Stone..." in a circle with

TABLE 3: CERAMIC ARTIFACTS

		part of a "2".
QER/V-1		
308	5/28.4	2 pieces whiteware, both with raised pattern of dots along the external rim;
		3 pieces porcelain, 2 hand-painted with a "Chinese" house pattern in multi-
		colors, 1 with a floral transfer print.
QER/V-2		
310	2/615.2	2 fragments of a creamware plate with a blue glaze.
312	1/1.6	Dental partial plate.
QE/Mill		
317	4/131.0	3 pieces of a porcelain electrical insulator; 1 fragment of a scorifier.
Karma/Assay1		
322	1/1.4	Piece of thin-walled porcelain.
Karma/Assay2		
329	1/64.8	Fragment of an unknown object, a cup-like form with small perforations
		through a middle plate; hand-painted in a floral pattern with gold high-
		lights.
CA-KER-4693H		
341	2/11.8	2 whiteware fragments, probably from plates. One with mark of
		"ROYAL IRONSTO[NE]" over standing Victorian Royal Arms, attributed to
		Charles Meaken Company from Burslem and Hanley, Staffordshire, England.
		This mark dates from 1876-1889 (Praetzellis et al 1983:55).
357	4/75.8	4 misc. whiteware plate fragments; 3 having scalloped rim w/molded
		"feather" design on rim.
358	5/68.2	3 whiteware plate fragments equivalent to scalloped fragments at #357;
		1 whiteware cup (?) fragment with green transfer print of leaf pattern
		on exterior; 1 fragment of porcelain dish (?) w/ scalloped edge &
		hand-painted gold shell-pattern on rim.
360	4/87.2	3 whiteware fragments w/ scalloped rim & green floral transfer print; 1
		fragment of porcelain w/ handpainted gold & opaline design.
362	14/195.3	Misc. porcelain fragments, 3 w/ multi-color floral transfer print; 11 w/
		blue Chinese transfer pattern, from cups & plates.
CA-KER-4695H		
367	1/33.5	Whiteware plate frag w/ pink floral transfer print.
369	1/15.2	Whiteware dish frag w/ gold trim along rim.
373	1/9.2	Whiteware bowl/pitcher frag w/ fluted rim & blue rim design.
374	1/21.4	Whiteware plate frag w/silver double-linear rim design.
378	1/4.1	Whiteware cup rim fragment.
382	1/8.2	Whiteware vessel rim frag.; same vessel as #374.

TABLE 4: GLASS ARTIFACTS

Catalog #	#/wt (gms)	Description
(Site/Feature)		
SC/Wegman		
SC/A-4		
18	14/41.7	Misc. fragments- 6 clear, 2 amber, 1 blue, 5 lavender.
19	1/55.1	Amber bottle-base fragment w/ portion of a mark- a "9" and a "2" with an oval enclosing a diamond in between.
20	1/64.4	Dark green bottle neck fragment, type b (Champagne).
22	27/95.8	Misc. fragments-10 clear, 7 dark green, 1 blue, 9 lavender.
25	9/32.2	Misc.fragments- 3 clear, 3 dark green, 1 milk, 3 lavender.
30	43/143.2	Misc. fragments- 19 clear, 2 dark green, 10 amber, 2 blue, 1 milk, 9 lavender
31	1/8.3	Pale lavender molded bottle shoulder fragment; vessel appears to have been rectangular with fluting on the short sides.
39	78/548.2	Misc. fragments- 26 clear, 11 dark green, 15 amber, 14 light green, 1 blue, 13 lavender
40	1/45.8	Lavender French barrel mustard bottle (type ff) fragment (Wilson 1981:110).
41	1/18.7	Amber bottle base with mark- "P.D.&Co." over "10" over "19".
42	1/51.5	Pale lavender bottle neck fragment, "Blake" style (type r).
43	1/18.1	Milk glass cosmetic jar.
44	1/33.8	Amber beer bottle shoulder fragment.
50	26/151.4	Misc. fragments- 8 clear, 7 dark green, 3 amber, 5 light green, 1 milk, 2 lavender.
51	1/34.7	Lavender bottle neck- type c (Brandy).
56	36/218.0	Misc. fragments- 15 clear (including 1 piece window glass), 9 dark green, 2 amber, 5 light green, 4 blue, 4 lavender.
57	7/69.0	Clear, molded glass fragments, very thick and flat with a cut-glass pattern of starbursts; unknown vessel shape or type.
62	28/110.0	Misc. fragments- 16 clear, 2 dark green, 7 amber, 1 light green, 1 blue, 1 lavender.
63	2/29.5	Clear bottle stopper, medicine bottle type.
64	1/14.5	Small clear glass rectangular bottle fragment with portion of a mark molded onto the base- ".....IAMONO.....", on the outer portion of a circle, over ".....MADE IN.....", also in a circle.
69	69/342.1	Misc. fragments- 6 clear (1 window), 9 dark green, 17 amber, 23 light green, 1 blue, 13 lavender.
70	7/57.1	Clear, molded glass, probably part of #57.
71	1/52.2	Amber bottle base fragment with portion of a molded mark- "SPRUA...." around "WH....", "SAC....", and "LIQUOR.....".
72	5/346.1	Clear rectangular bottle fragments with molded lettering on the side- "Gordon's Dry Gin", "England".
78	51/414.5	Misc. fragments- 9 clear, 8 amber, 5 dark green, 12 light green, 7 lavender.
79	1/347.1	Lavender, thick walled bottle neck fragment with molded lettering around the sides at the base- "Shasta Water Co."; molded- 2 seams.
80	1/36.0	Lavender bottle base.
81	1/56.4	Lavender bottle neck, type c (Brandy).
82	1/8.3	Clear thin-walled drinking vessel with incised rim.
83	1/4.9	Lavender glass bottle-stopper fragment; molded lettering on top of flat disc-shaped handle- "Canad.....", and "...SEPT....".

TABLE 4: GLASS ARTIFACTS

84	4/65.6	Thick, molded clear glass fragments, probably associated with vessel #57.
91	107/1,247.1	Misc. fragments- 47 clear (including 22 pieces from screw top vessels),
		7 dark green, 29 amber, 9 light green, 6 blue, 2 milk, 5 lavender, 2 clear
		with blue paint on the exterior, 1 with small blue stars.
SC/M		
92	1/196.4	Clear, molded glass screw-top bottle with printed lettering on the side
		(decal)- "Sweet Relish"; rough outline of label is similar to that used by the
		Heinz Co.
100	62/344.6	Misc. fragments- 42 clear (including one Ball jar fragment), 2 dark green,
		5 amber, 5 light green, 5 blue, 1 milk with red painted lettering (illegible).
105	5/8.1	Misc. fragments- 5 clear.
SC/O		
107	42/475.9	Misc. fragments-15 clear, 6 dark green, 14 amber, 6 light green, 14 lavender.
112	36/417.7	Misc. fragments- 11 clear, 5 dark green,12 amber, 3 light green, 5 lavender.
113	1/14.0	Amber bottle neck, type g (Patent/extract); molded, with seam running
		up neck and onto side of lip.
SC/A		
118	3/113.4	Misc.fragments- 2 lavender, 1 milk- fragment of a flat lid of a cosmetic
		jar.
119	1/30.4	Light green bottle neck, type d (Beer).
120	1/9.8	Dark green bottle neck, type c (Brandy).
SC/A-2		
128	1/23.2	Light green base fragment with portion of a molded mark- "A.B.Co.".
129	1/223.8	Light green fragment of a square shaped bottle with a portion of a molded
		mark- "GORDON'S DRY GIN, ENGLAND".
SC/D		
130	2/569.8	2 light green electrical insulator fragments, one with a molded mark-
		"Hemingway".
SC/F		
132	1/191.3	Clear, octagonal bottle base with molded mark- "Libby's" on side.
133	1/104.9	Clear, rectangular bottle base with molded mark on bottom- "A Winarich....",
		and "USA".
134	1/296.8	Amber beer bottle type neck; molded with 2 seams and mark on bottom-
		"W F & S", "T 1", "MIL".
SC/I		
148	4/303.3	Misc. fragments with marks- 1 clear jar/bottle base with "Best Foods",
		above "Registered"; 1 light green bottle base with "AB" and "S?"; also
		1 amber jug type bottle with handle at neck and screw on top; milk glass
		jar base with molded mark- "Menley-James, New York, London, Made in USA".
SC/O		
151	1/104.1	Clear bottle base with molded mark on base, printed in reverse- "No. 77,
		Pat. in U.S., Dec. 22 1803, July 17 1808, E2".
152	3/103.9	Purple bottle base, bottle would have been ovoid in profile; light blue jar
		rim, screw top; small fragment of clear glass with "....INGHA...", molded
		onto side of vessel.
SC/Raymert		
153	1/115.0	Dark green bottle neck fragment type b (Champagne).

TABLE 4: GLASS ARTIFACTS

Echo Mill		
155	12/33.3	Misc. fragments- 6 clear (4 thin-walled vessel, 2 window), 5 dark green, 1 lavender.
156	2/66.3	Fragments of a lavender rectangular Blake (type r) bottle.
161	20/10.4	Misc. fragments- 20 clear (12 thin-walled vessel, 8 window).
162	1/.5	Fragment of a clear glass chemical stirring rod.
167	14/47.0	Misc. fragments- 7 clear (3 vessel fragments, 4 window), 3 dark green, 4 lavender.
171	16/28.9	Misc. fragments- 10 clear, 6 amber.
172	1/2.6	Clear bottle neck with Crown type top.
174	20/37.5	Misc. fragments- 6 clear, 6 amber, 8 lavender.
179	5/2.5	Misc. fragments- clear.
182	11/5.1	Misc. fragments- 9 clear, 2 amber.
188	1/124.1	Clear bottle neck, type c (Brandy), with a metal collar around the neck below the lip; with raised markings- "Gooderham and Worts - Limited", over "Toronto", "Registered".
189	1/116.7	Large, thick-walled amber bottle neck with type i (Oil) top.
190	1/140.1	Clear bottle base, molded (2 seams), with molded mark "Gooderham & Worts", "Toronto Canada, Limited".
191	1/124.9	Clear bottle base with cross-hatched pattern around rim, "Liquor Bottle" mark in center.
192	2/70.2	Bright green jar/bottle fragments, one is from a vessel lid with a knob-type top, both are molded.
193	1/36.7	Small, rectangular bottle base with molded lettering on side- "Chili Powder".
194	3/148.0	Light green bottle fragments- 1 neck, type l (Club sauce); 1 base fragment, 1 base fragment with "R&CO" over "23".
Echo Assay		
195	1/67.7	Purple glass spherical atomizer; molded (2 seams), with lettering- "Fill to this line", on one side, and on the other- "The tube of this atomizer is made of one piece, pat. May 8th - 1894"; screw on type lip.
196	1/26.8	Amber bottle neck, type g (Patent/extract).
197	1/27.5	Lavender bottle neck, type f (Double bead).
198	1/15.9	Clear, molded medicine-type bottle stopper handle top, flat, round shape.
199	1/43.5	Lavender bottle base with molded "398" on bottom.
QER/Cobble City		
QER/H-1		
202	35/285.8	Misc. fragments- 6clear, 19 dark green, 1 amber, 1 light green, 8 lavender.
207	12/47.5	Misc. fragments- 3 clear, 5 dark green, 2 light green, 2 lavender.
213	8/17.4	Misc. fragments- 2 clear, 1 dark green, 1 amber, 4 light green.
218	2/2.1	Misc. fragments- 2 amber.
QER/J-1		
223	9/30.9	Misc. fragments- 8 dark green, 1 blue.
225	100/311.9	Misc. fragments- 9 clear, 34 dark green, 10 amber, 5 light green, 28 blue, 4 lavender.
226	1/69.1	Dark green bottle neck type b (Champagne).
227	1/20.2	Clear, molded glass fragment with cross-hatched design, ? type vessel.
233	14/37.3	Misc. fragments- 2 clear, 3 dark green, 2 amber, 5 blue, 2 lavender.

TABLE 4: GLASS ARTIFACTS

234	3/152.7	Misc. fragments- 2 clear, 1 dark green champagne-type b bottle base.
QER/M-1		
238	6/12.9	Misc. fragments- 2 clear, 2 dark green, 2 amber.
242	13/33.2	Misc. fragments- 10 dark green, 3 amber.
244	2/1.6	Misc. fragments- 2 amber.
QER/V		
251	2/9.6	Misc. fragments- 1 clear, 1 dark green.
256	6/64.2	Misc. fragments- 3 clear, 2 light green, 1 milk.
QER/V-2		
258	2/52.4	Misc. fragments- 1 light green, 1 lavender.
QER/C-1		
274	23/897.6	Misc. bottle fragments- 10 pieces amber, including four necks- 3 type d,
		1 type g (Patent/extract), 4 lavender, including 2 type g (Patent/extract)
		necks and one type c (Brandy); 1 dark green, type f (Double bead); 6 light
		green necks, 1 with type g, 2 type d(Beer), 1 base with molded mark-
		"Pat. Aug. 22. 05"; 1 clear neck, type i (Oil); 1 blue neck, type h (Wide mouth
		patent/extract).
QER/H-1		
280	3/319.0	Bottle neck fragments- 2 dark green, 1 type l, 1 type b; 1 clear, type c.
QER/I-1		
281	1/33.7	Lavender bottle neck, type g.
QER/J-1		
283	3/150.9	Bottle neck fragments- 2 dark green type l and type b; 1 amber type k.
286	1/165.6	Amber bottle base fragment with molded mark- "Southern Cal., Los
		Angeles", around rim, "Wine Co." in center.
QER/K-1		
288	1/324.7	Light green base with molded mark- "A.B.Co., A 6".
QER/M-1		
291	1/133.2	Electrical insulator
QER/N-1		
294	14/872.2	Bottle neck fragments- 5 dark green type b, 4 type f; 1 lavender type f, on
		a molded rectangular bottle; 2 clear, 1 type k, 1 type c; 1 blue type h; also
		1 light green base with molded mark- "A.B.Co. 18".
QER/O-1		
296	2/160.1	Misc.vessel fragments- 1 amber bottle base with molded mark- "Pat.
		D Aug. 24. 1886" around rim, "2" in center; 1 ink bottle with 4 mold seams,
		bottle type mm.
QER/S-2		
298	14/648.1	Misc. bottle neck fragments- 2 bright green with type k neck; 3 amber with
		1 type f, 2 screw-on tops, one being a jug-type with a small handle on the
		neck; 1 clear with a painted green exterior and screw top; 8 clear, 7
		screw-ons and one with a metal crimped top.
QER/T		
300	2/119.5	Misc. vessel fragments- 1 clear bottle neck type k; 1 milk glass bowl frag-
		ment with a gold rim, molded mark on base- "Fire King, Oven Ware, Made
		in U.S.A.".
QER-V		
303	9/599.8	Misc. vessel fragments- 1 clear jar/bottle base, "Table Products Co., Los

TABLE 4: GLASS ARTIFACTS

		Angeles, 118 41"; 3 amber bases, 2 marked with "PUREX"; a small amber
		bottle neck with "Clorox" molded around neck; also a small amber square
		dropper bottle with a screw-on rubber handled glass dropper in place;
		1 light-blue small rectangular bottle fragment; 2 pieces of a dark blue
		glass plate.
QER/V-1		
307	6/196.2	Misc. vessel fragments- 2 clear bottle necks, 1 type k, 1 type h; 2 clear
		small rectangular bases; 2 lavender necks, both type g.
QER/V-2		
309	1/74.7	Milk glass cosmetic jar with screw-on top, "Pond's" molded onto the base.
QER/V-3		
311	1/120.6	Light green bottle base with mark- "A.B.Co., J 4".
QE/Mill		
316	19/1,830.8	Misc. vessel fragments- 2 amber bases with marks, 1 with "R&Co., 32" , 1
		with "I P G Co." in a diamond over "3095"; 1 amber type d bottle neck, 2
		fragments from a thin-walled vessel with "Uricsol" molded onto the side;
		2 lavender bottle necks, 1 type f, 1 type g; 1 blue base; 11 light green pieces
		including 2 large vessel bases with "W T & Co.", molded onto the bottom,
		also 2 standard sized bases, "A.B.Co." molded onto one, also 2 necks, 1 type
		h, 1 type f, also 2 pieces of glass chemical tubing, in addition to
		3 fragments of a large chemist's type jar (type h top).
Karma/Assay		
321	19/100.5	Misc. fragments, all clear- 1 screw-on type jar piece, 4 pieces window glass,
		14 pieces of a thin-walled vessel, ? i.d.
Karma/Mill		
332	3/15.7	Light green glass tubing fragments- laboratory equipment.
SC/A-4		
333	1/1.0	Milk glass bead.
CA-KER-4693H		
337	24/32.6	Misc. fragments, 8 - dark green, 2 - amber, 7 -light green, 4 -clear, 2 -
		purple, & 1 - white.
339	8/16.3	8 fragments of amber glass
347	1/2.1	Jar rim fragment, light green. Plain rim w/ molded narrow collar:
		probably part of thread for screw-on top.
350	5/368.5	Amber bottle bases; 2 w/ "8" molded onto bottom; 1 w/ "...UG.24" over "10"
		over "...1886".
351	1/40.2	Amber bottle neck with seams on both sides. Corresponds to Wilson's (1981)
		Type A beer bottle.
352	1/73.2	Light green bottle base.
353	1/75.3	Amber bottle base.
354	1/35.2	Amber bottle fragment; 1 side seamed w/ molded lettering but too small
		to discern.
355	3/128.2	Misc. bottle fragments, including one body frag with molded "...R...RYE...";
		1 plain amber base; 1 light green base; and a small flat-sided flask.
356	3/156.8	Misc. bottle fragments, all light green, including 2 bases, and 1 neck
		corresponding to Wilson's (1981) Type i packing jar.
361	4/210.5	Amber bottle fragments, including 2 plain bases & 1 body fragment with
		molded lettering "MANUFACTU..., THE LIQU....CHIC...".

TABLE 4: GLASS ARTIFACTS

364	4/225.8	1 dark green bottle base fragment; 1 clear oval flask base fragment; 2 light green neck fragments, including 1 w/ screw threads
365	1/295.1	Clear glass liguor flask with pewter screw-on cap.
366	1/22.8	Small, square purple bottle base w/ molded lettering on base: "...SCHIL...".
CA-KER-4695H		
377	26/108.2	Misc. glass frags: 20 pcs window glass; 3 vessel frags incl. 1 plate base; 3 green glass bottle frags.
381	2/2.8	2 pcs. window glass.

8.0
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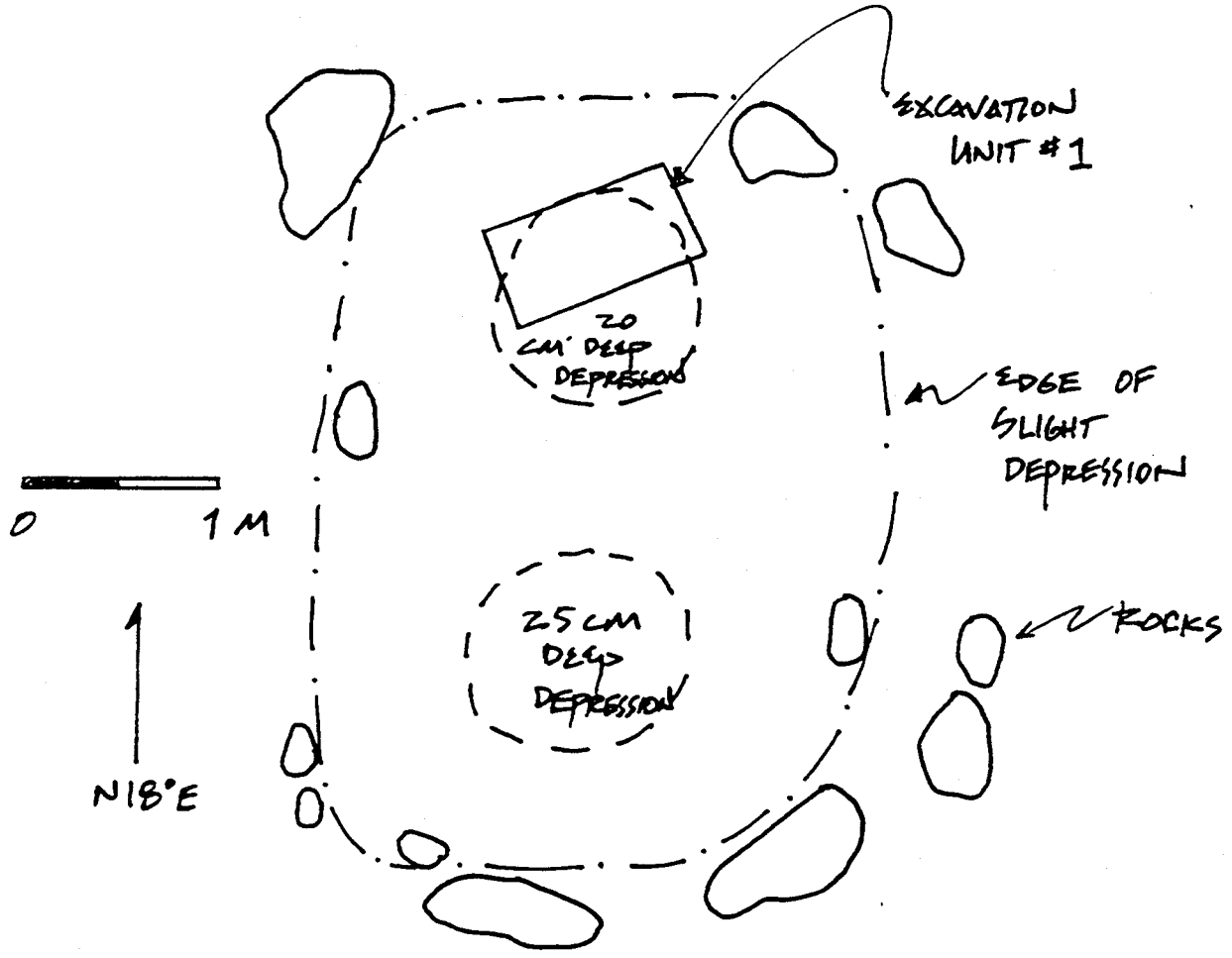


FIGURE 4: Feature #2 at CA-KER-4693H showing the location of test pit #1.

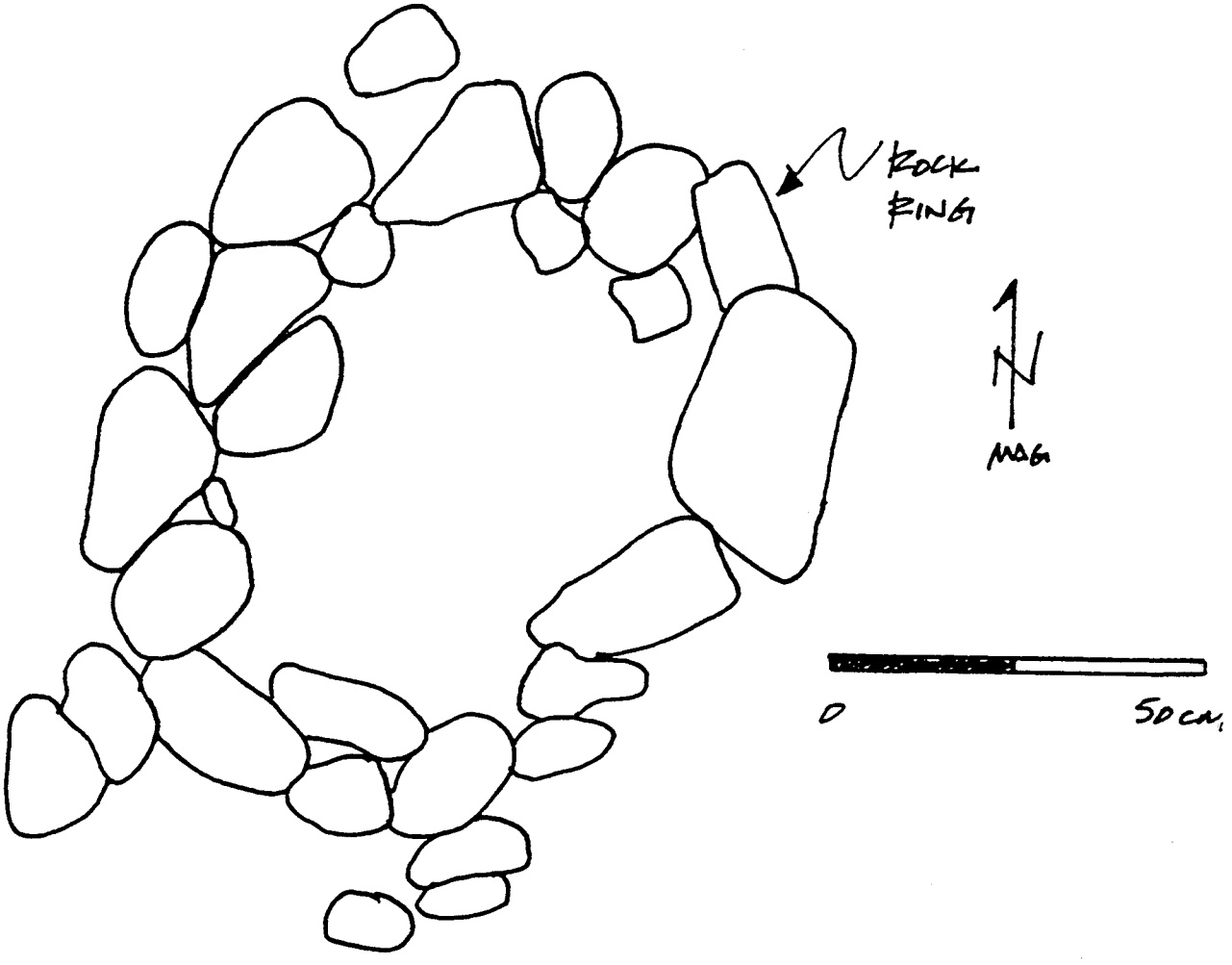


FIGURE 5: Feature #3 at CA-KER-4693H.

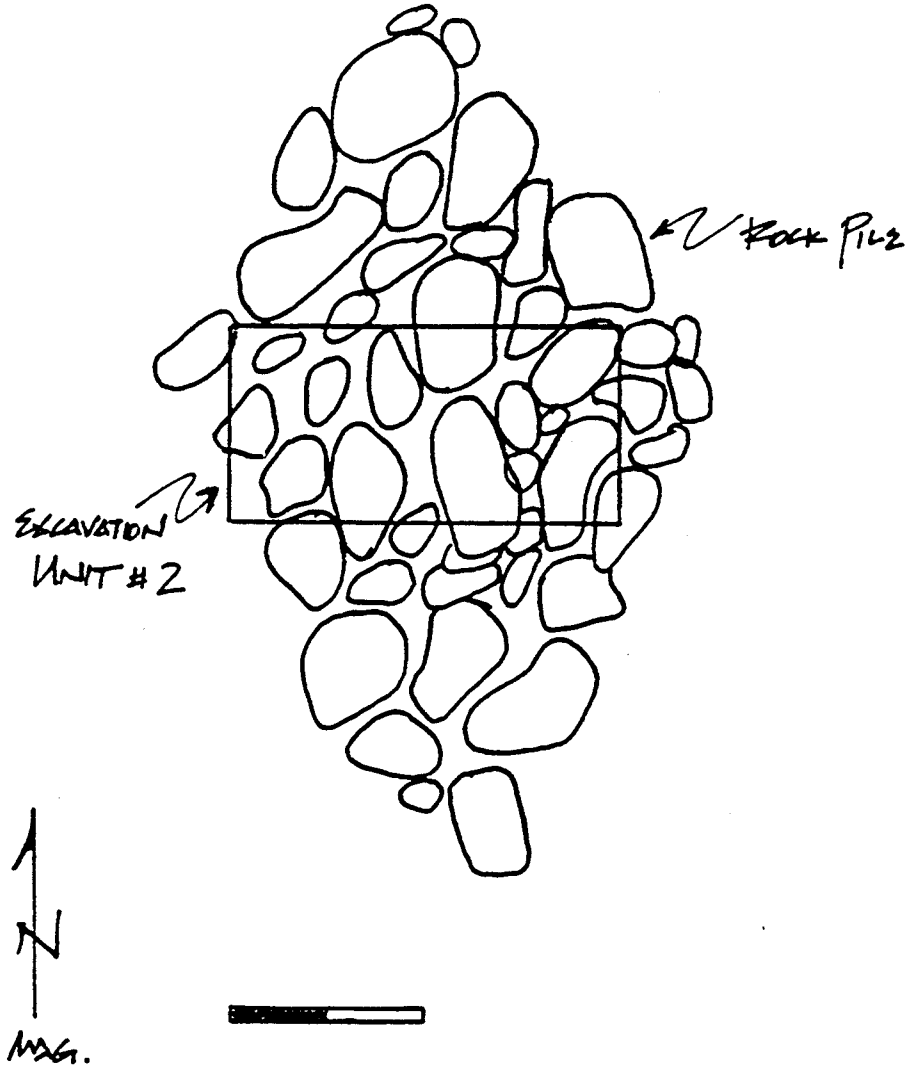


FIGURE 6: Feature #4 at CA-KER-4693H, showing the location of test pit #2.

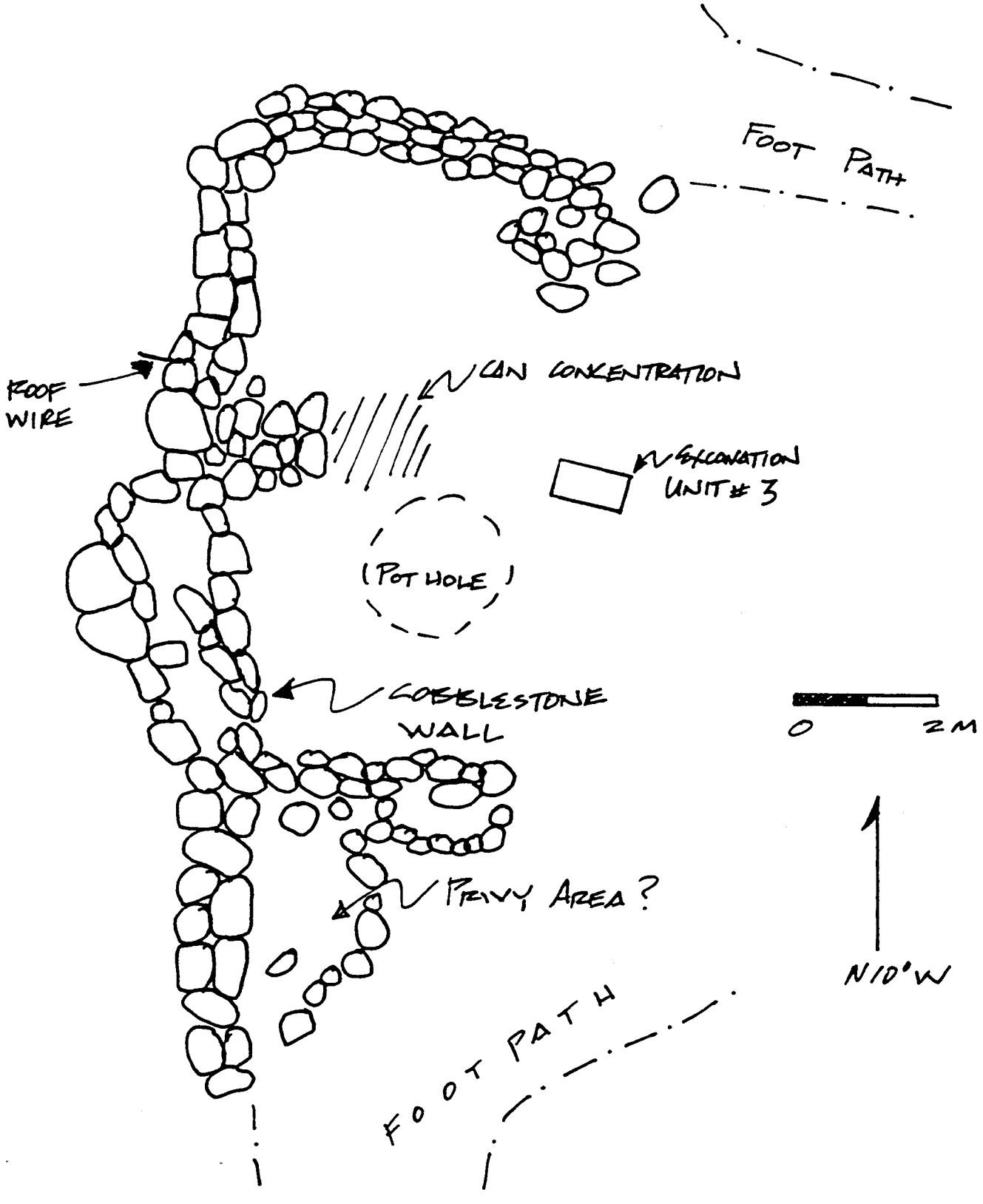


FIGURE 7: Feature #5 at CA-KER-4693H, showing the location of test pit #3.

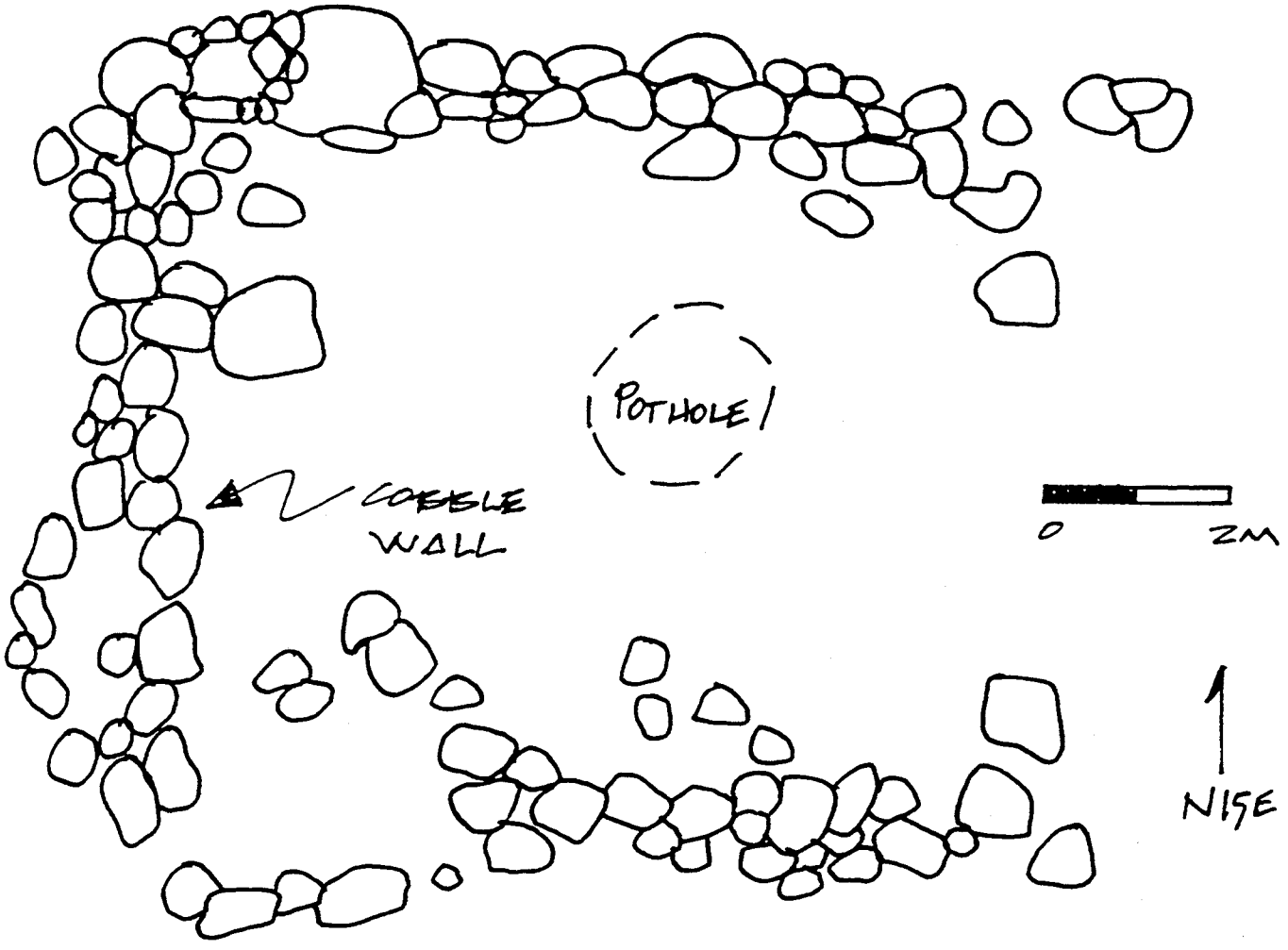


FIGURE 8: Feature #6 at CA-KER-4693H.

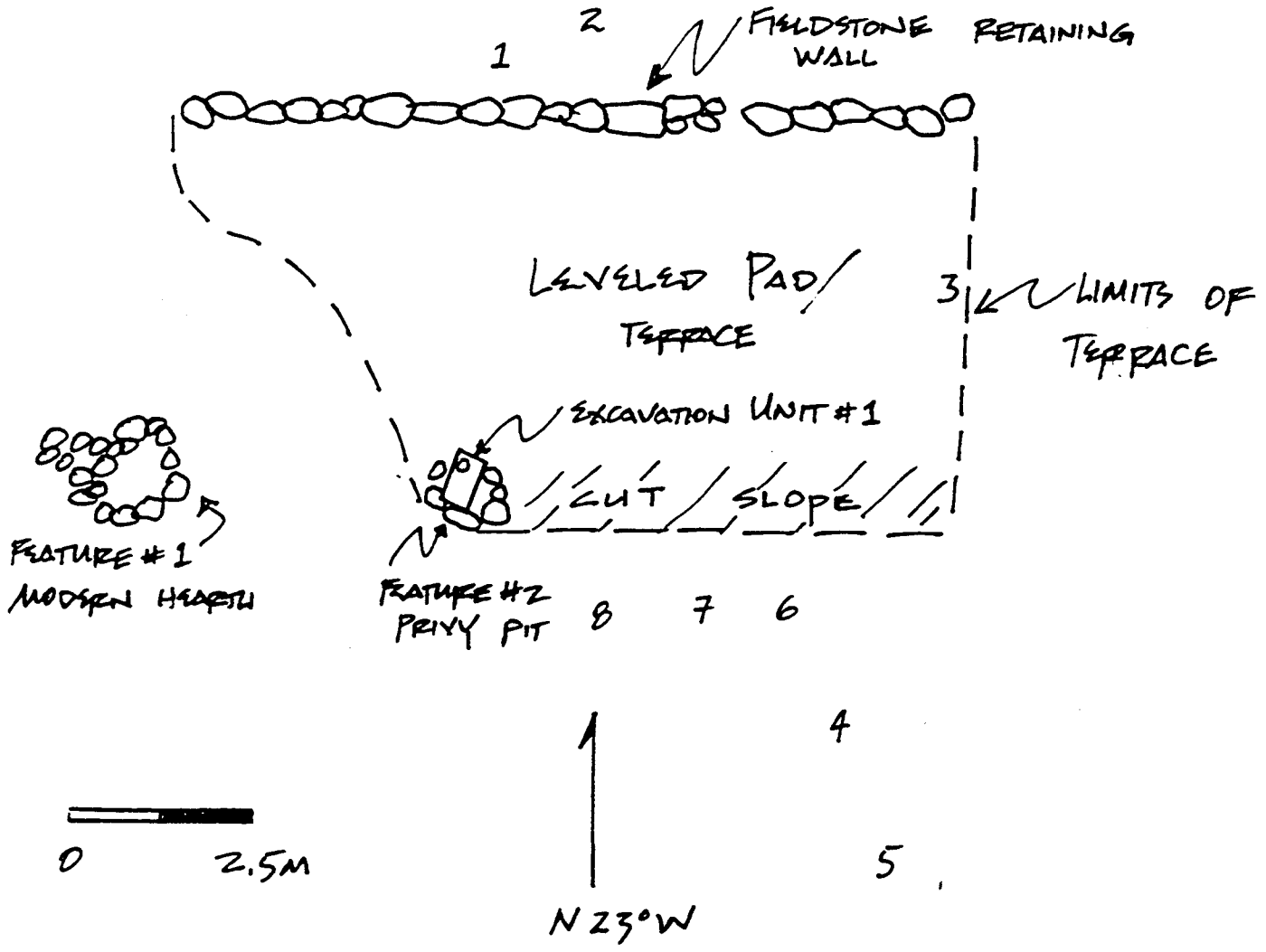


FIGURE 9: CA-KER-4695H, showing Feature #1 (modern hearth), #2 (privy pit) and #3 (terraced pad), and the location of test pit #1. Key - numbers = surface artifacts listed in Table 1.



Not to scale

a. Beer
b. Champagne
c. Case
d. Jo jo flask
e. Shoofly flask
f. Union oval flask
g. Picnic flask
h. Soda water
i. Packing
j. Round prescription
k. Fluted prescription
l. Pomade morphine
m. Panel
n. Ball neck panel
o. Baltimore oval
p. Union oval
q. Philadelphia oval
r. Blake
s. Oblong tooth powder
t. French square
u. Plain oval
v. Vial
w. Oval castor oil
x. Club sauce
y. Olive oil
z. Olive bottle
aa. Eclipse olive oil
bb. American square pickle
cc. Octagonal peppersauce:spice
dd. Gothic peppersauce
ee. Square ring peppersauce
ff. French barrel mustard
gg. Round horseradish
hh. Florida water
ii. Oval polish
jj. Snuff jar
kk. Carmine ink
ll. Conical ink
mm. Round ink
nn. Igloo ink

FIGURE 10: Typology of bottle forms, from Herskovitz (1978).

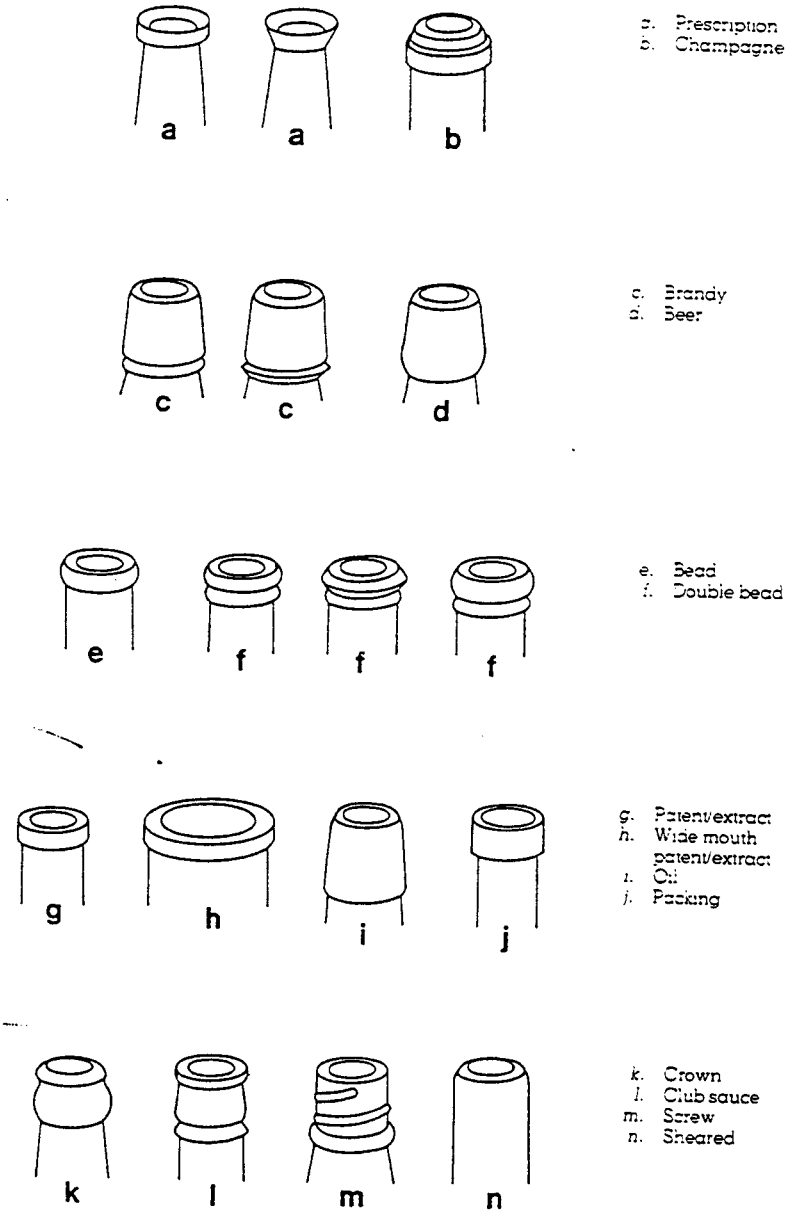


FIGURE 11: Typology of neck forms, from Herskovitz (1978).

PHASE II TEST EXCAVATION AND DETERMINATION OF SIGNIFICANCE AT CA-KER-4694, SOLEDAD MOUNTAIN, MOJAVE, KERN COUNTY, CALIFORNIA

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19 December 1996

Management Summary

A Phase II test excavation and determination of significance was conducted for site CA-KER-4694, located in the addendum study area of the Golden Queen Mine project area, Soledad Mountain, Mojave, Kern County, California. The Phase II test involved mapping, surface collecting, subsurface testing, and the processing and analysis of the recovered artifact assemblage. The site proved to be a small, low density surface scatter of stone tools, with no subsurface archaeological deposit. It is interpreted as a plant processing station associated with a dry mud playa, and is believed to date between 4000 and 1500 years before present. Phase II test excavations at this small site resulted in the recovery of all extant archaeological remains present at this locale, thereby yielding scientifically consequential information from and about this cultural resource. Following Appendix K of CEQA, this has served to completely and adequately mitigate any adverse impacts that might occur at this site through development or use. No additional archaeological work is recommended at this location.

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CHAPTER 1
INTRODUCTION AND BACKGROUND TO THE STUDY

1.0 Introduction

In December of 1996, a Phase II test excavation and determination of site significance was completed at archaeological site CA-KER-4694, Mojave, Kern County, California. This project was conducted at the request of the Golden Queen Mining Company, Rosamond, California. Fieldwork was directed by Joseph M. Simon and David S. Whitley, Ph.D. Mr. Richard Angulo, California Indian Council Foundation, served as Native American liaison and monitor for the project.

This project was designed to yield sufficient data to adequately characterize the nature, size and significance of any extant cultural resources within CA-KER-4694, and to thereby provide final recommendations for the treatment and disposition of this cultural resource. The determination of site significance has been performed following Section III, Appendix K, California Environmental Quality Act, Law and Guidelines, June 1986. In addition, federal criteria contained within Title 36, Part 60.4 (36 CFR 60.4), "Criteria for Evaluation of Archaeological Sites and Historical Places", Code of Federal Regulations, July 1989, were consulted during the determination of significance process.

Fieldwork for this project was completed between December 1 and 5, 1996. Subsequent to the fieldwork, the processing and cataloging of the archaeological collection from the site were completed. Laboratory processing and analysis of the remains recovered from this project were completed under the direction of Tamara K. Whitley, M.A. This manuscript has been prepared by David S. Whitley, Ph.D., and Joseph M. Simon.

The following section of this chapter consists of a description of the site, its location, and its environmental setting. Subsequent chapters provide: cultural historical background to the study; a discussion of the field methods employed during the Phase II project; a summary of the field results; and then outline a detailed description of the recovered artifact assemblage. We conclude with an analytical summary of our findings, and final recommendations for this cultural resource.

1.1 Site Location, Environmental Setting and Description

Site CA-KER-4694 is located on the flats immediately west of Soledad Mountain, which is a northern extension of the Rosamond Hills (Figure 1) in southeastern Kern County, California. These hills separate the Fremont Valley, to the north, from the Antelope Valley, extending southwards towards the Sierra Pelona and San Gabriels, within the western Mojave Desert. Soledad Mountain falls within the creosote scrub

(Larrea tridentata) plant community, which also includes burrobush (Ambrosia dumosa), Joshua Tree (Yucca brevifolia), Mormon tea (Ephedra nevadensis), rabbitbush (Chrysothamnus spp.), sagebrush (Artemisia spp.) and saltbush (Atriplex spp.) as dominant and sub-dominant species (see Schoenherr 1992). However, the site sits along the northern margin of a small dry mud playa. Various species of buckwheat (Eriogonum spp.) are common within this micro-environmental zone.

The site was discovered and recorded during the addendum survey for the Golden Queen project (W&S Consultants 1996). It was interpreted as a low density prehistoric plant processing station. Artifacts noted at CA-KER-4694 at the time of discovery included three unshaped manos, one lightly used metate fragment, a hammer-grinder-abrader, and a primary flake. No temporal diagnostics were observed on the site when first found. Based on studies elsewhere in the Mojave Desert, however, we believe that sites such as CA-KER-4694 date to the Late Archaic and later. Site size was estimated at 100 by 100 meters and it appeared to be in fair condition. Because the playa location of the site is immediately adjacent to Mojave-Tropico Road and is currently used as an illicit dump area, trash has been spread across portions of the site.

Similar associations of plant grinding stations with dry mud playas have been noted in other portions of the Mojave Desert (e.g., Whitley et al 1988), and appear to reflect seasonal and/or opportunistic exploitation of plant resources in these very localized micro-environments, perhaps buckwheat, which seasonally fill with water.

CHAPTER 2
CULTURAL-HISTORICAL BACKGROUND

2.1 Regional Prehistory

Recent regional summaries of the Antelope Valley prehistory have been published by Sutton (1988a, 1988b), with syntheses of the related Coso area immediately to the north published by Whitley et al (1988) and Whitley (1994). Based on these studies, as well as the more wide-ranging cultural-historical frameworks for eastern California provided by Hester (1973), Bettinger and Taylor (1974), Warren (1984) and Elston (1982), regional prehistory can be discussed in terms of a series of cultural-historical periods, starting with the earliest evidence for human occupation in the western hemisphere.

Pre-Clovis (earlier than 11,200 YBP)

Perhaps the most long-lived problem in New World prehistory has been the question of the antiquity of first occupation, with two positions dividing the discipline: the Pre-Clovis or long chronology, which posits a Late Pleistocene first-migration at some undetermined point prior to 11,200 YBP (years before present); and the Clovis-first or short chronology hypothesis, which argues for an initial migration at the immediate end of the Pleistocene, now set at 11,200. Historically, the the Mojave Desert region has played an important role in this debate, due to the presence of putative early sites in the Manix Lake Basin, in Panamint Valley and around Pleistocene Lake China. E.L. Davis (e.g., 1978), in particular, argued for the presence of Pre-Clovis sites in the region based on three lines of evidence: typological similarities between surface lithic tool assemblages in this region and well-dated typologies in the Old World; the locational context of certain surface sites on well-dated Pleistocene lake terraces and sediments; and the association between surface cultural artifacts and dated paleontological remains.

Because Davis' evidence was based exclusively on surface finds that were, themselves, never directly dated using chronometric techniques, as well as typological comparisons, her conclusions were not widely accepted in the profession. However, more recently developed evidence (Whitley and Dorn 1988, 1993; Whitley et al 1996) suggests an occupation of the Coso Range at least as early as 19,000 YBP, and perhaps as early as 30,000 YBP in the Mojave Desert generally. These dates were obtained from the direct dating of the rock varnish coating petroglyphs and surface lithic tools, using three independent chronometric techniques: cation-ratio dating, which provides calibrated ages; AMS radiocarbon dating, which provides numerical dates; and the analysis of varnish micro-stratigraphy, which provides relative age control.

Based on these techniques, Whitley and Dorn have obtained a suite of six Pre-Clovis age petroglyphs from the Coso area, in addition to a number of Holocene-dated

specimens. The Pre-Clovis petroglyphs include dates that have been confirmed by independent assays on the same petroglyph, using each of these different techniques. For example, petroglyph CM-8 has a radiocarbon age (uncalibrated) of 14,070 ± 130 YBP (calibrated age, 14,930 YBP). The cation-ratio age on this same petroglyph is 14,200 ± 1700 YBP, thus providing independent one-sigma confirmation of the Pre-Clovis date. Most recently, advances in the analysis of varnish micro-stratigraphy allow for the identification of diagnostic temporal signals in SEM varnish thin-sections. Key micro-stratigraphic signals are present in the varnish thin-sections at the Pleistocene-Holocene transition, and at approximately 14,000 and 21,000 YBP. Coso petroglyphs dated between 14,000 and 19,000 based on AMS radiocarbon and cation-ratio dating display the 14,000 micro-stratigraphic diagnostic but not the 21,000 YBP signal, thus demonstrating that the chronometric techniques are correctly placing them in the proper part of the Pleistocene (Whitley et al 1996).

Similarly, a series of Pre-Clovis varnish ages have been obtained on surface artifacts from the Manic Lake Basin (Dorn et al 1986; Bamforth and Dorn 1988; Dorn et al 1992; Whitley and Dorn 1993). These include Manix Lake Lithic Industry specimens that have been independently dated with cation-ratio and AMS ^{14}C (and with confirmations provided by varnish micro-stratigraphic analyses) that include examples with CR and AMS ages falling within one-sigma standard deviations, and refit flake-core sequences that exhibit internal variances for their CR dates of less than 5%. The ages of these Manic Lake Lithic Industry dates extends back to roughly 30,000 years B.P.

Although there is some controversy concerning these early dates from the Cosos and other parts of the Mojave Desert, no cogent argument has been advanced explaining why they may be incorrect. Indeed, the most typical problem that confronts radiocarbon dating, contamination, would in this case result in younger, not older, ages, thus substantiating the Pre-Clovis argument. Moreover, there are a certain related circumstances that greatly bolster the Pre-Clovis position (Whitley and Dorn 1993). First, attention to the geomorphology and paleoclimatology of the latest Pleistocene indicates that the Pre-Clovis period was one of net erosional degradation. Lowered eustatic sea-levels combined with a series of major flood events resulted in the stripping of sediments in major portions of North America, rather then the gentle forms of deposition that are required for archaeological site preservation. An exception to this pattern occurred in the Basin and Range Province, where stable alluvial fans preserve Late Pleistocene groundsurfaces. Boulders and cliff faces containing rock art, as well, were also not subjected to this erosional destruction. Thus, there are very few extant geomorphological contexts within which Pre-Clovis finds could be expected to be found. This explains why there is a sudden "explosion" of Clovis age sites and a relative dearth of Pre-Clovis sites in the archaeological record: the Clovis sites appear at exactly the point when the geomorphological conditions change to favor site preservation. Second, archaeological evidence from South America has included a number of well-dated Paleoindian sites falling between

10,000 and 11,200 YBP. As has been pointed out recently, it would have been physically impossible for first migrants to have entered North America sometime after 12,000 YBP and to have colonized South America within 1000 years; this would require rates of population growth unheard-of for human beings, and migration speeds that are manifestly implausible (Whitley and Dorn 1993). Thus, even the South American Paleoindian evidence tends to discount the likelihood of the short chronology for the peopling of the New World.

Although the evidence, accordingly, is mounting for the Pre-Clovis occupation of eastern California, at this point there is relatively little that can be said about this occupation, beyond the simple fact of its presence. Until additional evidence is presented, then, we will not be able to determine whether Pre-Clovis peoples were sedentary or mobile, or big-game hunters versus foragers.

Paleoindian (11,200 - 9000 YBP)

Although the initial occupation of the continent is controversial, there is widespread agreement on the subsequent Paleoindian period, which is typically viewed as pertaining to mobile big-game hunters who exploited Pleistocene megafauna. The hallmarks of the Paleoindian period are the fluted, collaterally-flaked and basally-thinned and -ground Clovis and Folsom projectile points, during the earlier portions of the period, followed by a series of large, well-flaked but unfluted lanceolate points towards the end of the period. Some scenarios suggest that the big-game hunting practiced by these Paleoindian peoples may be responsible for the extinction of the Pleistocene megafauna, such as Imperial Mammoth, Bison antiquus, and the North American horse; however, recent evidence indicates that the earlier portions of the Paleoindian period comprised a lengthy and severe drought, thus demonstrating that the large mammal herds were already under extreme environmental stress, regardless of the effects of human predation (Haynes 1991). Regardless of the so-called Pleistocene overkill problem, the image of Paleoindians as specialized big-game hunters has become pervasive for North America.

Limited evidence of Paleoindian use of eastern California has been found in a number of areas, including Pilot Knob Valley, immediately to the south of the Garlock Fault; on the shores of Pleistocene Lake China, near Ridgecrest; Fort Irwin, east of Barstow; and, most recently, in the El Paso Mountains, southwest of the Panamints (e.g., Davis 1978; Warren and Phagan 1988; Yohe 1992b). Typically, this evidence consists of isolated (in some cases reused) Paleoindian projectile points, although there is also evidence for Paleoindian petroglyph manufacture in the Cosos (Whitley and Dorn 1987, 1988), with unpublished and at this point unverified reports of megafaunal depictions in the art. Furthermore, an obsidian Paleoindian point from the central Mojave Desert has been sourced to the Coso Sugarloaf Quarry (Sutton and Wilke 1984). These isolated finds and occurrences at a minimum are indicative of at least sporadic Paleoindian use of the region.

Although it is likely that more substantial Paleoindian habitation sites are somewhere

preserved in the region, they have yet to be found and a better understanding of the Paleoindian period in this portion of eastern California will only be obtained when such sites are discovered and investigated (cf. Warren and Phagan 1988). In the meantime, growing evidence for Paleoindian occupation, in the form of two Clovis-like projectile points, has been discovered immediately northwest of the Antelope Valley (Glennan 1971; Zimmerman et al 1989), as well as on the off-shore Channel Islands (Morris and Erlandson 1993). With the maritime adaptation this last find implies, it suggests that the monolithic interpretation of all North American Paleoindian period sites as necessarily a product of specialized big-game hunting may be incorrect, and that more regional subsistence variation may emerge once better evidence from the far west has been discovered and analyzed (cf. Willig and Aikens 1988).

Early Archaic (9000 - 6000 YBP)

The Early Archaic period, or so-called Western Pluvial Lakes Tradition, represents the early Holocene in paleoenvironmental terms. Its hallmark is the widely dispersed but ambiguously-dated Western Stemmed Tradition projectile points. These include the local variants known as Lake Mohave and Silver Lake points, which may in fact actually date between 10,500 and 7,500 YBP. Combined with studies of the lithic technologies of Early Archaic and Paleoindian sites, this chronological overlap suggests that the Western Stemmed Tradition was an in-situ development out of the earlier Paleoindian tradition (Willig and Aikens 1988).

Early Archaic sites are most commonly found on the lowest terraces above latest Pleistocene and early Holocene lake basins and stream deltas. They are, accordingly, widely regarded as part of a lacustrine-focussed adaptive strategy. Although a number of authors have cautioned against too simplistic an interpretation of these associations, pointing out the fact that Early Archaic sites are also found in other environments, it nonetheless is apparent that, in eastern California at least, this environmental association and its inferred subsistence implications maintain some verity. Indeed, it can be noted that recent research in the Great Basin has exactly emphasized the general importance of lacustrine adaptations, in contrast to Jennings' (1957) earlier model of a long-lived "desert culture" tradition.

Be these controversies as they may, Early Archaic projectile points are occasionally found in the Antelope Valley, but the sites themselves are relatively rare, and instead are more common to the Basin and Range country proper, to the north. For example, Davis (1978; Davis, Brott and Weide 1969) has identified and discussed the importance of a number of putative Early Archaic sites in the Panamint region. These are located in both the China Lake Basin and the Panamint Valley in former lacustrine environments, and are indicative of the fact that some lakeshore use if not occupation did occur during the early Holocene in this region. However, this must be matched against the fact that Western Stemmed Tradition points have also been recovered as isolates in upland environments in the Cosos (Elston et al 1983). Thus, although lakeshore exploitation may have been an emphasis during the Early Archaic in eastern California, this apparently also incorporated mobile hunting into other

environments as well.

Middle Archaic (6000 to 4000 YBP)

Be this early evidence as it may, what is incontrovertible is that, regardless of date of initial occupation, substantial inhabitation did not occur until much later, with the start of the Middle Archaic or Pinto Period, at about 6000 years B.P. This lasted until approximately 4000 years B.P. A number of sites from this time period are known from the Rosamond area, specifically associated with the prehistoric shoreline of Rosamond Lake. Notably, sites dating to this time period apparently emphasize the use of rhyolite as a lithic resource, almost to the exclusion of crypto-crystallates, such as chert and jasper.

The Middle Archaic, however, corresponds essentially to the Altithermal paleoenvironmental period, and is a controversial topic in Mojave desert prehistory due to its cultural and chronological ambiguity. Much of the ambiguity stems from the uncertainty in the chronological placement of the Pinto series projectile points. Seemingly, there are as many chronological scenarios for the placement of Pinto points as there are archaeologists working on the problem (cf. Meighan 1981; Jenkins and Warren 1984). What this ultimately may suggest is that much more regional variation existed during certain periods of the prehistoric past than is currently being recognized.

In the Coso area to the north, but not necessarily elsewhere in eastern California, there is little if any evidence for Middle Archaic occupation, at least if Meighan's (1981) obsidian hydration date revisions for the Pinto series points from the Little Lake site are accepted. That is, existing evidence could be interpreted to signal a diminution in occupation, if not an outright abandonment, in this region, apparently corresponding to the hot and dry climatological conditions of the Altithermal. However, it is also possible that local inhabitants may have adopted a subsistence strategy and settlement pattern with little archaeological visibility on the landscape during this period; e.g., a highly mobile pattern. Although this alternative interpretation of the apparent dearth of Middle Archaic sites must be acknowledged, it seems implausible in light of the fact that extremely dry conditions would be more commonly predicted to result in a stronger form of "tethered nomadism", and thus greater archaeological visibility, around water sources. Moreover, there is clear evidence for Middle Archaic settlements in the Fort Irwin area (e.g., Jenkins and Warren 1984; Basgall and Hall 1994), to the east of Barstow, suggesting that not all portions of eastern California were abandoned at this time; again, emphasizing the possibility of more regional variability than heretofore acknowledged.

Late Archaic (4000 to 1500 YBP)

Much less controversy surrounds the subsequent Late Archaic period, or Elko Period, lasting from about 4000 to 1500 years B.P., which correlates with improved and wetter environmental conditions across the far west. Although sites from this time period are sometimes considered rare in the Mojave Desert, it is notable that many of

the subsequent Rose Spring Period villages (see below) were first occupied during this earlier phase. That is, as has been noted by a number of authors, there seems to be a strong continuity between the Elko Period and subsequent times, with the latter period materials masking or burying the Elko remains. In the Antelope Valley region this begins with a major increase in population beginning about 3000 years B.P. (Sutton 1988b:23).

Similar patterns have been noted in surrounding regions. For example, the start of the Late Archaic in the Coso Range region is posited to represent the initial establishment of the primary settlement and subsistence systems that are currently archaeological visible (Whitley 1994), while this same period has been recognized as experiencing a major, far western North American-wide expansion of settlements into new environments and increases in population, stretching from the Great Basin of eastern California, through the southern Sierra Nevada, across the Transverse Ranges, and down to the coast (Whitley, Gumerman and Simon n.d.). The primary temporal diagnostics for the Late Archaic are Elko and Gypsum series projectile points.

In the Coso Range, the Late Archaic is signaled by the establishment of major winter villages, typically at springs, in valley bottoms on the western and wetter side of the range. Analyses of paleoethnobotanical and faunal remains suggest a generalized foraging strategy, emphasizing all available resources (e.g., Gumerman 1985), including buckwheat stands around small mud-playas (Whitley et al 1988). This evidence is complemented by an extensive but seemingly non-logistically organized use of all upland environments. Included here is a significant quantity of isolated projectile points in the uplands, suggesting mobile hunting patterns (Elston et al 1983). Furthermore, the Late Archaic witnessed the beginning of the intensive exploitation of the Coso Sugarloaf obsidian quarry, an event that apparently correlates with the beginning of the inland-to-coastal obsidian trade in south-central California (Whitley, Gumerman and Simon n.d.).

Rose Spring (1500 - 800 YBP)

The Rose Spring Period is differentiated from the earlier Late Archaic/Elko Period by the introduction of the bow and arrow and a change from spear points to arrow points at circa AD 500 (cf. Yohe 1992). This transition is, in technical terms, dramatic. In fact, the introduction of this new weaponry technology probably did not have any immediate major impacts on social or cultural systems. At least initially, the settlement and subsistence systems were stable, and lithic technology and production did not noticeably change (Allen 1986).

Moreover, and as implied above, in all other respects Rose Spring times appear to have been a continuum from the earlier patterns, so that the change in hunting technology was probably less important than we might otherwise presume. Within the Antelope Valley area, Desert Village Complexes, representing a major change in magnitude of settlements, were founded at least by Rose Spring times, and perhaps towards the end of the earlier Elko phase. Two of these have been identified by

Sutton (1988a, 1988b) in the foothills of the Antelope Valley, with a third between Rosamond and Rogers Dry Lake, and a possible fourth at Koehn Lake. It is possible, if not likely, that these represent the founding of the tribelet system of political organization in the region.

At approximately AD 1000 - 1200, however, a shift in settlement and subsistence practices began that, ultimately, culminated in the protohistoric/ethnographic patterns referred to as the Late Prehistoric or Numic Period (discussed below). This involved the abandonment of some winter villages (or at least a reduction in the intensity of their use); the establishment of logistical base camps around springs in the upland environments; an increasing emphasis on a relatively specialized diet focused on seeds and the pinyon nut; and a great increase in the production of petroglyphs (Whitley 1994). That is, settlement patterns became more organized and focused, while subsistence was increasingly specialized, and ritual became more common.

The causes for this transition are not yet fully understood. Bettinger and Baumhoff (1982), for example, have accepted it as an empirical fact, with the subsistence change then linked to the putative spread of Numic peoples out of eastern California at about this time. They have then taken the position that the phenomenon to be explained is not the cause of the subsistence change, but the reasons why such a change was adaptively more successful, and how it can then be used to account for the historical distribution of Numic languages. The implicit assumption in such an approach is that evolutionary transitions are to be expected due to the inherent tendency for greater fitness to emerge in populations.

While this last tendency may or may not be so, it overlooks pertinent related evidence; namely, that this same time period experienced a major drought that effected all portions of western North America, from northern Mexico through the Southwest, across the Great Basin, and even into the Channel Islands. Moreover, the environmental stress engendered by this drought has been cited as a causal factor in the abandonment of Anasazi pueblos in the Southwest, as well as the southward retreat of Mesoamerican civilization with the collapse of Tula. Perhaps more to the point, Arnold (1993) has noted the influence of this drought in creating resource stress that was a contributing factor to the appearance of a simple chiefdom in the Chumash region near Santa Barbara. Similarly, Whitley (1994) has argued that this transition in eastern California represents the first appearance of Numic bands and headmen; specifically, that it was the increasing perceived need for ritual specialists in the form of rain shamans during this period of environmental degradation that led to the establishment of bands and the creation of headmen. In this interpretation, the accelerated production of Coso petroglyphs (which are know ethnographically to have been tied to rain shamanism) is taken as a reflection of the growing number of ritual specialists, with the appearance of a logistically-oriented settlement pattern a sign of increasing sociopolitical control and organization.

Late Prehistoric (800 - 140 YBP)

The Late Prehistoric (or, in some areas, Numic) Period, from 800 years B.P. to the Historic Period, represents a continued growth in local population, with numbers of people apparently quite high. It is distinguished from previous Rose Spring times by the introduction of brownware ceramics and a change in projectile point types: from Rose Springs types to Desert Side-Notched and Cottonwood Triangular. Sutton (1988a, 1988b) notes that a boundary of some sort developed during this period: Desert Side-Notched points, brownware ceramics and obsidian are all common from the Fremont Valley northward; south of this area, in the Antelope Valley proper, ceramics and obsidian are rare, and Cottonwood Triangular points are the predominant projectile point type. This apparently correlates with similar patterns further towards the coast: at about 800-1000 years ago the desert-to-coast obsidian trade dried up, and Rose Spring-like projectile points were replaced by Cottonwood-like points, with Desert Side-Notched points rare.

The Protohistoric/Historic phase of the Late Prehistoric, representing the last 300 years, is apparently marked by a major disruption in indigenous settlement, and a corresponding paucity of sites. According to Earle (1990), missionization pulled many of the region's inhabitants away. Subsequently, the Antelope Valley area was used as a staging ground for rustlers and other miscreants, who were raiding the missions' livestock. The result was that the area became somewhat of a no-man's land which, no doubt, has also contributed to the paucity of ethnographic information on it.

2.2 Regional Ethnography

The Antelope Valley and environs are, unfortunately, one of the most poorly known regions, ethnographically speaking, in California, which is a state that is generally renowned for the detail of its ethnographic record (cf. Kroeber 1925). Thus, the valley contrasts quite sharply with certain of its immediately surrounding areas, such as the southern Sierra Nevada to the north, for which there is a wealth of ethnographic reports and data, and even the Santa Barbara Channel region to the west/southwest. Even though the ethnographic inhabitants of this last area were disrupted very early-on by missionization, our record of their lifeways is nonetheless more complete than for the groups that inhabited the Antelope Valley. Luckily, some of the early confusions and misconceptions concerning even such fundamental problems as who the ethnographic inhabitants of the Western Mojave Desert area actually were are now becoming clarified. Earle (1990), in particular, has done much to disentangle previous misconceptions concerning the ethnolinguistic affiliations of the Antelope Valley's inhabitants, and a summary of his recent ethnohistorical conclusions provides an appropriate overview for the aboriginal history of the region.

According to Earle's reconstruction, the Valley was inhabited during the

Historic/Protohistoric period by three distinct language-speakers, one group of whom could be further subdivided into two (and perhaps three) fairly distinctive dialects. The most significant linguistic division existed between the Kawaiisu speakers, who lived in Tehachapi Valley, through the southern Sierra Nevada and eastward across Fremont Valley towards Red Mountain and into southern Panamint Valley, and the groups to the south and west in Antelope Valley per se. The Kawaiisu language is a member of the Numic branch of the Uto-Aztecan language family, and is thereby most closely related to the Shoshonean and Paiute languages of the Great Basin.

South and westward of the Kawaiisu were two other members of the Uto-Aztecan language family, but in this instance both were distinct languages belonging to the Takic (as opposed to Numic) branch, specifically to the Serran Takic branch. Along the southwesternmost side of the valley, including the northern foothills of the Liebre Mountains and the southern side of the Sierra Pelona, were the Tataviam, a little-known group identified due to the existence of a few early word lists. Related to them linguistically, but speaking a distinct language, were the better-known Kitanemuk, who occupied the western Antelope Valley and the Tehachapi Mountains west of Tehachapi Pass. Living to the east of the Kitanemuk, who extended to approximately the current location of Highway 14 where it heads north across the Valley, were a group of closely related peoples that Earle (1990) has identified as the Haminat. Apparently, Haminat and Kitanemuk represent dialects of the Serrano language, which also included Serrano proper and Vanyume (or Beñemé).

According to Earle's analysis, there was a linguistic continuum along the northern side of the San Gabriel Mountains in the Western Mojave Desert, from the Serrano through the Vanyume and Haminat to the Kitanemuk, at the western end. Haminat, apparently, was more closely linked with Vanyume/Serrano proper than Kitanemuk, although it was still simply a dialectical variant of it. But, with the Serran continuum along the northern side of the San Gabriels, and with all of this linguistic variation present during the Historic period, it is easy to understand how ethnographic confusion developed in regards to this region.

The Golden Queen study area, including site CA-KER-4694, falls near the boundary of Kitanemuk and Haminat territories, and may, at different times, have been used by both groups. Perhaps more important than these minor linguistic distinctions, similar cultural patterns were followed by all the inhabitants of the region, with certain minor distinctions. In terms of subsistence, for example, all groups were foragers, with food sources derived principally from gathering. The exact plant species exploited was dependent on seasonal availability, as well as geographical/environmental location. In the higher, montane portions of the region (e.g., towards Tehachapi and along the slopes of the San Gabriels), acorn-bearing oak and pinyon pine nuts were staples. In the lower lying, more desertic zones, mesquite, yucca and a variety of other edible plants were emphasized. Hunting also contributed meat protein, and principally emphasized small game, such as hares, rabbits and rodents. However, the notion that these hunter-gatherers based their subsistence to large degree on big-game hunting

(such as deer, antelope and mountain sheep) has proven to be an anthropological myth.

Cultural commonalities were also maintained in religious beliefs and practices, which were uniformly based on shamanism. This is predicated upon perceived direct and personal interactions between an individual and the supernatural world, with this interaction founded on entering an altered state of consciousness. Shamans, per se, were ritual specialists who held an unusual degree of interaction with the supernatural world, and thereby acquired a high degree of supernatural power. Although formal rituals and ceremonies were limited in number and elaboration, the shamans served as the ritual officers for these. Further, the shamans also were responsible for painting and pecking the rock art that is found in this region: rock art sites served as their vision quest locales, where the shamans entered trances to have visions and thereby acquire supernatural power. And, the art depicted at these sites displayed the visions and spirits they saw in their altered states of consciousness (Whitley 1988, 1992).

Following general California patterns, there were also a number of similarities in social and political organization across the Antelope Valley. Earle (1990) has suggested that the Haminat may have been organized into exogomous clans and moieties, whereas the western groups might have lacked these, and in this sense the Haminat could have been more like the southern California Desert groups like the Serrano and Cahuilla, with the other groups more similar to the south-central California culture of the Chumash and related peoples. However, given that the exact social organizational systems of the Chumash have yet to be defined (for example, there is still debate whether they were matrilineal or patrilineal), and since we do not yet know whether they had a moiety system or lacked it entirely, it may be too early to draw such fine-grained distinctions concerning social organization.

What is apparent, however, is that the region as a whole apparently lacked any political organization beyond that of the tribelet, or what Earle has identified in the Spanish records as naciones. These were autonomous land-owning groups, focused on a principal village and led by a a headman or chief, and probably comprising a lineage system or clan. In this sense, the Antelope Valley can be said to follow the political organizational pattern found throughout most of Native California. This, of course, further links it with Californian, as opposed to Great Basin, cultural patterns.

CHAPTER 3
FIELDWORK PROCEDURES

3.1 Introduction

The Phase II fieldwork at CA-KER-4694 was initiated to identify and define surface and subsurface components or deposits that might be present at the site; to determine the significance of these components; and to thereby develop final recommendations for the management and/or disposition of this cultural resource.

The details of archaeological testing at CA-KER-4694 were designed to comply with the requirements of Appendix K of CEQA, and the Society of Professional Archaeologists (SOPA) Standards of Research Performance. Fieldwork employed in the test excavation included the hand excavation and screening of test pits, controlled surface collection of artifacts, soils stratigraphic analysis, and mapping.

Two test pits, designated Unit #1 and #2, were dug on the site during the test excavations. These were 0.5 x 1 meter in size and were hand-excavated using trowel, mattock and shovel, by 10 cm arbitrary level. Each unit was dug through two culturally sterile levels. All recovered artifacts and archaeological indicators were collected by unit and level. Spoils from each level were screened using 1/8th inch mesh screen. The excavation units were located on the site purposively, in order to maximize information about the nature and extent of any extant archaeological deposit at the locale (Figure 2); specifically, they were spaced approximately 20 meters apart in areas that, based on the distribution of surface finds, appeared to represent the focal point of the site.

The site area and immediate surroundings were walked by the crew spaced at two meter intervals, in order to identify and flag surface artifacts. All surface artifacts and excavation units were mapped using transit, stadia and surveyor's chain. All noted surface artifacts were numbered and collected following the mapping.

3.2 Excavation Results

Units #1 and #2 were both excavated to 20 cm depth. Soils were uniformly sandy silt that was Brown in color (Munsell 10YR5/3); that is, natural alluvial soils characteristic of so-called mud playas. Both units were culturally sterile.

Subsurface testing at CA-KER-4694, therefore, demonstrated that no sub-surface deposit is present at this site. Instead, it comprises a surface archaeological site.

3.3 Surface Collection Results

A total of 11 artifacts were recovered from the groundsurface of site CA-KER-4694 during the Phase II test. These were essentially evenly distributed across the site area, in the sense that no clear concentrations or clusters of artifacts, such as "lithic chipping stations", were observed. Site dimensions measured 45 m E-W by 25 m N-S. Overall site size, therefore, is 1125 meters square. Artifact density within this area is, however, quite low: 0.01 artifacts/ square meter.

CHAPTER 4
ARTIFACT ASSEMBLAGE

4.0 Introduction

The general patterns of soils and artifact distributions, enumerated in the previous chapter, provide important information relative to the size and nature of CA-KER-4694, but a scientific evaluation of the site can only be obtained with a more intensive analysis of the recovered artifact assemblage. Accordingly, in this chapter we consider this assemblage in some analytical detail. We begin by detailing the laboratory procedures followed in the processing and curation of the recovered remains. Subsequently we outline the taxonomic system employed to categorize and classify the archaeological collection. This is followed by a typological summary of the artifacts and archaeological indicators recovered from the site. Finally, we consider the scientific importance of these remains in light of a certain research issues.

4.1 Laboratory Procedures

Following the completion of the fieldwork at CA-KER-4694, the recovered artifact assemblage was taken to the W & S Consultants laboratory for washing, processing and analysis. After each specimen was washed and labeled, metrical and typological analyses were performed. We provide measurements and weights for the various artifacts and archaeological indicators in the site catalog (Table 1) included in this report. In order to facilitate typological comparisons between this site and others in the region, we have employed a standardized taxonomic system. We describe this classificatory system in some detail below.

4.12 Taxonomic Considerations

In considering the artifacts recovered from the investigations at CA-KER-4694, we employ a morphological stone tool typology first published by Whitley et al (1979) and now widely used in the inland southern California region. This affords a number of advantages. First, because of its widespread use (e.g., Johnson 1979; W & S Consultants 1984, 1989a, 1989b, 1991a, 1991b, 1992, 1993, 1994), it permits easy comparability between existing studies, as well straightforward translation to other typological approaches. Second, because it is morphologically rather than functionally based, it provides greater objectivity in taxonomic assignments. Specifically, it avoids the dangers inherent in necessarily implying functional purposes for stone tools that may have had multiple uses, and that often exhibit little in the way of formal attributes. In southern California, in particular, it is increasingly clear that most sites are dominated by expedient or casual tool assemblages, probably reflecting the fact that the majority of sites resulted from dispersal phase activities that little

emphasized formal patterns of behavior (W & S Consultants 1989a). Thus, a typology based on the elucidation of tool manufacturing stages, rather than one assuming final function of the implements, stands less chance of leading interpretations astray. However, this is not to imply that functional interpretations are unwarranted or undesired. Such is not the case; instead, it is simply to emphasize that functional interpretations must be made independent of - and therefore based on other lines of evidence from - the typological assignments alone.

The morphological typology employed here is based on four major categories of stone artifacts (cf. Whitley et al 1979). These are: (i) groundstone implements; (ii) core/cobble tools; (iii) flaked stone tools; and (iv) tool manufacturing waste. Groundstone implements are tools that have been pecked and ground into shape. They include manos (or mullers) and metates (or basal grinding slabs), along with mortars, pestles, stone bowls and comals (or griddles). Although there is a general association between groundstone artifacts and plant grinding, pulping and processing, as in the case of manos, metates, mortars and pestles, this is not invariably so: stone bowls and comals, for example, had other uses, with certain kinds of bowls, in particular, sometimes reserved for ceremonial purposes.

Groundstone artifacts are usually (but not invariably) made of softer lithic materials. Metates, for example, are often made from sandstone or some other sedimentary material; bowls and comals are typically manufactured from steatite (soapstone or talc schist). Manos, however, were often derived directly from river cobbles of appropriate size, so that quartzite is a common material source.

Core/cobble tools are generally large, bulky implements made by the reuse and/or modification of a river cobbles and lithic cores. They include 'hammerstones', 'choppers' and 'scraping planes'. Hammerstones are usually unshaped or minimally shaped, roughly fist-sized, stones that exhibit characteristic battering and pounding scars. Choppers are cobbles or cores that have been unifacially or bifacially flaked to create a relatively sharp, but massive edge. Scraping planes are high-backed, unifacially flaked tools that are usually 'biscuit-shaped' in plan, with edge angles near perpendicular, and with heavy use-scars along their convex face.

All of these tools were apparently employed for heavy pounding, scraping and/or battering tasks. There is a frequent association of core/cobble tools with groundstone artifacts (specifically manos and metates) in inland southern California sites (Whitley 1979), suggesting that the two categories may have been functionally related; that is, that many core/cobble tools may have served as part of a plant processing and acquisition toolkit. This is supported in reference to the scraping planes, in particular, which are argued to represent special yucca processing tools (Kowta 1969; Salls 1985). Further, this suggests in turn that many core/cobble tool were part of a woman's toolkit (W & S Consultants 1989a).

Flaked or chipped stone tools are secondary reductions from cores and cobbles. That

is, they represent tools manufactured from flakes struck off the primary sources of lithic materials. These flakes may be used without modification as 'utilized flakes'; they may be bifacially flaked; or they may be unifacially flaked. It is apparent that the majority of the flaked or chipped stone tools in the Chumash region are either utilized flakes that have no modification, or have edges that have been flaked unifacially or bifacially, but exhibit little or no effort for further edge modification or shape regularization (W & S Consultants 1989a). Again, this further emphasizes the casual or expedient nature of these tools, and also implies that they may have been used for a variety of tasks with little functional specialization.

Correspondingly, the vast majority of the chipped stone tools from this region are what we have defined as biface or uniface 'edges', and they may have been used for any number of general cutting, scraping and abrading tasks. Of course, occasional projectile points, drills and knives represent special types of bifaces with specific and known functions, and some more formally shaped and finished unifaces are also sometimes present. Generally, chipped stone tools were made from material with specific flaking characteristics, specifically, those subject to conchoidal fracture. Crypto-crystallates such as chert, jasper and chalcedony, therefore, are common raw materials, but fused shale, quartzite, cherty-siltstone, rhyolite, andesite, basalt and obsidian may also be present in a collection.

The final category of stone artifacts is what can be considered lithic waste or debitage. It includes spent cores, waste flakes, and angular shatter. There are a number of different kinds of cores and flakes, and the presence of these varieties at a site tends to signify different types of tool reduction or manufacturing techniques. For example, the presence of large numbers of secondary and tertiary flakes usually indicates that chipped stone tool manufacture occurred at a habitation site, whereas primary flakes alone might be associated with the making of the cruder chipped stone or core/cobble tools. Further, because different lithic materials tend to correlate with different categories of tools, the material present in the debitage collection can also be a clue to a site's function. Quartzite and other 'crude' lithic materials, for example, are often found where core/cobble tools are manufactured, whereas crypto-crystallates and obsidian tend to occur where chipped stone tools are manufactured. And, in a general way, there is an association between these last materials, chipped stone artifacts, and habitation sites (W & S Consultants 1989b).

In addition to the lithic tool typology, other classes of artifacts may be present at sites in the region. Dietary remains, in the form of faunal bones and (closer to the coast) shellfish, are often present, as are ornaments, usually in the form of shell beads. The dietary remains, in particular, are obvious clues to prehistoric subsistence and aid in the establishment of the general patterns of prehistoric adaptation to the environment, whereas shell beads are sometimes useful indicators of a site's age, due to stylistic changes in these over time.

Below we consider each of these artifact categories/classes in some detail, specifically

in reference to the recovered artifact assemblage from CA-KER-4694. A complete list of the artifacts and archaeological indicators found at the site during the Phase II field program is provided in Table 1.

4.2 Prehistoric Artifact Assemblage

The prehistoric lithic tool assemblage recovered from surface at CA-KER-4694 during the Phase II test excavation was limited to 11 archaeological specimens. Five (45%) of these are formal tools; the remaining six (55%) are debitage. Groundstone is the single most common class of formal tools. Three groundstone artifacts were recovered from CA-KER-4694, representing 27% of the site assemblage total, and 60% of the formal tool assemblage. Core/cobble complex and flaked stone tools, in contrast, are each represented by a single specimen (9% of the total apiece, or 20% of the tools alone). We discuss the recovered assemblage below.

4.21 Core/Cobble Complex Tools

The core/cobble tool assemblage, presumably employed in relatively heavy pounding, scraping, cutting and/or pulping activities, consists of a single example (catalog #K4694-8). This is a unifacially-flaked quartzite cobble, corresponding to a Type 2A, Minimally Modified Cobble Hammerstone (cf. Whitley et al 1979:18) in the typology used for this analysis. However, one of the manos also shows evidence of hammerstone use (see below), suggesting that pounding activities were more important at the site than would be suggested by this single artifact.

4.22 Groundstone

The groundstone assemblage from CA-KER-4694, used in plant food processing and preparation, totaled three artifacts: one metate and two manos. The metate (catalog #K4694-4) is a large, thick, tabular piece of unshaped rhyolite. It has been abraded on one of the flat sites. This abrasion is, however, relatively moderate in extent, suggesting that this metate was used casually; perhaps only once. This artifact corresponds to a Type 1B, Unshaped Flat Slab Metate (see Whitley et al 1979:26).

The two manos recovered from CA-KER-4694 (catalog #K4694-1 and -2) are both made from quartzite cobbles and are Unshaped Uniface or Type 1 Manos (see Whitley et al 1979:38). Both are only lightly polished or abraded, much like the metate, again suggesting casual use. One of them (catalog #K4694-2), however, shows evidence of battering on one end, thus also having served as a hammerstone.

4.23 Flaked Stone Tools

A single flaked stone tool was recovered from CA-KER-4694. This artifact (catalog #K4694-3) is made of rhyolite and is a large, slightly crude Stage 1 biface (Figure 3). That is, it is made from a thick, slightly cordiform end-struck flake and, while it exhibits edge creation through bifacial flaking, no effort has been made to regularize this edge, shape the overall outline of the artifact, or thin the tool, leaving the percussion-struck bulb of percussion very much in evidence. The artifact is the size of a knife rather than a projectile point and, given the bulb of percussion, is unlikely to have been hafted.

Again, given the rough and unfinished nature of this tool, it appears to reflect casual or expedient use.

4.24 Lithic Debitage

A total of six pieces of lithic debitage, or tool manufacturing waste, was recovered from CA-KER-4694. This includes one core and five waste flakes.

The core (Figure 3) is chert. It superficially resembles a prepared platform core, although we think this is coincidental as there is little evidence for systematic lithic reduction at this site, and because we are not aware of any prepared platform core lithic industry reported for this part of the Mojave Desert.

The waste flakes include two rhyolite and three chert specimens. These are fairly evenly distributed between rhyolite (one primary and one tertiary flake, for two total) and chert (one each of primary, secondary and tertiary flakes, totaling three). As is then apparent, there is little patterning in the debitage beyond the obvious fact that locally available lithic materials were in use. Clearly, primary lithic reduction was not a significant activity at this site (as indicated by the absence of angular shatter), nor was secondary tool shaping, nor tool maintenance. As with the other artifacts recovered from the site, the appearance of the debitage assemblage then is of casual and expedient use.

4.3 Interpretations

The recovered artifact assemblage from CA-KER-4694 then is notable both in terms of what it contains and in what it lacks: any evidence for subsistence in the form of faunal remains, trade as indicated by exotic materials, or ceremony as evidence by ritual artifacts and features. The relatively small size of the recovered artifact assemblage, in fact, is important in inferential terms, but also impedes any detailed interpretation of the site. Similarly, relatively little archaeological research has been conducted in the Rosamond/Mojave region (Sutton 1990:70) impeding comparative studies of sites. Still, we have alluded to certain inferences concerning CA-KER-4694 at various points

above; specifically, its age and its function. Here we consider these issues in slightly greater detail.

4.31 Chronology of CA-KER-4694

As noted above, no temporal diagnostics or chronometrically datable materials were recovered from CA-KER-4694, making any chronological assessment of the site difficult. Age assessment, therefore, is necessarily provisional and speculative. That said, two points of logic allow us to suggest the following about the age of this site.

First, we have noted that the site is dominated by groundstone and sits alongside a dry mud playa, suggesting that it may have served to exploit plant resources associated with this micro-environment (see below). In other parts of the Mojave Desert (specifically the Coso Range to the northeast) we have noted similar sites (as indicated by artifact assemblages and micro-environmental settings) which typically are associated with Elko projectile points (Whitley et al 1988). This suggests a Late Archaic (4000 to 1500 YBP) use for these kinds of sites in this type of micro-environmental setting. Drawing an analogy with this northeastern region, then, allows us to speculate that CA-KER-4694 is most likely Late Archaic, or later, in age. That is, that it post-dates 4000 YBP.

Second, Sutton has noted that the Antelope Valley region witnessed a significant increase in population roughly 3000 YBP (1988b:23), correlating with a widespread western North American expansion in population and settlement after the Altithermal, discussed above. The fact that the majority of the sites in the region appear to date very generally to the last 3000 years in this region would suggest that the most likely age for CA-KER-4694 is within this time span of approximately 3000 years or less in age. This of course correlates with the analogical argument for the age of the site made by reference to the Coso site settlement pattern.

Although our argument then is both speculative and very inferential, the most likely hypothesis is that site CA-KER-4694 is less than 4000 years in age. If our analogy with the Coso sites holds for the settlement pattern of this region, this would further suggest that it dates more specifically between 4000 and 1500 YBP.

4.32 Site Function

The artifact assemblage recovered from CA-KER-4694 is limited to 11 archaeological specimens. As noted above, these are dominated by groundstone (27%), with smaller numbers of core/cobble complex and flaked stone tools (9% each), and a small proportion of lithic debitage (54%) relative to most sites, where debitage often accounts for more than 90% of an assemblage. In general terms this small but diverse

assemblage suggests a wide but unspecialized range of prehistoric activities. Combined with the nature of the tools themselves (specifically, their reflection of relatively casual manufacturing strategies and limited use-wear), this suggests that the site was the product of light-use, perhaps a single visit, and that it was employed for general subsistence activities.

Two previous site typologies have been developed for this general region. The first was established for Edwards Air Force Base, east of CA-KER-4694, and includes eleven site types (Norwood 1987:94): village/base camp; temporary camp; rock shelter; milling station; lithic scatter; quarry; cremation locus; rock alignment; rock art; hearths/roasting pits; and bone scatters. In terms of the characteristics used to define these types, CA-KER-4694 best fits the temporary camp site type. However, it lacks any evidence for a midden deposit, even in limited form, and thereby represents a significantly less intensive kind of occupation and use than is typical for temporary camps on Edwards.

A second site typology has been developed for the Sweet Ridge/Cache Peak region, in the southern Sierras immediately to the north of Mojave (W&S Consultants 1991a). This is of course a mountainous region that, while relatively close-by, differs environmentally in important ways from the desert floor around CA-KER-4694. On the other hand this typology was developed specifically to identify functional patterns in small sites, similar in nature to the site in question. Moreover, while environmental distinctions obviously exist between this area and the CA-KER-4694 study area, it is nevertheless true that some environmental attributes of the southern Sierra duplicate or are similar to those on the valley floor. Included here a stands of buckwheat, as well as a sagebrush belt.

This typology is based on a fundamental distinction between "camps" (village, hamlet and other habitation sites containing middens, rock rings or other evidence for occupation), and "stations" (which lack habitational evidence). Eight site types then have been identified, using this distinction: multi-function camps; multi-function stations; plant processing camps; plant processing stations; hunting camps; hunting stations; unknown function camps; and unknown function stations. The presence or absence of groundstone artifacts and projectile points are the primary artifact diagnostics upon which sites are assigned to this typology.

Based on the definitions of these types, CA-KER-4694 would be classified as a plant processing station; that is, a location whose function primarily concerned the acquisition and preparation of plant resources. This classification seems more appropriate than that suggested by the Edwards site typology, a temporary camp, because in fact there is no evidence for occupation at CA-KER-4694. It may then be the case that CA-KER-4694 represents a site type not found in the desert area of Edwards Air Force Base, to the east, but instead that it is more like certain sites found in the southern Sierra Nevada.

Regardless of this detail, our best interpretation of CA-KER-4694 is that it served as a small, ephemerally-used plant processing station. This apparently was tied to the localized micro-environment created by the mud playa. The recovered artifact assemblage gives us no information on the kind of plant resource under exploitation at this spot, but it may have been buckwheat which often grows in dense stands in such settings. Regardless of resource, however, the evidence from this site indicates that its exploitation was casual and non-intensive. In general terms this reflects the relatively low prehistoric population density that was probably maintained by this portion of the Mojave Desert.

CHAPTER 5
CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary and Conclusions

A Phase II test excavation and determination of significance were conducted on archaeological site CA-KER-4694, Mojave, Kern County, California, by W & S Consultants. This involved the hand excavation and screening of two 0.5x1 meter pits, along with the mapping and collection of all surface artifacts on the site. Test excavations demonstrated that no subsurface archaeological deposit is present at this locale; that is, that CA-KER-4694 is restricted to a surface scatter of stone tools. Systematic surface collection and mapping of the entire site area resulted in the recovery of 11 artifacts and archaeological indicators, distributed over an area measuring 1125 meters square. This total, which comprises all of the extant archaeological remains at this site, includes three pieces of groundstone, one hammerstone, one biface knife, and six pieces of lithic waste material or debitage. The site has been interpreted as a casually-used plant processing station, probably tied to its micro-environmental setting alongside a dry mud playa, and the plant resources that this context would afford, and perhaps reflecting only a single instance of prehistoric use. Although no temporal diagnostics or chronometrically datable materials were recovered from the site, analogy with similar sites in other parts of the Mojave Desert suggest that CA-KER-4694 is less than 4000 years old and, most likely, that it dates between 4000 and 1500 YBP.

5.2 Final Recommendations for CA-KER-4694

The following recommendations for the final disposition of archaeological site CA-KER-4694 are offered in compliance with Section III, Appendix K, California Environmental Quality Act, Law and Guidelines, June 1986.

As outlined above, Phase II fieldwork at site CA-KER-4694 has resulted in the collection of all extant archaeological remains at this location. This has resulted in the acquisition of scientifically consequential information from and about this cultural resource. Following Appendix K of CEQA, therefore, this has served to completely and adequately mitigate all impacts to this cultural resource which might result from development at this location. No additional archaeological work or protection measures are thus required for this locale. However, and also following CEQA, it is recommended that an archaeological monitor be present during surface grading at this location, in order to identify, collect and/or assess any additional artifacts in the unlikely event that such may be uncovered during these activities.

6.0
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TABLE 1: ARTIFACT CATALOG - CA-KER-4694

Cat. #4694	Provenience	Material	LxWxT (cm)	#/Wt (gm)	Description
1	Surface #1	Quartzite	9.2x8.2x6.9	1103.8	Mano
2	Surface #2	Quartzite	12.2x9.6x8.1	1026.1	Mano
3	Surface #3	Rhyolite	9.8x5.3x2.2	105.7	Biface
4	Surface #4	Rhyolite	26.4x7.9x11.2	44000	Metate
5	Surface #5	Chert	6.7x6.4x4.1	147.4	Core
6	Surface #6	Chert	-------	1.2	Debitage
7	Surface #7	Chert	-------	9.4	Debitage
8	Surface #8	Quartzite	6.8x7.2x5.4	350.8	Hammerstone
9	Surface #9	Rhyolite	-------	9.2	Debitage
10	Surface #10	Rhyolite	-------	1.2	Debitage
11	Surface #11	Chert	-------	4.2	Debitage

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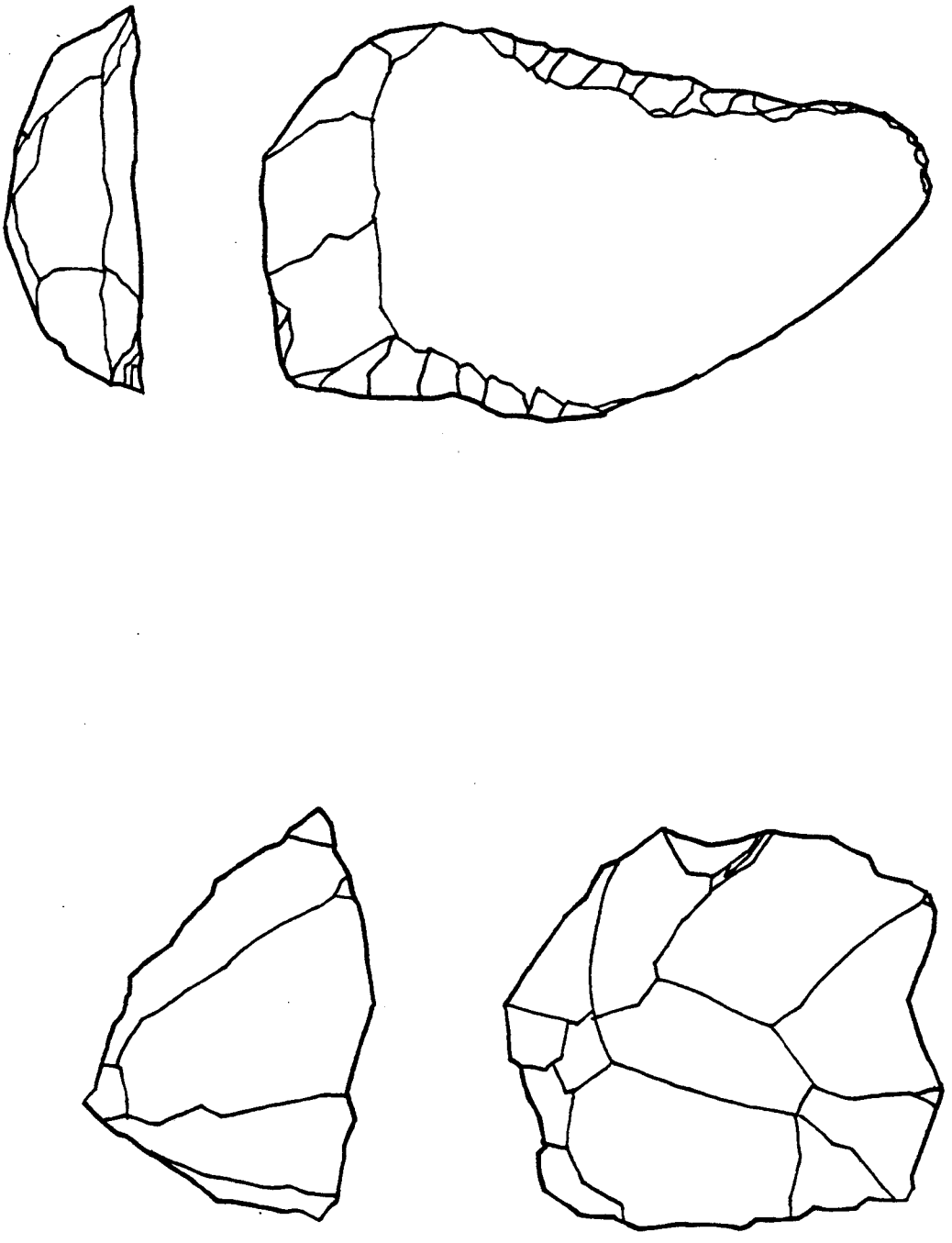


FIGURE 3: Surface artifacts #K4694-3, a stage 1 biface (upper), and K4694-5, a core (lower), from site CA-KER-4694. Scale - 100%

CLASS III INVENTORY OF THE GOLDEN QUEEN MINE PROJECT AREA, MOJAVE, KERN COUNTY, CALIFORNIA

Including Appendix C: Clarification of Status of Sites CA-KER-4447H, -4451H and -4452H

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Management Summary

A Class III Inventory was conducted for the Golden Queen Mine project area on Soledad Mountain, Mojave, Kern County, California. This involved background studies of the prehistory, ethnography and history of the study area and region, including reviews of published and unpublished documents, and interviews with local residents; a complete, intensive survey of the study area; the identification and recording of sites; and limited subsurface probing of the sites in order to determine their eligibility to the National Register of Historic Places (NRHP). Two sites had been recorded within the study area: CA-KER-764H, a historic structure, and -765, a bedrock grinding slick. Two additional sites were recorded: CA-KER-4455H, the Elephant-Eagle Mill and Mine, dating from the Depression; and CA-KER-4454H, a series of unrelated small mining features clustered in the area of the Bobtail claims, dating to different periods. CA-KER-764H was found to comprise a small water control system of unknown age and association. CA-KER-765 was found to be a natural feature and therefore not a cultural resource. CA-KER-4455H, with no standing structures or intact archaeological deposits, was found to lack integrity. Similarly, the features at CA-KER-4455H lacked integrity. These four sites, accordingly, were found to not be significant and therefore to be ineligible to the NRHP. Furthermore, the proposed project was therefore determined to have no effect on significant cultural resources.

Acknowledgements

We are indebted to David Weiss and John Dowis for their assistance on this project. We also greatly thank Larry Vredenburgh for sharing his files and knowledge on local mining history, and Mrs. Ginny (Wegmen) Meehl for her personal reminiscences about growing up on Soledad Mountain. Finally, we thank our crew, Bob Rechtman, Tamy Whitley, Jeff Armstrong, Wendy Armstrong, Paul Vignolle, Mike Hakim, Rob Snibley and Jim Lang for their field efforts.

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CLASS III INVENTORY OF THE GOLDEN QUEEN PROJECT AREA, MOJAVE, KERN COUNTY, CALIFORNIA

1.0
INTRODUCTION

At the request of Mr. John Dowis, Golden Queen Mining Company, Rosamond, California, a Class III archaeological inventory was conducted for the Golden Queen project area, Kern County, CA. The inventory of this study area was conducted by W & S Consultants, Simi Valley, CA, under Bureau of Land Management archaeological permit CA9401002 (1994) with fieldwork authorized on March 23, 1995, by Dan Fowler, Ridgecrest Resource Area Office. David S. Whitley, Ph.D., served as principal investigator for this study; he was assisted by Joseph M. Simon, Robert B. Rechtman, Ph.D., and Tamara K. Whitley, M.A., during aspects of the fieldwork, archival investigations and analytical studies. D.S. Whitley is responsible for the authorship of this report.

The Golden Queen project study area is located on Soledad Mountain, near Mojave in the southwestern portion of Kern County, primarily within Section 6, Township 10 North, Range 12 West (Figure 1). It includes five discontiguous, irregularly-shaped study zones, reflecting the complex mining and land ownership history of this portion of the Mojave Desert. The largest of the study zones is a broad strip, averaging approximately 430 meters wide, that runs N-S the full length of Section 6 along its western side. Included here also is the northwestern corner of the section,

which forms a rectangle about 775 meters E-W and 430 meters N-S, and a narrow "arm" that extends southwards past the middle of the section. The remaining study zones are located in the rugged upper elevations of Soledad Mountan. Two study zones fall within two sections: on the east is a polygon falling within sections 6 and 5, which is about 675 meters, and averages approximately 180 meters wide; on the southeast is another polygon falling between Sections 7 and 8, which is about 180 meters wide and averages 850 meters long. A narrow rectangular study zone, approximately 325 meters long, is located in the east central portion of Section 6. Finally, an approximately rectangular polygon, located in the southeastern quarter of the section, constitutes the third study zone. It averages about 150 meters E-W and 460 meters N-S.

Following Bureau of Land Management guidelines (BLM 1988) and the "Secretary of the Interior's Standards and Guidelines, Archeology and Historic Preservation" (Federal Register 48(190):44716-44742; 29 September 1983), the Class III inventory of the Golden Queen project area involved background studies of the prehistory, ethnography and history of the Kern County region; detailed archival studies of published and unpublished articles and documents on the study area, per se; a review of archaeological records at pertinent repositories; the recording of interviews with and oral histories from a series of local residents; an intensive, complete (100%) survey of the project area; and the identification, recording and evaluation of sites within this study zone. The following sections of this chapter provide details on the background and contextual studies conducted for this inventory; specifically, a summary of regional prehistory, ethnography and history, and a research design for archaeological study in this portion of the Mojave Desert. We also provide

details of the archival studies and interviews and oral histories recorded for this project, particularly as directed towards the mining history of the study area. In the following chapter we provide details of the archaeological records search, conducted at the California Archaeological Inventory, Southern San Joaquin Valley Information Center, followed by a description of fieldwork methodology utilized during the inventory of the property. A description of identified historical and prehistoric sites is then presented, which includes a discussion of their current integrity. We conclude with a summary of the results of the field inventory, a determination of the eligibility of the sites within the study area to the National Register of Historic Places (NRHP), and a determination of effect of the proposed project on cultural resources.

1.1 Background Studies

1.11 Environmental Setting

The Golden Queen project area is located on Soledad Mountain, which forms a northward extension of the Rosamond Hills in southeastern Kern County, California. Physiographically, this places the study area slightly to the south of the Garlock Fault, and thus within the Antelope Valley (or western) portion of the Mojave Desert. More specifically, the study area sits within a zone of very steep and rugged terrain; for example, within Section 6 as a whole, elevations range from in excess of 4190 feet a.s.l. on a high peak near the southeast corner, to 2793 feet a.s.l. in the northeastern corner, while the northwestern and southwestern corners of the section are below 2900 feet a.s.l. Generally, terrain dips from south to north and from east to west, with the high peaks and ridges of Soledad Mountain

comprising the southern and eastern portions of the study area, and the open flats of the Mojave Desert to the north and west. Vegetation within the study area is primarily desert sage scrub, with creosote, spiny hopsage, mormon tea and, in disturbed areas, Russian thistle, present. During the survey a series of annual wildflowers were also in evidence.

In general, the ruggedness of the terrain, combined with the absence of natural resources such as seeps and springs or riparian environments, suggest that the study area would have constituted an unlikely location for prehistoric occupation, although occasional use can be assumed (e.g., for quarrying activities). Moreover, the diurnal and seasonal extremes that characterize this area, along with the rapid downslope colluviation engendered by the steep terrain, indicate that it is a region in which prehistoric archaeological site preservation would be relatively poor, especially for sites of any antiquity. Historical (i.e., Euro-American) archaeological sites, of course, are by definition more youthful, and thus less likely to have been destroyed by natural processes. Furthermore, historical activities in this region were much less tied to the same environmental constraints experienced by the prehistoric and ethnographic Native American populations, thus the nature of their distribution can be expected to in some cases vary significantly from that of the Native American sites.

1.12 Regional Prehistory

Recent regional summaries of the Antelope Valley prehistory have been published by Sutton (1988a, 1988b), with syntheses of the related Coso area immediately to the north published by Whitley et al (1988) and

Whitley (1994). Based on these studies, as well as the more wide-ranging cultural historical frameworks for eastern California provided by Hester (1973), Bettinger and Taylor (1974), Warren (1984) and Elston (1982), regional prehistory can be discussed in terms of a series of cultural historical periods, starting with the earliest evidence for human occupation in the western hemisphere.

Pre-Clovis (earlier than 11,200 YBP)

Perhaps the most long-lived problem in New World prehistory has been the question of the antiquity of first occupation, with two positions dividing the discipline: the Pre-Clovis or long chronology, which posits a Late Pleistocene first-migration at some undetermined point prior to 11,200 YBP (years before present); and the Clovis-first or short chronology hypothesis, which argues for an initial migration at the immediate end of the Pleistocene, now set at 11,200. Historically, the the Mojave Desert region has played an important role in this debate, due to the presence of putative early sites in the Manix Lake Basin, in Panamint Valley and around Pleistocene Lake China. E.L. Davis (e.g., 1978), in particular, argued for the presence of Pre-Clovis sites in the region based on three lines of evidence: typological similarities between surface lithic tool assemblages in this region and well-dated typologies in the Old World; the locational context of certain surface sites on well-dated Pleistocene lake terraces and sediments; and the association between surface cultural artifacts and dated paleontological remains.

Because Davis' evidence was based exclusively on surface finds that were, themselves, never directly dated using chronometric techniques, as well as typological comparisons, her conclusions were not widely accepted in the

profession. However, more recently developed evidence (Whitley and Dorn 1988, 1993) suggests an occupation of the Coso Range at least as early as 19,000 YBP, and perhaps as early as 30,000 YBP in the Lake Manix area of the Mojave Desert generally. These dates were obtained from the direct dating of the rock varnish coating petroglyphs and surface lithic tools, using three independent chronometric techniques: cation-ratio dating, which provides calibrated ages; AMS radiocarbon dating, which provides numerical dates; and the analysis of varnish micro-stratigraphy, which provides relative age control.

Based on these techniques, Whitley and Dorn have obtained a suite of seven Pre-Clovis age petroglyphs from the Coso area, in addition to a number of Holocene-dated specimens. The Pre-Clovis petroglyphs include dates that have been confirmed by independent assays on the same petroglyph, using each of these different techniques. For example, petroglyph CM-8 has a radiocarbon age (uncalibrated) of 14,070 $\pm$ 130 YBP (calibrated age, 14,930 YBP). The cation-ratio age on this same petroglyph is 14,200 $\pm$ 1700 YBP, thus providing independent one-sigma confirmation of the Pre-Clovis date. Most recently, advances in the analysis of varnish micro-stratigraphy allow for the identification of diagnostic temporal signals in SEM varnish thin-sections. Key micro-stratigraphic signals are present in the varnish thin-sections at the Pleistocene-Holocene transition, and at approximately 14,000 and 21,000 YBP. Coso petroglyphs dated between 14,000 and 19,000 based on AMS radiocarbon and cation-ratio dating display the 14,000 micro-stratigraphic diagnostic but not the 21,000 YBP signal, thus demonstrating that the chronometric techniques are correctly placing them in the proper part of the Pleistocene.

Similarly, a series of Pre-Clovis varnish ages have been obtained on surface artifacts from the Manic Lake Basin (Dorn et al 1986; Bamforth and Dorn 1988; Dorn et al 1992; Whitley and Dorn 1993). These include Manix Lake Lithic Industry specimens that have been independently dated with cation-ratio and AMS ^{14}C (and with confirmations provided by varnish micro-stratigraphic analyses) that include examples with CR and AMS ages falling within one-sigma standard deviations, and refit flake-core sequences that exhibit internal variances for their CR dates of less than 5%. The ages of these Manic Lake Lithic Industry dates extends back to roughly 30,000 years B.P.

Although there is some controversy concerning these early dates from the Cosos and other parts of the Mojave Desert, no cogent argument has been advanced explaining why they may be incorrect. Indeed, the most typical problem that confronts radiocarbon dating, contamination, would in this case result in younger, not older, ages, thus substantiating the Pre-Clovis argument. Moreover, there are a certain related circumstances that greatly bolster the Pre-Clovis position (Whitley and Dorn 1993). First, attention to the geomorphology and paleoclimatology of the latest Pleistocene indicates that the Pre-Clovis period was one of net erosional degradation. Lowered eustatic sea-levels combined with a series of major flood events resulted in the stripping of sediments in major portions of North America, rather then the gentle forms of deposition that are required for archaeological site preservation. An exception to this pattern occurred in the Basin and Range Province, where stable alluvial fans preserve Late Pleistocene groundsurfaces. Boulders and cliff faces containing rock art, as well, were also not subjected to this erosional

destruction. Thus, there are very few extant geomorphological contexts within which Pre-Clovis finds could be expected to be found. This explains why there is a sudden "explosion" of Clovis age sites and a relative dearth of Pre-Clovis sites in the archaeological record: the Clovis sites appear at exactly the point when the geomorphological conditions change to favor site preservation. Second, archaeological evidence from South America has included a number of well-dated Paleoindian sites falling between 10,000 and 11,200 YBP. As has been pointed out recently, it would have been physically impossible for first migrants to have entered North America sometime after 12,000 YBP and to have colonized South America within 1000 years; this would require rates of population growth unheard-of for human beings, and migration speeds that are manifestly implausible (Whitley and Dorn 1993). Thus, even the South American Paleoindian evidence tends to discount the likelihood of the short chronology for the peopling of the New World.

Although the evidence, accordingly, is mounting for the Pre-Clovis occupation of eastern California, at this point there is relatively little that can be said about this occupation, beyond the simple fact of its presence. Until additional evidence is presented, then, we will not be able to determine whether Pre-Clovis peoples were sedentary or mobile, or big-game hunters versus foragers.

Paleoindian (11,200 - 9000 YBP)

Although the initial occupation of the continent is controversial, there is widespread agreement on the subsequent Paleoindian period, which is typically viewed as pertaining to mobile big-game hunters who exploited Pleistocene megafauna. The hallmarks of the Paleoindian period are the

fluted, collaterally-flaked and basally thinned and ground Clovis and Folsom projectile points, during the earlier portions of the period, followed by a series of large, well-flaked but unfluted lanceolate points towards the end of the period. Some scenarios suggest that the big-game hunting practiced by these Paleoindian peoples may be responsible for the extinction of the Pleistocene megafauna, such as Imperial Mammoth, Bison antiquus, and the North American horse; however, recent evidence indicates that the earlier portions of the Paleoindian period comprised a lengthy and severe drought, thus demonstrating that the large mammal herds were already under extreme environmental stress, regardless of the effects of human predation (Haynes 1991). Regardless of the so-called Pleistocene overkill problem, the image of Paleoindians as specialized big-game hunters has become pervasive for North America.

Limited evidence of Paleoindian use of eastern California has been found in a number of areas, including Pilot Knob Valley, immediately to the south of the Garlock Fault; on the shores of Pleistocene Lake China, near Ridgecrest; Fort Irwin, east of Barstow; and, most recently, in the El Paso Mountains, northeast of the study area (e.g., Davis 1978; Warren and Phagan 1988; Yohe 1992b). Typically, this evidence consists of isolated (in some cases reused) Paleoindian projectile points, although there is also evidence for Paleoindian petroglyph manufacture in the Cosos (Whitley and Dorn 1987, 1988), with unpublished and at this point unverified reports of megafaunal depictions in the art. Furthermore, an obsidian Paleoindian point from the central Mojave Desert has been sourced to the Coso Sugarloaf Quarry (Sutton and Wilke 1984). These isolated finds and occurrences at a minimum are indicative of at least sporadic Paleoindian use of the region.

Although it is likely that more substantial Paleoindian habitation sites are somewhere preserved in the region, they have yet to be found and a better understanding of the Paleoindian period in this portion of eastern California will only be obtained when such sites are discovered and investigated (cf. Warren and Phagan 1988). In the meantime, growing evidence for Paleoindian occupation, in the form of two Clovis-like projectile points, has been discovered immediately northwest of the Antelope Valley (Glennan 1971; Zimmerman et al 1989), as well as on the off-shore Channel Islands (Morris and Erlandson 1993). With the maritime adaptation this last find implies, it suggests that the monolithic interpretation of all North American Paleoindian period sites as necessarily a product of specialized big-game hunting may be incorrect, and that more regional subsistence variation may emerge once better evidence from the far west has been discovered and analyzed (cf. Willig and Aikens 1988).

Early Archaic (9000 - 6000 YBP)

The Early Archaic period, or so-called Western Pluvial Lakes Tradition, represents the early Holocene in paleoenvironmental terms. Its hallmark is the widely dispersed but ambiguously-dated Western Stemmed Tradition projectile points. These include the local variants known as Lake Mohave and Silver Lake points, which may in fact actually date between 10,500 and 7,500 YBP. Combined with studies of the lithic technologies of Early Archaic and Paleoindian sites, this chronological overlap suggests that the Western Stemmed Tradition was an in-situ development out of the earlier Paleoindian tradition (Willig and Aikens 1988).

Early Archaic sites are most commonly found on the lowest terraces above

latest Pleistocene and early Holocene lake basins and stream deltas (in the Antelope Valley region, these would correspond to the margins of Pleistocene Lake Thompson). They are, accordingly, widely regarded as part of a lacustrine-focussed adaptive strategy. Although a number of authors have cautioned against too simplistic an interpretation of these associations, pointing out that Early Archaic sites are also found in other environments, it nonetheless is apparent that, in eastern California at least, this environmental association and its inferred subsistence implications maintain some verity. Indeed, it can be noted that recent research in the Great Basin has exactly emphasized the general importance of lacustrine adaptations, in contrast to Jennings' (1957) earlier model of a long-lived "desert culture" tradition.

Be these controversies as they may, Early Archaic projectile points are occasionally found in the Antelope Valley, but the sites themselves are relatively rare. For example, Sutton (1988a) lists CA-KER-322 as the only known example of such sites in the Antelope Valley region. Instead, sites of this age are more common in the Basin and Range country proper, to the north. For example, Davis (1978; Davis, Brott and Weide 1969) has identified and discussed the importance of a number of putative Early Archaic sites in the Panamint region. These are located in both the China Lake Basin and the Panamint Valley in former lacustrine environments, and are indicative of the fact that some lakeshore use if not occupation did occur during the early Holocene in this region. However, this must be matched against the fact that Western Stemmed Tradition points have also been recovered as isolates in upland environments in the Cosos (Elston et al 1983). Thus, although lakeshore exploitation may have been an emphasis during the Early Archaic in eastern California, this apparently

also incorporated mobile hunting into other environments as well.

Middle Archaic (6000 to 4000 YBP)

Be this early evidence as it may, what is incontrovertible is that, regardless of date of initial occupation, substantial inhabitation did not occur until much later, with the start of the Middle Archaic or Pinto Period, at about 6000 years B.P. This lasted until approximately 4000 years B.P. A number of sites from this time period are known from the Rosamond area, specifically associated with the prehistoric shoreline of Rosamond Lake. Notably, sites dating to this time period apparently emphasize the use of rhyolite as a lithic resource, almost to the exclusion of crypto-crystallates, such as chert and jasper (Sutton 1988a, 1988b).

The Middle Archaic, however, corresponds essentially to the Altithermal paleoenvironmental period, and is a controversial topic in Mojave desert prehistory due to its cultural and chronological ambiguity. Much of the ambiguity stems from the uncertainty in the chronological placement of the Pinto series projectile points. Seemingly, there are as many chronological scenarios for the placement of Pinto points as there are archaeologists working on the problem (cf. Meighan 1981; Jenkins and Warren 1984). What this ultimately may suggest is that much more regional variation existed during certain periods of the prehistoric past than is currently being recognized.

In the Coso area to the north, but not necessarily elsewhere in eastern California, there is little if any evidence for Middle Archaic occupation, at least if Meighan's (1981) obsidian hydration date revisions for the Pinto series points from the Little Lake site are accepted. That is, existing

evidence could be interpreted to signal a diminution in occupation, if not an outright abandonment, in this region, apparently corresponding to the hot and dry climatological conditions of the Altithermal. However, it is also possible that local inhabitants may have adopted a subsistence strategy and settlement pattern with little archaeological visibility on the landscape during this period; e.g., a highly mobile pattern. Although this alternative interpretation of the apparent dearth of Middle Archaic sites must be acknowledged, it seems implausible in light of the fact that extremely dry conditions would be more commonly predicted to result in a stronger form of "tethered nomadism", and thus greater archaeological visibility, around water sources. Moreover, there is clear evidence for Middle Archaic settlements in the Fort Irwin area (e.g., Jenkins and Warren 1984), to the east of Barstow, suggesting that not all portions of eastern California were abandoned at this time; again, emphasizing the possibility of more regional variability than heretofore acknowledged.

Late Archaic (4000 to 1500 YBP)

Much less controversy surrounds the subsequent Late Archaic period, or Elko Period, lasting from about 4000 to 1500 years B.P., which correlates with improved and wetter environmental conditions across the far west. Although sites from this time period are sometimes considered rare in the Mojave Desert, it is notable that many of the subsequent Rose Spring Period villages (see below) were first occupied during this earlier phase. That is, as has been noted by a number of authors, there seems to be a strong continuity between the Elko Period and subsequent times, with the latter period materials masking or burying the Elko remains. In the Antelope Valley region this begins with a major increase in population beginning about 3000 years B.P. (Sutton 1988b:23).

Similar patterns have been noted in surrounding regions. For example, the start of the Late Archaic in the Coso Range region is posited to represent the initial establishment of the primary settlement and subsistence systems that are currently archaeological visible (Whitley 1994), while this same period has been recognized as experiencing a major, far western North American-wide expansion of settlements into new environments and increases in population, stretching from the Great Basin of eastern California, through the southern Sierra Nevada, across the Transverse Ranges, and down to the coast (Whitley, Gumerman and Simon n.d.). The primary temporal diagnostics for the Late Archaic are Elko and Gypsum series projectile points.

In the Coso Range, the Late Archaic is signaled by the establishment of major winter villages, typically at springs, in valley bottoms on the western and wetter side of the range. Analyses of paleoethnobotanical and faunal remains suggest a generalized foraging strategy, emphasizing all available resources (e.g., Gumerman 1985), including buckwheat stands around small mud-playas (Whitley et al 1988). This evidence is complemented by an extensive but seemingly non-logistically organized use of all upland environments. Included here is a significant quantity of isolated projectile points in the uplands, suggesting mobile hunting patterns (Elston et al 1983). Furthermore, the Late Archaic witnessed the beginning of the intensive exploitation of the Coso Sugarloaf obsidian quarry, an event that apparently correlates with the beginning of the inland-to-coastal obsidian trade in south-central California (Whitley, Gumerman and Simon n.d.).

Rose Spring (1500 - 800 YBP)

The Rose Spring Period is differentiated from the earlier Late Archaic/Elko Period by the introduction of the bow and arrow and a change from spear points to arrow points at circa AD 500 (cf. Yohe 1992a). This transition is, in technical terms, dramatic. In fact, the introduction of this new weaponry technology probably did not have any immediate major impacts on social or cultural systems. At least initially, the settlement and subsistence systems were stable, and lithic technology and production did not noticeably change (Allen 1986).

Moreover, and as implied above, in all other respects Rose Spring times appear to have been a continuum from the earlier patterns, so that the change in hunting technology was probably less important than we might otherwise presume. Within the Antelope Valley area, Desert Village Complexes, representing a major change in magnitude of settlements, were founded at least by Rose Spring times, and perhaps towards the end of the earlier Elko phase. Two of these have been identified by Sutton (1988a, 1988b) in the foothills of the Antelope Valley, with a third between Rosamond and Rogers Dry Lake, and a possible fourth at Koehn Lake. It is possible, if not likely, that these represent the founding of the tribelet system of political organization in the region.

At approximately AD 1000 - 1200, however, a shift in settlement and subsistence practices began that, ultimately, culminated in the protohistoric/ethnographic patterns referred to as the Later Prehistoric or Numic Period (discussed below). This involved the abandonment of some winter villages (or at least a reduction in the intensity of their use); the establishment of logistical base camps around springs in the upland

environments; an increasing emphasis on a relatively specialized diet focused on seeds and the pinyon nut; and a great increase in the production of petroglyphs (Whitley 1994). That is, settlement patterns became more organized and focused, while subsistence was increasingly specialized, and ritual became more common.

The causes for this transition are not yet fully understood. Bettinger and Baumhoff (1982), for example, have accepted it as an empirical fact, with the subsistence change then linked to the putative spread of Numic peoples out of eastern California at about this time. They have then taken the position that the phenomenon to be explained is not the cause of the subsistence change, but the reasons why such a change was adaptively more successful, and how it can then be used to account for the historical distribution of Numic languages. The implicit assumption in such an approach is that evolutionary transitions are to be expected due to the inherent tendency for greater fitness to emerge in populations.

While this last tendency may or may not be so, it overlooks pertinent related evidence; namely, that this same time period experienced a major drought that effected all portions of western North America, from northern Mexico through the Southwest, across the Great Basin, and even into the Channel Islands. Moreover, the environmental stress engendered by this drought has been cited as a causal factor in the abandonment of Anasazi pueblos in the Southwest, as well as the southward retreat of Mesoamerican civilization with the collapse of Tula. Perhaps more to the point, Arnold (1993) has noted the influence of this drought in creating resource stress that was a contributing factor to the appearance of a simple chiefdom in the Chumash region near Santa Barbara. Similarly, Whitley

(1994) has argued that this transition in eastern California represents the first appearance of Numic bands and headmen; specifically, that it was the increasing perceived need for ritual specialists in the form of rain shamans during this period of environmental degradation that led to the establishment of bands and the creation of headmen. In this interpretation, the accelerated production of Coso petroglyphs (which are know ethnographically to have been tied to rain shamanism) is taken as a reflection of the growing number of ritual specialists, with the appearance of a logistically-oriented settlement pattern a sign of increasing sociopolitical control and organization.

Late Prehistoric (800 - 140 YBP)

The Late Prehistoric (or, in some areas, Numic) Period, from 800 years B.P. to the Historic Period, represents a continued growth in local population, with numbers of people apparently quite high. It is distinguished from previous Rose Spring times by the introduction of brownware ceramics and a change in projectile point types: from Rose Springs types to Desert Side-Notched and Cottonwood Triangular. Sutton (1988a, 1988b) notes that a boundary of some sort developed during this period: Desert Side-Notched points, brownware ceramics and obsidian are all common from the Fremont Valley northward; south of this area, in the Antelope Valley proper, ceramics and obsidian are rare, and Cottonwood Triangular points are the predominant projectile point type. This apparently correlates with similar patterns further towards the coast: at about 800-1000 years ago the desert-to-coast obsidian trade dried up, and Rose Spring-like projectile points were replaced by Cottonwood-like points, with Desert Side-Notched points rare.

The Protohistoric/Historic phase of the Late Prehistoric, representing the last 300 years, is apparently marked by a major disruption in indigenous settlement, and a corresponding paucity of sites. According to Earle (1990), missionization pulled many of the region's inhabitants away. Subsequently, the Antelope Valley area was used as a staging ground for rustlers and other miscreants, who were raiding the missions' livestock. The result was that the area became somewhat of a no-man's land which, no doubt, has also contributed to the paucity of ethnographic information on it.

1.13 Regional Ethnography

The Antelope Valley and environs are, unfortunately, one of the most poorly known regions, ethnographically speaking, in California, which is a state that is generally renowned for the detail of its ethnographic record (cf. Kroeber 1925). Thus, the valley contrasts quite sharply with certain of its immediately surrounding areas, such as the southern Sierra Nevada to the north, for which there is a wealth of ethnographic reports and data, and even the Santa Barbara Channel region to the west/southwest. Even though the ethnographic inhabitants of this last area were disrupted very early-on by missionization, our record of their life ways is nonetheless more complete than for the groups that inhabited the Antelope Valley. Luckily, some of the early confusions and misconceptions concerning even such fundamental problems as who the ethnographic inhabitants of the Western Mojave Desert area actually were are now becoming clarified. Earle (1990), in particular, has done much to disentangle previous misconceptions concerning the ethnolinguistic affiliations of the Antelope

Valley's inhabitants, and a summary of his recent ethnohistorical conclusions provides an appropriate overview for the aboriginal history of the region.

According to Earle's reconstruction, the Valley was inhabited during the Historic/Protohistoric period by three distinct language-speakers, one group of whom could be further subdivided into two (and perhaps three) fairly distinctive dialects. The most significant linguistic division existed between the Kawaiisu speakers, who lived in Tehachapi Valley, through the southern Sierra Nevada and eastward across Fremont Valley towards Red Mountain and into southern Panamint Valley, and the groups to the south and west in Antelope Valley, per se. The Kawaiisu language is a member of the Numic branch of the Uto-Aztecan language family, and is thereby most closely related to the Shoshonean and Paiute languages of the Great Basin.

South and westward of the Kawaiisu were two other members of the Uto-Aztecan language family, but in this instance both were distinct languages belonging to the Takic (as opposed to Numic) branch, specifically to the Serran Takic branch. Along the southwesternmost side of the valley, including the northern foothills of the Liebre Mountains and the southern side of the Sierra Pelona, were the Tataviam, a little-known group identified by a few early word lists. Related to them linguistically, but speaking a distinct language, were the better-known Kitanemuk, who occupied the western Antelope Valley and the Tehachapi Mountains west of Tehachapi Pass. Living to the east of the Kitanemuk, who extended to approximately the current location of Highway 14 where it heads north across the Valley, were a group of closely related peoples that Earle

(1990) has identified as the Haminat. Apparently, Haminat and Kitanemuk represent dialects of the Serrano language, which also included Serrano proper and Vanyume (or Beñemé).

According to Earle's analysis, there was a linguistic continuum along the northern side of the San Gabriel Mountains in the Western Mojave Desert, from the Serrano on the east through the Vanyume and Haminat to the Kitanemuk, at the western end. Haminat, apparently, was more closely linked with Vanyume/Serrano proper than Kitanemuk, although it was still simply a dialectical variant of it. But, with the Serran continuum along the northern side of the San Gabriels, and with all of this linguistic variation present during the Historic period, it is easy to understand how ethnographic confusion developed in regards to this region.

The Golden Queen study area falls near the boundary of Kitanemuk and Haminat territories, and may have, at different times, been used by both groups. Perhaps more important than these minor linguistic distinctions, similar cultural patterns were followed by all the inhabitants of the region, with certain minor distinctions. In terms of subsistence, for example, all groups were foragers, with food sources derived principally from gathering. The exact plant species exploited was dependent on seasonal availability, as well as geographical/environmental location. In the higher, montane portions of the region (e.g., towards Tehachapi and along the slopes of the San Gabriels), acorn-bearing oak and pinyon pine nuts were staples. In the lower lying, more desertic zones, mesquite, yucca and a variety of other edible plants were emphasized. Hunting also contributed meat protein, and principally emphasized small game, such as hares, rabbits and rodents. However, the notion that these hunter-gatherers

based their subsistence to large degree on big-game hunting (such as deer, antelope and mountain sheep) has proven to be an anthropological myth.

Cultural commonalities were also maintained in religious beliefs and practices, which were uniformly based on shamanism. This is predicated upon perceived direct and personal interactions between an individual and the supernatural world, with this interaction founded on entering an altered state of consciousness. Shamans, per se, were ritual specialists who held an unusual degree of interaction with the supernatural world, and thereby acquired a high degree of supernatural power. Although formal rituals and ceremonies were limited in number and elaboration, the shamans served as the ritual officers for these. Further, the shamans also were responsible for painting and pecking the rock art that is found in this region: rock art sites served as their vision quest locales, where the shamans entered trances to have visions and thereby acquire supernatural power. And, the art depicted at these sites displayed the visions and spirits they saw in their altered states of consciousness (Whitley 1988, 1992, 1996).

Following general California patterns, there were also a number of similarities in social and political organization across the Antelope Valley. Earle (1990) has suggested that the Haminat may have been organized into exogomous clans and moieties, whereas the western groups might have lacked these, and in this sense the Haminat could have been more like the southern California Desert groups like the Serrano and Cahuilla, with the other groups more similar to the south-central California culture of the Chumash and related peoples. However, given that the exact social organizational systems of the Chumash have yet to be defined (for

example, there is still debate whether they were matrilineal or patrilineal), and since we do not yet know whether they had a moiety system or lacked it entirely, it may be too early to draw such fine-grained distinctions concerning social organization.

What is apparent, however, is that the region as a whole apparently lacked any political organization beyond that of the tribelet, or what Earle has identified in the Spanish records as naciones. These were autonomous land-owning groups, focused on a principal village and led by a a headman or chief, and probably comprising a lineage system or clan. In this sense, the Antelope Valley can be said to follow the political organizational pattern found throughout most of Native California. This, of course, further links it with Californian, as opposed to Great Basin, cultural patterns.

1.14 Historical Background

Perhaps because of the use of the Antelope Valley as a staging area for Indian raids on the estancias and missions closer to the coast, Euro-American settlement and development of the area was a little later dating than in other parts of southern California. As a result, the history of the Antelope Valley to about the 1860s principally involved various explorers who traversed it: for example, Pedro Fages crossed the southern valley in 1772; Fr. Garcés crossed the west end and went through Willow Springs (southwest of the Golden Queen study area) in 1776; Jedediah Smith, similarly, went across the western valley in 1827 and also visited Willow Springs, as did John C. Fremónt and his guide Kit Carson in 1844. The Rogers and Manly party - the Jayhawkers or Death Valley '49ers - camped

at Willow Springs towards the end of their dramatic 1849 expedition across the Mojave Desert, as well. And Lt. Edward Beale, at the lead of a caravan of camels, came across the southern side of the valley in his 1857 trip to Fort Tejon (Bancroft 1963; Settle 1963:61; Boyd et al 1982; Starr 1988).

It was not until the 1860s that the first settlers moved into this region, settling mostly in the Elizabeth Lake region and the southern foothills of the Tehachapi Mountains, and involved principally in ranching. With the development in 1868 of the Cerro Gordo silver mine in Inyo County, however, the Antelope Valley became a major thoroughfare for the movement of bullion and goods between Los Angeles and the Owens Valley (Chalfant 1933); indeed, efforts to wrestle control over the Inyo silver trade away from Los Angeles became a major theme of California economic history in the 1870s (Nadeau 1965). Los Angeles managed to maintain its monopolization of this trade, nonetheless, with Remi Nadeau's freight-line playing a major part in the transshipment of goods and ore across the valley. Willow Springs and its adobe tavern, again, served as a major stop on this route, with the stage line then essentially heading south (on the route that would eventually be adopted by the railroad), for a 28 mile stretch through Cow Hole to Barrel Springs, at the mouth of Soledad Canyon, and subsequently through the canyon for the uphill climb through the San Gabriel Mountains. Old Nadeau Road, which parallels Pearblossom Highway near the Vincent Hills at the southern end of Palmdale, is apparently a remnant of this original freight-line route, which proved so instrumental in the growth of Los Angeles as the economic center of southern California.

Shortly after the establishment of the first permanent school in the region, in 1869 at Elizabeth Lake, a number of settlers' colonies sprang-up within the valley, including Wicks, Manzana, Chicago, Kingsbury, John Brown, Old Palmdale, Almondale and Llano (Settle 1963). However, the major impetus to settlement resulted with the completion of the Southern Pacific railway through the valley in 1876. One immediate result of the rail line was the establishment of the town of Mojave in this same year. The coming of the rails also fostered the establishment of towns such as Rosamond, Lancaster and Palmdale, which appeared by 1882.

The Southern Pacific Railroad arrived in Mojave on August 8, 1876. The location of the current depot, on the west side of Highway 14, was the location of the original depot site, although the existing depot building is a later construction. A freight depot was added on August 20 of the same year and, before long, the town turned into a division point for the rail line. With the railhead at Mojave, the San Bernardino Borax Company began hauling its borax to the town on mule teams; the Baldheaded Eagle Borax Company began using the town as its railhead a few years later, in 1881. The Santa Fe Railroad arrived in 1884, as did the famous "20 Mule Teams" of the Pacific Borax Company, truly making the town a transportation hub for the region. The Pacific Borax Company continued with its mule team loads to the railhead until 1889, when a spur line reached their mining operations (Deaver 1967).

The original town site of Mojave was layed-out by the Southern Pacific at the time that the rail went through. Initially it was simply a residential camp for railroad employees consisting of a few wooden shacks, but it was of sufficient importance that a post office was opened in October, 1876.

Because of its position as a transportation hub, Mojave quickly attracted additional residents but was not filed as a subdivision until 1905 (ibid). Growth at and after that point was spurred by two early twentieth century developments. The first was the increasingly important mining activities at Standard Hill and Soledad Mountain, south of town. The second was the construction of the Los Angeles Aqueduct, built between 1907 and 1913, which brought literally thousands of workers into the region. In addition to its function as a transport hub, Mojave served as the "watering hole" for the mine and aqueduct crews, and was widely renowned for its saloons and brothels, which were said to outnumber the churches in town by 10 to one.

The historical importance of the Golden Queen study area, of course, primarily concerns the mining history of the Mojave Desert. This has been summarized in period and more recent publications, with Brown (1915), Clark (1970), Hensher and Vredenburgh (1991), Miller and Miller (1976), Settle (1963, 1967), Settle and Settle (1984), Troili (1908), Troxel and Morton (1962), Tucker (1923, 1935), Tucker and Sampson (1933), and Tucker, Sampson and Oakeshott (1949) constituting the primary sources. The history of this area has been synthesized from these and other sources.

The first recorded mining activity in the region occurred on March 8, 1894, when W.W. Bowers found gold on a promontory south of Mojave, then known as Little Buttes (subsequently changed to Bower's Hill and now Standard Hill). His first claim was the famous Exposed Treasure mine, which he brought into operation shortly thereafter, shipping ore worth $60/ton. By 1896 a camp had sprung up around this site (Hensher and

Vredenburgh 1991). The Exposed Treasure discovery apparently spurred local interest in prospecting as, later in 1894, Ezra M. Hamilton discovered gold in the Rosamond Hills, to the south, at a location that would eventually become known as Tropico (Settle 1963, 1967).

Mining activities within the Golden Queen study area were apparently stimulated by the Exposed Treasure discovery, and can be divided generally into three periods. The first period of mining activity on Soledad Mountain stretched from approximately 1894 to 1914, and was an era of prospecting and the development of a series of early properties, mines and mills (Tucker 1935). The three primary mines in operation during this period were the Karma, Queen Esther and Echo, located on the central-northern slope of the Soledad Mountain, outside of the study area. Each of these mines had their own mills which, unfortunately, were relatively short-lived. The Karma mill was opened in 1903 and closed in 1909; Queen Esther, opened the same year, managed to stay in operation a year longer; and Echo, also opening in 1903, was closed in 1905 and dismantled in 1906. A considerable population, estimated to have been as high as 200 people, nonetheless developed around the Karma and Queen Esther mine operations at their peaks (G. Meehl, personal communication, 1995). This too was seemingly short-lived, with only a handful of residents staying on the mountain beyond 1910.

Lesser amounts of mining also occurred on the Eagle Group and Bobtail claims, although neither had associated mills or populations at this time (see below). The last two group of claims, located on the northwestern extreme and western side of the mountain, fall within the Class III inventory study area.

Activity was minimal in the region as a whole from about 1922 to the start of the Depression when, like many mining regions in the west, numerous small scale mining efforts were started. According to Tucker (speaking of the Mojave mining district as a whole, which included the Tropico area 17 miles to the south and Standard Hill to the north), about 50 to 70 leasers worked old mines from 1931 to 1934, hauling their ore to the Tropico for milling (Tucker 1935). During this period Engelbert Wegmen purchased and ultimately patented the Karma mine and mill.

Activity accelerated dramatically during the mid-1930s on Soledad Mountain, however, when the Mojave Mining District was revived by the discovery of the Silver Queen vein, leading subsequently to the establishment of the Golden Queen mine and mill. This represented the second primary period of mining within the study area, with the Golden Queen building a major cyanide plant, and consolidating a number of the earlier claims and patents. Built by the American Gold Fields Company, a subsidiary of the British company, South African Gold Fields, the Golden Queen is said to have had a total production of about $10 million during its operation between late 1935 and 1942. According to original accounting records we have obtained for 64 months dating between early 1936 and June 1941, actual receipts for gold bullion sold by the Golden Queen Mining Company totaled $7,867,782, with an average of about $123,000/month produced. Given that some months are missing, the $10 million estimate is a reasonable ballpark figure.

In addition to the Silver Queen group, the Golden Queen included the Echo, Queen Esther, Independence, Gray Eagle and Soledad Extension claims and

patents. The mill also conducted a significant amount of custom milling for small miners, including Wegmen's then-ongoing activities at the Karma. Again, the original accounting records we have obtained list that the mill purchased $2,200,736 in ore from its custom mill clients. This is about 29% of their total ore sales for the 64 month period included in the accounting records, indicating that other mining properties in the region were conducting substantial mining activities at this time. However, while we have been able to verify that Engelbert Wegmen was running ore from his Karma property through the Golden Queen mill (G. Meehl, personal communication, 1995), it is entirely unclear where the remaining ore originated. Logically, some of this also may have been derived from claims and mines on Soledad Mountain. Inasmuch as there are a number of other mining zones within the Mojave Mining District (such as Standard Hill), however, and because the Golden Queen was the only state-of-the-art mill in the immediate region at this time, it is likely that some of the custom milling was completed for mines not on the mountain.

Depression era mining terminated in 1942 with the official closure of all gold mines by the War Production Board. After the war, mining started once again, though in small-scale. However, the Golden Queen mill was dismantled in about 1950, and none of the other mills were ever restarted, necessarily limiting the mining to small operations. Mining has continued into the 1990s, in the sense that claims have been kept active, minor operations on small veins have been undertaken, and occasional constructions of truck chutes and other equipment has occurred. For example, a truck ore chute and electrical jaw crusher at the Karma mine sit on a concrete foundation dated 1980.

Elephant Group

Among the first known mining claims in the Golden Queen study area were the Elephant Group claims, staked by E.T. Baker in 1896. Baker apparently worked this area on the northwestern tip of Soledad Mountain on a small but profitable basis until 1918, when he sold it. Ownership changed a number of times subsequently, and it was worked by lessees. But by 1916, Baker had dug a 100' shaft with a few hundred feet of horizontal workings and mined a stope that was 120 feet long at the 100' level. His ore was running at 0.75 - 3.5 ounces/ton, and he had hit a hot spot that had 3.5 tons worth $7,000, and another 70 tons worth $1000/ton. Baker did not install a mill during his tenure at the Elephant mine, instead shipping his ore to the American Mining and Smelting Company in Selby, CA (Troxel and Morton 1962).

Around 1920, however, a 25 tons/day ball mill and amalgamation plates were installed at the mine. This was converted to cyanidation circa 1930 which, by 1935, resulted in a rod mill that putatively was running at a 60 tons/day capacity. The mill consisted of a 50 ton ore bin feeding a 1" grizzly and gyratory crusher, which fed a 50 ton fine-ore bin. A Gates belt feeder then led to a 4'x8' Marathon rod mill with a Dorr Duplex Classifier, mercury amalgamation trap and cyanide solution vats. At that time the mine and mill were employing 24 men "on company time", with another 50 leases operating on the property (Tucker 1935). Ownership appears to have changed hands a few times during this period: the name of the operation was changed from the Elephant Group to the Elephant-Eagle Group in 1934, and then the Lodestar from 1935 to 1941. It has been known as the Elephant Group once again since 1941 (Kern County Hall of Records, Mining Claims).

These series of name changes appear to reflect changing business ventures between various owners of these and other claims. For example, by 1935 the 100 acres Elephant Group was owned by Jesse Knight, who was in partnership with John M. Rogers and Associates, who were themselves owners of the 160 acres Echo, Gray Eagle and Starlight Mines, 60 acres of which were patented (Tucker 1935). All of these claims/mines were operated under one manager (Rogers), with the ore putatively milled at the Eagle plant. As this arrangement changed, so apparently too did the name of the mining claims group.

Regardless of the precise details of business partnerships and mine ownership, mining was continuous from 1931 to 1942, although productivity was low: according to published sources (but see below), only about 3000 tons of ore were mined. The yield on this averaged 0.5 to 0.75 ounces per ton but the gold to silver ratio of the concentrate was 3 to 4. Immediately after World War II a few hundred tons of ore were mined by lessees, producing 0.7 ounces/ton. In the 1950s the mill burned and was not rebuilt, although truck ore chutes were reconstructed from scavenged lumber. Some efforts were also made to rework the tailings dumps, but these were largely unsuccessful. Still, judging from some modern buildings, truck chutes and assay remains, it appears that the mine has kept active into the recent past.

However, it needs be noted at this time that there is little if any extant evidence for mill tailings at this site (as is discussed subsequently) and, in fact, little evidence of traces of tailings that would have once been present at this locale, even if reworked. Thus, there is cause for some skepticism of these published estimates for this site. Total production of the mine,

nonetheless, is estimated at about $250,000, and it is still owned by the Knight family (Troxel and Morton 1962).

A picture of the mill, in the distance, was published by Tucker in 1935. The mill is unfortunately too distant, and the photo too poor, to reveal any pertinent details. However, a 1936 mineral survey (Mineral Survey No. 6190; Figure 2) provides a plot of improvements and constructions at the mill site, at that time. According to this mineral plat, Paul C. Staples (rather than Jesse Knight) was then the owner of the Elephant and Charity claims, which were never taken to patent. Nonetheless, the total value of the improvements on the property is listed at $49,350, and are said to consist of: two incline shafts; one incline shaft and drifts; one tunnel; two tunnels and drifts; one tunnel, drift and raise; one tunnel, winze and raise; and one open stope. This plat also shows a series of improvements on the surface which, curiously, are not included in the above total or list. They include: the mill; an office building; an office building and another building south/southwest of the mill; a boarding house; and a series of other unidentified buildings north and east of the boarding house.

Jesse Knight, who by all other accounts owned the Elephant Group by the mid-1930s, was the father of Goodwin J. Knight, the 31st governor of California, who served between Earl Warren and Edmund G. Brown, from 1953 to 1959 (Melendy and Gilbert 1965:427). "Goodie" Knight, as he was known, was born in 1896 in Provo, Utah, moving with his father Jesse and mother, Lillie Milner Knight, to Los Angeles in 1904. According to a short biography of the former governor, Jesse Knight was a lawyer and mining engineer, while his son worked for a year in Nevada mines before attending Stanford and Cornell, to earn a law degree, obtain appointments

to various judgeships, and eventually have a very successful political career (ibid).

As implied above, the historical accounts and documentary evidence concerning the Elephant-Eagle mine and mill are somewhat contradictory and, while this is not unusual when investigating mining history, in this case they are more contradictory than typical. Although there is substantial evidence for mining activities above the mill, as we shall see there is little evidence that the mill itself was ever involved in substantial output, even given the published reference to reworking the tailings in the 1950s. Instead, the Elephant-Eagle mine can be best understood as a peripheral area during the early period of mining activities on Soledad Mountain. It was more active during the 1920s and 1930s and, for a time, may have been the only active mill on the mountain. However, frequent reference to the working of the claims by lessees during this period gives the appearance that the mill may have primarily been used as a custom mill for the lessees, with the mine owners leasing portions of the claim to interested miners and then providing an in-house milling service for their recovered ores, but not themselves running a large-scale operation. Regardless of precise circumstance, it is clear that the Elephant-Eagle was a small and relatively insignificant producer.

Bobtail Mine

The Bobtail Mine, located on the northwestern side of Soledad Mountain, was discovered around 1900, and has been mined intermittently from 1902 to the present. Total production is estimated to have been in the $50,000 to $100,000 range (Troxel and Morton 1962).

The earliest recorded shipment from the mine, in 1902, consisted of 250 tons containing 1.3 ounces of gold per ton. The Bobtail was consolidated with the Echo group in 1906 for a period, and in fact it intersects the Echo group workings, which lie outside of the Class III inventory study area. Troxel and Morton (1962), however, have estimated that more than 80% of the production of the Bobtail mine occurred between 1923 and 1942, with the ore averaging 0.52 ounces of gold and 0.33 ounces of silver per ton. From 1949 to 1951, in addition, another 50 to 60 tons of ore were mined (ibid).

For the duration of the use of the Bobtail Mine, no mill or related features were ever constructed, with improvements consisting solely of adits, shafts, head frames and ore chutes. In fact, as archaeological evidence attests, much of the mining on the Bobtail and nearby claims consisted of the exploitation of surface veins, requiring the development of long, narrow open stopes, which themselves necessitated a minimum of infra-structural development. Milling, likewise, was then performed on a custom basis by the other nearby mills. Most likely, much of this occurred at the Golden Queen Mill, prior to World War II, which (as noted above) ran a substantial quantity of custom ore for surrounding mines.

1.2 Research Design

The "Secretary of the Interior's Standards and Guidelines, Archeology and Historic Preservation" (Federal Register, Vol. 48, No. 190; September 29, 1983) require that all cultural resource studies be conducted within the framework of a research design. Aspects of this research design can be

considered methodological and procedural, and are discussed in a subsequent section of this report. Also important are the intellectual research problems, beyond the management concerns, that motivate and inform a particular study. In this section, some of the major regional research problems are discussed as potential intellectual guides for the interpretation of primary data from the Golden Queen study area, recognizing that, in a project area this small, the appropriateness of these problems is subject to the kinds of data that prove to be present, and that the final resolution of these intellectual research problems may not be feasible unless and until additional phases of archaeological study are conducted.

Prehistoric Archaeology

Current research in the Mojave Desert/Antelope Valley region has emphasized two specific problems, among a series of others: the nature of the Middle Archaic/Pinto Period occupation; and the causes and consequences of the appearance of villages at about 3000 YBP. As regards the so-called "Pinto Problem", there are three issues of contention: the typological definition of the Pinto series points; their chronological placement; and the nature of the Pinto Period occupation more generally. Obviously, aspects of these three issues are definitional in nature, but they are also clearly inter-related. Furthermore, the definitional issues reflect problems with understanding the nature of the regional variation in point types in the Mojave Desert, rather than problems in the mechanics of point morphology and typological ordering, per se.

Concern with the nature and the causes of the appearances of villages at circa 3000 YBP is linked with a larger interpretation of this phenomena as

one that occurred across the far west at this time, and that reflects a generalized increase in population and movement into new environmental zones. In inland coastal (i.e., mesic) southern California, it has been unclear whether the appearance of inland villages at about this date was a function of population increase and adaptive spread, or simply a reflection of localized site preservation processes. More to the point, however, is the fact that the appearance of these inland coastal villages is accompanied by the appearance of a smaller sites in these same environmental zones. the pertinent issue with respect to the Mojave desert, then, is whether the appearance of villages during Elko times reflects movements into new environmental zones, or simply a change in preexisting settlement and subsistence patterns within a given region.

Addressing either of these issues requires having appropriate data; specifically, data of appropriate age and from relevant site types. Furthermore, given the size of the Golden Queen project, it is obviously clear that these issues cannot be resolved simply from data obtained on this 800 acres study area. On the other hand, even isolated site and artifact data may add to our regional corpus of information concerning these issues and, in that way, contribute to the ultimate resolution of these problems.

Historical Archaeology

Donald Hardesty (1994; see also Hardesty 1988) has recently provided a review of and prospectus for historical archaeology, with particular emphasis on Great Basin mining sites. This provides the intellectual rationale for a regional research design, and is clearly applicable to the historical mining archaeology of the Mojave Desert, which was closely tied

to the larger Great Basin. According to Hardesty's review, common recent research perspectives currently being expressed in historical archaeological studies in the western United States include: (a) the archaeology of capitalism, particularly from a world-systems perspective; (b) class and power relations; (c) industrial ecology; and (d) the landscape archaeology of historical sites (cf. Leone and Potter [1988] for an eastern United States perspective). Relevant analytical units include: (i) mining towns as social formations; (ii) the domestic household; and (iii) regional communities (Hardesty 1994). Based on Hardesty's considerable experience with the historical archaeology of the Great Basin, he suggests that the most productive direction for future research will be in analyses intended to elucidate the regional characteristics of Great Basin capitalist development; that is, those unique regional characteristics of the otherwise worldwide spread of capitalism that occurred in the nineteenth and early twentieth centuries in this portion of the west.

Hardesty's suggested research program has two immediate implications. The first is that it is necessarily comparative in nature. Characteristics of the spread of capitalism that are unique to the Great Basin are only unique relative to the historical record in other regions of the United States (if not the world), thus the context of any comparative analysis must be wide-ranging in scope. Second, that portion of the historical archaeological record that is most relevant for analysis is the habitation and settlement, rather than engineering, debris of these sites. That is, while not denying the potential importance of the industrial/engineering remains in western mining towns (e.g., Andrews 1994), the emphasis in future research should be on the housing and commercial districts, rather than the industrial/engineering remains themselves.

When Hardesty's suggested research directions are considered in the context of the Golden Queen study area and the historical background summarized above, issues, concerns, and research problems immediately emerge. For example, it is apparent that the nature of the mining enterprise in this specific area differed considerably from that found in other portions of the California Desert, and that this difference may be indicative of regional variability in capitalist expansion and development within the far west. In the Golden Queen area, mining was clearly undertaken as a serious extractive enterprise, with the mines relatively long-lived, and the development of a large residential community nearby. In contrast, precious metal "mining" in the Death Valley region was characterized by the use of fictive or near-fictive mining properties to manipulate and exploit the New York stock-market; what was mined were the investors' pocket-books more than valuable ore deposits (e.g., see Lingenfelter 1986).

2.0
ARCHIVAL RECORDS SEARCH

The background research for the Golden Queen inventory required two kinds of archival research. First, in order to develop an adequate understanding of the documented history of the study area, published and unpublished maps, documents and records were examined at the Kern County Recorder's Office, the UCLA Earth and Space Sciences Library, and the BLM offices in Bakersfield and Ridgecrest. These sources provided data in the form of mineral claim, sales and patent documents on the property, period newspaper articles on mining activities at these mines and in the region generally and, through the assistance of Larry Vredenburgh, the Gerner photo collection of the property, which consists of a series of black and white pictures of the mines and residential areas taken about 1903 - 1904 on Soledad Mountain. The information taken from these sources has been summarized in the historical background presented above. The second type of archival review concerns a study of the archaeological site records, maps and files housed at the California Archaeological Inventory, Southern San Joaquin Valley Archaeological Information Center (AIC), at California State University, Bakersfield.

An archaeological records search was conducted by AIC staff to determine whether the study area had been previously surveyed by archaeologists, and whether any archaeological sites had been previously recorded on it. The complete results of this records search are included as Appendix A to this report.

Based on AIC files, the Golden Queen study area had never been systematically surveyed by archaeologists in its entirety. Two sites had, however, been recorded on the property, both of which are located on the western side of the study area, and both of which were recorded by the BLM in 1977. The first of these, designated CA-KER-764H, was recorded as a small historical mining locality consisting of a cobble structure, prospect and adit. Although determined not eligible to the National Register of Historic Places (NRHP) on its own merits, it was believed to be a potential contributor to a NRHP district, given the additional historical mining remains in the area. The second site, CA-KER-765, was recorded as an isolated grinding slick and was determined not eligible to the NRHP at the time of discovery.

3.0
FIELD METHODS

3.1 Field Methods

Field methods employed during the Class III inventory of the Golden Queen study area were designed to obtain complete (100%) survey coverage of the study area. They included intensive, on-foot examination of the groundsurface of the study area; the identification and location of discovered sites and relocation of known sites; tabulation and recording of surface diagnostic artifacts; site mapping, using Brunton compass, surveyor's tape, transit and stadia, and a Magellan Pathfinder GPS, as appropriate in each case; limited subsurface probing; preliminary evaluation of site integrity; site recording, using established procedures and forms (see Office of Historic Preservation 1986); and photographic recording.

Limited subsurface probing was undertaken using shovel test pits (STPs). These were hand-excavated with a round-point shovel, with removed dirt screened with 1/8th inch mesh. This effort was intended to serve in a presence-absence capacity only; that is, to determine whether subsurface archaeological deposits were present on the sites. Any identified subsurface remains, accordingly, were to be tagged and bagged and reburied within the back-filled test pit, after recording. One STP was excavated at each major feature of each site identified during the survey. No collection of archaeological remains of any kind was made during the inventory.

Because the study area contains considerable topographic variability, different surveying strategies were employed during the inventory. In the areas of flat terrain to moderate slopes (typically on the northern and western side of the study area), the groundsurface was examined with the crew spaced at approximate 10 - 15 meter intervals, walking transects across the study area to identify artifacts or other archaeological indicators that might be present on the groundsurface. Ridge lines were covered in a similar manner. Steep slopes (generally exceeding the angle of repose), which comprised eastern two sections of the study area, were covered by crew-members walking zigzag transects that traversed the slope faces.

In all cases, special attention was paid to depositional environments, such as saddles, swales and toe slopes, where the likelihood of archaeological preservation is enhanced. Further, rock faces, amenable for the creation of rock art or providing locales for rhyolite quarries, and rock shelters, usable for prehistoric habitation, were carefully examined as high likelihood spots for the presence of prehistoric archaeological remains. And, with regard to historical resources, particular attention was paid to the identification of potential trash dumps and privy locales.

3.2 Field Conditions

Field conditions for the Class III inventory of the Golden Queen study area were, in general, good as regards groundsurface visibility and therefore the ease of site recognition. Vegetative cover varied from moderate to sparse, in areas of flat to moderate slope, to non-existent, on cliff faces, bedrock outcrops and scree slopes, with only a few exceptions (these

exceptions have been noted on the site descriptions provided below). Furthermore, archaeological sites within the study area tended to be historical, thus containing structural remains, which were themselves easy to recognize, and the sites tended to cover relatively large areas, further facilitating site recognition. On the other hand, the extreme slope of portions of the study area made surveying difficult, if not outright dangerous, in some areas.

4.0
SURVEY RESULTS

4.1 Introduction

The field survey of the Golden Queen study area resulted in the relocation of two previously recorded archaeological sites, and the discovery and recording of two new site localities, each of which consists of a series of relatively discrete mining features. With the exception of one of the previously recorded sites, all of these are historical (Euro-American) in age and are a product of the mining history of the property. We discuss these sites in turn below; site records and updates are provided in Appendix B of this report.

4.2 Previously Recorded Sites

Two sites had been previously recorded within the study area: CA-KER-764H and -765. Both sites were relocated and evaluated during the current field survey.

4.21 CA-KER-764H

This historical site is located on the west side of the study area near the western edge of Section 6 (see Figure 3), on the south side of an E-W trending minor ridge line. It was first discovered and recorded for the

BLM in 1977 by Eric Montizambert and Garth Portillo, and was said to consist of a cobble structure/structure foundation, a prospect cut, and a vertical shaft. Although noted as not being eligible for the National Register of Historic Places (NRHP) alone, it was suggested at the time of recording that the site might contribute to a historical district (see Appendix B).

The site was relocated and an assessment was made of it during the 1995 field study. It was found to be largely intact as described in the 1977 site record, with its condition estimated as moderate, in that the cobble walls are partly collapsed, and the eastern side of the site is rapidly filling with colluvium.

The site consists of two large, unmortared fieldstone cobble wall remnants, situated perpendicular across two small, intersecting arroyo/drainages (Figure 4). The downstream (western) wall is currently the largest, measuring about five feet in height by two feet wide, by 43 feet long. The upstream (eastern) wall, which cuts across a smaller intersecting drainage, averages three feet high by two feet wide, and is 28 feet long. Both walls are slightly bowed in the upstream direction. An old dirt road runs perpendicular to the arroyos, immediately south of these cobble walls.

The location of the "structure" across a small arroyo is problematic. Although this feature resembles other living structures found elsewhere on Soledad Mountain in construction techniques, its large size, the absence of any evidence for roofing, and its location in an arroyo suggest that it served as a check-dam or water control feature (such as a small water retention basin) for the arroyo, rather than a living structure. Another,

smaller single cobble wall was noted about 20 m downstream of the first, supporting the interpretation of these features as water retention structures. Furthermore, STPs failed to reveal any evidence of habitational debris at the location of these wall features.

In addition to the structural features noted at the time of discovery, we also observed a small tin can scatter/dump approximately 20 m W (downstream) of the primary cobble structure/structure foundation, within the arroyo itself. This contained hole-in-top cans, purple glass and a metal satchel frame. It is relatively small in size (containing less than 25 historical artifacts) and appears to be turn-of-the-century or early 20th century (pre-1920) in age; however, none are temporally diagnostic in any narrow sense. Currently, it is impossible to confidently associate these surface artifacts with the cobble wall features. The putative vertical shaft and cut associated with this site, however, are clearly recent in age, at least judging from the associated remains, which are modern timbers, nuts and bolts, and so on.

In summary, CA-KER-764H does not appear to be an historical mining structure, in the sense of cabin or building, but instead most likely served as a water control feature within an arroyo. It is of unknown historical age, and is not associated with any other historical remains which would clarify its function and age, or provide a context for better understanding its intended use.

4.22 CA-KER-765

Located on the north side of the same minor (E-W) ridge containing CA-KER-764H (Figure 3), this site too was recorded for the BLM by Montizambert and Portillo in 1977. It was said to consist of a single bedrock grinding slick measuring 8 cm in diameter by about 1 cm in depth, on a boulder roughly 2 by 3 feet in size. At the time of BLM recording, it was determined not eligible to the NRHP (see site record form, CA-KER-765; Appendix B).

The putative isolated grinding slick was relocated during the 1995 field study using the site location map, verbal description of this feature, and a photograph of it included with the site record. Based on a careful visual examination of this boulder, we do not believe it to be an aboriginal grinding slick, but instead interpret it as a natural depression on a relatively flat boulder surface. That is, we believe that CA-KER-765 is not an archaeological site, but simply a natural rock feature similar in cursory examination to a grinding slick.

4.3 Newly Discovered Sites

As was expected, given the mining history of the study area documented above, a series of mining features were discovered and recorded during the 1995 field survey. These fall within two portions of the study area, both of which are located in the western study section which, as the

historical accounts indicate, was one of the foci of mining activity on Soledad Mountain. In contrast, the eastern and southeastern sections of the study area, located in steep terrain high on Soledad Mountain, were both devoid of archaeological remains, and are unmentioned in the historical accounts and documents.

Because of the complexity and ambiguity of these mining features (in terms of history of ownership and period[s] of use and reuse), we initially recorded all of them, regardless of age. Moreover, we have grouped the different features into two clerical "sites", which are based on geographical clustering. That is, at this point in our understanding of these historical cultural resources, these "sites" should not be taken to necessarily represent functionally related units (though in one of the cases they clearly were) so much as mining features and remains in locational proximity. We describe these sites below, with site records provided in Appendix B.

4.31 Elephant-Eagle Mine (CA-KER-4455H)

A large archaeological site, representing the remnants of the Elephant-Eagle Mill and Mine, was recorded in the northwestern portion of the study area (see Figure 3). We have provided a sketch of the respective features present within this site (Figure 5), as well as more detailed drawings of the extant remains of the mill, per se (Figure 6). This site, which has been designated CA-KER-4455H, covers an area estimated at 100 m N-S by 120 m E-W, or 12,000 square meters in size. However, most of this area is devoid of intact archaeological remains, with this large area simply

representing the zone encompassing a series of functionally related but discrete features. Note that a 1936 plat of the site exists (Figure 2). This provides locations of structures present over 60 years ago, and thus useful information in evaluating the current status of the site.

We have listed the various features (not all of which, incidentally, are archaeological, but including some of the recent mining remains as well) in Table 1. These can be described as follows, with numbers referring to Table 1 and Figure 5:

Metal buildings and assay dump (#1, 5 & 8) - Two modern metal buildings are present within the site area (Figure 7). One (#1) is immediately adjacent to or on the location of the 1936 plat mapped "Office Building" (Figure 2). The other (#5) is downslope from #1 and immediately adjacent to a concrete foundation that is not on the 1936 plat, therefore presumably post-dating it. Feature #1, the building near or on the 1936 plat Office Building location, is adjacent to the haulage level adit, with a vertical shaft and the remnants of a small shaft collar and head frame located about 20 m uphill. This modern building sits on a concrete slab floor. There are no clear remains present from the original 1936 Office Building; it is possible that they were destroyed by the construction of this modern building, which is made of corrugated iron and appears quite recent in age. However, a small wooden machine foundation is located immediately across (E) the dirt road from the metal shack. Although the location of this foundation on the east side of the dirt road does not match the location on the 1936 plat, it is also possible that this is the foundation for the original office building.

Feature #5, the lower modern metal building, is a corrugated iron shack with wood floor, resting on an unmortared cobble, cripple-wall foundation. The foundational remains alongside (west of) this structure is concrete with exposed foundation bolts, and appears both modern and to have held a structure that burned. Immediately across (NE) a dirt road from this foundation, trailing down a steep slope, is a dump of modern assay debris (8), suggesting that the building served as an assay office. This dump contains modern screw top glass bottles, modern one-gallon paint cans, and a large number of ceramic crucibles bearing the printed basal stamp "DENVER FIRE CLAY COMPANY" over "30" over "GRAMS" over "USA".

Ore chutes and gyratory crusher (#2 and 9) - Five separate ore chutes are present within the site. Three of these are truck chutes; that is, they are made to load ore onto trucks, and thus presumably post-date the Depression era mill. One of these three is a double-bin chute; the remaining two are both single-bin chutes. A large double-bin chute and short, collapsing trestle are also located immediately alongside and uphill (SW) of the mill remnants (#3), and would have fed into the mill, per se (though, as discussed below, this current mill structure is modern). Finally, a small single-bin ore chute is associated with the gyratory crusher (#9), which is located on the NE side of the site, outside of the mill area, per se. This crusher is labeled "WW GIBSON PATENTED", and is mounted in a wooden frame (Figures 8a and 8b). This is apparently not the gyratory crusher installed at the mine circa 1930, which was described by Tucker (1935:473) as a Gates crusher. Therefore it and its chute are either unrelated to the mill remains, per se, or were brought-in subsequent to the 1935 description of the mine.

Regardless of the precise origin of this artifact, gyratory or spindle crushers were used for the rough or preliminary breaking of ores, essentially maintaining the same function as jaw crushers (Richards 1909:27-28). As described by Peele (1941:28-04), they consist of "a fixed crushing surface, in form of a frustum of an inverted cone, around the axis of which gyrates a movable crushing surface, having the shape of a conical frustum in erect position"; stated another way, they are analogous to a large mechanical mortar and pestle, with the breaking action due to the rolling of the pestle along the inside edge of the mortar bowl, rather than due to stamping the end of the pestle into the pit of the mortar. As a device intended for the preliminary breaking of ore, the gyratory crusher would logically be positioned at the top of a mill, usually where ore was unloaded from the haulage level carts or trams.

With the exception of the small chute associated with the crusher, all of the ore chutes are made of salvaged wood, therefore post-date the 1930s mill and, in some cases, show evidence of burning, suggesting that they may have been salvaged from the remnants of the mill, which burned sometime after 1936. Furthermore, with the exceptions of the collapsing, double-bin truck ore chute and the double-bin chutes leading directly tp the mill, none of the existing chutes are positioned in such a way that they could have been used in a logical ore materials flow that would have led to a preliminary ore crusher when positioned at the top of the mill, therefore demonstrating that they post-date the Depression era mill works.

Mill foundations (#3) - The primary archaeological remains present at this site consist of the Depression era mill foundations (Figures 6, 9a, 9b, 10a, 10b), which cover an area approximately 90 feet N-S by 175 E-W, as

measured below the collapsing trestle and double-bin ore chute made of salvaged wood, noted above. In order to understand the mill foundation remnants, it is appropriate to review in detail a period description of the engineering works and materials flow of this mill:

> "Ore from mine delivered to 50-ton ore bin. Ore passed over one-inch grizzly; oversize from grizzly to Gates D. gyratory crusher; crushed to pass 3/4" ring; from crusher elevated by bucket elevator to 50-ton fine ore bin; from ore bin fed by Gates feeders to belt feeder to 4 ft. by 8 ft. Marathon rod mill which is in closed circuit with Dorr duplex classifier. Discharge from rod mill goes to amalgamation trap, with 5 lb. of mercury in bottom of trap. The trap is lined with amalgamation plates. Overflow from trap to launder lined with English corduroy cloth, to classifier. The pulp is ground in cyanide solution to 48-mesh; 2 lb. of cyanide per ton of solution; overflow from Dorr classifier to 2 launders 6 ft. in length by 8 inches wide, lined with English corduroy cloth; combined product from Dorr classifier through launders to 2 drag classifiers, 16 ft. in length by 2 ft. in depth; overflow from No. 1 drag classified [sic] to No. 2 drag classifier. The drag classifiers separate sand from slimes. Slimes flow to three 8 ft. by 12 ft. agitators, then pulp from agitators to 30 ft. by 8 ft. Dorr settling tank; then to two 4 ft. by 8 ft. agitators; then to 30 ft. by 12 ft. solution tank. Pregnant solution pumped to gold solution tank in mill, made up of 3-compartments with burlap filtering cloth. Pregnant solution flows to 3 sets of 6-compartment zinc boxes. Contact with solution takes 72 hours. Sands from drag classifiers to four 8 ft. by 12 ft. circular sand vats and then to four 30 ft. long by 16 ft. wide by 8

ft. deep sand vats. Solution from sand vats to solution tank, from which it is pumped back to gold solution tank in mill, then to zinc boxes. Slimes dewatered with Oliver filter. English gold-cloth concentrate cleaned up each 8-hr. run. Concentrates go to amalgamation barrel and tails from amalgamation barrel returned to rod mill. Plant has a capacity of 50 tons per 24 hours.

(Tucker 1935:473-474)

Extant remains of this mill can be summarized as consisting of three concentration of foundations: (a) three terraced areas, the upper two of which are concrete floored, and which apparently contained essentially all of the mill works above the circular and rectangular sand vats described above; (b) the sand vats themselves; and (c) a lower area containing a concrete machine room foundation and miscellaneous tank foundations.

(a) Upper terraces area: At the top or uphill (W) side of the mill, immediately below the modern double-bin ore chute and trestle, is a concrete foundation and pad measuring 14 feet (E-W) by 90 feet (N-S). A modern standing structure, consisting of wood frame and plywood siding and measuring 24.5 by 14 feet, has been built over a portion of this upper pad area (Figure 9a). This modern structure encompasses a series of concrete machine foundations which were part of the internal mill system. Charred mud seals along the northern side of the concrete pad indicates both that the original mill building was once much larger than the modern plywood structure, and that the mill building was burned at some point in the past. Portions of the northern side of this uppermost concrete pad, in the immediate area of the charred mud seals, are covered by waste rock dump which appears to relate to the modern double-bin ore chutes. This

provides further evidence both that this ore chute post-dates the Depression era mill, and that the burning of the mill occurred sometime before recent mining activities were undertaken at this locale.

A 4.5 feet drop to the east leads to the lower of the two concrete terraces or pads. This pad is 23 feet wide (E-W) by 75 feet long (N-S). It contains three raised-up concrete machine foundations in its southern-central half. Most likely, this and the upper concrete pad were once enclosed within a single building.

The third pad is a dirt-floored terrace, eight feet lower than the second pad. It is 20 feet wide and contains two 12 feet long troughs, which are four feet and three feet wide, respectively, at its northern end. This terrace currently contains a series of modern water tanks.

(b) Sand vat area: Five feet below the dirt pad are the remnants of the sand vats, both circular and rectangular (Figures 9a and 9b). The four metal tanks currently consist of foundations, concrete floors within the tanks, and small remnants (circa 3 inches high) of the tank walls, which were originally 8 feet high. According to Mrs. Meehl (personal communication, 1995), all of the metal tanks on Soledad Mountain were cut apart and reused by cattle ranchers as watering troughs, following the Depression.

The four rectangular sand vats are concrete and V-bottomed, and currently lack their sidewalls, which were also originally eight feet high. There is no existing evidence to indicate whether these sidewalls were metal or wood. Note that our measurements for the sand vats differ slightly from those

provided in Tucker's 1935 description. Most likely, these reflect different measuring strategies; that is, Tucker's published dimensions probably represent the inside dimensions of these features, whereas we have necessarily measured overall (outside) sizes.

The basal remnants of two, six feet diameter metal tanks are also present immediately north of the rectangular sand vat remnants. To the north of these small tank remnants is a large circular and depressed area, measuring 54 feet across, which may have been a large tank pad. Another smaller (6 feet diameter) tank base is present immediately east of this large area.

(c) Lower foundations area: Northeast of the sand vats are a series of smaller foundations and miscellaneous mill remnants. These include the basal remnants of four metal tanks, the sides of all of which, again, were cut-off for salvage. Two of these tanks are six feet in diameter; one is three feet across; and the fourth, which is about 42 feet north of the tanks, is 15 feet in diameter. About 40 feet northeast of the northeast extreme of the sand vats is an anomalous feature consisting of three cement-mortared retaining walls made of undressed fieldstones (Figure 10a). These are aligned in a row, and are semi-circular or lobate in shape, but are each separated by a space five feet wide. These appear to have served as some kind of tank foundations or abutments serving as erosion or run-off control features.

About 4.5 feet east of these stone walls is a concrete machine room foundation and back wall (Figure 10b). This measures 30 feet N-S by 11'2" feet E-W. Foundation bolts for at least two large machines and one

concrete machine stanchion/support are present within this room area. A small amount of mill tailings are present below these lower features.

With the exception of the sand vats, noted above, the mill remains are too fragmentary to allow an identification of the function of any particular features still present on the site.

However, the absence of any substantial evidence for tailings, even given the alleged claim that the tailings were at one point rerun, makes the putative production of this mill suspect: as apparently laid-out, had any significant period of mill operation occurred, the tailings would have quickly inundated the habitation area, which was immediately below. Furthermore, the use of a roller mill seems inappropriate for a gold mill interested in productive yield. As noted by Richards (1909:47), "In crushing native gold ore by rolls the gold fails to be brightened preparatory to final amalgamation, the thin flakes fail to be broken up preparatory to concentration, and finally it is difficult to reduce the ore to a sufficiently fine state to liberate the gold. Rolls, therefore, do not favor for crushing preparatory to amalgamation". When combined with the evidence cited by Tucker (1935) that a number of lessees worked portions of the Elephant-Eagle Group claims during the Depression, one is led to speculate that the mill functioned primarily as a custom mill for purposes of running the lessees ore.

Boarding house pad (#4) - As noted above, a 1936 plat of the property exists (Figure 2), which illustrates the location of a number of structures and buildings to the east of and downhill from the mill structure, per se. None of these are currently standing. Using a transit and

stadia, however, we attempted to relocate these various structures on the ground. They all fall within an area of intensive, modern use, which has involved the construction of a series of recent buildings and trailers, bulldozing and widening of dirt roads, and the dumping of modern trash in a series of dumps along the dirt roads. As is quite clear from the remains on the ground, this portion of CA-KER-4455H was used for a post-war homestead(s), and has suffered considerably as a result.

The only extant archaeological remains of the buildings identified on the 1936 plat, in fact, is the dirt pad of a structure identified on the plat as the "Boarding House". According to residents of the local area, a wood structure was present at this location, which burned down within the last ten years. Subsequently (or perhaps at the time of the fire), the pad area was bulldozed and a backhoe trench dug into it, which has been used for modern trash disposal. With the exception of small fragments of burnt timbers and nails, there are no extant archaeological remains of this structure.

What apparently would have comprised the habitation area of the Elephant-Eagle mill and mine, accordingly, has been destroyed by subsequent reuse and development of the property. Although there is a significant amount of material culture debris in this area, this is essentially all modern trash. With the exception of occasional and sporadic examples of historical artifacts, such as purple bottle glass, we found no evidence for intact historical deposits or features in this area.

Upper concrete foundations (#7) - An upper area of machine room foundations is also present (Figure 11), above the haulage level adit. This

measures 22'2" (N-S) by 23' (E-W), and is located 24 feet west of the vertical shaft and collar/head frame remnant leading down to the haulage level. The feature consists of three raised concrete machine stanchions/foundations, sitting on a concrete floor. The overall configuration of the lay-out of these stanchions is not suggestive of an enclosed structure, and no wall footings or foundation bolts are present within the concrete floorings. However, there is substantial evidence for burning at this location (burnt timbers, charcoal, nails, etc.), suggesting that a structure or at least cover of some sort may have once stood at this location. Furthermore, the 1936 plat of the property (Figure 2) shows a rectangular building in this location, indicating both that portions of this structure may have been dirt floored, and that it is minimally Depression era in age.

In the southwestern corner of this concrete feature the remnants of what appears to have been a generator are present. Otherwise, this feature appears to have served as a compressor room. With the exception of broken glass, nails and charred wood, this area of the site has few surface artifacts. It most likely burned at the same time as the mill itself.

4.32 Bobtail Area Features (CA-KER-4454H)

A series of dispersed mining features was identified in the general vicinity of the Bobtail Mine and claims, which is to say the western side of Soledad Mountain (Figure 12). These have been summarized in Table 1. They are found in an area measuring about 500 meters E-W by 500 meters N-S, for

a surface area of 25,000 square meters. However, because each feature is quite discrete, with all archaeological remains then very localized, the large majority of this area contains no archaeological remains of any kind. Furthermore, not all of these features fall within the Class III inventory study area, as noted below, nor are all of them truly archaeological, in terms of the fifty year age criterion; instead, they simply reflect all of the extant mining features on the western side of Soledad Mountain. We discuss each of the features that constitute site CA-KER-4454H in turn.

Feature #B1 - This is a small concrete pad, measuring 15'6" (E-W) by 14'6" (N-S), which abuts a low unfinished mortared cobble wall to the west that is 12 feet long (Figure 13). A terraced pad edged by a single coarse of field cobbles lies to the northwest of the concrete pad, and measures 18' by 18'. The concrete pad was formed with modern lumber.

This structure is associated with an extensive but very low density can dump, which extends northwestward down a small drainage for about 200 meters. This contains a mixture of mostly Depression era or later (sanitary seal cans, crown top beer cans) and some earlier (hole-in-top cans, crazed whiteware) remains; that is, it appears to be chronologically-mixed, and currently is being transported downslope in the small arroyo. One of the pieces of whiteware has a green printed maker's mark. This is "U.P.W." over over a bird with an "S" in its beak. This was produced by the Union Porcelain Works of Greenpoint, New York, which was owned by Thomas C. Smith and Sons. The Union Porcelain Works was in production from circa 1860 to 1904 (DeBolt 1988:72). The mark in question is a post-1877 mark, perhaps dating between 1877 - 1879, but definitely before 1905. It is consistent with a turn-of-the-century age of initial occupation for this

small feature. A shovel test pit in this location failed to reveal evidence of any subsurface deposition at this locale.

Features #B2a and B2b - These consist of two truck ore chutes, and associated ramps and adits. The B2a single-bin ore chute is intact and is made with a series of galvanized bolts and modern lumber (Figures 14a and 14b); that is, it does not appear to be scavenged material. An older waste rock pile was dug-out to accommodate this ore chute, indicating that it post-dates the original workings at this location.

A concrete motor stanchion/foundation (air compressor or winch?) is also present on the ore ramp, with another immediately to the north of the portal to the adit. A small dump of burned modern debris is present down one side of the ore ramp. All of the remains here are essentially modern in age, including aerosol spray cans, which post-date World War II. Feature B2a is clearly post-war in age.

Feature B2b, located a few hundred yards up (north) a dirt road from B2a, is a second single-bin truck ore chute (Figure 15), associated with a haulage level adit containing narrow gauge rail tracks and an open stope at a slightly higher elevation. The ore chute itself measures 20 feet long (E-W) by 6'6" wide (N-S), and has a maximum height, at its outside edge, of 10 feet. Remnants of a wooden trestle system, consisting of paired upright wooden pillars and two wooden rails, are present in the waste rock dump between the chute and the adit. The ore chute is made of scavenged wood, as indicated by the varied sizes of the lumber and the evidence for earlier cuts and attachment holes in the boards, and is partly collapsing.

A very small, low density dump of Depression era remains, consisting of sanitary seal cans and crown top beer cans, is present in a very small, steeply-sided drainage immediately north of the chute. Another set of wooden trestle remnants is located in the waste rock dump on the north side of this small drainage.

As noted above, narrow gauge tracks are present in the adit, the collar of which is 73 feet east of the trestle. A sheet metal, two-burner stove is located at the entrance to the adit. A metal hoist gear and motor mount are also located up slope and north of the adit. Further up slope of this artifact was the remnant of a hoist pulley. This is made of wood and metal and consists of two wooden wheel pulleys on a wooden axle, with metal fittings, and leather bearings on the axle. The smaller pulley, about 20" diameter, was a brake operated with a metal band and fittings; the larger pulley, about 3' diameter, appears to have served for a 3" belt, and is too small for a hoist cable. This pulley system is not associated with any other features and its current location on a steep slope is anomalous; most likely, it was simply dropped at this location while in transport on the hillside.

Features B2a and B2b, in other words, consist of a mix of modern and Depression era remains, which have disturbed earlier mining works at this same location.

Feature #B3 - This feature consists of a series of four adits, a haulage ramp trestle, two cleared pads, a collapsing wooden landing/loading dock, and a tin can scatter, all of which appear to be modern (post-World War II) in age. Narrow gauge rail lines are present in the lower of the three adits, which step-up the side of the slope for about

35 meters. The haulage ramp includes a wooden bridge/trestle extending from the portal of the lower adit to a raised hillock of waste country rock, creating a truck loading area under the trestle. It is made of scavenged wood lumber, 2x4s and plywood, demonstrating recency in age, and has been vandalized by recent spray-paint graffiti ("CAMP MOSH"). It is 23'6" across and 8' wide, with hand-rails made of 2x4s. Two pads are present to the north of this ramp. One, immediately to the north, appears to be a dug-out loading ramp. The second is a leveled pad slightly to the north, and below, the lowest adit.

A collapsing wooden landing or loading dock, apparently set-up for a truck, is located up slope (E/SE) of the haulage ramp trestle, and is associated with a second adit. This dock measures 11 feet (N-S) by five feet (E-W). A large metal barrel/funnel is located at the mouth of the adit at this location.

Finally, a small tin can scatter, containing sanitary seal cans, is present to the west of the trestle haulage ramp. These are modern in age. The various components of Feature B3, in other words, appear to consist entirely of modern or post-World War II era remains, and are not depicted on a 1942 plat map which covers claims in this area (see Figure 17).

Feature #B4 (Figure 16) - This is a small concrete building, on a raised concrete foundation. It was built with concrete forms for the interior walls and faced with field cobbles on the exterior, and has a concrete floor but currently no roof. It measures 23 feet (E-W) by 20 feet (N-S), was gable-fronted, and had a roof height of only eight feet from the

concrete floor. A smaller interior rectangular room, measuring 10 feet (N-S) by 12 feet (E-W), was created with wooden plates and presumably wooden walls (now missing), creating a large L-shaped room out of the remainder of the structure. The structure had doors on the east and west (gabled) ends, three windows on the north wall, two on the east, and two on the south. Lintels of the doors and windows are cut and milled lumber. A hearth/fireplace, made of mortared fieldstone, is present in the southeast corner of the structure.

On the western side of the structure a single door leads down a step to a partially enclosed room, perhaps a covered garage. It measures 8'4" (E-W) wide and, like the structure, per se, is 20 feet (N-S) long. It has no north wall but instead abuts the remnants of a dirt road on this side. Nonetheless, the west (exterior) wall of this addition is gabled to match the heart of the structure, and windows are present on the west and south walls. The floor of this addition is concrete poured on dirt; that is, it has no foundation, per se.

A dug-out "loading ramp" or parking area is located 18 feet to the west of this structure. It is 25 feet (N-S) and 30 feet (E-W), opening to the west onto a dirt road, while an unmortared fieldstone "retaining" wall (3' high by 2' wide maximum) makes up the north, east and south walls of this feature. A staked NW corner-marker for the Hope Extension claim, one of the Golden Queen Mine Depression era claims, is located immediately north of the northwest corner of this dug-out area.

A small quantity of sanitary seal cans, wire and Depression era car parts are present scattered in and around this structure, including "Quaker State

Extra Lite" oil cans. No evidence of dumps, in the sense of concentrations of remains, or privies were found, and shovel test pitting revealed no evidence of subsurface remains at this locale.

The structure is depicted on Mineral Survey 6299 (Figure 17) as a "stone cabin", which was mapped between October and December, 1942, confirming that it is Depression era in age. Architecturally speaking, it is in poor condition.

Other features at CA-KER-4454H - In addition to the features described above, three other feature complexes were recorded as part of the Bobtail Area site. These include another single-bin truck ore-chute (B5); the foundations of the Soledad Extension haulage-level machine room/changing house (B6); a small, unmortared stone structure (B7); and a small head frame/hoist (B8). All of these fall outside of the Class III inventory study area; moreover B5 and B8 appear to be modern; B6 dates to the late 1930s and early 1940s, when the Golden Queen Mine was in operation; while B7 has no associated artifacts and is of unknown age and affiliation, although a turn-of-the-century age is most likely, given its construction techniques. As is clear, these various features and feature complexes that compose CA-KER-4454H are by no means necessarily related in temporal or functional terms, but have been grouped together because of their general geographical proximity.

5.0
SUMMARY AND RECOMMENDATIONS

5.1 Summary

A Class III inventory was conducted for the Golden Queen Mine project on BLM administered lands located on the northern and western sides of Soledad Mountain, near Mojave, Kern County, California. This involved a background record and documents search intended to provide a detailed understanding of the history and prehistory of this area; discussions with local residents about the history of the area; a continuous intensive (100%) surface survey of the entire study area; the recording of archaeological sites; and an evaluation of these sites, based on mapping, recording and limited subsurface probing, in order to determine their eligibility to the National Register of Historic Places (NRHP). The intensive survey was intended to field check previously recorded sites, as well as to identify and record sites that, heretofore, were unknown. The identification and recording of these sites was conducted per the guidelines in the Bureau of Land Management Manual (BLM 1988), and the "Secretary of the Interior's Standards and Guidelines, Archeology and Historic Preservation" (Federal Register 48(190):44716-44742; 29 September 1983).

The Class III inventory resulted in the reexamination of two previously recorded site on the property; and the discovery and recording of two historical archaeological sites. We summarize our findings and recommendations relative to each of these cultural resources below.

5.11 CA-KER-764H

First discovered in 1977 on the west side of Soledad Mountain, site CA-KER-764H was relocated and evaluated during the 1995 Class III inventory. It was determined to consist of an informal water retention/erosion control feature, consisting of three cobble walls crossing an arroyo. A small, low density dump of turn-of-the-century/early twentieth century tin cans is present between these cobble walls; whether these surface remains are temporally associated with the walls is unknown, and no other features or sites are clearly associated with or related to this site, functionally or temporally. It is currently filling with alluvium and colluvium being that is naturally transported down the arroyo, but contains no subsurface archaeological deposit.

5.12 CA-KER-765

Also first discovered in 1977 on the western slopes of Soledad Mountain, this site was recorded as an isolated prehistoric bedrock grinding feature. It was relocated in 1995 and determined to be natural rather than cultural in origin. That is, it does not constitute an archaeological site.

5.13 CA-KER-4455H

This is the Elephant-Eagle Mill and Mine, located near the northwestern

end of Soledad Mountain. Claims were first filed and therefore mining began at this location around 1900, with the first mill constructed at this spot in circa 1920. A second, more elaborate mill was put in at the same location during the 1930s, when the property was owned by Jesse Knight, father of Goodwin Knight, who was the governor of California during the 1950s. However, the mill was burned sometime after the Depression era, probably during the 1950s. Combined with continued use of the mill and surrounding areas into the present period, the result has been considerable disturbance and alteration of the groundsurface at this locale.

None of the original Depression era mill, office and habitation structures once on this site are currently standing. Currently, extant historical archaeological remains are limited to the foundations of the1930s mill, consisting of concrete terraces, sand vats, and machine room and tank foundations, and a terraced pad that once contained a wooden boarding house. No subsurface archaeological deposits, such as privies, or intact surface features, such as dumps, furthermore, are present on the site.

5.14 CA-KER-4454H

This site consists of a series of dispersed mining features located on the west side of Soledad Mountain, within the area of the Bobtail claims. Although mining began on claims in this area of the mountain early in the century, it was never the focus of intensive mining activity and never had a mill or known resident population of any size. Instead, claims and veins worked in this area had the resulting ore transported to mills elsewhere on the mountain or region. Furthermore, like other portions of Soledad

Mountain, the Bobtail claims continued to be mined after the second World War, resulting in disturbances to the earlier mining remains.

Three features/feature complexes were identified within this site that are both historical in the sense of meeting the 50 year age criterion, and that fall within the boundaries of the Class III inventory (that is, we recorded all mining features on the western side of the mountain as discontinuous portions of this site, some of which proved to be modern in age, and some of which actually fall outside of the Class III study area). They include a small concrete pad, of unknown age, and a nearby, relatively small and low density tin can dump that is primarily Depression era, but contains some earlier remains, and which is being dispersed by alluvial wash; a Depression era single-bin truck ore chute, in association with a small quantity of mining remains of mixed ages; and the remains of a Depression era, two-room concrete structure. Note that these three features are dispersed across the site area; while they may in certain cases date to the same period (e.g., the Depression), they are in fact on different claims and are not functionally related in the sense of having been used by the same individuals or directed towards a single economic endeavor. Furthermore, none of these features/feature complexes have subsurface components.

5.2 Determination of Eligibility

Evaluation of the significance of the cultural resources identified during the Class III inventory of the Golden Queen project area, and a determination of the effect of the proposed project on these same resources, is based on an initial determination of eligibility of these

resources to the National Register of Historic Places (NRHP). Such a determination is based on the criteria required by and outlined in the National Historic Preservation Act, sec. 101 (a), and 36 Code of Federal Regulations Part 60.4, respectively. As so defined, a cultural property is eligible to the NRHP if it:

1. is at least 50 years in age;

2. retains integrity of location, design, setting, materials, feeling and association; and

3. has one or all of the following characteristics:

a. association with events that have made a significant contribution to the broad patterns of our history; or

b. association with the lives of persons significant in our past; or

c. embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant, distinguishable entity whose components may lack individual distinction; or

d. has yielded, or may be likely to yield, information important to prehistory or history.

The baseline for criterion 3.d may generally be taken as existing regional research designs and problems, as discussed previously.

The effect of the proposed action on cultural resources is then defined by 36 Code of Federal Regulations Part 800.9. An action is said to have an effect on a property when the action may alter the characteristics of a significant property that qualified it for the NRHP. An adverse effect is one that diminishes a significant property's integrity through physical

destruction, damage or alteration; or alters or conflicts with the character of the property when such character is contributory to its inclusion in the NRHP. An action has no effect when the criterion of effect is not met.

5.21 CA-KER-764H

Site CA-KER-764H is a small, informal stonewall water control feature of unknown age and association. Though it probably meets the age criterion of 50 years and maintains a moderate degree of integrity, it does not meet any of the additional criteria. Because its temporal and functional associations cannot be determined, it cannot contribute to a historic district, and it has no potential to contribute to the resolution of regional research problems. It is thus not significant, and therefore is ineligible for inclusion in the NRHP.

5.22 CA-KER-765

The location recorded as site CA-KER-765 was determined to be non-cultural and is therefore not an archaeological site or cultural property. It is not, accordingly, significant nor eligible for inclusion in the NRHP.

5.23 CA-KER-4455H

This site consists of the remnant foundations of a Depression era mill and mine. Although it meets the criterion of age, it has no standing structures is therefore entirely lacking in integrity. Furthermore, it has no intact

archaeological deposits with research potential, and thus cannot measurably contribute to our understanding of California history. It is not significant and, accordingly, is not eligible to the NRHP.

5.23 CA-KER-4454H

This site consists of three geographically clustered but otherwise temporally and functionally unrelated mining features. Feature B1, a concrete pad of unknown age and a nearby possibly related, small can dump of mixed age, both probably meet the age criterion but are marginal with regards to integrity. More importantly, however, they meet none of the other criteria for inclusion in the NRHP. Feature 2b is a Depression era truck ore chute and, although eligible with regards to age, otherwise meets none of the criterion for eligibility. Feature B4 consists of the remnants of a Depression era cabin. While of sufficient age, it is entirely lacking in integrity, and does not satisfy any of the additional criteria. And because each of these individual archaeological features/feature complexes cannot be directly related to one another, or to other significant sites on Soledad Mountain, in terms of time period of use or specific use, they cannot be considered to constitute or to contribute to an historical district. Site CA-KER-4455H, and the archaeological features within it, therefore, are not significant and are not, correspondingly, eligible for inclusion in the NRHP.

5.3 Determination of Effect and Other Recommendations

The Class III inventory of the Golden Queen project area resulted in the

evaluation of four archaeological sites, CA-KER-764H, -765, -4455H and -4454H. Largely as a result of the long history of mining in this area, which has included active mining into the modern era, these sites have experienced almost continual disturbance and alteration. They are, accordingly, marginal or entirely lacking in integrity. Furthermore, they do not meet the other criteria for inclusion in the NRHP, as outlined in 36 CFR 60.4, and therefore are not significant cultural resources. Based on the criteria in 36 CFR 800.9, accordingly, any action undertaken within the Golden Queen project area, Kern County, California, is determined to have no effect upon cultural resources.

Although not required by law, and therefore not a condition upon which project approval may be based, it is nonetheless recommended that the gyratory crusher currently found at site CA-KER-4455H be removed from its current location and stored or displayed where it can be preserved. In essence a very large but still movable single artifact, it is neither unique or rare, but still constitutes an unusual and interesting material cultural artifact that is worthy of preservation.

6.0

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TABLES

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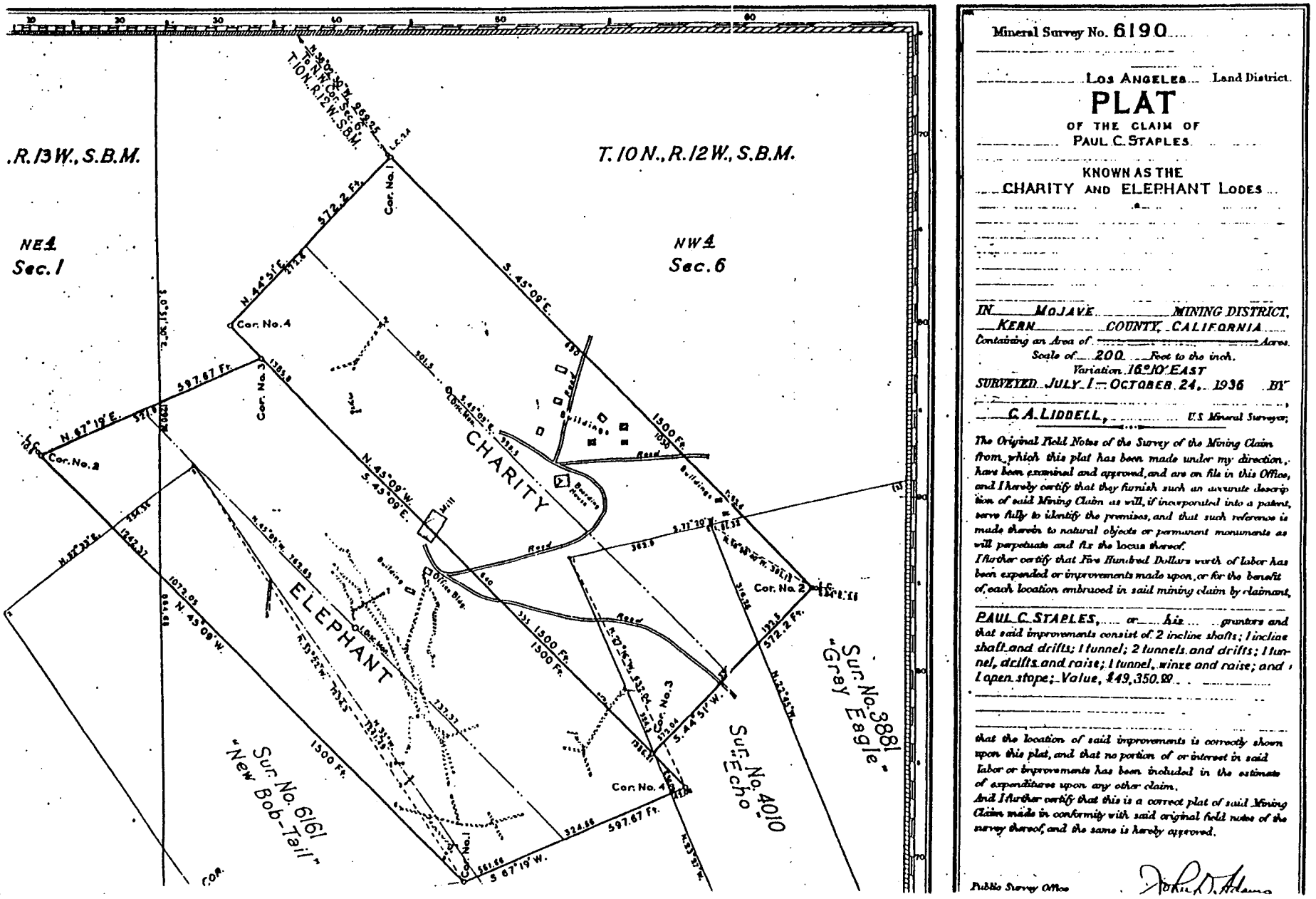
1 - Features at the Elephant-Eagle and Bobtail Area sites

TABLE 1: Elephant-Eagle (CA-KER-4455H) and Bobtail Area (CA-KER-4454H), Archaeological Features

Elephant-Eagle		
1	Metal building	Modern, adjacent to haulage adit/headframe
2	Ore chutes	Modern, re-used lumber
3	Mill foundations	Modern structure on machine room
4	Boarding house pad	Burnt & disturbed
5	Metal building	Modern, on cobble foundation
6	Concrete foundation	1930s office
7	Concrete foundations	Burnt structure, compressor room (?)
8	Assay dump	Modern
9	Gyratory crusher & chute	Outside of mill area; intrusive ?
Bobtail Area		
B1	Pad, cobble wall & dump	Turn-of-century & depression era
B2a	Truck ore chute	Modern
B2b	Truck ore chute	Depression era or later
B3a	Adit and wood trestle	Modern
B3b	Wood landing/ramp	Modern
B4	Concrete structure	2 room, Depression era, no roof
B5	Ore chute, ramp and adit	Starlight (?)
B6	Soledad Ext Machine Rm Fdn	Concrete foundations; post-Depression + earlier remains
B7	Cobble structure	2x4 m, no roof, no artifacts
B8	Headframe on open cut	Deadman below using cable & 55 gal drums, modern

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Mineral Survey No. 6190

Los Angeles Land District.

PLAT

OF THE CLAIM OF

PAUL C. STAPLES

KNOWN AS THE

CHARITY AND ELEPHANT LODES

IN Mojave Mining District,
Kern County, California
Containing an Area of ——— Acres.
Scale of 200 Feet to the inch.
Variation 16° 10' East
SURVEYED July 1 — October 24, 1936 BY

C. A. Liddell, U.S. Mineral Surveyor;

The Original Field Notes of the Survey of the Mining Claim from which this plat has been made under my direction, have been examined and approved, and are on file in this Office, and I hereby certify that they furnish such an accurate description of said Mining Claim as will, if incorporated into a patent, serve fully to identify the premises, and that such reference is made therein to natural objects or permanent monuments as will perpetuate and fix the locus thereof.

I further certify that Five Hundred Dollars worth of Labor has been expended or improvements made upon, or for the benefit of, each location embraced in said mining claim by claimant,

PAUL C. STAPLES, ... or ... his ... grantors and that said improvements consist of 2 incline shafts; 1 incline shaft and drifts; 1 tunnel; 2 tunnels and drifts; 1 tunnel, drifts and raise; 1 tunnel, winze and raise; and 1 open stope; Value, $49,350.00

that the location of said improvements is correctly shown upon this plat, and that no portion of or interest in said labor or improvements has been included in the estimate of expenditures upon any other claim.

And I further certify that this is a correct plat of said Mining Claim made in conformity with said original field notes of the survey thereof, and the same is hereby approved.

Public Survey Office

FIGURE 2: 1936 Mineral Survey Plat of the Elephant-Eagle site, showing structures then in existence. None of the structures on this plat are currently standing.

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FIGURE 5: The Elephant-Eagle site (CA-KER-4454H), showing the locations of the different features on the site. Scale - 1 : 400.

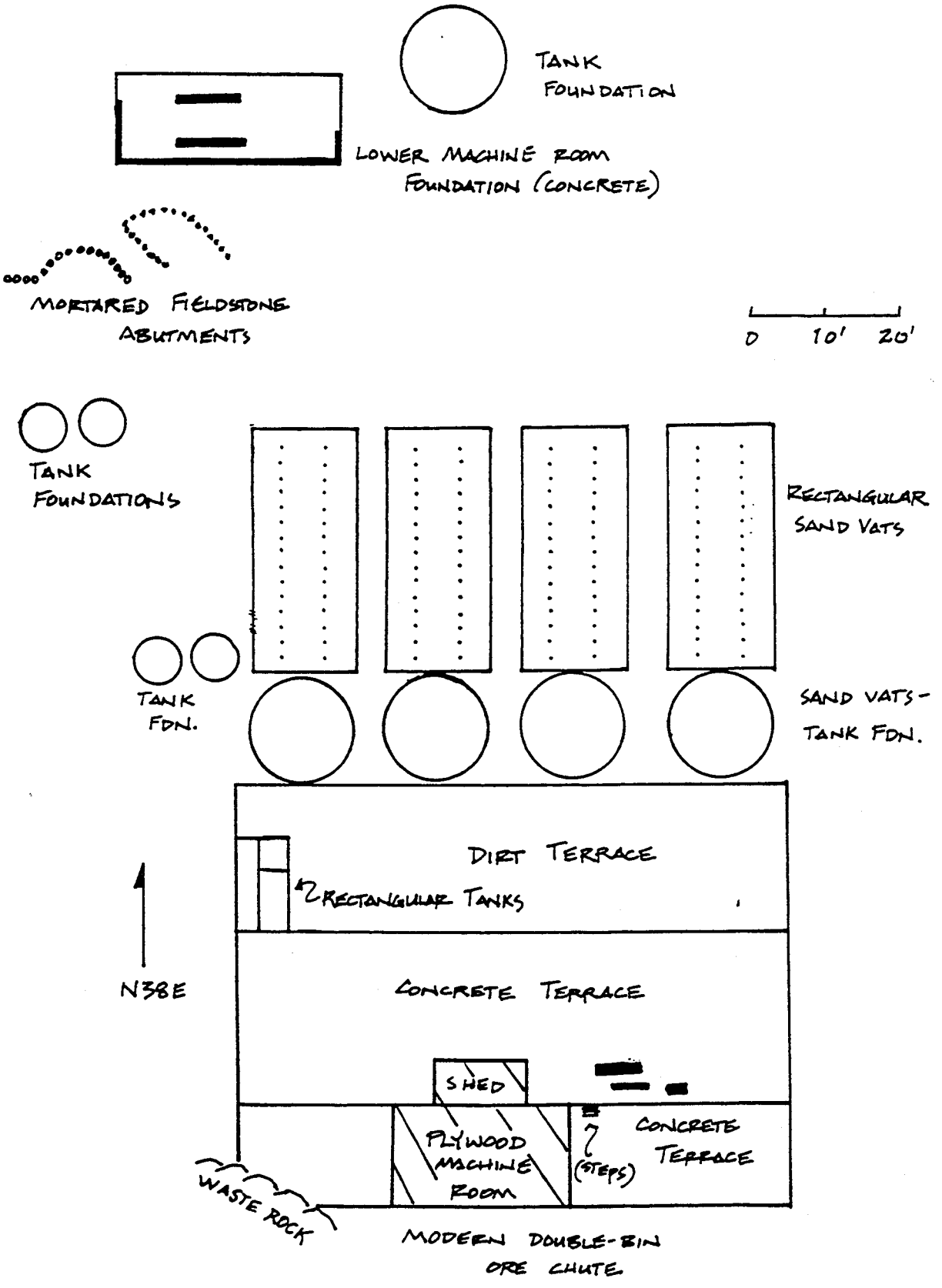


FIGURE 6: Depression era mill foundation remains, Elephant-Eagle site.

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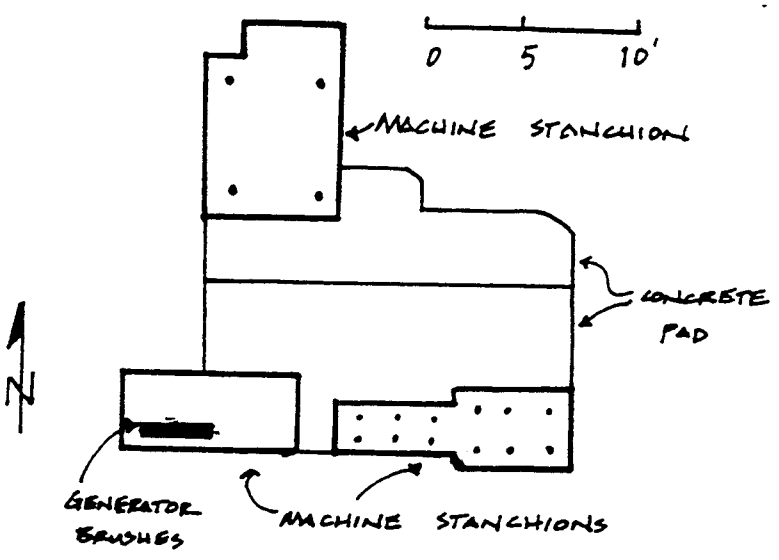


FIGURE 11: Concrete pad and machine foundations, Feature 7 at the Elephant-Eagle site (CA-KER-4455H).

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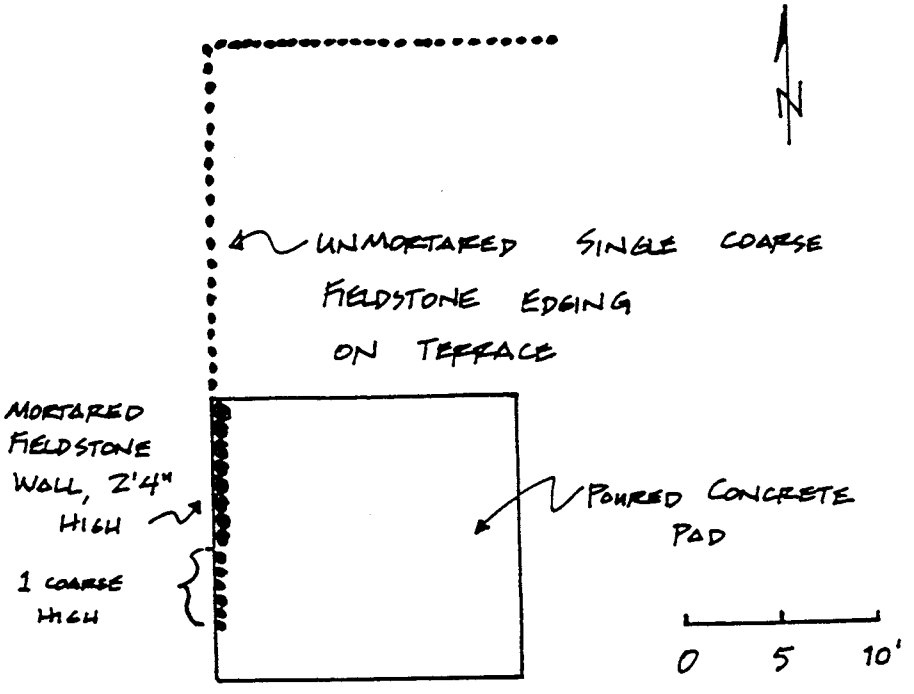


FIGURE 13: Feature B1 at the Bobtail Area site (CA-KER-4454H), consisting of a concrete pad, uncompleted fieldstone wall on west side, and cobble edged terrace.

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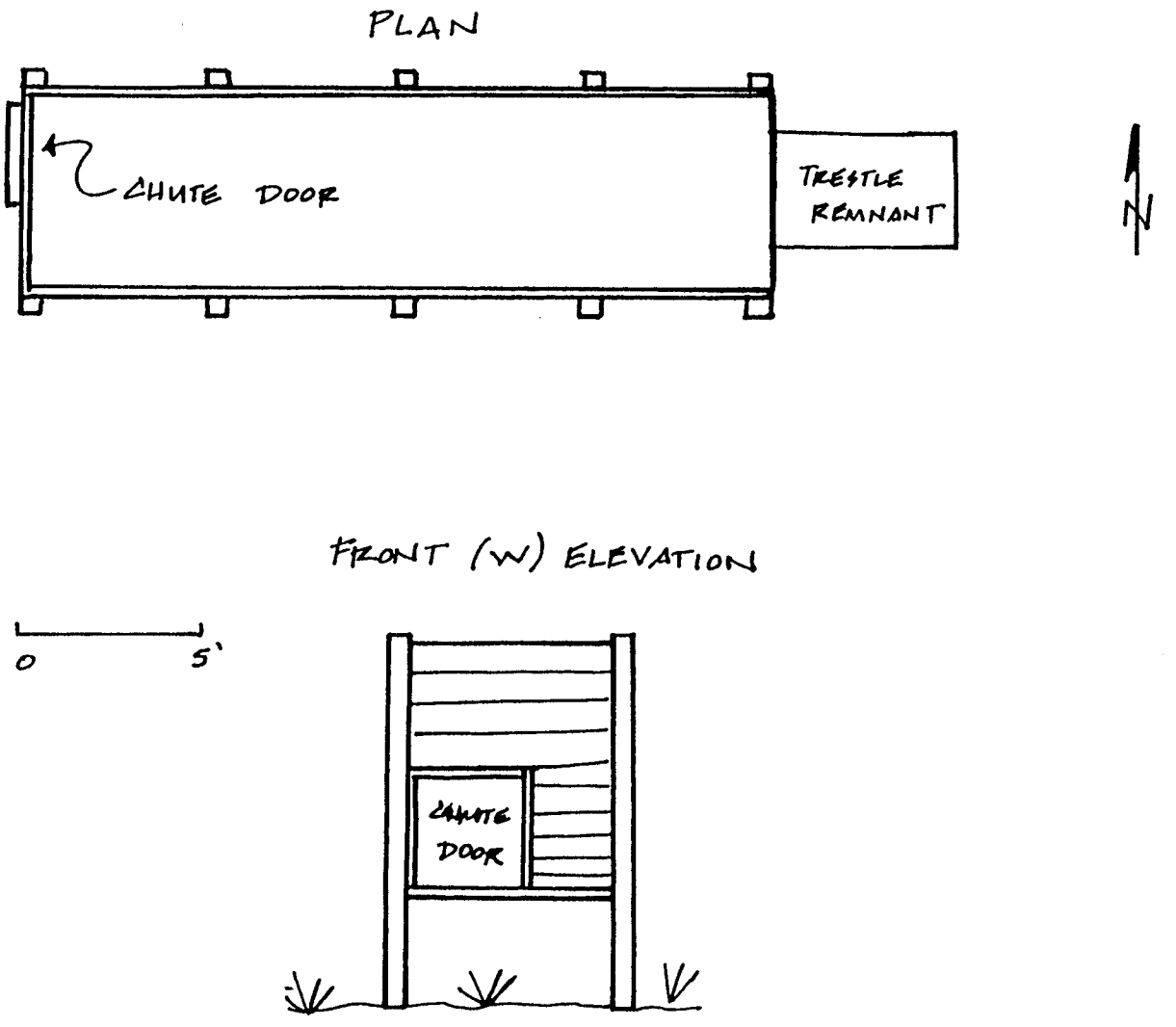


FIGURE 15: Feature B2b, Bobtail area site (CA-KER-4455H), showing the plan and profile of a Depression era single-bin truck ore chute.

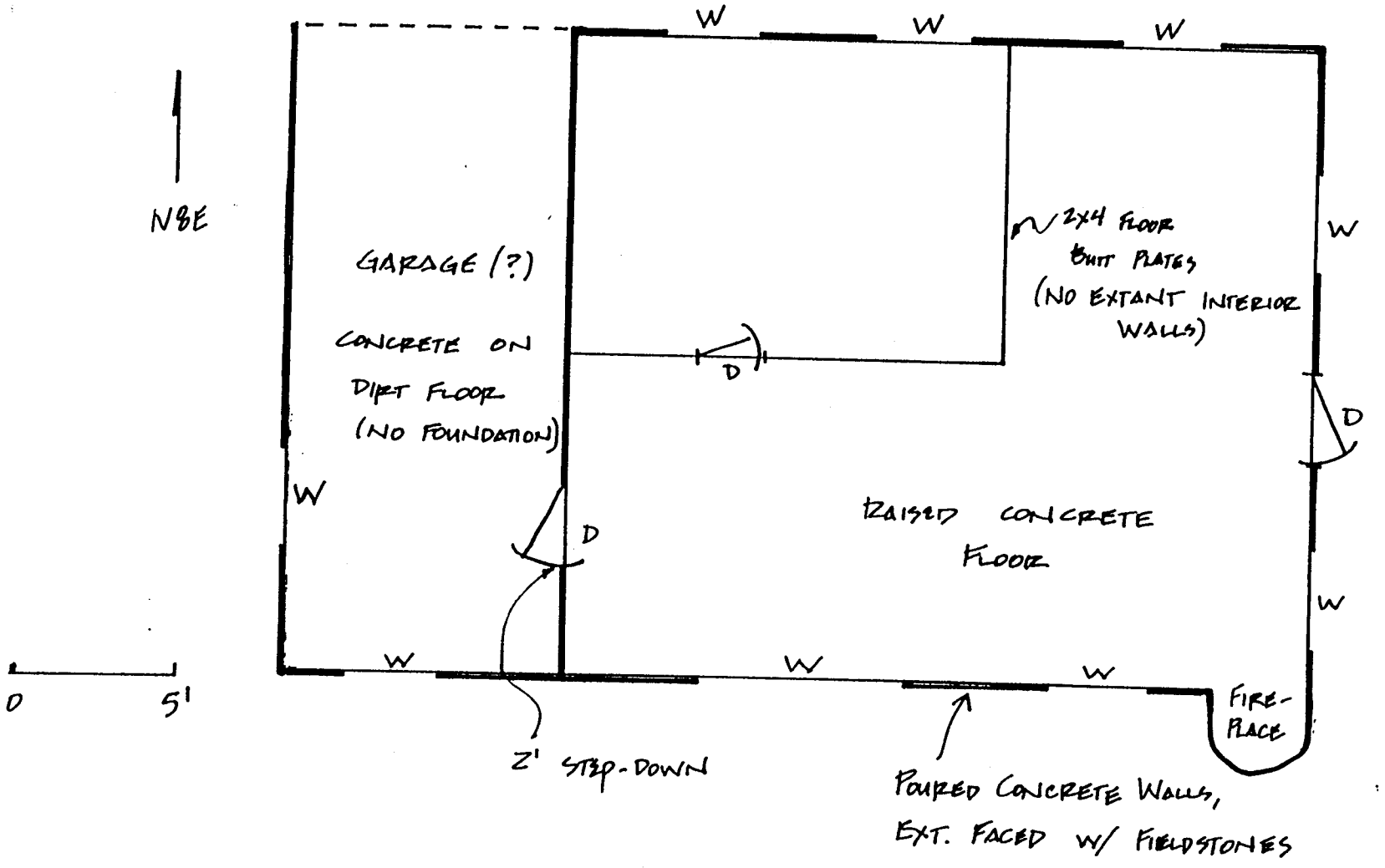


FIGURE 16: Plan of Feature B4, Bobtail Area site (CA-KER-4455H), a Depression era concrete structure, currently missing roof.

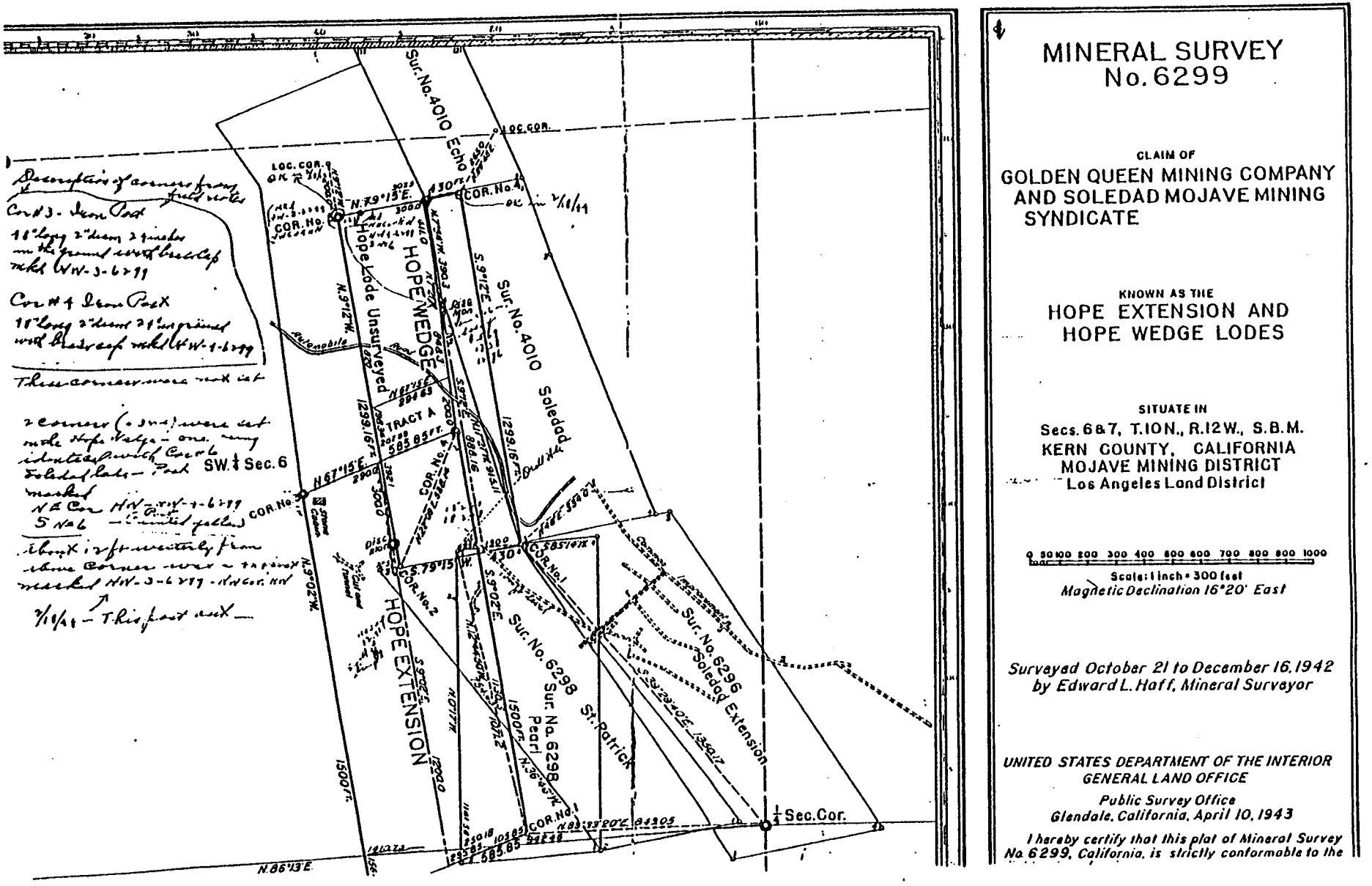


FIGURE 17: 1942 Mineral Survey of claims on the eastern side of the Bobtail Area site (CA-KER-4455H). "Stone cabin" shown in NW corner of Hope Extension is Feature B4 (Figure 16). None of the remaining Bobtail Area features are shown on this plat, suggesting that they all may post-date 1942.

9.0
APPENDIX A: ARCHIVAL RECORD SEARCH

California
Archaeological
Inventory



FRESNO
KERN
KINGS
MADERA
TULARE

Southern San Joaquin Valley
Information Center
California State University, Bakersfield
9001 Stockdale Highway
Bakersfield, California 93311-1099
805/664-2289 FAX 805/664-2415

To: Robert R. Schiffman (RS# 303)

RE: Golden Queen Mining Co. Project

County: Kern

Map(s): Soledad Mountain 7.5'

The Information Center is under contract to the State Office of Historic Preservation and is responsible for the local management of the California Historical Resources Inventories. The Center is funded solely by research fees, and a grant from the State Office of Historic Preservation. The Information Center does not conduct fieldwork and is not affiliated with any archaeological consultants who conduct fieldwork.

CULTURAL RESOURCES RECORDS SEARCH

The following are the results of a search of the cultural resources site record files at the Southern San Joaquin Valley Information Center. These files include known and recorded archaeological and historic sites, inventory and excavation reports filed with this office, and properties listed on the National Register of Historic Places, the California Historical Landmarks, The California Inventory of Historic Resources, The California Points of Historical Interest and The California Historic Resources Inventory.

The following summarizes the current information available on the subject property based on the records outlined above.

PRIOR CULTURAL RESOURCE INVENTORIES OF THE SUBJECT PROPERTY AND SURROUNDING AREAS

There have been no previous archaeological inventories on the subject property or on the immediately adjacent property. There have been two surveys conducted within one-mile radius of the subject property. Your survey for the Shell Mining Project and a survey done in 1994 by Dorothy Fleagle for Alex Sokolow. According to your map, submitted with your records search request, there was a survey conducted by you in 1988 for Parcel Map # 8686, just southeast of the project area. The report for that survey is not in our files. Please send us a copy of that report so we may incorporate it into our system.

KNOWN CULTURAL RESOURCES ON THE SUBJECT PROPERTY

There are two recorded archaeological sites on the subject property. CA-KER-764H & CA-KER-765. The historic site is a mine related site from the early 1900's. The prehistoric site consists of bedrock milling features. Both were recorded in 1977 by Montizambert & Portillo. It would be advisable to relocate these sites and update the records accordingly.

KNOWN CULTURAL RESOURCES IN THE VICINITY OF THE PROJECT PROPERTY

There are no recorded archaeological sites on the immediately adjacent property. However, there are three recorded sites within a one-mile radius of the project area, (copies of site records are included).

There are no listed properties on the National Register of Historic Places, The California Historical Landmarks, The California Inventory of Historic Resources, California Points of Historical Interest or on the Historical Resources Inventory.

CULTURAL RESOURCE SENSITIVITY OF THE PROJECT PROPERTY

The Soledad Mountain area of Kern County has long been considered to be sensitive for cultural remains, both historic and prehistoric. Mining operations have been ongoing since before the turn of the century.

RECOMMENDATIONS

A field survey should be conducted by qualified archaeologist of the entire project area. An historian that meets Secretary of Interior standards, with experience in evaluating mining-related resources, should be consulted for recommendations and appropriate mitigation measures during the course of the survey.

As mentioned above, CA-KER-764H and CA-KER-765 should be field checked and the records updated to reflect any changes since they were recorded in 1977.

According to William Seidel, archaeologist for the State Office of Historic Preservation, research of written histories and documents relating to this area should be undertaken, and all major features, such as homesteads, mine entrances, shafts, and foundations, etc., should be recorded and assessed for historical and/or archaeological significance. Features of minor value, such as tailings, cairns, glory holes, and minor ditches should be noted on the 523 Primary Record test form. I have enclosed a copy of the form for your convenience.

(RS# 303)

As you are know, any resources 50 years or older should be recorded on the appropriate forms and assessed for historical significance, as mentioned above.

A technical report should be submitted to our office within 30 days of completion of the field survey.

You stated in our phone conversation today, that you had a "very in depth" conversation with William Seidel at The Office of Historic Preservation regarding this project. Any additional recommendations made by Mr. Seidel, if not outlined above, should be implemented.

If you have any questions or comments, please contact me.

By: Adele Baldwin

Adele Baldwin
Assistant Coordinator

Date: January, 5, 1995

Fee: $90.00/hr. fee

Invoice #: 5796

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SITE RECORD FORMS AND UPDATES

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CA-KER-4454H, CONT'D
BOBTAIL AREA

32. **References:** Class III inventory of Soledad Mtn; see also Tucker, 1935, Mining Activity at Soledad Mountain..., CA Div Mines Report 31:465-85.
33. **Name of project:** as above
34. **Type of investigation:** Class III inventory
35. **Site accession no.:** GQ/95- **Curated at:** W&S
36. **Photos:** Yes **Taken by:** Whitley
37. **Photo accession no.:** GQ **On file at:** W&S

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SITE FEATURES

PAGE 5 OF 5.

BOBTAIL MINES AREA FEATURES.

FEATURE #	DESCRIPTION	COMMENTS
Bobtail Area		
B1	Pad, cobble wall & dump	Turn-of-century
B2a	Truck ore chute	Depression era or later
B2b	Truck ore chute	Depression era or later
B3a	Adit and wood trestle	Depression era or later
B3b	Wood landing/ramp	Depression era or later
B4	Concrete structure	2 room, Depression era
B5	Ore chute, ramp and adit	Starlight (?)
B6	Soledad Ext Machine Rm fdn.	Concrete foundations; post-Depression + earlier remains
B7	Cobble structure	2x4 m, no roof, no artifacts
B8	Headframe on open cut	Deadman below using cable & 55 gal drums, modern

(FEATURE LOCATIONS ON SKETCH MAP).

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SITE FEATURES

PAGE 5 OF 5.

ELEPHANT-EAGLE MILL SITE AREA

FEATURE #	DESCRIPTION	COMMENTS
Elephant-Eagle		
1	Metal building	Modern
2	Ore chute	Modern
3	Mill foundations	
4	Boarding house pad	Burnt & disturbed
5	METAL BLDG	MODERN
6	CONCRETE FDN	
7	MACHINE ROOM FDN	
8	ASSAY DUMP	MODERN
9	GYRATORY CRUSHER	"GIBSON"

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APPENDIX C:

CLARIFICATION OF STATUS OF SITES CA-KER-4447H, -4451H AND -4452H

The preparation of the draft Environmental Impact Report (EIR) for the Golden Queen project allowed the resolution of some minor ambiguities in land ownership status that had existed at the time the Class III inventory was conducted. These concerned whether certain small parcels within the Golden Queen project area were privately or publicly owned, with ownership status then effecting whether archaeological sites on or near these parcels required evaluation and management under federal or instead State of California legal guidelines and procedures. Three archaeological sites were or were potentially effected by this clarification in land ownership: CA-KER-4447H, the Wegmen complex; CA-KER-4451H, the Golden Queen Mill; and CA-KER-4452H, the Silver Queen mine area. This appendix addresses the status of each of these sites. Its conclusions derive in part from base-line information gathered for the preparation of the Class II test excavation and determination of significance completed for the Golden Queen project relative to California Environmental Quality Act (CEQA) compliance (see W and S Consultants 1995a).

CA-KER-4447H, The Wegmen complex

During the preparation of the draft EIR a previously unrecognized small parcel of federal land was identified in the northeastern corner of Section 6, Township 10 North, Range 12 West. The original location map for CA-

KER-4447H (W and S Consultants 1995b: Figure 12), which is intended for general geographical placement of the site only, shows the site area extending into this federal parcel. However, the initial sketch map of this site (W and S Consultants 1995b: Figure 14), which portrays a more detailed distribution of the features and components of the site along with its original estimated site boundaries, shows no components of the site extending onto federal land. This map is included here as Figure B1. This circumstance was confirmed during the Phase II test excavation and determination of significance for this site (W and S Consultants 1995a), one function of which is accurate site boundary definition. This Phase II study confirmed the geographical concentration of site features and components implied by the initial site sketch map on the private property, rather than extending onto the federal land. The map resulting from the Phase II test excavation is included here as Figure B2.

In summary, based on Phase II testing, mapping and boundary definitions, site CA-KER-4447H does not extend onto federal land.

CA-KER-4451H, the Golden Queen Mill

A small southeastern portion of the Golden Queen Mill site appears to just extend into a parcel of federal land located within the northeast quarter of Section 6, Township 10 North, Range 12 West. Accordingly, we consider here the status of this site and its potential eligibility to the National Register of Historic Places, based on previously collected base-line data (W and S Consultants 1995a).

The Golden Queen Mill, built in 1935 and dismantled around 1950, is sufficiently recent in age that considerable documentation on it exists, including original accounting records (see W and S Consultants 1995a:17-19); a published flow chart for the mill operation (Tucker 1935:479); and a scale plan of the mill structure (W and S Consultants 1995a: Figure 60). The archaeological features on the site (ibid: Figure 61) are limited largely to concrete foundations, tanks and drums, and related ore chutes and bins, the main concentration of which cluster in an area that is 200 feet N-S by 400 feet E-W (see Figure B3).

The ore chutes are of two kinds. At the mill itself they consist of a series of long concrete structural remains that abut the primary and secondary crushers, which were Taylor gyratory crushes. The ore chutes and crushing areas have been burned, have had any removable parts taken away, and are starting to decompose (ibid: Figure 62a). Truck ore chutes were also associated with the operation of this mill, but are located elsewhere on the mountain. These include three wooden ore chutes lying within the Independent Claim, which is uphill from the Karma Mill (which was worked by the Golden Queen during the late 1930s and early 1940s) and, therefore, are correctly part of this site; the Soledad Extension workings, recorded as part of the Bobtail Area features; and most likely the Gypsy-Starlight and Silver Queen sites. In general, these wooden ore chutes, like the concrete chutes at the mill proper, are in various stages of collapse.

Immediately below the chute and primary crusher levels at the Golden Queen Mill is the grinding and classifying area, which employed Marcy ball mills and Dorr classifiers. The archaeological remnants of this grinding and

classifying process consist of a concrete foundation and series of machine stanchions (ibid: Figure 62b). The concentrated ore then was moved to lixiviation in large metal Dorr agitator tanks. These are still standing (ibid: Figure 63a). Finally, the pregnant cyanide solution was cleaned and separated in two Oliver drum filters, which are also standing on the site (ibid: Figure 63b). The only remaining standing structure within the mill complex is the concrete refinery room, at the NE side of the site. The remaining features within the Golden Queen mill complex are various ancillary structures in different stages of collapse.

The remains at the Golden Queen Mill then consist entirely of industrial mining remains. Although constructed in 1935, the mill was dismantled about 40 years ago, and currently lacks integrity and research potential. Based on the standards established by and outlined in the National Historic Preservation Act, sec. 101 (a), and 36 Code of Federal Regulations Part 60.4, archaeological site CA-KER-4451H therefore does not meet the criteria for eligibility to the National Register of Historic Places (NRHP). Any use or development of this site area, accordingly, will have no effect on significant cultural resources.

CA-KER-4452H, the Silver Queen Mine

This site, located near the center of Section 6, Township 10 North, Range 12 West, was originally plotted when recorded as having a western boundary that just extended into a federal mining claim. Subsequent Phase II testing and boundary definition revised the site dimensions slightly, showing that none of the site area extended onto federal land (W and S

Consultants 1995a: Figure 64). The map resulting from this boundary definition is included here as Figure B4.

In summary, based on Phase II testing, mapping and boundary definitions, site CA-KER-4452H does not extend onto federal land.

Summary

A review of the location of three sites relative to federal lands within the Golden Queen project area was conducted to determine whether all or any of these sites lie within federal properties and, if so, whether or not the proposed project would have an effect on significant cultural properties. Two of these archaeological sites, CA-KER-4447H and -4452H, were determined to lie entirely outside of federal lands, based on site boundary data obtained during Phase II tests excavations. The third site, CA-KER-4451H, lies partly within federal property. This site is a Depression era mill that was dismantled during the 1950s. It lacks integrity and research potential and therefore has been determined not eligible to the National Register of Historic Places.

The Golden Queen project, accordingly, is determined to have no effect on significant cultural properties.

Cited references

Tucker, W.B.

1935 Mining Activity at Soledad Mountain and Middle Buttes - Mojave Mining District, Kern County. California Division of Mines Report 31:465-485.

W and S Consultants

1995a Phase II Test Excavation and Determination of Significance on Soledad Mountain, Mojave, Kern County, California. Report on file, Kern Regional County Planning.

1995b Phase I Archaeological Survey of the Golden Queen Mine Project Area, Kern County, California. Report on file, Kern Regional County Planning.

Figures

B1 - Original sketch map of site CA-KER-4447H (from W and S Consultants 1995b: Figure 14)

B2 - Final feature and site component map from Phase II test excavations at CA-KER-4447H (from W and S Consultants 1995a: Figure 26)

B3 - Final feature and site component map from Phase II test excavations at CA-KER-4451H (from W and S Consultants 1995a: Figure 61)

B4 - Final feature and site component map from Phase II test excavations at CA-KER-4452H (from W and S Consultants 1995a: Figure 64)

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SUPPLEMENTAL CLASS III INVENTORY OF FENCE CORRIDOR AND ANCILLARY WORK AREAS FOR THE GOLDEN QUEEN MINE PROJECT, MOJAVE, KERN COUNTY, CALIFORNIA

DRAFT

Prepared for:

Mr. Dick Graeme
Golden Queen Mining Company, Inc.
11847 Genpen Street
Mojave, California 93501

Prepared by:

W & S Consultants
2242 Stinson Street
Simi Valley, California 93065
805-581-3577

April 21, 1997

Management Summary

A supplemental Class III Inventory was conducted for a fence corridor and two ancillary work/well-site study areas attendant to the proposed Golden Queen Mine project on Soledad Mountain, Mojave, Kern County, California. This involved background studies of the prehistory, ethnography and history of the study area and region; a complete, intensive survey of the three discontiguous study areas; the identification and recording of sites; and documentation and limited subsurface probing in order to determine their eligibility to the National Register of Historic Places (NRHP). One previously recorded site was believed to lie within the fence corridor study area: CA-KER-763H. The relocation of this site demonstrated that it is in fact 75 meters east of the proposed fence corridor. One new site was also recorded during the study, CA-KER-4841H, which is located in the southern of the two ancillary work/well-site areas. This site is in fact an outlying feature of previously recorded and much larger CEQA-mitigated site CA-KER-4447H, the Wegmen Complex. CA-KER-4841H was found to not be significant and therefore to be ineligible to the NRHP. The proposed supplemental project is therefore determined to have no effect on significant cultural resources.

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SUPPLEMENTAL CLASS III INVENTORY OF FENCE CORRIDOR AND ANCILLARY WORK AREAS FOR THE GOLDEN QUEEN PROJECT, MOJAVE, KERN COUNTY, CALIFORNIA

1.0
INTRODUCTION

At the request of Mr. Dick Graeme, Golden Queen Mining Company, Inc., Mojave, California, a supplemental Class III archaeological inventory of a fence corridor and two ancillary work areas was conducted for the proposed Golden Queen project, Kern County, CA. This supplemental inventory augments an earlier Class III study of the primary project area (W&S Consultants 1995a) and addresses the cultural resources within a proposed fence line corridor and two discontiguous well-site and work areas (Figure 1). The inventory of these supplemental areas was conducted by W & S Consultants, Simi Valley, CA, under Bureau of Land Management archaeological permit CA9701013 (1997) with fieldwork authorized on April 4, 1997, by Lee Delaney, Ridgecrest Resource Area Office. David S. Whitley, Ph.D., served as principal investigator for this study. He was assisted by Joseph M. Simon and Tamara K. Whitley, M.A., during aspects of the fieldwork, archival investigations and analytical studies. D.S. Whitley is responsible for the authorship of this report.

The proposed Golden Queen project is located on Soledad Mountain, near Mojave in the southwestern portion of Kern County, and falls primarily within Township 10 North, Range 12 West. The supplemental Class III

inventory for this proposed project involves three separate study areas on or near-to Soledad Mountain:

(1) A fence line corridor and lay-down area within Section 8, Township 10 North, Range 12 West. The corridor is approximately 3.2 kilometers long and 10 meters (~30 feet) wide, with the lay-down area comprising an elipse that is about 615 meters E-W by a maximum of 125 meters N-S;

(2) A long, narrow strip of land approximately 985 meters N-S by 185 meters E-W, located in Section 5, Township 10 North, Range 12 West, and Section 32, Township 11 North, Range 12 West, which adjoins a small square block measuring about 125 by 125 meters located in the northeasternmost corner of Section 6, Township 10 North, Range 12 West; and

(3) A small square parcel of land, also located in Section 32, Township 11 North, Range 12 West, measuring approximately 125 by 125 meters in size.

Following Bureau of Land Management guidelines (BLM 1988) and the "Secretary of the Interior's Standards and Guidelines, Archeology and Historic Preservation" (Federal Register 48(190):44716-44742; 29 September 1983), the Class III inventory for the proposed Golden Queen project involved background studies of the prehistory, ethnography and history of the Kern County region; detailed archival studies of published and unpublished articles and documents on the study area, per se; a review of archaeological records at pertinent repositories; the recording of interviews with and oral histories from a series of local residents; an intensive, complete (100%) survey of the project area; and the

identification, recording and evaluation of sites within this study zone. The following sections of this chapter provide details on the background and contextual studies conducted for this inventory; specifically, a summary of regional prehistory, ethnography and history, and a research design for archaeological study in this portion of the Mojave Desert. We also provide details of the archival studies and interviews and oral histories recorded for this project, particularly as directed towards the mining history of the study area. In the following chapter we provide details of the archaeological records search, conducted at the California Archaeological Inventory, Southern San Joaquin Valley Information Center, followed by a description of fieldwork methodology utilized during the supplemental inventory of the fence corridor and ancillary work areas. A description of identified historic sites is then presented, which includes a discussion of their current integrity. We conclude with a summary of the results of the field inventory, a determination of the eligibility of the sites within the supplemental study areas to the National Register of Historic Places (NRHP), and a determination of effect of the proposed project on cultural resources.

1.1 Background Studies

1.11 Environmental Setting and Study Area Descriptions

The proposed Golden Queen project area is located on Soledad Mountain, which forms a northward extension of the Rosamond Hills in southeastern Kern County, California. Physiographically, this places the study area slightly to the south of the Garlock Fault, and thus within the Antelope

Valley (or western) portion of the Mojave Desert. The supplemental Class III inventory for this project involves three discontiguous study areas located on or adjacent to Soledad Mountain. The fence corridor and lay-down study area is located on the eastern and southeastern portions of the mountain. This study area is a corridor that is roughly U-shaped. The 125 N-S by 615 meters E-W lay-down area is located along the northern boundary of Section 8 (Township 10 North, Range 12 West), on its western side. The fence corridor, per se, runs from this lay-down area along the northern boundary of Section 8 to the northeastern corner of this section. From this point the corridor turns south to follow the section line to a point slightly north of the middle of the section. From there it heads due west, cutting across the section. Roughly 4/5ths of the way across the section the corridor jogs due south for a distance of about 185 meters before it turns due west again, to terminate at the western boundary of the section.

This portion of Soledad Mountain is characterized by very rugged terrain, consisting of peaks, narrow ridges and steep-sided slopes of the mountain. This is best illustrated in terms of the changes in elevation along the fence corridor. Following the route described above, the lay-down area sits on a steep mountain slope with elevation changing from 3560 feet a.s.l. on the west to 2940 feet on the east, within a linear distance of only 615 meters: essentially one foot of vertical change per linear meter, or about a 33% slope. The fence corridor per se then begins at 2940 feet, crosses a small arroyo, then heads up a steep slope to cross a large open swale at about 3000 feet, before dropping down again to below 2900 feet. Turning south, it rises up from below 2900 to just over 3000 feet, in another swale, and then drops down to 2700 feet. From here it heads west across another small arroyo and open valley to rise to a peak at over 3600 feet, then

drops down into a valley to 3100 feet. The corridor heads south, down this valley, for a short distance, dropping almost 100 feet in elevation. The final leg, which heads west again for only about 330 meters, rises from 3020 feet to cross a ridge at 3300 feet, then drops again to about 3100 feet. This last segment represents an elevational change of almost 1.5 vertical feet per meter, or roughly a 50% slope.

Most of this corridor, as is then apparent, is very steeply-sided and rocky. While this corridor falls within the transition between the Joshua Tree Woodland and Desert Chaparral plant communities (Schoenherr 1992), vegetation along most of the corridor is in fact minimal due to the absence of significant soil development. Typically, it is restricted to the understory species of these communities, including native and introduced grasses and cacti.

The first of the two ancillary work/well location study areas is located north/northeast of Soledad Mountain proper, running parallel to Goldtown Road in Sections 5 (Township 10 North, Range 12 West) and 32 (Township 11 North, Range 12 West), and extending into the northeasternmost corner of Section 6 (Township 10 North, Range 12 West). In terms of topography this study area is almost a perfect counterpoint to the fence corridor: elevation at the southwestern corner is 2793 feet a.s.l. while at the northern boundary it is 2759 feet - a change in elevation of only 34 feet in a distance of roughly one kilometer. In fact, a dry wash/arroyo runs NW - SE near the southern boundary of this unit, creating a small amount of relief in what otherwise is flat open terrain. Vegetation is sage scrub in the southern portion of this unit, south of Silver Queen Road. To the north of this road, constituting about 75% of the study area, the groundsurface

has been very heavily disturbed and vegetation is primarily introduced/disturbed-ground species, such as Russian Thistle.

The final ancillary work/well location study area is a small parcel (approximately 125 by 125 meters in size) separated from the above area by a private holding about 100 yards wide (~92 meters). In almost all respects it is environmentally similar to the above described study area.

1.12 Regional Prehistory

Recent regional summaries of the Antelope Valley prehistory have been published by Sutton (1988a, 1988b), with syntheses of the related Coso area immediately to the north published by Whitley et al (1988) and Whitley (1994). Based on these studies, as well as the more wide-ranging cultural historical frameworks for eastern California provided by Hester (1973), Bettinger and Taylor (1974), Warren (1984) and Elston (1982), regional prehistory can be discussed in terms of a series of cultural historical periods, starting with the earliest evidence for human occupation in the western hemisphere.

Pre-Clovis (earlier than 11,200 YBP)

Perhaps the most long-lived problem in New World prehistory has been the question of the antiquity of first occupation, with two positions dividing the discipline: the Pre-Clovis or long chronology, which posits a Late Pleistocene first-migration at some undetermined point prior to 11,200 YBP (years before present); and the Clovis-first or short chronology hypothesis, which argues for an initial migration at the immediate end of

the Pleistocene, now set at 11,200. Historically, the the Mojave Desert region has played an important role in this debate, due to the presence of putative early sites in the Manix Lake Basin, in Panamint Valley and around Pleistocene Lake China. E.L. Davis (e.g., 1978), in particular, argued for the presence of Pre-Clovis sites in the region based on three lines of evidence: typological similarities between surface lithic tool assemblages in this region and well-dated typologies in the Old World; the locational context of certain surface sites on well-dated Pleistocene lake terraces and sediments; and the association between surface cultural artifacts and dated paleontological remains.

Because Davis' evidence was based exclusively on surface finds that were, themselves, never directly dated using chronometric techniques, as well as typological comparisons, her conclusions were not widely accepted in the profession. However, more recently developed evidence (Whitley and Dorn 1988, 1993) suggests an occupation of the Coso Range at least as early as 19,000 YBP, and perhaps as early as 30,000 YBP in the Lake Manix area of the Mojave Desert generally. These dates were obtained from the direct dating of the rock varnish coating petroglyphs and surface lithic tools, using three independent chronometric techniques: cation-ratio dating, which provides calibrated ages; AMS radiocarbon dating, which provides numerical dates; and the analysis of varnish micro-stratigraphy, which provides relative age control.

Based on these techniques, Whitley and Dorn have obtained a suite of seven Pre-Clovis age petroglyphs from the Coso area, in addition to a number of Holocene-dated specimens. The Pre-Clovis petroglyphs include dates that have been confirmed by independent assays on the same

petroglyph, using each of these different techniques. For example, petroglyph CM-8 has a radiocarbon age (uncalibrated) of 14,070 ± 130 YBP (calibrated age, 14,930 YBP). The cation-ratio age on this same petroglyph is 14,200 ± 1700 YBP, thus providing independent one-sigma confirmation of the Pre-Clovis date. Most recently, advances in the analysis of varnish micro-stratigraphy allow for the identification of diagnostic temporal signals in SEM varnish thin-sections. Key micro-stratigraphic signals are present in the varnish thin-sections at the Pleistocene-Holocene transition, and at approximately 14,000 and 21,000 YBP. Coso petroglyphs dated between 14,000 and 19,000 based on AMS radiocarbon and cation-ratio dating display the 14,000 micro-stratigraphic diagnostic but not the 21,000 YBP signal, thus demonstrating that the chronometric techniques are correctly placing them in the proper part of the Pleistocene.

Similarly, a series of Pre-Clovis varnish ages have been obtained on surface artifacts from the Manix Lake Basin (Dorn et al 1986; Bamforth and Dorn 1988; Dorn et al 1992; Whitley and Dorn 1993). These include Manix Lake Lithic Industry specimens that have been independently dated with cation-ratio and AMS ^{14}C (and with confirmations provided by varnish micro-stratigraphic analyses) that include examples with CR and AMS ages falling within one-sigma standard deviations, and refit flake-core sequences that exhibit internal variances for their CR dates of less than 5%. The ages of these Manix Lake Lithic Industry dates extends back to roughly 30,000 years B.P.

Although there is some controversy concerning these early dates from the Cosos and other parts of the Mojave Desert, no cogent argument has been

advanced explaining why they may be incorrect. Indeed, the most typical problem that confronts radiocarbon dating, contamination, would in this case result in younger, not older, ages, thus substantiating the Pre-Clovis argument. Moreover, there are a certain related circumstances that greatly bolster the Pre-Clovis position (Whitley and Dorn 1993). First, attention to the geomorphology and paleoclimatology of the latest Pleistocene indicates that the Pre-Clovis period was one of net erosional degradation. Lowered eustatic sea-levels combined with a series of major flood events resulted in the stripping of sediments in major portions of North America, rather then the gentle forms of deposition that are required for archaeological site preservation. An exception to this pattern occurred in the Basin and Range Province, where stable alluvial fans preserve Late Pleistocene groundsurfaces. Boulders and cliff faces containing rock art, as well, were also not subjected to this erosional destruction. Thus, there are very few extant geomorphological contexts within which Pre-Clovis finds could be expected to be found. This explains why there is a sudden "explosion" of Clovis age sites and a relative dearth of Pre-Clovis sites in the archaeological record: the Clovis sites appear at exactly the point when the geomorphological conditions change to favor site preservation. Second, archaeological evidence from South America has included a number of well-dated Paleoindian sites falling between 10,000 and 11,200 YBP. As has been pointed out recently, it would have been physically impossible for first migrants to have entered North America sometime after 12,000 YBP and to have colonized South America within 1000 years; this would require rates of population growth unheard-of for human beings, and migration speeds that are manifestly implausible (Whitley and Dorn 1993). Thus, even the South American Paleoindian evidence tends to discount the likelihood of the short chronology for the

peopling of the New World.

Although the evidence, accordingly, is mounting for the Pre-Clovis occupation of eastern California, at this point there is relatively little that can be said about this occupation, beyond the simple fact of its presence. Until additional evidence is presented, then, we will not be able to determine whether Pre-Clovis peoples were sedentary or mobile, or big-game hunters versus foragers.

Paleoindian (11,200 - 9000 YBP)

Although the initial occupation of the continent is controversial, there is widespread agreement on the subsequent Paleoindian period, which is typically viewed as pertaining to mobile big-game hunters who exploited Pleistocene megafauna. The hallmarks of the Paleoindian period are the fluted, collaterally-flaked and basally thinned and ground Clovis and Folsom projectile points, during the earlier portions of the period, followed by a series of large, well-flaked but unfluted lanceolate points towards the end of the period. Some scenarios suggest that the big-game hunting practiced by these Paleoindian peoples may be responsible for the extinction of the Pleistocene megafauna, such as Imperial Mammoth, Bison antiquus, and the North American horse; however, recent evidence indicates that the earlier portions of the Paleoindian period comprised a lengthy and severe drought, thus demonstrating that the large mammal herds were already under extreme environmental stress, regardless of the effects of human predation (Haynes 1991). Regardless of the so-called Pleistocene overkill problem, the image of Paleoindians as specialized big-game hunters has become pervasive for North America.

Limited evidence of Paleoindian use of eastern California has been found in a number of areas, including Pilot Knob Valley, immediately to the south of the Garlock Fault; on the shores of Pleistocene Lake China, near Ridgecrest; Fort Irwin, east of Barstow; and, most recently, in the El Paso Mountains, northeast of the study area (e.g., Davis 1978; Warren and Phagan 1988; Yohe 1992b). Typically, this evidence consists of isolated (in some cases reused) Paleoindian projectile points, although there is also evidence for Paleoindian petroglyph manufacture in the Cosos (Whitley and Dorn 1987, 1988), with unpublished and at this point unverified reports of megafaunal depictions in the art. Furthermore, an obsidian Paleoindian point from the central Mojave Desert has been sourced to the Coso Sugarloaf Quarry (Sutton and Wilke 1984). These isolated finds and occurrences at a minimum are indicative of at least sporadic Paleoindian use of the region.

Although it is likely that more substantial Paleoindian habitation sites are somewhere preserved in the region, they have yet to be found and a better understanding of the Paleoindian period in this portion of eastern California will only be obtained when such sites are discovered and investigated (cf. Warren and Phagan 1988). In the meantime, growing evidence for Paleoindian occupation, in the form of two Clovis-like projectile points, has been discovered immediately northwest of the Antelope Valley (Glennan 1971; Zimmerman et al 1989), as well as on the off-shore Channel Islands (Morris and Erlandson 1993). With the maritime adaptation this last find implies, it suggests that the monolithic interpretation of all North American Paleoindian period sites as necessarily a product of specialized big-game hunting may be incorrect, and that more regional subsistence variation may emerge once better evidence from the

far west has been discovered and analyzed (cf. Willig and Aikens 1988).

Early Archaic (9000 - 6000 YBP)

The Early Archaic period, or so-called Western Pluvial Lakes Tradition, represents the early Holocene in paleoenvironmental terms. Its hallmark is the widely dispersed but ambiguously-dated Western Stemmed Tradition projectile points. These include the local variants known as Lake Mohave and Silver Lake points, which may in fact actually date between 10,500 and 7,500 YBP. Combined with studies of the lithic technologies of Early Archaic and Paleoindian sites, this chronological overlap suggests that the Western Stemmed Tradition was an in-situ development out of the earlier Paleoindian tradition (Willig and Aikens 1988).

Early Archaic sites are most commonly found on the lowest terraces above latest Pleistocene and early Holocene lake basins and stream deltas (in the Antelope Valley region, these would correspond to the margins of Pleistocene Lake Thompson). They are, accordingly, widely regarded as part of a lacustrine-focussed adaptive strategy. Although a number of authors have cautioned against too simplistic an interpretation of these associations, pointing out that Early Archaic sites are also found in other environments, it nonetheless is apparent that, in eastern California at least, this environmental association and its inferred subsistence implications maintain some verity. Indeed, it can be noted that recent research in the Great Basin has exactly emphasized the general importance of lacustrine adaptations, in contrast to Jennings' (1957) earlier model of a long-lived "desert culture" tradition.

Be these controversies as they may, Early Archaic projectile points are occasionally found in the Antelope Valley, but the sites themselves are relatively rare. For example, Sutton (1988a) lists CA-KER-322 as the only known example of such sites in the Antelope Valley region. Instead, sites of this age are more common in the Basin and Range country proper, to the north. For example, Davis (1978; Davis, Brott and Weide 1969) has identified and discussed the importance of a number of putative Early Archaic sites in the Panamint region. These are located in both the China Lake Basin and the Panamint Valley in former lacustrine environments, and are indicative of the fact that some lakeshore use if not occupation did occur during the early Holocene in this region. However, this must be matched against the fact that Western Stemmed Tradition points have also been recovered as isolates in upland environments in the Cosos (Elston et al 1983). Thus, although lakeshore exploitation may have been an emphasis during the Early Archaic in eastern California, this apparently also incorporated mobile hunting into other environments as well.

Middle Archaic (6000 to 4000 YBP)

Be this early evidence as it may, what is incontrovertible is that, regardless of date of initial occupation, substantial inhabitation did not occur until much later, with the start of the Middle Archaic or Pinto Period, at about 6000 years B.P. This lasted until approximately 4000 years B.P. A number of sites from this time period are known from the Rosamond area, specifically associated with the prehistoric shoreline of Rosamond Lake. Notably, sites dating to this time period apparently emphasize the use of rhyolite as a lithic resource, almost to the exclusion of crypto-crystallates, such as chert and jasper (Sutton 1988a, 1988b).

The Middle Archaic, however, corresponds essentially to the Altithermal paleoenvironmental period, and is a controversial topic in Mojave desert prehistory due to its cultural and chronological ambiguity. Much of the ambiguity stems from the uncertainty in the chronological placement of the Pinto series projectile points. Seemingly, there are as many chronological scenarios for the placement of Pinto points as there are archaeologists working on the problem (cf. Meighan 1981; Jenkins and Warren 1984). What this ultimately may suggest is that much more regional variation existed during certain periods of the prehistoric past than is currently being recognized.

In the Coso area to the north, but not necessarily elsewhere in eastern California, there is little if any evidence for Middle Archaic occupation, at least if Meighan's (1981) obsidian hydration date revisions for the Pinto series points from the Little Lake site are accepted. That is, existing evidence could be interpreted to signal a diminution in occupation, if not an outright abandonment, in this region, apparently corresponding to the hot and dry climatological conditions of the Altithermal. However, it is also possible that local inhabitants may have adopted a subsistence strategy and settlement pattern with little archaeological visibility on the landscape during this period; e.g., a highly mobile pattern. Although this alternative interpretation of the apparent dearth of Middle Archaic sites must be acknowledged, it seems implausible in light of the fact that extremely dry conditions would be more commonly predicted to result in a stronger form of "tethered nomadism", and thus greater archaeological visibility, around water sources. Moreover, there is clear evidence for Middle Archaic settlements in the Fort Irwin area (e.g., Jenkins and Warren 1984), to the east of Barstow, suggesting that not all portions of eastern California were

abandoned at this time; again, emphasizing the possibility of more regional variability than heretofore acknowledged.

Late Archaic (4000 to 1500 YBP)

Much less controversy surrounds the subsequent Late Archaic period, or Elko Period, lasting from about 4000 to 1500 years B.P., which correlates with improved and wetter environmental conditions across the far west. Although sites from this time period are sometimes considered rare in the Mojave Desert, it is notable that many of the subsequent Rose Spring Period villages (see below) were first occupied during this earlier phase. That is, as has been noted by a number of authors, there seems to be a strong continuity between the Elko Period and subsequent times, with the latter period materials masking or burying the Elko remains. In the Antelope Valley region this begins with a major increase in population beginning about 3000 years B.P. (Sutton 1988b:23).

Similar patterns have been noted in surrounding regions. For example, the start of the Late Archaic in the Coso Range region is posited to represent the initial establishment of the primary settlement and subsistence systems that are currently archaeological visible (Whitley 1994), while this same period has been recognized as experiencing a major, far western North American-wide expansion of settlements into new environments and increases in population, stretching from the Great Basin of eastern California, through the southern Sierra Nevada, across the Transverse Ranges, and down to the coast (Whitley, Gumerman and Simon n.d.). The primary temporal diagnostics for the Late Archaic are Elko and Gypsum series projectile points.

In the Coso Range, the Late Archaic is signaled by the establishment of major winter villages, typically at springs, in valley bottoms on the western and wetter side of the range. Analyses of paleoethnobotanical and faunal remains suggest a generalized foraging strategy, emphasizing all available resources (e.g., Gumerman 1985), including buckwheat stands around small mud-playas (Whitley et al 1988). This evidence is complemented by an extensive but seemingly non-logistically organized use of all upland environments. Included here is a significant quantity of isolated projectile points in the uplands, suggesting mobile hunting patterns (Elston et al 1983). Furthermore, the Late Archaic witnessed the beginning of the intensive exploitation of the Coso Sugarloaf obsidian quarry, an event that apparently correlates with the beginning of the inland-to-coastal obsidian trade in south-central California (Whitley, Gumerman and Simon n.d.).

Rose Spring (1500 - 800 YBP)

The Rose Spring Period is differentiated from the earlier Late Archaic/Elko Period by the introduction of the bow and arrow and a change from spear points to arrow points at circa AD 500 (cf. Yohe 1992a). This transition is, in technical terms, dramatic. In fact, the introduction of this new weaponry technology probably did not have any immediate major impacts on social or cultural systems. At least initially, the settlement and subsistence systems were stable, and lithic technology and production did not noticeably change (Allen 1986).

Moreover, and as implied above, in all other respects Rose Spring times appear to have been a continuum from the earlier patterns, so that the

change in hunting technology was probably less important than we might otherwise presume. Within the Antelope Valley area, Desert Village Complexes, representing a major change in magnitude of settlements, were founded at least by Rose Spring times, and perhaps towards the end of the earlier Elko phase. Two of these have been identified by Sutton (1988a, 1988b) in the foothills of the Antelope Valley, with a third between Rosamond and Rogers Dry Lake, and a possible fourth at Koehn Lake. It is possible, if not likely, that these represent the founding of the tribelet system of political organization in the region.

At approximately AD 1000 - 1200, however, a shift in settlement and subsistence practices began that, ultimately, culminated in the protohistoric/ethnographic patterns referred to as the Later Prehistoric or Numic Period (discussed below). This involved the abandonment of some winter villages (or at least a reduction in the intensity of their use); the establishment of logistical base camps around springs in the upland environments; an increasing emphasis on a relatively specialized diet focused on seeds and the pinyon nut; and a great increase in the production of petroglyphs (Whitley 1994). That is, settlement patterns became more organized and focused, while subsistence was increasingly specialized, and ritual became more common.

The causes for this transition are not yet fully understood. Bettinger and Baumhoff (1982), for example, have accepted it as an empirical fact, with the subsistence change then linked to the putative spread of Numic peoples out of eastern California at about this time. They have then taken the position that the phenomenon to be explained is not the cause of the subsistence change, but the reasons why such a change was adaptively

more successful, and how it can then be used to account for the historical distribution of Numic languages. The implicit assumption in such an approach is that evolutionary transitions are to be expected due to the inherent tendency for greater fitness to emerge in populations.

While this last tendency may or may not be so, it overlooks pertinent related evidence; namely, that this same time period experienced a major drought that effected all portions of western North America, from northern Mexico through the Southwest, across the Great Basin, and even into the Channel Islands. Moreover, the environmental stress engendered by this drought has been cited as a causal factor in the abandonment of Anasazi pueblos in the Southwest, as well as the southward retreat of Mesoamerican civilization with the collapse of Tula. Perhaps more to the point, Arnold (1993) has noted the influence of this drought in creating resource stress that was a contributing factor to the appearance of a simple chiefdom in the Chumash region near Santa Barbara. Similarly, Whitley (1994) has argued that this transition in eastern California represents the first appearance of Numic bands and headmen; specifically, that it was the increasing perceived need for ritual specialists in the form of rain shamans during this period of environmental degradation that led to the establishment of bands and the creation of headmen. In this interpretation, the accelerated production of Coso petroglyphs (which are know ethnographically to have been tied to rain shamanism) is taken as a reflection of the growing number of ritual specialists, with the appearance of a logistically-oriented settlement pattern a sign of increasing sociopolitical control and organization.

Late Prehistoric (800 - 140 YBP)

The Late Prehistoric (or, in some areas, Numic) Period, from 800 years B.P. to the Historic Period, represents a continued growth in local population, with numbers of people apparently quite high. It is distinguished from previous Rose Spring times by the introduction of brownware ceramics and a change in projectile point types: from Rose Springs types to Desert Side-Notched and Cottonwood Triangular. Sutton (1988a, 1988b) notes that a boundary of some sort developed during this period: Desert Side-Notched points, brownware ceramics and obsidian are all common from the Fremont Valley northward; south of this area, in the Antelope Valley proper, ceramics and obsidian are rare, and Cottonwood Triangular points are the predominant projectile point type. This apparently correlates with similar patterns further towards the coast: at about 800-1000 years ago the desert-to-coast obsidian trade dried up, and Rose Spring-like projectile points were replaced by Cottonwood-like points, with Desert Side-Notched points rare.

The Protohistoric/Historic phase of the Late Prehistoric, representing the last 300 years, is apparently marked by a major disruption in indigenous settlement, and a corresponding paucity of sites. According to Earle (1990), missionization pulled many of the region's inhabitants away. Subsequently, the Antelope Valley area was used as a staging ground for rustlers and other miscreants, involved in raiding the missions' livestock. The result was that the area became somewhat of a no-man's land which, no doubt, has also contributed to the paucity of ethnographic information on it.

1.13 Regional Ethnography

The Antelope Valley and environs are, unfortunately, one of the most poorly known regions, ethnographically speaking, in California, which is a state that is generally renowned for the detail of its ethnographic record (cf. Kroeber 1925). Thus, the valley contrasts quite sharply with certain of its immediately surrounding areas, such as the southern Sierra Nevada to the north, for which there is a wealth of ethnographic reports and data, and even the Santa Barbara Channel region to the west/southwest. Even though the ethnographic inhabitants of this last area were disrupted very early-on by missionization, our record of their life ways is nonetheless more complete than for the groups that inhabited the Antelope Valley. Luckily, some of the early confusions and misconceptions concerning even such fundamental problems as who the ethnographic inhabitants of the Western Mojave Desert area actually were are now becoming clarified. Earle (1990), in particular, has done much to disentangle previous misconceptions concerning the ethnolinguistic affiliations of the Antelope Valley's inhabitants, and a summary of his recent ethnohistorical conclusions provides an appropriate overview for the aboriginal history of the region.

According to Earle's reconstruction, the Valley was inhabited during the Historic/Protohistoric period by three distinct language-speakers, one group of whom could be further subdivided into two (and perhaps three) fairly distinctive dialects. The most significant linguistic division existed between the Kawaiisu speakers, who lived in Tehachapi Valley, through the southern Sierra Nevada and eastward across Fremont Valley towards Red Mountain and into southern Panamint Valley, and the groups to the

south and west in Antelope Valley, per se. The Kawaiisu language is a member of the Numic branch of the Uto-Aztecan language family, and is thereby most closely related to the Shoshonean and Paiute languages of the Great Basin.

South and westward of the Kawaiisu were two other members of the Uto-Aztecan language family, but in this instance both were distinct languages belonging to the Takic (as opposed to Numic) branch, specifically to the Serran Takic branch. Along the southwesternmost side of the valley, including the northern foothills of the Liebre Mountains and the southern side of the Sierra Pelona, were the Tataviam, a little-known group identified by a few early word lists. Related to them linguistically, but speaking a distinct language, were the better-known Kitanemuk, who occupied the western Antelope Valley and the Tehachapi Mountains west of Tehachapi Pass. Living to the east of the Kitanemuk, who extended to approximately the current location of Highway 14 where it heads north across the Valley, were a group of closely related peoples that Earle (1990) has identified as the Haminat. Apparently, Haminat and Kitanemuk represent dialects of the Serrano language, which also included Serrano proper and Vanyume (or Beñemé).

According to Earle's analysis, there was a linguistic continuum along the northern side of the San Gabriel Mountains in the Western Mojave Desert, from the Serrano on the east through the Vanyume and Haminat to the Kitanemuk, at the western end. Haminat, apparently, was more closely linked with Vanyume/Serrano proper than Kitanemuk, although it was still simply a dialectical variant of it. But, with the Serran continuum along the northern side of the San Gabriels, and with all of this linguistic variation

present during the Historic period, it is easy to understand how ethnographic confusion developed in regards to this region.

The Golden Queen study area falls near the boundary of Kitanemuk and Haminat territories, and may have, at different times, been used by both groups. Perhaps more important than these minor linguistic distinctions, similar cultural patterns were followed by all the inhabitants of the region, with certain minor distinctions. In terms of subsistence, for example, all groups were foragers, with food sources derived principally from gathering. The exact plant species exploited was dependent on seasonal availability, as well as geographical/environmental location. In the higher, montane portions of the region (e.g., towards Tehachapi and along the slopes of the San Gabriels), acorn-bearing oak and pinyon pine nuts were staples. In the lower lying, more desertic zones, mesquite, yucca and a variety of other edible plants were emphasized. Hunting also contributed meat protein, and principally emphasized small game, such as hares, rabbits and rodents. However, the notion that these hunter-gatherers based their subsistence to large degree on big-game hunting (such as deer, antelope and mountain sheep) has proven to be an anthropological myth.

Cultural commonalities were also maintained in religious beliefs and practices, which were uniformly based on shamanism. This is predicated upon perceived direct and personal interactions between an individual and the supernatural world, with this interaction founded on entering an altered state of consciousness. Shamans, per se, were ritual specialists who held an unusual degree of interaction with the supernatural world, and thereby acquired a high degree of supernatural power. Although formal rituals and ceremonies were limited in number and elaboration, the

shamans served as the ritual officers for these. Further, the shamans also were responsible for painting and pecking the rock art that is found in this region: rock art sites served as their vision quest locales, where the shamans entered trances to have visions and thereby acquire supernatural power. And, the art depicted at these sites displayed the visions and spirits they saw in their altered states of consciousness (Whitley 1988, 1992, 1996).

Following general California patterns, there were also a number of similarities in social and political organization across the Antelope Valley. Earle (1990) has suggested that the Haminat may have been organized into exogomous clans and moieties, whereas the western groups might have lacked these, and in this sense the Haminat could have been more like the southern California Desert groups like the Serrano and Cahuilla, with the other groups more similar to the south-central California culture of the Chumash and related peoples. However, given that the exact social organizational systems of the Chumash have yet to be defined (for example, there is still debate whether they were matrilineal or patrilineal), and since we do not yet know whether they had a moiety system or lacked it entirely, it may be too early to draw such fine-grained distinctions concerning social organization.

What is apparent, however, is that the region as a whole apparently lacked any political organization beyond that of the tribelet, or what Earle has identified in the Spanish records as naciones. These were autonomous land-owning groups, focused on a principal village and led by a a headman or chief, and probably comprising a lineage system or clan. In this sense, the Antelope Valley can be said to follow the political organizational

pattern found throughout most of Native California. This, of course, further links it with Californian, as opposed to Great Basin, cultural patterns.

1.14 Historical Background

Perhaps because of the use of the Antelope Valley as a staging area for Indian raids on the estancias and missions closer to the coast, Euro-American settlement and development of the area was a little later dating than in other parts of southern California. As a result, the history of the Antelope Valley to about the 1860s principally involved various explorers who traversed it: for example, Pedro Fages crossed the southern valley in 1772; Fr. Garcés crossed the west end and went through Willow Springs (southwest of the Golden Queen study area) in 1776; Jedediah Smith, similarly, went across the western valley in 1827 and also visited Willow Springs, as did John C. Fremónt and his guide Kit Carson in 1844. The Rogers and Manly party - the Jayhawkers or Death Valley '49ers - camped at Willow Springs towards the end of their dramatic 1849 expedition across the Mojave Desert, as well. And Lt. Edward Beale, at the lead of a caravan of camels, came across the southern side of the valley in his 1857 trip to Fort Tejon (Bancroft 1963; Settle 1963:61; Boyd et al 1982; Starr 1988).

It was not until the 1860s that the first settlers moved into this region, settling mostly in the Elizabeth Lake region and the southern foothills of the Tehachapi Mountains, and involved principally in ranching. With the development in 1868 of the Cerro Gordo silver mine in Inyo County, however, the Antelope Valley became a major thoroughfare for the

movement of bullion and goods between Los Angeles and the Owens Valley (Chalfant 1933); indeed, efforts to wrestle control over the Inyo silver trade away from Los Angeles became a major theme of California economic history in the 1870s (Nadeau 1965). Los Angeles managed to maintain its monopolization of this trade, nonetheless, with Remi Nadeau's freight-line playing a major part in the transshipment of goods and ore across the valley. Willow Springs and its adobe tavern, again, served as a major stop on this route, with the stage line then essentially heading south (on the route that would eventually be adopted by the railroad), for a 28 mile stretch through Cow Hole to Barrel Springs, at the mouth of Soledad Canyon, and subsequently through the canyon for the uphill climb through the San Gabriel Mountains. Old Nadeau Road, which parallels Pearblossom Highway near the Vincent Hills at the southern end of Palmdale, is apparently a remnant of this original freight-line route, which proved so instrumental in the growth of Los Angeles as the economic center of southern California.

Shortly after the establishment of the first permanent school in the region, in 1869 at Elizabeth Lake, a number of settlers' colonies sprang-up within the valley, including Wicks, Manzana, Chicago, Kingsbury, John Brown, Old Palmdale, Almondale and Llano (Settle 1963). However, the major impetus to settlement resulted with the completion of the Southern Pacific railway through the valley in 1876. One immediate result of the rail line was the establishment of the town of Mojave in this same year. The coming of the rails also fostered the establishment of towns such as Rosamond, Lancaster and Palmdale, which appeared by 1882.

The Southern Pacific Railroad arrived in Mojave on August 8, 1876. The

location of the current depot, on the west side of Highway 14, was the location of the original depot site, although the existing depot building is a later construction. A freight depot was added on August 20 of the same year and, before long, the town turned into a division point for the rail line. With the railhead at Mojave, the San Bernardino Borax Company began hauling its borax to the town on mule teams; the Baldheaded Eagle Borax Company began using the town as its railhead a few years later, in 1881. The Santa Fe Railroad arrived in 1884, as did the famous "20 Mule Teams" of the Pacific Borax Company, truly making the town a transportation hub for the region. The Pacific Borax Company continued with its mule team loads to the railhead until 1889, when a spur line reached their mining operations (Deaver 1967).

The original town site of Mojave was layed-out by the Southern Pacific at the time that the rail went through. Initially it was simply a residential camp for railroad employees consisting of a few wooden shacks, but it was of sufficient importance that a post office was opened in October, 1876. Because of its position as a transportation hub, Mojave quickly attracted additional residents but was not filed as a subdivision until 1905 (ibid). Growth at and after that point was spurred by two early twentieth century developments. The first was the increasingly important mining activities at Standard Hill and Soledad Mountain, south of town. The second was the construction of the Los Angeles Aqueduct, built between 1907 and 1913, which brought literally thousands of workers into the region. In addition to its function as a transport hub, Mojave served as the "watering hole" for the mine and aqueduct crews, and was widely renowned for its saloons and brothels, which were said to outnumber the churches in town by 10 to one.

The historical importance of the Golden Queen study area, of course, primarily concerns the mining history of the Mojave Desert. This has been summarized in period and more recent publications, with Brown (1915), Clark (1970), Hensher and Vredenburgh (1991), Miller and Miller (1976), Settle (1963, 1967), Settle and Settle (1984), Troili (1908), Troxel and Morton (1962), Tucker (1923, 1935), Tucker and Sampson (1933), and Tucker, Sampson and Oakeshott (1949) constituting the primary sources. The history of this area has been synthesized from these and other sources.

The first recorded mining activity in the region occurred on March 8, 1894, when W.W. Bowers found gold on a promontory south of Mojave, then known as Little Buttes (subsequently changed to Bower's Hill and now called Standard Hill). His first claim was the famous Exposed Treasure mine, which he brought into operation shortly thereafter, shipping ore worth $60/ton. By 1896 a camp had sprung up around this site (Hensher and Vredenburgh 1991). The Exposed Treasure discovery apparently spurred local interest in prospecting as, later in 1894, Ezra M. Hamilton discovered gold in the Rosamond Hills, to the south, at a location that would eventually become known as Tropico (Settle 1963, 1967).

Mining activities within the Golden Queen study area were apparently stimulated by the Exposed Treasure discovery, and can be divided generally into three periods. The first period of mining activity on Soledad Mountain stretched from approximately 1894 to 1914, and was an era of prospecting and the development of a series of early properties, mines and mills (Tucker 1935). The three primary mines in operation during this

period were the Karma, Queen Esther and Echo, located on the central-northern slope of the Soledad Mountain, outside of the supplemental Class III study area. Each of these mines had their own mills which, unfortunately, were relatively short-lived. The Karma mill was opened in 1903 and closed in 1909; Queen Esther, opened the same year, managed to stay in operation a year longer; and Echo, also opening in 1903, was closed in 1905 and dismantled in 1906. A considerable population, estimated to have been as high as 200 people, nonetheless developed around the Karma and Queen Esther mine operations at their peaks (G. Meehl, personal communication, 1995). This too was seemingly short-lived, with only a handful of residents staying on the mountain beyond 1910.

Lesser amounts of mining also occurred on the Eagle Group and Bobtail claims, near the northwestern extreme of the mountain, although neither had associated mills or populations at this time.

Activity was minimal in the region as a whole from about 1922 to the start of the Depression when, like many mining regions in the west, numerous small scale mining efforts were started. According to Tucker (speaking of the Mojave mining district as a whole, which also included the Tropico area 17 miles to the south and Standard Hill to the north), about 50 to 70 leasers worked old mines from 1931 to 1934, hauling their ore to the Tropico for milling (Tucker 1935). During this period Engelbert Wegmen purchased and ultimately patented the Karma mine and mill.

Activity accelerated dramatically during the mid-1930s on Soledad Mountain, however, when the Mojave Mining District was revived by the discovery of the Silver Queen vein, leading subsequently to the

establishment of the Golden Queen mine and mill. This represented the second primary period of mining within the study area, with the Golden Queen building a major cyanide plant, and consolidating a number of the earlier claims and patents. Built by the American Gold Fields Company, a subsidiary of the British company, South African Gold Fields, the Golden Queen is said to have had a total production of about $10 million during its operation between late 1935 and 1942.

Depression era mining terminated in 1942 with the official closure of all gold mines by the War Production Board. After the war, mining started once again, though in small-scale. However, the Golden Queen mill was dismantled in about 1950, and none of the other mills were ever restarted, necessarily limiting the mining to small operations. Mining has continued into the 1990s, in the sense that claims have been kept active, minor operations on small veins have been undertaken, and occasional constructions of truck chutes and other equipment has occurred. For example, a truck ore chute and electrical jaw crusher at the Karma mine sit on a concrete foundation dated 1980. However, recent mining history, like the earlier efforts on the Soledad Mountain, have concentrated on the northern and northwestern side of the mountain proper, thus being some distance from the fence corridor and ancillary work areas considered in this supplemental Class III inventory.

1.2 Research Design

The "Secretary of the Interior's Standards and Guidelines, Archeology and Historic Preservation" (Federal Register, Vol. 48, No. 190; September 29,

1983) require that all cultural resource studies be conducted within the framework of a research design. Aspects of this research design can be considered methodological and procedural, and are discussed in a subsequent section of this report. Also important are the intellectual research problems, beyond the management concerns, that motivate and inform a particular study. In this section, some of the major regional research problems are discussed as potential intellectual guides for the interpretation of primary data from the Golden Queen study area, recognizing that, especially in a small scale project such as the supplemental Class III study, the appropriateness of these problems is subject to the kinds of data that prove to be present, and that the final resolution of these intellectual research problems may not be feasible unless and until additional phases of archaeological study are conducted.

Prehistoric Archaeology

Current research in the Mojave Desert/Antelope Valley region has emphasized two specific problems, among a series of others: the nature of the Middle Archaic/Pinto Period occupation; and the causes and consequences of the appearance of villages at about 3000 YBP. As regards the so-called "Pinto Problem", there are three issues of contention: the typological definition of the Pinto series points; their chronological placement; and the nature of the Pinto Period occupation more generally. Obviously, aspects of these three issues are definitional in nature, but they are also clearly inter-related. Furthermore, the definitional issues reflect problems with understanding the nature of the regional variation in point types in the Mojave Desert, rather than problems in the mechanics of point morphology and typological ordering, per se.

Concern with the nature and the causes of the appearances of villages at circa 3000 YBP is linked with a larger interpretation of this phenomena as one that occurred across the far west at this time, and that reflects a generalized increase in population and movement into new environmental zones. In inland coastal (i.e., mesic) southern California, it has been unclear whether the appearance of inland villages at about this date was a function of population increase and adaptive spread, or simply a reflection of localized site preservation processes. More to the point, however, is the fact that the appearance of these inland coastal villages is accompanied by the appearance of a smaller sites in these same environmental zones. the pertinent issue with respect to the Mojave desert, then, is whether the appearance of villages during Elko times reflects movements into new environmental zones, or simply a change in preexisting settlement and subsistence patterns within a given region.

Addressing either of these issues requires having appropriate data; specifically, data of appropriate age and from relevant site types. Furthermore, given the size of the supplemental Class III study areas, final resolution of these problems will not be achieved from these study areas alone. On the other hand, even isolated site and artifact data may add to our regional corpus of information concerning these issues and, in that way, contribute to the ultimate resolution of these problems.

Historical Archaeology

Donald Hardesty (1994; see also Hardesty 1988) has recently provided a review of and prospectus for historical archaeology, with particular emphasis on Great Basin mining sites. This provides the intellectual rationale for a regional research design, and is clearly applicable to the

historical mining archaeology of the Mojave Desert, which was closely tied to the larger Great Basin. According to Hardesty's review, common recent research perspectives currently being expressed in historical archaeological studies in the western United States include: (a) the archaeology of capitalism, particularly from a world-systems perspective; (b) class and power relations; (c) industrial ecology; and (d) the landscape archaeology of historical sites (cf. Leone and Potter [1988] for an eastern United States perspective). Relevant analytical units include: (i) mining towns as social formations; (ii) the domestic household; and (iii) regional communities (Hardesty 1994). Based on Hardesty's considerable experience with the historical archaeology of the Great Basin, he suggests that the most productive direction for future research will be in analyses intended to elucidate the regional characteristics of Great Basin capitalist development; that is, those unique regional characteristics of the otherwise worldwide spread of capitalism that occurred in the nineteenth and early twentieth centuries in this portion of the west.

Hardesty's suggested research program has two immediate implications. The first is that it is necessarily comparative in nature. Characteristics of the spread of capitalism that are unique to the Great Basin are only unique relative to the historical record in other regions of the United States (if not the world), thus the context of any comparative analysis must be wide-ranging in scope. Second, that portion of the historical archaeological record that is most relevant for analysis is the habitation and settlement, rather than engineering, debris of these sites. That is, while not denying the potential importance of the industrial/engineering remains in western mining towns (e.g., Andrews 1994), the emphasis in future research should be on the housing and commercial districts, rather than the

industrial/engineering remains themselves.

When Hardesty's suggested research directions are considered in the context of the Golden Queen study area and the historical background summarized above, issues, concerns, and research problems immediately emerge. For example, it is apparent that the nature of the mining enterprise in this specific area differed considerably from that found in other portions of the California Desert, and that this difference may be indicative of regional variability in capitalist expansion and development within the far west. In the Golden Queen area, mining was clearly undertaken as a serious extractive enterprise, with the mines relatively long-lived, and the development of a large residential community nearby. In contrast, precious metal "mining" in the Death Valley region was characterized by the use of fictive or near-fictive mining properties to manipulate and exploit the New York stock-market; what was mined were the investors' pocket-books more than valuable ore deposits (e.g., see Lingenfelter 1986). Again, however, a project the size of the supplemental Class III inventory must be recognized as only having the potential to contribute data towards these problems rather than offering an opportunity to finally resolve the problems per se.

2.0
ARCHIVAL RECORDS SEARCH

The background research for the Golden Queen inventory required two kinds of archival research. First, in order to develop an adequate understanding of the documented history of the study area, published and unpublished maps, documents and records were examined at the Kern County Recorder's Office, the UCLA Earth and Space Sciences Library, and the BLM offices in Bakersfield and Ridgecrest. These sources provided data in the form of mineral claim, sales and patent documents on the property, period newspaper articles on mining activities at these mines and in the region generally and, through the assistance of Larry Vredenburgh, the Gerner photo collection of the property, which consists of a series of black and white pictures of the mines and residential areas taken about 1903 - 1904 on Soledad Mountain. The information taken from these sources has been partly summarized in the historical background presented above, and in more detail in the previous Class III inventory (W&S Consultants 1995a). The second type of archival review concerns a study of the archaeological site records, maps and files housed at the California Archaeological Inventory, Southern San Joaquin Valley Archaeological Information Center (AIC), at California State University, Bakersfield.

An archaeological records search was conducted by AIC staff to determine whether the supplemental Class III study areas had been previously surveyed by archaeologists, and whether any archaeological sites had been previously recorded on it. The complete results of this records search are

included as Appendix A to this report.

Based on the CSUB AIC files, the supplemental study areas had never been systematically surveyed by archaeologists in their entirety, although the northernmost area and the approximate northern-third of the larger two ancillary work/well areas had been surveyed in 1985. No sites were discovered in these two 1985 survey areas. The fence corridor study area had never been surveyed but one site had putatively been recorded by the BLM in 1977, seemingly within the fence transect area. This site, designated CA-KER-763H, was recorded as a small historical mining locality consisting of a U-shaped cobble windbreak and associated features.

Note, however, that ambiguity concerning the proper location of CA-KER-763H is evident in the site records: the original site location map that forms a part of the site record (see Appendix B) is very unclear in its placement of this locality. The written site description places the site in Section 9 "on South end of peak marked '3038'", but it has been mapped into the AIC files towards the middle of this "peak" (in fact, a flat relatively wide ridge) immediately inside of Section 8, and therefore within the fence corridor study area. Clearly, a field check was needed to resolve this locational ambiguity, as well as to survey the remainder of the fence corridor area.

3.0
FIELD METHODS

3.1 Field Methods

Field methods employed during the supplemental Class III inventory of the Golden Queen fence corridor/lay-down area and two ancillary work/well study areas were designed to obtain complete (100%) survey coverage of the study area. They included intensive, on-foot examination of the groundsurface of each study area; the identification and location of discovered sites and relocation of known sites; tabulation and recording of surface diagnostic artifacts; site mapping, using Brunton compass, surveyor's tape, transit and stadia, and a Magellan Pathfinder GPS, as appropriate in each case; limited subsurface probing; preliminary evaluation of site integrity; site recording, using established procedures and forms (see Office of Historic Preservation 1995); and photographic recording.

Limited subsurface probing was undertaken using shovel test pits (STPs). These were hand-excavated with a round-point shovel, with removed dirt screened with 1/8th inch mesh. This effort was intended to serve in a presence-absence capacity only; that is, to determine whether subsurface archaeological deposits were present on the sites. Any identified subsurface remains, accordingly, were to be tagged and bagged and reburied within the back-filled test pit, after recording. One STP was excavated at each major feature of each site identified during the survey. No collection of archaeological remains of any kind was made during the

inventory.

Because the study area contains considerable topographic variability, different surveying strategies were employed during the inventory. In the areas of flat terrain to moderate slopes (typically, within the ancillary work/well study areas), the groundsurface was examined with the crew spaced at approximate 10 - 15 meter intervals, walking transects across the study area to identify artifacts or other archaeological indicators that might be present on the groundsurface. Ridge lines were covered in a similar manner. Steep slopes (generally exceeding the angle of repose), which comprised most of the fence corridor study area, were covered by crew-members walking zigzag transects that traversed the slope faces.

In all cases, special attention was paid to depositional environments, such as saddles, swales and toe slopes, where the likelihood of archaeological preservation is enhanced. Further, rock faces, amenable for the creation of rock art or providing locales for rhyolite quarries, and rock shelters, usable for prehistoric habitation, were carefully examined as high likelihood spots for the presence of prehistoric archaeological remains. And, with regard to historical resources, particular attention was paid to the identification of potential trash dumps and privy locales.

3.2 Field Conditions

Field conditions for the supplemental Class III inventory for the proposed Golden Queen project were, in general, excellent as regards groundsurface visibility and therefore the ease of site recognition. Vegetation was limited

due to the relative absence of late winter rains experienced this last year, and vegetative cover varied from moderate to sparse, in areas of flat to moderate slope, to non-existent, on cliff faces, bedrock outcrops and scree slopes. Furthermore, archaeological sites within the study area tended to be historical, thus containing structural remains, which were themselves easy to recognize. On the other hand, the extreme slope of portions of the study area made surveying difficult, if not outright dangerous, in some areas along the fence corridor.

4.0
SURVEY RESULTS

4.1 Introduction

The supplemental Class III inventory for the proposed Golden Queen project resulted in the relocation of one previously recorded archaeological site, and the discovery and recording of one new site locality (see Figure 2). In both cases these are historical (Euro-American) in age and are a product of the mining history of the property. We discuss these sites in turn below; site records and updates are provided in Appendix B of this report.

In general terms, it is worth noting that the two ancillary work/well study areas north of the Silver Queen Road were found to be very heavily disturbed, and essentially littered with trash and evidence of human occupation. This, however, was clearly post-World War II in age, and appears to reflect intensive squatting on public lands during the last few decades. Numerous trash dumps are present within these two study areas, along with evidence of at least three structures, and an additional, currently-occupied, house. Although prehistoric or historic resources may once have been present north of Silver Queen Road, it is unlikely that such resources could have survived given this intensity of recent human occupation. This recent squatting is restricted to the north of Silver Queen Road, however. Conditions are more pristine to the south of this road, and it is in this southern portion of larger study area that a historical site was discovered and recorded. Note, however, that no cultural resources were

found within the northeastern corner of Section 6, confirming an earlier archaeological study of this area (W&S Consultants 1995b), with the newly discovered site then found within the adjacent southwestern corner of Section 32.

In contrast, the fence corridor and lay-down area was generally found to be removed from the area of human occupation and use on Soledad Mountain. Although some evidence of exploratory mining is visible to the south of the lay-down area and in the general vicinity of the fence corridor, this was very limited relative to the northern side of the mountain, where the majority of the historic and recent mining activity has occurred. As is discussed below, no cultural resources in fact are present within the fence corridor and lay-down survey area.

4.2 Previously Recorded Sites

As noted above, one site had been recorded within or near-to the supplemental study area: CA-KER-763H, putatively located within the fence line corridor in Section 8. This site was relocated and evaluated during the current field survey (see Appendix B). Although found to be very much as first described in 1977, CA-KER-763H nevertheless was determined to be located according to the written description in the site record, within Section 9, but not where placed on the AIC map in Section 8. Specifically, it was found to lie on the <u>east</u> side of a small rocky ridge forming the western edge of a large, open and flat mountaintop, towards the southern end of this flat. The boundary between Sections 8 and 9, which forms the fence corridor transect, in fact runs along the <u>west</u> side of

this rocky ridge. Based on our measurements, CA-KER-763H is about 90 meters east of the center line of the fence corridor, and thus approximately 75 meters east of our study corridor.

The U-shaped "windbreak" at CA-KER-763H was found to be in essentially the same condition as described in the 1977 site record form, albeit we did not relocate all of the features on the site described in this form. This windbreak or three wall structure opens to the east. It is made with a bedrock outcrop as the southern wall, and two unmortared field stone cobble walls along the west and north sides (Figures 3 and 4). These walls average about 50 cm in width. Overall size of the structure is about 2.8 meters N-S by 2 meters E-W. The west side is dug into the slope of the rocky ridge with the maximum height of this wall (measured from inside the structure) reaching 84 cm.

As noted in the original site record, a small sheet-metal, four burner wood stove is present within this structure (Figures 5A and 5B), thereby supporting the interpretation of this feature as a windbreak. This stove has two front doors and a chimney pipe hole in addition to the four burner holes. It measures 38 by 51 centimeters by 28 centimeters high. The right front door is embossed with "NORWESCO" within a diamond-shaped cartouche. With the exception of two pieces of milled lumber, lying 1.6 meters east of the structure, we noted no additional artifacts on the site. Although we did no subsurface testing, because the site was found to lie outside of the study corridor, the rocky colluvium present at this locale makes the existence of any subsurface deposit somewhat unlikely.

We did not relocate the mine shaft and trash dump that were said to be

associated with the cobble structure in the original site record form, because we could not find these features per the written descriptions of their locations. However, it is possible that they are present further to the east and/or south, and thus further away from our study corridor, in areas we did not examine.

In summary, while CA-KER-763H is still intact (or at least portions of it), it falls outside of the fence corridor, and thus will not be effected by the construction of this fence line.

4.3 Newly Discovered Sites

A single historical site was discovered during the supplemental Class III inventory. Designated CA-KER-4841H (Primary Number P-15-005703), it is located in the southwestern corner of the southern of the two ancillary work/well study areas, within Section 32 (see Figure 2 and Appendix B). It thus sits on the southern edge of the open desert flats to the north of Soledad Mountain, just beyond the toeslope. The site consists of a small vertical shaft and associated trash scatter, and appears to date to the first decade of the twentieth century; that is, it is coeval with the other early mining remains on Soledad Mountain (W&S Consultants 1995a, 1995b).

The vertical shaft is relatively small, measuring about four meters N-S by two meters E-W, and is partially covered by an overlay of milled planks (Figures 7 and 8A). These did not serve as a collar or frame, but apparently are just an after-the-fact covering of the hole, which is only about five feet deep. The shaft is placed in sandy colluvium and, given the

location of the site below the toeslope of the mountain, appears to sit in an unlikely spot for a mine shaft (perhaps accounting for its shallowness). However, the walls of the shaft are still steeply sided, and so it seems unlikely that this pit was dug for any purpose other than mining.

A relatively small, low density surface scatter of tin cans and glass is located immediately north of the berm around the vertical shaft. This scatter extends to the north for a distance of about 5 meters, but the majority of the artifact concentration occurs immediately alongside the berm (Figure 8B). We counted 92 tin cans, three bottle necks, three bottle bottoms, one glass tumbler bottom, one rectangular vessel bottom, two embossed bottle fragments and one whiteware sherd in this artifact concentration, in addition to an uncounted, moderate to low density of wire nails and glass shards.

The tin cans include 85 opened but otherwise unmodified hole-in-top (hole-in-cap) cylindrical cans; four tapered meat cans, two large oblong cans with soldered-on pour spouts; and one small rectangular, hinged snuff container. The hole-in-top cans were relatively small, with all appearing to represent four or eight ounce sizes, and thus most likely deriving from fruit or vegetable tins (Figure 9A). The tapered meat tins were also small in size, and appear to be one-half or one pound sizes. The large spouted containers, which Rock (1987:71) calls "F-Style" cans, appear to have been one-half gallon in size, and most likely contained lantern fuel or some other such product. The flat, hinged "snuff" can measured 3.5 by 3.5 by 0.5 inches in size and is slightly curved (e.g., to fit into a shirt or jacket breast pocket).

Glass remains appear to primarily originate in bottles (Figure 9B). About two dozen small fragments of "amethyst" (or purple) glass were present, most likely derived from clear bottle glass made before about 1914 (Polak 1994:25). Three bottle necks and lips were also noted (Figure 10). These are all applied or laid-on-ring lips and collars. Following Wilson's (1981:111) typology, these include one Type B champagne lip, made of green glass; and one Type C brandy lip, on amber glass. The third is slightly unusual in that it has a very short neck and minimal collar. The collar is broad, flat and vertical, and it may represent a hard-liquor or bitters bottle. It is made of amber glass.

Two pieces of embossed bottle glass were identified. The first is a large amber body shard embossed with "CROWN DISTILLERIES" over a cartouche containing a crown over a shield with "D" superimposed over "C", over "COMPANY" (Figure 11). Crown Distilleries was a whiskey distiller during the first decade of this century (Polak 1994). The second embossed bottle shard is a recessed, rectangular panel with "...N, N.Y.", in clear glass.

Three bottle bottoms were identified on the site, though none of these was marked (Figure 9B). One was made of green glass and contained a very deep, dimpled kick-up. It is a champagne bottle, and probably part of the same bottle as the neck and lip described above. The second bottom is a clear light green bottle, while the third is amber. Both of these two are pint beer bottle sized. Other glass vessel bottoms include an amethyst glass tumbler, and a rectangular scalloped base of "carnival" glass.

A single piece of ceramics was noted on the site: a small whiteware sherd. This is from the scalloped edge of a small bowl and has a blue transfer

pattern.

Although some of the tin cans and pieces of glass are partially buried due to natural colluvial processes on the site, a shovel test pit indicated that no subsurface deposit, per se, is present at this site. The site, moreover, appears to be intact.

CA-KER-4841H appears to represent a small mining activity area dating to the first decade of the twentieth century. The absence of any habitation remains per se (such as a structure or even a cleared tent pad) suggests that the artifactual component of the site resulted from work in digging the vertical shaft, rather than from habitation of any length. Clearly the site is temporally and functionally related to other mining sites on this side of Soledad Mountain. More specifically, it is best understood as an outlying feature of CA-KER-4447H, the Wegmen Complex, the main portion of which is located only about 300 meters to the southwest.



WZI INC.

June 6, 1997

Mr. Glenn Barnhill
Kern County Planning Department
2700 "M" Street
Bakersfield, California 93301

Re: Soledad Mountain Project Environmental Impact Report/Environmental Impact Statement

Dear Mr. Barnhill:

Enclosed please find replacement pages which contain corrections to one of the cultural and historical reports in Appendix VIII in Volume 5 of the Soledad Mountain Project EIR/EIS. The pages should replace existing pages in the last report of the appendix titled *Supplemental Class III Inventory of Fence Corridor and Ancillary Work Areas for the Golden Queen Mine Project, Mojave, Kern County, California.*

We apologize for the inconvenience this may cause. If you have any questions, please contact our office.

Very truly yours,

Elizabeth T. Kendall

Elizabeth T. Kendall
Staff Geologist

ETK/jl
Enclosure
07330010.343

4700 Stockdale Highway, Suite 120 Bakersfield, California 93309 (805) 326-1112 Fax: (805) 326-0191

Glass remains appear to primarily originate in bottles (Figure 9B). About two dozen small fragments of "amethyst" (or purple) glass were present, most likely derived from clear bottle glass made before about 1914 (Polak 1994:25). Three bottle necks and lips were also noted (Figure 10). These are all applied or laid-on-ring lips and collars. Following Wilson's (1981:111) typology, these include one Type B champagne lip, made of green glass; and one Type C brandy lip, on amber glass. The third is slightly unusual in that it has a very short neck and minimal collar. The collar is broad, flat and vertical, and it may represent a hard-liquor or bitters bottle. It is made of amber glass.

Two pieces of embossed bottle glass were identified. The first is a large amber body shard embossed with "CROWN DISTILLERIES" over a cartouche containing a crown over a shield with "D" superimposed over "C", over "COMPANY" (Figure 11). Crown Distilleries was a whiskey distiller during the first decade of this century (Polak 1994). The second embossed bottle shard is a recessed, rectangular panel with "...N, N.Y.", in clear glass.

Three bottle bottoms were identified on the site, though none of these was marked (Figure 9B). One was made of green glass and contained a very deep, dimpled kick-up. It is a champagne bottle, and probably part of the same bottle as the neck and lip described above. The second bottom is a clear light green bottle, while the third is amber. Both of these two are pint beer bottle sized. Other glass vessel bottoms include an amethyst glass tumbler, and a rectangular scalloped base of "carnival" glass.

A single piece of ceramics was noted on the site: a small whiteware sherd. This is from the scalloped edge of a small bowl and has a blue transfer

pattern.

Although some of the tin cans and pieces of glass are partially buried due to natural colluvial processes on the site, a shovel test pit indicated that no subsurface deposit, per se, is present at this site. The site, moreover, appears to be intact.

CA-KER-4841H appears to represent a small mining activity area dating to the first decade of the twentieth century. The absence of any habitation remains per se (such as a structure or even a cleared tent pad) suggests that the artifactual component of the site resulted from work in digging the vertical shaft, rather than from habitation of any length. The site appears to be temporally and functionally related to other mining sites on this side of Soledad Mountain.

5.0
SUMMARY AND RECOMMENDATIONS

5.1 Summary

A supplemental Class III inventory was conducted for the proposed Golden Queen Mine project on BLM administered lands located on Soledad Mountain, near Mojave, Kern County, California. The intensive survey was intended to field check previously recorded sites, as well as to identify and record sites that, heretofore, were unknown. The identification and recording of these sites was conducted per the guidelines in the Bureau of Land Management Manual (BLM 1988), the "Secretary of the Interior's Standards and Guidelines, Archeology and Historic Preservation" (Federal Register 48(190):44716-44742; 29 September 1983), and recent guidelines provided by the Office of Historic Preservation (OHP 1995). It involved a background record and documents search intended to provide a detailed understanding of the history and prehistory of this area; a continuous intensive (100%) surface survey of three discontiguous study areas; the recording of a newly discovered archaeological site (CA-KER-4841H) and the relocation of a previously recorded site (CA-KER-763H); and an evaluation of these sites. Mapping, recording and limited subsurface probing were conducted on the newly discovered site in order to determine its eligibility to the National Register of Historic Places (NRHP).

The supplemental Class III inventory determined that previously recorded site CA-KER-763H lies approximately 75 meters east of the proposed fence corridor, and therefore was outside of our study area, per se. Newly

discovered site CA-KER-4841H was found to lie within the southwest corner of one of two ancillary work/well study areas for the proposed project. We discuss our conclusions about this site below.

5.2 Determination of Eligibility for CA-KER-4841H

Evaluation of the significance of CA-KER-4841H recorded during the supplemental Class III inventory for the proposed Golden Queen project, and a determination of the effect of the proposed project on this cultural resource, is based on an initial determination of eligibility of this historical site to the National Register of Historic Places (NRHP). Such a determination is based on the criteria required by and outlined in the National Historic Preservation Act, sec. 101 (a), and 36 Code of Federal Regulations Part 60.4, respectively. As so defined, a cultural property is eligible to the NRHP if it:

1. is at least 50 years in age;

2. retains integrity of location, design, setting, materials, feeling and association; and

3. has one or all of the following characteristics:

a. association with events that have made a significant contribution to the broad patterns of our history; or

b. association with the lives of persons significant in our past; or

c. embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant, distinguishable entity whose components may lack individual distinction; or

d. has yielded, or may be likely to yield, information important to prehistory or history.

The baseline for criterion 3.d may generally be taken as existing regional research designs and problems, as discussed previously.

The effect of the proposed action on cultural resources is then defined by 36 Code of Federal Regulations Part 800.9. An action is said to have an effect on a property when the proposed action may alter the characteristics of a significant property that qualified it for the NRHP. An adverse effect is one that diminishes a significant property's integrity through physical destruction, damage or alteration; or alters or conflicts with the character of the property when such character is contributory to its inclusion in the NRHP. An action has no effect when the criterion of effect is not met.

Site CA-KER-4841H is a small mining activity area that is functionally and temporally related to nearby site CA-KER-4447H, the Wegmen Complex. In fact, it represents a small outlying feature of this much larger site, which has been salvaged as a CEQA mitigation for the proposed Golden Queen project (see W&S Consultants 1995b, in preparation) Though CA-KER-4841H meets the age criterion of 50 years and is itself intact, it does not maintain integrity in that it is only one component of a much larger, previously salvaged site, and thus has little or no potential to contribute to the resolution of regional research problems, beyond the information already obtained during the supplemental Class III inventory. It is thus not significant, and therefore is ineligible for inclusion in the NRHP.

5.3 Determination of Effect

The supplemental Class III inventory of a fence corridor/lay-down area and two ancillary work areas for the proposed Golden Queen project resulted in the recording and evaluation of one archaeological site, CA-KER-4841H. This is a small mining feature that, rightly, is an outlier of a nearby larger site, CA-KER-4447H. CA-KER-4841H does not meet the criteria for inclusion in the NRHP, as outlined in 36 CFR 60.4, and therefore is not a significant cultural resource. Based on the criteria in 36 CFR 800.9, accordingly, any actions undertaken within this supplemental study areas for the proposed Golden Queen project, Kern County, California, are determined to have no effect upon cultural resources.

d. has yielded, or may be likely to yield, information important to prehistory or history.

The baseline for criterion 3.d may generally be taken as existing regional research designs and problems, as discussed previously.

The effect of the proposed action on cultural resources is then defined by 36 Code of Federal Regulations Part 800.9. An action is said to have an effect on a property when the proposed action may alter the characteristics of a significant property that qualified it for the NRHP. An adverse effect is one that diminishes a significant property's integrity through physical destruction, damage or alteration; or alters or conflicts with the character of the property when such character is contributory to its inclusion in the NRHP. An action has no effect when the criterion of effect is not met.

Site CA-KER-4841H is a very small mining activity area, probably resulting from the digging and then abandonment of a shallow vertical shaft. Though CA-KER-4841H meets the age criterion of 50 years and is itself intact, it is sufficiently small and of ambiguous origin that it provides little or no potential to contribute to the resolution of regional research problems, beyond the information already obtained during the supplemental Class III inventory. It is thus not significant, and therefore is ineligible for inclusion in the NRHP.

5.3 Determination of Effect

The supplemental Class III inventory of a fence corridor/lay-down area

and two ancillary work areas for the proposed Golden Queen project resulted in the recording and evaluation of one archaeological site, CA-KER-4841H. This is a small mining feature. CA-KER-4841H does not meet the criteria for inclusion in the NRHP, as outlined in 36 CFR 60.4, and therefore is not a significant cultural resource. Based on the criteria in 36 CFR 800.9, accordingly, any actions undertaken within this supplemental study areas for the proposed Golden Queen project, Kern County, California, are determined to have no effect upon cultural resources.

6.0

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7.0
FIGURES

List of Figures

1 - Map of the study area
2 - Sites within the study area
3 - Sketch map of CA-KER-763H
4 - Photo of CA-KER-763H
5 - Stove at CA-KER-763H
6 - Drawing of CA-KER-4841H
7 - Photo of CA-KER-4841H vertical shaft
8 - Photos of CA-KER-4841H vertical shaft and artifact scatter
9 - Photos of CA-KER-4841H artifact scatter
10 - Photo of CA-KER-4841H bottles
11 - Photo of CA-KER-4841H bottle

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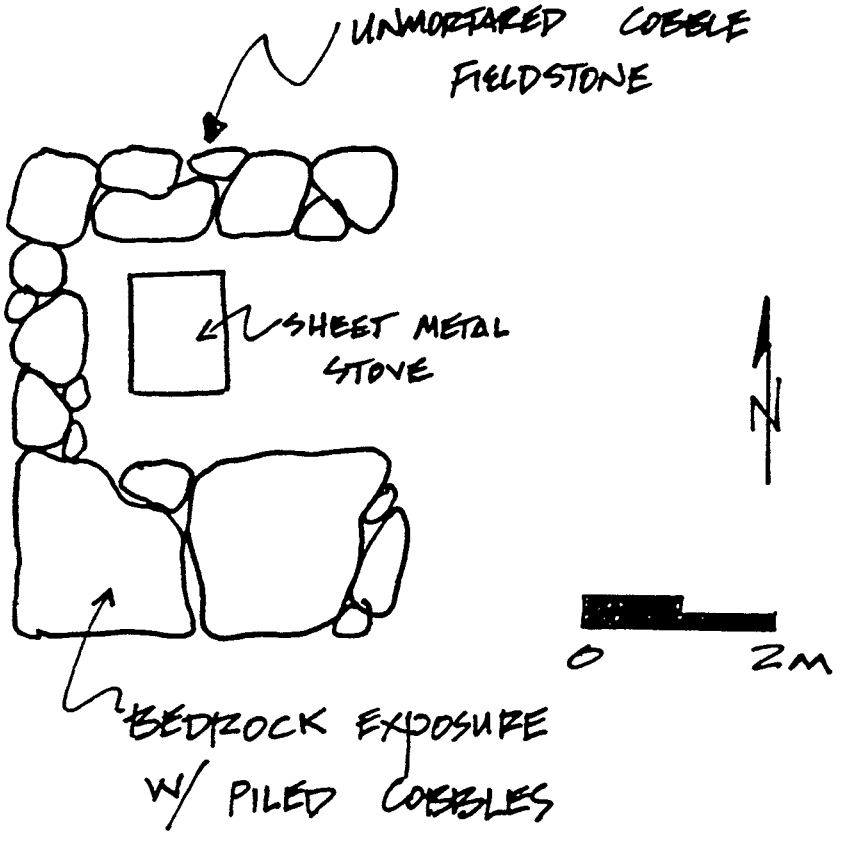


FIGURE 3: Sketch map of U-shaped cobble structure at CA-KER-763H.

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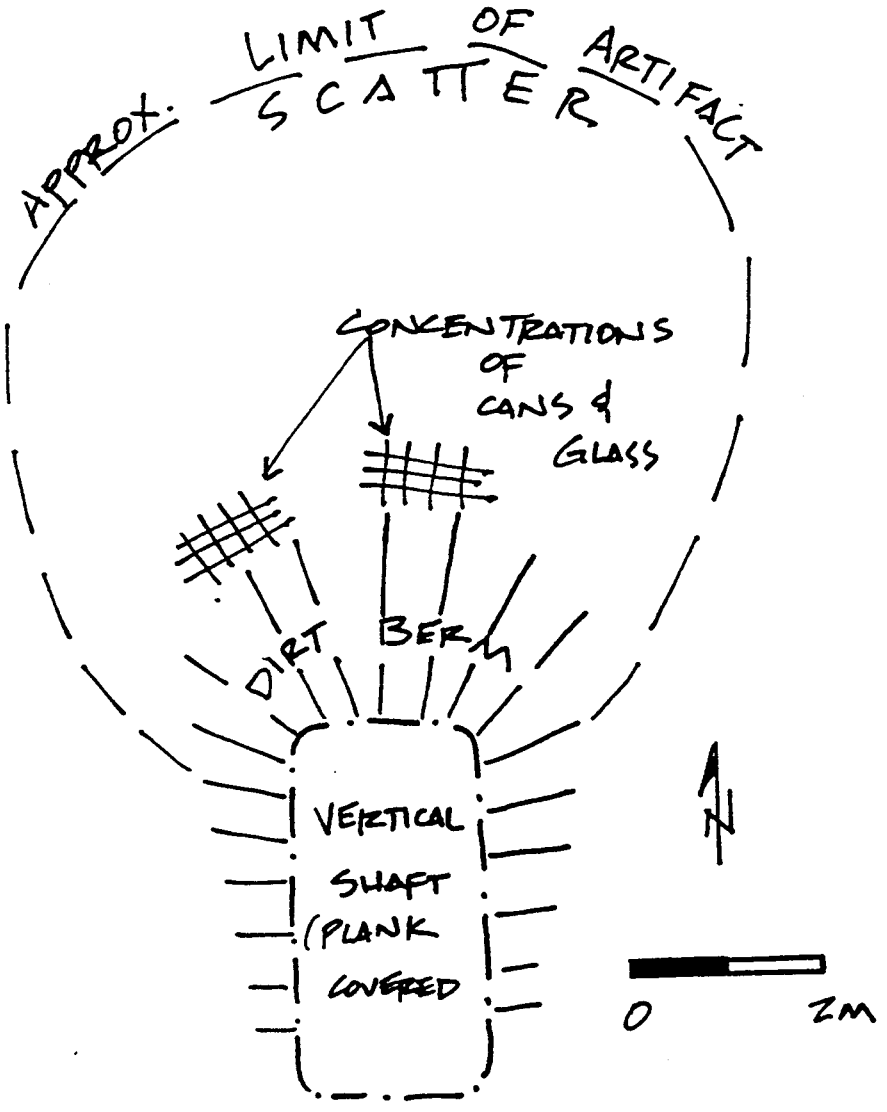


FIGURE 6: Sketch map of CA-KER-4841H.

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CALIFORNIA
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RESOURCES
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KINGS
MADERA
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Southern San Joaquin Valley
Information Center
California State University, Bakersfield
9001 Stockdale Highway
Bakersfield, California 93311-1099
805/664-2289 FAX 805/664-2415
Email: abaldwin@csubak.edu

To: David S. Whitley, Ph.D.
W & S Consultants
2242 Stinson Street
Simi Valley, CA 93065

(RS# 97-76)

RE: Golden Queen Well & Fence Survey

County: Kern

Map(s): Soledad Mountain and Mojave 7.5's

The Information Center is under contract to the State Office of Historic Preservation and is responsible for the local management of the California Historical Resources Inventories. The Center is funded solely by research fees, and a grant from the State Office of Historic Preservation. The Information Center does not conduct fieldwork and is not affiliated with any archaeological consultants who conduct fieldwork.

CULTURAL RESOURCES RECORDS SEARCH

The following are the results of a search of the cultural resources site files at the Southern San Joaquin Valley Information Center. These files include known and recorded archaeological and historic sites, inventory and excavation reports filed with this office, and properties listed on the National Register of Historic Places (3/97), the California Historical Landmarks, The California Inventory of Historic Resources, and The California Points of Historical Interest.

The following summarizes the current information available on the subject property based on the records outlined above.

PRIOR CULTURAL RESOURCE INVENTORIES OF THE SUBJECT PROPERTY AND SURROUNDING AREAS

There has been one previous archaeological survey conducted on a portion of one of the project locations, in Section 32. There have been seven surveys conducted in the project vicinity. Survey locations and references are enclosed.

(RS# 97-76)

KNOWN CULTURAL RESOURCES ON THE SUBJECT PROPERTY AND SURROUNDING AREAS

There is one recorded historic site within the corridor survey area in section 8. There are 19 recorded sites within a mile radius. Nine of those sites were excavated by W & S in 1995, and are noted as E-8.

Currently there are no resources in the project area that are listed on the National Register of Historic Places, The California Historical Landmarks, The California Inventory of Historic Resources, or California Points of Historical Interest.

COMMENTS

I have enclosed a copies of the site records not previously recorded by W & S. If you need any additional information for this project, please don't hesitate to contact me at (805) 664-2289.

By:

Adele Baldwin
Assistant Coordinator

Date: April 7, 1997

Fee: $90.00/hr.

Invoice # 7087

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RS # 97-76

INV. # 7087

MOJAVE 7.5'

S-10) SCHIFFMAN, R. - 1985 - ARCHAEOLOGICAL INVESTIGATION OF SHELL MINING COMPANY'S STANDARD HILL MINING PROJECT

S-19) SCHIFFMAN, R. - 1986 - SUPPLEMENT TO ARCHAEOLOGICAL INVESTIGATION OF SHELL MINING COMPANY'S STANDARD HILL MINING PROJECT - THE SMITH PROPERTY

S-24) SCHIFFMAN, R. - 1989 - ARCHAEOLOGICAL INVESTIGATION FOR PARCEL MAP No. 9020.

SITES

CA-KER-570

9.0
SITE RECORD FORMS AND UPDATES

ARCHAEOLOGICAL SITE RECORD

Primary #_____

Trinomial_____

 Resource name: CA-KER-763H UPDATE

A1. Dimensions: a. Length: SEE ORIGINAL SITE RECORD **b. Width:**
Method of measurement:
Method of determination:
Reliability of determination:
Limitations:

A2. Depth: Unknown, but unlikely **Method of Determination:** Geomorphology

A3. Human remains: x Unknown

A4. Features: U-SHAPED COBBLE WINDBREAK

A5. Cultural constituents: SHEET METAL STOVE

A6. Collected specimens: x No

A7. Site condition: X **Good Fair Poor; Disturbance:**

A8. Nearest water: NONE

A9. Elevation: 3051

A10. Environmental setting: Soledad Mountain, flat open ridge

A11. Historical information: not applicable

A12. Age: PREHISTORIC PROTOHISTORIC
1542-1769 1769-1848 1848-1880 X 1880-1914 1914-1945

A13. Interpretations: small mining feature (windbreak), probably part of camp

A14. Remarks: Note that site has been mislocated on AIC maps. Per the verbAL description in the original site record, the U-shaped structure lies within Section 9, not Section 8 (see attached map). We did not relocate other features at site, but the U-shaped windbreak and stove were intact.

A15. References: Supplemental Class III Inventory for the Golden Queen Project

A16. Photographs: yes; see above report

A17. Form prepared by: DS Whitley
Affiliation: W&S Consultants, 2242 Stinson St, Simi Valley, CA 93015
Date: 4/17/97

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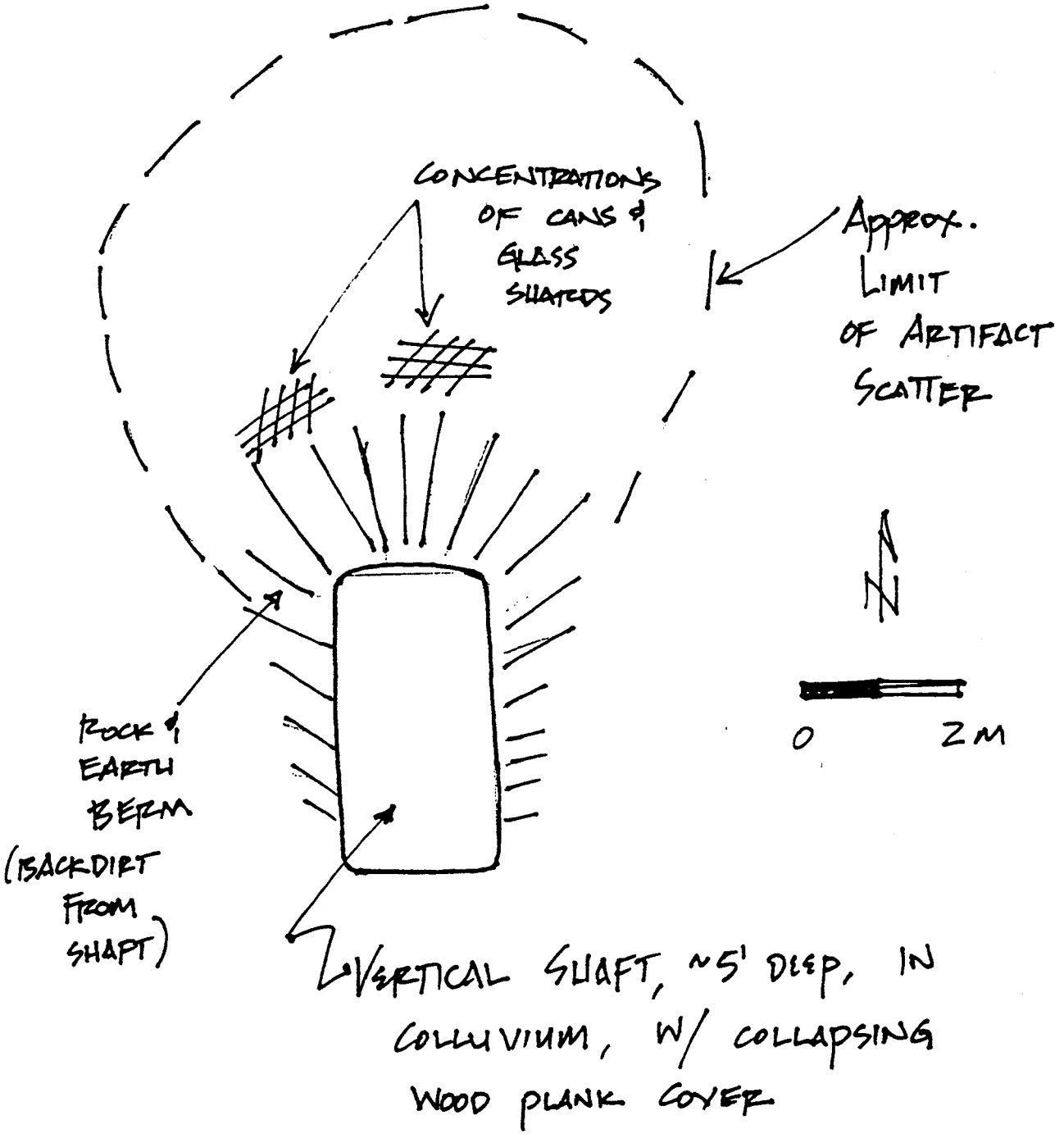
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SKETCH MAP

Primary #_____
HRI#_____
Trinomial CA-KER-4841H

Page 4 of 4 **Resource name:** GQ/97-1
Drawn by: DS Whitley **Date:** 4/15/97



GOLDEN QUEEN MINING COMPANY, INC.

SOLEDAD MOUNTAIN PROJECT

MOJAVE, KERN COUNTY, CALIFORNIA

DRAFT
ENVIRONMENTAL IMPACT REPORT /
ENVIRONMENTAL IMPACT STATEMENT

VOLUME 6
(Appendices IX through XII)

MAY 1997

COUNTY OF KERN
PLANNING DEPARTMENT
BAKERSFIELD, CALIFORNIA

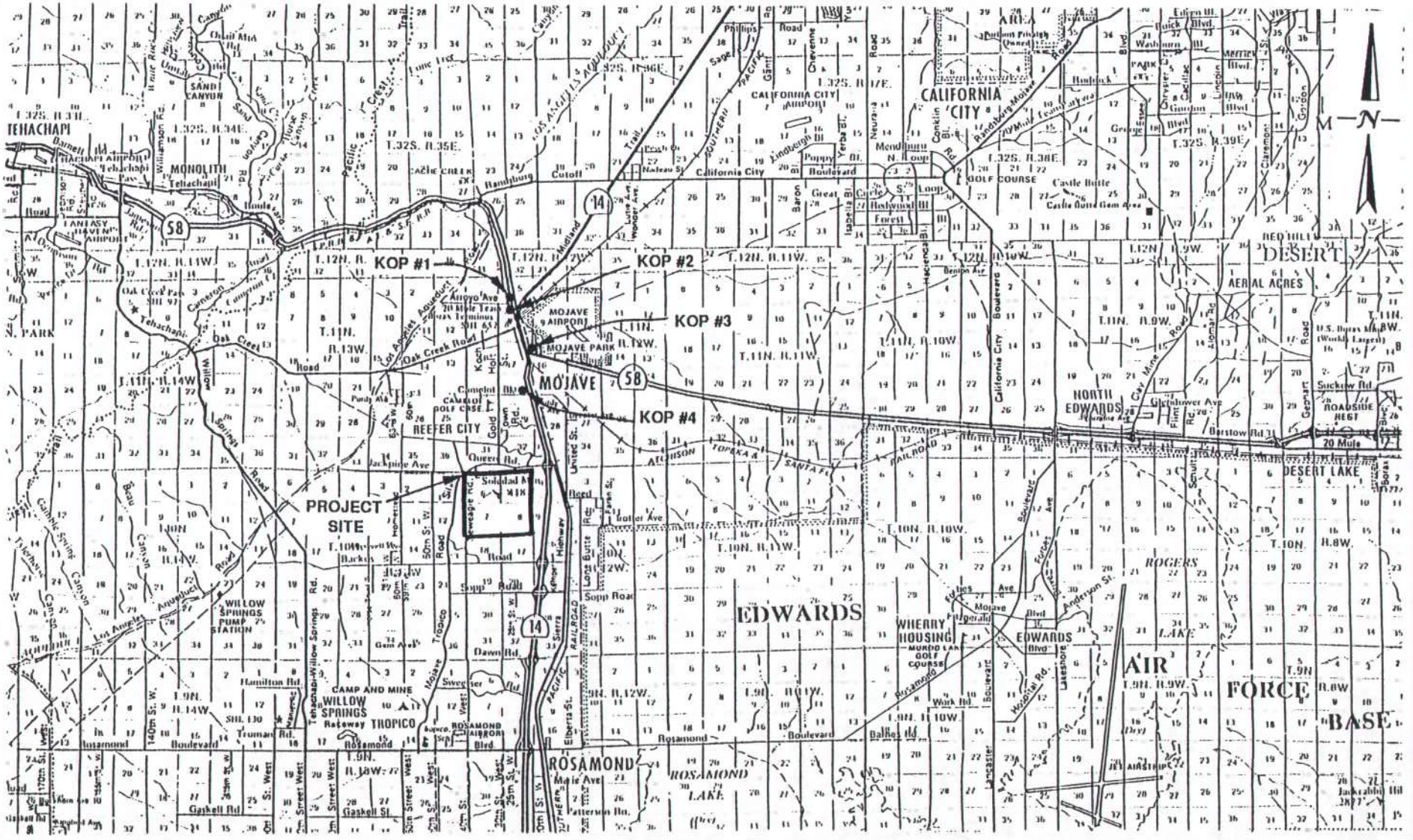
BUREAU OF LAND MANAGEMENT
RIDGECREST RESOURCE AREA
RIDGECREST, CALIFORNIA

VOLUME 6 OF 6

VISUAL IMPACT ANALYSIS

The visual resources of the project area were investigated using methods outlined in Section 8400 of the BLM Manual. Using these methods, the resources are analyzed by considering the scenic quality, viewer sensitivity and the distance between the viewer and the proposed modification of the landscape. The BLM visual resource management (VRM) system, which was developed by the BLM for identifying, evaluating and classifying visual resources of public lands, assigns a management class rating from I through IV by inventorying and evaluating both scenic quality and the sensitivity of a landscape. Discussions with Mr. Dave Wash at the BLM Office in Ridgecrest indicate that the BLM has not assigned a VRM rating to lands in the project area.

Contrast ratings were conducted from four (4) selected viewing locations, using methods outlined in Section 8400 of the BLM Manual. These Key Observation Points (KOPs), shown in Exhibit 1, were selected to represent the view from the intersections of major highways and local roads which carry the majority of traffic flow in the Mojave area and represent locations where the general public will view the project site. All photographs represent the view from the passenger seat of an automobile located at the KOP.



WZI INC.
BAKERSFIELD, CALIFORNIA

GOLDEN QUEEN MINING
SOLEDAD MOUNTAIN PROJECT

VISUAL IMPACT ANALYSIS
KEY OBSERVATION POINTS (KOP)

DATE		EXHIBIT
11/95	0733.0010	1

KOP #1 represents a view of the project area from Highway 58 and Arroyo Avenue north of Mojave. This intersection provides access to residential housing and is inside the 30 mile per hour speed zone approaching Mojave from the north. The foreground view is composed of power poles, highway signs, billboards and railroad tracks. The middleground is composed of power poles, residential housing and open space. The background is composed of Soledad Mountain and other distant mountains. Photographs 1 and 1A illustrate the existing conditions and a photographic simulation of the Proposed Action respectively. Photograph 1B is an enlargement of the photographic simulation with labels and outlines to identify the Proposed Actions.

H-8431-1 - VISUAL RESOURCE CONTRAST RATING

Visual Contrast Rating Worksheet

VISUAL CONTRAST RATING WORKSHEET

BASED ON
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT GUIDELINES

Date: JANUARY 2, 1995

Project:

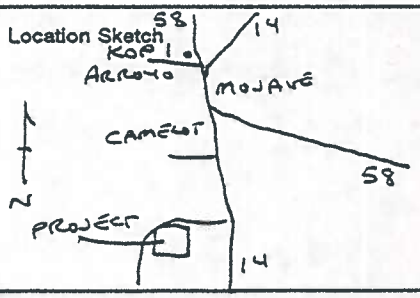
Project No.:

SECTION A. PROJECT INFORMATION

1. Project Name: SOLEDAD MOUNTAIN PROJECT
2. Key Observation Point: HWY 58 & ARROYO AVE.
3. VRM Class: UNCLASSIFIED

4. Location
Township 10N
Range 13W
Section 5,6,7,8
SAN BERNARDINO B & M

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FORE: FLAT, ~~LINEAR, RECTANGULAR~~ BACK: COMPLEX, RUGGED	COARSE, ROUNDED	LINEAR, HORIZONTAL, RECTANGULAR
LINE	FORE: STRONG EDGES BACK: BOLD, ANGULAR	WEAK, SOFT	STRAIGHT, ANGULAR
COLOR	FORE: GREY, TAN BACK: TAN, BROWN	BROWN, RED, GREEN	BROWN, WHITE, GREY
TEXTURE	FORE: SMOOTH BACK: ROUGH	MEDIUM, SPARSE, RANDOM	SPARSE, PATCHY

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	SOLID, GEOMETRIC, SMOOTH	—	—
LINE	ANGULAR, CURVED	—	—
COLOR	BROWN, TAN	—	—
TEXTURE	SMOOTH, CONTRASTY	—	—

SECTION D. CONTRAST RATING ☒ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST	FEATURES: LAND/WATER BODY (1) Strong	Mod.	Weak	None	VEGETATION (2) Strong	Mod.	Weak	None	STRUCTURES (3) Strong	Mod.	Weak	None
FORM		—					—			-		
LINE			—				—					
COLOR			—				—					
TEXTURE			—				—					

2. Does project design meet visual resource management objectives? ☐ Yes ☐ No (Explain on reverse side) N/A

3. Additional mitigating measures recommended ☐ Yes ☒ No (Explain on reverse side)

Evaluator's Name: DAVID A. WEISS Date: 4/2/95



EXHIBIT 1 - KOP #1 PRE-MINING PHOTOGRAPH



EXHIBIT 1A - KOP #1 POST-MINING PHOTOGRAPHIC SIMULATION



EXHIBIT 1B - KOP #1 POST-MINING PHOTOGRAPHIC ENLARGEMENT

KOP #2 represents a view of the project area from Highways 58 and 14 north of Mojave. This intersection is controlled by a traffic signal. The foreground view is composed of power poles, highway signs, billboards and railroad tracks. The middleground is composed of power poles, residential housing and open space. The background is composed of Soledad Mountain and other distant mountains. Photographs 2 and 2A illustrate the existing conditions and a photographic simulation of the Proposed Action respectively. Photograph 2B is an enlargement of the photographic simulation with labels and outlines to identify the Proposed Actions.

H-8431-1 - VISUAL RESOURCE CONTRAST RATING

Visual Contrast Rating Worksheet

VISUAL CONTRAST RATING WORKSHEET

BASED ON
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT GUIDELINES

Date: JANUARY 2, 1995

Project:

Project No.:

SECTION A. PROJECT INFORMATION

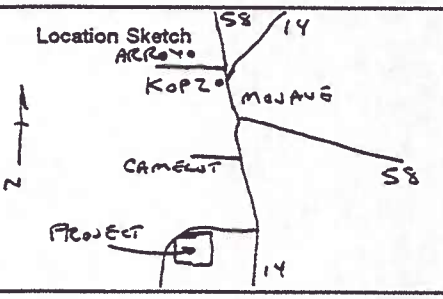
1. Project Name: SOLEDAD MOUNTAIN PROJECT

2. Key Observation Point: HWYS 58 & 14 NORTH OF MOJAVE

3. VRM Class: UNCLASSIFIED

4. Location
Township 10 N
Range 13W
Section 5,6,7,8
SAN BERNARDINO B & M

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FORE: FLAT, SMOOTH BACK: COMPLEX, RUGGED	COARSE, ROUNDED	VERTICAL, LINEAR, RECTANGULAR
LINE	FORE: STRONG EDGES BACK: BOLD, ANGULAR	WEAK, IRREGULAR, SOFT	VERTICAL, STRAIGHT, GEOMETRIC
COLOR	FORE: TAN BACK: TAN, BROWN	GREEN, BROWN	GREY, BROWN, GREEN
TEXTURE	FORE: SMOOTH BACK: ROUGH	RANDOM, MEDIUM	SPARSE, ORDERED

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	SOLID, GEOMETRIC, SMOOTH	–	–
LINE	ANGULAR, CURVED	–	–
COLOR	TAN, BROWN	–	–
TEXTURE	SMOOTH, CONTRASTY	–	–

SECTION D. CONTRAST RATING ☐ SHORT TERM ☐ LONG TERM

1. DEGREE OF CONTRAST

FEATURES

	LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
	Strong	Mod.	Weak	None	Strong	Mod.	Weak	None	Strong	Mod.	Weak	None
FORM		✓					✓					
LINE			✓				✓					
COLOR			✓				✓					
TEXTURE			✓				✓					

2. Does project design meet visual resource management objectives? ☐ Yes ☐ No (Explain on reverse side) N/A

3. Additional mitigating measures recommended ☐ Yes ☒ No (Explain on reverse side)

Evaluator's Name / Date

DAVID A. NEES 1/2/95



EXHIBIT 2 - KOP #2 PRE-MINING PHOTOGRAPH



EXHIBIT 2A - KOP #2 POST-MINING PHOTOGRAPHIC SIMULATION



EXHIBIT 2B - KOP #2 POST-MINING PHOTOGRAPHIC ENLARGEMENT

KOP #3 represents a view of the project area from Highways 58 and 14 in downtown Mojave. This intersection is controlled by a traffic signal. The foreground view is composed of power poles, highway signs, billboards and railroad tracks. The background is composed of Soledad Mountain. Photographs 3 and 3A illustrate the existing conditions and a photographic simulation of the Proposed Action respectively. Photograph 3B is an enlargement of the photographic simulation with labels and outlines to identify the Proposed Actions.

H-8431-1 - VISUAL RESOURCE CONTRAST RATING

Visual Contrast Rating Worksheet

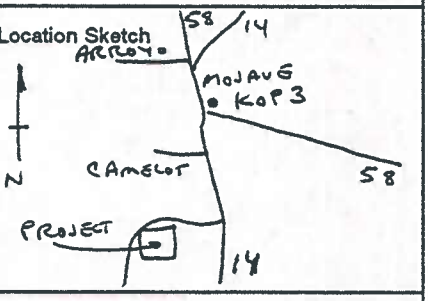
VISUAL CONTRAST RATING WORKSHEET BASED ON UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT GUIDELINES	Date JANUARY 2, 1995
	Project
	Project No.

SECTION A. PROJECT INFORMATION

1. Project Name: SOLEDAD MOUNTAIN PROJECT
2. Key Observation Point: HWYS 14 & 58 IN MOJAVE
3. VRM Class: UNCLASSIFIED

4. Location
Township 10N
Range 13W
Section 5, 6, 7, 8
SAN BERNARDINO B & M

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FORE: FLAT, VERTICAL, LINEAR BACK: COMPLEX RUGGED	COARSE, ROUNDED	—
LINE	FORE: BOLD, STRAIGHT BACK: BOLD, ANGULAR	WEAK, SOFT	—
COLOR	FORE: GREY, TAN BACK: TAN, BROWN	BROWN	—
TEXTURE	FORE: SMOOTH, FINE BACK: ROUGH	SPARSE, RANDOM	—

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	SOLID, GEOMETRIC, SMOOTH	—	—
LINE	ANGULAR, CURVED	—	—
COLOR	BROWN, TAN	—	—
TEXTURE	SMOOTH, CONTRASTY	—	—

SECTION D. CONTRAST RATING ☐ SHORT TERM ☐ LONG TERM

1. DEGREE OF CONTRAST

FEATURES

	LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
	Strong	Mod.	Weak	None	Strong	Mod.	Weak	None	Strong	Mod.	Weak	None
FORM		✓					✓			✓		
LINE			✓				✓					
COLOR			✓				✓					
TEXTURE			✓				✓					

2. Does project design meet visual resource management objectives? ☐ Yes ☐ No (Explain on reverse side) N/A

3. Additional mitigating measures recommended ☐ Yes ☒ No (Explain on reverse side)

Evaluator's Name — Date

DAVID A. WEISS 1/2/95



EXHIBIT 3 - KOP #3 PRE-MINING PHOTOGRAPH



EXHIBIT 3A - KOP #3 POST-MINING PHOTOGRAPHIC SIMULATION



EXHIBIT 3B - KOP #3 POST-MINING PHOTOGRAPHIC ENLARGEMENT

KOP #4 represents a view of the project area from Highway 14 and Camelot Boulevard south of Mojave. This intersection provides access to residential housing at the Camelot housing tract. The foreground view is composed of pavement, highway signs and markers for various buried utilities. The middleground is composed of open space and the existing Granite Construction Company aggregate operations at Standard Hill. The background is composed of Soledad Mountain. Photographs 4 and 4A illustrate the existing conditions and a photographic simulation of the Proposed Action respectively. Photograph 4B is an enlargement of the photographic simulation with labels and outlines to identify the Proposed Actions.

H-8431-1 - VISUAL RESOURCE CONTRAST RATING

Visual Contrast Rating Worksheet

VISUAL CONTRAST RATING WORKSHEET

BASED ON
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT GUIDELINES

Date: JANUARY 2, 1995

Project:

Project No.:

SECTION A. PROJECT INFORMATION

1. Project Name: SOLEDAD MOUNTAIN PROJECT

2. Key Observation Point: HWY 14 & CAMELOT BLVD

3. VRM Class: UNCLASSIFIED

4. Location

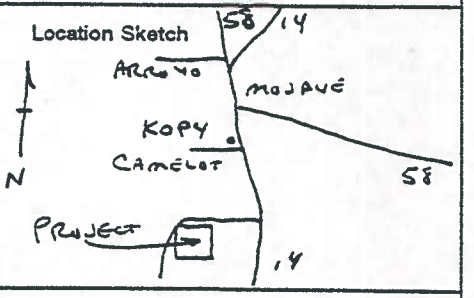
Township 10N

Range 13W

Section 5, 6, 7, 8

SAN BERNARDINO B & M

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FORE: FLAT BACK: COMPLEX, RUGGED	COARSE, ROUNDED	—
LINE	FORE: BOLD, STRAIGHT BACK: BOLD, ANGULAR	WEAK SOFT	—
COLOR	FORE: GREY, TAN, YELLOW, RED BACK: BROWN TAN	TAN, BROWN	—
TEXTURE	FORE: MEDIUM, [redacted] BACK: ROUGH	MEDIUM, RANDOM	—

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	SOLID, GEOMETRIC, SMOOTH	—	—
LINE	ANGULAR, CURVED	—	—
COLOR	BROWN, TAN	—	—
TEXTURE	SMOOTH, CONTRASTY	—	—

SECTION D. CONTRAST RATING ☐ SHORT TERM ☐ LONG TERM

1. DEGREE OF CONTRAST

FEATURES

		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		Strong	Mod.	Weak	None	Strong	Mod.	Weak	None	Strong	Mod.	Weak	None
	FORM		–					–			-		
	LINE			–				–					
	COLOR			–				–					
	TEXTURE			–				–					

2. Does project design meet visual resource management objectives? ☐ Yes ☐ No (Explain on reverse side) N/A

3. Additional mitigating measures recommended ☐ Yes ☒ No (Explain on reverse side)

Evaluator's Name: DAVID A WEISS Date: 1/2/95



EXHIBIT 4 - KOP #4 PRE-MINING PHOTOGRAPH



EXHIBIT 4A - KOP #4 POST-MINING PHOTOGRAPHIC SIMULATION

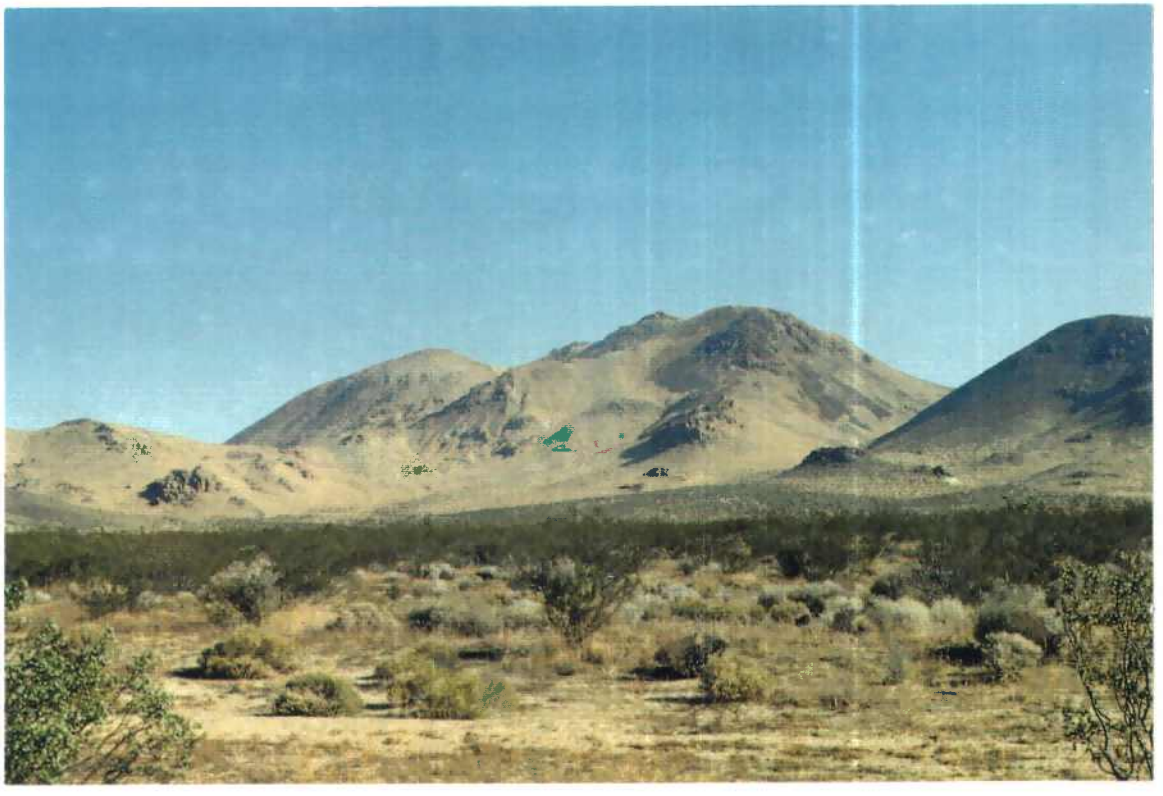


EXHIBIT 4B - KOP #4 POST-MINING PHOTOGRAPHIC ENLARGEMENT

RESIDENTIAL VIEWS



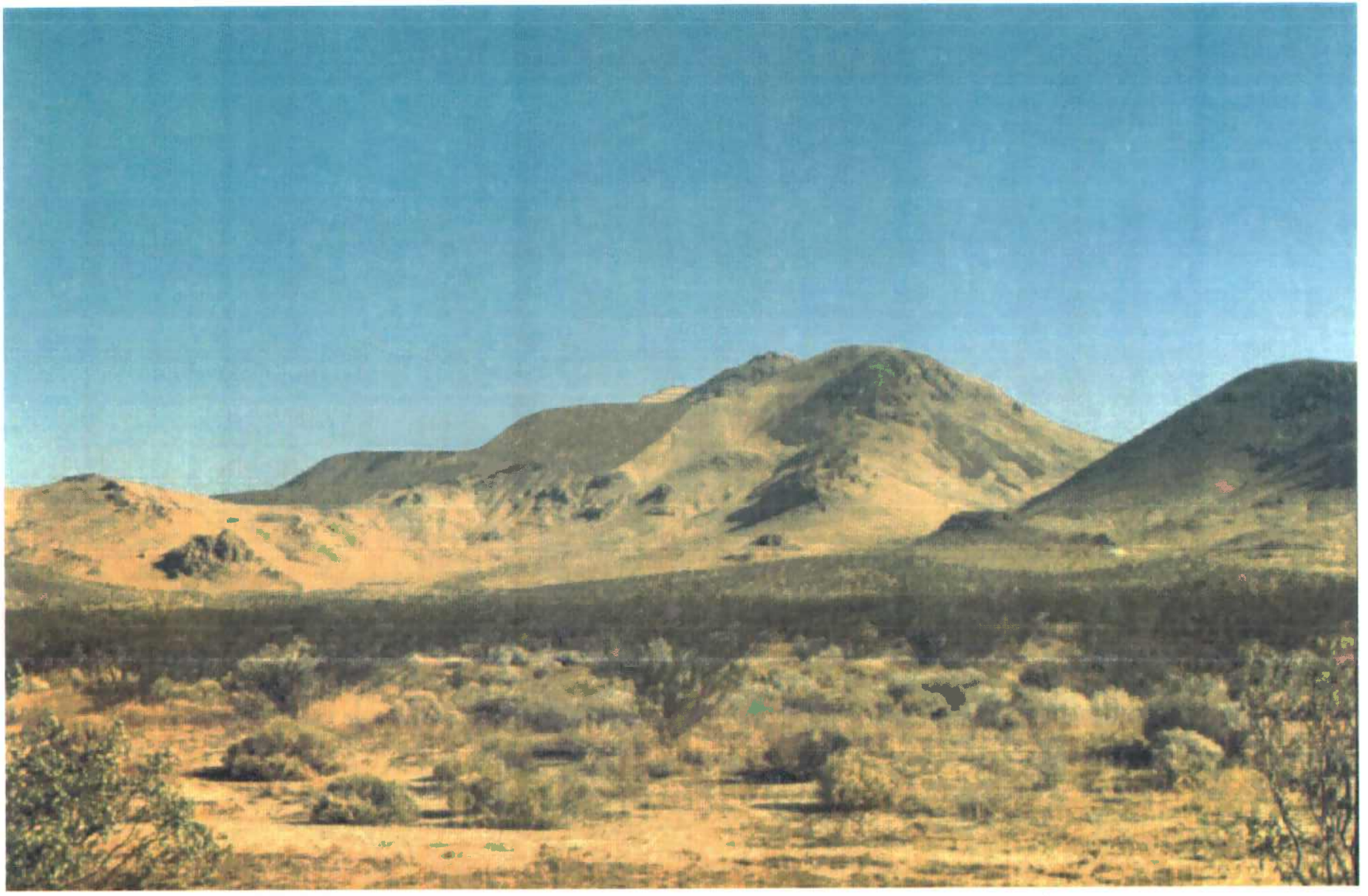
A. VIEW, LOOKING SOUTH, FROM CAMELOT HOUSING DEVELOPMENT.



B. VIEW, LOOKING NORTHWEST, FROM HIGHWAY 14 AND BACKUS ROAD.



A. POST-MINING PHOTOGRAPHIC SIMULATION VIEW, LOOKING SOUTH FROM CAMELOT HOUSING DEVELOPMENT.



B. POST-MINING PHOTOGRAPHIC SIMULATION VIEW, LOOKING NORTHWEST FROM STATE ROUTE 14 AND BACKUS ROAD.

Hersh Acoustical Engineering, Inc.
780 Lakefield Road, Unit G
Westlake Village, CA 91361
(805) 373-8533 Fax (805) 373-0733

PRELIMINARY NOISE IMPACT ANALYSIS REPORT

GOLDEN QUEEN MINING COMPANY

SOLEDAD MOUNTAIN PROJECT

Prepared by:

Joseph W. Celano, P.E.

January 27, 1997

Submitted to:

WZI Inc.
4700 Stockdale Highway, Suite 120
P.O. Box 9217
Bakersfield, CA 93389

INTRODUCTION

Golden Queen Mining Company proposes to develop an open pit precious metal mine and heap leach pad operation at Soledad Mountain in Kern County, approximately 5 miles southerly of the town of Mojave. This report presents the results of a preliminary analysis of potential noise impacts on surrounding residential land uses. At the present time, no mining or blasting is being conducted. Therefore, this analysis has been based on file data for blast noise obtained at a similar open pit mining operation, file, published and manufacturer's data for heavy equipment noise levels, and ambient noise monitoring that was conducted by others during May 1990 thru April 1991.

DEFINITIONS

The criteria and analyses outlined below use several descriptors to characterize noise. Most noise exposure criteria and Codes are written in terms of A-weighted sound levels. A-weighting is a frequency response network that approximates the relative sensitivity of human hearing to sounds of differing frequency (ref. ANSI S1.4). Often, sound levels in Codes are quoted using units of dB(A) or dBA, however this is technically incorrect. International standards specify that no additional characters such as A or (A) are to be appended to the symbol dB. The correct nomenclature is A-weighted sound level in dB. Noise levels quoted in this report are A-weighted unless otherwise noted, and dB will be utilized without the appended "A".

- Decibel (dB) - A unit division on a logarithmic scale whose base is the tenth root of ten, used to represent ratios of quantities proportional to power. [In simple terms, if the power is multiplied by a factor of ten, then ten is added to the representation of the power on the decibel scale. If 0 dB represents 1 unit of power, 60 dB represents one million units, etc.]

- Sound Pressure Level (SPL - dB) - The ratio, in decibels, of the mean squared sound pressure to the square of the reference pressure, 20 micropascals.

- The equivalent sound level (L_{eqT}) is the level of a constant sound which would contain the same sound energy during the same time period (T) as the time-varying sound being evaluated.

- Sound Exposure Level (SEL - dB) - The logarithmic product of the average noise level (usually A-weighted) and the time duration. (It is not an actual measured noise level, but rather it is used in the computation of long term averages such as CNEL and DNL.)

- DNL and CNEL are descriptors for the 24 hour A-weighted equivalent noise level with time of day penalties applied to sounds occurring outside of "daytime" hours. Both apply a 10 dB penalty to sound levels during nighttime (10:00 p.m. to 7:00 a.m.) hours. CNEL also applies a 5 dB penalty during evening (7:00 p.m. to 10:00 p.m.) hours. Under most "normal" circumstances, the difference between the two is typically less than 1 dB.

- Ambient Noise - The noise which results from the combination of all sources, near and far. The ambient noise level is expressed as L_{eqT}, DNL or CNEL as judged appropriate to the situation.

- Percentile Exceeded Sound Level (L_{PE} - dB) - The sound level (usually A-weighted) which is exceeded PE percent of a specified time period.

- Background Noise - The steady noise level which characterizes a given environment in the absence of transient sources. The background noise is usually expressed as L_{90}, the noise level which is exceeded 90% of the specified time period.

- Intrusive Noise - Noise from an identifiable source which causes a discernable change in the existing acoustic environment. Noises can be intrusive by virtue of excessive overall level, or as the result of unusual spectral or temporal characteristics.

CRITERIA

The Noise Element of the Kern County General Plan has adopted Day Night Noise Level (DNL) 65 dB and 45 dB (A-weighted) as the maximum allowable noise exposure at outdoor and indoor living areas, respectively, of residential developments. The Noise Element does not contain specific criteria for noise due to mining operations or for noise due to blasting.

National Research Council (NRC) documents, *Guidelines for Preparing Environmental Statements on Noise* (1977) and *Assessment of Community Response to High-Energy Impulsive Sounds* (1981), recommend use of C-weighted DNL when evaluating impulsive noise sources such as blasting. Specifically, NRC recommends computing the C-weighted

DNL for environments subjected to impulses having a C-weighted level of 75 dB or higher. The C-weighted DNL due to the blast noise is then added logarithmically to the A-weighted noise exposure due to other noise sources and the composite is utilized to evaluate the overall noise environment.

The recommendation for use of C-weighting for blast noise analysis was confirmed by additional research conducted by Schomer at the U.S. Army, Construction Engineering Laboratory (CERL) that was published in 1985 and 1986.

The Walsh-Healy hearing conservation regulations state that exposure to any single impulse noise should not exceed 140 dB, peak sound pressure level.

PROJECT DESCRIPTION

The project site is located approximately 5 miles southerly of the city of Mojave in the southeasterly portion of Kern County. It consists of an approximately 3.5 square mile parcel located on and around Soledad Mountain. The proposed project covers approximately 2 square miles, primarily on the northerly slope of Soledad Mountain. The project will consist of an open pit precious metal mine, leach pads, overburden material piles, ore processing facilities, shop, office and other support facilities.

Mining operations will typically occur 24 hours a day, 7 days a week, except for holidays. Blasting would normally occur once a day, during daytime hours.

Existing residential uses are located northerly of the project, on the northerly side of Silver Queen Road, southwesterly of the project along Mojave Tropico Road, and northeasterly of the project in Goldtown, which is an area zoned for residential use. It was reported that the residence in Goldtown was unoccupied and that area was not habitable due to the absence of a potable water source and septic system.

NOISE SETTING

Ambient noise monitoring was conducted in the vicinity of the project by Air Sciences Inc. during the period May 31, 1990 thru April 5, 1991. The monitoring site was reportedly located approximately 120 ft northwesterly of Silver Queen Road in the vicinity of existing residential land uses. The results are summarized in Table 1, below, and in Table A-1 in the Appendix. No noise monitoring was conducted for this analysis.

	Day Night Noise Level (DNL) - dB (A-weighted)			
	June 1990	Sept 1990	Dec 1990	Mar 1991
Month Average	61.9	55.4	54.9	59.7
Highest Day	71	63	63	69
Lowest Day	50	47	48	52

Table 1
Summary of Air Sciences Inc.
Noise Monitoring Results

Upon examination of the data contained in Table 1, it can be seen that daily ambient noise levels at the monitoring site were in the range DNL 47-71 dB. Monthly average levels were in the range DNL 55-62 dB. For the most part, these noise levels were in compliance with the County's DNL 65 dB outdoor noise criterion for residential uses. However, the 65 dB criterion was exceeded on several days during June 1990 and March 1991. Since these data were obtained by means of unattended monitoring equipment, the causes of noise levels in excess of the criterion are not known.

NOISE IMPACTS

Noise due to mining operations such as this project falls into two categories. The first is general mining activity including front end loaders, off-road haul/dump trucks, bulldozers, rock drills, rock crushing and screening equipment, conveyors, etc., any or all of which could normally operate up to 24 hours a day, 7 days a week. The second is blasting, which would normally occur once a day during the daytime.

General Operational Noise:

General operational noise was modeled based on the "first year" equipment list shown in Table 2, below. The computer model assigned reference noise levels based on data furnished by the equipment manufacturer's representative, USEPA document *NTID300.1*, and file data from field measurements on other projects. These reference levels were adjusted to compute the Day Night Noise Level (DNL) based on first year operational hours estimates that were provided by the applicant and are shown in Table 2.

Equipment was distributed throughout the proposed project site based on likely operating locations. For example, off-road haul trucks, water trucks, wheel loaders, track dozers,

motor graders, light plants and support vehicles were distributed throughout the proposed mine pit, process facilities and perimeter overburden areas. Drills were confined to the pit area.

Equipment		Operation Schedule		Reference Noise	
Type	Quantity	Average Hours per Day	Time of Day and/or Night	Level - dB (A-wtd)	Distance feet
Blast Drills	3	12.3	Day & Night	96.4	21
Loaders	4	12.5	Day & Night	86	50
Haul Trucks	9	15	Day & Night	90	50
Dozers	3	15	Day & Night	89	50
Motor Graders	2	9.5	Day & Night	77	50
Water Trucks	2	20.4	Day & Night	89	50
Light Plants	6	9	Night only	68	23
ANFO Truck	1	12	Day & Night	83	50
Fuel Truck	1	12	Day & Night	83	50
Maint Truck	3	12	Day & Night	83	50
Pass Van	1	12	Day & Night	68	50

Table 2
First Year Mining Equipment List

The computer model assumes unobstructed line-of-sight sound transmission from all noise sources with no allowance for shielding of sound by intervening terrain features. Thus, it would tend to somewhat over predict offsite noise since it is not likely that all equipment would be visible at all times from all possible observer locations. Further, as development proceeds and the pit deepens, much of the equipment will operate within the pit where it would be shielded from off-site observers by the walls of the pit. Thus, future offsite noise levels would likely be lower.

The results of the computations are shown on the attached noise contour plot. Nearby existing residential uses are indicated on the plot by the numerals 1 through 9. All of these residences are located outside of the computed DNL 65 dB contour. Estimated noise exposure at residences 1 through 4 would be in the DNL 59-63 dB range and noise at

residences 6 through 9 would be in the DNL 53-58 dB range. The computed 65 dB contour just clears residence 5, however, it was reported that this residence cannot be occupied due to lack of an occupancy permit.

Upon examination of the contour plot, it can be seen that close to the mine, the shapes of the contours are irregular and reflect the somewhat arbitrary placement of the individual pieces of equipment. However, far from the mine, where the distances to the contours are large compared to the separations between individual pieces of equipment, the contours are approximately concentric circles around the center of activity.

Blast Noise:

Blast noise was measured on three occasions during 1994 at another mining operation which is located in easterly Kern County and was reported to be similar to the proposed project. The blasts consisted of from 143 to 230 individual ANFO charges distributed over areas of approximately 1.2 to 2 acres that were detonated in a defined sequence. During Blast 1, the detonation sequence was generally towards the measurement locations. Blasts 2 and 3 were sequenced generally away from the measurement locations. It was reported by mine staff that Blast 1 was unusually loud, possible due to shallower than normal blast hole depth, and that blasts this loud occur rarely, possibly once in five to ten blasts. Blasts 2 and 3 were reported to be "typical". Table 3, below summarizes the results of these measurements.

	Blast Noise Levels Normalized to 1000 ft Reference Distance From Center of Blast Area			
	Sound Exposure Level (SEL) - dB			Maximum Blast SPL - dB
	A-wtd	C-wtd	Flat	
Blast 1	100.3	120.4	125.3	140.8
Blast 2	74.4	99.6	107.4	116.0
Blast 3	58.9	96.3	109.6	111.2

Table 3
Summary of Blast Noise Measurement Results

If it is assumed that noise levels comparable to Blast 1 occur once in five blasts and that the other four blasts are comparable to Blasts 2 and 3, the average C-weighted sound

exposure level would be approximately SEL 114 dB at the 1000 ft reference distance. The proposed open pit mine will encompass approximately 250 acres in an irregularly shaped area some 4000 ft in "diameter". Thus, blast noise levels at any off-site location would vary substantially depending on the location of the blast within the pit. Table 4 below, shows blast noise exposure at various distances from the nominal center of the blast computed assuming the "maximum" SEL value of 120 dB based on the loudest of the three measured blasts, an "average" SEL value of 114 dB as described above, and a minimum SEL value of 96 dB based on the quietest of the three blasts.

Distance from Nominal Center of Blast - feet	Estimated C-wtd DNL - dB for Various Blast Sound Exposure Levels (SEL at 1000 ft)		
	SEL_{max} 120 dB	SEL_{avg} 114 dB	SEL_{min} 96 dB
1000	70.6	64.6	46.6
2000	64.6	58.6	40.6
3000	61.1	55.1	37.1
4000	58.6	52.6	34.6
5000	56.6	50.6	32.6
6000	55.0	49.0	31.0

Table 4
Range of Blast Noise Exposure for
Various Blast Noise Levels at Various Distances

Upon examination of the results shown in Table 4 it can be seen that the daily C-wtd DNL due to a single blast would be below 65 dB at 2000 ft from the center of a "worst case" blast and below 65 dB at 1000 ft from the center of an "average" blast. The nearest occupiable residential use would be at least 2500 ft from the center of a blast. Therefore, the blast noise exposure at this location would be approximately DNL 62.5 dB for a worst case blast and below DNL 57 for an average blast.

Composite Noise Exposure:

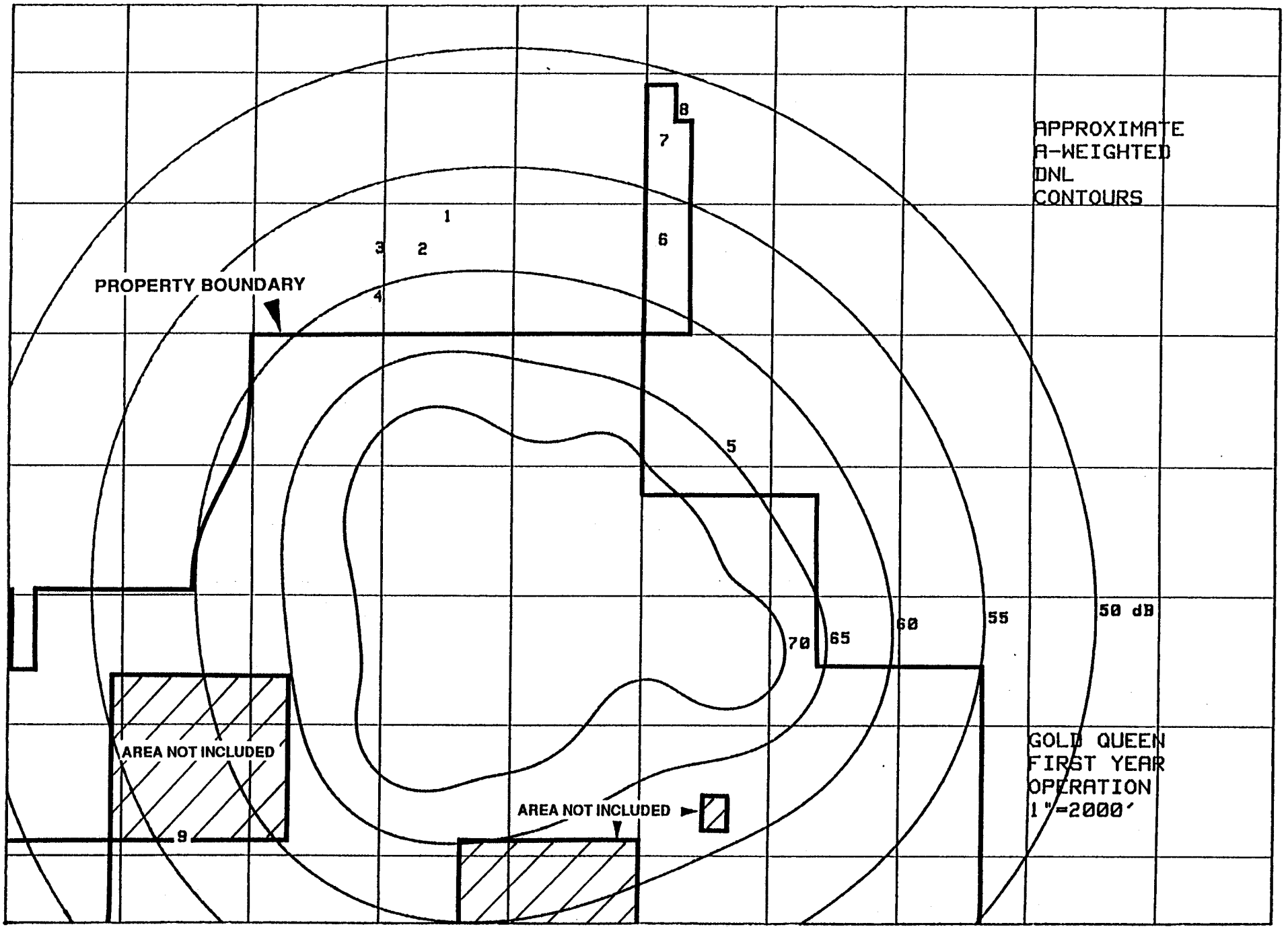
On the basis of the above, A-weighted non-blast noise exposure would be DNL 62-63 dB or lower at occupiable residences and C-weighted blast noise would be DNL 57 or lower for an average blast. Therefore, the composite noise exposure, computed per NRC recommendations would be below DNL 64 dB on a day that a average blast occurs.

A worst case blast could produce a C-weighted noise exposure of approximately DNL 62.5 dB at the nearest occupiable residence. This would result in a composite noise exposure of approximately DNL 65.5 dB on a day that a worst case blast occurs.

CONCLUSIONS

On the basis of these analyses, the project should conform with the County's DNL 65 dB maximum outdoor noise exposure requirement at occupiable residences when noise exposure is computed as recommended by NRC utilizing C-weighted blast noise. The overall noise exposure computed utilizing A-weighted levels only, since the County has no specific requirements for blast noise evaluation, would be essentially as shown on the A-weighted DNL contour plot since A-weighted blast noise exposure would be some 20 dB lower than C-weighted blast noise, and thus would be inconsequential on an overall daily basis.

At such time as the area surrounding the project should become developed, composite noise exposures could exceed the DNL 65 dB criterion at some residences, depending on the degree of shielding provided by intervening terrain features, both natural and man made, i.e. the walls of the pit, and on locations and hours of operation of equipment on the mine site. If this condition were to occur, noise mitigation measures would be necessary. The simplest mitigation scheme would be to place a restriction on nighttime equipment operational hours in portions of the mine closest to the noise impacted residences. Details could be determined on a case by case basis and should be based on noise monitoring of actual operations.


APPROXIMATE
A-WEIGHTED
DNL
CONTOURS
PROPERTY BOUNDARY
1
2
3
4
5
6
7
8
9
70
65
60
55
50 dB
AREA NOT INCLUDED
AREA NOT INCLUDED
GOLD QUEEN
FIRST YEAR
OPERATION
1"=2000'

Soledad Mountain Project
Summary of Air Sciences Inc.
Noise Monitoring Results

Day	Date	DNL	Day	Date	DNL	Day	Date	DNL	Day	Date	DNL
152	1-Jun-90	67	244	1-Sep-90	48	335	1-Dec-90	55	60	1-Mar-91	55
153	2-Jun-90	57	245	2-Sep-90	47	336	2-Dec-90	49	61	2-Mar-91	54
154	3-Jun-90	61	246	3-Sep-90	49	337	3-Dec-90	55	62	3-Mar-91	52
155	4-Jun-90	67	247	4-Sep-90	55	338	4-Dec-90	54	63	4-Mar-91	54
156	5-Jun-90	65	248	5-Sep-90	55	339	5-Dec-90	54	64	5-Mar-91	55
157	6-Jun-90	71	249	6-Sep-90	57	340	6-Dec-90	54	65	6-Mar-91	62
158	7-Jun-90	67	250	7-Sep-90	58	341	7-Dec-90	55	66	7-Mar-91	64
159	8-Jun-90	53	251	8-Sep-90	53	342	8-Dec-90	50	67	8-Mar-91	58
160	9-Jun-90	55	252	9-Sep-90	47	343	9-Dec-90	49	68	9-Mar-91	53
161	10-Jun-90	52	253	10-Sep-90	55	344	10-Dec-90	53	69	10-Mar-91	57
162	11-Jun-90	56	254	11-Sep-90	55	345	11-Dec-90	53	70	11-Mar-91	62
163	12-Jun-90	64	255	12-Sep-90	61	346	12-Dec-90	53	71	12-Mar-91	59
164	13-Jun-90	59	256	13-Sep-90	60	347	13-Dec-90	59	72	13-Mar-91	57
165	14-Jun-90	55	257	14-Sep-90	52	348	14-Dec-90	63	73	14-Mar-91	68
166	15-Jun-90	61	258	15-Sep-90	51	349	15-Dec-90	52	74	15-Mar-91	69
167	16-Jun-90	56	259	16-Sep-90	49	350	16-Dec-90	56	75	16-Mar-91	54
168	17-Jun-90	51	260	17-Sep-90	50	351	17-Dec-90	54	76	17-Mar-91	52
169	18-Jun-90	57	261	18-Sep-90	48	352	18-Dec-90	57	77	18-Mar-91	55
170	19-Jun-90	55	262	19-Sep-90	49	353	19-Dec-90	59	78	19-Mar-91	60
171	20-Jun-90	57	263	20-Sep-90	50	354	20-Dec-90	55	79	20-Mar-91	56
172	21-Jun-90	55	264	21-Sep-90	52	355	21-Dec-90	55	80	21-Mar-91	60
173	22-Jun-90	55	265	22-Sep-90	50	356	22-Dec-90	49	81	22-Mar-91	56
174	23-Jun-90	51	266	23-Sep-90	50	357	23-Dec-90	50	82	23-Mar-91	52
175	24-Jun-90	50	267	24-Sep-90	56	358	24-Dec-90	50	83	24-Mar-91	57
176	25-Jun-90	60	268	25-Sep-90	56	359	25-Dec-90	48	84	25-Mar-91	57
177	26-Jun-90	64	269	26-Sep-90	57	360	26-Dec-90	53	85	26-Mar-91	56
178	27-Jun-90	65	270	27-Sep-90	56	361	27-Dec-90	52	86	27-Mar-91	55
179	28-Jun-90	63	271	28-Sep-90	57	362	28-Dec-90	55	87	28-Mar-91	55
180	29-Jun-90	54	272	29-Sep-90	52	363	29-Dec-90	60	88	29-Mar-91	54
181	30-Jun-90	51	273	30-Sep-90	49	364	30-Dec-90	49	89	30-Mar-91	53
182	1-Jul-90	54	274	1-Oct-90	57	365	31-Dec-90	51	90	31-Mar-91	52
183	2-Jul-90	60	275	2-Oct-90	63	1	1-Jan-91	49	91	1-Apr-91	59
184	3-Jul-90	58				2	2-Jan-91	52	92	2-Apr-91	59
185	4-Jul-90	56				3	3-Jan-91	51	93	3-Apr-91	56
						4	4-Jan-91	51	94	4-Apr-91	56
Month Average		**61.9**			**55.4**			**54.9**			**59.7**
Highest Day		**71**			**63**			**63**			**69**
Lowest Day		**50**			**47**			**48**			**52**

Table A-1

AMBIENT BASELINE NOISE MONITORING PLAN
SOLEDAD MOUNTAIN PROJECT
MOJAVE, CALIFORNIA

Prepared for
Noranda Mining Corporation
Lakewood, CO

Prepared by
Air Sciences Inc.
Lakewood, CO

Project 58-07
June 1990

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1.0 INTRODUCTION

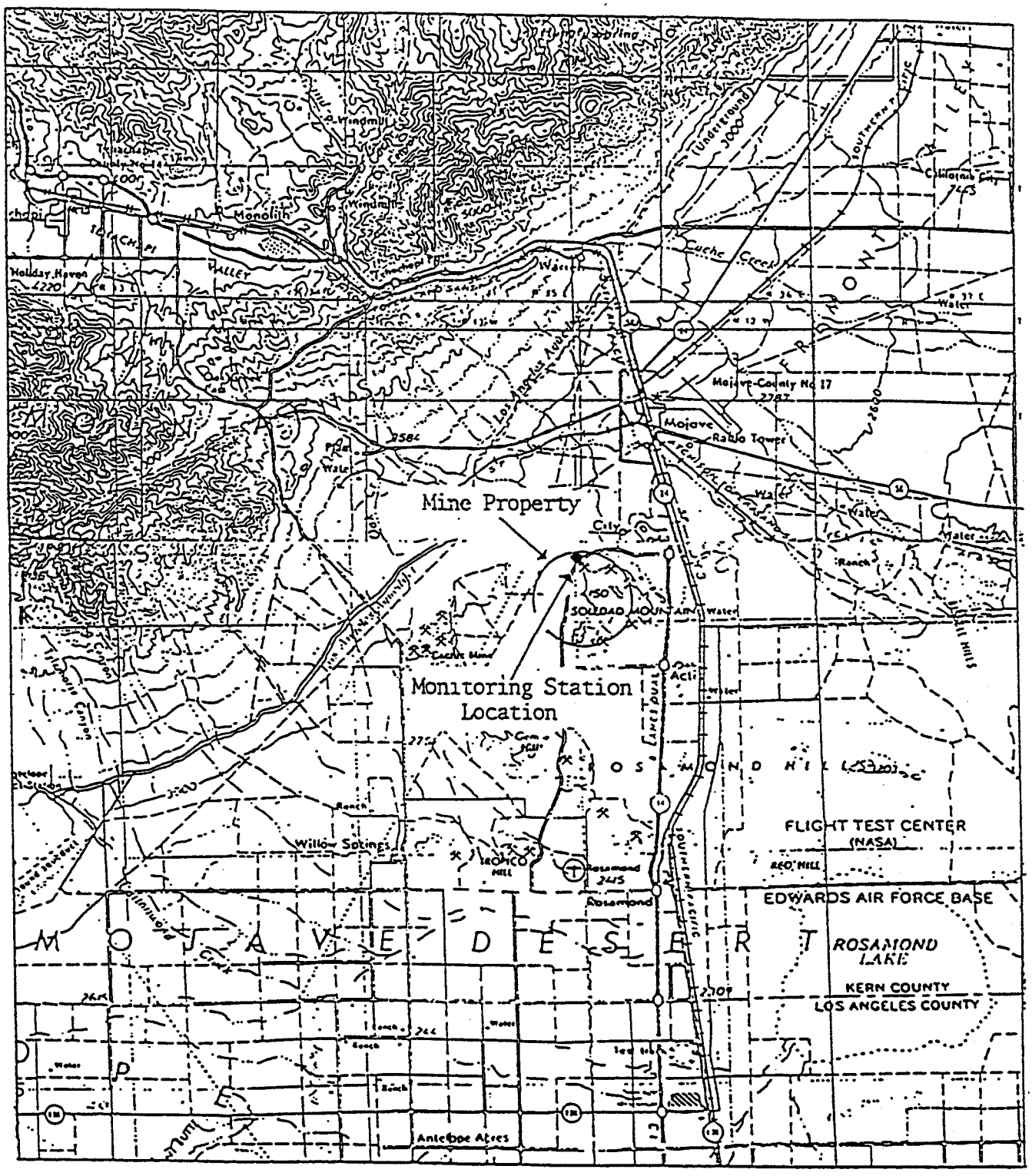
The noise monitoring study is being performed to determine baseline ambient noise levels adjacent to the Soledad Mountain Project, a proposed open-pit mining project. The Soledad Mountain Project is located in southeastern Kern County, California about 5 miles south southwest of the town of Mojave at Soledad Mountain in the Mojave Desert. This noise study will be part of an Environmental Impact Statement to be prepared to address county concerns from this project. Noise impacts will also be estimated for moving machinery and process equipment to be located at the mine, and these levels will be added to the baseline conditions determined by Air Sciences' study to estimate the ambient noise impact from this mining project when it is in operation. The noise level estimates are not be addressed in this document. The baseline noise data will be collected at one station located near Mojave-Tropico Road in an area between the mine and a nearby residential neighborhood. The noise monitoring station will be operated for one month during each season of the year in order to collect representative baseline noise level data for an entire year. Noise monitoring instruments will be calibrated at the time of initial installation and after every six months of data collection.

Noise levels will be measured with a sound level monitor which will be set for one second sampling of the A-weighted scale. Data will be recorded by digital data loggers and entered into dB categories of 1 dB width ranging from 30 to 80 dB. The maximum instantaneous sound level value and time of occurrence will be stored on the digital data storage modules by the data logger every hour. The dB distribution will also be written to the storage modules on an hourly basis. The sound data is processed and reported as sound level averages, frequency distributions, and instantaneous peaks on a daytime/nighttime/evening basis.

2.0 SAMPLING LOCATION

The baseline noise monitoring station will be located about 120 feet northwest of Mojave-Tropico Road on the northwestern side of the project. This area is near residences and should measure noise levels representative of those experienced by the nearby residents. Figure 1 shows the location of the noise monitoring station. The monitoring station is located on relatively flat ground with sagebrush and widely scattered Joshua trees.

FIGURE 1
GENERAL PROJECT LOCATION



CONTOUR INTERVAL 200 FEET
WITH SUPPLEMENTARY CONTOURS AT 100 FOOT INTERVALS

TRANSVERSE MERCATOR PROJECTION

3.0 SAMPLING METHODS

Equipment for the sound study is composed of a sound level meter, a digital data logger, two data storage modules, and battery packs as power supply systems. The sound monitoring station will be installed, meters calibrated, and the data processed by Air Sciences. Soledad Mountain Project personnel will be responsible for changing battery packs and shipping data storage modules to Air Sciences for data processing.

The sound level meter will be a Quest Electronics Model 215 sound level meter. The meter will be calibrated with standards traceable to the U.S. National Bureau of Standards (USNBS) at station installation and every six months during data collection. The Model 215 sound level meter has a fixed omnidirectional microphone and will be shielded from the weather with a Quest Electronics Model WS-3 foam windscreen.

The digital data logger is a Campbell Scientific Model 21X micrologger, a digital data acquisition and processing microprocessor-based device. The data storage modules will be Campbell Scientific Model SM192 digital storage modules. The modules will be changed every week by the site operator and mailed by overnight mail to Air Sciences for data validation and processing.

The monitoring station system will be installed inside a fenced enclosure. The microphone will be mounted about 6 feet above ground level on a boom pointing toward the ground and positioned at least 2 feet from the mounting pole. The data logger will be inside a weather-proof enclosure that is equipped with a radiation shield to prevent heat buildup inside the enclosure. The logger is mounted at ground level opposite from the boom.

Calibrations of the sound level meter will be performed using a Quest Electronics Model CA-12 calibrator, a hand-held 1000 Hertz calibrator, traceable to USNBS sound pressure levels. An example of a calibration form is included in this report as Figure 2.

The data logger will be programmed to sample sound on a 1-second interval. These sound values will be stored in the logger's internal memory over a 1-hour time period and output to the storage module at the end of the 1-hour interval as a histogram of the sound data and the absolute maximum value and time of maximum value that occurred during the hour. The logger will distribute the noise data into categories of 1 dB width. The Model 215 meter will sample over a range of 30 to 80 dB (52 categories). Attachment A, located at the end of this report, is a description of the logger program used to collect the raw hourly data.

FIGURE 2

SOUND LEVEL SENSOR CALIBRATION FORM

Sensor Model No. :	_____	Client :	_____
Sensor Serial No. :	_____	Job No. :	_____
Sensor Height :	_____	Site :	_____
Logger Serial No :	_____	Date :	_____
Calibrator Serial # :	_____	Time :	_____
Calibrator Model # :	_____		

I. System Configuration:

Sound Meter Range : _____ to _____ db's

Weighing : _____

II. System Calibration Check:

Sensor Input (db)	Logger reading (db)
_____	_____
_____	_____
_____	_____

4.0 SITE OPERATIONS PROCEDURES

The site operator of the baseline noise monitoring station will be responsible for visiting the site to check the overall operating condition of the equipment, changing batteries and storage modules, and to make observations of any events such as weather conditions (thunder) or aircraft flyovers that might contribute to peak sound level values. A noise monitoring station field log form will be completed during each site check by the site operator. This form is included as Figure 3. The site operator will make note of the date of the visit, time of arrival and departure, document observations of noise events, and storage module and battery changes. The site operator will interrogate the logger and record the current sound level energy value being recorded and the battery voltages of the three battery packs that supply power for the monitoring system. These site check duties should be performed twice weekly, on Monday and again on Friday. The site operator will also be responsible for changing the storage module every week during data collection and mailing the module by overnight mail to Air Sciences for final processing. The battery packs normally should have a fully charged voltage of 9 volts. When the battery voltage of any power supply package should drop to below 7 volts, the site operator will be responsible for changing the battery pack and documenting the new battery voltage on the field log. Prior to each month of data collection all noise monitor system batteries should be replaced with new batteries. Attachment B, at the end of this report, is a schedule showing the months of sound monitoring with days for site checks and storage module changes indicated symbolically.

FIGURE 3

NOISE MONITORING STATION FIELD LOG

Date	Arrival Time	Equipment Condition	Current dB Reading	Battery Readings			Departure Time	Comments
				1	2	3		

5.0 DATA PROCESSING METHODS

Each day of data will be summarized into separate distributions by time of day. Daytime is defined as the hours of 7 a.m. to 7 p.m., evening is 7 p.m. to 10 p.m., and nighttime is the hours of 10 p.m. to 7 a.m. All these times will be in local time for consistency with lifestyle schedules. The frequency distributions by time of day are calculated as the arithmetic averages of the raw hourly distributions from the micrologger's built-in histogram program. These distributions will be summarized in monthly tables by time period showing the average histogram for each day with an average energy value, peak value, and time (accurate to 1 minute) of peak value for each day of the month. These tables will also include summary information by time of day for the entire month on a separate line. These monthly values will be averaged and peak values reported for the entire year of data collection. The frequency distributions to be produced and reported by Air Sciences will be composed of 19 dB categories, normally 3 dB in width except for the first and last categories. Table 1 details the categories and their ranges.

TABLE 1

DATA CATEGORIES FOR REPORTED SOUND LEVEL FREQUENCY DISTRIBUTIONS

CATEGORY	RANGE
Category 1	< 29 dB
Category 2	≥ 29, < 32 dB
Category 3	≥ 32, < 35 dB
Category 4	≥ 35, < 38 dB
Category 5	≥ 38, < 41 dB
Category 6	≥ 41, < 44 dB
Category 7	≥ 44, < 47 dB
Category 8	≥ 47, < 50 dB
Category 9	≥ 50, < 53 dB
Category 10	≥ 53, < 56 dB
Category 11	≥ 56, < 59 dB
Category 12	≥ 59, < 62 dB
Category 13	≥ 62, < 65 dB
Category 14	≥ 65, < 68 dB
Category 15	≥ 68, < 71 dB
Category 16	≥ 71, < 74 dB
Category 17	≥ 74, < 77 dB
Category 18	≥ 77, < 80 dB
Category 19	≥ 80 dB

For averaging purposes, any value less than 29 dB will be assigned a value of 29 dB and all values in each dB category above 29 dB will be assigned the value of the upper 1 dB limit of the category. The dB averages will be calculated as the arithmetic average of the acoustic energy equivalent of the dB values. Arithmetic averages are calculated according to the following equations:

$$\bar{I} = \frac{1}{N} \sum_{k=30}^{80} K_n \left(10^{\frac{dBn}{10}} \right)$$

$$\overline{dB} = 10 \log \bar{I}$$

where:

$\overline{dB}$ = average dB level

n = number of samples in period to be averaged

Kn = number of samples in that dB category

dBn = dB category

N = total number of samples

6.0 REPORTING

The baseline noise data will be reported as follows in one yearly report:

* Three tables (one for each time period) for each month of data collection containing:

  Frequency distribution for each day.

  Average energy level for the day.

  Peak value recorded during 1-second sampling for day.

  Time of peak value (to nearest minute) for day.

  Summary line for the month showing all of above information for the month.

* Three tables (one for each time period) for the entire year of data collection showing:

  Summary lines for each month as (above).

  Summary line for the year.

* Copies of all calibrations performed during the year.

* Copies of field log kept by site operator.

Attachment A

21X Program
for Soledad Mountain Sound Monitoring 05/09/90

ID	DATA	DESCRIPTION
LOG1	*	
00	1.0	1 second PROGRAM INTERVAL*
01P	1	VOLTAGE MEASUREMENT (SE)
01	1	repetitions
02	15	range 0-2,500 mv fast
03	1	input channel
04	1	storage location
05	.05	slope
06	30.0	intercept
02P	10	BATTERY VOLTAGE
01	2	storage location
03P	78	Set output resolution
01	1	High resolution
04P	92	IF TIME SET OUTPUT FLAG
01	0	T into INT
02	60	INT 60 minutes
03	10	set flag 0
05P	77	REAL TIME OUTPUT
01	110	output day, hour-minute
06P	71	AVERAGE
01	2	repetitions
02	1	starting input location
07P	73	MAXIMIZE
01	1	repetitions
02	10	output hour and minute
03	1	input storage location

08P	75	HISTOGRAM
01	1	repetitions
02	52	bins
03	0	open-beyond data limits included
04	1	bin select location (input storage)
05	0	frequency distribution
06	29	lower limit
07	81	upper limit

= Site Check
M = Change Storage Module

MAY 1990

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	June Sampling Begins 31		

= Sl... Tech
SM = Change Storage Module

JUNE 1990

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4 *	5	6	7	8 SM *	9
10	11 *	12	13	14	15 SM *	16
17	18 *	19	20	21	22 SM *	23
24	25 *	26	27	28	29 SM *	30

SM = Change Storage Module

JULY 1990

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5 JUNE SAMPLING ENDS SM *	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

SM = Change Storage Module

AUGUST 1990

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	September 31 Sampling Begins * B	

SEPTEMBER 1990

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3 *	4	5	6	7 SM *	8
9	10 *	11	12	13	14 SM *	15
16	17 *	18	19	20	21 SM *	22
23	24 *	25	26	27	28 SM *	29
30						

SM = Change Storage Module

OCTOBER 1990

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	September 3 Sampling ends SM *	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

SM = Change Storage Module

NOVEMBER 1990

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	December 30 Sampling begins * B	

SM = Change Storage Module

DECEMBER 1990

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3 *	4	5	6	7 SM *	8
9	10 *	11	12	13	14 SM *	15
16	17 *	18	19	20	21 SM *	22
23	24 *	25	26	27	28 SM *	29
30	31					

SM = Change Storage Module

JANUARY 1991

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	December 3 Sampling ends SM *	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

CSM = Change Storage Module

FEBRUARY 1991

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28 March Sampling begins * B		

SM = Change Storage Module

MARCH 1991

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4 *	5	6	7	8 SM *	9
10	11 *	12	13	14	15 SM *	16
17	18 *	19	20	21	22 SM *	23
24	25 *	26	27	28	29 SM *	30
31						

= Site Check
SM = Change Storage Module

APRIL·1991

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	March Sampling ends * SM 4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

NOISE LEVEL DATA COLLECTION AND PROCESSING METHODS

SOLEDAD MOUNTAIN PROJECT

DATA COLLECTION METHODS

The following is a brief summary of the noise level data collection methods employed on this project. Please refer to the attached sampling protocol for more detailed information. A Quest Model 215 Type II sound level meter was used to measure the ambient noise level (sound pressure level, re 20 micropascals, dBA). The output of the Model 215 was connected to a Campbell Scientific 21X data logger. The data logger was programmed to sample the output of the Model 215 once every second and store the data in the form of a frequency histogram. The histogram ranged from 30 to 80 dBA with 52 one dB wide "bins". The first bin contains all sound pressure levels (SPLs) below 30 dBA, and the last bin contains all SPLs above 80 dBA.

The data logger was programmed to calculate and store data on an hourly basis. The hourly data consists of the date (Julian day), time (hour), average SPL (arithmetic), average battery voltage, maximum SPL occurring in the hour, time of maximum SPL, and 52 histogram data points. Each histogram data point, or "bin", contains the number of SPL samples equal to the range for that bin divided by 3,600 (the number of seconds in an hour).

DATA COLLECTED

Data was collected continuously during the following periods:

May 31, 1990 - Jul. 05, 1990
Aug. 31, 1990 - Oct. 3, 1990
Nov. 30, 1990 - Jan. 5, 1991
Feb. 28, 1991 - Apr. 5, 1991

DATA PROCESSING METHODS

The hourly histogram data was processed to calculate the hourly Leq and hourly L90. The Ldn was calculated from the Leq date. These metrics are commonly used to describe ambient noise levels. The Leq is a single-number descriptor equal to the total sound energy of a time-varying sound level over a given time period. The day-night level (Ldn) is often used in assessing noise impact. It is essentially a 24-hour Leq with 10 dB added to the hourly Leqs between 10:00 p.m. and 7:00 a.m. to account for increased noise sensitivity during the nighttime. The level exceeded 90% of the time (L90) is the most common descriptor of ambient noise because it excludes noise levels of short duration. These levels tend to be caused by individual events which are not commonly occurring.

The original data was stored in twenty comma-delimited ASCII computer files. Each file contains about one week of data. These files were combined into one file, with a blank space between each of the four measurement periods. The Leq, Ldn, and L90 were calculated as follows:

$$\text{Leq} = 10 \times Log((1/3600) \times \sum_{n=1}^{52}(bin_n) \times (3600) \times 10\text{^}(Lp_n \div 10))$$

where n = bin number
bin_n = contents of bin "n"
Lp_n = sound pressure level value of bin "n"

$$\text{Ldn} = 10 \times Log((1/15) \times \sum_{d=1}^{15} 10\text{^}(Leq_d \div 10) + (1/9) \times \sum_{n=1}^{9} 10\text{^}((Leq_n + 10) \div 10))$$

where d = daytime hours of 7:00 a.m. to 10:00 p.m.
n = nighttime hours of 10:00 p.m. to 7:00 a.m.
Leq_d = daytime hourly Leqs
Leq_n = nighttime hourly Leqs

$$\text{L90} = Lp \Leftrightarrow 0.1 \sum_{n=1}^{52} bin_n$$

where n = bin number
Lp = sound pressure level
binn = contents of bin "n"

DATA FORMAT

The noise level data is contained in three files. The names, format, and contents of each of these files is as follows:

1. Name: ALLNOISE.RAW
   Format: comma-delimited ASCII
   Contents: All raw data as originally collected. See file for contents of each field.

2. Name: ALLNOISE.NEW
   Format: comma-delimited ASCII
   Contents: All calculated data including Leq, Ldn, and L90 levels. See file for field contents.

3. Name: ALLNOISE.XLS
   Format: Microsoft Excel Workbook (version 5.0)
   Contents: All calculated data including Leq, Ldn, and L90 levels. See file for field contents.

Day (Julian)	Time (hhmm)	Leq (dBA)	Ldn (dBA)	L90 (dBA)	Lmax (dBA)	
151	1500	60		47.5	75	START
151	1600	57		42.5	77	
151	1700	55		42.5	73	
151	1800	60		49.5	75	
151	1900	60		47.5	73	
151	2000	50		37.5	67	
151	2100	55		43.5	71	
151	2200	45		35.5	65	
151	2300	43		34.5	62	
152	0	59		44.5	76	
152	100	64		52.5	77	
152	200	51		38.5	67	
152	300	57		43.5	77	
152	400	60		40.5	79	
152	500	51		36.5	70	
152	600	51		38.5	68	
152	700	48		37.5	69	
152	800	51		39.5	65	
152	900	51		38.5	71	
152	1000	47		32.5	71	
152	1100	55		31.5	79	
152	1200	45	67	30.5	69	
152	1300	46		31.5	72	
152	1400	49		30.5	75	
152	1500	46		31.5	71	
152	1600	47		35.5	63	
152	1700	48		37.5	62	
152	1800	49		37.5	62	
152	1900	50		39.5	64	
152	2000	48		36.5	65	
152	2100	51		41.5	66	
152	2200	53		42.5	67	
152	2300	46		36.5	62	
153	0	49		39.5	65	
153	100	49		36.5	66	
153	200	48		35.5	67	
153	300	48		35.5	64	
153	400	49		32.5	67	

153	500	41		31.5	58
153	600	40		32.5	63
153	700	46		31.5	71
153	800	41		31.5	68
153	900	44		32.5	66
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177	1500	59		46.5	73
177	1600	58		45.5	75
177	1700	56		41.5	75
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258	1100	43		30.5	61
258	1200	44	51	30.5	68
258	1300	44		31.5	67
258	1400	43		30.5	62
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260	1300	53		40.5	71
260	1400	52		39.5	72
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260	1600	53		40.5	73
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268	700	50		32.5	72
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269	1300	52		30.5	73
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339	1900	42		30.5	63
339	2000	41		31.5	63
339	2100	42		31.5	66

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340	300	40		32.5	65
340	400	34		31.5	45
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340	800	48		32.5	68
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340	1500	49		31.5	72
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341	700	52		33.5	75
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341	1200	48	55	32.5	71
341	1300	44		31.5	68
341	1400	49		31.5	72
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363	1000	65		49.5	78
363	1100	61		46.5	78
363	1200	57	60	44.5	75
363	1300	45		35.5	61
363	1400	45		33.5	67
363	1500	42		32.5	66
363	1600	39		32.5	59
363	1700	41		32.5	62
363	1800	43		32.5	68
363	1900	42		32.5	63
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363	2100	41		32.5	62
363	2200	39		32.5	61
363	2300	40		31.5	63
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364	400	34		31.5	47
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364	600	45		31.5	72
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364	800	42		31.5	68
364	900	40		31.5	63
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364	1100	44		31.5	70
364	1200	38	49	31.5	61
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365	400	38		32.5	59
365	500	36		31.5	61
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365	900	45		32.5	72
365	1000	44		33.5	68
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1	300	33		31.5	56
1	400	32		31.5	33
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1	600	37		31.5	62
1	700	33		31.5	50
1	800	42		31.5	66
1	900	37		31.5	58
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1	1300	42		31.5	69
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3	1300	48		34.5	71

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59	900	51		30.5	76	START
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65	1700	60		45.5	77
65	1800	59		45.5	77
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76	100	44		33.5	66
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76	300	41		33.5	64
76	400	37		33.5	60
76	500	37		33.5	61
76	600	42		33.5	70
76	700	42		34.5	61
76	800	41		34.5	61
76	900	44		34.5	69
76	1000	45		36.5	64
76	1100	46		35.5	67
76	1200	45	52	34.5	64
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76	1400	46		33.5	67
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76	1600	49		35.5	70
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76	2300	39		33.5	62
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77	500	37		33.5	59
77	600	46		34.5	73

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77	900	48		35.5	75
77	1000	46		34.5	70
77	1100	50		34.5	75
77	1200	54	55	34.5	81
77	1300	46		33.5	70
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77	1600	48		34.5	68
77	1700	49		37.5	67
77	1800	48		34.5	70
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78	400	40		36.5	48
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88	1900	50		32.5	74
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91	1200	56	59	44.5	70
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95	300	39		33.5	62
95	400	37		33.5	48

95	500	43		33.5	66
95	600	50		34.5	76
95	700	48		34.5	71
95	800	44		33.5	67

GOLDEN QUEEN MINING COMPANY, INC.
SOLEDAD MOUNTAIN PROJECT

AMBIENT NOISE LEVEL MONITORING

Leq (dBA)	L90 (dBA)	Lmax (dBA)	
66	52.5	83	HIGHEST NOISE LEVELS
30	29.5	30	LOWEST NOISE LEVELS
45	34.7	65	AVERAGE NOISE LEVELS

ANALYSIS OF SOCIOECONOMIC IMPACTS OF THE PROPOSED GOLDEN QUEEN MINING CO. INC. SOLEDAD MOUNTAIN PROJECT

Date:

January 1995

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SYNOPSIS

The project proposed by Golden Queen Mining Co. Inc. would construct and operate an open pit precious metals mine in eastern Kern County near the community of Mojave. The project would be constructed over an eight-month period and would operate for a period of 7 to 10 years.

During construction phase, direct expenditures for labor and materials would infuse approximately $13.7 million dollars into the regional economy. Two hundred and fifty workers would be employed, earning some $9.9 million dollars in wages. This economic activity would indirectly support an additional 166 workers with wages of $3.7 million paid.

The project will create 144 permanent jobs, which will pay $4.8 million dollars in wages annually, exclusive of benefits. The annual expenditures made by Golden Queen Mining on goods, labor and other services will support another 136 jobs, which are expected to pay wages of $3.3 million. The value added annually by the direct and indirect effects of this activity are forecast at $8.3 million.

Because of its location, the project will impact both Kern and Los Angeles Counties, and adjustments have been made in this analysis to reflect this situation. It is assumed that about one-half of the people employed by the project will live in Los Angeles County and that they will spend their disposable income where they live.

A proportion valuation approach was taken in determining the fiscal impact the project would likely have on the County of Kern. That analysis indicates tax receipts would exceed the expenditures for government services necessitated by the project by approximately $40,700 in Year 1. This assumes a contribution to the County General and Fire Funds of $57,224 and projected service costs of $16,500.

This analysis concludes that the project will substantially enhance the regional economy. The project is not deemed growth inducing because the jobs created will, in all likelihood, replace those being eliminated by the closure of a similar facility within the area. Golden Queen anticipates hiring most, if not all, of its employees from that pool of people.

Predicted Impacts to Regional Economy
(Millions of dollars)

	Employment	Wages	Value Added
Direct	144	$4.8	$4.5
Indirect	136	$3.3	$3.8
Total	280	$8.1	$8.3

1.0 INTRODUCTION

This report presents the findings of the socioeconomic analysis of the development of the gold mining operation proposed by Golden Queen Mining Co. Inc. for eastern Kern County near the community of Mojave. The analysis includes direct impacts to County government and direct and indirect impacts to the regional economy that can be reasonably expected from the proposed development.

This report has been prepared specifically for this project. Assumptions have been made based on information provided by agents and employees of Golden Queen Mining Co. Inc. and by city and county agencies. The data, both given and derived, and the conclusions drawn from their analysis are specific to this project and cannot reliably be applied to any other project.

1.1 Summary Project Description

The project proposed by Golden Queen Mining Co. Inc. includes the construction and operation of an open pit precious metals mine and heap leach recovery operation on Soledad Mountain. The project location is approximately 5 miles from the community of Mojave, which is situated in southeastern Kern County, California.

If approved, the project's eight-month long construction phase would begin in mid-1995. Operations would continue for 7-10 years. They would include open pit mining and use of a heap leach process to extract the precious metals from the mined ore.

The project is expected to employ approximately 250 people during the construction phase, and 144 people during the operation of the facility. Permanent employees are expected to be drawn from people who were until recently or are currently employed by other mining companies that are currently operating within the County but expected to phase out their operations during the early stages of the proposed project.

Over the life of the project, approximately 4 million tons of precious metals ore will be produced on an annual basis. It is also anticipated that an estimated 50% to 60% of the overburden materials removed in the mining process will be sold as aggregate and construction material.

1.2 Methods

This study comprises two components: an analysis of fiscal impacts to the County of Kern and an analysis of the direct and indirect impacts to the regional economy of Kern County. Each of these is analyzed with respect to one-time impacts associated with construction of the project and to recurrent impacts associated with the operation of the facility over the course of its anticipated life.

The fiscal impacts are calculated using the estimated revenues generated by the project and accruing to the affected governmental agencies, and the estimated cost of services provided to the project by those agencies. Cost estimates are based on a proportional valuation method, which assumes that intensity of development is a good predictor of the level of government services required. This approach is used in the absence of marginal cost data for county services. Special attention is given to fire and police protection, but the anticipated costs of these services are included in the proportional valuation analysis. Because another comparable facility operating in this area is expected to close down in the near future and that Golden Queen will employ people currently working at that facility, the incremental costs added by this project are expected to be very small.

The impacts to the regional economy are both direct and indirect in nature. The former include sales of local goods and services to the project during both the construction and operations phases. The indirect impacts include the subsequent spending in the community by employees' families and other providers of goods and services. These latter are known as "multiplier" effects. It must be noted that these are particular to this project and cannot be generally applied. They relate specifically to the types of jobs created and the specific mix of goods and services demanded and are estimates and are based on assumed sector-specific regional purchase coefficients, which are used to model the inter-regional flows that are expected. Expressed a different way, these coefficients predict the leakage of direct purchases to other regions.

The following data sources, information and assumptions were used in preparing this report:

1. Project-specific information regarding construction and operation of the proposed facility was provided by Golden Queen Mining Co., Inc. Additional information was provided by WZI, Inc.
2. Estimates of revenues and costs accruing to the County of Kern are based on information provided by employees of that agency. A contact list is provided as an appendix.
3. Regional economic projections were prepared using the Regional Science Research Corporation input-output model customized for Kern County.
4. All costs and revenues are expressed in constant dollars using 1994 as the base year, with the exception of property tax revenue which is inflated by 2% per annum as allowed under the provisions of Proposition 13, passed by California voters in 1978. Since the average inflation rate since 1980 has been 4.7%, the purchasing power of property tax receipts has eroded over time, prompting local agencies to request fiscal impact analyses.
5. It is assumed that market forces will allocate natural resources to their highest and best use, and that the interest rate mechanism will allocate natural resources efficiently to present and future uses.

2.0 ANALYSIS OF IMPACTS

2.1 One-Time Impacts

One time impacts are those associated with the permitting and construction of the facility. For the purposes of this report, only those which affect the local economy are considered. They are as follows:

- **Direct Impacts**
  Infusion into the economy of $13.7 million in the form of expenditures on building materials and labor costs during the planned eight-month construction period beginning in June 1995. Approximately 250 workers will be employed during the construction phase.

  Expenditure of $250,000 locally for permitting fees and consultant services.

- **Indirect Impacts**
  Multiplier effects of the $13.7 million spent locally. This infusion is expected to support 166 additional jobs during the construction phase as it works its way through the economy when local firms and the workers to whom they pay wages make purchases of goods and services unrelated to the project. Additional wages indirectly attributable to the project are predicted to total $3.3 million.

2.2 Recurrent Impacts

Recurrent impacts are those associated with operation of the facility throughout its expected life. Only local impacts are considered. These fall into two categories: Fiscal impacts to local governmental agencies and impacts to the regional economy (county economy). Both direct and indirect regional economic effects are considered.

2.2.1 Fiscal Impacts

- **Revenue to Local Governments**

1. Property Taxes
   Based on cash flow projections for this project, a first year property tax payment of approximately $267,000 is anticipated. This figure was estimated by the Kern County Assessor's office using the preliminary information provided by Golden Queen Mining Co. The actual tax bill will be calculated when more detailed information is available.

   Because the calculations for subsequent years depend heavily on the level of productive activity, the timing of subsequent capital investments and the

methods used to depreciate these investments, it is difficult to predict the property tax bill for each year of operation. Consequently, only the first year impacts will be presented in this analysis. The level of government services necessitated by the project also depend heavily on productive activity, and as the present value of the project's anticipated stream of income declines over its expected life-span, so will the level of services required under the assumptions of the proportional valuation method being used.

Property taxes to be paid on the mining operations are levied at the rate of 1% of assessed value. Approximately 20.2% of these would accrue to the County of Kern's General Fund, which would receive about $53,900 in Year 1. An additional $2,260 would accrue to the County's Fire Fund. Total revenue received by both these County Funds from taxes on the mining operation would total about $56,200.

Property taxes amounting to $3,696 are currently being paid by Golden Queen Mining Company on property owned within the project boundaries. These taxes will continue to be paid in addition to those that would be paid on the mining operation. Property taxes being paid on other property which is being leased by Golden Queen for this project are not included in this analysis.

Golden Queen Mining Company's tax contribution for property taxes on the mining operation and the property owned within the project boundaries together would be approximately $54,650 to the General Fund and $2,574 to the Fire Fund, or a total of $57,224 in Year 1.

2. Sales Taxes

No sales tax will be directly generated by the project, however there will be indirect impacts as employees spend their earnings in the County. Wages, exclusive of benefits, of $4.8 million are forecast. Based on statistics from the California Board of Equalization, it is assumed that 35.9% of income will be spent on taxable sales. It is further assumed that roughly 50% of these employees will live in Los Angeles County, and that purchases will be made in place of residence. Under these assumptions, the County of Kern will collect approximately $8,600 annually in sales tax from employees of the proposed project. Additional tax revenue will be realized as receipts from taxable sales are spent by local merchants and their employees. More is said about this under the heading of regional economic impacts.

3. Annual Fees to County Agencies
The project will be inspected regularly by several county agencies and will pay approximately $4,935 in fees for those inspections. They are distributed as follows:

County Agency	Service	Estimated Fee
Engineering & Survey Services	Annual mine inspection	$100-$200
Engineering & Survey Services	Annual review of financial assurance	$150
Air Pollution Control District	Annual permit fees	$3,300
Fire Department	Annual facility inspection	$1,335

❑ Estimated Costs to Local Governments

A proportional valuation method was used to predict the cost of municipal services attributable to the project, using information from the Kern County assessment rolls to determine the percentage of service expenditures for all departments attributable to commercial/industrial property.

Assumptions of the proportional valuation method are as follows: Municipal service costs increase as the intensity of land use increases; the change in real property value is a reasonable indicator of intensity of use. When the average value of non-residential property within a jurisdiction differs significantly from the average real property value for all properties, the direct proportional relationship must be refined to avoid errors in estimating the costs incurred by the non-residential development. The aggregate impacts of commercial and industrial land uses on municipal service costs are similar enough to allow these uses to be considered in a single category.

Given the estimated project value of $26,689,000, cost of services totaling approximately $16,500 is anticipated. With predicted property tax proceeds of $57,224, the project will provide a fiscal benefit to the County of about $40,700.

Estimates of service costs for fire and police protection are included in the estimate given above, but these two public safety areas are given additional attention below.

1. Fire Protection
Property taxes from this project would contribute approximately $2,574 to the Fire Fund. The Fire Department may also receive funds from the County General Fund. To the extent this occurs in any budget year, the project's contribution to Fire Department operations would exceed the

amount given above. The project would also pay approximately $1,335 annually for inspection fees.

The most likely types of calls to be generated by this type of project are medical emergency calls and hazardous materials calls. The fire department estimates the cost per hours of providing these services at $223.06 for medical response and $459.85 for hazardous materials response. At these rates, the project's contribution to the Fire Fund alone would provide nearly 12 hours of medical response service or approximately 5.6 hours of hazardous materials response.

The Fire Department estimates that twelve calls will be generated annually by the project (Hailey, 12/13/94).

2. Police Protection
The Sheriff's Department was contacted for comments. Their representative indicated that they anticipate no additional calls for service as a consequence of this project.

Summary of Fiscal Impacts to County of Kern

Receipts to County	
General Fund	$54,650
Fire Fund	$2,574
Total	$57,224
Cost of Services	$16,500
Surplus (Deficit)	**$40,724**

2.2.2 Regional Economic Impacts

- **Direct Impacts**

The proposed project will create 144 permanent jobs, and it is anticipated that most, and perhaps all, employees will be hired from the local labor pool as other precious metals mining facilities in the area have either ceased production or are in the final phases of production and expected to cease production in the near future. Wages, exclusive of benefits, are estimated at $4.8 million per year. As the jobs created will largely be replacing jobs that have been or are being eliminated by other concerns, this project will limit contraction in the mining industry and cannot be considered growth inducing.

Associated with these direct impacts are state tax receipts of an estimated $328,000 per year and local taxes of $338,000 per year. These include state income tax, excise taxes, sales tax, and other taxes which are based on changes

in output or wages. How the local taxes are distributed among agencies will largely depend on where workers live. The assumption in this study is that approximately fifty percent will live in Los Angeles County (as detailed below), so it is expected some portion of the projected local tax revenue will flow to that locale.

- **Indirect Impacts**

The operation of the Golden Queen facility can be expected to indirectly support approximately 136 additional jobs on an annual basis, paying $3.3 million in wages and representing an additional $3.8 million value added to the gross regional product. These "multiplier" effects will occur:

1. as employees of Golden Queen spend their wages in the community.
2. as vendors who do business with Golden Queen disburse the proceeds of these transactions in the form of wages to workers.
3. as vendors who do business with Golden Queen purchase goods and services from other vendors.
4. as employees of vendors spend their wages in the community.

The cumulative effects of these spending rounds were calculated using an input-output model. Jobs are considered to be supported rather than created, and wages considered to be maintained rather than added because the Golden Queen project is expected to pick up slack created in the region's economy by earlier cut-backs and the anticipated closure of other mining facilities. Though there may be an incremental increase or decrease in overall levels of employment and wages, the extent cannot be determined without more explicit information regarding these other mining operations, and this is unavailable. Based on information from the project proponent, it is assumed that the losses and gains will be roughly offsetting. If the Golden Queen project is not approved, a contraction in the regional economy is to be expected when the currently operating mine is closed. Exact impact of that anticipated closure cannot be determined without data specific to that operation.

Associated with these indirect and induced effects is an estimated $3.8 million value added. How much of this increase would be realized in Kern County and how much would benefit neighboring Los Angeles County cannot be precisely determined without more detailed information about the location of workers' residences and expenditure patterns for that region of Eastern Kern County. The assumption made, using project proponent input, State Board of Equalization and census data is that approximately 50% of the workers will live in Los Angeles County. It is further assumed that local vendor purchases made by Golden Queen will be evenly distributed between the two counties. Capacity does exist in the Kern County regional economy to satisfy the

demand created by the operation of Golden Queen's project and the increase in area income associated with it, however.

Under the assumptions regarding spending patterns, local taxes accruing to public agencies in Kern County would be increased by approximately $320,000, with a comparable amount going to agencies in Los Angeles County, as a result of the direct and indirect activity.

3.0 CONCLUSIONS

The proposed development of the Golden Queen Mining Company project will greatly enhance the regional economy of Kern County, creating 144 permanent jobs paying $4.8 million in wages. These jobs will offset job losses associated with expected closure of a similar facility within the same region, so the project is viewed as preventing retraction in the regional economy rather than inducing growth.

The anticipated direct economic effects of this project include a value added of $4.5 million, and increase of approximately $328,000 in state tax receipts and of $338,000 in receipts to local jurisdictions. The project is expected to generate a $40,700 positive cash flow to the County of Kern by providing taxes in excess of the costs it would incur for County services.

The indirect impacts of this project include the support of an additional 136 jobs throughout the economy, providing $3.3 million in wages and another $3.8 million in value added. An additional $304,000 would be expected to accrue to both the state and local governments from the economic activity generated indirectly.

4.0 APPENDIX

4.1 CONTACTS

County of Kern

Adel Klein, Director of Policy Analysis & Intergovernmental Relations
Bruce Elliott, Senior Economic Analyst/Appraiser, Office of Kern County Assessor
Deputy Chief Dan Clark, Fire Department
Battalion Chief Le Costel Hailey, Hazardous Materials Control Unit, Fire Department
Chief Robert Fisher, Sheriff Department, Administrative Services Bureau
Aaron Light, Resource Management Agency, Engineering and Survey Services
Richard Lloyd, Resource Management Agency, Engineering and Survey Services
Tom Paxson, Director, Air Pollution Control District
Jim Ellis, Resource Management Agency, Planning and Development Services

4.2 REFERENCES

California State Board of Equalization, Taxable Sales in California (Sales and Use Tax).
County of Kern, Kern County Profile, 1994.
County of Kern, Adopted Budget Fiscal Year 1994-95.
County of Kern, Assessment Roll, 1993-94.
County of Kern, Fiscal Impact Analysis Guidelines, Fiscal Year 1994-95.
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U.S. Dept. of Commerce, Bureau of the Census, 1990 Census of the Population and Housing, California.
WZI, Inc., Golden Queen Mining Co. Inc. Project Description, October 1994.

KERN COUNTY FIRE DEPARTMENT

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ADMINISTRATIVE SERVICES OFFICER
MICHAEL R. PARKER

December 13, 1994

To: Ms. Susan Weaver
Weaver, Hawley, & Mills Consultants

From: Le Costel Hailey, Battalion Chief
Hazardous Materials Control Unit

Subject: Gold Mining Operations

This is in response to your request for information regarding gold mining operations in the Station 14 (Mojave) area. Using the Cactus Gold Mine business plan as a representative sample, we found that a company with five to six facilities, using a leach process, and with an excess of ten inventory items would expect to have an annual fee of approximately $1,335.00, for example:

108,000 lbs. of Sodium Cyanide x its Hazard Rating of .04 = 4,320 Volume Weighted Units = Fee Group 64

Variations in numbers of facilities, quantities, and hazard ratings would, of course, affect the annual fee amount. We are enclosing a copy of our fee ordinance/schedule for your reference.

Regarding the impact on the local fire station, we might anticipate approximately one call per month to this facility. If we can be of any further help, please call us at 861-2761.

LH/fw
Enclosure

SUSAN H. WEAVER

EDUCATION

Master of Arts (Economics), University of Southern California
Master of Planning, University of Southern California
Bachelor of Arts, University of Toledo

HONORS

Honor Society of Phi Kappa Phi
California Planning Foundation Award
Haynes First Year Fellow, USC
Pi Gamma Mu, National Social Science Honor Society

PROFESSIONAL EXPERIENCE

Coordinator Legislative and Public Affairs, Kern County Resource Management Agency
Assistant to the Third District Supervisor, Kern County Board of Supervisors
Economics Instructor, Bakersfield Community College
Associate Editor, Pacific Rim Business Digest
Assistant Lecturer, Freshman Writing Program, University of Southern California
City of Bakersfield Planning Commissioner

PROJECT EXPERIENCE

Fiscal Impact Analysis
Socioeconomic Impact Analysis
Econometric Modelling
Land Use Planning
Government Finance and Operations
Transportation Issues Analysis
Air Quality Regulation/Legislation Analysis
Growth Management Analysis

ASSOCIATIONS

American Planning Association
Air and Waste Management Association
Urban Land Institute, Associate Member
Urban and Regional Information Systems Association

SEDWAY KOTIN MOUCHLY GROUP
Real Estate and Urban Economics

Addendum to the Socio-Economic Study

Presented to:

Golden Queen Mining Company, Inc.

Presented by:

Sedway Kotin Mouchly Group

October 28, 1996

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S·K·M·G

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I. EXECUTIVE SUMMARY

Sedway Kotin Mouchly Group (SKMG) was retained to evaluate the potential impact on values of residential properties in proximity to the proposed Soledad Mountain Project. Golden Queen Mining Company proposes to develop an open pit precious metals (gold and silver) mine on and around Soledad Mountain, approximately 1.5 miles west of State Highway 14 off of Silver Queen Road, roughly four miles southwest of Mojave, an unincorporated area. To analyze this issue, SKMG utilized a three-prong approach including case studies to assess housing sales before and after the introduction of mining in the vicinity; a literature search to determine whether research on the subject exists; and interviews of entities involved in mining activities and local real estate.

In the case of the Golden Queen Mining Company's proposed Soledad Mountain Project, it is important to make several observations.

- *The Site is Already Zoned for Mining.* The current Specific Plan zoning allows mining operations at the Soledad Mountain Project site. Mining is a pre-existing land use.

- *Mining is Long Established in the Area.* Mining operations have existed in the area since the 1800s, and modern mining practices have been operational in the immediate area for over 10 years.

- *The Local Housing Market is in Decline.* The economic downturn in Southern California over the last six years has resulted in local housing values decreasing by over 25%.

- *Golden Queen Will Have a Positive Economic Impact.* The Soledad Mountain Project will provide a positive economic impact in the region by creating 144 permanent jobs generating an additional $4.8 million in wages to the local economy per year. In addition, 250 construction workers will be employed, earning approximately $9.9 million dollars in wages.

RESEARCH FINDINGS

There are three mines in the general vicinity of Soledad Mountain, all constructed since the mid-1980s. Historical home sales data was collected to evaluate whether there was any discernable negative impact on values by comparing average sales prices for periods prior

and subsequent to construction of the mines. No conclusive deductions could be drawn from this analysis due to several factors:

1. Tracking finite areas was not possible in this rural area over a 15-year time span with the available data sources;

2. There is a relatively limited number of homes and sales in proximity to the mines;

3. The homes are very diverse products (*e.g.*, they vary widely as to lot size, age of structure, quality, etc.); and

4. The severe economic downturn in the region generally commencing in 1989-1990 which led to such extraordinary market conditions as roughly 70% of resales being foreclosures.

However, the research disclosed that homes were built in the vicinity of mining after the Standard Hill and Cactus mines started operations and that these homes were purchased even though mining was located nearby. In summary, mining and housing have co-existed in the area for the last ten years.

Case study analysis of other mining areas resulted in the following findings. Typically, mining activities are located in regions more remote from residential areas and often precedes other types of development. It is not uncommon for mining to stimulate economic growth in an area. Interviews were conducted with representatives of mines and brokers in Green Valley, Arizona, and Jamestown, California. While these two mining areas do not have directly comparable characteristics, they were the best examples identified. The interviews provided anecdotal information, which although not definitive in nature, provides some insights.

Pricing of homes in Green Valley were reported to be similar to housing projects throughout the Tucson region and to not be impacted by mining activity. Housing in this area is adjacent to tailing mounds which are a couple of hundred feet high and terraced, although actual mining operations are roughly four miles away.

Large-lot housing was developed in Jamestown overlooking active mining operations which shows that mining did not stop housing development from occurring nor did it keep houses from selling which had close-up views of the active operations. One broker's anecdotal comments indicated the mine impacted housing values within an estimated half-mile radius, but concrete information as to dollar amount or other potential factors contributing to the pricing could not be ascertained. It was not possible to conduct a systematic, rigorous statistical analysis given the rural nature of these areas; limited sample size; variation in product characteristics; problems in obtaining historical data; and other similar factors.

SKMG found no studies on directly comparable issues through a literature search which employed the Appraisal Institute, Urban Land Institute, newspapers, and the Internet.

CONCLUSIONS

The following is a summary of the impact on property values expected to be experienced by the three residential areas in proximity to Soledad Mountain.

The economic stimulus provided by the 144 new jobs and $4.8 in wages represent a 2% to 3% increase in local employment and personal income. At a regional level, the proposed Soledad Mountain Project will have a *positive* impact on real estate values.

All residences in this area are already experiencing a downturn in prices due to the general economic depression in the Mojave/Rosamond area.

Silver Queen Road/Mojave Tropico (Immediately Adjacent Areas)

Residences within a half-mile of the mining operations could be impacted. There is insufficient data to anticipate the exact magnitude of price reduction. Values, currently depressed, are approximately $70,000 to $80,000.

Camelot

SKMG's analysis indicates that there will not be a measurable impact on property values in the Camelot community as a result of Golden Queen mining activities. Standard Hill Mine is closer to Camelot than is the proposed Soledad Mountain Project.

Backus Road Corridor

SKMG's analysis indicates that the residences along the Backus Road corridor will not experience any measurable value loss relative to the proposed Soledad Mountain Project, given the distance from the mining operations and the topography separating the two.

II. INTRODUCTION

As part of the EIR/EIS process for Golden Queen Mining Company, Sedway Kotin Mouchly Group (SKMG) was retained to estimate the potential impact of the proposed Soledad Mountain Project on the property values of existing residences in proximity to the proposed project. Golden Queen Mining Company proposes to develop an open pit precious metals (gold and silver) mine with cyanide heap leach, overburden piles and associated processing facilities. Aggregate and construction materials may be sold as by-products. This document will be incorporated into an EIR/EIS prepared under the Kern County Planning Department and the U.S. Bureau of Land Management as lead agencies prepared in response to scoping comments as required by the lead agencies.

APPROACH

In order to determine the potential impacts on residential property values, SKMG visited the mining project site and surrounding areas. An initial assessment was made based on information obtained from WZI Inc., and the Notice of Preparation and Visual Resources Analysis relative to the types of potential impacts of the mining operations. In conjunction with WZI, SKMG reviewed the anticipated sphere of influence for each major category of impact. To obtain information specific to the area, SKMG conducted interviews of local brokers and an appraiser and utilized data sources such as TRW/REDI Property Data, the Kern County Council of Government, and local chambers of commerce.

SKMG also conducted a literature search, researched case studies, and contacted various entities involved in mining activities and local real estate. The literature search employed resources from the Appraisal Institute, Urban Land Institute, and the Los Angeles Times archives, as well as a document search on the Internet in an effort to determine whether research existed on mining impacts on property values. Case studies were researched to determine whether there were impacts on residential values or long-term trends in value, and to identify any mitigations used to offset such impacts. Entities contacted by SKMG include California Mining Association, State Department of Conservation, Division of Mines and Geology, State Clearinghouse, Federal Bureau of Land Management, Southern California Rock Products Association, Aggregate Producers of Northern California, several mining companies, as well as local planning agencies and local real estate brokers and appraisers.

SKMG evaluated the applicability of the findings from the case studies and literature search and the various interviews as to the conditions associated with the proposed Soledad Mountain project.

PROJECT DESCRIPTION

The proposed mining operation is to be located in the high desert area of southeastern Kern County, approximately five miles north of Rosamond and four miles southwest of Mojave, both unincorporated areas. The subject site is located in the northern portion of the Antelope Valley, which encompasses the southern portion of Kern County and the northern portion of Los Angeles County, stretching between the Tehachapi Mountains and the Angeles National Forest. This northern portion of the Antelope Valley is much more rural than the southern portion, as illustrated by the population concentrations. The Mojave/Rosamond area had a population of only 26,000 in 1994, as compared to roughly 215,000 for the Palmdale/Lancaster area.

The project area is on and around Soledad Mountain. The entrance to the facility is expected to be approximately 1.5 miles west of State Highway 14, off of Silver Queen Road. The majority of the operations will be located on the northern side of the mountain.

The mining site encompasses approximately 1,228 acres, of which 935 acres will be disturbed. Approximately 208 acres of the project area have been disturbed by historical mining and mining related activities. Major mining activity and related disturbance is located on the north side of Soledad Mountain.

Construction of facilities is scheduled to commence in 1997 and is anticipated to require nine to twelve months to complete. Mining operations are anticipated to begin in 1998 and continue until approximately the year 2014, with processing operations continuing until approximately 2016, when closure and reclamation will begin.

A socioeconomic analysis of the proposed mining operation prepared in 1995 estimates that the mine will create 144 permanent jobs, generating an additional $4.8 million per year in wages in the local economy. The analysis estimated that expenditures made by the mining operation will support another 136 jobs, which are expected to pay wages of $3.3 million annually. Construction employment is expected to require 250 employees, and expenditures for labor and materials will infuse approximately $13.7 million into the regional economy.

III. SITE ANALYSIS

SURROUNDING RESIDENTIAL UNITS AND COMMUNITIES

There are three groupings of residential areas near the proposed project area: (1) those adjacent to the project area along Silver Queen Road and Mojave Tropico (*e.g.*, those within roughly one-third to one-half mile, at the base of the mountain); (2) the community of Camelot 2.5 miles to the north, and (3) residents along the Backus Road corridor on the south side of Soledad Mountain.

Silver Queen Road/Mojave Tropico

There are a half dozen houses within a half mile of the project's boundaries, with the closest home located approximately 1,000 feet from the project area.

Camelot

Camelot is a planned development located approximately 2.5 miles directly north of the project area. It encompasses 109 homes on approximately 15 acres and was built in 1986-87. A golf course is located adjacent to the development. Houses in Camelot were not designed with a view orientation to Soledad Mountain. There exists a large area between Camelot and the proposed Soledad Mountain Project that has been legally subdivided, but only a few residential structures have been developed to date.

Backus Road Corridor

Backus Road runs along the south side of Soledad Mountain. There is a variety of housing product in the area. The area is characterized by 2.5-acre lots with homes ranging from 1,000 to 2,000 square feet, most typically 1,300 to 1,400 square feet in size. Manufactured houses account for 85% of the homes in the area. Houses are scattered in this rural area.

GENERAL AREA DESCRIPTION

The area surrounding the proposed project is a rural and sparsely populated desert region, which has been actively mined since the mid 1980s. Kern County's "Specific Plan for Soledad Mountain - Elephant Butte & Vicinity - South of Mojave" establishes mining as an acceptable use in the area. In addition to Soledad Mountain, there has been gold mining at the Cactus Mine (Shumake and Middle Butte operations) and the Standard Hill Mine. Other mining and related activities in the immediate vicinity include Granite Construction (aggregate and

asphalt batch plant), Asphalt Construction (aggregate and asphalt batch plant), and California Portland Cement Mojave Plant (aggregate and cement plant).

Other physical conditions in proximity to Soledad Mountain include the following:

- An EPA Superfund Site (contaminated soil);
- A Unocal tank farm that is under construction which will be used to store oil shipped via rail cars from Bakersfield and which will be shipped via pipeline for delivery to other markets;
- Railroad lines;
- Industrial uses (*e.g.*, metal recovery from photographic processes); and
- State Road 14, a multi-lane State Highway.

Other land uses that impact the overall region include:

- The Tehachapi Wind Resource Area, with over five thousand wind turbines which are used to generate electricity. These facilities dominate a ridge line to the west and north of Soledad Mountain.
- The 301,000-acre Edwards Air Force Base, which is used as a training site for Air Force fighter pilots and testing and evaluation of manned and unmanned jets and space vehicles.
- Mojave Airport, which is used for storage and salvage of aircraft of all sizes, including commercial and military aircraft.

The above uses, while adding to the economic base of the overall region, have established the region's industrial character. Exhibit 1 outlines the distance of these land uses relative to each of the three groupings of housing surrounding the proposed Soledad Mountain Project area. Exhibit 2 is a map that illustrates the locations of these various land uses and the adjacent residences.

HISTORICAL MINING OPERATIONS

The first mining boom started in 1894, when gold was discovered in the Mojave area. Soon after, additional deposits were discovered at Soledad Mountain and mining operations were initiated. The mines were ordered closed by Government Order in 1942, and were idle for a number of years. However, the overburden piles and tailings piles from previous mining efforts remain, as do the areas of surface disturbance from previous mining operations. In 1968, California Portland Cement Company started operations to remove the old tailings pile on Soledad Mountain for commercial use at their Colton, California plant. With recent improvements in gold mining techniques, it has again become financially feasible to mine for gold in the previously discovered Mojave claim areas.

Other mining operations in the immediate area include Cactus and Standard Hill gold mines, which are within 2.25 miles of the proposed Soledad Mountain Project. These mines have been operational since the mid- and late-1980s, respectively. These mines are currently in the process of being closed. The Standard Hill Mine is located closer to the Camelot subdivision and Mojave than is the proposed Soledad Mountain Project.

Production of precious metals ore and overburden materials have averaged approximately 4.5 million tons per year at Standard Hill and 9 million tons for Cactus (Middle Butte and Shumake operations). It is anticipated that Golden Queen's projected production of 10 to 16 million tons per year will roughly equal the combined production of these two nearby mining operations.

An additional mining-oriented operation is the California Portland Cement Company. Although this facility is located roughly seven miles to the west, it is visible from the Soledad Mountain area.

In summary, the proposed Soledad Mountain Project is consistent with historical mining operations in the region.

ECONOMIC OVERVIEW

During the 1980s, the economy of Southern California expanded at a rapid pace, as employment and population both boomed. This economic growth spurred dramatic price appreciation in residential property values in Los Angeles County. As a result, many home builders moved to the Antelope Valley to develop more affordable housing, and thousands of families moved into Palmdale and Lancaster, thereby increasing real estate values through the Antelope Valley. The defense and aerospace industries were major job providers throughout the region, and the Antelope Valley shared in this job growth, with employers such as Edwards Air Force Base and Lockheed Martin. However, the recession of the early to mid-1990s cost Southern California more than 350,000 jobs, and the Antelope Valley area was hard hit by the loss of jobs.

Los Angeles County has always led the region in employment growth, and as it grew, surrounding counties experienced similar growth. Exhibit 3 tracks the overall employment growth in the County. By 1990 employment growth in Los Angeles County had peaked and job losses ensued through 1994 with a loss of 10.5%. Employment in Kern County did not register a downturn until 1991, but between 1991 and 1994 Kern County is estimated to have lost 6,500 jobs (3.1%). These losses were partly attributable to large number of job losses in defense and aerospace. These Kern County trends are noted in Exhibit 4. Mining employment in the County dropped by 3,900 jobs from 1984 to 1994, a 26.4% decline. Mining's share of total employment in the County dropped from 8.5% in 1984 to 4.4% in 1994.

Exhibit 5 identifies unemployment trends in the two counties and shows that overall unemployment rates in Kern County have averaged nearly twice the rates in Los Angeles County. The 1995 unemployment rate in Kern County was 13.8%, with the unemployment rate in the Antelope Valley approaching 30%.

Population Growth

The population of Kern County grew to an estimated 617,000 in 1994, from 543,477 in 1990. The population grew despite the previously noted job losses in the 1990s. In 1994 the population of the Rosamond area was estimated at 22,295, while the Mojave area population was estimated at 3,925, giving a combined total of 26,220. The Rosamond/Mojave area represents a relatively small percentage of the total Antelope Valley population. The two incorporated cities of Palmdale and Lancaster collectively accounted for 214,900 persons in 1994. More of the population growth, and thus more of the economic development, has occurred in the southern Antelope Valley. Exhibit 6 provides a summary of population trends in the region.

Housing Trends

Housing prices in Los Angeles County and the Antelope Valley area peaked around 1990. Exhibit 7 shows an index of housing values with 1990 representing 100%. Single-family home values have dropped considerably in both areas through mid-1996. Values in Los Angeles County have decreased by a reported 24.3% from April 1990 to April 1996, while values in the Palmdale-Lancaster area have declined by 33.5% over the same time period.

The Antelope Valley area has long been considered one of the most affordable housing markets in the greater Los Angeles area. Following the real estate boom in the Los Angeles Basin, the price of homes in the area increased by upwards of 50% from 1988 to 1990, and builders glutted the area with new product. By the end of 1992, new unsold homes in the Antelope Valley and nearby Santa Clarita totaled 72% of all new homes for sale in Los Angeles County.

By the end of 1995, the Antelope Valley was being touted as the "foreclosure capital" of California by some in the real estate industry. In Palmdale alone, about 140 homeowners per month were losing their homes through foreclosure, distress sales, or by simply walking away. Various brokers have indicated that between 60% and 80% of all resales in the Antelope Valley area are for homes that have been repossessed by banks. Many units are HUD sales which distress the entire Valley's pricing structure. It is unlikely that prices in the area will stabilize until the glut of repossessed properties is sold off. Even then, the large amount of land available for residential development will probably keep prices from returning to the levels of the late 1980s in the foreseeable future.

As home values decreased in the 1990s, the development of housing units slowed in both the Mojave and Rosamond areas. Housing unit trends are identified in Exhibit 8. From 1990 to 1996, the average home prices reported by TRW/REDI Property Data in the Mojave area decreased from $64,550 to $48,550. Over the same period, the reported sales average in the Rosamond area decreased from $98,740 to $78,740. These sales trends are reported in Exhibit 9.

Brokers contacted for this study indicated that housing units in Camelot were selling for $80,000 to $90,000 in the late 1980s, but have decreased in value to an estimated $45,000 to $65,000 at the present time.

A broker contacted for this analysis indicated that housing units directly to the north of Soledad Mountain were selling for $120,000 to $130,000 in 1989. Based on discussions with an appraiser in the area, houses in this area are currently valued at $70,000 to $80,000.

EVALUATION OF IMPACT ON HOUSING VALUES BY MOJAVE MINES

Mining is long established in the Mojave area. There are three mines in the general vicinity of Soledad Mountain, all constructed since the mid-1980s. Cactus Middle Butte Mine was built in 1985, Standard Hill in 1987, and Catus Shumake Mine in 1989. Exhibit 1 summarizes the proximity of housing to mining by three general study areas. Some residences in the area along Silver Queen Road and Mojave Tropico Road are closer to Standard Hill Mine (0.1 to 1.5 miles) than they will be from the proposed Soledad Mountain project (0.25 to 0.5 miles). Camelot is also closer to the Standard Hill Mine (1.5 miles) than to the proposed project (2.5 miles). Residences located generally along the Backus Road corridor are located further from the existing mines than they will be from the proposed Soledad Mountain Project.

Historical sales were collected with the intent to evaluate whether there was any discernable negative impact on home values from the prior mining activity. TRW/REDI Property Data was used for collecting detailed sales information based on County Assessor records. The data in Exhibit 9 is not all-inclusive because it only includes Full/Verified/Confirmed properties and regular sales and does not include foreclosures. It was not possible to do any rigorous statistical analysis given the rural nature of the area and its lack of published street maps for grouping into subareas. This was exacerbated by the quality of data available for the early 1980s. While housing prices clearly declined in the 1990s, no conclusive deductions could be drawn as to the impact of the mining operations. The limited number of home sales in proximity to the mines; the diversity of local housing products (which widely vary in lot size, age of structure, quality, etc.); and the impact of the severe economic downturn in the region of the first half of the 1990s, with roughly 70% of resales being foreclosures, makes it difficult to isolate specific causes of losses in residential property value.

However, the research disclosed that many homes were built and sold in the vicinity of the Standard Hill and Catus mines after they started operations. Standard Hill Mine commenced operations roughly the same time as the 109 Camelot homes were developed. Just north of Soledad Mountain off of Silver Queen Road, there are several homes which were constructed during mining operations at Standard Hill and Cactus.

Mining and housing have been co-existing in the area for the last ten years.

IV. CASE STUDIES AND LITERATURE SEARCH

CASE STUDIES

SKMG researched several case studies on the impacts of other mining operations on residential housing values. As part of this research effort, SKMG contacted numerous public agencies, several operating mines, local real estate brokers, and several professional organizations to determine whether mining operations had any impact on residential development.

Several broad generalizations can be made from the research:

- Mining activities tend to be remote from residential areas, given the land area and economies of scale required.
- Mining operations often precede other types of development, particularly residential development, which often encroaches into mining areas.
- Mining operations stimulate economic growth, and in small communities, have been associated with an increased need for housing and have helped to push up the price of housing.
- Mining operations are often accepted as neighboring land uses.
- Mining operations affect households and businesses in dramatically different fashions.

The following case studies provide a summary of specific mining operations at Green Valley, south of Tucson, Arizona, and Jamestown, north of Merced, California. Additional anecdotal information indicated that significant positive impacts resulted from large-scale mining operations such as EIK and Carlin in Nevada, with 3,000 to 4,000 employees.

Green Valley

Green Valley is a community approximately 20 miles south of Tucson, Arizona. Mining originated in the area in 1895, with modern mining practices beginning in 1957. Mining operations expanded in 1970, and approximately 115,000 tons of material is milled each day. Mining occurs along a 20-mile stretch of land from Green Valley north toward Tucson. Residential development at Green Valley consists of both conventional and retirement housing. There are approximately 8,000 residential units in the area. The town of Green

Valley was established in 1963 and the majority of housing in the area has been developed since 1970.

Anamax in Green Valley was a partnership of American Metals Climax (Amax) and Anaconda. The mine started in the 1960s and continued to the mid-1980s. The mine was reopened in the late 1980s and is still operating today. In the mid-1960s the mining company bought several hundred acres from property owners and developers to stop residential development in the immediately adjacent areas and to minimize any resistance to the mining activity. This land has now been sold and there are homes within a few hundred yards from the tailings which range in price from $90,000 entry level homes to $450,000 custom homes on one-half to one-acre lots. The tailings are a couple of hundred feet high and are terraced. These tailings are similar to the overburden piles proposed by Golden Queen.

Interviews with mine representatives indicated that mining operations are located approximately four miles west of the residential portions of Green Valley, but the tailings from the mine are mixed with water and pumped to a tailings dam directly adjacent to housing in Green Valley. The tailings are subsequently formed into vertical mounds along the border of the residential community. The base of the tailings mounds are hidden from view by earthen berms that have been landscaped with trees. The mature trees reach as high as 50 feet. The landscaped areas and the tailings mounds above and behind them are generally visible from most of the residential development in Green Valley.

Housing costs in Green Valley range from $100,000 to $500,000, with the average home priced at approximately $150,000. Houses typically range from 1,700 square feet to 2,000 square feet and are generally located on 9,000 square foot lots. A broker at Coldwell Banker indicated that homes at Green Valley are priced the same as housing projects throughout the Tucson region, and that the proximity to the mining operation has not affected the pricing of the units.

The view of the tailings mound does not appear to have affected the sales of lots and homes in Green Valley. It has been a strong market with prices similar to those found in the greater Tucson area. However, developers contacted for this study indicated that some potential buyers will not consider units that have a view of the tailings mounds.

Jamestown Mine

The Jamestown Mine is located adjacent to the City of Jamestown, California. Gold mining first began in the area in the late 1800s and continued through the early 1900s. A new mining operation was developed in July 1986 and became operational in January 1987. The mining operation consisted of mining two hills and then mining open pits where the hills had stood. The mine operated until July 1994, and is presently in the process of being closed.

Housing in Jamestown consists of smaller residences of approximately 1,200 to 1,400 square feet up to residences of approximately 2,200 to 2,400 square feet. The houses are up to 30 years old and may be located on large lots of a few acres up to 40 acres. Today's values for a typical 30-year-old residence of 2,000 square feet located on a 10-acre lot is approximately $150,000.

The closest residences were 600 feet from the mill and 300 feet from the pit, with additional residences within one-half mile of the mine. Downtown Jamestown is approximately one mile from the mine, and it is estimated that 2,000 people live nearby.

A mitigation measure established through the EIR process allowed the processing plant to operate 24 hours a day (in three shifts), but allowed operation of the mine for only two shifts (during daytime hours) each day. Evening and nighttime operations were required to operate at successively more stringent noise restrictions.

Effects on local residents as reported by the Tuolomne County Planning Department included complaints from visual and noise related issues. From a visual standpoint, the mining operation included waste rock piles, a tailings dam and tailings mounds, as well as the milling facility and equipment storage areas. The area has a low ambient noise level, and any noise generated by the mining operation was perceived to be a nuisance by many residents. However, a highly traveled road in the vicinity made it impossible to distinguish noise generated by the mining operation from general vehicle traffic on the roadway.

Some residences were located within the area of actual mining operations and were acquired by the mining operation out of necessity. Other residences located in the "sphere of influence" of the mine were purchased by the mining operation.

A local broker indicated that houses within an estimated one-half mile of the mine have been subject to specific nuisances related to the mine and that the value of the houses was negatively affected by the mining operation. However, some large-lot housing was developed on the hillsides overlooking the mining operation, which indicates that some buyers were willing to purchase in view of the mining operation.

LITERATURE SEARCH

As part of its analysis, SKMG conducted a literature search employing resources from the Appraisal Institute and Urban Land Institute, as well as a document search on the Internet and the archives of the Los Angeles Times in an effort to determine whether any studies had been published which relate to impacts on residential property values due to their proximity to mining operations. SKMG found no directly comparable information.

APPENDIX

Public agencies contacted include the California Department of Conservation, Division of Mines and Geology; Kern County Environmental Health and Building and Safety divisions; State Clearinghouse (Planning-related issues); California Environmental Protection Agency; local chambers of commerce; Kern Council of Governments; Federal Bureau of Land Management; and local planning Departments in several states. Trade and professional organizations contacted include; American Planning Association; the Planning and Zoning Center; Rock Products Association; California Mining Association; Appraisal Institute; and the Urban Land Institute. Other contacts include a literature search of the Los Angeles Times' archives, and an electronic search on the Internet. Additionally, several mining operations in were contacted in California, Arizona and Nevada, as well as local brokers and appraisers.

ASSUMPTIONS AND GENERAL LIMITING CONDITIONS

Sedway Kotin Mouchly Group (SKMG) has made extensive efforts to confirm the accuracy and timeliness of the information contained in this study. Such information was compiled from a variety of sources, including interviews with government officials, review of City and County documents, and other third parties deemed to be reliable. Although SKMG believes all information in this study is correct, it does not warrant the accuracy of such information and assumes no responsibility for inaccuracies in the information by third parties. We have no responsibility to update this report for events and circumstances occurring after the date of this report. Further, no guarantee is made as to the possible effect on development of present or future federal, state or local legislation, including any regarding environmental or ecological matters.

This report may not be used for any purpose other than that for which it is prepared.

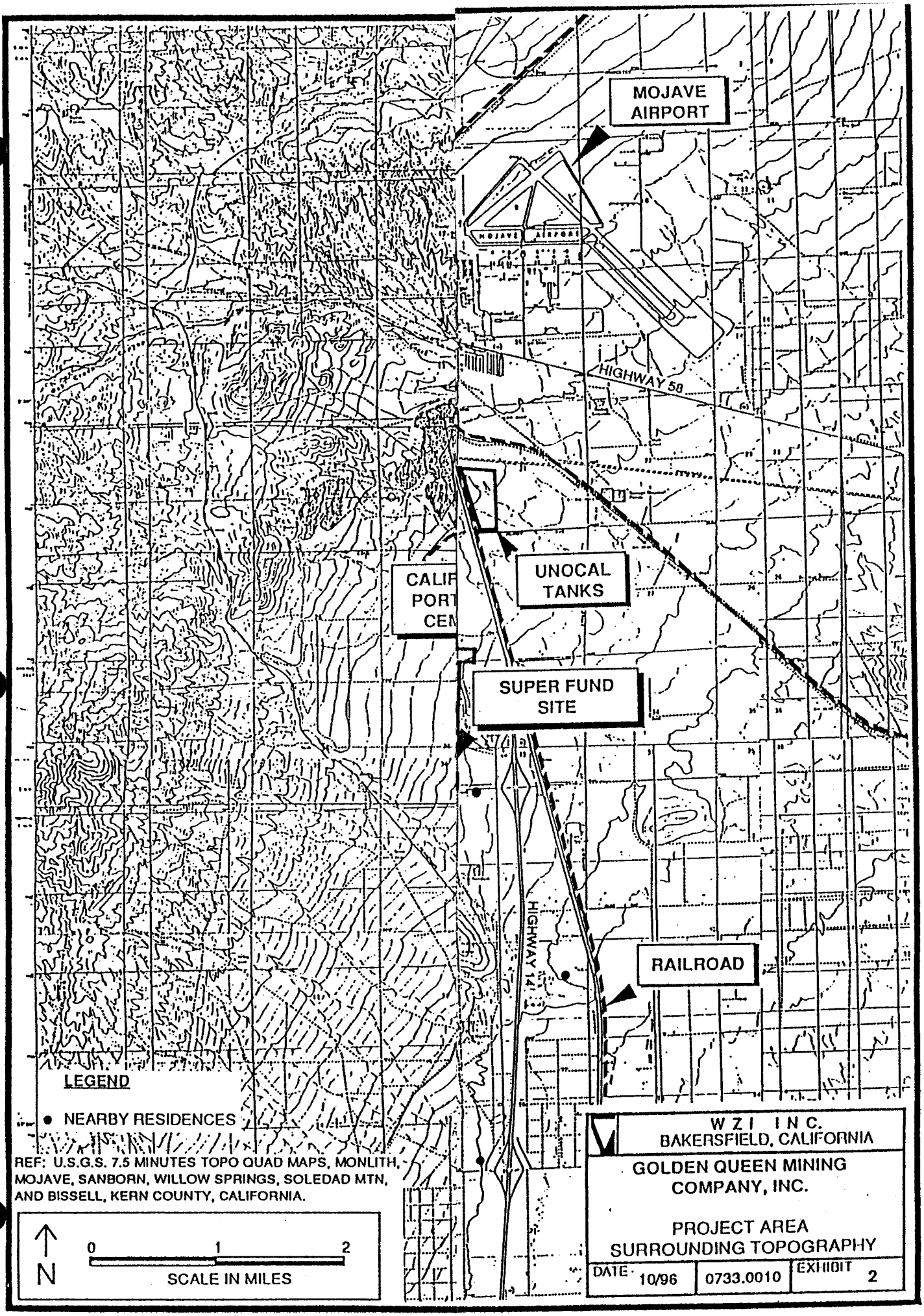
EXHIBIT 1

RELATIVE DISTANCE OF LAND USES FROM RESIDENTIAL AREAS

(Miles)

	Silver Queen Rd./ Mojave Tropico Rd.	Camelot	Backus Rd.
Standard Hill Mine	0.1 to 1.5	1.5	3.0 to 3.75
Cactus Mine	4.5 to 6.0	5.75	2.5 to 5.25
Granite Construction	0.5 to 1.75	1.5	3.75 to 4.5
Asphalt Construction	2.75 to 5.5	5.75	2.75 to 5.25
Super Fund Site	0.2 to 2.75	2.5	2.75 to 4.0
California Portland Cement	6.75 to 8.75	7.0	7.75 to 10.0
Railroad	0.6 to 3.5	1.0	1.0 to 3.5
State Highway	0.25 to 2.75	1.0	0.25 to 2.75
Proposed Soledad Mountain Project	0.25 to 0.5	2.5	1.0 to 2.5

Source: WZI and SKMG



REF: U.S.G.S. 7.5 MINUTES TOPO QUAD MAPS, MONLITH, MOJAVE, SANBORN, WILLOW SPRINGS, SOLEDAD MTN, AND BISSELL, KERN COUNTY, CALIFORNIA.

W Z I I N C.
BAKERSFIELD, CALIFORNIA

GOLDEN QUEEN MINING COMPANY, INC.

PROJECT AREA
SURROUNDING TOPOGRAPHY

DATE		EXHIBIT
10/96	0733.0010	2

EXHIBIT 3

HISTORICAL EMPLOYMENT - ANNUAL AVERAGES
LOS ANGELES COUNTY (1984 - 1994)

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Agriculture	12,300	10,800	11,000	11,300	12,400	13,400	13,700	9,800	9,200	9,200	9,000
Mining	11,900	11,900	10,000	8,700	8,500	8,100	7,900	7,500	7,800	7,500	6,800
Construction	99,700	106,200	110,800	121,800	128,800	133,400	133,100	121,700	105,900	98,100	104,200
Manufacturing	858,800	864,800	878,300	887,200	875,800	864,000	834,600	774,900	714,900	660,200	638,700
Transportation and Public Utilities	192,400	195,500	200,500	204,600	207,400	210,500	211,600	209,700	202,700	199,600	199,800
Wholesale Trade	278,300	285,000	289,600	291,200	299,900	309,600	301,900	279,400	263,200	250,300	251,700
Retail Trade	576,100	592,600	609,900	628,000	638,000	644,700	647,700	614,900	584,900	571,500	563,300
Finance Insurance and Real Estate	245,100	251,200	261,000	268,700	270,000	273,200	277,600	265,600	254,900	250,000	243,400
Services	927,900	970,100	1,006,800	1,048,400	1,100,000	1,146,100	1,179,200	1,169,300	1,130,800	1,139,000	1,163,300
Government	467,700	477,200	487,400	494,900	505,600	521,800	539,800	539,900	539,400	531,400	532,800
Total	**3,670,200**	**3,765,300**	**3,865,300**	**3,964,800**	**4,046,400**	**4,124,800**	**4,147,100**	**3,992,700**	**3,813,700**	**3,716,800**	**3,713,000**

Source: State of California Employment Development Department and SKMG

File: DEMOG2.WK4

EXHIBIT 4

HISTORICAL EMPLOYMENT - ANNUAL AVERAGES
KERN COUNTY (1984 - 1994)

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Agriculture	29,200	27,500	27,000	28,400	33,200	29,800	29,500	30,100	31,700	33,600	31,800
Mining	14,800	15,800	13,200	12,000	12,700	12,600	13,300	13,300	12,000	11,400	10,900
Construction	7,500	8,200	8,400	8,200	9,600	9,200	10,100	10,800	9,100	8,800	8,800
Manufacturing	10,100	10,200	10,200	10,600	10,600	10,500	10,400	10,100	10,600	9,900	9,600
Transportation and Public Utilities	7,500	8,000	8,000	7,900	8,400	8,700	8,900	9,100	8,500	8,800	8,400
Wholesale Trade	7,600	7,300	6,800	6,800	7,100	7,700	8,400	8,800	8,200	7,900	7,900
Retail Trade	30,400	30,900	31,400	31,500	32,300	31,900	32,600	33,800	33,600	33,000	33,000
Finance Insurance and Real Estate	5,500	5,600	6,000	5,900	6,200	6,100	6,300	6,100	5,900	5,800	5,900
Services	27,700	28,900	30,600	32,800	33,600	34,300	36,600	39,800	40,000	38,600	38,000
Government	34,400	36,300	38,700	40,300	40,700	42,400	44,000	45,600	45,500	45,700	46,700
Total	**174,600**	**178,700**	**180,200**	**184,300**	**193,300**	**193,200**	**200,200**	**207,400**	**204,900**	**203,500**	**200,900**

Source: State of California Employment Development Department and SKMG

File: DEMOG2[illegible]K4

EXHIBIT 5

HISTORICAL UNEMPLOYMENT RATES
KERN AND LOS ANGELES COUNTIES

YEAR	KERN COUNTY	LOS ANGELES COUNTY
1990	10.7%	5.8%
1991	11.9%	8.0%
1992	15.5%	9.6%
1993	15.8%	9.7%
1994	14.7%	9.4%
1995	13.8%	7.9%

Source: State of California Employment Development Department and SKMG

File: DEMOG2.WK4

EXHIBIT 6

Desert Region Population Trends (1990 - 1994)

	Actual Population Growth					Percent Change From Prior Year			
	1990	1991	1992	1993	1994	1991	1992	1993	1994
California City	5,929	7,196	7,925	8,601	8,741	21.4%	10.1%	8.5%	1.6%
Boron CDP	2,304	2,128	2,105	2,096	2,093	-7.6%	-1.1%	-0.4%	-0.1%
Mojave CDP	3,763	3,796	3,824	3,923	3,925	0.9%	0.7%	2.6%	0.1%
North Edwards CDP	1,285	1,287	1,299	1,312	1,311	0.2%	0.9%	1.0%	-0.1%
Outside City/ CDP	2,764	2,753	2,831	2,773	2,775	-0.4%	2.8%	-2.0%	0.1%
Cal City/Mojave Subtotal	16,045	17,160	17,984	18,705	18,845	6.9%	4.8%	4.0%	0.7%
Rosamond CDP	7,430	8,622	10,085	10,849	10,944	16.0%	17.0%	7.6%	0.9%
Edwards AFG CDP	7,423	7,569	7,718	7,984	8,881	2.0%	2.0%	3.4%	11.2%
Outside CDP's	1,962	2,331	2,410	2,467	2,470	18.8%	3.4%	2.4%	0.1%
Greater Rosamond Subtotal	16,815	18,522	20,213	21,300	22,295	10.2%	9.1%	5.4%	4.7%
Indian Wells Valley Subtotal	36,109	36,715	37,646	38,455	38,456	1.7%	2.5%	2.1%	0.0%
Desert Region Total	68,969	72,397	75,843	78,460	79,596	5.0%	4.8%	3.5%	1.4%
Kern County	543,477	560,562	584,086	602,954	617,004	3.1%	4.2%	3.2%	2.3%

Note: Desert Region consists of Indian Wells Valley, California City/Mojave and Greater Rosamond
Indian Wells includes Ridgecrest and surrounding area.
California City/Mojave includes California City, Boron, Mojave, North Edwards, and surrounding areas.
Greater Rosamond includes Rosamond, Edwards Air Force Base and surrounding areas.

Source: Kern County Council of Governments and SKMG

File: DEMOG2.WK4

EXHIBIT 7

INDEX OF MARKET PRICES OF EXISTING SINGLE FAMILY HOMES

	1990	1991	1992	1993	1994	1995	1996
Los Angeles County	100.0	94.7	92.3	86.1	80.2	77.3	75.7
Palmdale-Lancaster	100.0	89.7	84.0	77.6	71.5	67.7	64.5

Source: Real Estate Research Council of Southern California Semi-Annual Home Price Surveys and SKMG

File: DEMOG2.WK4

EXHIBIT 8

Desert Region Housing Units Trends (1990 - 1994)

	Actual Housing Unit Growth					Percent Change From Prior Year			
	1990	1991	1992	1993	1994	1991	1992	1993	1994
California City	2,384	2,884	3,154	3,288	3,450	21.0%	9.4%	4.2%	4.9%
Boron CDP	937	946	947	950	953	1.0%	0.1%	0.3%	0.3%
Mojave CDP	1,530	1,531	1,532	1,545	1,546	0.1%	0.1%	0.8%	0.1%
North Edwards CDP	470	480	485	491	493	2.1%	1.0%	1.2%	0.4%
Outside City/ CDP	1,239	1,272	1,305	1,276	1,299	2.7%	2.6%	-2.2%	1.8%
Cal City/Mojave Subtotal	6,560	7,113	7,423	7,550	7,741	8.4%	4.4%	1.7%	2.5%
Rosamond CDP	3,117	3,568	4,046	4,279	4,661	14.5%	13.4%	5.8%	8.9%
Edwards AFG CDP	2,107	2,107	2,107	2,107	2,107	0.0%	0.0%	0.0%	0.0%
Outside CDP's	846	875	905	934	957	3.4%	3.4%	3.2%	2.5%
Greater Rosamond Subtotal	6,070	6,550	7,058	7,320	7,725	7.9%	7.8%	3.7%	5.5%
Indian Wells Valley Subtotal	14,423	14,735	14,993	15,201	15,378	2.2%	1.8%	1.4%	1.2%
Desert Region Total	27,053	28,398	29,474	30,071	30,844	5.0%	3.8%	2.0%	2.6%
Kern County	198,636	202,710	206,807	210,928	215,165	2.1%	2.0%	2.0%	2.0%

Note: Desert Region consists of Indian Wells Valley, California City/Mojave and Greater Rosamond
Indian Wells includes Ridgecrest and surrounding area.
California City/Mojave includes California City, Boron, Mojave, North Edwards, and surrounding areas.
Greater Rosamond includes Rosamond, Edwards Air Force Base and surrounding areas.

Source: Kern County Council of Governments and SKMG

Exhibit 9

HISTORICAL HOUSING VALUE TRENDS, MOJAVE AND ROSAMOND REGIONS 1980-1996

	MOJAVE AREA					ROSAMOND AREA				
YEAR	NUMBER REPORTED SALES	PRICE RANGE LOW	PRICE RANGE HIGH	AVERAGE SALES PRICE	MEDIAN SALES PRICE	NUMBER REPORTED SALES	PRICE RANGE LOW	PRICE RANGE HIGH	AVERAGE SALES PRICE	MEDIAN SALES PRICE
1980	---	---	---	---	---	2	$52,500	$62,500	$57,500	$57,500
1981	1	$67,000	$67,000	$67,000	$67,000	1	$63,000	$63,000	$63,000	$63,000
1982	---	---	---	---	---	---	---	---	---	---
1983	---	---	---	---	---	1	$40,000	$40,000	$40,000	$40,000
1984	2	$61,000	$69,500	$65,250	$65,250	2	$55,000	$67,500	$61,250	$61,250
1985	1	$22,500	$22,500	$22,500	$22,500	1	$40,000	$40,000	$40,000	$40,000
1986	5	$36,500	$69,500	$49,200	$43,000	12	$40,000	$93,000	$57,750	$55,750
1987	8	$10,000	$76,000	$46,938	$58,250	17	$42,500	$95,500	$63,676	$65,000
1988	15	$29,000	$87,500	$63,967	$70,000	19	$30,500	$155,000	$79,158	$70,000
1989	15	$30,000	$92,000	$61,033	$56,500	19	$27,500	$236,500	$106,974	$103,000
1990	25	$26,000	$95,500	$66,228	$67,000	77	$54,000	$218,000	$107,031	$105,000
1991	16	$35,000	$120,000	$64,906	$66,750	86	$60,000	$159,000	$98,967	$98,000
1992	34	$33,500	$135,000	$63,779	$59,250	252	$16,000	$295,000	$101,617	$100,000
1993	31	$20,500	$83,000	$55,774	$55,000	164	$49,500	$285,000	$99,555	$100,000
1994	26	$10,000	$145,000	$50,741	$47,500	254	$6,500	$165,000	$93,903	$95,000
1995	24	$15,000	$82,000	$49,625	$46,250	210	$28,000	$275,000	$89,800	$86,000
1996 1/	9	$25,000	$76,500	$48,550	$46,500	83	$26,000	$205,000	$78,741	$75,500
TOTAL CHANGE 1980-96 /2										
ACTUAL				($18,450)	($20,500)				$21,241	$18,000
PERCENT				-27.5%	-30.6%				36.9%	31.3%
TOTAL CHANGE 1991-96										
ACTUAL				($16,356)	($20,250)				($20,226)	($22,500)
PERCENT				-25.2%	-30.3%				-20.4%	-23.0%

Notes:

1/ Based on data available for January through June 1996.

2/ Total change for Mojave Region based on 1981 figures as there were no reported sales in 1980.

Source: TRW REDI Property Data and Sedway Kotin Mouchly Group

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SOLEDAD MOUNTAIN PROJECT
MOJAVE, KERN COUNTY
CALIFORNIA

PRECONSTRUCTION DESIGN STUDY

March, 1997

Prepared for:

Golden Queen Mining Company
Post Office Box 820
Mojave, California 93502-0820

Prepared by:

WZI Inc.
4700 Stockdale Highway, Suite 120
Bakersfield, California 93309

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I. INTRODUCTION

The Soledad Mountain Project will use a number of chemicals considered hazardous[1] under Federal and/or State regulations, such as the Federal Emergency Planning and Community Right to Know Act (EPCRA).[2] California implemented certain provisions of EPCRA through the Waters Bill.[3] In addition to defining certain chemicals as hazardous, EPCRA also lists chemicals which may pose a significant risk to the community in the event of a release. These are termed extremely hazardous chemicals. California had previously promulgated regulations which required businesses handling extremely hazardous chemicals[4] above specified threshold quantities to prepare Risk Management and Prevention Plans (RMPPs). The RMPPs included a report and analysis of past accidents involving the subject extremely hazardous chemical, information about the equipment used to handle the chemical, and controls and procedures to minimize the risks posed by the handling of the chemical. A foundational element of the RMPP was a hazards analysis which considered the system-specific probability of a catastrophic release of the subject extremely hazardous chemical and impact such a release could have on the surrounding community.

As authorized by the 1990 Clean Air Act Amendments, the United States Environmental Protection Agency (EPA) promulgated the Risk Management Program (RMP) regulations[5] in 1996 which were substantially the same as the existing California RMPP program. The Federal RMP program applies to a list of regulated substances. The California Legislature has replaced the RMPP program with the RMP program and sought primacy of the Federal

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1 The terms "hazardous chemical," "hazardous material" and "hazardous substance" are used interchangeably herein, unless otherwise noted.

2 40 CFR Part 355

3 California Health & Safety Code §25500 et. seq.

4 The California regulation actually applied to "acutely hazardous materials," which were defined as any chemical defined as an extremely hazardous chemical under EPCRA.

5 40 CFR Part 68

RMP program.[6] Under California's RMP program, the list of regulated substances includes certain EPCRA extremely hazardous chemicals, in addition to those chemicals listed under the Federal RMP program.

The Soledad Mountain Project will utilize two chemicals which later may be regulated under California's RMP program: sodium cyanide (NaCN) and propane (C_3H_8). Although preliminary engineering has not yet been completed for the project, the processes which will handle these chemicals are common in the mining industry. This preconstruction design study considers these general processes and addresses:

- Utilization
- Receipt
- Storage
- Quantities present
- Plant design standards and configuration

The study also identifies reasonably foreseeable upsets or accidents.

---

6 California Health & Safety Code §25530 et. seq.

II. PROPANE

Propane, or liquefied petroleum gas (LPG), is a compressed or liquefied gas usually comprised of propane, some butane and small quantities of other light hydrocarbons and impurities. The propane used at Soledad Mountain will be received from a local supplier with a trace quantity of mercaptan (thiol) as a "stench additive" to make the presence of propane noticeable.

LPG is proposed for storage and utilization in the following locations:

Location	Gas-Fired Equipment	Tank Capacity (gal WC)
Administration	Forced air heaters Water heaters	500
Laboratory	Forced air heaters Water heaters Sample drying ovens	500
Mining shop/warehouse	Forced air heaters Radiant heaters Water heaters	500
Process shop/warehouse	Forced air heaters Radiant heaters Water heaters	500
Process wet plant	Forced air heaters Radiant heaters	N/A
Process gold room	Indirect fired retort Direct fired smelting furnace	2,000

Note: gal WC = gallons water capacity. Working capacity = 80% gal WC

Electric forced air heaters, water heaters and indirect fired retort may be purchased rather than LPG-fired units, depending upon the competitive tender during the procurement phase of project development.

LPG will be delivered from the Mojave or Bakersfield areas approximately once or twice per week in the form of a liquid, assuming 1,400 gallon tanker trucks are used. Delivery will be made by the supplier in DOT-approved transport tankers. The site will be accessed by way of State Route 14 and Silver Queen Road. Onsite safety and security policies, ensuring compliance with regulations, will apply, including check-in and vehicle escort to the point of delivery, if required.

The LPG will be stored at the various locations (listed above) in ASME-approved stationary horizontal or vertical tanks. Maximum total onsite storage of LPG will be approximately 3,200 gallons.

The proposed facility will be engineered, designed and constructed in accordance with applicable codes and standards, including:

- Uniform Building Code (UBC)
- National Electrical Code (NEC)
- National Fire Protection Association (NFPA)
- American Society of Mechanical Engineers (ASME)
- Mine Safety and Health Administration (MSHA)
- National Institute for Occupational Safety and Health (NIOSH)
- Uniform Mechanical Code
- Uniform Plumbing Code
- National LP-Gas Association

The design standard for the tankage will comprise ASME code vessels in open air, mounted at ground level on concrete plinths. Suitably sized traffic barriers will protect the installation from vehicle traffic and mobile equipment.

The tanks will be equipped with pressure relief valves, and the transition piping between buried and above ground levels will be completed with flexible tubing. A tanker fill bulkhead will be installed for the 2,000 gallon tank location. A "breakaway" type fill valve

will be installed to shut down the system in the event the delivery truck is inadvertently moved while its fill hose is still attached to the fixed bulkhead. Attendance by trained personnel will be continuous during the delivery process.

In addition to onsite fire fighting equipment and capability, a deluge-type sprinkler system will be installed at each tank to prevent a boiling liquid expanding vapor explosion (BLEVE) in the event a fire occurs.

Reasonably foreseeable upset or accident conditions, causes and controls are summarized in the table below:

Upset or Accident Condition	Cause	Possible Results	Controls
Delivery truck accident or rollover (off-site).	Human error	Tank rupture, release to atmosphere and/or fire.	DOT-approved/ASME code vessel. Trained drivers.
Delivery truck accident or rollover (onsite).	Human error	Tank rupture, release to atmosphere and/or fire.	DOT-approved/ASME code vessel. Vehicle escort, site safety policy (speed limit, specified travel areas, etc.). Trained drivers.
Delivery truck roll away or driven away with fill hose connected.	Human error	System shut down.	Breakaway valve and tether.
Differential settlement or ground movement.	Earthquake	Tank must be re-leveled.	Flexible tubing between tank and buried piping.
Fire at tankage.	Human error	Unauthorized welding/ cutting or open flames.	Sign posting, policy and safety training. Hot work permits.
Fire at tankage.	Human error	BLEVE	Deluge-type sprinkler system, tank mount PRV.

III. SODIUM CYANIDE

Sodium cyanide is a synthetic compound comprised of sodium, carbon and nitrogen, manufactured in liquid form, dehydrated and pelletized or briquetted to minimize dusting. Dry solid sodium cyanide contains minor impurities, primarily magnesium and chloride, as well as other cations and anions with affinities to salt formation. The cyanide radical (CN^-) is used primarily in the manufacture of steel, chemicals and polymers. This radical is also a powerful oxidant used in the dissolution of stable metals. Water soluble and stable in aqueous solutions of elevated pH, cyanide is proposed to be used in dilute liquid form ($\leq$ 250 ppm) at Soledad Mountain.

Sodium cyanide is a fast acting poison that can cause death quickly at low levels of exposure. The chemical toxicity stems from its ability to inhibit specific processes in body cells by restricting oxygen use in cellular respiration, particularly in cells in the brain and heart. Poisoning can result from: breathing cyanide gas, dust, or solution; adsorption through the skin, particularly the eyes and membranes, and feet; and from ingestion. Cyanide is not a cumulative poison or a carcinogen. Furthermore, it is believed that there are no chronic effects of cyanide poisoning unless repeated, prolonged exposures above established limits were to occur. With prompt treatment, recovery from overexposure is normally quick and complete.[7]

Sodium cyanide solution is proposed to be stored or processed through the following tanks:

Point of Use	Storage	Tankage (gal WC)
Cyanide storage tank	30% solution	40,000
Barren solution tank	Dilute (~250 ppm) solution	750,000
Pregnant solution tank	Dilute (~250 ppm) solution	250,000

Note: gal WC = gallons water capacity; maximum storage = 21,000 gallons; allowing 2 feet freeboard

7 DuPont Chemicals, *Sodium Cyanide: Properties, Uses, Storage and Handling*, 1993.

Sodium cyanide will be received in bulk as a dry solid from a supplier outside the State of California. It is anticipated that deliveries will be made at an average frequency of once per week, based on 20 ton loads. Delivery of the solid will be made in a single compartment, DOT-approved tanker truck. Access to the project site will be made on the main access road after exiting State Route 14 at Silver Queen Road. Onsite safety and security policies, ensuring compliance with regulations, will apply, including check-in, induction and vehicle escort to the point of delivery, if required.

Upon arrival at the point of delivery, the tanker truck will be driven onto a curbed, concrete containment area in preparation for in-tanker solubilization and transfer. The 40,000 gallon sodium cyanide solution storage tank will be filled to the appropriate level with barren process solution at the dilute cyanide concentration (approximately 250 ppm [CN^-]) and a pH greater than 10.5. This solution is then circulated through the tanker in a closed loop until the solid sodium cyanide is dissolved. The form of storage of the resultant 24,000 ppm (CN^-) solution will be in the closed 40,000 gallon cyanide storage tank, located within a curbed, concrete containment area.

A process flow diagram of the heap leach system is shown in Exhibit 1. The system will be engineered, designed and constructed in accordance with applicable codes and standards, including:

- Uniform Building Code (UBC)
- National Electrical Code (NEC)
- National Fire Protection Association (NFPA)
- American Society of Mechanical Engineers (ASME)
- Mine Safety and Health Administration (MSHA)
- National Institute for Occupational Safety and Health (NIOSH)
- Uniform Mechanical Code
- Uniform Plumbing Code

The design for the cyanide storage tank will comprise an open air, fully closed, flat bottom tank of mild steel construction, with suitable aspect ratio to prevent overturning. The tank will be landed on a concrete pedestal inside a monolithic concrete, curbed containment area allowing free drainage into the leach pad in the event of tank rupture or leakage. A tanker fill bulkhead will be installed with "breakaway" type valves in both the tanker fill and return lines to shut down the system in the event the delivery truck is inadvertently moved while the hoses are still attached to the fixed bulkhead.

Concentrated solution from the cyanide storage tank (TK31) will be diluted when it is added to the circulating heap leach system for makeup at the barren solution tank (TK04). From the barren solution tank, the dilute cyanide solution will be pumped to the heap leach pads where it will be drip-applied to the heap at a rate of up to 5,400 gallons per minute. The double-lined heap leach pads will consist of a high density polyethylene (HDPE) liner atop a clay liner in accordance with Regional Water Quality Control Board requirements. The pads will be designed to contain a 100-year, 24-hour storm event. After percolating through the heap and dissolving precious metals, the pregnant solution will be collected from the toe of the lined pad and pumped to the pregnant solution tank (TK03) before being pumped to the wet plant for precious metals removal. After processing in the wet plant, the barren solution completes the cycle, returning to the barren solution tank.

Sodium cyanide dissolved in water forms a strong alkaline solution and an equilibrium between ionized sodium cyanide and highly volatile hydrogen cyanide (HCN). HCN is toxic with an OSHA workplace exposure limit of 10 ppm (8-hour average) in air. However, HCN formation can be controlled by maintaining the alkalinity, or pH, of the cyanide solution. Golden Queen will maintain an alkaline cyanide solution at 10.5 pH or greater to control HCN formation. Cement or lime will be blended with the crushed ore prior to placement on the heap. By contacting the agglomerated ore in the heap, the alkalinity of the barren solution will be maintained above the target level. Addition of cement or lime to the crushed ore will be at a manually set rate.

Should Golden Queen need to raise the pH of the cyanide solution further, liquid sodium hydroxide (NaOH) will be stored on-site (TK32). Addition of NaOH, when necessary, will also be at a manually set rate.

Because the volume of the dilute cyanide solution in the heap leaching system is so large, sudden changes will not occur. Thus, monitoring and adjustment of cyanide solution alkalinity will be manually performed.

Upset or Accident Condition	Possible Cause	Possible Results	Controls
Delivery truck accident or rollover (off-site).	Human error	Tank rupture, dry sodium cyanide spill.	DOT-approved container. Trained drivers.
Delivery truck accident or rollover (onsite).	Human error	Tank rupture, dry sodium cyanide spill.	DOT-approved vessel, vehicle escort, site safety policy (speed limit, specified travel areas, etc.). Trained drivers. Available neutralization agents.
Delivery truck roll away or driven away with fill hose connected.	Human error	System shut down.	Breakaway valves and tether.
Liquid leaks or spills in tanker area during solubilization and transfer.	Human error or materials failure	Liquid cyanide spill.	Curbed, concrete containment area, personal protective equipment (PPE). Spill response plan. Available neutralization reagents.
Low pH of solubilization liquid.	Human error	Hydrogen cyanide gas generation.	Barren solution used in solubilization, only solution made available for use. pH monitoring.
Storage tank rupture or leakage.	Materials failure or earthquake	Liquid sodium cyanide spill.	Curbed, concrete containment area. Spill response plan.
Barren or pregnant pipe rupture	Materials failure or earthquake	Liquid sodium cyanide spill	Double-walled piping and containment areas
Rupture or leakage from heap leach pad	Storm event or earthquake	Release liquid sodium cyanide to earth	Double lined heap leach pads and sizing for 100-year, 24-hour storm event.

All solution being contained or transferred will have an appropriate form of secondary containment. Tanks will be in concrete containment areas or over synthetically-lined areas. Piping will be within concrete containment areas, over synthetically-lined areas or double walled.

As shown above, the possible results from the plausible upset or accident conditions would be either: (1) release of dry sodium cyanide; (2) a release of concentrated cyanide solution from the tanker truck during solubilization or a rupture of the cyanide storage tank; or (3) release of dilute cyanide solution.

The most hazardous of these scenarios would be a release of concentrated cyanide. A release from the tank due to seismic activity, material failure, or operator error would be fully contained. The evolution of hydrogen cyanide would be largely mitigated by elevated alkalinity, minimizing any threat to the community.

Releases of dilute cyanide solution would pose a significantly lower inhalation hazard, and would also be mitigated by the operating alkalinity of 10.5 pH or greater. Releases of the dilute solution will be prevented to the maximum extent possible through the use of double-walled piping outside of contained areas and the double-lined heap leach pads. A leachate collection system will be used to monitor heap leach pad integrity.

EXHIBIT

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

RADIAL STACKER CONVEYOR (CV12)
HORIZONTAL SELF-POWERED CONVEYOR (CV11)
PORTABLE LOADER FEEDER CONVEYOR (CV10)
STANDARD CONVEYORS
OVERLAND CONVEYOR
AGGLOMERATORE
58.0

INVENTORY 90.8
PPT 7.5
EVAP 17.5
DRIP EMITTERS
860.7
HEAP LEACHING PAD
SUBMERSABLE PUMPS (SP11,12,21,22)
BOOSTER HEAD TANK (TK20,21)
BOOSTER PUMP (BP11,21)
818.0
AGGLOM.
57.9
PREGNANT SOLUTION TANK (TK03)
PREG SOLUTION PUMP (PP01)
TP05
BARREN SOLN PUMP (PP03)
545.0
BARREN SOLUTION TANK (TK04)
TP04
0.6
0.6
CYANIDE STORAGE TANK (TK31)
TP01
NaOH STORAGE TANK (TK32)
TP02
TP03
ANTI-SCALENT STORAGE TANK (TK33)

(SP01) (SP02)
WATER WELLS
HEAD TANK (TK01)
BOOSTER PUMP (CP01)
165.9
59.5
INDUSTRIAL WATER STORAGE TANK (TK02)
6.8
WET PLANT
SEE 14200R-PD002
273.0
279.7
373.6
0.1
AGGLOMERATOR
TP06
ST06
93.9

CRUSHING PLANT 2.3
LABORATORY 0.5
MINING MAINT. SHOP/WHOUSE 2.0
PROCESS MAINT. SHOP/WHOUSE 0.6
ADMINISTRATION 0.3

WET PLANT
LABORATORY
MINING MAINT. SHOP/WHOUSE
PROCESS MAINT. SHOP/WHOUSE
ADMINISTRATION

LEGEND
m/hr LIQUID
LOM OPERATING AVERAGE USED IN WATER BALANCE

NOTE: All units are metric unless otherwise indicated.

NOT FOR CONSTRUCTION

PINCOCK, ALLEN & HOLT
274 Union Boulevard
Suite 200
Lakewood, Colorado 80228

GOLDEN QUEEN MINING COMPANY
SOLEDAD MOUNTAIN PROJECT

HEAP LEACH FLOW DIAGRAM

SIZE D | FSCM NO. | DWG NO. 14200DR-PD003 | REV
SCALE NONE | GQ_HEP | SHEET 1 OF 1

GOLDEN QUEEN MINING COMPANY, INC.

SOLEDAD MOUNTAIN PROJECT

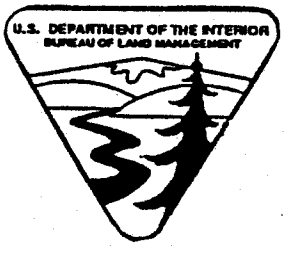
MOJAVE, KERN COUNTY, CALIFORNIA

FINAL
ENVIRONMENTAL IMPACT REPORT /
ENVIRONMENTAL IMPACT STATEMENT

VOLUME 7
(Appendix XIII)

SEPTEMBER 1997





COUNTY OF KERN
PLANNING DEPARTMENT
BAKERSFIELD, CALIFORNIA

BUREAU OF LAND MANAGEMENT
RIDGECREST RESOURCE AREA
RIDGECREST, CALIFORNIA

VOLUME 7 OF 7

BUREAU OF LAND MANAGEMENT
PUBLIC MEETING

IN RE
THE GOLDEN QUEEN MINING)
SOLEDAD MOUNTAIN PROJECT)
)
)

LOCATION: ROSAMOND ELEMENTARY SCHOOL
1981 ROSAMOND BOULEVARD
ROSAMOND, CALIFORNIA

DATE AND TIME: TUESDAY, JUNE 24, 1997
7:00 P.M.

REPORTER: TIMOTHY SCOTT
CSR NO. 8517

CERTIFIED COPY

SCOTT
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2717 Occidental Street
Bakersfield, California 93305

REPORTER'S TRANSCRIPT of the PROCEEDINGS, taken in re the above matter, on Tuesday, June 24, 1997, commencing at 7:00 p.m., at Rosamond Elementary School, 1981 Rosamond Boulevard, Rosamond, California, before Timothy Scott, a Certified Shorthand Reporter, holding Certificate No. 8517.

SPEAKERS FROM BUREAU OF LAND MANAGEMENT:

MR. AHMED MOSHEN
MR. GEORGE DEVERSE

SPEAKERS FROM AUDIENCE:

MONNA WAGNER
JOHN ROMBOUT
PATRICK CHIODO
KAREN BENSON
JAMES HOOPER
BARBARA RIGG
PAT BOETSCH
MANUEL ZAMORA
TERRY MURRAY
CURT SKELTON
SUE MATHIS
JERRY BOETSCH
GLENN A. SETTLE
JERRY BOETSCH, JR.
DEAN WEBB
OLAF LANDSGAARD
KEITH GAINEY
DAN SPOOR
JEFF GUTIERREZ
MARY SHINEFLEW
JESS FARMER
KEN DALE
LEONARD GRIMES
JEFF ALFONSO

TUESDAY, JUNE 24, 1997

ROSAMOND, CALIFORNIA

7:00 P.M.

MR. MOHSEN: Okay. May I have your attention, please.

We're going to probably begin right now.

It seems like we have most of the public that has signed up front, and we're going to initiate.

So at this stage, I'll direct my comments to the court reporter, and we'll initiate this public meeting.

This is a Bureau of Land Management, Department of the Interior, public meeting regarding the Draft Environmental Impact Statement/Draft Impact Report for this Soledad Mountain gold project.

We have a court reporter today recording the proceedings of this meeting so we can make it part of the public record. That's why I'm going to be speaking a little slower. I'm sure that the children in the room will appreciate that.

The reason is, you want to make sure all the comments and concerns are documented by the court

reporter. And the purpose of that is to make sure that the issues that you have are part of the public record.

When I close the meeting, that will become the public record. Everything after the meeting, we can still discuss things, but it will not be part of the public record unless you resubmit it formally through writing.

I want to let you know the way we run the meeting today is we have opened it up for discussions and your concerns and comments, and when the meeting is closed, we'll still be available at your discretion to discuss any issues that you may have regarding the project.

First, I want to introduce the people involved in this meeting today. We have representatives from Bureau of Land Management from the Ridgecrest office, and we also have representatives from the proponent of the project, the gold mining company, and we also the have the environmental contractors who have assisted the Bureau and Kern County in preparing the document.

Kern County has a representative here today taking notes and making sure that any issues and concerns that you folks have are also part and

shared with Kern County records.

The BLM is leading this meeting regarding the compliance with the National Environmental Policy Act, which is known as the NEPA.

NEPA requires the government to make decisions in an open process, making sure we hear your concerns and making sure these concerns are addressed in the document we have prepared.

If you recall, back in April of 1996, we also came here to Rosamond and opened up our public scoping process, which is the first part of the beginning to prepare the necessary permits for this operation.

What we've done back in April of '96 is, before we began to do anything at all, we asked you what are some of the issues and concerns that you have regarding this proposed project, and we emphasized "proposed."

At the beginning of the process, it's important to make sure that all the issues and concerns that you folks have are addressed in our document within the constraints allowed by law, which is very important, also.

We are a country governed by laws, which means the existing laws that we have will pretty much

lay the sideboards for what we can and cannot do.

So back in April of 1996, we asked you what are the issues and concerns. We documented many comments, and we have made sure that your comments and concerns are part of the record.

We have published this information on the worldwide web, and we made sure that access to the issues was available to everyone, either through libraries or through newspapers or through that computer worldwide web internet access.

We felt that was important to make sure that we let you know the progress of the project because the project is very dynamic. We wanted to make sure that any provisions of the project, you are well aware, and any mitigations or any conditions that we can attach to the permit will be well thought of and well prepared for by the process, so we become defendable and also become fair and equitable.

So as we promised, we're back again in Rosamond to open up the public meeting again to discuss the issues in the EIS, address the EIS/EIR we have prepared.

The document has been available since June 2nd, and if you have been part of our mailing list, you have either have received notification of

its availability, or you have gotten the document yourself.

We are going to hold two meetings, one tonight in Rosamond, tomorrow in Mojave, to make sure the local community has ample opportunity to participate in the process.

Let me explain a little bit about the project before we ask you for some of your comments.

The project is roughly 20 percent on public lands, 80 percent on private lands. So a fifth of the project is on public property managed by the BLM on your behalf. The other 80 percent of the project is on private land, managed by your county and your state.

We have worked very closely with the county and the state to make sure that the federal and the state and the county process goes hand-in-hand and does not reiterate and repeat itself.

We made sure that all of the parties were involved that were going to issue a permit to the operation, are involved up front, so there wouldn't be any future permits required that were not foreseen by the agencies up front.

So, Kern County and BLM are really the

lead agencies who are required to coordinate with all the other agencies that will issue permits for this project. This project will have multiple permits before it commences.

BLM and Kern County issue certain sets of permits; other agencies do that also, but BLM and Kern County are the lead government agencies in making sure your concerns and comments are addressed in the document and are communicated to the other agencies in the state and local governments.

So what we have done in the last year or so, is prepared what we believe is a defendable document that addressed the needs of the public and agencies regarding this project. We have done environmental surveys on the grounds, have conducted inventories of sensitive resources, have identified these resources and have mitigated -- developed a mitigation plan for avoiding or minimizing the impacts to these resources.

We understand that there are concerns from the community. We believe these concerns have been addressed in this document. And we want you to make sure that you've let us know if your concerns are not addressed. If they are addressed, let us know; if they are not addressed, let us know, also.

We'll make sure that we point you in the right direction in the document where we believe the issues have been addressed. We have documented your concerns back in 1996 as far as the issues and concerns.

So, before I open it up to you, I also want to give you a little bit of ground rules about how we're going to conduct the comments tonight.

I'm going to be asking you to come up and state your name and speak slowly so the court reporter can document your thoughts. And spell your last name for him, and then I'll give you three minutes to say your thoughts to the record. And then I'll give you a minute warning after that, and I'll ask you to allow someone else to make a comment.

I will go through everyone, and there's still opportunity for more discussions. I'll be glad to have you guys come up again for a second round. But I would like to hear from everyone first; so I would like you to keep it at three minutes. That's the first ground rule, three minutes, and then I'll give you an extra minute to wrap up.

The second ground rule is, I would like it to be a civil discussion. We're all a neighborhood, and we're all part of this great

country. And it's very important that we address each other with politeness and respect, no matter where our issues are or wherever you stand.

It makes for a great country that we have the diversity and we have the freedom of speech to discuss these issues. Let's not forget that we are neighbors and we have families and we do have lives, and we want to make sure that we go back to them the same way we came in.

The third ground rule is, I would like you to know that this is not a public-opinion polling process. There is not a meter-reading of how many people are for or how many people are against a specific project. That's not the way the BLM conducts its business.

We try as hard as possible to look at our existing laws and regulations and get your concerns and issues addressed in there. And we will forward your comments to our management and to the folks who will make the decision. But you have to be aware that this is part of a long-term land-use planning process, which started with the California Desert Conservation Area Plan, if you all recall that; if you haven't, I'll spend a few minutes on it. I think it's very important that you all be aware of

it.

You all have houses in the area and you all know zoning laws, what you can and cannot do on your property, whether you can animals or whether you can have a wind turbine or whether you can have a solar panel.

BLM does it the same way, no difference, really, except on a larger scale. We can say this area is zoned for animals or it is zoned for plants, it is zoned for recreation or it is zoned for mining and development, or it is zoned for other uses. It's a process that we took twenty-five years to complete. We started in the early '60s and finished in 1979.

After extensive public comment, I think 40,000 comments were received by the BLM during that process, $12 million was spent in 1979 completing this plan.

And what it basically does is, it zones the desert based on its uses. If I may, I will go up to this map and explain to you a little more what that means, because I want to make sure when you are providing us your comments, to keep that in mind.

The BLM basically zoned the desert into four major areas. And it's twenty-five million acres of public and private, but only twelve million acres

is public lands, which is really the color pattern you see here.

The zoning that we've basically done is, say, that some lands used should be zoned for no development, and then some other lands be zoned for extensive use, which is really the scale here. The green means no development, which is our wilderness areas, our areas that are off limits to road and vehicle access, the pristine things that we designated, and there are millions of acres of it all over the desert.

The yellow areas are what we refer to as Class L, which is a limited access, and there are some roads there, but we're not going to allow any new roads in the areas. It's a zoning concept, again, that says no new roads except the existing ones.

As you go down the list, obviously, it gets less and less restrictive and more and more permissive as far as access. So Class M means moderate use, means that we will allow some access, some roads and some development. And Class I is intensive use, by definition means we allow a lot of activities there, off-road racing, developments like wind turbines.

By definition, intensive use means the resource values are low; so we can allow a lot more things to happen.

As we zone this area, the Soledad Mountain fell in an area that had low-resource values as far as habitat, and had existing mining operations; so the area that it was zoned for did not conform to the limited and the environmental conservation zones.

So the zone was unclassified, which, again, gives it the management restriction that we can allow activities to happen there. And it's very important because once we zoned it that way, we allowed mining claims, we allowed investment in the area, and now we are trying to make sure that the operation can -- that it's consistent with the way we zoned the land for years, can be permitted in a sound environmental manner.

So, with that, I want you to make sure your comments are focused on how can we make sure that we can mitigate the impacts. Because the area has been historically zoned for mining, and it's going to probably continue in the future as part of the land use, county zoning and federal zoning, to be zoned for development.

With that, I will close my spiel and try to now open it up for you folks.

As I said, I'll remind you again, please come in and stand here and give us your name.

If you don't want to have to stand here and give us your name, it's going to be hard for us to document your public comments on the record. Because the court reporter, again, has to be a part of it.

Again, once the meeting is over, you can approach any one of us. We will be hanging out here for a few more minutes, if needed, and we'll be able to answer any questions you might have without having to state your name first, and go through all these formalities. Okay?

So are we ready to go?

I'll open it up, and anyone who's willing to come up, just raise your hand, and I'll pick you out from the crowd, and ask you to come up.

Ma'am, please state your name for the court reporter.

Thank you.

MS. WAGNER: My name is Monna Wagner. The spelling on my name is M-o-n-n-a, W-a-g-n-e-r.

I am here at the invitation of

R-1-1

Mr. Wyman to read into the record Senator William J. Pete Knight's support of the Golden Queen Mining Company, Soledad Mountain Mining Project.

The senator directed duplicative originals to Supervisor Steve Perez and the Kern County Planning Department, and that's what I will be reading into the record this evening with -- I have several copies also available for BLM and for anyone else who would be interested in a copy.

And it is directed to -- well, to Supervisor Perez and to Mr. Barnhill from the Planning Department.

R-1-1

"Please find this letter as an endorsement of the proposed Golden Queen Mining Company, Soledad Mountain Mining Project."

It's kind of a tongue twister.

"This project is vital to the economic future of Kern County. It's anticipated that this project will provide nearly 500 jobs over the duration of operation. Jobs will vary from labor and semi-skilled to clerical and supervisory. With the mine conservatively projected to produce twelve to sixteen years, Golden Queen Mining employees will contribute to the economic base of Kern County well into the next century.

"The company has also taken many necessary steps to ensure they meet all the environmental standards mandated by the State of California and the Federal Government.

"Issues have not impacted any threatened or endangered species, and meeting strict water and air quality standards have been addressed.

"Considering the economic benefit and the minimal environmental impact Golden Queen Mining would bring to Kern County, I urge the Board of Supervisors to enthusiastically approve this project.

"Warmest regards, William J. Pete Knight, California State Senator, Seventeenth Senatorial District."

R-1-1

Thank you.

MR. MOHSEN: Anybody else who wants it make a comment?

Sir.

MR. ROMBOUT: I would like to introduce myself. My name is John Rombout, I'm the mayor of the City of Tehachapi. We have a similar resolution that we passed at our city council meeting. I won't bore you with what it says, the "whereases" and "therefores."

R-2-1

I would like to urge us to support this

project. East Kern County and East Kern Alliance, we're struggling in this area to provide jobs. We need the economic benefit that this kind of development can bring to our whole area.

As many of you know, we're sort of considered the poor stepsisters of West Kern County, and we sort of have to support ourselves out here.

R-2-1

And I think it's very important for us to think that -- you know, we know that Ridgecrest is having a hard time, the military bases are having a considerable downsizing. And I think it's important that we support projects which can make us economically viable. And I would like to encourage everybody to support the project.

We in Tehachapi, we feel that we will benefit from this from people that work there, can live in our community, shop in our community, and I think that it will help our area.

Thank you.

MR. MOHSEN: Sir.

MR CHIODO: People, my name is Patrick Chiodo, C-h-i-o-d-o, for the record. I'm a professional safety engineer. I've been conducting an investigation in the desert area over by the Cactus Queen.

For the record, I was the individual that set off of the first explosive charge at Cactus Queen. I pulled the first explosives permit. And I worked there for three months until I got tired of them throwing dust in the air and mercury in the air.

Now, my investigation has come up with a lot of mercury contamination out there, and it's not mercury itself. All the government agencies go out there and test for mercury vapor.

I found that the ponds out there, the cyanide ponds, are out of balance. And I've been out there many times with the Cal-OSHA inspectors.

R-3-1

The fumes from the cyanide combine with the mercury vapors and make what they call mercury cyanide -- or mercury cyanate. It got in the air and blew all over the place.

I have samples of mercury and cyanide combination in water coolers, swamp coolers.

How many of you people out here have those little white crystals? Yeah? Those white crystals are alkali and mercury cyanide together. And it's from the emission of mercury and the emission of the cyanide.

Now, don't get me wrong, I'm a miner. Before I even started doing any of this stuff, I was

digging holes and blasting holes in the ground.

What you need to do is make sure that these people put some form of mitigation, some form of controls so that when they start blowing 100,000 pounds of dust in the air because some explosives guy decides he wants to blast a rock to smithereens so he won't have to crush it, and half of the ore goes in the air along with the mercury compounds and everything else.

Now, right here is the Environmental Impact Statement, right here. And it says they won't put in the air acetylide, arsenic, arsine, benzene, beryllium, tanium, copper, formaldehyde, hydrogen cyanide.

Now, hydrogen cyanide is not natural to earth, it's man-made. So that means they will be putting hydrogen cyanide out when their ponds get out of balance. And how they get out of the balance is when mercury gets in there from the center bar, and throws the cyanide way out of whack. So they can't put the mercury compounds into the pile; they have to smelt them separately. And when they smelt them, they blow the mercury in the air.

Now, it is documented by MSHA, Mine Safety and Health Administration, and Cal-OSHA, that

R-3-2

R-3-3

R-3-1

the Cactus Mine was cited several times for blowing mercury in the air weeks on end.

R-3-1

When the Cal-OSHA inspector Henry McEntyre went out there, he found that the scrubber was broke, and they were out there vacuuming mercury off the ground. And people wonder why their teeth are falling out.

Let me finish here.

MR. MOHSEN: One more minute.

R-3-1

MR. CHIODO: It also has lead, manganese, mercury, naphthalene, nickel, PAHS's, selenium and zinc.

Now, in the Environmental Impact it says "air quality" and it also says "health hazards to public safety."

Now, I do mean to chastise the Bureau of Land Management. I have dealt with them for many, many years. I have been mining for thirty-five years. Some of you out here have mined for longer than that.

R-3-4

They should have supplied these prior to this meeting so that you individuals who were intelligent enough to read this could have read it and see what you're going to be breathing and see what's going to happen and why your kids get the

R-3-4

shakes or why your kid can't think right.

I'm going to sit down and let you guys talk, but you think about what I'm saying. Because I am an investigator for a large attorney firm, and we're bothering to drop the bomb on these people.

MR. MOHSEN: We have to try and -- I'm going to put some of his thoughts down because I want to explain to you how we're going to responding to all the concerns you've had today.

One of the important documents we produced is called a Final EIS/EIR, which this is the draft portion of it. The Final EIS/EIR really is taking every comment, just like the one that was made, and responding to it item by item.

We're not going to go around it. We're not going to dismiss it. We are not going to disregard it. We are going to address it with a response.

It will be very hard for me to articulate that response today because it takes more than just me to do it. The State of California has one of the toughest environmental laws in the country.

So we have to consult with the other agencies and make sure that the response to the

comments that were made are by the appropriate agency, whether it's for toxics or air quality or for water quality, it will be done and documented in the final EIS/EIR sent to you again for review, holding a public meeting, if necessary, again, to hear your concerns again.

We're not going to exhaust this process by one meeting. But comments such as the gentleman just made need to be addressed, and it will be in due time when we're ready to publish the document.

I will put some of his thoughts down just to make sure if someone has additional ones, that they can go ahead and state them, but if they are repeating what this gentleman said, then, basically it's already been documented and it's going to be addressed in the final document.

The lady raised her arm earlier. Yes. And then, sir you're right after her.

MS. BENSON: I'm Karen Benson, Vice Mayor of California City and I have a Mayor's proclamation from California City.

"Whereas, the combined Draft EIR/EIS has been prepared by Kern County and the BLM for the Soledad Mountain Mining Project and Golden Queen Mining Company;

R-4-1

"And whereas, Soledad Mountain has a land use designation for mining the riches for such land use and purpose. The Golden Queen Mining Soledad Mountain Project will appropriately continue such land use;

"And whereas, the Soledad Mountain Project will require the investment by Golden Queen Mining of over $40 million in construction costs, will use Kern County suppliers for building and construction materials and will employ over 250 initial employees for eight months;

R-4-1

"And whereas, the project will provide permanent jobs for a projected 230 employees over a lifetime of the project, estimating between twelve and sixteen years. And Golden Queen Mining is committed to hiring East Kern residents in supporting Kern County's businesses;

"And whereas, the Golden Queen Mining Company will be constructing and operating a state-of-the-art mine and reclaiming operations while being simultaneously committed to the preservation of historical mining works and structures in the area covered by the project;

And whereas, the Soledad Mining Project will provide an important addition to the Kern County

tax base, and help meet infrastructure needs of Southeast Kern County;

"Therefore, I Mayor Mary Adams by virtue of the authority vested in me as mayor, do hereby support the Golden Queen Mining Company in their endeavors in East Kern, and recommend that approvals required by local agencies be granted to allow this project to go forth.

R-4-1

"In witness whereof, I hereunto set my hand and cause the great seal of California City to be affixed this 6th day of June, 1997."

The whole City Council of California City supports this project. East Kern is considered a depressed area. The benefit of jobs and the fact that they will spend their money in the East Kern region is enough to support this project.

Thank you.

MR. HOOPER: Hello everyone. Last time I was in this building was forty-years years ago. I went to elementary school here.

I have a long-term interest and I cherish the desert, and I would like to see it remain livable.

My name is James Hooper. I live at 3966 Backus Road. I have a home there and one in

California City.

I agree that California has a lot of environmental protection laws, but the problem is enforcement.

I have a couple of articles here, one involving -- perhaps you saw them -- the burning of tires -- the Kern County Air Pollution Control District permitted the burning of tires, and then got their hand caught in the cookie jar about the environment and said basically, "Oops."

R-5-1

Therein lies a big part of the problem is, who can we trust to tend the chicken coop, and many times within the Environmental Impact Report it's the mining company that turns in the information. And that's a hard situation to trust, folks.

This is another article regarding the Lahonton Water District, which permitted sewage dumping against -- well, in contrast to many of their own rules about covering it, plowing it in and so on. And they did not begin to comply until they were pressured to by environmentally-conscientious people.

R-5-2

I also would like to say, I think this is a great project. It's in the wrong place.

I live on Backus Road area. I belong to

a little group out there called Ancient Valley Civic Association. For many decades I used to go there with my parents.

And I have two maps of that area. Even though these maps could be dismissed as clerical error, if they are clerical error, they are gross. Perhaps, some would say they are meant to be deceptive. I wouldn't want to come to a conclusion on it, but they are darn worrisome.

I have Map A here with dots, I don't know that you can see them, where the folks who did the environmental survey, recognized fifteen or nineteen -- they say different numbers in different places -- dwellings directly downwind, what I call the "danger zone" for this mine.

R-5-3

If I lived in Mojave upwind, if I lived in Cal City far away, or if I live Tehachapi far away, I could say "jobs, wonderful," and wouldn't be very worried about it.

But we live right there where the wind howl brings this stuff down on us. And it's frightening.

This map here has ninety-four red dots on it. If you contrast that with the map that's in the report with nineteen red dots -- these are

R-5-3

people, these are homes, these are families. This is serious business when an error of this magnitude happens. I'm sure you'll agree.

Again, who knows what the intent was, but it's a frightening error.

I would like to emphasize the points that the folks out there on Ancient Valley, Backus Road, Kemper Road, Loneview Road are downwind, and in a far different predicament, in a unique situation relative to the pluses and minuses of this mine.

Now, I only have a few minutes, I'm sure I'm doing the edge here.

I would like to compliment the mine manager, Mr. Graeme. We have talked to him several times. He's been conscientious. And he's really tried to be up front with us people, Ancient Valley Civic Association.

Again, I would like to say great idea, great project; wrong place.

MR. MOHSEN: Again, as I mentioned earlier, we will take his comments and respond to them item by item. But I'm going to just take one to respond to right now.

He said "The wrong place."

Again, this is why the land-use planning

process is very important. You as a public own these lands, and if you determine through a land-use planning process what is appropriate or not appropriate, then it be zoned appropriately.

But back in 1979, when this area was zoned, the mining and development seems to be the zoning that the public had requested at that time.

And now only the government -- I mean BLM and Kern County, are only responding to the zoning laws that were handed over to us by the democratic process, if you will.

So "wrong place," "right place," it's a judgment, but it only needs to be done through the land-use planning process. So we all as a community determine what is appropriate and what is not appropriate in the area. And after a mine comes in, the land-use planning process is already concluded.

So the reason why I'm mentioning this is, I hold a lot of public meetings. I do not see as much participation at the land-use planning level as I do at the project level.

Let me expand on that a little bit because I'm seeing some eyes out there looking at me like, "What are you trying to say?"

What I'm trying to say is: There's two

steps before anything happens to a land. Just like when you buy a property, you first buy it because it's zoned residential, and then you build on it.

Now, it would be very difficult if you buy a property and come and build on it, and the government says, "Wait a minute. That's not zoned for residential areas."

Then why did you buy the property initially in that area unless it was zoned for that?

That's why it's important to understand that it's a two-step process. The first step is to say whether this land should be zoned for development or not. It doesn't matter if it's mining, it doesn't matter if it's wind energy; development is development. It means use of the resources of the land.

And back in 1979/'80, the desert plan determined that the Soledad Mountain is an area for consumption, use and development. It's been going on for twenty-five years.

"Wrong place," "right place" is very hard to respond to that without, again, using our land-use planning process saying you as a public have asked for the government to manage the area based on these zoning things.

Ma'am, you want to come up.

MS. RIGG: My name is Barbara Rigg. And I've lived in the area for many, many years. And I was at the last meeting. When this map was set out, the mine was not being open-pit mined nor was it having cyanide ponds, nor was it dumping out all the poisons that they are dumping out today. R-6-1

I would also like to say that I have only one question of these people: If they are going to mine the same way they have been assessing it, then their permits must say they can dump all over us, because you cannot pass that mine -- and four times a day I pass it, and I fall asleep or try to, I have to fight to keep awake. I can get a horrible odor that burns your nose and makes your throat sore and dry. R-6-2

If they are going to be doing this on a larger scale, we're all going to suffer a whole lot more.

Also, my question number two is to the county and the people that live in this area that say we need employment. Why is it Kern County is giving East Kern, all the sick, dredged-up dump work? Why can't we have some decent employment over here? And keep the mines contained. They can mine. Keep it R-6-3

R-6-3

contained on the property in the proper manner and keep some decent industry coming in, not dirty.

We're tired of being dumped on in East Kern.

MR. MOHSEN: Yes, ma'am.

MS. BOETSCH: Good evening. My name is Pat Boetsch, it's spelled B-o-e-t-s-c-h. And I would like to readdress this thing on employment in the area.

R-7-1

They are talking about five hundred people over sixteen years. That doesn't say we're going to have five hundred people employed all the time. You need to think about that. They may have twelve people hired or lay them off and hire some more.

That's all I have to say about that.

Thank you.

MR. MOHSEN: Yes, sir. Thanks for stating your name to the court reporter. I appreciate that.

R-8-1

MR. ZAMORA: Good afternoon, ladies and gentlemen. My name is Manuel Zamora, I live in Mojave. I used to work for twelve years in mining. I worked in the Cactus Mine, Rand Mining Company in Randsburg. And I try to tell -- for something, that

some people say about the cyanide and all the stuff. The people less than a half mile are mining, and I never hear anything happen to those people.

We are working in Cactus, and anything that happens, I've been working twelve years, and I never feel nothing in my system. So, I don't know why the reason they say it's going to be dangerous.

And I don't know what that last lady is talking about. We're not even started mining out there, and she's talking about she feels dizzy and passed out. I don't know why.

Thank you.

MR. MOHSEN: Yes, ma'am.

MS. MURRAY: My name is a Terry Murray. I live in Lancaster.

I would like to address this gentleman's statement. What do we have to be afraid of mercury? Mercury has a fifteen- to twenty-year time of incubation. At that time, will we know? It's only been nine years since we had the massive mercury release.

What we have to be afraid of are your chemicals, the burning in our nose and our throats when you're in active mines, the odors, but more importantly, our children.

R-8-1

R-9-1

With all due respect to our elected officials, I want to see our area grow, but not at the risk of our children.

R-9-1

I have an eight-year-old who was massively exposed when we had our little mercury "oops." None of our elected officials did anything to help us. Instead, they covered it up. They hid it.

R-9-2

And enough is enough. We want this mine to go somewhere else. Take it out by the truckload, if you must, take down the mountain, but do not expose our people, our children, anymore.

Thank you.

MR. MOHSEN: Yes, sir.

Make sure your comments are focused to BLM and Kern County. We're the ones that have to respond.

MR. SKELTON: I'm Curt Skelton, a general contractor. I've had three projects with Golden Queen Mining, remodeling their buildings.

R-10-1

I would like to speak about the character of the men and ladies that I have worked with.

They have treated me excellently. I have pulled a number of building permits, if you

will. They have all been in order, they were on older buildings. Some of you know what they get into with older buildings. They were all commercial permit.

They have treated me, again, very kindly. I have Frank Hyder here somewhere. I call him the safety officer. But he's back there. So everybody turn around. He's the gentleman with the striped shirt and glasses. Get mad at him if you get a release.

R-10-1

But he has been concerned about little nuts and bolts that somebody might scrape an ankle on.

But anyway, these people have treated me with decency. If you get a look at the project, everything is spin 'n span up there.

The people are decent people. I've never heard a hash word out of anybody. If you can't get mad at your contractor, and if you don't get mad at your contractor, you probably don't get mad at anybody.

But anyway, you have excellent people working up there. And you can talk to them. And they haven't been harsh with me.

And anyway, I thank God for their

R-10-1

kindness and what I have seen up there.

MS. MATHIS: Hi. Good evening. My name is Sue Mathis, and my family and I also live south of the project. And I do want to thank Dick Graeme. He's been awfully kind and has spoken clearly and precisely and seemed very honest.

But my husband and I, after reviewing the document, and it was quite a document, after looking, there's a lot of inconsistencies.

Especially, we're most interested in the water concerns. Your test wells as far as just show the locations, doesn't say which particular ones you're going to use -- that needs to be clarified -- for the ground.

R-11-1

Are you going to select people who live south of the mine and use their particular wells that actually they are drinking out of for test wells? Sample it four times a year? We're asking that.

Make sure the check the depth because the depth on your side of the mountain may not be the depth on our side of the mountain.

R-11-2

The other thing is the inconsistency of the number of residences. I think that's also important. One part of the document says ten, one says fifteen. On the chart, it shows nineteen.

R-11-2

Mr. Hooper counted ninety-six. It seems to be going up.

R-11-3

Maybe it's that 200 percent error that you guys brought up in your water. When you guys talked about you were going to check the depth, and if it went out 200 percent of what you guys were estimating. Well, 200 percent is a big error. Some wells won't even take 200 percent.

I think you need to go back and reassess that 200 percent thing.

R-11-4

The other thing was the wind. We read in depth about the wind. You had one active thermometer that we could tell. It was sampled only a couple of times, once at 1:00 o'clock in the afternoon, I saw several times. There might have been other times, perhaps they chose not very windy days, but it was upwind. Anybody who is an aerodynamcist can certainly tell upside of the hill is going to be less windy than up and over the hill and down and turbulent.

That's where you're going to have your overburden piles. Are you telling me the particulate matter, you know, PM-10, which is 10 microns. You're not going to have any of that leaving the site? Those of us who live down south of that mine tend to

disagree, and we find it hard to believe. I think you need more data on that because we don't believe it.

You're data isn't down south of there, either. It's all up on the more calm side. And I think that needs to be looked at and addressed.

Again, the health concerns of the children. Two of my kids have been diagnosed with asthma in the last three years. While you guys were building those roads and blasting, I took pictures of the dust in the air. It was really incredible. And those were on non-windy days where it just sort of dissipated up.

R-11-4

On a windy day anyone who lives in Rosamond sees how the dust picks up where they have disturbed the land. They aren't even trying to blast that, they just cleared the brush, and you can see the big dust storm.

I think that needs to be addressed. I don't think that's been addressed in a manner that's satisfactory for those of us who live down south. Our arguments are not that it shouldn't be mined. It's been mined as long as we lived there.

Our arguments are the way it's being mined. Our arguments are that the issues that we

think are important are not being addressed clearly.

You know, I think really any good engineering firm paid enough money could make Chernobyl be less than a significant impact to the people in the neighborhood. I think that's really something to keep in mind.

It's how you gather the data. It's where you place your instruments to collect the data, and how you interpret that data. And all those things are very, very important. And those people who live in the area need to read that very carefully, because I can guarantee you people in Kern County may not. The engineering firm was paid to do that.

R-11-4

So I'm not opposed to the mine, but I'm opposed to being poisoned and getting away with it.

The other concern that I have is that once this mine starts, we have concerns. They blasted more than once a day. I think I read in there that they are only allowed to blast once a day. It didn't say how much it's gotten to yet.

R-11-5

But anyway, what if they blast twice a day, who do we call? "Oh, we're busy. Oh, we don't have anybody available to check on that."

These are very, very important issues

R-11-6

R-11-7

credibility and accountability. We need to know, as the people in this area need to know, who we can contact, who we can talk to, and that something is going to be done about it if we are going to give this our support. I think that all needs to be addressed.

And there are certain issues as far as Monolopia on the hill. I read through your plant materials list, and I did not see that brought up.

If you say that you're going to address all of the issues in the letters that were sent to you, that one particular plant was mentioned in the letter and was never listed on your plants list. I don't know if you intentionally left it out or whether it was an oversight. Again, I'm bringing that to your attention. I think these things need to be brought up.

You know, if you guys aren't going to be open and up front with us, and I'm not saying it was intentional, but I'm just telling you that we're checking on you, and you need to follow-up on these things.

Thank you.

MR. MOHSEN: Again, the court reporter documented every single word. I tried to get the

best of it I could. We will take it item by item and respond to them in the final document.

Thanks for bringing these issues up.

Sir.

MR. BOETSCH: My name is Jerry Boetsch, B-o-e-t-s-c-h. I live straight east of the mine. There are nights our house shakes in the wind it blows so damn hard.

And my major concern, being in the business I'm in, is the water.

You were talking about pumping 750 gallon a minute according to your report, seven days a week, twenty-four hours a day. I would like to know where you plan to get that water from.

There isn't that much water in that valley. There are dry wells just east of the mine. Two to three gallon a minute at 600 feet, that's all the man's got, and it's loaded with arsenic.

So, that's my major concern. I want to know where you plan on getting this water from. It's not up there. It's a finite area. We haven't had any recharge. Look at the amount of rainwater we've had in the last five or six years. We had one good snowstorm this winter, and that's all; it didn't even last a day's time.

R-12-1

That's all I have to say.

MR. MOHSEN: Anyone else?

Sir.

MR. SETTLE: I'm Glenn A. Settle. And I'm unusual. I'm a native son of Antelope Valley. I have lived here for about eighty-five years and I have seen what an important part mining has done to our area. And I could go on and tell all night here about the important things that mining has done.

We go back 120 years of mining been going on in this area. The northeast end of Tropico Hill, when you go by there, you will see that pit. The clay from that pit helped build many of the Los Angeles early brick buildings and the tile roof buildings and some of the other things, like when they had a pottery plant there.

R-13-1

Then when the mining boom happened when Bower struck gold on Standard Hill just north of the Golden Queen, and the Tropico, they all came into the mining boom about one time, and we mined for a good many years.

And then they finally got the low ebb and they were not doing much mining until about 1934 when President Roosevelt raised the price of gold from $20.67 to $35.00.

This immediately gave a big boost to mining in the area. The gold field consolidated with one of the largest mining companies in the world, Tropico Road; there was Silver Queen at that time, and they changed the name of it to Golden Queen.

Until they were forced to close down During World War II, they were a very important part of the mining industry in our area, as was the Tropico and the Cactus.

During the depression, many of you -- I don't know how many of you were here in Antelope Valley during the depression. Times were really rough. The only thing that kept Antelope Valley from drying up and blowing away was the mines.

Before that, farming was a big industry. When the farmers got where they couldn't get anything for their crops, some were about ready to lose their land; they couldn't pay the tax, they couldn't pay anything else.

So the mines really saved the day because they hired many hundreds of men here in this area, the Cactus and Tropico and the Golden Queen. And I know, because I had a store here in Rosamond, I know the rest of the country was really in kind of a bad state, but in this area, we were booming because

R-13-1

of the mines.

One of things I heard you say about the pollutants and a lot of things like that, the water, we mined at the Tropico for over sixty-five years, and we had a large pond and we had our own well.

And not too long ago when everyone was all worried about the pollutants and the water may be bad and all that, we kind of took a survey, of course, they did testing all around the mine, and found everything was okay.

But we kind of took a testing of the people that lived around the Tropico for thirty and forty years, maybe fifty, some were maybe all their lives. And we found out that on the west end of the hill, Dr. Norden, he lived to be over eighty. Clarence Gerdwig and Joey McEnomy, they lived right by the mine, they both lived in their eighties. Hank Williams, he lived right there, he only lived to be ninety. And Avery Quitt, he only lived to be ninety-two. So you might think that land and that water out there -- I'm just one of the new kids on the block. I only lived up there about forty. But I'll be eighty-six this year; so maybe that water and the air around there has cut my life too short.

I don't know. But anyway, what I want

R-13-1

to say about the Golden Queen, I've met some of these people, and the man I've talked to, this is the third generation. He's the third generation of this mine. So he knows what he's doing. He knows all about mining. All of these people do. They've hired top-notch people.

R-13-1

And what I can say is, the things the way they are like the Plant 42 and Edwards closing down, we should be thankful that we have this industry coming in here because there's going to be a lot of new jobs. And I, for one, am very glad to hear that maybe the mining will be carried on into the next century.

MR. MOHSEN: Sir.

MR. BOETSCH: Good evening. My name is Jerry Boetsch, Jr., B-o-e-t-s-c-h.

R-14-1

And I do not doubt the importance that the mining industry has had to the Antelope Valley, but we must realize that Kern County is only a section of the Antelope Valley, and the major shopping in this area is L. A. County.

And we are not guaranteed that the mining company is going to contract to only Kern County suppliers. I mean, they are a business, they need to make a profit. So they are -- they should

look for the lowest price for their products. So what guarantees that this income is going to hit Kern County, and it does not guarantee that the income is going to be returned through the employees to Kern County, whereas, the major shopping and the closest is L. A. County.

R-14-1

Thank you.

MR. MOHSEN: Yes, sir.

MR. WEBB: My name is Dean Webb, W-e-b-b.

I would also like to address the water problem that some people have addressed.

The aquifer that we're talking about probably extends from the Tehachapi mountains all the way to the San Gabriel. So when you're talking about, you know, 750 gallons per minute day and night for fifteen years, you're also going to see a subsidence of the land, even in Lancaster, and you down in Palmdale. So, really, you should be looking at the whole aquifer.

R-15-1

And also, how does the dust that you will try to regulate, how does it affect flight testing at Edwards Air Force Base, which is very, very important? I don't remember seeing that looked at also.

R-15-2

R-15-3

And getting to the re-vegetation question. You know, how will it be done and who will actually oversee and okay it, you know, after it's already done. You know, this will take fifteen years, and who's really going to be here to actually say that it's done right?

R-15-4

And also, what happens if the company backs out in a couple years? Who's going to rework the mine? Will it be the taxpayers, or should the company put up a large bond?

R-15-5

And my third comment is that we probably should have a valley committee to monitor water, air, historical preservation, re-vegetation, the Air Force concerns, the different cities around, and Kern County, and also L. A. County.

R-15-6

And maybe the mine could connect to the aqueduct; you know, there might be a possibility there.

R-15-7

And probably, you know, they should also talk to the East Kern County Historical, you know, East Kern County Historical Society to see about building a permanent museum on the mountain.

Thank you very much.

MR. MOHSEN: We've heard lots of excellent comments today. I'm very proud of what

I've heard today. I think you should be, too. Other people are watching the boob-tube right now, and you're sitting here participating in the democratic process. So I want to commend you on your comments. And we will address each and every one of them, and they are very valuable to our process.

The government can't sit behind closed doors and think about these things. We need to hear what your concerns are. We'll try to handle it to the best of our ability.

Again, we have to be responsive to the laws and regulations that are there. If there is information that needs to be added to the process, we will be sure to go get it, if it's available to us. If it's not available to us, we'll make the best educated judgment on what is there, based on your concerns, again.

So I want to tell you I'm very proud to see this kind of turnout. When I go to public meetings and I see only a few people show up, I see what a great loss and opportunity it's been. It takes two to tango in that process. We're only going to be responsive based on what your concerns are.

So we've heard a lot of them today. We're willing to stay all night, if you need to. And

when the meeting is over, you can get with us individually and ask any questions you want. We'll be glad to respond to them.

I've taken a lot of notes. We have everything down documented. It will be on worldwide web next week; so you can see each other's comments. If you want to go back home, talk to your family about it, you can pull it down from your computer or go to a local library and pull it down from there. We have all the diagrams, everything is there for you to be able to read and make your own judgments about. You don't have to believe everything we're saying, it's all out there.

So again, I want you to be proud and go home tonight and tell your neighbor "What did you do tonight important in your life?" I think you guys need to be commended for that.

Sir, you had another comment?

MEETING PARTICIPANT: What is the worldwide web address?

MR. MOHSEN: We'll be glad to provide you that. It's in the cover page of the document. If it's not, I'll put it up here right now.

MEETING PARTICIPANT: Please.

MR. MOHSEN: I sure will.

Before we move on to the next phase of this meeting, are there any more comments or concerns? Sir, do you have something?

MEETING PARTICIPANT: I have a comment.

MR. MOHSEN: Sure. Come up.

And again, you don't have to have your comment today. If you want to go home and think about it, read over the document, have a chance to absorb it, all feel free to submit written comments to us by mail or by fax. We'll be glad to accept them.

We will be closing the comment period on July 16. However, we will allow a few days of mail time after that, but we would like to be prompt and timely so we can make sure it's addressed in the final.

MR. LANDSGAARD: Good evening. My name is Olaf Landsgaard, O-l-a-f, L-a-n-d-s-g-a-a-r-d.

I'm here to read the resolution from the Rosamond Chamber of Commerce. I'm a director for the Rosamond Chamber of Commerce. Before I do that, I would like to say that the Rosamond Chamber is a concerned body here in the community of Rosamond in the high desert area.

R-16-1

We are concerned with the environmental

impact of any project. We have looked at that. I just got through looking at the Schedule Number 7 over there, Appendix Number 7, dealing with the air. I noted it said that everything there, all the things that were going to be omitted, were going to be less than the federally unaccepted levels of materials.

I think what we all heard tonight is a lot of common sense, a lot of people concerned about what's close to them, and a lot of high applauds for the Golden Queen Mining Company itself for being a responsible company.

R-16-1

Therefore, let me go ahead and read the resolution dated June 5th, 1997; Resolution 97-01:

"Whereas the Golden Queen Mining Company/Soledad Mountain Project environmental studies have shown no plant or animal life will be threatened, and that air and water quality will remain healthy for all residents;

"And whereas, the Soledad Mountain Project is committed to reclamation after mining;

"And whereas, the Golden Queen Mining Company is committed to hiring East Kern residents and buying Kern County products;

"And whereas, the Golden Queen Mining Company will spend $40 million in plant construction

and create 250 new construction jobs;

"And whereas, the Golden Queen Mining Company will employ 230 permanent employees in East Kern to mine the wealth of Soledad Mountain and improve quality of life for all residents in East Kern County, now therefore be it resolved that the Rosamond Chamber of Commerce hereby endorses, supports and welcomes the Golden Queen Mining Company and the Soledad Mountain Mining Project.

"And be it further resolved and directed all counties, State and Federal and other governmental officials to record this resolution at any and all further public meetings."

Signed, President Dan Spoor, attached, Shirley J. Conrad, Secretary.

MR. MOHSEN: I have put the access to the worldwide web site up here for you. It's pretty easy: HTTP://www.ca.blm.gov/goldenqueen. Pretty simple. And it does have all the diagrams, everything in hard copy that we have submitted to you is on that site. And it does have the proceedings from the last public meeting we had in April of 1996 word by word, attendance list. You can also subscribe to us through the electronic -- this is the first project that we actually made available to make

R-16-1

sure there's a wide distribution, that folks that are not on the mail, can still get it through public libraries, and also, their home access, if they have it.

So, again, I'm going to conclude the meeting if there's no further comments.

Further comment, sir? Sure.

MR. GAINEY: Hi. My name is Keith Gainey, G-a-i-n-e-y.

Folks, I happen to be an employee at the mine, and I can tell you, I do the accounting. I grew up in this area. I was born in Lancaster, grew up in the Valley. I know Mr. Rombout from playing golf out on the golf course. I know Olaf a little bit. Actually, I went to school with his brother Eric. I went to school in Rosamond for a year, went all the way through high school, went to Antelope valley College, got a scholarship, went to school in Iowa, came back home.

R-17-1

Folks, I drove to L. A. for three years straight because there's nowhere to work here. I'm glad to have an opportunity to meet Mr. Graeme, the vice president of the company, and all the folks that are associated with the mine there. They are real upstanding people. They are there to provide an

opportunity for us.

And I'll be honest with you, I appreciate all the comments that I'm hearing from the people on the other side. I really do, because I may not be thinking completely clearly; it's an opportunity for me. And I appreciate you guys raising the points, raising the comments that, you know, coming from the other sides, that we need to look at some issues and make sure that they are addressed.

R-17-1

The young man who had mentioned driving to Lancaster spending the money, that's a choice that we all make in Kern County. We don't have to do that. It's better if we spend the money here in Kern County, and don't forget about Bakersfield. You can go the other way just as easily as going to Lancaster. It's not much further.

So, you know, let's keep all of that in mind as well.

I'm pretty nervous up here, but my legs are about to fall out from under me.

At any rate, I just appreciate the opportunity and, you know, the jobs will never happen, the economy will never boom if we don't take the opportunity and let it ride -- not just let it

R-17-1

ride. Let's take a look at it, make sure everything is taken care of, but keep an open mind in a positive sense, rather than a negative sense. We need the positive side around here.

Thank you.

MR. MOHSEN: That's very important that we just follow up on a couple of the discussions he just made.

We want to make sure we live in a good community and good neighborhood, and all of us try and be good neighbors. It's going to be up to us to make sure the operation is conducted in that way; that they are good neighbors to us. But they are not going to do it without your participation and your reasonableness in approaching the issues.

They are willing, the government and the company are willing, to address any issues that you highlight for us out there. We're not going to do it if it's not reasonable and if there's not a community approach to the issue.

We need to make sure that we talk together and have dialog that's open. I'm sure from the comments here today, the proponent of the project has been open to dialog and open for discussion.

Let's take this opportunity and make

sure that we continue that kind of good neighbor approach, because that's the only way we're going to do it.

Let's show the world that we can do it in California better than anywhere else and still have a clean place to live and a good quality of life. It's not easy, but anywhere it's going to happen, it can happen here.

Is there anyone else that wants to make a comment.

Sir, with the hat.

MR. SPOOR: My name is Dan Spoor, S-p-o-o-r.

I'm a grading contractor here in Rosamond. I've worked up at the Golden Queen Mine, I think, three different times now, delivering products or working up there on the mine.

R-18-1

I need to say that I appreciate the people up there. They are good people. They come across honest. They say what they mean. They mean what they say. They are fair. I appreciate this, Dick. I do.

In contracting business, you coming across people, you begin to size them up and get their number rather quickly, and you determine

whether or not you can trust them or whether or not you want to work with them. And I'm pleased with these people up here.

I'm pleased with the comments that are concerns also. These are good because I don't think anybody wants to go out there and kill somebody and ruin life. But I know for a fact that there's a lot of wealth in this ground. And God put it there for us, not just to sit there and rot.

Theirs is a fair way to go about and a proper way to go about mining the riches of this world, and in consuming it.

R-18-1

So, also I want to speak for the Chamber of Commerce as the President of the Chamber. We have many people in there, and they are for this project; we support it.

I need to say that in my own business it's the trickle-down system, that I go out there and I earn, and I go by the Tire Barn and I go by R & J Auto, and on, and on, and on. And the money continues to move around. This is good. This is good for America; that's what made us what we are.

I would love to be about eighty-six or so, Glenn, it would just be fine.

Thank you.

MR. MOHSEN: I also put up here my phone number, if anyone is having trouble getting any information or needs a copy of the document, make sure you get ahold of me, and I'll get your request honored as soon as I can.

Sir.

MR. GUTIERREZ: My name is Jeff Gutierrez.

This is another letter of support that was written and submitted to Steve Perez, the County Supervisor and Glenn Barnhill, a planner for Kern County.

It he says, "Dear Mr. Perez, we submit this letter of support for the Golden Queen Mining Company/Soledad Mountain Project. The DeWalt Corporation has been actively involved with providing professional survey services to Golden Queen Mining during the past three years.

"This project taps the unique opportunities which are part of eastern Kern County and represents a responsible investment in our local economy, which, in turn, adds to our community.

"We support the orderly development of mineral resources within the community and the adherence to all applicable permitting and

R-19-1

regulations.

"We feel confident that the umbrella of local, State and Federal guidelines for the permitting and operation of such facilities will ensure the safety and protection of our community and environment.

R-19-1

"The patient and responsible attitude Golden Queen Mining has shown throughout their research and planning of the Soledad Mountain Project is to be commended.

"Your support of this investment in our community will benefit us all "

That is by Dennis DeWalt, President of DeWalt Corporation.

MR. MOHSEN: Do you want that letter to be part of the record?

MR. GUTIERREZ: I read it in. There are copies.

MR. MOSHEN: You read it verbatim and that will constitute the record.

Yes, ma'am.

MS. SHINEFLEW: My name is a Mary Shineflew, S-h-i-n-e-f-l-e-w.

R-20-1

I'm your honorary mayor of Rosamond. My opinions are my personal concerns.

When I moved here over twenty-three years ago, the population was a little over 3,000 people. Now I'm told it's a little over 20,000 people.

Those 18,000 people came in here and they changed the way our desert looked. Some of them came and dumped in our desert, polluted our water, polluted our air.

We have government agencies who oversee these concerns.

We cannot control where the mine is. And I'm sure the government will also control how they pollute our land and our air and our town.

Thank you.

MR. MOHSEN: Yes, sir, in the back there.

MR. FARMER: My name is Jess Farmer, F-a-r-m-e-r.

A lot of you know me as the manager over in disposal. I'm also the director on your Chamber of Commerce.

I worked in mines several years ago. It's been twenty-one years since I have worked there. I worked in them for several years, I have had no ill effects from it; I'm still here. I can't say nothing

R-20-1

R-21-1

R-21-1

against it.

There has been some real legitimate concerns that I think need to be addressed, but I think one thing nobody has addressed is you're talking 230 people. How many people will support that 230 people? It's going to be a big boost to your economy. That's one thing I think we really need here in Rosamond. There's a lot of empty houses out there that need to be filled. You might give that some thought, too.

Thank you.

MR. MOHSEN: If there's anything that we haven't heard before, I would like to hear if someone has a comment that hasn't been either talked about today or hasn't been documented.

We're willing to wait as long as it needs to be if you have a concern that we need to address.

Again, the purpose of this process is to see how do we address these things, and how do we follow up on them. Because putting a document in writing is not the end; it's the beginning of a contract. The contract requires everyone be involved; since you are the shareholders of the land, you have a say in it.

And the proponent of the project and the Federal government are going to be working with you after the permit is done to make sure the things we contracted out with the public is followed up on.

So your issues and concerns are now documented so we can have enough information in the document, so when we do permit the project, we can follow up on some of the commitments that were made.

So, if no one has any comment, I would like to maybe just have a -- do you have one more? Okay. Yes, ma'am.

MS. RIGG: I have a question more than a comment.

MR. MOHSEN: Hang on. Can you state your name for the court reporter?

MS. RIGG: Barbara Rigg.

MR. MOHSEN: Go ahead.

MS. RIGG: If we couldn't trust them back when the first mine started, how are we going to trust them now? Because some of the same people own this mine. And my concern is how do we trust what's been betrayed before?

R-6-4

MS. MURRAY: How do you enforce the trust?

R-9-3

MR. MOHSEN: Let me try and respond to

the lady's comments.

As far as trust, that's why we go through a process, which is a legal document. That legal document is the framework, just like our constitution, it's a framework by which us as a community are going to be talking about that, these issues.

It sets up the schedule, the type of agreements, everything is in one package. So, if we move on to other areas, whoever is going to inherit the project will follow up on the agreement. Just like, again, just like our constitution. You don't have to have the founding fathers present 200 years from now to enforce it. But if it's a legal framework that we all accepted, and it becomes a legal document and approved by the officials, then it becomes our framework. Anything that's not in that document or is not followed by the document is grounds for legal action, either by one party or the other.

So again, it's all going to be as important as how we as a community enforce it.

The gentleman made a comment earlier about setting up a community group to discuss these issues. I mean, that's a good comment.

You're going to have to get together as a community and discuss these things as a neighborhood, because it's not going to be one issue, it's not going to be a short-term issue, it's going to be a long-term, day-to-day process, just like raising children, just like living in your community, it's something you have to work on every day.

Yes, ma'am.

MS. MURRAY: For the record, again, my name is Terry Murray.

R-9-4

I would like to know for our notification, when accidents do happen, Bakersfield in '89 were notified, the residents, that there was a massive release, yet, none of us on this side downwind of the mine was ever told. We had to find it out ourselves. I lay to guess anyone in this room that was here in '89, again, was not told.

R-9-5

The other thing is, we need in-home monitors so that we can detect mercury, hydrogen cyanide, and hydrogen chloride and, also, the ammonia base that's used in the cyanide pits. This is an absolute must.

R-9-6

And more importantly, also, have it totally contained, or totally gone, would be my first wish.

MR. MOHSEN: Okay. She made some comments that will be part of the record. We will respond to them as far as notification of the incidents.

The way our country is designed, there is a balance of power. Not all the requirements are vested in BLM or in Kern County. But by design, our government has given different authorities. This operation has to get more than a dozen permits. So it depends on what permit the incident has triggered for the response of the notification.

So we will outline exactly in the document what permit is applicable to what agency, so when there is an issue or concern, you can forward that concern to the appropriate agency. They are the only ones under the law that can enforce it. BLM has limited authority. Kern County Planning has limited authority. The requirements for the mine are handled by more than a dozen agencies.

The Lahonton Water Board deals with the water issues. And if there's an incident with a spill, they are the appropriate agency and the legal agency with jurisdiction to be able to enforce whatever action they need to.

So we will outline -- it's very

difficult to understand all these things. That's why we will outline them in the document, to make sure the appropriate agencies -- that you are aware of the appropriate agency that is required for the permit for water or air or access or safety. There are more than a dozen agencies that are involved in permitting this project.

BLM and Kern County, as I mentioned, are the lead agencies. We will make sure that other agencies are aware of their requirements, so you folks are also aware of their commitments. So if there is an incident, we can go back and say this agency issued the permit, here's the conditions of the permit, is the operator complying with the permit as it's written or not.

Again, it's a legal document, it's not a handshake, it's not a verbal commitment, it's a legal commitment based on what is part of the record.

Yes, sir. State your name again.

MR. CHIODO: My name is Pat Chiodo. I'm a safety engineer.

I want to bring up an example. In Hollywood they were digging that tunnel for the Metro Rail. They had all the safeguards in place, all the contract documents, all the agencies were running

around. They still sunk the boulevard because the contractor got greedy.

What safeguards are you going to make so that if somebody decides that they are getting a lot of gold out of the deposit, what safeguards is there to keep them from going crazy and not doing it right? R-3-5

And my second part of this is, dust that is ten microns or smaller, which your EIR states, ten microns or smaller of any kind of dust, is ten microns or smaller, and it takes several hours to drop out of the air.

I've had tests all the way down to Avenue B, that on an atomic absorption test, shows it came from Cactus Mine because of the nitrates from the explosives identifying it. R-3-6

So you have to keep in mind, people in California City do not get dust. People in Mojave don't get the dust. People in Tehachapi don't get the dust; they get the money.

The people that work in this project aren't going to be from the area that's contaminated. The gentleman with the ninety houses that were on the thing, actually, it's 115. I've counted them. I've walked every one of them. And they are all within downwind of this project. R-3-7

R-3-6

R-3-8

And the funny part about the project is they put the aeronometer, which is the wind-measuring device upwind of the project so that they weren't testing anything down below it.

So, people, you may want the money, and I myself, I like a check, too, but twenty-five years down the line, you be like this gentleman right here, dying from poisoning, from benzene poisoning. He had to have triple bypass surgery because his heart went out attributed to benzene because he was in the mines. Two of his friends just died recently from mine contamination, cancer. And it all comes from the ground. And if there are no safeguards, everybody here will not benefit.

Thank you.

MR. MOHSEN: Yes, we got his comments right here as far as safeguards.

Let me address a couple of the issues real quick. The document explains it further, but there is bonding for reclamation required as part of this project. Every acre that's disturbed has a bonding dollar amount attached to it that's held by the Kern County BLM and Lahonton Water Board for reclamation, fifteen years from now when it begins.

That bond is for the cost to the

government, not to the operator. In other words, if the government has to go out and contract a third party to conduct the work, that's the cost based on that; it's not based on what it will cost the current operator to do it.

The bonding is a real financial security to assure the reclamation will be done according to the law.

Now, mitigation monitoring is the interim process, reclamation and bonding is the final-closure process, but mitigation monitoring is the interim process. In other words, if we say you'll get, like the lady mentioned, you'll be blasting one time a day. Part of our monitoring is to make sure mitigation -- to make sure one blast a day is followed. An annual report will be submitted to Kern county and BLM on how these mitigations have been followed. These are public documents. You're welcome to them anytime you want.

But it's going to require due diligence, participation in the process after it begins, because the mitigation is a long list, and the report will be about an inch thick when it's done. So it requires some reading, some following up on what mitigation was done, when and where and how much and whether it

is effective or not effective.

That's part of us saying, yes you can do it, but now we're going to make sure we monitor our estimation, so we make sure we mitigate the impacts.

After every year, if the mitigations are not working, we look at other ways to do it, or to tighten it up a little more. If it's a monthly reporting, we may want to go to a weekly reporting. If it's a yearly report, we might go for a quarterly report. It all depends on how we monitor the impact.

You're dealing with this thing, it's kind of like everybody knows there's going to be impacts, but nobody knows how much and what is really how much, and is it okay or not okay, like everyone says. I lived with mining all my life, or I did.

We all as a community need to know what is the impact. We all know there's going to be an impact. But is it a reasonable impact? Is it one we can live with? It's only going to be dependent on how we work together on that.

Mitigation and bonding puts a big dent into the impact. If we identify impacts and say you're going to have to reduce that, that's a commitment. Now, I have to follow up on that commitment. And we are willing to do that.

Yes, sir.

MR. DALE: My name is Ken Dale. I'm new to the Rosamond community.

I just have some questions that probably could use some answering. I've heard several people talk about the various surveys that have been done, the safety monitoring, the impact studies that have been done around the mine.

R-22-1

Who is responsible for setting up the criteria for the testing, this initial testing? Who pays for it? We expect the mine to pay for a fair qualification of the land? Basically, that's what -- who sets the test criteria?

MR. MOHSEN: That's a very good question. Let me spend a few minutes explaining this to you folks.

The government is responsible for everything that's in this document, whether it's Kern County, BLM or the other appropriate agencies. So no matter who collects the information, no matter where it's done, what criteria, the government is responsible. The buck stops right here.

So it's the responsibility of the government to collect information, to publish information, to analyze the information, to develop

the criteria; it's all up to us.

Now, we utilize a lot of expertise, and we try as much as possible to use scientific bases for some of our decisions. So some of the inventories that were done on the ground were conducted by professional biologists, professional archeologists, professional geologists that we maintain a list of. They have some credibility and integrity with the government. If they don't, they wouldn't get another permit from us.

So there is a check and balance in the process. I'll tell you right now, I'm adamant as far as making sure there is objectivity in this process, because only the government can be responsive to the shareholders, which are you folks. Everyone else has an interest in the project except the Federal government and the county government.

We want to make sure there is an integrity of the process. So any information that's provided to us, any surveys, any impact studies, either we adopt it or we change it, but we don't have to accept it if we cannot support it.

It's very important to know that everything in this document is a government decision, whether it is done by a third-party contractor or

paid for by another entity, it's only submitted to the government based on the criteria we set up.

So if they go out and collect information that we cannot support, we will not accept that information, and vice versa. If they can provide less information than we need, we will ask them to go back and get some more, because ultimately the buck stops with us. It's not going to be something we pass on to the third-party contractor or the proponent. So anything in this document you don't like, you can come and blame us because we are responsible for it, I'll tell you that right now, no matter who collected that information.

Yes, sir. In the back.

MR. GRIMES: My name is Leonard Grimes.

MR. MOHSEN: Spell the last name, please.

MR. GRIMES: G-r-i-m-e-s-

MR. MOHSEN: Thank you.

MR. GRIMES: Each mine worker that comes on is required to take a numerous amount of safety precautions and area classes; is that not true?

MR. MOHSEN: State that question again, please.

MR. GRIMES: When a new employee goes on

for mine work, is he not required to take a pre-employment safety requirement course?

MR. MOHSEN: George is our BLM geologist who also deals with safety issues, and I'll let him respond to that question for you.

MR. DEVERSE: Yes, it is true that when you come on board with probably any organization, any business, that you would be required to take a variety of safety training, handling training, job training; that's true.

MR. GRIMES: Then if an employee, say, goes down in the mine and chooses not to observe those safety precautions, then he would incur the certain types of infections or diseases, yes?

MR. DEVERSE: Most likely he would probably have an accident, or else his supervisor would draw him aside and try to straighten him out.

If you're referring to some sort of, let's say, inhalation of dust, sure, workers are supposed to, in the right environments, they are supposed to wear some sort of a mask or other types of protection. But it would be up to his supervisor to make sure that he always adhered to these standards.

MR. GRIMES: So each mine has its own

safety officer?

MR. DEVERSE: That's true.

MR. GRIMES: I ask these questions because I took that course, and it's very extensive and it's very deep, and it was very beneficial and awaking to me to be in such a course as to what actually happens in a mine, and the dangers and the good things that come out of it.

I was -- you know, I was in awe that the safety instructors knew so much about what happens in the mine. And it was a three-day course, twenty-four hours of straight safety.

R-23-1

And if those that are interested in what precautions, believe me, they really get down deep into the precautions and down in the safety part of the work in the mine.

And as an employee, you have to actually go in and commit your own demise by not following safety regulations.

And for those that would like to go, I suggest that you find out who he is, and the gentleman that teaches the course is very knowledgeable in that. And like I said, it's three days long, and they have an annual renewal clause, you have to do it yearly.

So I know that there was some gentleman that was poisoned, triple bypass, that was brought out, but the fact still remains that the new mines have new safety regulations regulated by the State and Federal government. And if we follow those regulations, it reduces the fact, the possibility of injuries and to life.

R-23-1

I work in Mojave also with Mojave High School. I experience the wind in Mojave, as well as in Rosamond. I've been on the mine. It blows. Today, for example, it was not blowing at all.

That is not the only place that is going to feel the impact. It's going to do as part of its own share, but if the mine does its part, the safety precautions specify that we will be protected throughout the entire process of the mine.

MR. MOHSEN: I guess the short answer would have been, there is a whole federal agency called, MSHA, M-S-H-A, Mine Safety and Health Administration.

R-9-7

MS. MURRAY: Who protects the residents?

MR. MOHSEN: The Mine Health and Safety, MSHA, M-S-H-A, is responsible for everything within the mine site. Outside of the mine site, it's the responsibility of EPA and your state, water and air

representative in the county level and the state level. Within the mine site it is the responsibility of that federal agency, but outside of that mine site is the responsibility of the state agency in Sacramento or the agency in Bakersfield.

R-9-8

MS. MURRAY: How about strip-mining?

MR. MOHSEN: Mine Health and Safety Administration, every mine has to have a safety officer like the gentleman mentioned, and it's subject to the Federal laws under mines, which are specific.

There is another agency called the Occupational, if you're familiar Occupational Safety and Health. It's completely separate, and maybe -- it may answer some of the issues regarding other employment in the community. But specifically for mining, the Federal government set up the specific safety agency just to address some of the issues that gentleman mentioned, to make sure the mine has specific safety concerns that must be addressed separately, and people must be getting training, because lives depend on it, and it's one of the most rigorous I know of in the safety industry. Just to follow up on the comment that the gentleman made.

Yes, sir, in the back. Name again,

please.

Why don't you come up here.

MR. CHIODO: Pat Chiodo. Please don't misconstrue what I'm saying. I agree with you totally.

But MSHA has an agreement, Memorandum of Agreement with the California government -- MSHA has an agreement with the Federal government and the State of California as a Memorandum of Agreement that they do not oversee any mines in the State of California except for the shore or longshoreman. The State of California Cal-OSHA, mining and tunneling is what takes care of this here, and they are supposed to have thirty-two employees, and they only have eight. They are very shorthanded.

I don't mean to contradict the gentleman here. He's absolutely right in any other state but California.

MR. MOHSEN: Thank you for that clarification. You learn something every day. You're a wealth of information.

Yes, sir.

MR. WEBB: Yeah, my name is Dean Webb. I just have one theoretical.

MR. MOHSEN: Come up here because the

R-3-9

R-15-8

lady up front is very anxious to listen.

MR. WEBB: Okay. Would it be possible to backfill the whole mountain back again? I mean, is this a possibility? I mean, to sort of recreate it after you've mined it? I don't know.

MR. DEVERSE: During the analysis of this project, we did look at that very question. And the answer is no, because largely much of the ore is going to be taken from, you might say, high places, the sides of the mountain, the ridge lines, areas that are really above grade. In other words, you don't have a hole in the ground that you can fill up, you simply have -- you're taking your ore from this mountainside, this ridge line and distributing it, and you're taking some of it and putting it over in waste piles; some goes to ore.

At the end of mining, however, you will have some depressions in the ground, and we looked at the possibility of backfilling some of that. And what we found out is that there would be about forty-four acres in the bottom of the open pit that could be reclaimed and re-vegetated. And if we were to fill up all of the ground depressions that were left at the end of mining, we could increase that amount of acreage to about oh, ninety-six acres. So

a gain of fifty acres of re-vegetated land.

In short, we decided that the impacts that would result from the effort to refill this would exceed the benefits of gaining this extra fifty acres. And that also we could through other means of mitigation try to compensate for that fifty acres that would not be reclaimed through backfilling.

Is that good?

MR. MOHSEN: Thank you.

It's important to know in the EIS we looked at a range of alternatives. It's very important to understand that alternatives are what drives the government to make decisions. We don't want to make decisions in a vacuum. We don't want to make decisions based on one proposal, because then we are locked up into that proposal without looking at all the options.

So what BLM and Kern County did was look at a range of proposals, dozens of ways they can mine this operation.

The cut on what is a reasonable alternative and what is not is based on laws and regulations. In other words, we can say go mine somewhere else. Is that a reasonable alternative? If you put it through the check of our environmental

process, that would not meet the reasonableness standard, because gold is a geologic thing that happens only locally, and it does not happen everywhere, it's not like sand and gravel or other rocks that are available.

So the reasonableness of the alternative is determined by this criteria that it has been reasonable.

And what George has mentioned regarding the backfilling, we have determined that backfilling is a reasonable alternative. We did not say it wasn't. We said it was a reasonable alternative. Now let's do the cost-benefit analysis. Let's see if the cost of backfilling fifty acres outweighs the benefits.

And we've done our analysis, and our conclusions in the document have led us to believe that backfilling would not be necessarily better for the soils and the vegetation because, remember, it would increase operations for many more months.

So after operations are concluded, there can still be existing air quality impacts and existing operations that are extended beyond the mine life.

So we've done our analysis, and we've

done it diligently. It would be very hard for me to explain it here, but I would be glad to go through it in a document with you if you are interested.

We determined backfilling was a reasonable alternative, but not the best alternative in the end because it did not necessarily always meet -- if you look at the bigger picture, always meet the required standards.

So we did consider backfilling, seriously consider it. And we did give it the adequate review in the document, but we did not necessarily select it as our preferred action.

Does anybody want to make any more comments or ask any questions. This is the purpose of these meetings, is to clarify things, to make sure to respond to some of your issues. You may not go home any more convinced of our responses, but we were hoping that you would think some more about them, and if you need to you can either contact us directly or write, and we will be glad to respond to it formally in the final document.

When we get the final document together, you will all be notified that it is available to you for review for thirty days before we can make a decision on that.

So you have three separate opportunities to participate. In April of '96, today in June of '97, and we're hoping in the next few months with the final product again.

I saw a hand come up.

Yes, sir.

MR. ALFONSO: My name is Jeff Alfonso. I also represent an earth-moving contractor.

I saw the word "trust" up there earlier, and I thought I would make a quick comment to address that.

I think that the answer is that is quality. You know, we are an earth-moving contractor that travels all over the state in order to maintain our business, we do mining projects, we do landfills, we do golf courses.

R-24-1

I think the golf course is a good analogy where you have a variety of standards. You can build a pitch-and-put, you can build a municipal golf course, or you can build a championship golf course, depending on the market that you're after. But in a mine, in a project of this size, this high profile, you've got to build a mining equivalent of a championship course.

My capacity and involvement in this

project, I haven't met any of the people in Golden Queen with the exception of Mr. Graeme. But I have been talking to the engineers who are designing this project. We worked with them on a number of projects. And I would also like to say that that is a major international design firm with hundreds of employees that would never stake their good reputation or good credibility on any amount of money they would make on a single project.

In working with them, I have helped put together some preliminary budget numbers, and I called the engineer and I asked them on a number of cases why they were building something that looked to me like overkill as opposed to what the standard design was. "Why are we going with this type of fitting on the pipe coupling? Why are we going with this sodium bentonite clay that can only be found in very remote states, it's far more expensive?"

R-24-1

And the answer in all these things is these people want the best. This is a high-quality project. And I just, again, thought that might be an appropriate comment

Thank you.

MR. MOHSEN: Thank you for your comments.

Again, it's going to be as good as the community wants it to be. And we all can trust each other, and we are all innocent in our own books until otherwise proven. That's the American way.

Is there anyone else that wants to say something on the record?

Mr. Dick Graeme.

MR. GRAEME: I thank all of you, those who support us, those who want to know more, and those who have real concerns.

I think that many of you have come to learn that Golden Queen is going to be an integral part of this community. I've had a real pleasure of working with the Bureau of Land Management. They held us, as everyone, to a very high standard.

We talked about the internet. I think we're on the leading edge -- no, I know we're on the leading edge in terms of beginning by using the internet.

We have made an honest, diligent effort to bring the information to those who otherwise wouldn't even know the project, worldwide, because we're not afraid of what we're putting out there. We know it's going to be done correctly. We know it's going to set a new standard for that often-used term,

R-25-1

"State of the Art."

This is a project that is good in all aspects for East Kern County. We're doing a lot of things, and we're doing them well.

And, Mr. Webb, you suggested a historical museum. It's already under construction.

R-25-1

Some of the people in the audience can tell you. We have allocated a substantial amount of money for this because we, too, believe the past and the future are important parts of this project, and we want to be part of both.

Thank you very much for your participation in this important process.

MR. MOHSEN: All right. Thank you very much, Dick.

Anyone else before we close?

It's very informative, very educational. Thanks for taking the time to come in.

We will be touching base with you in a few months, taking your comments item-by-item and responding to them item-by-item.

With that, I will, again, thank you.

You're welcome to hang around for some more minutes if you want to ask anyone specific questions on the side. We'll be glad to talk with

you.

Thanks for coming over.

With this, I conclude the public meeting.

* * *

(Public meeting concluded at 8:55 p.m.)

STATE OF CALIFORNIA)
) ss.
COUNTY OF KERN)

I, Timothy Scott, a California Certified Shorthand Reporter, holding Certificate No. 8517, do hereby certify that I was present and took down correctly in stenotypy all the proceedings in the foregoing-entitled matter on the 24th day of June, 1997; and I further certify that the annexed and foregoing is a full, true and correct transcript of such proceedings, and a full, true and correct transcript of my stenotype notes thereof.

IN WITNESS WHEREOF, I have hereunto set my hand at my office in Bakersfield, California, this 3rd day of July, 1997.

Timothy Scott,
California CSR No. 8517

BUREAU OF LAND MANAGEMENT
PUBLIC MEETING

IN RE
THE GOLDEN QUEEN MINING)
SOLEDAD MOUNTAIN PROJECT)
)
)

LOCATION: MOJAVE ELEMENTARY SCHOOL
15800 O STREET
MOJAVE, CALIFORNIA

DATE AND TIME: WEDNESDAY, JUNE 25, 1997
7:00 P.M.

REPORTER: TIMOTHY SCOTT
CSR NO. 8517

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Bakersfield, California 93305

REPORTER'S TRANSCRIPT of the PROCEEDINGS, taken in re the above matter, on Wednesday, June 25, 1997, commencing at 7:00 p.m., at Mojave Elementary School, 15800 O Street, Mojave, California, before Timothy Scott, a Certified Shorthand Reporter, holding Certificate No. 8517.

SPEAKERS FROM BUREAU OF LAND MANAGEMENT:

MR. AHMED MOSHEN
MR. GEORGE DEVERSE

SPEAKERS FROM AUDIENCE:

KATHY HANSEN
MELVIN BAKER
CHRIS BABCOCK
KAREN BENSON
JIM HOOPER
SUE MATHIS
ROGER PHILLIPS
JESS FREDERICK
DON STOWELL
CYNTHIA HODGKINSON
JACK STEWART
BUFORD LAND
BILL TUCKER
SANDY GAETA
MANUEL ZAMORA
DAVID MARKIEWITZ
MARLENE HOOPER

WEDNESDAY, JUNE 25, 1997

MOJAVE, CALIFORNIA

7:00 P.M.

MR. MOHSEN: Okay. We'll initiate the public meeting. This is an official Bureau of Land Management, Department of the Interior --

MR. BAKER: Raise the mic up. This audience can't hear you; I can't.

MR. MOHSEN: We'll do that. Can you hear me now?

MR. BAKER: Yes.

MR. MOHSEN: Okay. Like I said, this is a Department of the Interior, Bureau of Land Management, public meeting.

The purpose of this meeting is to hear public comments on the proposed Soledad Mountain Project, EIS/EIR, Environmental Impact Statement/Environmental Impact Report.

We have a court reporter who's recording the proceedings today. The public comment will be on the record, and we'll allow you an opportunity to comment on the proposed project.

Before we do that, I would like to set

up some ground rules and some discussions that will frame the way we would like to participate today in our comments.

The proposed gold mine is a thousand-acre project that's roughly 80 percent on private land, 20 percent on public land.

For the project to begin, there's a requirement for getting permits and conducting environmental studies and public involvement.

We started this process back in April of 1996, where we've held public meetings together on what needs to be addressed in the environmental documents. So we began this process back in early 1996, BLM and Kern County jointly together, to present the EIS/EIR to the public from the first day on. So, initially from April of 1996, we made sure before we began anywhere on the project, that we asked the public to give us their input on what are the issues and concerns that the project would create as a result of the permitting process.

Today we have BLM and Kern County representatives in the meeting. They will be here to answer any questions. We also have the proponent of the project, and we have the third-party environmental consultant that assisted BLM and Kern

County to prepare the document.

I will be relying on those folks during the meeting if I need them to answer any of your questions.

However, this public meeting is not for tallying how many people are for the mine or how many people are against it. This is not the way public land management and environmental land management is conducted.

We would like to hear your issues and concerns that can be addressed in the document within the framework of the existing laws and regulations.

In other words, we would like to gather your concerns so we can properly address them. We held a public meeting yesterday at Rosamond; we had almost a hundred people or so show up. We gathered lots of their issues and concerns, most of which are issues and concerns, I'm sure, you're familiar with.

We have documented them two ways. First, the court reporter has documented all the individual comments, and we're also taking a few notes on the flip chart so we can remind ourselves along the way that these are the issues that folks have brought forward to us.

We had some air-quality concerns

relating to cyanide and mercury vapor exposures, and also some water-quality impacts relating to quality of water and quantity of water. We also had some discrepancies that were pointed out to us, and we appreciate that. We want the document that's presented to be a legal defendable document. So any clarifications or discrepancies that you can see in there, we will be glad to address them and clean them up.

We also documented concerns regarding who to contact in case there is problems down the road, who are the responsible officials, and we will, again, respond to each comment item-by-item and publish it in what we refer to as our Final Document.

So we have three opportunities for the public to participate. At the beginning, and middle, and towards the end. The beginning was April of '96, and the middle, which we are today, and the final, that we hope will respond to every item that we have here.

The EIS/EIR process is, again, not an event, it's a process that we began back in early 1996. We go gather environmental data from the grounds, and publish this information in a document so we can address all the impacts that are potential

for the project.

We've taken your concerns back in April and addressed them in the document. We believe the document we presented June 2nd for public review addressed all the concerns that were brought to BLM and to Kern County, through the Notice of Preparation and through the public scoping process back in 1996.

To set up the ground rules for your comments today, we are really interested in hearing what you have to say, but we have to frame it in a way that becomes constructive and productive to the process.

If there's any mitigation that needs to be added to the project, we will be glad to discuss it with you. Any concerns we haven't addressed, please point them out to us.

I'm going to allow you three minutes to put your thoughts on the public record, and then I'll give you a minute warning after that to give you to kind of wrap up; so you have a total of four minutes to present.

I would like to give this opportunity so everyone will have a chance to voice their concern and put their comments on the record.

When we are done with everyone and you

need a second chance to add some more comments, we will be glad to allow you to come back on. This is your public meeting. We will be here as long as you need us to, to tell us what you need. But, please, let's discuss these issues in a civil and in a neighborly way, because these are all our neighbors and we need to make sure our comments are not personally directed to anyone, or if you have a concern about an issue or a resource that's affected, please voice it to us politely, and we'll make sure it's down in the record and we respond to it.

We would like to have a productive meeting. We had a very productive meeting yesterday. And we would like to have another one today.

Before I open it up to you, I want to explain a few things about our California desert.

Our California desert has been one of the most intensively studied, environmentally studied areas in the country. In 1975, Congress mandated the BLM to prepare a land management zoning plan. And this plan started in 1976 and concluded roughly around 1979, '80.

What the plan did was allocate the twelve million acres in the desert to different land management zoning areas, just like your county can

zone an area for industrial, for residential, for schools; BLM does the same thing with your land. We zone them in the same way, but, rather, when we zone, instead of for schools or residential or commercial, we zone for either conservation or for investment.

The Soledad Mountain Project within the twelve million acres in the desert was under the development and the unclassified area for zoning. In other words, it was managed in the past and in the future for allowing development and allowing land transfer from public ownership to private ownership. That's why you notice the BLM is a very small acreage as part of this project. We have less than 20 percent of the project on public land, because our long-term management strategy for the area was to transfer Federal lands to private lands to other Federal lands in the more sensitive and conservation-oriented areas.

What this map does is basically points out how the desert was zoned, with colors. If I can, I'll spend a few minutes on that to explain it to you because I think it's important if you're making the comments, to understand the way BLM manages your land.

The areas that were zoned for

conservation, if you will, or for no development, was the green areas. These areas exhibited high-resource value, whether they are mountain tops or whether they are habitats for species, or they exhibit very sensitive culture resource.

Millions of acres were set aside for this zoning concept, which is conservation.

As you go down the zoning scale, your lands are managed towards more development-oriented actions. So, if it's in yellow or orange, then the lands have been designated for development and use. It doesn't mean the values there are not going to be protected; it means we can allow more use on that.

This plan went through 40,000 comments and millions of dollars of public monies spent on it. It's been our framework and our bible as far as guiding what BLM does in the desert.

Soledad Mountain is right in the southwest corner of this map. And again, the direction BLM has been mandated to do for the area was to exchange the lands for future private land, Federal lands transfer.

So what I'm trying to say is, the land use for the area in the past and in the future will probably be to continue to be mining.

So now we need to make sure how the mining be permitted within environmentally-sound practice, and we want to make sure that if the mine is going to coming into the neighborhood, that you folks have a say about the operation. And this is one of the opportunities we have.

The public document we produced June 2nd is comprehensive. It has five appendices and thousands of pages.

We tried to make it as simple as we can, but it's very hard to discuss all these technical terms, but we did put a summary together, and a table that will guide you through some of the major issues.

We also made the document available since March of '96, over sixteen months now, on the worldwide web for anyone to comment and provide input on it.

With that, I will, again, ask you to come up, state your name and spell it for the court reporter so that he can adequately document it. We are not going to publish these names to anyone or make a wide distribution of them. It's just for our personal use, and we'll keep them in our files. So feel free to provide us that information.

So, state your name for the court

reporter and please give us your comment in a concise way so he can make sure he documents everything so we don't paraphrase any of your words. We want to make sure we get it right.

After the comment period is over, we're going to close the public meeting, and then we'll offer you, again, an opportunity informally to share any thoughts you have with us or to discuss any things you want with us. That may not be part of the public record unless you choose it to be that.

So, there's ample opportunity to comment either today orally, or through writing. If you want to go home and wait a few days to write us and put your thoughts down after this meeting, we'll be glad to receive your comments by writing in the mail.

However, we do have a time period that we need you to be aware of, which is July 16th, which we are going to try to get all our comments by then. We will allow a few days mail time after that, but we're still interested in getting your comments.

So with that, I'll open it up and -- excuse me. July 14th is the date for closing comments. Again, we're going to allow a few days for mail time, and we're not interested in meeting a deadline, but we're interested in getting your

comments, because we would like this document to be a defendable and enforceable document that we can hold as a contract between the proponents of the project, the government, and the shareholders, which are the People.

Ma'am, you want to come up first?

MS. HANSEN: Thank you.

Greetings. My name Kathy Hansen, H-a-n-s-e-n. And I have been a member of the Mojave Chamber of Commerce for many years. I write for the Mojave Desert News, and I also serve on the East Kern Airport District Board.

I have been asked to read a letter from Sam Whitman, Keith Olberg of the 34th District. This letter is to supervisor Steve Perez, Chairman of the Kern County Board of Supervisors.

"I am writing to express my support for the economic benefit to this region that would be created by the proposed Golden Queen Mining Company, Soledad Mountain Project.

M-1-1

"The 34th Assembly District, including Kern County, has lost thousands of primary jobs as a result of the defense draw-down.

"In a time of military insulation downsizing and resulting business flight, the Soledad

Mountain Project will provide much-needed jobs.

"Specifically the Golden Queen Mining Company estimates that the Soledad Mountain Project will cost over $40 million to construct and will create over 250 temporary jobs.

"When completed, the company projects that 230 permanent employees will be needed to fill labor, semi-skilled, clerical, supervisorial positions.

M-1-1

"Local businesses and the economy can only benefit from the influx of dollars that will augment the local tax base, new employment opportunities, and the regional economy.

"I urge your favorable consideration of this very important project.

"With my personal regards, I am sincerely, Keith Olberg, Assemblyman, 34th District."

I had a statement also from Dan Senovich of the Mojave Airport. And I think I'll just go ahead while I'm up here.

M-1-2

Mojave Airport general manager Dan Senovich asked me to make a statement on his behalf concerning the Golden Queen Mining Project.

He sends his regrets that due to a previously meeting commitment, he is unable to attend

the public hearing tonight.

Mr. Senovich said Mojave Airport has no problem with the gold mine. The blasting will not affect the visibility for aircraft flying from the airport. He also said that the cement plant west of town blasts from time to time, and other mines in the area have set off charges.

M-1-2

The dust clouds are minimal, and never seem to change the quality of the sky for aircraft flying in the area.

There's no opposition to this project from the Mojave Airport.

Thank you very much.

MR. MOHSEN: Sir --

Again, let me remind you that we want to make sure we get your thoughts. So -- I'm having trouble today. I'll be putting down their thoughts on the flip chart as they are making their comments, if the issue needs to be documented.

Sir.

MR. BAKER: I'm Mel Baker.

The two ladies who sandbagged me two years ago while I was away playing a football game, and maybe present, are here sitting in this audience. So they requested that I be up here to speak. Their

request was not gentle.

Mr. Steve Perez, Chairman, Kern County Board of Supervisors, i.e., the Golden Queen Mining Project:

Mining has been present in California since the days of the ancient ones back in 1100. The southern mines operated from 1865 to 1935. Mine operators stripped the land, took their gains, and left the workings so that they became life-threatening problems for those who used the land in later years.

Modern gold and silver mines have to be brought up productive, work-safe, and environmentally effective. Good operators leave the properties in better condition than they received it. They leave new job -- new opportunities and new jobs.

M-2-1

The East Kern and Historical Museum Society has been briefed and briefed in-depth, by the way, as to the proposal set forth by the Golden Queen operators.

They noted that existing machinery and artifacts will be saved, renovated, and placed on display.

Following a comprehensive discussion -- and I have people in the club who are high-rock

M-2-1

miners, prospectors, and mine owners -- they know the business -- following a comprehensive discussion, the Society noted to vote it to strongly support the Golden Queen Project. They believe the proposal is a win/win situation.

Melvin S. Baker, President.

Thank you.

MR. MOHSEN: Anyone else want to come? Sir.

MR. BABCOCK: Good evening. My name is Chris Babcock, B-a-b-c-o-c-k.

I'm here tonight wearing two hats. I would like to read you two letters. The first letter comes from Mojave Town Council, addressed to Steve Perez, Chairman Kern County Board of Supervisors.

Dated June 18th of this year:

M-3-1

"The directors of the Mojave Town Council voted last night to support Golden Queen Mining Company's proposal to operate a gold mine on Soledad Mountain.

"Golden Queen's proposal will bring needed jobs and business to our community without significant negative effects on the environment.

"We urge your support of this project, which is so important to our community."

The second letter, and being a member -- actually, this letter was signed by myself as Vice President of Mojave town council. Second letter is from Mojave Chamber of Commerce, which I'm a member of, dated June the 12th, to Steve Perez, Chairman Kern County Board of Supervisors.

"At a board meeting today the directors of the Mojave Chamber of Commerce voted to support Golden Queen Mining Company's proposal to mine gold on Soledad Mountain.

M-3-2

"We believe this project will enhance the economy of our community, provide much-needed employment, and will have no measurable negative effect on the environment.

"We urge you to review this project carefully and consider our views in your deliberations."

This is signed by Pete Sturn, President of the Mojave Chamber of Commerce.

Thank you.

MS. BENSON: Good evening. I'm Karen Benson, Vice-Mayor, California City, and the representative to the East Kern Alliance.

As a representative to East Kern Alliance, I have been asked to read a letter signed

by the mayor from the City of Ridgecrest.

And it's addressed to Kern County Planning Department, Ted James.

"I support the efforts of Golden Queen Mining Company to develop the Soledad Mountain Project near Mojave. The project-permitting process will address the required environmental issues. I'm confident that Kern County and the Bureau of Land Management are sensitive to the environment.

"I particularly endorse the prospect of 230 new jobs for the Eastern Kern County area. New jobs for any of the communities in the area help the economy in general, and we all receive some spinoff benefits.

"I wish the project every success."

Signed William Lalor, Mayor, City of Ridgecrest.

M-4-1

MR. MOHSEN: Anyone else that wants to make a comment on the record?

Sir.

MR. HOOPER: Good evening. My name is Jim Hooper. I grew up in this area down on Backus Road with my parents.

We went to meetings, we're a civic association called Ancient Valley Civic Association

begun, started by Mr. O. J. Backus. His name is on the gym over here, the road is named after.

We are committed to a unique situation, and that is looking at this project from a different point of view. If I were a member of a city council at a distant area where this project is out of sight, out of mind, I would probably be thinking with my wallet instead of compassion for the folks who are directly downwind from this endeavor.

If you remember, the old saying that "Fool me once, shame on you; fool me twice, shame on me."

That's what we're into here. We have been through an environmental impact study just like this one. It was stumped on by mine management; some of it is quite persuasive, quite charming, they have barbecues, and government officials saying, "Here's it all written down, you're protected."

Well, we weren't protected. There is all sorts of documentation about spills of poisonous substances, people getting sick in the area. Last night, we had people in the audience -- I'm here by myself -- who had their husbands deathly ill and suffered with this stuff -- I have to think of my family -- who was getting the symptoms of mercury

M-5-1

M-5-1

poisoning.

No one will deny there was a huge release in 1989. It was just irresponsibly handled. And the agencies that were supposed to be looking after the welfare of the citizens down there, simply didn't answer the phone or didn't respond in any way that you could call conscientious.

Again, I ask you to walk a mile in our shoes. We're on Backus Road, a little corridor. Backus Road is a soft-road area, and we have suffered through this before.

We are not against jobs. That would be like being against Santa Claus. We are not against development, that would also be goofy.

What we are for is a healthy environment which we've enjoyed for many, many years. I would like to state that, also, a lot of people say mining is usual for this, but sure it is, but not on this scale.

This is a far different horse of a different color, what's going to be going on with this; it's massive.

You might ask if in the meeting the other day, "Hey, this is a great project, well designed. I have a lot of respect for people who

designed it."

You say it does belong; where does it belong?

A few months ago, I was on vacation, driving through an area called Death Valley. I don't mean to make a point of the title, but what they have out there is a huge heap-leach mining operation just like this, north, south, east, and west, and there are no souls that are going to be breathing and have their children, you know, eating food that -- or perhaps something has blown in through the window that will make them ill.

M-5-2

So, again, we're in a unique situation, we are what I call the danger zone, far closer to the negative aspects.

There will be spills. It's the old Murphy's Law, if something can go wrong, it will. In spite of the fact I have great respect with Mr. Graeme. He has been really conscientious, cooperative, knowledgeable. I couldn't ask for a finer man to put my trust in, but that's not the total picture.

One of the responses to what I had to say last night, I said it was the right project at the wrong place was -- and the response was logical.

M-5-2

You have to put the mine where the minerals are. No question about that, that's perfectly right and reasonable. But we all know that the underlying concept behind zoning and land management and so on, is that some things belong in some areas and others don't. And there is a conscientious right-thinking, responsible place for things like this.

I think we've had our share of fumes from the cement plant, fumes from two mines, fumes from the gravel pit. We have the cumulative effect from all this. I don't think you can find another place nearby or maybe anywhere where we've been hammered again, again and again by such operations.

I appreciate your time. Again, I think jobs are wonderful and important, but there are other values here; compassion.

Good night. Thank you.

MS. MATHIS: Hi. Good evening. My name is Sue Mathis, and I also live on Backus Road.

M-6-1

I've met with Dick Graeme many times, and he is a fine man. He is very honest and up front, from what I can tell.

I also have talked to him about how long he's going to be on the project. When I spoke to him a year ago, he said only about a year. I'm sure that

has changed, but obviously, he's not going to be there the whole fifteen years. He's the man that has sold this project to the community, and the man that has made promises that we don't know if the people behind him are going to keep.

M-6-1

You know, promises are one thing, but it's really easy to call us and say, "Oh, he doesn't work here anymore." I'm sure everybody in this room has run into that situation.

Everybody here supporting the jobs, I want to read to you, quoting out of this EIR document on page 270, if anybody cares to read it, it says, "The project is not deemed gross-inducing because the jobs created would in all likelihood replace those being eliminated by the closure of a similar facility in the area."

M-6-2

I don't think anybody is paying attention to the words that are written in the document. Again, there are contradictions from all these wonderful jobs they are claiming to try to sell this project.

As I talked last night -- and most of you probably weren't in Rosamond -- there was a larger turnout, more people who were concerned about the environment because they are a little downwind

than the people in Mojave.

There's a lot of inconsistencies as far as the number of residences, and Ahmed doesn't have to put this on the record, because we talked about it last night. People in Mojave need to know the document says in one place that there's approximately fifteen residences, another place approximately ten. We need to go back and double-check their numbers because they are not right. M-6-3

Where else are they misleading in that document? It's six volumes. Anybody who sees it up here, how many people have honestly read the whole document? I don't think that any of you in this room has. But it's up to us as individuals for our peace of mind and our health and our safety to read it and double-check them, because they aren't going to do it.

They want to make sure this mine goes through no matter what we think. And it's up to us to be the double-check for them. For example, calling: People say, "Oh, call Kern County Environmental Health Services if you have any questions." M-6-4

I did that yesterday, and you know what, the phone has been disconnected. I don't know what

M-6-4

M-6-5

M-6-6

to say for that. Convenient, isn't it? That's still a current phone book. I didn't use one from four years ago.

The other thing is loss in property value for those of us who live directly downwind. How are we going to be compensated for that permanent loss?

PM-10. I suppose most people in this room don't know what I'm talking about. That's the particulate matter, less than 10 millimeters has to do with the requirement both by state and federal.

I do not believe that the wind in this area, that they have measured on uphill, the up-wind side, we're downwind. It escalates when you go over that mountain.

I do not believe that they have shown adequate documentation that those overburden piles that they are going to build are not going to release below the minimum required by the state and federal government.

And they need to go back and show us that it's going to stay, and say that they are going to put more toxins and they are going to spray with more chemicals, that's stuff that's going to blow downwind on the rest us and get in our water system.

M-6-7

The ground water is another problem. In the document it says that up to 200 percent error they are going to allow themselves. I haven't read in the document yet what they have used as a model. If they are going to say a hundred feet is the draw-down before that's what they figured on, well, 100 percent error would be down 200 feet. 200 percent error; well, how many people's wells south of town have dried up? The people in Mojave don't have to worry, because they are community water. The people south of town are going to be dry.

These are things that we need to double-check and make sure that they do their homework, instead of just blatantly start digging.

I'm certainly for mining. It's always been mining. It was mining when we bought the property. But it wasn't for strip-mining, and it wasn't for dumping toxic waste on our family, our air, and our water.

Please think about this carefully. Remember what I said about jobs and what the document says.

Thank you.

MR. MOHSEN: Anyone else.

Sir.

MR. PHILLIPS: My name is Roger Phillips. I live just south of the mountain here.

Going back onto the water, you're going to draw 750 gallons a minute out of that well. Plus, they are not even going to use it for drinking water; they are going to bring in bottled water. Why?

M-7-1

And who is going to replace my well when it dries up?

Let's see. They talk about sonic booms in this document. This is very few, very few sonic booms around the area, probably one a month.

M-7-2

They talk about the increase on vehicle traffic on the roads around here. If anybody has been on Silver Queen, any kind of increase is going to tear that road up more.

M-7-3

That's my --

MR. MOHSEN: Thank you, sir. Thanks for your comments, and we would like to hear from you if you have any concerns.

Sir, you want to add some more.

MR. PHILLIPS: Yeah. One more.

Again, Roger Phillips.

And in here, I got this, started looking at the volumes, and there's one missing. It says it's confidential. Why? Can you explain that one?

M-7-4

A mine is a mine, why do they have to have anything that is confidential? It's not anything to do with the government or national security. Volume five.

MR. MOHSEN: Thank you, sir.

I would like to respond to his comment before I ask the other gentleman to come up.

Confidential: I know, when it comes to the government, this is your public record. This is your information, it belongs to you. The only reason we're keeping it confidential is to protect the resource, not necessarily to protect it from you.

Appendix 5 is our cultural resource report, which means the archeology reports on the ground, all the historical, Native American. We're not going to publish this information because it could be put to some bad use by some unscrupulous people.

So it is available in our office. If you really are interested in looking at what is in it, we'll be glad to share it with you. But we're not going to publish it for anyone out there to be able to go find out that these important sites are out there, and they will be vandalized.

So it is not to keep anything from you, sir. As a matter of fact, we, from day one, with the

help of Golden Queen and Kern County, we've tried to make this process as open as we can be. We've made ourselves available through public meetings, we've made ourselves available through the worldwide web publication of the document. We also made ourselves available through telephone and field visits with any interested party. And I'm sure Golden Queen has done the same in response to anyone who has brought a request of them.

So, from day one we have made sure that there was no confidentiality. This is your land, this is your process, this is your meeting. But there are some information that we have to keep close at bay so it doesn't become put to some bad use.

So, it's the archeology reports, it's the Native American reports that we are not publishing. But if you are interested in this information, you can come to Ridgecrest BLM office and I'll be glad to spend as much time as you need to, to go through it with you to make sure that any information you are requesting can be obtained from this appendix.

So, we are not going to make it available to the whole world out there, unless someone has specific need for it. It's just for

protection purposes.

MR. FREDERICK: What agency was it made --

MR. MOHSEN: State your name for the record, please.

MR. FREDERICK: Jess Frederick.

MR. MOHSEN: Your question again.

MR. FREDERICK: What agencies was it made available to?

MR. MOHSEN: It was made available to the federal and state agencies who will issue the appropriate permits; in this case, the BLM and State Historic Preservation Office; also, Kern County has that document available.

So it is put in a good place for you. If you need to see it, we will be glad to share it with you. We need to make sure to keep it close to our files. Okay?

Sir, back there, you have some more comments?

MR. STOWELL: Good evening. My name is Don Stowell, S-t-o-w-e-l-l. I'm the President of Mojave Desert Bank here in Mojave, also I'm a member of the Mojave Town Council, Mojave Chamber of Commerce, on their Board of Directors.

M-8-1

We recently had a town council meeting in which we had probably forty to fifty citizens from Mojave. We took a vote of the audience in Mojave as to their position on the mine, and we received a unanimous aye vote; there were no negative votes in the audience from Mojave opposing the mine.

With the potential of the bypass coming to Mojave in the year 2002, Mojave is going to be losing some of its traffic, some of its tourist dollars to other communities.

With Cal City currently in the doldrums and having virtually no building permits issued in almost a year, I believe, I'm not sure. I don't think there's been a new house built out there in a year. One of the realtors today approached me about financing a home, a three bedroom, two-bath home, I believe, that sold for $26,000, a very nice home.

M-8-1

We have a problem out here. Edwards Air Force Base downsizing. The lady back here that lives on, I believe, Backus or Silver Queen, mentioned that these jobs would be replacing jobs at another mine that's closing down. That's good news to me. I don't want to see those people leave this market. I don't want to see them moving out of Kern County, out of Southern California. So many other business

people have.

I also have had inquiries from people who have been miners in the Mojave area, who want to come back to this area and work at the Golden Queen Mine.

The people that work in Mojave, the biggest part of them that work in the airport especially, do not live in Mojave.

Keith Gainey, who is now working for the mine, is a graduate of Mojave High School, I believe. He was working down below somewhere, down in, you know where that place is down below. And he had the opportunity to move back to Mojave and go to work for Golden Queen Mine as their dollars guy, their treasurer.

M-8-1

I know that several of our local people are currently working at the mine. I believe they already have a work force of about forty people up there. That's significant.

I personally live about two miles from that mine. I hear the comments over here. I live closer to the cement plant than anybody that's made comments so far. I'm downwind from the cement plant. The total view out of our bedroom and our living room is that mountain. It's the north face of that

M-8-1

mountain. That will be the side that will be most disfigured by this mine.

I support this mine 100 percent.

Thank you.

MR. MOHSEN: Again, let me remind you that the BLM is taking all your issues and concerns and making sure that they are part of the decision-making process. BLM and Kern County do not necessarily make the decision based on jobs or economic positive impacts or environmental or negative impacts. We look at the whole picture. That's why it's very difficult to do, to balance all of the trade-offs and look at the long-term and the short-term impact.

No one is saying that the mine wouldn't have an impact, but the impacts can be managed. And I can tell you, from my own experience, mining companies, if approached with a reasonable proposal, will respond, and they can be good neighbors, but it takes more -- in this case, it takes more than two to tango. We would like to get more of the community and the agencies and the company involved together after the project is completed so we can continue working once the permit is done, not just before it. The hard work begins once the contract is completed.

The EIS/EIR is a contract between BLM, Kern County, the public and the operator. The contract begins after that contract is signed, not before. We can plug in as many information as we want, as many protection measures as we want. It's going to be as good as we all make it work.

I'm looking forward to it because I think Golden Queen has proven so far to the BLM and Kern County that they are willing to do what's needed to make sure that the public is aware of what are the issues out there, and they have been cooperative with BLM and Kern County from the initial outset.

And the comments made yesterday by the public is also evidence of that, that they have been trying to be good neighbors. All we need to do now is take them up on it. And we are in agreement with them that we can all live together on it.

This EIS/EIR, again, is just an informational document. It's not to say it's going to happen or it's not going to happen. It provides information to the decision-makers. We have more than a dozen agencies, federal, state and local, will issue a permit for this operation. So you don't have just one government entity, you have a federal government involved, you have the state government

involved. BLM and Kern County has taken the lead to coordinate with all the other agencies, and state and federal and local agencies with regards to the permit, whether it's a health issue, or a safety issue, or a waste water issue. The state and the local agencies who have jurisdiction over issuing that permit are involved in this process, and will be accountable for whatever permit they issue.

So if there is an -- in the contract in the future, if there is an issue that needs to be addressed, we will identify the appropriate agency by jurisdiction over that matter, and we will make sure we have a reporting process for that.

So, is there any more comments on the record regarding -- sir?

MR. HOOPER: I wanted to reinforce what you said.

MR. MOHSEN: Will you come up here so the court reporter will put it down.

MR. HOOPER: You bet.

We have had the privilege of talking to Richard Graeme in the name of our tiny civic association out there about the concerns about the water table and about housing values. And I can say that even though we didn't form up any agreement,

M-5-3

that he recognized that there's some responsibility, substantial responsibility for loss there.

I was really surprised that he was that up front and willing to make an effort to put together something to ease the mind of folks that live down on Backus Road and have for so long.

I would also like to point out there are a whole great number of people, we have 218 signatures here, names of many of you will recognize of folks who oppose this operation.

Again, this is not a popularity contest, as pointed out; I recognize that. But there are a substantial number of citizens who are very concerned.

Thank you.

MR. MOHSEN: Ma'am, would you like to come up. State your name for the reporter.

MS. HODGKINSON: Hello. My name is Cynthia Hodgkinson. And I'm just a tax payer and resident of Mojave.

However, I am third generation of Mojave. My grandmother came here in 1913, my father was born here, and I was born here. My children were born in Lancaster, unfortunately, because we didn't have any hospitals here.

M-5-3

M-9-1

I think the concern is that we need jobs, we need businesses, or we're going to become a ghost town.

With the bypass that's coming through, we may turn out to be like Boron. Boron was fine for a couple years after the bypass went in, and now businesses close up on a weekly basis. I don't want to see that happen in Mojave.

M-9-1

And I want my children to live here. I have two daughters, nineteen and sixteen, and the only thing they can think of is going to the big city. I don't want Mojave to be a big city, but I would like them to have some of the luxuries and entertainment centers and stuff that the big cities have that these kids want to leave for. I want them to stay here and have family values that we have. I don't want to see Mojave get really big, but I don't want to see it die.

That's about all I can say right now.

Thank you.

MR. MOHSEN: I don't know about you, but I'm pretty proud of this process, and I'm grateful that you took time out of your personal life to attend this. I know your neighbors are probably sitting there watching TV or doing something else.

But you need to be commended for taking the time to come out and participate in this. This is how it really works.

The government cannot sit in our offices and read your mind. We can only do it by hearing your concerns and your voice. And I appreciate that, ma'am.

Sir.

MR. STEWART: My name is Jack Stewart, spelled S-t-e-w-a-r-t.

I am wearing two different hats tonight. I've been asked to read a letter from Senator George Runner to Steve Perez, regarding the mine project here.

"Supervisor Perez: I'm pleased to offer this letter in support for the Golden Queen Mining Company, Soledad Mountain Mining Project. While the project is located just outside my district, I recognize that this project will benefit the entire Antelope Valley Economic Region.

"Not only will a significant amount of construction jobs be created, this project will create over 200 well-paid permanent positions.

"The Golden Queen Mining Company has worked closely with both BLM and your county staff to

M-10-1

ensure it meets California's environmental standards.

"Once again, I support the project and its economic benefits for the region.

"Sincerely, best wishes, George Runner, Assemblyman."

M-10-1

The second comment I have: Personally, I have a small consulting company, which most people don't know about, called Tehachapi Valley Research Center, which has been in operation in East Kern for the last ten years. I've been involved in economic development, environmental studies, both as a consultant and as a technical reviewer.

I've also been involved in four mining projects in San Bernardino and Kern County, including Viceroy and Rand Mountain, as a technical consultant involved in it.

M-10-2

I had the pleasure of many nights of reading, going down and meeting with Glenn Barnhill and getting copies of the EIR, which the Economic Development Corporation had at their office in Cal City, which I also serve as president.

I reviewed the document, all of the appendices, the technical reviews for it. And having been involved in this area for over the last fourteen years, I believe the document to be exceptionally

well written, and compliment both BLM and the county staff.

I would say to the audience that the insurance policy here for getting the jobs and everything, the environmental insurance policy is this project must go through fifteen permit agencies and must obtain twenty-seven separate permits, with every one of the agencies having an ongoing responsibility for making sure that this project complies on a yearly basis, plus the closure documents when the project is completed.

M-10-2

I understand the concerns of those who live in the area, those who are concerned about economic value, water, and so forth.

In the document, AVEK has committed additional water resources to the project.

I think that if you go back and read the document, point by point, you will get a feeling that it's a decent document, and it's going to be up to the permit agencies to make sure the project is run right.

And I endorse the project. I also endorse all of you try to read the agreement -- or the document if you can. I know there's two copies in Cal City at the library. There's additional

copies available.

Thank you.

MR. MOHSEN: Thank you, sir.

MR. LAND: Buford Land, L-a-n-d, President of the California City Chamber of Commerce, I'm also on the Board of Directors of the California Aerospace Museum, and on the Board of Directors of the Economic Development Corporation of California City.

California City Board of Directors voted at their last board meeting to endorse the concept of the Golden Queen Mine, with a letter sent off to Supervisor Steve Perez. I do not have a copy of it with me tonight, but there was a letter mailed to him in which we endorse the concept of this.

M-11-1

Again, with the various agencies that are involved with permits and licensing, and so on, like this, and if you go back again, as Mr. Stewart expressed, read the copies of the EIR, and things like this, it can put you to sleep if you're not careful with it, but it can also keep you awake when you go through and find many exciting things in there.

Really, I've only been in the area about seven years, but I found out some knowledge that I

didn't know about and haven't gained in that seven years.

So go back and read the EIR and reports. It's very interesting to find out these various things and what you do have to go through before you reach a final decision on doing something like this.

So, again, I support the concept of this.

MR. MOHSEN: After this gentleman, you can come up, ma'am.

Thank you.

MR. TUCKER: My name Bill Tucker, T-u-c-k-e-r.

It's a pretty difficult act to follow when you listen to all the expertise that's gone on here on both sides of the fence. Very difficult to follow that particular act.

I've had some experiences looking at what goes wrong in various and sundry kinds of big endeavors. When they go wrong, it's always somebody else's fault.

However, when you take a look at this particular project, you look at the permitting process, you look at the EIR process, and you look at how each one of those components add or detract from

M-11-1

M-12-1

the overall product.

I have had the good opportunity to listen to several different, on several different occasions, the people in management of the project. And people can say, "Well, I don't trust them." You can say it about most anything if you really want to get down to that; however, when you start looking at the track record of the people proposing the product and -- excuse me, proposing the project -- then you will come to realize that there are some things that are different than yesteryear.

Yesteryear, when the Dupont Company flowed all kinds of toxins because land was immediately available to do that.

M-12-1

When you look at those kinds of things, you can say right away that, yeah, it was a terrible mistake. You don't have to go back to Dupont; go right down to the metal companies nearby, and you can hear that argument.

However, times have changed, processes have changed, and we feel that there is a way within the permitting process, within the community process right here, of people raising issues and those issues being addressed. And that's the real bottom line; when the issue is addressed, and it's anticipated,

then it is addressed, and you have some way to follow that up.

So I support the project. I support it dearly because I know that in East Kern there's a need for jobs, there's a need for a better quality of life, and there's a need for more economic growth.

For the last six years, I've spent a lot of time proposing going through that particular ritual to come up with a motion to say, "What are we going to do to make the quality of life better?" And it always involved jobs, it always involves getting the communities involved.

M-12-1

So, consequently, this community is involved, and I really do not feel very good about missing the meeting last night because I would like to have been there, but I wasn't. But I'm here tonight, and I'm here to support the project. And I have a letter to Supervisor Perez that voices these concerns.

Thank you.

MR. MOHSEN: Thank you, sir.

Let me remind you again, these are not just for comments. The purpose of this meeting is to ask any questions, ask for any clarifications about the document. Ask any questions you want from BLM.

And you don't necessarily have to have a comment. If you have a question like this lady has, feel free to approach. You can ask as many as you want.

MS. GAETA: My name is Sandy Gaeta, G-a-e-t-a, Sandy with a Y.

I live in Tehachapi. So this is a potential job prospect for me. I am a single parent.

M-13-1

My question is: Those of you who live on Backus Road, does California not have mineral rights and water rights, so that if they tap into your well, they have to pay you residuals? Like in Oklahoma and down in L. A., when they go for the oils, they have to go so far down, and they have to pay residuals.

M-13-2

My second question is: When this mine is completed and they are through, are they going to help the displaced workers find other jobs? And how long does this last? Is it ten years? Fifteen years? I understand it's supposed to be between twelve and fifteen years, permanent and temporary.

M-13-3

What happens to those workers? What happens to the mine when it's over with?

MR. MOHSEN: There's about three questions that the lady made. We made them part of the record and we will respond to them in our final

document, question by question.

Sir.

MR. ZAMORA: Good evening. My name is Manuel Zamora, M-a-n-u-e-l, Z-a-m-o-r-a.

I was talking about and trying to answer some questions about the guy, Mr. Hooper, says about things, what's going on about the mine, and the lady, Miss Sue.

We have somebody over here who is living over there near Backus Road for most of his life, he's eighty-three years old. What happened to him when the Cactus was in operations? He's still in good health.

M-14-1

I mean, what about the people who lives in Randsburg? Not even a mile away from the mine, the fumes, cyanide or all the blasts and everything, they never affected them. I never hear about it. You not hear from people that live from Ridgecrest to answer. They want to visit, and I see them on the weekends, but you guys don't see over there in Randsburg, it's a lot of trailers, a lot of weekenders going over there to Randsburg, California. It's not even a mile away from the Rand Mining Company, who's doing the same thing while with this mine is going to do over here. The same thing as

Cactus Gold Mine is doing it right now. The people from Rand.

Backus Road, they are still living healthy, and I don't know what's going on with this mine.

M-14-1

California been working for over twenty years. The wind is blowing from east to west. We going to receive the same wind, the same thing. It's going to be the same direction, going to come from Golden Queen to Mojave.

Thank you.

MR. MOHSEN: There was a hand back there earlier. I saw a hand up. Is there someone that wanted to come from back there?

Sir, you want to come up.

MR. MARKIEWITZ: I'm David Markiewitz, D-a-v-i-d, M-a-r-k-i-e-w-i-t-z. I'm from Tehachapi.

I was born here in Mojave, reared here, went to school here. My father was a miner here in the 1930s through the 1950s. And I'm proud to say I'm a second-generation miner. That's not what I do for a living, however; it's what I do for fun.

M-15-1

I have spent fifteen years working underground, drilling and blasting, and sending ore to different smelters all over the west.

And I want you to all know that this town needs another big mine. This town has had two phases of gold mining. Twenty years, from 1914 back to 1894; and the second phase from 1933 to 1941, and those two booms really helped the economy of Mojave.

We need it again. With the bypass, this town is going to suffer dramatically.

The health concerns that were raised about the dust pollution, one thing or another. Hey, my father is ninety. No silicosis, because he paid attention. He protected himself.

M-15-1

Today, MSHA requirements are such that protection is mandatory.

People downwind can be fairly well rest assured, rest assured that you're not going to be subjected to major amounts of dust. Look at that Cactus Mine. It did very well controlling a lot of the dust down there. I was out there. I worked out there, and didn't have any problems.

The major problems I have encountered dust was when California Portland Cement was hauling the Golden Queen mill tailings up to Oak Creek. This was in the 1980s. And when they did that, they created a tremendous amount of dust for my father and me working on the north side of Soledad Mountain

directly downwind from the dust pile.

Today, we're still both healthy. We paid attention.

You people just have to recognize the potential of this mine. This area, as has been said before, is designated for development. Mining is why we're here.

The railroad came and the railroad is gone. This town is not surviving due to the railroad anymore.

The airport can only provide so much employment.

M-15-1

I've been very, very fortunate to have lived in Tehachapi where the ability of the people to allow new economic development to occur has been excellent; present expansions: Cal Portland, Monolith, and now, Calaveras.

Mojave needs the same idea. You got to do something to preserve the economy here. If all of the environmental concerns can be addressed, the dust pollution, one thing or another, I say go for it.

Earlier tonight, why, a comment was made about mercury contamination coming from the Cactus Mine. Well, I never heard about a mercury spill out there. They encountered mercury at depth. They had

to install the required machinery to extract the mercury from their ore to ensure that, in fact, it wasn't just thrown out onto the desert floor.

M-15-1

But I don't know of any mercury in this ore, anyway. That can be better addressed by the geologist out here on this particular Soledad Mountain Project. If there is mercury in this ore, I'm sure it will be easily collected.

That's all I have to say.

MR. MOHSEN: Thank you, sir.

MS. HOOPER: My name a Marlene Hooper, H-o-o-p-e-r.

And because someone has not heard about a mercury spill, does not mean that Terry Murray and Barbara Rigg did not sue Cactus Mine and win. They agreed not to talk about or publish the results of their suit. They proved they had mercury in their home. They proved their family members were poisoned. And there are other people who had great problems who are now trying to sue Cactus Mine, as well.

M-16-1

I do feel this situation is different, but please don't say no one was hurt by Cactus Mine. We know better.

Thank you.

MR. BAKER: I used to be Chief Executive Officer of the Antelope Valley Board of Trade. I came up here one day to speak at New Year's time, and they asked me to speak on the windmills up in the hills. When I spoke in favor of them, half of the group got up and walked out.

The windmills are up in the hills. They are making money for you. They will continue to do so.

Now, I picked my seat earlier this evening. Those people are sitting next to me, I know one of them, I heard him speak. I want him to come up -- this is not prepared -- and answer two questions for me.

Please, Dick Graeme. I'm one of the top racquetball players in the world, and I reached a point before I had my heart attack that I didn't like to play with amateurs.

Dick, could you come here a minute.

You gave a speech to the historical museum; am I correct?

MR. GRAEME: That's correct.

MR. BAKER: How many mining books -- I'm going to prove to you that I listened -- how many mining books do you have in your library?

MR. GRAEME: Approximately 11,000.

MR. BAKER: Repeat that.

MR. GRAEME: Approximately 11,000.

MR. BAKER: How many mining companies have you managed?

MR. GRAEME: I've been general manager, or better, of -- one, two, three, four, five, six -- seven or eight.

MR. BAKER: Third question:

Are you a professional?

MR. GRAEME: I regard myself as professional, both from education and experience.

MR. BAKER: In high school, I learned the words, quote, "demonstrata." I've proven my case.

Thank you.

MR. MOHSEN: Is there anyone else that wants to come up and comment on the record? We would love to hear from you.

Let me, again, reiterate our process. We began this process back in March of 1996, April 1996, where we held public scoping meetings before we drafted a single page of this document.

We went out to you and asked you, "What do you want to see in it?"

And we have prepared this in the last fourteen months based on your comments. And we have prepared a document that we believe meets your concerns and every single law and regulation that this operation is subject to, federal, state and local.

We can assure you that the document has been prepared objectively and impartially by the federal and the state agencies, Kern County and BLM.

And from this point on, we will take your issues and concerns and itemize them issue-by-issue and item-by-item, and respond back to them appropriately.

And we will publish this information in what we refer to as a "Final Environmental EIS/EIR."

If you want a copy of this document, we will be sending out postcards asking you, would you want a summary or you want the full text, so we can make sure that the appropriate copy goes to you.

We will make that Final available, again, thirty days before we issue a final decision on the project.

BLM and Kern County will make the document available again for review and comment before we make a final decision.

The decisions will be made by Kern County and BLM separately. They may not be on the same day or the same week, but they will be concurrent with each other.

So the operator will be getting the appropriate response from the agencies at the same time.

There will be a hearing for the Board of Supervisors for Kern County regarding this matter in August.

So, again, we will be publishing the Final document in the response to the comments that we have. And we really want to take this opportunity to thank you for taking the time and participating in this process. It cannot work without your participation. And we hope that when it's all said and done, that it continues to be the kind of cooperative relationship we can do.

Again, I'll open it up for one last request. If anyone has any comments, we would love to hear from you; if not, we will close the public meeting at 8:15 p.m.

And after we close it, you're welcome to walk around and chat with us. If you have any specific questions or comments, we will be hanging

out for a few more minutes to talk to you if you need to.

Again, you need to commend yourself for taking the time to come down.

So thank you very much.

MR. BAKER: Hold it a minute. You two guys, stand up, please.

Give them a hand. Good job.

* * *

(Public meeting concluded at 8:15 p.m.)

STATE OF CALIFORNIA)
) ss.
COUNTY OF KERN)

I, Timothy Scott, a California Certified Shorthand Reporter, holding Certificate No. 8517, do hereby certify that I was present and took down correctly in stenotypy all the proceedings in the foregoing-entitled matter on the 25th day of June, 1997; and I further certify that the annexed and foregoing is a full, true and correct transcript of such proceedings, and a full, true and correct transcript of my stenotype notes thereof.

IN WITNESS WHEREOF, I have hereunto set my hand at my office in Bakersfield, California, this 4th day of July, 1997.

Timothy Scott,
California CSR No. 8517

JUNE 24, 1997
PUBLIC COMMENT MEETING HELD IN ROSAMOND, CA
SOLEDAD MOUNTAIN PROJECT
GOLDEN QUEEN MINING COMPANY

Letters:

The City of California City-Mayors Proclamation
California State Senate-endorsement of Senator Pete Knight
Tehachapi City Council-Resolution

The City of California City

MAYOR'S PROCLAMATION

WHEREAS, a combined Draft EIR/EIS has been prepared by Kern County and the BLM for the Soledad Mountain project of Golden Queen Mining Company; and

WHEREAS, Soledad Mountain has a land use designation for mining and a rich history of such land use and purpose, and the Golden Queen Mining Soledad Mountain Project would appropriately continue such land use; and

WHEREAS, the Soledad Mountain Project will require the investment by Golden Queen Mining of over $40 million in construction costs, will use Kern County suppliers for building and construction materials, and will employ over 250 initial employees for eight months; and

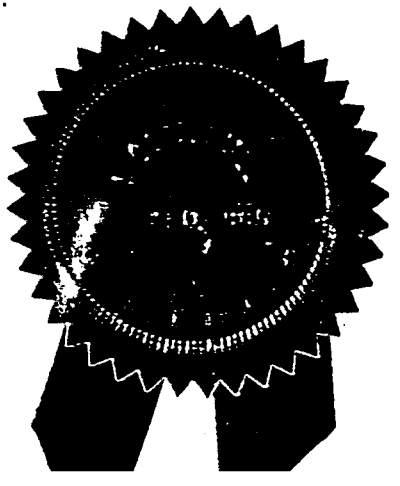
WHEREAS, the project will provide permanent jobs for a projected 230 employees over a lifetime of the project estimated between twelve and sixteen years, and Golden Queen Mining is committed to hiring east Kern residents and supporting Kern County businesses; and

WHEREAS, the Golden Queen Mining Company will be constructing and operating a state-of-the-art mine and reclaiming operation, while being simultaneously committed to the preservation of historical mining works and structures in the area covered by the project; and

WHEREAS, the Soledad Mining Project will provide an important addition to the Kern County tax base and help to meet the infrastructure needs of Southeast Kern County;

THEREFORE, I, Mayor Larry Adams, by virtue of the authority vested in me as Mayor of California City, do hereby support the Golden Queen Mining Company in their endeavors in East Kern, and recommend that approvals required by local agencies be granted to allow this project to go forth. In witness thereof, I hereunto set my hand and caused the Great Seal of California City to be affixed this 6th Day of June, 1997.

Larry Adams, Mayor
City of California City



STATE CAPITOL
SACRAMENTO, CA 95814
(916) 445-6637

California State Senate

SENATOR
WM. J. "PETE" KNIGHT
SEVENTEENTH SENATORIAL DISTRICT

ANTELOPE VALLEY OFFICE
1008 W. AVE. M-14
SUITE G
PALMDALE, CA 93551
(805) 274-0188

SANTA CLARITA VALLEY OFFICE
25709 RYE CANYON ROAD
SUITE 105
SANTA CLARITA, CA 91355
(805) 294-8184

VICTOR VALLEY OFFICE
15278 MAIN STREET
SUITE D
HESPERIA, CA 92345
(619) 244-2402

June 19, 1997

Supervisor Steve A. Perez, Chairman
Kern County Board of Supervisors
1115 Truxtun Ave. #502
Bakersfield, CA 93301

Dear Supervisor Perez:

Please find this letter as an endorsement of the proposed Golden Queen Mining Company Soledad Mountain Mining Project.

This project is vital to the economic future of Kern County. It is anticipated that this project will provide nearly 500 jobs over the duration of operation. Jobs will vary from labor and semi-skilled to clerical and supervisory. With the mine conservatively projected to produce 12-16 years, Golden Queen Mining employees will contribute to the economic base of Kern County well into the next century.

The company has also taken many necessary steps to ensure they meet all the environmental standards mandated by the State of California and the Federal Government. Issues of not impacting any threatened or endanger species, and meeting strict water and air quality standards have been addressed.

Considering the economic benefit and the minimal environmental impact Golden Queen Mine would bring to Kern County, I urge the Board of Supervisors to enthusiastically approve this project.

Warmest Regards,

Wm. J. "Pete" Knight
California State Senator

WJK:cs

RESOLUTION NO. 19-97

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF TEHACHAPI SUPPORTING THE GOLDEN QUEEN MINING COMPANY

WHEREAS, a combined Draft EIS/EIR has been prepared by Kern County and the Bureau of Land Management for the Soledad Mountain Project of the Golden Queen Mining Company; and

WHEREAS, Soledad Mountain has a land use designation for mining and a rich history of such land use and purpose, and the Golden Queen Mining Soledad Project would appropriately continue such land use; and

WHEREAS, the Soledad Mountain Project will require the investment by Golden Queen Mining of over $40 million in construction costs, will use Kern County suppliers for building and construction materials, and will employ over 250 initial employees for eight months; and

WHEREAS, the project will provide permanent jobs for a projected 230 employees over a lifetime of the project estimated between twelve and sixteen years, and Golden Queen Mining is committed to hiring east Kern residents and supporting Kern County businesses; and

WHEREAS, the Golden Queen Mining Company will be constructing and operating a state-of-the-art mine and reclaiming operation, while being simultaneously committed to the preservation of historical mining works and structures in the area covered by the project; and

WHEREAS, the Soledad Mining Project will provide an important addition to the Kern County tax base and help to meet the infrastructure needs of Southeast Kern County;

THEREFORE, the Tehachapi City Council, do hereby support the Golden Queen Mining Company in their endeavors in East Kern, and recommend that approvals required by local agencies be granted to allow this project to go forth.

PASSED, APPROVED AND ADOPTED by the City Council of the City of Tehachapi at a regular meeting this 16th day of June, 1997.

JOHN H.E. ROMBOUTS, Mayor of the
City of Tehachapi, California

ATTEST:

JEANETTE M. KELLEY, City Clerk of the
City of Tehachapi, California

JUNE 25, 1997
PUBLIC COMMENT MEETING HELD IN MOJAVE, CA
SOLEDAD MOUNTAIN PROJECT
GOLDEN QUEEN MINING COMPANY

Letters:

City of Ridgecrest-signed by William Lalor
California State Assembly-signed by Assemblyman, George Runner
Mojave Town Council-signed by Chris Babcock
Mojave Chamber of Commerce-signed by Pete Stern

CITY OF RIDGECREST

PHONE 619-371-3700
100 WEST CALIFORNIA AVENUE • RIDGECREST, CALIFORNIA 93555-4054

June 17, 1997

Kern County
Planning Department
Ted James, AICP; Director
2700 'M' Street, Suite 100
Bakersfield, Ca. 93301-2323

Re: CUP #22, Map #214
CUP #41, Map 213
2/3-6 3 098 Streets and Highways

Dear Mr James:

I support the efforts of the Golden Queen Mining Company to develop the Soledad Mountain Project near Mojave. The project permitting process will address the required environmental issues. I'm confident that Kern County and the Bureau of Land Management are sensitive to the environment.

I particularly endorse the prospect of 230 new jobs for the Eastern Kern County area. New jobs for any of the communities in the area help the economy in general and we all receive some spin off benefits. I wish the project every success.

Sincerely,

William R. Lalor
Mayor

97-164/mc

STATE CAPITOL
P.O. BOX 942849
SACRAMENTO, CA 94249-0001

Assembly
California Legislature

GEORGE RUNNER
ASSEMBLYMEMBER, THIRTY-SIXTH DISTRICT

DISTRICT OFFICE
709 W. LANCASTER BLVD.
LANCASTER, CA 93534
(805) 723-3358
FAX (805) 723-3307

June 25, 1997

Supervisor Steve Perez
Kern County Board of Supervisors
1115 Truxtun Ave., #502
Bakersfield, CA 93301

RE: Golden Queen Mining Company Soledad Mountain Mining Project

Dear Supervisor Perez:

I am pleased to offer this letter of support for the Golden Queen Mining Company Soledad Mountain Mining Project.

While the project is located just outside my district, I recognize that this project will benefit the entire Antelope Valley economic region. Not only will a significant amount of construction jobs be created, but this project will create over 200, well paid permanent jobs.

The Golden Queen Mining Company has worked closely with both the BLM and your county staff to ensure it meets California's rigorous environmental standards.

Once again, I support this project and the economic benefit it will provide our region.

Best wishes,

George Runner
Member of the Assembly

GR/gm

Mojave Town Council

P.O. Box 999
Mojave CA 93502-0999
805-824-8417
Fax: 805-824-8213

June 18, 1997

Honorable Steve Perez
Chairman
Kern County Board of Supervisors
1115 Truxtun Avenue
Bakersfield CA 93301

Dear Steve:

The directors of the Mojave Town Council voted last night to support Golden Queen Mining Company's proposal to operate a gold mine on Soledad Mountain.

Golden Queen's proposal will bring needed jobs and business to our community without significant negative effects on the environment.

We urge your support of this project which is so important to our community.

Sincerely,

Chris Babcock
Vice President

Mojave Chamber of Commerce

15836 Sierra Highway • Mojave, CA 93501 • (805) 824-2481

97 JUN 13 AM 9:31
FILE D... OF THE BD. OF SUPERVISORS
BY ... DEPUTY

June 12, 1997

Honorable Steve Perez
Chairman
Kern County Board of Supervisors
1115 Truxtun Avenue
Bakersfield CA 93301

Dear Steve:

At a board meeting today, the directors of the Mojave Chamber of Commerce voted to support Golden Queen Mining Company's proposal to mine gold on Soledad Mountain. We believe this project will enhance the economy of our community, provide much-needed employment, and will have no measurable negative effect on the environment.

We urge you to review this project carefully and consider our views in your deliberations.

Sincerely yours,

Pete Sturn
President

Code No. _____
BY ORDER OF THE BD/SUPV.
Referred To _____
Planning
Copies Furnished _____
Each Supervisor and CAO, Co. Counsel
FILED BY BD SUPV. 6/13/97
SUE DAVIS
Clerk of the Board of Supervisors
By: _____

PUBLIC NOTICES FILED BY KERN COUNTY FOR THE DRAFT EIR/EIS

Draft Environmental Impact Report

PROOF OF PUBLICATION

STATE OF CALIFORNIA
COUNTY OF KERN

I AM A CITIZEN OF THE UNITED STATES AND A RESIDENT OF THE COUNTY AFORESAID: I AM OVER THE AGE OF EIGHTEEN YEARS, AND NOT A PARTY TO OR INTERESTED IN THE ABOVE ENTITLED MATTER. I AM THE ASSISTANT PRINCI PAL CLERK OF THE PRINTER OF THE BAKERSFIELD CALIFORNIAN, A NEWSPAPER OF GENERAL CIRCULATION, PRINTED AND PUBLISHED DAILY IN THE CITY OF BAKERSFIELD COUNTY OF KERN, AND WHICH NEWSPAPER HAS BEEN ADJUDGED A NEWSPAPER OF GENERAL CIRCULATION BY THE SUPERIOR COURT OF THE COUNTY OF KERN, STATE OF CALIFORNIA, UNDER DATE OF FEBRUARY 5, 1952, CASE NUMBER 57610; THAT THE NOTICE, OF WHICH THE ANNEXED IS A PRINTED COPY, HAS BEEN PUBLISHED IN EACH REGULAR AND ENTIRE ISSUE OF SAID NEWSPAPER AND NOT IN ANY SUPPLEMENT THEREOF ON THE FOLLOWING DATES, TO WIT:

June 2

ALL IN THE YEAR 1997

I CERTIFY (OR DECLARE) UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT.

SIGNATURE

DATED AT BAKERSFIELD CA

June 2, 1997

DRAFT ENVIRONMENTAL IMPACT REPORT
NOTICE OF AVAILABILITY FOR PUBLIC REVIEW

This is to advise that the Kern County Planning Department has prepared an Environmental Impact Report for the project identified below. As mandated by State law, the minimum public review period for this document is 45 days. The document and documents referenced in the Draft EIR are available for review at the Planning Department, 2700 "M" Street, Suite 100, Bakersfield, CA 93301.

A public hearing has been scheduled with the Kern County Board of Supervisors to receive comments on the document on: August 25, 1997 at 2:00 p.m. or soon thereafter. Chambers of the Board of Supervisors, First Floor, Kern County Administrative Center, 1115 Truxtun Avenue, Bakersfield, California.

The comment period for this document closes on July 14, 1997. Testimony at future public hearings may be limited to those issues raised during the public review period either orally or submitted in writing by 5:00 p.m. the day the comment period closes.

Project Title: CUP 41, Map 213; CUP 22, Map 214; Streets and Highways Nonsummary Vacation, New Eagle Road

Project Location: Soledad Mountain, S/s of Silver Queen Rd., 1 1/2 mi W of St Rt 14, approx 5 mi SW of Mojave

Project Description: A Conditional Use Permit to allow a surface mining operation and reclamation plan, on private and federally administered lands, in accordance with the Surface Mining and Reclamation Act of 1975 and the nonsummary vacation of a portion of New Eagle Road. The proposed action would use conventional heap lesch processing to recover disseminated gold from ore recovered from an open pit excavation. Ore would be processed at a rate of approximately six million tons annually for approximately ten years. A total of 930 acres of land would be disturbed by the project activities. Reclamation of disturbed areas would occur at the completion of operations. The total project life would be about 15 years. Five alternatives to the proposed action are analyzed in detail in the Draft EIR: (1) No action; (2) Increased mining and processing rate; (3) Decreased mining and processing rate; (4) Reduced project size; and (5) Partial backfilling. Other alternatives were considered and eliminated from detailed consideration. Issues identified through the scoping process and evaluated in this Draft EIR include mineral resources, topography, geology and soils, hydrology, vegetation, wildlife, air quality, land use, visual resources, cultural resources, transportation, noise, socioeconomics, and public health and safety. Regulatory requirements and mitigation measures incorporated by project design would result in impacts that are less than significant for soils, hydrology, air quality, vegetation, wildlife, visual resources, noise, land use, socioeconomics, public health and safety, and traffic and transportation. Additional mitigation measures are recommended in this Draft EIR to reduce significant cultural and historical resources to less than significant.

Anticipated Significant Impacts on Environment: Impacts to topography and mineral resources are significant and unavoidable adverse.

For further information, please contact Glenn A Barnhill, Special Projects Division Chief, (805) 862-8606)

TED JAMES, AICP, Director
Planning Department
June 2, 1997 (20732)

PROOF OF PUBLICATION

DRAFT ENVIRONMENT IMPACT REPORT
NOTICE OF AVAILABILITY FOR PUBLIC REVIEW

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Anticipated Significant Impacts on Environment: Impacts to topography and mineral resources are significant and unavoidable adverse.

For further information, please contact Glenn A. Barnhill, Special Projects Division Chief
(805) 862-8606.
TED JAMES, AICP, Director
Planning Department
Published in The Mojave Desert News
June 5, 1997

AFFIDAVIT OF PUBLICATION

{ *County of Kern*
State of California

Barbara Schultheiss

of said county, being duly sworn says that he or she is over the age of eighteen years; that he or she is associated with the publication of *THE MOJAVE DESERT NEWS*, an adjudicated weekly newspaper printed, published and circulated in the said county and state. The notice, of which the annexed is a true printed copy, was published in the above named newspaper on the following dates, to wit:

June 5

I declare under the penalty of perjury (under the laws of the State of California) that the above is a true and correct copy.

Date: June 6, 1997

Signature: B. Schultheiss

PUBLIC NOTICES FILED BY THE BUREAU OF LAND MANAGEMENT

U.S. Department of the Interior
Bureau of Land Management

News Release

For Immediate Release: May 28, 1997 CA 060-97-27
Contact: Public Affairs Staff, (909) 697-5215

Proposed Soledad Mountain Project Draft EIS/EIR Available for Public Review
Public Meetings to be Held

The Bureau of Land Management (BLM) and County of Kern have released a joint federal-county Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the proposed Soledad Mountain Project open pit, heap leach gold mine for public review and comment.

The Draft EIS/EIR analyzes the alternatives, BLM's preferred action, and the potential environmental impacts of the proposed project, including geology, water resources, vegetation, wildlife, air quality, visual resources, cultural resources, land use, mitigation, and reclamation.

Copies of the Draft EIS/EIR will be available for review at most local libraries, BLM's Ridgecrest Resource Area Office, 300 South Richmond Road, Ridgecrest, CA 93555, and California Desert District Office, 6221 Box Springs Blvd., Riverside, CA 92507, and the Kern County Planning Department, 2700 M Street, Bakersfield, CA. 93301. The Draft EIS/EIR, project description, resource inventories, and public meeting information also is available on the Internet at the following address: http:www.ca.blm.gov/GoldenQueen.

BLM has scheduled two public meetings at the following locations to provide the public an opportunity to comment on the Draft EIS/EIR:

Tuesday, June 24, 7 p.m.	Wednesday, June 25, 7 p.m.
Halsey Auditorium	Mojave Elementary School Auditorium
Rosamond Elementary School	Mojave Elementary School
1981 Rosamond Blvd.	15800 "O" Street
Rosamond, CA	Mojave, CA

The site for the proposed Soledad Mountain Project is located five miles south of the City of Mojave in Kern County. The proposed project area would encompass approximately 1,690 acres, which includes 1,219 acres of private land and 471 acres of public lands administered by BLM. Approximately 930 acres would be disturbed, including 735 acres of private land and 195 acres of public land.

The proposed open pit, heap leach gold mine project would be operated by the Golden Queen Mining Company. Once approved, the Soledad Mountain Project would operate for approximately 15 years.

Written comments regarding the Draft EIS/EIR may be submitted through July 15, 1997, to the Bureau of Land Management, Ridgecrest Resource Area, Attention: Ahmed Mohsen, 300 South Richmond Road, Ridgecrest, CA 93555. For more information contact Mohsen at (760) 384-5421.

-BLM-

U.S. Environmental Protection Agency

[EPA Home |Federal Register Home | Comments | Search]

Federal Register Document

[Federal Register: June 2, 1997 (Volume 62, Number 105)]
[Notices]
[Page 29736]
From the Federal Register Online via GPO Access [wais.access.gpo.gov]
[DOCID:fr02jn97-97]

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

Notice

AGENCY: Bureau of Land Management, Interior.

ACTION: Notice.

SUMMARY: Notice is hereby given that the Bureau of Land Management (BLM) and the County of Kern, State of California have prepared a Draft Environmental Impact Statement/Environmental Impact Report for the Soledad Mountain Project, a proposed gold mining operation on public and private lands in Kern County, California.

DATES: Comments on the Draft Environmental Impact Report/Environmental Impact Statement must be postmarked no later than July 15, 1997.

ADDRESSES: Written comments should be addressed to Bureau of Land Management, Ridgecrest Resource Area, 300 S. Richmond Road, Ridgecrest, California 93555, Attention: Ahmed Mohsen, EIS Coordinator.

FOR FURTHER INFORMATION CONTACT: Ahmed Mohsen-EIS Coordinator (760) 385-5421.

PUBLIC MEETINGS: Public meetings are planned for:
Date: Tues. June 24, 1997.
Time: 7:00 p.m.
Place: Halsey Auditorium, Rosamond Elementary School, 1981 Rosamond Boulevard, Rosamond, California.

Date: Wed. June 25, 1997.
Time: 7:00 p.m.
Place: Mojave Elementary School Auditorium, Mojave Elementary School, 15800 ``O'' Street, Mojave, California.

SUPPLEMENTARY INFORMATION:

The purpose of the Draft EIR/EIS is to present BLM and Kern County's comparative analysis of the impacts of the Proposed Action and Alternatives on the physical, biological, social and economic resources of the area. The Proposed Action is a mining proposal to extract minerals from the subsurface, process the ore using chemical leaching methods and place the waste rock adjacent to the processing and mining areas. Alternatives to the Proposed Action include variations on the duration and placement of waste rock. After careful consideration of the impacts of the Proposed Action and all the alternatives, BLM has identified a Preferred Action in response to regulatory requirements, issues raised, resources present, impact analysis results and the effectiveness of mitigation and reclamation measures.

A public scoping process was initiated by the BLM and Kern County to identify issues and concerns relating to the proposed mining operation and assist the lead agencies in formulating alternatives to the Proposed Action. The scoping process was designed to provide an opportunity for receipt of verbal and written comments from the public organizations and government agencies. This was achieved through two public meetings, newspaper publications, Federal Register notice and notice of preparation of an EIR/EIS, Project description, resource inventories and public meeting proceedings were made available on the world wide web. Site can be reached with the following address: http:www.ca.blm.gov/GoldenQueen.

The project area includes approximately 1,690 acres of which 1,219 acres are privately owned land and 471 acres are unpatented mining claims on public lands administered by the BLM. The proposed surface disturbance is 930 acres of which 735 acres are on private land and 195 acres are on public land.

Five alternatives to the Proposed Action are analyzed in detail: (1) No Action, (2) Increased Mining and Processing Rate, (3) Decreased Mining and Processing Rate, (4) Reduced Project Size, and (5) Partial Backfilling.

Lee Delaney,

Area Manager.

[FR Doc. 97-14222 Filed 5-30-97; 8:45 am]
BILLING CODE 1990-01-M

AGENCY: Bureau of Land Management, Interior

ACTION: Notice

SUMMARY: Notice is hereby given that the Bureau of Land Management (BLM) has prepared a Draft Environmental Impact Statement for the Soledad Mountain Project, a proposed gold mining operation on public and private lands in Kern County, California.

DATES: Comments on the Draft Environmental Impact Report/Environmental Impact Statement must be postmarked no later than July 14, 1997.

ADDRESSES: Written comments should be addressed to Bureau of Land Management, Ridgecrest Resource Area, 300 S. Richmond Road, Ridgecrest, California, 93555, Attention: Ahmed Mohsen.

FOR FURTHER INFORMATION CONTACT: Ahmed Mohsen (760) 385-5421

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Date: June 24, 1997
Time: 7:00 P.M.
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Rosamond, California

Date: June 25, 1997
Time: 7:00 P.M.
Place: Mojave Elementary School Auditorium
Mojave Elementary School
16600 "O" Street
Mojave, California

SUPPLEMENTARY INFORMATION: Golden Queen is proposing to construct and operate the Soledad Mountain Project, an open pit precious metals (gold and silver) mining and cyanide heap leaching operation. The project is located at the Soledad Mountain project area approximately five miles southwest of the town of Mojave in Kern County, California. The proposed mine would include two lined heap leach pads designed and constructed to support and contain the ore heap and to collect process fluid from the ore heap for precious metals recovery.

The project area includes approximately 1,690 acres of which 1,219 acres are privately owned land and 471 acres are unpatented mining claims on public lands administered by the BLM. The proposed surface disturbance is 930 acres of which 735 acres are on private land and 195 acres are on public land.

Five alternatives to the Proposed Action are analyzed in detail: (1) No Action, (2) Increased Mining and Processing Rate, (3) Decreased Mining and Processing Rate, (4) Reduced Project Size, and (5) Partial Backfilling.

Lee Delaney, Area Manager, California Desert District, Bureau of Land Management

Published in The Mojave Desert News
June 12, 19, 1997

NOTICE OF PUBLIC NOTICE
AGENCY: Bureau of Land Management, Interior
ACTION: Notice

SUMMARY: Notice is hereby given that the Bureau of Land Management (BLM) has prepared a Draft Environmental Impact Statement for the Soledad Mountain Project, a proposed gold mining operation on public and private lands in Kern County, California.

DATES: Comments on the Draft Environmental Impact Report/Environmental Impact Statement must be postmarked no later than July 14, 1997.

ADDRESSES: Written comments should be addressed to Bureau of Land Management, Ridgecrest Resource Area, 300 S. Richmond Road, Ridgecrest, California, 93555. Attention: Ahmed Mohsen.

FOR FURTHER INFORMATION CONTACT: Ahmed Mousa (760) 385-5421

PUBLIC MEETINGS; Public meetings are planned for:

Date: June 24, 1997	Date: June 25, 1997
Time: 7:00 P.M.	Time 7 00 P.M.
Place: Halsey Auditorium	Place: Mojave Elementary School Auditorium
Rosamond Elementary School	Mojave Elementary School
1981 Rosamond Boulevard	15800 "O" Street
Rosamond, California	Mojave, California

SUPPLEMENTARY INFORMATION: Golden Queen is proposing to construct and operate the Soledad Mountain Project, an open pit precious metals (gold and silver) mining and cyanide heap leaching operation. The project is located at the Soledad Mountain project area approximately five miles southwest of the town of Mojave in Kern County, California. The proposed mine would include two lined heap leach pads designed and constructed to support and contain the ore heap and to collect process fluid from the ore heap for precious metals recovery.

The project area includes approximately 1,690 acres of which 1,219 acres are privately owned land and 471 acres are unpatented mining claims on public lands administered by the B.L.M. The proposed surface disturbance is 930 acres of which 735 acres are on private land and 195 acres are on public land.

Five alternatives to the Proposed Action are analyzed in detail: (1) No Action, (2) Increased Mining and Processing Rate, (3) Decreased Mining and Processing Rate, (4) Reduced Project Size, and (5) Partial Backfilling.

Lee Delaney, Area Manager, California Desert District, Bureau of Land Management

Rosamond News
June 16, 1997

U.S. Department of the Interior
Bureau of Land Management

News Release

For Immediate Release: July 17, 1997 CA 060-97-35
Contact: Doran Sanchez, (909) 697-5215

Comment Period Extended for Proposed Soledad Mountain Project Draft EIS/EIR

The Bureau of Land Management (BLM) and County of Kern are extending the public comment period on the joint federal-county draft environmental impact statement/environmental impact report (EIS/EIR) for the proposed Soledad Mountain Project open pit, heap leach gold mine to August 4, 1997.

The Draft EIS/EIR analyzes the five alternatives and potential environmental impacts of the proposed project, including geology, water resources, vegetation, wildlife, air quality, visual resources, cultural resources, land use, mitigation, and reclamation.

The site for the proposed Soledad Mountain Project is located five miles south of the City of Mojave in Kern County. The proposed project area would encompass approximately 1,690 acres, which includes 1,219 acres of private land and 471 acres of public lands administered by BLM. Approximately 930 acres would be disturbed, including 735 acres of private land and 195 acres of public land.

The proposed open pit, heap leach gold mine project would be operated by the Golden Queen Mining Company. Once approved, the Soledad Mountain Project would operate for approximately 15 years.

The Draft EIS/EIR was released for public review and comment on June 2, 1997. BLM held public meetings on June 24 in Rosamond and June 25 in Mojave to provide the public an opportunity to comment on the proposed project.

Copies of the Draft EIS/EIR are available for review at most local libraries, BLM's Ridgecrest Resource Area Office, 300 South Richmond Road, Ridgecrest, CA 93555, and California Desert District Office, 6221 Box Springs Blvd., Riverside, CA 92507, and the Kern County Planning Department, 2700 M Street, Bakersfield, CA. 93301. The Draft EIS/EIR, project description, and resource inventories information also is available on the Internet at http:www.ca.blm.gov/GoldenQueen.

Written comments regarding the Soledad Mountain Project Draft EIS/EIR may be submitted through August 4, 1997, to the Bureau of Land Management, Ridgecrest Resource Area, Attention: Ahmed Mohsen, 300 South Richmond Road, Ridgecrest, CA 93555. For more information contact Mohsen at (760) 384-5421.

-BLM-

BUREAU OF LAND MANAGEMENT

AGENCY: Bureau of Land Management, Interior

ACTION: Notice

SUMMARY: Notice is hereby given that the Bureau of Land Management (BLM) and the County of Kern, State of California are extending the comment period for the Draft Environmental Impact Statement/ Environmental Impact Report for the Soledad Mountain Project, a proposed gold mining operation on public and private lands in Kern County, California.

DATES: Comments on the Draft Environmental Impact Report/ Environmental Impact Statement must be postmarked no later than August 4, 1997.

ADDRESSES: Written comments should be addressed to Bureau of Land Management, Ridgecrest Resource Area, 300 S. Richmond road, Ridgecrest, California, 93555, Attention: Ahmed Mohsen, EIS Coordinator.

For Further information contact: Ahmed Mohsen-EIS Coordinator (760) 385-4521.

PUBLIC MEETINGS: Public meetings were held on:

June 24 and June 25 at Rosamond & Mojave, California

SUPPLEMENTARY INFORMATION:

The purpose of the Draft EIR/EIS is to present BLM and Kern County's comparative analysis of the impacts of the Proposed Action and Alternative on the physical, biological, social and economic resources of the area. The Proposed Action is a mining proposal to extract minerals from the subsurface, process the ore using chemical leaching methods and place the waste rock adjacent to the processing and mining areas. Alternatives to the Proposed include variations on the duration of operations and placement of waste rock. After careful consideration of the impacts of the Proposed Action and all the alternatives, BLM has identified a Preferred Action in response to regulatory requirements, issues raised, resources present, impact analysis results and the effectiveness of mitigation and reclamation measures.

A public scoping process was initiated by the BLM and Kern County to identify issues and concerns relating to the proposed mining operation and assist the lead agencies in formulating alternatives to the Proposed Action. The scoping process was designed to provide an opportunity for receipt of verbal and written comments from the public, organizations, and government agencies. This was achieved through two public meetings, newspaper publications, federal register notice and notice of preparation of an EIR/EIS. Project description, resource inventories and public meeting proceedings were made available on the world wide web. Site can be reached with the following address: http:www.ca.blm.gov/GoldenQueen.

The project area includes approximately 1,690 acres of which 1,219 acres are privately owned land and 471 acres are unpatented mining claims on public lands administered by the BLM. The proposed surface disturbance is 930 acres of which 735 acres are on private land and 195 acres are on public land.

Five alternatives to the Proposed Action are analyzed in detail: (1) No Action, (2) Increased Mining and Processing Rate, (3) Decreased Mining and Processing Rate, (4) Reduced Project Size, and (5) Partial Backfilling.

A federal register notice was published on June 2, 1997 (Volume 62, Number 105) Page 29736 to announce the public meeting dates and comment period schedules.

Lee Delaney
Resource Area Manager

ROSAMOND NEWS
JULY 28, 1997
AUG 4, 1997

U.S. Environmental Protection Agency

[EPA Home |Federal Register Home | Comments | Search]

Federal Register Document

[Federal Register: July 31, 1997 (Volume 62, Number 147)]
[Notices]
[Page 41074-41075]
From the Federal Register Online via GPO Access [wais.access.gpo.gov]
[DOCID:fr31jy97-111]

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

Amended Notice

SUMMARY: Notice is hereby given that the Bureau of Land Management (BLM) and the County of Kem, State of California have extended the comment period for the Draft Environmental Impact Statement/ Environmental Impact Report for the Soledad Mountain Project, a proposed gold mining operation on public and private lands in Kem County, California.

DATES: Comments on the Draft Environmental Impact Report/Environmental Impact Statement must be postmarked no later than August 11, 1997.

ADDRESSES: Written comments should be addressed to Bureau of Land Management, Ridgecrest Resource Area, 300 S. Richmond Road, Ridgecrest, California, 93555, Attention: Ahmed Mohsen, EIS Coordinator.

FOR FURTHER INFORMATION CONTACT:
Ahmed Mohsen--EIS Coordinator (760) 384-5421.

PUBLIC MEETINGS: Public meetings were held on: Tues. June 24, 1997 and Wed. June 25, 1997.

SUPPLEMENTARY INFORMATION: The purpose of the Draft EIR/EIS is to present BLM and Kem County's comparative analysis of the impacts of the Proposed Action and Alternatives on the physical, biological, social and economic resources of the area. The Proposed Action is a mining proposal to extract minerals from the subsurface, process the ore using chemical leaching methods and place the waste rock adjacent to the processing and mining areas. Alternatives to the Proposed Action include variations on the duration of operations and placement of waste rock. After careful consideration

[[Page 41075]]

of the impacts of the Proposed Action and all the alternatives, BLM has identified a Preferred Action in response to regulatory requirements, issues raised, resources present, impact analysis results and the

effectiveness of mitigation and reclamation measures.

A public scoping process was initiated by the BLM and Kem County to identify issues and concerns relating to the proposed mining operation and assist the lead agencies in formulating alternatives to the Proposed Action. The scoping process was designed to provide an opportunity for receipt of verbal and written comments from the public, organizations and government agencies. This was achieved through two public meetings, newspaper publications, Federal Register notice and notice of preparation of an EIR/EIS. Project description, resource inventories and public meeting proceedings were made available on the world wide web. Site can be reached with the following address: htt:www.ca.blm.gov/GoldenQueen.

The project area includes approximately 1,690 acres of which 1,219 acres are privately owned land and 471 acres are unpatented mining claims on public lands administered by the BLM. The proposed surface disturbance is 930 acres of which 735 acres are on private land and 195 acres are on public land

A Federal Register notice was published on June 2, 1997 (Volume 62, Number 105) Page 29736 to announce the public meeting dates and comment period schedules.

Dated: July 25, 1997.
Lee Delaney,
Area Manager.
[FR Doc. 97-20139 Filed 7-30-97; 8:45 am]
BILLING CODE 1990-01-M

the impacts of the Proposed Action and all the alternatives, BLM has identified a Preferred Action in response to regulatory requirements, issues raised, resources present, impact analysis results and the effectiveness of mitigation and reclamation measures. A public scoping process was initiated by the BLM and Kern County to identify issues and concerns relating to the proposed mining operation and assist the lead agencies in formulating alternatives to the Proposed Action. The scoping process was designed to provide an opportunity for receipt of verbal and written comments from the public, organizations and government agencies. This was achieved through two public meetings, newspaper publications, **Federal Register** notice and notice of preparation of an EIR/EIS. Project description, resource inventories and public meeting proceedings were made available on the world wide web. Site can be reached with the following address: htt:www.ca.blm.gov/GoldenQueen.

The project area includes approximately 1,690 acres of which 1,219 acres are privately owned land and 471 acres are unpatented mining claims on public lands administered by the BLM. The proposed surface disturbance is 930 acres of which 735 acres are on private land and 195 acres are on public land

A **Federal Register** notice was published on June 2, 1997 (Volume 62, Number 105) Page 29736 to announce the public meeting dates and comment period schedules.

Dated: July 25, 1997.

Lee Delaney,

Area Manager.

[FR Doc. 97–20139 Filed 7–30–97; 8:45 am]

BILLING CODE 1990–01–M

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

Soledad Mountain Project, CA

ACTION: Notice.

SUMMARY: Notice is hereby given that the Bureau of Land Management (BLM) and the County of Kern, State of California are extending the comment period for the Draft Environmental Impact Statement/Environmental Impact Report for the Soledad Mountain Project, a proposed gold mining operation on public and private lands in Kern County, California.

DATES: Comments on the Draft Environmental Impact Report/ Environmental Impact Statement must be postmarked no later than August 4, 1997.

ADDRESSES: Written comments should be addressed to Bureau of Land Management, Ridgecrest Resource Area, 300 S. Richmond Road, Ridgecrest, California, 93555, Attention: Ahmed Mohsen—EIS Coordinator.

FOR FURTHER INFORMATION CONTACT: Ahmed Mohsen-EIS Coordinator (760) 385–5421.

PUBLIC MEETINGS: Public meetings were held on: June 24 and June 25 at Rosamond and Mojave, California.

SUPPLEMENTARY INFORMATION: The purpose of the Draft EIR/EIS is to present BLM and Kern County's comparative analysis of the impacts of the Proposed Action and Alternatives on the physical, biological, social and economic resources of the area. The Proposed Action is a mining proposal to extract minerals from the subsurface, process the ore using chemical leaching methods and place the waste rock adjacent to the processing and mining areas. Alternatives to the Proposed Action include variations on the duration of operations and placement of waste rock. After careful consideration of the impacts of the Proposed Action and all the alternatives, BLM has identified a Preferred Action in response to regulatory requirements, issued raised, resources present, impact analysis results and the effectiveness of mitigation and reclamation measures.

A public scoping process was initiated by the BLM and Kern County to identify issues and concerns relating to the proposed mining operation and assist the lead agencies in formulating alternatives to the Proposed Action. The scoping process was designed to provide an opportunity for receipt of verbal and written comments from the public, organizations and government agencies. This was achieved through two public meetings, newspaper publications, federal register notice and notice of preparation of an EIR/EIS. Project description, resource inventories and public meeting proceedings were made available on the world wide web. Site can be reached with the following address: http:www.ca.blm.gov/GoldenQueen.

The project area includes approximately 1,690 acres of which 1,219 acres are privately owned land and 471 acres are unpatented mining claims on public lands administered by the BLM. The proposed surface disturbance is 930 acres of which 735 acres are on private land and 195 acres are on public land.

Five alternatives to the Proposed Action are analyzed in detail: (1) No Action, (2) Increased Mining and Processing Rate, (3) Decreased Mining and Processing Rate, (4) Reduced Project Size, and (5) Partial Backfilling.

Five alternatives to the Proposed Action are analyzed in detail: (1) No Action, (2) Increased Mining and Processing Rate, (3) Decreased Mining and Processing Rate, (4) Reduced Project Size, and (5) Partial Backfilling.

A **Federal Register** notice was published on June 2, 1997 (Volume 62, Number 105) Page 29736 to announce the public meeting dates and comment period schedules.

Lee Delaney,

Resource Area Manager.

[FR Doc. 97–20201 Filed 7–30–97; 8:45 am]

BILLING CODE 1990–01–M

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

[CA–010–1220–00]

Meeting of the Bakersfield Resource Advisory Council

AGENCY: Bureau of Land Management, Department of the Interior.

ACTION: Meeting of the Bakersfield Resource Advisory Council.

SUMMARY: Pursuant to the authorities in the Federal Advisory Committee Act (Public Law 92–463) and the Federal Land Policy and Management Act of 1976 (sec. 309), the Bureau of Land Management Resource Advisory Council for the Bakersfield District will meet in Bridgeport, California.

DATES: August 15–16, 1997.

ADDRESSES: Bridgeport Elementary School, 205 Kingsley Street.

SUPPLEMENTARY INFORMATION: The 12 member Bakersfield Resource Advisory Council is appointed by the Secretary of the Interior to advise the Bureau of Land Management on public land issues. The Council will meet on Friday and Saturday, August 15–16, 1997, beginning at 8:00 a.m. both days. Agenda items include election of officers, a plan to set priorities for the expenditure of range improvement funds, an update on the proposal to trade federal oil leases for the Headwaters forest, a discussion of RS–2477 rights of way, reports on the role of fire in native plant and deer herd management, an update on the draft Environmental Impact Statement for the Healthy Rangelands initiative, and an update on the status of proposed recreation fees for BLM lands. There will be a field trip Friday afternoon to Bodie State Historic Park. A public

APPENDIX W – RESOLUTION NO. 97-264 AND ASSOCIATED EXHIBITS

11/8/97 (Item 142)

PLEASE COMPLETE THIS INFORMATION

RECORDING REQUESTED BY:
CLERK, BOARD OF SUPERVISORS
KERN COUNTY ADMINISTRATIVE CENTER
1115 TRUXTUN AVENUE, 5TH FLOOR
BAKERSFIELD, CALIFORNIA 93301

WHEN RECORDED MAIL TO:

CLERK, BOARD OF SUPERVISORS
KERN COUNTY ADMINISTRATIVE CENTER
1115 TRUXTUN AVENUE, 5TH FLOOR
BAKERSFIELD, CALIFORNIA 93301

James Maples, Assessor-Recorder
Kern County Official Records

DOCUMENT #:0197142625

JASON
Pages: 9
10/27/1997
9:37:40

#0197142625#

Fees
Taxes
Other
TOTAL
PAID

Stat Types: 1

THIS SPACE FOR RECORDER'S USE ONLY

THIS PAGE ADDED TO PROVIDE ADEQUATE SPACE FOR RECORDING INFORMATION
(Additional recording fee applies)

___OR
___MD
___LN
___RF
___NA
___ST

RESOLUTION 97-264

CONDITIONAL USE PERMIT NO. 41, MAP 213, CONDITIONAL

CONDITIONAL USE PERMIT NO. 22, MAP 214 -

VACATION OF A PORTION OF NEW EAGLE ROAD

TITLE OF DOCUMENT

COUNTY OF KERN
STATE OF CALIFORNIA

BEFORE THE BOARD OF SUPERVISORS
COUNTY OF KERN, STATE OF CALIFORNIA

In the matter of:

Resolution No. 97-264
Reference No. _____

CONDITIONAL USE PERMIT NO. 41 MAP NO. 213; CONDITIONAL USE PERMIT NO. 22, MAP NO. 214; AND VACATION OF A PORTION OF NEW EAGLE ROAD; APPROVE

I, **SUE DAVIS**, Clerk of the Board of Supervisors of the County of Kern, State of California, do hereby certify that the following resolution, on motion of Supervisor McQuiston, seconded by Supervisor Patrick, was duly passed and adopted by said Board of Supervisors at an official meeting hereof this 8th day of September, 1997, by the following vote, to wit:

AYES: McQuiston, Perez, Patrick, Peterson, Parra

NOES: None

ABSENT: None

BOARD OF SUPERVISORS KERN COUNTY, CA

SUE DAVIS
Clerk of the Board of Supervisors
County of Kern, State of California

Karen Shatswell
Deputy Clerk

RESOLUTION

Section 1. WHEREAS:

(a) Pursuant to the California Government Code, Title 7, sections 65000, et seq. (known as the Planning and Zoning Law), the Kern County Board of Supervisors has adopted the Official Land Use and Zoning Ordinance for the County of Kern (Ordinance Code sections 19.02.010, et seq.), herein called the Zoning Ordinance; and

(b) The Zoning Ordinance establishes various classes of zones, prescribes land uses and regulations for the various zones, and adopts zoning maps for the purpose of dividing the County into zones and showing the zone boundaries; and

(c) The Zoning Ordinance regulates the use of buildings, structures, and land, as between agriculture, industry, business, residence, and other purposes, and other uses more specifically set forth in section 65850 of said Government Code; and

(d) The Kern County Planning Department has received an application pertaining to a parcel of real property which is located within that portion of the unincorporated area of the County for which two official Zoning Maps have been adopted under sections 7297.228 and 7297.559 of said Ordinance Code and for which precise land use and zoning regulations are in effect; and

(e) Said parcels of real property are described on the attached Exhibit "A" and incorporated herein as if set forth in full; and

(f) Said application has been made pursuant to provisions of section 19.104.040 of said Ordinance Code, and requests a Conditional Use Permit as provided in sections 19.14.030 and 19.16.030, insofar as said requirements are applicable to the aforedescribed parcel of real property, and more particularly to allow a surface mining operation and reclamation plan on private and federally administered lands; and

(g) Said application has been made in the form and in the manner prescribed by said Zoning Ordinance and is on file with the Clerk of this Board, and reference is hereby made thereto for further particulars; and

(h) The Planning Department recommends that approval of the project not become effective unless prior to September 19, 1997, the property owner(s), acting through applicant, shall sign and file with the Kern County Planning Department and indemnity agreement approved by the County Counsel, which shall be substantially in the following form:

> Each Owner, acting through APPLICANT, shall defend, indemnify, and hold harmless the COUNTY and its agents, officers, and employees from any claim, action, or proceeding against the COUNTY or its agents, officers or employees, to attack, set aside, void, or annul this approval or any prior or subsequent project-related approval or conditions imposed by the COUNTY or any of its agencies, departments, commissions, agents, officers, or employees concerning this Project, or to impose personal liability against such agents, officers, or employees resulting from their involvement in the Project, which claim, action, or proceeding is brought within

the time provided by law, including any claim for private attorney general fees claimed by or awarded to any party from COUNTY. Each Owner, acting through APPLICANT agrees to reimburse COUNTY for any cost incurred by COUNTY in responding to any claim, action, or proceeding, including but not limited to, court costs, staff time, County Counsel's time at their non-County agency rate, and all other direct or indirect costs associated with the COUNTY'S response to any claim, action, or proceeding. The COUNTY may promptly notify the APPLICANT or any OWNER of any such claim, action, or proceeding, and, if the COUNTY should fail to cooperate fully in the defense, the Owner shall not thereafter be responsible to defend, indemnify, and hold harmless the COUNTY or its agents, officers, and employees pursuant to this condition. The COUNTY may, within its unlimited discretion, participate in the defense of any such claim, action, or proceeding if the COUNTY defends the claim, action, or proceeding in good faith. The Owner, acting through APPLICANT, shall not be required to pay or perform any settlement of such claim, action, or proceeding unless the settlement is approved by the APPLICANT or any OWNER. Each OWNER's obligations under this condition shall apply regardless of whether any permits or entitlements are or have been issued under this project, and shall apply to successors and assigns;

(i) In accordance with Chapter 3, Part 3, Division 9, of the Streets and Highways Code (sections 8300 et seq.), this Board, pursuant to applicant's request, declared its intention to vacate a portion of New Eagle Road; and

(j) The Planning Department has investigated this request and found as follows:

1) In order to mine the property, the applicant has had to acquire all rights in the area encompassing the affected portions of New Eagle Road; and

2) Since the affected portions of New Eagle Road will be used for mining purposes, it can be reasonably concluded that the road is unnecessary for present public use and no access rights will be terminated. During the course of mining, this segment of road will be necessary for nonmotorized transportation. Upon cessation of mining activities, the reclamation plan proposes to return the land to a similar premining land use;

3) As a condition of approval of this vacation, the Planning Department recommends that a condition be placed on its approval that upon cessation

of mining activities, the applicant re-establish access, either public or private, to all parcels affected by the vacation of New Eagle Road; and

4) The Planning Department has determined that it can be seen with certainty there is no possibility the proposed vacation may have a significant effect on the environment and, therefore, under the provisions of section 15061(b)(3) of the State CEQA Guidelines the evaluation of projects and the preparation and review of environmental documents do not apply thereto, and has so advised this Board; and

5) The Planning Department further recommends that approval be subject to retention of any appropriate utility easements; and

6) Affected property owners, public agencies and county departments were contacted for comment and no objections were received; and

(k) The Clerk of this Board has caused notice to be duly given of a public hearing in this manner in accordance with law, as evidenced by the affidavit of publication and the affidavit of mailing on file with the Clerk of this Board; and

(l) An Environmental Impact Report (EIR) and proposed Mitigation Monitoring Report relating to said Conditional Use Permit was prepared by the Planning Department and was found to be complete and adequate in scope and was considered by the Department in its consideration of this matter; and

(m) The Clerk of this Board has caused notice to be duly given of a public hearing in this matter in accordance with law, as evidenced by the affidavit of publication and the affidavit of mailing on file with the Clerk of this Board; and

(n) A copy of the report, recommendations of the Planning Department, and said EIR have been on file in the Office of the Clerk of this Board, available for examination during regular business hours by any interested person, at all times since the date of giving notice in this matter; and

(o) The Director of the Planning Department has furnished to this Board, and this Board has incorporated in the record of this matter, a document setting forth the significant environmental effects identified in said EIR, with proposed findings for consideration by this Board in relation to said significant effects for the purpose of section 21081 of the Public Resources Code and section 15091 of the State CEQA Guidelines, and setting forth evidence in support of the proposed findings; and a member of the Planning Department appeared before the Board and gave additional testimony in support of the proposed findings; and

(p) During said hearing, this Board duly considered the adequacy and scope of said EIR and thereafter reviewed and considered the information therein

contained with respect to the merits of the matters under consideration; and

(q) Said public hearing has been duly and timely conducted and before making any findings on said EIR or any considerations of the proposal on its merits, this Board called for any objections or comments on said EIR and all persons desiring to be heard in said matters having been duly heard, and this Board having considered all of the testimony presented during said public hearing and the recommendations aforementioned, and said public hearing having been concluded;

Section 2. NOW, THEREFORE, BE IT HEREBY RESOLVED by the Board of Supervisors of the County of Kern, State of California, as follows:

1. This Board finds the facts recited hereinabove are true and further finds that this Board has jurisdiction to consider, approve, and adopt the subject of this Resolution.

2. This Board finds and determines that the applicable provisions of the California Environmental Quality Act of 1970, the State CEQA Guidelines and the Kern County Guidelines have been duly observed in conjunction with said hearing and the considerations of this matter and all of the previous proceedings related hereto.

3. The project herein described is approved despite the existence of certain significant environmental effects identified in said EIR, and this Board hereby makes and adopts the findings with respect to each thereof set forth in Exhibit "B", appended hereto and made a part hereby by reference, pursuant to section 15091 of the State CEQA Guidelines (Title 14, California Code of Regulations) and section 21081 of the Public Resources Code (CEQA) and declares that it considered the evidence described in connection with each such finding. Pursuant to section 15093 of the State CEQA Guidelines, this Board hereby approves and adopts a "Statement of Overriding Considerations" (Exhibit "C") as recommended by the Planning Department.

4. This Board hereby approves and adopts the proposed Mitigation Monitoring Program attached hereto as Exhibit "D".

5. This Board finds and determines that said EIR is complete and adequate in scope and has been completed in compliance with the California Environmental Quality Act of 1970, and the State CEQA Guidelines and the Kern County Guidelines for implementation thereof, and that this Board has fully reviewed and considered the information in said EIR with respect to the subject of this Resolution, and said EIR is hereby declared to be certified in relation to the subject of this Resolution.

6. Pursuant to section 15061(b)(3) of the State CEQA Guidelines, the granting of the subject vacation is exempt from the requirements of the California Environmental Quality Act because it can be seen with certainty that there is no possibility

that the activity in question may have a significant effect on the environment.

7. It is the decision of this Board that the application herein described be, and it is hereby, approved, not to become effective unless prior to September 19, 1997, the property owner(s), acting through applicant, shall sign and file with the Kern County Planning Department an indemnity agreement approved by County Counsel, as recommended by Staff.

8. Development of the project is to be in substantial conformity with the plan as presented, subject to the conditions as set forth in Exhibit "E" attached hereto and incorporated herein by this reference as if set forth in full. Noncompliance with the adopted conditions of approval (Exhibit "E") may cause permit revocation proceedings in accordance with section 19.102.020 of the Kern County Ordinance Code.

9. This Board finds and determines that the proposed project is consistent with the applicable provisions of the Kern County General Plan and the Soledad Mountain-Elephant Butte and Vicinity Specific Plan.

10. This Board finds and determine that the proposed use is consistent with the purpose of the applicable district and is a use listed as a use subject to a conditional use permit. The proposed use meets the minimum requirements of this title applicable to the use and complies with all other applicable laws, ordinances, and regulations of the County of Kern and the State of California. The proposed use will not be detrimental to the health, safety and welfare of the public or to property and residents in the vicinity.

11. This Board finds and determines that approval of this project will allow the development of a natural resource in accordance with Chapter 19.100 of the Zoning Ordinance.

12. This Board hereby further approves the vacation of a portion of New Eagle Road as described on Exhibit "F" attached hereto.

13. Pursuant to Section 8324 of the California Streets and Highways Code, this Board hereby determines that the referenced portion of the public access easement is unnecessary for preent public use and will be rendered untraversable by the proposed development for prospective public use. Consistency with California Streets and Highways Code will be maintained through a condition of approval for Conditional Use Permit Case No. 41, Map No. 213, which requires that upon cessation of mining activities, the applicant shall re-establish access, either public or private, to all parcels affected by the vacation of New Eagle Road prior to deeming reclamation complete.

14. Pursuant to Section 2381 of the California Streets and Highways Code, the area to be vacated is not useful for use by pedestrians, bicycles or equestrians.

15. This Board does hereby reserve to the County of Kern, its successors and/or assigns, the right to use the land described in Exhibit "F" for water, sewer, and gas pipes, telephone and power lines and poles and conduits and any and all other utility purposes; the right to continue or extend existing franchises; all appropriate and existing public utility easements; together with the free right of ingress and egress over and across such property, insofar as such right of ingress and egress is necessary including but not limited to maintenance, renewal, replacement, or access to improvements to effect the purpose of this reservation.

16. The Clerk of this Board shall cause a certified copy of this Resolution and Exhibit "F" only to be filed for record in the Office of the Kern County Recorder. Upon recordation of a certified copy of this Resolution, the vacation is complete.

17. The Clerk of this Board shall cause a Notice of Determination and Notice of Exemption to be filed with the County Clerk.

18 The Clerk of this Board shall transmit copies of this Resolution to the following:

(a) Dir. Planning & Development Services
(b) Environmental Health Department
(c) Fire Department
(d) Public Works
(e) County Counsel

(f) Golden Queen Mining Company, Inc.
P.O. Box 820
Mojave, CA 93502-0820

BD:wl
#14520
97.2750

COPIES FURNISHED:
See above
9/22/97

EXHIBIT "A"

(LEGAL DESCRIPTION FOR SURFACE MINING & RECLAMATION PLAN)

The project area shown in the attached map consists of those portions of Sections 5, 6, 7 and 8, Township 10 North, Range 12 West, SBBM, Section 1, Township 10 North, Range 13 West, SBBM and Section 32, Township 11 North, Range 12 West, SBBM in Kern County, California, described as Parcel 1 and Parcel 2 below:

Parcel 1

Those portions of Sections 5, 6, 7 and 8, Township 10 North, Range 12 West, SBBM and Section 1, Township 10 North, Range 13 West, SBBM in Kern County, California, described as follows:

Beginning at the Northeast corner of Section 6, Township 10 North, Range 12 West, SBBM; thence, South 88° 30' West along the North line of Section 6 and the North line of Section 1, Township 10 North, Range 13 West, a distance of 6,056 feet to a point; thence, South 0° 22' West a distance of 1,462 feet, more or less, to a point on the Southeast boundary of Mojave Tropico/Silver Queen Road; thence, Southwesterly along the Scutheast boundary of Mojave Tropico/Silver Queen Road a distance of 4,525 feet, more or less, to a point on the North boundary of Section 12, Township 10 North, Range 13 West; thence, North 87° 37' East along the North boundary of Section 12 a distance of 1,603 feet to the Northeast corner of Section 12; thence, South 1° 49' West along the East boundary of Section 12 a distance of 5,317 feet to the Southeast corner of Section 12; thence, North 87° 29' East along the South boundary of Section 7 Township 10 North, Range 12 West a distance of 2,643 feet to the South one-quarter corner of Section 7; thence, North 2,585 feet to the Northwest corner of the Southeast quarter of Section 7; thence, North 88° 34' East along the North boundary of the Southeast quarter of Section 7 and the North boundary of the Southwest quarter of Section 8, Township 10 North, Range 12 West a distance of 3,762 feet to a point; thence, North 676 feet to a point; thence, North 88° 21' East 4,203 feet to a point on the East boundary of Section 8; thence, North 2° 21' West along the East boundary of Section 8 a distance of 2,006 feet to the

EXHIBIT "A"

Northeast corner of Section 8; thence, South 89° 26' West 2,549 feet along the North boundary of Section 8 to the North one-quarter corner of Section 8; thence, North 4° 17' West 2,612 feet to the Northeast corner of the Southwest quarter of Section 5, Township 10 North, Range 12 West; thence, South 89° West 2,578 feet to the West one-quarter corner of Section 5; thence, North 2,474 feet along the Westerly boundary of Section 5 and the Easterly boundary of Section 6 to the point of beginning.

Parcel 2

That portion of Section 32, Township 11 North, Range 12 West, SBBM in Kern County, California, described as follows:

Beginning at the Southwest corner of said Section 32; thence, North 0° 6' East along the Westerly boundary of Section 32 a distance of 3,856 feet; thence, North 89° 0' East a distance of 460 feet; thence, South 2° 18' East a distance of 669 feet; thence, East a distance of 108 feet; thence, South 1° 21' East a distance of 3,191 feet to a point on the South boundary of Section 32; thence, South 88° 30' West along the South boundary of Section 32 approximately 677 feet to the point of beginning.

EXHIBIT "A"

EXHIBIT "B"

ENVIRONMENTAL IMPACT FINDINGS REQUIRED BY CEQA GUIDELINES SECTION 15091 KERN COUNTY CONDITIONAL USE PERMIT FOR GOLDEN QUEEN MINING COMPANY, INC.'S SOLEDAD MOUNTAIN PROJECT

1. MINERAL RESOURCES (Natural Resources)

1.1 Significant Effect: The proposed project would result in the processing of approximately 60 million tons of ore during the life of the project.

Statement of Facts: The loss of mineral resources from mining is a significant and unavoidable impact. Alternatives that would eliminate or reduce this effect are the no action alternative and reduced project size alternative; specific economic and other considerations make these alternatives infeasible. The following applicant-proposed mitigation measure has been identified in the Environmental Impact Report/Environmental Impact Statement (EIR/EIS) and will be implemented as part of the approval for the project to ensure the project will not cover additional mineral resources, thereby minimizing the impact.

a. Exploration activity, drilling boreholes and analysis of rock samples, has been conducted to ensure mineral resources will not be covered by overburden or heap piles.

Authoritative Reference: Soledad Mountain Project Final EIR/EIS, Kern County Planning Department, September 1997.

Finding: The specific economic and other considerations make infeasible the project alternatives identified in the Final EIR/EIS. A statement of overriding consideration shall be issued by the Kern County Board of Supervisors.

EXHIBIT B

2. PHYSIOGRAPHY AND GEOLOGY (Earth Resources)

2.1 Topography

2.1.1 Significant Effect: The proposed project would change the topography due to the creation of the open pit mine, heap leach piles and overburden material piles.

Statement of Facts: A change in the natural ground contours is a significant and unavoidable impact. The applicant-proposed mitigation measure will break up the unnatural angles at the top edges of the overburden piles. The topography of the open pit would be different from the existing topography and would be partially visible from Silver Queen Road. The following applicant-proposed mitigation measure has been identified in the EIR/EIS and will be implemented as part of the approval for the project to minimize the project impact:

a. During final reclamation, overburden will be graded to break up the unnatural angles at the top edges.

Authoritative Reference: Soledad Mountain Project Final EIR/EIS, Kern County Planning Department, September 1997.

Finding: The specific economic and other considerations make infeasible the project alternatives identified in the Final EIR/EIS. A statement of overriding consideration shall be issued by the Kern County Board of Supervisors.

EXHIBIT B

2.2 Geology and Seismology

2.2.1 Significant Effect: Potential ground motion from earthquakes could cause instability of slopes, pose a hazard to site facilities, or cause collapse of historic underground mine areas and above ground structures.

Statement of Facts: The following applicant-proposed mitigation measures have been identified in the EIR/EIS and will be implemented as part of the approval for the project to reduce the identified impact to a less than significant level:

a. Mine pit slopes will be evaluated throughout operations to assure that excavation occurs at a slope angle that is safe, considering actual rock strength and structural conditions encountered.
b. Old underground mining areas will be excavated or remediated.
c. Historical structures will be stabilized or removed by the applicant prior to site disturbance

The applicant-proposed mitigation measures are designed to minimize the potential impact from ground motion by continuous evaluation of mine pit slope angles.

Authoritative Reference: Soledad Mountain Project Final EIR/EIS, Kern County Planning Department, September 1997.

Finding: The proposed project is located in a geologic structurally complex area. No known faults are present within or adjacent to the

project site which demonstrate evidence of Holocene movement (during the last 200 years). Mitigation measures have been incorporated into the proposed project which avoid or substantially lessen the environmental effect as identified in the EIR/EIS.

3. SOILS (Earth Resources)

3.1 Significant Effect: The proposed project would result in the loss of soil over approximately 910 acres (except for 220 acres salvaged for use as growth medium). The impact of erosion and loss of top soil is potentially significant.

Statement of Facts: The following applicant-proposed mitigation measures have been identified in the EIR/EIS and will be implemented as part of the approval for the project to reduce the identified impacts to less than significant levels:

a. Surface disturbance outside the project area will be kept to a minimum by clearly delineating operating areas to limit roads and vehicle traffic outside designated areas.
b. Growth media stockpiles will be stabilized by allowing germination of seeds naturally contained in the soil.
c. The feasibility of inoculation of soil with biological components will be investigated in test plots.
d. Site drainage will be inspected periodically to assure that excessive erosion is not occurring. In the event excessive erosion is identified, the drainage plan will be revised in consultation with Kern County.

The applicant-proposed mitigation measure will keep surface disturbance to a minimum. Stabilization of the growth media piles will minimize wind

erosion from these sources. Periodic evaluation of site drainage will assure that excessive loss of soil is not occurring from erosion.

Authoritative Reference: Soledad Mountain Project Final EIR/EIS, Kern County Planning Department, September 1997.

Finding: The potential loss of soil is an irretrievable commitment of soils resources. Soil from approximately 220 acres will be salvaged for use as growth media during site reclamation. The site does not contain any prime agricultural land. Mitigation measures have been incorporated into the proposed project which avoid or substantially lessen the environmental effect as identified in the EIR/EIS.

4. HYDROLOGY (Water Resources)

4.1 Surface Water

4.1.1 Significant Effect: The proposed project would alter the surface and have the potential to cause alteration of the existing drainage pattern resulting in erosion and/or flooding.

Statement of Facts: The following applicant-proposed mitigation measures have been identified in the EIR/EIS and will be implemented as part of the approval for the project:

a. Additional erosion prevention techniques include:

- Site drainage will be retained onsite.
- Site roads and drainage will be inspected by Golden Queen personnel after rainfall events which result in surface flow

EXHIBIT B

to ensure erosion prevention is maintained and upgraded as needed.

- Drainage from the tops of overburden piles will be directed away from the slopes toward the pit.

- Salvaged growth media will be stockpiled away from areas of concentrated drainage.
- Reclamation of disturbed areas will occur as soon as possible.

The applicant-proposed mitigation measures which have been incorporated into the proposed project avoid or substantially lessen the environmental effect as identified in the EIR/EIS.

Authoritative Reference: Soledad Mountain Project Final EIR/EIS, Kern County Planning Department, September 1997.

Finding: The project site is not located in a flood prone area; the annual average rainfall at the site is approximately 6.14 inches. A site drainage plan will be approved by Kern County with adoption of the Surface Mining and Reclamation Plan, which includes stabilization of drainage and erosion according to SMARA. BLM will regulate surface drainage modifications through review and approval of the Plan of Operations. A General Construction Activity Storm Water Permit will be obtained from the Lahontan Regional Water Quality Control Board.

4.1.2 Significant Effect: The proposed project would result in the potential degradation of surface water and groundwater quality. A monitoring plan has been prepared to assure compliance with the applicant-proposed mitigation measures.

EXHIBIT B

Statement of Facts: The following applicant-proposed mitigation measures have been identified in the EIR/EIS and will be implemented as part of the approval for the project to reduce the identified impacts to less than significant levels:

a. The evaporation of water and, therefore, the need for make-up water will be minimized by the use of enclosed solution storage.
b. The overliner protective material placed in direct contact with the HDPE liner will not exceed one and one-half inches in diameter, and will not contain hard, sharp, angular pieces.
c. A cyanide destructing compound (e.g., hydrogen peroxide or calcium hypochlorite) will be maintained onsite for use in the event that a spill occurs.
d. Historical mining wastes and tailings will be tested and used onsite or, if indicated, disposed of at an offsite permitted disposal facility, removing any future threat of surface water contamination.
e. The Lahontan Regional Water Quality Control Board will be consulted prior to the use of dust suppression or soil stabilization chemicals.

Additionally, historical mining waste and tailings, which may degrade surface water discharge, will be removed from exposure to storm water. The tailings will be tested and disposed of offsite, used as liner material or processed with the ore on the heap leach pad.

The applicant designed mitigation measures are designed to minimize the potential for degradation of water quality. A monitoring plan has

EXHIBIT B

been prepared to assure compliance with the applicant-proposed mitigation measures.

Authoritative Reference: Soledad Mountain Project Final EIR/EIS, Kern County Planning Department, September 1997.

Finding: The project site does not contain any surface waters, including springs, seeps or intermittent streams. Regulatory requirements for the site include compliance with Waste Discharge Requirements to be issued by the Lahontan Regional Water Quality Control Board in accordance with Title 23 CCR, Chapter 15, Article 7. Above ground storage tanks will be regulated by the Lahontan Regional Board in accordance with the California Health and Safety Code, Chapter 6.67 and the California Porter-Cologne Water Quality Act of 1985. Storage of hazardous materials will be regulated by the 1994 Uniform Fire Code and a General Construction Activity Storm Water Permit will be obtained from the Lahontan Regional Board. Kern County will regulate activities through SMARA and the BLM will regulate activities through a Plan of Operations. Mitigation measures have been incorporated into the proposed project which avoid or substantially lessen the environmental effect as identified in the EIR/EIS.

4.2 Groundwater/Water Supply

4.2.1 Significant Effect: The proposed project will require a water withdrawal rate of 750 gpm, or approximately 1,200 acre-feet of water per year. Up to three water supply wells will be drilled to supply the water needs for the project. The increased pumping activities have

EXHIBIT B

the potential to lower the groundwater level in the vicinity of the water supply wells.

Statement of Facts: The following applicant-proposed mitigation measures have been identified in the EIR/EIS and will be implemented as part of the approval for the project to reduce the identified impact to a less than significant level:

a. The evaporation of water and, therefore, the need for make-up water will be minimized by the use of enclosed solution storage.

b. Golden Queen will monitor the groundwater level on a monthly basis and compare the water level data collected by the monitoring program to water levels predicted by the groundwater drawdown model. In the event that the monitoring program shows that the actual water drawdown in the well, when corrected for well conditions, exceeds the predicted model for six consecutive months, Golden Queen will supplement the water supplied by the production wells with up to 300 gpm of water from Antelope Valley - East Kern Water Agency.

The proposed project will require a water withdrawal rate of approximately 750 gpm, supplied by onsite wells. Hydrology studies and modeling indicate that drawdown resulting from the increased pumping will not significantly affect the water supply in the area. The applicant will supplement water from its wells with up to 300 gpm of water from the Antelope Valley - East Kern (AVEK) Water Agency if

EXHIBIT B

its monitoring program reveals exceedances between actual data and model results for six consecutive months.

Authoritative Reference: Soledad Mountain Project Final EIR/EIS, Kern County Planning Department, September 1997.

Finding: Mitigation measures have been incorporated into the proposed project which avoid or substantially lessen the environmental effect as identified in the EIR/EIS.

5. AIR QUALITY

5.1 Significant Effect: The primary impact to air quality from the proposed project would be particulate emissions from construction, wind erosion, blasting, hauling, loading and unloading. Particulate matter emissions from the project have the potential to impact visibility and air quality.

Statement of Facts: The following applicant-proposed mitigation measures have been identified in the EIR/EIS and will be implemented as part of the approval for the project to reduce the identified impacts to less than significant levels:

a. Onsite equipment and vehicles will be maintained on a routine basis, as recommended by manufacturer manuals, to reduce exhaust emissions.
b. Monitoring stations for PM_{10} will be established upwind and downwind from the processing facilities.
c. A mercury retort will be installed to control mercury emissions.
d. The size and number of blasts in the mine will be limited by good engineering design.

EXHIBIT B

e. The existing tailings piles will be removed, thereby reducing the long-term fugitive emissions from the site.

f. Reclamation of previously disturbed areas.

Authoritative Reference: Soledad Mountain Project Final EIR/EIS, Kern County Planning Department, September 1997.

Finding: The project is within the jurisdiction of the Kern County Air Pollution Control District which will require permitted sources be equipped with Best Available Control Technology and will require dust suppression techniques on mine roads and disturbed surfaces. Dispersion modeling indicates the project will not violate the Federal and California air quality standards for PM_{10}. Mitigation measures have been incorporated into the proposed project which avoid or substantially lessen the environmental effect as identified in the EIR/EIS.

6. BIOLOGY

6.1 Vegetative Resources

6.1.1 Significant Effect: Project activities would result in the disturbance of vegetation. The proposed project would disturb approximately 560 acres of the upper slope area of Soledad Mountain and 370 acres on the lower slope.

Statement of Facts: The following applicant-proposed mitigation measures have been identified in the EIR/EIS and will be implemented as part of the approval for the project to reduce the identified impact to a less than significant level:

EXHIBIT B

a. Project disturbance will be minimized to that necessary for safe and efficient operation. The limits of the construction areas will be clearly marked and vehicles and equipment will be confined to these areas.

b. Mature Joshua trees which may be disturbed will be salvaged and replanted in undisturbed areas within the property boundary.

c. The use of seedlings for revegetation will be investigated in test plots.

d. Fencing around the heap leach pile will remain in place until vegetation is established or as otherwise specified in the Reclamation Plan.

Reclamation activities and monitoring include a revegetation plan, onsite seed collection and test plots to evaluate reclamation methods.

Authoritative Reference: Soledad Mountain Project Final EIR/EIS, Kern County Planning Department, September 1997.

Finding: A Reclamation Plan will be adopted to revegetate disturbed areas. Mitigation measures have been incorporated into the proposed project which avoid or substantially lessen the environmental effect as identified in the EIR/EIS. A Mitigation Measure Monitoring Program will be adopted to ensure the implementation of those mitigation measures.

EXHIBIT B

6.2 Wildlife Resources

6.2.1 Significant Effect: The proposed project would result in the disturbance of wildlife habitats.

Statement of Facts: The following applicant-proposed mitigation measures have been identified in the EIR/EIS and will be implemented as part of the approval for the project to reduce the identified impact to a less than significant level:

a. Grading for the project will be minimized to the extent consistent with safe and efficient operations to limit the total area of surface disturbance.
b. Routine distribution of cyanide solution on the top of the heap leach pad will occur via a drip irrigation system and the heap leach pads will be contoured to prevent surface ponding which could attract birds and small animals.
c. Containers of reagents will be stored within controlled reagent storage areas and kept closed, stored in enclosed areas, or otherwise managed to prevent access by wildlife.
d. Project waste will be properly managed at the site to control garbage that could attract wildlife.
e. The maximum vehicle speed will be 25 mph.
f. Wildlife habitat awareness will be included in the worker education program.
g. Some of the mine adits will be retained and gated and some of the mine shafts will be covered by grates to allow access by bats while excluding people.

Reclamation according to the Surface Mining and Reclamation Act of 1975 will return the project site to open habitat which includes native vegetation after mining is completed.

Authoritative Reference: Soledad Mountain Project Final EIR/EIS, Kern County Planning Department, September 1997.

Finding: No threatened or endangered animal or plant species have been identified or observed on the project site. Mitigation measures have been incorporated into the proposed project which avoid or substantially lessen the environmental effect as identified in the EIR/EIS.

7. CULTURAL AND HISTORICAL RESOURCES (Cultural Resources)

7.1 Significant Effect: Project related activities could disturb or destroy potentially significant sites.

Statement of Facts: The following mitigation measures to lessen the impact have been identified in the EIR/EIS and will be implemented as part of the approval for the project to reduce the identified impact to a less than significant level:

a. A Phase III Data Recovery (salvage excavation and architectural recording) will be conducted at four sites.
b. Seven sites will have an archaeological monitor review the area during grading activity.

In addition, the following applicant-proposed mitigation measures have been identified in the EIR/EIS and will be implemented as part of the approval for the project:

a. Should any previously unknown archaeological/cultural resources be discovered on private land during the course of mining or reclamation, work in the area of discovery shall be stopped and a qualified archeologist contacted to evaluate the find and, if necessary, mitigate impacts prior to resumption of work.

b. Artifacts from the historical sites will be used to establish a small display of historical mining activities onsite. After conclusion of the project, the items on display will be donated to a museum located in Kern County.

c. As part of the worker education program, construction contractors and operations personnel will be instructed regarding the sensitivity of cultural resources and the presence of laws against unauthorized collection and disturbance.

The sites on private land with scientific and historical value will have been subject to a Phase III Data Recovery (salvage excavation and architectural recording) prior to site disturbance. There were no sites on Federal land eligible for the National Register of Historic Places.

Authoritative Reference: Soledad Mountain Project Final EIR/EIS, Kern County Planning Department, September 1997.

Finding: Mitigation measures have been incorporated into the proposed project which avoid or substantially lessen the environmental effect as identified in the EIR/EIS.

EXHIBIT B

8. VISUAL RESOURCES (Light and Glare/Aesthetics)

8.1 Significant Effect: The visual character of the site could be altered by project activities.

Statement of Facts: The following applicant-proposed mitigation measures have been identified in the EIR/EIS and will be implemented as part of the approval for the project to reduce the identified impact to a less than significant level:

a. Surface disturbance will be minimized to that required for safe and efficient operation.
b. Historical mining disturbance will be reclaimed.
c. Buildings and structures will be painted with nonreflective earthtone colors to blend with the predominant background.
d. Outdoor lighting for the mine pit and other areas of nighttime activities will be shielded and directed downward to reduce fugitive light. Light poles will be no higher than necessary for safe and efficient lighting. Low-pressure sodium bulbs or other appropriate technology will be used for outdoor lighting.

A reclamation plan approved by Kern County will include the removal of all buildings and foundations at the end of the project, grading of overburden piles and heap leach piles, and revegetation of disturbed areas. Dust control measures required by the Kern County Air Pollution Control District to control particulate emissions will minimize the potential visual impact of fugitive dust. Authoritative Reference: Soledad Mountain Project Final EIR/EIS, Kern County Planning Department, September 1997.

Finding: Visual resources for the project area were investigated using methods outlined in Section 8400 of the BLM Manual. The proposed project would cause some visual contrast with the surrounding land from more distant viewpoints. However, when the proposed project is viewed in relationship to other current and historical activities there is only a weak contrast. The project area would contrast slightly with the existing environment; however, due to viewing distance from the major travel routes, viewer sensitivity to the visual resources is considered to be low to moderate. Mitigation measures have been incorporated into the proposed project which avoid or substantially lessen the environmental effect as identified in the EIR/EIS.

9. NOISE

9.1 Significant Effect: Noise levels would increase in the vicinity of the proposed project due to construction and operations.

Statement of Facts: The following applicant-proposed mitigation measures have been identified in the EIR/EIS and will be implemented as part of the approval for the project to reduce the identified impact to a less than significant level:

a. Approximately 75 to 80 percent of construction activities will take place during daylight.
b. Blasting will occur during daylight one time per day and will be engineered to minimize the amount of explosives used, according to U.S. Bureau of Mines guidelines.

Noise levels at nearby residences must remain within the recommendations of the Noise Element of the Kern County General Plan. Machinery,

equipment and vehicles will be equipped with mufflers in accordance with MSHA requirements.

Authoritative Reference: Soledad Mountain Project Final EIR/EIS, Kern County Planning Department, September 1997.

Finding: During the operating life of the project, there would be an increase in ambient noise levels which would be perceptible to humans in the project vicinity, but these levels would not exceed maximum existing levels measured in the vicinity of the project area. Mitigation measures have been incorporated into the proposed project which avoid or substantially lessen the environmental effect as identified in the EIR/EIS.

10. LAND USE (Land Use/Population/Housing)

10.1 Significant Effect: The proposed project could conflict with the uses, plans, and goals of the community in the area.

Statement of Facts: The following applicant-proposed mitigation measures have been identified in the EIR/EIS and will be implemented as part of the approval for the project to reduce the identified impacts to less than significant levels:

a. Buildings and structures will be painted with non-reflective earthtone colors to blend with the predominant background.
b. Outdoor lighting will be shielded and directed downward to reduce reflective light.
c. Low-pressure sodium bulbs or other appropriate technology will be used for outdoor lighting.

EXHIBIT B

The proposed project will comply with all regulatory requirements cited in the EIR/EIS. Surface mining is a permitted use in the existing zoning districts subject to the requirement to obtain a Conditional Use Permit and approved Reclamation Plan.

Authoritative Reference: Soledad Mountain Project Final EIR/EIS, Kern County Planning Department, September 1997.

Finding: Mitigation measures have been incorporated into the proposed project which avoid or substantially lessen the environmental effect as identified in the EIR/EIS.

11. SOCIOECONOMICS (Economic Development/Fiscal Analysis)

11.1 Significant Effect: The proposed project could increase growth in the area, causing a shortage of housing and services.

Statement of Facts: The following applicant-proposed mitigation measure has been identified in the EIR/EIS and will be implemented as part of the approval for the project to reduce the identified impacts to a less than significant level:

a. Golden Queen is committed to hiring from the local population.

Authoritative Reference: Soledad Mountain Project Final EIR/EIS, Kern County Planning Department, September 1997.

Finding: Mitigation measures have been incorporated into the proposed project which avoid or substantially lessen the environmental effect as identified in the EIR/EIS.

EXHIBIT B

12. HEALTH HAZARDS/PUBLIC SAFETY (Human Health/Risk of Upset)

12.1 Significant Effect: The proposed project would create a potential hazard or threat to public safety.

Statement of Facts: The following applicant-proposed mitigation measures have been identified in the EIR/EIS and will be implemented as part of the approval for the project to reduce the identified impact to a less than significant level:

a. Fences will be erected around potentially hazardous areas to discourage entry by unauthorized mine personnel or visitors.
b. Historical mining operations will be removed or closed to the extent feasible.
c. Former mine waste will be removed.
d. Project design will be in accordance with a preconstruction design study.

Site operations, storage, use and disposal of all hazardous materials will be in accordance with Federal, state and local regulations, codes and rules. The routes of hazardous materials being shipped to and away from the proposed project will be coordinated with the California Highway Patrol or other appropriate agencies.

Authoritative Reference: Soledad Mountain Project Final EIR/EIS, Kern County Planning Department, September 1997.

Finding: Mitigation measures have been incorporated into the proposed project which avoid or substantially lessen the environmental effect as identified in the EIR/EIS.

13. TRAFFIC AND TRANSPORTATION (Transportation/Circulation)

13.1 Significant Effect: The proposed project would increase the level of traffic on roads in the vicinity of the project.

Statement of Facts: The following applicant-proposed mitigation measures have been identified in the EIR/EIS and will be implemented as part of the approval for the project to reduce the identified impacts to a less than significant level:

a. The entrance road from Silver Queen Road to the office area will be paved.
b. The applicant will provide a left-turn lane on Silver Queen Road at the entrance to the project site.

Authoritative Reference: Soledad Mountain Project Final EIR/EIS, Kern County Planning Department, September 1997.

Finding: The cumulative effects of the proposed project together with the foreseeable regional traffic growth would not degrade the level of service on Silver Queen Road. The cumulative effects on the State Route 14/58 intersection will be mitigated by the approved and funded Highway 58 bypass.

EXHIBIT C

STATEMENT OF OVERRIDING CONSIDERATIONS REQUIRED BY CEQA GUIDELINES SECTION 15093 KERN COUNTY CONDITIONAL USE PERMIT FOR GOLDEN QUEEN MINING COMPANY, INC.'S SOLEDAD MOUNTAIN PROJECT

In accordance with Section 15093 of the California Environmental Quality Act (CEQA), a statement of overriding considerations is to be made by the Board as it balances the benefits of the proposal against its unavoidable environmental impacts.

The Final Environmental Impact Report/Environmental Impact Statement (EIR/EIS) indicates the construction and operation of the project would result in the removal of up to 60 million tons of ore material from the ground and the extraction of precious metals from the ore. Due to the nature of the project, the impacts associated with the removal of the mineral resources from the land are unavoidable.

A significant impact of the project would be a change in topography due to the creation of the open pit mine, heap leach piles and overburden material piles. Reclamation of the project site will occur after mining operations have ceased, however, there would remain a significant change in the topography of the local landscape. This potentially significant impact could not be avoided or reduced to a level of insignificance through the adopted mitigation measures.

Although the Board recognizes that the project would result in the aforementioned potentially significant impacts, these potential impacts are considered to be acceptable in light of the anticipated benefits of the project. The primary benefit of the project would be the employment of approximately 250 people during the construction phase, and up to 230 people during the operation of the facility. A majority of the full-time employees are expected to be drawn from people who already live in the area.

EXHIBIT C

During the construction phase, expenditures for labor and materials would infuse approximately 13.7 million dollars into the regional economy. Two hundred and fifty construction workers would be employed, earning approximately 9.9 million dollars in wages. This economic activity would support an additional 166 workers with wages of 3.7 million dollars.

The project will create an estimated 230 full-time jobs representing 7.6 million dollars in wages, exclusive of benefits. The expenditures made by Golden Queen on goods, labor and other services will support another 136 jobs, which are expected to pay wages of 3.3 million dollars. The value added by the direct and indirect effects of this activity is forecast at 11 million dollars.

Between 1991 and 1994, Kern County is estimated to have lost 6,500 jobs (3.1 percent). These losses were partly attributable to a large number of job losses in defense and aerospace. Mineral resource employment in the county dropped by 3,900 jobs from 1984 to 1994, a 26.4 percent decline. Mineral resource's share of total employment in the county dropped from 8.5 percent in 1984 to 4.4 percent in 1994.

As home values decreased in the 1990's, the development of housing units slowed in both the Mojave and Rosamond areas. From 1990 to 1996, the average home prices reported by TRW/REDI Property Data in the Mojave area decreased from $64,550 to $48,550. Over the same period, the reported sales average in the Rosamond area decreased from $98,740 to $78,740.

The project area is located within the South of Mojave Elephant Butte Specific Plan which specifically provides for mining and processing silver and gold ores. In addition, the proposed project is a permitted use in the existing zoning districts, subject to approval of a Conditional Use Permit for a Surface Mining and Reclamation Plan. The project area is located within the disposal zone of the Bureau of Land Management's Western Mojave Land Tenure Adjustment Project and is consistent with the Bureau of Land Management's objectives for the area.

EXHIBIT C

For the above reasons, the Board has approved the project while acknowledging the aforementioned potentially significant impacts associated with the project.

Even though the implementation of the project is the environmentally superior alternative, there would be significant impacts associated with its implementation.

However, no other alternative which reasonably meets the intent of the project would eliminate or reduce any of the unavoidable impacts of the project to levels of insignificance. Therefore, the Board did not select any of the project alternatives contained in the EIR/EIS in favor of the project.

EXHIBIT C

EXHIBIT "D"

MONITORING PROGRAM # 1

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Exploration activity, consisting of drilling boreholes and analysis of rock samples, has been conducted to ensure mineral resources will not be covered by overburden or heap piles.

2. JUSTIFICATION (from EIR/EIS)

   Project has the potential to cover mineral resources with overburden.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	____	X
State Land Commission	____	X
State Department of Parks and Recreation	____	X
California State University, Bakersfield	____	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	____
Bureau of Land Management, Ridgecrest Resource Area	X	____

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Boreholes have been drilled and samples analyzed.*
   B. *Mining area and overburden areas are delineated on permit application and Plan of Operations.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Kern County issuance of Surface Mining and Reclamation Plan approval.*
   B. *BLM approval of the Plan of Operations.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM #_2_

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   During final reclamation, overburden will be graded to break up the unnatural angles at the top edges.

2. JUSTIFICATION (from EIR/EIS)

   Natural ground contours will be significantly modified.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	____	X
State Land Commission	____	X
State Department of Parks and Recreation	____	X
California State University, Bakersfield	____	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	____
Bureau of Land Management, Ridgecrest Resource Area	X	____

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Requirement for grading of overburden included in approved reclamation plan.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Lead Agency will confirm adherence to mitigation measure prior to deeming reclamation complete.*
   B. *Lead Agency will file inspection results in case file.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 3

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Mine pit slopes will be evaluated by the applicant throughout operations to assure that excavation occurs at a slope angle that is safe, considering actual rock strength and structural conditions encountered.

2. JUSTIFICATION (from EIR/EIS)

   Steep slopes may cause safety hazard.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	____	X
State Land Commission	____	X
State Department of Parks and Recreation	____	X
California State University, Bakersfield	____	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	____
Bureau of Land Management, Ridgecrest Resource Area	X	____

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Applicant will adhere to data contained in existing Slope Stability Analysis.*
   B. *Applicant will revise the Slope Stability Analysis if necessary.*
   C. *Applicant will provide a pit slope report reviewed by a California Registered Engineering Geologist or Professional Civil Engineer to Kern County annually.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Compliance with Slope Stability Analysis shall be verified by Lead Agency during performance of annual inspections.*
   B. *Lead Agency will file inspection reports in the case file.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 4

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Old underground mining areas will be excavated or remediated.

2. JUSTIFICATION (from EIR/EIS)

   Earthquakes could cause collapse of old underground mine areas.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	____	X
State Land Commission	____	X
State Department of Parks and Recreation	____	X
California State University, Bakersfield	____	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	____
Bureau of Land Management, Ridgecrest Resource Area	X	____

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Applicant will excavate or remediate old underground mining areas where feasible.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Compliance will be verified during performance of annual inspections by the Lead Agency.*
   B. *Lead Agency will file inspection reports in the case file.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM #_5_

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Historical structures will be stabilized or removed by the applicant prior to site disturbance.

2. JUSTIFICATION (from EIR/EIS)

   Earthquakes could cause collapse of historical structures.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	____	X
State Land Commission	____	X
State Department of Parks and Recreation	____	X
California State University, Bakersfield	____	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	____
Bureau of Land Management, Ridgecrest Resource Area	X	____

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Applicant will effect the stabilization or removal of historical structures prior to site disturbance.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Applicant will submit proof of stabilization or removal to Lead Agency prior to site disturbance.*
   B. *Lead Agency will file documentation in case file.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM #__6__

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Surface disturbance outside the project area will be kept to a minimum by clearly delineating operating areas to limit roads and vehicle traffic outside designated areas.

2. JUSTIFICATION (from EIR/EIS)

   Minimizing surface disturbance will reduce potential loss of topsoil.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	____	X
State Land Commission	____	X
State Department of Parks and Recreation	____	X
California State University, Bakersfield	____	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	____
Bureau of Land Management, Ridgecrest Resource Area	X	____

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Property boundary limits shall be clearly marked prior to the commencement of mining operations.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Proof of boundary delineation shall be submitted to the Lead Agency.*

   B. *Annual inspection by the Lead Agency shall confirm adherence to mitigation measure over the life of the project.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 7

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Growth media stockpiles will be stabilized by allowing germination of seeds naturally contained in the soil.

2. JUSTIFICATION (from EIR/EIS)

   Seed germination will reduce potential loss of topsoil.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	____	X
State Land Commission	____	X
State Department of Parks and Recreation	____	X
California State University, Bakersfield	____	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	____
Bureau of Land Management, Ridgecrest Resource Area	X	____

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Except for noxious weeds, applicant will not hinder natural germination of seeds in the growth media stockpile.*
   B. *If stabilization is not achieved by natural germination of seeds, the applicant shall consult with the Lead Agency as to another method of stabilization to be employed.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Growth media stockpile stabilization will be verified by Lead Agency during performance of annual inspections.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 8

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   The feasibility of inoculation of soil with biological components will be investigated in test plots.

2. JUSTIFICATION (from EIR/EIS)

   Inoculation with biological components may promote plant growth and enhance reclamation.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	____	X
State Land Commission	____	X
State Department of Parks and Recreation	____	X
California State University, Bakersfield	____	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	____
Bureau of Land Management, Ridgecrest Resource Area	X	____

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Test plots will be established and inoculated with biological components within three years of the commencement of mining operations.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Results of the test plots will be submitted to the Lead Agency.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 9

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Site drainage will be inspected periodically to assure that excessive erosion is not occurring. In the event excessive erosion is identified, the drainage plan will be revised in consultation with the Kern County Planning Department.

2. JUSTIFICATION (from EIR/EIS)

   Potential loss of topsoil could occur from erosion.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	____	X
State Land Commission	____	X
State Department of Parks and Recreation	____	X
California State University, Bakersfield	____	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	____
Bureau of Land Management, Ridgecrest Resource Area	X	____

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Periodic inspections will be performed as needed by applicant during wet season.*
   B. *Applicant will revise the site drainage plan as necessary should excessive erosion occur.*
   C. *Applicant will submit the site drainage plan for review and approval to the Lead Agency.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Compliance with approved site drainage plan will be verified during performance of annual inspections by the Lead Agency.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 10

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

Additional erosion prevention techniques include:

- *Site drainage will be retained onsite.*
- *Site roads and drainages will be inspected by Golden Queen personnel after rainfall events which result in surface flow to ensure erosion prevention is maintained and upgraded as needed.*
- *Drainage from the tops of overburden piles will be directed away from the slopes toward the pit.*
- *Salvaged growth media will be stockpiled away from areas of concentrated drainage.*
- *Reclamation of disturbed areas will occur as soon as possible.*

2. JUSTIFICATION (from EIR/EIS)

Potential erosion resulting from alteration of drainage pattern.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	____	X
State Land Commission	____	X
State Department of Parks and Recreation	____	X
California State University, Bakersfield	____	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	____
Bureau of Land Management, Ridgecrest Resource Area	X	____
Lahontan Regional Water Quality Control Board	X	____

4. MONITORING AGENCY/FIRM:

Kern County Planning Department, BLM and Lahontan Regional Board

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

A. *Site drainage plan included in Surface Mining and Reclamation Plan approved by Kern County.*
B. *Erosion control methods included in the Plan of Operations issued by BLM.*
C. *Submit and obtain approval of a General Construction Activity Storm Water Permit from the Lahontan Regional Water Quality Control Board.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

A. *Copy of approved General Construction Activity permit to be submitted to Kern County and BLM for placement in the case file.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 11

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   The overliner protective material placed in direct contact with the HDPE liner will not exceed one and one-half inches in diameter, and will not contain hard, sharp, angular pieces.

2. JUSTIFICATION (from EIR/EIS)

   Potential degradation of surface water and groundwater quality from project activities.

3. TRUSTEE AGENCIES

	JURISDICTION YES	JURISDICTION NO
State Department of Fish and Game	____	X
State Land Commission	____	X
State Department of Parks and Recreation	____	X
California State University, Bakersfield	____	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	____
Bureau of Land Management, Ridgecrest Resource Area	X	____
Lahontan Regional Water Quality Control Board	X	____

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department, Lahontan Regional Board and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Liner design included in Report of Waste Discharge for review and approval.*

   B. *Installation of the liner will be subject to quality assurance/quality control.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Issuance of and compliance with Waste Discharge Requirements issued by Regional Board.*
   B. *Copy of Waste Discharge Requirements shall be submitted to Kern County for placement in case file upon issuance.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 12

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   A cyanide destructing compound (e.g., hydrogen peroxide or calcium hypochlorite) will be maintained onsite for use in the event that a spill occurs.

2. JUSTIFICATION (from EIR/EIS)

   The presence of cyanide results in the potential for a spill and the potential to degrade water quality.

3. TRUSTEE AGENCIES

	JURISDICTION YES	JURISDICTION NO
State Department of Fish and Game	____	X
State Land Commission	____	X
State Department of Parks and Recreation	____	X
California State University, Bakersfield	____	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	____
Bureau of Land Management, Ridgecrest Resource Area	X	____
Lahontan Regional Water Quality Control Board	X	____

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Applicant will maintain a cyanide destructing agent onsite.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Proof of the cyanide destructing compound will be submitted to the Lead Agency and Regional Board for placement in case file prior to receipt of cyanide onsite.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 13

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Historical mining wastes and tailings will be tested and processed with the ore on the heap leach pad or, if indicated, disposed of at an offsite permitted disposal facility, removing any future threat of surface water contamination.

2. JUSTIFICATION (from EIR/EIS)

   Potential degradation of surface water and groundwater from existing wastes and tailings.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	___	X
State Land Commission	___	X
State Department of Parks and Recreation	___	X
California State University, Bakersfield	___	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	___
Bureau of Land Management, Ridgecrest Resource Area	X	___
Kern County Waste Management Department	X	___
Lahontan Regional Water Quality Control Board	X	___

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department, Lahontan Regional Board and Kern County Waste Management Department

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Historical wastes and tailing will be sampled and analyzed by an EPA-certified laboratory.*
   B. *Laboratory analysis will be submitted to the Lahontan Regional Board and Kern County Waste Management and Lead Agency for review and approval.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Copies of approved laboratory analysis submitted to Lead Agency for placement in case file.*
   B. *If the waste is not treated as ore, final deposition will be in accordance with existing regulations as approved by the regulatory agencies.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 14

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   The Lahontan Regional Board will be consulted prior to the use of dust suppression or soil stabilization chemicals.

2. JUSTIFICATION (from EIR/EIS)

   Potential degradation of surface water or groundwater quality from chemicals.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	___	X
State Land Commission	___	X
State Department of Parks and Recreation	___	X
California State University, Bakersfield	___	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	___
Bureau of Land Management, Ridgecrest Resource Area	X	___
Lahontan Regional Water Quality Control Board	X	___

4. MONITORING AGENCY/FIRM:

   Lahontan Regional Board, Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Applicant will submit list of dust suppression or soil stabilization chemicals to the Lahontan Regional Board for review and approval prior to their application.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Copy of Lahontan Regional Board approval shall be submitted to Lead Agency for placement in case file.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 15

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   The evaporation of water and, therefore, the need for makeup water will be minimized by the use of enclosed solution storage.

2. JUSTIFICATION (from EIR/EIS)

   Potential drawdown of groundwater levels from project activities.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	____	X
State Land Commission	____	X
State Department of Parks and Recreation	____	X
California State University, Bakersfield	____	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	____
Bureau of Land Management, Ridgecrest Resource Area	X	____

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Enclosed storage will be constructed in accordance with the approved plan.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Compliance will be verified by Lead Agency during performance of annual inspection.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 16

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Golden Queen will monitor the groundwater level on a monthly basis and compare the water level data collected by the monitoring program to water levels predicted by the groundwater drawdown model. In the event that the monitoring program shows that the actual water drawdown in the well when corrected for well conditions exceeds the predicted model for six consecutive months, Golden Queen will supplement the water supplied by the production wells with up to 300 gpm of water from Antelope Valley - East Kern Water Agency.

2. JUSTIFICATION (from EIR/EIS)

   Potential drawdown of water levels due to project activities.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	____	X
State Land Commission	____	X
State Department of Parks and Recreation	____	X
California State University, Bakersfield	____	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	____
Bureau of Land Management, Ridgecrest Resource Area	X	____

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Applicant will monitor water withdrawal on a monthly basis and make comparisons to model.*
   B. *Applicant shall cause an annual report to be prepared based upon monthly monitoring and submitted to the Lead Agency for review and approval.*
   C. *If drawdown exceeds modeling analysis for six consecutive months, the Lead Agency will be notified immediately.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Annual report to be placed in Lead Agency case file.*
   B. *AVEK water will be used to supplement project water should modeling analysis be exceeded for six consecutive months.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 17

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Onsite equipment and vehicles will be maintained on a routine basis, as recommended by manufacturer manuals, to reduce exhaust emissions.

2. JUSTIFICATION (from EIR/EIS)

   Potential impacts to air quality from project activities.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	____	X
State Land Commission	____	X
State Department of Parks and Recreation	____	X
California State University, Bakersfield	____	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Land Agency)	X	____
Bureau of Land Management, Ridgecrest Resource Area	X	____
Kern County Air Pollution Control District	X	____

4. MONITORING AGENCY/FIRM:

   Kern County Air Pollution Control District, Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Applicant will maintain equipment as recommended by manufacturer.*
   B. *Applicant will keep maintenance records onsite.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Applicant will make maintenance records available to Kern County APCD on request.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 18

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Monitoring stations for PM_{10} will be established upwind and downwind from the processing facilities.

2. JUSTIFICATION (from EIR/EIS)

   Potential impact to visibility and air quality from project activities.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	___	X
State Land Commission	___	X
State Department of Parks and Recreation	___	X
California State University, Bakersfield	___	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	___
Bureau of Land Management, Ridgecrest Resource Area	X	___
Kern County Air Pollution Control District	X	___

4. MONITORING AGENCY/FIRM:

   Kern County Air Pollution Control District and Kern County Planning Department

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Applicant will submit the location of monitoring stations to Kern County APCD for review and approval prior to the commencement of mining activity in the open pit.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Copy of Kern County Air Pollution Control District approval shall be submitted to the Lead Agency for placement in case file prior to commencement of mining operations.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 19

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   A mercury retort will be installed to control mercury emissions.

2. JUSTIFICATION (from EIR/EIS)

   Mitigation measure recommended to reduce potential mercury emissions to atmosphere.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	____	X
State Land Commission	____	X
State Department of Parks and Recreation	____	X
California State University, Bakersfield	____	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department	X	____
Bureau of Land Management, Ridgecrest Resource Area	X	____
Kern County Air Pollution Control District	X	____

4. MONITORING AGENCY/FIRM:

   Kern County Air Pollution Control District

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Applicant shall apply to Kern County APCD for an Authority to Construct for a mercury retort.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Copy of Authority to Construct and Permit to Operate issued by Kern County APCD shall be submitted to the Lead Agency for placement in case file upon issuance.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT "D"

MONITORING PROGRAM # 20

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   The size and number of blasts in the mine will be limited by good engineering design.

2. JUSTIFICATION (from EIR/EIS)

   There will be an incremental increase in noise and potential impact to visibility and air quality as a result of project activities.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	____	X
State Land Commission	____	X
State Department of Parks and Recreation	____	X
California State University, Bakersfield	____	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	____
Bureau of Land Management, Ridgecrest Resource Area	X	____
Kern County Air Pollution Control District	X	____

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department, Bureau of Land Management and Kern County APCD

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *The applicant shall provide the Lead Agency, Southern California Gas Company and Kern County APCD with a schedule of blasting times prior to commencement of blasting operations.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *The Lead Agency shall file the blasting schedule in the case file.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 21

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   The existing tailings piles will be removed, thereby reducing the long-term fugitive emissions from the site.

2. JUSTIFICATION (from EIR/EIS)

   Potential impact to visibility and air quality due to fugitive dust from wind erosion.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	____	X
State Land Commission	____	X
State Department of Parks and Recreation	____	X
California State University, Bakersfield	____	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	____
Bureau of Land Management, Ridgecrest Resource Area	X	____
Kern County Air Pollution Control District	X	____

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Existing tailings will be used onsite, reprocessed or disposed of at an offsite permitted disposal facility.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Removal of tailings will be verified during performance of annual inspection by the Lead Agency.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM #__22__

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   The adopted reclamation plan shall include reclamation of previously disturbed areas.

2. JUSTIFICATION (from EIS/EIS)

   Potential impact to visibility and air quality due to fugitive dust from wind erosion.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	____	X
State Land Commission	____	X
State Department of Parks and Recreation	____	X
California State University, Bakersfield	____	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	____
Bureau of Land Management, Ridgecrest Resource Area	X	____
Kern County Air Pollution Control District	X	____

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department, BLM and Kern County Air Pollution Control District

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *The reclamation of previously disturbed areas is included in the adopted Lead Agency Surface Mine & Reclamation Plan and approved BLM Plan of Operation.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):
7. COMMENTS:
8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 23

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3.098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Project disturbance will be minimized to that necessary for safe and efficient operation. The limits of the construction areas will be clearly marked and vehicles and equipment will be confined to these areas.

2. JUSTIFICATION (from EIR/EIS)

   Project activities will result in disturbance of vegetation.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	X	
State Land Commission		X
State Department of Parks and Recreation		X
California State University, Bakersfield		X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	
Bureau of Land Management, Ridgecrest Resource Area	X	
United States Fish and Wildlife Service	X	

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Property boundary limits shall be clearly marked prior to the commencement of mining operations.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Proof of boundary delineation shall be submitted to the Lead Agency.*
   B. *Annual inspection by the Lead Agency shall confirm adherence to mitigation measure over the life of the project.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 24

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Mature Joshua trees which may be disturbed will be salvaged and replanted in undisturbed areas within the property boundary.

2. JUSTIFICATION (from EIR/EIS)

   Project activities may result in disturbance of Joshua trees.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	X	
State Land Commission		X
State Department of Parks and Recreation		X
California State University, Bakersfield		X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	
Bureau of Land Management, Ridgecrest Resource Area	X	
United States Fish and Wildlife Service	X	

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Mitigation measure has been included as a condition of approval in Lead Agency adopted Surface Mine and Reclamation Plan and BLM approved Plan of Operations.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):
7. COMMENTS:
8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 25

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   The use of seedlings for revegetation will be investigated in test plots.

2. JUSTIFICATION (from EIR/EIS)

   Project activities will result in disturbance of vegetation.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	X	
State Land Commission		X
State Department of Parks and Recreation		X
California State University, Bakersfield		X

OTHER PUBLIC AGENCIES

Kern County Planning Department (Lead Agency)	X	
Bureau of Land Management, Ridgecrest Resource Area	X	
United States Fish and Wildlife Service	X	

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Test plots will be established within three years of the commencement of mining operations.*
   B. *Seedlings will be planted in test plots.*
   C. *The test plots will be monitored to determine success rate of seedlings.*
   D. *Applicant shall cause a report to be prepared which discusses the outcome of the test plots and any transplant criteria developed as a result.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Reports concerning the results of the test plots will be forwarded to the Lead Agency for review and placement in case file.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 26

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Fencing around the heap leach pile will remain in place until vegetation is established or as otherwise specified in the Reclamation Plan.

2. JUSTIFICATION (from EIR/EIS)

   Project will result in disturbance of vegetation.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	X	
State Land Commission		X
State Department of Parks and Recreation		X
California State University, Bakersfield		X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	
Bureau of Land Management, Ridgecrest Resource Area	X	
United States Fish and Wildlife Service	X	

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Applicant will place fencing around the heap leach pile.*
   B. *Proof of fencing shall be submitted to the Lead Agency.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Compliance will be verified during performance of annual inspections by the Lead Agency during the life of the project.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM #_27_

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Grading for the project will be minimized to the extent consistent with safe and efficient operations to limit the total area of surface disturbance.

2. JUSTIFICATION (from EIR/EIS)

   The project construction and operation will disturb or alter wildlife habitats.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	X	
State Land Commission		X
State Department of Parks and Recreation		X
California State University, Bakersfield		X
OTHER PUBLIC AGENCIES		
Kern County Planning Department	X	
Bureau of Land Management, Ridgecrest Resource Area	X	
United States Fish & Wildlife Service	X	

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Property boundary limits shall be clearly marked prior to the commencement of mining operations.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Proof of boundary delineation shall be submitted to the Lead Agency.*
   B. *Annual inspection by the Lead Agency shall confirm adherence to mitigation measure over the life of the project.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 28

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Routine distribution of cyanide solution on the top of the heap leach pad will occur via a drip irrigation system and the heap leach pads will be contoured to prevent surface ponding which could attract birds and small animals.

2. JUSTIFICATION (from EIR/EIS)

   Ponding of the cyanide solution could be hazardous to birds and small animals.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	X	
State Land Commission		X
State Department of Parks and Recreation		X
California State University, Bakersfield		X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	
Bureau of Land Management, Ridgecrest Resource Area	X	
United States Fish & Wildlife Service	X	
Lahontan Regional Water Quality Control Board	X	

4. MONITORING AGENCY/FIRM:

   Lahontan Regional Water Quality Control Board

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Operation is delineated on application for Surface Mining and Reclamation Plan and Plan of Operations.*
   B. *Heap leach pads will be fenced to exclude large animals.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Access to heap leach will be made available to regulatory agencies for inspection purposes to verify adherence with mitigation measure.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 29

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Containers of reagents will be stored within controlled reagent storage areas and kept closed, stored in enclosed areas, or otherwise managed to prevent access by wildlife.

2. JUSTIFICATION (from EIR/EIS)

   Reagents have the potential to be harmful to wildlife.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	X	
State Land Commission		X
State Department of Parks and Recreation		X
California State University, Bakersfield		X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	
Bureau of Land Management, Ridgecrest Resource Area	X	
United States Fish & Wildlife Service	X	

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Reagents will be stored in a manner that prevents access by wildlife.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Access to reagent storage will be made available to regulatory agencies for inspection purposes to verify adherence to mitigation measure.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 30

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Project waste will be properly managed at the site to control garbage that could attract wildlife.

2. JUSTIFICATION (from EIR/EIS)

   Project waste may have the potential to harm wildlife.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	X	
State Land Commission		X
State Department of Parks and Recreation		X
California State University, Bakersfield		X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	
Bureau of Land Management, Ridgecrest Resource Area	X	
United States Fish & Wildlife Service	X	

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *A litter control program shall be implemented to reduce the attractiveness of the project site to common ravens, coyotes and any other desert tortoise predators. All trash shall be promptly placed in covered containers which shall be removed from the work site on a regular basis for disposal at an authorized landfill.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *A copy of the litter control program shall be submitted to the regulatory agencies.*
   B. *Access to trash storage areas will be made available to regulatory agencies for inspection purposes to verify adherence to mitigation measure.*
   C. *Any loss of wildlife will be reported to the regulatory agencies*
   D. *In the event of loss of wildlife, applicant will take measures to prevent reoccurrence.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 31

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   The maximum vehicle speed will be 25 mph.

2. JUSTIFICATION (from EIR/EIS)

   Excess speed may have the potential to harm wildlife.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	X	
State Land Commission		X
State Department of Parks and Recreation		X
California State University, Bakersfield		X
OTHER PUBLIC AGENCIES		
Kern County Planning Department	X	
Bureau of Land Management, Ridgecrest Resource Area	X	
United States Fish & Wildlife Service	X	

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Existing routes of travel shall be used during project activities to the maximum extent practical in order to minimize any potential impacts to tortoise or tortoise habitat not slated for development. Speed limits on unposted access roads leading to and from the mining site, ore processing areas, equipment stockpile or overburden areas, and other facilities shall not exceed 25 miles per hour. Project-related vehicle use shall be confined to designated routes.*
   B. *Applicant will post speed limit signs as approved by the Lead Agency.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Applicant shall submit proof to the Lead Agency that signs have been installed prior to the commencement of mining activity.*
   B. *Lead Agency shall verify compliance of sign posting during performance of annual inspection.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 32

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Wildlife habitat awareness will be included in the workers education program.

2. JUSTIFICATION (from EIR/EIS)

   Worker education will help prevent the potential harm to wildlife.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	X	
State Land Commission		X
State Department of Parks and Recreation		X
California State University, Bakersfield		X
OTHER PUBLIC AGENCIES		
Kern County Planning Department	X	
Bureau of Land Management, Ridgecrest Resource Area	X	
United States Fish and Wildlife Service	X	

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Prior to onset of mining activities, all employees shall be required to attend an endangered species education program. The program shall include information on the biology and occurrence of the desert tortoise and other sensitive species in the project area, measures being implemented for the protection of these possible species and their habitats during project activities, and means by which individual employees can facilitate this process. The employee education program shall be received, reviewed and approved by the Bureau of Land Management, California Department of Fish and Game and the United States Fish and Wildlife Service at least 15 days prior to the presentation of the program. The program may consist of a class or video developed by a qualified biologist (knowledgeable desert tortoise biologist approved by the Bureau of Land Management) and presented by a person trained by a qualified biologist. Wallet-sized cards with important information for workers are recommended. All employees shall attend the education program prior to initiation of construction activities. The Golden Queen Mining Company is responsible for ensuring that the education program is developed and presented prior to conducting activities. New employees shall receive formal approved training prior to working onsite. The program shall cover the following topics at a minimum:*

EXHIBIT D

- *Distribution of listed and candidate species*
- *General behavior and ecology of these species*
- *Sensitivity to human activities*
- *Legal protection*
- *Penalties for violation of State and Federal laws*
- *Reporting requirements*
- *Project mitigation measure*

B. *Applicant will submit the worker education program to the Lead Agency and the Bureau of Land Management, California Department of Fish and Game and the United States Fish and Wildlife Service.*

C. *Golden Queen shall designate a field contact wildlife mitigation measures representative (FCR) who shall be responsible for overseeing compliance and for the coordination on compliance with the Bureau of Land Management. The name and phone number of the FCR will be supplied in writing to the BLM. The FCR shall have the authority to halt any action that might result in harm to a desert tortoise. The FCR shall have a copy of all terms and conditions.*

D. *The FCR will be informed in the event that a desert tortoise is observed or there is a sign of desert tortoise during mining. Employees shall be notified that they are not authorized to handle or otherwise move desert tortoise encountered on the project site.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

A. *Copies of program approval shall be submitted to Lead Agency for placement in case file.*

B. *Applicant will provide the Lead Agency with proof of completion of worker education program for each employee. FCR will be identified to regulatory agencies.*

7. COMMENTS:

Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 33

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Some of the mine adits will be retained and gated and some of the mine shafts will be covered by grates to allow access by bats, while excluding people.

2. JUSTIFICATION (from EIR/EIS)

   Fencing some mine shafts and adits will retain bat habitat and prevent human intervention.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	X	
State Land Commission		X
State Department of Parks and Recreation		X
California State University, Bakersfield		X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	
Bureau of Land Management, Ridgecrest Resource Area	X	
United States Fish and Wildlife Service	X	

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Map detailing location of gated adits and mine shafts covered by grates shall be submitted to Lead Agency within one year of the commencement of mining.*
   B. *The shaft feature on the west edge of proposed cell 3 of heap leach pad #1 and the shaft feature on the west edge of proposed cell #4 of heap leach pad #1 will be backfilled in the warm season (May through September). Existing timber will be burned before backfilling to prevent voids or subsidence. The shaft feature above and southeast of the former Karma Mine will be backfilled slowly between May and September if it is not consumed by the open pit mine.*
   C. *Monitoring of bats using the gated adits and shafts will be done two years after commencement of operations, then every three years thereafter for at least three monitoring periods. If no bats are found for two consecutive monitoring periods, after the initial monitoring period, then monitoring will be discontinued.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Compliance will be verified during performance of annual inspections by the Lead Agency.*
   B. *Results of each monitoring session will be submitted to BLM.*

7. COMMENTS:
8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____
   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 34
FOR
CUP #22 Map #214
CUP #41 Map #213
213-6.3.098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Artifacts from the historical sites will be used to establish a small display of historical mining activities onsite. After conclusion of the project, the items on display will be donated to a museum located in Kern County.

2. JUSTIFICATION (from EIR/EIS)

   Artifacts from the historical sites may be of public interest.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	____	X
State Land Commission	____	X
State Department of Parks and Recreation	____	X
California State University, Bakersfield	X	____
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	____
Bureau of Land Management, Ridgecrest Resource Area	X	____

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *A public display will be created onsite within one year of the commencement of mining operations. Displayed items will be donated to a museum located in Kern County at the conclusion of the project.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *The public display will be verified by the Lead Agency during performance of annual inspections.*
   B. *Applicant will donate items to a Kern County museum at the conclusion of the mining project and provide proof to the Lead Agency prior to deeming reclamation complete.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 35

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   As part of the worker education program, construction contractors and operations personnel will be instructed regarding the sensitivity of cultural resources and the presence of laws against unauthorized collection and disturbance.

2. JUSTIFICATION (from EIR/EIS)

   Worker education will help prevent the loss of cultural resources.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	____	X
State Land Commission	____	X
State Department of Parks and Recreation	____	X
California State University, Bakersfield (SSJVIC)	X	____
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	____
Bureau of Land Management, Ridgecrest Resource Area	X	____

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Applicant will develop a worker education program prior to the commencement of mining activities that includes sensitivity of cultural resources and the presence of laws against unauthorized collection and disturbance.*
   B. *The worker education program will be submitted to the Lead Agency and SSJVIC for review and approval.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Copy of SSJVIC approval shall be submitted to Lead Agency for placement in case file.*
   B. *Proof of completion of the worker education program by all employees will be submitted to the Lead Agency and SSJVIC for placement in case file.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 36

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   If any unknown archaeological/cultural resources are discovered on private land during the course of the mining or reclamation, work in the area of discovery shall be stopped and a qualified archeologist contacted to evaluate the find and, if necessary, mitigate impacts prior to resumption of work.

2. JUSTIFICATION (from EIR/EIS)

   Project-related activities could disturb or destroy potentially-significant sites.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	___	X
State Land Commission	___	X
State Department of Parks and Recreation	___	X
California State University, Bakersfield (SSJVIC)	X	___
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	___
Bureau of Land Management, Ridgecrest Resource Area	X	___

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Applicant shall notify the Lead Agency if archaeological/cultural resources are discovered.*
   B. *An archeological report completed by a qualified archaeologist shall be forwarded to the Lead Agency and SSJVIC.*
   C. *Proof of any mitigation measures shall be submitted to the Lead Agency.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Prior to recommencement of work in affected areas, written verification of compliance shall be submitted to the Lead Agency by the project archaeologist.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 37

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   A Phase III Data Recovery (salvage excavation and architectural recording) will be conducted at four sites.

2. JUSTIFICATION (from EIR/EIS)

   Project related activities could disturb or destroy potentially significant sites.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	___	X
State Land Commission	___	X
State Department of Parks and Recreation	___	X
California State University, Bakersfield	X	___
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	___
Bureau of Land Management, Ridgecrest Resource Area	X	___

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Phase III Data Recovery (salvage excavation and architectural recording) will be conducted at the four sites identified in Section 3.7.1.1 of the EIR/EIS prior to the commencement of mining activity in those areas.*
   B. *A Phase III report shall be forwarded to the Lead Agency.*
   C. *Proof of any mitigation measures shall be submitted to the Lead Agency.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Prior to recommencement of work in affected areas, written verification of compliance shall be submitted to the Lead Agency by the project archaeologist.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 38

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Seven sites will have an archaeological monitor review the areas during grading activity.

2. JUSTIFICATION (from EIR/EIS)

   Project related activities could disturb or destroy potentially significant sites.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	____	X
State Land Commission	____	X
State Department of Parks and Recreation	____	X
California State University, Bakersfield	X	____
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	____
Bureau of Land Management, Ridgecrest Resource Area	X	____

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *An archaeological monitor will be onsite during grading activity.*
   B. *The archaeological monitor will record and collect any archeological data that may be uncovered.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *The archaeological monitor will report any information uncovered or mitigation measures developed to the Lead Agency in accordance with the procedures set out in mitigation measure #36.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 39

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Surface disturbance will be minimized to that required for safe and efficient operation.

2. JUSTIFICATION (from EIR/EIS)

   Minimizing surface disturbance will reduce the potential to affect visual resources.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	____	X
State Land Commission	____	X
State Department of Parks and Recreation	____	X
California State University, Bakersfield	____	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	____
Bureau of Land Management, Ridgecrest Resource Area	X	____

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Areas of surface disturbance are delineated in the adopted Surface Mining & Reclamation Plan. Mining shall be performed in accordance with Section 3503(a)(1) of SMARA.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Annual inspection performance by the Lead Agency will verify adherence to the approved plan and SMARA.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 40

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Historical mining disturbance will be reclaimed.

2. JUSTIFICATION (from EIR/EIS)

   Reclamation of historical disturbance will reduce the potential to affect visual resources.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	___	X
State Land Commission	___	X
State Department of Parks and Recreation	___	X
California State University, Bakersfield	___	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	___
Bureau of Land Management, Ridgecrest Resource Area	X	___

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Areas to be reclaimed are delineated on the adopted Surface Mining & Reclamation Plan.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Reclamation of historical disturbance shall be verified by Lead Agency prior to deeming reclamation complete.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 41

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Buildings and structures will be painted with nonreflective earthtone colors to blend with the predominant background.

2. JUSTIFICATION (from EIR/EIS))

   The landscape color consists of brown, tans and grays. Earthtone colors will mitigate effects to visual resources.

3. TRUSTEE AGENCIES

	JURISDICTION YES	JURISDICTION NO
State Department of Fish and Game	___	X
State Land Commission	___	X
State Department of Parks and Recreation	___	X
California State University, Bakersfield	___	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	___
Bureau of Land Management, Ridgecrest Resource Area	X	___

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Building and structures constructed by applicant will be painted with earthtone colors.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Compliance shall be verified prior to finalizing of building permit or issuance of a Certificate of Occupancy.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 42

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Outdoor lighting for the mine pit and other areas of nighttime activities will be shielded and directed downward to reduce fugitive light. Light poles will be no higher than necessary for safe and efficient lighting. Low-pressure sodium bulbs or other appropriate technology will be used for outdoor lighting.

2. JUSTIFICATION (from EIR/EIS)

   Fugitive light from the project area may be visible at night.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	___	X
State Land Commission	___	X
State Department of Parks and Recreation	___	X
California State University, Bakersfield	___	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	___
Bureau of Land Management, Ridgecrest Resource Area	X	___

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Outdoor lighting shall be designed and installed in accordance with the mitigation measure.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Lead Agency will verify adherence to measure during annual inspection conducted in accordance with SMARA requirements.*
   B. *Lead Agency shall file a Notice to Correct (Kern County Zoning Ordinance 19.100.070) should the mitigation measure not be adhered to.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 43

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Approximately 75 to 80 percent of construction activities will take place during daylight.

2. JUSTIFICATION (from Initial Study)

   Noise from the mining operations has the potential to cause significant impact to the level of noise in the area of the project.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	____	X
State Land Commission	____	X
State Department of Parks and Recreation	____	X
California State University, Bakersfield	____	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department	X	____
Bureau of Land Management, Ridgecrest Resource Area	X	____

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Construction schedule will be designed so the majority of activity is during daylight hours.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *30-days prior to commencement of construction, the applicant shall file a construction schedule with the Lead Agency for placement in case file.*
   B. *Lead Agency shall file a Notice to Correct (Kern County Zoning Ordinance 19.100.070) should this applicant proposed mitigation not be adhered to.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 44

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Blasting will occur during daylight, one time per day, and will be engineered to minimize the amount of explosives used, according to United States Bureau of Mines guidelines.

2. JUSTIFICATION (from EIR/EIS)

   Noise from blasting has the potential to cause significant impact to the level of noise in the area of the project.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	___	X
State Land Commission	___	X
State Department of Parks and Recreation	___	X
California State University, Bakersfield	___	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	___
Bureau of Land Management, Ridgecrest Resource Area	X	___

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *The applicant shall provide the Lead Agency with a tentative schedule of blasting times prior to commencement of blasting operations.*
   B. *The applicant shall adhere to United States Bureau of Mines guidelines.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *The Lead Agency shall file the blasting schedule in the case file.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 45

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Golden Queen has committed to hiring from the local population.

2. JUSTIFICATION (from EIR/EIS)

   The project could increase growth, causing a shortage of housing and services.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	____	X
State Land Commission	____	X
State Department of Parks and Recreation	____	X
California State University, Bakersfield	____	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	____
Bureau of Land Management, Ridgecrest Resource Area	X	____

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project)

   A. *Available positions will be published in local newspapers.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor)

   A. *Copies of the newspaper publications will be submitted to the Lead Agency for insertion in the case file.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 46

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Fences will be erected around potentially hazardous areas to discourage entry by unauthorized mine personnel or visitors.

2. JUSTIFICATION (from Initial Study)

   The project could create a potential health hazard or threat to public safety.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	___	X
State Land Commission	___	X
State Department of Parks and Recreation	___	X
California State University, Bakersfield	___	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	___
Bureau of Land Management, Ridgecrest Resource Area	X	___

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Fences will be established to prevent public access to the mine, heap leach pads and working areas prior to the commencement of mining activity.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *The existence of the fences shall be verified by the Lead Agency during performance of annual inspections.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 47

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Historical mining operations will be removed or closed to the extent feasible.

2. JUSTIFICATION (from Initial Study)

   Historical mining sites may be a threat to public safety.

3. TRUSTEE AGENCIES	JURISDICTION YES	NO
State Department of Fish and Game	___	X
State Land Commission	___	X
State Department of Parks and Recreation	___	X
California State University, Bakersfield	___	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department	X	___
Bureau of Land Management, Ridgecrest Resource Area	X	___

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Applicant will remove or close historical mining operations to the extent feasible.*
   B. *Prior to January 1, 1999, the applicant shall submit a plan for the closure or removal of historical mining operations to the Lead Agency for review and approval.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Compliance shall be verified during performance of annual inspections by the Lead Agency.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 48

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Former mine waste will be removed.

2. JUSTIFICATION (from EIR/EIS)

   Former mine wastes are a potential health hazard.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	___	X
State Land Commission	___	X
State Department of Parks and Recreation	___	X
California State University, Bakersfield	___	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department	X	___
Bureau of Land Management, Ridgecrest Resource Area	X	___

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Former mine waste will be removed and disposed of in an appropriate manner. Tailings piles will be used as liner material or be included with the ore and processed on the heap leach pad. Structures and old equipment will be sent to appropriate landfills.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Removal of former mine waste will be verified by the Lead Agency during performance of annual inspections.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 49

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Project design will be in accordance with a preconstruction design study.

2. JUSTIFICATION (from Initial Study)

   The project could create a potential health hazard or threat to public safety.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	____	X
State Land Commission	____	X
State Department of Parks and Recreation	____	X
California State University, Bakersfield	____	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department	X	____
Bureau of Land Management, Ridgecrest Resource Area	X	____

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and BLM

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Project design has been incorporated into adopted Lead Agency Surface Mining and Reclamation Plan and approved BLM Plan of Operations.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):
7. COMMENTS:
8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 50

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   The entrance road from Silver Queen Road to the office area will be paved.

2. JUSTIFICATION (from EIR/EIS)

   The project will increase the level of traffic on roads in the vicinity of the project.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	____	X
State Land Commission	____	X
State Department of Parks and Recreation	____	X
California State University, Bakersfield	____	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	____
Bureau of Land Management, Ridgecrest Resource Area	X	____
Kern County Roads Department	X	____

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Applicant will pave the entrance road from Silver Queen Road to the office prior to the commencement of mining activities.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Proof of paving will be submitted to the Lead Agency.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

MONITORING PROGRAM # 51

FOR

CUP #22 Map #214
CUP #41 Map #213
213-6 3 098 Streets & Highways
Golden Queen Mining Company, Inc.

1. MITIGATION MEASURE:

   Provide a left-turn lane on Silver Queen Road at the entrance to the project site.

2. JUSTIFICATION (from EIR/EIS)

   The project will increase the level of traffic on roads in the vicinity of the project.

3. TRUSTEE AGENCIES

	JURISDICTION YES	NO
State Department of Fish and Game	____	X
State Land Commission	____	X
State Department of Parks and Recreation	____	X
California State University, Bakersfield	____	X
OTHER PUBLIC AGENCIES		
Kern County Planning Department (Lead Agency)	X	____
Bureau of Land Management, Ridgecrest Resource Area	____	X
Kern County Roads Department	X	____

4. MONITORING AGENCY/FIRM:

   Kern County Planning Department and Kern County Roads Department

5. PROCEDURE - STEPS TO COMPLIANCE (unique to each project):

   A. *Applicant will construct the left-turn lane prior to the commencement of mining activities.*

6. COMPLIANCE (each procedure step to be signed off and dated by monitor):

   A. *Proof of the left-turn lane will be submitted to the Lead Agency.*

7. COMMENTS:

8. Fees: _____ Receipt #: _____ Date: _____ Rec'd By: _____

   Prepared By: _____ Date: _____

EXHIBIT D

EXHIBIT "E"

CONDITIONS OF APPROVAL

Conditional Use Permit Case No. 41, Map No. 213
Conditional Use Permit Case No. 22, Map No. 214

(1) The surface mining and reclamation plan shall consist of the staff report, the Environmental Impact Report, and the resolution adopted for the request. Mining and reclamation shall be in substantial conformity with the approved plan, and the approved plan shall be revised to include the following conditions of approval.

(2) Surface mining operation shall be in accordance with Chapter 19.100 of the Zoning Ordinance.

(3) Should a conflict occur between the statistical data shown on the plan and the conditions of approval, the conditions of approval shall prevail.

(4) Future expansion or construction associated with this use shall occur only upon approval of another conditional use permit or an amendment to the conditions of this permit.

*(5) Exploration activity, consisting of drilling boreholes and analysis of rock samples, has been conducted to ensure mineral resources will not be covered by overburden or heap piles.

*(6) During final reclamation, overburden will be graded to break up the unnatural angles at the top edges.

*(7) Mine pit slopes will be evaluated by the applicant throughout operations to assure that excavation occurs at a slope angle that is safe, considering actual rock strength and structural conditions encountered.

*(8) Old underground mining areas will be excavated or remediated.

*(9) Historical structures will be stabilized or removed by the applicant prior to site disturbance.

*(10) Surface disturbance outside the project area will be kept to a minimum by clearly delineating operating areas to limit roads and vehicle traffic outside designated areas.

*(11) Growth media stockpiles will be stabilized by allowing germination of seeds naturally contained in the soil.

*(12) The feasibility of inoculation of soil with biological components will be investigated in test plots.

*(13) Site drainage will be inspected periodically to assure that excessive erosion is not occurring. In the event excessive erosion is identified, the drainage plan will be revised in consultation with the Kern County Planning Department.

EXHIBIT E

*(14) Additional erosion prevention techniques include: (a) Site drainage will be retained onsite; (b) Site roads and drainages will be inspected by Golden Queen personnel after rainfall events which result in surface flow to ensure erosion prevention is maintained and upgraded as needed; (c) Drainage from the tops of overburden piles will be directed away from the slopes toward the pit; (d) Salvaged growth media will be stockpiled away from areas of concentrated drainage; (e) Reclamation of disturbed areas will occur as soon as possible.

*(15) The overliner protective material placed in direct contact with the HDPE liner will not exceed 1 1/2 inches in diameter, and will not contain hard, sharp, angular pieces.

*(16) A cyanide destructing compound (e.g., hydrogen peroxide or calcium hypochlorite) will be maintained onsite for use in the event that a spill occurs.

*(17) Historical mining wastes and tailings will be tested and processed with the ore on the heap leach pad or, if indicated, disposed of at an offsite permitted disposal facility, removing any future threat of surface water contamination.

*(18) The Lahontan Regional Board will be consulted prior to the use of dust suppression or soil stabilization chemicals.

*(19) The evaporation of water and, therefore, the need for makeup water will be minimized by the use of enclosed solution storage.

*(20) Golden Queen will monitor the groundwater level on a monthly basis and compare the water level data collected by the monitoring program to water levels predicted by the groundwater drawdown model. In the event that the monitoring program shows that the actual water drawdown in the well when corrected for well conditions exceeds the predicted model for six consecutive months, Golden Queen will supplement the water supplied by the production wells with up to 300 g.p.m. of water from Antelope Valley - East Kern Water Agency.

*(21) Onsite equipment and vehicles will be maintained on a routine basis, as recommended by manufacturer manuals, to reduce exhaust emissions.

*(22) Monitoring stations for PM_{10} will be established upwind and downwind from the processing facilities.

*(23) A mercury retort will be installed to control mercury emissions.

*(24) The size and number of blasts in the mine will be limited by good engineering design.

*(25) The existing tailings piles will be removed, thereby reducing the long-term fugitive emissions from the site.

*(26) The adopted reclamation plan shall include reclamation of previously disturbed areas.

*(27) Project disturbance will be minimized to that necessary for safe and efficient operation. The limits of the construction areas will be clearly marked and vehicles and equipment will be confined to these areas.

EXHIBIT E

*(28) Mature Joshua trees which may be disturbed will be salvaged and replanted in undisturbed areas within the property boundary.

*(29) The use of seedlings for revegetation will be investigated in test plots.

*(30) Fencing around the heap leach pile will remain in place until vegetation is established or as otherwise specified in the Reclamation Plan.

*(31) Grading for the project will be minimized to the extent consistent with safe and efficient operations to limit the total area of surface disturbance.

*(32) Routine distribution of cyanide solution on the top of the heap leach pad will occur via a drip irrigation system and the heap leach pads will be contoured to prevent surface ponding which could attract birds and small animals.

*(33) Containers of reagents will be stored within controlled reagent storage areas and kept closed, stored in enclosed areas, or otherwise managed to prevent access by wildlife.

*(34) Project waste will be properly managed at the site to control garbage that could attract wildlife.

*(35) The maximum vehicle speed will be 25 mph.

*(36) Wildlife habitat awareness will be included in the workers education program.

*(37) Some of the mine adits will be retained and gated and some of the mine shafts will be covered by grates to allow access by bats, while excluding people.

*(38) Artifacts from the historical sites will be used to establish a small display of historical mining activities onsite. After conclusion of the project, the items on display will be donated to a museum located in Kern County.

*(39) As part of the worker education program, construction contractors and operations personnel will be instructed regarding the sensitivity of cultural resources and the presence of laws against unauthorized collection and disturbance.

*(40) If any unknown archaeological/cultural resources are discovered on private land during the course of the mining or reclamation, work in the area of discovery shall be stopped and a qualified archeologist contacted to evaluate the find and, if necessary, mitigate impacts prior to resumption of work.

*(41) A Phase III Data Recovery (salvage excavation and architectural recording) will be conducted at four sites.

*(42) Seven sites will have an archaeological monitor review the areas during grading activity.

*(43) Surface disturbance will be minimized to that required for safe and efficient operation.

EXHIBIT E

*(44) Historical mining disturbance will be reclaimed.

*(45) Buildings and structures will be painted with nonreflective earthtone colors to blend with the predominant background.

*(46) Outdoor lighting for the mine pit and other areas of nighttime activities will be shielded and directed downward to reduce fugitive light. Light poles will be no higher than necessary for safe and efficient lighting. Low-pressure sodium bulbs or other appropriate technology will be used for outdoor lighting.

*(47) Approximately 75 to 80 percent of construction activities will take place during daylight.

*(48) Blasting will occur during daylight, one time per day, and will be engineered to minimize the amount of explosives used, according to United States Bureau of Mines guidelines.

(49) Upon cessation of mining activities, the applicant shall re-establish access, either public or private, to all parcels affected by the vacation of New Eagle Road prior to deeming reclamation complete.

*(50) Golden Queen has committed to hiring from the local population.

*(51) Fences will be erected around potentially hazardous areas to discourage entry by unauthorized mine personnel or visitors.

*(52) Historical mining operations will be removed or closed to the extent feasible.

*(53) Former mine waste will be removed.

*(54) Project design will be in accordance with a preconstruction design study.

*(55) The entrance road from Silver Queen Road to the office area will be paved.

*(56) Provide a left-turn lane on Silver Queen Road at the entrance to the project site.

(57) Prior to commencement of mining operations, the applicant shall post or establish and maintain with the Director of Kern County Engineering and Survey Services Department one of the following:

(a) An irrevocable letter of credit.

(b) A surety bond.

(c) A trust fund in accordance with the approved financial assurances to guarantee the reclamation work will be completed in accordance with the approved reclamation plan.

The financial institution or surety company shall give the County at least 120 days notice of intent to terminate the letter of credit or bond. Financial assurances shall be reviewed annually and adjusted in accordance with the Surface Mining and Reclamation Act of 1975 (SMARA) requirements to substantiate that adequate funds exist to ensure

EXHIBIT E

reclamation of all existing disturbed acreage and the maximum amount of acreage expected to be disturbed during each coming calendar year.

(58) Prior to commencement of mining operations, permanent bench marks shall be established to verify the maximum permitted depths of mining authorized by this permit.

(59) Prior to commencement of smelting operations, the applicant shall cause a baseline soil analysis for mercury to be prepared around the proposed smelter facility and submit it to the Kern County Planning Department for placement in the applicable case file.

(60) The applicant shall comply with all requirements of the California Regional Water Quality Control Board. Any approvals or permits issued by that agency shall be submitted to the Kern County Planning Department and incorporated into the approved surface mining and reclamation plan by reference.

(61) The project shall comply with the goals and objectives of the Noise Element of the Kern County General Plan.

(62) If a single-family residence is constructed on private land which lies within the projected 65 dB contour line northeast of the project area as shown in Exhibit 3.9-1 of the Environmental Impact Report, it will be ensured that the noise levels at the residence will remain within the recommendations of the Noise Element of the Kern County General Plan using both of the following methods:

(a) Noise levels will be monitored to determine if the noise levels are above the recommended limits.

(b) If noise levels are above the recommended limits, measures will be taken to reduce the noise level to acceptable levels.

The measures will include the construction of berms using overburden material to shield the noise and will include reduction of work in the area of the residence during the hours of 10:00 p.m. to 7:00 a.m..

(63) The applicant shall make available for public review mine sampling and analytical data for mercury and cyanide during regular business hours.

(64) All wastes including smelter slag will be handled in accordance with federal, State, and local regulations, including proper characterization and disposal in a permitted facility or recycled where appropriate.

(65) In the event of a commercial power outage, backup power shall be provided for heap leach pumping operations in the form of diesel powered electric generators. The applicant shall notify the California Regional Water Quality Control Board in the event of a commercial power outage and at such times when commercial power is restored.

EXHIBIT E

(66) If during the course of development any previously unknown oil, gas, or injection wells are discovered, work in the area of discovery shall be stopped and the Department of Conservation/Division of Oil, Gas, and Geothermal Resources contacted to evaluate the find and, if necessary, remedial operations implemented prior to resumption of work.

(67) The following conditions of approval, (a) through (f), shall apply only to surface mining operations conducted outside of nonjurisdictional or federal lands:

(a) All necessary building permits must be obtained. Permits may include, but are not limited to, the following: commercial coaches, buildings, cargo containers, equipment foundations as required by the Kern County Code of Building Regulations, water tanks, pressure vessels, and appurtenant equipment as required by the Uniform Building Code.

(b) Prior to the issuance of building permits, the method of water supply and sewage disposal shall be as required and approved by the Kern County Environmental Health Services Department.

(c) Prior to the issuance of building permits, fire flows and fire protection facilities shall be as required and approved by the Kern County Fire Department.

(d) Parking spaces shall be provided in accordance with Section 19.82 of the Kern County Zoning Ordinance.

(e) All signs shall be approved by the Director of the Kern County Planning Department prior to installation.

(f) All used oil (as defined in Section 25250.1 of the California Health and Safety Code) shall be disposed of in accordance with all local, State, and federal regulations following consultation with the Kern County Environmental Health Services Department/Hazardous Materials Section, State of California Department of Health Services, and the Environmental Protection Agency. All used oil and other wastes shall be transported by a registered waste hauler.

(68) All stockpiles shall be limited to the confines of the subject site unless expansion is approved in accordance with conditions of approval of this permit.

(69) The operator shall notify the County within 30 days of the final cessation of all mining activities.

(70) Where surface mining operations result in the compaction of the soil, ripping, disking, or other means shall be used prior to revegetation in accordance with the approved reclamation plan.

(71) Topsoil shall be separated and immediately reapplied or stockpiled as necessary for use in reclamation of the site. Reclamation shall require the reapplication of a minimum of

EXHIBIT E

four inches of topsoil prior to reseeding. In the event that stockpiled topsoil is insufficient to provide this uniform depth, imported top soil or soil amendments shall be utilized. Depth of topsoil may be decreased or eliminated altogether if test plots demonstrate to the satisfaction of the Kern County Planning Department that revegetation will occur in accordance with the performance standards identified in the approved reclamation plan.

(72) Upon completion of all mining activity, all mined slopes shall be finished to a final overall slope not to exceed .5:1 (horizontal to vertical)/63.4 degrees. Steeper slopes will be deemed acceptable if a slope stability analysis has been certified by a California registered engineering geologist or professional civil engineer and submitted to the Kern County Planning Department for review and approval in accordance with SMARA and Section 19.100 of the Kern County Zoning Ordinance.

(73) Upon completion of mining, waste rock stockpiles shall be recontoured to a final overall slope of 1.8:1 (horizontal to vertical) and revegetated in accordance with the approved reclamation plan.

(74) Site reclamation shall include the shaping of waste materials followed by an application of topsoil to heap and waste rock stockpiles where necessary to achieve final grade slopes in conformance with the approved reclamation plan. Reclamation shall also include the revegetation of the pit floors. Revegetation of pit floors shall not be required until final cessation of all mining activities as authorized by this approval. Revegetation of final pit floors shall not be required if subsequent discretionary approvals expanding or intensifying the permitted mining operation are approved before cessation of mining activities authorized by this permit or expiration of an Interim Management Plan approved pursuant to Section 2770(h) of SMARA.

(75) Prior to deeming reclamation complete, all structures and equipment, excluding utilities, shall be removed or converted to other permitted uses compatible with the existing zone. No abandoned structures, abandoned equipment, or unused stockpiles of material are to be left on the mining site.

(76) Prior to deeming reclamation complete, all drill holes, water wells, and monitoring wells shall either be converted to an allowable use or abandoned in accordance with applicable State and local requirements in effect at the time of abandonment

(77) Final reclamation shall not be considered complete until all excavated areas have been graded and/or fenced as noted in the approved reclamation plan, and accompanying cross sections and all disturbed areas replanted or reseeded using plantings or a seed mixture and rate of application as specified in the approved reclamation plan.

(78) Final reclamation, as specified in the approved reclamation plan, shall be completed within the time constraints provided in the approved plan. If this conditional use permit is terminated, or if mining operations on the property cease for 12 consecutive months without the submittal and subsequent approval of an Interim Management Plan in

accordance with SMARA provisions (Section 2770(h)), the operation shall be considered completed, and reclamation work shall begin within 12 months.

(79) At such time as the proposed use of subject property is vacated or abandoned, the owner shall be held responsible for removing all abandoned structures, abandoned equipment, and unused stockpiles.

(80) The operator shall notify the County within 30 days after the completion of all reclamation work, as required by the approved reclamation plan.

(81) The Board of Supervisors shall have the authority to authorize County or private personnel to go on the site of the mine and any adjacent property of the permittee for the purpose of performing work to accomplish the reclamation plan, if the permittee fails to perform or conform to requirements imposed by any order made under Sections 19.100.070 through 19.100.090 of the Kern County Zoning Ordinance within a fixed or reasonable time.

(82) The person conducting or in charge of all surface mining operations shall make the same open and available for such inspection during regular County business hours, or at such other times as may be mutually agreed upon by him and the Zoning Enforcement Officer.

(83) The property owner shall be fully responsible for compliance by any lessee of the site to all conditions of this permit, and failure to comply or conform thereto may be cause for immediate revocation of this permit by the Board of Zoning Adjustment.

(84) The owner or operator shall submit an initial report and reporting fee to the Department of Conservation/Office of Mine Reporting and Reclamation Compliance no later than 30 days from the date of this approval.

(85) All of the above conditions shall apply to all areas mined after January 1, 1976.

(86) Any change of operator shall require the submittal of a new statement of responsibility by the new operator to the Director of the Kern County Planning Department.

(87) Noncompliance with the adopted conditions of approval may result in enforcement action and/or the imposition of penalty fees in accordance with the procedures set out in Sections 19.100.070 through 19.100.090 of the Kern County Zoning Ordinance.

*** DENOTES MITIGATION MEASURE**

EXHIBIT E

EXHIBIT "F"

(LEGAL DESCRIPTION FOR STREET VACATION)

Complete Legal Description of the Property

County Road 990 (also known as New Eagle Road) lies within Section 31, T 11 N, R 12 W and Section 6, T 10 N, R 12 W, SBBM. The road was dedicated as a public road by order of the Kern County Board of Supervisors entered April 12, 1937 in Minute Book 39 at Page 487 (Appendix I). This request for street vacation only affects that portion of the road lying within Section 6, T 10 N, R 12 W, SBBM. Therefore, the legal description of the road to be abandoned is as follows:

That portion of a 60 foot wide road known as County Road 990, described in Board of Supervisors Minutes Book 39, Page 487 lying within Section 6, T 10 N, R 12 W, SBBM, the centerline of which is described as follows:

> Beginning at a point in the south boundary of Section 31, T 11 N, R 12 W, SBBM which point bears North 88° 17' East a distance of 1679.62 feet from the Southwest corner of said Section 31; thence South 6° 33' 30" East, a distance of 1453.33 feet; thence on and along a circular curve of 400 foot radius, concave to the West, a distance of 216.42 feet to a point on the present oiled road in the Northwest quarter of Section 6, T 10 N, R 12 W, SBBM.

EXHIBIT "F"

Item # 1

RECEIVED WITH FEE
RECEIPT # 96 Kern

NOTICE OF DETERMINATION

(CALIFORNIA ENVIRONMENTAL QUALITY ACT OF 1970)

TO WHOM IT MAY CONCERN:

1. The Board of Supervisors of the County of Kern has approved the following described project in the County of Kern, State of California:

   a. Applicant or sponsoring agency or department:
   Golden Queen Mining Company, Inc.

   b. Name of Project:
   Conditional Use Permit No. 41, Map No. 213;
   Conditional Use Permit No. 22, Map No. 214

   c. Location of Project:
   Located within an unincorporated area of eastern Kern County; on and around Soledad Mountain, west of State Route 14 and south of Silver Queen Road.

   d. Description of Project:
   Conditional Use Permits to allow a surface mining operation and reclamation plan on private and federally administered lands.

2. The form of such approval and the date thereof is:

   Resolution No. 97-264; Adopted 9/8/97

   Ordinance No. _____; Adopted _____

3. The Board of Supervisors of the County of Kern has determined that said project in its approved form will have a significant effect on the environment.

4. An Environmental Impact Report (EIR) and a Mitigation Monitoring Program were prepared pursuant to the California Environmental Quality Act of 1970 (CEQA) and the State CEQA Guidelines and was received and considered by said Board and certified as required by section 15090 of the State CEQA Guidelines.

5. Mitigation measures and a Mitigation Monitoring Program were made as conditions of approval of the project. Findings were made pursuant to section 15091 of the State CEQA Guidelines. A Statement of Overriding Considerations was adopted for the project, pursuant to section 15093 of the State CEQA Guidelines.

6970

Notice of Environmental Document
Posted by County Clerk on 9-23-97
and for 30 days thereafter, Pursuant to
Section 21152(C), Public Resources Code

6. It is hereby certified that a copy of said EIR with comments and responses is available and may be examined by any interested person during regular business hours at the following location:

Clerk of the Board of Supervisors
Kern County Administrative Center, 5th Floor
1115 Truxtun Avenue, Bakersfield, California 93301

Dated this 8th day of September, 1997.

SUE DAVIS
Clerk of the Board of Supervisors
County of Kern, State of California

Telephone No. 861-2167

Karen Shatswell
Deputy Clerk

BD:wl
#15008

CERTIFICATE OF FEE EXEMPTION

De Minimis Impact Finding

Applicant: Golden Queen Mining Company, Inc. (PP96238)

P.O. Box 820
Mojave, CA 93502-0820

Project Title/Location (include County):

(a) Conditional Use Permit Case No. 41, Map No. 213; (b) Conditional Use Permit Case No. 22, Map No. 214

Soledad Mountain, south side of Silver Queen Road, 1 1/2 miles west of State Route 14, approximately five miles southwest of Mojave; County of Kern

Project Description:

A Conditional Use Permit to allow a surface mining operation and reclamation plan on private and federally administered lands, in accordance with the Surface Mining and Reclamation Act of 1975 (SMARA) (Section 19.100), in the A-1 (Limited Agriculture) and E (2 1/2) RS (Estate - 2 1/2 acres - Residential Suburban Combining) Districts

Findings of Exemption (attach as necessary):

Mitigation has been incorporated into this project which reduces the impacts on wildlife resources to a level of insignificance. These mitigation measures are as follows:

(a) Project disturbance will be minimized to that necessary for safe and efficient operation. The limits of the construction areas will be clearly marked and vehicles and equipment will be confined to these areas.

(b) Mature Joshua trees which may be disturbed will be salvaged and replanted in undisturbed areas within the property boundary.

(c) The use of seedlings for revegetation will be investigated in test plots.

(d) Fencing around the heap leach pile will remain in place until vegetation is established or as otherwise specified in the Reclamation Plan.

(e) Grading for the project will be minimized to the extent consistent with safe and efficient operations to limit the total area of surface disturbance.

(f) Routine distribution of cyanide solution on the top of the heap leach pad will occur via a drip irrigation system and the heap leach pads will be contoured to prevent surface ponding which could attract birds and small animals.

(g) Containers of reagents will be stored within controlled reagent storage areas and kept closed, stored in enclosed areas, or otherwise managed to prevent access by wildlife.

(h) Project waste will be properly managed at the site to control garbage that could attract wildlife.

(i) The maximum vehicle speed will be 25 mph.

(j) Wildlife habitat awareness will be included in the workers education program.

(k) Some of the mine adits will be retained and gated and some of the mine shafts will be covered by grates to allow access by bats, while excluding people.

This Board has found and determined that the Final Environmental Impact Report (FEIR) prepared for this project has been completed in compliance with the California Environmental Quality Act and the State CEQA Guidelines and the County EIR Guidelines, and that this Board has reviewed and considered the information contained in said FEIR before making its decision on the hereinmentioned project. This Board has made findings pursuant to Sections 15091 and 15093 of the California Environmental Quality Act which are attached hereto and made a part hereof.

Certification:

I hereby certify that the County of Kern has made the above finding(s) and that the project will not individually or cumulatively have an adverse effect on wildlife resources, as defined in Section 711.2 of the California Department of Fish and Game Code.

Ted James

(Chief Planning Official)

Title: Director of the Planning Department
Lead Agency: Planning Department
Date: September 8, 1997

SFD:ma