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Human Health Risk Assessment Former AmeriGas Site 2851 Orange Avenue Long Beach, California 90806

April 11, 2018

Prepared for:

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Prepared by:

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April 11, 2018

<u>via email</u>

Mr. Kevin Laney Vice President of Business Development Signal Hill Petroleum, Inc. 2633 Cherry Avenue Signal Hill, California 90755

RE: Human Health Risk Assessment Former AmeriGas Site, 2851 Orange Avenue, Long Beach, California 90806

Dear Mr. Laney:

This 7.74-acre site, as part of a larger 56-acre property, has a No Further Action designation from the LARWQCB (2012) an OEHHA-approved Human Health Risk Assessment (2005), and a USEPA Approval for PCB remediation of site soils (2012). However as the site is considered for commercial/industrial development a Human Health Risk Assessment (HHRA) reflecting current conditions was determined to be a prudent step in the proposed development process.

The objectives of this HHRA are: (1) to evaluate potential health risks to human receptors posed by concentrations of constituents detected at least one time in the soil matrix and soil vapor underlying the 7.74-acre property located at 2851 Orange Avenue in Long Beach, California, and (2) to determine mitigation measures protective of human health for the proposed commercial/industrial development.

A methane assessment of the site was performed in February 2017 in accordance with the Los Angeles Department of Building and Safety standards (2004) and the DTSC Methane Advisories (2005 and 2012). Methane was consistently detected in the field at concentrations as great as 50,000 parts per million by volume (ppmv) in soil vapor probes at 5-feet (ft), 10-ft and 20-ft below ground surface (bgs). Methane was detected in two soil vapor samples at concentrations of 90,600ppmv and 90,900ppmv from 20-ft bgs by a stationary laboratory.

Methane mitigation subslab of proposed buildings is recommended. The methane mitigation system should consist of a subslab impervious membrane placed inbetween geotextile or geocloth to protect it from sand above and the 4" thick gravel blanket below. Perforated horizontal vent pipes should be placed in the 4" thick gravel blanket and tied into vertical vent risers (typically cast iron) placed inbetween the interior and exterior walls, less than 100-ft apart, extending a minimum of 3-ft above the roof line and should not terminate less than 100-ft from any opening. Although designed to capture and vent methane to the atmosphere, other volatile organic compounds (VOCs) in the subsurface also will be captured and vented by this system.

This HHRA assessed the potential risk and hazard attributable to exposure to 51 constituents, including lead. Although the property is zoned industrial and the intended future use is commercial/industrial the hypothetical residential exposure scenario was assessed in addition to the commercial worker and construction worker scenarios pursuant to DTSC guidance (2015, 2016, 2018).

DTSC's LeadSpread 8.0 Model results indicate that lead does not pose an unacceptable hazard to adults and children in a residential exposure scenario.

The hypothetical residential scenario indicates risk and hazard levels exceed target thresholds via the ingestion and dermal contact pathways. The hypothetical residential and commercial worker scenarios indicate risk levels exceed target thresholds via the inhalation exposure pathway where VOCs in the vapor phase are the attributable constituents.

The construction worker scenario indicates a hazard level that exceeds the target threshold via ingestion and dermal contact but only when the individual hazards are summed. Potential adverse, noncarcinogenic effects target different organs; although it is standard practice to sum the individual estimated hazards the results tend to be overly conservative and not necessarily reflective of the actual hazards.

Institutional controls, i.e., the required methane mitigation system to be installed subslab of the proposed buildings and paving of surface soils for parking effectively mitigates the risks and hazards to negligible conditions ensuring the site is safe for the future intended use as a commercial/industrial property.

Should you have any questions or desire additional information, please do not hesitate to contact me at 310.403.1921.

Sincerely,

X Susan Mearns

Susan L. Mearns, Ph.D.

Mearns Consulting LLC

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EXECUTIVE SUMMARY

This site, as part of a larger 56-acre property, has a No Further Action designation from the LARWQCB (2012) and an OEHHA-approved Human Health Risk Assessment (2005), and a USEPA Approval for PCB remediation of soils (2012). However as the site is considered for commercial/industrial development a Human Health Risk Assessment (HHRA) of the 7.74-acre site reflecting current conditions was determined to be a prudent step in the proposed development process.

The objectives of this HHRA are: (1) to evaluate potential health risks to human receptors posed by concentrations of constituents detected at least one time in the soil matrix and soil vapor underlying the 7.74-acre property located at 2851 Orange Avenue in Long Beach, California 90806 (the site), and (2) to determine mitigation measures protective of human health for the proposed commercial/industrial development.

This HHRA followed the guidance in the Department of Toxic Substances Control (DTSC) *Preliminary Endangerment Assessment* (PEA) guidance manual (DTSC 2015), DTSC Office of Human and Ecological Risk (HERO) Human Health Risk Assessment (HHRA) Note 3, DTSC modified Screening Levels (DTSC January 2018), U.S. Environmental Protection Agency *Risk Assessment Guidance for Superfund volume 1, Human Health Evaluation Manual* (RAGs) (USEPA 2004), the U.S. Environmental Protection Agency *Risk Assessment Guidance for Superfund volume 1, Human Health Evaluation Manual* (Part F, Supplemental Guidance for Inhalation Risk Assessment) (USEPA 2009), the DTSC *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air* (DTSC, October 2011), the Massachusetts Department of Environmental Protection (MADEP) *Characterizing Risks posed by Petroleum Contaminated Sites* manual (MADEP October 31, 2002), the DTSC LeadSpread 8.0 Model and the DTSC modified Johnson & Ettinger soil gas screen, USEPA version 2.0 model (April 2003) modified by DTSC HERO December 2014.

The property is to be developed for commercial use with three buildings planned onsite; although at the time soil matrix and soil vapor sampling occurred in 2017 the conceptual plan included four onsite buildings. The maximum detected concentration or the upper confidence level, whichever was lower pursuant to the ProUCL guidance (USEPA 2004), of the constituent detected in the top 10-feet (ft) of the soil matrix was used as the exposure point concentration for residential, commercial and construction worker scenarios. The maximum detected volatile in soil vapor collected at 5-ft below ground surface (bgs) was used as the exposure point concentration for the residential and commercial worker scenarios. Those chemicals of concern that had both reference doses or reference concentrations and slope factors or unit risk factors available, were assessed as both noncarcinogenic and carcinogenic compounds.

DTSC's LeadSpread 8.0 Model estimates the hazard due to exposure to lead in air and onsite soils/dust for adults and children within a residential scenario. Typically lead concentrations in air are not measured onsite. Therefore the model extrapolates these concentrations from the measured concentrations of lead in onsite soils. The percentile blood lead concentration is estimated by the model to provide an estimate of the percentage of a population of children and adults that would be expected to have blood lead levels that exceed the threshold value for a residential exposure scenario.

DTSC's LeadSpread 8.0 Model results indicates that lead does not pose an unacceptable hazard to children or adults in a residential exposure scenario.

The Johnson & Ettinger soil gas screen model modified by DTSC HERO (December 2014) was used to assess the potential risks and hazards due to exposure to the maximum concentrations of n-butylbenzene, sec-butylbenzene, tert-butylbenzene, chloroform, dichlorodifluoromethane, ethylbenzene, isopropylbenzene (cumene), naphthalene, n-propylbenzene, tetrachloroethylene (PCE), toluene and trichlorofluoromethane detected in the vapor phase at 5-ft below ground surface for residential and commercial exposure scenarios. The Johnson & Ettinger model estimated a risk of 1.83×10^{-4} , greater than the threshold of 1×10^{-6} , for the residential exposure scenario and 2.38×10^{-5} , greater than the threshold of 1×10^{-5} for the commercial exposure scenario.

A methane assessment of the 7.74-acre site was performed in February 2017 in accordance with the Los Angeles Department of Building and Safety (LADBS) published, *Site Testing Standards for Methane (Reference No. 91.7104.1, Document No. P/BC 2002- 101), effective 11/30/04 and the DTSC Methane Advisories (2005 and 2012).* Methane was consistently detected in the field at concentrations as great as 50,000 parts per million by volume (ppmv) in soil vapor probes at 5-ft, 10-ft and 20-ft bgs under three of the proposed four buildings.

Methane was detected in two soil vapor samples collected from 20-ft bgs and submitted to the Jones Environmental, Inc. stationary laboratory at concentrations of 90,600ppmv and 90,900ppmv.

Methane mitigation subslab of proposed buildings is recommended. The methane mitigation system should consist of a subslab impervious membrane placed inbetween geotextile or geocloth to protect it from sand above and the 4" thick gravel blanket below. Perforated horizontal vent pipes should be placed in the 4" thick gravel blanket and tied into vertical vent risers (typically cast iron) placed inbetween the interior and exterior walls, less than 100-feet apart, extending a minimum of 3-feet above the roof line and should not terminate less than 100-feet from any opening.

Although designed to capture and vent methane to the atmosphere, other volatile organic compounds (VOCs) in the subsurface (both in the soil matrix and soil vapor) also will be captured and vented by this system.

The site is currently zoned for medium industrial use and the planned development is for commercial and industrial use. There are no current plans to place residential units onsite, however the HHRA included the residential land use scenario in estimating risks and hazards due to exposure to constituents in the soil matrix and soil vapor underlying the site as a hypothetical scenario pursuant to DTSC guidance (DTSC 2015, 2016, 2018).

Even though the noncarcinogenic constituents impact different target organs the estimated hazard quotients (HQ) of each constituent detected in soil at 5-ft and 10-ft bgs and in soil vapor were summed to provide a hazard index.

The results of the HHRA indicate that the estimated summed hazard index (HI) of the noncarcinogenic constituents in soil and soil vapor did exceed the target hazard threshold for the residential exposure scenario. The estimated hazards of the metals cadmium and cobalt in the soil matrix and naphthalene in soil vapor via the ingestion, dermal contact and inhalation exposure routes contributed the greatest hazard to the residential scenario.

The estimated HI of the noncarcinogenic constituents in soil and soil vapor did not exceed the target hazard threshold for the commercial worker exposure scenario.

The estimated HI of the noncarcinogenic constituents in soil did exceed the target hazard threshold for the construction worker exposure scenario; although none of the estimated HQs for the individual constituents exceeded the threshold.

The estimated risk of each carcinogenic constituent detected in soil at 5-ft and 10-ft bgs and in soil vapor were summed to provide a summed risk. The results of the HHRA indicate the summed risk of the carcinogenic constituents in soil and soil vapor did exceed the target threshold $1x10^{-6}$ for the residential scenario. The estimated risks due to exposure to Aroclor 1254 and nickel via ingestion and dermal contact pathways and due to exposure to naphthalene via the inhalation pathway contributed the risks.

The results of the HHRA indicate the summed risk of the carcinogenic constituents in soil and soil vapor did exceed the target threshold 1×10^{-5} for the commercial worker scenario. The estimated risk due to exposure to naphthalene via the inhalation pathway contributed the risk.

Institutional controls, i.e., the required methane mitigation system to be installed subslab of the proposed buildings and paving of surface soils for parking effectively mitigates the risks and hazards to negligible conditions ensuring the site is safe for the future intended use as a commercial/industrial property.

1.0 INTRODUCTION

This report presents the results of a Human Health Risk Assessment (HHRA) for the 7.74-acre property located at 2851 Orange Avenue in Long Beach, California (the site) (Figure 1).

The purpose of this human health risk assessment is to evaluate the potential adverse health impacts due to exposure to concentrations of constituents detected in the soil matrix and soil vapor underlying the site. If a constituent was detected one time in soil sampled at 5-ft and 10-ft bgs, and/or one time in soil vapor at 5-ft bgs it was retained and quantitatively assessed in this human health risk assessment. This human health risk assessment assessed the potential risk and hazard attributable to exposure to 12 carcinogenic constituents, including lead detected in soil at 5-ft and 10-ft bgs.

This HHRA followed the guidance in the Department of Toxic Substances Control (DTSC) *Preliminary Endangerment Assessment* (PEA) guidance manual (DTSC 2015), U.S DTSC Office of Human and Ecological Risk (HERO) Human Health Risk Assessment (HHRA) Note 3, DTSC modified Screening Levels (DTSC January 2018). Environmental Protection Agency *Risk Assessment Guidance for Superfund volume 1, Human Health Evaluation Manual* (RAGs) (USEPA 2004), the U.S. Environmental Protection Agency *Risk Assessment Guidance for Superfund volume 1, Human Health Evaluation Manual* (Part F, Supplemental Guidance for Inhalation Risk Assessment) (USEPA 2009), the DTSC *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air* (DTSC, October 2011), the Massachusetts Department of Environmental Protection (MADEP) *Characterizing Risks posed by Petroleum Contaminated Sites* manual (MADEP October 31, 2002), the DTSC LeadSpread 8.0 Model and the DTSC modified Johnson & Ettinger soil gas screen, USEPA version 2.0 model (April 2003) modified by DTSC HERO December 2014.

As the USEPA and the State of California Office of Environmental Health Hazard Assessment (OEHHA) have not published toxicity values, i.e., Reference Doses (RfDs), for total petroleum hydrocarbons (TPH) the guidance in the Massachusetts Department of Environmental Protection approach to characterizing risks posed by petroleum contaminated sites were used to obtain surrogate RfDs for TPH-g, TPH-d, TPH-o, C1-C12 VPH aromatic, C12-C24 VPH aromatic and C26->C32 VPH aromatic (MADEP 2002). Sierra Analytical Labs, Inc. was provided a copy of the MADEP guidance prior to analyzing the soil matrix samples for TPH. Sierra Analytical reported detectable VPH aromatics (8260B-VOC). The potential adverse health impacts due to exposure to TPH-g, TPH-d, TPH-o, C1-C12 VPH aromatics, C12-C24 VPH aromatics in onsite soils were then assessed by following the appropriate ingestion and dermal contact equations (DTSC 2015).

2.0 SITE BACKGROUND

Background

The irregularly shaped 7.74-acre site is located at the southwest corner of the intersection of Orange Avenue and East Spring Street in Long Beach, California and is zoned for medium industrial use. The Los Angeles County Tax Assessor ID Number for the property is 7212-009-021.

The site was owned by the City of Long Beach (CLB) prior to the 1920s and reportedly was used by the CLB Department of Water. A natural gas processing and compression plant operated onsite from the 1920s through 2000, the plant was not operating from 2000-2007 but was permitted by the South Coast Air Quality Management Board as an emergency backup natural gas compressor plant for an off-site, modern, gas compression facility operated by Signal Hill Petroleum, Inc. (SHPI) located across Orange Avenue to the east.

The plant separated natural gasoline and natural gas from oil-field wet gas, refined natural gas, and compressed the refined natural gas for pipeline delivery. Refined products produced at the site included raw natural gasoline, butane, propane, and pipeline-quality natural gas (EPI 2012).

The site has been owned and/or operated by numerous entities including AmeriGas Partners, L.P. formed when UGI Corporation and AmeriGas acquired Petrolane Inc. in April 1995. SHPI leased the site from PetroLane, Inc. and operated the plant from 1994 through 2000. PetroLane-Lomita Gasoline Company operated the gas plant prior to 1994 (ESE 1993).

The plant capacity was 14 million cubic feet of natural gas per day (California State Department of Conservation, Division of Oil, Gas and Geothermal Resources 1991). The plant was originally constructed as a lean oil plant, and later downsized and converted to a refrigeration plant (ESE 1993).

Based on historical aerial photographs, a former swale or stream channel in the western portion of the parcel was utilized as a sump for collection of fluids and material from surrounding oil field exploration/production activities from the 1920s to the 1950s. The channel was filled with soil and debris (Dames & Moore 1988).

Petroleum hydrocarbons constitute the primary materials used on the parcel. Low molecular weight hydrocarbons would be expected to have evaporated over time, but higher molecular weight hydrocarbons may persist in soil. Natural degradation under anaerobic conditions could produce methane and low molecular weight hydrocarbons in soil gas (QST 1998).

Previous Environmental Investigations

Final Report Preliminary Site Characterization Long Beach Auto Mall - Dames & Moore (1988) placed 25 borings, collected 11 surface soil samples and installed 14 soil vapor probes onsite during a site characterization study. Dames & Moore concluded the depth of fill material along the western portion of the site ranged from 17-ft to 33-ft bgs. The analytical results of the soil samples indicated total recoverable petroleum hydrocarbons (TrPH) and benzene, toluene, ethylbenzene and total xylenes (BTEX) in the fill material and adjacent to aboveground appurtenances. The field measurements of soil vapor indicated concentrations greater than 1,000ppm and concentrations of methane up to 74 percent.

Site Characterization Report for the PetroLane-Lomita Property – ESE (1993) placed 27 soil borings and 21 soil vapor probes onsite during a site characterization study in 1992 and 1993. Soil borings were drilled to depths ranging from 9-ft to 95-ft bgs. The analytical results from ESE's study indicated soil impacted with TrPH, BTEX and the presence of soil gas including methane.

Human Health Risk Assessment Proposed Long Beach Sports Park - Mearns Consulting LLC (2003) collected over 50 soil samples from the site from depths of 1-ft, 5-ft and 10-ft bgs as part of the effort to collect over 300 soil samples from the 56-acre proposed redevelopment project, the Long Beach Sports Park. Heavy end carbon chains and metals were detected in the soil samples at concentrations that exceeded preliminary remediation goals and the potential health risks posed by exposure to these constituents was assessed. The HHRA concluded the site was safe to redevelop as a sports park. The HHRA was reviewed and approved by the State of California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (OEHHA 2005). The Los Angeles Regional Water Quality Control Board (LARWQCB) issued a No Further Action Letter for the entire 56-acre property in 2012.

Risk-Based PCB Remediation Report – EPI (2012)

Environmental Partners, Inc. was retained by AmeriGas Partners, L.P. in 2010 through 2012 to appropriately abate, dismantle, demolish and dispose the structures, appurtenances, piping, concrete and asphalt rubble and polychlorinated biphenyls (PCBs) impacted soils onsite under the oversight of the USEPA.

Assessment activities conducted by EPI indicated that the sources of PCBs at the subject property were the lubricating oils used from the 1930s until 2000 in three of the four air compressors formerly located at the plant. Assessment and characterization analytical data indicated that PCB-containing oil was used strictly in the compressed air system.

Remediation activities including verification sample collection and analysis followed procedures approved by USEPA (USEPA July 2011). A total of 265.77 tons of concrete with PCBs concentrations less than or equal to 50mg/kg were disposed in a Subtitle D permitted landfill in Lancaster, California. A total of 2,255.92 tons of soil with PCBs concentrations less than or equal to 50mg/kg were disposed at a Subtitle D permitted municipal solid waste landfill in Simi Valley, California. A total of 61.32 tons of soil with total PCBs concentrations greater than 50mg/kg was disposed at the US Ecology TSCA-permitted landfill in Beatty, Nevada.

Following excavation, verification soil samples were collected and analytical results and/or exposure point concentrations derived from the sampling locations and analytical results were compared to the USEPA approved cleanup level of 0.22mg/kg. USEPA issued an approval letter of the PCB remediation in August 2012.

Methane Assessment – Mearns Consulting LLC (2017)

Mearns Consulting LLC performed a methane assessment onsite in February 2017. Methane concentrations were recorded in the field at 100%LEL (equivalent to 50,000ppm) in vapor probes installed at 5-ft, 10-ft and 20-ft bgs and were reported by a stationary laboratory at concentrations of 90,600ppmv and 90,900ppmv.

Proposed Development

The site will be developed for commercial/industrial use with three buildings with paved surface parking. Figures 4 and 5 depict the conceptual site plan and geotechnical map.

3.0 SUMMARY OF FIELD ACTIVITIES

Phase II Environmental Site Assessment - Soil samples were collected at 5-ft and 10-ft bgs from 20 locations (Figure 2) in accordance with SW846. Six soil sample locations were placed in proposed footprints of Buildings 1 and 2, spaced approximately 100-feet apart depending upon site topographic and rig access; two soil sample locations were placed in the proposed footprint of Building 3; three soil samples were placed in the proposed footprint of Buildings 3 and 4 (Figure 2). A truck mounted direct push rig was used to collect the soil samples. The sampling system was appropriately cleaned between each borehole; rinsate from cleaning was appropriately disposed. Soil was collected in brass sleeves with Teflon liners and end caps with minimal headspace.

Forty soil samples were logged onto a chain-of-custody form and stored in a cooler at 4°C until delivered to Sierra Analytical Labs, Inc. (a State of California Department of Health Services [DOHS] ELAP accredited laboratory; ELAP No. 2320) for analysis of: (1) total threshold limit concentration (TTLC) metals, including hexavalent chromium, via USEPA method 6010B/7471; (2) volatile organic compounds (VOCs) via USEPA method 8260B, collected via USEPA 5035B; (3) semivolatile organic compounds (SVOCs) via USEPA method 8270C and (4) total petroleum hydrocarbons – gasoline range (TPH-g) – diesel range (TPH-d) - oil range (TPH-o) via USEPA method 8015B and via MADEP methods for aromatic and aliphatic carbon chain speciation. The analytical data is included as Appendix A.

All drilling, logging and sampling activities were conducted by or under the direct supervision of a California-Professional Geologist, and in accordance with California Well Standards presented in the Department of Water Resources (DWR) Bulletins 74-81 and 74-90. The Site Geology and Hydrogeology section and boring logs were prepared by Mr. Scott R. Fagan, a State of California Professional Geologist PG #4289.

Total Threshold Limit Concentration (TTLC) Metals – The following metals were detected in concentrations greater than their respective reporting limits: arsenic, barium, cadmium, cobalt, chromium, hexavalent chromium, copper, mercury, molybdenum, nickel, lead, antimony, thallium, vanadium and zinc, but less than their respective USEPA Regional Screening Levels (RSLs) and CalEPA DTSC Screening Levels (SLs) for residential land use with the exception of arsenic, cobalt, hexavalent chromium, mercury, lead and thallium (Table 1).

Total Petroleum Hydrocarbons-gasoline range (TPH-g) – Total petroleum hydrocarbons gasoline range (TPH-g) (C4-C12) were detected in concentrations ranging from 0.084mg/kg to 810mg/kg. Three detected concentrations, 270mg/kg, 810mg/kg and 380mg/kg exceed the RSL for aromatic hydrocarbons in the C4-C12 range (Table 2).

Total Petroleum Hydrocarbons-diesel range (TPH-d) – Total petroleum hydrocarbons diesel range (TPH-d) (C10-C24) were detected in one soil sample (18mg/kg) at less than the RSL for aromatic and aliphatic hydrocarbons C10-C24 range (Table 2).

Total Petroleum Hydrocarbons-oil range (TPH-o) – Total petroleum hydrocarbons oil range (TPH-o) (C22-C36) were detected in 12 soil samples three of which exceed the RSL for aromatic hydrocarbons in the C22-C36 range (Table 2).

Volatile Organic Compounds (VOCs) – Seventeen VOCs were detected in concentrations greater than their respective reporting limits but at concentrations less than their respective RSLs and SLs (Table 3).

SemiVolatile Organic Compounds (SVOCs) -2-Methylnaphthalene and naphthalene were detected at concentrations less than their RSLs. All other SVOCs were not detected in concentrations greater than the reporting limits of 0.33mg/kg or 1.6mg/kg.

Polychlorinated biphenyls (PCBs) – Aroclor 1248, Aroclor 1254 and Aroclor 1260 were detected in some of the more than 440 verification soil matrix samples collected by EPI at depths of 3-ft bgs and less (EPI 2011, 2012). Concentrations ranged from 0.035mg/kg to 20mg/kg (Table 4).

Soil Vapor - Seventeen soil vapor probes were placed within the building footprints in a 100' x 100' grid (Figure 3) to a depth of 5-ft bgs in accordance with the Advisory Active Soil Gas Investigations (CalEPA July 2015). Soil vapor samples were collected greater than 24-hours after probe installation and analyzed for VOCs via USEPA method 8260B using a mobile laboratory by Jones Environmental, Inc. Soil Vapor probes SV-6-5' and SV-16-5'' were not sampled due to low flow.

Demolition of surface and subsurface appurtenances, such as, but not limited to pipelines, concrete pads and structures commenced in December 2017 under a City of Long Beach Demolition Permit. During the demolition activities the area adjacent to SV8 was over-excavated and recompacted to pad grade after removal of metal debris. As SV8 had the greatest detected concentrations of VOCs in the vapor phase in 2017, five additional soil vapor probes were placed at a depth 5-ft bgs in the planned building pad on February 22, 2018.

Jones Environmental Labs, Inc. drew soil vapor from these five probes in Tedlar bags and analyzed the soil vapor for VOCs (USEPA method 8260B) in their fixed laboratory on February 26, 2018. VOCs detected included trichlorofluoromethane, and 1,3,5-trimethylbenzene; all other VOCs were less than their respective practical quantitation limit (Table 5).

The following VOCs were detected in soil vapor: n-butylbenzene, sec-butylbenzene, tert-butylbenzene, chloroform, dichlorodifluoromethane, ethylbenzene, isopropylbenzene, 4-isopropyltoluene, naphthalene, npropylbenzene, tetrachloroethene (PCE), toluene, trichlorofluoromethane and 1,3,5-trimethylbenzene (Table 5). Not all detected VOCs were detected in every soil vapor sample. Most of the detected concentrations of volatiles in the vapor phase 5-feet bgs are greater than their respective screening levels in residential air. The soil vapor analytical data is included as Appendix B. The maximum concentrations of these VOCs was used at the exposure point concentration in the appropriate Johnson & Ettinger model.

Site Geology and Hydrogeology

The site lies on the western flank of the Signal Hill uplift, along the Newport Inglewood Uplift associated with the Newport Inglewood Fault Zone (*Bulletin 104, DWR 1961, Groundwater Geology of the Coastal Plain of Los Angeles County*). Two major structures are found in very close proximity, they are the Long Beach Anticline and the Cherry Hill Fault.

Surface sediments consist of Pleistocene river terrace deposits (Qt) generally composed of sands silts and clays (California Geologic Society, Geologic Atlas of California Map No. 007, Charles W. Jennings, 1962). Groundwater was not encountered during sampling at depths of 10 feet below grade.

The site is transected roughly north to south along the western property boundary by a former stream channel. Undocumented fill ranging in thickness from 0 to 30 feet comprise the near-surface materials. Approximately 12,000 feet of nonmarine and marine sediments underlying the undocumented fill. These sediments unconformably overlie Catalina Schist basement bed-rock formation. Many of the stratigraphic

units that contain aquifers in the vicinity of the site have been removed through uplift and erosion along the Newport-Inglewood fault zone. The aquifers present beneath the site in stratigraphic order include the Gage, Hollydale, Jefferson, Lynwood, Silverado, and Sunnyside. These aquifers, with the exception of the Gage, comprise the San Pedro Formation.

The aquifers are reported to be separated from one another by relatively impermeable, fine-grained sediments and are not in hydraulic communication with each other (*Bulletin 104, DWR 1961, Groundwater Geology of the Coastal Plain of Los Angeles County*).

The site is immediately underlain by the Bellflower Aquiclude which extends from ground surface to approximately 70 feet bgs. The aquiclude serves as a relatively impermeable barrier to the downward movement of water. The aquiclude is composed of clays, silts and fine sands and includes terrace deposits, the Palos Verdes Sand and a portion of the San Pedro Formation (*Bulletin 104, DWR 1961, Groundwater Geology of the Coastal Plain of Los Angeles County*).

The Gage aquifer which underlies the Bellflower Aquiclude, occurs at a depth 70 to 100 feet beneath the site. Sediments within this aquifer are primarily fine to coarse sand with variable amounts of gravel. The thickness of the Gage aquifer beneath the Site is approximately 100 feet. Due to the poor quality of water found in the Gage, it is not used for municipal supply. Groundwater was not encountered during the soil matrix and soil vapor investigations at depths of 10-ft bgs.

4.0 CONCEPTUAL SITE MODEL

A conceptual site model was developed to identify the potential complete exposure pathways by which constituents detected in soil could impact human health (Figure 6).

The conceptual site model identifies potential sources, environmental release mechanisms, potential migration pathways, potential exposure pathways, potential exposure routes and potential human receptors onsite.

The conceptual site model identified the following potential complete exposure pathways:

- Future onsite commercial worker
 - ingestion/dermal contact with surface soil
 - inhalation of dust from soil in outdoor air
 - inhalation of VOCs from soil vapor that have migrated to indoor air
- Future construction worker
 - ingestion/dermal contact with surface and subsurface soil
 - inhalation of dust from soil in outdoor air
- Future onsite resident a hypothetical scenario as the property is zoned industrial
 - ingestion/dermal contact with surface and subsurface soil
 - inhalation of dust from soil in outdoor air
 - inhalation of VOCs from soil vapor that have migrated to indoor air

Consumption of fruit or vegetables grown in soil is not considered to be a complete potential exposure pathway under future site conditions because the 7.74-acre industrial zoned site will be developed as a commercial/industrial property.

Potential direct exposures (ingestion and dermal contact) to groundwater are not complete pathways as drinking water is provided by a remote municipal water supply, so there is little chance of incidental exposure. Discharge of groundwater to surface water also is not considered to be a complete migration pathway since there are no surface water bodies that are recharged by artesian flow or groundwater seepage in the vicinity of the site.

The potential for chemicals in soil to leach to underlying groundwater used as a drinking water source is considered very low as several aquitards or aquicludes exist below the maximum depth of impacted soils and groundwater used as a drinking water source.

There is very limited ecological habitat at and near the site. Wetlands were not observed onsite or at adjacent sites. There are no natural or undisturbed areas onsite. Based on the lack of viable ecological habitat at and near the site, there are no complete ecological pathways onsite.

5.0 IDENTIFYING CHEMICALS OF CONCERN

All constituents detected at least one time in the soil matrix and in soil vapor underlying the site were quantitatively assessed using the appropriate exposure pathway in this risk assessment.

Pursuant to the following guidance documents, *Selecting Inorganic Constituents as Chemicals of Concern for Risk Assessments at Hazardous Waste Sites and Permitted Facilities* (DTSC 1997), *Background Metals at Los Angeles Unified School Sites – Arsenic* (DTSC 2005) and *Arsenic Strategies, Determination of Arsenic Remediation, Development of Arsenic Cleanup Goals* (DTSC 2009) the following statistical tests: (a) Wilcoxon-Mann-Whitney, (b) Gehan, (c) Tarone-Ware, (d) Multiple Box Plots and (e) Q-Q Plots, were used to determine whether detected concentrations of arsenic, hexavalent chromium and thallium in the soil matrix onsite were within background concentrations. The results of these statistical analyses are included as Appendices D, E and F.

Arsenic – Arsenic was not detected in 36 of the 40 soil samples analyzed from the site; the reporting limit was 3.5mg/kg. The background arsenic in soil samples collected from the City of Signal Hill baseball field located 1.5-miles south and east of the site ranges from 5.2mg/kg to 14mg/kg (Appendix C).

None of the detected concentrations of arsenic in site soils were greater than the background maximum detected concentration of 14mg/kg.

The Null hypothesis tested was whether the mean and median of the concentrations of arsenic in soils onsite are < or = to the mean and median concentrations of the concentrations of arsenic in offsite or background soil samples.

The alternative hypothesis tested was whether the mean and median of the concentrations of arsenic in soils onsite are > the mean and median concentrations of the concentrations of arsenic in offsite or background soil samples.

The Wilcoxon-Mann-Whitney statistical analysis concluded the Null hypothesis was not rejected and the P-value, adjusted for ties was 1.

The Gehan statistical analysis concluded the Null hypothesis was not rejected and the P-value adjusted for ties was 1.

The Tarone-Ware statistical analysis concluded the Null hypothesis was not rejected and the P-value adjusted for ties was 1.

The Multiple Box Plots indicate all of the detected concentrations of arsenic in onsite soils are less than background.

The Q-Q Plots indicate 100% of the detected concentrations of arsenic in onsite soils are less than background concentrations.

The conclusion therefore is reached that arsenic is present at the site at concentrations consistent with background concentrations and therefore was eliminated as a chemical of concern and was not quantitatively assessed in the risk assessment.

Hexavalent Chromium – Hexavalent chromium was not detected in 37 of 40 soil samples analyzed from the site; the reporting limit was 0.19mg/kg or 0.21mg/kg. The background hexavalent chromium was estimated by assuming 1/6th of the total chromium detected in soil samples collected from the City of Signal Hill baseball field located 1.5-miles south and east of the site was hexavalent chromium and ranged from 3.5mg/kg to 8.3mg/kg (Appendix C).

None of the detected concentrations of hexavalent chromium in site soils (0.25mg/kg, 0.36mg/kg and 1.7mg/kg) were greater than the estimated background concentrations.

The Null hypothesis tested was whether the mean and median of the concentrations of hexavalent chromium in soils onsite are < or = to the mean and median concentrations of the estimated concentrations of hexavalent chromium in offsite or background soil samples.

The alternative hypothesis tested was whether the mean and median of the concentrations of hexavalent chromium in soils onsite are > the mean and median concentrations of the estimated concentrations of hexavalent chromium in offsite or background soil samples.

The Wilcoxon-Mann-Whitney statistical analysis concluded the Null hypothesis was not rejected and the P-value, adjusted for ties was 1.

The Gehan statistical analysis concluded the Null hypothesis was not rejected and the P-value adjusted for ties was 1.

The Tarone-Ware statistical analysis concluded the Null hypothesis was not rejected and the P-value adjusted for ties was 1.

The Multiple Box Plots indicates all of the detected concentrations of hexavalent chromium in onsite soils are less than background.

The Q-Q Plots indicate 100% of the detected concentrations of hexavalent chromium in onsite soils are less than background concentrations.

The conclusion therefore is reached that hexavalent chromium is present at the site at concentrations consistent with background concentrations and therefore was eliminated as a chemical of concern and was not quantitatively assessed in the risk assessment.

Thallium – Thallium was not detected in 39 of 40 soil samples analyzed from the site; the reporting limit was 2.3mg/kg or 2.5mg/kg. The background concentration of thallium in soil samples collected from the City of Signal Hill baseball field located 1.5-miles south and east of the site was the reporting limit, 1.5mg/kg, i.e., thallium was not detected in background samples (Appendix C).

The Null hypothesis tested was whether the mean and median of the concentrations of thallium in soils onsite are < or = to the mean and median concentrations of the concentrations of thallium in offsite or background soil samples.

The alternative hypothesis tested was whether the mean and median of the concentrations of thallium in soils onsite are > the mean and median concentrations of the concentrations of thallium in offsite or background soil samples.

The Gehan statistical analysis concluded the Null hypothesis was not rejected and the P-value adjusted for ties was 0.376.

The Wilcoxon-Mann-Whitney and Tarone-Ware statistical analyses were unable to perform as the background sample size consisted of all non-detects.

The Multiple Box Plots indicate most of the concentrations of thallium in onsite soils are consistent with background with one notable outlier.

The Q-Q Plots indicate over 97% of the concentrations of thallium in onsite soils are consistent with background with one distinct outlier.

The conclusion therefore is reached that thallium is present at the site at concentrations consistent with background and therefore was eliminated as a chemical of concern and was not quantitatively assessed in the risk assessment.

A total of 52 chemicals of concern were quantitatively assessed in the risk assessment. These chemicals of concern include: TPH-g, TPH-d, TPH-o, C1-C12 VPH aromatic, C12-C24 VPH aromatic, C26->C32 VPH aromatic, benzene, bromodichloromethane, n-butylbenzene, sec-butylbenzene, tert-butylbenzene, ethylbenzene, isopropylbenzene (cumene), 2-methylnaphthalene, naphthalene, n-propylbenzene, 1,1,2,2-tetrachloroethane (1,1,2,2-TCA), tetrachloroethylene (PCE), toluene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, vinyl chloride, m,p-xylenes, o-xylenes, Aroclor 1248, Aroclor 1254, Aroclor 1260, barium, codalt, chromium, copper, lead, mercury, molybdenum, nickel, antimony, vanadium, and zinc in the soil matrix; 4-isopropyltoluene, n-butylbenzene, naphthalene, n-propylbenzene, PCE, toluene, trichlorofluoromethane and 1,3,5-trimethylbenzene in the vapor phase. Benzene, bromodichloromethane, chloroform, ethylbenzene, naphthalene, 1,1,2,2-TCA, PCE, vinyl chloride, cadmium, cobalt and nickel were assessed as both a carcinogen and noncarcinogen.

6.0 TOXICITY ASSESSMENT

Toxicity values are combined with exposure factors to estimate noncancer adverse health effects and cancer risks. Toxicity values include reference doses (RfDs), reference concentrations (RfCs), unit risk factors (URFs) and slope factors (SFs) that are used to evaluate noncancer adverse health effects and cancer risks. USEPA (1989) has developed the following hierarchical toxicity identification protocol:

- Integrated Risk Information System (IRIS, USEPA 1999)
- Health Effects Assessment Summary Tables (HEAST, USEPA 1997)
- National Center for Environmental Assessment (NCEA)

The State of California Office of Environmental Health Hazard Assessment (OEHHA) and the State of California Department of Toxic Substances Control (DTSC) Office of Human and Ecological Risk (HERO) have developed URFs SFs, RfCs and RfDs. Pursuant to regulatory agency guidance OEHHA's and HERO's values are preferentially used instead of USEPA's when available, as OEHHA's and HERO's values are generally more conservative than USEPA's (DTSC 2018, USEPA 2004).

If a constituent had both a risk factor and a reference concentration it was assessed as a carcinogen and as a noncarcinogen. The unit risk factors and reference concentrations were obtained from DTSC HERO (DTSC 2018), ATSDR, IRIS, OEHHA, PPRTV as listed in USEPA's Regional Screening Levels (November 2017) and DTSC's Screening Levels for residential soils (January 2018).

The exposure point concentrations, the slope factors and reference doses for the constituents detected in the soil matrix and quantitatively assessed are presented in Table 6.

7.0 EXPOSURE ASSESSMENT

The exposure assessment provides a scientifically defensible basis for the identification of potentially exposed human receptors and the most likely ways they might be exposed to chemicals of concern at the site. As defined by USEPA (1989), the following four components are necessary for chemical exposure to occur:

- A chemical source and a mechanism of chemical release to the environment
- An environmental transport medium (e.g., soil) for the released chemical
- A point of contact between the contaminated medium and the receptor (i.e., the exposure point)
- An exposure route (e.g., ingesting chemically-impacted soil) at the exposure point

All four of these elements must be present for an exposure pathway to be considered complete and for chemical exposure to occur (USEPA 1989).

This HHRA evaluated the potential for receptors to be exposed to the maximum detected concentrations or the upper confidence level (UCL), whichever value was less, pursuant to the ProUCL User's Guide (USEPA 2004) of the constituents detected in the top 10-ft of soil. The ProUCL model output for constituents detected in the soil matrix is included as Appendix G and for VOCs detected in soil vapor is included as Appendix H.

The maximum concentrations of the VOCs detected in soil vapor at 5-ft underlying the site were used as the exposure point concentrations in the Johnson & Ettinger vapor intrusion model. Data collected from the soil matrix and soil vapor investigation in 2011, 2012, 2017 and 2018 were used in the risk assessment. Exposure point concentrations are presented in Table 6.

7.1 Average and Reasonable Maximum Exposures

Typically two types of exposure scenarios are evaluated in a risk assessment; an average exposure scenario, and a reasonable maximum exposure (RME) scenario. The average exposure scenario represents a more typical exposure, believed to be most likely to occur, while the reasonable maximum exposure scenario represents a plausible worst case situation - one that is not very likely to occur. USEPA guidance (1989) recommends evaluating a reasonable maximum exposure scenario. The reasonable maximum exposure scenario estimates the exposure a receptor might receive using highly conservative intake assumptions (e.g., 90th or 95th percentile for most intake assumptions) and the upper confidence limit (UCL) on the mean of the chemical concentrations. It is assumed that by evaluating a reasonable maximum exposure scenario potential health risks to extremely sensitive individuals within a particular receptor population will be adequately addressed. As an added measure of conservatism, only a reasonable maximum exposure scenario was evaluated in this HHRA.

The DTSC PEA and USEPA guidance contain formulae that incorporate default values which were selected to be health protective. Some of these default values, such as, the exposure frequency, exposure time and exposure duration, were modified when evaluating the commercial worker and construction worker scenarios (DTSC 2015, USEPA 2004).

8.0 **RISK CHARACTERIZATION**

The risk characterization process incorporates data from the exposure and toxicity assessments. The exposure assessment information necessary to estimate risks and hazards includes the estimated chemical intakes, exposure modeling assumptions, and the exposure pathways assumed to contribute to the majority of exposure for each receptor over a given time period (USEPA 1989a). The exposure parameters for assessing the constituents detected in the soil matrix are included as Table 7.

The method by which chemicals with carcinogenic and/or noncarcinogenic effects are evaluated to determine whether they pose a risk or an adverse impact to human health is discussed below, relative to the exposure pathways by which the receptors may be exposed to the exposure point concentrations of the chemicals of concern.

8.1 Ingestion and Dermal Contact Pathways

To provide an evaluation of chronic risk along the ingestion and dermal contact pathways the following equations for risk and hazard were used consistent with PEA guidance (DTSC 2015).

$$\begin{aligned} \text{Risk}_{\text{soil}} &= & \text{SF}_{\text{o}} \text{ x } \text{C}_{\text{s}} \text{ x } \underline{\text{IR}}_{\text{s, adult}} \text{ x } \underline{\text{FF}} \text{ x } \underline{\text{ED}}_{\text{adult}} \text{ x } 10^{-6} \text{ kg/mg}}{\text{BW}_{\text{adult}} \text{ x } \text{ AT } \text{ x } \underline{\text{FF}}} \\ &+ \text{SF}_{\text{o}} \text{ x } \text{C}_{\text{s}} \text{ x } \underline{\text{SA}}_{\text{adult}} \underline{\text{x } \text{AF } \text{ x } \underline{\text{ABS } \text{ x } \underline{\text{FF}} \text{ x } \underline{\text{ED}}_{\text{adult}} \text{ x } 10^{-6} \text{ kg/mg}}{\text{BW}_{\text{adult}} \text{ x } \text{ AT } \text{ x } \underline{\text{FF}}} \\ &+ \text{SF}_{\text{o}} \text{ x } \text{C}_{\text{s}} \text{ x } \underline{\text{IR}}_{\text{s, child}} \underline{\text{x } \underline{\text{FF}} \text{ x } \underline{\text{ED}}_{\text{child}} \text{ x } 10^{-6} \text{ kg/mg}}{\text{BW}_{\text{child}} \text{ x } \text{ AT } \text{ x } \underline{\text{FF}}} \\ &+ \text{SF}_{\text{o}} \text{ x } \text{C}_{\text{s}} \text{ x } \underline{\text{SA}}_{\text{child}} \underline{\text{x } AF \text{ x } ABS \text{ x } \underline{\text{FF}} \text{ x } \underline{\text{ED}}_{\text{child}} \text{ x } 10^{-6} \text{ kg/mg}}{\text{BW}_{\text{child}} \text{ x } \text{ AT } \text{ x } \underline{\text{FF}}} \end{aligned}$$

 $Hazard_{soil} =$

 $\begin{array}{ccc} (1/RfD_o) \; x \;\; C_s \; x \; \underline{IR_{sachild} \; x \; EF \; x \; ED_{child} \; x \; 10^{-6} \; kg/mg} \\ & BW_{child} \; x \; AT \end{array}$

 $+ (1/RfD_o) \ x \ C_s \ x \ \underline{SA_{child} \ x \ AF \ x \ ABS \ x \ EF_{child} \ x \ ED_{child} \ x \ 10^{-6} \ kg/mg}_{BW_{child} \ x \ AT}$

 $+ (1/RfD_o) \ x \ C_s \ x \ \underline{IR_{s.adult} \ x \ EF \ x \ ED_{adult} \ x \ 10^{-6} \ kg/mg} \\ BW_{adult} \ x \ AT$

 $+ (1/RfD_o) \ x \ C_s \ x \ \underline{SA_{adult} \ x \ AF \ x \ ABS \ x \ EF_{adult} \ x \ ED_{adult} \ x \ 10^{-6} \ kg/mg}_{BW_{adult} \ x \ AT}$

Where:

 $SF_o = cancer slope factor (mg/kg-day)^{-1}$ $C_s = concentration in soil (mg/kg)$ $RfD_o = oral reference dose (mg/kg-day)$ ABS = absorption fraction (dimensionless) ED = exposure duration (years) EF = exposure frequency (days/year) BW = body weight (kg) IRs = incidental soil ingestion rate (mg/day) SA = skin surface area (cm²/event) AF = soil to skin adherence factor (mg/cm²)AT = averaging time (days)

Chemical specific values for the absorption fractions (ABS) parameter were obtained from USEPA and DTSC (USEPA November 2017; DTSC 2018). Toxicity and exposure point concentrations are found in Table 6. Exposure parameters for assessing constituents detected in the soil matrix are presented in Table 7. The maximum concentration or the upper confidence level, whichever was less, of the constituents detected in the top 10-ft of soils were evaluated in this risk assessment for the residential, commercial worker and construction worker scenarios.

The exposure factors presented in Tables 6 and 7 provide a conservative estimate of chronic risk and hazard to human health due to exposure to the chemicals of concern detected in the soil matrix via the ingestion and dermal contact routes of exposure. The calculated estimates of risk and hazard due to exposure to constituents detected in the soil matrix are provided in Tables 8-11.

8.2 Inhalation Pathway Soil Matrix

To provide an evaluation of chronic risk along the inhalation pathway the following equations (DTSC 2015, USEPA 2009) for estimating risk and hazard due to exposure to constituents of concern detected in the soil matrix were used consistent with PEA guidance (DTSC 2015, USEPA 2009).

Semi-volatile organic compounds and metals in soil are evaluated in outdoor air using particulate emission factors (PEFs) to obtain concentrations of chemicals in dust. PEFs are used to develop an estimate of the concentration of a chemical in dust based on its concentration in soil. It assumes that the dust from the site is caused by the wind and not created by mechanical means (e.g. construction activities, tilling, automobile traffic, etc.) (DTSC 2015).

A default PEF of $1.36E+09 \text{ (m}^3/\text{kg})$ is used for the residential and commercial worker scenarios, and a PEF of 1.00E+06 is used for the construction worker scenario (DTSC 2015, USEPA 2009). It assumes an infinite source of chemicals, a vegetative cover of 50%, and a mean annual wind speed of 4.69 m/s. This is equivalent to a dust concentration of 0.76 g/m^3 at the receptor. The default dispersion term (Q/C) of 90.80 (g/m2-s per kg/m3) is based on a site of 0.5 acres and dispersion modeling runs of 29 sites across the United States. The default Q/C provides a conservative estimate of the long-term exposure to dust (DTSC 2015).

 $C_a = (C_s/PEF) \times 1000 \mu g/mg$

Where:

 C_a = concentration in air, mg/m³ C_s = concentration in soil, mg/kg PEF = particulate emission factor

$$Risk_{air} = IUR \ x \ C_a \ x \ \underline{ET \ x \ EF \ x \ ED} \\ AT$$

Hazard_{air} =
$$(1/RfC \times 1000 \mu g/mg) \times C_a \times ET \times EF \times ED$$

AT

Where:

IUR = inhalation unit risk factor $(\mu g/m^3)^{-1}$ RfC = reference concentration (mg/m^3) C_a = contaminant concentration in air (mg/m^3) ET = exposure time (hours/day) EF = exposure frequency (days/year) ED = exposure duration (years)

AT = averaging time (hours)

The risk and hazard for the air pathway are based on either the exposure to volatile emissions for VOCs or the exposure to fugitive dust emissions for non-VOCs. The Office of Scientific Affairs defines a VOC as a chemical with a vapor pressure of 0.001 mm mercury or higher and a Henry's Law Constant of 1×10^{-5} or higher. Exposure to a chemical via the air pathway can be adequately performed using either volatilization or fugitive dust scenarios; it is not necessary to do both (DTSC 2015).

For this risk assessment exposure to non-VOCs detected in the soil matrix via the inhalation pathway was performed using the fugitive dust scenario.

8.3 The DTSC modified Johnson and Ettinger Model - Soil gas screen, version 2.0 (April 2003; modified by DTSC HERO December 2014)

The exposure point concentrations (the maximum detected concentrations) of VOCs detected at least one time in soil vapor was assessed by the DTSC modified Johnson & Ettinger Model soil gas screen, version 2.0 (April 2003; modified by DTSC HERO December 2014).

The Johnson and Ettinger Model has the following conservative assumptions: (1) steady state conditions exist, (2) an infinite source of contamination exists, (3) the subsurface is homogenous, (4) air mixing within the building is uniform, (5) preferential pathways do not exist, (6) biodegradation of vapors does not occur, (7) contaminants are homogenously distributed, (8) contaminant vapors enter the building primarily through cracks in the foundation and walls, (9) buildings are constructed on slabs or with basements, (10) ventilation rates and pressure differences are assumed to remain constant and (11) the receptors are exposed to these constituents for 350 days per year for 30 years (residential scenario).

The Johnson & Ettinger Model was used to calculate incremental risks and hazards by the following equations imbedded within the model:

$$Risk = \frac{URF \ x \ EF \ x \ ED \ x \ C_{building}}{AT_c \ x \ 365 \ days/year}$$

Where: URF = unit risk factor $\mu g/m^3$; comparable to a SF EF = exposure frequency = 350 days/year ED = exposure duration = 30 years $C_{building}$ = vapor concentration in the building, milligrams per cubic meter (mg/m³) per $\mu g/kg$ soil; calculated by the model AT_c = averaging time for carcinogens; default value = 70

Hazard Quotient = $\frac{\text{EF x ED x 1/RfC x C_{building}}}{\text{AT}_{nc} \text{ x 365 days/year}}$

Where: RfC = Reference Concentration mg/m³; comparable to a RfD EF = exposure frequency = 350 days/year ED = exposure duration = 30 years $C_{building}$ = vapor concentration in the building, milligrams per cubic meter (mg/m³) per µg/kg soil; calculated by the model AT_{nc} = averaging time for noncarcinogens; default value = 25

The results of the Johnson & Ettinger model are presented in Tables 8 and 10 and Appendices I and J.

8.4 DTSC's LeadSpread 8.0 Model

DTSC's LeadSpread 8.0 Model estimates the hazard due to exposure to lead in air and onsite soils/dust for adults and children within a residential exposure scenario. Typically, lead concentrations in air are not measured onsite. Therefore the model extrapolates these concentrations from the measured concentrations of lead in onsite soils.

DTSC's LeadSpread 8.0 Model results indicate that lead does not pose an unacceptable hazard to adults or children exposed to the 95UCL concentration of lead in site soils, 75mg/kg, used in the model as the exposure point concentration. These results are provided in Table 12.

8.5 Noncancer Adverse Health Effects

Noncarcinogenic effects or hazards are typically evaluated by comparing an exposure level over a specified time period (e.g., a lifetime or 25 years), with a reference dose based on a similar time period. Hazard quotient values less than 1 indicate that potential exposures to noncarcinogenic COCs are not expected to result in toxicity (USEPA 1989). Summing the hazard quotient values to derive a hazard index (HI) provides an estimation of the total potential hazard due to a simultaneous exposure to all the noncarcinogenic COCs. However, summing hazard quotient values is not necessary when the chemicals of concern target different organs within the body (USEPA 1989, DTSC 2015). Although the noncarcinogenic chemicals of concern quantitatively assessed in this risk assessment target different organs within the body, the estimated hazard quotients were summed to derive a HI.

8.6 Lifetime Excess Cancer Risk

Slope factors are used to estimate the potential risk associated with exposure to individual COCs. The slope factor is multiplied by the chronic daily intake averaged over 70 years to estimate lifetime excess cancer risk. "Excess" or "incremental" cancer risk represents the probability of an individual developing cancer over a lifetime as a result of chemical exposure, over and above the baseline or "background" cancer risk in the general population. Cancer risks and noncancer health hazards estimated in the HHRA are regarded as estimated or theoretical results developed on the basis of the toxicity factors, chemical fate and transport, exposure assumption, and other inputs previously described. Cancer risks do not represent actual cancer cases in actual people. Rather, risks are calculated on the basis of an entirely hypothetical set of conditions. This assumed "exposure scenario" is developed to protect human health, and is based on standard USEPA and Cal-EPA methods and assumptions.

USEPA characterizes theoretical excess lifetime cancer risks below one in one million (10^{-6}) as not of concern and has stated that risks between 10^{-6} and one in 10,000 (10^{-4}) are "safe and protective of public health" (Federal Register 56(20):3535, 1991). Remedial action is not generally required by USEPA for sites with a theoretical lifetime excess risk of less than 10^{-4} ; whereas the State of California uses a risk-management approach (DTSC 2011).

The more stringent target risk of 10^{-6} is typically applied to residential receptors. To provide perspective, a total theoretical lifetime excess cancer risk of one in 100,000 (10^{-5}) is frequently accepted by Cal-EPA for worker receptors at California sites, and the target risk for chemicals evaluated under State Proposition 65 regulations is 10^{-5} (22CCR 12703).

8.7 Multipathway Cancer Risk

Based on regulatory guidelines, it is appropriate to combine risk estimates across exposure pathways for a given receptor. At the same time, exposure to multiple carcinogenic COCs is also typically considered to be additive. For exposures to multiple pathways and chemicals, the following equation was used to estimate total theoretical lifetime excess carcinogenic risks:

Williams	Total	Risk	=	m Σ p=1	n Σ i=1	CR i,p	
where:							
Total Risk	=	Exces	ss cance	er risk froi	n expos	ure to n chemicals via m p	athways
m	=	Numl	per of ex	xposure p	athways	3	
n	=	Numl	per of cl	hemicals			
CR i,p	=	Poten	tial can	cer risk fr	om exp	osure to chemical i via pat	hway p

This equation was used to estimate the total potential cancer risks due to exposure to the carcinogenic COCs via the ingestion, dermal contact and inhalation routes of exposure. The estimated risks, total risk, estimated hazards and hazard index are presented in Tables 8-11.

8.8 Estimation of Risks and Hazards

Residential Scenario – Hypothetical scenario as property is zoned industrial

Estimated Risk Soil Ingestion and Dermal Contact - The estimated risk due to exposure to constituents detected in the soil matrix via the ingestion and dermal contact exposure routes 2.32×10^{-5} is greater than the target threshold 1×10^{-6} and is attributable to Aroclor 1254 and nickel.

Estimated Risk Soil & Soil Vapor Inhalation - The estimated risk due to exposure to constituents detected in the soil matrix via the inhalation exposure route and due to exposure to VOCs in the vapor phase is 1.60×10^{-4} greater than the target threshold 1×10^{-6} and is attributable to naphthalene.

Hazard Quotients Soil Ingestion and Dermal Contact - The sum of the estimated hazard quotients due to exposure to constituents detected in the soil matrix via the ingestion and dermal contact exposure routes is 4.83, greater than 1, the target hazard value.

Hazard Quotients Soil & Soil Vapor Inhalation - The sum of the estimated hazard quotients due to exposure to constituents detected in the soil matrix via the inhalation exposure route and to VOCs in soil vapor is 4.1, greater than 1, the target hazard value.

Summed Risk - The total risk, summed across all exposure pathways for all carcinogenic chemicals of concern in the soil matrix and soil vapor, is 1.83×10^{-4} , greater than the target risk.

Hazard Index – The total hazard, summed across all exposure pathways for all noncarcinogenic chemicals of concern in the soil matrix and soil vapor is 9, greater than the target hazard value. These estimated risk and hazards values are presented in Tables 8 and 11.

Construction Worker Scenario – Soil Matrix

Estimated Risk Ingestion and Dermal Contact - The estimated risk due to exposure to constituents detected in the soil matrix via the ingestion and dermal contact exposure routes 7.96×10^{-7} less than the target threshold 1×10^{-5} .

Estimated Risk Inhalation - The estimated risk due to exposure to constituents detected in the soil matrix via the inhalation exposure route is 1.28×10^{-9} less than the target threshold 1×10^{-5} .

Hazard Quotients Ingestion and Dermal Contact - The estimated hazard quotients due to exposure to constituents detected in the soil matrix via the ingestion and dermal contact exposure routes is 1.82, greater than 1, the target hazard value, none of the individual estimated HQs exceeded the threshold.

Hazard Quotients Inhalation - The estimated hazard quotients due to exposure to constituents detected in the soil matrix via the inhalation exposure route is 0.0009, which is less than 1, the target hazard value.

Summed Risk - The total risk, summed across all exposure pathways for all carcinogenic chemicals of concern in the soil matrix, is 7.97×10^{-7} , less than the target threshold 1×10^{-5} .

Hazard Index – The total hazard, summed across all exposure pathways for all noncarcinogenic chemicals of concern in the soil matrix is 1.82, greater than the target hazard value. These estimated risk and hazards values are presented in Tables 9 and 11.

Commercial Worker Scenario

Estimated Risk Soil Ingestion and Dermal Contact - The estimated risk due to exposure to constituents detected in the soil matrix via the ingestion and dermal contact exposure routes 5.83×10^{-6} less than the target threshold 1×10^{-5} .

Estimated Risk Soil & Soil Vapor Inhalation - The estimated risk due to exposure to constituents detected in the soil matrix via the inhalation exposure route and to VOCs in soil vapor is 1.8×10^{-5} greater than the target threshold 1×10^{-5} and is attributable to naphthalene.

Hazard Quotients Soil Ingestion and Dermal Contact - The estimated hazard quotients due to exposure to constituents detected in the soil matrix via the ingestion and dermal contact exposure routes is 0.37, which is less than 1, the target hazard value.

Hazard Quotients Soil & Soil Vapor Inhalation - The estimated hazard quotients due to exposure to constituents detected in the soil matrix via the inhalation exposure route and to VOCs in soil vapor is 0.5, less than 1, the target hazard value.

Summed Risk - The total risk, summed across all exposure pathways for all carcinogenic chemicals of concern in the soil matrix and soil vapor, is 2.38×10^{-5} , greater than the target threshold 1×10^{-5} .

Hazard Index – The total hazard, summed across all exposure pathways for all noncarcinogenic chemicals of concern in the soil matrix and soil vapor is 0.88, less than the target hazard value. These estimated risk and hazards values are presented in Tables 10 and 11.

9.0 UNCERTAINTY ANALYSIS

The uncertainty analysis characterizes the propagated uncertainty in health risk assessments. These uncertainties are driven by variability in:

- The chemical data selection and assumptions used in the models with which concentrations at receptor locations were estimated.
- The variability of receptor intake parameters.
- The accuracy of toxicity values used to characterize exposure, hazards and cancer risks.

Additionally, uncertainties are introduced in the risk assessment when exposures to several substances across multiple pathways are summed.

Quantifying uncertainty is an essential element of the risk assessment process. According to USEPA's Guidance on Risk Characterization for Risk Managers and Risk Assessors, point estimates of risk "do not fully convey the range of information considered and used in developing the assessment" (USEPA 1992). The following components of the risk assessment process can introduce uncertainties:

- Data Collection and Evaluation
- Exposure Assessment
- Toxicity Assessment
- Risk Characterization

9.1 Data Collection and Evaluation

The techniques used for data sampling and analysis and the methods used for identifying chemicals for evaluation in this risk assessment, may result in a number of uncertainties. These uncertainties are itemized below in the form of assumptions.

- It was assumed that the nature and extent of chemical impacts on and near the site have been adequately characterized. If this assumption is not valid, then potential health impacts may be over- or underestimated.
- Systematic or random errors in the chemical analyses may yield erroneous data. These types of errors may result in a slight over- or underestimation of risk.

9.2 Exposure Assessment

A number of uncertainties are associated with the exposure assessment, including estimation of exposure point concentrations and assumptions used to estimate chemical intakes. Key uncertainties associated with these components of the HHRA are summarized below.

9.2.1 Exposure Pathways

The exposure pathways evaluated in this HHRA are expected to represent the primary pathways of exposure, based on the results of the chemical analyses, and the expected fate and transport of these chemicals in the environment. Minor or secondary pathways may also exist, but often cannot be identified or evaluated using the available data. The contribution of secondary pathways to the overall risk from the

site is not likely to be significant. In addition, intake assumptions are reflective of trends (usually for the most sensitive individual within an entire population), and as such are subject to intrinsic variability. In both cases, their presence introduces a level of uncertainty to this risk assessment process.

9.3 Toxicity Assessment

Toxicity information for many chemicals is often limited. Consequently, there are varying degrees of uncertainty with the calculated toxicity values. Sources of uncertainty associated with toxicity values include:

- Using dose-response information from effects observed at high doses to predict the adverse health effects that may occur following exposure to the low levels expected from human contact with the agent in the environment.
- Using dose-response information from short-term exposures to predict the effects of long-term exposures.
- Using dose-response information from animal studies to predict effects in humans.
- Using dose-response information from homogeneous animal populations or human populations to predict the effects likely to be observed in the general population consisting of individuals with a wide range of sensitivities.

To compensate for these uncertainties, USEPA typically applies a margin of safety when promulgating human toxicity values. Therefore, use of USEPA toxicity values likely results in an overestimation of potential hazard and risk.

9.4 Risk Characterization

The reasonable maximum exposure scenario risk characterization represents an over-estimation of risk. Site-specific information regarding depth below ground at which the constituents of concern were detected was not used in the equations. The reasonable maximum exposure scenario estimated the risk to the receptors based on the maximum detected concentrations or the UCLs for the constituents quantitatively assessed in this risk assessment.

9.5 Summary of Risk Assessment Uncertainties

The analysis of the uncertainties associated with this risk assessment indicates that the estimated risks and hazards derived from the equations in the PEA Manual (DTSC 2015), the RAGs Manual (USEPA 2009), the LeadSpread Model (DTSC) and the J&E Models for the reasonable maximum exposure scenario represent an over-estimation of risk. Although as outlined in the sections above, many factors can contribute to the over- or underestimation of risk, in general, a mixture of conservative and upper-bound input values were identified to estimate potential exposures. Compounding conservative and upper-bound input values in the risk assessment process are intended to lead to reasonable, maximum, health-conservative estimates. The actual impacts to human health are most likely less than those estimated in this HHRA for the evaluated receptors and pathways.

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TABLES

Table 1 - Metals Analytical Results in Soil

SAMPLE	DATE	As	Ba	Cd	Со	Cr	Cr+6	Cu	Hg	Mo	Ni	Pb	Sb	Tl	V	Zn
ID	SAMPLED	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
RSLr		0.68	15000	71	23	120000	0.3	3100	11	390	670	400	31	1.6	390	23000
DTSC-SLr		0.067		4.58		36000			23		0.42	80			390	
RSLi		3	220000	980	350	1800000	6.3	47000	46	5800	8100	800	470	23	5800	350000
DTSC-SLi		0.25		6.37		170000			69		0.89	320			1000	
Offsite-1	4/4/2005	5.2	97	< 0.51	8.1	21	3.5	25	< 0.16	<1.7	12	12	<1.6	<1.5	35	62
Offsite-5	4/4/2005	12	160	< 0.51	17	50	8.34	64	< 0.18	<1.7	30	8.1	2.3	<1.5	75	99
Offsite-10	4/4/2005	12	170	< 0.51	14	32	5.34	35	< 0.18	<1.7	22	5.6	<1.6	<1.5	58	67
Offsite-20	4/4/2005	14	73	< 0.51	17	35	5.83	80	< 0.15	<1.7	22	10	<1.6	<1.5	67	95
SB1-5	1/3/17	3.7	110	< 0.5	8.6	28	< 0.21	37	3.56	<1	13	45	<2.5	<2.5	36	93
SB1-10	1/3/17	<3.5	71	< 0.5	7.5	20	< 0.19	17	0.09	<1	14	3.7	<2.5	<2.5	31	34
SB2-5	1/3/17	<3.5	170	< 0.5	9.9	25	< 0.19	25	0.26	<1	12	120	<2.5	<2.5	36	150
SB2-10	1/3/17	5.5	100	< 0.5	11	23	< 0.21	21	0.04	<1	20	9.1	<2.5	<2.5	39	40
SB3-5	1/3/17	<3.5	200	1.1	6.5	25	< 0.21	190	2.05	<1	19	97	<2.5	<2.5	25	260
SB3-10	1/3/17	<3.5	79	< 0.5	8.4	22	< 0.19	21	0.03	<1	15	4.2	<2.5	<2.5	34	39
SB4-5	1/3/17	<3.5	74	< 0.5	8.3	33	< 0.21	22	0.04	<1	19	3.7	<2.5	<2.5	48	39
SB4-10	1/3/17	<3.5	34	< 0.5	4.8	19	< 0.21	9.5	0.02	<1	8.2	<3	<2.5	<2.5	30	27
SB5-5	1/3/17	<3.5	99	< 0.5	6.3	130	< 0.21	29	2.65	<1	17	46	4.8	<2.5	28	160
SB5-10	1/3/17	<3.5	49	< 0.5	5.3	18	< 0.21	10	0.04	<1	11	<3	<2.5	<2.5	31	30
SB6-5	1/3/17	<3.5	79	< 0.5	6.3	14	< 0.21	14	0.05	<1	12	3.4	<2.5	<2.5	21	26
SB6-10	1/3/17	<3.5	33	< 0.5	5.6	18	< 0.21	15	0.02	<1	11	3	<2.5	<2.5	22	24
SB7-5	1/3/17	3.5	230	< 0.5	12	31	< 0.19	28	0.03	<1	20	6.1	<2.5	<2.5	40	52
SB7-10	1/3/17	<3.5	79	< 0.5	7.8	16	< 0.21	16	0.03	<1	14	3.8	<2.5	<2.5	28	31
SB8-5	1/4/17	7.6	120	< 0.5	7.5	25	< 0.21	19	0.03	<1	17	<3	<2.5	<2.5	39	39
SB8-10	1/4/17	<3.5	78	< 0.5	10	25	< 0.21	17	0.02	1.1	13	<3	<2.5	<2.5	43	56
SB9-5	1/4/17	<3.2	55	< 0.45	6.7	19	< 0.21	19	0.1	0.93	14	<2.7	<2.3	<2.3	28	33
SB9-10	1/4/17	<3.5	35	< 0.5	5.3	21	< 0.21	15	0.04	<1	12	3.1	<2.5	<2.5	23	27
SB10-5	1/4/17	<3.5	140	< 0.5	11	25	< 0.19	21	0.12	<1	18	4.4	<2.5	<2.5	35	44
SB10-10	1/4/17	<3.5	45	< 0.5	6.1	19	< 0.19	11	0.04	<1	11	<3	<2.5	<2.5	20	27
SB11-5	1/4/17	<3.5	71	< 0.5	8.1	21	0.25	15	0.05	<1	14	3.2	<2.5	<2.5	26	30
SB11-10	1/4/17	<3.5	32	< 0.5	4.2	20	< 0.21	10	0.1	<1	9.3	<3	<2.5	<2.5	13	24
SB12-5	1/4/17	<3.5	86	< 0.5	9.5	23	< 0.21	17	1.08	<1	13	28	<2.5	<2.5	32	120
SB12-10	1/4/17	<3.5	66	< 0.5	6.5	21	< 0.21	15	0.04	<1	11	3	<2.5	<2.5	30	36
SB13-5	1/4/17	<3.5	78	< 0.5	7.5	17	< 0.21	12	0.01	<1	11	3.8	<2.5	<2.5	26	37
SB13-10	1/4/17	<3.5	63	< 0.5	8.2	21	< 0.21	12	0.04	<1	13	<3	<2.5	<2.5	29	37
SB14-5	1/4/17	<3.2	110	< 0.45	11	27	< 0.21	22	0.04	< 0.91	21	4.9	<2.3	<2.3	45	45
SB14-10	1/4/17	<3.2	38	< 0.45	6.3	19	< 0.19	10	0.02	< 0.91	11	<2.7	<2.3	<2.3	18	28
SB15-5	1/4/17	<3.5	63	< 0.5	6.4	15	< 0.21	7.9	0.02	<1	8.4	<3	<2.5	<2.5	21	31
SB15-10	1/4/17	<3.5	58	< 0.5	7.4	23	< 0.21	7.5	< 0.01	<1	12	<3	<2.5	<2.3	26	34
SB16-5	1/4/17	<3.2	100	< 0.45	9.2	21	< 0.21	40	0.06	< 0.91	15	7.5	<2.3	<2.5	30	46
SB16-10	1/4/17	<3.5	80	< 0.5	7.9	21	< 0.21	13	0.05	<1	13	3	<2.5	<2.5	32	38
SB17-5	1/4/17	<3.5	60	< 0.5	6.9	15	< 0.21	11	0.05	<1	11	<3	<2.5	<2.3	24	30

SAMPLE	DATE	As	Ba	Cd	Со	Cr	Cr+6	Cu	Hg	Mo	Ni	Pb	Sb	Tl	V	Zn
ID	SAMPLED	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
RSLr		0.68	15000	71	23	120000	0.3	3100	11	390	670	400	31	1.6	390	23000
DTSC-SLr		0.067		4.58		36000			23		0.42	80			390	
RSLi		3	220000	980	350	1800000	6.3	47000	46	5800	8100	800	470	23	5800	350000
DTSC-SLi		0.25		6.37		170000			69		0.89	320			1000	
Offsite-1	4/4/2005	5.2	97	< 0.51	8.1	21	3.5	25	< 0.16	<1.7	12	12	<1.6	<1.5	35	62
Offsite-5	4/4/2005	12	160	< 0.51	17	50	8.34	64	< 0.18	<1.7	30	8.1	2.3	<1.5	75	99
Offsite-10	4/4/2005	12	170	< 0.51	14	32	5.34	35	< 0.18	<1.7	22	5.6	<1.6	<1.5	58	67
Offsite-20	4/4/2005	14	73	< 0.51	17	35	5.83	80	< 0.15	<1.7	22	10	<1.6	<1.5	67	95
SB17-10	1/4/17	<3.2	42	< 0.45	6.3	27	< 0.21	11	0.02	< 0.91	12	3.2	<2.3	<2.5	23	32
SB18-5	1/4/17	<3.5	63	< 0.5	8.8	19	< 0.21	10	0.03	<1	13	4.1	<2.5	<2.5	30	36
SB18-10	1/4/17	<3.5	72	< 0.5	9.7	39	< 0.21	28	0.03	<1	30	4.7	<2.5	<2.5	32	44
SB19-5	1/4/17	<3.5	81	< 0.5	5.8	35	0.36	30	0.27	<1	12	23	<2.5	<2.5	26	94
SB19-10	1/4/17	<3.5	59	< 0.5	7.6	22	1.7	11	0.02	<1	12	<3	<2.5	<2.5	28	37
SB20-5	1/4/17	< 3.2	150	0.77	240	220	< 0.21	200	0.04	23	27	450	11	13	51	520
SB20-10	1/4/17	<3.2	140	<0.45	12	26	< 0.21	33	0.03	<0.90	19	37	<2.3	<2.3	40	110

Notes:

mg/kg = milligram per kilogram

As = arsenic, Ba = barium, Cd = cadmium, Co = cobalt, Cr = chromium, Cr+6 = hexavalent chromium, Cu = copper, Hg = mercury, Mo = molybdenum, Ni = nickel, Cr = chromium, Cr+6 = hexavalent chromium, Cu = copper, Hg = mercury, Mo = molybdenum, Ni = nickel, Cr = chromium, Cr+6 = hexavalent chromium, Cu = copper, Hg = mercury, Mo = molybdenum, Ni = nickel, Cr = chromium, Cr+6 = hexavalent chromium, Cu = copper, Hg = mercury, Mo = molybdenum, Ni = nickel, Cr = chromium, Cr+6 = hexavalent chromium, Cu = copper, Hg = mercury, Mo = molybdenum, Ni = nickel, Cr = chromium, Cr+6 = hexavalent chromium, Cu = copper, Hg = mercury, Mo = molybdenum, Ni = nickel, Cr = chromium, Cr = chrom

Pb = lead, Se = selenium, V = vanadium, Zn = zinc

<3.5 = concentration is less than the Reporting Limit (3.5), i.e., not detected (ND)

SB1-5 = Soil Boring1, 5-feet below ground surface (bgs).

Analytical results are included as Appendix A

Soil was collected from 5-feet bgs and 10-feet bgs from the same boring.

Only detected concentrations of metals are presented in this table. All other metals were ND.

Offsite Soil Borings were collected from Spud Field, Signal Hill (1.5miles SE). Background Cr+6 estimated as 1/6 total Cr.

RSLr = USEPA Regional Screening Level for residential soils, RSLi = USEPA Regional Screening Levels for industrial soils (November 2017)

DTSC SLr = CalEPA DTSC Screening Level for residential soils, DTSC SLi = CalEPA DTSC Screening Level for industrial soils (January 2018)

HHRA Note Number 3 for cadmium in soils (January 2018)

Nickel Refinery Dust values were used for screening levels
	Date	ТРН-				GO GO	G0 G10	G10 G11					G10 G00		Get Geo		a
Sample ID	Sampled	g	TPH-d	ТРН-о	<c8< th=""><th>C8-C9</th><th>C9-C10</th><th>C10-C11</th><th>C11-C12</th><th>C12-C14</th><th>C14-C16</th><th>C16-C18</th><th>C18-C20</th><th>C20-C24</th><th>C24-C28</th><th>C28-C32</th><th>C>32</th></c8<>	C8-C9	C9-C10	C10-C11	C11-C12	C12-C14	C14-C16	C16-C18	C18-C20	C20-C24	C24-C28	C28-C32	C>32
RSL <i>r</i> Aromatic		82	110	2500	82	82	82	82	82	110	110	110	110	110	2500	2500	2500
RSL <i>r</i> Aliphatic		520	96	230,000	520	520	520	520	520	96	96	96	96	96	230,000	230,000	230,000
RSLi Aromatic		420	600	33,000	420	420	420	420	420	600	600	600	600	600	33,000	33,000	33,000
RSLi Aliphatic		2200	440	3,500,000	2200	2200	2200	2200	2200	440	440	440	440	440	3,500,000	3,500,000	3,500,000
DTSC SLr Aliphatic				8,400											8,400	8,400	8,400
SB1-5	1/3/2017	1	18	22	<1	<1	<1	1	1.6	4.5	5.2	4	1.3	2.3	3.5	8.8	6.9
SB1-10	1/3/2017	2.9	<5	<5	<1	<1	3.5	24	45	42	2.9	<1	<1	<1	<1	<1	<1
SB2-5	1/3/2017	< 0.039	<25	210	<5	<5	<5	<5	<5	<5	<5	<5	5	19	43	78	68
SB2-10	1/3/2017	< 0.041	<5	66	<1	<1	<1	<1	<1	1.1	4.8	8	8.1	22	21	21	14
SB3-5	1/3/2017	14	<50	5000	<10	33	150	180	370	1000	780	750	710	1300	1200	690	1100
SB3-10	1/3/2017	12	<25	3500	<5	29	150	160	320	610	510	430	420	710	650	1100	1000
SB4-5	1/3/2017	< 0.058	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
SB4-10	1/3/2017	< 0.05	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
SB5-5	1/3/2017	270	<100	3900	<20	<20	30	56	180	270	94	<20	32	230	610	1100	1200
SB5-10	1/3/2017	< 0.05	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
SB6-5	1/3/2017	< 0.05	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
SB6-10	1/3/2017	< 0.05	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
SB7-5	1/3/2017	< 0.05	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
SB7-10	1/3/2017	0.17	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
SB8-5	1/4/2017	< 0.073	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
SB8-10	1/4/2017	< 0.05	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
SB9-5	1/4/2017	< 0.044	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
SB9-10	1/4/2017	< 0.039	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
SB10-5	1/4/2017	810	<5	11	4.9	24	620	930	570	56	49	10	2.8	1.6	<1	5.3	5.5
SB10-10	1/4/2017	380	<5	14	5.2	26	310	530	320	71	51	7.9	1.9	2.6	1.4	5.1	7
SB11-5	1/4/2017	< 0.05	<5	280	<1	<1	<1	<1	<1	<1	<1	<1	4.4	21	59	120	81
SB11-10	1/4/2017	< 0.07	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
SB12-5	1/4/2017	< 0.038	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
SB12-10	1/4/2017	< 0.042	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
SB13-5	1/4/2017	< 0.035	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
SB13-10	1/4/2017	< 0.05	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
SB14-5	1/4/2017	< 0.05	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Table 2 - Total Petroleum Hydrocarbons Analytical Results in Soil

	Date	TPH-															
Sample ID	Sampled	g	TPH-d	TPH-0	<c8< th=""><th>C8-C9</th><th>C9-C10</th><th>C10-C11</th><th>C11-C12</th><th>C12-C14</th><th>C14-C16</th><th>C16-C18</th><th>C18-C20</th><th>C20-C24</th><th>C24-C28</th><th>C28-C32</th><th>C>32</th></c8<>	C8-C9	C9-C10	C10-C11	C11-C12	C12-C14	C14-C16	C16-C18	C18-C20	C20-C24	C24-C28	C28-C32	C>32
RSLr Aromatic		82	110	2500	82	82	82	82	82	110	110	110	110	110	2500	2500	2500
RSLr Aliphatic		520	96	230,000	520	520	520	520	520	96	96	96	96	96	230,000	230,000	230,000
RSLi Aromatic		420	600	33,000	420	420	420	420	420	600	600	600	600	600	33,000	33,000	33,000
RSLi Aliphatic		2200	440	3,500,000	2200	2200	2200	2200	2200	440	440	440	440	440	3,500,000	3,500,000	3,500,000
DTSC SLr Aliphatic				8,400											8,400	8,400	8,400
SB14-10	1/4/2017	< 0.044	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
SB15-5	1/4/2017	< 0.05	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
SB15-10	1/4/2017	< 0.05	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
SB16-5	1/4/2017	< 0.033	<5	46	<1	<1	<1	<1	<1	<1	<1	<1	<1	3.4	10	21	11
SB16-10	1/4/2017	< 0.05	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
SB17-5	1/4/2017	< 0.043	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
SB17-10	1/4/2017	< 0.043	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
SB18-5	1/4/2017	< 0.05	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
SB18-10	1/4/2017	< 0.062	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
SB19-5	1/4/2017	< 0.05	<5	570	<10	<10	<10	<10	<10	<10	<10	<10	12	58	110	210	180
SB19-10	1/4/2017	0.12	<5	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
SB20-5	1/4/2017	0.084	<25	1100	<5	<5	<5	<5	<5	<5	<5	<5	14	110	260	430	340
SB20-10	1/4/2017	< 0.042	<25	320	<5	<5	<5	<5	<5	<5	<5	<5	<5	7	53	140	120

Table 2 - Total Petroleum Hydrocarbons Analytical Results in Soil

Notes:

TPH-g = Total Petroleum Hydrocarbons-gasoline range C4-C12

TPH-d = Total Petroleum Hydrocarbons-diesel range C10-C24

TPH-o = Total Petroleum Hydrocarbons-oil range C22-C36

mg/kg = milligram per kilogram

<0.039 = concentration is less than the Reporting Limit (0.039), i.e., not detected (ND)

SB1-5 = Soil Boring1, 5-feet below ground surface (bgs).

Analytical results are included as Appendix A and include MADEP Analysis by GC-FID

Soil was collected from 5-feet bgs and 10-feet bgs from the same boring.

RSLr = USEPA Regional Screening Level for residential soils, RSLi for industrial soils (November 2017)

DTSC SLr = CalEPA DTSC Screening Level for residential soils (January 2018)

Sample ID	Date Sampled	Benzene	Bromodichloromethane	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	Ethylbenzene	Isopropylbenzene	p-Isopropyltoluene	Naphthalene	n-Propylbenzene	1,1,2,2-Tetrachloroethane	Toluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Vinyl Chloride	m,p-Xylenes	o-Xylene
RSLr		1.2	0.29	3900	7800	7800	5.8	1900	NA	3.8	3800	2	4900	58	780	0.59	550	650
		5.1	1.3	58,000	120,000	120,000	25	9900	NA	17	24,000	8.8	47,000	240	12,000	1.7	2400	2800
DISC-SLr		0.33	0.3	1200	2200	2200	NA	NA	NA	NA	NA	550	1100	NA	210	0.0088	NA	NA
DISC-SLi		1.4	1.3	64,000	12,000	12,000	NA	NA	NA	NA	NA	2800	5400	NA	170	0.15	NA	NA
SB1-5	1/3/2017	< 0.0039	< 0.0039	< 0.0039	< 0.0039	< 0.0039	< 0.0039	< 0.0039	< 0.0039	0.0048	< 0.0039	< 0.0039	< 0.0039	0.0045	<0.0039	< 0.0039	<0.0039	< 0.0039
SB1-10	1/3/2017	< 0.0037	< 0.0037	0.022	0.03	< 0.0037	< 0.0037	0.0047	< 0.0037	0.0076	0.0063	0.074	< 0.0037	< 0.0037	< 0.0037	< 0.0037	< 0.0037	< 0.0037
SB2-5	1/3/2017	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	0.0046	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036
SB2-10	1/3/2017	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036
SB3-5	1/3/2017	< 0.0045	0.0079	0.043	< 0.0045	0.046	< 0.0045	0.61	< 0.0045	0.042	0.21	0.23	< 0.0045	0.012	< 0.0045	< 0.0045	< 0.0045	0.011
SB3-10	1/3/2017	< 0.006	< 0.006	< 0.006	0.29	0.036	< 0.006	0.41	< 0.006	0.045	0.05	< 0.006	< 0.006	< 0.006	< 0.006	0.0076	< 0.006	< 0.006
SB4-5	1/3/2017	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
SB4-10	1/3/2017	< 0.0042	< 0.0042	< 0.0042	< 0.0042	< 0.0042	< 0.0042	< 0.0042	< 0.0042	< 0.0042	< 0.0042	< 0.0042	< 0.0042	< 0.0042	< 0.0042	< 0.0042	< 0.0042	< 0.0042
SB5-5	1/3/2017	< 0.0078	< 0.0078	0.037	0.086	< 0.0078	< 0.0078	0.073	0.025	0.024	0.14	< 0.0078	< 0.0078	0.63	0.33	< 0.0078	< 0.0078	< 0.0078
SB5-10	1/3/2017	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
SB6-5	1/3/2017	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
SB6-10	1/3/2017	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045
SB7-5	1/3/2017	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043	< 0.0043
SB7-10	1/3/2017	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	0.0052	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044
SB8-5	1/4/2017	< 0.0083	< 0.0083	< 0.0083	< 0.0083	< 0.0083	< 0.0083	< 0.0083	< 0.0083	< 0.0083	< 0.0083	< 0.0083	< 0.0083	< 0.0083	< 0.0083	< 0.0083	< 0.0083	< 0.0083
SB8-10	1/4/2017	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
SB9-5	1/4/2017	< 0.0066	< 0.0066	< 0.0066	< 0.0066	< 0.0066	< 0.0066	< 0.0066	< 0.0066	< 0.0066	< 0.0066	< 0.0066	< 0.0066	< 0.0066	< 0.0066	< 0.0066	<0.0066	< 0.0066
SB9-10	1/4/2017	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
SB10-5	1/4/2017	< 0.0039	< 0.0039	0.074	0.0076	0.051	0.0079	0.23	< 0.0039	0.023	0.04	0.23	< 0.0039	0.043	0.041	< 0.0039	0.0069	< 0.0039
SB10-10	1/4/2017	< 0.0044	< 0.0044	0.089	0.012	0.06	0.0049	0.33	< 0.0044	0.045	0.38	0.37	< 0.0044	0.034	< 0.0044	< 0.0044	0.0047	< 0.0044
SB11-5	1/4/2017	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045
SB11-10	1/4/2017	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
SB12-5	1/4/2017	< 0.0039	< 0.0039	< 0.0039	< 0.0039	< 0.0039	< 0.0039	< 0.0039	< 0.0039	< 0.0039	< 0.0039	< 0.0039	< 0.0039	< 0.0039	< 0.0039	< 0.0039	< 0.0039	< 0.0039
SB12-10	1/4/2017	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044
SB13-5	1/4/2017	< 0.0037	< 0.0037	< 0.0037	< 0.0037	< 0.0037	< 0.0037	< 0.0037	< 0.0037	< 0.0037	< 0.0037	< 0.0037	< 0.0037	< 0.0037	< 0.0037	< 0.0037	< 0.0037	< 0.0037
SB13-10	1/4/2017	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
SB14-5	1/4/2017	< 0.0038	< 0.0038	< 0.0038	< 0.0038	< 0.0038	< 0.0038	< 0.0038	< 0.0038	< 0.0038	< 0.0038	< 0.0038	< 0.0038	< 0.0038	< 0.0038	< 0.0038	<0.0038	<0.0038
SB14-10	1/4/2017	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044
SB15-5	1/4/2017	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
SB15-10	1/4/2017	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045	< 0.0045
SB16-5	1/4/2017	0.0088	< 0.0035	< 0.0035	< 0.0035	< 0.0035	< 0.0035	< 0.0035	< 0.0035	< 0.0035	< 0.0035	< 0.0035	< 0.0035	< 0.0035	< 0.0035	< 0.0035	< 0.0035	< 0.0035
SB16-10	1/4/2017	< 0.0062	< 0.0062	< 0.0062	< 0.0062	< 0.0062	< 0.0062	< 0.0062	< 0.0062	< 0.0062	< 0.0062	< 0.0062	< 0.0062	< 0.0062	< 0.0062	< 0.0062	< 0.0062	< 0.0062
SB17-5	1/4/2017	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044
SB17-10	1/4/2017	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

Sample ID	Date Sampled	Benzene	Bromodichloromethane	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	Ethylbenzene	Isopropylbenzene	p-Isopropyltoluene	Naphthalene	n-Propylbenzene	1,1,2,2-Tetrachloroethane	Toluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Vinyl Chloride	m,p-Xylenes	o-Xylene
RSLr		1.2	0.29	3900	7800	7800	5.8	1900	NA	3.8	3800	2	4900	58	780	0.59	550	650
RSLi		5.1	1.3	58,000	120,000	120,000	25	9900	NA	17	24,000	8.8	47,000	240	12,000	1.7	2400	2800
DTSC-SLr		0.33	0.3	1200	2200	2200	NA	NA	NA	NA	NA	550	1100	NA	210	0.0088	NA	NA
DTSC-SLi		1.4	1.3	64,000	12,000	12,000	NA	NA	NA	NA	NA	2800	5400	NA	170	0.15	NA	NA
SB18-5	1/4/2017	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
SB18-10	1/4/2017	< 0.0067	< 0.0067	< 0.0067	< 0.0067	< 0.0067	< 0.0067	< 0.0067	< 0.0067	< 0.0067	< 0.0067	< 0.0067	< 0.0067	< 0.0067	< 0.0067	< 0.0067	< 0.0067	< 0.0067
SB19-5	1/4/2017	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
SB19-10	1/4/2017	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
SB20-5	1/4/2017	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0063	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
SB20-10	1/4/2017	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036

Notes:

mg/kg = milligram per kilogram

<0.0039 = concentration is less than the Reporting Limit (0.0039), i.e., not detected (ND)

SB1-5 = Soil Boring1, 5-feet below ground surface (bgs).

Analytical results are included as Appendix A

Soil was collected from 5-feet bgs and 10-feet bgs from the same boring.

Only detected concentrations of VOCs are presented in this table. All other metals were ND.

RSLr = USEPA Regional Screening Level for residential soils, RSLi for industrial soils (November 2017)

DTSC SLr = CalEPA DTSC Screening Level for residential soils, SLi for industrial soils (January 2018)

NA = Not Available

Sample ID	Sample ¹ Location	Sample ² Depth	Sample Collection Date	Sample Analysis Date	Aroclor 1248 (mg/kg)	Aroclor 1254 (mg/kg)	Aroclor 1260 (mg/kg)	Total PCBs (mg/kg) ³
VG-JJ50:6	SW	6	9/8/11	9/13/11	<0.052	<0.052	<0.052	<0.052
VG-K45:6	SW	6	9/8/11	9/14/11	<0.052	<0.052	<0.052	<0.052
VG-K48:12	F	12	9/8/11	9/13/11	<0.052	<0.052	<0.052	<0.052
VG-K52:12	F	12	9/8/11	9/13/11	<0.052	<0.052	<0.052	<0.052
VG-K55:6	SW	6	9/8/11	9/13/11	<0.051	<0.051	<0.051	<0.051
VG-KK50:6	SW	6	9/8/11	9/12/11	<0.051	<0.051	<0.051	<0.051

¹Sample Location: SW = excavation sidewall

F = excavation floor

Depth in inches below the pre-excavation ground surface

²Sample Depth: ³Total Aroclors:

Sum of Aroclor 1248, 1254, and 1260 detected concentrations in milligrams per kilogram (mg/kg). Prior to March 2012, Aroclor 1248 and Aroclor 1254 were the only Aroclors detected at the Petrolane-Lomita Gas Plant. Beginning in March 2012, analysis has been performed by TestAmerica and they have quantified Aroclors 1248, 1254, and 1260 in verification soil samples. Total PCBs indicated within this table are either the sum of each detected Aroclor or simply the detection level of the individual aroclors. **BOLD** text indicates the Total PCB concentration is greater than the EPA stipulated cleanup level (0.22 mg/kg).

Sample ID	Sample ¹ Location	Sample ² Depth (Inches)	Sample Collection Date	Sample Analysis Date	Aroclor 1248 (mg/kg)	Aroclor 1254 (mg/kg)	Aroclor 1260 (mg/kg)	Total ³ PCBs (mg/kg)
VK-HH64:0	GS	0	9/16/11	9/22/11	<0.055	<0.055	<0.055	<0.055
VK-HH64:18	SW	18	9/16/11	9/22/11	<0.054	<0.054	<0.054	<0.054
VK-HH70:0	GS	0	9/16/11	9/23/11	<0.054	<0.054	<0.054	<0.054
VK-HH70:18	SW	18	9/16/11	9/23/11	<0.053	<0.053	<0.053	<0.053
VK-HH80:0	GS	0	9/16/11	9/23/11	<0.057	0.32	<0.057	0.32
VK-HH80:12	SW	12	9/16/11	9/23/11	<0.054	0.076	<0.054	0.076
VK-I47:0	GS	0	9/16/11	9/23/11	<0.055	0.082	<0.055	0.082
VK-I47:12	SW	12	9/16/11	9/23/11	<0.058	<0.058	<0.058	<0.058
VK-I50:24	F	24	9/16/11	9/23/11	<0.055	<0.055	<0.055	<0.055
VK-I60:0	GS	0	9/16/11	9/23/11	<0.055	<0.055	<0.055	<0.055
VK-I60:12	SW	12	9/16/11	9/23/11	<0.055	<0.055	<0.055	<0.055
VK-I70:36	F	36	9/10/11	9/23/11	<0.053	<0.053	<0.053	<0.053
VK-180:24	F	24	9/16/11	9/23/11	<0.054	<0.054	<0.054	<0.054
VK-186:0	GS	0	9/16/11	9/23/11	<0.052	<0.052	<0.052	<0.052
VK-I86:12	SW	12	9/16/11	9/23/11	<0.053	<0.053	<0.053	<0.053
VK-II90:0	GS	0	9/16/11	9/23/11	<0.054	<0.054	<0.054	<0.054
VK-II90:12	SW	12	9/16/11	9/23/11	<0.055	<0.055	<0.055	<0.055
VK-J40:0	GS	0	9/16/11	9/23/11	<0.054	<0.054	<0.054	<0.054
VK-J40:12	SW	12	9/16/11	9/23/11	<0.053	<0.053	<0.053	<0.053
VK-J50:24	F	24	9/16/11	9/23/11	<0.052	0.18	<0.053	0.18
VK-J60:24	F	24	9/16/11	9/23/11	<0.053	0.073	<0.053	0.073
VK-J70:36	F	36	9/10/11	9/19/11	<0.054	<0.054	<0.054	<0.054
VK-J80:24	F	24	9/16/11	9/23/11	<0.056	<0.056	<0.056	<0.056
VK-J90:24	F	24	9/16/11	9/23/11	<0.057	<0.057	<0.057	<0.057
VK-J93:0	GS	0	9/16/11	9/24/11	<0.058	<0.058	<0.058	<0.058
VK-J93:12	SW	12	9/16/11	9/24/11	<0.058	<0.058	<0.058	<0.058
VK-K40:24	F	24	9/16/11	9/19/11	<0.054	0.23	<0.054	0.23
VK-K50:36	F	36	9/10/11	9/16/11	<0.052	<0.052	<0.052	<0.052
VK-K60:36	F	36	9/10/11	9/19/12	<0.052	<0.052	<0.052	<0.052
VK-K70:36	F	36	9/16/11	9/19/11	<0.056	<0.056	<0.056	<0.056
VK-K80:36	F	36	9/16/11	9/24/11	<0.055	<0.055	<0.055	<0.055
VK-K90:36	F	36	9/16/11	9/24/11	<0.056	<0.056	<0.056	<0.056
VK-K94:0	GS	0	9/16/11	9/26/11	<0.053	0.21	<0.053	0.21
VK-K94:18	SW	18	9/16/11	9/24/11	<0.053	<0.053	<0.053	<0.053
VK-KK100:0	GS	0	3/8/12	4/13/12	<0.10	<0.10	<0.10	<0.10
VK-KK100:6	SW	6	3/8/12	4/13/12	<0.11	<0.11	<0.11	<0.11
VK-KK38:36	F	36	3/8/12	4/19/12	<0.096	0.043	0.014	0.057
VK-KK40:30	SW	30	3/8/12	4/13/12	<0.096	<0.096	<0.096	<0.096
VK-L100:12	F	12	3/8/12	4/13/12	<0.11	<0.11	<0.11	<0.11
VK-L102:0	GS	0	3/8/12	4/13/12	<0.10	<0.10	<0.10	<0.10
VK-L102:6	SW	6	3/8/12	4/13/12	<0.11	<0.11	<0.11	<0.11
VK-L35:30	SW	30	3/8/12	4/20/12	<0.11	<0.11	<0.11	<0.11
VK-L45:30	SW	30	3/8/12	4/13/12	<0.10	<0.10	<0.10	<0.10
VK-L50:24	F	24	9/9/11	9/16/11	< 0.053	0.056	<0.053	0.056
VK-L60:36	F	36	9/9/11	9/16/11	<0.052	<0.052	<0.052	< 0.052
VK-L70:36	F	36	9/9/11	9/16/11	<0.061	<0.061	<0.061	< 0.061
VK-L80:36	F	36	9/9/11	9/16/11	0.077	0.14	<0.055	0.217
VK-L90:36	F	36	9/9/11	9/16/11	<0.057	<0.057	<0.057	< 0.057
VK-L95:18	SW	18	9/10/11	9/16/11	<0.052	<0.052	<0.052	< 0.052

Sample ID	Sample ¹ Location	Sample ² Depth (Inches)	Sample Collection Date	Sample Analysis Date	Aroclor 1248 (mg/kg)	Aroclor 1254 (mg/kg)	Aroclor 1260 (mg/kg)	Total ³ PCBs (mg/kg)
VK-LL40:30	SW	30	3/8/12	4/13/12	<0.10	<0.10	<0.10	<0.10
VK-LL80:42	SW	42	3/8/12	4/13/12	<0.10	<0.10	<0.10	<0.10
VK-M100:12	F	12	3/8/12	4/20/12	< 0.097	< 0.097	< 0.097	< 0.097
VK-M103:0	GS	0	3/8/12	4/13/12	<0.11	<0.11	<0.11	<0.11
VK-M103:6	SW	6	3/8/12	4/13/12	<0.10	<0.10	<0.10	<0.10
VK-M20:0	GS	0	9/16/11	9/24/11	<0.052	1	<0.052	1
VK-M20:15	SW	15	9/16/11	9/24/11	<0.053	0.11	<0.053	0.11
VK-M30:30	F	30	9/16/11	9/24/11	<0.053	<0.053	<0.053	<0.053
VK-M40:30	F	30	9/9/11	9/16/11	<0.055	<0.055	<0.055	<0.055
VK-M50:30	F	30	9/9/11	9/16/11	<0.055	0.22	<0.055	0.22
VK-M60:36	F	36	9/9/11	9/16/11	<0.054	<0.054	<0.054	<0.054
VK-M70:36	F	36	9/9/11	9/16/11	<0.059	<0.059	<0.059	<0.059
VK-M75:42	SW	42	3/8/12	4/13/12	<0.10	<0.10	<0.10	<0.10
VK-M87:42	SW	42	3/8/12	4/20/12	<0.11	<0.11	<0.11	<0.11
VK-M90:36	F	36	9/9/11	9/16/11	<0.056	0.061	<0.056	0.061
VK-M95:18	SW	18	9/10/11	9/16/11	<0.054	<0.054	<0.054	<0.054
VK-MM20:0	GS	0	9/16/11	9/24/11	<0.052	<0.052	<0.052	<0.052
VK-MM20:12	SW	12	9/16/11	9/24/11	<0.052	<0.052	<0.052	<0.052
VK-MM82:48	F	48	3/8/12	4/27/12	<0.10	<0.10	<0.10	<0.10
VK-N100:12	F	12	3/8/12	4/20/12	<0.10	<0.10	<0.10	<0.10
VK-N104:0	GS	0	3/8/12	4/20/12	<0.098	0.18	0.052	0.232
VK-N104:6	SW	6	3/8/12	4/14/12	<0.11	0.11	0.035	0.145
VK-N24:0	GS	0	9/16/11	9/26/11	<0.051	<0.051	<0.051	<0.051
VK-N24:12	SW	12	9/16/11	9/26/11	<0.052	<0.052	<0.052	<0.052
VK-N30:0	GS	0	9/16/11	9/26/11	<0.053	0.096	<0.055	0.096
VK-N30:12	SW	12	9/16/11	9/26/11	<0.053	<0.053	<0.053	<0.053
VK-N40:30	F	30	9/9/11	9/16/11	<0.053	<0.053	<0.053	<0.053
VK-N50:36	F	36	9/9/11	9/16/11	<0.055	0.1	<0.055	0.1
VK-N60:36	F	36	9/9/11	9/16/11	<0.056	<0.056	<0.056	<0.056
VK-N70:36	F	36	9/9/11	9/16/11	<0.056	<0.056	<0.056	<0.056
VK-N80:36	F	36	9/9/11	9/16/11	<0.057	<0.057	<0.057	<0.057
VK-N90:36	F	36	9/9/11	9/16/11	<0.055	<0.055	<0.055	<0.055
VK-N95:18	SW	18	9/10/11	9/16/11	<0.054	<0.054	<0.054	<0.054
VK-O100:12	F	12	3/8/12	4/14/12	<0.10	<0.10	<0.10	<0.10
VK-O105:0	GS	0	3/8/12	4/13/12	<0.11	0.13	0.045	0.175
VK-O105:6	SW	6	3/8/12	4/20/12	<0.11	0.034	<0.11	0.034
VK-O25:0	GS	0	3/8/12	4/14/12	<0.10	<0.10	<0.10	<0.10
VK-O25:6	SW	6	3/8/12	4/14/12	<0.10	<0.10	<0.10	<0.10
VK-035:12	F	12	3/8/12	4/14/12	<0.099	<0.099	<0.099	<0.099
VK-O40:36	F	36	9/9/11	9/16/11	<0.054	<0.054	<0.054	<0.054
VK-O50:36	F	36	9/10/11	9/16/11	<0.054	<0.054	<0.054	<0.054
VK-O60:36	F	36	9/10/11	9/16/11	<0.056	<0.056	<0.056	<0.056
VK-070:36	F	36	9/10/11	9/16/11	<0.057	<0.057	<0.057	<0.057
VK-080:36	F	36	9/10/11	9/16/11	<0.057	<0.057	<0.057	<0.057
VK-O90:36	F	36	9/10/11	9/16/11	0.49	0.37	<0.054	0.86
VK-O96:18	SW	18	9/10/11	9/16/11	<0.056	<0.056	<0.056	<0.056
VK-0050:18	SW	18	9/10/11	9/16/11	<0.053	<0.053	<0.053	<0.053
VK-0070:18	SW	18	9/10/11	9/16/11	<0.056	<0.056	<0.056	<0.056
VK-0080:0	GS	0	9/10/11	9/16/11	0.056	0.12	<0.056	0.176

Sample ID	Sample ¹ Location	Sample ² Depth (Inches)	Sample Collection Date	Sample Analysis Date	Aroclor 1248 (mg/kg)	Aroclor 1254 (mg/kg)	Aroclor 1260 (mg/kg)	Total ³ PCBs (mg/kg)
VK-OO80:18	SW	18	9/10/11	9/16/11	<0.056	<0.056	<0.056	<0.056
VK-P100:12	F	12	3/8/12	4/14/12	<0.099	<0.099	<0.099	<0.099
VK-P106:0	GS	0	3/8/12	4/14/12	<0.098	0.16	0.068	0.228
VK-P106:6	SW	6	3/8/12	4/25/12	0.047	0.097	0.032	0.176
VK-P25:0	GS	0	3/8/12	4/13/12	<0.099	<0.099	<0.099	<0.099
VK-P30:12	F	12	3/8/12	4/14/12	<0.10	<0.10	<0.10	<0.10
VK-P40:12	F	12	3/8/12	4/14/12	<0.10	<0.10	<0.10	<0.10
VK-P50:12	F	12	3/8/12	4/14/12	<0.10	<0.10	<0.10	<0.10
VK-P60:18	F	18	3/8/12	4/14/12	<0.10	<0.10	<0.10	<0.10
VK-P70:12	F	12	3/8/12	4/14/12	<0.10	<0.10	<0.10	<0.10
VK-P80:12	F	12	3/8/12	4/14/12	<0.10	0.043	<0.10	0.043
VK-P90:18	F	18	3/8/12	4/14/12	<0.10	<0.10	<0.10	<0.10
VK-PP100:0	GS	0	3/8/12	4/28/12	<0.10	<0.10	<0.10	<0.10
VK-PP100:6	SW	6	3/8/12	4/28/12	<0.10	<0.10	<0.10	<0.10
VK-PP30:0	GS	0	3/8/12	4/14/12	<0.10	<0.10	<0.10	<0.10
VK-PP30:6	SW	6	3/8/12	4/28/12	<0.10	<0.10	<0.10	<0.10
VK-PP40:0	GS	0	3/8/12	4/20/12	<0.10	<0.10	<0.10	<0.10
VK-PP40:6	SW	6	3/8/12	4/13/12	<0.10	<0.10	<0.10	<0.10
VK-PP50:0	GS	0	3/8/12	4/13/12	<0.10	0.088	<0.10	0.088
VK-PP50:6	SW	6	3/8/12	4/13/12	<0.10	0.13	<0.10	0.13
VK-PP60:0	GS	0	3/8/12	4/20/12	<0.10	0.049	0.029	0.078
VK-PP60:9	SW	9	3/8/12	4/27/12	0.055	0.048	0.04	0.143
VK-PP70:0	GS	0	3/8/12	4/20/12	<0.10	<0.10	<0.10	<0.10
VK-PP70:6	SW	6	3/8/12	4/28/12	<0.10	<0.10	<0.10	<0.10
VK-PP80:0	GS	0	3/8/12	4/28/12	<0.10	<0.10	<0.10	<0.10
VK-PP80:6	SW	6	3/8/12	4/20/12	<0.11	0.018	0.016	0.034
VK-PP90:0	GS	0	3/8/12	4/28/12	<0.10	<0.10	<0.10	<0.10
VK-PP90:9	SW	9	3/8/12	4/28/12	<0.10	<0.10	<0.10	<0.10
¹ Sample Location:	GS = around s	urface	SW = excavation	on sidewall				

¹Sample Location:

F = excavation floor

²Sample Depth: ³Total Aroclors:

SW = excavation sidewall

Depth in inches below the pre-excavation ground surface

Sum of Aroclor 1248, 1254, and 1260 detected concentrations in milligrams per kilogram (mg/kg). Prior to March 2012, Aroclor 1248 and Aroclor 1254 were the only Aroclors detected at the Petrolane-Lomita Gas Plant. Beginning in March 2012, analysis has been performed by TestAmerica and they have quantified Aroclors 1248, 1254, and 1260 in verification soil samples. Total PCBs indicated within this table are either the sum of each detected Aroclor or simply the detection level of the individual aroclors. BOLD text indicates the Total PCB concentration is greater than the EPA stipulated cleanup level (0.22 mg/kg).

	Comula ¹	Sample ²	Sample	Sample	Aroclor	Aroclor	Aroclor	Total ³
Sample ID	Sample	Depth	Collection	Analysis	1248	1254	1260	PCBs
	Location	(Inches)	Date	Date	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
VL-CC90:0	GS	0	9/29/11	10/3/11	<0.051	<0.051	<0.051	<0.051
VL-CC90:6	SW	6	9/29/11	10/3/11	<0.051	<0.051	<0.051	<0.051
VL-CC100:0	GS	0	9/29/11	10/3/11	<0.051	<0.051	<0.051	<0.051
VL-CC100:6	SW	6	9/29/11	10/5/11	<0.051	0.16	<0.051	0.16
VL-D72:12	F	12	9/29/11	10/3/11	<0.051	<0.051	<0.051	<0.051
VL-D80:12	F	12	9/29/11	10/3/11	<0.051	<0.051	<0.051	<0.051
VL-D90:12	F	12	9/29/11	10/3/11	<0.051	<0.051	<0.051	<0.051
VL-D100:12	F	12	9/29/11	10/3/11	<0.051	<0.051	<0.051	<0.051
VL-D103:0	GS	0	9/29/11	10/3/11	<0.051	<0.051	<0.051	<0.051
VL-D103:6	SW	6	9/29/11	10/3/11	<0.051	<0.051	<0.051	<0.051
VL-DD30:0	GS	0	3/9/12	4/19/12	<0.10	<0.10	<0.10	<0.10
VL-DD30:12	SW	12	3/9/12	4/19/12	<0.10	<0.10	<0.10	<0.10
VL-DD40:0	GS	0	3/9/12	4/26/12	<0.10	<0.10	<0.10	<0.10
VL-DD40:12	SW	12	3/9/12	4/19/12	<0.10	<0.10	<0.10	<0.10
VL-E27:0	GS	0	3/9/12	4/19/12	<0.10	<0.10	<0.10	<0.10
VL-E27:12	SW	12	3/9/12	4/19/12	<0.10	<0.10	<0.10	<0.10
VL-E30:24	F	24	3/9/12	4/19/12	<0.10	<0.10	<0.10	<0.10
VL-E40:24	F	24	3/9/12	4/21/12	<0.10	<0.10	<0.10	<0.10
VL-E45:18	SW	18	3/9/12	4/21/12	<0.10	<0.10	<0.10	<0.10
VL-E52:12	F	12	9/29/11	10/3/11	<0.051	<0.051	<0.051	<0.051
VL-E62:12	F	12	9/29/11	10/3/11	<0.051	<0.051	<0.051	<0.051
VL-E72:12	F	12	9/29/11	10/3/11	<0.051	<0.051	<0.051	<0.051
VL-E80:12	F	12	9/29/11	10/5/11	<0.054	0.069	<0.054	0.069
VL-E90:12	SW	12	9/29/11	10/3/11	<0.053	<0.053	<0.053	<0.053
VL-E100:12	F	12	9/29/11	10/5/11	<0.054	0.2	<0.054	0.2
VL-E103:0	GS	0	9/29/11	10/5/11	<0.054	<0.054	<0.054	<0.054
VL-E103:6	SW	6	9/29/11	10/4/11	<0.055	<0.055	<0.055	>0.055
VL-EE50:18	F	18	3/9/12	4/21/12	<0.10	<0.10	<0.10	<0.10
VL-F25:0	GS	0	3/9/12	4/21/12	<0.10	<0.10	<0.10	<0.10
VL-F25:12	SW	12	3/9/12	4/21/12	<0.10	<0.10	<0.10	<0.10
VL-F35:24	F	24	3/9/12	5/3/12	0.16	0.16	<0.11	0.32
VL-F45:24	F	24	3/9/12	5/3/12	0.22	0.47	<0.10	0.69
VL-F55:18	SW	18	3/9/12	4/21/12	<0.10	<0.10	<0.10	<0.10
VL-F60:12	F	12	9/29/11	10/5/11	<0.054	<0.054	<0.054	<0.054
VL-F70:12	F	12	9/29/11	10/5/11	<0.055	0.13	<0.055	0.13
VL-F80:12	F	12	9/29/11	10/5/11	0.083	0.1	<0.055	0.183
VL-F90:12	SW	12	9/29/11	10/4/11	<0.055	<0.055	<0.055	<0.055
VL-F100:12	F	12	9/29/11	10/4/11	<0.055	<0.055	<0.055	<0.055
VL-F103:0	GS	0	9/29/11	10/12/11	<0.052	<0.052	<0.052	<0.052
VL-F103:6	SW	6	9/29/11	10/1/11	<0.054	<0.054	<0.054	<0.054
VL-FF(20):0	GS	0	3/9/12	4/21/12	<0.10	<0.10	<0.10	<0.10
VL-FF(20):12	SW	12	3/9/12	4/21/12	<0.10	<0.10	<0.10	<0.10
VL-FF(10):0	GS	0	3/9/12	4/21/12	<0.10	<0.10	<0.10	<0.10
VL-FF(10):12	SW	12	3/9/12	4/21/12	<0.10	<0.10	<0.10	<0.10
VL-FF0:0	GS	0	3/9/12	4/21/12	<0.10	<0.10	<0.10	<0.10
VL-FF0:12	SW	12	3/9/12	4/21/12	<0.10	<0.10	<0.10	<0.10
VL-FF60:18	SW	18	3/9/12	4/21/12	<0.10	<0.10	<0.10	<0.10
VL-FF70:18	SW	18	3/9/12	4/25/12	<0.10	<0.10	<0.10	<0.10
VL-FF80:18	SW	18	3/9/12	4/25/12	<0.10	<0.10	<0.10	<0.10

	Sample ¹	Sample ²	Sample	Sample	Aroclor	Aroclor	Aroclor	Total ³
Sample ID	Location	Depth	Collection	Analysis Date	1248 (ma/ka)	1254 (ma/ka)	1260 (ma/ka)	PCBs
	S/M	(inches)	0/20/11	10/4/11	(iiig/kg)	(IIIg/Kg)	(IIIg/Kg)	(mg/kg)
VL-FF95.12	5VV S\//	12	9/29/11	10/4/11	<0.054	<0.054	<0.054	< 0.054
VL-FF95.10		18	9/29/11	10/4/11	<0.054	<0.054	<0.054	< 0.054
VL-G(25).0	65 SW	10	3/9/12	4/23/12	<0.10	<0.10	<0.10	<0.10
VL-G(25).12	500	12	3/9/12	4/23/12	<0.10	<0.10	<0.10	<0.10
VL-G(20).24		24	3/9/12	4/23/12	0.28	0.86	0.27	1.41
VL-G(10).24		24	3/9/12	4/23/12	2.4	2.7	0.42	5.52
VL-G5:24		24	3/9/12	4/25/12	< 0.12	<0.12	< 0.12	<0.12
VL-G7.10	500	18	3/9/12	5/19/12	< 0.54	1.1	< 0.54	1.1
VL-G25:12	500	12	3/9/12	4/25/12	<0.10	<0.10	<0.10	<0.10
VL-G35:24		24	3/9/12	4/25/12	< 0.12	<0.12	< 0.12	<0.12
VL-G40:24		24	3/9/12	4/25/12	<0.10	<0.10	<0.10	<0.10
VL-G50:24		24	3/9/12	4/25/12	<0.10	<0.10	<0.10	<0.10
VL-G60:24		24	3/9/12	4/25/12	<0.10	<0.10	<0.10	<0.10
VL-G70:24		24	3/9/12	4/25/12	<0.10	<0.10	<0.10	<0.10
VL-G80:24	F	24	3/9/12	4/25/12	<0.10	<0.10	<0.10	<0.10
VL-G85:18	SW	18	3/9/12	4/25/12	<0.10	<0.10	0.017	0.017
VL-G90:12	F	12	9/29/11	10/5/11	<0.056	< 0.056	< 0.056	< 0.056
VL-G90:18	SW	18	9/29/11	10/5/11	< 0.056	< 0.056	< 0.056	< 0.056
VL-G100:24	F	24	9/29/11	10/5/11	<0.054	< 0.054	<0.054	< 0.054
VL-G103:0	GS	0	9/29/11	10/5/11	<0.052	<0.052	<0.052	< 0.052
VL-G103:12	SW	12	9/29/11	10/5/11	<0.055	<0.055	<0.055	<0.055
VL-GG10:0	GS	0	9/29/11	10/5/11	<0.053	<0.053	<0.053	<0.053
VL-GG10:6	SW	6	9/29/11	10/5/11	<0.055	<0.055	<0.055	<0.055
VL-GG20:0	GS	0	9/29/11	10/5/11	<0.052	<0.052	<0.052	<0.052
VL-GG20:6	SW	6	9/29/11	10/5/11	<0.053	<0.053	<0.053	<0.053
VL-GG60:18	SW	18	3/9/12	4/26/12	<0.10	<0.10	<0.10	<0.10
VL-H(25):0	GS	0	3/9/12	4/26/12	<0.10	<0.10	<0.10	<0.10
VL-H(25):12	SW	12	3/9/12	4/26/12	<0.10	<0.10	<0.10	<0.10
VL-H(20):24	F	24	3/9/12	4/26/12	<0.10	<0.10	<0.10	<0.10
VL-H(10):24	F	24	3/9/12	4/27/12	<6.5	<6.5	<6.5	<6.5
VL-H0:24	F	24	3/9/12	4/26/12	<0.11	<0.11	<0.11	<0.11
VL-H10:24	F	24	3/9/12	4/26/12	<0.10	<0.10	<0.10	<0.10
VL-H20:24	F	24	3/9/12	4/26/12	<0.10	<0.10	<0.10	<0.10
VL-H30:24	F	24	3/9/12	4/26/12	<0.10	<0.10	<0.10	<0.10
VL-H40:24	F	24	3/9/12	5/2/12	<0.10	<0.10	<0.10	<0.10
VL-H50:24	F	24	3/9/12	4/26/12	<0.10	<0.10	<0.10	<0.10
VL-H58:18	SW	18	3/9/12	5/2/12	<0.10	<0.10	<0.10	<0.10
VL-H62:12	F	12	9/29/11	10/6/11	<0.054	0.13	<0.054	0.13
VL-H68:18	SW	18	3/9/12	5/3/12	<0.10	0.026	0.015	0.041
VL-H70:24	F	24	3/9/12	4/27/12	<0.10	<0.10	<0.10	<0.10
VL-H80:24	F	24	3/9/12	5/1/12	<0.11	<0.11	<0.11	<0.11
VL-H85:18	SW	18	3/9/12	4/27/12	<0.10	<0.10	<0.10	<0.10
VL-H90:12	SW	12	9/29/11	10/6/11	<0.057	<0.057	<0.057	<0.057
VL-H90:18	SW	18	9/29/11	10/6/11	<0.056	<0.056	<0.056	<0.056
VL-H100:24	F	24	9/29/11	10/6/11	<0.056	<0.056	<0.056	<0.056
VL-H103:0	GS	0	9/29/11	10/6/11	<0.053	<0.053	<0.053	<0.053
VL-H103:12	SW	12	9/29/11	10/6/11	<0.053	<0.053	<0.053	<0.053
VL-HH(20):18	SW	18	3/9/12	4/27/12	<0.10	<0.10	<0.10	<0.10
VL-HH0:18	SW	18	3/9/12	4/27/12	<0.10	<0.10	<0.10	<0.10

Sample ID	Sample ¹	Sample ² Depth	Sample Collection	Sample Analysis	Aroclor 1248	Aroclor 1254	Aroclor 1260	Total ³ PCBs
	Location	(Inches)	Date	Date	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
VL-HH10:18	SW	18	3/9/12	4/30/12	<0.10	<0.10	<0.10	<0.10
VL-HH20:18	SW	18	3/9/12	4/30/12	<0.10	<0.10	<0.10	<0.10
VL-HH60:18	SW	18	3/9/12	4/30/12	<0.10	<0.10	<0.10	<0.10
VL-HH70:18	SW	18	3/9/12	4/30/12	<0.10	<0.10	<0.10	<0.10
VL-HH80:18	SW	18	3/9/12	4/30/12	<0.10	<0.10	<0.10	<0.10
VL-I(25):0	GS	0	9/29/11	10/3/11	<0.052	0.069	<0.052	0.069
VL-I(25):6	SW	6	9/29/11	10/9/11	<0.051	0.13	<0.051	0.13
VL-I(18):12	F	12	9/29/11	10/9/11	<0.055	<0.055	<0.055	<0.055
VL-I(10):18	SW	18	3/9/12	4/30/12	<0.10	<0.10	<0.10	<0.10
VL-I(5):24	F	24	3/9/12	4/30/12	<0.10	<0.10	<0.10	<0.10
VL-I2:12	F	12	9/29/11	10/9/11	<0.056	<0.056	<0.056	<0.056
VL-I12:12	F	12	9/29/11	10/9/11	<0.056	<0.056	<0.056	<0.056
VL-I22:12	F	12	9/29/11	10/9/11	<0.056	<0.056	<0.056	<0.056
VL-I25:18	SW	18	3/9/12	4/30/12	<0.10	<0.10	<0.10	<0.10
VL-I30:24	F	24	3/9/12	4/30/12	<0.10	<0.10	<0.10	<0.10
VL-I40:24	F	24	3/9/12	4/30/12	<0.10	<0.10	<0.10	<0.10
VL-150:24	F	24	3/9/12	4/30/12	<0.10	<0.10	<0.10	<0.10
VL-160:24	F	24	3/9/12	4/30/12	<0.10	<0.10	<0.10	<0.10
VL-I68:18	SW	18	3/9/12	4/30/12	<0.10	<0.10	<0.10	<0.10
VL-172:12	F	12	9/29/11	10/4/11	<0.055	<0.055	<0.055	<0.055
VL-182:12	F	12	9/29/11	10/7/11	<0.057	<0.057	<0.057	<0.057
VL-190:12	F	12	9/29/11	10/7/11	<0.054	<0.054	<0.054	<0.054
VL-190:18	SW	18	9/29/11	10/7/11	<0.055	<0.055	<0.055	<0.055
VL-I100:24	F	24	9/29/11	10/8/11	< 0.056	< 0.056	< 0.056	< 0.056
VL-I103:0	GS	0	9/29/11	10/8/11	<0.053	<0.053	<0.053	<0.053
VL-I103:12	SW	12	9/29/11	10/8/11	<0.053	<0.053	<0.053	<0.053
VL-II0:18	SW	18	3/9/12	4/30/12	<0.10	<0.10	<0.10	<0.10
VL-II10:18	SW	18	3/9/12	4/30/12	<0.10	<0.10	<0.10	<0.10
VL-II20:18	SW	18	3/9/12	5/1/12	<0.10	<0.10	<0.10	<0.10
VL-II70:18	SW	18	3/9/12	5/1/12	<0.10	<0.10	<0.10	<0.10
VL-II90:18	SW	18	3/9/12	5/1/12	<0.10	<0.10	<0.10	<0.10
VL-1195:24	F	24	9/29/11	10/8/11	<0.052	<0.052	<0.052	<0.052
VL-II100:36	F	36	3/9/12	5/1/12	<0.10	<0.10	<0.10	<0.10
VL-J(25):0	GS	0	9/29/11	10/4/11	<0.051	<0.051	<0.051	<0.051
VL-J(25):6	SW	6	9/29/11	10/4/11	<0.051	<0.051	<0.051	<0.051
VL-J(18):12	F	12	9/29/11	10/4/11	<0.055	0.14	<0.055	0.14
VL-J(10):18	SW	18	3/9/12	5/1/12	<0.10	0.02	<0.10	0.02
VL-J0:24	F	24	3/9/12	5/1/12	0.032	0.033	<0.10	0.065
VL-J10:24	F	24	3/9/12	5/1/12	<0.12	<0.12	<0.12	<0.12
VL-J20:24	F	24	3/9/12	5/1/12	1.5	2.1	<0.57	3.6
VL-J30:24	F	24	3/9/12	5/1/12	0.094	0.11	<0.11	0.204
VL-J40:24	F	24	3/9/12	5/5/12	0.18	0.19	0.12	0.49
VL-J50:24	F	24	3/9/12	5/1/12	<0.11	0.094	0.039	0.133
VL-J60:24	F	24	3/9/12	5/1/12	1.1	0.79	0.18	2.07
VL-J70:24	F	24	3/9/12	5/1/12	<0.10	<0.10	<0.10	<0.10
VL-J78:18	SW	18	3/9/12	5/1/12	<0.10	<0.10	<0.10	<0.10
VL-J82:12	F	12	9/29/11	10/8/11	<0.054	<0.054	<0.054	<0.054
VL-J85:24	F	24	3/9/12	5/1/12	<0.10	<0.10	<0.10	<0.10
VL-J95:48	F	48	3/9/12	5/1/12	<0.10	<0.10	<0.10	<0.10

Sample ID	Sample ¹ Location	Sample ² Depth	Sample Collection	Sample Analysis	Aroclor 1248	Aroclor 1254	Aroclor 1260	Total ³ PCBs
		(Inches)	Date	Date	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
VL-J107:0	GS	0	3/8/12	4/1/12	<0.11	<0.11	0.2	0.2
VL-J107:24	SW	24	3/8/12	4/1/12	<0.11	<0.11	<0.11	<0.11
VL-JJ50:18	SW	18	3/9/12	5/1/12	<0.10	<0.10	<0.10	<0.10
VL-JJ60:18	SW	18	3/9/12	5/1/12	<0.10	<0.10	<0.10	<0.10
VL-JJ70:18	SW	18	3/9/12	5/1/12	<0.10	<0.10	<0.10	<0.10
VL-K(10):18	SW	18	3/9/12	5/1/12	0.054	0.17	0.059	0.283
VL-K(25):0	GS	0	9/29/11	10/8/11	<0.051	<0.051	<0.051	<0.051
VL-K(25):6	SW	6	9/29/11	10/8/11	<0.051	<0.051	<0.051	<0.051
VL-K(18):12		12	9/29/11	10/8/11	<0.052	0.2	<0.052	0.2
VL-K0:24		24	3/9/12	5/5/12	0.78	0.55	0.15	1.48
VL-K10:24		24	3/9/12	5/2/12	0.034	0.11	0.063	0.207
VL-K20:24	F	24	3/9/12	5/2/12	2.6	5.8	1.9	10.3
VL-K30:24	F	24	3/9/12	5/2/12	<0.11	<0.11	<0.11	<0.11
VL-K40:24	F	24	3/9/12	5/2/12	<0.11	<0.11	<0.11	<0.11
VL-K45:18	SW	18	3/9/12	5/5/12	<0.21	0.51	0.27	0.78
VL-K52:12	F	12	9/29/11	10/8/11	<0.054	<0.054	<0.054	<0.054
VL-K62:12	F	12	9/29/11	10/8/11	0.16	0.14	<0.056	0.3
VL-K72:12	F	12	9/29/11	10/5/11	<0.061	<0.061	<0.061	<0.061
VL-K82:12	F	12	9/29/11	10/5/11	<0.055	<0.055	<0.055	<0.055
VL-K85:24	F	24	3/9/12	5/2/12	<0.10	<0.10	<0.10	<0.10
VL-K95:48	F	48	3/9/12	5/2/12	<0.10	<0.10	<0.10	<0.10
VL-K107:0	GS	0	3/8/12	4/1/12	<1.2	5.3	<1.2	5.3
VL-K107:24	SW	24	3/8/12	4/1/12	<0.11	<0.11	<0.11	<0.11
VL-KK50:18	SW	18	3/9/12	5/4/12	<0.11	<0.11	<0.11	<0.11
VL-KK70:48	F	48	9/30/11	10/3/11	<0.056	<0.056	<0.056	<0.056
VL-KK90:42	SW	42	3/9/12	5/4/12	<0.10	<0.10	<0.10	<0.10
VL-L(10):18	SW	18	3/9/12	5/4/12	<0.11	0.43	<0.11	0.43
VL-L(18):0	GS	0	9/30/11	10/4/11	<0.051	<0.051	<0.051	<0.051
VL-L(18):6	SW	6	9/30/11	10/4/11	<0.051	<0.051	<0.051	<0.051
VL-L0:24	F	24	3/9/12	5/4/12	<0.55	1.4	<0.55	1.4
VL-L10:24	F	24	3/9/12	5/3/12	<0.11	<0.11	<0.11	<0.11
VL-L20:24	F	24	3/9/12	5/3/12	0.056	0.09	<0.11	0.146
VL-L30:24	F	24	3/9/12	5/3/12	<0.11	<0.11	<0.11	<0.11
VL-L40:24	F	24	3/9/12	5/3/12	<0.11	0.022	0.048	0.07
VL-L50:24	F	24	3/9/12	5/4/12	<0.11	0.062	0.035	0.097
VL-L60:12	F	12	9/30/11	10/4/11	<0.053	<0.053	<0.053	<0.053
VL-L60:48	SW	48	9/30/11	10/5/11	<0.056	0.16	<0.056	0.16
VL-L70:96	F	96	9/30/11	10/4/11	<0.056	<0.056	<0.056	<0.056
VL-L80:96	F	96	9/30/11	10/4/11	<0.058	<0.058	<0.058	<0.058
VL-L85:24	SW	24	9/30/11	10/4/11	<0.056	<0.056	<0.056	<0.056
VL-L85:48	F	48	9/30/11	10/6/11	<0.058	<0.058	<0.058	<0.058
VL-L90:36	F	36	9/30/11	10/6/11	<0.056	0.12	<0.056	0.12
VL-L93:42	F	42	3/9/12	5/4/12	<0.10	<0.10	<0.10	<0.10
VL-L95:48	F	48	3/9/12	5/4/12	<0.10	<0.10	<0.10	<0.10
VL-L107:0	GS	0	3/9/12	5/4/12	<0.10	<0.10	<0.10	<0.10
VL-L107:24	SW	24	3/9/12	5/4/12	<0.10	<0.10	<0.10	<0.10
VL-LL10:18	SW	18	3/9/12	5/4/12	<0.11	<0.11	<0.11	<0.11
VL-LL20:18	SW	18	3/9/12	5/4/12	0.2	0.35	0.13	0.68
VL-LL30:18	SW	18	3/9/12	5/4/12	<0.10	<0.10	<0.10	<0.10

Sample ID	Sample ¹	Sample ²	Sample Collection	Sample Analysis	Aroclor 1248	Aroclor 1254	Aroclor 1260	Total ³
	Location	(Inches)	Date	Date	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
VL-LL100:42	SW	42	3/9/12	5/11/12	< 0.10	<0.10	<0.10	< 0.10
VL-M(10):0	GS	0	3/9/12	5/11/12	<0.11	0.31	< 0.11	0.31
VL-M(10):12	SW	12	3/9/12	5/11/12	<0.11	0.45	<0.11	0.45
VL-M0:24	F	24	3/9/12	5/11/12	<0.11	<0.11	<0.11	<0.11
VL-M5:18	SW	18	3/9/12	5/11/12	<0.11	<0.11	<0.11	<0.11
VL-M12:12	F	12	9/30/11	10/4/11	<0.055	0.16	<0.055	0.16
VL-M22:12	F	12	9/30/11	10/5/11	<0.055	<0.055	<0.055	<0.055
VL-M32:12	F	12	9/30/11	10/5/11	<0.053	0.065	<0.065	0.065
VL-M40:18	SW	18	3/9/12	5/11/12	<0.11	<0.11	0.017	0.017
VL-M50:24	F	24	3/9/12	5/11/12	<0.11	<0.11	<0.11	<0.11
VL-M65:24	F	24	3/9/12	5/11/12	<0.11	<0.11	<0.11	<0.11
VL-M75:36	F	36	3/9/12	5/11/12	<0.11	<0.11	<0.11	<0.11
VL-M80:24	F	24	9/30/11	10/5/11	<0.055	<0.055	<0.055	<0.055
VL-M90:36	F	36	9/30/11	10/5/11	<0.055	<0.055	<0.055	<0.055
VL-M100:36	F	36	9/30/11	10/5/11	<0.056	0.24	<0.056	0.24
VL-M103:0	GS	0	9/30/11	10/6/11	<0.056	0.10	<0.056	<0.056
VL-M103:18	SW	18	9/30/11	10/6/11	<0.055	0.091	<0.055	0.091
VL-MM0:0	GS	0	3/9/12	5/18/12	<0.10	<0.10	<0.10	<0.10
VL-MM0:12	SW	12	3/9/12	5/19/12	<0.11	<0.11	<0.11	<0.11
VL-MM30:18	SW	18	3/9/12	5/11/12	<0.10	<0.10	0.02	0.02
VL-MM50:18	SW	18	3/9/12	5/11/12	<0.11	<0.11	<0.11	<0.11
VL-MM60:18	SW	18	3/9/12	5/11/12	<0.11	<0.11	<0.11	<0.11
VL-N25:0	GS	0	3/9/12	5/11/12	<0.11	<0.11	<0.11	<0.11
VL-N25:12	SW	12	3/9/12	5/12/12	<0.11	0.39	0.18	0.57
VL-N35:24	F	24	3/9/12	5/12/12	<0.53	1.7	<0.53	1.7
VL-N40:18	SW	18	3/9/12	5/11/12	<0.10	<0.10	<0.10	<0.10
VL-N42:12	F	12	9/30/11	10/6/11	<0.053	0.2	<0.053	0.2
VL-N52:12	F	12	9/30/11	10/6/11	<0.053	<0.053	<0.053	<0.053
VL-N60:24	F	24	9/30/11	10/6/11	<0.054	<0.054	<0.054	<0.054
VL-N67:42	F	42	3/9/12	5/11/12	<0.11	0.075	<0.11	0.075
VL-N70:30	SW	30	3/9/12	5/18/12	<0.12	<0.12	<0.12	<0.12
VL-N75:48	F	48	3/9/12	5/12/12	<0.11	<0.11	0.084	0.084
VL-N77:42	SW	42	3/9/12	5/12/12	<0.11	<0.11	0.051	0.051
VL-N80:36	F	36	9/30/11	10/9/11	<0.056	0.13	<0.056	0.13
VL-N90:36	F	36	9/30/11	10/6/11	<0.056	<0.056	<0.056	<0.056
VL-N100:48	F	48	9/30/11	10/6/11	<0.056	<0.056	<0.056	<0.056
VL-N103:0	GS	0	9/30/11	10/9/11	<0.052	1.3	<0.052	1.3
VL-N103:24	SW	24	9/30/11	10/6/11	<0.053	0.7	<0.053	0.7
VL-025:0	GS	0	3/9/12	5/19/12	<0.11	0.027	<0.11	0.027
VL-025:6	SW	6	3/9/12	5/19/12	<0.11	<0.11	<0.11	<0.11
VL-035:12	SW	12	3/9/12	5/19/12	<0.11	<0.11	<0.11	<0.11
VL-O50:24	F	24	9/30/11	10/9/11	<0.056	<0.056	<0.056	< 0.056
VL-05618	SW	18	3/9/12	5/19/12	<0.12	<0.12	<0.12	<0.12
VL-070:24	F	24	9/30/11	10/10/11	<0.055	<0.055	<0.055	<0.055
VL-080:24	F	24	9/30/11	10/10/11	<0.055	0.11	<0.055	<0.055
VL-O90:24	F	24	9/30/11	10/7/11	<0.057	0.23	<0.057	0.23
VL-O100:24	F	24	9/30/11	10/9/11	<0.057	<0.057	<0.057	<0.057
VL-0103:0	GS	0	9/30/11	10/7/11	<0.051	0.33	<0.051	0.33
VL-0103:12	SW	12	9/30/11	10/7/11	< 0.052	< 0.052	< 0.052	<0.052

Sample ID	Sample ¹ Location	Sample ² Depth (Inches)	Sample Collection Date	Sample Analysis Date	Aroclor 1248 (mg/kg)	Aroclor 1254 (mg/kg)	Aroclor 1260 (mg/kg)	Total ³ PCBs (mg/kg)
VL-0030:0	GS	0	3/9/12	5/19/12	<0.11	0.17	0.18	0.35
VL-0030:6	SW	6	3/9/12	5/19/12	<0.11	0.27	<0.11	0.27
VL-0040:0	GS	0	3/9/12	5/19/12	<0.11	0.099	<0.11	0.099
VL-0040:6	SW	6	3/9/12	5/19/12	<0.12	0.091	<0.12	0.091
VL-OO60:18	SW	18	3/9/12	5/18/12	<0.11	0.029	<0.11	0.029
VL-P60:12	F	12	9/30/11	10/7/11	<0.054	<0.054	<0.054	<0.054
VL-P70:12	F	12	9/30/11	10/7/11	<0.055	<0.055	<0.055	<0.055
VL-P80:12	F	12	9/30/11	10/7/11	<0.054	<0.054	<0.054	<0.054
VL-P90:12	F	12	9/30/11	10/9/11	<0.052	0.06	<0.052	0.06
VL-P100:12	F	12	9/30/11	10/7/11	<0.052	<0.052	<0.052	<0.052
VL-P103:0	GS	0	9/30/11	10/7/11	<0.051	<0.051	<0.051	<0.051
VL-P103:6	SW	6	9/30/11	10/7/11	<0.054	<0.054	<0.054	<0.054
VL-PP65:CW	CW	NA	9/21/11	9/26/11	<0.052	<0.052	<0.052	<0.052
VL-PP85:CW	CW	NA	9/21/11	9/26/11	<0.051	<0.051	<0.051	<0.051
VL-PP95:CW	CW	NA	9/21/11	9/26/11	<0.051	<0.051	<0.051	<0.051

¹Sample Location: GS = ground surface

SW = excavation sidewall CW = concrete wall

²Sample Depth:

³Total Aroclors:

Depth in inches below the pre-excavation ground surface

Sum of Aroclor 1248, 1254, and 1260 detected concentrations in milligrams per kilogram (mg/kg). Prior to March 2012, Aroclor 1248 and Aroclor 1254 were the only Aroclors detected at the Petrolane-Lomita Gas Plant. Beginning in March 2012, analysis has been performed by TestAmerica and they have quantified Aroclors 1248, 1254, and 1260 in verification soil samples. Total PCBs indicated within this table are either the sum of each detected Aroclor or simply the detection level of the individual aroclors. **BOLD** text indicates the Total PCB concentration is greater than the EPA stipulated cleanup level (0.22 mg/kg).

F = excavation floor

Sample ID	Sample ¹	Sample ²	Sample Collection	Sample Analysis	Aroclor 1248	Aroclor 1254	Aroclor 1260	Total ³
	Location	(Inches)	Date	Date	(mg/kg)	(mg/kg)	(mg/kg)	(ma/ka)
VN-PP45:CW	CW	NA	9/21/11	9/27/11	<0.051	<0.051	<0.051	< 0.051
VN-PP70:CW	CW	NA	9/21/11	9/27/11	<0.052	<0.052	<0.052	<0.052
VN-PP75:FW	FW	NA	9/21/11	9/27/11	<0.052	<0.052	<0.052	<0.052
VN-PP88:FW	FW	NA	9/21/11	9/27/11	<0.052	<0.052	<0.052	<0.052
VN-PP92:CW	CW	NA	9/21/11	9/27/11	<0.052	<0.052	<0.052	<0.052
VN-PP100	SW	8	9/8/11	9/13/11	<0.055	<0.055	<0.055	<0.055
VN-Q40:6	F	6	9/19/11	9/27/11	<0.053	0.11	<0.053	0.11
VN-Q60:6	F	6	9/19/11	9/27/11	<0.053	<0.053	<0.053	<0.053
VN-Q80:6	F	6	9/19/11	9/26/11	<0.053	<0.053	<0.053	<0.053
VN-Q93:6	SW	6	9/8/11	9/13/11	<0.052	<0.052	<0.052	<0.052
VN-Q100:12	F	12	9/8/11	9/13/11	<0.054	<0.054	<0.052	<0.052
VN-Q103:8	SW	8	9/8/11	9/13/11	<0.053	<0.053	<0.053	< 0.053
VN-QQ96:12	F	12	9/8/11	9/13/11	<0.055	<0.055	<0.055	<0.055
VN-R93:6	SW	6	9/8/11	9/13/11	< 0.052	< 0.052	<0.052	< 0.052
VN-R100:12	F	12	9/8/11	9/13/11	<0.053	< 0.053	<0.053	<0.053
VN-R103:8	SW	8	9/8/11	9/13/11	<0.053	< 0.053	<0.053	< 0.053
VN-S40:48	F	48	9/19/11	9/27/11	<0.054	0.067	<0.054	0.067
VN-S60:60	F	60	9/19/11	9/26/11	0.13	0.17	<0.056	0.30
VN-S80:60	F	60	9/19/11	9/27/11	<0.056	< 0.056	<0.056	< 0.056
VN-SW93:CW	CW	NA	9/21/11	9/27/11	< 0.052	< 0.052	< 0.052	< 0.052
VN-S93:6	SW	6	9/8/11	9/13/11	<0.051	< 0.051	< 0.051	< 0.051
VN-S100:12	F	12	9/8/11	9/13/11	<0.053	< 0.053	< 0.053	< 0.053
VN-S103:8	SW	8	9/8/11	9/13/11	< 0.054	< 0.054	< 0.054	< 0.054
VN-SS40:6	SW	6	9/16/11	9/23/11	0.089	0.15	<0.053	0.239
VN-SS50:9	SW	9	9/16/11	9/23/11	<0.054	<0.054	<0.054	<0.054
VN-SS60:12	F	12	9/16/11	9/23/11	0.15	0.12	<0.053	0.27
VN-SS96:12	F	12	9/8/11	9/13/11	<0.053	<0.053	<0.053	<0.053
VN-T40:12	F	12	9/16/11	9/23/11	<0.055	<0.055	<0.055	<0.055
VN-T50:18	F	18	9/16/11	9/23/11	<0.054	<0.054	<0.054	<0.054
VN-T60:24	F	24	9/16/11	9/23/11	<0.053	<0.053	<0.053	<0.053
VN-T69:0	СВ	0	9/21/11	9/26/11	<0.057	0.068	<0.057	0.068
VN-T80:12	F	12	9/16/11	9/23/11	<0.053	<0.053	<0.053	<0.053
VN-T80:24	F	24	9/16/11	9/23/11	<0.053	<0.053	<0.053	<0.053
VN-T85:FW	FW	NA	9/21/11	9/27/11	<0.051	<0.051	<0.051	<0.051
VN-T90:12	F	12	9/16/11	9/23/11	<0.054	<0.054	<0.054	<0.054
VN-T90:24	F	24	9/16/11	9/23/11	<0.053	<0.053	<0.053	<0.053
VN-T93:6	SW	6	9/8/11	9/13/11	<0.053	<0.053	<0.053	<0.053
VN-T100:12	F	12	9/8/11	9/14/11	<0.053	<0.053	<0.053	<0.053
VN-T103:8	SW	8	9/8/11	9/14/11	<0.055	<0.055	<0.055	<0.055
VN-TT33:6	SW	6	9/16/11	9/23/11	<0.053	<0.053	<0.053	<0.053
VN-TT63:24	F	24	9/16/11	9/23/11	<0.054	<0.054	<0.054	<0.054
VN-TT63:CW	CW	NA	9/21/11	9/27/11	<0.053	<0.053	<0.053	<0.053
VN-TT79:24	F	24	9/16/11	9/23/11	<0.053	<0.053	<0.053	<0.053
VN-U33:6	SW	6	9/16/11	9/23/11	<0.055	<0.055	<0.055	<0.055
VN-U40:12	F	12	9/16/11	9/23/11	<0.052	<0.052	<0.052	<0.052
VN-U50:12	F	12	9/16/11	9/23/11	<0.053	<0.053	<0.053	<0.053
VN-U60:12	F	12	9/16/11	9/23/11	<0.056	<0.056	<0.056	<0.056
VN-U70:0	CB	0	9/21/11	9/26/11	<0.055	<0.055	<0.055	<0.055
VN-U79:FW	FW	NA	9/21/11	9/27/11	<0.051	<0.051	<0.051	<0.051

Table 4 Summary of PCB Verification Soil Sample Concentrations: Building N Former Petrolane-Lomita Gas Plant 2851 Orange Avenue Long Beach, California

Sample ID	Sample ¹ Location	Sample ² Depth (Inches)	Sample Collection Date	Sample Analysis Date	Aroclor 1248 (mg/kg)	Aroclor 1254 (mg/kg)	Aroclor 1260 (mg/kg)	Total ³ PCBs (mg/kg)
VN-U80:12	F	12	9/16/11	9/26/11	<0.052	<0.052	<0.052	<0.052
VN-U90:12	F	12	9/16/11	9/26/11	<0.054	0.5	<0.054	0.5
VN-U100:12	F	12	9/8/11	9/14/11	<0.052	0.18	<0.052	0.18
VN-U103:8	SW	8	9/8/11	9/14/11	<0.052	0.11	<0.052	0.11
VN-UU40:6	SW	6	9/16/11	9/21/11	<0.051	<0.051	<0.051	<0.051
VN-UU50:6	SW	6	9/16/11	9/21/11	<0.052	<0.052	<0.052	<0.052
VN-UU66:FW	FW	NA	9/21/11	9/27/11	<0.052	<0.052	<0.052	<0.052
VN-UU80:6	SW	6	9/16/11	9/21/11	<0.054	<0.054	<0.054	<0.054
VN-UU90:6	SW	6	9/16/11	9/20/11	<0.054	<0.054	<0.054	< 0.054
VN-UU100:6	SW	6	9/16/11	9/21/11	<0.051	0.074	<0.051	0.074

¹Sample Location: CB = concrete base (immediately beneath concrete)

SW = excavation sidewall

F = excavation floor

CW = concrete wall (concrete sample)

FW = foundation wall (concrete sample)

NA = Not applicable due to concrete matrix

²Sample Depth:

³Total Aroclors:

Depth in inches below the pre-excavation ground surface

Sum of Aroclor 1248, 1254, and 1260 detected concentrations in milligrams per kilogram (mg/kg). Prior to March 2012, Aroclor 1248 and Aroclor 1254 were the only Aroclors detected at the Petrolane-Lomita Gas Plant. Beginning in March 2012, analysis has been performed by TestAmerica and they have quantified Aroclors 1248, 1254, and 1260 in verification soil samples. Total PCBs indicated within this table are either the sum of each detected Aroclor or simply the detection level of the individual aroclors. **BOLD** text indicates the Total PCB concentration is greater than the EPA stipulated cleanup level (0.22 mg/kg).

Table 4Summary of Blind Duplicate Soil SamplesFormer Petrolane-Lomita Gas Plant2851 Orange AvenueLong Beach, California

Blind Duplicate Sample ID	Corresponding Verification Sample	Sample Collection Date	Sample Analysis Date	Aroclor 1248 (mg/kg)	Aroclor 1254 (mg/kg)	Aroclor 1260 (mg/kg)	Total ¹ PCBs (mg/kg)	% Difference
BD-1*	VK-M50:0	8/11/11	8/17/11	<5.0	20	<5.0	20	4.7
BD-2*	VL-K50:0	8/22/11	NA	NA	NA	NA	NA	NA
BD-3*	VL-I40:0	9/1/11	9/8/11	4.5	3.6	<0.52	8.1	68.8
BD-4	VN-QQ96:12	9/8/11	9/13/11	<0.057	<0.057	<0.057	<0.057	3.5
BD-5	VG-K52:12	9/8/11	9/13/11	<0.052	<0.052	<0.052	<0.052	0
BD-6	VK-OO80:18	9/10/11	9/21/11	<0.056	<0.056	<0.056	<0.056	0
BD-7	VN-SS60:12	9/16/11	9/19/11	0.23	0.15	<0.053	0.38	28.9
BD-8	VK-N30:12	9/16/11	9/24/11	<0.053	<0.053	<0.053	<0.053	0
BD-9	VK-J60:24	9/16/11	9/24/11	<0.054	0.069	<0.054	0.069	6.7
BD-10	VN-Q40:6	9/19/11	9/21/11	<0.053	0.14	<0.053	0.14	21.5
BD-11	VL-E80:12	9/29/11	10/5/11	<0.053	0.13	<0.053	0.13	46.9
BD-12	VL-G52:12	9/29/11	10/6/11	0.62	1.3	<0.054	1.92	56.7
BD-13*	VL-H32:12	9/29/11	10/12/11	6	17	<3.0	23	3.4
BD-14	VL-I2:12	9/29/11	10/9/11	<0.056	<0.056	<0.056	<0.056	0
BD-15	VL-J2:12	9/29/11	10/11/11	0.39	1	<0.28	1.39	23.7
BD-16	VL-K52:12	9/29/11	10/8/11	<0.054	0.17	<0.054	0.17	68.2
BD-17*	VL-M72:12	9/30/11	10/5/11	<0.055	0.23	<0.055	0.23	43.5
BD-18	VL-O50:24	9/30/11	10/9/11	<0.055	<0.055	<0.055	<0.055	1.8
BD-19	VL-P90:12	9/30/11	10/9/11	<0.053	<0.053	<0.053	<0.053	1.9
BD-20	VL-F25:0	3/10/12	4/21/12	<0.10	<0.10	<0.10	<0.10	0
BD-21	VL-FF60:18	3/10/12	4/21/12	<0.10	<0.10	<0.10	<0.10	0
BD-22	VL-G50:24	3/9/12	NA	NA	NA	NA	NA	NA
BD-23	VL-HH0:18	3/10/12	4/30/12	<0.10	<0.10	<0.10	<0.10	9
BD-24	VL-J78:18	3/10/12	5/1/12	<0.10	<0.10	<0.10	<0.10	0
BD-25	VL-L0:24	3/10/12	5/3/12	<0.57	1.1	<0.57	1.1	27
BD-26	VL-N70:30	3/10/12	5/19/12	<0.12	<0.12	<0.12	<0.12	9
BD-27	VK-M87:42	3/8/12	4/20/12	<0.10	<0.10	<0.10	<0.10	9
BD-28	VK-MM82:48	3/8/12	4/27/12	<0.10	<0.10	<0.10	<0.10	0

¹Total Aroclors:

Sum of Aroclor 1248, 1254, and 1260 detected concentrations in milligrams per kilogram (mg/kg).

Prior to March 2012, Aroclor 1248 and Aroclor 1254 were the only Aroclors detected at the Petrolane-Lomita Gas Plant. Beginning in March 2012, analysis has been performed by TestAmerica and they have quantified Aroclors 1248, 1254, and 1260 in verification soil samples. Total PCBs indicated within this table are either the sum of each detected Aroclor or simply the detection level of the individual aroclors. **BOLD** text indicates the Total PCB concentration is greater than the EPA stipulated cleanup level (0.22 mg/kg).

* Corresponding verification sample location was subsequently excavated due to PCBs concentration.

SAMPLE	DATE	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	Chloroform	Dichlorodifluoromethane	Ethylbenzene	Isopropylbenzene	4-Isopropyltoluene
ID	SAMPLED	μg/m [°]	µg/m	µg/m³	µg/m°	μg/m³	µg/m	μg/m³	μg/m [°]
RSLr		NA	NA	NA	0.12	100	1.1	420	NA
DTSC - SLr		210	420	NA	NA	NA	NA	NA	NA
SV-1-5'	2/16/17	<8	365	<8	<8	<8	<8	405	<8
SV-2-5'	2/16/17	<8	<8	<8	<8	<8	<8	<8	<8
SV-3-5'	2/16/17	<8	<8	<8	<8	<8	<8	<8	<8
SV-4-5'	2/16/17	<8	253	51.2	<8	<8	<8	291	15
SV-5-5'	2/16/17	<8	68.6	<8	<8	<8	<8	143	67.2
SV-7-5'	2/16/17	<8	<8	<8	<8	<8	<8	<8	8.2
SV-7-5' REP	2/16/17	<8	<8	<8	<8	<8	<8	<8	<8
SV-9-5'	2/16/17	<8	11500	<8	<8	<8	<8	10700	<8
SV-10-5'	2/16/17	<8	540	<8	<8	10.2	<8	201	<8
SV-11-5'	2/16/17	40.8	83.8	<8	<8	10.6	<8	39.2	<8
SV-12-5'	2/16/17	31.6	54.8	<8	<8	<8	<8	34.6	<8
SV-13-5'	2/16/17	21	31.6	<8	<8	<8	9.6	24.2	<8
SV-14-5'	2/16/17	12.8	19.2	<8	24.6	<8	<8	17.4	<8
SV15-5'	2/16/17	10.4	14.2	<8	<8	10.2	<8	13.6	<8
SV-17-5'	2/16/17	<8	<8	<8	<8	10	<8	<8	<8
SV-1-5'	2/26/18	<8	<8	<8	<8	<8	<8	<8	<120
SV2-5'	2/26/18	<8	<8	<8	<8	<8	<8	<8	<120
SV3-5'	2/26/18	<8	<8	<8	<8	<8	<8	<8	<120
SV-4-5'	2/26/18	<8	<8	<8	<8	<8	<8	<8	<120
SV5-5'	2/26/18	<8	<8	<8	<8	<8	<8	<8	<120

SAMPLE ID	DATE SAMPLED	Naphthalene µg/m°	n-Propylbenzene µg/m³	PCE µg/m°	Toluene µg/m°	Trichlorofluoromethane µg/m°	1,3,5-Trimethylbenzene µg/m°
RSLr		0.083	1000	11	5200	NA	63
DTSC - SLr		0.083	1000	0.46	310	1300	NA
SV-1-5'	2/16/17	<8	<8	<8	220	<8	<8
SV-2-5'	2/16/17	<8	<8	<8	<8	<8	<8
SV-3-5'	2/16/17	<8	<8	<8	<8	87	<8
SV-4-5'	2/16/17	70.2	<8	<8	<8	13.4	<8
SV-5-5'	2/16/17	<8	<8	<8	47.2	10	<8
SV-7-5'	2/16/17	<8	<8	<8	<8	<8	<8
SV-7-5' REP	2/16/17	66.6	<8	<8	<8	<8	<8
SV-9-5'	2/16/17	11300	8090	<8	<8	65.4	<8
SV-10-5'	2/16/17	1640	441	<8	<8	<8	<8
SV-11-5'	2/16/17	504	101	<8	<8	<8	<8
SV-12-5'	2/16/17	321	90.6	11.2	<8	12.6	<8
SV-13-5'	2/16/17	184	58.8	12	<8	15.6	<8
SV-14-5'	2/16/17	111	40.4	10.6	12.4	<8	<8
SV15-5'	2/16/17	81.2	28.6	11.8	<8	<8	<8
SV-17-5'	2/16/17	45.8	8.4	11.2	<8	<8	<8
SV-1-5'	2/26/18	<400	<8	<8	<8	<8	<8
SV2-5'	2/26/18	<400	<8	<8	<8	47	<8
SV3-5'	2/26/18	<400	<8	<8	<8	<8	<8
SV-4-5'	2/26/18	<400	<8	<8	<8	<8	790
SV5-5'	2/26/18	<400	<8	<8	<8	<8	<8

Notes:

 $\mu g/m^{3}$ = micrograms per cubic meter

PCE = tetrachloroethylene

<8 = concentration is less than the Practical Quantitation Limit (8), i.e., not detected (ND)

SV-1-5' = Soil Vapor Probe 1, 5' bgs

Analytical results are included as Appendix D & F

Only detected concentrations of VOCs are presented in this table. All other VOCs were ND.

RSLr = USEPA Regional Screening Level for residential air (November 2017)

DTSC - SLr = DTSC Screening Levels for residential air (January 2018)

NA = Not Available

The location of SV-8-5' (placed in January 2017) was over excavated to pad grade and recompacted after removal of metal debris during demolition activities. Five additional soil vapor probes were placed in this area and sampled on 2-26-2018.

SOIL MATRIX ANALYTE	MAX mg/kg	95UCL mg/kg	SFo	IUR	RfDo	RfCi
TPH-g	810	136.4			4.00E-03	3.00E+01
TPH-d	18				4.00E-03	3.00E+00
TPH-o	5000	991.1			4.00E-02	
C1-C12 VPH aromatic	930	44.94			4.00E-03	3.00E+01
C12-C24 VPH aromatic	1300	13.62			4.00E-03	3.00E+00
C26->C32 VPH aromatic	1200	150			4.00E-02	
benzene	0.0088		1.00E-01	2.90E-05	4.00E-03	3.00E+00
bromodichloromethane	0.0079		6.20E-02	3.70E-05	2.00E-02	8.00E+01
n-butylbenzene	0.089	0.0152			5.00E-02	2.00E+02
sec-butylbenzene	0.29	0.0275			1.00E-01	4.00E+02
tert-butylbenzene	0.06	0.0122			1.00E-01	4.00E+02
ethylbenzene	0.0079	0.00382	1.10E-02	2.50E-06	1.00E-01	1.00E+03
isopropylbenzene	0.61	0.081			1.00E-01	4.00E+02
p-isopropyltoluene	0.025	0.00737				
2-methylnaphthalene	1.6				4.00E-03	
naphthalene	0.045	0.011		3.40E-05	2.00E-02	3.00E+00
n-propylbenzene	0.38	0.0438			1.00E-01	1.00E+03
1,1,2,2-tetrachloroethane	0.37	0.0487	2.60E-02	7.40E-06	3.00E-02	3.00E+02
toluene	0.0063				8.00E-02	5.00E+00
1,2,4-trimethylbenzene	0.63	0.102				7.00E+00
1,3,5-trimethylbenzene	0.33	0.0293			1.00E-02	4.00E+01
vinyl chloride	0.0076		2.70E-01	7.80E-05	3.00E-03	1.00E+02
m,p-xylenes	0.0069	0.00377			2.00E-01	1.00E+02
o-xylenes	0.011				2.00E-01	1.00E+02
Aroclor 1248	2.6	0.048	2.00E+00	5.70E-04		
Aroclor 1254	20	0.458	2.00E+00	5.70E-04		
Aroclor 1260	1.9	0.0352	2.00E+00	5.70E-04		
Total PCBs	23	0.571				
arsenic	8	3.624	9.50E+00	3.30E-03	3.60E-06	1.50E-02
barium	230	97.41			2.00E-01	5.00E-04
cadmium	1.1	0.494		4.20E-03	6.30E-06	1.00E-05
cobalt	240	38.94		9.00E-03	3.00E-04	6.00E-06
chromium	220	54.7			1.50E+00	
hexavalent chromium	1.7	0.311	5.00E-01	8.40E-02	3.00E-03	1.00E-04
copper	200	54.31			4.00E-02	
mercury	3.56	0.801			1.60E-04	3.00E-02
molybdenum	23	2.588			5.00E-03	
nickel	30	15.68	9.10E-01	2.60E-04	1.10E-02	1.40E-05
lead	450	75.02	LeadSpread	LeadSpread	LeadSpread	LeadSpread
antimony	11	3.948			4.00E-04	
vanadium	51	32.67			5.00E-03	1.00E-01
zinc	520	126.20			3.00E-01	
SOIL VAPOR ANALYTE	MAX µg/m ³	95UCL µg/m3				
4-isopropyltoluene	67.2	20.49		J&E model		J&E model
n-butylbenzene	40.8	15.62		J&E model		J&E model
sec-butylbenzene	11,500	3212		J&E model		J&E model
tert-butylbenzene	51.2	NA		J&E model		J&E model
chloroform	24.6	NA		J&E model		J&E model
dichlorodifluoromethane	10.6	8.854		J&E model		J&E model

Table 6 Exposure Point Concentrations, Slope Factors and Reference Doses

SOIL VAPOR ANALYTE	MAX μg/m ³	95UCL µg/m3		
ethylbenzene	9.6	NA	J&E model	J&E model
isopropylbenzene	10,700	4013	J&E model	J&E model
naphthalene	11,300	3255	J&E model	J&E model
n-propylbenzene	8090	3069	J&E model	J&E model
tetrachloroethylene	12	9.478	J&E model	J&E model
toluene	220	42.80	J&E model	J&E model
trichlorofluoromethane	87	26.74	J&E model	J&E model
1,3,5-trimethylbenzene	790	NA	J&E model	J&E model

Notes:

95UCL calculated using ProUCL version 5.1.02

EPCs are highlighted

SFo = Slope Factor, oral route of exposure $(mg/kg-day)^{-1}$

IUR = inhalation unit risk factor, inhalation route of exposure $(\mu g/m3)^{-1}$

RfDo = Reference Dose, oral route of exposure (mg/kg-day)

RfCi = Reference Concentration, inhalation route of exposure ($\mu g/m^3$)

DTSC SL tables (January 2018), USEPA RSL tables (November 2017)

HHRA Note 3 (January 2018)

Nickel refinery dust values

Table 7 - Exposure Parameters

Receptor Populations							
Exposure Parameter	Notation	Commercial Worker	Construction Worker	Residential User Adult	r Child	Units	Reference
General Parameters							
Body Weight	BW	80	80	80	15	kg	DTSC
Exposure Duration	ED	25	1	20	6	years	DTSC
Exposure Frequency	EF	250	250	350	350	days/year	DTSC
Exposure Time	ET	8	8	24	24	hours/day	DTSC
Soil Ingestion Pathway							
Soil Ingestion Rate	IR	100	330	100	200	mg/day	DTSC
Averaging Time carcinogens 70dx365d/yr	Atc	25550	25550	25550	25550	days	DTSC
Averaging Time noncarcinogens EDx365d/yr	Atnc	9125	365	7300	2190	days	DTSC
Dermal Contact with Soil							
Skin Surface Area	SA	6,032	6,032	6,032	2,900	cm ² /event	OEHHA
Soil-to-Skin Adherence factor	AF	0.2	0.8	0.07	0.2	mg/cm ²	OEHHA
Fraction of Chemical Dermally Absorbed	ABS	chem specific	chem specific	ch sp	ch sp	unitless	DTSC
Averaging Time carcinogens 70dx365d/yr	Atc	25550	25550	25550	25550	days	DTSC
Averaging Time noncarcinogens EDx365d/yr	Atnc	9125	365	7300	2190	days	DTSC
Inhalation of Outdoor Air						_	
Particulate Emission Factor	PEF	1.36E+09	1.00E+06	1.36E+09	1.36E+09	m ³ /kg	DTSC
Exposure Time (site visit duration)	ET	6	12	6	6	hours/day	USEPA
Averaging Time carcinogens 70dx365d/yrx24hr/d	Atc	613200	613200	613200	613200	hours	DTSC
Averaging Time noncarcinogens EDx365d/yrx24h/d	Atnc	219000	8760	175200	52560	hours	DTSC

Notes:

ABS = 0.1 for VOCs, 0.13 for naphthalene, 0.01 for most metals (DTSC 2015; USEPA RSL November 2017)

ANALYTE	RISKo	RISKi	HAZARDo	HAZARDi
TPH-g			6.21E-01	3.206E-09
TPH-d			8.19E-02	4.23E-09
TPH-o			4.51E-01	
C1-C12 VPH aromatic			2.04E-01	1.056E-09
C12-C24 VPH aromatic			6.20E-02	1.2E-12
C26->C32 VPH aromatic			6.82E-02	
benzene	1.52E-09		4.00E-05	
bromodichloromethane	8.46E-10		7.19E-06	
n-butylbenzene			5.53E-06	2.40E-04
sec-butylbenzene			5.00E-06	2.00E-02
tert-butylbenzene			2.22E-06	1.30E-04
chloroform		2.60E-07		3.10E-04
dichlorodifluoromethane				1.30E-04
ethylbenzene	7.26E-11	1.00E-08	6.95E-07	1.10E-05
isopropylbenzene (cumene)			1.47E-05	2.90E-02
2-methylnaphthalene			7.29E-03	
naphthalene		1.60E-04	1.00E-05	4.10E+00
n-propylbenzene			7.97E-06	8.80E-03
1,1,2,2-tetrachloroethane	2.19E-09		2.92E-05	
tetrachloroethylene (PCE)		2.60E-08		3.40E-04
toluene			1.38E-06	9.10E-04
trichlorofluoromethane				1.40E-04
1,2,4-trimethylbenzene				
1.3,5-trimethylbenzene			5.33E-05	2.40E-02
vinyl chloride	3.55E-09		4.61E-05	
m,p-xylenes			3.43E-07	
o-xylenes			1.00E-06	
Aroclor 1248	1.80E-07	1.79E-12		
Aroclor 1254	1.71E-06	1.71E-11		
Aroclor 1260	1.32E-07	1.32E-12		
barium			7.02E-03	1.37E-04
cadmium		1.36E-10	1.10E+00	3.48E-08
cobalt		2.29E-08	1.87E+00	9.07E-04
chromium			5.25E-04	
copper			1.96E-02	
mercury			7.21E-02	1.88E-08
molybdenum			7.46E-03	
nickel	2.12E-05	2.67E-10	2.03E-02	7.90E-07
antimony			1.42E-01	
vanadium			9.41E-02	2.30E-07
zinc			5.45E-03	
SUM RISK	2.32E-05	1.60E-04		
SUM HAZARD			4.83E+00	4.19E+00
HAZARD INDEX = 9				
SUM RISK = 1.83E-04				

		Ta	ble 8		
Estimated	Risks	and	Hazards	5 -	Residential

ANALYTE	RISKo	RISKi	HAZARDo	HAZARDi
TPH-g			3.32E-01	1.14E-09
TPH-d			4.38E-02	1.51E-09
TPH-o			2.41E-01	
C1-C12 VPH aromatic			1.09E-01	3.77E-10
C12-C24 VPH aromatic			3.32E-02	4.29E-13
C26->C32 VPH aromatic			3.65E-02	
benzene	8.71E-11		2.14E-05	
bromodichloromethane	4.85E-11		3.85E-06	
n-butylbenzene			2.96E-06	
sec-butylbenzene			2.68E-06	
tert-butylbenzene			1.19E-06	
ethylbenzene	4.16E-12		3.72E-07	
isopropylbenzene			7.89E-06	
2-methylnaphthalene			3.90E-03	
naphthalene			5.36E-06	
n-propylbenzene			4.27E-06	
1,1,2,2-tetrachloroethane	1.25E-10		1.57E-05	
toluene			7.36E-07	
1,2,4-trimethylbenzene				
1,3,5-trimethylbenzene			2.85E-05	
vinyl chloride	2.03E-10		2.46E-05	
m,p-xylenes			1.84E-07	
o-xylenes			5.36E-07	
Aroclor 1248	1.24E-08	9.84E-14		
Aroclor 1254	1.18E-07	9.39E-13		
Aroclor 1260	9.08E-09	7.22E-14		
barium			2.21E-03	4.91E-05
cadmium		7.46E-12	3.15E-01	1.24E-08
cobalt		1.26E-09	5.88E-01	9.07E-04
chromium			1.65E-04	
copper			6.15E-03	
mercury			2.27E-02	6.72E-09
molybdenum			2.35E-03	
nickel	6.56E-07	1.47E-11	6.40E-03	2.82E-07
antimony			4.47E-02	
vanadium			2.96E-02	8.23E-08
zinc			1.72E-03	
SUM RISK	7.96E-07	1.28E-09		
SUM HAZARD	•		1.82E+00	9.56E-04
HAZARD INDEX = 1.82				
SUM RISK = 7.97E-07				

Table 9Estimated Risks and Hazards - Construction

ANALYTE	RISKo	RISKi	HAZARDo	HAZARDi
TPH-g			6.44E-02	5.725E-10
TPH-d			8.50E-03	7.554E-10
TPH-o			4.68E-02	
C1-C12 VPH aromatic			2.12E-02	1.89E-10
C12-C24 VPH aromatic			6.43E-03	2.14E-13
C26->C32 VPH aromatic			7.08E-03	
benzene	5.94E-10		4.16E-06	
bromodichloromethane	3.31E-10		7.46E-07	
n-butylbenzene			5.74E-07	2.80E-05
sec-butylbenzene			5.19E-07	3.50E-03
tert-butylbenzene			2.30E-07	1.50E-05
chloroform		3.00E-08		3.70E-05
dichlorodifluoromethane				1.50E-05
ethylbenzene	2.84E-11	1.20E-09	7.22E-08	1.30E-06
isopropylbenzene (cumene)			1.53E-06	3.50E-03
2-methylnaphthalene			7.56E-04	
naphthalene		1.80E-05	1.04E-06	4.90E-01
n-propylbenzene			8.27E-07	1.00E-03
1,1,2,2-tetrachloroethane	8.55E-10		3.04E-06	
tetrachloroethylene (PCE)			2.60E-08	3.40E-04
toluene			1.43E-07	1.10E-04
trichlorofluoromethane				1.40E-04
1,2,4-trimethylbenzene				
1,3,5-trimethylbenzene			5.53E-06	2.90E-03
vinyl chloride	1.39E-09		4.78E-06	
m,p-xylenes			3.56E-08	
o-xylenes			1.04E-07	
Aroclor 1248	8.25E-08	1.28E-12		
Aroclor 1254	7.87E-07	1.22E-11		
Aroclor 1260	6.05E-08	9.38E-13		
barium			4.67E-04	2.45E-05
cadmium		9.70E-11	6.79E-02	6.22E-09
cobalt		1.64E-08	1.24E-01	9.07E-04
chromium			3.50E-05	
copper			1.30E-03	
mercury			4.80E-03	3.36E-09
molybdenum			4.96E-04	
nickel	4.89E-06	1.91E-10	1.35E-03	1.41E-07
antimony			9.47E-03	
vanadium			6.27E-03	4.11E-08
zinc			3.63E-04	
SUM RISK	5.83E-06	1.80E-05		
SUM HAZARD	I		3.72E-01	5.03E-01
HAZARD INDEX = 0.875				
SUM RISK = 2.38E-05				

Table 10Estimated Risks and Hazards - Commercial

Table 11 - Summary of Risks and Hazards

	Receptor Populations				
	Commercial Worker Construction Worker Resident				
Hazard Index	0.875	1.82	9		
\sum Risk	2.38E-05	7.97E-07	1.84E-04		

Notes:

Hazard Index Residential & Commercial = J&E model results + estimated hazards due to inhalation, ingestion and dermal contact of constituents in soil Σ Risk Residential & Commercial = J&E model results + estimated risks due to inhalation, ingestion and dermal contact of constituents in soil naphthalene in soil vapor contributed the most to the estimated hazard and risk for the commercial worker scenario; without the estimated inhalation risk attributable to naphthalene the estimated risk = 4.79E-08 (Table 10) None of the individual estimated hazards for the construction worker scenario exceeded the threshold 1 (Table 9)

LEAD RISK ASSESSMENT SPREADSHEET 8 CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL

Click here for ABBREVIATED INSTRUCTIONS FOR LEADSPREAD 8

INPUT	
MEDIUM	LEVEL
Lead in Soil/Dust (ug/g)	75.0
Respirable Dust (ug/m ³)	1.5

	OUTP	JI			
Percentile Estimate of	of Blood	Pb (ug/o	dl)		
	50th	90th	95th	98th	99th
BLOOD Pb, CHILD	0.5	1.0	1.2	1.4	1.6
BLOOD Pb, PICA CHILD	1.1	1.9	2.3	2.8	3.2

EXPOSURE PARAMETERS				
	units	children		
Days per week	days/wk	7		
Geometric Standard Deviation		1.6		
Blood lead level of concern (ug/dl)		1		
Skin area, residential	cm ²	2900		
Soil adherence	ug/cm ²	200		
Dermal uptake constant	(ug/dl)/(ug/day	0.0001		
Soil ingestion	mg/day	100		
Soil ingestion, pica	mg/day	200		
Ingestion constant	(ug/dl)/(ug/day	0.16		
Bioavailability	unitless	0.44		
Breathing rate	m³/day	6.8		
Inhalation constant	(ug/dl)/(ug/day	0.192		

PATHWAYS						
CHILDREN		typica			with pi	ca
	Pathwa	ay cont	ribution	Pathwa	ay cont	ribution
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	5.8E-5	0.00	1%		0.00	0%
Soil Ingestion	7.0E-3	0.53	99%	1.4E-2	1.06	100%
Inhalation	2.0E-6	0.00	0%		0.00	0%

Click here for REFERENCES

MODIFIED VERSION OF USEPA ADULT LEAD MODEL

CALCULATIONS OF BLOOD LEAD CONCENTRATIONS (PbBs) AND PRELMIINARY REMEDIATION GOAL (PRG)

Variable **Description of Variable** Units PbS Soil lead concentration ug/g or ppm 75.02 R_{fetal/maternal} Fetal/maternal PbB ratio 0.9 BKSF ug/dL per ug/day **Biokinetic Slope Factor** 0.4 GSD_i Geometric standard deviation PbB 1.8 ---**Baseline PbB** ug/dL PbB₀ 0.0 IR_s Soil ingestion rate (including soil-derived indoor dust) g/day 0.050 AF_{S.D} Absorption fraction (same for soil and dust) 0.12 -- $\mathsf{EF}_{\mathsf{S},\,\mathsf{D}}$ Exposure frequency (same for soil and dust) 250 days/yr $AT_{S, D}$ Averaging time (same for soil and dust) days/yr 365 0.1 **PbB**adult PbB of adult worker, geometric mean ug/dL PbB_{fetal. 0.90} 90th percentile PbB among fetuses of adult workers ug/dL 0.2 PbB₊ Target PbB level of concern (e.g., 10 ug/dL) ug/dL 1.0 P(PbB_{fetal} > PbB_t) Probability that fetal PbB > PbB_t, assuming lognormal distribution % 0.0%

EDIT RED CELL

PRG90

318

Click here for REFERENCES

FIGURES











Cut/Fill Summary		Sections.	2.1.1
Name	Cut Factor	Fill Factor	2d Ar
Entire Site (including buildings)	1.000	1.000	32775
Building 1	1.000	1.000	37088
Building 2	1.000	1.000	42900
Building 3	1.000	1.000	68376





18831 Bardeen Ave. - Ste. #100 Irvine, CA 92612 (949) 863-1770 www.hparchs.com



Aerial Map



Legend



Tabulation

	BLDG 1	BLDG 2	BLDG 3	TOTAL	
SITE AREA					
In s.f.				327,909	s.f.
In acres				7.5	ac
BUILDING AREA					
Office - 1st floor	3,000	3,000	4,000	10,000	s.f.
Office - 2nd floor	3,000	3,000	4,000	10,000	s.f.
Warehouse	34,088	39,900	66,742	140,730	s.f.
TOTAL	40,088	45,900	74,742	160,730	s.f.
COVERAGE				49.0%	
AUTO PARKING REQUIRED					
Whse: 1/1000 s.f.	41	46	75	162	stalls
Office area greater than 25% calc	ulated sepa	rately			
AUTO PARKING PROVIDED					
Standard (8.5' x 18')	29	51	75	155	stalls
Compact (8' x 15')	22	0	0	22	stalls
TOTAL	51	51	75	177	stalls
TRAILER PARKING REQUIRED					
0-3K @ n/a	n/a	n/a	n/a	n/a	stalls
3,001-10K @ 1 space	1	1	1	3	stalls
10,001-40K @ 1 space	1	1	1	3	stalls
above 40K @ 1 space per 40K	0	1	1	2	stalls
TOTAL	2	3	3	8	stalls
TRAILER PARKING PROVIDED					
Trailer (14' x 60')	2	3	3	8	stalls
ZONING ORDINANCE FOR CITY					
Zoning Designation - Medium Ind	ustrial (IM)				
MAXIMUM BUILDING HEIGHT ALLC	DWED				
Height - 45'					
MAXIMUM LOT COVERAGE					
Coverage - 60%					
SETBACKS					
Arterial street- 10'					
Local street - none					
yard abutting alleys - 10' from ce	nterline				
Parking fronting street -5'					







BUS-KEEFE & ASSOCIATES, INC. GEOTECHNICAL CONSULTANTS
TECHNICAL MAP
Date: 03/03/17 Plate: 1
- =ill
ro Formation
> 1 −1
Contact Contact, Buried (queried where uncertain)
Contour (Pacific Air Industries, 1960)
Cross-Section
bry Boring (Albus-Keefe)
bry Trench (Albus-Keefe)
ory Hollow Stem Boring (Dames & Moore, 1988)
bry Hollow Stem Boring (ESC, 1993)
netrometer Test (ESC, 1993) ory Hollow Stem Boring (AMEC, 2003)
d Depth of Unsuitable Materials Below Existing n feet)
Concrete Rubble Stockpile
d Building (Scheme 5)
5-foot Surcharge Fill Above Proposed Grades
TRUE NORTH
100 150



(8) Evelueto pathway using soli gas data.

10

APPENDIX A

Sierra Analytical Labs, Inc. January 10 and 12, 2017 Soil Matrix Data


10 January 2017

Susan Mearns Mearns Consulting LLC 738 Ashland Avenue Santa Monica, CA 90405

RE:SHPI-Amerigas Work Order No.: 1701037

Attached are the results of the analyses for samples received by the laboratory on 01/03/17 16:00.

The samples were received by Sierra Analytical Labs, Inc. with a chain of custody record attached or completed at the submittal of the samples.

The analyses were performed according to the prescribed method as outlined by EPA, Standard Methods, and A.S.T.M.

The remaining portions of the samples will be disposed of within 30 days from the date of this report. If you require any additional retaining time, please advise us.

Sincerely,

nd R. Foryth

Richard K. Forsyth

Laboratory Director

Sierra Analytical Labs, Inc. is certified by the California Department of Health Services (DOHS), Environmental Laboratory Accredidation Program (ELAP) No. 2320.



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA 90405	Project: SHPI-Ame Project Number: [none] Project Manager: Susan Mear		Reported: 01/10/17 12:32		
	ANALYTICAL REPORT FOR SAMP	LES		01,10,11,12.52	
Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	
SB1-5	1701037-01	Soil	01/03/17 10:02	01/03/17 16:00	
SB1-10	1701037-02	Soil	01/03/17 10:17	01/03/17 16:00	
SB2-5	1701037-03	Soil	01/03/17 10:38	01/03/17 16:00	
SB2-10	1701037-04	Soil	01/03/17 10:49	01/03/17 16:00	
SB3-5	1701037-05	Soil	01/03/17 11:10	01/03/17 16:00	
SB3-10	1701037-06	Soil	01/03/17 11:24	01/03/17 16:00	
SB4-5	1701037-07	Soil	01/03/17 11:50	01/03/17 16:00	
SB4-10	1701037-08	Soil	01/03/17 12:03	01/03/17 16:00	
SB5-5	1701037-09	Soil	01/03/17 13:03	01/03/17 16:00	
SB5-10	1701037-10	Soil	01/03/17 13:20	01/03/17 16:00	
SB6-5	1701037-11	Soil	01/03/17 14:20	01/03/17 16:00	
SB6-10	1701037-12	Soil	01/03/17 14:31	01/03/17 16:00	
SB7-5	1701037-13	Soil	01/03/17 14:50	01/03/17 16:00	
SB7-10	1701037-14	Soil	01/03/17 14:58	01/03/17 16:00	



Vanadium

Zinc

Mearns Consulting LLC		H	Project: SH	IPI-Ameri	igas					
738 Ashland Avenue		Project N	umber: [no	one]	0			Reported	:	
Santa Monica CA, 90405		Project Ma	anager: Sus	san Mearns	3			01/10/17 12:32		
	Met	alc by FPA	6000/70	AA Sorio	s Mothor	le				
						15				
		Sierra A	nalytica	I Labs, I	nc.					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB1-5 (1701037-01) Soil	Sampled: 01/03/17 10:02	Received: 01/	03/17 16:0	0						
Silver	ND	1.0	mg/kg	1	B7A0460	01/04/17	01/05/17 13:22	EPA 6010B		
Arsenic	3.7	3.5	"	"	"					
Barium	110	6.5		"	"					
Beryllium	ND	0.50		"	"					
Cadmium	ND	0.50		"	"					
Cobalt	8.6	2.5		"	"					
Chromium	28	3.0		"	"					
Hexavalent Chromium	ND	0.21	"	"	B7A0565	01/05/17	01/09/17 12:05	EPA 7199A		
Copper	37	2.0		"	B7A0460	01/04/17	01/05/17 13:22	EPA 6010B		
Mercury	3.56	0.12		10	B7A0568	01/05/17	01/06/17 18:42	EPA 7471A		
Molybdenum	ND	1.0	"	1	B7A0460	01/04/17	01/05/17 13:22	EPA 6010B		
Nickel	13	4.0		"	"					
Lead	45	3.0	"	"	"					
Antimony	ND	2.5	"	"	"					
Selenium	ND	6.0	"	"	"					
Thallium	ND	2.5	"	"	"	"				
Vanadium	36	6.0	"	"	"	"				
Zinc	93	10	"	"	"			"		
SB1-10 (1701037-02) Soil	Sampled: 01/03/17 10:17	Received: 01	/03/17 16:	00						
Silver	ND	1.0	mg/kg	1	B7A0460	01/04/17	01/05/17 13:22	EPA 6010B		
Arsenic	ND	3.5	"	"	"	"	"			
Barium	71	6.5	"	"	"	"	"			
Beryllium	ND	0.50		"	"		"			
Cadmium	ND	0.50	"	"	"		"			
Cobalt	7.5	2.5	"	"	"					
Chromium	20	3.0	"	"	"	"	"			
Hexavalent Chromium	ND	0.19		"	B7A0565	01/05/17	01/09/17 12:05	EPA 7199A		
Copper	17	2.0	"	"	B7A0460	01/04/17	01/05/17 13:22	EPA 6010B		
Mercury	0.09	0.01	"	"	B7A0568	01/05/17	01/06/17 18:42	EPA 7471A		
Molybdenum	ND	1.0	"	"	B7A0460	01/04/17	01/05/17 13:22	EPA 6010B		
Nickel	14	4.0	"	"	"			"		
Lead	3.7	3.0	"	"	"			"		
Antimony	ND	2.5	"	"	"		"	"		
Selenium	ND	6.0	"	"	"		"	"		
Thallium	ND	2.5	"	"	"		"	"		

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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2.5

6.0

10

31

34

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Mearns Consulting LLC		Р	roject: SH	PI-Amer	igas				
738 Ashland Avenue		Project Nu	umber: [no	ne]		Reported:			
Santa Monica CA, 90405		Project Ma	nager: Sus	an Mearns	3			01/10/17 1	2:32
	Met	tals by EPA	6000/700	00 Series	s Method	s			
		Sierra A	nalytical	Labs, I	nc.				
		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB2-5 (1701037-03) Soil	Sampled: 01/03/17 10:38	Received: 01/0)3/17 16:00	0					
Silver	ND	1.0	mg/kg	1	B7A0460	01/04/17	01/05/17 13:22	EPA 6010B	
Arsenic	ND	3.5	"	"	"	"	"	"	
Barium	170	6.5	"	"	"	"	"	"	
Beryllium	ND	0.50	"		"	"	"	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
Cobalt	9.9	2.5	"	"	"	"	"	"	
Chromium	25	3.0	"	"	"	"	"	"	
Hexavalent Chromium	ND	0.19	"	"	B7A0565	01/05/17	01/09/17 12:05	EPA 7199A	
Copper	25	2.0	"	"	B7A0460	01/04/17	01/05/17 13:22	EPA 6010B	
Mercury	0.26	0.01		"	B7A0568	01/05/17	01/06/17 18:42	EPA 7471A	
Molybdenum	ND	1.0	"		B7A0460	01/04/17	01/05/17 13:22	EPA 6010B	
Nickel	12	4.0	"		"	"	"	"	
Lead	120	3.0			"	"	"	"	
Antimony	ND	2.5			"	"	"	"	
Selenium	ND	6.0			"		"	"	
Thallium	ND	2.5			"		"	"	
Vanadium	36	<u> </u>			"		"	"	
Zinc	150	10			"		"	"	
Zinc	150	10							
SB2-10 (1701037-04) Soil	Sampled: 01/03/17 10:49	Received: 01	/03/17 16:0	00					
Silver	ND	1.0	mg/kg	1	B7A0460	01/04/17	01/05/17 13:22	EPA 6010B	
Arsenic	5.5	3.5		"	"	"	"	"	
Barium	100	6.5	"	"	"	"	"	"	
Beryllium	ND	0.50	"	"	"	"	"	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
Cobalt	11	2.5	"	"	"	"	"	"	
Chromium	23	3.0	"	"	"	"	"	"	
Hexavalent Chromium	ND	0.21	"	"	B7A0565	01/05/17	01/09/17 12:05	EPA 7199A	
Copper	21	2.0	"	"	B7A0460	01/04/17	01/05/17 13:22	EPA 6010B	
Mercury	0.04	0.01	"	"	B7A0568	01/05/17	01/06/17 18:42	EPA 7471A	
Molybdenum	ND	1.0	"	"	B7A0460	01/04/17	01/05/17 13:22	EPA 6010B	
Nickel	20	4.0	"	"	"	"	"	"	
Lead	9.1	3.0	"		"	"	"	"	
Antimony	ND	2.5	"	"	"	"	"	"	
Selenium	ND	6.0	"	"	"	"	"	"	
Thallium	ND	2.5	"	"	"	"	"	"	
Vanadium	39	6.0	"		"	"	"	"	
Zinc	40	10	"	"	"	"	"	"	



1/38 Ashland Avenue Santa Monica CA, 90405 Project Number: Project Number: Internal Project Number: Project Number: Siterra Analytical Labs, Inc. Methods Methods Analyte Result Important Number: Siterra Analytical Labs, Inc. None None None Stati Monica CA, 90405 Samper: None None None None None Stati Monica CA, 90405 Samped: 01/03/17 11:10 Result Important None None Stati Monica CA, 90405 Samped: 01/03/17 11:10 Result Important Important None Stati Monica CA, 90405 Samped: 01/03/17 11:10 Result Important Important None Stati Monica CA, 90405 Samped: 01/03/17 11:10 Result Important	Mearns Consulting LLC		P	roject: SH	PI-Amer	igas			D (1)		
Statu Monica CA, 90405 Project Manager: 01/10/1/12/32 Metals by EPA 6000/7000 Series Methods Silear Analytical Labs, Inc. Analyte Reparting Limit Dilation Bath Prepare Analyzed Method Nate SR3-5 (1701037-05) Soil Sampled: 01/03/17 11:10 Received: 01/03/17 16:00 Dilation Bath Prepare Analyzed Method Nate SR3-5 (1701037-05) Soil Sampled: 01/03/17 11:20 Received: 01/03/17 16:00 I 1 D7.0460 01/04/17 01.05/17 11:22 EPA 6010B Arsenic ND 1.0 mg/s 1 D7.0460 01/04/17 01.05/17 11:22 EPA 6010B Cadmium ND 0.50 - <th>738 Ashland Avenue</th> <th></th> <th>Project Nu</th> <th>imber: [no</th> <th>nej</th> <th></th> <th></th> <th></th> <th colspan="3">Reported:</th>	738 Ashland Avenue		Project Nu	imber: [no	nej				Reported:		
Metab by EPA 6000/7000 Series Methods Silver Analytical Labs, Inc. Reputing Limit Units Diata Metab Silver SB3-5 (1701037-05) Soil Sampled: 01/03/17 11:10 Reputing Limit Units Diata Method Notaling SB3-5 (1701037-05) Soil Sampled: 01/03/17 11:10 Reputing Limit Diata Notaling Notaling <th< th=""><th>Santa Monica CA, 90405</th><th></th><th>Project Ma</th><th>nager: Sus</th><th>an Mearns</th><th>8</th><th></th><th></th><th>01/10/17 1</th><th>2:32</th></th<>	Santa Monica CA, 90405		Project Ma	nager: Sus	an Mearns	8			01/10/17 1	2:32	
Sierra Analytical Labs, Inc. Result Result Result Baroning Linit Baroning Linit <th></th> <th>Met</th> <th>als by EPA</th> <th>6000/70</th> <th>00 Series</th> <th>s Method</th> <th>ls</th> <th></th> <th></th> <th></th>		Met	als by EPA	6000/70	00 Series	s Method	ls				
Result Result Imail Value Bath Prepare Analyzed Method SB3-5 (1701037-05) Soil Sampled: 01/03/17 11:10 Received: 01/03/17 Rec			Sierra A	nalytical	l Labs, I	nc.					
Caraction Caraction <t< th=""><th>Anglyta</th><th>Pasult</th><th>Reporting</th><th>Unite</th><th>Dilution</th><th>Batch</th><th>Prepared</th><th>Analyzed</th><th>Method</th><th>Notes</th></t<>	Anglyta	Pasult	Reporting	Unite	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB35-3 (1701037-05) Soil Sampled: 01/03/17 11:10 Received: 01/03/17 16:00 Silver ND 1.0 mg/kg 1 B7A0460 01/04/17 01/05/17 13:22 EPA 6010B Arsenic ND 0.5 * <t< td=""><td></td><td></td><td></td><td></td><td>Dilution</td><td>Daten</td><td>Ttepared</td><td>7 maryzed</td><td>Wiethod</td><td>Notes</td></t<>					Dilution	Daten	Ttepared	7 maryzed	Wiethod	Notes	
SilverND1.0mg/kg1B7A040001.0471701.05171 13.22EPA 6010BBarium2006.5*********Barium2006.5*** <t< td=""><td>SB3-5 (1701037-05) Soil</td><td>Sampled: 01/03/17 11:10</td><td>Received: 01/0</td><td>)3/17 16:0</td><td>0</td><td></td><td></td><td></td><td></td><td></td></t<>	SB3-5 (1701037-05) Soil	Sampled: 01/03/17 11:10	Received: 01/0)3/17 16:0	0						
Arsenic ND 3.5 *	Silver	ND	1.0	mg/kg	1	B7A0460	01/04/17	01/05/17 13:22	EPA 6010B		
Barum BarylliumDD0.50"" <t< td=""><td>Arsenic</td><td>ND</td><td>3.5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Arsenic	ND	3.5								
Barylinim ND 0.50 - <	Barium	200	6.5								
Cadmum 1.1 0.30 " <th< td=""><td>Beryllium</td><td>ND</td><td>0.50</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	Beryllium	ND	0.50								
Cobait6.52.5"""	Cadmium	1.1	0.50			"		"			
Chromium ND 0.21 " <t< td=""><td>Cobalt</td><td>6.5</td><td>2.5</td><td>"</td><td>"</td><td>"</td><td>"</td><td>"</td><td>"</td><td></td></t<>	Cobalt	6.5	2.5	"	"	"	"	"	"		
Hexavalent Chromium ND 0.21 " " B7A0655 01/05/17 01/09/17 12:05 EPA 7199A Copper 190 2.0 " " B7A0460 01/04/17 01/05/17 32:22 EPA 6010B Mercury 2.05 0.07 " 5 B7A0565 01/05/17 01/05/17 32:22 EPA 6010B Nickel 19 4.0 " " B7A0460 01/04/17 01/05/17 32:22 EPA 6010B Lead 97 3.0 " " " " " " " " Antimony ND 2.5 " <td>Chromium</td> <td>25</td> <td>3.0</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td></td> <td>"</td> <td></td>	Chromium	25	3.0	"	"	"	"		"		
Copper 190 2.0 " " B7A0460 01/04/17 01/04/17 13:22 EPA 6010B Mercury 2.05 0.07 " 5 B7A0560 01/05/17 01/06/17 13:22 EPA 6010B Nickel 19 4.0 "	Hexavalent Chromium	ND	0.21	"	"	B7A0565	01/05/17	01/09/17 12:05	EPA 7199A		
Mercury 2.05 0.07 " 5 B7A0560 01/05/17 12.22 EPA 7471A Molybdenum ND 1.0 " 1 B7A0460 01/04/17 01/05/17 13:22 EPA 7471A Molybdenum ND 4.0 "	Copper	190	2.0	"	"	B7A0460	01/04/17	01/05/17 13:22	EPA 6010B		
Molybdenum ND 1.0 " 1 B70460 01/04/17 01/05/17 13:22 EPA 6010B Nickel 19 4.0 " " " " " " " Antimony ND 2.5 " " " " " " " " Selenium ND 6.0 " " " " " " " Vanadium 25 0.0 " " " " " " " Vanadium 25 6.0 " " " " " " " Vanadium 25 6.0 " " " " " " " SB3-10 (1701037-06) Soil Sampled: 01/03/17 11:20 Received: 01/03/17 16:00 "	Mercury	2.05	0.07	"	5	B7A0568	01/05/17	01/06/17 18:42	EPA 7471A		
Nickel194.0""<	Molybdenum	ND	1.0	"	1	B7A0460	01/04/17	01/05/17 13:22	EPA 6010B		
Lead 97 3.0 " </td <td>Nickel</td> <td>19</td> <td>4.0</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td></td>	Nickel	19	4.0	"	"	"	"	"	"		
Antimony ND 2.5 " <th< td=""><td>Lead</td><td>97</td><td>3.0</td><td>"</td><td>"</td><td>"</td><td>"</td><td></td><td>"</td><td></td></th<>	Lead	97	3.0	"	"	"	"		"		
SeleniumND6.0"""	Antimony	ND	2.5	"	"	"	"	"	"		
ThalliumND 2.5 """<	Selenium	ND	6.0	"	"	"	"	"	"		
Vanadium Zinc 25 260 6.0 "	Thallium	ND	2.5	"	"	"	"	"	"		
Zinc 260 10 " </td <td>Vanadium</td> <td>25</td> <td>6.0</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td></td> <td>"</td> <td></td>	Vanadium	25	6.0	"	"	"	"		"		
SB3-10 (1701037-06) Soil Sampled: 01/03/17 11:24 Received: 01/03/17 16:00 Silver ND 1.0 mg/kg 1 B7A0460 01/04/17 01/05/17 13:22 EPA 6010B Arsenic ND 3.5 "	Zinc	260	10	"		"			"		
Silver ND 1.0 mg/kg 1 B7A0460 01/04/17 01/05/17 13:22 EPA 6010B Arsenic ND 3.5 " <th>SB3-10 (1701037-06) Soil</th> <th>Sampled: 01/03/17 11:24</th> <th>Received: 01</th> <th>/03/17 16:</th> <th>00</th> <th></th> <th></th> <th></th> <th></th> <th></th>	SB3-10 (1701037-06) Soil	Sampled: 01/03/17 11:24	Received: 01	/03/17 16:	00						
ArsenicND 3.5 """ <t< td=""><td>Silver</td><td>ND</td><td>1.0</td><td>mg/kg</td><td>1</td><td>B7A0460</td><td>01/04/17</td><td>01/05/17 13:22</td><td>EPA 6010B</td><td></td></t<>	Silver	ND	1.0	mg/kg	1	B7A0460	01/04/17	01/05/17 13:22	EPA 6010B		
Barium 79 6.5 "	Arsenic	ND	3.5	"	"	"	"	"			
Beryllium ND 0.50 " <	Barium	79	6.5	"	"	"	"	"	"		
ND 0.50 " <td>Beryllium</td> <td>ND</td> <td>0.50</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td></td>	Beryllium	ND	0.50	"	"	"	"	"	"		
Cobalt 8.4 2.5 "	Cadmium	ND	0.50	"	"	"	"		"		
Chromium 22 3.0 " <th< td=""><td>Cobalt</td><td>8.4</td><td>2.5</td><td>"</td><td>"</td><td>"</td><td>"</td><td>"</td><td>"</td><td></td></th<>	Cobalt	8.4	2.5	"	"	"	"	"	"		
Hexavalent Chromium ND 0.19 " " B7A0565 01/05/17 01/09/17 12:05 EPA 7199A Copper 21 2.0 " " B7A0460 01/04/17 01/05/17 13:22 EPA 6010B Mercury 0.03 0.01 " " B7A0568 01/05/17 01/06/17 13:22 EPA 7471A Molybdenum ND 1.0 " " B7A0460 01/04/17 01/05/17 13:22 EPA 7471A Molybdenum ND 1.0 " " B7A0460 01/04/17 01/05/17 13:22 EPA 6010B Nickel 15 4.0 " </td <td>Chromium</td> <td>22</td> <td>3.0</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td></td> <td></td>	Chromium	22	3.0	"	"	"	"	"			
Copper 21 2.0 " " B7A0460 01/04/17 01/05/17 13:22 EPA 6010B Mercury 0.03 0.01 " " B7A0568 01/05/17 01/06/17 18:42 EPA 7471A Molybdenum ND 1.0 " " B7A0460 01/04/17 01/05/17 13:22 EPA 6010B Nickel 15 4.0 " " B7A0460 01/04/17 01/05/17 13:22 EPA 6010B Nickel 15 4.0 " <td>Hexavalent Chromium</td> <td>ND</td> <td>0.19</td> <td>"</td> <td>"</td> <td>B7A0565</td> <td>01/05/17</td> <td>01/09/17 12:05</td> <td>EPA 7199A</td> <td></td>	Hexavalent Chromium	ND	0.19	"	"	B7A0565	01/05/17	01/09/17 12:05	EPA 7199A		
Mercury 0.03 0.01 " B7A0568 01/05/17 01/06/17 18:42 EPA 7471A Molybdenum ND 1.0 " " B7A0460 01/04/17 01/05/17 13:22 EPA 7401A Nickel 15 4.0 "	Copper	21	2.0	"	"	B7A0460	01/04/17	01/05/17 13:22	EPA 6010B		
Molybdenum ND 1.0 " B7A0460 01/04/17 01/05/17 13:22 EPA 6010B Nickel 15 4.0 "	Mercury	0.03	0.01	"	"	B7A0568	01/05/17	01/06/17 18:42	EPA 7471A		
Nickel 15 4.0 " " " " " Lead 4.2 3.0 " " " " " Antimony ND 2.5 " " " " " Selenium ND 6.0 " " " " " Thallium ND 2.5 " " " " " Vanadium 34 6.0 " " " " " Zinc 39 10 " " " " "	Molvbdenum	ND	1.0	"	"	B7A0460	01/04/17	01/05/17 13:22	EPA 6010B		
Lead 4.2 3.0 " " " " " Antimony ND 2.5 " " " " " Selenium ND 6.0 " " " " " Thallium ND 2.5 " " " " " Vanadium 34 6.0 " " " " " Zinc 39 10 " " " " "	Nickel	15	4.0	"		"	"	"	"		
Antimony ND 2.5 " " " " Selenium ND 6.0 " " " " Thallium ND 2.5 " " " " Vanadium 34 6.0 " " " " Zinc 39 10 " " " "	Lead	4.2	3.0	"		"			"		
Selenium ND 6.0 " " " " Thallium ND 2.5 " " " " Vanadium 34 6.0 " " " " Zinc 39 10 " " " "	Antimony	ND	2.5	"		"			"		
Thallium ND 2.5 " " " Vanadium 34 6.0 " " " " Zinc 39 10 " " " "	Selenium	ND	6.0	"		"			"		
Vanadium 34 6.0 " " " " Zinc 39 10 " " " "	Thallium	ND	2.5	"		"		"	"		
Zinc 39 10 " " " " " "	Vanadium	34	£.0	"		"			"		
	Zinc	30	10	"		"			"		



Mearns Consulting LLC		P	roject: SH	IPI-Ameri	igas			D		
/38 Ashland Avenue		Project Nu Project Ma	imber: [no	nej	_					
Santa Monica CA, 90405		Project Ma	nager: Sus	san Mearns	8			01/10/171	2:32	
	Met	als by EPA	6000/70	00 Series	s Method	ls				
		Sierra A	nalytical	l Labs, I	nc.					
Anglyta	Pacult	Reporting	Unite	Dilution	Batch	Prepared	Analyzed	Method	Notes	
			Clints	Dilution	Baten	Ttepareu	Anaryzed	Method	Notes	
SB4-5 (1701037-07) Soil	Sampled: 01/03/17 11:50	Received: 01/0	3/17 16:0	0						
Silver	ND	1.0	mg/kg	1	B7A0460	01/04/17	01/05/17 13:22	EPA 6010B		
Arsenic	ND	3.5			"					
Barium	74	6.5	"				"			
Beryllium	ND	0.50	"	"	"	"	"	"		
Cadmium	ND	0.50	"	"	"	"	"	"		
Cobalt	8.3	2.5	"	"	"	"	"	"		
Chromium	33	3.0	"	"	"	"	"	"		
Hexavalent Chromium	ND	0.21	"	"	B7A0565	01/05/17	01/09/17 12:05	EPA 7199A		
Copper	22	2.0	"	"	B7A0460	01/04/17	01/05/17 13:22	EPA 6010B		
Mercury	0.04	0.01	"	"	B7A0568	01/05/17	01/06/17 18:42	EPA 7471A		
Molybdenum	ND	1.0	"	"	B7A0460	01/04/17	01/05/17 13:22	EPA 6010B		
Nickel	19	4.0	"	"	"	"	"	"		
Lead	3.7	3.0	"	"	"	"		"		
Antimony	ND	2.5	"	"	"	"	"	"		
Selenium	ND	6.0		"	"	"	"	"		
Thallium	ND	2.5	"	"	"		"	"		
Vanadium	48	6.0		"	"		"	"		
Zinc	39	10		"	"	"		"		
SD4 10 (1701027 00) Soit	Somulad: 01/02/17 12:02	Dessived, 01	102/17 16.	00						
SB4-10 (1/0105/-08) S0II	Sampleu: 01/05/17 12:05	Keceived: 01/	03/17 10:	00						
Silver	ND	1.0	mg/kg	1	B7A0460	01/04/17	01/05/17 13:22	EPA 6010B		
Arsenic	ND	3.5	"	"	"	"	"	"		
Barium	34	6.5	"	"	"	"	"	"		
Beryllium	ND	0.50	"	"	"	"	"	"		
Cadmium	ND	0.50	"	"	"	"	"	"		
Cobalt	4.8	2.5	"	"	"	"		"		
Chromium	19	3.0	"	"	"	"	"	"		
Hexavalent Chromium	ND	0.21	"	"	B7A0565	01/05/17	01/09/17 12:05	EPA 7199A		
Copper	9.5	2.0	"	"	B7A0460	01/04/17	01/05/17 13:22	EPA 6010B		
Mercury	0.02	0.01	"	"	B7A0568	01/05/17	01/06/17 18:42	EPA 7471A		
Molybdenum	ND	1.0	"	"	B7A0460	01/04/17	01/05/17 13:22	EPA 6010B		
Nickel	8.2	4.0	"	"	"	"		"		
Lead	ND	3.0	"	"	"	"	"	"		
Antimony	ND	2.5		"	"	"		"		
Selenium	ND	6.0		"	"			"		
Thallium	ND	2.5		"	"		"	"		
Vanadium	30	6.0		"	"	"		"		
Zinc	27	10			"			"		



738 Ashland Avenue Project Number: [none] Reported for the constraint of the	
Santa Monica CA, 90405 Project Manager: Susan Mearns 01/10/17 Metals by EPA 6000/7000 Series Methods Sierra Analytical Labs, Inc. Analyte Reporting Dilution Batch Prepared Analyzed Method SB5-5 (1701037-09) Soil Sampled: 01/03/17 13:03 Received: 01/03/17 16:00 Silver ND 1.0 mg/kg 1 B7A0460 01/04/17 01/05/17 13:22 EPA 6010B Arsenic ND 3.5 " " " " " Barium 99 6.5 " " " " " " Beryllium ND 0.50 " " " " "	1:
Metals by EPA 6000/7000 Series MethodsSierra Analytical Labs, Inc.AnalyteReporting LimitUnitsDilutionBatchPreparedAnalyzedMethodSB5-5 (1701037-09) Soil Sampled: 01/03/17 13:03Received: 01/03/17 16:00SilverND1.0mg/kg1B7A046001/04/1701/05/17 13:22EPA 6010BArsenicND3.5"""""""Barium996.5"""""""""BerylliumND0.50""""""""""	2:32
Sierra Analytical Labs, Inc.AnalyteReporting LimitDilutionBatchPreparedAnalyzedMethodSB5-5 (1701037-09) SoilSampled: 01/03/17 13:03Received: 01/03/17 16:00Image: Colspan="6">SilverSilverSilverND1.0mg/kg1B7A046001/04/1701/05/17 13:22EPA 6010BSilverND3.5"""""""""Barium996.5"" </th <th></th>	
Reporting Reporting Dilution Batch Prepared Analyzed Method SB5-5 (1701037-09) Soil Sampled: 01/03/17 13:03 Received: 01/03/17 16:00 Batch Prepared Analyzed Method Silver ND 1.0 mg/kg 1 B7A0460 01/04/17 01/05/17 13:22 EPA 6010B Arsenic ND 3.5 "	
Analyte Result Limit Units Dilution Batch Prepared Analyzed Method SB5-5 (1701037-09) Soil Sampled: 01/03/17 13:03 Received: 01/03/17 16:00 Baron Box (ND) 1.0 mg/kg 1 B7A0460 01/04/17 01/05/17 13:22 EPA 6010B Arsenic ND 3.5 " <th>N</th>	N
SB5-5 (1701037-09) Soil Sampled: 01/03/17 13:03 Received: 01/03/17 16:00 Silver ND 1.0 mg/kg 1 B7A0460 01/04/17 01/05/17 13:22 EPA 6010B Arsenic ND 3.5 "	Notes
Silver ND 1.0 mg/kg 1 B7A0460 01/04/17 01/05/17 13:22 EPA 6010B Arsenic ND 3.5 " <td></td>	
Arsenic ND 3.5 " <th"< td=""><td></td></th"<>	
Barium 99 6.5 "	
Beryllium ND 0.50 " <	
Cadmium ND 0.50 " <th"< th=""> " <th"< td=""><td></td></th"<></th"<>	
Cobalt 6.3 2.5 " " " " " " "	
Chromium 130 3.0 " " " " " " "	
Hexavalent Chromium ND 0.21 " B7A0565 01/05/17 01/09/17 12:05 EPA 7199A	
Copper 29 2.0 " B7A0460 01/04/17 01/05/17 13:22 EPA 6010B	
Mercury 2.65 0.06 " 5 B7A0568 01/05/17 01/06/17 18:42 EPA 7471A	
Molybdenum ND 1.0 " 1 B7A0460 01/04/17 01/05/17 13:22 EPA 6010B	
Nickel 17 4.0 " " " " " "	
Lead 46 3.0 " " " " " "	
Antimony 4.8 2.5 " " " " " "	
Selenium ND 60 " " " " " "	
Thallium ND 2.5 " " " " "	
Vanadium 28 60 " " " " " "	
7 inc 160 10 " " " " " " "	
SB5-10 (1701037-10) Soil Sampled: 01/03/17 13:20 Received: 01/03/17 16:00	
Silver ND 1.0 mg/kg 1 B7A0460 01/04/17 01/05/17 13:22 EPA 6010B	
Arsenic ND 3.5 " " " " " "	
Barium 49 6.5 " " " " " " "	
Beryllium ND 0.50 " " " " " "	
Cadmium ND 0.50 " <th"< th=""> " <th"< td=""><td></td></th"<></th"<>	
Cobalt 5.3 2.5 " " " " " "	
Chromium 18 3.0 " " " " " " "	
Hexavalent Chromium ND 0.21 " B7A0565 01/05/17 01/09/17 12:05 EPA 7199A	
Copper 10 2.0 " B7A0460 01/04/17 01/05/17 13:22 EPA 6010B	
Mercury 0.04 0.01 " " B7A0568 01/05/17 01/06/17 18:42 EPA 7471A	
Molybdenum ND 1.0 " " B7A0460 01/04/17 01/05/17 13:22 EPA 6010B	
Nickel 11 4.0 " " " " " "	
Lead ND 3.0 " " " " " "	
Antimony ND 2.5 " " " " " "	
Selenium ND 6.0 " " " " " "	
Thallium ND 2.5 " " " " "	
Vanadium 31 60 " " " " " "	
Zinc 30 10 " " " " " "	



Mearns Consulting LLC		P	roject: SF	IPI-Ameri	igas				
738 Ashland Avenue		Project Nu	mber: [no	one]		Reported:			
Santa Monica CA, 90405		Project Ma	nager: Su	san Mearns	5			01/10/17 1	2:32
	Met	als by EPA	6000/70	00 Series	s Method	s			
		Sierra Al	nalytica	l Labs, I	nc.				
		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB6-5 (1701037-11) Soil	Sampled: 01/03/17 14:20	Received: 01/0	3/17 16:0	0					
Silver	ND	1.0	mg/kg	1	B7A0461	01/04/17	01/05/17 13:41	EPA 6010B	
Arsenic	ND	3.5	"	"	"	"	"	"	
Barium	79	6.5	"	"	"	"	"	"	
Beryllium	ND	0.50	"	"	"	"	"	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
Cobalt	6.3	2.5	"	"	"	"	"	"	
Chromium	14	3.0	"	"	"	"	"	"	
Hexavalent Chromium	ND	0.21	"	"	B7A0566	01/05/17	01/09/17 12:06	EPA 7199A	
Copper	14	2.0	"	"	B7A0461	01/04/17	01/05/17 13:41	EPA 6010B	
Mercurv	0.05	0.01	"	"	B7A0569	01/05/17	01/06/17 18:46	EPA 7471A	
Molybdenum	ND	1.0	"	"	B7A0461	01/04/17	01/05/17 13:41	EPA 6010B	
Nickel	12	4.0	"	"	"	"	"	"	
Lead	3.4	3.0	"	"	"	"	"	"	
Antimony	ND	2.5	"	"	"	"	"	"	
Selenium	ND	<u> </u>	"	"	"	"	"	"	
Thallium	ND	2.5	"	"	"		"	"	
Vənədium	21	<u> </u>	"	"	"		"	"	
Zinc	21	10	"	"	"			"	
Zinc	20	10							
SB6-10 (1701037-12) Soil	Sampled: 01/03/17 14:31	Received: 01/	/03/17 16:	00					
Silver	ND	1.0	mg/kg	1	B7A0461	01/04/17	01/05/17 13:41	EPA 6010B	
Arsenic	ND	3.5	"	"	"	"	"	"	
Barium	33	6.5	"	"	"	"	"	"	
Beryllium	ND	0.50	"	"	"	"	"	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
Cobalt	5.6	2.5	"	"	"	"	"	"	
Chromium	18	3.0	"	"	"	"	"	"	
Hexavalent Chromium	ND	0.21	"	"	B7A0566	01/05/17	01/09/17 12:06	EPA 7199A	
Copper	15	2.0	"	"	B7A0461	01/04/17	01/05/17 13:41	EPA 6010B	
Mercury	0.02	0.01	"	"	B7A0569	01/05/17	01/06/17 18:46	EPA 7471A	
Molybdenum	ND	1.0	"	"	B7A0461	01/04/17	01/05/17 13:41	EPA 6010B	
Nickel	11	4.0	"	"	"	"	"	"	
Lead	3.0	3.0	"	"	"	"	"	"	
Antimony	ND	2.5	"	"	"	"	"	"	
Selenium	ND	6.0	"	"	"	"	"	"	
Thallium	ND	2.5	"	"	"	"	"	"	
Vanadium	22	6.0	"	"	"	"		"	
Zinc	24	10	"	"	"	"		"	



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		P Project Nu Project Ma	roject: SH umber: [no mager: Sus	[PI-Amer] ne] san Mearns	igas			Reported 01/10/17 12	l: 2:32
	Met	als by EPA Sierra A	6000/700 nalytical	00 Serie	s Method	ls			
		Derra	narytica	1 Labs, 1	nc.				
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB7-5 (1701037-13) Soil	Sampled: 01/03/17 14:50	Received: 01/0)3/17 16:0	0					
Silver	ND	1.0	mg/kg	1	B7A0461	01/04/17	01/05/17 13:41	EPA 6010B	
Arsenic	3.5	3.5	"	"	"	"		"	
Barium	230	6.5	"	"	"	"	"	"	
Beryllium	ND	0.50	"	"	"	"	"		
Cadmium	ND	0.50	"	"	"	"	"	"	
Cobalt	12	2.5	"	"	"	"	"	"	
Chromium	31	3.0	"	"	"	"		"	
Hexavalent Chromium	ND	0.19	"		B7A0566	01/05/17	01/09/17 12:06	EPA 7199A	
Copper	28	2.0	"		B7A0461	01/04/17	01/05/17 13:41	EPA 6010B	
Mercury	0.03	0.01	"		B7A0569	01/05/17	01/06/17 18:46	EPA 7471A	
Molybdenum	ND	1.0	"		B7A0461	01/04/17	01/05/17 13:41	EPA 6010B	
Nickel	20	4.0	"		"				
Lead	6.1	3.0	"	"	"				
Antimony	ND	2.5	"	"	"	"	"	"	
Selenium	ND	6.0	"		"				
Thallium	ND	2.5	"		"		"	"	
Vanadium	40	<u>5</u> .5	"		"				
Zinc	40 52	10	"		"				
	54	10							
SB7-10 (1701037-14) Soil	Sampled: 01/03/17 14:58	Received: 01	/03/17 16:	00					
Silver	ND	1.0	mg/kg	1	B7A0461	01/04/17	01/05/17 13:41	EPA 6010B	
Arsenic	ND	3.5	"	"	"	"		"	
Barium	79	6.5	"	"	"	"	"	"	
Beryllium	ND	0.50	"	"	"	"	"	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
Cobalt	7.8	2.5	"	"	"	"	"	"	
Chromium	16	3.0	"	"	"	"	"	"	
Hexavalent Chromium	ND	0.21	"	"	B7A0566	01/05/17	01/09/17 12:06	EPA 7199A	
Copper	16	2.0	"	"	B7A0461	01/04/17	01/05/17 13:41	EPA 6010B	
Mercury	0.03	0.01	"	"	B7A0569	01/05/17	01/06/17 18:46	EPA 7471A	
Molybdenum	ND	1.0	"	"	B7A0461	01/04/17	01/05/17 13:41	EPA 6010B	
Nickel	14	4.0	"		"	"		"	
Lead	3.8	3.0	"	"	"	"		"	
Antimony	ND	2.5	"	"	"	"	"	"	
Selenium	ND	6.0	"	"	"	"	"	"	
Thallium	ND	2.5	"	"	"	"		"	
Vanadium	28	6.0	"		"			"	
Zinc	31	10	"		"	"	"	"	



Mearns Consulting LLC 738 Ashland Avenue	Project: SHPI-Amerigas Project Number: [none]									
Santa Monica CA, 90405		Project Mar	nager: Susan	Mearns				01/10/17	12:32	
То	tal Volatile P	etroleum	Hydrocar	bons ('	TVPH) k	oy GC/F	ID			
		Sierra Aı	nalytical L	abs, I	nc.					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB1-5 (1701037-01) Soil Sampled: 01/	/03/17 10:02 Re	ceived: 01/0	3/17 16:00							
Gasoline Range Hydrocarbons (C4-C12)	1.0	0.037	mg/kg	1	B7A0451	01/04/17	01/04/17 13:16	EPA 8015B		
Surrogate: a,a,a-Trifluorotoluene		85.9 %	35-130)	"	"	"	"		
SB1-10 (1701037-02) Soil Sampled: 01	1/03/17 10:17 R	eceived: 01/	03/17 16:00							
Gasoline Range Hydrocarbons (C4-C12)	2.9	0.050	mg/kg	1	B7A0451	01/04/17	01/04/17 13:16	EPA 8015B		
Surrogate: a,a,a-Trifluorotoluene		89.2 %	35-130)	"	"	"	"		
SB2-5 (1701037-03) Soil Sampled: 01/	/03/17 10:38 Re	ceived: 01/0	3/17 16:00							
Gasoline Range Hydrocarbons (C4-C12)	ND	0.039	mg/kg	1	B7A0451	01/04/17	01/04/17 13:16	EPA 8015B		
Surrogate: a,a,a-Trifluorotoluene		77.1 %	35-130)	"	"	"	"		
SB2-10 (1701037-04) Soil Sampled: 01	1/03/17 10:49 R	eceived: 01/	03/17 16:00							
Gasoline Range Hydrocarbons (C4-C12)	ND	0.041	mg/kg	1	B7A0451	01/04/17	01/04/17 13:16	EPA 8015B		
Surrogate: a,a,a-Trifluorotoluene		87.3 %	35-130)	"	"	"	"		
SB3-5 (1701037-05) Soil Sampled: 01/	/03/17 11:10 Re	ceived: 01/0	3/17 16:00							
Gasoline Range Hydrocarbons (C4-C12)	14	0.038	mg/kg	1	B7A0451	01/04/17	01/04/17 13:16	EPA 8015B		
Surrogate: a,a,a-Trifluorotoluene		65.9 %	35-130)	"	"	"	"		
SB3-10 (1701037-06) Soil Sampled: 01	1/03/17 11:24 R	eceived: 01/	03/17 16:00							
Gasoline Range Hydrocarbons (C4-C12)	12	0.040	mg/kg	1	B7A0451	01/04/17	01/04/17 13:16	EPA 8015B		
Surrogate: a,a,a-Trifluorotoluene		76.5 %	35-130)	"	"	"	"		
SB4-5 (1701037-07) Soil Sampled: 01/	/03/17 11:50 Re	ceived: 01/0	3/17 16:00							
Gasoline Range Hydrocarbons (C4-C12)	ND	0.058	mg/kg	1	B7A0451	01/04/17	01/04/17 13:16	EPA 8015B		
Surrogate: a,a,a-Trifluorotoluene		75.2 %	35-130)	"	"	"	"		



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Pr Project Nu Project Ma		Reported:					
To	otal Volatile P	etroleum	Hydrocar	bons (TVPH) I	oy GC/F	`ID	01/10/17	-2.02
		Sierra Ar	nalytical I	Labs, I	nc.	·			
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB4-10 (1701037-08) Soil Sampled: 0	1/03/17 12:03 R	eceived: 01/	03/17 16:00						
Gasoline Range Hydrocarbons (C4-C12)	ND	0.050	mg/kg	1	B7A0451	01/04/17	01/04/17 13:16	5 EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		79.0 %	35-13	0	"	"	"	"	
SB5-5 (1701037-09) Soil Sampled: 01/	/03/17 13:03 Re	ceived: 01/0	3/17 16:00						
Gasoline Range Hydrocarbons (C4-C12)	270	10	mg/kg	100	B7A0451	01/04/17	01/04/17 13:16	EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		92.0 %	35-13	0	"	"	"	"	
SB5-10 (1701037-10) Soil Sampled: 0	1/03/17 13:20 R	eceived: 01/	03/17 16:00						
Gasoline Range Hydrocarbons (C4-C12)	ND	0.050	mg/kg	1	B7A0451	01/04/17	01/04/17 13:16	5 EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		78.3 %	35-13	0	"	"	"	"	
SB6-5 (1701037-11) Soil Sampled: 01/	/03/17 14:20 Re	ceived: 01/0	3/17 16:00						
Gasoline Range Hydrocarbons (C4-C12)	ND	0.050	mg/kg	1	B7A0451	01/04/17	01/04/17 13:16	5 EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		82.8 %	35-13	0	"	"	"	"	
SB6-10 (1701037-12) Soil Sampled: 0	1/03/17 14:31 R	eceived: 01/	03/17 16:00						
Gasoline Range Hydrocarbons (C4-C12)	ND	0.050	mg/kg	1	B7A0451	01/04/17	01/04/17 13:16	5 EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		78.8 %	35-13	0	"	"	"	"	
SB7-5 (1701037-13) Soil Sampled: 01/	/03/17 14:50 Re	ceived: 01/0	3/17 16:00						
Gasoline Range Hydrocarbons (C4-C12)	ND	0.050	mg/kg	1	B7A0451	01/04/17	01/04/17 13:16	5 EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		86.5 %	35-13	0	"	"	"	"	
SB7-10 (1701037-14) Soil Sampled: 0	1/03/17 14:58 R	eceived: 01/	03/17 16:00						
Gasoline Range Hydrocarbons (C4-C12)	0.17	0.044	mg/kg	1	B7A0451	01/04/17	01/04/17 13:16	EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		85.1 %	35-13	0	"	"	"	"	



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA 90405		Reported:							
Sunta Homou Cr1, 70705	Total Petro	leum Hve	Irocarhor	ns (TP	H) by G(T/FID		01/10/17 1	2.32
		Sierra An	alvtical I	ahs. I	nc.				
		Denenting	lary ticar 1	2405, 1	iic.				
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB1-5 (1701037-01) Soil Sampled: 01/	/03/17 10:02 Re	ceived: 01/0.	3/17 16:00						
Diesel Range Organics (C10-C24)	18	5.0	mg/kg	1	B7A0330	01/04/17	01/05/17 12:02	EPA 8015B	
Surrogate: o-Terphenyl		127 %	60-17	5	"	"	"	"	
Oil Range Organics (C22-C36)	22	5.0	"	"	"	"	"		
Surrogate: o-Terphenyl		127 %	60-17	5	"	"	"	"	
SB1-10 (1701037-02) Soil Sampled: 0	1/03/17 10:17 R	eceived: 01/	03/17 16:00						
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0330	01/04/17	01/05/17 10:24	EPA 8015B	D-42
Surrogate: o-Terphenyl		101 %	60-17	5	"	"	"	"	
Oil Range Organics (C22-C36)	ND	5.0	"		"	"	"		
Surrogate: o-Terphenyl		101 %	60-17	5	"	"	"	"	
SB2-5 (1701037-03) Soil Sampled: 01/	/03/17 10:38 Re	ceived: 01/0.	3/17 16:00						
Diesel Range Organics (C10-C24)	ND	25	mg/kg	5	B7A0330	01/04/17	01/05/17 12:26	EPA 8015B	
Surrogate: o-Terphenyl		128 %	60-17	5	"	"	"	"	
Oil Range Organics (C22-C36)	210	25	"		"	"			
Surrogate: o-Terphenyl		128 %	60-17	5	"	"	"	"	
SB2-10 (1701037-04) Soil Sampled: 01	1/03/17 10:49 R	eceived: 01/	03/17 16:00						
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0330	01/04/17	01/05/17 12:14	EPA 8015B	D-42
Surrogate: o-Terphenyl		162 %	60-17	5	"	"	"	"	
Oil Range Organics (C22-C36)	66	5.0	"	"	"	"			
Surrogate: o-Terphenyl		162 %	60-17	5	"	"	"	"	
SB3-5 (1701037-05) Soil Sampled: 01/	/03/17 11:10 Re	ceived: 01/0.	3/17 16:00						
Diesel Range Organics (C10-C24)	ND	50	mg/kg	10	B7A0330	01/04/17	01/05/17 15:20	EPA 8015B	D-42
Surrogate: o-Terphenyl		%	60-17	5	"	"	"	"	S-03
Oil Range Organics (C22-C36)	5000	50	"	"		"	"	"	
Surrogate: o-Terphenyl		%	60-17	5	"	"	"	"	S-03



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Pr Project Nu Project Mar		Reported : 01/10/17 12	: 2:32				
	Total Pet	troleum Hyo	lrocarbon	s (TPl	H) by G(C/FID			
		Sierra Ar	nalytical L	abs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB3-10 (1701037-06) Soil Sampled: 01/0	3/17 11:24	Received: 01/	03/17 16:00						
Diesel Range Organics (C10-C24)	ND	25	mg/kg	5	B7A0330	01/04/17	01/05/17 12:4	9 EPA 8015B	D-42
Surrogate: o-Terphenyl Oil Range Organics (C22-C36)	3500	1400 % 25	60-175 "	5 "	"	"	"	"	S-07
Surrogate: o-Terphenyl		1400 %	60-17	5	"	"	"	"	S-07
SB4-5 (1701037-07) Soil Sampled: 01/03	/17 11:50	Received: 01/0	3/17 16:00						
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0330	01/04/17	01/05/17 10:3	7 EPA 8015B	
Surrogate: o-Terphenyl Oil Range Organics (C22-C36)	ND	111 % 5.0	60-175 "	5 "	"	"	"	"	
Surrogate: o-Terphenyl		111 %	60-17	5	"	"	"	"	
SB4-10 (1701037-08) Soil Sampled: 01/0	3/17 12:03	Received: 01/	03/17 16:00						
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0330	01/04/17	01/05/17 10:4	9 EPA 8015B	
<i>Surrogate: o-Terphenyl</i> Oil Range Organics (C22-C36)	ND	86.4 % 5.0	60-175 "	5 "	"	"	"	"	
Surrogate: o-Terphenyl		86.4 %	60-175	5	"	"	"	"	
SB5-5 (1701037-09) Soil Sampled: 01/03	/17 13:03	Received: 01/0	3/17 16:00						
Diesel Range Organics (C10-C24)	ND	100	mg/kg	20	B7A0330	01/04/17	01/05/17 15:3	2 EPA 8015B	D-42
Surrogate: o-Terphenyl		%	60-17	5	"	"	"	"	S-03
Oil Range Organics (C22-C36)	3900	100	"	"	"	"	"	"	
Surrogate: o-Terphenyl		%	60-175	5	"	"	"	"	S-03
SB5-10 (1701037-10) Soil Sampled: 01/0	3/17 13:20	Received: 01/	03/17 16:00						
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0330	01/04/17	01/05/17 11:0	2 EPA 8015B	
Surrogate: o-Terphenyl Oil Range Organics (C22-C36)	ND	106 % 5.0	60-175 "	5 "	"	"	"	"	
Surrogate: o-Terphenyl		106 %	60-17	5	"	"	"	"	



		-							
Mearns Consulting LLC		Pr	oject: SHF	PI-Ameri	igas			_	
738 Ashland Avenue		Project Nu	mber: [non	e]				Reported	l:
Santa Monica CA, 90405		Project Mar	ager: Susa	n Mearns	8			01/10/17 1	2:32
	Total Petr	oleum Hyd	lrocarbo	ns (TPl	H) by G(C/FID			
		Sierra An	alytical	Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB6-5 (1701037-11) Soil Sampled: 01/	03/17 14:20 R	eceived: 01/0	3/17 16:00						
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0330	01/04/17	01/05/17 11:1	4 EPA 8015B	
Surrogate: o-Terphenyl		93.6 %	60-12	75	"	"	"	"	
Oil Range Organics (C22-C36)	ND	5.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl		93.6 %	60-12	75	"	"	"	"	
SB6-10 (1701037-12) Soil Sampled: 01	/03/17 14:31	Received: 01/	03/17 16:00)					
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0330	01/04/17	01/05/17 11:2	6 EPA 8015B	
Surrogate: o-Terphenyl		94.0 %	60-12	75	"	"	"	"	
Oil Range Organics (C22-C36)	ND	5.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl		94.0 %	60-12	75	"	"	"	"	
SB7-5 (1701037-13) Soil Sampled: 01/	03/17 14:50 R	eceived: 01/0	3/17 16:00						
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0330	01/04/17	01/05/17 11:3	8 EPA 8015B	
Surrogate: o-Terphenyl		96.4 %	60-12	75	"	"	"	"	
Oil Range Organics (C22-C36)	ND	5.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl		96.4 %	60-1	75	"	"	"	"	
SB7-10 (1701037-14) Soil Sampled: 01	/03/17 14:58	Received: 01/	03/17 16:00)					
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0330	01/04/17	01/05/17 11:5	0 EPA 8015B	
Surrogate: o-Terphenyl		64.4 %	60-12	75	"	"	"	"	
Oil Range Organics (C22-C36)	ND	5.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl		64.4 %	60-12	75	"	"	"	"	



Mearns Consulting LLC		Pr		F					
738 Ashland Avenue		Project Nu	mber: [nor	iej				Reported	:
Santa Monica CA, 90405		Project Mar	nager: Susa	an Mearns	5			01/10/17 12	2:32
Total	l Petroleum H	ydrocarbo	ns Carb	on Rang	ge Analys	sis by G	C-FID		
		Sierra Ar	nalytical	Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB1-5 (1701037-01) Soil Sampled: 0	1/03/17 10:02 R	eceived: 01/0	3/17 16:00						
HC < C8	ND	1.0	mg/kg	1	B7A0330	01/04/17	01/05/17 12:02	EPA 8015B	
$C8 \le HC < C9$	ND	1.0	"	"	"	"	"	"	
C9 <= HC < C10	ND	1.0	"	"	"	"	"		
C10 <= HC < C11	1.0	1.0	"	"	"	"	"	"	
C11 <= HC < C12	1.6	1.0	"	"	"	"	"		
C12 <= HC < C14	4.5	1.0	"	"	"	"	"		
C14 <= HC < C16	5.2	1.0	"	"	"	"	"	"	
C16 <= HC < C18	4.0	1.0	"	"	"	"	"		
C18 <= HC < C20	1.3	1.0	"	"	"	"	"		
C20 <= HC < C24	2.3	1.0	"	"	"	"	"		
C24 <= HC < C28	3.5	1.0	"	"	"	"	"	"	
C28 <= HC < C32	8.8	1.0	"	"	"	"	"		
HC >= C32	6.9	1.0	"	"	"	"	"	"	
Total Petroleum Hydrocarbons (C7-C36)	39	5.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl		127 %	60-1	75	"	"	"	"	
C5 <= HC < C6	ND	0.0074	"	"	B7A0451	01/04/17	01/04/17 13:16		
C6 <= HC < C7	0.011	0.0074	"	"	"	"	"	"	
C7 <= HC < C8	0.032	0.0074	"	"	"	"	"		
C8 <= HC < C9	0.090	0.0074	"	"	"	"	"	"	
C9 <= HC < C10	1.0	0.0074	"	"	"	"	"		
C10 <= HC < C11	2.4	0.0074	"	"	"	"	"	"	
C11 <= HC < C12	1.4	0.0074	"	"	"	"	"	"	
HC >= C12	0.39	0.0074	"	"	"	"	"	"	
Total Petroleum Hydrocarbons (C4-C12)	5.4	0.037	"	"	"	"	"		
Surrogate: a,a,a-Trifluorotoluene		85.9 %	35-1	30	"	"	"	"	



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Mearns Consulting LLC		Pr								
738 Ashland Avenue		Project Nu	mber: [no	one]	-			Reported:		
Santa Monica CA, 90405		Project Mar	nager: Sus	san Mearns				01/10/17 12	2:32	
	Total Petroleum	Hydrocarbo	ns Cart	oon Rang	ge Analys	sis by G	C-FID			
		Sierra Ar	nalytical	l Labs, I	nc.					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB1-10 (1701037-02) Soil	Sampled: 01/03/17 10:17	Received: 01/	03/17 16:	00						
HC < C8	ND	1.0	mg/kg	1	B7A0330	01/04/17	01/05/17 10:24	EPA 8015B		
C8 <= HC < C9	ND	1.0	"	"	"	"	"	"		
C9 <= HC < C10	3.5	1.0	"	"	"	"		"		
C10 <= HC < C11	24	1.0	"	"	"	"		"		
C11 <= HC < C12	45	1.0	"	"	"	"		"		
C12 <= HC < C14	42	1.0	"	"	"	"		"		
C14 <= HC < C16	2.9	1.0	"	"	"	"	"	"		
C16 <= HC < C18	ND	1.0	"	"	"	"	"	"		
C18 <= HC < C20	ND	1.0	"	"	"	"	"	"		
$C20 \le HC < C24$	ND	1.0	"	"	"	"	"	"		
$C24 \le HC < C28$	ND	1.0	"	"	"	"	"	"		
C28 <= HC < C32	ND	1.0	"	"	"	"	"	"		
$HC \ge C32$	ND	1.0	"	"	"	"	"	"		
Total Petroleum Hydroca (C7-C36)	rbons 120	5.0	"	"	"	"	"	"		
Surrogate: o-Terphenyl		101 %	60-	175	"	"	"	"		
C5 <= HC < C6	ND	0.010	"	"	B7A0451	01/04/17	01/04/17 13:16	"		
C6 <= HC < C7	0.034	0.010	"	"	"	"		"		
C7 <= HC < C8	0.12	0.010	"	"	"	"		"		
C8 <= HC < C9	0.57	0.010	"	"	"	"		"		
C9 <= HC < C10	2.9	0.010	"	"	"	"		"		
C10 <= HC < C11	10	0.010	"	"	"	"		"		
C11 <= HC < C12	3.5	0.010	"	"	"	"		"		
HC >= C12	0.46	0.010	"	"	"	"		"		
Total Petroleum Hydroca (C4-C12)	rbons 19	0.050	"	"	"	"	"	"		
Surrogate: a,a,a-Trifluorote	oluene	89.2 %	35-	130	"	"	"	"		

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Mearns Consulting LLC 738 Ashland Avenue		Reported:							
Santa Monica CA, 90405		Project Mar	nager: Susar	n Mearns	\$			01/10/17 12	2:32
Tot	al Petroleum H	Iydrocarbo	ns Carbo	n Rang	ge Analy	sis by G	C-FID		
		Sierra Ar	nalytical l	Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB2-5 (1701037-03) Soil Sampled:	01/03/17 10:38 F	Received: 01/0	3/17 16:00						
HC < C8	ND	5.0	mg/kg	5	B7A0330	01/04/17	01/05/17 12:26	EPA 8015B	
$C8 \le HC < C9$	ND	5.0	"	"	"	"	"	"	
C9 <= HC < C10	ND	5.0	"	"	"	"	"	"	
C10 <= HC < C11	ND	5.0	"	"	"	"	"	"	
C11 <= HC < C12	ND	5.0	"	"	"	"	"	"	
$C12 \le HC < C14$	ND	5.0	"	"	"	"	"	"	
$C14 \le HC < C16$	ND	5.0	"	"	"	"	"	"	
$C16 \le HC < C18$	ND	5.0	"	"	"	"	"	"	
C18 <= HC < C20	5.0	5.0	"	"	"	"		"	
C20 <= HC < C24	19	5.0	"	"	"	"		"	
C24 <= HC < C28	43	5.0	"	"	"	"	"	"	
C28 <= HC < C32	78	5.0	"	"	"	"		"	
HC >= C32	68	5.0	"	"	"	"		"	
Total Petroleum Hydrocarbons (C7-C36)	210	25	"	"	"	"	"	"	
Surrogate: o-Terphenyl		128 %	60-17	75	"	"	"	"	
$C5 \le HC \le C6$	ND	0.0078	"	1	B7A0451	01/04/17	01/04/17 13:16	"	
$C6 \le HC < C7$	ND	0.0078	"	"	"	"	"	"	
$C7 \le HC < C8$	ND	0.0078	"	"	"	"	"	"	
$C8 \le HC < C9$	ND	0.0078	"	"	"	"	"	"	
$C9 \le HC < C10$	ND	0.0078	"	"	"	"	"	"	
C10 <= HC < C11	ND	0.0078	"	"	"	"	"	"	
$C11 \le HC < C12$	ND	0.0078	"	"	"	"	"	"	
$HC \ge C12$	ND	0.0078	"	"	"	"	"	"	
Total Petroleum Hydrocarbons (C4-C12)	ND	0.039	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		77.1 %	35-13	80	"	"	"	"	



Mearns Consulting LLC		Pı	roject: SH	IPI-Ameri	gas				
738 Ashland Avenue		Project Nu	mber: [no	one]	0			Reported	l:
Santa Monica CA, 90405		Project Mar	nager: Sus	san Mearns				01/10/17 12	2:32
	Total Petroleum	Hvdrocarbo	ns Carl	oon Rang	ge Analy	sis by G	C-FID		
		Sierra Aı	nalytica	l Labs, I	nc.	v			
		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB2-10 (1701037-04) Soil	Sampled: 01/03/17 10:49	Received: 01/	03/17 16:	00					
HC < C8	ND	1.0	mg/kg	1	B7A0330	01/04/17	01/05/17 12:14	EPA 8015B	
$C8 \le HC < C9$	ND	1.0	"	"	"	"	"	"	
C9 <= HC < C10	ND	1.0	"	"	"	"	"	"	
C10 <= HC < C11	ND	1.0	"	"	"	"	"	"	
C11 <= HC < C12	ND	1.0	"	"	"	"	"	"	
C12 <= HC < C14	1.1	1.0	"	"	"	"	"	"	
C14 <= HC < C16	4.8	1.0	"	"	"	"	"	"	
C16 <= HC < C18	8.0	1.0	"	"	"	"	"	"	
C18 <= HC < C20	8.1	1.0	"	"	"	"	"	"	
C20 <= HC < C24	22	1.0	"	"	"	"	"	"	
C24 <= HC < C28	21	1.0	"	"	"	"	"	"	
C28 <= HC < C32	21	1.0	"	"	"	"	"	"	
HC >= C32	14	1.0	"	"	"	"	"	"	
Total Petroleum Hydrocar (C7-C36)	bons 100	5.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl		162 %	60-	175	"	"	"	"	
$C5 \le HC < C6$	ND	0.0083	"	"	B7A0451	01/04/17	01/04/17 13:16	"	
$C6 \leq HC < C7$	ND	0.0083	"	"	"	"	"	"	
$C7 \leq HC < C8$	ND	0.0083	"	"	"	"	"	"	
$C8 \le HC < C9$	ND	0.0083	"	"	"	"	"	"	
$C9 \le HC < C10$	ND	0.0083	"	"	"	"	"	"	
C10 <= HC < C11	ND	0.0083	"	"	"	"	"	"	
C11 <= HC < C12	ND	0.0083	"	"	"	"	"	"	
$HC \ge C12$	ND	0.0083	"	"	"	"	"	"	
Total Petroleum Hydrocarbo (C4-C12)	ons ND	0.041	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluoroto	oluene	87.3 %	35-	130	"	"	"	"	



Mearns Consulting LLC		Pr Project New		Donouted						
/ 38 Ashland Avenue		Project Nu Project Mer	nuer: [noi	nej on Maarrie				керогиса: 01/10/17 12:22		
Santa Monica CA, 90405			ager: Sus					01/10/1712	2:52	
Tota	l Petroleum H	ydrocarbo	ns Carb	on Rang	ge Analy	sis by G	C-FID			
		Sierra Ar	nalytical	Labs, I	nc.					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB3-5 (1701037-05) Soil Sampled: (01/03/17 11:10 R	eceived: 01/0	3/17 16:00)						
HC < C8	ND	10	mg/kg	10	B7A0330	01/04/17	01/05/17 15:20	EPA 8015B		
C8 <= HC < C9	33	10	"	"	"	"		"		
C9 <= HC < C10	150	10	"	"	"	"		"		
C10 <= HC < C11	180	10	"	"	"	"				
C11 <= HC < C12	370	10	"	"	"	"		"		
C12 <= HC < C14	1000	10	"	"	"	"	"			
C14 <= HC < C16	780	10	"	"	"	"				
C16 <= HC < C18	750	10	"	"	"	"		"		
C18 <= HC < C20	710	10	"	"	"	"	"			
C20 <= HC < C24	1300	10	"	"	"	"		"		
C24 <= HC < C28	1200	10	"	"	"	"	"			
C28 <= HC < C32	690	10	"	"	"	"	"			
HC >= C32	1100	10	"	"	"	"	"			
Total Petroleum Hydrocarbons (C7-C36)	8300	50	"	"	"	"	"	"		
Surrogate: o-Terphenyl		%	60-1	175	"	"	"	"	S-03	
C5 <= HC < C6	ND	0.0075	"	1	B7A0451	01/04/17	01/04/17 13:16	"		
C6 <= HC < C7	0.038	0.0075	"	"	"	"				
C7 <= HC < C8	0.37	0.0075	"	"	"	"		"		
C8 <= HC < C9	4.6	0.0075	"	"	"	"	"			
C9 <= HC < C10	10	0.0075	"	"	"	"	"			
C10 <= HC < C11	8.2	0.0075	"	"	"	"		"		
C11 <= HC < C12	3.0	0.0075	"	"	"	"		"		
HC >= C12	0.34	0.0075	"	"	"	"		"		
Total Petroleum Hydrocarbons (C4-C12)	27	0.038	"	"	"	"	"	"		
Surrogate: a,a,a-Trifluorotoluene		65.9 %	35-1	130	"	"	"	"		



Mearns Consulting LLC 738 Ashland Avenue		Project: SHPI-Amerigas Project Number: [none]										
Santa Monica CA, 90405		Project Mar	nager: Sus	an Mearns	3			01/10/17 12	2:32			
	Total Petroleum	Hydrocarbo	ns Carb	on Rang	ge Analy	sis by G	C-FID					
		Sierra Aı	nalytical	Labs, I	nc.							
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes			
SB3-10 (1701037-06) Soil	Sampled: 01/03/17 11:24	Received: 01/	/03/17 16:0)0								
HC < C8	ND	5.0	mg/kg	5	B7A0330	01/04/17	01/05/17 12:49	EPA 8015B				
C8 <= HC < C9	29	5.0	"	"	"	"	"	"				
C9 <= HC < C10	150	5.0	"	"	"	"	"	"				
C10 <= HC < C11	160	5.0	"	"	"	"	"	"				
C11 <= HC < C12	320	5.0	"	"	"	"						
C12 <= HC < C14	610	5.0	"	"	"	"						
C14 <= HC < C16	510	5.0	"	"	"	"	"	"				
C16 <= HC < C18	430	5.0	"	"	"	"	"	"				
C18 <= HC < C20	420	5.0	"	"	"	"	"	"				
C20 <= HC < C24	710	5.0	"	"	"	"	"	"				
C24 <= HC < C28	650	5.0	"	"	"	"	"	"				
C28 <= HC < C32	1100	5.0	"	"	"	"	"	"				
HC >= C32	1000	5.0	"	"	"	"	"	"				
Total Petroleum Hydrocarl (C7-C36)	bons 6100	25	"	"	"	"	"	"				
Surrogate: o-Terphenyl		1400 %	60-1	175	"	"	"	"	S-07			
C5 <= HC < C6	ND	0.0081	"	1	B7A0451	01/04/17	01/04/17 13:16					
C6 <= HC < C7	0.056	0.0081	"	"	"	"						
C7 <= HC < C8	0.38	0.0081	"	"	"	"						
C8 <= HC < C9	3.6	0.0081	"	"	"	"						
C9 <= HC < C10	8.5	0.0081	"	"	"	"						
C10 <= HC < C11	9.0	0.0081	"	"	"	"		"				
C11 <= HC < C12	3.8	0.0081	"	"	"	"		"				
HC >= C12	0.47	0.0081	"	"	"	"		"				
Total Petroleum Hydrocarl (C4-C12)	bons 26	0.040	"	"	"	"	"	"				
Surrogate: a,a,a-Trifluorotol	uene	76.5 %	35-1	130	"	"	"	"				



Mearns Consulting LLC		Pr	oject: SHP	PI-Ameri	gas					
738 Ashland Avenue		Project Nu	mber: [non	e]	0			Reported:		
Santa Monica CA, 90405		Project Mar	ager: Susa	n Mearns	5			01/10/17 12	2:32	
Tota	al Petroleum H	lydrocarbo	ns Carbo	on Rang	ge Analy	sis by G	C-FID			
		Sierra An	alytical	Labs, I	nc.	·				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB4-5 (1701037-07) Soil Sampled:	01/03/17 11:50 R	Received: 01/0.	3/17 16:00							
HC < C8	ND	1.0	mg/kg	1	B7A0330	01/04/17	01/05/17 10:37	EPA 8015B		
C8 <= HC < C9	ND	1.0	"	"			"	"		
C9 <= HC < C10	ND	1.0	"	"	"	"	"			
C10 <= HC < C11	ND	1.0	"	"	"	"	"	"		
C11 <= HC < C12	ND	1.0	"	"	"	"	"	"		
C12 <= HC < C14	ND	1.0	"	"	"	"	"			
C14 <= HC < C16	ND	1.0	"	"	"	"	"			
C16 <= HC < C18	ND	1.0	"	"	"	"	"	"		
C18 <= HC < C20	ND	1.0	"	"	"	"	"	"		
$C20 \le HC < C24$	ND	1.0	"	"	"	"	"			
$C24 \leq HC < C28$	ND	1.0	"	"	"	"	"			
C28 <= HC < C32	ND	1.0	"	"	"	"	"			
$HC \ge C32$	ND	1.0	"	"	"	"	"			
Total Petroleum Hydrocarbons (C7-C36)	ND	5.0	"		"	"	"	"		
Surrogate: o-Terphenyl		111 %	60-12	75	"	"	"	"		
C5 <= HC < C6	ND	0.012	"	"	B7A0451	01/04/17	01/04/17 13:16			
C6 <= HC < C7	ND	0.012	"	"	"	"	"			
C7 <= HC < C8	ND	0.012	"	"		"	"			
C8 <= HC < C9	ND	0.012	"	"			"	"		
C9 <= HC < C10	ND	0.012	"	"	"	"	"			
C10 <= HC < C11	ND	0.012	"	"		"	"			
C11 <= HC < C12	ND	0.012	"	"	"	"	"	"		
HC >= C12	ND	0.012	"	"	"	"	"	"		
Total Petroleum Hydrocarbons (C4-C12)	ND	0.058	"	"	"	"	"	"		
Surrogate: a,a,a-Trifluorotoluene		75.2 %	35-13	30	"	"	"	"		



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Mearns Consulting LLC										
738 Ashland Avenue		Project Nu	mber: [no	one]	-			Reported:		
Santa Monica CA, 90405		Project Mar	nager: Su	san Mearns				01/10/17 12	2:32	
	Total Petroleum	Hydrocarbo	ns Carl	oon Rang	ge Analy	sis by G	C-FID			
		Sierra Ar	nalytica	l Labs, I	nc.					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB4-10 (1701037-08) Soil	Sampled: 01/03/17 12:03	Received: 01/	03/17 16:	00						
HC < C8	ND	1.0	mg/kg	1	B7A0330	01/04/17	01/05/17 10:49	EPA 8015B		
C8 <= HC < C9	ND	1.0	"	"	"	"	"	"		
$C9 \leq HC < C10$	ND	1.0	"	"	"		"			
C10 <= HC < C11	ND	1.0	"	"	"		"			
C11 <= HC < C12	ND	1.0	"	"	"	"	"			
C12 <= HC < C14	ND	1.0	"	"	"	"	"	"		
C14 <= HC < C16	ND	1.0	"	"	"	"	"			
C16 <= HC < C18	ND	1.0	"	"	"	"	"			
C18 <= HC < C20	ND	1.0	"	"	"	"	"			
$C20 \le HC < C24$	ND	1.0	"	"	"	"	"			
$C24 \le HC < C28$	ND	1.0	"	"	"	"	"			
C28 <= HC < C32	ND	1.0	"	"	"	"	"			
$HC \ge C32$	ND	1.0	"	"	"	"	"			
Total Petroleum Hydrocarbo (C7-C36)	ns ND	5.0	"	"	"	"	"	"		
Surrogate: o-Terphenyl		86.4 %	60-	175	"	"	"	"		
C5 <= HC < C6	ND	0.010		"	B7A0451	01/04/17	01/04/17 13:16			
C6 <= HC < C7	ND	0.010	"	"	"		"	"		
C7 <= HC < C8	ND	0.010	"	"	"		"			
C8 <= HC < C9	ND	0.010	"	"	"		"			
C9 <= HC < C10	ND	0.010	"	"	"		"			
C10 <= HC < C11	ND	0.010	"	"	"	"	"			
C11 <= HC < C12	ND	0.010		"	"	"	"	"		
$HC \ge C12$	ND	0.010		"	"	"	"	"		
Total Petroleum Hydrocarbo (C4-C12)	ns ND	0.050	"	"	"	"	"			
Surrogate: a,a,a-Trifluoroto	luene	79.0 %	35-	130	"	"	"	"		

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

1



Mearns Consulting LLC	Project: SHPI-Amerigas									
738 Ashland Avenue		Project Nu	mber: [no	ne]	0			Reported:		
Santa Monica CA, 90405		Project Mai	nager: Sus	san Mearns	5			01/10/17 12	2:32	
Total	Petroleum Hy	ydrocarbo	ns Carb	on Ran	ge Analy	sis by G	C-FID			
	•	Sierra Aı	nalytical	l Labs, I	nc.	·				
		Reporting								
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB5-5 (1701037-09) Soil Sampled: 01	1/03/17 13:03 Re	eceived: 01/0	3/17 16:0	0						
HC < C8	ND	20	mg/kg	20	B7A0330	01/04/17	01/05/17 15:32	EPA 8015B		
C8 <= HC < C9	ND	20	"	"	"	"	"			
C9 <= HC < C10	30	20	"	"	"	"	"			
C10 <= HC < C11	56	20	"	"	"	"	"	"		
C11 <= HC < C12	180	20	"	"	"	"				
C12 <= HC < C14	270	20	"	"	"	"				
C14 <= HC < C16	94	20	"	"	"	"	"	"		
C16 <= HC < C18	ND	20	"	"	"	"	"	"		
C18 <= HC < C20	32	20	"	"	"	"	"	"		
C20 <= HC < C24	230	20	"	"	"	"	"	"		
C24 <= HC < C28	610	20	"	"	"	"				
C28 <= HC < C32	1100	20	"	"	"	"	"	"		
HC >= C32	1200	20	"	"	"	"				
Total Petroleum Hydrocarbons (C7-C36)	3800	100	"	"	"	"	"	"		
Surrogate: o-Terphenyl		%	60-	175	"	"	"	"	S-03	
C5 <= HC < C6	ND	2.0	"	100	B7A0451	01/04/17	01/04/17 13:16			
C6 <= HC < C7	7.7	2.0	"	"	"	"				
C7 <= HC < C8	32	2.0	"	"	"	"				
C8 <= HC < C9	93	2.0	"	"	"	"				
C9 <= HC < C10	93	2.0	"	"	"	"				
C10 <= HC < C11	61	2.0	"	"	"	"		"		
C11 <= HC < C12	68	2.0	"	"	"	"		"		
HC >= C12	18	2.0	"		"	"		"		
Total Petroleum Hydrocarbons (C4-C12)	370	10	"	"	"	"	"	"		
Surrogate: a,a,a-Trifluorotoluene		92.0 %	35-	130	"	"	"	"		



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Mearns Consulting LLC		Pr	oject: SH						
738 Ashland Avenue		Project Nu	mber: [no	one]	-			Reported:	:
Santa Monica CA, 90405		Project Mar	nager: Sus	san Mearns				01/10/17 12	2:32
	Total Petroleum	Hydrocarbo	ns Cart	oon Rang	ge Analys	sis by G	C-FID		
		Sierra Ar	nalytica	l Labs, I	nc.	-			
		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB5-10 (1701037-10) Soil	Sampled: 01/03/17 13:20	Received: 01/	03/17 16:	:00					
HC < C8	ND	1.0	mg/kg	1	B7A0330	01/04/17	01/05/17 11:02	EPA 8015B	
C8 <= HC < C9	ND	1.0		"	"	"	"	"	
C9 <= HC < C10	ND	1.0		"	"	"	"	"	
C10 <= HC < C11	ND	1.0		"	"	"	"	"	
C11 <= HC < C12	ND	1.0		"	"	"	"	"	
C12 <= HC < C14	ND	1.0		"	"	"	"	"	
$C14 \le HC < C16$	ND	1.0	"	"	"	"	"	"	
C16 <= HC < C18	ND	1.0	"	"	"	"	"	"	
C18 <= HC < C20	ND	1.0		"	"	"	"	"	
$C20 \le HC < C24$	ND	1.0		"	"	"	"	"	
$C24 \leq HC < C28$	ND	1.0		"	"	"	"	"	
C28 <= HC < C32	ND	1.0	"	"	"	"	"	"	
$HC \ge C32$	ND	1.0	"	"	"	"	"	"	
Total Petroleum Hydrocarbo (C7-C36)	ons ND	5.0	"	"	"	"	"	"	
Surrogate: o-Terphenvl		106 %	60-	.175	"	"	"	"	
C5 <= HC < C6	ND	0.010	"		B7A0451	01/04/17	01/04/17 13:16	"	
C6 <= HC < C7	ND	0.010		"	"	"	"	"	
C7 <= HC < C8	ND	0.010		"	"	"	"	"	
C8 <= HC < C9	ND	0.010	"		"	"	"	"	
C9 <= HC < C10	ND	0.010		"	"	"	"	"	
C10 <= HC < C11	ND	0.010	"		"	"	"	"	
C11 <= HC < C12	ND	0.010	"		"	"	"	"	
HC >= C12	ND	0.010	"		"	"	"	"	
Total Petroleum Hydrocarbo (C4-C12)	ons ND	0.050		"	"	"	"	"	
Surrogate: a.a.a-Trifluoroto	luene	78.3 %	35-	.130	"	"	"	"	



Mearns Consulting LLC			Papartad.						
Santa Monica CA 90405		Project Mar	noer: Susa	ະj n Mearns	2			01/10/17 1	7.37
				- D-	, A 1		C EID	01/10/17/12	2.32
101	tai Petroleum I	Hydrocarbo	ns Carbo	n Kanş	ge Analy	sis by G	C-FID		
		Sierra Ar	nalytical l	Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB6-5 (1701037-11) Soil Sampled	: 01/03/17 14:20	Received: 01/0	3/17 16:00						
HC < C8	ND	1.0	mg/kg	1	B7A0330	01/04/17	01/05/17 11:14	EPA 8015B	
$C8 \le HC < C9$	ND	1.0	"	"	"	"	"	"	
C9 <= HC < C10	ND	1.0	"		"	"	"		
$C10 \le HC < C11$	ND	1.0	"	"	"	"	"	"	
C11 <= HC < C12	ND	1.0	"	"	"	"	"	"	
$C12 \le HC < C14$	ND	1.0	"		"	"	"		
$C14 \le HC < C16$	ND	1.0	"		"	"	"		
$C16 \le HC < C18$	ND	1.0	"		"	"	"		
$C18 \le HC < C20$	ND	1.0	"		"	"	"		
$C20 \le HC < C24$	ND	1.0	"		"	"	"		
$C24 \leq HC \leq C28$	ND	1.0	"		"	"	"		
C28 <= HC < C32	ND	1.0	"		"	"	"	"	
$HC \ge C32$	ND	1.0	"		"	"	"		
Total Petroleum Hydrocarbons (C7-C36)	ND	5.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl		93.6 %	60-17	75	"	"	"	"	
C5 <= HC < C6	ND	0.010	"		B7A0451	01/04/17	01/04/17 13:16	"	
C6 <= HC < C7	ND	0.010	"		"	"	"		
C7 <= HC < C8	ND	0.010	"		"	"	"		
C8 <= HC < C9	ND	0.010	"		"	"	"		
C9 <= HC < C10	ND	0.010	"		"	"	"		
C10 <= HC < C11	ND	0.010	"		"		"	"	
C11 <= HC < C12	ND	0.010	"	"	"	"	"	"	
HC >= C12	ND	0.010	"		"		"	"	
Total Petroleum Hydrocarbons (C4-C12)	ND	0.050	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		82.8 %	35-13	30	"	"	"	"	



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Mearns Consulting LLC		Pi	roject: SH	PI-Ameri	igas				
738 Ashland Avenue		Project Nu	mber: [no	ne]	0			Reported	:
Santa Monica CA, 90405		Project Mar	nager: Sus	san Mearns	5			01/10/17 12	2:32
	Total Petroleum	Hvdrocarbo	ns Carb	on Rang	ge Analy	sis by G	C-FID		
		Sierra Ai	nalytical	l Labs, I	nc.				
		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB6-10 (1701037-12) Soil	Sampled: 01/03/17 14:31	Received: 01/	03/17 16:	00					
HC < C8	ND	1.0	mg/kg	1	B7A0330	01/04/17	01/05/17 11:26	EPA 8015B	
C8 <= HC < C9	ND	1.0	"	"	"	"	"	"	
$C9 \le HC < C10$	ND	1.0	"	"	"	"		"	
C10 <= HC < C11	ND	1.0	"	"	"	"		"	
C11 <= HC < C12	ND	1.0	"	"	"	"	"	"	
C12 <= HC < C14	ND	1.0	"	"	"	"	"	"	
C14 <= HC < C16	ND	1.0	"		"	"	"		
C16 <= HC < C18	ND	1.0	"		"	"	"		
$C18 \le HC < C20$	ND	1.0	"		"	"	"		
$C20 \le HC < C24$	ND	1.0	"		"	"	"		
$C24 \leq HC < C28$	ND	1.0	"		"	"	"		
$C28 \le HC < C32$	ND	1.0	"		"	"	"		
$HC \ge C32$	ND	1.0	"		"	"	"		
Total Petroleum Hydrocarbo	ons ND	5.0	"	"	"	"	"	"	
Surrogate: o-Ternhenvl		94.0 %	60-	175	"	"	"	"	
$C5 \le HC \le C6$	ND	0.010	"	"	B7A0451	01/04/17	01/04/17 13:16	"	
$C_6 \leq HC \leq C_7$	ND	0.010	"		"	"	"		
$C7 \le HC \le C8$	ND	0.010			"	"			
$C8 \le HC \le C9$	ND	0.010			"	"			
$C9 \le HC < C10$	ND	0.010	"		"	"	"	"	
C10 <= HC < C11	ND	0.010		"	"	"		"	
C11 <= HC < C12	ND	0.010			"		"	"	
$HC \ge C12$	ND	0.010		"	"	"		"	
Total Petroleum Hydrocarbo	ons ND	0.050	"	"		"	"	"	
Surrogate: a,a,a-Trifluoroto	oluene	78.8 %	35-	130	"	"	"	"	



Mearns Consulting LLC		Papartadi							
Santa Monica CA 00405		Project Nu	noer: [non	ej n Mearra	,			01/10/17 12·32	
Santa Monica CA, 90405			ager. Susa		, -		~ ===	01/10/17/12	2.32
То	tal Petroleum	Hydrocarbo	ns Carbo	on Rang	ge Analy	sis by G	C-FID		
		Sierra Ar	nalytical	Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB7-5 (1701037-13) Soil Sampled	l: 01/03/17 14:50	Received: 01/0	3/17 16:00						
HC < C8	ND	1.0	mg/kg	1	B7A0330	01/04/17	01/05/17 11:38	EPA 8015B	
$C8 \le HC < C9$	ND	1.0	"	"	"	"	"	"	
$C9 \le HC < C10$	ND	1.0	"	"	"	"	"	"	
$C10 \le HC < C11$	ND	1.0	"	"	"	"	"	"	
C11 <= HC < C12	ND	1.0	"	"	"	"	"	"	
$C12 \le HC < C14$	ND	1.0	"	"	"	"	"	"	
$C14 \le HC < C16$	ND	1.0	"	"	"	"		"	
$C16 \le HC < C18$	ND	1.0	"	"	"	"	"		
$C18 \leq HC < C20$	ND	1.0	"	"	"	"	"		
$C20 \leq HC < C24$	ND	1.0	"	"	"	"	"	"	
$C24 \leq HC < C28$	ND	1.0	"	"	"	"	"	"	
$C28 \le HC < C32$	ND	1.0	"	"	"	"	"	"	
$HC \ge C32$	ND	1.0	"	"	"	"	"	"	
Total Petroleum Hydrocarbons (C7-C36)	ND	5.0	"		"	"	"	"	
Surrogate: o-Terphenyl		96.4 %	60-1	75	"	"	"	"	
C5 <= HC < C6	ND	0.010	"	"	B7A0451	01/04/17	01/04/17 13:16		
C6 <= HC < C7	ND	0.010	"	"	"	"	"		
C7 <= HC < C8	ND	0.010	"	"	"	"	"		
$C8 \le HC < C9$	ND	0.010	"	"	"	"	"		
C9 <= HC < C10	ND	0.010	"	"	"	"	"		
C10 <= HC < C11	ND	0.010	"	"	"	"	"		
C11 <= HC < C12	ND	0.010	"	"	"	"	"	"	
HC >= C12	ND	0.010	"	"			"		
Total Petroleum Hydrocarbons (C4-C12)	ND	0.050	"		"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		86.5 %	35-1.	30	"	"	"	"	



Mearns Consulting LLC		Pr	oject: SH	PI-Ameri	igas				
738 Ashland Avenue		Project Nu	mber: [nor	ne]	0			Reported:	
Santa Monica CA, 90405		Project Mar	nager: Sus	an Mearns	3			01/10/17 12	2:32
	Total Petroleum	Hvdrocarbo	ns Carb	on Rang	ge Analy	sis by G	C-FID		
		Sierra Aı	nalytical	Labs, I	nc.	v			
		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB7-10 (1701037-14) Soil	Sampled: 01/03/17 14:58	Received: 01/	03/17 16:0)0					
HC < C8	ND	1.0	mg/kg	1	B7A0330	01/04/17	01/05/17 11:50	EPA 8015B	
$C8 \le HC < C9$	ND	1.0	"	"	"	"	"	"	
$C9 \le HC < C10$	ND	1.0	"	"	"	"	"	"	
C10 <= HC < C11	ND	1.0	"	"	"	"	"	"	
C11 <= HC < C12	ND	1.0	"	"	"	"	"	"	
C12 <= HC < C14	ND	1.0	"	"	"	"	"	"	
C14 <= HC < C16	ND	1.0	"	"	"	"	"	"	
C16 <= HC < C18	ND	1.0	"	"	"	"	"	"	
C18 <= HC < C20	ND	1.0	"	"	"	"	"	"	
$C20 \le HC < C24$	ND	1.0	"	"	"	"	"	"	
$C24 \leq HC < C28$	ND	1.0	"	"	"	"	"	"	
C28 <= HC < C32	ND	1.0	"	"	"	"	"		
$HC \ge C32$	ND	1.0	"	"	"	"	"	"	
Total Petroleum Hydrocarbon (C7-C36)	ND	5.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl		64.4 %	60-1	175	"	"	"	"	
C5 <= HC < C6	ND	0.0087	"	"	B7A0451	01/04/17	01/04/17 13:16	"	
C6 <= HC < C7	0.014	0.0087	"	"	"	"	"	"	
C7 <= HC < C8	0.022	0.0087	"	"	"	"	"	"	
C8 <= HC < C9	0.049	0.0087	"	"	"	"	"	"	
C9 <= HC < C10	0.095	0.0087	"	"	"	"	"	"	
C10 <= HC < C11	0.16	0.0087	"	"	"	"	"	"	
C11 <= HC < C12	0.19	0.0087	"	"	"		"	"	
HC >= C12	0.077	0.0087	"	"	"	"	"	"	
Total Petroleum Hydrocarb (C4-C12)	ons 0.60	0.044	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoli	iene	85.1 %	35-1	130	"	"	"	"	



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Project Nur Project Man	oject: SH nber: [no ager: Sus	IPI-Ameri one] san Mearns	igas			Reported 01/10/17 12	: 2:32
	Volatile Orga	anic Com Sierra An	pounds alytica	by EPA l Labs, I	Method	8260B			
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB1-5 (1701037-01) Soil Samp	led: 01/03/17 10:02 Rec	eived: 01/03	3/17 16:0	0					
Benzene Bromobenzene	ND ND	3.9 3.9	µg/kg "	1	B7A0452	01/04/17	01/04/17 17:01	EPA 8260B	

Delizene	ND	5.7	μg/κg	1	D/A0432	01/04/17	01/04/17 17.0	I LIA 6200D	
Bromobenzene	ND	3.9	"		"	"	"	"	
Bromochloromethane	ND	3.9	"		"	"	"	"	
Bromodichloromethane	ND	3.9	"		"	"	"	"	
Bromoform	ND	3.9	"		"	"	"	"	
Bromomethane	ND	3.9	"		"	"	"	"	
n-Butylbenzene	ND	3.9	"		"	"	"	"	
sec-Butylbenzene	ND	3.9	"		"	"	"	"	
tert-Butylbenzene	ND	3.9	"		"	"	"	"	
Carbon tetrachloride	ND	3.9	"		"	"	"	"	
Chlorobenzene	ND	3.9	"		"	"	"	"	
Chloroethane	ND	3.9	"		"	"	"	"	
Chloroform	ND	3.9	"		"	"	"	"	
Chloromethane	ND	3.9	"		"	"	"	"	
2-Chlorotoluene	ND	3.9	"		"	"	"	"	
4-Chlorotoluene	ND	3.9	"		"	"	"	"	
Dibromochloromethane	ND	3.9	"		"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	3.9	"		"	"	"	"	
1,2-Dibromoethane (EDB)	ND	3.9	"		"	"	"	"	
Dibromomethane	ND	3.9	"		"	"	"	"	
1,2-Dichlorobenzene	ND	3.9	"		"	"	"	"	
1,3-Dichlorobenzene	ND	3.9	"		"	"	"	"	
1,4-Dichlorobenzene	ND	3.9	"		"	"	"	"	
Dichlorodifluoromethane	ND	3.9	"		"	"	"	"	
1,1-Dichloroethane	ND	3.9	"		"	"		"	
1,2-Dichloroethane	ND	3.9	"		"	"	"	"	
1,1-Dichloroethene	ND	3.9	"		"	"	"	"	
cis-1,2-Dichloroethene	ND	3.9	"		"	"	"	"	
trans-1,2-Dichloroethene	ND	3.9	"		"	"	"	"	
1,2-Dichloropropane	ND	3.9	"		"	"	"	"	
1,3-Dichloropropane	ND	3.9	"		"	"	"	"	
2,2-Dichloropropane	ND	3.9	"		"	"	"	"	
1,1-Dichloropropene	ND	3.9	"		"	"	"	"	
cis-1,3-Dichloropropene	ND	3.9	"		"	"	"	"	
trans-1,3-Dichloropropene	ND	3.9	"		"	"	"	"	
Ethylbenzene	ND	3.9	"		"	"	"	"	
Hexachlorobutadiene	ND	3.9	"		"	"	"	"	
Isopropylbenzene	ND	3.9	"		"	"		"	
p-Isopropyltoluene	ND	3.9	"		"	"		"	
Methylene chloride	ND	3.9	"		"			"	
Methyl tert-butyl ether	ND	3.9	"		"			"	



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Mearns Consulting LLC		Pre	oject: SH	PI-Amer	igas				
738 Ashland Avenue		Project Nur	mber: [no	ne]	-			Reported:	
Santa Monica CA, 90405		Project Man	ager: Sus	san Mearns	3			01/10/17 12	2:32
	Volatile Org	ganic Com	pounds	by EPA	Method	8260B			
		Sierra An	alytical	l Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prenared	Analyzed	Method	Notes
1 mary to	Result	Linit	Onto	Difution	Duten	Tieparea	Thuyzou	memou	10005
SB1-5 (1701037-01) Soil Samp	oled: 01/03/17 10:02 Re	ceived: 01/03	3/17 16:0	0					
Naphthalene	4.8	3.9	µg/kg	1	B7A0452	01/04/17	01/04/17 17:01	EPA 8260B	
n-Propylbenzene	ND	3.9	"	"	"	"	"		
Styrene	ND	3.9	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	3.9	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	3.9	"	"	"	"	"	"	
Tetrachloroethene	ND	3.9	"	"	"	"	"	"	
Toluene	ND	3.9	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	3.9	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	3.9	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	3.9	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	3.9	"	"	"	"	"	"	
Trichloroethene	ND	3.9	"	"	"	"	"	"	
Trichlorofluoromethane	ND	3.9	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	3.9	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	4.5	3.9	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	3.9		"	"	"	"	"	
Vinyl chloride	ND	3.9		"	"	"	"	"	
m,p-Xylene	ND	3.9		"	"	"	"	"	
o-Xylene	ND	3.9	"	"	"	"			
Surrogate: Dibromofluoromethan	ie	111 %	111 % 80-120 " "				"	"	
Surrogate: Toluene-d8	85.1 %			117	"	"	"	"	

SB1-10 (1701037-02) Soil Sampled: 01/03/17 10:17 Received: 01/03/17 16:00

Surrogate: 4-Bromofluorobenzene

Benzene	ND	3.7	µg/kg	1	B7A0452	01/04/17	01/04/17 17:4	2 EPA 8260B	
Bromobenzene	ND	3.7	"	"	"	"	"	"	
Bromochloromethane	ND	3.7	"	"	"	"	"	"	
Bromodichloromethane	ND	3.7	"	"	"	"	"	"	
Bromoform	ND	3.7	"	"	"	"	"	"	
Bromomethane	ND	3.7	"	"	"	"	"	"	
n-Butylbenzene	22	3.7	"	"	"	"	"	"	
sec-Butylbenzene	30	3.7	"	"	"	"	"	"	
tert-Butylbenzene	ND	3.7	"	"	"	"	"	"	
Carbon tetrachloride	ND	3.7	"	"	"	"	"	"	
Chlorobenzene	ND	3.7	"	"	"	"	"	"	
Chloroethane	ND	3.7	"	"	"	"	"	"	
Chloroform	ND	3.7	"	"	"	"	"	"	
Chloromethane	ND	3.7	"	"	"	"	"	"	
2-Chlorotoluene	ND	3.7	"	"	"	"	"	"	
4-Chlorotoluene	ND	3.7	"	"	"	"	"	"	
Dibromochloromethane	ND	3.7	"	"	"	"	"	"	

74-121

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98.5 %



Mearns Consulting LLC 738 Ashland Avenue	Project: 9 Project Number:	SHPI-Amerigas [none]	Reported:
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/10/17 12:32
	Volatile Organic Compound	ds by EPA Method 8260B	

Sierra Analytical Labs, Inc.											
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note		
SB1-10 (1701037-02) Soil	Sampled: 01/03/17 10:17	Received: 01/	03/17 16:	00							
1,2-Dibromo-3-chloropropa	ne ND	3.7	µg/kg	1	B7A0452	01/04/17	01/04/17 17:42	2 EPA 8260B			
1,2-Dibromoethane (EDB)	ND	3.7	"	"	"	"	"	"			
Dibromomethane	ND	3.7	"	"	"	"	"	"			
1,2-Dichlorobenzene	ND	3.7	"	"	"	"	"	"			
1,3-Dichlorobenzene	ND	3.7	"	"	"	"	"	"			
1,4-Dichlorobenzene	ND	3.7	"	"	"	"	"	"			
Dichlorodifluoromethane	ND	3.7	"	"	"	"	"	"			
1,1-Dichloroethane	ND	3.7	"	"	"	"		"			
1,2-Dichloroethane	ND	3.7	"	"	"	"		"			
1,1-Dichloroethene	ND	3.7	"	"	"	"					
cis-1,2-Dichloroethene	ND	3.7	"	"	"			"			
trans-1,2-Dichloroethene	ND	3.7	"	"	"			"			
1,2-Dichloropropane	ND	3.7	"	"	"			"			
1,3-Dichloropropane	ND	3.7	"	"	"			"			
2,2-Dichloropropane	ND	3.7	"	"	"		"	"			
1,1-Dichloropropene	ND	3.7	"	"	"		"	"			
cis-1,3-Dichloropropene	ND	3.7	"	"	"		"	"			
trans-1,3-Dichloropropene	ND	3.7	"	"	"		"	"			
Ethylbenzene	ND	3.7	"	"	"		"	"			
Hexachlorobutadiene	ND	3.7	"	"	"		"	"			
Isopropylbenzene	4.7	3.7	"	"	"			"			
p-Isopropyltoluene	ND	3.7	"	"	"		"	"			
Methylene chloride	ND	3.7	"	"	"		"	"			
Methyl tert-butyl ether	ND	3.7	"	"	"						
Nanhthalene	7.6	3.7	"		"			"			
n-Propylbenzene	6.3	3.7	"		"			"			
Styrene	ND	3.7	"	"	"			"			
1.1.1.2-Tetrachloroethane	ND	3.7	"	"	"			"			
1.1.2.2-Tetrachloroethane	74	3.7	"		"			"			
Tetrachloroethene	ND	3.7	"	"	"			"			
Toluene	ND	3.7	"	"	"			"			
1.2.3-Trichlorobenzene	ND	3.7	"	"				"			
1.2.4-Trichlorobenzene	ND	3.7	"	"				"			
1.1.1-Trichloroethane	ND	3.7	"	"				"			
1.1.2-Trichloroethane	ND	37	"	"				"			
Trichloroethene	ND	3.7	"					"			
Trichlorofluoromethane		3.7	"	"							
1.2.3-Trichloronronane		3.7	"	"							
1.2.4-Trimethylbenzene	ND	3.7	"	"							
1 3 5-Trimethylbenzene		3.7	"	"							
Vinyl chloride		3.7	"	"				"			
v myr emonue	ND	5.7									



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Reported 01/10/17 1	l: 2:32						
	Volatile O	rganic Com Sierra A	ipounds nalytica	s by EPA l Labs, I	Method nc.	8260B			
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB1-10 (1701037-02) Soil	Sampled: 01/03/17 10:17	Received: 01/	/03/17 16:	00					
m,p-Xylene	ND	3.7	µg/kg	1	B7A0452	01/04/17	01/04/17 17:42	2 EPA 8260B	
o-Xylene	ND	3.7	"	"	"	"	"	"	
Surrogate: Dibromofluoron	methane	112 %	80-	120	"	"	"	"	
Surrogate: Toluene-d8		110 %	81-	-117	"	"	"	"	
Surrogate: 4-Bromofluorol	benzene	110 %	74-	121	"	"	"	"	
SB2-5 (1701037-03) Soil	Sampled: 01/03/17 10:38	Received: 01/0	3/17 16:0	0					
Benzene	ND	3.6	ug/kg	1	B7A0452	01/04/17	01/04/17 18:22	2 EPA 8260B	
Bromobenzene	ND	3.6	"	"	"	"	"	"	
Bromochloromethane	ND	3.6	"	"		"		"	
Bromodichloromethane	ND	3.6	"	"	"	"	"	"	
Bromoform	ND	3.6	"	"		"		"	
Bromomethane	ND	3.6	"	"	"	"			
n-Butylbenzene	ND	3.6	"	"	"	"	"	"	
sec-Butylbenzene	ND	3.6	"	"	"	"			
tert-Butylbenzene	ND	3.6	"	"	"	"	"	"	
Carbon tetrachloride	ND	3.6	"	"	"	"		"	
Chlorobenzene	ND	3.6	"	"	"	"		"	
Chloroethane	ND	3.6	"	"	"	"	"	"	
Chloroform	ND	3.6	"	"	"	"	"	"	
Chloromethane	ND	3.6	"	"	"	"		"	
2-Chlorotoluene	ND	3.6	"	"	"	"			
4-Chlorotoluene	ND	3.6	"	"	"	"	"	"	
Dibromochloromethane	ND	3.6	"	"	"	"	"	"	
1,2-Dibromo-3-chloroprop	ane ND	3.6	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	3.6							
Dibromomethane	ND	3.6							
1,2-Dichlorobenzene	ND	3.6							
1,3-Dichlorobenzene	ND	3.0 2.6	"						
1,4-Diciliorobelizelle	ND	3.0 2.6	"						
1 1-Dichloroethane	ND	3.0	"						
1,1-Dichloroethane	ND	3.0	"						
1.1-Dichloroethene	ND	3.6	"					"	
cis-1.2-Dichloroethene	ND	3.6	"	"					
trans-1,2-Dichloroethene	ND	3.6	"						
1,2-Dichloropropane	ND	3.6	"						
1,3-Dichloropropane	ND	3.6	"	"	"				
2,2-Dichloropropane	ND	3.6	"	"	"				
1,1-Dichloropropene	ND	3.6	"	"	"	"			
cis-1,3-Dichloropropene	ND	3.6	"	"	"	"	"	"	



Mearns Consulting LLC	Project:	SHPI-Amerigas					
738 Ashland Avenue	Project Number:	[none]	Reported:				
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/10/17 12:32				
	Volatile Organic Compour	nds by EPA Method 8260B					
Sierra Analytical Labs, Inc.							

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes		
SB2-5 (1701037-03) Soil	Sampled: 01/03/17 10:38	Received: 01/0	3/17 16:0	0							
trans-1,3-Dichloropropene	ND	3.6	µg/kg	1	B7A0452	01/04/17	01/04/17 18:2	2 EPA 8260B			
Ethylbenzene	ND	3.6	"	"	"	"	"	"			
Hexachlorobutadiene	ND	3.6	"	"	"	"	"	"			
Isopropylbenzene	ND	3.6	"	"	"	"	"	"			
p-Isopropyltoluene	4.6	3.6	"	"	"	"	"	"			
Methylene chloride	ND	3.6	"	"	"	"	"	"			
Methyl tert-butyl ether	ND	3.6	"	"	"	"	"	"			
Naphthalene	ND	3.6	"	"	"	"	"	"			
n-Propylbenzene	ND	3.6	"	"	"	"	"	"			
Styrene	ND	3.6	"	"	"	"	"	"			
1,1,1,2-Tetrachloroethane	ND	3.6	"	"	"	"	"	"			
1,1,2,2-Tetrachloroethane	ND	3.6	"	"	"	"	"	"			
Tetrachloroethene	ND	3.6	"	"	"	"	"	"			
Toluene	ND	3.6	"	"	"	"	"	"			
1,2,3-Trichlorobenzene	ND	3.6	"	"	"	"	"	"			
1,2,4-Trichlorobenzene	ND	3.6	"	"	"	"	"	"			
1,1,1-Trichloroethane	ND	3.6		"	"	"	"	"			
1,1,2-Trichloroethane	ND	3.6		"	"	"	"	"			
Trichloroethene	ND	3.6	"	"	"	"	"	"			
Trichlorofluoromethane	ND	3.6	"	"	"	"	"	"			
1,2,3-Trichloropropane	ND	3.6	"	"	"	"	"	"			
1,2,4-Trimethylbenzene	ND	3.6		"	"	"	"	"			
1,3,5-Trimethylbenzene	ND	3.6		"	"	"	"	"			
Vinyl chloride	ND	3.6		"	"	"	"	"			
m,p-Xylene	ND	3.6		"	"	"	"	"			
o-Xylene	ND	3.6	"	"	"		"				
Surrogate: Dibromofluoro	methane	91.9 %	80-	120	"	"	"	"			
Surrogate: Toluene-d8		101 %	81-	117	"	"	"	"			
Surrogate: 4-Bromofluoro	benzene	110 %	74-	121	"	"	"	"			



Mearns Consulting LLC 738 Ashland Avenue	Project: SHPI-Amerigas Project Number: [none]	Reported:
Santa Monica CA, 90405	Project Manager: Susan Mearns	01/10/17 12:32
	Volatile Organic Compounds by EPA Method	l 8260B

Sierra Analytical Labs, Inc.										
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note	
SB2-10 (1701037-04) Soil	Sampled: 01/03/17 10:49	Received: 01/	03/17 16:	00						
Benzene	ND	3.6	µg/kg	1	B7A0452	01/04/17	01/04/17 19:04	4 EPA 8260B		
Bromobenzene	ND	3.6	"	"	"	"		"		
Bromochloromethane	ND	3.6	"	"	"	"		"		
Bromodichloromethane	ND	3.6	"	"	"	"		"		
Bromoform	ND	3.6	"	"	"	"	"	"		
Bromomethane	ND	3.6	"	"	"	"	"	"		
n-Butylbenzene	ND	3.6	"	"	"	"		"		
sec-Butylbenzene	ND	3.6	"	"	"	"		"		
tert-Butylbenzene	ND	3.6	"	"	"	"	"	"		
Carbon tetrachloride	ND	3.6	"	"	"	"		"		
Chlorobenzene	ND	3.6	"	"	"	"	"	"		
Chloroethane	ND	3.6	"	"	"	"	"	"		
Chloroform	ND	3.6	"	"	"	"	"	"		
Chloromethane	ND	3.6	"	"	"	"		"		
2-Chlorotoluene	ND	3.6	"	"	"	"	"	"		
4-Chlorotoluene	ND	3.6	"		"	"		"		
Dibromochloromethane	ND	3.6	"	"	"	"	"	"		
1.2-Dibromo-3-chloropropan	e ND	3.6	"		"	"		"		
1.2-Dibromoethane (EDB)	ND	3.6	"	"	"	"	"	"		
Dibromomethane	ND	3.6	"	"	"	"	"	"		
1.2-Dichlorobenzene	ND	3.6	"	"	"	"	"	"		
1.3-Dichlorobenzene	ND	3.6	"		"	"		"		
1.4-Dichlorobenzene	ND	3.6	"		"	"		"		
Dichlorodifluoromethane	ND	3.6	"		"	"		"		
1.1-Dichloroethane	ND	3.6	"		"	"		"		
1.2-Dichloroethane	ND	3.6	"		"	"		"		
1.1-Dichloroethene	ND	3.6	"		"	"		"		
cis-1.2-Dichloroethene	ND	3.6	"		"	"		"		
trans-1 2-Dichloroethene	ND	3.6	"	"	"	"		"		
1 2-Dichloropropane	ND	3.6	"	"	"	"		"		
1 3-Dichloropropane	ND	3.6	"		"	"		"		
2 2-Dichloropropane	ND	3.6	"		"	"		"		
1 1-Dichloropropene	ND	3.6	"		"	"		"		
cis-1 3-Dichloropropene	ND	3.6	"		"	"		"		
trans-1 3-Dichloropropene	ND	3.6	"		"	"	"	"		
Ethylbenzene	ND	3.6	"		"	"		"		
Hexachlorobutadiene	ND	3.6	"		"	"		"		
Isopropylbenzene		3.6	"		"					
n-Isopropylocillene		3.0	"		"					
Methylene chloride		3.6	"		"			"		
Methyl tert-hutyl ether		3.6	"		"					
meany i con-outyr chief	ND	5.0								



Mearns Consulting LLC 738 Ashland Avenue	Project: Project Number:	SHPI-Amerigas [none]	Reported:
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/10/17 12:32
	Volatile Organic Compour	nds by EPA Method 8260B	

Sierra Analytical Labs, Inc.											
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes		
SB2-10 (1701037-04) Soil	Sampled: 01/03/17 10:49	Received: 01/	03/17 16:	00							
Naphthalene	ND	3.6	µg/kg	1	B7A0452	01/04/17	01/04/17 19:04	4 EPA 8260B			
n-Propylbenzene	ND	3.6	"	"	"	"	"	"			
Styrene	ND	3.6	"		"	"	"	"			
1,1,1,2-Tetrachloroethane	ND	3.6	"		"	"	"	"			
1,1,2,2-Tetrachloroethane	ND	3.6	"		"	"	"	"			
Tetrachloroethene	ND	3.6	"	"	"	"	"	"			
Toluene	ND	3.6	"	"	"	"		"			
1,2,3-Trichlorobenzene	ND	3.6	"	"	"	"		"			
1,2,4-Trichlorobenzene	ND	3.6	"	"	"	"		"			
1,1,1-Trichloroethane	ND	3.6	"	"	"	"		"			
1,1,2-Trichloroethane	ND	3.6	"		"	"		"			
Trichloroethene	ND	3.6	"		"	"		"			
Trichlorofluoromethane	ND	3.6	"		"	"		"			
1,2,3-Trichloropropane	ND	3.6	"		"	"		"			
1,2,4-Trimethylbenzene	ND	3.6	"		"	"		"			
1,3,5-Trimethylbenzene	ND	3.6	"		"	"	"	"			
Vinyl chloride	ND	3.6	"		"	"	"	"			
m,p-Xylene	ND	3.6	"		"	"	"	"			
o-Xylene	ND	3.6	"	"		"	"	"			
Surrogate: Dibromofluorom	ethane	101 %	80-	120	"	"	"	"			
Surrogate: Toluene-d8		93.1 %	81-	117	"	"	"	"			
Surrogate: 4-Bromofluorobe	enzene	108 %	74-	121	"	"	"	"			
SB3-5 (1701037-05) Soil	Sampled: 01/03/17 11:10	Received: 01/0	3/17 16•0	0							

SB3-5 (1701037-05) Soil Sampled: 01/03/17 11:10 Received: 01/03/17 16:00

ND	4.5	µg/kg	1	B7A0452	01/04/17	01/04/17 19:47 E	PA 8260B
ND	4.5	"		"	"	"	"
ND	4.5	"		"	"	"	"
7.9	4.5	"	"	"	"	"	"
ND	4.5	"		"	"	"	"
ND	4.5	"		"	"	"	"
43	4.5	"	"	"	"	"	"
ND	4.5	"	"	"	"	"	"
46	4.5	"	"	"	"	"	"
ND	4.5	"	"	"	"	"	"
ND	4.5	"	"	"	"	"	"
ND	4.5	"	"	"	"	"	"
ND	4.5	"		"	"	"	"
ND	4.5	"		"	"	"	"
ND	4.5	"		"	"	"	"
ND	4.5	"		"	"	"	"
ND	4.5	"		"	"	"	"
	ND ND ND 7.9 ND 43 ND 46 ND ND ND ND ND ND ND ND ND ND	ND 4.5 ND 4.5 ND 4.5 7.9 4.5 ND 4.5 ND 4.5 MD 4.5 MD 4.5 43 4.5 ND 4.5	ND 4.5 μg/kg ND 4.5 " ND 4.5 " 7.9 4.5 " ND 4.5 " ND 4.5 " ND 4.5 " MD 4.5 " MD 4.5 " MD 4.5 " ND 4.5 "	ND 4.5 μg/kg 1 ND 4.5 " " ND 4.5 " " 7.9 4.5 " " ND 4.5 " " ND 4.5 " " ND 4.5 " " MD 4.5 " " 43 4.5 " " 43 4.5 " " ND 4.5 "	ND 4.5 μg/kg 1 B7A0452 ND 4.5 " " " ND 4.5 " " " ND 4.5 " " " 7.9 4.5 " " " ND 4.5 " " " ND 4.5 " " " MD 4.5 " " " 43 4.5 " " " MD 4.5 " " " ND 4.	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	ND 4.5 μg/kg 1 B7A0452 01/04/17 01/04/17 19:47 E ND 4.5 "



1,2,4-Trimethylbenzene

1,3,5-Trimethylbenzene

Vinyl chloride

Mearns Consulting LLC	ng LLC Project: SHPI-Amerigas											
38 Ashland Avenue Project Number: [none]							Reported:					
Santa Monica CA, 90405		Project Manager: Susan Mearns							2:32			
	Volatile Or	ganic Com	pounds	by EPA	Method	8260B						
Sierra Analytical Labs, Inc.												
		Reporting	U	,								
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes			
SB3-5 (1701037-05) Soil Sampled	: 01/03/17 11:10 R	eceived: 01/0	3/17 16:0	0								
1,2-Dibromo-3-chloropropane	ND	4.5	µg/kg	1	B7A0452	01/04/17	01/04/17 19:4	7 EPA 8260B				
1,2-Dibromoethane (EDB)	ND	4.5	"	"	"	"	"	"				
Dibromomethane	ND	4.5	"	"	"	"	"	"				
1,2-Dichlorobenzene	ND	4.5	"	"	"	"	"	"				
1,3-Dichlorobenzene	ND	4.5	"	"	"	"	"	"				
1,4-Dichlorobenzene	ND	4.5	"		"	"	"	"				
Dichlorodifluoromethane	ND	4.5	"	"	"	"	"	"				
1,1-Dichloroethane	ND	4.5	"	"	"	"	"	"				
1.2-Dichloroethane	ND	4.5	"		"	"	"	"				
1.1-Dichloroethene	ND	4.5	"		"	"	"	"				
cis-1.2-Dichloroethene	ND	4.5	"		"	"	"					
trans-1 2-Dichloroethene	ND	4 5	"		"	"	"	"				
1 2-Dichloropropage	ND	4.5	"		"	"	"	"				
1.3-Dichloropropane	ND	4.5	"		"	"	"	"				
2.2.Dichloropropane	ND	4.5	"		"	"	"	"				
1 1-Dichloropropene	ND	4.5	"	"	"	"						
cis 1.3 Dichloropropene	ND	4.5	"		"	"						
trans 1.2 Dishloronronono		4.5	"		"	"	"	"				
Ethylbonzono		4.5	"			"		"				
Lunyidenzene		4.5						"				
Hexachiorobutadiene	ND (10	4.5			"							
Isopropyidenzene	010 ND	4.5										
p-isopropyitoluene	ND	4.5										
Methylene chloride	ND	4.5										
Methyl tert-butyl ether	ND	4.5					"	"				
Naphthalene	42	4.5					"	"				
n-Propylbenzene	210	4.5	"	"	"	"	"	"				
Styrene	ND	4.5	"	"	"	"	"	"				
1,1,1,2-Tetrachloroethane	ND	4.5	"	"	"	"	"	"				
1,1,2,2-Tetrachloroethane	230	4.5	"	"	"	"	"	"				
Tetrachloroethene	ND	4.5	"	"	"	"	"	"				
Toluene	ND	4.5	"	"	"	"		"				
1,2,3-Trichlorobenzene	ND	4.5	"	"	"	"	"	"				
1,2,4-Trichlorobenzene	ND	4.5	"	"	"	"	"	"				
1,1,1-Trichloroethane	ND	4.5	"	"	"	"	"					
1,1,2-Trichloroethane	ND	4.5	"	"	"	"	"	"				
Trichloroethene	ND	4.5	"	"	"	"		"				
Trichlorofluoromethane	ND	4.5	"	"	"	"	"	"				
1,2,3-Trichloropropane	ND	4.5	"	"	"	"	"	"				

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

4.5

4.5

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12

ND

ND


Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405	Volatile O	Pr Project Nu Project Mar Prganic Com	roject: SH mber: [no nager: Sus	IPI-Ameri one] san Mearns	gas Method	8260B		Reported 01/10/17 1	l: 2:32
	, on the O	Sierra Aı	nalytica	l Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB3-5 (1701037-05) Soil	Sampled: 01/03/17 11:10	Received: 01/0	3/17 16:0	0					
m,p-Xylene o-Xylene	ND 11	4.5 4.5	µg/kg "	1 "	B7A0452 "	01/04/17	01/04/17 19:47	7 EPA 8260B "	
Surrogate: Dibromofluoron Surrogate: Toluene-d8	nethane	102 % 98.9 %	80- 81- 74	120 117	"	"	"	"	
Surrogate: 4-Bromofluorol	penzene	104 %	/4-	121					
SB3-10 (1701037-06) Soil	Sampled: 01/03/17 11:24	Received: 01/	03/17 16:	00					
Benzene Bromobenzene	ND	6.0	µg/kg "	1	B7A0452	01/04/17	01/04/17 20:30) EPA 8260B "	
Bromochloromethane	ND	6.0					"		
Bromodichloromethane	ND	6.0		"	"				
Bromoform	ND	6.0		"	"	"		"	
Bromomethane	ND	6.0	"	"	"	"		"	
n-Butylbenzene	ND	6.0		"	"	"		"	
sec-Butylbenzene	290	6.0	"	"	"	"	"		
tert-Butylbenzene	36	6.0	"	"	"	"	"		
Carbon tetrachloride	ND	6.0	"	"	"	"		"	
Chlorobenzene	ND	6.0	"	"	"	"		"	
Chloroethane	ND	6.0	"	"	"	"		"	
Chloroform	ND	6.0	"	"	"	"			
Chloromethane	ND	6.0		"	"	"			
2-Chlorotoluene	ND	6.0	"	"	"	"		"	
4-Chlorotoluene	ND	6.0						"	
Dibromochloromethane	ND	6.0					"	"	
1,2-Dibromo-3-chloropropa	ane ND	6.0							
1,2-Dibromoethane (EDB)	ND	6.0							
Dibromomethane	ND	6.0							
1,2-Dichlorobenzene	ND	6.0							
1,5-Dichlorobenzene	ND	0.0 6.0							
Dichlorodifluoromethane	ND	0.0 6.0							
1 1-Dichloroethane	ND	6.0							
1.2-Dichloroethane	ND	6.0							
1.1-Dichloroethene	ND	6.0			"				
cis-1.2-Dichloroethene	ND	6.0			"	"			
trans-1,2-Dichloroethene	ND	6.0	"				"		
1,2-Dichloropropane	ND	6.0	"	"			"		
1,3-Dichloropropane	ND	6.0	"	"	"	"			
2,2-Dichloropropane	ND	6.0	"	"	"	"		"	
1,1-Dichloropropene	ND	6.0	"	"		"		"	
cis-1,3-Dichloropropene	ND	6.0	"	"			"	"	



Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/10/17 12:32
738 Ashland Avenue	Project Number:	[none]	Reported:
Mearns Consulting LLC	Project:	SHPI-Amerigas	

Sierra Analytical Labs, Inc.									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB3-10 (1701037-06) Soil	Sampled: 01/03/17 11:24	Received: 01/	03/17 16	:00					
trans-1,3-Dichloropropene	ND	6.0	µg/kg	1	B7A0452	01/04/17	01/04/17 20:3	0 EPA 8260B	
Ethylbenzene	ND	6.0		"	"	"	"	"	
Hexachlorobutadiene	ND	6.0		"	"	"	"	"	
Isopropylbenzene	410	6.0		"	"	"	"	"	
p-Isopropyltoluene	ND	6.0	"	"	"	"	"	"	
Methylene chloride	ND	6.0	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	6.0	"	"	"	"	"	"	
Naphthalene	45	6.0	"	"	"	"	"	"	
n-Propylbenzene	50	6.0		"	"	"	"	"	
Styrene	ND	6.0		"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	6.0		"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	6.0	"	"	"	"	"		
Tetrachloroethene	ND	6.0		"	"	"	"		
Toluene	ND	6.0		"	"	"	"		
1,2,3-Trichlorobenzene	ND	6.0		"	"	"	"		
1,2,4-Trichlorobenzene	ND	6.0	"	"	"	"	"		
1,1,1-Trichloroethane	ND	6.0		"	"	"	"	"	
1,1,2-Trichloroethane	ND	6.0	"	"	"	"	"		
Trichloroethene	ND	6.0		"	"	"	"	"	
Trichlorofluoromethane	ND	6.0		"	"	"	"	"	
1,2,3-Trichloropropane	ND	6.0		"	"	"	"		
1,2,4-Trimethylbenzene	ND	6.0		"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	6.0		"	"	"	"	"	
Vinyl chloride	7.6	6.0		"	"	"	"	"	
m,p-Xylene	ND	6.0		"	"	"	"	"	
o-Xylene	ND	6.0	"	"	"		"		
Surrogate: Dibromofluoron	nethane	91.6 %	80)-120	"	"	"	"	
Surrogate: Toluene-d8		94.8 %	81	-117	"	"	"	"	
Surrogate: 4-Bromofluorob	enzene	116 %	74	-121	"	"	"	"	



1,4-Dichlorobenzene

1,1-Dichloroethane

1,2-Dichloroethane

1,1-Dichloroethene

cis-1,2-Dichloroethene

1,2-Dichloropropane

1,3-Dichloropropane

2,2-Dichloropropane

1,1-Dichloropropene

Hexachlorobutadiene

Isopropylbenzene

p-Isopropyltoluene

Methylene chloride

Methyl tert-butyl ether

Ethylbenzene

cis-1,3-Dichloropropene

trans-1,3-Dichloropropene

trans-1,2-Dichloroethene

Dichlorodifluoromethane

Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Pr Project Nur Project Mar	oject: SH mber: [nc ager: Su	IPI-Amer one] san Mearns	igas s			Reported 01/10/17 12	: 2:32
	Volatile C	Organic Com	pounds	by EPA	Method	8260B			
		Sierra An	alytica	l Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
SB4-5 (1701037-07) Soil S	Sampled: 01/03/17 11:50	Received: 01/0.	3/17 16:0	0					
Benzene	ND	5.0	µg/kg	1	B7A0452	01/04/17	01/04/17 21:1	1 EPA 8260B	
Bromobenzene	ND	5.0	"	"	"	"	"	"	
Bromochloromethane	ND	5.0	"	"	"	"	"	"	
Bromodichloromethane	ND	5.0	"	"	"	"	"	"	
Bromoform	ND	5.0	"	"	"	"	"	"	
Bromomethane	ND	5.0	"	"	"	"	"	"	
n-Butylbenzene	ND	5.0	"	"	"	"	"	"	
sec-Butylbenzene	ND	5.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	5.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	5.0	"	"	"	"	"	"	
Chlorobenzene	ND	5.0	"	"	"	"	"	"	
Chloroethane	ND	5.0	"	"	"	"	"	"	
Chloroform	ND	5.0	"	"	"	"	"	"	
Chloromethane	ND	5.0	"	"	"	"	"		
2-Chlorotoluene	ND	5.0	"	"	"	"	"	"	
4-Chlorotoluene	ND	5.0	"	"	"	"	"		
Dibromochloromethane	ND	5.0	"	"	"	"	"		
1,2-Dibromo-3-chloropropar	ne ND	5.0	"	"	"	"	"		
1,2-Dibromoethane (EDB)	ND	5.0	"	"	"	"	"		
Dibromomethane	ND	5.0	"	"	"	"	"		
1,2-Dichlorobenzene	ND	5.0	"	"	"	"	"		
1.3-Dichlorobenzene	ND	5.0	"	"	"	"	"	"	

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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Mearns Consulting LLC 738 Ashland Avenue		Pr Project Nu	roject: SH mber: [no	[PI-Amer ne]	igas			Reported	:
Santa Monica CA, 90405	5	Project Manager: Susan Mearns							2:32
	Volatile (Organic Com	pounds	by EPA	Method	8260B			
		Sierra Aı	nalytical	l Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB4-5 (1701037-07) Soil	Sampled: 01/03/17 11:50	Received: 01/0	3/17 16:0	0					
Naphthalene	ND	5.0	µg/kg	1	B7A0452	01/04/17	01/04/17 21:11	EPA 8260B	
n-Propylbenzene	ND	5.0	"	"	"	"	"	"	
Styrene	ND	5.0	"	"	"	"		"	
1,1,1,2-Tetrachloroethane	ND	5.0	"	"	"	"		"	
1,1,2,2-Tetrachloroethane	ND	5.0	"	"	"	"		"	
Tetrachloroethene	ND	5.0	"	"	"	"		"	
Toluene	ND	5.0	"	"	"	"		"	
1,2,3-Trichlorobenzene	ND	5.0	"	"	"	"		"	
1,2,4-Trichlorobenzene	ND	5.0	"	"	"	"		"	
1,1,1-Trichloroethane	ND	5.0	"	"	"	"		"	
1,1,2-Trichloroethane	ND	5.0	"	"	"	"		"	
Trichloroethene	ND	5.0	"	"	"	"		"	
Trichlorofluoromethane	ND	5.0	"	"	"	"		"	
1,2,3-Trichloropropane	ND	5.0	"	"	"	"		"	
1,2,4-Trimethylbenzene	ND	5.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	5.0	"	"	"	"	"	"	
Vinyl chloride	ND	5.0	"	"	"	"	"	"	
m,p-Xylene	ND	5.0	"	"	"	"		"	

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Surrogate: 4-Bromofluorobenzene SB4-10 (1701037-08) Soil Sampled: 01/03/17 12:03 Received: 01/03/17 16:00

Surrogate: Toluene-d8

Surrogate: Dibromofluoromethane

o-Xylene

Benzene	ND	4.2	µg/kg	1	B7A0452	01/04/17	01/04/17 21:52	EPA 8260B
Bromobenzene	ND	4.2	"	"	"	"	"	"
Bromochloromethane	ND	4.2	"	"	"	"	"	"
Bromodichloromethane	ND	4.2	"	"	"	"	"	"
Bromoform	ND	4.2	"	"	"	"	"	"
Bromomethane	ND	4.2	"	"	"	"	"	"
n-Butylbenzene	ND	4.2	"	"	"	"	"	"
sec-Butylbenzene	ND	4.2	"	"	"	"	"	"
tert-Butylbenzene	ND	4.2	"	"	"	"	"	"
Carbon tetrachloride	ND	4.2	"	"	"	"	"	"
Chlorobenzene	ND	4.2	"	"	"	"	"	"
Chloroethane	ND	4.2	"	"	"	"	"	"
Chloroform	ND	4.2	"	"	"	"	"	"
Chloromethane	ND	4.2	"	"	"	"	"	"
2-Chlorotoluene	ND	4.2	"	"	"	"	"	"
4-Chlorotoluene	ND	4.2	"	"	"	"	"	"
Dibromochloromethane	ND	4.2	"	"	"	"	"	"

ND

5.0

101 %

105 %

107 %

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80-120

81-117

74-121



Mearns Consulting LLC 738 Ashland Avenue	Project: SHPI-Amerigas Project Number: [none]	Reported:					
Santa Monica CA, 90405	Project Manager: Susan Mearns	01/10/17 12:32					
Volatile Organic Compounds by EPA Method 8260B							

Sierra Analytical Labs, Inc.									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
SB4-10 (1701037-08) Soil	Sampled: 01/03/17 12:03	Received: 01/	03/17 16:	00					
1,2-Dibromo-3-chloropropa	ane ND	4.2	µg/kg	1	B7A0452	01/04/17	01/04/17 21:52	2 EPA 8260B	
1,2-Dibromoethane (EDB)	ND	4.2	"	"	"	"		"	
Dibromomethane	ND	4.2	"	"	"	"		"	
1,2-Dichlorobenzene	ND	4.2	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	4.2	"	"	"	"		"	
1,4-Dichlorobenzene	ND	4.2	"	"	"	"		"	
Dichlorodifluoromethane	ND	4.2	"	"	"	"		"	
1,1-Dichloroethane	ND	4.2	"	"	"	"		"	
1,2-Dichloroethane	ND	4.2	"	"	"	"		"	
1,1-Dichloroethene	ND	4.2	"	"	"	"		"	
cis-1,2-Dichloroethene	ND	4.2	"	"	"	"		"	
trans-1.2-Dichloroethene	ND	4.2	"	"	"	"		"	
1.2-Dichloropropane	ND	4.2	"	"	"	"	"	"	
1.3-Dichloropropane	ND	4.2	"	"	"	"		"	
2.2-Dichloropropane	ND	4.2	"	"	"	"		"	
1.1-Dichloropropene	ND	4.2	"	"	"	"		"	
cis-1.3-Dichloropropene	ND	4.2	"	"	"	"		"	
trans-1.3-Dichloropropene	ND	4.2	"	"	"	"		"	
Ethvlbenzene	ND	4.2	"	"	"	"		"	
Hexachlorobutadiene	ND	4.2	"	"	"	"		"	
Isopropylbenzene	ND	4.2	"	"	"	"		"	
p-Isopropyltoluene	ND	4.2	"	"	"	"		"	
Methylene chloride	ND	4.2	"	"	"	"		"	
Methyl tert-butyl ether	ND	4.2	"	"	"	"		"	
Naphthalene	ND	4.2	"	"	"	"		"	
n-Propylbenzene	ND	4.2	"	"	"	"		"	
Styrene	ND	4.2	"	"	"	"		"	
1 1 1 2-Tetrachloroethane	ND	4.2	"	"	"	"	"	"	
1 1 2 2-Tetrachloroethane	ND	4.2	"	"	"	"		"	
Tetrachloroethene	ND	4.2	"	"	"	"		"	
Toluene	ND	4.2	"	"	"	"		"	
1 2 3-Trichlorobenzene	ND	4.2	"	"	"	"		"	
1 2 4-Trichlorobenzene	ND	4.2	"	"	"	"		"	
1 1 1-Trichloroethane	ND	4.2	"	"	"	"		"	
1 1 2-Trichloroethane	ND	4.2	"	"	"	"		"	
Trichloroethene	ND	4.2	"	"	"	"		"	
Trichlorofluoromethane	ND	4.2	"	"	"	"		"	
1 2 3-Trichloropropage		+.2 1 2	"		"				
1.2,3-Trimethylbenzene		4.2	"		"			"	
1.2,4-Trimethylbanzana		4.2	"		"			"	
Vinyl chloride		4.2	"		"			"	
v myr cmonue	ND	4.2							



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405	Volatile O	Pr Project Nu Project Mar rganic Com	roject: SH mber: [no nager: Su DOUNDS	IPI-Ameri one] san Mearns 5 by EPA	gas Method	8260B		Reporte 01/10/17 1	d: 2:32	
	Sierra Analytical Labs, Inc.									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB4-10 (1701037-08) Soil	Sampled: 01/03/17 12:03	Received: 01/	03/17 16:	:00						
m,p-Xylene o-Xylene	ND ND	4.2 4.2	µg/kg "	1	B7A0452 "	01/04/17	01/04/17 21:52	2 EPA 8260B "		
Surrogate: Dibromofluoro Surrogate: Toluene-d8	methane	97.2 % 98.8 %	80- 81- 74	-120 -117	"	"	"	""		
Surrogate: 4-Bromofluorol	penzene	110 %	/4-	-121						
SB5-5 (1701037-09) Soil	Sampled: 01/03/17 13:03	Received: 01/0	3/17 16:0	0						
Benzene Bromobenzene	ND ND	7.8 7.8	µg/kg "	1 "	B7A0452 "	01/04/17	01/04/17 22:32	2 EPA 8260B "		
Bromochloromethane Bromodichloromethane	ND ND	7.8 7.8	"	"	"	"	"	"		
Bromoform	ND	7.8	"	"	"	"	"	"		
Bromomethane n-Butylbenzene	ND 37	7.8						"		
sec-Butylbenzene	86	7.8	"	"	"	"		"		
tert-Butylbenzene	ND	7.8	"	"		"		"		
Carbon tetrachloride	ND	7.8	"	"		"		"		
Chlorobenzene	ND	7.8	"	"	"	"		"		
Chloroethane	ND	7.8	"	"	"	"		"		
Chloroform	ND	7.8	"	"	"	"	"	"		
Chloromethane	ND	7.8	"	"	"	"	"	"		
2-Chlorotoluene	ND	7.8	"	"	"	"		"		
4-Chlorotoluene	ND	7.8	"	"	"	"		"		
Dibromochloromethane	ND	7.8	"	"	"	"		"		
1,2-Dibromo-3-chloroprop	ane ND	7.8	"	"	"	"		"		
1,2-Dibromoethane (EDB)	ND	7.8	"	"	"	"		"		
Dibromomethane	ND	7.8	"	"	"	"	"	"		
1,2-Dichlorobenzene	ND	7.8	"	"	"	"		"		
1,3-Dichlorobenzene	ND	7.8	"	"	"	"		"		
1,4-Dichlorobenzene	ND	7.8	"	"	"	"		"		
Dichlorodifluoromethane	ND	7.8	"	"	"	"		"		
1,1-Dichloroethane	ND	7.8	"	"	"	"		"		
1,2-Dichloroethane	ND	7.8	"	"	"	"		"		
1,1-Dichloroethene	ND	7.8	"	"	"	"		"		
cis-1,2-Dichloroethene	ND	7.8	"	"	"	"		"		
trans-1,2-Dichloroethene	ND	7.8	"	"	"	"		"		
1,2-Dichloropropane	ND	7.8	"	"	"	"		"		
1,3-Dichloropropane	ND	7.8	"							
2,2-Dichloropropane	ND	7.8								
1,1-Dichloropropene cis-1,3-Dichloropropene	ND ND	7.8 7.8		"		"				



Mearns Consulting LLC	Project: SHPI-Amerigas							
738 Ashland Avenue	Project Number: [none]	Reported:						
Santa Monica CA, 90405	Project Manager: Susan Mearns	01/10/17 12:32						
Volatile Organic Compounds by EPA Method 8260B								

Sierra Analytical Labs, Inc.									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB5-5 (1701037-09) Soil	Sampled: 01/03/17 13:03	Received: 01/0	3/17 16:	00					
trans-1,3-Dichloropropene	ND	7.8	µg/kg	1	B7A0452	01/04/17	01/04/17 22:3	2 EPA 8260B	
Ethylbenzene	ND	7.8		"	"	"	"	"	
Hexachlorobutadiene	ND	7.8		"	"	"	"	"	
Isopropylbenzene	73	7.8		"	"	"	"	"	
p-Isopropyltoluene	25	7.8		"	"	"	"	"	
Methylene chloride	ND	7.8		"	"	"	"	"	
Methyl tert-butyl ether	ND	7.8	"	"	"	"	"		
Naphthalene	24	7.8	"	"	"	"	"		
n-Propylbenzene	140	7.8		"	"	"	"		
Styrene	ND	7.8		"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	7.8	"	"	"	"	"		
1,1,2,2-Tetrachloroethane	ND	7.8	"	"	"	"	"		
Tetrachloroethene	ND	7.8	"	"	"	"	"		
Toluene	ND	7.8	"	"	"	"	"		
1,2,3-Trichlorobenzene	ND	7.8	"	"	"	"	"		
1,2,4-Trichlorobenzene	ND	7.8	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	7.8	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	7.8	"	"	"	"	"		
Trichloroethene	ND	7.8	"	"	"	"	"	"	
Trichlorofluoromethane	ND	7.8	"	"	"	"	"		
1,2,3-Trichloropropane	ND	7.8	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	630	7.8	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	330	7.8	"	"	"	"	"	"	
Vinyl chloride	ND	7.8	"	"	"	"	"	"	
m,p-Xylene	ND	7.8		"	"	"	"	"	
o-Xylene	ND	7.8	"	"	"	"	"	"	
Surrogate: Dibromofluoro	methane	102 %	80)-120	"	"	"	"	
Surrogate: Toluene-d8		98.8 %	81	-117	"	"	"	"	
Surrogate: 4-Bromofluoro	benzene	110 %	74	-121	"	"	"	"	



Mearns Consulting LLC	Project: SHPI-Amerigas Project Number: [none]	Reported:						
Santa Monica CA, 90405	Project Manager: Susan Mearns	01/10/17 12:32						
Volatile Organic Compounds by EPA Method 8260B								

Sierra Analytical Labs, Inc.											
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note		
SB5-10 (1701037-10) Soil	Sampled: 01/03/17 13:20	Received: 01/	03/17 16:0)0							
Benzene	ND	5.0	µg/kg	1	B7A0452	01/04/17	01/04/17 23:12	2 EPA 8260B			
Bromobenzene	ND	5.0	"	"	"	"		"			
Bromochloromethane	ND	5.0	"	"	"	"		"			
Bromodichloromethane	ND	5.0	"	"	"	"		"			
Bromoform	ND	5.0	"	"	"	"		"			
Bromomethane	ND	5.0	"	"	"	"		"			
n-Butylbenzene	ND	5.0	"	"	"	"		"			
sec-Butylbenzene	ND	5.0	"	"	"	"		"			
ert-Butylbenzene	ND	5.0	"	"	"	"		"			
Carbon tetrachloride	ND	5.0	"	"	"	"		"			
Chlorobenzene	ND	5.0	"	"	"	"		"			
Chloroethane	ND	5.0	"	"	"	"	"				
Chloroform	ND	5.0	"	"	"	"		"			
Chloromethane	ND	5.0	"	"	"	"		"			
2-Chlorotoluene	ND	5.0	"	"	"	"		"			
4-Chlorotoluene	ND	5.0	"	"	"	"					
Dibromochloromethane	ND	5.0	"	"	"	"		"			
1,2-Dibromo-3-chloropropan	e ND	5.0	"	"	"	"					
1,2-Dibromoethane (EDB)	ND	5.0	"	"	"	"		"			
Dibromomethane	ND	5.0	"	"	"	"		"			
1,2-Dichlorobenzene	ND	5.0	"	"	"	"		"			
1,3-Dichlorobenzene	ND	5.0	"	"	"	"		"			
1,4-Dichlorobenzene	ND	5.0	"	"	"	"		"			
Dichlorodifluoromethane	ND	5.0	"	"	"	"		"			
1,1-Dichloroethane	ND	5.0	"	"	"	"	"				
1,2-Dichloroethane	ND	5.0	"	"	"	"		"			
1,1-Dichloroethene	ND	5.0	"	"	"	"		"			
cis-1,2-Dichloroethene	ND	5.0	"	"	"	"		"			
rans-1,2-Dichloroethene	ND	5.0	"	"	"	"		"			
1,2-Dichloropropane	ND	5.0	"	"	"	"		"			
1,3-Dichloropropane	ND	5.0	"	"	"	"					
2,2-Dichloropropane	ND	5.0	"	"	"	"					
1,1-Dichloropropene	ND	5.0	"	"	"	"					
cis-1.3-Dichloropropene	ND	5.0	"	"	"	"		"			
rans-1.3-Dichloropropene	ND	5.0	"	"	"	"		"			
Ethvlbenzene	ND	5.0	"	"	"	"					
Hexachlorobutadiene	ND	5.0		"	"	"		"			
Isopropylbenzene	ND	5.0		"	"						
o-Isopropyltoluene	ND	5.0		"	"						
Methylene chloride	ND	5.0					"	"			
Methyl tert-butyl ether	ND	5.0					"	"			
J											



Mearns Consulting LLC 738 Ashland Avenue	Project: Project Number:	SHPI-Amerigas	Reported:					
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/10/17 12:32					
Volatile Organic Compounds by EPA Method 8260B								

		Sierra Ar	nalytica	l Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Not
SB5-10 (1701037-10) Soil	Sampled: 01/03/17 13:20	Received: 01/	03/17 16:	00					
Naphthalene	ND	5.0	µg/kg	1	B7A0452	01/04/17	01/04/17 23:1	2 EPA 8260B	
n-Propylbenzene	ND	5.0	"	"	"	"	"		
Styrene	ND	5.0		"	"	"	"		
1,1,1,2-Tetrachloroethane	ND	5.0		"	"	"	"		
1,1,2,2-Tetrachloroethane	ND	5.0		"	"	"	"		
Tetrachloroethene	ND	5.0	"	"	"	"	"		
Toluene	ND	5.0	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	5.0		"	"	"	"		
1,1,2-Trichloroethane	ND	5.0		"	"	"	"		
Trichloroethene	ND	5.0		"	"	"	"		
Trichlorofluoromethane	ND	5.0		"	"	"	"		
1,2,3-Trichloropropane	ND	5.0		"	"	"	"		
1,2,4-Trimethylbenzene	ND	5.0		"	"	"	"		
1,3,5-Trimethylbenzene	ND	5.0	"	"	"	"	"		
Vinyl chloride	ND	5.0		"	"	"	"		
m,p-Xylene	ND	5.0		"	"	"	"		
o-Xylene	ND	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluorom	nethane	94.2 %	80-	120	"	"	"	"	
Surrogate: Toluene-d8		95.0 %	81-	117	"	"	"	"	
Surrogate: 4-Bromofluorobe	enzene	106 %	74-	121	"	"	"	"	

SB6-5 (1701037-11) Soil Sampled: 01/03/17 14:20 Received: 01/03/17 16:00

Benzene	ND	5.0	µg/kg	1	B7A0452	01/04/17	01/04/17 23:52 EF	PA 8260B
Bromobenzene	ND	5.0	"	"	"	"	"	"
Bromochloromethane	ND	5.0	"	"	"	"	"	"
Bromodichloromethane	ND	5.0	"	"	"	"	"	"
Bromoform	ND	5.0	"	"	"	"	"	"
Bromomethane	ND	5.0	"	"	"	"	"	"
n-Butylbenzene	ND	5.0	"	"	"	"	"	"
sec-Butylbenzene	ND	5.0	"	"	"	"	"	"
tert-Butylbenzene	ND	5.0	"	"	"	"	"	"
Carbon tetrachloride	ND	5.0	"	"	"	"	"	"
Chlorobenzene	ND	5.0	"	"	"	"	"	"
Chloroethane	ND	5.0	"	"	"	"	"	"
Chloroform	ND	5.0	"	"	"	"	"	"
Chloromethane	ND	5.0	"	"	"	"	"	"
2-Chlorotoluene	ND	5.0	"	"	"	"	"	"
4-Chlorotoluene	ND	5.0	"	"	"	"	"	"
Dibromochloromethane	ND	5.0	"		"	"	"	"



Mearns Consulting LLC		Pr	oject: SH	PI-Ameri	igas				
738 Ashland Avenue		Project Nu	mber: [no	ne]	0			Reported	:
Santa Monica CA, 90405		Project Mar	nager: Sus	an Mearns	5		repared Analyzed /04/17 01/04/17 23:52 " "	01/10/17 12	2:32
	Volatile Org	anic Com	nounde	hy EPA	Method	8260R			
	volatile Org		Pounds			02000			
		Sierra Ai	nalytica	Labs, I	nc.				
		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB6-5 (1701037-11) Soil Sampled	: 01/03/17 14:20 Red	ceived: 01/0	3/17 16:0	0					
1,2-Dibromo-3-chloropropane	ND	5.0	µg/kg	1	B7A0452	01/04/17	01/04/17 23:5	2 EPA 8260B	
1,2-Dibromoethane (EDB)	ND	5.0	"	"	"	"	"	"	
Dibromomethane	ND	5.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	5.0	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	5.0	"	"	"	"	"	"	
1.1-Dichloroethane	ND	5.0	"	"	"	"			
1.2-Dichloroethane	ND	5.0	"	"	"	"	"		
1 1-Dichloroethene	ND	5.0	"		"	"	"	"	
cis-1 2-Dichloroethene	ND	5.0			"	"	"	"	
trans_1 2-Dichloroethene	ND	5.0	"		"	"	"	"	
1 2-Dichloropropane	ND	5.0	"		"	"	"	"	
1.3-Dichloropropane	ND	5.0			"	"		"	
2.2 Dichloropropane	ND	5.0			"	"			
1.1 Dishloropropane		5.0			"				
ais 1.2 Dichloropropono		5.0			"			"	
trong 1.2 Dichloropropene		5.0			"	"			
Etheller and a	ND	5.0			"	"			
Ethylbenzene	ND	5.0							
Hexachiorobutadiene	ND	5.0							
IsopropyIbenzene	ND	5.0							
p-Isopropyltoluene	ND	5.0							
Methylene chloride	ND	5.0		"	"		"	"	
Methyl tert-butyl ether	ND	5.0					"	"	
Naphthalene	ND	5.0	"	"	"	"	"	"	
n-Propylbenzene	ND	5.0	"	"	"	"	"	"	
Styrene	ND	5.0	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	5.0	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	5.0	"	"	"	"	"	"	
Tetrachloroethene	ND	5.0	"	"	"	"	"	"	
Toluene	ND	5.0	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	5.0	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	5.0	"	"	"	"	"	"	
Trichloroethene	ND	5.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	5.0	"	"	"	"	"		
1,2,3-Trichloropropane	ND	5.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	5.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	5.0	"	"	"		"	"	
Vinyl chloride	ND	5.0	"	"	"		"	"	



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405	earns Consulting LLC Project: SHPI-Amerigas 8 Ashland Avenue Project Number: [none] 10 Inta Monica CA, 90405 Project Manager: Susan Mearns Volatile Organic Compounds by EPA Method 8260B									
		Sierra A	nalytica	l Labs, I	nc.	5-502				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB6-5 (1701037-11) Soil	Sampled: 01/03/17 14:20	Received: 01/0	3/17 16:0	0						
m,p-Xylene o-Xylene	ND ND	5.0 5.0	µg/kg "	1	B7A0452 "	01/04/17	01/04/17 23:52	EPA 8260B "		
Surrogate: Dibromofluorom Surrogate: Toluene-d8	nethane	95.8 % 96.2 %	80- 81-	120 117	"	"	"	"		
Surrogate: 4-Bromofluorob	enzene	90.3 %	74-	-121	"	"	"	"		
SB6-10 (1701037-12) Soil	Sampled: 01/03/17 14:31	Received: 01/	/03/17 16:	00						
Benzene	ND	4.5	µg/kg "	1	B7A0452	01/04/17	01/05/17 00:31	EPA 8260B		
Bromochloromethane		4.5 4.5								
Bromodichloromethane	ND	4.5	"				"	"		
Bromoform	ND	4.5	"				"	"		
Bromomethane	ND	4.5	"		"	"				
n-Butylbenzene	ND	4.5	"			"	"	"		
sec-Butvlbenzene	ND	4.5	"	"	"	"	"	"		
tert-Butylbenzene	ND	4.5	"	"	"	"	"	"		
Carbon tetrachloride	ND	4.5	"	"		"	"	"		
Chlorobenzene	ND	4.5	"		"	"	"	"		
Chloroethane	ND	4.5	"		"	"	"	"		
Chloroform	ND	4.5	"	"	"	"	"	"		
Chloromethane	ND	4.5	"	"	"	"	"	"		
2-Chlorotoluene	ND	4.5	"	"	"	"	"	"		
4-Chlorotoluene	ND	4.5	"	"	"	"	"	"		
Dibromochloromethane	ND	4.5	"	"	"	"	"	"		
1,2-Dibromo-3-chloropropa	ne ND	4.5	"	"	"	"	"	"		
1,2-Dibromoethane (EDB)	ND	4.5	"	"	"	"	"	"		
Dibromomethane	ND	4.5	"	"	"	"	"	"		
1,2-Dichlorobenzene	ND	4.5	"	"	"	"	"	"		
1,3-Dichlorobenzene	ND	4.5	"	"	"	"	"	"		
1,4-Dichlorobenzene	ND	4.5	"	"	"	"	"	"		
Dichlorodifluoromethane	ND	4.5	"	"	"	"	"	"		
1,1-Dichloroethane	ND	4.5	"	"	"	"	"	"		
1,2-Dichloroethane	ND	4.5	"	"	"	"	"	"		
1,1-Dichloroethene	ND	4.5	"	"	"	"	"	"		
cis-1,2-Dichloroethene	ND	4.5	"	"	"	"	"	"		
trans-1,2-Dichloroethene	ND	4.5	"	"	"	"	"	"		
1,2-Dichloropropane	ND	4.5	"	"	"	"	"	"		
1,3-Dichloropropane	ND	4.5	"	"	"	"	"	"		
2,2-Dichloropropane	ND	4.5	"	"	"	"	"	"		
1,1-Dichloropropene cis-1,3-Dichloropropene	ND ND	4.5 4.5			"					



Santa Monica CA, 90405	Volatile Organic Compour	nds by EPA Method 8260B	01/10/17 12.32
Santa Monica CA 00405	Project Manager:	Susan Maarna	01/10/17 12:32
738 Ashland Avenue	Project Number:	[none]	Reported:
Mearns Consulting LLC	Project:	SHPI-Amerigas	

		Sierra Ar	nalytic	al Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB6-10 (1701037-12) Soil	Sampled: 01/03/17 14:31	Received: 01/	03/17 1	6:00					
trans-1,3-Dichloropropene	ND	4.5	µg/kg	1	B7A0452	01/04/17	01/05/17 00:3	1 EPA 8260B	
Ethylbenzene	ND	4.5		"	"	"	"	"	
Hexachlorobutadiene	ND	4.5		"	"	"	"	"	
Isopropylbenzene	ND	4.5		"	"	"	"	"	
p-Isopropyltoluene	ND	4.5		"	"	"	"	"	
Methylene chloride	ND	4.5		"	"	"	"	"	
Methyl tert-butyl ether	ND	4.5		"	"	"	"	"	
Naphthalene	ND	4.5		"	"	"	"	"	
n-Propylbenzene	ND	4.5		"	"	"	"	"	
Styrene	ND	4.5		"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	4.5		"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	4.5		"	"	"	"	"	
Tetrachloroethene	ND	4.5		"	"	"	"	"	
Toluene	ND	4.5		"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	4.5		"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	4.5			"	"	"	"	
1,1,1-Trichloroethane	ND	4.5		"	"	"	"	"	
1,1,2-Trichloroethane	ND	4.5		"	"	"	"	"	
Trichloroethene	ND	4.5		"	"	"	"	"	
Trichlorofluoromethane	ND	4.5		"	"	"	"	"	
1,2,3-Trichloropropane	ND	4.5		"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	4.5		"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	4.5		"	"	"	"	"	
Vinyl chloride	ND	4.5		"	"	"	"	"	
m,p-Xylene	ND	4.5		"	"	"	"	"	
o-Xylene	ND	4.5	"	"	"	"	"	"	
Surrogate: Dibromofluoron	nethane	99.3 %	8	0-120	"	"	"	"	
Surrogate: Toluene-d8		99.8 %	8	1-117	"	"	"	"	
Surrogate: 4-Bromofluorob	enzene	103 %	7.	4-121	"	"	"	"	



1,2-Dibromoethane (EDB)

Dibromomethane

1,2-Dichlorobenzene

1.3-Dichlorobenzene

1,4-Dichlorobenzene

1,1-Dichloroethane

1,2-Dichloroethane

1,1-Dichloroethene

cis-1,2-Dichloroethene

1,2-Dichloropropane

1,3-Dichloropropane

2,2-Dichloropropane

1,1-Dichloropropene

Hexachlorobutadiene

Isopropylbenzene

p-Isopropyltoluene

Methylene chloride

Methyl tert-butyl ether

Ethylbenzene

cis-1,3-Dichloropropene

trans-1,3-Dichloropropene

trans-1,2-Dichloroethene

Dichlorodifluoromethane

Mearns Consulting LLC 738 Ashland Avenue		Project: SHPI-Amerigas Project Number: [none] Project Manager: Susan Maarns							
Santa Monica CA, 90405	Volatila (Project Mai	nounde		Mathad	8260B		01/10/17 1.	2:32
	v olatile (ipounus	UY LI A		0200D			
r		Sierra Ai	nalytica	I Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB7-5 (1701037-13) Soil	Sampled: 01/03/17 14:50	Received: 01/0	3/17 16:0	0					
Benzene	ND	4.3	µg/kg	1	B7A0452	01/04/17	01/05/17 01:11	EPA 8260B	
Bromobenzene	ND	4.3	"	"	"	"	"		
Bromochloromethane	ND	4.3	"	"	"	"	"		
Bromodichloromethane	ND	4.3	"	"	"	"	"		
Bromoform	ND	4.3	"	"	"	"	"		
Bromomethane	ND	4.3		"	"	"	"	"	
n-Butylbenzene	ND	4.3	"	"	"	"	"		
sec-Butylbenzene	ND	4.3	"	"	"	"	"		
tert-Butylbenzene	ND	4.3	"	"	"	"	"		
Carbon tetrachloride	ND	4.3	"	"	"	"	"		
Chlorobenzene	ND	4.3	"	"	"	"	"		
Chloroethane	ND	4.3	"	"	"	"	"		
Chloroform	ND	4.3	"	"	"	"	"		
Chloromethane	ND	4.3	"	"	"	"	"	"	
2-Chlorotoluene	ND	4.3		"	"	"	"	"	
4-Chlorotoluene	ND	4.3	"	"	"	"	"		
Dibromochloromethane	ND	4.3	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropa	ane ND	4.3		"	"	"	"		

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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

26052 Merit Circle Suite 105, Laguna Hills, California 92653 Telephone: (949) 348-9389 Fax: (949) 348-9115 E-Mail: sierralabs @ sierralabs.net ..

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Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Project Nun Project Man	oject: SI nber: [no ager: Su	HPI-Ameri one] isan Mearns	igas s			Reported 01/10/17 12	: 2:32
	Volatile O	rganic Comj	pound	s by EPA	Method	8260B			
		Sierra An	alytica	al Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB7-5 (1701037-13) Soil S	Sampled: 01/03/17 14:50	Received: 01/03	/17 16:0	00					
Naphthalene	ND	4.3	µg/kg	1	B7A0452	01/04/17	01/05/17 01:11	EPA 8260B	
n-Propylbenzene	ND	4.3	"	"	"	"	"	"	
Styrene	ND	4.3	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	4.3	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	4.3	"	"	"	"	"	"	
Tetrachloroethene	ND	4.3	"	"	"	"	"	"	
Toluene	ND	4.3	"	"	"	"	"		
1,2,3-Trichlorobenzene	ND	4.3	"	"	"	"	"		
1047111	ND	4.2							

1,2,4-Trichlorobenzene	ND	4.3	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	4.3	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	4.3	"	"	"	"	"	"	
Trichloroethene	ND	4.3	"	"	"	"	"	"	
Trichlorofluoromethane	ND	4.3	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	4.3	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	4.3	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	4.3	"	"	"	"	"	"	
Vinyl chloride	ND	4.3	"	"	"	"	"	"	
m,p-Xylene	ND	4.3	"	"	"	"	"	"	
o-Xylene	ND	4.3	"	"	"	"	"		
Surrogate: Dibromofluoromethane		104 %	80-1	120	"	"	"	"	
Surrogate: Toluene-d8		95.4 %	81-1	117	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.7 %	74-	121	"	"	"	"	

SB7-10 (1701037-14) Soil Sampled: 01/03/17 14:58 Received: 01/03/17 16:00

Benzene	ND	4.4	µg/kg	1	B7A0452	01/04/17	01/05/17 01:50 EP	A 8260B
Bromobenzene	ND	4.4		"	"	"	"	"
Bromochloromethane	ND	4.4	"	"	"	"	"	"
Bromodichloromethane	ND	4.4	"	"	"	"	"	"
Bromoform	ND	4.4	"	"	"	"	"	"
Bromomethane	ND	4.4	"	"	"	"	"	"
n-Butylbenzene	ND	4.4	"	"	"	"	"	"
sec-Butylbenzene	ND	4.4	"	"	"	"	"	"
tert-Butylbenzene	ND	4.4	"	"	"	"	"	"
Carbon tetrachloride	ND	4.4	"	"	"	"	"	"
Chlorobenzene	ND	4.4	"	"	"	"	"	"
Chloroethane	ND	4.4	"	"	"	"	"	"
Chloroform	ND	4.4	"	"	"	"	"	"
Chloromethane	ND	4.4	"		"	"		"
2-Chlorotoluene	ND	4.4	"	"	"	"	"	"
4-Chlorotoluene	ND	4.4	"	"	"	"	"	"
Dibromochloromethane	ND	4.4	"	"	"	"	"	"



Mearns Consulting LLC 738 Ashland Avenue	Project: SHPI-Amerig Project Number: [none]	gas Reported:						
Santa Monica CA, 90405	Project Manager: Susan Mearns	01/10/17 12:32						
Volatile Organic Compounds by EPA Method 8260B								

	Sierra Analytical Labs, Inc.									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note	
SB7-10 (1701037-14) Soil	Sampled: 01/03/17 14:58	Received: 01/	03/17 16:	00						
1,2-Dibromo-3-chloropropa	ne ND	4.4	µg/kg	1	B7A0452	01/04/17	01/05/17 01:50) EPA 8260B		
1,2-Dibromoethane (EDB)	ND	4.4	"		"	"		"		
Dibromomethane	ND	4.4	"		"	"		"		
1,2-Dichlorobenzene	ND	4.4	"		"	"		"		
1,3-Dichlorobenzene	ND	4.4	"		"	"		"		
1.4-Dichlorobenzene	ND	4.4	"		"	"		"		
Dichlorodifluoromethane	ND	4.4	"		"	"		"		
1.1-Dichloroethane	ND	4.4	"		"	"		"		
1.2-Dichloroethane	ND	4.4	"		"	"		"		
1.1-Dichloroethene	ND	4.4	"		"	"		"		
cis-1.2-Dichloroethene	ND	4.4	"	"	"	"		"		
trans-1.2-Dichloroethene	ND	4.4	"		"	"		"		
1.2-Dichloropropane	ND	4.4	"		"	"		"		
1.3-Dichloropropane	ND	4.4	"		"	"		"		
2.2-Dichloropropane	ND	4.4	"		"	"		"		
1.1-Dichloropropene	ND	4.4	"		"	"		"		
cis-1 3-Dichloropropene	ND	4.4	"		"	"		"		
trans-1 3-Dichloropropene	ND	4.4	"		"	"		"		
Ethylbenzene	ND	4.4	"		"	"		"		
Hexachlorobutadiene	ND	4.4	"		"	"		"		
Isopropylbenzene	ND	4.4	"		"	"		"		
n-Isopropyltoluene	ND	4.4	"		"	"		"		
Methylene chloride	ND	4.4	"		"	"		"		
Methyl tert-butyl ether	ND	4.4	"		"	"		"		
Nanhthalene	52	4.4	"			"		"		
n-Propylbenzene	S.2 ND	4.4	"		"	"		"		
Styrene	ND	4.4	"		"	"		"		
1 1 1 2-Tetrachloroethane	ND	4.4	"		"	"		"		
1 1 2 2-Tetrachloroethane	ND	4.4	"		"	"		"		
Tetrachloroethene	ND	4.4	"		"	"		"		
Toluene	ND	4.4	"		"	"		"		
1 2 3-Trichlorobenzene	ND	4.4	"		"	"		"		
1 2 4-Trichlorobenzene	ND	4.4	"		"	"		"		
1 1 1-Trichloroethane	ND	4.4	"		"	"		"		
1 1 2-Trichloroethane	ND	4.4	"		"	"		"		
Trichloroethane	ND	4.4	"		"	"		"		
Trichlorofluoromethene		4.4	"		"			"		
1.2.3 Trichloropropage		4.4	"		"			"		
1,2,5-Themoropropane		4.4 1 1			"			"		
1,2,4-11ineuryidenzene	ND	4.4	"		"					
1,5,5-1 milleuryidenzene	ND	4.4	"							
v myr chioride	ND	4.4								



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Mearns Consulting LLC		Project: SHPI-Amerigas							
738 Ashland Avenue		Project Number: [none]							
Santa Monica CA, 90405		Project Manager: Susan Mearns 01/10,							
	Volatile O	rganic Com	pounds	by EPA	Method	8260B			
		Sierra Ar	nalytical	l Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB7-10 (1701037-14) Soil	Sampled: 01/03/17 14:58	Received: 01/	03/17 16:	00					
m,p-Xylene	ND	4.4	µg/kg	1	B7A0452	01/04/17	01/05/17 01:5	0 EPA 8260B	
o-Xylene	ND	4.4	"	"	"	"		"	
Surrogate: Dibromofluoron	nethane	94.7 %	80-	120	"	"	"	"	
Surrogate: Toluene-d8		83.6 %	81-	117	"	"	"	"	
Surrogate: 4-Bromofluorob	enzene	91.1 %	74-	121	"	"	"	"	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Benzo (a) pyrene

Benzyl alcohol

Benzo (g,h,i) perylene

Bis(2-chloroethyl)ether

Butyl benzyl phthalate

4-Chloro-3-methylphenol

4-Chlorophenyl phenyl ether

2-Chloronaphthalene

Dibenz (a,h) anthracene

1,3-Dichlorobenzene

1,2-Dichlorobenzene

1,4-Dichlorobenzene

2,4-Dichlorophenol

2,4-Dimethylphenol

Dimethyl phthalate

Di-n-butyl phthalate

4,6-Dinitro-2-methylphenol

2,4-Dinitrophenol

2.4-Dinitrotoluene

2,6-Dinitrotoluene

Fluoranthene

Fluorene

Di-n-octyl phthalate

1,2-Diphenylhydrazine

Diethyl phthalate

3,3'-Dichlorobenzidine

4-Chloroaniline

2-Chlorophenol

Chrysene

Dibenzofuran

Bis(2-chloroethoxy)methane

Bis(2-ethylhexyl)phthalate

Bis(2-chloroisopropyl)ether

4-Bromophenyl phenyl ether

Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Pr Project Nur Project Mar	oject: SH mber: [no nager: Sus	PI-Amer ne] an Mearns	igas s			Reported: 01/10/17 12	:32
	Semivolatile C)rganic Co Sierra Ar	mpoun alvtical	ds by El Labs I	PA Meth	od 82700	2		
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB1-5 (1701037-01) Soil San	npled: 01/03/17 10:02 Re	eceived: 01/0	3/17 16:0	0					
Acenaphthene	ND	0.33	mg/kg	1	B7A0331	01/04/17	01/05/17 09:38	EPA 8270C	
Acenaphthylene	ND	0.33		"	"	"	"	"	
Anthracene	ND	0.33	"	"	"	"	"	"	
Benzidine	ND	0.33	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.33		"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.33		"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.33	"	"	"	"	"	"	

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Surrogate: 2-Fluorobiphenyl

Surrogate: Terphenyl-d14

Surrogate: 2,4,6-Tribromophenol

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Mearns Consulting LLC		Pr	oject: SH	IPI-Amer	igas					
738 Ashland Avenue	Project Number: [none]								Reported:	
Santa Monica CA, 90405		Project Mar	nager: Sus	san Mearns	s			01/10/17 12	2:32	
	Semivolatile C	Organic Co	mpoun	ds by El	PA Meth	od 8270	С			
		Sierra Ar	- nalytical	l Labs, I	[nc.					
		Reporting								
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB1-5 (1701037-01) Soil Sampled	: 01/03/17 10:02 Re	ceived: 01/0	3/17 16:0	0						
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0331	01/04/17	01/05/17 09:3	8 EPA 8270C		
Hexachlorobutadiene	ND	0.33	"	"	"	"	"			
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"	"	"		
Hexachloroethane	ND	0.33	"	"	"	"	"	"		
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"	"	"		
Isophorone	ND	0.33	"	"	"	"	"	"		
2-Methylnaphthalene	ND	0.33	"	"	"	"	"	"		
2-Methylphenol	ND	0.33	"	"	"	"	"	"		
4-Methylphenol	ND	0.33	"	"	"	"	"	"		
Naphthalene	ND	0.33	"	"	"	"	"	"		
2-Nitroaniline	ND	0.33	"	"	"	"	"	"		
3-Nitroaniline	ND	0.33	"	"	"	"	"			
4-Nitroaniline	ND	0.33	"	"	"	"	"	"		
Nitrobenzene	ND	0.33	"	"	"	"	"	"		
2-Nitrophenol	ND	0.33	"	"	"	"	"	"		
4-Nitrophenol	ND	0.33	"	"	"	"	"			
N-Nitrosodimethylamine	ND	0.33	"	"	"	"	"			
Diphenylamine	ND	0.33	"	"	"	"	"			
N-Nitrosodi-n-propylamine	ND	0.33	"	"	"	"	"			
Pentachlorophenol	ND	0.33	"	"	"	"	"			
Phenanthrene	ND	0.33	"	"	"	"	"			
Phenol	ND	0.33	"	"	"	"	"			
Pyrene	ND	0.33	"	"	"	"	"	"		
1,2,4-Trichlorobenzene	ND	0.33	"	"	"	"	"			
2,4,5-Trichlorophenol	ND	0.33	"	"	"	"	"			
2,4,6-Trichlorophenol	ND	0.33	"	"	"	"	"	"		
Surrogate: 2-Fluorophenol		96.2 %	25-	121	"	"	"	"		
Surrogate: Phenol-d6		79.2 %	24-	113	"	"	"	"		
Surrogate: Nitrobenzene-d5		73.0 %	23-	120	"	"	"	"		

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

99.1 %

89.8 %

78.7 %

30-115

19-122

18-137

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Mearns Consulting LLC 738 Ashland Avenue	Project: SHPI- Project Number: [none]	Amerigas	Reported:					
Santa Monica CA, 90405	Project Manager: Susan	Mearns	01/10/17 12:32					
	Semivolatile Organic Compounds	by EPA Method 8270C						
Sierra Analytical Labs. Inc.								

		Reporting	<u>J</u>	,_					
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB1-10 (1701037-02) Soil	Sampled: 01/03/17 10:17	Received: 01/	03/17 16:0	0					
Acenaphthene	ND	0.33	mg/kg	1	B7A0331	01/04/17	01/05/17 10:1	9 EPA 8270C	
Acenaphthylene	ND	0.33	"	"	"	"		"	
Anthracene	ND	0.33	"	"	"	"		"	
Benzidine	ND	0.33	"	"	"	"		"	
Benzo (a) anthracene	ND	0.33	"	"	"	"		"	
Benzo (b) fluoranthene	ND	0.33	"	"	"	"		"	
Benzo (k) fluoranthene	ND	0.33	"	"	"	"		"	
Benzo (a) pyrene	ND	0.33	"	"	"	"		"	
Benzo (g,h,i) perylene	ND	0.33	"	"	"	"		"	
Benzyl alcohol	ND	0.33	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.33	"	"	"	"		"	
Bis(2-chloroethoxy)methane	ND	0.33	"	"	"	"		"	
Bis(2-ethylhexyl)phthalate	ND	0.33	"	"	"	"		"	
Bis(2-chloroisopropyl)ether	ND	0.33	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.33	"	"	"	"		"	
Butyl benzyl phthalate	ND	0.33	"		"	"		"	
4-Chloroaniline	ND	0.33	"		"	"		"	
2-Chlorophenol	ND	0.33	"		"	"		"	
4-Chloro-3-methylphenol	ND	0.33	"		"	"		"	
2-Chloronaphthalene	ND	0.33	"		"	"		"	
4-Chlorophenyl phenyl ether	· ND	0.33	"		"	"		"	
Chrysene	ND	0.33	"		"	"			
Dibenz (a,h) anthracene	ND	0.33	"		"	"			
Dibenzofuran	ND	0.33	"		"	"			
1.3-Dichlorobenzene	ND	0.33	"		"	"			
1 2-Dichlorobenzene	ND	0.33	"		"	"		"	
1 4-Dichlorobenzene	ND	0.33	"		"	"		"	
3 3´-Dichlorobenzidine	ND	0.33	"		"	"		"	
2 4-Dichlorophenol	ND	0.33	"		"	"	"	"	
Diethyl phthalate	ND	0.33	"		"	"		"	
2 4-Dimethylphenol	ND	0.33	"		"	"		"	
Dimethyl phthalate	ND	0.33	"		"	"		"	
Di-n-butyl phthalate	ND	0.33	"		"	"			
2 4-Dinitrophenol	ND	0.33	"		"	"			
4.6 Dinitro 2 mathylphanol	ND	0.33	"		"	"			
2.4 Dinitrotoluene	ND	0.33	"		"	"			
2,4-Dimitrotoluono		0.33			"				
2,0-Dimuoloituelle Di n octul phthalata		0.33	"		"	"			
1.2 Diphopulhudrozino		0.33			"			"	
T,2-Dipitenyinyurazine		0.55			"			"	
Fluorantinene	ND	0.55	"						
Fluorene	ND	0.33							



Mearns Consulting LLC 738 Ashland Avenue	Project: SHPI-An Project Number: [none]	ierigas Reported:						
Santa Monica CA, 90405	Project Manager: Susan Mea	arns 01/10/17 12:32						
	Semivolatile Organic Compounds by	EPA Method 8270C						
Sierra Analytical Labs, Inc.								

			U						
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB1-10 (1701037-02) Soil	Sampled: 01/03/17 10:17	Received: 01/	Received: 01/03/17 16:00						
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0331	01/04/17	01/05/17 10:1	9 EPA 8270C	
Hexachlorobutadiene	ND	0.33	"	"	"	"		"	
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"		"	
Hexachloroethane	ND	0.33	"	"	"	"		"	
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"	"	"	
Isophorone	ND	0.33	"	"	"	"		"	
2-Methylnaphthalene	ND	0.33	"	"	"	"	"	"	
2-Methylphenol	ND	0.33	"	"	"	"	"	"	
4-Methylphenol	ND	0.33	"	"	"	"	"	"	
Naphthalene	ND	0.33	"	"	"	"	"	"	
2-Nitroaniline	ND	0.33	"	"	"	"	"	"	
3-Nitroaniline	ND	0.33	"	"	"	"	"	"	
4-Nitroaniline	ND	0.33	"	"	"	"	"	"	
Nitrobenzene	ND	0.33	"	"	"	"	"	"	
2-Nitrophenol	ND	0.33	"	"	"	"		"	
4-Nitrophenol	ND	0.33	"	"	"	"		"	
N-Nitrosodimethylamine	ND	0.33	"	"	"	"		"	
Diphenylamine	ND	0.33	"	"	"	"		"	
N-Nitrosodi-n-propylamine	ND	0.33	"	"	"	"		"	
Pentachlorophenol	ND	0.33	"	"	"	"		"	
Phenanthrene	ND	0.33	"	"	"	"		"	
Phenol	ND	0.33	"	"	"	"		"	
Pyrene	ND	0.33	"	"	"	"		"	
1,2,4-Trichlorobenzene	ND	0.33	"	"	"	"		"	
2,4,5-Trichlorophenol	ND	0.33	"	"	"	"		"	
2,4,6-Trichlorophenol	ND	0.33	"	"	"	"	"	"	
Surrogate: 2-Fluorophenol		99.8 %	25-	121	"	"	"	"	
Surrogate: Phenol-d6		79.6 %	24-	113	"	"	"	"	
Surrogate: Nitrobenzene-d5		83.8 %	23-	120	"	"	"	"	
Surrogate: 2-Fluorobipheny	d	101 %	30-	115	"	"	"	"	
Surrogate: 2,4,6-Tribromop	henol	94.2 %	19-	122	"	"	"	"	
Surrogate: Terphenyl-d14		82.6 %	18-	137	"	"	"	"	



Fluorene

Mearns Consulting LLC	Project:	SHPI-Amerigas					
738 Ashland Avenue	Project Number:	[none]	Reported:				
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/10/17 12:32				
Semivolatile Organic Compounds by EPA Method 8270C							

	Sierra Analytical Labs, Inc.									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB2-5 (1701037-03) Soil	Sampled: 01/03/17 10:38	Received: 01/0	3/17 16:00)		1	5		D-34	
Acenaphthene	ND	1.6	mø/kø	5	B7A0331	01/04/17	01/05/17 10.5	9 EPA 8270C		
Acenaphthylene	ND	1.6	"	"	"	"	"	"		
Anthracene	ND	1.6	"	"	"	"	"	"		
Benzidine	ND	1.6	"	"	"	"	"	"		
Benzo (a) anthracene	ND	16	"	"	"	"				
Benzo (b) fluoranthene	ND	1.0	"	"	"	"				
Benzo (k) fluoranthene	ND	1.0	"	"	"	"	"	"		
Benzo (a) pyrene	ND	1.6	"	"	"	"	"	"		
Benzo (g h i) pervlene	ND	1.6	"	"		"	"	"		
Benzyl alcohol	ND	1.6	"	"		"	"	"		
Bis(2-chloroethyl)ether	ND	1.0		"		"	"	"		
Bis(2-chloroethoxy)methan	e ND	1.0		"		"	"	"		
Bis(2-ethylbeyyl)phthalate		1.0		"		"		"		
Bis(2 chloroisopropyl)atha	· ND	1.0		"	"	"				
4 Bromonhanyl phanyl athe	n ND	1.0		"		"				
Putul bonzul phtholoto		1.0		"		"				
A Chloroaniline		1.0		"	"	"				
2 Chlorophonol		1.0		"	"	"				
4 Chloro 3 mathulphanol		1.0		"				"		
2 Chloroporthelopo		1.0		"				"		
2-Chlorophanyl phanyl ath	ND	1.0		"				"		
4-Chorophenyi phenyi eute		1.0								
Chrysene Dil (1) (1)	ND	1.0								
Dibenz (a,n) anthracene	ND	1.6								
1 2 Dishlaraharana	ND	1.0								
1,3-Dichlorobenzene	ND	1.6								
1,2-Dichlorobenzene	ND	1.6								
1,4-Dichlorobenzene	ND	1.6								
3,3 -Dichlorobenzidine	ND	1.6								
2,4-Dichlorophenol	ND	1.6								
Diethyl phthalate	ND	1.6						"		
2,4-Dimethylphenol	ND	1.6					"	"		
Dimethyl phthalate	ND	1.6					"	"		
Di-n-butyl phthalate	ND	1.6	"	"	"	"	"	"		
2,4-Dinitrophenol	ND	1.6	"	"	"	"	"	"		
4,6-Dinitro-2-methylphenol	l ND	1.6	"	"	"	"	"	"		
2,4-Dinitrotoluene	ND	1.6	"	"	"	"	"	"		
2,6-Dinitrotoluene	ND	1.6	"	"	"	"	"	"		
Di-n-octyl phthalate	ND	1.6	"	"	"	"	"	"		
1,2-Diphenylhydrazine	ND	1.6	"	"	"	"	"	"		
Fluoranthene	ND	1.6	"	"		"	"	"		

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

1.6

ND

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Mearns Consulting LLC 738 Ashland Avenue	Project: Project Number:	SHPI-Amerigas [none]	Reported:			
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/10/17 12:32			
Semivolatile Organic Compounds by EPA Method 8270C						

	Sierra Analytical Labs, Inc.									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB2-5 (1701037-03) Soil	Sampled: 01/03/17 10:38	Received: 01/0	3/17 16:00)					D-34	
Hexachlorobenzene	ND	1.6	mg/kg	5	B7A0331	01/04/17	01/05/17 10:5	9 EPA 8270C		
Hexachlorobutadiene	ND	1.6	"	"	"	"		"		
Hexachlorocyclopentadiene	ND	1.6	"	"	"	"		"		
Hexachloroethane	ND	1.6	"	"	"	"		"		
Indeno (1,2,3-cd) pyrene	ND	1.6	"	"	"	"		"		
Isophorone	ND	1.6	"	"	"	"		"		
2-Methylnaphthalene	ND	1.6	"	"	"	"	"	"		
2-Methylphenol	ND	1.6	"	"	"	"	"	"		
4-Methylphenol	ND	1.6	"	"	"	"	"	"		
Naphthalene	ND	1.6	"	"	"	"		"		
2-Nitroaniline	ND	1.6	"	"	"	"		"		
3-Nitroaniline	ND	1.6	"	"	"	"		"		
4-Nitroaniline	ND	1.6	"	"	"	"		"		
Nitrobenzene	ND	1.6	"	"	"	"		"		
2-Nitrophenol	ND	1.6	"	"	"	"		"		
4-Nitrophenol	ND	1.6	"	"	"	"	"	"		
N-Nitrosodimethylamine	ND	1.6	"	"	"	"	"	"		
Diphenylamine	ND	1.6	"	"	"	"	"	"		
N-Nitrosodi-n-propylamine	ND	1.6	"	"	"	"	"	"		
Pentachlorophenol	ND	1.6	"	"	"	"	"	"		
Phenanthrene	ND	1.6	"	"	"	"	"	"		
Phenol	ND	1.6	"	"	"	"		"		
Pyrene	ND	1.6	"	"	"	"		"		
1,2,4-Trichlorobenzene	ND	1.6	"	"	"	"		"		
2,4,5-Trichlorophenol	ND	1.6	"	"	"	"		"		
2,4,6-Trichlorophenol	ND	1.6	"	"	"	"	"	"		
Surrogate: 2-Fluorophenol		100 %	25-1	21	"	"	"	"		
Surrogate: Phenol-d6		76.6 %	24-1	13	"	"	"	"		
Surrogate: Nitrobenzene-d2	5	65.5 %	23-1	20	"	"	"	"		
Surrogate: 2-Fluorobiphen	yl	94.6 %	30-1	15	"	"	"	"		
Surrogate: 2,4,6-Tribromop	ohenol	106 %	19-1	22	"	"	"	"		
Surrogate: Terphenyl-d14		84.1 %	18-1	37	"	"	"	"		



Mearns Consulting LLC 738 Ashland Avenue	Project: SH Project Number: [nc	IPI-Amerigas one]	Reported:				
Santa Monica CA, 90405	Project Manager: Sus	san Mearns	01/10/17 12:32				
Semivolatile Organic Compounds by EPA Method 8270C							

Sierra Analytical Labs, Inc.									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
SB2-10 (1701037-04) Soil	Sampled: 01/03/17 10:49	Received: 01/	03/17 16:	00					
Acenaphthene	ND	0.33	mg/kg	1	B7A0331	01/04/17	01/05/17 11:39	9 EPA 8270C	
Acenaphthylene	ND	0.33	"	"	"	"	"	"	
Anthracene	ND	0.33	"	"	"	"	"	"	
Benzidine	ND	0.33	"	"	"	"		"	
Benzo (a) anthracene	ND	0.33	"		"			"	
Benzo (b) fluoranthene	ND	0.33	"		"			"	
Benzo (k) fluoranthene	ND	0.33	"	"	"	"		"	
Benzo (a) pyrene	ND	0.33	"	"	"				
Benzo (g.h.i) pervlene	ND	0.33	"	"	"				
Benzvl alcohol	ND	0.33	"		"		"	"	
Bis(2-chloroethyl)ether	ND	0.33	"		"			"	
Bis(2-chloroethoxy)methane	ND	0.33	"		"			"	
Bis(2-ethylbexyl)phthalate	ND	0.33	"		"			"	
Bis(2-chloroisopropyl)ether	ND	0.33	"		"			"	
4-Bromophenyl phenyl ether	· ND	0.33	"		"			"	
Butyl benzyl phthalate	ND	0.33	"		"		"	"	
4-Chloroaniline	ND	0.33	"		"		"	"	
2-Chlorophenol	ND	0.33	"		"		"	"	
4-Chloro-3-methylphenol	ND	0.33	"		"		"	"	
2-Chloronaphthalene	ND	0.33	"		"		"	"	
4-Chlorophenyl phenyl ether	· ND	0.33	"		"		"	"	
Chrysene	ND	0.33	"		"			"	
Dibenz (a b) anthracene	ND	0.33	"		"			"	
Dibenzofuran	ND	0.33	"		"			"	
1.3 Dichlorobanzana	ND	0.33	"		"			"	
1.2 Dichlorobanzana	ND	0.33	"		"				
1.4 Dichlorobenzene	ND	0.33	"		"				
2.2' Dichlorobanzidina	ND	0.33	"		"			"	
2.4 Dichlorophonol	ND	0.33	"		"			"	
Disthyl phthalata	ND	0.33	"		"			"	
2.4 Dimothylphonol	ND	0.33			"			"	
2,4-Dimethylphenoi	ND	0.55			"				
Dimethyl phthalate	ND	0.55			"				
2.4 Divites al such	ND	0.33							
	ND	0.33							
4,6-Dinitro-2-methylphenol	ND	0.33							
2,4-Dinitrotoluene	ND	0.33							
2,6-Dinitrotoluene	ND	0.33	"		"		"		
Di-n-octyl phthalate	ND	0.33							
1,2-Diphenylhydrazine	ND	0.33							
Fluoranthene	ND	0.33			"				
Fluorene	ND	0.33	"	"	"	"	"	"	



Mearns Consulting LLC 738 Ashland Avenue	Project: Project Number:	SHPI-Amerigas	Reported:					
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/10/17 12:32					
	Semivolatile Organic Compounds by EPA Method 8270C							
Sierra Analytical Labs, Inc.								

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB2-10 (1701037-04) Soil	Sampled: 01/03/17 10:49	Received: 01/	03/17 16:	00					
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0331	01/04/17	01/05/17 11:3	9 EPA 8270C	
Hexachlorobutadiene	ND	0.33	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"		"	
Hexachloroethane	ND	0.33	"	"	"	"		"	
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"		"	
Isophorone	ND	0.33	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.33	"	"	"	"		"	
2-Methylphenol	ND	0.33	"	"	"	"		"	
4-Methylphenol	ND	0.33	"	"	"	"		"	
Naphthalene	ND	0.33	"	"	"	"		"	
2-Nitroaniline	ND	0.33	"	"	"	"		"	
3-Nitroaniline	ND	0.33	"	"	"	"	"	"	
4-Nitroaniline	ND	0.33	"	"	"	"	"	"	
Nitrobenzene	ND	0.33	"	"	"	"	"	"	
2-Nitrophenol	ND	0.33	"	"	"	"	"	"	
4-Nitrophenol	ND	0.33	"	"	"	"		"	
N-Nitrosodimethylamine	ND	0.33	"	"	"	"		"	
Diphenylamine	ND	0.33	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.33	"	"	"	"		"	
Pentachlorophenol	ND	0.33	"	"	"	"		"	
Phenanthrene	ND	0.33	"	"	"	"		"	
Phenol	ND	0.33	"	"	"	"		"	
Pyrene	ND	0.33	"	"	"	"		"	
1,2,4-Trichlorobenzene	ND	0.33	"	"	"	"		"	
2,4,5-Trichlorophenol	ND	0.33	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.33	"	"	"	"		"	
Surrogate: 2-Fluorophenol		112 %	25-	121	"	"	"	"	
Surrogate: Phenol-d6		89.2 %	24-	113	"	"	"	"	
Surrogate: Nitrobenzene-d5		85.3 %	23-	120	"	"	"	"	
Surrogate: 2-Fluorobipheny	<i>l</i>	114 %	30-	115	"	"	"	"	
Surrogate: 2,4,6-Tribromop	henol	89.6 %	19-	122	"	"	"	"	
Surrogate: Terphenyl-d14		87.4 %	18-	137	"	"	"	"	



Mearns Consulting LLC 738 Ashland Avenue	Project: Project Number:	SHPI-Amerigas	Reported:
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/10/17 12:32

Sierra Analytical Labs. Inc.

		Sici la Al	aryticar	Lab5, 1	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB3-5 (1701037-05) Soil Sam	pled: 01/03/17 11:10 H	Received: 01/0.	3/17 16:00						D-34
Acenaphthene	ND	1.6	mg/kg	5	B7A0331	01/04/17	01/05/17 12:1	9 EPA 8270C	
Acenaphthylene	ND	1.6	"	"	"	"		"	
Anthracene	ND	1.6	"	"	"	"	"	"	
Benzidine	ND	1.6	"	"	"	"	"	"	
Benzo (a) anthracene	ND	1.6	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	1.6	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	1.6	"	"	"	"	"	"	
Benzo (a) pyrene	ND	1.6	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	1.6	"	"	"	"	"	"	
Benzyl alcohol	ND	1.6	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	1.6	"	"	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	1.6	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	1.6	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	1.6	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	1.6		"	"	"	"	"	
Butyl benzyl phthalate	ND	1.6		"	"	"	"	"	
4-Chloroaniline	ND	1.6	"	"	"	"		"	
2-Chlorophenol	ND	1.6	"	"	"	"		"	
4-Chloro-3-methylphenol	ND	1.6	"	"	"	"		"	
2-Chloronaphthalene	ND	1.6	"	"	"	"		"	
4-Chlorophenyl phenyl ether	ND	1.6	"	"	"	"		"	
Chrysene	ND	1.6		"	"	"	"	"	
Dibenz (a.h) anthracene	ND	1.6		"	"	"	"	"	
Dibenzofuran	ND	1.6		"	"	"	"	"	
1.3-Dichlorobenzene	ND	1.6		"	"	"	"	"	
1.2-Dichlorobenzene	ND	1.6		"	"	"	"	"	
1.4-Dichlorobenzene	ND	1.6		"	"	"	"	"	
3.3´-Dichlorobenzidine	ND	1.6		"	"	"	"	"	
2.4-Dichlorophenol	ND	1.6		"	"	"	"	"	
Diethyl phthalate	ND	1.6	"	"	"	"		"	
2.4-Dimethylphenol	ND	1.6	"	"	"	"		"	
Dimethyl phthalate	ND	1.6	"	"	"	"		"	
Di-n-butyl phthalate	ND	1.6		"	"	"		"	
2.4-Dinitrophenol	ND	1.6		"	"	"		"	
4 6-Dinitro-2-methylphenol	ND	1.6		"	"	"		"	
2.4-Dinitrotoluene	ND	1.6	"	"	"	"			
2.6-Dinitrotoluene	ND	1.6	"	"	"			"	
Di-n-octyl phthalate	ND	1.0	"	"	"			"	
1.2-Diphenylhydrazine	ND	1.0	"	"	"			"	
Fluoranthene	ND	1.0	"		"	"		"	
Fluorene		1.0	"	"	"			"	
I Iuorene	ND	1.0							



Mearns Consulting LLC 738 Ashland Avenue	Project: SHPI-Amerigas Project Number: [none]	Reported:
Santa Monica CA, 90405	Project Manager: Susan Mearns	01/10/17 12:32
	8270C	

Sierra Analytical Labs, Inc.									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB3-5 (1701037-05) Soil S	Sampled: 01/03/17 11:10	Received: 01/0	3/17 16:00						D-34
Hexachlorobenzene	ND	1.6	mg/kg	5	B7A0331	01/04/17	01/05/17 12:19	9 EPA 8270C	
Hexachlorobutadiene	ND	1.6	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	1.6	"	"	"	"	"	"	
Hexachloroethane	ND	1.6	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	1.6	"	"	"	"	"	"	
Isophorone	ND	1.6	"	"	"	"	"	"	
2-Methylnaphthalene	ND	1.6	"	"	"	"	"	"	
2-Methylphenol	ND	1.6	"	"	"	"	"	"	
4-Methylphenol	ND	1.6	"	"	"	"	"	"	
Naphthalene	ND	1.6	"	"	"	"	"	"	
2-Nitroaniline	ND	1.6	"	"	"	"	"	"	
3-Nitroaniline	ND	1.6	"	"	"	"	"	"	
4-Nitroaniline	ND	1.6	"	"	"	"	"	"	
Nitrobenzene	ND	1.6	"	"	"	"	"	"	
2-Nitrophenol	ND	1.6	"	"	"	"	"	"	
4-Nitrophenol	ND	1.6	"	"	"	"		"	
N-Nitrosodimethylamine	ND	1.6	"	"	"	"		"	
Diphenylamine	ND	1.6	"	"	"	"		"	
N-Nitrosodi-n-propylamine	ND	1.6	"	"	"	"		"	
Pentachlorophenol	ND	1.6	"	"	"	"	"	"	
Phenanthrene	ND	1.6	"	"	"	"		"	
Phenol	ND	1.6	"	"	"	"		"	
Pyrene	ND	1.6	"	"	"	"		"	
1,2,4-Trichlorobenzene	ND	1.6	"	"	"	"		"	
2,4,5-Trichlorophenol	ND	1.6	"	"	"	"		"	
2,4,6-Trichlorophenol	ND	1.6	"	"	"	"	"	"	
Surrogate: 2-Fluorophenol		113 %	25-12	21	"	"	"	"	
Surrogate: Phenol-d6		95.4 %	24-1	13	"	"	"	"	
Surrogate: Nitrobenzene-d5		91.6 %	23-12	20	"	"	"	"	
Surrogate: 2-Fluorobipheny	1	85.0 %	30-1	15	"	"	"	"	
Surrogate: 2,4,6-Tribromoph	henol	97.6 %	19-12	22	"	"	"	"	
Surrogate: Terphenyl-d14		112 %	18-1.	37	"	"	"	"	



Mearns Consulting LLC	Project:	SHPI-Amerigas				
738 Ashland Avenue	Project Number:	[none]	Reported:			
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/10/17 12:32			
Semivolatile Organic Compounds by EPA Method 8270C						

Sierra Analytical Labs Inc

		Sicha Al	larytical	1205,1	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB3-10 (1701037-06) Soil	Sampled: 01/03/17 11:24	Received: 01/	03/17 16:0	00					D-34
Acenaphthene	ND	1.6	mg/kg	5	B7A0331	01/04/17	01/05/17 12:59	9 EPA 8270C	
Acenaphthylene	ND	1.6	"	"	"	"	"	"	
Anthracene	ND	1.6	"	"	"	"		"	
Benzidine	ND	1.6	"	"	"	"		"	
Benzo (a) anthracene	ND	1.6	"	"	"	"		"	
Benzo (b) fluoranthene	ND	1.6	"	"	"	"		"	
Benzo (k) fluoranthene	ND	1.6	"	"	"	"		"	
Benzo (a) pyrene	ND	1.6	"	"	"	"		"	
Benzo (g,h,i) perylene	ND	1.6	"	"	"	"		"	
Benzyl alcohol	ND	1.6	"	"	"	"		"	
Bis(2-chloroethyl)ether	ND	1.6	"	"	"	"		"	
Bis(2-chloroethoxy)methane	ND	1.6	"	"	"	"		"	
Bis(2-ethylhexyl)phthalate	ND	1.6	"	"	"	"		"	
Bis(2-chloroisopropyl)ether	ND	1.6	"	"	"	"		"	
4-Bromophenyl phenyl ether	r ND	1.6	"	"	"	"		"	
Butyl benzyl phthalate	ND	1.6	"	"	"	"		"	
4-Chloroaniline	ND	1.6	"	"	"	"		"	
2-Chlorophenol	ND	1.6	"	"	"	"		"	
4-Chloro-3-methylphenol	ND	1.6	"	"	"			"	
2-Chloronaphthalene	ND	1.6	"	"	"			"	
4-Chlorophenyl phenyl ether	r ND	1.6	"	"	"	"		"	
Chrysene	ND	1.6	"	"	"	"		"	
Dibenz (a,h) anthracene	ND	1.6	"	"	"	"		"	
Dibenzofuran	ND	1.6	"	"	"	"		"	
1,3-Dichlorobenzene	ND	1.6	"	"	"	"		"	
1,2-Dichlorobenzene	ND	1.6	"	"	"	"		"	
1.4-Dichlorobenzene	ND	1.6	"	"	"	"		"	
3.3 ⁻ Dichlorobenzidine	ND	1.6	"	"	"	"		"	
2.4-Dichlorophenol	ND	1.6	"	"	"	"		"	
Diethyl phthalate	ND	1.6	"	"	"	"		"	
2.4-Dimethylphenol	ND	1.6	"	"	"	"		"	
Dimethyl phthalate	ND	1.6	"	"	"	"		"	
Di-n-butyl phthalate	ND	1.6	"	"	"	"		"	
2.4-Dinitrophenol	ND	1.6	"	"	"	"	"	"	
4.6-Dinitro-2-methylphenol	ND	1.6	"	"	"	"		"	
2.4-Dinitrotoluene	ND	1.6	"	"	"	"		"	
2.6-Dinitrotoluene	ND	1.6	"	"	"	"		"	
Di-n-octyl phthalate	ND	1.6	"	"	"			"	
1.2-Diphenylhydrazine	ND	1.0	"	"	"			"	
Fluoranthene	ND	1.0	"	"	"			"	
Fluorene	ND	1.0	"	"	"			"	
1 10010110	ND	1.0							



Mearns Consulting LLC	Project:	SHPI-Amerigas					
738 Ashland Avenue	Project Number:	[none]	Reported:				
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/10/17 12:32				
Semivolatile Organic Compounds by EPA Method 8270C							

Sierra Analytical Labs, Inc.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB3-10 (1701037-06) Soil	Sampled: 01/03/17 11:24	Received: 01/	Received: 01/03/17 16:00						D-34
Hexachlorobenzene	ND	1.6	mg/kg	5	B7A0331	01/04/17	01/05/17 12:5	9 EPA 8270C	
Hexachlorobutadiene	ND	1.6	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	1.6	"	"	"	"	"	"	
Hexachloroethane	ND	1.6	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	1.6	"	"	"	"	"	"	
Isophorone	ND	1.6	"	"	"	"	"	"	
2-Methylnaphthalene	ND	1.6	"	"	"	"	"	"	
2-Methylphenol	ND	1.6	"	"	"	"	"	"	
4-Methylphenol	ND	1.6	"	"	"	"	"	"	
Naphthalene	ND	1.6	"	"	"	"	"	"	
2-Nitroaniline	ND	1.6	"	"	"	"	"	"	
3-Nitroaniline	ND	1.6	"	"	"	"	"	"	
4-Nitroaniline	ND	1.6	"	"	"	"	"	"	
Nitrobenzene	ND	1.6	"	"	"	"	"	"	
2-Nitrophenol	ND	1.6	"	"	"	"	"	"	
4-Nitrophenol	ND	1.6	"	"	"	"	"	"	
N-Nitrosodimethylamine	ND	1.6	"	"	"	"	"	"	
Diphenylamine	ND	1.6	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	1.6	"	"	"	"	"	"	
Pentachlorophenol	ND	1.6	"	"	"	"	"	"	
Phenanthrene	ND	1.6	"	"	"	"	"	"	
Phenol	ND	1.6	"		"	"	"	"	
Pyrene	ND	1.6	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.6	"		"	"	"	"	
2,4,5-Trichlorophenol	ND	1.6	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	1.6	"	"	"	"		"	
Surrogate: 2-Fluorophenol		97.0 %	25-	121	"	"	"	"	
Surrogate: Phenol-d6		81.6 %	24-	113	"	"	"	"	
Surrogate: Nitrobenzene-d5		71.5 %	23-	120	"	"	"	"	
Surrogate: 2-Fluorobipheny	nl –	97.0 %	30-	115	"	"	"	"	
Surrogate: 2,4,6-Tribromop	henol	115 %	19-	122	"	"	"	"	
Surrogate: Terphenyl-d14		94.0 %	18-	137	"	"	"	"	



2,4-Dinitrotoluene

2,6-Dinitrotoluene

Fluoranthene

Fluorene

Di-n-octyl phthalate

1,2-Diphenylhydrazine

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Mearns Consulting LLC		Pr	oject: SH	IPI-Ameri	igas				
738 Ashland Avenue		Project Nu	mber: [no	one]	0			Reported	l :
Santa Monica CA, 90405		Project Mar	nager: Sus	san Mearns	3			01/10/17 12	2:32
	Semivolatila	Organic Co	mnoun	ds hy FI	PA Moth	od 82704	n		
	semivolatile		mpoull		а исш	0u 02/0			
		Sierra Ai	nalytica	I Labs, I	nc.				
		Reporting		D		D -			
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB4-5 (1701037-07) Soil Samp	led: 01/03/17 11:50	Received: 01/0	3/17 16:0	0					
Acenaphthene	ND	0.33	mg/kg	1	B7A0331	01/04/17	01/05/17 13:38	EPA 8270C	
Acenaphthylene	ND	0.33		"	"	"			
Anthracene	ND	0.33	"	"	"	"	"		
Benzidine	ND	0.33	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.33	"	"	"	"	"		
Benzo (b) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.33			"	"	"		
Benzo (a) pyrene	ND	0.33			"	"	"		
Benzo (g,h,i) perylene	ND	0.33	"	"	"	"	"		
Benzyl alcohol	ND	0.33		"	"	"	"		
Bis(2-chloroethyl)ether	ND	0.33		"	"	"	"		
Bis(2-chloroethoxy)methane	ND	0.33	"	"	"	"	"		
Bis(2-ethylhexyl)phthalate	ND	0.33	"	"	"	"	"		
Bis(2-chloroisopropyl)ether	ND	0.33	"	"	"	"			
4-Bromophenyl phenyl ether	ND	0.33	"	"	"	"	"		
Butyl benzyl phthalate	ND	0.33	"	"	"	"			
4-Chloroaniline	ND	0.33	"	"	"	"			
2-Chlorophenol	ND	0.33	"	"	"	"			
4-Chloro-3-methylphenol	ND	0.33	"	"	"	"			
2-Chloronaphthalene	ND	0.33		"	"	"			
4-Chlorophenyl phenyl ether	ND	0.33			"	"	"		
Chrysene	ND	0.33			"	"	"		
Dibenz (a.h) anthracene	ND	0.33			"	"	"		
Dibenzofuran	ND	0.33			"	"			
1.3-Dichlorobenzene	ND	0.33			"	"			
1.2-Dichlorobenzene	ND	0.33			"	"			
1 4-Dichlorobenzene		0.33			"	"	"		
3 3'-Dichlorobenzidine		0.33			"	"			
2 4-Dichlorophenol		0.33			"	"			
Diethyl phthalate		0.33			"				
2 4-Dimethylphenol		0.33			"	"			
Dimethyl phthalate		0.33			"	"	"		
Di-n-butyl phthalate		0.33			"	"			
2 4-Dinitrophenol		0.33			"	"			
4.6 Dinitro 2 methylaborol		0.33			"	"			
+,0-Dimuo-2-metnyipnenoi	ND	0.55							

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Mearns Consulting LLC		Pr	oject: SHP	I-Amer	igas				
738 Ashland Avenue		Project Nu	mber: [none	e]	C			Reported:	
Santa Monica CA, 90405		Project Mar	nager: Susa	n Mearn	s			01/10/17 12	2:32
	Semivolatile C	Organic Co	mpound	s by El	PA Meth	od 82700	С		
		Sierra Ar	nalytical I	Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB4-5 (1701037-07) Soil Sam	npled: 01/03/17 11:50 Re	eceived: 01/0	3/17 16:00						
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0331	01/04/17	01/05/17 13:3	8 EPA 8270C	
Hexachlorobutadiene	ND	0.33	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"	"	"	
Hexachloroethane	ND	0.33	"	"	"	"			
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"			
Isophorone	ND	0.33	"	"	"	"	"		
2-Methylnaphthalene	ND	0.33	"	"	"	"	"	"	
2-Methylphenol	ND	0.33	"	"	"	"	"	"	
4-Methylphenol	ND	0.33	"	"	"	"	"	"	
Naphthalene	ND	0.33	"	"	"	"	"	"	
2-Nitroaniline	ND	0.33	"	"	"	"	"		
3-Nitroaniline	ND	0.33	"	"	"	"	"		
4-Nitroaniline	ND	0.33	"	"	"	"	"	"	
Nitrobenzene	ND	0.33	"	"	"	"	"		
2-Nitrophenol	ND	0.33	"	"	"	"	"	"	
4-Nitrophenol	ND	0.33	"	"	"	"	"		
N-Nitrosodimethylamine	ND	0.33	"	"	"	"	"		
Diphenylamine	ND	0.33	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.33	"	"	"	"	"	"	
Pentachlorophenol	ND	0.33	"	"	"	"	"	"	
Phenanthrene	ND	0.33	"	"	"	"	"	"	
Phenol	ND	0.33	"	"	"	"	"		
Pyrene	ND	0.33	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.33	"		"	"			
2,4,5-Trichlorophenol	ND	0.33	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.33	"	"	"	"	"	"	
Surrogate: 2-Fluorophenol		102 %	25-12	21	"	"	"	"	
Surrogate: Phenol-d6		85.6 %	24-11	13	"	"	"	"	
Surrogate: Nitrobenzene-d5		80.5 %	23-12	20	"	"	"	"	
Surrogate: 2-Fluorobiphenyl		113 %	30-11	15	"	"	"	"	
Surrogate: 2,4,6-Tribromophene	ol	92.0 %	19-12	22	"	"	"	"	
Surrogate: Terphenyl-d14		95.8 %	18-13	37	"	"	"	"	



Mearns Consulting LLC	Project: S	SHPI-Amerigas					
738 Ashland Avenue	Project Number: [[none]	Reported:				
Santa Monica CA, 90405	Project Manager: S	Susan Mearns	01/10/17 12:32				
Semivolatile Organic Compounds by EPA Method 8270C							

Sierra Analytical Labs, Inc.									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
SB4-10 (1701037-08) Soil	Sampled: 01/03/17 12:03	Received: 01/	03/17 16:	00					
Acenaphthene	ND	0.33	mg/kg	1	B7A0331	01/04/17	01/05/17 14:13	8 EPA 8270C	
Acenaphthylene	ND	0.33	"	"	"	"	"	"	
Anthracene	ND	0.33	"	"	"	"	"	"	
Benzidine	ND	0.33	"	"	"	"		"	
Benzo (a) anthracene	ND	0.33	"	"	"			"	
Benzo (b) fluoranthene	ND	0.33	"	"	"	"		"	
Benzo (k) fluoranthene	ND	0.33	"	"	"		"	"	
Benzo (a) pyrene	ND	0.33	"		"			"	
Benzo (g,h,i) pervlene	ND	0.33	"		"			"	
Benzyl alcohol	ND	0.33	"		"			"	
Bis(2-chloroethyl)ether	ND	0.33	"		"			"	
Bis(2-chloroethoxy)methane	ND	0.33	"		"			"	
Bis(2-ethylbexyl)phthalate	ND	0.33	"	"	"			"	
Bis(2-chloroisopropyl)ether	ND	0.33	"		"			"	
4-Bromophenyl phenyl ether	· ND	0.33	"		"			"	
Butyl benzyl phthalate	ND	0.33	"					"	
4-Chloroaniline	ND	0.33	"					"	
2-Chlorophenol	ND	0.33	"					"	
4-Chloro-3-methylphenol	ND	0.33	"					"	
2-Chloronanhthalene	ND	0.33	"					"	
4-Chlorophenyl phenyl ether	· ND	0.33	"					"	
Chrysene	ND	0.33	"						
Dibenz (a h) anthracene	ND	0.33	"					"	
Dibenzofuran	ND	0.33	"					"	
1.3 Dichlorobanzana	ND	0.33	"					"	
1.2 Dichlorobanzana	ND	0.33	"					"	
1.4 Dichlorobenzene	ND	0.33	"					"	
2.2. Dishlarahanzidina	ND	0.55	"					"	
2.4 Dichlorophanol	ND	0.55	"					"	
2,4-Dichlorophenoi	ND	0.55	"					"	
2.4 Dimethylphenel	ND	0.55	"						
2,4-Dimethylphenol	ND	0.33	"						
Dimetnyl phinalate	ND	0.33	"						
Di-n-butyi phinalate	ND	0.33	"						
2,4-Dinitrophenol	ND	0.33							
4,6-Dinitro-2-methylphenol	ND	0.33							
2,4-Dinitrotoluene	ND	0.33							
2,6-Dinitrotoluene	ND	0.33	"	"					
D1-n-octyl phthalate	ND	0.33	"	"	"			"	
1,2-Diphenylhydrazine	ND	0.33	"	"	"			"	
Fluoranthene	ND	0.33	"	"	"	"		"	
Fluorene	ND	0.33	"	"	"	"		"	



Sierra Analytical Labs Inc							
	Semivolatile Organic Compo	ounds by EPA Method 82700					
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/10/17 12:32				
738 Ashland Avenue	Project Number:	[none]	Reported:				
Mearns Consulting LLC	Project:	SHPI-Amerigas					

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB4-10 (1701037-08) Soil	Sampled: 01/03/17 12:03	Received: 01/	Received: 01/03/17 16:00						
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0331	01/04/17	01/05/17 14:1	8 EPA 8270C	
Hexachlorobutadiene	ND	0.33	"	"	"	"		"	
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"	"	"	
Hexachloroethane	ND	0.33	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"	"	"	
Isophorone	ND	0.33	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.33	"	"	"	"	"	"	
2-Methylphenol	ND	0.33	"	"	"	"	"	"	
4-Methylphenol	ND	0.33	"	"	"	"	"	"	
Naphthalene	ND	0.33	"	"	"	"	"	"	
2-Nitroaniline	ND	0.33	"	"	"	"	"	"	
3-Nitroaniline	ND	0.33	"	"	"	"	"		
4-Nitroaniline	ND	0.33	"	"	"	"	"	"	
Nitrobenzene	ND	0.33	"	"	"	"	"		
2-Nitrophenol	ND	0.33	"	"	"	"	"		
4-Nitrophenol	ND	0.33	"	"	"	"	"		
N-Nitrosodimethylamine	ND	0.33	"	"	"	"	"		
Diphenylamine	ND	0.33	"	"	"	"	"		
N-Nitrosodi-n-propylamine	ND	0.33	"	"	"	"	"		
Pentachlorophenol	ND	0.33	"	"	"	"	"		
Phenanthrene	ND	0.33	"	"	"	"	"		
Phenol	ND	0.33	"	"	"	"	"		
Pyrene	ND	0.33	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.33	"	"	"	"	"		
2,4,5-Trichlorophenol	ND	0.33	"	"	"	"	"		
2,4,6-Trichlorophenol	ND	0.33	"	"	"		"	"	
Surrogate: 2-Fluorophenol		99.2 %	25-	121	"	"	"	"	
Surrogate: Phenol-d6		79.2 %	24-	113	"	"	"	"	
Surrogate: Nitrobenzene-d5		76.0 %	23-	120	"	"	"	"	
Surrogate: 2-Fluorobipheny	ıl	105 %	30-	115	"	"	"	"	
Surrogate: 2,4,6-Tribromop	henol	79.4 %	19-	122	"	"	"	"	
Surrogate: Terphenyl-d14		91.3 %	18-	137	"	"	"	"	



Mearns Consulting LLC	Project: SHPI-Amerigas						
738 Ashland Avenue	Project Number: [none]	Reported:					
Santa Monica CA, 90405	Project Manager: Susan Mearns	01/10/17 12:32					
Se	emivolatile Organic Compounds by EPA Method 82	270C					
Sierra Analytical Labs, Inc.							

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB5-5 (1701037-09) Soil	Sampled: 01/03/17 13:03	Received: 01/0	3/17 16:00						
Acenaphthene	ND	0.33	mg/kg	1	B7A0331	01/04/17	01/05/17 14:5	9 EPA 8270C	
Acenaphthylene	ND	0.33	"	"	"	"	"	"	
Anthracene	ND	0.33	"	"	"	"	"	"	
Benzidine	ND	0.33	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.33	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.33	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	0.33	"	"	"	"	"	"	
Benzyl alcohol	ND	0.33	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.33	"	"	"	"	"	"	
Bis(2-chloroethoxy)methan	e ND	0.33	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	0.33	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.33	"	"	"	"	"	"	
4-Bromophenyl phenyl ethe	er ND	0.33	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	0.33	"	"	"	"	"	"	
4-Chloroaniline	ND	0.33	"	"	"	"	"	"	
2-Chlorophenol	ND	0.33	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.33	"	"	"	"	"	"	
2-Chloronaphthalene	ND	0.33	"	"	"	"	"	"	
4-Chlorophenyl phenyl ethe	er ND	0.33	"	"	"	"	"	"	
Chrysene	ND	0.33	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.33	"	"	"	"	"	"	
Dibenzofuran	ND	0.33	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.33	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.33	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.33	"	"	"	"	"	"	
3,3 ⁻ Dichlorobenzidine	ND	0.33	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	0.33	"	"	"	"	"	"	
Diethyl phthalate	ND	0.33	"	"	"	"	"	"	
2,4-Dimethylphenol	ND	0.33	"	"	"	"	"	"	
Dimethyl phthalate	ND	0.33	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	0.33	"	"	"	"	"	"	
2,4-Dinitrophenol	ND	0.33	"	"	"	"	"	"	
4.6-Dinitro-2-methylphenol	ND	0.33	"	"	"	"	"	"	
2.4-Dinitrotoluene	ND	0.33	"	"	"	"	"	"	
2.6-Dinitrotoluene	ND	0.33	"	"	"	"	"	"	
Di-n-octyl phthalate	ND	0.33	"	"	"	"	"	"	
1,2-Diphenylhvdrazine	ND	0.33	"	"	"	"	"	"	
Fluoranthene	ND	0.33	"	"	"	"	"	"	
Fluorene	ND	0.33	"	"	"	"	"	"	



1,2,4-Trichlorobenzene

2,4,5-Trichlorophenol

2,4,6-Trichlorophenol

Surrogate: Phenol-d6

Surrogate: 2-Fluorophenol

Surrogate: Nitrobenzene-d5

Surrogate: 2-Fluorobiphenyl

Surrogate: Terphenyl-d14

Surrogate: 2,4,6-Tribromophenol

Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Pr Project Nu Project Mar	roject: SH mber: [no nager: Sus	IPI-Amer one] san Mearns	igas s			Reported: 01/10/17 12	::32
	Semivolatile	Organic Co	mpoun	ds by El	PA Meth	od 82700	С		
		Sierra Aı	nalytical	l Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB5-5 (1701037-09) Soil Sa	mpled: 01/03/17 13:03	Received: 01/0	3/17 16:0	0					
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0331	01/04/17	01/05/17 14:5	9 EPA 8270C	
Hexachlorobutadiene	ND	0.33	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"	"	"	
Hexachloroethane	ND	0.33	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"	"	"	
Isophorone	ND	0.33	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.33	"	"	"	"	"	"	
2-Methylphenol	ND	0.33	"	"	"	"	"	"	
4-Methylphenol	ND	0.33	"	"	"	"	"	"	
Naphthalene	ND	0.33	"	"	"	"	"	"	
2-Nitroaniline	ND	0.33	"	"	"	"	"	"	
3-Nitroaniline	ND	0.33	"	"	"	"	"	"	
4-Nitroaniline	ND	0.33	"	"	"	"	"	"	
Nitrobenzene	ND	0.33	"	"	"	"	"	"	
2-Nitrophenol	ND	0.33	"	"	"	"	"	"	
4-Nitrophenol	ND	0.33		"	"	"	"	"	
N-Nitrosodimethylamine	ND	0.33		"	"	"	"	"	
Diphenylamine	ND	0.33		"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.33		"	"	"	"	"	
Pentachlorophenol	ND	0.33		"	"	"	"	"	
Phenanthrene	ND	0.33		"	"	"	"	"	
Phenol	ND	0.33		"	"	"	"		
Pyrene	ND	0.33	"	"	"	"	"	"	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

ND

ND

ND

0.33

0.33

0.33

93.6 %

68.0 %

108 %

96.7 %

72.0 %

99.7 %

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25-121

24-113

23-120

30-115

19-122

18-137

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Mearns Consulting LLC 738 Ashland Avenue	Project: SHPI-Amerigas	Reported:						
Santa Monica CA, 90405	Project Manager: Susan Mearns	01/10/17 12:32						
Semivolatile Organic Compounds by EPA Method 8270C								

AnalyteResultLimitUnitsDilutionBatchPreparedAnalyzedMethodSB5-10 (1701037-10) SoilSampled: 01/03/17 13:20Received: 01/03/17 16:00AcenaphtheneND0.33mg/kg1B7A033101/04/1701/05/17 15:39EPA 8270CAcenaphthyleneND0.33""""""""AnthraceneND0.33""""""""Benzo (a) anthraceneND0.33""""""""Benzo (b) fluorantheneND0.33""""""""Benzo (a) pyreneND0.33"""""""""Benzo (a) pyreneND0.33""""""""Benzo (a) pyreneND0.33""""""""	Sierra Analytical Labs, Inc.										
SB5-10 (1701037-10) Soil Sampled: 01/03/17 13:20 Received: 01/03/17 16:00 Acenaphthene ND 0.33 mg/kg 1 B7A0331 01/04/17 01/05/17 15:39 EPA 8270C Acenaphthylene ND 0.33 " " " " " " " Anthracene ND 0.33 " <th>Note</th>	Note										
Acenaphthene ND 0.33 mg/kg 1 B7A0331 01/04/17 01/05/17 15:39 EPA 8270C Acenaphthylene ND 0.33 "											
Acenaphthylene ND 0.33 "											
Anthracene ND 0.33 "											
Benzidine ND 0.33 " <											
Benzo (a) anthracene ND 0.33 " <th"< th=""> " " "<td></td></th"<>											
Benzo (b) fluorantheneND0.33"" <td></td>											
Benzo (k) fluoranthene ND 0.33 " </td <td></td>											
Benzo (a) pyrene ND 0.33 "											
Renzo (g hi) pervlene ND 0.33 " " " " " "											
Benzyl alcohol ND 0.33 " " " " " "											
Bis(2-chloroethyl)ether ND 0.33 " " " " " "											
Bis(2-chloroethoxy)methane ND 0.33 " " " " " "											
Bis(2-ethylhexyl)phthalate ND 0.33 " " " " " "											
Bis(2-chloroisopropyl)ether ND 0.33 " " " " " "											
4-Bromophenyl phenyl ether ND 0.33 " " " " " "											
Butyl benzyl phthalate ND 0.33 " " " " " "											
4-Chloroaniline ND 0.33 " " " " " " "											
2-Chlorophenol ND 0.33 " " " " " " "											
4-Chloro-3-methylphenol ND 0.33 " " " " " "											
2-Chloronaphthalene ND 0.33 " " " " " "											
4-Chlorophenyl phenyl ether ND 0.33 " " " " " "											
Chrysene ND 0.33 " " " " " "											
Dibenz (a,h) anthracene ND 0.33 " " " " " "											
Dibenzofuran ND 0.33 " " " " " "											
1,3-Dichlorobenzene ND 0.33 " " " " " " "											
1,2-Dichlorobenzene ND 0.33 " " " " " " "											
1,4-Dichlorobenzene ND 0.33 " " " " " " "											
3,3'-Dichlorobenzidine ND 0.33 " " " " " " "											
2.4-Dichlorophenol ND 0.33 " " " " " " "											
Diethyl phthalate ND 0.33 " " " " " "											
2,4-Dimethylphenol ND 0.33 " " " " " "											
Dimethyl phthalate ND 0.33 " " " " " "											
Di-n-butyl phthalate ND 0.33 " " " " " "											
2,4-Dinitrophenol ND 0.33 " " " " " "											
4,6-Dinitro-2-methylphenol ND 0.33 " " " " " "											
2.4-Dinitrotoluene ND 0.33 " " " " " "											
2.6-Dinitrotoluene ND 0.33 " " " " " " "											
Di-n-octyl phthalate ND 0.33 " " " " " "											
1,2-Diphenylhydrazine ND 0.33 " " " " " "											
Fluoranthene ND 0.33 " " " " " "											
Fluorene ND 0.33 " " " " " "											



Mearns Consulting LLC 738 Ashland Avenue	Project: Project Number:	SHPI-Amerigas	Reported:					
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/10/17 12:32					
Semivolatile Organic Compounds by EPA Method 8270C								
Sierra Analytical Labs, Inc.								

				,					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB5-10 (1701037-10) Soil	Sampled: 01/03/17 13:20	Received: 01/	00						
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0331	01/04/17	01/05/17 15:3	9 EPA 8270C	
Hexachlorobutadiene	ND	0.33	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"	"	"	
Hexachloroethane	ND	0.33	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"	"	"	
Isophorone	ND	0.33	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.33	"	"	"	"	"	"	
2-Methylphenol	ND	0.33	"	"	"	"	"	"	
4-Methylphenol	ND	0.33	"	"	"	"	"	"	
Naphthalene	ND	0.33	"	"	"	"	"	"	
2-Nitroaniline	ND	0.33	"	"	"	"	"	"	
3-Nitroaniline	ND	0.33	"	"	"	"	"	"	
4-Nitroaniline	ND	0.33	"	"	"	"	"	"	
Nitrobenzene	ND	0.33	"		"	"	"		
2-Nitrophenol	ND	0.33	"	"	"	"	"	"	
4-Nitrophenol	ND	0.33	"		"	"	"		
N-Nitrosodimethylamine	ND	0.33	"		"	"	"		
Diphenylamine	ND	0.33	"		"	"	"		
N-Nitrosodi-n-propylamine	ND	0.33	"		"	"	"		
Pentachlorophenol	ND	0.33	"	"	"	"	"		
Phenanthrene	ND	0.33	"		"	"	"	"	
Phenol	ND	0.33	"		"	"	"	"	
Pyrene	ND	0.33	"		"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.33	"		"	"	"	"	
2,4,5-Trichlorophenol	ND	0.33	"		"	"	"	"	
2,4,6-Trichlorophenol	ND	0.33	"		"	"	"	"	
Surrogate: 2-Fluorophenol		90.8 %	25-	121	"	"	"	"	
Surrogate: Phenol-d6		95.2 %	24-	113	"	"	"	"	
Surrogate: Nitrobenzene-d5		75.4 %	23-	120	"	"	"	"	
Surrogate: 2-Fluorobipheny	ıl	114 %	30-	115	"	"	"	"	
Surrogate: 2,4,6-Tribromop	henol	78.4 %	19-	122	"	"	"	"	
Surrogate: Terphenyl-d14		120 %	18-	137	"	"	"	"	


Fluorene

Mearns Consulting LLC		Pr	oject: SH	PI-Ameri	igas					
738 Ashland Avenue		Project Nu	mber: [no	ne]	-			Reported:		
Santa Monica CA, 90405		Project Mar	nager: Sus	san Mearns	5			01/10/17 12	2:32	
	Semivolatile	Organic Co								
		Sierro Ar		us »j <u>—</u> LI obe I	ne	040270				
		SICITA	larytica	1 Labs, 1	iic.					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB6-5 (1701037-11) Soil Sample	ed: 01/03/17 14:20 F	Received: 01/0	3/17 16:0	0						
Acenaphthene	ND	0.33	mg/kg	1	B7A0331	01/04/17	01/05/17 16:1	9 EPA 8270C		
Acenaphthylene	ND	0.33	"		"	"	"	"		
Anthracene	ND	0.33	"		"	"		"		
Benzidine	ND	0.33	"		"	"		"		
Benzo (a) anthracene	ND	0.33	"		"	"		"		
Benzo (b) fluoranthene	ND	0.33	"		"	"	"	"		
Benzo (k) fluoranthene	ND	0.33	"		"	"	"	"		
Benzo (a) pyrene	ND	0.33	"		"	"	"			
Benzo (g h i) pervlene	ND	0.33	"		"	"	"			
Benzyl alcohol	ND	0.33	"		"	"	"			
Bis(2-chloroethyl)ether	ND	0.33	"		"	"	"			
Bis(2-chloroethoxy)methane	ND	0.33	"		"	"	"			
Bis(2-ethylbeyyl)nbthalate	ND	0.33	"		"	"	"			
Bis(2-chloroisopropyl)ether	ND	0.33	"		"			"		
A-Bromonhenyl phenyl ether	ND	0.33	"		"			"		
Rutyl bonzyl phthalate	ND	0.33	"		"					
4 Chlorospiline	ND	0.33			"					
2 Chlorophenol	ND	0.33			"					
4 Chloro 2 mathylphanol	ND	0.33			"		"			
2 Chloronorhtholono		0.33			"		"			
2-Chlorophanel aboved athen	ND	0.55								
4-Chiorophenyi phenyi ether	ND	0.33								
Chrysene	ND	0.33								
Dibenz (a,n) anthracene	ND	0.33								
	ND	0.33								
1,3-Dichlorobenzene	ND	0.33								
1,2-Dichlorobenzene	ND	0.33								
1,4-Dichlorobenzene	ND	0.33					"			
3,3 [°] -Dichlorobenzidine	ND	0.33					"			
2,4-Dichlorophenol	ND	0.33	"	"			"			
Diethyl phthalate	ND	0.33	"	"	"	"	"	"		
2,4-Dimethylphenol	ND	0.33	"	"	"	"	"	"		
Dimethyl phthalate	ND	0.33	"	"	"	"	"	"		
Di-n-butyl phthalate	ND	0.33	"	"	"	"	"	"		
2,4-Dinitrophenol	ND	0.33	"	"	"	"	"	"		
4,6-Dinitro-2-methylphenol	ND	0.33	"	"	"	"	"	"		
2,4-Dinitrotoluene	ND	0.33	"	"	"	"	"			
2,6-Dinitrotoluene	ND	0.33	"	"	"	"	"	"		
Di-n-octyl phthalate	ND	0.33	"	"	"	"	"	"		
1,2-Diphenylhydrazine	ND	0.33	"	"	"	"	"	"		
Fluoranthene	ND	0.33	"	"	"	"	"	"		

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

0.33

ND

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Mearns Consulting LLC		Project Nu	roject: SHP	I-Amer	igas			Reported	Reported:	
Santa Monica CA, 90405		Project Mar	nager: Susa	u n Mearns	5		01/10/17			
	Semivolatila ()rganic Co	mnound	s hy Fl	PA Meth	od 82700	r	01,10,171		
	Semivolathe	Sierra Ar	nalytical]	Labs, I	nc.	04 0270				
		Reporting		,						
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB6-5 (1701037-11) Soil San	npled: 01/03/17 14:20 Re	eceived: 01/0	3/17 16:00							
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0331	01/04/17	01/05/17 16:1	9 EPA 8270C		
Hexachlorobutadiene	ND	0.33	"	"	"	"		"		
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"	"	"		
Hexachloroethane	ND	0.33	"	"	"	"	"	"		
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"	"	"		
Isophorone	ND	0.33	"	"	"	"	"	"		
2-Methylnaphthalene	ND	0.33	"	"	"	"	"	"		
2-Methylphenol	ND	0.33	"	"	"	"	"	"		
4-Methylphenol	ND	0.33	"	"	"	"	"	"		
Naphthalene	ND	0.33	"	"	"	"	"	"		
2-Nitroaniline	ND	0.33	"	"	"	"	"	"		
3-Nitroaniline	ND	0.33	"	"	"	"	"	"		
4-Nitroaniline	ND	0.33	"	"	"	"	"	"		
Nitrobenzene	ND	0.33	"	"	"	"	"	"		
2-Nitrophenol	ND	0.33	"	"	"	"	"	"		
4-Nitrophenol	ND	0.33	"	"	"	"	"	"		
N-Nitrosodimethylamine	ND	0.33	"	"	"	"	"	"		
Diphenylamine	ND	0.33	"	"	"	"	"	"		
N-Nitrosodi-n-propylamine	ND	0.33	"	"	"	"	"	"		
Pentachlorophenol	ND	0.33	"	"	"	"	"	"		
Phenanthrene	ND	0.33	"	"	"	"	"	"		
Phenol	ND	0.33	"	"	"	"	"	"		
Pyrene	ND	0.33	"	"	"	"	"	"		
1,2,4-Trichlorobenzene	ND	0.33	"	"	"	"	"	"		
2,4,5-Trichlorophenol	ND	0.33	"	"	"	"	"	"		
2,4,6-Trichlorophenol	ND	0.33	"	"	"	"	"	"		
Surrogate: 2-Fluorophenol		106 %	25-12	21	"	"	"	"		
Surrogate: Phenol-d6		83.2 %	24-11	13	"	"	"	"		
Surrogate: Nitrobenzene-d5		70.0 %	23-12	20	"	"	"	"		
Surrogate: 2-Fluorobiphenyl		104 %	30-11	15	"	"	"	"		
Surrogate: 2,4,6-Tribromophen	ol	85.4 %	19-12	22	"	"	"	"		
Surrogate: Terphenyl-d14		127 %	18-13	37	"	"	"	"		



Mearns Consulting LLC	Project: Project Number:	SHPI-Amerigas	Reported.					
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/10/17 12:32					
Semivolatile Organic Compounds by EPA Method 8270C								

Sierra Analytical Labs, Inc.										
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note	
SB6-10 (1701037-12) Soil	Sampled: 01/03/17 14:31	Received: 01/	03/17 16:	00						
Acenaphthene	ND	0.33	mg/kg	1	B7A0331	01/04/17	01/05/17 17:00) EPA 8270C		
Acenaphthylene	ND	0.33	"	"	"	"	"	"		
Anthracene	ND	0.33	"	"	"	"	"	"		
Benzidine	ND	0.33	"	"	"	"	"	"		
Benzo (a) anthracene	ND	0.33	"	"	"	"	"			
Benzo (b) fluoranthene	ND	0.33	"	"	"	"	"			
Benzo (k) fluoranthene	ND	0.33	"	"	"	"	"	"		
Benzo (a) pyrene	ND	0.33	"	"	"	"	"	"		
Benzo (g,h,i) perylene	ND	0.33	"	"	"	"	"	"		
Benzyl alcohol	ND	0.33	"	"	"	"				
Bis(2-chloroethyl)ether	ND	0.33	"	"	"					
Bis(2-chloroethoxy)methane	ND	0.33	"	"	"					
Bis(2-ethylhexyl)phthalate	ND	0.33	"	"	"					
Bis(2-chloroisopropyl)ether	ND	0.33	"	"	"	"		"		
4-Bromophenyl phenyl ether	ND	0.33	"	"	"	"		"		
Butyl benzyl phthalate	ND	0.33	"	"	"		"	"		
4-Chloroaniline	ND	0.33	"	"	"		"	"		
2-Chlorophenol	ND	0.33	"	"	"		"	"		
4-Chloro-3-methylphenol	ND	0.33	"	"	"					
2-Chloronaphthalene	ND	0.33	"	"	"					
4-Chlorophenyl phenyl ethe	· ND	0.33	"	"	"					
Chrysene	ND	0.33	"		"					
Dibenz (a h) anthracene	ND	0.33	"	"	"		"			
Dibenzofuran	ND	0.33	"		"					
1 3-Dichlorobenzene	ND	0.33	"		"			"		
1.2-Dichlorobenzene	ND	0.33	"	"	"		"			
1.4-Dichlorobenzene	ND	0.33	"		"					
3 3′-Dichlorobenzidine	ND	0.33	"	"	"					
2.4-Dichlorophenol	ND	0.33	"		"					
Diethyl phthalate	ND	0.33	"		"					
2 4-Dimethylphenol	ND	0.33	"	"	"					
Dimethyl phthalate	ND	0.33	"	"	"					
Din butyl phthalate	ND	0.33	"		"					
2.4 Dipitrophenol	ND	0.33	"	"	"					
4.6 Dinitro 2 mathulahanal	ND	0.33			"					
2.4 Dinitrotoluono	ND	0.33			"					
2,4-Dimitrotoluene	ND	0.33								
2,0-Dimitrotoluene	ND	0.33								
1.2 Distance	ND	0.33								
1,2-Dipnenyinyarazine	ND	0.33								
Fluorantnene	ND	0.33								
Fluorene	ND	0.33					"	"		



Mearns Consulting LLC 738 Ashland Avenue	Project: SHF Project Number: Inon	PI-Amerigas	Reported:						
Santa Monica CA, 90405	Project Manager: Susa	in Mearns	01/10/17 12:32						
	Semivolatile Organic Compound	s by EPA Method 8270C							
Sierra Analytical Labs, Inc.									

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB6-10 (1701037-12) Soil	Sampled: 01/03/17 14:31	Received: 01/	03/17 16:	00					
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0331	01/04/17	01/05/17 17:0	0 EPA 8270C	
Hexachlorobutadiene	ND	0.33	"	"	"	"		"	
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"	"	"	
Hexachloroethane	ND	0.33	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"	"	"	
Isophorone	ND	0.33	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.33	"	"	"	"	"	"	
2-Methylphenol	ND	0.33	"	"	"	"	"	"	
4-Methylphenol	ND	0.33	"	"	"	"	"	"	
Naphthalene	ND	0.33	"	"	"	"	"	"	
2-Nitroaniline	ND	0.33	"	"	"	"	"	"	
3-Nitroaniline	ND	0.33	"	"	"	"		"	
4-Nitroaniline	ND	0.33	"	"	"	"	"	"	
Nitrobenzene	ND	0.33	"	"	"	"	"	"	
2-Nitrophenol	ND	0.33	"	"	"	"	"	"	
4-Nitrophenol	ND	0.33	"	"	"				
N-Nitrosodimethylamine	ND	0.33	"	"	"	"		"	
Diphenylamine	ND	0.33	"	"	"	"		"	
N-Nitrosodi-n-propylamine	ND	0.33	"	"	"	"		"	
Pentachlorophenol	ND	0.33	"	"	"	"	"	"	
Phenanthrene	ND	0.33	"	"	"	"	"	"	
Phenol	ND	0.33	"	"	"	"		"	
Pyrene	ND	0.33	"	"	"	"		"	
1,2,4-Trichlorobenzene	ND	0.33	"	"	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.33	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.33	"	"	"	"	"	"	
Surrogate: 2-Fluorophenol		102 %	25-	121	"	"	"	"	
Surrogate: Phenol-d6		110 %	24	113	"	"	"	"	
Surrogate: Nitrobenzene-d5		105 %	23-	120	"	"	"	"	
Surrogate: 2-Fluorobipheny	d	106 %	30-	115	"	"	"	"	
Surrogate: 2,4,6-Tribromop	henol	88.2 %	19-	122	"	"	"	"	
Surrogate: Terphenyl-d14		122 %	18-	137	"	"	"	"	



Fluorene

Mearns Consulting LLC Project: SHPI-Amerigas									
738 Ashland Avenue		Project Nu	mber: [no	ne]	C			Reported:	
Santa Monica CA, 90405		Project Mar	nager: Sus	an Mearns	5			01/10/17 12:32	
	Semivolatil	Semivolatile Organic Compounds by EPA Method 8270C							
		Sionno A	nolyticol	Loba I	no	040270	~		
		Sierra Al	larytical	Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB7-5 (1701037-13) Soil Sampl	led: 01/03/17 14:50	Received: 01/0	3/17 16:0	0					
Acenaphthene	ND	0.33	mø/kø	1	B7A0331	01/04/17	01/05/17 17:4	0 EPA 8270C	
Acenaphthylene	ND	0.33	"		"	"	"	"	
Anthracene	ND	0.33	"	"	"	"		"	
Benzidine	ND	0.33	"		"	"		"	
Benzo (a) anthracene	ND	0.33			"	"		"	
Benzo (b) fluoranthene	ND	0.33			"	"	"	"	
Benzo (k) fluoranthene	ND	0.33			"	"			
Benzo (a) pyrana	ND	0.33			"				
Benzo (a) pyrene Benzo (a h i) porulano		0.33						"	
Benzul alashal		0.33							
Beil2y1 alcohol Big(2, chloresthyl)sther		0.33							
	ND	0.33							
Bis(2-chloroetnoxy)methane	ND	0.33							
Bis(2-ethylhexyl)phthalate	ND	0.33							
Bis(2-chloroisopropyl)ether	ND	0.33							
4-Bromophenyl phenyl ether	ND	0.33							
Butyl benzyl phthalate	ND	0.33	"	"	"	"	"	"	
4-Chloroaniline	ND	0.33	"	"	"	"	"	"	
2-Chlorophenol	ND	0.33	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.33	"	"	"	"	"	"	
2-Chloronaphthalene	ND	0.33	"	"	"	"		"	
4-Chlorophenyl phenyl ether	ND	0.33	"	"	"	"	"	"	
Chrysene	ND	0.33	"		"	"	"	"	
Dibenz (a,h) anthracene	ND	0.33	"	"	"	"		"	
Dibenzofuran	ND	0.33	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.33	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.33	"		"	"	"	"	
1,4-Dichlorobenzene	ND	0.33	"		"	"	"	"	
3,3'-Dichlorobenzidine	ND	0.33	"	"	"	"		"	
2,4-Dichlorophenol	ND	0.33	"		"	"	"	"	
Diethyl phthalate	ND	0.33	"		"	"	"	"	
2.4-Dimethylphenol	ND	0.33	"		"	"	"	"	
Dimethyl phthalate	ND	0.33	"		"	"		"	
Di-n-butyl phthalate	ND	0.33	"		"	"		"	
2.4-Dinitrophenol	ND	0.33	"	"	"	"		"	
4 6-Dinitro-2-methylphenol		0.33			"	"		"	
2 4-Dinitrotoluene		0.33			"	"		"	
2,4 Dinitrotoluene		0.33			"	"			
Di_n_octvl nhthalata		0.33			"	"		"	
1.2 Diphonylbydrozino		0.33			"	"		"	
Fluoranthana		0.33			"	"		"	
1 noralithene	ND	0.55							

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

0.33

ND

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Mearns Consulting LLC		Project Nu	oject: SHP	PI-Amer	igas			Reported	
Santa Monica CA, 90405		Project Mar	nager: Susa	n Mearns	8			01/10/17 12	2:32
,	Semivolatile	Organic Co	mpound	s by El	PA Meth	od 82700	С		
		Sierra Ar	nalytical 1	Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB7-5 (1701037-13) Soil Sai	mpled: 01/03/17 14:50 R	Received: 01/0	3/17 16:00						
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0331	01/04/17	01/05/17 17:4	0 EPA 8270C	
Hexachlorobutadiene	ND	0.33	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"	"	"	
Hexachloroethane	ND	0.33	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"	"	"	
Isophorone	ND	0.33	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.33	"	"	"	"	"	"	
2-Methylphenol	ND	0.33	"	"	"	"	"	"	
4-Methylphenol	ND	0.33	"	"	"	"	"	"	
Naphthalene	ND	0.33	"	"	"	"	"	"	
2-Nitroaniline	ND	0.33	"	"	"	"	"	"	
3-Nitroaniline	ND	0.33	"	"	"	"	"	"	
4-Nitroaniline	ND	0.33	"	"	"	"	"	"	
Nitrobenzene	ND	0.33	"	"	"	"	"	"	
2-Nitrophenol	ND	0.33	"	"	"	"	"	"	
4-Nitrophenol	ND	0.33	"	"	"	"	"	"	
N-Nitrosodimethylamine	ND	0.33	"	"	"	"	"	"	
Diphenylamine	ND	0.33	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.33	"	"	"	"	"	"	
Pentachlorophenol	ND	0.33	"	"	"	"	"	"	
Phenanthrene	ND	0.33	"	"	"	"	"	"	
Phenol	ND	0.33	"	"	"	"	"	"	
Pyrene	ND	0.33	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.33	"	"	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.33	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.33	"	"	"	"	"	"	
Surrogate: 2-Fluorophenol		98.0 %	25-12	21	"	"	"	"	
Surrogate: Phenol-d6		79.6 %	24-1	13	"	"	"	"	
Surrogate: Nitrobenzene-d5		64.0 %	23-12	20	"	"	"	"	
Surrogate: 2-Fluorobiphenyl		96.7 %	30-1	15	"	"	"	"	
Surrogate: 2,4,6-Tribromopher	nol	85.4 %	19-12	22	"	"	"	"	
Surrogate: Terphenyl-d14		99.1 %	18-1.	37	"	"	"	"	



Mearns Consulting LLC 738 Ashland Avenue	Project: SHPI-An Project Number: [none]	ierigas Reported:							
Santa Monica CA, 90405	Project Manager: Susan Mea	arns 01/10/17 12:32							
	Semivolatile Organic Compounds by	EPA Method 8270C							
Sierra Analytical Labs, Inc.									

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB7-10 (1701037-14) Soil	Sampled: 01/03/17 14:58	Received: 01/	/03/17 16:	00					
Acenaphthene	ND	0.33	mg/kg	1	B7A0331	01/04/17	01/05/17 18:2	0 EPA 8270C	
Acenaphthylene	ND	0.33	"	"	"	"	"	"	
Anthracene	ND	0.33	"	"	"	"	"	"	
Benzidine	ND	0.33	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.33	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.33	"		"	"	"	"	
Benzo (g,h,i) perylene	ND	0.33	"		"	"	"	"	
Benzyl alcohol	ND	0.33	"		"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.33	"		"	"	"	"	
Bis(2-chloroethoxy)methane	ND	0.33	"		"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	0.33	"		"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.33	"		"	"	"	"	
4-Bromophenyl phenyl ether	r ND	0.33	"		"	"	"	"	
Butyl benzyl phthalate	ND	0.33	"	"	"	"	"	"	
4-Chloroaniline	ND	0.33	"	"	"	"	"	"	
2-Chlorophenol	ND	0.33	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.33	"	"	"	"	"	"	
2-Chloronaphthalene	ND	0.33	"		"	"	"	"	
4-Chlorophenyl phenyl ether	r ND	0.33	"		"	"	"	"	
Chrysene	ND	0.33			"	"	"	"	
Dibenz (a,h) anthracene	ND	0.33			"	"	"	"	
Dibenzofuran	ND	0.33			"	"	"	"	
1.3-Dichlorobenzene	ND	0.33			"	"	"	"	
1.2-Dichlorobenzene	ND	0.33	"		"	"	"	"	
1.4-Dichlorobenzene	ND	0.33			"	"	"	"	
3.3'-Dichlorobenzidine	ND	0.33	"		"	"	"	"	
2.4-Dichlorophenol	ND	0.33	"		"	"	"	"	
Diethyl phthalate	ND	0.33	"		"	"	"	"	
2.4-Dimethylphenol	ND	0.33			"	"	"	"	
Dimethyl phthalate	ND	0.33			"	"	"	"	
Di-n-butyl phthalate	ND	0.33	"		"	"	"	"	
2.4-Dinitrophenol	ND	0.33			"	"	"	"	
4.6-Dinitro-2-methylphenol	ND	0.33	"		"	"	"	"	
2.4-Dinitrotoluene	ND	0.33			"	"	"	"	
2.6-Dinitrotoluene	ND	0.33			"	"			
Di-n-octyl phthalate	ND	0.33			"	"			
1.2-Diphenylhydrazine	ND	0.33			"	"			
Fluoranthene	ND	0.33			"	"			
Fluorene	ND	0.33			"	"	"	"	
		'							



Mearns Consulting LLC	Project: SHPI-Amerigas								
738 Ashland Avenue	Project Number: [none]	Reported:							
Santa Monica CA, 90405	Project Manager: Susan Mearns	01/10/17 12:32							
Semivolatile Organic Compounds by EPA Method 8270C									
Sierra Analytical Labs, Inc.									

Analyte	Decult	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Anaryte	Kesuit	Lillill	Units	Dilution	Datell	riepaieu	Anaryzeu	Method	notes
SB7-10 (1701037-14) Soil	Sampled: 01/03/17 14:58	Received: 01/	03/17 16:0)0					
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0331	01/04/17	01/05/17 18:20) EPA 8270C	
Hexachlorobutadiene	ND	0.33	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"	"	"	
Hexachloroethane	ND	0.33	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"	"	"	
Isophorone	ND	0.33	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.33	"	"	"	"	"	"	
2-Methylphenol	ND	0.33	"	"	"	"	"	"	
4-Methylphenol	ND	0.33	"	"	"	"	"	"	
Naphthalene	ND	0.33	"	"	"	"	"	"	
2-Nitroaniline	ND	0.33	"	"	"	"	"	"	
3-Nitroaniline	ND	0.33	"	"	"	"	"	"	
4-Nitroaniline	ND	0.33	"	"	"	"	"	"	
Nitrobenzene	ND	0.33	"	"	"	"	"	"	
2-Nitrophenol	ND	0.33	"	"	"	"	"	"	
4-Nitrophenol	ND	0.33	"	"	"	"	"	"	
N-Nitrosodimethylamine	ND	0.33	"	"	"	"	"	"	
Diphenylamine	ND	0.33	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.33	"	"	"	"	"	"	
Pentachlorophenol	ND	0.33	"	"	"	"	"	"	
Phenanthrene	ND	0.33	"	"	"	"	"	"	
Phenol	ND	0.33	"	"	"	"	"	"	
Pyrene	ND	0.33	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.33	"	"	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.33	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.33	"			"	"	"	
Surrogate: 2-Fluorophenol		98.2 %	25-1	121	"	"	"	"	
Surrogate: Phenol-d6		85.6 %	24-1	113	"	"	"	"	
Surrogate: Nitrobenzene-d5		70.3 %	23-1	120	"	"	"	"	
Surrogate: 2-Fluorobipheny	l	104 %	30-1	115	"	"	"	"	
Surrogate: 2,4,6-Tribromop	henol	93.6 %	19-1	122	"	"	"	"	
Surrogate: Terphenyl-d14		114 %	18-1	137	"	"	"	"	



Cadmium

Chromium

Molybdenum

Cobalt

Copper

Lead

Nickel

Silver

Zinc

Selenium

Thallium

Vanadium

Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Project Nu Project Ma	roject: SH mber: [no nager: Su	IPI-Ameri one] san Mearns	igas				Reporte 01/10/17	ed: 12:32
	Metals by EP	A 6000/700 Sierra Ai	0 Series nalytica	Methods I Labs. I	- Quality	y Contro	1			
Analyte	Result	Reporting	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7A0460 - EPA 3050B										
Blank (B7A0460-BLK1)				Prepared:	01/04/17	Analyzed	1: 01/05/17			
Antimony	ND	2.5	mg/kg							
Arsenic	ND	3.5	"							
Barium	ND	6.5	"							
Beryllium	ND	0.50	"							
Cadmium	ND	0.50								
Chromium	ND	3.0								
Cobalt	ND	2.5	"							
Copper	ND	2.0								
Lead	ND	3.0								
Molybdenum	ND	1.0	"							
Nickel	ND	4.0	"							
Selenium	ND	6.0	"							
Silver	ND	1.0	"							
Fhallium	ND	2.5	"							
Vanadium	ND	6.0	"							
Zinc	ND	10	"							
LCS (B7A0460-BS1)				Prepared:	01/04/17	Analyzed	l: 01/05/17			
Antimony	108	2.5	mg/kg	100		108	75-125			
Arsenic	99.7	3.5		100		99.7	78-122			
3arium	105	6.5		100		105	80-120			
Beryllium	102	0.50	"	100		102	80-120			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

107

104

109

107

103

102

108

102

77.7

104

102

99.3

0.50

3.0

2.5

2.0

3.0

1.0

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107

104

109

107

103

102

108

102

77.7

104

102

99.3

80-120

80-120

80-120

78-122

80-120

80-120

80-120 76-124

60-140

80-120

80-120

80-120



Mearns Consulting LLC 738 Ashland Avenue	Project: Project Number:	SHPI-Amerigas [none]	Reported:				
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/10/17 12:32				
Metals by EPA 6000/7000 Series Methods - Quality Control							
Sierra Analytical Labs, Inc.							

[Reporting		Snike	Source		%RFC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B7A0460 - EPA 3050B										
LCS Dup (B7A0460-BSD1)				Prepared:	01/04/17	Analyzed	1: 01/05/17			
Antimony	106	2.5	mg/kg	100		106	75-125	1.87	20	
Arsenic	101	3.5	"	100		101	78-122	1.30	20	
Barium	103	6.5	"	100		103	80-120	1.92	20	
Beryllium	103	0.50	"	100		103	80-120	0.976	20	
Cadmium	106	0.50	"	100		106	80-120	0.939	20	
Chromium	103	3.0	"	100		103	80-120	0.966	20	
Cobalt	108	2.5	"	100		108	80-120	0.922	20	
Copper	110	2.0	"	100		110	78-122	2.76	20	
Lead	104	3.0	"	100		104	80-120	0.966	20	
Molybdenum	101	1.0	"	100		101	80-120	0.985	20	
Nickel	107	4.0	"	100		107	80-120	0.930	20	
Selenium	101	6.0	"	100		101	76-124	0.985	20	
Silver	76.2	1.0	"	100		76.2	60-140	1.95	40	
Thallium	102	2.5	"	100		102	80-120	1.94	20	
Vanadium	101	6.0	"	100		101	80-120	0.985	20	
Zinc	98.6	10	"	100		98.6	80-120	0.707	20	
Matrix Spike (B7A0460-MS1)	Sou	ırce: 170103	7-01	Prepared:	01/04/17	Analyzed	1: 01/05/17			
Antimony	85.8	2.3	mg/kg	90.4	1.2	93.6	60-140			
Arsenic	88.4	3.2	"	90.4	3.7	93.7	70-130			
Barium	251	5.9	"	90.4	110	156	70-130			QM-07
Beryllium	86.4	0.45	"	90.4	0.32	95.2	70-130			
Cadmium	87.6	0.45	"	90.4	0.075	96.8	70-130			
Chromium	112	2.7	"	90.4	28	92.9	70-130			
Cobalt	99.5	2.3	"	90.4	8.6	101	70-130			
Copper	124	1.8	"	90.4	37	96.2	70-130			
Lead	116	2.7	"	90.4	45	78.5	70-130			
Molybdenum	88.0	0.90	"	90.4	0.65	96.6	70-130			
Nickel	115	3.6	"	90.4	13	113	70-130			
Selenium	87.3	5.4	"	90.4	ND	96.6	70-130			
Silver	90.1	0.90	"	90.4	ND	99.7	60-140			
Thallium	84.0	2.3	"	90.4	1.6	91.2	70-130			
Vanadium	127	5.4	"	90.4	36	101	70-130			
Zinc	167	9.0	"	90.4	93	81.9	70-130			



Mearns Consulting LLC	Project: SHPI-Amerigas	
738 Ashland Avenue	Project Number: [none]	Reported:
Santa Monica CA, 90405	Project Manager: Susan Mearns	01/10/17 12:32
		4 1

Metals by EPA 6000/7000 Series Methods - Quality Control

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B7A0460 - EPA 3050B										
Matrix Spike Dup (B7A0460-MSD1)	Sou	rce: 170103	7-01	Prepared:	01/04/17	Analyzed	1: 01/05/17			
Antimony	85.8	2.3	mg/kg	90.5	1.2	93.5	60-140	0.00	20	
Arsenic	88.8	3.2	"	90.5	3.7	94.0	70-130	0.451	20	
Barium	251	5.9	"	90.5	110	156	70-130	0.00	20	QM-07
Beryllium	86.6	0.45	"	90.5	0.32	95.3	70-130	0.231	20	
Cadmium	87.7	0.45	"	90.5	0.075	96.8	70-130	0.114	20	
Chromium	113	2.7	"	90.5	28	93.9	70-130	0.889	20	
Cobalt	99.7	2.3	"	90.5	8.6	101	70-130	0.201	20	
Copper	127	1.8	"	90.5	37	99.4	70-130	2.39	30	
Lead	116	2.7	"	90.5	45	78.5	70-130	0.00	30	
Molybdenum	88.6	0.90	"	90.5	0.65	97.2	70-130	0.680	20	
Nickel	100	3.6	"	90.5	13	96.1	70-130	14.0	20	
Selenium	86.3	5.4	"	90.5	ND	95.4	70-130	1.15	20	
Silver	83.6	0.90	"	90.5	ND	92.4	60-140	7.48	40	
Thallium	83.7	2.3	"	90.5	1.6	90.7	70-130	0.358	20	
Vanadium	127	5.4	"	90.5	36	101	70-130	0.00	20	
Zinc	165	9.0	"	90.5	93	79.6	70-130	1.20	20	

Batch B7A0461 - EPA 3050B

Blank (B7A0461-BLK1)				Prepared: 01/04/17 Analyzed: 01/05/17
Antimony	ND	2.5	mg/kg	
Arsenic	ND	3.5	"	
Barium	ND	6.5	"	
Beryllium	ND	0.50	"	
Cadmium	ND	0.50	"	
Chromium	ND	3.0	"	
Cobalt	ND	2.5	"	
Copper	ND	2.0	"	
Lead	ND	3.0	"	
Molybdenum	ND	1.0	"	
Nickel	ND	4.0	"	
Selenium	ND	6.0	"	
Silver	ND	1.0	"	
Thallium	ND	2.5	"	
Vanadium	ND	6.0	"	
Zinc	ND	10	"	



	Metals by EPA 6000/7000 Ser	ies Methods - Quality Control	
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/10/17 12:32
738 Ashland Avenue	Project Number:	[none]	Reported:
Mearns Consulting LLC	Project:	SHPI-Amerigas	

Sierra Analytical Labs, Inc.

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B7A0461 - EPA 3050B										
LCS (B7A0461-BS1)				Prepared:	01/04/17	Analyzed	: 01/05/17			
Antimony	109	2.5	mg/kg	100		109	75-125			
Arsenic	101	3.5	"	100		101	78-122			
Barium	103	6.5	"	100		103	80-120			
Beryllium	101	0.50	"	100		101	80-120			
Cadmium	105	0.50	"	100		105	80-120			
Chromium	102	3.0	"	100		102	80-120			
Cobalt	107	2.5	"	100		107	80-120			
Copper	106	2.0	"	100		106	78-122			
Lead	103	3.0	"	100		103	80-120			
Molybdenum	101	1.0	"	100		101	80-120			
Nickel	106	4.0	"	100		106	80-120			
Selenium	102	6.0	"	100		102	76-124			
Silver	102	1.0	"	100		102	60-140			
Thallium	102	2.5	"	100		102	80-120			
Vanadium	102	6.0	"	100		102	80-120			
Zinc	111	10	"	100		111	80-120			
LCS Dup (B7A0461-BSD1)				Prepared:	01/04/17	Analyzed	: 01/05/17			
Antimony	109	2.5	mg/kg	100		109	75-125	0.00	20	
Arsenic	102	3.5	"	100		102	78-122	0.985	20	
Barium	102	6.5	"	100		102	80-120	0.976	20	
Beryllium	99.2	0.50	"	100		99.2	80-120	1.80	20	
Cadmium	104	0.50	"	100		104	80-120	0.957	20	
Chromium	101	3.0	"	100		101	80-120	0.985	20	
Cobalt	106	2.5	"	100		106	80-120	0.939	20	
Copper	107	2.0	"	100		107	78-122	0.939	20	
Lead	102	3.0	"	100		102	80-120	0.976	20	
Molybdenum	102	1.0	"	100		102	80-120	0.985	20	
Nickel	107	4.0	"	100		107	80-120	0.939	20	
Selenium	103	6.0	"	100		103	76-124	0.976	20	
Silver	109	1.0	"	100		109	60-140	6.64	40	
Thallium	103	2.5	"	100		103	80-120	0.976	20	
Vanadium	101	6.0	"	100		101	80-120	0.985	20	
Zinc	110	10	"	100		110	80-120	0.905	20	



Mearns Consulting LLC	Project:	SHPI-Amerigas	
738 Ashland Avenue	Project Number:	[none]	Reported:
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/10/17 12:32
	Matala ha EDA (000/7000 Sam	ion Mothe da Oraclitar Control	

Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte Result Linnit Units Lavel Result WRFC Linnits RPD Linnit Notes Batch B7A0461 - EPA 3050B			Reporting		Spike	Source		%REC		RPD	
Barter SPA061-NES1 Peraret: 01/01/1 Norme: 1/02/17 Amimony 957 2.3 mg/k 959 0.90 9.88 60-140 Assaic 95.4 3.5 " 95.9 0.90 98.8 60-140 Assaic 95.4 0.50 " 95.9 0.70 91.8 70-130 Barium 107 0.50 " 95.9 1.4 94.9 70-130 Chomium 93.0 0.50 " 95.9 1.4 94.9 70-130 Chomium 102 2.5 " 95.9 1.4 94.9 70-130 Cadmium 95.8 1.0 " 95.9 1.4 94.9 70-130 Lead 95.0 3.0 " 95.9 1.4 94.9 70-130 Sterium 95.8 1.0 " 95.9 1.0 96.3 97.0 70-130 Sterium 95.8 1.0 " 95.	Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Antiro Spike (87.0461-MS1)Source: 17013-7:Parare: 01/04/17Autivent: 01/07/1Antinony9572.5m260.990.9860-14Asenici9543.5"9590.9791.870-130Barium1670.50"9590.07497.970-130Beryllium93.00.50"95.90.07497.970-130Chronium1073.0"95.91.497.070-130Chobalt1022.5"95.93.495.570-130Cobalt0.0395.03.0"95.970-130-Cobalt1084.0"95.9ND90.070-130Lead95.03.0"95.9ND90.070-130Steinium95.11.0"95.9ND10.070-130Steinium96.16.0"95.9ND10.070-130Steinium96.16.0"95.9ND10.070-130Steinium96.16.0"95.9ND10.070-130Steinium96.16.0"95.9ND10.070-130Steinium96.16.0"95.9ND10.070-130Steinium96.16.0"95.9ND90.070.130Steinium95.77.095.9ND90.010.020Steiniu	Batch B7A0461 - EPA 3050B										
Animony9572.5m/k95.90.7998.80-14Arsenic95.43.695.995.998.108.107.1010.10Barium1676.595.9ND97.097.070.1010.10Barium94.00.501"95.9ND97.097.070.1010.10Cohmium1073.00.501.497.070.101.470.070.101.4Cobat1022.51"95.91.494.070.101.41.41.4Cobat1022.51"95.91.494.070.101.4 <td>Matrix Spike (B7A0461-MS1)</td> <td>Sou</td> <td>rce: 170103</td> <td>7-11</td> <td>Prepared:</td> <td>01/04/17</td> <td>Analyzed</td> <td>: 01/05/17</td> <td></td> <td></td> <td></td>	Matrix Spike (B7A0461-MS1)	Sou	rce: 170103	7-11	Prepared:	01/04/17	Analyzed	: 01/05/17			
Aseanic95.43.5"95.91.398.191.870-130Barium1676.595.997.091.870-1307Cadmium93.00.50"95.9ND97.070-1307Chonium1073.0"95.91.497.070-1307Cobalt1022.5"95.91.494.970-1307Copper1052.0"95.91.494.970-1307Lead95.03.0"95.9ND99.070-1307Nickel1084.0"95.9ND90.070-1307Nickel1084.0"95.9ND10070-1307Staver98.71.0"95.9ND10070-1307Thallium89.52.5"95.9ND10070-1307Yanadium1116.0"95.91.591.870-1307Zinc98.71.0"95.91.591.870-1307Aritinony95.32.5"95.91.591.870-1301.5Aritinony95.71.595.71.691.491.920Commin1046.5"95.77.988.870-1300.0020Commin1022.5"95.77.088.8 <td< td=""><td>Antimony</td><td>95.7</td><td>2.5</td><td>mg/kg</td><td>95.9</td><td>0.99</td><td>98.8</td><td>60-140</td><td></td><td></td><td></td></td<>	Antimony	95.7	2.5	mg/kg	95.9	0.99	98.8	60-140			
Barium1676.5"95.97991.870-130Beryllium94.00.50"95.9ND97.070-130Cadmium1073.0"95.91.497.070-130Cobalt1022.5"95.91.497.070-130Copper1052.0"95.91.497.070-130Lead95.03.0"95.91.497.070-130Silver95.81.0"95.9ND99.970-130Silver95.81.0"95.9ND70-130Silver95.71.0"95.9ND70-130Silver95.71.0"95.9ND70-130Thallium95.71.0"95.9ND70-130Vanadium116.0"95.9ND10.30-140Thallium95.52.5ND91.870-1301.5Silver95.71.0"95.791.870-1301.5Arenso95.71.0"95.791.870-1301.6Silver95.795.791.870-1301.820Silver95.795.791.870-1301.820Cobalt0.07.595.795.791.870-1301.820Silver95.795.795.794.870-1301.8 <td< td=""><td>Arsenic</td><td>95.4</td><td>3.5</td><td>"</td><td>95.9</td><td>1.3</td><td>98.1</td><td>70-130</td><td></td><td></td><td></td></td<>	Arsenic	95.4	3.5	"	95.9	1.3	98.1	70-130			
Beryllium94.00.50"95.90.7497.970-130Cadmium93.00.50"95.91497.070-130Chomium1022.5"95.96.397.870-130Cobalt1022.5"95.96.497.970-130Cobalt1052.0"95.98.1097.970-130Lead95.0105"95.91097.970-130Nickel1084.0"95.91097.970-130Silver95.71.095.91.070-1301.0Silver95.71.095.91.091.360-14Thillium95.72.5ND10.360-14Yanadum1116.0"95.91.591.870-130Attimony95.71.0"95.71.391.420Attimony95.71.595.71.398.470-1301.020Attimony95.71.595.71.398.470-1301.8120Beryllium1046.5"95.77.988.870-1301.8120Cohant1022.5"95.77.484.970-1300.0520Beryllium1046.5"95.77.484.970-1300.5320Cohant1022.5"95.77.4 </td <td>Barium</td> <td>167</td> <td>6.5</td> <td>"</td> <td>95.9</td> <td>79</td> <td>91.8</td> <td>70-130</td> <td></td> <td></td> <td></td>	Barium	167	6.5	"	95.9	79	91.8	70-130			
Cadmium93.00.50"95.9ND97.070-130Chronium1073.095.96.397.070-130Cobalt1022.5"95.96.497.070-130Copper1052.0"95.91.494.970-130Laad95.03.0"95.91.495.970-130Nickel1084.0"95.91.210070-130Selenium96.16.0"95.91.070-130Silver98.71.0"95.91.010360-140Thallium89.52.6"95.91.570-130Vanadium1116.0"95.91.570-130Zine98.71.0"95.92.670-130Aumony98.52.5mg/kg95.70.870-1300.01Asenic95.73.6"95.77.988.870-1300.02Barlum1646.5"95.77.988.870-1300.0220Cohnium203.0"95.77.88.070-1300.5020Barlum1646.5"95.77.988.870-1300.5020Cohnium1003.0"95.77.88.070-1300.5020Cohnium1042.0"95.77.88.8 <td>Beryllium</td> <td>94.0</td> <td>0.50</td> <td>"</td> <td>95.9</td> <td>0.074</td> <td>97.9</td> <td>70-130</td> <td></td> <td></td> <td></td>	Beryllium	94.0	0.50	"	95.9	0.074	97.9	70-130			
Chromium1073.0"95.91.497.070-130Cobalt1022.5"95.96.399.870-130Copper1052.0"95.91.494.970-130Laad95.03.495.570-13070-130Molybdenum95.81.0"95.9ND99.970-130Nickel1084.0"95.9ND10070-130Selenium96.71.095.9ND10360-140Silver98.71.0"95.91.591.870-130Thallum89.52.5"95.91.591.870-130Yanadium1116.0"95.92.193.870-130ZincSource:Torree:Preparet:VI-7Analyze:VI-5/1Antimony95.32.5mg/kg95.70.7988.870-1300.105Asenic95.53.5"95.70.7988.870-1300.10520Chromium1646.5"95.77.088.870-1300.10520Cobalt1022.50.50"95.77.088.870-1300.5320Chromium1646.5"95.71.489.970-1300.573030Cobalt1022.50.50"95.71.489.970-1300.57	Cadmium	93.0	0.50	"	95.9	ND	97.0	70-130			
Cobalt1022.5"95.96.399.870-130Copper1052.095.91.494.970-130Molybdenum95.83.0"95.93.099.970-130Nickel1084.0"95.91210070-130Selenium96.16.0"95.9ND10360-140Thallium89.52.5"95.9ND10360-140Tallium89.52.5"95.91.591.870-130Yanadium1116.0"95.91.591.870-130Tallium89.52.5"95.92.670.370-130Yanadium1116.0"95.92.670.370-130Yanadium1646.5"95.70.670-13020Antimory95.70.7595.71.398.470-1301.820Barium1646.5"95.77.98.870-1301.820Cobalt20.2.5"95.71.48.970-1301.620Cobalt1022.5.5"95.71.48.970-1301.620Cobalt1022.5.5"95.71.48.970-1300.020Cobalt1022.5.5.95.71.48.970-1300.020 </td <td>Chromium</td> <td>107</td> <td>3.0</td> <td>"</td> <td>95.9</td> <td>14</td> <td>97.0</td> <td>70-130</td> <td></td> <td></td> <td></td>	Chromium	107	3.0	"	95.9	14	97.0	70-130			
Copper1052.0"95.91.494.970-130Lad95.03.095.99.509.570-13070-130Molybdenum95.81.095.99.50ND90.970-130Nickel1084.095.99.50ND10070-130Selenium96.16.0"95.9ND10070-130Shver98.71.0"95.9ND10070-130Yanadium1116.0"95.91.591.870-130Yanadium98.51.0"95.92.675.070-130Zinc98.51.0"95.92.675.070-130Matrix Spike Due (B7A0461-MSD1)Source: trutter95.79.579.579.579.656.1404.19Arsenic95.53.5"95.71.39.6470-1301.3020Baritum1646.5"95.77.139.631.301.3020Cadmium1003.0"95.71.419.647.130.6720Cobalt1003.0"95.71.49.647.130.6720Cobalt1042.0"95.71.49.647.130.6720Cobalt1042.0"95.71.49.647.130.6720Cobalt1042.0"<	Cobalt	102	2.5	"	95.9	6.3	99.8	70-130			
Lead95.03.0"95.93.495.570-130Molybenum95.81.0"95.9ND99.970-130Nickel1084.0"95.91.21.0070-130Selenium96.16.0"95.91.591.860-140Thallium89.52.5"95.91.591.870-130Vanadium1116.0"95.92.193.870-130Zinc98.51.0"95.92.691.870-130Matmony95.32.5mg95.71.091.860-140Arsenic95.52.5"95.70.9998.560-14020Arsenic95.52.5"95.70.9998.560-14020Cadminu1646.5"95.70.7988.870-1301.8120Cadminu1022.50.50"95.70.7496.870-1300.10520Cadminu1042.0"95.70.7496.870-1300.10520Cobalt1022.5"95.71.489.070.1300.5020Cadminu96.810.970.1300.0020202020Cadminu1042.0"95.71.494.070.1300.5220Cobalt1022.5"95.7 <t< td=""><td>Copper</td><td>105</td><td>2.0</td><td>"</td><td>95.9</td><td>14</td><td>94.9</td><td>70-130</td><td></td><td></td><td></td></t<>	Copper	105	2.0	"	95.9	14	94.9	70-130			
Molybdenum95.81.0"95.9ND99.970-130Nickel1084.0"95.91.210070-130Selenium96.16.0"95.9ND10070-130Silver98.71.095.9ND10070-130Thallium89.52.5"95.9ND10.870-130Vanadium1116.0"95.92.19.8.870-130ZineSource:Totus:Prepared:VI-17Nulve:VI-17Antimony95.32.5mg/g95.70.9998.560-1400.1920Arsenic95.53.5mg/g95.71.398.470-1300.1020Barlum1646.5"95.71.398.870-1301.3920Cadminun92.70.50"95.71.489.970-1301.3920Cadminun92.50.50"95.71.489.970-1300.0020Cobalt1022.5"95.71.489.970-1300.0120Cobalt1022.5"95.71.489.970-1300.0220Cobalt1022.5"95.71.489.670-1300.0220Cobalt1022.5"95.71.495.670-1300.0220Cobalt10	Lead	95.0	3.0	"	95.9	3.4	95.5	70-130			
Nickel1084.0"95.91210070-130Selenium96.16.0"95.9ND10070-130Silver98.71.0"95.9ND10360-140Thallium89.52.5"95.91.591.870-130Vanadum1010.0"95.91.291.870-130Zine98.510"95.92675.670-130Matrix Spike Dup (B7A0461-MSD1)Source: TOUST TPrepared: TOUST TNatyzee: TOUST TAntimony95.32.5mg/kg95.70.9998.560-1400.41920Arsenic95.53.5"95.71.398.470-1300.10520Barium1646.5"95.77988.870-1301.3920Cadmium92.70.50"95.7ND96.870-1301.3920Cobalt1003.0"95.71489.970-1300.3920Cobalt1022.5"95.71489.970-1300.53920Cobalt1022.5"95.71494.070-1300.9730Cobalt1022.5"95.7ND96.670-1300.2320Cobalt1084.0"95.7ND96.670-1300.2020Cobalt10	Molybdenum	95.8	1.0	"	95.9	ND	99.9	70-130			
Selenium96.16.0"95.9ND10070-130Silver98.71.0"95.9ND10360-140Thallium89.52.5"95.91.591.870-130Vanadium1116.0"95.92.67.570-130Zinc98.51.0"Prepared: UV-VIX-uzeet: UV-VIX-uzeet: UV-VIAnimony95.32.5mg/g95.70.998.560-1400.41920Arsenic95.53.5"95.71.398.470-1301.8120Barium1646.5"95.77.988.870-1301.3920Chomium92.70.50"95.71.489.970-1300.3920Chomium1003.0"95.71.489.970-1300.5320Cobalt1022.50.50"95.71.489.970-1300.0020Cobalt1022.50.50"95.71.489.970-1300.0020Cobalt1022.50.50"95.71.489.970-1300.0020Cobalt1022.50.50"95.71.489.970-1300.0020Cobalt1022.50.50"95.71.489.970-1300.0020Cobalt1042	Nickel	108	4.0	"	95.9	12	100	70-130			
Silver98.71.0"95.9ND10360-140Thallium89.52.5"95.91.591.870-130Vanadium1116.0"95.92193.870-130Zinc98.510"95.92675.670-130Matrix Spike Dup (B7A0461-MSD1)Source: 170137 - 1Prepared: 01/17Analyze:10/05/17Antimony95.32.5mg/g95.70.9998.660-1400.41920Arsenic95.33.5"95.770.998.870-1300.10520Barium1646.5"95.70.07496.870-1300.53920Cadmium92.70.50"95.70.07496.870-1300.53920Chromium1003.0"95.71.489.970-1300.53920Cobalt1022.5"95.71.489.970-1300.5320Cobalt1022.5"95.71.494.070-1300.0020Cobalt1022.5"95.71.494.070-1300.0020Cobalt1022.5"95.71.494.070-1300.0020Cobalt1022.5"95.71.494.070-1300.0020Cobalt1084.0"95.71.494.0	Selenium	96.1	6.0	"	95.9	ND	100	70-130			
Thallium89.52.5"95.91.591.870-130Vanadium1116.0"95.92193.870-130Zinc98.510"95.92675.670-130Matrix Spike Dup (B7A0461-MSDI)Source: TOIO3*T<	Silver	98.7	1.0	"	95.9	ND	103	60-140			
Vanadium111 6.0 " 95.9 21 93.8 $70-130$ Zine 98.5 10 " 95.9 26 75.6 $70-130$ Matrix Spike Dup (B7A0461-MSD1)Source: $TO1037$ - T Prepared: $1/04/17$ $Analyze:$ $1/05/17$ Antimony 95.3 2.5 mg/gg 95.7 0.99 98.5 60.140 0.419 20 Arsenic 95.5 3.5 " 95.7 0.97 88.8 $70-130$ 0.105 20 Barium 164 6.5 " 95.7 0.074 96.8 $70-130$ 1.39 20 Barium 164 6.5 " 95.7 0.074 96.8 $70-130$ 0.139 20 Barium 164 6.5 " 95.7 0.074 96.8 $70-130$ 0.53 20 Barium 92.7 0.50 " 95.7 0.074 96.8 $70-130$ 0.53 20 Cadminum 92.7 0.50 " 95.7 0.14 89.9 $70-130$ 0.53 20 Chromium 100 3.0 " 95.7 14 94.0 $70-130$ 0.00 20 Cobalt 102 2.5 " 95.7 14 94.0 $70-130$ 0.00 20 Cobalt 102 2.5 " 95.7 14 94.0 $70-130$ 0.00 20 Cobalt 102 2.5 " 95.7 14 94.0 $70-130$	Thallium	89.5	2.5	"	95.9	1.5	91.8	70-130			
Zinc 98.5 10 " 95.9 26 75.6 70-130 Matri Spike Dup (B7A0461-MSD1) Source: 1701037-11 Prepared: 1/04/17 Anilyzet: 1/05/17 Antimony 95.3 2.5 mg/kg 95.7 0.99 98.5 60-140 0.419 20 Arsenic 95.5 3.5 " 95.7 79 88.8 70-130 1.81 20 Barium 164 6.5 " 95.7 0.074 96.8 70-130 0.59 20 Barium 20.7 0.50 " 95.7 0.074 96.8 70-130 0.53 20 Cadmium 92.7 0.50 " 95.7 ND 96.7 71.00 0.53 20 Cobalt 100 3.0 " 95.7 14 89.9 70-130 0.00 20 Cobalt 104 2.0 " 95.7 6.3 100 70-130 0.50 20	Vanadium	111	6.0	"	95.9	21	93.8	70-130			
Matrix Spike Dup (B7A0461-MSD1)Source: 1701037 · 1Prepared: 01/04/17Analyzed: 01/05/17Animony95.32.5mg/kg95.70.9998.560-1400.41920Arsenic95.53.5"95.71.398.470-1300.10520Barium1646.5"95.77988.870-1301.8120Beryllium92.70.50"95.70.07496.870-1300.53920Cadmium92.50.50"95.7ND96.770-1300.53920Chromium1003.0"95.71489.970-1306.7620Cobalt1022.5"95.76.310070-1300.0020Copper1042.0"95.71.494.070-1300.95730Lead94.93.0"95.7ND96.670-1300.52320Nickel1084.0"95.7ND99.670-1300.52320Nickel1084.0"95.7ND99.670-1300.20820Selenium95.96.0"95.7ND90.670-1300.20820Silver95.96.0"95.7ND90.670-1300.20820Silver95.96.0"95.7ND90.670-1300.20820<	Zinc	98.5	10		95.9	26	75.6	70-130			
Antimony95.32.5mg/kg95.70.9998.560-1400.41920Arsenic95.53.5"95.71.398.470-1300.10520Barium1646.5"95.77988.870-1301.8120Beryllium92.70.50"95.70.07496.870-1301.3920Cadmium92.50.50"95.7ND96.770-1300.53920Chromium1003.0"95.71489.970-1306.7620Cobalt1022.5"95.76.310070-1300.0020Copper1042.0"95.73.495.670-1300.10530Lead94.93.0"95.7ND99.670-1300.52320Nickel1084.0"95.7ND99.670-1300.52320Selenium95.96.0"95.7ND99.670-1300.20820Silver94.41.0"95.7ND98.660-1404.4540Thallium89.02.5"95.71.591.470-1300.56020Vanadium1106.0"95.72193.070-1300.90520	Matrix Spike Dup (B7A0461-MSD1)	Sou	rce: 170103	7-11	Prepared:	01/04/17	Analyzed	: 01/05/17			
Arsenic95.53.5"95.71.398.470-1300.10520Barium1646.5"95.77988.870-1301.8120Beryllium92.70.50"95.70.07496.870-1300.53920Cadmium92.50.50"95.7ND96.770-1300.53920Chromium1003.0"95.71489.970-1306.7620Cobalt1022.5"95.76.310070-1300.0020Copper1042.0"95.73.495.670-1300.52320Lead94.93.0"95.73.495.670-1300.05220Nickel1084.0"95.7ND99.670-1300.52320Selenium95.96.0"95.7ND99.670-1300.52320Silver94.41.0"95.7ND99.660-1404.4540Thallium89.02.5"95.7ND98.660-1404.4540Conduit1106.0"95.72193.070-1300.56020Conduit98.510"95.72193.070-1300.0020	Antimony	95.3	2.5	mg/kg	95.7	0.99	98.5	60-140	0.419	20	
Barium1646.5"95.77988.870-1301.8120Beryllium92.70.50"95.70.07496.870-1301.3920Cadmium92.50.50"95.7ND96.770-1300.53920Chromium1003.0"95.71489.970-1306.7620Cobalt1022.5"95.76.310070-1300.0020Copper1042.0"95.71494.070-1300.95730Lead94.93.0"95.7ND99.670-1300.52320Nickel1084.0"95.7ND99.670-1300.52320Selenium95.96.0"95.7ND99.670-1300.0020Silver94.41.0"95.7ND98.660-1404.4540Thallium89.02.5"95.71.591.470-1300.56020Vanadium1106.0"95.72193.070-1300.90520Zinc98.510"95.72675.870-1300.0020	Arsenic	95.5	3.5	"	95.7	1.3	98.4	70-130	0.105	20	
Beryllium92.70.50"95.70.07496.870-1301.3920Cadmium92.50.50"95.7ND96.770-1300.53920Chromium1003.0"95.71489.970-1306.7620Cobalt1022.5"95.76.310070-1300.0020Copper1042.0"95.71494.070-1300.95730Lead94.93.0"95.73.495.670-1300.10530Molybdenum95.31.0"95.7ND99.670-1300.52320Nickel1084.0"95.7ND99.670-1300.0020Selenium95.96.0"95.7ND10070-1300.20820Silver94.41.0"95.7ND98.660-1404.4540Thallium89.02.5"95.71.591.470-1300.56020Vanadium1106.0"95.72193.070-1300.90520Zinc98.510"95.72675.870-1300.0020	Barium	164	6.5	"	95.7	79	88.8	70-130	1.81	20	
Cadmium92.50.50"95.7ND96.770-1300.53920Chromium1003.0"95.71489.970-1306.7620Cobalt1022.5"95.76.310070-1300.0020Copper1042.0"95.71494.070-1300.95730Lead94.93.0"95.73.495.670-1300.10530Molybdenum95.31.0"95.7ND99.670-1300.52320Nickel1084.0"95.7ND10070-1300.0020Selenium95.96.0"95.7ND10070-1300.20820Silver94.41.0"95.7ND98.660-1404.4540Thallium89.02.5"95.71.591.470-1300.56020Vanadium1106.0"95.72193.070-1300.90520Zinc98.510"95.72675.870-1300.0020	Beryllium	92.7	0.50	"	95.7	0.074	96.8	70-130	1.39	20	
Chromium1003.0"95.71489.970-1306.7620Cobalt1022.5"95.76.310070-1300.0020Copper1042.0"95.71494.070-1300.95730Lead94.93.0"95.73.495.670-1300.10530Molybdenum95.31.0"95.7ND99.670-1300.52320Nickel1084.0"95.71210070-1300.0020Selenium95.96.0"95.7ND10070-1300.20820Silver94.41.0"95.7ND98.660-1404.4540Thallium89.02.5"95.71.591.470-1300.56020Vanadium1106.0"95.72193.070-1300.90520Zinc98.510"95.72675.870-1300.0020	Cadmium	92.5	0.50	"	95.7	ND	96.7	70-130	0.539	20	
Cobalt1022.5"95.76.310070-1300.0020Copper1042.0"95.71494.070-1300.95730Lead94.93.0"95.73.495.670-1300.10530Molybdenum95.31.0"95.7ND99.670-1300.52320Nickel1084.0"95.71210070-1300.20820Selenium95.96.0"95.7ND10070-1300.20820Silver94.41.0"95.7ND98.660-1404.4540Thallium89.02.5"95.71.591.470-1300.56020Vanadium1106.0"95.72193.070-1300.90520Zinc98.510"95.72675.870-1300.0020	Chromium	100	3.0	"	95.7	14	89.9	70-130	6.76	20	
Copper1042.0"95.71494.070-1300.95730Lead94.93.0"95.73.495.670-1300.10530Molybdenum95.31.0"95.7ND99.670-1300.52320Nickel1084.0"95.71210070-1300.0020Selenium95.96.0"95.7ND10070-1300.20820Silver94.41.0"95.7ND98.660-1404.4540Thallium89.02.5"95.71.591.470-1300.56020Vanadium1106.0"95.72193.070-1300.90520Zinc98.510"95.72675.870-1300.0020	Cobalt	102	2.5	"	95.7	6.3	100	70-130	0.00	20	
Lead94.93.0"95.73.495.670-1300.10530Molybdenum95.31.0"95.7ND99.670-1300.52320Nickel1084.0"95.71210070-1300.0020Selenium95.96.0"95.7ND10070-1300.20820Silver94.41.0"95.7ND98.660-1404.4540Thallium89.02.5"95.71.591.470-1300.56020Vanadium1106.0"95.72193.070-1300.90520Zinc98.510"95.72675.870-1300.0020	Copper	104	2.0	"	95.7	14	94.0	70-130	0.957	30	
Molybdenum95.31.0"95.7ND99.670-1300.52320Nickel1084.0"95.71210070-1300.0020Selenium95.96.0"95.7ND10070-1300.20820Silver94.41.0"95.7ND98.660-1404.4540Thallium89.02.5"95.71.591.470-1300.56020Vanadium1106.0"95.72193.070-1300.90520Zinc98.510"95.72675.870-1300.0020	Lead	94.9	3.0	"	95.7	3.4	95.6	70-130	0.105	30	
Nickel1084.0"95.71210070-1300.0020Selenium95.96.0"95.7ND10070-1300.20820Silver94.41.0"95.7ND98.660-1404.4540Thallium89.02.5"95.71.591.470-1300.56020Vanadium1106.0"95.72193.070-1300.90520Zinc98.510"95.72675.870-1300.0020	Molybdenum	95.3	1.0	"	95.7	ND	99.6	70-130	0.523	20	
Selenium95.96.0"95.7ND10070-1300.20820Silver94.41.0"95.7ND98.660-1404.4540Thallium89.02.5"95.71.591.470-1300.56020Vanadium1106.0"95.72193.070-1300.90520Zinc98.510"95.72675.870-1300.0020	Nickel	108	4.0	"	95.7	12	100	70-130	0.00	20	
Silver94.41.0"95.7ND98.660-1404.4540Thallium89.02.5"95.71.591.470-1300.56020Vanadium1106.0"95.72193.070-1300.90520Zinc98.510"95.72675.870-1300.0020	Selenium	95.9	6.0	"	95.7	ND	100	70-130	0.208	20	
Thallium89.02.5"95.71.591.470-1300.56020Vanadium1106.0"95.72193.070-1300.90520Zinc98.510"95.72675.870-1300.0020	Silver	94.4	1.0	"	95.7	ND	98.6	60-140	4.45	40	
Vanadium1106.0"95.72193.070-1300.90520Zinc98.510"95.72675.870-1300.0020	Thallium	89.0	2.5		95.7	1.5	91.4	70-130	0.560	20	
Zinc 98.5 10 " 95.7 26 75.8 70-130 0.00 20	Vanadium	110	6.0		95.7	21	93.0	70-130	0.905	20	
	Zinc	98.5	10		95.7	26	75.8	70-130	0.00	20	



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Pr Project Nu Project Mar		Reported: 01/10/17 12:32						
	Metals by EPA	A 6000/700	0 Series	Methods	- Qualit	y Contro	1			
		Sierra Aı	nalytica	d Labs, I	nc.					
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7A0565 - EPA 3060A										
Blank (B7A0565-BLK1)				Prepared:	01/05/17	Analyzed	1: 01/09/17			
Hexavalent Chromium	ND	0.21	mg/kg	^		•				
LCS (B7A0565-BS1)				Prepared:	01/05/17	Analyzed	1: 01/09/17			
Hexavalent Chromium	0.151	0.21	mg/kg	0.150		101	80-120			
Matrix Spike (B7A0565-MS1)	Sou	Prepared:	01/05/17	Analyzed	1: 01/09/17					
Hexavalent Chromium	0.154	0.21	mg/kg	0.144	ND	107	75-125			
Matrix Spike Dup (B7A0565-MSD1)	Sou	Prepared:	01/05/17	Analyzed	1: 01/09/17					
Hexavalent Chromium	0.151	0.21	mg/kg	0.144	ND	105	75-125	1.97	20	
Batch B7A0566 - EPA 3060A										
Blank (B7A0566-BLK1)				Prepared:	01/05/17	Analyzed	1: 01/09/17			
Hexavalent Chromium	ND	0.21	mg/kg			2				
LCS (B7A0566-BS1)				Prepared:	01/05/17	Analyzed	1: 01/09/17			
Hexavalent Chromium	0.144	0.21	mg/kg	0.150		96.0	80-120			
Matrix Spike (B7A0566-MS1)	Sou	rce: 170103	7-11	Prepared:	01/05/17	Analyzed	1: 01/09/17			
Hexavalent Chromium	0.145	0.21	mg/kg	0.150	ND	96.7	75-125			
Matrix Spike Dup (B7A0566-MSD1)	Sou	rce: 170103	7-11	Prepared:	01/05/17	Analyzed	1: 01/09/17			
Hexavalent Chromium	0.150	0.21	mg/kg	0.150	ND	100	75-125	3.39	20	
Batch B7A0568 - EPA 7471A										
Blank (B7A0568-BLK1)				Prepared: 01/05/17 Analyzed: 01/06/17						
Mercury	ND	0.01	mg/kg			2				



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA 90405	Project: SHPI-Amerigas Project Number: [none] Project Manager: Susan Maarma								Reported:		
Same 1.50000 Cr., 70105	Metals by EPA	A 6000/700	0 Series	Methods	- Quality	y Contro	1		01/10/17 1		
		Sierra Aı	nalytica	d Labs, I	nc.						
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B7A0568 - EPA 7471A											
LCS (B7A0568-BS1)		Prepared:	01/05/17	Analyzed	l: 01/06/17						
Mercury	0.17	0.01	mg/kg	0.167		102	70-130				
Matrix Spike (B7A0568-MS1)	Source: 1701037-01			Prepared:	01/05/17	Analyzed	l: 01/06/17				
Mercury	4.09	0.12	mg/kg	0.142	3.56	373	70-130			QM-07	
Matrix Spike Dup (B7A0568-MSD1)	Sou	rce: 170103	7-01	Prepared:	01/05/17	Analyzed	l: 01/06/17				
Mercury	4.07	0.12	mg/kg	0.143	3.56	357	70-130	0.490	30	QM-07	
Batch B7A0569 - EPA 7471A											
Blank (B7A0569-BLK1)				Prepared:	01/05/17	Analyzed	l: 01/06/17				
Mercury	ND	0.01	mg/kg								
LCS (B7A0569-BS1)				Prepared:	01/05/17	Analyzed	l: 01/06/17				
Mercury	0.17	0.01	mg/kg	0.167		102	70-130				
Matrix Spike (B7A0569-MS1)	Sou	rce: 170103	7-11	Prepared:	01/05/17	Analyzed	l: 01/06/17				
Mercury	0.19	0.01	mg/kg	0.156	0.05	89.7	70-130				
Matrix Spike Dup (B7A0569-MSD1)	b) Source: 1701037-11 Prepared: 01/05/17 Analyzed: 01/06/1						l: 01/06/17				
Mercury	0.19	0.01	mg/kg	0.156	0.05	89.7	70-130	0.00	30		



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Pr Project Nu Project Mar	roject: SI mber: [ne nager: Su	HPI-Ameri one] Isan Mearns	gas				Reporte 01/10/17	d: 12:32
Total Volat	ile Petroleur	n Hydroca	rbons (ГVPH) by	GC/FID) - Quali	y Contro)l		
		Sierra Ai	nalytica	il Labs, li	nc.					
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7A0451 - EPA 5035 P & T										
Blank (B7A0451-BLK1)				Prepared a	& Analyze	ed: 01/04/	17			
Gasoline Range Hydrocarbons (C4-C12)	ND	0.050	mg/kg							
Surrogate: a,a,a-Trifluorotoluene	0.0178		"	0.0200		89.0	35-130			
LCS (B7A0451-BS1)				Prepared a	& Analyze	ed: 01/04/	17			
Gasoline Range Hydrocarbons (C4-C12)	0.510	0.050	mg/kg	0.600		85.0	85-115			
Matrix Spike (B7A0451-MS1)	Sou	rce: 170103	7-13	Prepared a	& Analyze	ed: 01/04/	17			
Gasoline Range Hydrocarbons (C4-C12)	0.619	0.050	mg/kg	0.600	ND	103	50-150			
Matrix Spike Dup (B7A0451-MSD1)	Sou	rce: 170103	7-13	Prepared a	& Analyze	ed: 01/04/	17			
Gasoline Range Hydrocarbons (C4-C12)	0.542	0.050	mg/kg	0.600	ND	90.3	50-150	13.3	30	



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Pr Project Nu Project Ma	roject: SI mber: [no nager: Su	HPI-Ameri one] Isan Mearns	gas				Reporte 01/10/17	d: 12:32
Total	Petroleum Hy	drocarbo Sierra Au	ons (TPH palytica	H) by GC/2 al Labs, Iu	FID - Qu nc.	ality Co	ntrol			
		Reporting	141 y 1100	Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B7A0330 - EPA 3550B Solid E	xt									
Blank (B7A0330-BLK1)				Prepared	& Analyz	ed: 01/03/	17			
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg		-					
Oil Range Organics (C22-C36)	ND	5.0	"							
Surrogate: o-Terphenyl	2.11		"	2.50		84.4	60-175			
Surrogate: o-Terphenyl	2.11		"	2.50		84.4	60-175			
LCS (B7A0330-BS1)				Prepared	& Analyz	ed: 01/03/	17			
Diesel Range Organics (C10-C24)	42.4	5.0	mg/kg	50.0		84.8	80-120			
Diesel Range Organics (C10-C24)	42.4	5.0	"	50.0		84.8	80-120			
Matrix Spike (B7A0330-MS1)	Sourc	ce: 161235	3-02	Prepared	& Analyz	ed: 01/03/	17			
Diesel Range Organics (C10-C24)	41.2	5.0	mg/kg	50.0	ND	82.4	50-150			
Diesel Range Organics (C10-C24)	41.2	5.0	"	50.0	ND	82.4	50-150			
Matrix Spike Dup (B7A0330-MSD1)	Source: 1612353-02 Prepared & Analyzed: 01/03/17									
Diesel Range Organics (C10-C24)	45.0	5.0	mg/kg	50.0	ND	90.0	50-150	8.82	30	
Diesel Range Organics (C10-C24)	45.0	5.0	"	50.0	ND	90.0	50-150	8.82	30	



Total Petroleum Hydrocarbons (C4-C12)

Surrogate: a,a,a-Trifluorotoluene

Mearns Consulting LLC		P	roject: SI	HPI-Ameri	gas					
738 Ashland Avenue	Project Number: [none]						Reported:			
Santa Monica CA. 90405		Project Ma	nager: Su	isan Mearns					01/10/17	12:32
T-4-1 D-41		·····		I		EID O		4 1		
1 otal Petroleu	m Hydrocarb	ons Carb	on Kang	ge Analysis	s by GC-	FID - Q	uality Co	ntrol		
	:	Sierra Ai	nalytica	d Labs, I	nc.					
		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B7A0330 - EPA 3550B Solid E	xt									
Blank (B7A0330-BLK1)				Prepared	& Analyze	ed: 01/03/	17			
HC < C8	ND	1.0	mg/kg	i						
C8 <= HC < C9	ND	1.0	"							
C9 <= HC < C10	ND	1.0	"							
C10 <= HC < C11	ND	1.0	"							
C11 <= HC < C12	ND	1.0	"							
C12 <= HC < C14	ND	1.0	"							
C14 <= HC < C16	ND	1.0	"							
$C16 \le HC \le C18$	ND	1.0	"							
$C_{18} = HC < C_{20}$	ND	1.0	"							
$C20 \le HC \le C24$	ND	1.0	"							
$C24 \le HC \le C28$	ND	1.0	"							
$C_{28} <= HC < C_{32}$	ND	1.0	"							
$HC \ge C32$	ND	1.0	"							
Total Petroleum Hydrocarbons (C7-C36)	ND	5.0	"							
Surrogate: o-Terphenyl	2.11		"	2.50		84.4	60-175			
I CC (D740220 DC1)				Drananad	e Analuz	ad. 01/02/	17			
Discel Bange Organics (C10, C24)	42.4	5.0	ma/ka	Frepared 50.0	& Analyze	ed: 01/05/	1/ 80.120			
Dieser Range Organics (C10-C24)	42.4	5.0	mg/kg	30.0		04.0	80-120			
Matrix Spike (B7A0330-MS1)	Sour	ce: 161235	3-02	Prepared	& Analyze	ed: 01/03/	17			
Diesel Range Organics (C10-C24)	41.2	5.0	mg/kg	50.0	ND	82.4	50-150			
Matrix Spike Dup (B7A0330-MSD1)	Sour	ce: 161235	3-02	Prepared	& Analyz	ed: 01/03/	17			
Diesel Range Organics (C10-C24)	45.0	5.0	mg/kg	50.0	ND	90.0	50-150	8.82	30	
Batch B7A0451 - EPA 5035 P & T										
Blank (B7A0451-BLK1)				Prepared	& Analyze	ed: 01/04/	17			
C5 <= HC < C6	ND	0.010	mg/kg		2					
$C6 \leq HC < C7$	ND	0.010	"							
$C7 \leq HC < C8$	ND	0.010	"							
C8 <= HC < C9	ND	0.010	"							
C9 <= HC < C10	ND	0.010	"							
C10 <= HC < C11	ND	0.010	"							
C11 <= HC < C12	ND	0.010	"							
HC >= C12	ND	0.010	"							

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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0.0200

89.0

35-130

0.050

ND

0.0178



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Mearns Consulting LLC		Pi	oject: SI	HPI-Ameri	gas					
738 Ashland Avenue		Project Nu	mber: [n	one]	0				Reporte	d:
Santa Monica CA, 90405	Project Manager: Susan Mearns									2:32
Total Petroleu	m Hydrocarb	ons Carbo	on Rang	ge Analysis	s by GC-	FID - Qu	uality Co	ntrol		
	\$	Sierra Aı	nalytica	d Labs, I	nc.					
		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B7A0451 - EPA 5035 P & T										
LCS (B7A0451-BS1)				Prepared	& Analyz	ed: 01/04/	17			
Gasoline Range Hydrocarbons (C4-C12)	0.510	0.050	mg/kg	0.600		85.0	80-120			
Matrix Spike (B7A0451-MS1)	Sour	ce: 170103	7-13	Prepared	& Analyz	ed: 01/04/	17			
Gasoline Range Hydrocarbons (C4-C12)	0.619	0.050	mg/kg	0.600	ND	103	50-150			
Matrix Spike Dup (B7A0451-MSD1)	Sour	ce: 170103	7-13	Prepared	& Analyz	ed: 01/04/	17			
Gasoline Range Hydrocarbons (C4-C12)	0.542	0.050	mg/kg	0.600	ND	90.3	50-150	13.3	30	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Mearns Consulting LLC 738 Ashland Avenue	Project: Project Number:	SHPI-Amerigas [none]	Reported:					
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/10/17 12:32					
Volatile Organic Compounds by EPA Method 8260B - Quality Control								
Sierra Analytical Labs, Inc.								

Analyta	Posult	Reporting	Unite	Spike Level	Source	04 PEC	%REC	רוסס	RPD Limit	Notos
Analyte	Kesun	Liiiit	Ollits	Level	Kesuit	70 KEC	Lillins	KF D	Liiiit	Notes
Batch B7A0452 - EPA 5035 P & T										
Blank (B7A0452-BLK1)				Prepared	& Analyze	ed: 01/04/2	17			
Benzene	ND	5.0	µg/kg							
Bromobenzene	ND	5.0	"							
Bromochloromethane	ND	5.0	"							
Bromodichloromethane	ND	5.0	"							
Bromoform	ND	5.0	"							
Bromomethane	ND	5.0	"							
n-Butylbenzene	ND	5.0	"							
sec-Butylbenzene	ND	5.0	"							
tert-Butylbenzene	ND	5.0	"							
Carbon tetrachloride	ND	5.0	"							
Chlorobenzene	ND	5.0	"							
Chloroethane	ND	5.0	"							
Chloroform	ND	5.0	"							
Chloromethane	ND	5.0	"							
2-Chlorotoluene	ND	5.0	"							
4-Chlorotoluene	ND	5.0	"							
Dibromochloromethane	ND	5.0	"							
1,2-Dibromo-3-chloropropane	ND	5.0	"							
1,2-Dibromoethane (EDB)	ND	5.0	"							
Dibromomethane	ND	5.0	"							
1,2-Dichlorobenzene	ND	5.0	"							
1,3-Dichlorobenzene	ND	5.0	"							
1,4-Dichlorobenzene	ND	5.0	"							
Dichlorodifluoromethane	ND	5.0	"							
1,1-Dichloroethane	ND	5.0	"							
1,2-Dichloroethane	ND	5.0	"							
1,1-Dichloroethene	ND	5.0	"							
cis-1,2-Dichloroethene	ND	5.0	"							
trans-1,2-Dichloroethene	ND	5.0	"							
1,2-Dichloropropane	ND	5.0	"							
1,3-Dichloropropane	ND	5.0	"							
2,2-Dichloropropane	ND	5.0	"							
1,1-Dichloropropene	ND	5.0	"							
cis-1,3-Dichloropropene	ND	5.0	"							
trans-1,3-Dichloropropene	ND	5.0	"							
Ethylbenzene	ND	5.0	"							
Hexachlorobutadiene	ND	5.0	"							



Mearns Consulting LLC 738 Ashland Avenue	Project: SHPI-Amerigas Project Number: [none]								Reported:		
Santa Monica CA, 90405		Project Ma	nager: Sus	san Mearns	8				01/10/17 1	12:32	
Vol	atile Organic C	ompounds	by EPA I	Method 8	8260B - Q	Quality C	ontrol				
		Sierra Ai	nalytica	l Labs, I	nc.						
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B7A0452 - EPA 5035 P & T	[
Blank (B7A0452-BLK1)				Prepared	& Analyze	ed: 01/04/	17				
Isopropylbenzene	ND	5.0	ug/kg	Tiepureu	ce i mai j 2 e	 01/01/	17				
p-Isopropyltoluene	ND	5.0	"								
Methylene chloride	ND	5.0	"								
Methyl tert-butyl ether	ND	5.0	"								
Naphthalene	ND	5.0	"								
n-Propylbenzene	ND	5.0	"								
Styrene	ND	5.0	"								
1,1,1,2-Tetrachloroethane	ND	5.0	"								
1,1,2,2-Tetrachloroethane	ND	5.0	"								
Tetrachloroethene	ND	5.0	"								
Toluene	ND	5.0	"								
1,2,3-Trichlorobenzene	ND	5.0	"								
1,2,4-Trichlorobenzene	ND	5.0	"								
1,1,1-Trichloroethane	ND	5.0	"								
1,1,2-Trichloroethane	ND	5.0	"								
Trichloroethene	ND	5.0	"								
Trichlorofluoromethane	ND	5.0	"								
1,2,3-Trichloropropane	ND	5.0	"								
1,2,4-Trimethylbenzene	ND	5.0	"								
1,3,5-Trimethylbenzene	ND	5.0	"								
Vinyl chloride	ND	5.0	"								
m,p-Xylene	ND	5.0	"								
o-Xylene	ND	5.0	"								
Surrogate: Dibromofluoromethane	44.4		"	50.0		88.8	80-120				
Surrogate: Toluene-d8	53.0		"	50.0		106	81-117				
Surrogate: 4-Bromofluorobenzene	46.7		"	50.0		93.4	74-121				
LCS (B7A0452-BS1)				Prepared	& Analyze	ed: 01/04/	17				
Benzene	50.3	5.0	µg/kg	50.0		101	80-120				
Chlorobenzene	53.2	5.0	"	50.0		106	80-120				
1,1-Dichloroethene	50.4	5.0	"	50.0		101	80-120				
Toluene	59.1	5.0	"	50.0		118	80-120				
Trichloroethene	43.5	5.0	"	50.0		87.0	80-120				



Mearns Consulting LLC	Project:	SHPI-Amerigas	
738 Ashland Avenue	Project Number:	[none]	Reported:
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/10/17 12:32
	Valatila Organia Compounds by FD	A Mothod 8260B Quality Control	

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Sierra Analytical Labs, Inc.

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B7A0452 - EPA 5035 P & T										
LCS (B7A0452-BS2)				Prepared:	01/04/17	Analyzed	1: 01/05/17			
Benzene	52.3	5.0	µg/kg	50.0		105	80-120			
Chlorobenzene	52.2	5.0	"	50.0		104	80-120			
1,1-Dichloroethene	57.7	5.0	"	50.0		115	80-120			
Toluene	56.8	5.0	"	50.0		114	80-120			
Trichloroethene	43.9	5.0	"	50.0		87.8	80-120			
LCS Dup (B7A0452-BSD1)				Prepared:	01/04/17	Analyzed	1: 01/05/17			
Benzene	51.8	5.0	µg/kg	50.0		104	80-120	2.94	30	
Chlorobenzene	52.8	5.0	"	50.0		106	80-120	0.755	30	
1,1-Dichloroethene	55.9	5.0	"	50.0		112	80-120	10.3	30	
Toluene	57.7	5.0	"	50.0		115	80-120	2.40	30	
Trichloroethene	48.3	5.0	"	50.0		96.6	80-120	10.5	30	



Mearns Consulting LLC 738 Ashland Avenue	Project: Project Number:	SHPI-Amerigas	Reported:					
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/10/17 12:32					
Semivolatile Organic Compounds by EPA Method 8270C - Quality Control								

Sierra Analytical Labs, Inc. RPD Spike %REC Reporting Source Limit Limits Result Units Level Result %REC RPD Limit Notes Analyte Batch B7A0331 - EPA 3550B Solid Ext L (DE 4 0221 DI 171) ъ 1 01/02/17 ы 104 1

Blank (B7A0331-BLK1)				Prepared & Analyzed: 01/03/17
Acenaphthene	ND	0.33	mg/kg	
Acenaphthylene	ND	0.33	"	
Anthracene	ND	0.33	"	
Benzidine	ND	0.33	"	
Benzo (a) anthracene	ND	0.33	"	
Benzo (b) fluoranthene	ND	0.33	"	
Benzo (k) fluoranthene	ND	0.33	"	
Benzo (a) pyrene	ND	0.33	"	
Benzo (g,h,i) perylene	ND	0.33	"	
Benzyl alcohol	ND	0.33	"	
Bis(2-chloroethyl)ether	ND	0.33	"	
Bis(2-chloroethoxy)methane	ND	0.33	"	
Bis(2-ethylhexyl)phthalate	ND	0.33	"	
Bis(2-chloroisopropyl)ether	ND	0.33	"	
4-Bromophenyl phenyl ether	ND	0.33	"	
Butyl benzyl phthalate	ND	0.33	"	
4-Chloroaniline	ND	0.33	"	
2-Chlorophenol	ND	0.33	"	
4-Chloro-3-methylphenol	ND	0.33	"	
2-Chloronaphthalene	ND	0.33	"	
4-Chlorophenyl phenyl ether	ND	0.33	"	
Chrysene	ND	0.33	"	
Dibenz (a,h) anthracene	ND	0.33	"	
Dibenzofuran	ND	0.33	"	
1,3-Dichlorobenzene	ND	0.33	"	
1,2-Dichlorobenzene	ND	0.33	"	
1,4-Dichlorobenzene	ND	0.33	"	
3,3´-Dichlorobenzidine	ND	0.33	"	
2,4-Dichlorophenol	ND	0.33	"	
Diethyl phthalate	ND	0.33	"	
2,4-Dimethylphenol	ND	0.33	"	
Dimethyl phthalate	ND	0.33	"	
Di-n-butyl phthalate	ND	0.33	"	
2,4-Dinitrophenol	ND	0.33	"	
4,6-Dinitro-2-methylphenol	ND	0.33	"	
2,4-Dinitrotoluene	ND	0.33	"	
2,6-Dinitrotoluene	ND	0.33	"	



4-Nitroaniline

Nitrobenzene

2-Nitrophenol

4-Nitrophenol

Diphenylamine

Phenanthrene

Phenol

Pyrene

Pentachlorophenol

N-Nitrosodimethylamine

N-Nitrosodi-n-propylamine

738 Ashland Avenue Santa Monica CA, 90405				Reporte 01/10/17	d: 12:32					
Sem	ivolatile Organic (Compound Sierra Au	ls by EP	A Method I Labs, Ii	1 8270C · nc.	Quality	Control			
		Reporting	iarytica	Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B7A0331 - EPA 3550B So	olid Ext									
Blank (B7A0331-BLK1)				Prepared	& Analyze	ed: 01/03/2	17			
Di-n-octyl phthalate	ND	0.33	mg/kg							
1,2-Diphenylhydrazine	ND	0.33	"							
Fluoranthene	ND	0.33	"							
Fluorene	ND	0.33	"							
Hexachlorobenzene	ND	0.33	"							
Hexachlorobutadiene	ND	0.33	"							
Hexachlorocyclopentadiene	ND	0.33	"							
Hexachloroethane	ND	0.33	"							
Indeno (1,2,3-cd) pyrene	ND	0.33	"							
Isophorone	ND	0.33	"							
2-Methylnaphthalene	ND	0.33	"							
2-Methylphenol	ND	0.33	"							
4-Methylphenol	ND	0.33	"							
Naphthalene	ND	0.33	"							
2-Nitroaniline	ND	0.33	"							
3-Nitroaniline	ND	0.33	"							

ND

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..

1,2,4-Trichlorobenzene	ND	0.33	"				
2,4,5-Trichlorophenol	ND	0.33	"				
2,4,6-Trichlorophenol	ND	0.33	"				
Surrogate: 2-Fluorophenol	0.451		"	0.500	90.2	25-121	
Surrogate: Phenol-d6	0.504		"	0.500	101	24-113	
Surrogate: Nitrobenzene-d5	0.298		"	0.333	89.5	23-120	
Surrogate: 2-Fluorobiphenyl	0.271		"	0.333	81.4	30-115	
Surrogate: 2,4,6-Tribromophenol	0.428		"	0.500	85.6	19-122	
Surrogate: Terphenyl-d14	0.302		"	0.333	90.7	18-137	

"



Mearns Consulting LLC 738 Ashland Avenue		Reporte	d:							
Santa Monica CA, 90405		Project Mai	nager: Su	san Mearns					01/10/17	12:32
Semivola	tile Organic	Compound	s by EP	A Method	l 8270C -	• Quality	Control			
		Sierra Aı	nalytica	l Labs, I	nc.					
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7A0331 - EPA 3550B Solid E	xt									
LCS (B7A0331-BS1)				Prepared	& Analyze	ed: 01/03/	17			
Acenaphthene	0.317	0.33	mg/kg	0.333	ee 1 mai j 24	95.2	47-145			
2-Chlorophenol	0.572	0.33	"	0.667		85.8	23-134			
4-Chloro-3-methylphenol	0.521	0.33		0.667		78.1	22-147			
1.4-Dichlorobenzene	0.282	0.33		0.333		84.7	20-124			
2.4-Dinitrotoluene	0.264	0.33		0.333		79.3	39-139			
4-Nitrophenol	0.277	0.33		0.667		41.5	0-132			
N-Nitrosodi-n-propylamine	0.262	0.33		0.333		78.7	0-230			
Pentachlorophenol	0.270	0.33		0.667		40.5	14-176			
Phenol	0.306	0.33		0.667		45.9	5-112			
Pyrene	0.292	0.33		0.333		87.7	52-115			
1,2,4-Trichlorobenzene	0.307	0.33		0.333		92.2	44-142			
Matrix Spike (B7A0331-MS1)	So	ırce: 161235	3-02	Prepared	& Analyze	ed: 01/03/	17			
Acenaphthene	0.311	0.33	mg/kg	0.333	ND	93.4	47-145			
2-Chlorophenol	0.541	0.33	"	0.667	ND	81.1	23-134			
4-Chloro-3-methylphenol	0.508	0.33		0.667	ND	76.2	22-147			
1,4-Dichlorobenzene	0.288	0.33		0.333	ND	86.5	20-124			
2,4-Dinitrotoluene	0.268	0.33		0.333	ND	80.5	39-139			
4-Nitrophenol	0.271	0.33		0.667	ND	40.6	0-132			
N-Nitrosodi-n-propylamine	0.264	0.33		0.333	ND	79.3	0-230			
Pentachlorophenol	0.274	0.33		0.667	ND	41.1	14-176			
Phenol	0.311	0.33	"	0.667	ND	46.6	5-112			
Pyrene	0.288	0.33	"	0.333	ND	86.5	52-115			
1,2,4-Trichlorobenzene	0.304	0.33		0.333	ND	91.3	44-142			
Matrix Spike Dup (B7A0331-MSD1)	So	urce: 161235	3-02	Prepared	& Analyze	ed: 01/03/	17			
Acenaphthene	0.306	0.33	mg/kg	0.333	ND	91.9	47-145	1.62	30	
2-Chlorophenol	0.557	0.33		0.667	ND	83.5	23-134	2.91	30	
4-Chloro-3-methylphenol	0.497	0.33	"	0.667	ND	74.5	22-147	2.19	30	
1,4-Dichlorobenzene	0.293	0.33		0.333	ND	88.0	20-124	1.72	30	
2,4-Dinitrotoluene	0.263	0.33		0.333	ND	79.0	39-139	1.88	30	
4-Nitrophenol	0.279	0.33		0.667	ND	41.8	0-132	2.91	30	
N-Nitrosodi-n-propylamine	0.255	0.33		0.333	ND	76.6	0-230	3.47	30	
Pentachlorophenol	0.270	0.33		0.667	ND	40.5	14-176	1.47	30	
Phenol	0.304	0.33		0.667	ND	45.6	5-112	2.28	30	
Pyrene	0.297	0.33		0.333	ND	89.2	52-115	3.08	30	
1,2,4-Trichlorobenzene	0.311	0.33	"	0.333	ND	93.4	44-142	2.28	30	



Mearns Co	onsulting LLC	Project:	SHPI-Amerigas							
738 Ashla	nd Avenue	Project Number:	[none]	Reported:						
Santa Mor	nica CA, 90405	Project Manager:	Susan Mearns	01/10/17 12:32						
		Notes and De	finitions							
D-34	Sample diluted due to high levels of petroleum	hydrocarbons.								
D-42	Sample non-detect (ND) for requested fuel type. Other hydrocarbons may be present.									
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.									
S-03	Surrogate diluted out.									
S-07	Surrogate recovery outside of control limits due	e to coelution wi	th high levels of petroleum hydrocarbons.							
DET	Analyte DETECTED									
ND	Analyte NOT DETECTED at or above the reporting limit									
NR	Not Reported									
dry	Sample results reported on a dry weight basis									
RPD	Relative Percent Difference									

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SIERRA AN TEL: 949-348	FAX: 949 • 345 26052 Merit Cin	Client: MEARUS CONSMUTT	Client Address: -38 ASH			Client Tel. No.: 3(D 4D3	Client Fax. No.: 310 346	Client Proj. Mgr.: SHCAN	Client Sample ID.	BMILDING 1 581-5	30 1 ~10	302.5	21-195	583-5	583-10	584-5	01-10 394-10	585.A	111 585-101	services Scatte	WWW MENK Scotta	Relievuished By W	CONTRACTING CONSULTING CORP.	[3] Refinantished By:	Company:	A Relinquished Br.	Соптранту:	Special Instructions: \$ 501L ANALY	TT ANDHATC & ARDME

Page: 2 of 2	1034	1.22		Geotracker EDD Info:		Client LOGCODE			Site Global ID	Field Point Names / Comments								0 Sample Disposal:	Return to Clicat	Lah Dinneed	T.	by Other				- 4 -8 50a)
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12 January 2017

Susan Mearns Mearns Consulting LLC 738 Ashland Avenue Santa Monica, CA 90405

RE:SHPI-Amerigas Work Order No.: 1701054

Attached are the results of the analyses for samples received by the laboratory on 01/04/17 16:27.

The samples were received by Sierra Analytical Labs, Inc. with a chain of custody record attached or completed at the submittal of the samples.

The analyses were performed according to the prescribed method as outlined by EPA, Standard Methods, and A.S.T.M.

The remaining portions of the samples will be disposed of within 30 days from the date of this report. If you require any additional retaining time, please advise us.

Sincerely,

nd R. Foryth

Richard K. Forsyth

Laboratory Director

Sierra Analytical Labs, Inc. is certified by the California Department of Health Services (DOHS), Environmental Laboratory Accredidation Program (ELAP) No. 2320.

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Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405	Project: SHPI-Ame Project Number: [none] Project Manager: Susan Mear	erigas ns		Reported: 01/12/17 09:24
	ANALYTICAL REPORT FOR SAMP	LES		
Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB8-5	1701054-01	Soil	01/04/17 08:46	01/04/17 16:27
SB8-10	1701054-02	Soil	01/04/17 08:57	01/04/17 16:27
SB9-5	1701054-03	Soil	01/04/17 09:17	01/04/17 16:27
SB9-10	1701054-04	Soil	01/04/17 09:30	01/04/17 16:27
SB10-5	1701054-05	Soil	01/04/17 09:48	01/04/17 16:27
SB10-10	1701054-06	Soil	01/04/17 10:07	01/04/17 16:27
SB11-5	1701054-07	Soil	01/04/17 10:11	01/04/17 16:27
SB11-10	1701054-08	Soil	01/04/17 10:19	01/04/17 16:27
SB12-5	1701054-09	Soil	01/04/17 10:48	01/04/17 16:27
SB12-10	1701054-10	Soil	01/04/17 10:55	01/04/17 16:27
SB13-5	1701054-11	Soil	01/04/17 11:18	01/04/17 16:27
SB13-10	1701054-12	Soil	01/04/17 11:35	01/04/17 16:27
SB14-5	1701054-13	Soil	01/04/17 11:58	01/04/17 16:27
SB14-10	1701054-14	Soil	01/04/17 12:10	01/04/17 16:27
SB17-5	1701054-15	Soil	01/04/17 12:33	01/04/17 16:27
SB17-10	1701054-16	Soil	01/04/17 12:40	01/04/17 16:27
SB15-5	1701054-17	Soil	01/04/17 13:20	01/04/17 16:27
SB15-10	1701054-18	Soil	01/04/17 13:28	01/04/17 16:27
SB16-5	1701054-19	Soil	01/04/17 13:42	01/04/17 16:27
SB16-10	1701054-20	Soil	01/04/17 13:48	01/04/17 16:27
SB18-5	1701054-21	Soil	01/04/17 14:11	01/04/17 16:27
SB18-10	1701054-22	Soil	01/04/17 14:20	01/04/17 16:27
SB19-5	1701054-23	Soil	01/04/17 14:37	01/04/17 16:27
SB19-10	1701054-24	Soil	01/04/17 14:45	01/04/17 16:27
SB20-5	1701054-25	Soil	01/04/17 14:58	01/04/17 16:27
SB20-10	1701054-26	Soil	01/04/17 15:06	01/04/17 16:27



Thallium

Zinc

Vanadium

Mearns Consulting LLC		Р	roject: SH	PI-Amer	igas				
738 Ashland Avenue		Project Nu	umber: [no:	ne]	C			Reported	l:
Santa Monica CA, 90405		Project Ma	nager: Sus	an Mearns	5			01/12/17 0	9:24
	Mo	tole by FDA	6000/700) Sorio	s Mothod	la			
	IVIC	tais by El A	0000/700	JU Serre:	s method	15			
		Sierra A	nalytical	Labs, I	nc.				
		Reporting							
Analyte	Resul	t Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB8-5 (1701054-01) Soil	Sampled: 01/04/17 08:46	Received: 01/0	04/17 16:27	7					
Silver	ND	1.0	mg/kg	1	B7A0578	01/05/17	01/06/17 20:04	EPA 6010B	
Arsenic	7.6	3.5	"	"	"	"	"	"	
Barium	120	6.5	"	"	"	"	"	"	
Beryllium	ND	0.50	"	"	"	"	"	"	
Cadmium	ND	0.50		"	"	"	"	"	
Cobalt	7.5	2.5		"	"	"	"	"	
Chromium	25	3.0	"	"	"	"	"	"	
Hexavalent Chromium	ND	0.21	"	"	B7A0585	01/05/17	01/09/17 12:07	/ EPA 7199A	
Copper	19	2.0	"	"	B7A0578	01/05/17	01/06/17 20:04	EPA 6010B	
Mercury	0.03	0.01	"	"	B7A0581	01/05/17	01/06/17 18:47	EPA 7471A	
Molvbdenum	ND	1.0	"	"	B7A0578	01/05/17	01/06/17 20:04	EPA 6010B	
Nickel	17	4.0		"	"	"	"	"	
Lead	ND	3.0		"	"	"	"		
Antimony	ND	2.5		"	"	"	"		
Selenium	ND	6.0		"	"	"	"	"	
Thallium	ND	2.5		"	"	"	"	"	
Vanadium	30	6.0		"	"	"	"	"	
Zinc	39	10	"			"	"	"	
			10 A 14 B A C A	-					
SB8-10 (1701054-02) Soll	Sampled: 01/04/17 08:57	Received: 01	/04/17 16:2	27					
Silver	ND	1.0	mg/kg	1	B7A0578	01/05/17	01/06/17 20:04	EPA 6010B	
Arsenic	ND	3.5	"	"	"	"	"	"	
Barium	78	6.5	"	"	"	"	"	"	
Beryllium	ND	0.50	"	"	"	"	"	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
Cobalt	10	2.5	"	"	"	"	"	"	
Chromium	25	3.0	"	"	"	"	"	"	
Hexavalent Chromium	ND	0.21	"	"	B7A0585	01/05/17	01/09/17 12:07	' EPA 7199A	
Copper	17	2.0		"	B7A0578	01/05/17	01/06/17 20:04	EPA 6010B	
Mercury	0.02	0.01	"	"	B7A0581	01/05/17	01/06/17 18:47	EPA 7471A	
Molybdenum	1.1	1.0	"	"	B7A0578	01/05/17	01/06/17 20:04	EPA 6010B	
Nickel	13	4.0	"	"	"	"	"	"	
Lead	ND	3.0	"	"	"	"	"	"	
Antimony	ND	2.5			"	"	"	"	
Selenium	ND	6.0	"	"	"	"	"	"	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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2.5

6.0

10

ND

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Mearns Consulting LLC		P Droiget N	roject: SH	[PI-Amer]	igas			Deported	1.
738 Ashland Avenue Santa Monica CA 90405		Project Ma	uniber: [no	nej on Moorn				01/12/17 0	n. 0.24
Santa Wollica CA, 90403								01/12/17 0.	7.24
	Met	tals by EPA	6000/700	00 Serie	s Methoc	IS			
		Sierra A	nalytical	l Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB9-5 (1701054-03) Soil	Sampled: 01/04/17 09:17	Received: 01/0)4/17 16:2'	7					
Silver	ND	0.91	mg/kg	1	B7A0578	01/05/17	01/06/17 20:04	EPA 6010B	
Arsenic	ND	3.2	"	"	"			"	
Barium	55	5.9	"		"	"		"	
Beryllium	ND	0.45	"	"	"	"		"	
Cadmium	ND	0.45	"	"	"	"		"	
Cobalt	6.7	2.3	"	"	"	"		"	
Chromium	19	2.7	"	"	"			"	
Hexavalent Chromium	ND	0.21	"	"	B7A0585	01/05/17	01/09/17 12:07	EPA 7199A	
Copper	19	1.8	"	"	B7A0578	01/05/17	01/06/17 20:04	EPA 6010B	
Mercury	0.10	0.01	"	"	B7A0581	01/05/17	01/06/17 18:47	EPA 7471A	
Molybdenum	0.93	0.91	"	"	B7A0578	01/05/17	01/06/17 20:04	EPA 6010B	
Nickel	14	3.6	"	"	"	"	"	"	
Lead	ND	2.7	"	"	"				
Antimony	ND	2.3	"	"	"				
Selenium	ND	5.4		"	"			"	
Thallium	ND	2.3			"		"	"	
Vanadium	28	5.4			"				
Zinc	20	9.4			"				
Zinc		2.1							
SB9-10 (1701054-04) Soil	Sampled: 01/04/17 09:30	Received: 01	/04/17 16:2	27					
Silver	ND	1.0	mg/kg	1	B7A0578	01/05/17	01/06/17 20:04	EPA 6010B	
Arsenic	ND	3.5	"	"	"	"		"	
Barium	35	6.5	"	"	"	"		"	
Beryllium	ND	0.50	"	"	"	"	"	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
Cobalt	5.3	2.5	"	"	"	"	"	"	
Chromium	21	3.0	"	"	"	"	"	"	
Hexavalent Chromium	ND	0.21	"	"	B7A0585	01/05/17	01/09/17 12:07	EPA 7199A	
Copper	15	2.0	"	"	B7A0578	01/05/17	01/06/17 20:04	EPA 6010B	
Mercury	0.04	0.01	"	"	B7A0581	01/05/17	01/06/17 18:47	EPA 7471A	
Molybdenum	ND	1.0	"	"	B7A0578	01/05/17	01/06/17 20:04	EPA 6010B	
Nickel	12	4.0	"	"	"	"		"	
Lead	3.1	3.0	"	"	"	"		"	
Antimony	ND	2.5	"	"	"	"	"	"	
Selenium	ND	6.0	"		"		"	"	
Thallium	ND	2.5	"	"	"	"	"	"	
Vanadium	23	6.0	"	"	"	"		"	
Zinc	27	10	"	"	"	"		"	



Zinc

Mearns Consulting LLC		Р	roject: SH	PI-Ameri	igas				
738 Ashland Avenue		Project Nu	umber: [nor	ne]	C			Reported	l:
Santa Monica CA, 90405		Project Ma	nager: Sus	an Mearns	3			01/12/17 09	9:24
	Meta	als by EPA	6000/700	0 Serie	s Method	ls			
		Sierra A	nalvtical	Labs, I	nc.				
		Reporting	J - J	,					
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB10-5 (1701054-05) Soil	Sampled: 01/04/17 09:48	Received: 01	/04/17 16:2	27					
Silver	ND	1.0	mg/kg	1	B7A0578	01/05/17	01/06/17 20:04	EPA 6010B	
Arsenic	ND	3.5	"	"	"	"	"	"	
Barium	140	6.5	"	"	"	"	"		
Beryllium	ND	0.50	"	"	"	"	"		
Cadmium	ND	0.50	"	"	"	"	"	"	
Cobalt	11	2.5	"	"	"	"	"		
Chromium	25	3.0	"	"	"		"		
Hexavalent Chromium	ND	0.19	"	"	B7A0585	01/05/17	01/09/17 12:07	EPA 7199A	
Copper	21	2.0	"	"	B7A0578	01/05/17	01/06/17 20:04	EPA 6010B	
Mercury	0.12	0.01	"	"	B7A0581	01/05/17	01/06/17 18:47	EPA 7471A	
Molybdenum	ND	1.0		"	B7A0578	01/05/17	01/06/17 20:04	EPA 6010B	
Nickel	18	4.0	"	"	"	"	"	"	
Lead	4.4	3.0	"	"	"	"	"	"	
Antimony	ND	2.5	"	"	"		"		
Selenium	ND	6.0		"	"	"	"		
Thallium	ND	2.5		"	"		"		
Vanadium	35	6.0		"	"	"	"		
Zinc	55 44	10	"	"	"	"	"	"	
SB10 10 (1701054 06) Soil	Sampled: 01/04/17 10:07	Deceived 0	1/04/17 16	.27					
Silver	Sampleu: 01/04/17 10:07	1.0	1/04/17 10	.27	D7 4 05 7 9	01/05/17	01/06/17 20 04		
Sliver	ND	1.0	mg/kg	1	B/A05/8	01/05/17	01/06/17 20:04	EPA 6010B	
Arsenic	ND	3.5							
Barium	45	6.5							
Beryllium	ND	0.50							
Cadmium	ND	0.50							
Cobalt	0.1	2.5							
Chromium	19	3.0							
Hexavalent Chromium	ND	0.19			B7A0585	01/05/17	01/09/17 12:07	EPA 7199A	
Copper	11	2.0		"	B7A0578	01/05/17	01/06/17 20:04	EPA 6010B	
Mercury	0.04	0.01			B7A0581	01/05/17	01/06/17 18:47	EPA 7471A	
Molybdenum	ND	1.0	"	"	B7A0578	01/05/17	01/06/17 20:04	EPA 6010B	
Nickel	11	4.0	"	"	"	"	"	"	
Lead	ND	3.0	"	"	"	"	"	"	
Antimony	ND	2.5	"	"	"	"	"	"	
Selenium	ND	6.0	"	"	"	"	"		
Thallium	ND	2.5	"	"	"	"	"		
Vanadium	20	6.0		"		"	"		

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Mearns Consulting LLC		Project: SHPI-Amerigas Project Number: [none] Project Manager: Susan Mearns							•
Santa Monica CA 90405									01/12/17 00.24
Build Monied Crit, 90105	Moto	la by FDA	<000/70		, Mothod	a		01/12/17 0.	
	Ivieta	US DY LPA	0000/70	ou Series	smethod	15			
		Sierra A	nalytical	l Labs, I	nc.				
		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB11-5 (1701054-07) Soil	Sampled: 01/04/17 10:11	Received: 01	/04/17 16:	27					
Silver	ND	1.0	mg/kg	1	B7A0578	01/05/17	01/06/17 20:04	EPA 6010B	
Arsenic	ND	3.5	"	"	"	"	"	"	
Barium	71	6.5	"	"	"	"	"	"	
Beryllium	ND	0.50	"	"	"	"	"	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
Cobalt	8.1	2.5	"	"	"	"	"	"	
Chromium	21	3.0	"	"	"	"	"	"	
Hexavalent Chromium	0.25	0.21	"	"	B7A0585	01/05/17	01/09/17 12:07	EPA 7199A	
Copper	15	2.0	"	"	B7A0578	01/05/17	01/06/17 20:04	EPA 6010B	
Mercury	0.05	0.01	"	"	B7A0581	01/05/17	01/06/17 18:47	EPA 7471A	
Molybdenum	ND	1.0	"	"	B7A0578	01/05/17	01/06/17 20:04	EPA 6010B	
Nickel	14	4.0	"	"	"	"	"	"	
Lead	3.2	3.0	"	"	"	"		"	
Antimony	ND	2.5	"	"	"	"		"	
Selenium	ND	6.0	"	"	"	"	"		
Thallium	ND	2.5	"		"	"	"	"	
Vanadium	26	6.0	"	"	"	"	"	"	
Zinc	30	10	"		"	"			
SB11-10 (1701054-08) Soil	Sampled: 01/04/17 10:19	Received · 0	1/04/17 16	5·27					
Silver	ND	1.0	ma/ka	1	D7 4 0579	01/05/17	01/06/17 20:04	EDA 6010D	
Arsonic	ND	1.0	mg/kg	1	B/A03/8	"	"	"	
Arsenic Borium	32	5.5	"	"					
Darium	52 ND	0.5	"		"				
Codmium		0.50							
Cabalt	12	0.50							
Cobart	4.2	2.5							
Unromium	20 ND	5.0			D7 4 05 95	01/05/17	01/00/17 12:07	EDA 7100A	
	ND	0.21			B/A0585	01/05/17	01/09/17 12:07	EPA /199A	
Copper	10	2.0			B/A05/8	01/05/17	01/06/17 20:04	EPA 0010B	
Mercury	0.10	0.01			B/A0581	01/05/17	01/06/17 18:47	EPA /4/IA	
Nolybdenum	ND	1.0			B/A05/8	01/05/17	01/06/17 20:04	EPA 6010B	
INICKEI	9.3	4.0							
Lead	ND	3.0							
Antimony	ND	2.5							
Selenium	ND	6.0	"		"		"		
Thallium	ND	2.5	"	"	"	"	"		
Vanadium	13	6.0	"	"	"	"		"	
Zinc	24	10	"	"		"	"	"	



Mearns Consulting LLC 738 Ashland Avenue		Project: SHPI-Amerigas Project Number: [none]						Reported:		
Santa Monica CA, 90405	Project Manager: Susan Mearns							01/12/17 09:24		
	Met	als by EPA	6000/70	00 Serie	s Method	ls				
		Sierra A	nalytical	l Labs, I	nc.					
		Reporting	_							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB12-5 (1701054-09) Soil	Sampled: 01/04/17 10:48	Received: 01	/04/17 16:	27						
Silver	ND	1.0	mg/kg	1	B7A0578	01/05/17	01/06/17 20:04	EPA 6010B		
Arsenic	ND	3.5	"	"	"	"	"	"		
Barium	86	6.5	"	"	"	"	"	"		
Beryllium	ND	0.50	"	"	"	"	"	"		
Cadmium	ND	0.50	"	"	"	"	"	"		
Cobalt	9.5	2.5	"	"	"	"		"		
Chromium	23	3.0	"	"	"	"		"		
Hexavalent Chromium	ND	0.21	"	"	B7A0585	01/05/17	01/09/17 12:07	EPA 7199A		
Copper	17	2.0	"	"	B7A0578	01/05/17	01/06/17 20:04	EPA 6010B		
Mercury	1.08	0.02	"	2	B7A0581	01/05/17	01/06/17 18:47	EPA 7471A		
Molybdenum	ND	1.0	"	1	B7A0578	01/05/17	01/06/17 20:04	EPA 6010B		
Nickel	13	4.0	"	"	"	"	"	"		
Lead	28	3.0	"	"	"	"		"		
Antimony	ND	2.5	"	"	"	"	"	"		
Selenium	ND	6.0	"	"	"	"	"	"		
Thallium	ND	2.5	"	"	"	"				
Vənədium	32	<u> </u>	"	"	"			"		
Zinc	120	10	"	"	"			"		
	120	10								
SB12-10 (1701054-10) Soil	Sampled: 01/04/17 10:55	5 Received: 0	1/04/17 16	5:27						
Silver	ND	1.0	mg/kg	1	B7A0579	01/05/17	01/09/17 12:16	EPA 6010B		
Arsenic	ND	3.5	"	"	"	"	"	"		
Barium	66	6.5	"	"	"	"	"	"		
Beryllium	ND	0.50	"	"	"	"	"	"		
Cadmium	ND	0.50	"	"	"	"	"	"		
Cobalt	6.5	2.5	"	"	"	"		"		
Chromium	21	3.0	"	"	"	"		"		
Hexavalent Chromium	ND	0.21	"	"	B7A0585	01/05/17	01/09/17 12:07	EPA 7199A		
Copper	15	2.0	"	"	B7A0579	01/05/17	01/09/17 12:16	EPA 6010B		
Mercury	0.04	0.01	"	"	B7A0581	01/05/17	01/06/17 18:47	EPA 7471A		
Molybdenum	ND	1.0	"	"	B7A0579	01/05/17	01/09/17 12:16	EPA 6010B		
Nickel	11	4.0	"	"	"	"		"		
Lead	3.0	3.0	"	"	"	"		"		
Antimony	ND	2.5	"		"	"	"	"		
Selenium	ND	6.0	"	"	"	"		"		
Thallium	ND	2.5	"	"	"	"		"		
Vanadium	30	6.0	"		"	"		"		
Zinc	36	10	"	"	"	"		"		



Zinc

Mearns Consulting LLC		Р	roject: SH	PI-Ameri	igas					
738 Ashland Avenue	Project Number: [none]								Reported:	
Santa Monica CA, 90405	Project Manager: Susan Mearns							01/12/17 09:24		
	Meta	ls by EPA	6000/700	00 Series	s Method	s				
		Sierra A	nalytical	l Labs, I	nc.					
		Reporting	•	-						
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB13-5 (1701054-11) Soil	Sampled: 01/04/17 11:18	Received: 01	/04/17 16:2	27						
Silver	ND	1.0	mg/kg	1	B7A0579	01/05/17	01/09/17 12:16	EPA 6010B		
Arsenic	ND	3.5	"	"	"	"	"	"		
Barium	78	6.5	"	"	"	"	"	"		
Beryllium	ND	0.50	"	"	"	"	"	"		
Cadmium	ND	0.50	"	"	"	"	"	"		
Cobalt	7.5	2.5	"	"	"	"	"	"		
Chromium	17	3.0	"	"	"	"	"	"		
Hexavalent Chromium	ND	0.21	"	"	B7A0586	01/05/17	01/09/17 12:09	EPA 7199A		
Copper	12	2.0	"	"	B7A0579	01/05/17	01/09/17 12:16	EPA 6010B		
Mercury	0.01	0.01	"	"	B7A0582	01/05/17	01/06/17 18:51	EPA 7471A		
Molybdenum	ND	1.0	"	"	B7A0579	01/05/17	01/09/17 12:16	EPA 6010B		
Nickel	11	4.0	"	"	"	"	"	"		
Lead	3.8	3.0	"	"	"	"	"	"		
Antimony	ND	2.5	"	"	"	"	"	"		
Selenium	ND	6.0	"	"	"	"	"	"		
Thallium	ND	2.5	"		"	"	"	"		
Vanadium	26	6.0	"		"	"	"	"		
Zinc	37	10	"	"	"	"	"	"		
SB13-10 (1701054-12) Soil	Sampled: 01/04/17 11:35	Received: 0	1/04/17 16	:27						
Silver	ND	1.0	mg/kg	1	B7A0579	01/05/17	01/09/17 12:16	EPA 6010B		
Arsenic	ND	3.5	"	"	"	"	"	"		
Barium	63	6.5	"	"	"	"	"	"		
Beryllium	ND	0.50	"	"	"	"	"	"		
Cadmium	ND	0.50	"	"	"	"	"	"		
Cobalt	8.2	2.5	"		"	"	"	"		
Chromium	21	3.0	"		"	"	"	"		
Hexavalent Chromium	ND	0.21	"		B7A0586	01/05/17	01/09/17 12:09	EPA 7199A		
Copper	12	2.0	"		B7A0579	01/05/17	01/09/17 12:16	EPA 6010B		
Mercury	0.04	0.01	"		B7A0582	01/05/17	01/06/17 18:51	EPA 7471A		
Molvbdenum	ND	1.0			B7A0579	01/05/17	01/09/17 12:16	EPA 6010B		
Nickel	13	4.0	"	"	"	"	"	"		
Lead	ND	3.0		"	"	"	"	"		
Antimony	ND	2.5		"	"	"	"	"		
Selenium	ND	6.0	"	"	"	"	"	"		
Thallium	ND	2.5	"	"	"	"	"			
Vanadium	29	6.0		"	"	"	"			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Zinc

Mearns Consulting LLC		P	roject: SH	IPI-Amer	igas					
738 Ashland Avenue		Project Nu	Reported:							
Santa Monica CA, 90405		Project Ma	anager: Sus	san Mearns	8		01/12/17 09:24			
	Met	als by EPA	6000/70	00 Serie	s Method	ls				
		Sierra A	nalytical	l Labs, I	nc.					
		Reporting								
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note	
SB14-5 (1701054-13) Soil	Sampled: 01/04/17 11:58	Received: 01	/04/17 16:	27						
Silver	ND	0.91	mg/kg	1	B7A0579	01/05/17	01/09/17 12:16	EPA 6010B		
Arsenic	ND	3.2	"	"	"	"	"			
Barium	110	5.9	"	"	"	"	"			
Beryllium	ND	0.45	"	"	"	"	"			
Cadmium	ND	0.45	"	"	"	"	"			
Cobalt	11	2.3	"	"	"	"				
Chromium	27	2.7	"	"	"		"			
Hexavalent Chromium	ND	0.21	"	"	B7A0586	01/05/17	01/09/17 12:09	EPA 7199A		
Copper	22	1.8	"	"	B7A0579	01/05/17	01/09/17 12:16	EPA 6010B		
Mercury	0.04	0.01	"	"	B7A0582	01/05/17	01/06/17 18:51	EPA 7471A		
Molybdenum	ND	0.91	"	"	B7A0579	01/05/17	01/09/17 12:16	EPA 6010B		
Nickel	21	3.6	"	"	"	"	"			
Lead	4.9	2.7	"	"		"				
Antimony	ND	2.3	"	"						
Selenium	ND	5.4	"	"	"	"				
Thallium	ND	2.3		"			"			
Vənədium	45	5.4	"	"		"				
Zinc	45	9.1	"							
) D 1 1 0	1/04/18 1/							
SB14-10 (1701054-14) Soil	Sampled: 01/04/17 12:10	Received: 0	1/04/17 16	:27						
Silver	ND	0.91	mg/kg	1	B7A0579	01/05/17	01/09/17 12:16	EPA 6010B		
Arsenic	ND	3.2	"	"	"	"				
Barium	38	5.9	"	"	"	"				
Beryllium	ND	0.45	"	"	"	"				
Cadmium	ND	0.45	"	"	"	"	"			
Cobalt	6.3	2.3	"	"	"	"				
Chromium	19	2.7	"	"	"	"	"			
Hexavalent Chromium	ND	0.19	"	"	B7A0586	01/05/17	01/09/17 12:09	EPA 7199A		
Copper	10	1.8	"	"	B7A0579	01/05/17	01/09/17 12:16	EPA 6010B		
Mercury	0.02	0.01	"	"	B7A0582	01/05/17	01/06/17 18:51	EPA 7471A		
Molybdenum	ND	0.91	"	"	B7A0579	01/05/17	01/09/17 12:16	EPA 6010B		
Nickel	11	3.6	"	"	"		"	"		
Lead	ND	2.7	"	"	"	"	"	"		
Antimony	ND	2.3	"	"	"	"	"	"		
Selenium	ND	5.4	"	"	"	"	"	"		
Thallium	ND	2.3	"	"	"	"	"	"		
Vanadium	18	5.4	"	"	"					

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Mearns Consulting LLC		Р	roject: SH	PI-Ameri	igas				
738 Ashland Avenue		Reported:							
Santa Monica CA, 90405		Project Ma	nager: Sus	an Mearns	8		01/12/17 09:24		
	Meta	als by EPA	6000/700	00 Series	s Method	ls			
		Sierra A	nalytical	Labs, I	nc.				
		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB17-5 (1701054-15) Soil	Sampled: 01/04/17 12:33	Received: 01	/04/17 16:2	27					
Silver	ND	1.0	mg/kg	1	B7A0579	01/05/17	01/09/17 12:16	EPA 6010B	
Arsenic	ND	3.5	"	"	"	"	"		
Barium	60	6.5	"	"	"	"	"	"	
Beryllium	ND	0.50	"	"	"	"	"	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
Cobalt	6.9	2.5	"		"		"	"	
Chromium	15	3.0	"	"	"	"	"	"	
Hexavalent Chromium	ND	0.21	"	"	B7A0586	01/05/17	01/09/17 12:09	EPA 7199A	
Copper	11	2.0	"	"	B7A0579	01/05/17	01/09/17 12:16	EPA 6010B	
Mercury	0.05	0.01	"	"	B7A0582	01/05/17	01/06/17 18:51	EPA 7471A	
Molybdenum	ND	1.0	"		B7A0579	01/05/17	01/09/17 12:16	EPA 6010B	
Nickel	11	4.0			"	"	"	"	
Lead	ND	3.0		"	"	"	"		
Antimony	ND	2.5			"		"	"	
Selenium	ND	2.5 6.0		"	"		"		
Thallium	ND	2.5			"				
Vonodium	24	2.5			"				
	24	10			"				
Zinc	50	10							
SB17-10 (1701054-16) Soil	Sampled: 01/04/17 12:40	Received: 0	1/04/17 16	:27					
Silver	ND	0.91	mg/kg	1	B7A0579	01/05/17	01/09/17 12:16	EPA 6010B	
Arsenic	ND	3.2	"	"	"	"	"	"	
Barium	42	5.9	"	"	"	"		"	
Beryllium	ND	0.45	"	"	"		"	"	
Cadmium	ND	0.45	"	"	"		"	"	
Cobalt	6.3	2.3	"	"	"	"			
Chromium	27	2.7	"	"	"	"	"	"	
Hexavalent Chromium	ND	0.21	"	"	B7A0586	01/05/17	01/09/17 12:09	EPA 7199A	
Copper	11	1.8	"	"	B7A0579	01/05/17	01/09/17 12:16	EPA 6010B	
Mercury	0.02	0.01	"	"	B7A0582	01/05/17	01/06/17 18:51	EPA 7471A	
Molybdenum	ND	0.91	"	"	B7A0579	01/05/17	01/09/17 12:16	EPA 6010B	
Nickel	12	3.6	"	"	"	"	"	"	
Lead	3.2	2.7	"	"	"	"		"	
Antimony	ND	2.3	"	"	"	"	"	"	
Selenium	ND	5.4	"	"	"	"	"	"	
Thallium	ND	2.3		"	"	"	"		
Vanadium	23	5.4		"	"	"			
Zinc	32	9.1		"	"	"			

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Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		P Project Nu Project Ma	Reported: 01/12/17 09:2						
	Met	als by EPA Sierra A	6000/70 nalytical	00 Series	s Method	ls			
		Bitta A	narytica	I Labs, I	nc.				
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB15-5 (1701054-17) Soil	Sampled: 01/04/17 13:20	Received: 01	/04/17 16:	27					
Silver	ND	1.0	mg/kg	1	B7A0579	01/05/17	01/09/17 12:16	EPA 6010B	
Arsenic	ND	3.5	"	"	"	"	"		
Barium	63	6.5	"	"	"	"			
Beryllium	ND	0.50	"	"	"	"			
Cadmium	ND	0.50	"	"	"	"	"	"	
Cobalt	6.4	2.5	"	"	"	"	"	"	
Chromium	15	3.0	"	"	"	"			
Hexavalent Chromium	ND	0.21	"	"	B7A0586	01/05/17	01/09/17 12:09	EPA 7199A	
Copper	7.9	2.0	"	"	B7A0579	01/05/17	01/09/17 12:16	EPA 6010B	
Mercury	0.02	0.01	"	"	B7A0582	01/05/17	01/06/17 18:51	EPA 7471A	
Molybdenum	ND	1.0	"	"	B740579	01/05/17	01/09/17 12:16	EPA 6010B	
Nickel	84	4.0	"	"	B//10577	"	"	"	
Lead	0.4 ND	4.0	"		"		"		
Antimony	ND	2.5	"		"				
Solonium	ND	2.5	"		"				
Thallium	ND	0.0							
Mana diama		2.5							
vanadium	21	6.0 10							
Zinc	31	10							
SB15-10 (1701054-18) Soil	Sampled: 01/04/17 13:28	8 Received: 0	1/04/17 16	5:27					
Silver	ND	1.0	mg/kg	1	B7A0579	01/05/17	01/09/17 12:16	EPA 6010B	
Arsenic	ND	3.5	"	"	"	"	"		
Barium	58	6.5	"	"	"	"	"	"	
Beryllium	ND	0.50	"	"	"	"	"	"	
Cadmium	ND	0.50	"	"	"	"	"		
Cobalt	7.4	2.5	"	"	"	"	"	"	
Chromium	23	3.0	"	"	"	"	"	"	
Hexavalent Chromium	ND	0.21	"	"	B7A0586	01/05/17	01/09/17 12:09	EPA 7199A	
Copper	7.5	2.0	"	"	B7A0579	01/05/17	01/09/17 12:16	EPA 6010B	
Mercury	ND	0.01	"	"	B7A0582	01/05/17	01/06/17 18:51	EPA 7471A	
Molybdenum	ND	1.0	"	"	B7A0579	01/05/17	01/09/17 12:16	EPA 6010B	
Nickel	12	4.0	"		"	"		"	
Lead	ND	3.0	"	"	"	"	"		
Antimony	ND	2.5	"	"	"	"	"		
Selenium	ND	6.0	"		"	"	"	"	
Thallium	ND	2.5	"		"	"	"	"	
Vanadium	26	6.0	"		"			"	
Zinc	34	10	"		"	"			



Zinc

Mearns Consulting LLC		Р	roject: SH	PI-Ameri	igas				
738 Ashland Avenue		Project Nu			Reported	:			
Santa Monica CA, 90405		Project Ma	nager: Sus	an Mearns	3			01/12/17 09	9:24
	Meta	ls by EPA	6000/700)0 Series	s Method	s			
		Sierra A	nalvtical	Labs. I	nc.				
		Peporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB16-5 (1701054-19) Soil	Sampled: 01/04/17 13:42	Received: 01	/04/17 16:2	27					
Silver	ND	0.91	mg/kg	1	B7A0579	01/05/17	01/09/17 12:16	EPA 6010B	
Arsenic	ND	3.2	"	"	"	"	"	"	
Barium	100	5.9	"	"	"	"	"	"	
Beryllium	ND	0.45	"	"	"	"	"	"	
Cadmium	ND	0.45	"	"	"	"	"	"	
Cobalt	9.2	2.3	"	"	"	"	"	"	
Chromium	21	2.7	"	"	"	"	"	"	
Hexavalent Chromium	ND	0.21	"	"	B7A0586	01/05/17	01/09/17 12:09	EPA 7199A	
Copper	40	1.8	"	"	B7A0579	01/05/17	01/09/17 12:16	EPA 6010B	
Mercury	0.06	0.01	"	"	B7A0582	01/05/17	01/06/17 18:51	EPA 7471A	
Molybdenum	ND	0.91	"	"	B7A0579	01/05/17	01/09/17 12:16	EPA 6010B	
Nickel	15	3.6		"	"	"	"	"	
Lead	7.5	2.7		"	"	"	"	"	
Antimony	ND	2.3	"	"	"	"	"	"	
Selenium	ND	5.4	"	"	"	"	"	"	
Thallium	ND	2.3	"	"	"	"	"	"	
Vanadium	30	5.4		"	"	"	"	"	
Zinc	46	9.1	"	"	"	"	"	"	
SB16-10 (1701054-20) Soil	Sampled: 01/04/17 13:48	Received: 0	1/04/17 16	:27					
Silver	ND	1.0	mg/kg	1	B7A0580	01/05/17	01/09/17 12:40	EPA 6010B	
Arsenic	ND	3.5	"	"	"	"	"	"	
Barium	80	6.5	"	"	"	"	"	"	
Beryllium	ND	0.50	"	"	"	"	"	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
Cobalt	7.9	2.5		"	"	"	"	"	
Chromium	21	3.0	"	"	"	"	"	"	
Hexavalent Chromium	ND	0.21	"	"	B7A0586	01/05/17	01/09/17 12:09	EPA 7199A	
Copper	13	2.0	"	"	B7A0580	01/05/17	01/09/17 12:40	EPA 6010B	
Mercury	0.05	0.01	"	"	B7A0582	01/05/17	01/06/17 18:51	EPA 7471A	
Molybdenum	ND	1.0	"	"	B7A0580	01/05/17	01/09/17 12:40	EPA 6010B	
Nickel	13	4.0		"	"	"	"	"	
Lead	3.0	3.0	"	"	"	"			
Antimony	ND	2.5		"	"	"	"		
Selenium	ND	<u> </u>	"	"	"	"	"		
Thallium	ND	2.5		"		"	"	"	
Vanadium	32	2.9 6.0		"	"	"	"	"	

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Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Reported: 01/12/17 09:24							
	Met	als by EPA Siorra A	6000/70	00 Series	s Method	ls			
		Slefta A	narytica	I Laus, I	IIC.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB18-5 (1701054-21) Soil	Sampled: 01/04/17 14:11	Received: 01	/04/17 16:	27					
Silver	ND	1.0	mg/kg	1	B7A0580	01/05/17	01/09/17 12:40	EPA 6010B	
Arsenic	ND	3.5	"	"	"	"			
Barium	63	6.5	"	"	"	"			
Beryllium	ND	0.50	"	"	"	"	"	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
Cobalt	8.8	2.5	"	"	"	"	"	"	
Chromium	19	3.0	"	"	"	"		"	
Hexavalent Chromium	ND	0.21	"	"	B7A0587	01/05/17	01/09/17 12:10	EPA 7199A	
Copper	19	2.0	"	"	B7A0580	01/05/17	01/09/17 12:40	EPA 6010B	
Mercurv	0.03	0.01	"	"	B7A0583	01/05/17	01/06/17 18:52	EPA 7471A	
Molvbdenum	ND	1.0	"	"	B7A0580	01/05/17	01/09/17 12:40	EPA 6010B	
Nickel	13	4.0	"	"	"	"	"	"	
Lead	4.1	3.0	"	"	"	"		"	
Antimony	ND	2.5	"	"	"	"			
Selenium	ND	<u>5</u> .5	"	"	"	"			
Thallium	ND	2.5	"		"		"	"	
Vənədium	30	6.0		"	"				
Vanaulum Zine	36	10		"	"	"			
	50	10							
SB18-10 (1701054-22) Soil	Sampled: 01/04/17 14:20	Received: 0	01/04/17 16	:27					
Silver	ND	1.0	mg/kg	1	B7A0580	01/05/17	01/09/17 12:40	EPA 6010B	
Arsenic	ND	3.5	"	"	"	"	"	"	
Barium	72	6.5	"	"	"	"	"	"	
Beryllium	ND	0.50	"	"	"	"	"	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
Cobalt	9.7	2.5	"	"	"	"	"	"	
Chromium	39	3.0	"	"	"	"	"	"	
Hexavalent Chromium	ND	0.21	"	"	B7A0587	01/05/17	01/09/17 12:10	EPA 7199A	
Copper	28	2.0	"	"	B7A0580	01/05/17	01/09/17 12:40	EPA 6010B	
Mercury	0.03	0.01	"	"	B7A0583	01/05/17	01/06/17 18:52	EPA 7471A	
Molybdenum	ND	1.0	"	"	B7A0580	01/05/17	01/09/17 12:40	EPA 6010B	
Nickel	30	4.0	"		"	"			
Lead	4.7	3.0	"		"	"	"		
Antimony	ND	2.5	"		"	"	"		
Selenium	ND	6.0	"		"	"	"	"	
Thallium	ND	2.5	"		"	"	"	"	
Vanadium	32	6.0	"		"				
Zinc	44	10	"		"	"			



Mearns Consulting LLC		P	roject: SH	PI-Amer	igas					
738 Ashland Avenue		Project Number: [none]								
Santa Monica CA, 90405		Project Ma	nager: Sus	an Mearns	3		01/12/17 09:24			
	Meta	ls by EPA	6000/700)0 Serie	s Method	s				
		Sierra Ai	nalytical	Labs, I	nc.					
		Reporting		,	-					
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB19-5 (1701054-23) Soil	Sampled: 01/04/17 14:37	Received: 01/	/04/17 16:2	27						
Silver	ND	1.0	mg/kg	1	B7A0580	01/05/17	01/09/17 12:40	EPA 6010B		
Arsenic	ND	3.5	"	"	"	"	"	"		
Barium	81	6.5	"	"	"	"	"	"		
Beryllium	ND	0.50	"	"	"	"	"	"		
Cadmium	ND	0.50	"	"	"	"	"	"		
Cobalt	5.8	2.5	"	"	"	"	"	"		
Chromium	35	3.0	"	"	"	"	"	"		
Hexavalent Chromium	0.36	0.19	"	"	B7A0587	01/05/17	01/09/17 12:10	EPA 7199A		
Copper	30	2.0	"	"	B7A0580	01/05/17	01/09/17 12:40	EPA 6010B		
Mercury	0.27	0.01	"	"	B7A0583	01/05/17	01/06/17 18:52	EPA 7471A		
Molybdenum	ND	1.0	"		B740580	01/05/17	01/09/17 12:40	EPA 6010B		
Nickel	12	4.0	"		B//10500	"	"	"		
Lead	23	4.0			"			"		
Antimony	25 ND	2.5	"	"	"					
Selenium	ND	2.5	"		"					
Thallium	ND	0.0					"			
		2.3						"		
	20	0.0								
Zinc	94	10								
SB19-10 (1701054-24) Soil	Sampled: 01/04/17 14:45	Received: 01	1/04/17 16	:27						
Silver	ND	1.0	mg/kg	1	B7A0580	01/05/17	01/09/17 12:40	EPA 6010B		
Arsenic	ND	3.5	"	"	"	"	"	"		
Barium	59	6.5	"	"	"	"	"	"		
Beryllium	ND	0.50	"	"	"	"	"	"		
Cadmium	ND	0.50	"	"	"	"	"	"		
Cobalt	7.6	2.5	"	"	"	"	"	"		
Chromium	22	3.0	"	"	"	"	"	"		
Hexavalent Chromium	1.7	1.1	"	5	B7A0587	01/05/17	01/09/17 12:10	EPA 7199A		
Copper	11	2.0	"	1	B7A0580	01/05/17	01/09/17 12:40	EPA 6010B		
Mercury	0.02	0.01	"	"	B7A0583	01/05/17	01/06/17 18:52	EPA 7471A		
Molybdenum	ND	1.0	"	"	B7A0580	01/05/17	01/09/17 12:40	EPA 6010B		
Nickel	12	4.0	"	"	"	"				
Lead	ND	3.0	"	"	"	"	"			
Antimony	ND	2.5	"	"	"	"	"			
Selenium	ND	6.0	"	"	"	"	"			
Thallium	ND	2.5	"	"	"	"				
Vanadium	28	6.0	"		"	"				
Zinc	37	10	"	"	"	"	"			



Metals by EPA 6000/7000 Series Methods Silver Analytical Labs, Inc. Analytic Reporting Linit Units Dilution Bach Peparol Analyzed Method Note: Silver ND 0.91 mg/kg 1 B7A0580 01.05/17 01.09/17 12:40 EPA 6010B Analyzed Method Note: Status Colspan="2">Silver ND 0.91 mg/kg 1 B7A0580 01.05/17 01.09/17 12:40 EPA 6010B Colspan="2">Colspan="2" Metals analytical Labs, Inc. Colspan="2"	Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405			Reported: 01/12/17 09:24						
Sherra Analytedi Labs, Inc. Andyte Reparting Limit Units Dilution Batch Peparel Analyzed Method Notes SB20-5 (1701054-25) Soil Sampled: 01/04/17 14-58 Received: 01/04/17 16-27 Bradiso 01.05/17 01.09/17 12-40 EPA 6010B Arsenic ND 3.2 -		Met	als by EPA	6000/70	00 Series	s Method	ls			
Analyte Result Linit Dilution Bach Prepared Analyzed Method Notes SB20-5 (1701054-25) Soil Sampled: 01/04/17 14:58 Received: 01/04/17 16:27 <th></th> <th></th> <th>Sierra A</th> <th>nalytica</th> <th>I Labs, I</th> <th>nc.</th> <th></th> <th></th> <th></th> <th></th>			Sierra A	nalytica	I Labs, I	nc.				
SD2-5 (1701054-25) Soit Samplet: 01/04/17 14:58 Reverte: 01/04/17 14:58 Reverte: 01/04/17 14:58 Silver ND 0.9 mg/s 1 B7A0580 0.05/7 0.009/17 12-00 EA 60108 Arsenic ND 0.45 - - - - - Barjum 0.045 - - - - - - - Cadnium 0.047 2.03 -	Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
ND 0.91 mg/kg 1 B7A0580 01.05/17 01.09/17 12:40 EPA 6010B Arsenic ND 3.2 " " " " " " " Barlum ND 0.45 " " " " " " " " Cadmiun 0.77 0.45 " <th< td=""><td>SB20-5 (1701054-25) Soil</td><td>Sampled: 01/04/17 14:58</td><td>Received: 01</td><td>/04/17 16:</td><td>27</td><td></td><td></td><td></td><td></td><td></td></th<>	SB20-5 (1701054-25) Soil	Sampled: 01/04/17 14:58	Received: 01	/04/17 16:	27					
Arsenic ND 3.2 "	Silver	ND	0.91	mg/kg	1	B7A0580	01/05/17	01/09/17 12:40	EPA 6010B	
Barium1505.9**	Arsenic	ND	3.2	"	"	"	"	"		
Beryllium ND 0.45 " <	Barium	150	5.9	"	"	"	"	"		
Cadminum0,770,45"""<	Beryllium	ND	0.45	"	"	"	"	"		
Cobalt2402.3""	Cadmium	0.77	0.45	"	"	"	"			
Chromium 220 2,7 " <th"< th=""> " <th< td=""><td>Cobalt</td><td>240</td><td>2.3</td><td>"</td><td>"</td><td>"</td><td>"</td><td></td><td></td><td></td></th<></th"<>	Cobalt	240	2.3	"	"	"	"			
Hexavalent Chromium ND 0.21 " " B7A0587 01/05/17 01/09/17 12:10 EPA 7199A Copper 200 1.8 " " B7A0580 01/05/17 01/09/17 12:40 EPA 6010B Mercury 0.04 0.01 " " B7A0580 01/05/17 01/09/17 12:40 EPA 7471A Molybdenum 23 0.91 " " B7A0580 01/05/17 01/09/17 12:40 EPA 7471A Molybdenum 23 0.91 " <t< td=""><td>Chromium</td><td>220</td><td>2.7</td><td>"</td><td>"</td><td>"</td><td>"</td><td>"</td><td></td><td></td></t<>	Chromium	220	2.7	"	"	"	"	"		
Copper 200 1.8 " " B7A0580 01/05/17 01/09/17 12:40 EPA 6010B Mercury 0.04 0.01 " " B7A0583 01/05/17 01/09/17 18:52 EPA 7471A Molybdenum 23 0.91 " " B7A0580 01/05/17 01/09/17 18:52 EPA 6010B Nickel 27 3.6 " " " " " " Lead 450 2.7 " " " " " " Sclenium ND 5.4 " " " " " " Sclenium ND 5.4 " " " " " " " Sclenium Sampled: 01/04/17 15:06 Received: 01/04/17 16:27 " " " " " Stlver ND 0.90 mg/kg 1 B7A0580 01/05/17 01/09/17 12:40 EPA 6010B Arsenic ND <t< td=""><td>Hexavalent Chromium</td><td>ND</td><td>0.21</td><td>"</td><td>"</td><td>B7A0587</td><td>01/05/17</td><td>01/09/17 12:10</td><td>EPA 7199A</td><td></td></t<>	Hexavalent Chromium	ND	0.21	"	"	B7A0587	01/05/17	01/09/17 12:10	EPA 7199A	
Mercury0.040.01""B7A05801/05/1701/06/17 18:52EPA 7471AMolybdenum230.91""B7A05801/05/1701/06/17 12:40EPA 6010BNickel273.6"""""""Lead4502.7"""""""""SeleniumND5.4"""""""""Thallium132.3""""""""""Vanadium515.4""	Copper	200	1.8	"	"	B7A0580	01/05/17	01/09/17 12:40	EPA 6010B	
Molybdenum 23 0.91 " B7A0580 01.09/17 01.09/17 12:40 EPA 6010B Nickel 27 3.6 " <td>Mercury</td> <td>0.04</td> <td>0.01</td> <td>"</td> <td>"</td> <td>B7A0583</td> <td>01/05/17</td> <td>01/06/17 18:52</td> <td>EPA 7471A</td> <td></td>	Mercury	0.04	0.01	"	"	B7A0583	01/05/17	01/06/17 18:52	EPA 7471A	
Nickel 27 3.6 "	Molybdenum	23	0.91	"	"	B7A0580	01/05/17	01/09/17 12:40	EPA 6010B	
Lead450 $2,7$ """	Nickel	27	3.6	"	"	"	"			
Antimony 11 2.3 " <th< td=""><td>Lead</td><td>450</td><td>2.7</td><td>"</td><td>"</td><td>"</td><td>"</td><td></td><td></td><td></td></th<>	Lead	450	2.7	"	"	"	"			
SeleniumND 5.4 """<	Antimony	11	2.3	"	"	"	"			
Thallium132.3""""""""Vanadium515.4"""""""""Zine5209.1""""""""""SB20-10 (1701054-26) SoilSampled: 01/04/17 15:06Received: 01/04/17 16:27BarlineBarlineD0.90mg/kg1B7A058001/05/1701/09/17 12:40 EPA 6010BArsenicND0.92"""""""""Barlum1405.9"""""""""BerylliumND0.45"""""""""Cobalt122.3""""""""""ChromiumDD0.45""""""""""Hexavalent ChromiumND0.45"""B7A058001/05/1701/09/17 12:10EPA 7471AMolybdenumND0.90""B7A058001/05/1701/09/17 12:40EPA 6010BMercury0.030.01""B7A058001/05/1701/09/17 12:40EPA 6010BMickel193.6"""""""Lead372.7"""" <th< td=""><td>Selenium</td><td>ND</td><td>5.4</td><td>"</td><td>"</td><td>"</td><td>"</td><td>"</td><td></td><td></td></th<>	Selenium	ND	5.4	"	"	"	"	"		
Vanadium Zinc 51 520 5.4 9.1 " <td>Thallium</td> <td>13</td> <td>2.3</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td></td> <td></td> <td></td>	Thallium	13	2.3	"	"	"	"			
Zinc 520 9.1 "<	Vanadium	51	5.4	"	"	"	"			
SB20-10 (1701054-26) Soil Sampled: 01/04/17 15:06 Received: 01/04/17 16:27 Silver ND 0.90 mg/kg 1 B7A0580 01/05/17 01/09/17 12:40 EPA 6010B Arsenic ND 3.2 " " " " " " " Barium 140 5.9 " " " " " " " " Beryllium ND 0.45 "	Zinc	520	9.1	"		"	"			
ND 0.90 mg/kg 1 B7A0580 01/05/17 01/09/17 12:40 EPA 6010B Arsenic ND 3.2 " <t< td=""><td>SB20-10 (1701054-26) Soil</td><td>Sampled: 01/04/17 15:00</td><td>6 Received: 0</td><td>1/04/17 16</td><td>5:27</td><td></td><td></td><td></td><td></td><td></td></t<>	SB20-10 (1701054-26) Soil	Sampled: 01/04/17 15:00	6 Received: 0	1/04/17 16	5:27					
Arsenic ND 3.2 "	Silver	ND	0.90	mg/kg	1	B7A0580	01/05/17	01/09/17 12:40	EPA 6010B	
Barium 140 5.9 "	Arsenic	ND	3.2	"		"	"	"	"	
Barryllium ND 0.45 "	Barium	140	5.9	"	"	"	"			
Cadmium ND 0.45 " <th< td=""><td>Beryllium</td><td>ND</td><td>0.45</td><td>"</td><td>"</td><td>"</td><td></td><td></td><td></td><td></td></th<>	Beryllium	ND	0.45	"	"	"				
Cobalt 12 2.3 " <th"<< td=""><td>Cadmium</td><td>ND</td><td>0.45</td><td>"</td><td>"</td><td>"</td><td></td><td></td><td></td><td></td></th"<<>	Cadmium	ND	0.45	"	"	"				
Chromium 26 2.7 " <th< td=""><td>Cobalt</td><td>12</td><td>2.3</td><td>"</td><td>"</td><td>"</td><td>"</td><td></td><td></td><td></td></th<>	Cobalt	12	2.3	"	"	"	"			
Hexavalent Chromium ND 0.21 " B7A0587 01/05/17 01/09/17 12:10 EPA 7199A Copper 33 1.8 " " B7A0580 01/05/17 01/09/17 12:40 EPA 6010B Mercury 0.03 0.01 " " B7A0583 01/05/17 01/09/17 12:40 EPA 6010B Mercury 0.03 0.01 " " B7A0583 01/05/17 01/09/17 12:40 EPA 6010B Molybdenum ND 0.90 " " B7A0580 01/05/17 01/09/17 12:40 EPA 6010B Nickel 19 3.6 " " " " " " " Lead 37 2.7 "	Chromium	26	2.7	"	"	"	"			
Copper 33 1.8 " B7A0580 01/05/17 01/09/17 12:40 EPA 6010B Mercury 0.03 0.01 " " B7A0580 01/05/17 01/09/17 12:40 EPA 6010B Molybdenum ND 0.90 " " B7A0580 01/05/17 01/09/17 12:40 EPA 6010B Nickel 19 3.6 "<	Hexavalent Chromium	ND	0.21	"	"	B7A0587	01/05/17	01/09/17 12:10	EPA 7199A	
Observe of the second secon	Copper	33	1.8	"	"	B7A0580	01/05/17	01/09/17 12:40	EPA 6010B	
Moleculty ND 0.90 " B7A0580 01/05/17 01/09/17 12:40 EPA 6010B Nickel 19 3.6 " <th"< th=""> " " "<td>Mercury</td><td>0.03</td><td>0.01</td><td>"</td><td>"</td><td>B7A0583</td><td>01/05/17</td><td>01/06/17 18:52</td><td>EPA 7471A</td><td></td></th"<>	Mercury	0.03	0.01	"	"	B7A0583	01/05/17	01/06/17 18:52	EPA 7471A	
Nickel 19 3.6 "	Molybdenum	ND	0.90	"	"	B7A0580	01/05/17	01/09/17 12:40	EPA 6010B	
Lead 37 2.7 " " " " " Antimony ND 2.3 " " " " " Selenium ND 5.4 " " " " " Thallium ND 2.3 " " " " " Vanadium 40 5.4 " " " " " Zinc 110 9.0 " " " " "	Nickel	19	3.6	"		"	"	"	"	
Antimony ND 2.3 " " " " " Selenium ND 5.4 " " " " " Thallium ND 2.3 " " " " " Vanadium 40 5.4 " " " " " Zinc 110 9.0 " " " " "	Lead	37	2.7	"		"				
Selenium ND 5.4 " " " " Thallium ND 2.3 " " " " " Vanadium 40 5.4 " " " " " Zinc 110 9.0 " " " " "	Antimony	ND	2.7	"		"		"		
Thallium ND 2.3 " " " Vanadium 40 5.4 " " " " Zinc 110 9.0 " " " "	Selenium		2.3 5 4	"		"		"		
Vanadium 40 5.4 " <th"< th=""> " <th"< td=""><td>Thallium</td><td>ND</td><td>23</td><td>"</td><td></td><td>"</td><td></td><td>"</td><td></td><td></td></th"<></th"<>	Thallium	ND	23	"		"		"		
Zinc 110 9.0 " " " " " "	Vanadium	40	2.3 5 A	"		"				
	Zinc	40 110	9.4	"		"				

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Mearns Consulting LLC 738 Ashland Avenue Sonta Manica CA, 20405			Reported:						
Santa Monica CA, 90405	otal Volatilo P	etroleum	Hydroco	an Mearns	, ТVРН) І	w GC/F		01/12/17	09:24
Ĩ		Sierra Ai	nalytical	Lahs. I	nc.	у С (Г	117		
		Reporting	iui y ticui	2455,1					
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB8-5 (1701054-01) Soil Sampled: 01	1/04/17 08:46 Re	ceived: 01/0	4/17 16:27	1					
Gasoline Range Hydrocarbons (C4-C12)	ND	0.073	mg/kg	1	B7A0558	01/05/17	01/05/17 11:09	EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		80.4 %	35-1	130	"	"	"	"	
SB8-10 (1701054-02) Soil Sampled: (01/04/17 08:57 R	eceived: 01/	04/17 16:2	27					
Gasoline Range Hydrocarbons (C4-C12)	ND	0.050	mg/kg	1	B7A0558	01/05/17	01/05/17 11:09	EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		89.9 %	35-1	130	"	"	"	"	
SB9-5 (1701054-03) Soil Sampled: 01	1/04/17 09:17 Re	ceived: 01/0	4/17 16:27	7					
Gasoline Range Hydrocarbons (C4-C12)	ND	0.044	mg/kg	1	B7A0558	01/05/17	01/05/17 11:09	EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		87.0 %	35-1	130	"	"	"	"	
SB9-10 (1701054-04) Soil Sampled: (01/04/17 09:30 R	eceived: 01/	04/17 16:2	27					
Gasoline Range Hydrocarbons (C4-C12)	ND	0.039	mg/kg	1	B7A0558	01/05/17	01/05/17 11:09	EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		88.5 %	35-1	130	"	"	"	"	
SB10-5 (1701054-05) Soil Sampled: (01/04/17 09:48 R	eceived: 01/	04/17 16:2	27					
Gasoline Range Hydrocarbons (C4-C12)	810	5.0	mg/kg	100	B7A0558	01/05/17	01/05/17 11:09	EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		97.9 %	35-1	130	"	"	"	"	
SB10-10 (1701054-06) Soil Sampled:	01/04/17 10:07	Received: 01	/04/17 16:	:27					
Gasoline Range Hydrocarbons (C4-C12)	380	4.2	mg/kg	100	B7A0558	01/05/17	01/05/17 11:09	EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		86.2 %	35-1	130	"	"	"	"	
SB11-5 (1701054-07) Soil Sampled: (01/04/17 10:11 R	eceived: 01/	04/17 16:2	27					
Gasoline Range Hydrocarbons (C4-C12)	ND	0.050	mg/kg	1	B7A0558	01/05/17	01/05/17 11:09	EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		85.7 %	35-1	130	"	"	"	"	



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA 90405		Pr Project Nu Project Mar	Reported: 01/12/17 09:24						
To	otal Volatile P	etroleum	Hydrocar	bons (TVPH) ł	oy GC/F	ID	01/12/17	0 <i>7.2</i> T
		Sierra Ar	nalytical L	abs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB11-10 (1701054-08) Soil Sampled:	01/04/17 10:19	Received: 01	/04/17 16:27	7					
Gasoline Range Hydrocarbons (C4-C12)	ND	0.070	mg/kg	1	B7A0558	01/05/17	01/05/17 11:09	EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		78.9 %	35-130)	"	"	"	"	
SB12-5 (1701054-09) Soil Sampled: 0	1/04/17 10:48 F	Received: 01/	04/17 16:27						
Gasoline Range Hydrocarbons (C4-C12)	ND	0.038	mg/kg	1	B7A0558	01/05/17	01/05/17 11:09	EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		85.6 %	35-130)	"	"	"	"	
SB12-10 (1701054-10) Soil Sampled:	01/04/17 10:55	Received: 01	/04/17 16:27	7					
Gasoline Range Hydrocarbons (C4-C12)	ND	0.042	mg/kg	1	B7A0558	01/05/17	01/05/17 11:09	EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		86.8 %	35-130)	"	"	"	"	
SB13-5 (1701054-11) Soil Sampled: 0	1/04/17 11:18 F	Received: 01/	04/17 16:27						
Gasoline Range Hydrocarbons (C4-C12)	ND	0.035	mg/kg	1	B7A0558	01/05/17	01/05/17 11:09	EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		88.7 %	35-130)	"	"	"	"	
SB13-10 (1701054-12) Soil Sampled:	01/04/17 11:35	Received: 01	/04/17 16:27	7					
Gasoline Range Hydrocarbons (C4-C12)	ND	0.050	mg/kg	1	B7A0558	01/05/17	01/05/17 11:09	EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		83.5 %	35-130)	"	"	"	"	
SB14-5 (1701054-13) Soil Sampled: 0	1/04/17 11:58 F	Received: 01/	04/17 16:27						
Gasoline Range Hydrocarbons (C4-C12)	ND	0.050	mg/kg	1	B7A0558	01/05/17	01/05/17 11:09	EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		90.8 %	35-130)	"	"	"	"	
SB14-10 (1701054-14) Soil Sampled:	01/04/17 12:10	Received: 01	/04/17 16:27	7					
Gasoline Range Hydrocarbons (C4-C12)	ND	0.044	mg/kg	1	B7A0558	01/05/17	01/05/17 11:09	EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		88.7 %	35-130) _	"	"	"	"	



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA 90405		Reported:							
T	otal Volatile P	etroleum	Hydrocar	bons (TVPH) l	oy GC/F	ID	01/12/17	<i>)).2</i> 1
		Sierra Ar	nalytical L	abs, I	nc.	•			
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB17-5 (1701054-15) Soil Sampled: (01/04/17 12:33 R	eceived: 01/	04/17 16:27						
Gasoline Range Hydrocarbons (C4-C12)	ND	0.043	mg/kg	1	B7A0558	01/05/17	01/05/17 11:09	EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		84.9 %	35-130)	"	"	"	"	
SB17-10 (1701054-16) Soil Sampled:	01/04/17 12:40	Received: 01	1/04/17 16:27	7					
Gasoline Range Hydrocarbons (C4-C12)	ND	0.043	mg/kg	1	B7A0558	01/05/17	01/05/17 11:09	EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		85.5 %	35-130)	"	"	"	"	
SB15-5 (1701054-17) Soil Sampled:	01/04/17 13:20 R	eceived: 01/	04/17 16:27						
Gasoline Range Hydrocarbons (C4-C12)	ND	0.050	mg/kg	1	B7A0558	01/05/17	01/05/17 11:09	EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		85.4 %	35-130)	"	"	"	"	
SB15-10 (1701054-18) Soil Sampled:	01/04/17 13:28	Received: 01	/04/17 16:27	7					
Gasoline Range Hydrocarbons (C4-C12)	ND	0.050	mg/kg	1	B7A0558	01/05/17	01/05/17 11:09	EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		85.2 %	35-130)	"	"	"	"	
SB16-5 (1701054-19) Soil Sampled:	01/04/17 13:42 R	eceived: 01/	04/17 16:27						
Gasoline Range Hydrocarbons (C4-C12)	ND	0.033	mg/kg	1	B7A0558	01/05/17	01/05/17 11:09	EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		100 %	35-130)	"	"	"	"	
SB16-10 (1701054-20) Soil Sampled:	01/04/17 13:48	Received: 01	/04/17 16:27	-					
Gasoline Range Hydrocarbons (C4-C12)	ND	0.050	mg/kg	1	B7A0558	01/05/17	01/05/17 11:09	EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		88.2 %	35-130)	"	"	"	"	
SB18-5 (1701054-21) Soil Sampled:	01/04/17 14:11 R	eceived: 01/	04/17 16:27						
Gasoline Range Hydrocarbons (C4-C12)	ND	0.050	mg/kg	1	B7A0558	01/05/17	01/05/17 11:09	EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		88.4 %	35-130) _	"	"	"	"	



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 00405	Reported:								
Santa Monica CA, 90405	ntəl Valətilə 🛾	Potroleum	Hydrocar	bons (; TVPH\}	w CC/F		01/12/17	09:24
10	Jai Volatile	Sierra An	alytical I	Labs, I	nc.	y GC/F	10		
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB18-10 (1701054-22) Soil Sampled:	01/04/17 14:20	Received: 01	/04/17 16:2	7					
Gasoline Range Hydrocarbons (C4-C12)	ND	0.062	mg/kg	1	B7A0558	01/05/17	01/05/17 11:09	EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		82.9 %	35-13	0	"	"	"	"	
SB19-5 (1701054-23) Soil Sampled: 0	01/04/17 14:37	Received: 01/	04/17 16:27						
Gasoline Range Hydrocarbons (C4-C12)	ND	0.050	mg/kg	1	B7A0558	01/05/17	01/05/17 11:09	EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		73.2 %	35-13	0	"	"	"	"	
SB19-10 (1701054-24) Soil Sampled:	01/04/17 14:45	Received: 01	/04/17 16:2	7					
Gasoline Range Hydrocarbons (C4-C12)	0.12	0.050	mg/kg	1	B7A0558	01/05/17	01/05/17 11:09	EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		91.3 %	35-13	0	"	"	"	"	
SB20-5 (1701054-25) Soil Sampled: 0	1/04/17 14:58	Received: 01/	04/17 16:27						
Gasoline Range Hydrocarbons (C4-C12)	0.084	0.044	mg/kg	1	B7A0558	01/05/17	01/05/17 11:09	EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		80.1 %	35-13	0	"	"	"	"	
SB20-10 (1701054-26) Soil Sampled:	01/04/17 15:06	Received: 01	/04/17 16:2	7					
Gasoline Range Hydrocarbons (C4-C12)	ND	0.042	mg/kg	1	B7A0558	01/05/17	01/05/17 11:09	EPA 8015B	
Surrogate: a,a,a-Trifluorotoluene		89.9 %	35-13	0	"	"	"	"	



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Pr Project Nu Project Mar	oject: SHP mber: [none nager: Susar	[-Ameri 2] 1 Mearns	gas			Reported 01/12/17 09	:):24
	Total Pet	roleum Hyd	irocarbo	ns (TP	H) by G(C/FID			
		Sierra Ar	nalytical I	Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB8-5 (1701054-01) Soil Sampled: 02	1/04/17 08:46 I	Received: 01/0	4/17 16:27						
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0954	01/06/17	01/06/17 14:4	2 EPA 8015B	
Surrogate: o-Terphenyl		75.2 %	60-17	'5	"	"	"	"	
Oil Range Organics (C22-C36)	ND	5.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl		75.2 %	60-17	5	"	"	"	"	
SB8-10 (1701054-02) Soil Sampled:	01/04/17 08:57	Received: 01/	04/17 16:27						
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0954	01/06/17	01/06/17 14:5	54 EPA 8015B	
Surrogate: o-Terphenyl		110 %	60-17	5	"	"	"	"	
Oil Range Organics (C22-C36)	ND	5.0	"	"		"	"	"	
Surrogate: o-Terphenyl		110 %	60-17	'5	"	"	"	"	
SB9-5 (1701054-03) Soil Sampled: 02	1/04/17 09:17 I	Received: 01/0	4/17 16:27						
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0954	01/06/17	01/06/17 15:0	6 EPA 8015B	
Surrogate: o-Terphenyl		95.6 %	60-17	5	"	"	"	"	
Oil Range Organics (C22-C36)	ND	5.0	"	"		"	"	"	
Surrogate: o-Terphenyl		95.6 %	60-17	'5	"	"	"	"	
SB9-10 (1701054-04) Soil Sampled: (01/04/17 09:30	Received: 01/	04/17 16:27						
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0954	01/06/17	01/06/17 15:1	8 EPA 8015B	
Surrogate: o-Terphenyl		84.8 %	60-17	'5	"	"	"	"	
Oil Range Organics (C22-C36)	ND	5.0	"	"		"	"	"	
Surrogate: o-Terphenyl		84.8 %	60-17	5	"	"	"	"	
SB10-5 (1701054-05) Soil Sampled: (01/04/17 09:48	Received: 01/	04/17 16:27						
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0954	01/06/17	01/06/17 15:3	0 EPA 8015B	D-42
Surrogate: o-Terphenyl		114 %	60-17	'5	"	"	"	"	
Oil Range Organics (C22-C36)	11	5.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl		114 %	60-17	5	"	"	"	"	



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Pr Project Nu Project Mar	Reported: 01/12/17 09:24						
	Total Peti	roleum Hyc	irocarbo	ns (TPl	H) by G(C/FID			
		Sierra Ar	nalytical	Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB10-10 (1701054-06) Soil Sampled:	01/04/17 10:07	Received: 01	/04/17 16:2	27					
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0954	01/06/17	01/06/17 15:4	2 EPA 8015B	D-42
Surrogate: o-Terphenyl		112 %	60-1	75	"	"	"	"	
Oil Range Organics (C22-C36)	14	5.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl		112 %	60-1	75	"	"	"	"	
SB11-5 (1701054-07) Soil Sampled: 02	1/04/17 10:11	Received: 01/	04/17 16:2'	7					
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0954	01/06/17	01/06/17 15:5	4 EPA 8015B	
Surrogate: o-Terphenyl		101 %	60-1	75	"	"	"	"	
Oil Range Organics (C22-C36)	280	5.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl		101 %	60-1	75	"	"	"	"	
SB11-10 (1701054-08) Soil Sampled:	01/04/17 10:19	Received: 01	/04/17 16:2	27					
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0954	01/06/17	01/06/17 16:0	6 EPA 8015B	
Surrogate: o-Terphenyl		94.4 %	60-1	75	"	"	"	"	
Oil Range Organics (C22-C36)	ND	5.0		"			"	"	
Surrogate: o-Terphenyl		94.4 %	60-1	75	"	"	"	"	
SB12-5 (1701054-09) Soil Sampled: 02	1/04/17 10:48	Received: 01/	04/17 16:2'	7					
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0954	01/06/17	01/06/17 16:1	8 EPA 8015B	
Surrogate: o-Terphenyl		132 %	60-1	75	"	"	"	"	
Oil Range Organics (C22-C36)	ND	5.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl		132 %	60-1	75	"	"	"	"	
SB12-10 (1701054-10) Soil Sampled: (01/04/17 10:55	Received: 01	/04/17 16:2	27					
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0954	01/06/17	01/06/17 16:3	0 EPA 8015B	
Surrogate: o-Terphenyl		106 %	60-1	75	"	"	"	"	
Oil Range Organics (C22-C36)	ND	5.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl		106 %	60-1	75	"	"	"	"	



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405			Reported: 01/12/17 09:24						
	Total Pet	roleum Hyd	lrocarbon	ıs (TPl	H) by G(C/FID			
		Sierra Ar	nalytical L	labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB13-5 (1701054-11) Soil Sampled: 01	/04/17 11:18	Received: 01/	04/17 16:27						
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0954	01/06/17	01/06/17 16:4	2 EPA 8015B	
Surrogate: o-Terphenyl		107 %	60-17.	5	"	"	"	"	
Oil Range Organics (C22-C36)	ND	5.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl		107 %	60-17.	5	"	"	"	"	
SB13-10 (1701054-12) Soil Sampled: 0	01/04/17 11:35	Received: 01	/04/17 16:22	7					
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0954	01/06/17	01/06/17 16:5	54 EPA 8015B	
Surrogate: o-Terphenyl		128 %	60-17.	5	"	"	"	"	
Oil Range Organics (C22-C36)	ND	5.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl		128 %	60-17.	5	"	"	"	"	
SB14-5 (1701054-13) Soil Sampled: 01	/04/17 11:58	Received: 01/	04/17 16:27						
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0954	01/06/17	01/06/17 17:0	6 EPA 8015B	
Surrogate: o-Terphenyl		107 %	60-17.	5	"	"	"	"	
Oil Range Organics (C22-C36)	ND	5.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl		107 %	60-17.	5	"	"	"	"	
SB14-10 (1701054-14) Soil Sampled: (01/04/17 12:10	Received: 01	/04/17 16:27	7					
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0954	01/06/17	01/06/17 17:1	7 EPA 8015B	
Surrogate: o-Terphenyl		100 %	60-17.	5	"	"	"	"	
Oil Range Organics (C22-C36)	ND	5.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl		100 %	60-17.	5	"	"	"	"	
SB17-5 (1701054-15) Soil Sampled: 01	/04/17 12:33	Received: 01/	04/17 16:27						
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0954	01/06/17	01/06/17 17:2	29 EPA 8015B	
Surrogate: o-Terphenyl		109 %	60-17	5	"	"	"	"	
Oil Range Organics (C22-C36)	ND	5.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl		109 %	60-17.	5	"	"	"	"	



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405	Initing LLCProject:SHPI-AmerigasAvenueProject Number:[none]CA, 90405Project Manager:Susan Mearns									
	Total Petr	oleum Hyo	lrocarbo	ns (TP	H) by G(C/FID				
		Sierra Ar	nalytical 1	Labs, I	nc.					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB17-10 (1701054-16) Soil Sampled:	01/04/17 12:40	Received: 01	/04/17 16:2	27						
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0954	01/06/17	01/06/17 17:4	1 EPA 8015B		
Surrogate: o-Terphenyl		96.0 %	60-12	75	"	"	"	"		
Oil Range Organics (C22-C36)	ND	5.0	"	"	"	"	"	"		
Surrogate: o-Terphenyl		96.0 %	60-12	75	"	"	"	"		
SB15-5 (1701054-17) Soil Sampled: 0	1/04/17 13:20	Received: 01/	04/17 16:27	7						
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0954	01/06/17	01/06/17 17:5	53 EPA 8015B		
Surrogate: o-Terphenyl		76.8 %	60-12	75	"	"	"	"		
Oil Range Organics (C22-C36)	ND	5.0	"			"	"	"		
Surrogate: o-Terphenyl		76.8 %	60-12	75	"	"	"	"		
SB15-10 (1701054-18) Soil Sampled:	01/04/17 13:28	Received: 01	/04/17 16:2	27						
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0954	01/06/17	01/06/17 18:0	5 EPA 8015B		
Surrogate: o-Terphenyl		70.0 %	60-12	75	"	"	"	"		
Oil Range Organics (C22-C36)	ND	5.0	"		"	"	"	"		
Surrogate: o-Terphenyl		70.0 %	60-12	75	"	"	"	"		
SB16-5 (1701054-19) Soil Sampled: 0	1/04/17 13:42	Received: 01/	04/17 16:27	7						
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0954	01/06/17	01/06/17 19:5	57 EPA 8015B		
Surrogate: o-Terphenyl		110 %	60-12	75	"	"	"	"		
Oil Range Organics (C22-C36)	46	5.0	"		"	"	"	"		
Surrogate: o-Terphenyl		110 %	60-12	75	"	"	"	"		
SB16-10 (1701054-20) Soil Sampled:	01/04/17 13:48	Received: 01	/04/17 16:2	27						
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0954	01/06/17	01/06/17 18:1	8 EPA 8015B		
Surrogate: o-Terphenyl		112 %	60-12	75	"	"	"	"		
Oil Range Organics (C22-C36)	ND	5.0	"		"	"	"	"		
Surrogate: o-Terphenyl		112 %	60-12	75	"	"	"	"		



Mearns Consulting LLC 738 Ashland Avenue Santa Maniga CA 20405	Project: SHPI-Amerigas Project Number: [none] Project Munager: Sugar Magara									
Santa Monica CA, 90403	T-4-1 D-4		lager. Susa					01/12/17	J9:24	
	Total Pet	roleum Hyc	irocardo	ons (TPI	H) by G(/FID				
		Sierra Ar	nalytical	Labs, I	nc.					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB18-5 (1701054-21) Soil Sampled: ()1/04/17 14:11	Received: 01/	04/17 16:2	7						
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0954	01/06/17	01/06/17 18:3	80 EPA 8015B		
Surrogate: o-Terphenyl		111 %	60-1	75	"	"	"	"		
Oil Range Organics (C22-C36)	ND	5.0	"	"	"	"	"	"		
Surrogate: o-Terphenyl		111 %	60-1	75	"	"	"	"		
SB18-10 (1701054-22) Soil Sampled:	01/04/17 14:20	Received: 01	/04/17 16:	27						
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0954	01/06/17	01/06/17 18:4	3 EPA 8015B		
Surrogate: o-Terphenyl		104 %	60-1	75	"	"	"	"		
Oil Range Organics (C22-C36)	ND	5.0	"	"	"		"	"		
Surrogate: o-Terphenyl		104 %	60-1	75	"	"	"	"		
SB19-5 (1701054-23) Soil Sampled: ()1/04/17 14:37	Received: 01/	04/17 16:2	7						
Diesel Range Organics (C10-C24)	ND	50	mg/kg	10	B7A0954	01/06/17	01/06/17 20:0	9 EPA 8015B		
Surrogate: o-Terphenyl		%	60-1	75	"	"	"	"	S-03	
Oil Range Organics (C22-C36)	570	50	"	"	"		"	"		
Surrogate: o-Terphenyl		%	60-1	75	"	"	"	"	S-03	
SB19-10 (1701054-24) Soil Sampled:	01/04/17 14:45	Received: 01	/04/17 16:	27						
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg	1	B7A0954	01/06/17	01/06/17 18:5	55 EPA 8015B		
Surrogate: o-Terphenyl		87.2 %	60-1	75	"	"	"	"		
Oil Range Organics (C22-C36)	ND	5.0	"	"	"	"	"	"		
Surrogate: o-Terphenyl		87.2 %	60-1	75	"	"	"	"		
SB20-5 (1701054-25) Soil Sampled: ()1/04/17 14:58	Received: 01/	04/17 16:2	7						
Diesel Range Organics (C10-C24)	ND	25	mg/kg	5	B7A0954	01/06/17	01/06/17 20:2	2 EPA 8015B		
Surrogate: o-Terphenyl		151 %	60-1	75	"	"	"	"		
Oil Range Organics (C22-C36)	1100	25	"	"	"	"	"			
Surrogate: o-Terphenyl		151 %	60-1	75	"	"	"	"		



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Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA 90405	Project: SHPI-Amerigas Project Number: [none] Project Manager: Susan Mearns 01/12/17 09:24										
Sunta Monica Cri, 90105	Total Petr	roleum Hyd	lrocarb	ons (TP) H) by G	C/FID		01/12/17	07.21		
		Sierra An	alytical	Labs, I	nc.						
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes		
SB20-10 (1701054-26) Soil Samples	d: 01/04/17 15:06	Received: 01	/04/17 16	:27							
Diesel Range Organics (C10-C24)	ND	25	mg/kg	5	B7A0954	01/06/17	01/06/17 20:3	4 EPA 8015B			
Surrogate: o-Terphenyl		165 %	60-	175	"	"	"	"			
Oil Range Organics (C22-C36)	320	25	"	"	"	"	"	"			
Surrogate: o-Terphenyl		165 %	60-	175	"	"	"	"			



Mearns Consulting LLC	Project: SHPI-Amerigas										
758 Ashiand Avenue Santa Monica CA 00405		Project Nul	uper: [nor	iej in Maarra				Keportea:			
			agen sus		, 	• • •		01/12/17 05	·.2H		
Tota	al Petroleum H	ydrocarbo	ns Carb	on Rang	ge Analy:	sis by G	C-FID				
		Sierra An	alytical	Labs, I	nc.						
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes		
SB8-5 (1701054-01) Soil Sampled:	01/04/17 08:46 R	eceived: 01/04	4/17 16:27	1							
HC < C8	ND	1.0	mg/kg	1	B7A0954	01/06/17	01/06/17 14:42	EPA 8015B			
$C8 \le HC < C9$	ND	1.0	"		"	"	"	"			
$C9 \leq HC < C10$	ND	1.0	"	"	"	"	"	"			
C10 <= HC < C11	ND	1.0	"		"	"	"	"			
C11 <= HC < C12	ND	1.0	"	"	"	"	"	"			
C12 <= HC < C14	ND	1.0	"	"	"	"	"	"			
C14 <= HC < C16	ND	1.0	"		"	"	"	"			
C16 <= HC < C18	ND	1.0	"	"	"	"	"	"			
C18 <= HC < C20	ND	1.0	"	"	"	"	"	"			
$C20 \ll HC < C24$	ND	1.0	"	"	"	"	"	"			
$C24 \leq HC < C28$	ND	1.0	"	"	"	"	"	"			
$C28 \ll HC < C32$	ND	1.0	"	"	"	"	"	"			
$HC \ge C32$	ND	1.0	"		"	"	"	"			
Total Petroleum Hydrocarbons (C7-C36)	ND	5.0	"	"	"	"	"	"			
Surrogate: o-Terphenyl		75.2 %	60-1	'75	"	"	"	"			
C5 <= HC < C6	ND	0.015	"		B7A0558	01/05/17	01/05/17 11:09	"			
$C6 \leq HC < C7$	ND	0.015	"	"	"	"	"	"			
C7 <= HC < C8	ND	0.015	"		"	"	"	"			
C8 <= HC < C9	ND	0.015	"		"	"	"	"			
C9 <= HC < C10	ND	0.015	"	"	"	"	"	"			
C10 <= HC < C11	ND	0.015	"		"	"	"	"			
C11 <= HC < C12	ND	0.015	"		"	"	"	"			
$HC \ge C12$	ND	0.015	"		"	"	"	"			
Total Petroleum Hydrocarbons (C4-C12)	ND	0.073	"	"	"	"	"	"			
Surrogate: a,a,a-Trifluorotoluene		80.4 %	35-1	'30	"	"	"	"	-		



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Mearns Consulting LLC		Pr	oject: SH	IPI-Ameri	gas							
738 Ashland Avenue		Project Number: [none]										
Santa Monica CA, 90405		Project Mar	nager: Sus	san Mearns				01/12/17 09	9:24			
	Total Petroleum	Hydrocarbo	ns Cart	oon Rang	ge Analy	sis by G	C-FID					
		Sierra Ar	nalytical	l Labs, I	nc.							
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes			
SB8-10 (1701054-02) Soil	Sampled: 01/04/17 08:57	Received: 01/	04/17 16:	27								
HC < C8	ND	1.0	mg/kg	1	B7A0954	01/06/17	01/06/17 14:54	EPA 8015B				
$C8 \le HC < C9$	ND	1.0	"	"	"	"	"	"				
C9 <= HC < C10	ND	1.0	"	"	"	"	"					
C10 <= HC < C11	ND	1.0	"	"	"	"	"					
C11 <= HC < C12	ND	1.0	"	"	"	"	"					
$C12 \le HC < C14$	ND	1.0	"	"	"	"	"	"				
$C14 \le HC < C16$	ND	1.0	"	"	"	"	"	"				
C16 <= HC < C18	ND	1.0	"	"	"	"	"	"				
C18 <= HC < C20	ND	1.0	"	"	"	"	"	"				
$C20 \le HC < C24$	ND	1.0	"	"	"	"	"	"				
$C24 \le HC < C28$	ND	1.0	"	"	"	"	"	"				
C28 <= HC < C32	ND	1.0	"	"	"	"	"	"				
$HC \ge C32$	ND	1.0	"	"	"	"	"	"				
Total Petroleum Hydrocarbo (C7-C36)	ons ND	5.0	"	"	"	"	"	"				
Surrogate: o-Terphenyl		110 %	60-	175	"	"	"	"				
C5 <= HC < C6	ND	0.010	"		B7A0558	01/05/17	01/05/17 11:09	"				
C6 <= HC < C7	ND	0.010	"	"	"	"	"	"				
C7 <= HC < C8	ND	0.010	"		"	"	"	"				
C8 <= HC < C9	ND	0.010	"	"	"	"	"	"				
C9 <= HC < C10	ND	0.010	"	"	"	"	"	"				
C10 <= HC < C11	ND	0.010	"		"	"	"	"				
C11 <= HC < C12	ND	0.010	"	"	"	"	"	"				
HC >= C12	ND	0.010	"	"	"	"	"	"				
Total Petroleum Hydrocarbo (C4-C12)	ons ND	0.050	"	"	"	"	"	"				
Surrogate: a,a,a-Trifluoroto	luene	89.9 %	35-	130	"	"	"	"				

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Mearns Consulting LLC 738 Ashland Avenue		Reported:							
Santa Monica CA, 90405		Project Mai	nager: Susar	n Mearns	8			01/12/17/0	9:24
Т	Cotal Petroleum	Hydrocarbo	ons Carbo	n Rang	ge Analy	sis by G	C-FID		
		Sierra Ai	nalytical I	Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB9-5 (1701054-03) Soil Sampl	ed: 01/04/17 09:17	Received: 01/0	4/17 16:27						
HC < C8	ND	1.0	mg/kg	1	B7A0954	01/06/17	01/06/17 15:06	EPA 8015B	
$C8 \leq HC < C9$	ND	1.0	"	"	"	"		"	
$C9 \le HC < C10$	ND	1.0	"	"	"	"		"	
C10 <= HC < C11	ND	1.0	"	"	"	"		"	
C11 <= HC < C12	ND	1.0	"	"	"	"		"	
$C12 \le HC < C14$	ND	1.0	"	"	"	"		"	
$C14 \le HC < C16$	ND	1.0	"	"	"	"	"	"	
$C16 \le HC < C18$	ND	1.0	"	"	"	"	"	"	
$C18 \le HC < C20$	ND	1.0	"	"	"	"	"	"	
$C20 \le HC < C24$	ND	1.0	"	"	"	"	"	"	
$C24 \leq HC \leq C28$	ND	1.0	"	"	"	"		"	
$C28 \le HC < C32$	ND	1.0	"	"	"	"	"	"	
$HC \ge C32$	ND	1.0	"	"	"	"	"	"	
Total Petroleum Hydrocarbons (C7-C36)	ND	5.0	"	"	"	"	"		
Surrogate: o-Terphenyl		95.6 %	60-17	5	"	"	"	"	
C5 <= HC < C6	ND	0.0088	"	"	B7A0558	01/05/17	01/05/17 11:09	"	
C6 <= HC < C7	ND	0.0088	"	"	"	"			
C7 <= HC < C8	ND	0.0088	"	"	"	"	"	"	
C8 <= HC < C9	ND	0.0088	"	"	"	"			
C9 <= HC < C10	ND	0.0088	"	"	"	"			
C10 <= HC < C11	ND	0.0088	"	"	"	"			
C11 <= HC < C12	ND	0.0088	"	"	"	"			
HC >= C12	ND	0.0088	"	"	"	"			
Total Petroleum Hydrocarbons (C4-C12)	ND	0.044	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		87.0 %	35-13	0	"	"	"	"	



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Mearns Consulting LLC		Pr	roject: SH	PI-Ameri	gas							
738 Ashland Avenue		Project Number: [none]										
Santa Monica CA, 90405		Project Mar	nager: Susa	an Mearns	:			01/12/17 09:24				
	Total Petroleum	Hydrocarbo	ns Carb	on Rang	ge Analva	sis by G	C-FID					
		Sierra Ai	nalytical	Labs, I	nc.	v -						
		Reporting										
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes			
SB9-10 (1701054-04) Soil	Sampled: 01/04/17 09:30	Received: 01/	′04/17 16:2	27								
HC < C8	ND	1.0	mg/kg	1	B7A0954	01/06/17	01/06/17 15:18	EPA 8015B				
C8 <= HC < C9	ND	1.0	"	"	"	"	"	"				
C9 <= HC < C10	ND	1.0	"	"	"	"	"	"				
C10 <= HC < C11	ND	1.0	"	"	"	"	"	"				
C11 <= HC < C12	ND	1.0	"	"	"	"	"	"				
$C12 \le HC < C14$	ND	1.0	"	"	"	"	"	"				
C14 <= HC < C16	ND	1.0	"	"	"	"	"	"				
C16 <= HC < C18	ND	1.0	"	"	"	"	"	"				
C18 <= HC < C20	ND	1.0	"		"	"	"	"				
$C20 \ll HC \ll C24$	ND	1.0	"		"	"	"	"				
$C24 \leq HC < C28$	ND	1.0	"	"	"	"	"	"				
$C28 \le HC < C32$	ND	1.0	"		"	"	"	"				
$HC \ge C32$	ND	1.0	"	"	"	"	"	"				
Total Petroleum Hydrocarbon (C7-C36)	ND	5.0	"	"	"	"	"	"				
Surrogate: o-Terphenyl		84.8 %	60-1	'75	"	"	"	"				
C5 <= HC < C6	ND	0.0078	"		B7A0558	01/05/17	01/05/17 11:09	"				
C6 <= HC < C7	ND	0.0078	"	"	"	"	"	"				
C7 <= HC < C8	ND	0.0078	"	"	"	"	"	"				
C8 <= HC < C9	ND	0.0078	"	"	"	"	"	"				
C9 <= HC < C10	ND	0.0078	"	"	"	"	"	"				
C10 <= HC < C11	ND	0.0078	"	"	"	"	"	"				
C11 <= HC < C12	ND	0.0078	"	"	"	"	"	"				
$HC \ge C12$	ND	0.0078	"	"	"	"	"	"				
Total Petroleum Hydrocarbon (C4-C12)	ND	0.039	"	"	"	"	"	"				
Surrogate: a,a,a-Trifluorotoli	iene	88.5 %	35-1	'30	"	"	"	"				



Mearns Consulting LLC		Pr	roject: S	HPI-Ameri	igas					
738 Ashland Avenue		Project Nu	mber: [none]	0			Reported:		
Santa Monica CA, 90405		Project Mar	nager: S	usan Mearns	5			01/12/17 0	9:24	
	Total Petroleum	Hydrocarbo	ns Ca	rhon Rano	e Analy	sis hy G	C-FID			
	Total Tetroreally	Sierra Aı	nalvtic	al Labs. I	nc.	sis oy G				
		Paparting		,						
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB10-5 (1701054-05) Soil	Sampled: 01/04/17 09:48	Received: 01/	04/17 1	6:27						
HC < C8	4.9	1.0	mg/kg	1	B7A0954	01/06/17	01/06/17 15:30	EPA 8015B		
C8 <= HC < C9	24	1.0	"	"	"	"		"		
C9 <= HC < C10	620	1.0	"		"	"		"		
C10 <= HC < C11	930	1.0	"	"	"	"		"		
C11 <= HC < C12	570	1.0	"	"	"	"		"		
C12 <= HC < C14	56	1.0	"	"	"	"		"		
C14 <= HC < C16	49	1.0	"		"	"		"		
C16 <= HC < C18	10	1.0	"		"	"		"		
C18 <= HC < C20	2.8	1.0	"		"	"		"		
C20 <= HC < C24	1.6	1.0	"		"	"		"		
$C24 \le HC < C28$	ND	1.0	"		"	"	"	"		
C28 <= HC < C32	5.3	1.0	"		"	"		"		
HC >= C32	5.5	1.0	"		"	"		"		
Total Petroleum Hydroca (C7-C36)	rbons 2300	5.0	"	"	"	"	"	"		
Surrogate: o-Terphenyl		114 %	6	0-175	"	"	"	"		
C5 <= HC < C6	ND	0.010	"	"	B7A0558	01/05/17	01/05/17 11:09	"		
C6 <= HC < C7	23	1.0	"	100	"	"		"		
C7 <= HC < C8	78	1.0	"		"	"		"		
C8 <= HC < C9	140	1.0	"		"	"		"		
C9 <= HC < C10	620	1.0	"		"	"		"		
C10 <= HC < C11	930	1.0		"	"	"		"		
C11 <= HC < C12	570	1.0	"	"	"	"		"		
HC >= C12	78	1.0	"	"	"	"		"		
Total Petroleum Hydroca (C4-C12)	rbons 2400	5.0	"	"	"	"	"	"		
Surrogate: a,a,a-Trifluorot	oluene	97.9 %	3	5-130	"	"	"	"		



Mearns Consulting LLC										
738 Ashland Avenue		Project Nu	mber: [n	one]	0			Reported:		
Santa Monica CA, 90405		Project Mar	nager: Si	usan Mearns	5			01/12/17 09	9:24	
	Total Petroleum H	Ivdrocarbo	ns Car	hon Rang	e Analy	sis hv G	C-FID			
		Sierra Ar	nalytica	al Labs, I	nc.	515 89 0	0112			
		Denertine		·····)						
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB10-10 (1701054-06) Soil S	ampled: 01/04/17 10:07	Received: 01	1/04/17 1	6:27						
HC < C8	5.2	1.0	mg/kg	1	B7A0954	01/06/17	01/06/17 15:42	EPA 8015B		
C8 <= HC < C9	26	1.0	"	"	"	"		"		
C9 <= HC < C10	310	1.0	"	"	"	"		"		
C10 <= HC < C11	530	1.0	"	"	"	"		"		
C11 <= HC < C12	320	1.0	"	"	"	"		"		
C12 <= HC < C14	71	1.0	"	"	"	"		"		
C14 <= HC < C16	51	1.0	"	"	"	"		"		
C16 <= HC < C18	7.9	1.0	"	"	"	"		"		
C18 <= HC < C20	1.9	1.0	"	"	"	"		"		
C20 <= HC < C24	2.6	1.0	"	"	"	"		"		
C24 <= HC < C28	1.4	1.0	"	"	"	"		"		
C28 <= HC < C32	5.1	1.0	"	"	"	"		"		
HC >= C32	7.0	1.0	"	"	"	"		"		
Total Petroleum Hydrocarbor (C7-C36)	ns 1300	5.0		"	"	"	"	"		
Surrogate: o-Terphenvl		112 %	60)-175	"	"	"	"		
C5 <= HC < C6	ND	0.84	"	100	B7A0558	01/05/17	01/05/17 11:09			
C6 <= HC < C7	4.7	0.84	"	"	"	"		"		
C7 <= HC < C8	22	0.84	"	"	"	"	"	"		
C8 <= HC < C9	56	0.84	"	"	"	"	"	"		
C9 <= HC < C10	310	0.84	"	"	"	"	"	"		
C10 <= HC < C11	530	0.84	"	"	"	"		"		
C11 <= HC < C12	320	0.84	"	"	"	"		"		
$HC \ge C12$	63	0.84	"	"	"	"		"		
Total Petroleum Hydrocarbor (C4-C12)	ns 1300	4.2	"	"	"	"	"	"		
Surrogate: a.a.a-Trifluorotoluer	ne	86.2 %	35	5-130	"	"	"	"		



Mearns Consulting LLC		Pı	roject: SH	PI-Ameri	gas					
738 Ashland Avenue		Project Nu	mber: [noi	ne]	-			Reported:		
Santa Monica CA, 90405		Project Mar	nager: Sus	an Mearns	5			01/12/17 09	9:24	
	Total Petroleum	Hydrocarbo	ns Carb	on Rang	ge Analys	sis by G	C-FID			
		Sierra Aı	nalytical	Labs, I	nc.	-				
		Reporting								
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB11-5 (1701054-07) Soil	Sampled: 01/04/17 10:11	Received: 01/	04/17 16:2	27						
HC < C8	ND	1.0	mg/kg	1	B7A0954	01/06/17	01/06/17 15:54	EPA 8015B		
C8 <= HC < C9	ND	1.0	"	"	"	"	"	"		
C9 <= HC < C10	ND	1.0	"	"	"	"	"	"		
C10 <= HC < C11	ND	1.0	"	"	"	"	"	"		
C11 <= HC < C12	ND	1.0	"	"	"	"	"			
$C12 \le HC < C14$	ND	1.0	"	"	"	"	"	"		
C14 <= HC < C16	ND	1.0		"	"	"	"	"		
C16 <= HC < C18	ND	1.0	"	"	"	"	"	"		
C18 <= HC < C20	4.4	1.0	"	"	"	"	"	"		
C20 <= HC < C24	21	1.0		"	"	"		"		
C24 <= HC < C28	59	1.0		"	"	"		"		
C28 <= HC < C32	120	1.0		"	"	"		"		
HC >= C32	81	1.0		"	"	"		"		
Total Petroleum Hydrocan (C7-C36)	rbons 280	5.0	"	"	"	"	"	"		
Surrogate: o-Terphenyl		101 %	60-1	175	"	"	"	"		
$C5 \leq HC < C6$	ND	0.010	"	"	B7A0558	01/05/17	01/05/17 11:09	"		
$C6 \leq HC < C7$	ND	0.010		"	"	"	"	"		
$C7 \le HC < C8$	ND	0.010		"	"	"	"	"		
$C8 \le HC < C9$	ND	0.010		"	"	"	"	"		
C9 <= HC < C10	ND	0.010		"	"	"	"	"		
C10 <= HC < C11	ND	0.010	"	"	"	"	"	"		
C11 <= HC < C12	ND	0.010	"	"	"	"		"		
HC >= C12	ND	0.010	"	"	"	"	"	"		
Total Petroleum Hydrocarbo (C4-C12)	ons ND	0.050	"	"	"	"	"	"		
Surrogate: a,a,a-Trifluoroto	oluene	85.7 %	35-1	130	"	"	"	"		



Mearns Consulting LLC		Pr	oject: SH	IPI-Ameri	igas					
738 Ashland Avenue		Project Nu	mber: [no	ne]	0			Reported:		
Santa Monica CA, 90405		Project Mar	nager: Sus	san Mearns	3			01/12/17 09:24		
	Total Petroleum H	[vdrocarbo	ns Carb	on Ran	oe Analy	sis hy G	C-FID			
		Sierra Ar	nalvtical	l Labs. I	nc.	sis by G				
		Poporting								
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB11-10 (1701054-08) Soil S	ampled: 01/04/17 10:19	Received: 01	/04/17 16	:27						
HC < C8	ND	1.0	mg/kg	1	B7A0954	01/06/17	01/06/17 16:06	EPA 8015B		
C8 <= HC < C9	ND	1.0	"	"	"	"	"			
C9 <= HC < C10	ND	1.0	"	"	"	"	"			
C10 <= HC < C11	ND	1.0	"		"	"	"			
C11 <= HC < C12	ND	1.0	"		"	"	"			
$C12 \le HC < C14$	ND	1.0	"	"	"	"	"			
C14 <= HC < C16	ND	1.0	"	"	"	"	"	"		
C16 <= HC < C18	ND	1.0	"	"	"	"	"	"		
C18 <= HC < C20	ND	1.0	"	"	"	"	"	"		
$C20 \le HC < C24$	ND	1.0	"	"	"	"	"	"		
C24 <= HC < C28	ND	1.0	"	"	"	"	"	"		
C28 <= HC < C32	ND	1.0	"	"	"	"	"	"		
$HC \ge C32$	ND	1.0	"	"	"	"	"	"		
Total Petroleum Hydrocarbons (C7-C36)	ND	5.0	"	"	"	"	"	"		
Surrogate: o-Terphenyl		94.4 %	60-	175	"	"	"	"		
C5 <= HC < C6	ND	0.014	"		B7A0558	01/05/17	01/05/17 11:09			
C6 <= HC < C7	ND	0.014	"		"	"	"			
C7 <= HC < C8	ND	0.014	"	"	"	"	"	"		
C8 <= HC < C9	ND	0.014	"		"	"	"			
C9 <= HC < C10	ND	0.014	"		"	"	"			
C10 <= HC < C11	ND	0.014	"	"	"		"			
C11 <= HC < C12	ND	0.014	"	"	"		"			
HC >= C12	ND	0.014	"	"	"		"	"		
Total Petroleum Hydrocarbons (C4-C12)	ND	0.070	"	"	"	"	"	n		
Surrogate: a,a,a-Trifluorotoluer	ne	78.9 %	35-	130	"	"	"	"		



Mearns Consulting LLC		Pı	roject: SHP	PI-Ameri	igas				
738 Ashland Avenue		Project Nu	mber: [non	e]	C			Reported:	
Santa Monica CA, 90405		Project Mar	nager: Susa	n Mearns	5			01/12/17 09	9:24
	Total Petroleum	Hydrocarbo	ons Carbo	on Rang	ge Analv	sis by G	C-FID		
		Sierra Ai	nalytical	Labs, I	nc.	•			
		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB12-5 (1701054-09) Soil	Sampled: 01/04/17 10:48	Received: 01/	/04/17 16:27	7					
HC < C8	ND	1.0	mg/kg	1	B7A0954	01/06/17	01/06/17 16:18	EPA 8015B	
C8 <= HC < C9	ND	1.0	"	"	"		"	"	
C9 <= HC < C10	ND	1.0	"	"	"	"	"	"	
C10 <= HC < C11	ND	1.0	"	"	"	"	"	"	
C11 <= HC < C12	ND	1.0	"	"	"	"	"	"	
$C12 \le HC < C14$	ND	1.0	"	"	"	"	"		
C14 <= HC < C16	ND	1.0	"	"	"	"	"	"	
C16 <= HC < C18	ND	1.0	"	"	"	"	"	"	
C18 <= HC < C20	ND	1.0	"	"	"	"	"	"	
$C20 \le HC < C24$	ND	1.0	"	"	"	"	"	"	
$C24 \leq HC \leq C28$	ND	1.0	"	"	"	"	"	"	
C28 <= HC < C32	ND	1.0	"	"	"	"	"	"	
$HC \ge C32$	ND	1.0	"	"	"	"	"	"	
Total Petroleum Hydrocarbor (C7-C36)	ns ND	5.0	"	"	"	"	"	"	
Surrogate: o-Terphenvl		132 %	60-12	75	"	"	"	"	
C5 <= HC < C6	ND	0.0076	"	"	B7A0558	01/05/17	01/05/17 11:09	"	
C6 <= HC < C7	ND	0.0076	"		"	"	"	"	
C7 <= HC < C8	ND	0.0076	"		"		"	"	
C8 <= HC < C9	ND	0.0076	"		"		"	"	
C9 <= HC < C10	ND	0.0076	"	"	"		"	"	
C10 <= HC < C11	ND	0.0076	"		"		"	"	
C11 <= HC < C12	ND	0.0076	"		"		"	"	
$HC \ge C12$	ND	0.0076	"		"		"	"	
Total Petroleum Hydrocarbor (C4-C12)	ns ND	0.038	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotol	uene	85.6 %	35-13	30	"	"	"	"	



Mearns Consulting LLC		Pr	oject: SH	PI-Ameri	igas					
738 Ashland Avenue		Project Nu	mber: [noi	ne]	0			Reported:		
Santa Monica CA, 90405		Project Mar	ager: Sus	an Mearns	5			01/12/17 09	9:24	
	Total Petroleum H	[vdrocarbo	ns Carb	on Rans	ge Analy	sis by G	C-FID			
		Sierra Ar	nalytical	Labs, I	nc.	J				
		Reporting								
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB12-10 (1701054-10) Soil S	ampled: 01/04/17 10:55	Received: 01	/04/17 16:	:27						
HC < C8	ND	1.0	mg/kg	1	B7A0954	01/06/17	01/06/17 16:30	EPA 8015B		
C8 <= HC < C9	ND	1.0	"	"	"	"	"	"		
C9 <= HC < C10	ND	1.0	"	"	"	"	"			
C10 <= HC < C11	ND	1.0	"	"	"	"	"			
C11 <= HC < C12	ND	1.0	"	"	"	"	"	"		
$C12 \le HC < C14$	ND	1.0	"	"	"	"	"			
$C14 \le HC < C16$	ND	1.0	"	"	"	"	"	"		
C16 <= HC < C18	ND	1.0	"	"	"	"	"	"		
$C18 \le HC < C20$	ND	1.0	"	"	"	"	"	"		
$C20 \le HC < C24$	ND	1.0	"	"	"	"	"			
$C24 \leq HC < C28$	ND	1.0	"	"	"	"	"			
C28 <= HC < C32	ND	1.0	"	"	"	"	"			
HC >= C32	ND	1.0	"	"	"	"	"			
Total Petroleum Hydrocarbons	ND	5.0	"	"	"	"	"	"		
Surrogate: 0-Terphenyl		106 %	60-1	175	"	"	"	"		
$C_5 \leq HC \leq C_6$	ND	0.0083	"	"	B7A0558	01/05/17	01/05/17 11:09			
$C_6 \leq H_C \leq C_7$	ND	0.0083	"	"	"	"	"			
$C7 \leq HC \leq C8$	ND	0.0083	"			"	"			
$C_8 \leq HC \leq C_9$	ND	0.0083	"			"	"			
$C9 \le HC < C10$	ND	0.0083	"	"		"				
$C_{10} <= HC < C_{11}$	ND	0.0083	"			"	"			
$C_{11} \le HC \le C_{12}$	ND	0.0083	"				"			
$HC \ge C12$	ND	0.0083	"				"			
Total Petroleum Hydrocarbons (C4-C12)	ND	0.042		"	"	"		"		
Surrogate: a,a,a-Trifluorotolue	ne	86.8 %	35-1	130	"	"	"	"		



Mearns Consulting LLC 738 Ashland Avenue	LLC Project: SHPI-Amerigas ue Project Number: [none]									
Santa Monica CA, 90405		Project Mar	nager: Susar	n Mearns	5			01/12/17 09	9:24	
<u>.</u>	Total Petroleum	Hydrocarbo	ns Carbo	n Rang	ge Analy	sis by G	C-FID			
		Sierra Ar	nalytical l	Labs, I	nc.	•				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB13-5 (1701054-11) Soil	Sampled: 01/04/17 11:18	Received: 01/	04/17 16:27							
HC < C8	ND	1.0	mg/kg	1	B7A0954	01/06/17	01/06/17 16:42	EPA 8015B		
$C8 \le HC \le C9$	ND	1.0	"	"	"	"	"	"		
C9 <= HC < C10	ND	1.0	"	"	"	"	"	"		
C10 <= HC < C11	ND	1.0	"	"	"	"	"	"		
C11 <= HC < C12	ND	1.0	"	"	"	"	"	"		
$C12 \le HC < C14$	ND	1.0	"	"	"	"	"	"		
$C14 \le HC < C16$	ND	1.0	"	"	"	"	"	"		
$C16 \le HC < C18$	ND	1.0	"	"	"	"	"	"		
$C18 \leq HC < C20$	ND	1.0	"	"	"	"	"	"		
$C20 \leq HC < C24$	ND	1.0	"	"	"	"	"	"		
$C24 \leq HC < C28$	ND	1.0	"	"	"	"	"	"		
$C28 \le HC < C32$	ND	1.0	"	"	"	"	"			
$HC \ge C32$	ND	1.0	"	"	"	"	"			
Total Petroleum Hydrocarbor (C7-C36)	ns ND	5.0	"	"	"	"	"	"		
Surrogate: o-Terphenyl		107 %	60-17	'5	"	"	"	"		
C5 <= HC < C6	ND	0.0070	"	"	B7A0558	01/05/17	01/05/17 11:09			
C6 <= HC < C7	ND	0.0070	"	"	"		"			
C7 <= HC < C8	ND	0.0070	"	"	"		"			
C8 <= HC < C9	ND	0.0070	"	"	"		"			
C9 <= HC < C10	ND	0.0070	"	"	"		"			
C10 <= HC < C11	ND	0.0070	"	"	"	"	"	"		
C11 <= HC < C12	ND	0.0070	"	"	"	"	"	"		
HC >= C12	ND	0.0070	"	"	"	"	"	"		
Total Petroleum Hydrocarbor (C4-C12)	ns ND	0.035	"	"	"	"	"	"		
Surrogate: a,a,a-Trifluorotoli	uene	88.7 %	35-13	0	"	"	"	"		



Mearns Consulting LLC		Pr								
738 Ashland Avenue		Project Nu	mber: [no	ne]				Reported:		
Santa Monica CA, 90405		Project Mar	nager: Sus	san Mearns	8			01/12/17 09	9:24	
	Total Petroleum H	[ydrocarbo	ns Carb	on Rang	ge Analy	sis by G	C-FID			
		Sierra Ar	nalytical	l Labs, I	nc.					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB13-10 (1701054-12) Soil S	Sampled: 01/04/17 11:35	Received: 01	1/04/17 16	:27						
HC < C8	ND	1.0	mg/kg	1	B7A0954	01/06/17	01/06/17 16:54	EPA 8015B		
C8 <= HC < C9	ND	1.0	"	"	"	"	"	"		
C9 <= HC < C10	ND	1.0	"	"	"	"	"			
$C10 \le HC < C11$	ND	1.0	"	"	"	"	"	"		
C11 <= HC < C12	ND	1.0	"	"	"	"	"			
$C12 \le HC < C14$	ND	1.0	"	"	"	"	"			
C14 <= HC < C16	ND	1.0	"	"	"	"	"			
C16 <= HC < C18	ND	1.0	"	"	"	"	"			
$C18 \le HC < C20$	ND	1.0	"	"	"	"	"	"		
$C20 \le HC < C24$	ND	1.0	"	"	"	"	"			
$C24 \leq HC < C28$	ND	1.0	"	"	"	"	"			
$C28 \le HC < C32$	ND	1.0	"	"	"	"	"			
$HC \ge C32$	ND	1.0	"	"	"	"	"			
Total Petroleum Hydrocarbons (C7-C36)	ND	5.0	"	"	"	"	"	"		
Surrogate: o-Terphenyl		128 %	60	175	"	"	"	"		
C5 <= HC < C6	ND	0.010	"		B7A0558	01/05/17	01/05/17 11:09			
C6 <= HC < C7	ND	0.010	"	"	"	"	"			
C7 <= HC < C8	ND	0.010	"	"	"	"	"	"		
C8 <= HC < C9	ND	0.010	"	"	"		"	"		
C9 <= HC < C10	ND	0.010	"	"	"	"	"	"		
C10 <= HC < C11	ND	0.010	"	"	"	"	"	"		
C11 <= HC < C12	ND	0.010	"	"	"		"	"		
$HC \ge C12$	ND	0.010	"	"	"		"	"		
Total Petroleum Hydrocarbons (C4-C12)	ND	0.050	"	"	"	"	"	"		
Surrogate: a,a,a-Trifluorotolue	ne	83.5 %	35-	130	"	"	"	"		



Mearns Consulting LLC		Pr							
738 Ashland Avenue		Project Nu	mber: [nor	ne]	-			Reported	:
Santa Monica CA, 90405		Project Mar	nager: Susa	an Mearns	3			01/12/17 09	9:24
	Total Petroleum	Hydrocarbo	ns Carb	on Rang	ge Analy	sis by G	C-FID		
		Sierra Aı	nalytical	Labs, I	nc.	-			
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB14-5 (1701054-13) Soil	Sampled: 01/04/17 11:58	Received · 01/	04/17 16.2	7					
SD14-5 (1701054-15) S011 5	Sampleu. 01/04/17 11.30	Keteiveu. 01/	04/17 10.2	1					
HC < C8	ND	1.0	mg/kg	1	B7A0954	01/06/17	01/06/17 17:06	EPA 8015B	
$C8 \leq HC < C9$	ND	1.0	"	"	"	"	"	"	
$C9 \leq HC < C10$	ND	1.0					"	"	
$C10 \leq HC < C11$	ND	1.0					"	"	
C11 <= HC < C12	ND	1.0					"	"	
C12 <= HC < C14	ND	1.0			"		"	"	
C14 <= HC < C16	ND	1.0	"	"	"	"	"	"	
C16 <= HC < C18	ND	1.0	"	"	"	"	"	"	
$C18 \ll HC \ll C20$	ND	1.0	"	"	"	"	"	"	
C20 <= HC < C24	ND	1.0	"	"	"	"	"	"	
$C24 \ll HC \ll C28$	ND	1.0	"	"	"	"	"	"	
$C28 \leq HC < C32$	ND	1.0	"	"	"		"	"	
$HC \ge C32$	ND	1.0	"	"	"		"	"	
Total Petroleum Hydrocarbor (C7-C36)	ns ND	5.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl		107 %	60-1	75	"	"	"	"	
C5 <= HC < C6	ND	0.010	"	"	B7A0558	01/05/17	01/05/17 11:09		
C6 <= HC < C7	ND	0.010	"	"	"	"	"	"	
C7 <= HC < C8	ND	0.010	"	"	"	"	"		
C8 <= HC < C9	ND	0.010	"	"	"	"	"		
C9 <= HC < C10	ND	0.010	"	"	"	"	"		
C10 <= HC < C11	ND	0.010	"	"	"		"		
C11 <= HC < C12	ND	0.010	"		"	"	"	"	
HC >= C12	ND	0.010	"		"	"	"	"	
Total Petroleum Hydrocarbor (C4-C12)	ns ND	0.050	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoli	uene	90.8 %	35-1	30	"	"	"	"	



Mearns Consulting LLC		Pr	oject: SHP						
738 Ashland Avenue		Project Nu	mber: [non	e]				Reported	:
Santa Monica CA, 90405		Project Mar	nager: Susa	n Mearns	3			01/12/17 09	9:24
	Total Petroleum H	ydrocarbo	ns Carbo	on Rang	ge Analy	sis by G	C-FID		
		Sierra Ar	nalytical	Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB14-10 (1701054-14) Soil S	Sampled: 01/04/17 12:10	Received: 01	/04/17 16:2	27					
HC < C8	ND	1.0	mg/kg	1	B7A0954	01/06/17	01/06/17 17:17	EPA 8015B	
$C8 \le HC < C9$	ND	1.0	"	"	"	"	"	"	
C9 <= HC < C10	ND	1.0	"	"	"	"	"		
C10 <= HC < C11	ND	1.0	"	"	"	"	"		
C11 <= HC < C12	ND	1.0	"	"	"	"	"		
$C12 \le HC < C14$	ND	1.0	"	"	"	"	"	"	
C14 <= HC < C16	ND	1.0	"	"	"	"	"	"	
C16 <= HC < C18	ND	1.0	"	"	"	"	"	"	
$C18 \le HC < C20$	ND	1.0	"	"	"	"	"	"	
$C20 \le HC < C24$	ND	1.0	"	"	"	"	"	"	
$C24 \leq HC < C28$	ND	1.0	"	"	"	"	"	"	
$C28 \le HC < C32$	ND	1.0	"	"	"	"	"	"	
$HC \ge C32$	ND	1.0	"	"	"	"	"	"	
Total Petroleum Hydrocarbons (C7-C36)	ND	5.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl		100 %	60-12	75	"	"	"	"	
C5 <= HC < C6	ND	0.0088	"	"	B7A0558	01/05/17	01/05/17 11:09	"	
C6 <= HC < C7	ND	0.0088	"	"	"		"	"	
C7 <= HC < C8	ND	0.0088	"	"	"	"	"		
C8 <= HC < C9	ND	0.0088	"	"	"		"	"	
C9 <= HC < C10	ND	0.0088	"	"	"		"	"	
C10 <= HC < C11	ND	0.0088	"	"	"		"		
C11 <= HC < C12	ND	0.0088	"	"	"	"	"	"	
$HC \ge C12$	ND	0.0088	"	"	"	"	"	"	
Total Petroleum Hydrocarbons (C4-C12)	ND	0.044	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotolue	ene	88.7 %	35-1.	30	"	"	"	"	



Mearns Consulting LLC		Pr	roject: SHP	PI-Ameri	igas							
738 Ashland Avenue		Project Number: [none]										
Santa Monica CA, 90405		Project Mar	nager: Susa	n Mearns	;			01/12/17 09	9:24			
<u> </u>	Total Petroleum	Hydrocarbo	ns Carbo	on Rang	ge Analys	sis by G	C-FID					
		Sierra Ar	nalytical	Labs, I	nc.	•						
Analyte	Domit	Reporting	Unite	Dilution	Batch	Dranarad	Analyzed	Method	Notos			
/ mary to	Kesun	Linnt	Units	Diffution	Daten	Tepateu	Anaryzeu	MULIOU	TABLES			
SB17-5 (1701054-15) Soil	Sampled: 01/04/17 12:33	Received: 01/	'04/17 16:2'	7								
HC < C8	ND	1.0	mg/kg	1	B7A0954	01/06/17	01/06/17 17:29	EPA 8015B				
$C8 \le HC < C9$	ND	1.0	"	"	"	"	"	"				
C9 <= HC < C10	ND	1.0	"	"	"	"	"	"				
C10 <= HC < C11	ND	1.0	"	"	"	"	"	"				
C11 <= HC < C12	ND	1.0	"	"	"	"	"	"				
C12 <= HC < C14	ND	1.0	"	"	"	"	"	"				
C14 <= HC < C16	ND	1.0	"	"	"	"	"	"				
C16 <= HC < C18	ND	1.0	"	"	"	"	"	"				
C18 <= HC < C20	ND	1.0	"	"	"	"	"	"				
$C20 \ll HC < C24$	ND	1.0	"	"	"	"	"	"				
$C24 \leq HC \leq C28$	ND	1.0	"	"	"	"	"	"				
C28 <= HC < C32	ND	1.0	"	"	"	"	"	"				
$HC \ge C32$	ND	1.0	"	"	"	"	"	"				
Total Petroleum Hydrocarboi (C7-C36)	ns ND	5.0	"	"	"	"	"	"				
Surrogate: o-Terphenyl		109 %	60-12	75	"	"	"	"				
C5 <= HC < C6	ND	0.0086	"	"	B7A0558	01/05/17	01/05/17 11:09	"				
C6 <= HC < C7	ND	0.0086	"	"	"	"	"	"				
C7 <= HC < C8	ND	0.0086	"	"	"	"	"	"				
C8 <= HC < C9	ND	0.0086	"	"	"	"	"	"				
C9 <= HC < C10	ND	0.0086	"	"	"	"	"	"				
C10 <= HC < C11	ND	0.0086	"	"	"	"	"	"				
C11 <= HC < C12	ND	0.0086	"	"	"	"	"	"				
$HC \ge C12$	ND	0.0086	"	"	"	"	"	"				
Total Petroleum Hydrocarbor (C4-C12)	ns ND	0.043	"		"	"	"	"				
Surrogate: a,a,a-Trifluorotol	uene	84.9 %	35-13	30	"	"	"	"				



Mearns Consulting LLC		Pr	oject: SHI	PI-Ameri	igas					
738 Ashland Avenue		Project Nu	mber: [non	ie]	0			Reported:		
Santa Monica CA, 90405		Project Mar	nager: Susa	n Mearns	3			01/12/17 09	9:24	
	Total Petroleum H	[vdrocarbo	ns Carbo	on Rano	e Analy	sis hy G	C-FID			
		Sierra Ar	nalvtical	Labs. I	nc.	sis by G				
		Poporting								
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB17-10 (1701054-16) Soil S	ampled: 01/04/17 12:40	Received: 01	/04/17 16:	27						
HC < C8	ND	1.0	mg/kg	1	B7A0954	01/06/17	01/06/17 17:41	EPA 8015B		
C8 <= HC < C9	ND	1.0	"	"	"	"	"	"		
C9 <= HC < C10	ND	1.0	"	"	"	"	"			
C10 <= HC < C11	ND	1.0	"	"	"	"	"			
C11 <= HC < C12	ND	1.0	"	"	"	"	"			
C12 <= HC < C14	ND	1.0	"	"	"	"	"			
C14 <= HC < C16	ND	1.0	"	"	"	"	"			
C16 <= HC < C18	ND	1.0	"	"	"	"	"			
C18 <= HC < C20	ND	1.0	"	"	"	"	"			
$C20 \le HC < C24$	ND	1.0	"	"	"	"	"			
$C24 \le HC < C28$	ND	1.0	"	"	"	"	"			
C28 <= HC < C32	ND	1.0	"	"	"	"	"			
$HC \ge C32$	ND	1.0	"	"	"	"	"			
Total Petroleum Hydrocarbons (C7-C36)	ND	5.0	"	"	"	"	"	"		
Surrogate: o-Terphenyl		96.0 %	60-1	75	"	"	"	"		
C5 <= HC < C6	ND	0.0086	"	"	B7A0558	01/05/17	01/05/17 11:09			
C6 <= HC < C7	ND	0.0086	"	"	"	"	"			
C7 <= HC < C8	ND	0.0086	"	"	"	"	"			
C8 <= HC < C9	ND	0.0086	"	"	"	"	"	"		
C9 <= HC < C10	ND	0.0086	"	"	"	"	"			
C10 <= HC < C11	ND	0.0086	"	"	"		"	"		
C11 <= HC < C12	ND	0.0086	"	"	"		"	"		
$HC \ge C12$	ND	0.0086	"	"			"	"		
Total Petroleum Hydrocarbons (C4-C12)	ND	0.043	"	"	"	"	"	"		
Surrogate: a,a,a-Trifluorotolue	ne	85.5 %	35-1	30	"	"	"	"		



Mearns Consulting LLC		Pı	roject: SH	PI-Ameri	igas					
738 Ashland Avenue		Project Nu	mber: [nor	ne]	0			Reported:		
Santa Monica CA, 90405		Project Ma	nager: Sus	an Mearns	3			01/12/17 09	9:24	
	Total Petroleum	Hydrocarbo	ns Carb	on Rane	e Analy	sis hy G	C-FID			
		Sierra Aı	nalytical	Labs, I	nc.					
		Peporting		,						
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB15-5 (1701054-17) Soil	Sampled: 01/04/17 13:20	Received: 01/	04/17 16:2	27						
HC < C8	ND	1.0	mg/kg	1	B7A0954	01/06/17	01/06/17 17:53	EPA 8015B		
C8 <= HC < C9	ND	1.0	"	"	"	"	"	"		
C9 <= HC < C10	ND	1.0	"	"	"		"			
C10 <= HC < C11	ND	1.0	"	"	"		"			
C11 <= HC < C12	ND	1.0	"	"	"		"			
$C12 \le HC < C14$	ND	1.0	"	"	"	"	"			
C14 <= HC < C16	ND	1.0	"	"	"	"	"			
C16 <= HC < C18	ND	1.0	"	"	"	"	"			
C18 <= HC < C20	ND	1.0	"	"	"	"	"			
$C20 \le HC < C24$	ND	1.0	"	"	"	"	"			
$C24 \leq HC < C28$	ND	1.0	"	"	"	"	"			
C28 <= HC < C32	ND	1.0	"	"	"	"	"			
$HC \ge C32$	ND	1.0	"	"	"	"	"			
Total Petroleum Hydrocarbor (C7-C36)	ns ND	5.0	"	"	"	"	"	"		
Surrogate: o-Terphenyl		76.8 %	60-1	175	"	"	"	"		
C5 <= HC < C6	ND	0.010	"	"	B7A0558	01/05/17	01/05/17 11:09			
C6 <= HC < C7	ND	0.010	"	"	"		"			
C7 <= HC < C8	ND	0.010	"	"	"		"			
C8 <= HC < C9	ND	0.010	"	"	"		"			
C9 <= HC < C10	ND	0.010	"	"	"		"			
C10 <= HC < C11	ND	0.010	"	"	"	"	"	"		
C11 <= HC < C12	ND	0.010	"	"	"	"	"	"		
HC >= C12	ND	0.010	"	"	"	"	"	"		
Total Petroleum Hydrocarbor (C4-C12)	ND	0.050	"	"	"	"	"	"		
Surrogate: a,a,a-Trifluorotoli	iene	85.4 %	35-1	130	"	"	"	"		



Mearns Consulting LLC		Pro	oject: SH	PI-Ameri	gas					
738 Ashland Avenue		Project Nur	mber: [no	ne]	~			Reported:		
Santa Monica CA, 90405		Project Man	ager: Sus	an Mearns	}			01/12/17 09:24		
	Total Petroleum H	vdrocarbo	ns Carh	on Rang	ze Analys	sis by G	C-FID			
		Sierra An	alytical	Labs, I	nc.					
		Reporting								
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB15-10 (1701054-18) Soil Sa	ampled: 01/04/17 13:28	Received: 01	/04/17 16	:27						
HC < C8	ND	1.0	mg/kg	1	B7A0954	01/06/17	01/06/17 18:05	EPA 8015B		
C8 <= HC < C9	ND	1.0	"	"	"	"	"	"		
C9 <= HC < C10	ND	1.0	"	"	"	"	"	"		
C10 <= HC < C11	ND	1.0	"	"	"	"	"	"		
C11 <= HC < C12	ND	1.0	"	"	"	"	"	"		
C12 <= HC < C14	ND	1.0	"	"	"	"	"	"		
C14 <= HC < C16	ND	1.0	"	"	"		"	"		
C16 <= HC < C18	ND	1.0	"	"	"	"	"	"		
$C18 \leq HC < C20$	ND	1.0	"	"	"	"	"	"		
$C20 \le HC < C24$	ND	1.0	"	"	"	"	"	"		
$C24 \leq HC < C28$	ND	1.0	"	"	"	"	"	"		
C28 <= HC < C32	ND	1.0	"	"	"	"	"	"		
$HC \ge C32$	ND	1.0	"	"	"	"	"	"		
Total Petroleum Hydrocarbons (C7-C36)	ND	5.0	"	"	"	"	"			
Surrogate: o-Terphenyl		70.0 %	60-	175	"	"	"	"		
C5 <= HC < C6	ND	0.010	"	"	B7A0558	01/05/17	01/05/17 11:09	"		
C6 <= HC < C7	ND	0.010	"	"	"	"	"	"		
C7 <= HC < C8	ND	0.010	"	"	"		"	"		
C8 <= HC < C9	ND	0.010	"	"	"		"	"		
C9 <= HC < C10	ND	0.010	"	"	"		"	"		
C10 <= HC < C11	ND	0.010	"	"	"	"	"	"		
C11 <= HC < C12	ND	0.010	"	"	"	"	"	"		
HC >= C12	ND	0.010	"	"	"	"	"	"		
Total Petroleum Hydrocarbons (C4-C12)	ND	0.050	"	"	"	"	"	"		
Surrogate: a,a,a-Trifluorotoluen	ie	85.2 %	35-	130	"	"	"	"		



Mearns Consulting LLC		Pr								
738 Ashland Avenue		Project Nu	mber: [non	e]	0			Reported:		
Santa Monica CA, 90405		Project Mar	nager: Susa	n Mearns	3			01/12/17 09	9:24	
	Total Petroleum	Hvdrocarbo	ns Carbo	on Rang	ge Analv	sis by G	C-FID			
		Sierra Aı	nalytical	Labs, I	nc.	J				
		Reporting								
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB16-5 (1701054-19) Soil	Sampled: 01/04/17 13:42	Received: 01/	04/17 16:27	7						
HC < C8	ND	1.0	mg/kg	1	B7A0954	01/06/17	01/06/17 19:57	EPA 8015B		
C8 <= HC < C9	ND	1.0	"	"	"	"	"			
C9 <= HC < C10	ND	1.0	"	"	"	"	"			
C10 <= HC < C11	ND	1.0	"	"	"	"	"			
C11 <= HC < C12	ND	1.0	"	"	"	"	"			
$C12 \le HC < C14$	ND	1.0	"	"	"	"	"			
C14 <= HC < C16	ND	1.0	"	"	"	"	"			
C16 <= HC < C18	ND	1.0	"	"	"	"	"			
$C18 \leq HC < C20$	ND	1.0	"	"	"	"	"			
C20 <= HC < C24	3.4	1.0	"	"	"	"	"			
C24 <= HC < C28	10	1.0	"	"	"	"	"			
C28 <= HC < C32	21	1.0	"	"	"	"	"	"		
HC >= C32	11	1.0	"	"	"	"	"	"		
Total Petroleum Hydrocard (C7-C36)	bons 46	5.0	"	"	"	"	"	"		
Surrogate: o-Terphenyl		110 %	60-12	75	"	"	"	"		
$C5 \le HC < C6$	ND	0.0066	"	"	B7A0558	01/05/17	01/05/17 11:09	"		
$C6 \leq HC < C7$	ND	0.0066	"	"	"	"	"	"		
$C7 \le HC < C8$	ND	0.0066	"	"	"	"	"	"		
$C8 \le HC < C9$	ND	0.0066	"	"	"	"	"	"		
C9 <= HC < C10	ND	0.0066	"	"	"	"	"	"		
C10 <= HC < C11	ND	0.0066	"	"	"	"	"	"		
C11 <= HC < C12	ND	0.0066	"	"	"	"	"	"		
HC >= C12	ND	0.0066	"	"	"	"	"	"		
Total Petroleum Hydrocarbo (C4-C12)	ns ND	0.033	"	"	"	"	"	"		
Surrogate: a,a,a-Trifluorotol	luene	100 %	35-1.	30	"	"	"	"		


Mearns Consulting LLC		Pr	oject: SH	PI-Ameri	gas					
738 Ashland Avenue			Reported	:						
Santa Monica CA, 90405		Project Man	ager: Sus	an Mearns	}			01/12/17 09:24		
	Total Petroleum H	vdrocarbo	ns Carh	on Rang	ze Analys	sis by G	C-FID			
		Sierra An	alytical	Labs, I	nc.					
		Reporting								
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB16-10 (1701054-20) Soil S	ampled: 01/04/17 13:48	Received: 01	/04/17 16	:27						
HC < C8	ND	1.0	mg/kg	1	B7A0954	01/06/17	01/06/17 18:18	EPA 8015B		
C8 <= HC < C9	ND	1.0	"	"	"		"	"		
C9 <= HC < C10	ND	1.0	"	"	"	"	"	"		
C10 <= HC < C11	ND	1.0	"	"	"	"	"	"		
C11 <= HC < C12	ND	1.0	"	"	"	"	"	"		
$C12 \le HC < C14$	ND	1.0	"	"	"	"	"	"		
$C14 \le HC < C16$	ND	1.0	"	"	"	"	"	"		
C16 <= HC < C18	ND	1.0	"	"	"	"	"	"		
C18 <= HC < C20	ND	1.0	"	"	"	"	"	"		
$C20 \le HC < C24$	ND	1.0	"	"	"	"	"	"		
$C24 \leq HC < C28$	ND	1.0	"	"	"	"	"	"		
C28 <= HC < C32	ND	1.0	"	"	"	"	"	"		
$HC \ge C32$	ND	1.0	"	"	"	"	"	"		
Total Petroleum Hydrocarbons (C7-C36)	ND	5.0	"	"	"	"	"	"		
Surrogate: o-Terphenyl		112 %	60-	175	"	"	"	"		
C5 <= HC < C6	ND	0.010	"	"	B7A0558	01/05/17	01/05/17 11:09	"		
C6 <= HC < C7	ND	0.010	"	"	"		"	"		
C7 <= HC < C8	ND	0.010	"	"	"		"	"		
C8 <= HC < C9	ND	0.010	"	"	"		"	"		
C9 <= HC < C10	ND	0.010	"	"	"		"	"		
C10 <= HC < C11	ND	0.010	"	"	"	"	"	"		
C11 <= HC < C12	ND	0.010	"	"	"	"	"	"		
$HC \ge C12$	ND	0.010	"	"	"	"	"	"		
Total Petroleum Hydrocarbons (C4-C12)	ND	0.050	"	"	"	"	"	"		
Surrogate: a,a,a-Trifluorotoluer	ие	88.2 %	35-	130	"	"	"	"		



Mearns Consulting LLC 738 Ashland Avenue		Reported:							
Santa Monica CA, 90405		Project Mar	nager: Sus	an Mearns	;			01/12/17 09	9:24
	Total Petroleum	Hydrocarbo	ns Carb	on Rang	ge Analys	sis by G	C-FID		_
		Sierra Ar	nalytical	Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB18-5 (1701054-21) Soil S	Sampled: 01/04/17 14:11	Received: 01/	04/17 16:2	27					
HC < C8	ND	1.0	mg/kg	1	B7A0954	01/06/17	01/06/17 18:30	EPA 8015B	
C8 <= HC < C9	ND	1.0	"	"	"	"	"	"	
$C9 \leq HC < C10$	ND	1.0	"	"	"	"	"	"	
C10 <= HC < C11	ND	1.0	"	"	"	"	"	"	
C11 <= HC < C12	ND	1.0	"	"	"	"	"	"	
C12 <= HC < C14	ND	1.0	"	"	"	"	"	"	
$C14 \le HC < C16$	ND	1.0	"	"	"	"	"	"	
C16 <= HC < C18	ND	1.0	"	"	"	"	"	"	
C18 <= HC < C20	ND	1.0	"	"	"	"	"	"	
$C20 \ll HC < C24$	ND	1.0	"	"	"	"	"	"	
$C24 \leq HC \leq C28$	ND	1.0	"	"	"	"	"	"	
C28 <= HC < C32	ND	1.0	"	"	"	"	"	"	
$HC \ge C32$	ND	1.0	"	"	"	"	"	"	
Total Petroleum Hydrocarbon (C7-C36)	ND	5.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl		111 %	60-1	175	"	"	"	"	
C5 <= HC < C6	ND	0.010	"	"	B7A0558	01/05/17	01/05/17 11:09	"	
C6 <= HC < C7	ND	0.010	"	"	"	"	"	"	
C7 <= HC < C8	ND	0.010	"	"	"	"	"	"	
C8 <= HC < C9	ND	0.010	"	"	"	"	"	"	
C9 <= HC < C10	ND	0.010	"	"	"	"	"	"	
C10 <= HC < C11	ND	0.010	"	"	"	"	"	"	
C11 <= HC < C12	ND	0.010	"	"	"	"	"	"	
$HC \ge C12$	ND	0.010	"	"	"		"	"	
Total Petroleum Hydrocarbon (C4-C12)	ND	0.050	"	"	"	"	"		
Surrogate: a,a,a-Trifluorotolu	iene	88.4 %	35-1	130	"	"	"	"	



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Mearns Consulting LLC		Pr	oject: SH	IPI-Ameri	igas					
738 Ashland Avenue			Reported:							
Santa Monica CA, 90405		Project Mar	nager: Sus	san Mearns	3			01/12/17 09:24		
· · · · · ·	Total Petroleum H	vdrocarbo	ns Carl	on Rang	ge Analy	sis by G	C-FID			
		Sierra Ar	nalytica	l Labs, I	nc.					
		Reporting	•	,						
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB18-10 (1701054-22) Soil S	ampled: 01/04/17 14:20	Received: 01	1/04/17 16	5:27						
HC < C8	ND	1.0	mg/kg	1	B7A0954	01/06/17	01/06/17 18:43	EPA 8015B		
C8 <= HC < C9	ND	1.0	"	"	"	"	"	"		
C9 <= HC < C10	ND	1.0	"	"	"	"	"	"		
C10 <= HC < C11	ND	1.0	"	"	"	"	"	"		
C11 <= HC < C12	ND	1.0	"	"	"	"	"	"		
$C12 \le HC < C14$	ND	1.0	"	"	"	"	"	"		
$C14 \le HC < C16$	ND	1.0	"	"	"	"	"	"		
$C16 \le HC < C18$	ND	1.0	"	"	"	"	"	"		
$C18 \leq HC < C20$	ND	1.0		"	"		"	"		
$C20 \le HC < C24$	ND	1.0		"	"		"	"		
$C24 \leq HC < C28$	ND	1.0		"	"		"	"		
$C28 \le HC < C32$	ND	1.0		"	"		"	"		
$HC \ge C32$	ND	1.0		"	"		"	"		
Total Petroleum Hydrocarbons (C7-C36)	ND	5.0	"	"	"	"	"	"		
Surrogate: o-Terphenyl		104 %	60-	175	"	"	"	"		
C5 <= HC < C6	ND	0.012			B7A0558	01/05/17	01/05/17 11:09	"		
C6 <= HC < C7	ND	0.012	"	"	"	"	"	"		
C7 <= HC < C8	ND	0.012	"	"	"	"	"	"		
C8 <= HC < C9	ND	0.012	"	"	"	"	"	"		
C9 <= HC < C10	ND	0.012	"	"	"	"	"	"		
C10 <= HC < C11	ND	0.012		"	"	"	"	"		
C11 <= HC < C12	ND	0.012		"	"	"	"	"		
$HC \ge C12$	ND	0.012		"	"		"	"		
Total Petroleum Hydrocarbons (C4-C12)	ND	0.062	"	"	"	"	"			
Surrogate: a,a,a-Trifluorotolue	ne	82.9 %	35-	130	"	"	"	"		



Mearns Consulting LLC 738 Ashland Avenue		Project: SHPI-Amerigas Project Number: [none]									
Santa Monica CA, 90405		Project Ma	nager: Su	san Mearns	5			01/12/17 09	9:24		
	Total Petroleum	Hydrocarbo	ons Carl	oon Rang	ge Analy	sis by G	C-FID				
		Sierra Ai	nalytica	l Labs, I	nc.						
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes		
SB19-5 (1701054-23) Soil	Sampled: 01/04/17 14:37	Received: 01/	/04/17 16:	27							
HC < C8	ND	10	mg/kg	10	B7A0954	01/06/17	01/06/17 20:09	EPA 8015B			
C8 <= HC < C9	ND	10	"	"	"	"	"	"			
C9 <= HC < C10	ND	10	"	"	"	"	"	"			
C10 <= HC < C11	ND	10	"	"	"	"	"	"			
C11 <= HC < C12	ND	10	"	"	"	"	"	"			
$C12 \le HC < C14$	ND	10	"	"	"	"	"	"			
$C14 \le HC < C16$	ND	10	"	"	"	"	"	"			
$C16 \le HC < C18$	ND	10	"	"	"	"	"	"			
C18 <= HC < C20	12	10	"	"	"	"	"	"			
C20 <= HC < C24	58	10	"	"	"	"	"	"			
C24 <= HC < C28	110	10	"	"	"	"	"	"			
C28 <= HC < C32	210	10	"	"	"	"	"	"			
HC >= C32	180	10	"	"	"	"	"	"			
Total Petroleum Hydrocarb (C7-C36)	oons 570	50	"	"	"	"	"	"			
Surrogate: o-Terphenyl		%	60-	175	"	"	"	"	S-03		
C5 <= HC < C6	ND	0.010	"	1	B7A0558	01/05/17	01/05/17 11:09	"			
$C6 \leq HC < C7$	ND	0.010	"	"	"	"	"	"			
$C7 \le HC < C8$	ND	0.010	"	"	"	"	"	"			
$C8 \le HC < C9$	ND	0.010	"	"	"	"	"	"			
C9 <= HC < C10	ND	0.010	"	"	"	"	"	"			
C10 <= HC < C11	ND	0.010	"	"	"	"	"	"			
C11 <= HC < C12	ND	0.010	"	"	"	"	"	"			
HC >= C12	ND	0.010	"	"	"	"	"	"			
Total Petroleum Hydrocarbor (C4-C12)	ns ND	0.050	"	"	"	"	"	"			
Surrogate: a,a,a-Trifluorotoli	uene	73.2 %	35-	130	"	"	"	"			



Mearns Consulting LLC												
738 Ashland Avenue		Project Number: [none]										
Santa Monica CA, 90405		Project Mar	nager: Sus	san Mearns	8			01/12/17 09	9:24			
	Total Petroleum H	lydrocarbo	ns Cart	oon Rang	ge Analy	sis by G	C-FID					
		Sierra Ar	nalytical	l Labs, I	nc.							
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes			
SB19-10 (1701054-24) Soil S	Sampled: 01/04/17 14:45	Received: 01	/04/17 16	5:27								
HC < C8	ND	1.0	mg/kg	1	B7A0954	01/06/17	01/06/17 18:55	EPA 8015B				
$C8 \le HC < C9$	ND	1.0	"	"	"	"	"	"				
$C9 \le HC < C10$	ND	1.0	"	"	"	"	"	"				
C10 <= HC < C11	ND	1.0	"	"	"	"	"	"				
C11 <= HC < C12	ND	1.0	"	"	"	"	"	"				
$C12 \le HC < C14$	ND	1.0	"	"	"	"	"	"				
$C14 \leq HC < C16$	ND	1.0	"	"	"	"	"	"				
C16 <= HC < C18	ND	1.0	"	"	"	"	"	"				
$C18 \leq HC < C20$	ND	1.0	"	"	"	"	"	"				
$C20 \le HC < C24$	ND	1.0	"	"	"	"	"	"				
$C24 \leq HC < C28$	ND	1.0	"	"	"	"	"	"				
C28 <= HC < C32	ND	1.0	"	"	"	"	"	"				
$HC \ge C32$	ND	1.0	"	"	"	"	"	"				
Total Petroleum Hydrocarbons (C7-C36)	ND	5.0	"	"	"	"	"	"				
Surrogate: o-Terphenyl		87.2 %	60-	175	"	"	"	"				
C5 <= HC < C6	ND	0.010	"		B7A0558	01/05/17	01/05/17 11:09	"				
C6 <= HC < C7	ND	0.010	"	"	"	"	"	"				
C7 <= HC < C8	ND	0.010	"	"	"	"	"	"				
C8 <= HC < C9	0.020	0.010	"		"			"				
C9 <= HC < C10	0.082	0.010	"	"	"	"		"				
C10 <= HC < C11	0.15	0.010	"		"			"				
C11 <= HC < C12	0.17	0.010	"		"	"		"				
HC >= C12	0.033	0.010	"		"	"		"				
Total Petroleum Hydrocarbo (C4-C12)	ns 0.41	0.050	"	"	"	"	"	"				
Surrogate: a,a,a-Trifluorotolue	ene	91.3 %	35-	130	"	"	"	"				



Mearns Consulting LLC		Pı	roject: SHP	I-Ameri	igas						
738 Ashland Avenue		Project Number: [none]									
Santa Monica CA, 90405		Project Mar	nager: Susa	n Mearns	5			01/12/17 09	9:24		
	Total Petroleum	Hydrocarbo	ns Carbo	n Ran	ge Analy	sis by G	C-FID				
		Sierra Aı	nalytical	Labs, I	nc.	-					
Amelyte	Decult	Reporting	Unite	Dilution	Datah	Duananad	Analyzad	Mathad	Notos		
Analyte	Kesuit	Linit	Units	Dilution	Datch	Flepaled	Allalyzeu	Method	notes		
SB20-5 (1701054-25) Soil	Sampled: 01/04/17 14:58	Received: 01/	04/17 16:27	7							
HC < C8	ND	5.0	mg/kg	5	B7A0954	01/06/17	01/06/17 20:22	EPA 8015B			
$C8 \le HC < C9$	ND	5.0	"	"	"	"	"	"			
$C9 \leq HC < C10$	ND	5.0	"	"	"	"	"	"			
C10 <= HC < C11	ND	5.0	"	"	"	"	"	"			
C11 <= HC < C12	ND	5.0	"	"	"	"	"	"			
C12 <= HC < C14	ND	5.0	"	"	"	"		"			
C14 <= HC < C16	ND	5.0	"	"	"	"		"			
C16 <= HC < C18	ND	5.0	"	"	"	"		"			
C18 <= HC < C20	14	5.0	"	"	"	"	"	"			
C20 <= HC < C24	110	5.0	"	"	"	"	"	"			
C24 <= HC < C28	260	5.0	"	"	"	"	"	"			
C28 <= HC < C32	430	5.0	"	"	"	"	"	"			
HC >= C32	340	5.0	"	"	"	"	"	"			
Total Petroleum Hydrocar (C7-C36)	bons 1100	25	"	"	"	"	"	"			
Surrogate: o-Terphenyl		151 %	60-12	75	"	"	"	"			
$C5 \le HC < C6$	ND	0.0088	"	1	B7A0558	01/05/17	01/05/17 11:09	"			
C6 <= HC < C7	0.016	0.0088	"	"	"	"	"	"			
C7 <= HC < C8	0.019	0.0088	"	"	"	"	"	"			
C8 <= HC < C9	0.021	0.0088	"	"	"	"	"	"			
C9 <= HC < C10	0.022	0.0088	"	"	"	"	"	"			
C10 <= HC < C11	0.021	0.0088		"	"	"		"			
C11 <= HC < C12	0.022	0.0088	"	"	"	"		"			
$HC \ge C12$	ND	0.0088		"	"	"	"	"			
Total Petroleum Hydrocar (C4-C12)	bons 0.14	0.044	"	"	"	"	"	"			
Surrogate: a,a,a-Trifluoroto	luene	80.1 %	35-13	30	"	"	"	"			



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Mearns Consulting LLC		Pr	oject: SH	HPI-Ameri	gas								
738 Ashland Avenue	Avenue Project Number: [none]												
Santa Monica CA, 90405		Project Mar	nager: Su	san Mearns	5			01/12/17 09:24					
	Total Petroleum H	[vdrocarbo	ns Carl	hon Rano	e Analy	sis hy G	C-FID						
	Sierra Analytical Labs, Inc.												
		Reporting			-								
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes				
SB20-10 (1701054-26) Soil Sa	ampled: 01/04/17 15:06	Received: 01	1/04/17 1	6:27									
HC < C8	ND	5.0	mg/kg	5	B7A0954	01/06/17	01/06/17 20:34	EPA 8015B					
C8 <= HC < C9	ND	5.0	"	"	"	"	"	"					
C9 <= HC < C10	ND	5.0	"	"	"	"	"	"					
C10 <= HC < C11	ND	5.0	"	"	"	"	"	"					
C11 <= HC < C12	ND	5.0	"	"	"	"	"	"					
C12 <= HC < C14	ND	5.0	"	"	"	"	"	"					
$C14 \le HC < C16$	ND	5.0	"	"	"	"	"	"					
$C16 \le HC < C18$	ND	5.0	"	"	"	"	"	"					
$C18 \leq HC < C20$	ND	5.0	"	"	"	"	"	"					
C20 <= HC < C24	7.0	5.0	"	"	"	"	"	"					
C24 <= HC < C28	53	5.0	"	"	"	"	"	"					
C28 <= HC < C32	140	5.0	"	"	"	"	"	"					
HC >= C32	120	5.0	"	"	"	"	"	"					
Total Petroleum Hydrocarbon (C7-C36)	as 320	25	"	"	"	"	"	"					
Surrogate: o-Terphenyl		105 %	60	-175	"	"	"	"					
C5 <= HC < C6	ND	0.0084	"	1	B7A0558	01/05/17	01/05/17 11:09	"					
C6 <= HC < C7	ND	0.0084	"	"	"	"	"	"					
C7 <= HC < C8	ND	0.0084	"	"	"		"	"					
C8 <= HC < C9	ND	0.0084	"	"	"	"	"	"					
C9 <= HC < C10	ND	0.0084	"	"	"	"	"	"					
C10 <= HC < C11	ND	0.0084	"	"	"		"	"					
C11 <= HC < C12	ND	0.0084	"	"	"	"	"	"					
HC >= C12	ND	0.0084	"	"	"	"	"	"					
Total Petroleum Hydrocarbons (C4-C12)	ND	0.042	"	"	"	"	"	"					
Surrogate: a.a.a-Trifluorotoluer	ne	89.9 %	35	-130	"	"	"	"					



Mearns Consulting LLC	Project: SHPI-Amerigas								
738 Ashland Avenue	Project Number: [none]	Reported:							
Santa Monica CA, 90405	Project Manager: Susan Mearns	01/12/17 09:24							
Volatile Organic Compounds by EPA Method 8260B									
Sierra Analytical Labs, Inc.									
	Deventing								

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB8-5 (1701054-01) Soil S	ampled: 01/04/17 08:46	Received: 01/0	4/17 16:27						
Benzene	ND	8.3	µg/kg	1	B7A0571	01/05/17	01/05/17 19:49	9 EPA 8260B	
Bromobenzene	ND	8.3	"	"	"	"	"	"	
Bromochloromethane	ND	8.3	"	"	"	"	"	"	
Bromodichloromethane	ND	8.3	"	"	"	"	"	"	
Bromoform	ND	8.3	"	"	"	"	"	"	
Bromomethane	ND	8.3	"	"	"	"	"	"	
n-Butylbenzene	ND	8.3	"	"	"	"	"	"	
sec-Butylbenzene	ND	8.3	"	"	"	"	"	"	
tert-Butylbenzene	ND	8.3	"	"	"	"		"	
Carbon tetrachloride	ND	8.3	"	"	"	"		"	
Chlorobenzene	ND	8.3	"	"	"	"		"	
Chloroethane	ND	8.3	"	"	"	"		"	
Chloroform	ND	8.3	"	"	"	"		"	
Chloromethane	ND	8.3	"	"	"	"		"	
2-Chlorotoluene	ND	8.3	"	"	"	"		"	
4-Chlorotoluene	ND	8.3	"	"	"	"	"	"	
Dibromochloromethane	ND	8.3	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropan	e ND	8.3	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	8.3	"	"	"	"	"	"	
Dibromomethane	ND	8.3	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	8.3	"	"	"	"		"	
1,3-Dichlorobenzene	ND	8.3	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	8.3	"	"	"	"		"	
Dichlorodifluoromethane	ND	8.3	"	"	"	"	"	"	
1,1-Dichloroethane	ND	8.3	"	"	"	"		"	
1,2-Dichloroethane	ND	8.3	"	"	"	"		"	
1,1-Dichloroethene	ND	8.3	"	"	"	"		"	
cis-1,2-Dichloroethene	ND	8.3	"	"	"	"		"	
trans-1,2-Dichloroethene	ND	8.3	"	"	"	"		"	
1,2-Dichloropropane	ND	8.3	"	"	"	"		"	
1,3-Dichloropropane	ND	8.3	"	"	"	"	"	"	
2,2-Dichloropropane	ND	8.3	"	"	"	"	"	"	
1,1-Dichloropropene	ND	8.3	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	8.3	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	8.3	"	"	"	"	"	"	
Ethylbenzene	ND	8.3	"	"	"	"	"	"	
Hexachlorobutadiene	ND	8.3	"	"	"	"	"	"	
Isopropylbenzene	ND	8.3	"	"	"		"	"	
p-Isopropyltoluene	ND	8.3	"	"	"		"	"	
Methylene chloride	ND	8.3	"	"	"		"	"	
Methyl tert-butyl ether	ND	8.3	"	"	"	"	"	"	



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405	Volatile O	Pr Project Nur Project Mar rganic Com	oject: SH mber: [nc nager: Sus nounds	IPI-Amer one] san Mearns	igas 5 Method	8260B		Reported : 01/12/17 09	:24
		Sierra An	alytica	l Labs, I	nc.	02002			
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB8-5 (1701054-01) Soil	Sampled: 01/04/17 08:46	Received: 01/04	4/17 16:2	7					
Naphthalene	ND	8.3	µg/kg	1	B7A0571	01/05/17	01/05/17 19:49	9 EPA 8260B	
n-Propylbenzene	ND	8.3	"	"	"	"		"	
Styrene	ND	8.3	"	"	"	"		"	
1,1,1,2-Tetrachloroethane	ND	8.3	"	"	"	"	"		
1,1,2,2-Tetrachloroethane	ND	8.3	"	"	"	"	"	"	
Tetrachloroethene	ND	8.3	"	"	"	"	"	"	
Toluene	ND	8.3	"	"	"	"	"	"	

1,2,3-Trichlorobenzene	ND	8.3		"	"	"		"	
1,2,4-Trichlorobenzene	ND	8.3	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	8.3	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	8.3	"	"	"	"	"	"	
Trichloroethene	ND	8.3		"	"	"			
Trichlorofluoromethane	ND	8.3	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	8.3	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	8.3	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	8.3		"	"	"			
Vinyl chloride	ND	8.3		"	"	"			
m,p-Xylene	ND	8.3		"	"	"			
o-Xylene	ND	8.3	"	"	"	"	"		
Surrogate: Dibromofluoromethane		106 %	80-1	20	"	"	"	"	
Surrogate: Toluene-d8		111 %	81-1	117	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		114 %	74-1	121	"	"	"	"	

SB8-10 (1701054-02) Soil Sampled: 01/04/17 08:57 Received: 01/04/17 16:27

Benzene	ND	6.0	µg/kg	1 E	37A0571 (01/05/17	01/05/17 20:31 EPA	8260B
Bromobenzene	ND	6.0	"	"	"	"	"	"
Bromochloromethane	ND	6.0	"	"	"	"	"	"
Bromodichloromethane	ND	6.0	"	"	"	"	"	"
Bromoform	ND	6.0	"	"	"	"	"	"
Bromomethane	ND	6.0	"	"	"	"	"	"
n-Butylbenzene	ND	6.0	"	"	"	"	"	"
sec-Butylbenzene	ND	6.0		"	"	"	"	"
tert-Butylbenzene	ND	6.0	"	"	"	"	"	"
Carbon tetrachloride	ND	6.0	"	"	"	"	"	"
Chlorobenzene	ND	6.0	"	"	"	"	"	"
Chloroethane	ND	6.0	"	"	"	"	"	"
Chloroform	ND	6.0	"	"	"	"	"	"
Chloromethane	ND	6.0	"	"	"	"	"	"
2-Chlorotoluene	ND	6.0	"	"	"	"	"	"
4-Chlorotoluene	ND	6.0	"	"	"	"	"	"
Dibromochloromethane	ND	6.0	"	"	"		"	"



Mearns Consulting LLC 738 Ashland Avenue	Project: Project Number:	SHPI-Amerigas [none]	Reported:					
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24					
Volatile Organic Compounds by EPA Method 8260B								

		Sierra Ar	nalytical	Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
SB8-10 (1701054-02) Soil	Sampled: 01/04/17 08:57	Received: 01/	04/17 16:2	27					
1,2-Dibromo-3-chloropropa	ine ND	6.0	µg/kg	1	B7A0571	01/05/17	01/05/17 20:31	1 EPA 8260B	
1,2-Dibromoethane (EDB)	ND	6.0	"	"	"	"	"	"	
Dibromomethane	ND	6.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	6.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	6.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	6.0	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	6.0	"	"	"	"	"	"	
1,1-Dichloroethane	ND	6.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	6.0	"	"	"	"	"	"	
1,1-Dichloroethene	ND	6.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	6.0	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	6.0	"	"	"	"	"	"	
1,2-Dichloropropane	ND	6.0	"	"	"	"	"	"	
1,3-Dichloropropane	ND	6.0	"	"	"	"	"	"	
2,2-Dichloropropane	ND	6.0	"	"	"	"			
1,1-Dichloropropene	ND	6.0	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	6.0			"		"		
trans-1,3-Dichloropropene	ND	6.0	"	"	"	"	"	"	
Ethylbenzene	ND	6.0			"		"		
Hexachlorobutadiene	ND	6.0			"		"		
Isopropylbenzene	ND	6.0			"		"		
p-Isopropyltoluene	ND	6.0			"	"	"	"	
Methylene chloride	ND	6.0			"	"	"	"	
Methyl tert-butyl ether	ND	6.0			"	"	"	"	
Naphthalene	ND	6.0			"	"	"	"	
n-Propylbenzene	ND	6.0	"	"	"	"			
Styrene	ND	6.0	"		"			"	
1.1.1.2-Tetrachloroethane	ND	6.0	"		"			"	
1.1.2.2-Tetrachloroethane	ND	6.0	"		"			"	
Tetrachloroethene	ND	6.0	"		"			"	
Toluene	ND	6.0						"	
1.2.3-Trichlorobenzene	ND	6.0						"	
1.2.4-Trichlorobenzene	ND	6.0						"	
1.1.1-Trichloroethane	ND	6.0					"	"	
1 1 2-Trichloroethane	ND	6.0					"	"	
Trichloroethene	ND	6.0					"	"	
Trichlorofluoromethane	ND	6.0							
1.2.3-Trichloronronane	ND	6.0							
1.2.4-Trimethylbenzene	ND	6.0							
1 3 5-Trimethylbenzene	ND	6.0		"			"		
Vinvl chloride		6.0		"			"		
,,	ND	0.0							



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405	Vala414 O	Project: SHPI-Amerigas Project Number: [none] Project Manager: Susan Mearns Volatile Organic Compounds by FPA Method 8260B							
	volatile O	rganic Com Sierra Ai	ipounds nalytica	by EPA I Labs, I	nc.	820UB			
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB8-10 (1701054-02) Soil	Sampled: 01/04/17 08:57	Received: 01/	04/17 16:	27					
m,p-Xylene o-Xylene	ND ND	6.0 6.0	µg/kg "	1 "	B7A0571 "	01/05/17	01/05/17 20:31	EPA 8260B	
Surrogate: Dibromofluoron Surrogate: Toluene-d8	nethane	100 % 107 %	80- 81- 74	120 117	""	"	"	"	
Surrogate: 4-Bromofluorol	Senzene	118 %	-4/	121 7					
<u>589-5 (1701054-05) 5011</u>	Sampled: 01/04/17 09:17	Keceived: 01/0	4/17 10:2	1	D740571	01/05/17	01/05/17 01 12		
Bromobenzene Bromochloromethane	ND ND ND	6.6 6.6 6.6	μg/kg "	1 " "	B/A05/1 "	01/05/17 "	01/05/17 21:13	8 EPA 8260B "	
Bromodichloromethane Bromoform	ND ND	6.6 6.6			"	"	"		
Bromomethane n-Butylbenzene	ND ND	6.6 6.6					"		
sec-Butylbenzene tert-Butylbenzene	ND ND	6.6 6.6					"	"	
Chlorobenzene Chloroethane	ND ND ND	6.6 6.6			"		"	"	
Chloroform Chloromethane	ND ND	6.6 6.6			"		"	"	
2-Chlorotoluene 4-Chlorotoluene	ND ND	6.6 6.6		"	"	"	"	"	
1,2-Dibromo-3-chloroprop	ane ND ND	6.6 6.6	"				"	"	
Dibromomethane (LDD) Dibromomethane 1,2-Dichlorobenzene	ND ND	6.6 6.6			"		"	"	
1,3-Dichlorobenzene 1,4-Dichlorobenzene	ND ND	6.6 6.6	"		"		"	"	
Dichlorodifluoromethane 1,1-Dichloroethane	ND ND	6.6 6.6					"	"	
1,2-Dichloroethane 1,1-Dichloroethene	ND ND	6.6 6.6					"	"	
trans-1,2-Dichloropropane	ND ND ND	6.6 6.6	"				"	"	
1,3-Dichloropropane 2,2-Dichloropropane	ND ND	6.6 6.6	"			"	"	"	
1,1-Dichloropropene cis-1,3-Dichloropropene	ND ND	6.6 6.6	"				"	"	



Mearns Consulting LLC 738 Ashland Avenue	Project: Project Number:	SHPI-Amerigas	Reported:					
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24					
Volatile Organic Compounds by EPA Method 8260B								
Sierra Analytical Labs, Inc.								

		2.011411	j treu						
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB9-5 (1701054-03) Soil	Sampled: 01/04/17 09:17	Received: 01/0	4/17 16:2'	7					
trans-1,3-Dichloropropene	ND	6.6	µg/kg	1	B7A0571	01/05/17	01/05/17 21:1	3 EPA 8260B	
Ethylbenzene	ND	6.6	"	"	"	"	"	"	
Hexachlorobutadiene	ND	6.6	"	"	"	"	"	"	
Isopropylbenzene	ND	6.6	"	"	"	"	"	"	
p-Isopropyltoluene	ND	6.6	"	"	"	"	"	"	
Methylene chloride	ND	6.6	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	6.6	"	"	"	"	"	"	
Naphthalene	ND	6.6	"	"	"	"	"	"	
n-Propylbenzene	ND	6.6	"	"	"	"	"	"	
Styrene	ND	6.6	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	6.6	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	6.6	"	"	"	"	"	"	
Tetrachloroethene	ND	6.6	"	"	"	"	"	"	
Toluene	ND	6.6	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	6.6	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	6.6	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	6.6	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	6.6	"	"	"	"	"	"	
Trichloroethene	ND	6.6	"	"	"	"	"	"	
Trichlorofluoromethane	ND	6.6	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	6.6	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	6.6	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	6.6	"	"	"	"	"	"	
Vinyl chloride	ND	6.6	"	"	"	"	"	"	
m,p-Xylene	ND	6.6	"	"	"	"	"	"	
o-Xylene	ND	6.6	"	"	"		"		
Surrogate: Dibromofluoro	methane	102 %	80-	120	"	"	"	"	
Surrogate: Toluene-d8		106 %	81-	117	"	"	"	"	
Surrogate: 4-Bromofluoro	benzene	119 %	74-	121	"	"	"	"	



Mearns Consulting LLC 738 Ashland Avenue	Project: SHPI-Amerigas Project Number: [none]	Reported:								
Santa Monica CA, 90405	Project Manager: Susan Mearns	01/12/17 09:24								
	Volatile Organic Compounds by EPA Method 8260B									

		Sierra An	lalytical	Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB9-10 (1701054-04) Soil	Sampled: 01/04/17 09:30	Received: 01/	04/17 16:2	27					
Benzene	ND	5.0	µg/kg	1	B7A0571	01/05/17	01/05/17 21:55	5 EPA 8260B	
Bromobenzene	ND	5.0	"	"	"	"	"	"	
Bromochloromethane	ND	5.0	"	"	"	"	"	"	
Bromodichloromethane	ND	5.0	"	"	"	"	"	"	
Bromoform	ND	5.0	"	"	"	"	"		
Bromomethane	ND	5.0	"	"	"	"	"		
n-Butylbenzene	ND	5.0	"	"	"	"	"	"	
sec-Butylbenzene	ND	5.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	5.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	5.0	"	"	"	"	"	"	
Chlorobenzene	ND	5.0	"	"	"	"	"	"	
Chloroethane	ND	5.0	"	"	"	"	"	"	
Chloroform	ND	5.0	"	"	"	"	"	"	
Chloromethane	ND	5.0	"	"	"	"		"	
2-Chlorotoluene	ND	5.0	"	"	"	"	"	"	
4-Chlorotoluene	ND	5.0	"	"	"			"	
Dibromochloromethane	ND	5.0	"	"	"			"	
1,2-Dibromo-3-chloropropan	e ND	5.0	"	"	"			"	
1,2-Dibromoethane (EDB)	ND	5.0	"	"	"	"	"	"	
Dibromomethane	ND	5.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	5.0	"	"	"		"	"	
1,3-Dichlorobenzene	ND	5.0	"	"	"		"		
1.4-Dichlorobenzene	ND	5.0	"	"	"		"		
Dichlorodifluoromethane	ND	5.0	"	"	"		"		
1,1-Dichloroethane	ND	5.0	"	"	"		"		
1,2-Dichloroethane	ND	5.0	"	"	"		"		
1.1-Dichloroethene	ND	5.0		"	"		"	"	
cis-1.2-Dichloroethene	ND	5.0		"	"		"	"	
trans-1.2-Dichloroethene	ND	5.0		"	"		"	"	
1.2-Dichloropropane	ND	5.0		"	"		"	"	
1.3-Dichloropropane	ND	5.0	"	"	"			"	
2.2-Dichloropropane	ND	5.0	"	"	"			"	
1.1-Dichloropropene	ND	5.0	"	"	"			"	
cis-1.3-Dichloropropene	ND	5.0	"	"	"			"	
trans-1.3-Dichloropropene	ND	5.0	"	"	"			"	
Ethylbenzene	ND	5.0	"	"	"			"	
Hexachlorobutadiene	ND	5.0		"			"	"	
Isopropylbenzene	ND	5.0		"					
n-Isopropyltoluene	ND	5.0		"				"	
Methylene chloride	ND	5.0		"					
Methyl tert-butyl ether	ND	5.0		"			"		
	ND	5.0							



Chloroform

Chloromethane

2-Chlorotoluene

4-Chlorotoluene

Dibromochloromethane

Mearns Consulting LLC	Project:	SHPI-Amerigas						
738 Ashland Avenue	Project Number:	[none]	Reported:					
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24					
Volatile Organic Compounds by EPA Method 8260B								
Sierra Analytical Labs. Inc.								

			v						
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB9-10 (1701054-04) Soil	Sampled: 01/04/17 09:30	Received: 01/	04/17 16:	27					
Naphthalene	ND	5.0	µg/kg	1	B7A0571	01/05/17	01/05/17 21:5	5 EPA 8260B	
n-Propylbenzene	ND	5.0	"	"	"	"		"	
Styrene	ND	5.0	"	"	"	"		"	
1,1,1,2-Tetrachloroethane	ND	5.0	"	"	"	"		"	
1.1.2.2-Tetrachloroethane	ND	5.0	"	"	"	"		"	
Tetrachloroethene	ND	5.0	"	"	"	"		"	
Toluene	ND	5.0	"	"	"	"		"	
1.2.3-Trichlorobenzene	ND	5.0	"	"	"	"		"	
1.2.4-Trichlorobenzene	ND	5.0	"	"	"	"		"	
1.1.1-Trichloroethane	ND	5.0	"	"	"	"		"	
1.1.2-Trichloroethane	ND	5.0	"	"	"	"		"	
Trichloroethene	ND	5.0	"	"	"	"		"	
Trichlorofluoromethane	ND	5.0	"	"	"	"		"	
1.2.3-Trichloropropane	ND	5.0	"	"	"	"		"	
1.2.4-Trimethylbenzene	ND	5.0	"	"	"	"		"	
1.3.5-Trimethylbenzene	ND	5.0	"	"	"	"			
Vinyl chloride	ND	5.0	"	"	"	"			
m.n-Xvlene	ND	5.0	"	"	"	"			
o-Xvlene	ND	5.0	"	"	"	"			
Sumo a star Dihuam aflu ana	u othere o	117.0/	80	120	"	"	"	"	
Surrogale: Dibromojiuoror	neinane	117 %	00-	·120 117	"	,,	"	"	
Surrogale: Toluene-ao		109 %	01- 74	101	,,	,,	"	"	
Surrogate: 4-Bromofiuorot	penzene	111 %0	/4-	-121					
SB10-5 (1701054-05) Soil	Sampled: 01/04/17 09:48	Received: 01/	04/17 16:	27					
Benzene	ND	3.9	µg/kg	1	B7A0571	01/05/17	01/05/17 22:3	7 EPA 8260B	
Bromobenzene	ND	3.9	"	"	"	"		"	
Bromochloromethane	ND	3.9	"	"	"	"	"	"	
Bromodichloromethane	ND	3.9	"	"	"	"		"	
Bromoform	ND	3.9	"	"	"	"	"	"	
Bromomethane	ND	3.9	"	"	"	"		"	
n-Butylbenzene	74	3.9	"	"	"	"	"	"	
sec-Butylbenzene	7.6	3.9	"	"	"	"	"	"	
tert-Butylbenzene	51	3.9	"	"	"	"	"	"	
Carbon tetrachloride	ND	3.9	"	"	"			"	
Chlorobenzene	ND	3.9	"	"	"			"	
Chloroethane	ND	3.9	"	"	"	"		"	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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3.9

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Mearns Consulting LLC 738 Ashland Avenue	Project: Project Number:	SHPI-Amerigas	Reported:					
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24					
Volatile Organic Compounds by EPA Method 8260B								
Sierra Analytical Labs, Inc.								

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB10-5 (1701054-05) Soil	Sampled: 01/04/17 09:48	Received: 01/	/04/17 16:	27					
1,2-Dibromo-3-chloropropa	ine ND	3.9	µg/kg	1	B7A0571	01/05/17	01/05/17 22:3	7 EPA 8260B	
1,2-Dibromoethane (EDB)	ND	3.9	"	"	"	"	"	"	
Dibromomethane	ND	3.9	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	3.9	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	3.9	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	3.9	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	3.9	"	"	"	"	"	"	
1,1-Dichloroethane	ND	3.9	"	"	"	"	"	"	
1,2-Dichloroethane	ND	3.9	"	"	"	"	"	"	
1,1-Dichloroethene	ND	3.9	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	3.9	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	3.9	"	"	"	"	"	"	
1,2-Dichloropropane	ND	3.9	"	"	"	"	"	"	
1.3-Dichloropropane	ND	3.9	"	"	"	"	"	"	
2.2-Dichloropropane	ND	3.9		"	"	"	"	"	
1.1-Dichloropropene	ND	3.9	"	"	"	"	"	"	
cis-1.3-Dichloropropene	ND	3.9	"	"	"	"	"	"	
trans-1.3-Dichloropropene	ND	3.9	"	"	"	"	"	"	
Ethylbenzene	7.9	3.9	"	"	"	"	"	"	
Hexachlorobutadiene	ND	3.9	"	"	"	"	"	"	
Isopropylbenzene	230	3.9	"	"	"	"	"	"	
p-Isopropyltoluene	ND	3.9		"	"	"	"		
Methylene chloride	ND	3.9		"	"	"	"	"	
Methyl tert-butyl ether	ND	3.9		"	"	"	"	"	
Nanhthalene	23	3.9		"	"	"		"	
n-Pronvlbenzene	23 40	3.9		"	"	"	"	"	
Styrene	40 ND	3.9		"	"	"	"	"	
1 1 1 2-Tetrachloroethane	ND	3.9		"	"	"	"	"	
1 1 2 2-Tetrachloroethane	230	3.9		"	"	"	"	"	
Tetrachloroethene	250 ND	3.9		"	"	"	"	"	
Toluene	ND	3.9		"	"	"	"	"	
1 2 3-Trichlorobenzene	ND	3.9		"	"	"	"	"	
1 2 4-Trichlorobenzene	ND	3.9		"	"	"	"	"	
1 1 1-Trichloroethane	ND	3.9		"	"	"	"	"	
1 1 2-Trichloroethane	ND	3.9		"	"	"	"	"	
Trichloroethene		3.9			"				
Trichlorofluoromethane		3.9			"				
1 2 3-Trichloropropage		3.9			"				
1.2.5-Trimotopiopane	ND 12	3.9			"				
1,2,4-11 internyinenzene	43	2.0			"				
Vinyl chloride	41 ND	3.9			"				
v myr chioride	ND	5.9							



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405	Volatile O	Pr Project Nu Project Mar rganic Com	roject: SH umber: [no nager: Su	IPI-Ameri one] san Mearns	igas S Method	8260B		Reporte 01/12/17 (d:)9:24			
		Sierra Ai	nalytica	l Labs, I	nc.	02002						
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes			
SB10-5 (1701054-05) Soil	SB10-5 (1701054-05) Soil Sampled: 01/04/17 09:48 Received: 01/04/17 16:27											
m,p-Xylene o-Xylene	6.9 ND	3.9 3.9	µg/kg "	1	B7A0571 "	01/05/17	01/05/17 22:37	EPA 8260B "				
Surrogate: Dibromofluorome Surrogate: Toluene-d8 Surrogate: 4-Bromofluorobe	ethane nzene	102 % 112 % 114 %	80- 81- 74-	·120 ·117 ·121	""	"	" "	11 11 11				
SB10-10 (1701054-06) Soil	Sampled: 01/04/17 10:07	Received · 01	/ 1/04/17 16	5·27								
Benzene	ND	4.4	1/ 04/17 1 0	1	B7A0571	01/05/17	01/05/17 23:18	R EPA 8260B				
Bromochloromethane	ND	4.4 4.4	μ <u>ε</u> /κ <u>ε</u> "	"	"	"	"	"				
Bromodichloromethane	ND	4.4	"			"						
Bromomethane	ND ND	4.4	"	"		"	"	"				
sec-Butylbenzene	89 12	4.4 4.4	"	"	"	"	"	"				
tert-Butylbenzene	60	4.4	"	"	"	"	"	"				
Carbon tetrachloride	ND ND	4.4	"		"							
Chloroothana	ND ND	4.4	"		"			"				
Chloroform	ND	4.4	"		"							
Chloromethane	ND	4.4	"	"	"							
2-Chlorotoluene	ND	4.4	"	"	"			"				
4-Chlorotoluene	ND	4.4	"	"	"		"	"				
Dibromochloromethane	ND	4.4	"	"	"		"	"				
1.2-Dibromo-3-chloropropan	e ND	4.4	"	"	"		"	"				
1.2-Dibromoethane (EDB)	ND	4.4	"	"	"		"	"				
Dibromomethane	ND	4.4	"	"	"		"	"				
1,2-Dichlorobenzene	ND	4.4	"	"	"	"	"	"				
1,3-Dichlorobenzene	ND	4.4	"	"	"		"	"				
1,4-Dichlorobenzene	ND	4.4	"	"	"		"	"				
Dichlorodifluoromethane	ND	4.4	"	"	"	"	"	"				
1,1-Dichloroethane	ND	4.4	"	"	"	"	"	"				
1,2-Dichloroethane	ND	4.4	"	"	"	"	"	"				
1,1-Dichloroethene	ND	4.4	"	"	"	"	"	"				
cis-1,2-Dichloroethene	ND	4.4	"	"	"	"	"	"				
trans-1,2-Dichloroethene	ND	4.4	"	"	"		"	"				
1,2-Dichloropropane	ND	4.4	"	"	"	"	"	"				
1,3-Dichloropropane	ND	4.4	"	"	"	"	"	"				
2,2-Dichloropropane	ND	4.4	"	"	"	"	"	"				
1,1-Dichloropropene cis-1,3-Dichloropropene	ND ND	4.4 4.4					"	"				



Surrogate: 4-Bromofluorobenzene

	Volatile Organic Compour	nds by EPA Method 8260B	
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24
738 Ashland Avenue	Project Number:	[none]	Reported:
Mearns Consulting LLC	Project:	SHPI-Amerigas	

Sierra Analytical Labs, Inc. Reporting Result Units Dilution Batch Prepared Analyzed Method Analyte Limit Notes SB10-10 (1701054-06) Soil Sampled: 01/04/17 10:07 Received: 01/04/17 16:27 trans-1,3-Dichloropropene ND 4.4 B7A0571 01/05/17 01/05/17 23:18 EPA 8260B 1 µg/kg 4.4 Ethylbenzene 4.9 .. " .. ., ., .. 4.4 Hexachlorobutadiene ND 330 4.4 Isopropylbenzene p-Isopropyltoluene ND 4.4, .. ., Methylene chloride ND 4.4 Methyl tert-butyl ether ND 4.4 " ., Naphthalene 45 4.4 n-Propylbenzene 380 4.4, Styrene ND 4.4 1,1,1,2-Tetrachloroethane ND 4.4 1,1,2,2-Tetrachloroethane 370 4.4 Tetrachloroethene ND 4.4 Toluene ND 4.4 1,2,3-Trichlorobenzene 4.4 ND 4.4 1,2,4-Trichlorobenzene ND ., .. 4.4 1,1,1-Trichloroethane ND .. ., 1,1,2-Trichloroethane ND 4.4 Trichloroethene ND 4.4 Trichlorofluoromethane ND 4.4 1,2,3-Trichloropropane ND 4.4 1,2,4-Trimethylbenzene 34 4.4 1,3,5-Trimethylbenzene ND ., .. 4.4 ., Vinyl chloride ND 4.4 .. m,p-Xylene 4.7 4.4, .. o-Xylene ND 4.4 " " ,, ,, Surrogate: Dibromofluoromethane 97.7 % 80-120 ,, ,, " ,, Surrogate: Toluene-d8 98.9 % 81-117

74-121

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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

96.8 %



Mearns Consulting LLC	Project: Project Number:	SHPI-Amerigas	Reported:					
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24					
Volatile Organic Compounds by EPA Method 8260B								
Sierra Analytical Labs, Inc.								

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB11-5 (1701054-07) Soil	Sampled: 01/04/17 10:11	Received: 01/	04/17 16:	27					
Benzene	ND	4.5	µg/kg	1	B7A0571	01/05/17	01/05/17 23:5	8 EPA 8260B	
Bromobenzene	ND	4.5	"	"	"	"	"	"	
Bromochloromethane	ND	4.5	"	"	"	"	"	"	
Bromodichloromethane	ND	4.5	"	"	"	"	"	"	
Bromoform	ND	4.5	"	"	"	"	"	"	
Bromomethane	ND	4.5	"		"	"	"	"	
n-Butylbenzene	ND	4.5	"	"	"	"	"	"	
sec-Butylbenzene	ND	4.5	"	"	"	"	"	"	
tert-Butylbenzene	ND	4.5	"		"	"	"	"	
Carbon tetrachloride	ND	4.5	"		"	"	"	"	
Chlorobenzene	ND	4.5	"		"	"	"	"	
Chloroethane	ND	4.5	"		"	"	"	"	
Chloroform	ND	4.5	"		"	"	"	"	
Chloromethane	ND	4.5	"	"	"	"	"	"	
2-Chlorotoluene	ND	4.5	"		"	"	"	"	
4-Chlorotoluene	ND	4.5	"	"	"	"	"	"	
Dibromochloromethane	ND	4.5	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropan	e ND	4.5	"		"	"	"	"	
1,2-Dibromoethane (EDB)	ND	4.5	"		"	"	"	"	
Dibromomethane	ND	4.5	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	4.5	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	4.5	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	4.5	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	4.5	"	"	"	"	"	"	
1,1-Dichloroethane	ND	4.5	"	"	"	"	"	"	
1,2-Dichloroethane	ND	4.5	"	"	"	"	"	"	
1,1-Dichloroethene	ND	4.5	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	4.5	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	4.5	"	"	"	"	"	"	
1,2-Dichloropropane	ND	4.5	"	"	"	"	"	"	
1,3-Dichloropropane	ND	4.5	"	"	"	"	"	"	
2,2-Dichloropropane	ND	4.5	"	"	"	"	"	"	
1,1-Dichloropropene	ND	4.5	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	4.5	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	4.5	"	"	"	"	"	"	
Ethylbenzene	ND	4.5	"	"	"	"	"	"	
Hexachlorobutadiene	ND	4.5	"	"	"	"	"	"	
Isopropylbenzene	ND	4.5	"	"	"	"	"	"	
p-Isopropyltoluene	ND	4.5	"		"	"	"	"	
Methylene chloride	ND	4.5	"		"	"	"	"	
Methyl tert-butyl ether	ND	4.5	"	"	"	"	"	"	



Chloroethane

Chloromethane

2-Chlorotoluene

4-Chlorotoluene

Dibromochloromethane

Chloroform

Mearns Consulting LLC	Project: SHPI-Amerigas							
/38 Ashland Avenue	Project Number: [none]	Reported:						
Santa Monica CA, 90405	Project Manager: Susan Mearns	01/12/17 09:24						
	Volatile Organic Compounds by EPA Method 8260B							
Sierra Analytical Labs, Inc.								

			-	,					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB11-5 (1701054-07) Soil S	Sampled: 01/04/17 10:11	Received: 01/	04/17 16:	27					
Naphthalene	ND	4.5	µg/kg	1	B7A0571	01/05/17	01/05/17 23:5	8 EPA 8260B	
n-Propylbenzene	ND	4.5		"	"	"	"	"	
Styrene	ND	4.5		"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	4.5		"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	4.5	"	"	"	"	"	"	
Tetrachloroethene	ND	4.5	"	"	"	"	"	"	
Toluene	ND	4.5		"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	4.5		"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	4.5		"	"	"	"	"	
1,1,1-Trichloroethane	ND	4.5		"	"	"	"	"	
1,1,2-Trichloroethane	ND	4.5		"	"	"	"	"	
Trichloroethene	ND	4.5		"	"	"	"	"	
Trichlorofluoromethane	ND	4.5		"	"	"	"	"	
1,2,3-Trichloropropane	ND	4.5		"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	4.5		"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	4.5	"	"	"	"		"	
Vinyl chloride	ND	4.5	"	"	"	"		"	
m.p-Xvlene	ND	4.5		"	"	"	"	"	
o-Xylene	ND	4.5		"	"	"		"	
Surrogate: Dibromofluorome	thane	102 %	80-	120	"	"	"	"	
Surrogate: Toluene-d8		93.6 %	81-	117	"	"	"	"	
Surrogate: 4-Bromofluoroben	zene	104 %	74-	121	"	"	"	"	
SB11-10 (1701054-08) Soil	Sampled: 01/04/17 10:19	Received: 01	1/04/17 16	5:27					
Benzene	ND	5.0	ug/kg	1	B7A0571	01/05/17	01/06/17 00:3	8 EPA 8260B	
Bromobenzene	ND	5.0	"	"	"	"	"	"	
Bromochloromethane	ND	5.0		"	"	"	"	"	
Bromodichloromethane	ND	5.0		"	"	"	"		
Bromoform	ND	5.0		"	"	"			
Bromomethane	ND	5.0		"	"	"			
n-Butylbenzene	ND	5.0		"	"	"		"	
sec-Butylbenzene	ND	5.0		"	"	"			
tert-Butylbenzene	ND	5.0		"	"	"			
Carbon tetrachloride	ND	5.0		"	"	"			
Chlorobenzene	ND	5.0		"	"	"		"	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Mearns Consulting LLC 738 Ashland Avenue	Project: SHPI-Amerigas Project Number: [none]	Reported:							
Santa Monica CA, 90405	Project Manager: Susan Mearns	01/12/17 09:24							
Volatile Organic Compounds by EPA Method 8260B									
	Sierra Analytical Labs, Inc.								
	Deporting								

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB11-10 (1701054-08) Soil	Sampled: 01/04/17 10:19	Received: 01	/04/17 16	5:27					
1,2-Dibromo-3-chloropropane	e ND	5.0	µg/kg	1	B7A0571	01/05/17	01/06/17 00:3	8 EPA 8260B	
1,2-Dibromoethane (EDB)	ND	5.0	"	"	"	"	"	"	
Dibromomethane	ND	5.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	5.0	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	5.0	"	"	"	"	"	"	
1,1-Dichloroethane	ND	5.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	5.0	"	"	"	"	"	"	
1,1-Dichloroethene	ND	5.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	5.0	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	5.0	"	"	"	"	"	"	
1,2-Dichloropropane	ND	5.0	"	"	"	"	"	"	
1,3-Dichloropropane	ND	5.0	"	"	"	"	"	"	
2,2-Dichloropropane	ND	5.0	"	"	"	"	"	"	
1,1-Dichloropropene	ND	5.0	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	5.0	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	5.0	"	"	"	"	"	"	
Ethylbenzene	ND	5.0	"	"	"	"	"	"	
Hexachlorobutadiene	ND	5.0	"	"	"	"	"	"	
Isopropylbenzene	ND	5.0	"	"	"	"	"	"	
p-Isopropyltoluene	ND	5.0	"	"	"	"	"	"	
Methylene chloride	ND	5.0	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	5.0	"	"	"	"	"	"	
Naphthalene	ND	5.0	"	"	"	"	"	"	
n-Propylbenzene	ND	5.0	"	"	"	"	"	"	
Styrene	ND	5.0	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	5.0	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	5.0	"	"	"	"	"	"	
Tetrachloroethene	ND	5.0	"	"	"	"	"	"	
Toluene	ND	5.0	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	5.0	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	5.0	"	"	"	"	"	"	
Trichloroethene	ND	5.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	5.0	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	5.0	"	"	"	"		"	
1,2,4-Trimethylbenzene	ND	5.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	5.0	"	"	"	"		"	
Vinyl chloride	ND	5.0	"				"	"	



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405	Project: SHPI-Amerigas Project Number: [none] Project Manager: Susan Mearns Volotilo Organia Compounds by FPA Mothod \$260B							Reported 01/12/17 0	Reported: 01/12/17 09:24	
	Volatile Of	Sierra Ar	nalytica	l Labs, I	nc.	0200D				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB11-10 (1701054-08) Soil	Sampled: 01/04/17 10:19	Received: 01	/04/17 16	5:27						
m,p-Xylene	ND	5.0	µg/kg	1	B7A0571	01/05/17	01/06/17 00:38	3 EPA 8260B		
o-Xylene	ND	5.0	"	"	"	"	"	"		
Surrogate: Dibromofluorome	ethane	89.5 %	80-	120	"	"	"	"		
Surrogate: Toluene-d8		95.6 %	81-	117	"	"	"	"		
Surrogate: 4-Bromofluorobe	nzene	112 %	74-	121	"	"	"	"		
SB12-5 (1701054-09) Soil	Sampled: 01/04/17 10:48	Received: 01/	04/17 16:	27						
Benzene	ND	3.9	µg/kg	1	B7A0571	01/05/17	01/06/17 01:18	3 EPA 8260B		
Bromobenzene	ND	3.9	"	"	"	"		"		
Bromochloromethane	ND	3.9	"	"	"	"				
Bromodichloromethane	ND	3.9	"	"	"	"		"		
Bromoform	ND	3.9	"	"	"	"	"	"		
Bromomethane	ND	3.9	"	"	"	"		"		
n-Butylbenzene	ND	3.9	"	"	"	"	"	"		
sec-Butylbenzene	ND	3.9	"	"	"	"		"		
tert-Butylbenzene	ND	3.9	"	"	"	"				
Carbon tetrachloride	ND	3.9	"	"	"	"				
Chlorobenzene	ND	3.9	"	"	"	"	"	"		
Chloroethane	ND	3.9	"	"	"	"	"	"		
Chloroform	ND	3.9	"	"	"	"	"	"		
Chloromethane	ND	3.9	"	"	"	"				
2-Chlorotoluene	ND	3.9	"	"	"	"	"	"		
4-Chlorotoluene	ND	3.9	"	"	"	"	"	"		
Dibromochloromethane	ND	3.9	"	"	"	"	"	"		
1,2-Dibromo-3-chloropropan	ne ND	3.9	"	"			"	"		
1,2-Dibromoethane (EDB)	ND	3.9								
Dibromomethane	ND	3.9								
1,2-Dichlorobenzene	ND	3.9								
1,3-Dichlorobenzene	ND	3.9		"				"		
1,4-Dichlorodenzene		3.9		"						
1 1 Diabloroathana		3.9								
1.2 Dichloroethane	ND	3.9		"						
1.1-Dichloroethene	ND	3.9		"						
cis-1 2-Dichloroethene		3.9								
trans-1.2-Dichloroethene	ND	3.9	"	"						
1.2-Dichloropropane	ND	3.9	"	"						
1.3-Dichloropropane	ND	3.9	"	"						
2,2-Dichloropropane	ND	3.9	"	"				"		
1,1-Dichloropropene	ND	3.9	"	"				"		
cis-1,3-Dichloropropene	ND	3.9	"	"			"	"		



Mearns Consulting LLC 738 Ashland Avenue	Project: Project Number:	SHPI-Amerigas [none]	Reported:
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24

Sierra Analytical Labs, Inc.									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB12-5 (1701054-09) Soil	Sampled: 01/04/17 10:48	Received: 01/	04/17 16	:27					
trans-1,3-Dichloropropene	ND	3.9	µg/kg	1	B7A0571	01/05/17	01/06/17 01:1	8 EPA 8260B	
Ethylbenzene	ND	3.9	"	"	"	"	"	"	
Hexachlorobutadiene	ND	3.9	"	"	"	"	"	"	
Isopropylbenzene	ND	3.9	"	"	"	"	"	"	
p-Isopropyltoluene	ND	3.9	"	"	"	"	"	"	
Methylene chloride	ND	3.9	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	3.9	"	"	"	"	"	"	
Naphthalene	ND	3.9	"	"	"	"	"	"	
n-Propylbenzene	ND	3.9	"	"	"	"	"	"	
Styrene	ND	3.9	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	3.9	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	3.9	"	"	"	"	"	"	
Tetrachloroethene	ND	3.9	"	"	"	"	"	"	
Toluene	ND	3.9	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	3.9	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	3.9	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	3.9	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	3.9	"	"	"	"	"	"	
Trichloroethene	ND	3.9	"	"	"	"	"	"	
Trichlorofluoromethane	ND	3.9	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	3.9	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	3.9	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	3.9	"	"	"	"	"	"	
Vinyl chloride	ND	3.9	"	"	"	"	"	"	
m,p-Xylene	ND	3.9	"	"	"	"	"	"	
o-Xylene	ND	3.9	"	"	"	"	"	"	
Surrogate: Dibromofluoron	nethane	106 %	80	-120	"	"	"	"	
Surrogate: Toluene-d8		94.3 %	81	-117	"	"	"	"	
Surrogate: 4-Bromofluorob	enzene	100 %	74	-121	"	"	"	"	



Mearns Consulting LLC	Project: SHPI-Amerigas	
738 Ashland Avenue	Project Number: [none]	Reported:
Santa Monica CA, 90405	Project Manager: Susan Mearns	01/12/17 09:24
	Volatile Organic Compounds by EPA Method 8260B	

Sierra Analytical Labs, Inc.									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
SB12-10 (1701054-10) Soil	Sampled: 01/04/17 10:55	Received: 01	/04/17 16	:27					
Benzene	ND	4.4	µg/kg	1	B7A0571	01/05/17	01/06/17 01:5	7 EPA 8260B	
Bromobenzene	ND	4.4	"	"	"	"		"	
Bromochloromethane	ND	4.4	"	"	"	"	"	"	
Bromodichloromethane	ND	4.4	"	"	"	"	"	"	
Bromoform	ND	4.4	"	"	"	"	"	"	
Bromomethane	ND	4.4	"	"	"	"	"	"	
n-Butylbenzene	ND	4.4	"	"	"	"			
sec-Butylbenzene	ND	4.4	"	"	"	"			
tert-Butylbenzene	ND	4.4	"	"	"	"		"	
Carbon tetrachloride	ND	4.4	"	"	"	"		"	
Chlorobenzene	ND	4.4		"	"	"		"	
Chloroethane	ND	4.4		"	"	"		"	
Chloroform	ND	4.4		"	"	"		"	
Chloromethane	ND	4.4	"	"	"	"		"	
2-Chlorotoluene	ND	4.4	"	"	"	"		"	
4-Chlorotoluene	ND	4.4		"	"	"		"	
Dibromochloromethane	ND	4.4		"	"	"		"	
1,2-Dibromo-3-chloropropane	ND	4.4		"	"	"		"	
1,2-Dibromoethane (EDB)	ND	4.4		"	"	"		"	
Dibromomethane	ND	4.4		"	"	"		"	
1.2-Dichlorobenzene	ND	4.4	"	"	"	"	"	"	
1.3-Dichlorobenzene	ND	4.4		"	"	"		"	
1.4-Dichlorobenzene	ND	4.4		"	"	"		"	
Dichlorodifluoromethane	ND	4.4		"	"	"		"	
1.1-Dichloroethane	ND	4.4		"	"	"		"	
1.2-Dichloroethane	ND	4.4	"	"	"	"	"		
1.1-Dichloroethene	ND	4.4		"	"	"			
cis-1.2-Dichloroethene	ND	4.4		"	"	"			
trans-1.2-Dichloroethene	ND	4.4		"	"	"			
1.2-Dichloropropane	ND	4.4		"	"	"			
1.3-Dichloropropane	ND	4.4		"		"			
2.2-Dichloropropane	ND	4.4		"		"			
1 1-Dichloropropene	ND	4 4		"		"		"	
cis-1 3-Dichloropropene	ND	4 4		"		"		"	
trans-1 3-Dichloropropene	ND	4.4		"		"		"	
Ethylbenzene	ND	4.4		"		"			
Hexachlorobutadiene	ND	4.4				"			
Isonronvlbenzene		4.4 1 1		"					
n-Isonronvltoluene		4.4 1 1		"					
Methylene chloride		4.4		"					
Mathyl tart butyl athar		4.4		"					
wiemyr iert-butyr ether	ND	4.4							



Chlorobenzene

Chloromethane

2-Chlorotoluene

4-Chlorotoluene

Dibromochloromethane

Chloroethane

Chloroform

Mearns Consulting LLC 738 Ashland Avenue	Project: Project Number:	SHPI-Amerigas	Reported:				
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24				
Volatile Organic Compounds by EPA Method 8260B							
Sierra Analytical Labs, Inc.							

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB12-10 (1701054-10) Soil	Sampled: 01/04/17 10:55	Received: 01	/04/17 10	6:27					
Naphthalene	ND	4.4	µg/kg	1	B7A0571	01/05/17	01/06/17 01:57	7 EPA 8260B	
n-Propylbenzene	ND	4.4	"	"	"	"	"	"	
Styrene	ND	4.4	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	4.4	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	4.4	"	"	"	"	"	"	
Tetrachloroethene	ND	4.4	"	"	"	"	"	"	
Toluene	ND	4.4	"	"	"	"		"	
1,2,3-Trichlorobenzene	ND	4.4		"	"	"		"	
1,2,4-Trichlorobenzene	ND	4.4		"	"	"		"	
1,1,1-Trichloroethane	ND	4.4		"	"	"	"	"	
1,1,2-Trichloroethane	ND	4.4		"	"	"	"	"	
Trichloroethene	ND	4.4		"	"	"		"	
Trichlorofluoromethane	ND	4.4		"	"	"		"	
1,2,3-Trichloropropane	ND	4.4		"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	4.4		"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	4.4		"	"	"	"	"	
Vinyl chloride	ND	4.4		"	"	"	"	"	
m,p-Xylene	ND	4.4		"	"	"	"	"	
o-Xylene	ND	4.4		"	"	"	"		
Surrogate: Dibromofluorometh	hane	90.4 %	80-	-120	"	"	"	"	
Surrogate: Toluene-d8		95.9 %	81-	-117	"	"	"	"	
Surrogate: 4-Bromofluorobenz	zene	96.6 %	74-	-121	"	"	"	"	
SB13-5 (1701054-11) Soil S	ampled: 01/04/17 11:18	Received: 01/	04/17 16:	:27					
Benzene	ND	3.7	µg/kg	1	B7A0571	01/05/17	01/06/17 02:36	5 EPA 8260B	
Bromobenzene	ND	3.7	"	"	"	"	"	"	
Bromochloromethane	ND	3.7		"	"	"	"	"	
Bromodichloromethane	ND	3.7		"	"	"	"	"	
Bromoform	ND	3.7		"	"	"	"	"	
Bromomethane	ND	3.7	"	"	"	"	"	"	
n-Butylbenzene	ND	3.7	"	"	"	"	"	"	
sec-Butylbenzene	ND	3.7	"	"	"	"	"	"	
tert-Butylbenzene	ND	3.7	"	"	"	"	"	"	
Carbon tetrachloride	ND	3.7		"	"	"	"	"	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Mearns Consulting LLC		Pr	oject: SF	IPI-Amer	igas				
738 Ashland Avenue		Project Nu	mber: [no	one]				Reported:	
Santa Monica CA, 90405		Project Mar	nager: Su	san Mearns	5			01/12/17 09):24
	Volatile O	rganic Com	pounds	by EPA	Method	8260B			
		Sierra An	nalytica	l Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB13-5 (1701054-11) Soil Sample	ed: 01/04/17 11:18	Received: 01/	04/17 16:	27					
1,2-Dibromo-3-chloropropane	ND	3.7	µg/kg	1	B7A0571	01/05/17	01/06/17 02:3	6 EPA 8260B	
1,2-Dibromoethane (EDB)	ND	3.7	"	"	"	"	"	"	
Dibromomethane	ND	3.7	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	3.7	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	3.7	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	3.7	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	3.7		"	"	"	"	"	
1,1-Dichloroethane	ND	3.7		"	"	"	"	"	
1,2-Dichloroethane	ND	3.7		"	"	"	"	"	
1,1-Dichloroethene	ND	3.7		"	"	"	"	"	
cis-1,2-Dichloroethene	ND	3.7		"	"	"	"	"	
trans-1,2-Dichloroethene	ND	3.7		"	"	"	"	"	
1,2-Dichloropropane	ND	3.7		"	"	"	"	"	
13 Dichloropropaga	ND	37					"	"	

1,1-Dichloroethene	ND	3.7		"			"	
cis-1,2-Dichloroethene	ND	3.7	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	3.7	"	"	"	"	"	
1,2-Dichloropropane	ND	3.7	"	"	"	"	"	
1,3-Dichloropropane	ND	3.7	"	"	"	"	"	
2,2-Dichloropropane	ND	3.7	"	"	"	"	"	
1,1-Dichloropropene	ND	3.7	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	3.7	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	3.7	"	"	"	"	"	
Ethylbenzene	ND	3.7	"	"	"	"	"	
Hexachlorobutadiene	ND	3.7	"	"	"	"	"	
Isopropylbenzene	ND	3.7	"	"	"	"	"	
p-Isopropyltoluene	ND	3.7	"	"	"	"	"	
Methylene chloride	ND	3.7	"	"	"	"	"	
Methyl tert-butyl ether	ND	3.7	"	"	"	"	"	
Naphthalene	ND	3.7	"	"	"	"	"	
n-Propylbenzene	ND	3.7	"	"	"	"	"	
Styrene	ND	3.7	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	3.7	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	3.7	"	"	"	"	"	
Tetrachloroethene	ND	3.7	"	"	"	"	"	
Toluene	ND	3.7	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	3.7	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	3.7	"	"	"	"	"	
1,1,1-Trichloroethane	ND	3.7	"	"	"	"	"	
1,1,2-Trichloroethane	ND	3.7	"	"	"	"	"	
Trichloroethene	ND	3.7	"	"	"	"	"	
Trichlorofluoromethane	ND	3.7	"	"	"	"	"	
1,2,3-Trichloropropane	ND	3.7	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	3.7	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	3.7	"	"	"	"	"	
Vinyl chloride	ND	3.7	"	"	"	"	"	



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405	Volotilo O	Project: SHPI-Amerigas Project Number: [none] Project Manager: Susan Mearns Valatila Organia Compounds by FPA Mathad \$260B							d:)9:24
	volatile O	Sierra Ai	nalytica	l Labs, I	nc.	0200D			
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB13-5 (1701054-11) Soil S	ampled: 01/04/17 11:18	Received: 01/	04/17 16:	27					
m,p-Xylene o-Xylene	ND ND	3.7 3.7	µg/kg "	1 "	B7A0571 "	01/05/17	01/06/17 02:3	6 EPA 8260B "	
Surrogate: Dibromofluoromet Surrogate: Toluene-d8 Surrogate: 4-Bromofluoroben	hane zene	98.7 % 98.9 % 111 %	80- 81- 74-	-120 -117 -121	""	" "	" "	" "	
SB13-10 (1701054-12) Soil	Sampled: 01/04/17 11:35	Received · 01	//04/17 1e	5.27					
Benzene	ND	5.0	1.04,17 IC	1	B7A0571	01/05/17	01/06/17 03:1	4 EPA 8260B	
Bromobenzene Bromochloromethane	ND ND	5.0 5.0	μ <u>ε</u> /κ <u>ε</u> "	"	"	"	"	"	
Bromodichloromethane	ND	5.0 5.0		"					
Bromomethane	ND	5.0	"	"	"	"	"	"	
n-Butylbenzene sec-Butylbenzene	ND ND	5.0 5.0		"			"	"	
tert-Butylbenzene Carbon tetrachloride	ND ND	5.0 5.0		"			"		
Chlorobenzene	ND	5.0		"	"		"		
Chloroform	ND ND	5.0 5.0	"	"	"	"	"	"	
Chloromethane 2-Chlorotoluene	ND ND	5.0 5.0		"					
4-Chlorotoluene Dibromochloromethane	ND ND	5.0 5.0		"			"		
1,2-Dibromo-3-chloropropane	ND ND	5.0 5.0		"			"	"	
Dibromomethane	ND	5.0	"	"				"	
1,3-Dichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,4-Dichlorobenzene Dichlorodifluoromethane	ND ND	5.0 5.0					"		
1,1-Dichloroethane 1,2-Dichloroethane	ND ND	5.0 5.0		"					
1,1-Dichloroethene cis-1.2-Dichloroethene	ND ND	5.0 5.0		"					
trans-1,2-Dichloroethene	ND	5.0 5.0	"	"	"			"	
1,3-Dichloropropane	ND	5.0		"		"			
2,2-Dichloropropane 1,1-Dichloropropene cis-1,3-Dichloropropene	ND ND ND	5.0 5.0 5.0		"	"				



Mearns Consulting LLC 738 Ashland Avenue	Project: Project Number:	SHPI-Amerigas	Reported:				
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24				
Volatile Organic Compounds by EPA Method 8260B							
Sierra Analytical Labs. Inc.							

		Stoff a finally your Dubby file							
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB13-10 (1701054-12) Soil	Sampled: 01/04/17 11:35	Received: 01	/04/17 16	5:27					
trans-1,3-Dichloropropene	ND	5.0	µg/kg	1	B7A0571	01/05/17	01/06/17 03:1	4 EPA 8260B	
Ethylbenzene	ND	5.0	"	"	"	"	"	"	
Hexachlorobutadiene	ND	5.0	"	"	"	"	"	"	
Isopropylbenzene	ND	5.0	"	"	"	"	"	"	
p-Isopropyltoluene	ND	5.0	"	"	"	"	"	"	
Methylene chloride	ND	5.0	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	5.0	"	"	"	"	"	"	
Naphthalene	ND	5.0	"	"	"	"	"	"	
n-Propylbenzene	ND	5.0	"	"	"	"	"	"	
Styrene	ND	5.0	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	5.0	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	5.0	"	"	"	"	"	"	
Tetrachloroethene	ND	5.0	"	"	"	"	"	"	
Toluene	ND	5.0	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	5.0	"	"	"	"		"	
1,1,2-Trichloroethane	ND	5.0	"	"	"	"		"	
Trichloroethene	ND	5.0	"	"	"	"		"	
Trichlorofluoromethane	ND	5.0	"	"	"	"		"	
1.2.3-Trichloropropane	ND	5.0	"	"	"	"		"	
1.2.4-Trimethylbenzene	ND	5.0	"	"	"	"	"	"	
1.3.5-Trimethylbenzene	ND	5.0	"	"	"	"	"	"	
Vinvl chloride	ND	5.0	"	"	"	"	"	"	
m.p-Xvlene	ND	5.0	"	"	"	"	"	"	
o-Xylene	ND	5.0	"		"		"	"	
Surrogate: Dibromofluorom	ethane	89.8 %	80-	120	"	"	"	"	
Surrogate: Toluene-d8		91.2 %	81-	117	"	"	"	"	
Surrogate: 4-Bromofluorobe	nzene	110 %	74-	121	"	"	"	"	



Mearns Consulting LLC	Project:	SHPI-Amerigas					
738 Ashland Avenue	Project Number:	[none]	Reported:				
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24				
Volatile Organic Compounds by EPA Method 8260B							
Sierra Analytical Labs, Inc.							

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB14-5 (1701054-13) Soil	Sampled: 01/04/17 11:58	Received: 01/	04/17 16:	27					
Benzene	ND	3.8	µg/kg	1	B7A0571	01/05/17	01/06/17 03:51	EPA 8260B	
Bromobenzene	ND	3.8	"	"	"	"	"	"	
Bromochloromethane	ND	3.8	"	"	"	"	"	"	
Bromodichloromethane	ND	3.8	"	"	"	"	"	"	
Bromoform	ND	3.8	"	"	"	"	"	"	
Bromomethane	ND	3.8	"	"	"	"	"	"	
n-Butylbenzene	ND	3.8	"	"	"	"	"	"	
sec-Butylbenzene	ND	3.8	"	"	"	"	"	"	
tert-Butylbenzene	ND	3.8	"	"	"	"	"	"	
Carbon tetrachloride	ND	3.8	"	"	"	"	"	"	
Chlorobenzene	ND	3.8	"	"	"	"	"	"	
Chloroethane	ND	3.8	"	"	"	"	"	"	
Chloroform	ND	3.8	"	"	"	"	"	"	
Chloromethane	ND	3.8	"	"	"	"	"	"	
2-Chlorotoluene	ND	3.8	"	"	"	"	"	"	
4-Chlorotoluene	ND	3.8	"	"	"	"	"		
Dibromochloromethane	ND	3.8	"	"	"	"	"		
1,2-Dibromo-3-chloropropan	ne ND	3.8	"	"	"	"	"		
1,2-Dibromoethane (EDB)	ND	3.8	"	"	"	"	"		
Dibromomethane	ND	3.8	"	"	"	"	"		
1,2-Dichlorobenzene	ND	3.8	"	"	"	"	"		
1,3-Dichlorobenzene	ND	3.8	"	"	"		"		
1,4-Dichlorobenzene	ND	3.8	"	"	"		"		
Dichlorodifluoromethane	ND	3.8	"	"	"		"		
1,1-Dichloroethane	ND	3.8	"	"	"		"		
1,2-Dichloroethane	ND	3.8	"	"	"		"		
1,1-Dichloroethene	ND	3.8	"	"	"		"		
cis-1,2-Dichloroethene	ND	3.8	"	"	"		"		
trans-1,2-Dichloroethene	ND	3.8	"	"	"		"		
1,2-Dichloropropane	ND	3.8	"	"	"	"	"		
1,3-Dichloropropane	ND	3.8	"	"	"		"		
2,2-Dichloropropane	ND	3.8	"	"	"		"		
1,1-Dichloropropene	ND	3.8	"	"	"		"		
cis-1,3-Dichloropropene	ND	3.8	"	"	"		"		
trans-1,3-Dichloropropene	ND	3.8	"	"	"	"	"		
Ethylbenzene	ND	3.8	"	"	"	"	"	"	
Hexachlorobutadiene	ND	3.8	"	"	"	"	"		
Isopropylbenzene	ND	3.8	"	"	"	"	"		
p-Isopropyltoluene	ND	3.8	"	"	"	"	"		
Methylene chloride	ND	3.8	"	"	"	"	"		
Methyl tert-butyl ether	ND	3.8	"	"	"	"	"	"	



Carbon tetrachloride

Chlorobenzene

Chloromethane

2-Chlorotoluene

4-Chlorotoluene

Dibromochloromethane

Chloroethane

Chloroform

Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA 90405	Project: S Project Number: [1 Project Manager: S	HPI-Amerigas none] Susan Mearns	Reported: 01/12/17 09:24
Sunta monto Crt, 70405	Volatile Organic Compound Sierra Analytic	ls by EPA Method 8260B ral Labs. Inc.	01,12,17,07.24

i			v	,					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB14-5 (1701054-13) Soil S	Sampled: 01/04/17 11:58	Received: 01/	04/17 16:27	7					
Naphthalene	ND	3.8	µg/kg	1	B7A0571	01/05/17	01/06/17 03:51	EPA 8260B	
n-Propylbenzene	ND	3.8	"		"	"	"		
Styrene	ND	3.8	"		"	"	"		
1,1,1,2-Tetrachloroethane	ND	3.8	"		"	"	"		
1,1,2,2-Tetrachloroethane	ND	3.8	"		"	"	"		
Tetrachloroethene	ND	3.8	"		"	"	"		
Toluene	ND	3.8	"		"	"	"		
1,2,3-Trichlorobenzene	ND	3.8	"		"	"	"		
1,2,4-Trichlorobenzene	ND	3.8	"		"	"	"		
1,1,1-Trichloroethane	ND	3.8	"		"	"	"		
1,1,2-Trichloroethane	ND	3.8	"		"	"	"		
Trichloroethene	ND	3.8	"		"	"	"		
Trichlorofluoromethane	ND	3.8	"		"	"	"		
1,2,3-Trichloropropane	ND	3.8	"		"	"	"		
1,2,4-Trimethylbenzene	ND	3.8	"	"	"	"	"		
1,3,5-Trimethylbenzene	ND	3.8	"	"	"	"	"		
Vinyl chloride	ND	3.8	"	"	"	"	"		
m,p-Xylene	ND	3.8	"	"	"	"	"		
o-Xylene	ND	3.8	"		"		"	"	
Surrogate: Dibromofluorome	thane	103 %	80-12	20	"	"	"	"	
Surrogate: Toluene-d8		92.6 %	81-1	17	"	"	"	"	
Surrogate: 4-Bromofluoroben	zene	106 %	74-12	21	"	"	"	"	
SB14-10 (1701054-14) Soil	Sampled: 01/04/17 12:10	Received: 01	/04/17 16:2	27					
Benzene	ND	4.4	µg/kg	1	B7A0571	01/05/17	01/06/17 04:28	EPA 8260B	
Bromobenzene	ND	4.4	"		"	"	"		
Bromochloromethane	ND	4.4	"		"	"	"		
Bromodichloromethane	ND	4.4	"		"	"	"		
Bromoform	ND	4.4	"		"	"	"		
Bromomethane	ND	4.4	"	"	"	"	"	"	
n-Butylbenzene	ND	4.4	"	"	"	"	"	"	
sec-Butylbenzene	ND	4.4	"		"	"	"	"	
tert-Butylbenzene	ND	4.4	"	"	"	"	"		

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Mearns Consulting LLC	Project:	SHPI-Amerigas					
738 Ashland Avenue	Project Number:	[none]	Reported:				
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24				
Volatile Organic Compounds by EPA Method 8260B							
Sierra Analytical Labs, Inc.							
Reporting							

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB14-10 (1701054-14) Soil	Sampled: 01/04/17 12:10	Received: 01	l/04/17 16	:27					
1,2-Dibromo-3-chloropropan	e ND	4.4	µg/kg	1	B7A0571	01/05/17	01/06/17 04:28	8 EPA 8260B	
1,2-Dibromoethane (EDB)	ND	4.4	"	"	"	"	"	"	
Dibromomethane	ND	4.4	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	4.4	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	4.4	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	4.4	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	4.4	"		"	"	"	"	
1,1-Dichloroethane	ND	4.4	"		"	"	"	"	
1,2-Dichloroethane	ND	4.4	"		"	"	"	"	
1,1-Dichloroethene	ND	4.4	"		"	"	"	"	
cis-1,2-Dichloroethene	ND	4.4	"		"	"	"	"	
trans-1,2-Dichloroethene	ND	4.4	"	"	"	"		"	
1,2-Dichloropropane	ND	4.4	"	"	"	"	"	"	
1,3-Dichloropropane	ND	4.4	"		"	"	"	"	
2,2-Dichloropropane	ND	4.4	"	"	"	"		"	
1,1-Dichloropropene	ND	4.4	"	"	"	"		"	
cis-1,3-Dichloropropene	ND	4.4	"	"	"	"		"	
trans-1,3-Dichloropropene	ND	4.4	"	"	"	"		"	
Ethylbenzene	ND	4.4	"	"	"	"		"	
Hexachlorobutadiene	ND	4.4	"	"	"	"		"	
Isopropylbenzene	ND	4.4	"	"	"	"		"	
p-Isopropyltoluene	ND	4.4	"	"	"	"		"	
Methylene chloride	ND	4.4	"	"	"	"		"	
Methyl tert-butyl ether	ND	4.4	"	"	"	"	"	"	
Naphthalene	ND	4.4	"	"	"	"	"	"	
n-Propylbenzene	ND	4.4	"	"	"	"		"	
Styrene	ND	4.4	"	"	"	"		"	
1,1,1,2-Tetrachloroethane	ND	4.4	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	4.4	"	"	"	"	"	"	
Tetrachloroethene	ND	4.4	"	"	"	"	"	"	
Toluene	ND	4.4	"	"	"	"		"	
1,2,3-Trichlorobenzene	ND	4.4	"	"	"	"		"	
1,2,4-Trichlorobenzene	ND	4.4	"	"	"	"		"	
1,1,1-Trichloroethane	ND	4.4	"	"	"	"		"	
1,1,2-Trichloroethane	ND	4.4	"	"	"	"	"	"	
Trichloroethene	ND	4.4	"	"	"	"		"	
Trichlorofluoromethane	ND	4.4	"	"	"	"		"	
1,2,3-Trichloropropane	ND	4.4	"	"	"	"		"	
1,2,4-Trimethylbenzene	ND	4.4	"	"	"	"		"	
1,3,5-Trimethylbenzene	ND	4.4	"	"	"	"		"	
Vinyl chloride	ND	4.4	"	"	"	"	"	"	



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405	Reporte 01/12/17 0	i: 9:24							
		Sierra Ar	nalytica	l Labs, I	nc.	02002			
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB14-10 (1701054-14) Soil	Sampled: 01/04/17 12:10	Received: 01	1/04/17 16	5:27					
m,p-Xylene o-Xylene	ND ND	4.4 4.4	µg/kg "	1	B7A0571 "	01/05/17	01/06/17 04:23	8 EPA 8260B "	
Surrogate: Dibromofluorome Surrogate: Toluene-d8	ethane	103 % 96.6 %	80- 81- 74	120 117	"	"	"	"	
Surrogate: 4-Bromofluorobe	nzene	104 %	/4-	121					
SB17-5 (1701054-15) Soil	Sampled: 01/04/17 12:33	Received: 01/	04/17 16:	27					
Benzene Bromobenzene	ND ND	4.4 4.4	µg/kg "	1	B7A0571 "	01/05/17	01/06/17 05:0	5 EPA 8260B "	
Bromochloromethane Bromodichloromethane	ND ND	4.4 4.4	"			"			
Bromoform Bromomethane	ND ND	4.4 4.4					"		
n-Butylbenzene sec-Butylbenzene	ND ND	4.4 4 4	"	"				"	
tert-Butylbenzene Carbon tetrachloride	ND ND	4.4	"	"	"			"	
Chlorobenzene	ND ND	4.4	"	"				"	
Chloroform	ND ND	4.4				"		"	
2-Chlorotoluene	ND ND	4.4	"	"	"	"	"	"	
4-Chlorotoluene Dibromochloromethane	ND ND	4.4 4.4						"	
1,2-Dibromo-3-chloropropan 1,2-Dibromoethane (EDB)	e ND ND	4.4 4.4	"	"	"			"	
Dibromomethane 1,2-Dichlorobenzene	ND ND	4.4 4.4	"	"				"	
1,3-Dichlorobenzene 1,4-Dichlorobenzene	ND ND	4.4 4.4	"	"	"			"	
Dichlorodifluoromethane 1,1-Dichloroethane	ND ND	4.4 4.4	"	"	"	"		"	
1,2-Dichloroethane	ND ND	4.4 4.4	"	"				"	
cis-1,2-Dichloroethene	ND	4.4 4.4		"	"				
1,2-Dichloropropane	ND	4.4		"	"	"		"	
2,2-Dichloropropane	ND ND	4.4 4.4	"		"			"	
1,1-Dichloropropene cis-1,3-Dichloropropene	ND ND	4.4 4.4			"	"	"		



Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24
738 Ashland Avenue	Project Number:	[none]	Reported:
Mearns Consulting LLC	Project:	SHPI-Amerigas	

		Sierra Ar	nalytic	al Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB17-5 (1701054-15) Soil	Sampled: 01/04/17 12:33	Received: 01/	04/17 10	6:27					
trans-1,3-Dichloropropene	ND	4.4	µg/kg	1	B7A0571	01/05/17	01/06/17 05:0	5 EPA 8260B	
Ethylbenzene	ND	4.4	"	"	"	"	"	"	
Hexachlorobutadiene	ND	4.4	"	"	"	"	"	"	
Isopropylbenzene	ND	4.4	"	"	"	"	"	"	
p-Isopropyltoluene	ND	4.4		"	"	"	"	"	
Methylene chloride	ND	4.4		"	"	"	"	"	
Methyl tert-butyl ether	ND	4.4		"	"	"	"	"	
Naphthalene	ND	4.4		"	"	"	"	"	
n-Propylbenzene	ND	4.4		"	"	"	"	"	
Styrene	ND	4.4		"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	4.4		"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	4.4		"	"	"	"	"	
Tetrachloroethene	ND	4.4		"	"	"	"	"	
Toluene	ND	4.4		"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	4.4		"	"	"		"	
1,2,4-Trichlorobenzene	ND	4.4		"	"	"	"	"	
1,1,1-Trichloroethane	ND	4.4		"	"	"	"	"	
1,1,2-Trichloroethane	ND	4.4		"	"	"	"	"	
Trichloroethene	ND	4.4		"	"	"	"	"	
Trichlorofluoromethane	ND	4.4		"	"	"		"	
1,2,3-Trichloropropane	ND	4.4		"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	4.4	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	4.4		"	"	"	"	"	
Vinyl chloride	ND	4.4		"	"	"	"	"	
m,p-Xylene	ND	4.4		"	"	"	"	"	
o-Xylene	ND	4.4	"	"	"	"	"	"	
Surrogate: Dibromofluoron	nethane	107 %	8	0-120	"	"	"	"	
Surrogate: Toluene-d8		99.3 %	8.	1-117	"	"	"	"	
Surrogate: 4-Bromofluorob	enzene	93.7 %	74	4-121	"	"	"	"	



Mearns Consulting LLC 738 Ashland Avenue	Project: Project Number:	SHPI-Amerigas	Reported:
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24
	Volatile Organic Compour	nds by EPA Method 8260B	
	Sierra Analyt	ical Labs, Inc.	

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB17-10 (1701054-16) Soil	Sampled: 01/04/17 12:40	Received: 01	/04/17 16	5:27					
Benzene	ND	5.0	µg/kg	1	B7A0572	01/05/17	01/06/17 09:03	3 EPA 8260B	
Bromobenzene	ND	5.0	"	"	"	"	"	"	
Bromochloromethane	ND	5.0	"	"	"	"	"	"	
Bromodichloromethane	ND	5.0	"	"	"	"	"	"	
Bromoform	ND	5.0	"	"	"	"	"	"	
Bromomethane	ND	5.0	"	"	"	"	"	"	
n-Butylbenzene	ND	5.0	"	"	"	"	"	"	
sec-Butylbenzene	ND	5.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	5.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	5.0	"	"	"	"	"	"	
Chlorobenzene	ND	5.0	"	"	"	"	"	"	
Chloroethane	ND	5.0	"	"	"	"	"	"	
Chloroform	ND	5.0	"	"	"	"	"	"	
Chloromethane	ND	5.0	"	"	"	"	"	"	
2-Chlorotoluene	ND	5.0	"	"	"	"	"	"	
4-Chlorotoluene	ND	5.0	"	"	"		"	"	
Dibromochloromethane	ND	5.0	"	"	"		"	"	
1,2-Dibromo-3-chloropropane	e ND	5.0	"	"	"		"	"	
1,2-Dibromoethane (EDB)	ND	5.0	"	"	"		"	"	
Dibromomethane	ND	5.0	"	"	"		"	"	
1,2-Dichlorobenzene	ND	5.0	"	"	"		"	"	
1,3-Dichlorobenzene	ND	5.0	"	"	"		"	"	
1,4-Dichlorobenzene	ND	5.0	"	"	"		"	"	
Dichlorodifluoromethane	ND	5.0	"	"	"		"	"	
1,1-Dichloroethane	ND	5.0	"	"	"		"	"	
1,2-Dichloroethane	ND	5.0	"	"	"		"	"	
1,1-Dichloroethene	ND	5.0	"	"	"		"	"	
cis-1,2-Dichloroethene	ND	5.0	"	"	"		"	"	
trans-1,2-Dichloroethene	ND	5.0	"	"	"		"	"	
1,2-Dichloropropane	ND	5.0	"	"	"		"	"	
1,3-Dichloropropane	ND	5.0	"	"	"		"	"	
2,2-Dichloropropane	ND	5.0	"	"	"		"	"	
1,1-Dichloropropene	ND	5.0	"	"	"		"	"	
cis-1,3-Dichloropropene	ND	5.0	"	"	"		"	"	
trans-1,3-Dichloropropene	ND	5.0	"	"	"		"	"	
Ethylbenzene	ND	5.0	"		"		"	"	
Hexachlorobutadiene	ND	5.0	"	"	"	"	"	"	
Isopropylbenzene	ND	5.0	"	"	"	"	"	"	
p-Isopropyltoluene	ND	5.0	"	"	"		"	"	
Methylene chloride	ND	5.0	"	"	"		"	"	
Methyl tert-butyl ether	ND	5.0	"	"	"	"	"	"	



Santa Monica CA, 90405 Project Manager: Susan Mearns 01/12/17 09:24 Volatile Organic Compounds by EPA Method 8260B Sizerra Analytical Laboration Laboration									
		Sierra An Reporting	alytica	il Labs, Ir	IC.				
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB17-10 (1701054-16) Soil	Sampled: 01/04/17 12:40	Received · 01	/04/17 1	6.27					

SD17-10 (1701054-10) Soli S	ampicu. 01/04/17 12.40	Received. 01	///////	0.27					
Naphthalene	ND	5.0	µg/kg	1	B7A0572	01/05/17	01/06/17 09:0	3 EPA 8260B	
n-Propylbenzene	ND	5.0	"	"	"	"	"	"	
Styrene	ND	5.0	"	"	"		"	"	
1,1,1,2-Tetrachloroethane	ND	5.0	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	5.0	"	"	"	"	"	"	
Tetrachloroethene	ND	5.0	"	"	"	"	"	"	
Toluene	ND	5.0	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	5.0	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	5.0	"	"	"	"	"	"	
Trichloroethene	ND	5.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	5.0	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	5.0	"	"	"		"	"	
1,2,4-Trimethylbenzene	ND	5.0	"	"	"		"	"	
1,3,5-Trimethylbenzene	ND	5.0	"	"	"	"	"	"	
Vinyl chloride	ND	5.0	"	"	"	"	"	"	
m,p-Xylene	ND	5.0	"	"	"	"	"	"	
o-Xylene	ND	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethe	ane	105 %	80	-120	"	"	"	"	
Surrogate: Toluene-d8		96.8 %	81	-117	"	"	"	"	
Surrogate: 4-Bromofluorobenze	ene	106 %	74	-121	"	"	"	"	

SB15-5 (1701054-17) Soil Sampled: 01/04/17 13:20 Received: 01/04/17 16:27

Benzene	ND	5.0	µg/kg	1	B7A0572	01/05/17	01/06/17 09:03	EPA 8260B
Bromobenzene	ND	5.0	"	"	"	"		"
Bromochloromethane	ND	5.0	"	"	"	"		"
Bromodichloromethane	ND	5.0	"	"	"	"		"
Bromoform	ND	5.0	"	"	"	"		"
Bromomethane	ND	5.0	"	"	"	"		"
n-Butylbenzene	ND	5.0	"	"	"	"		"
sec-Butylbenzene	ND	5.0	"	"	"	"		"
tert-Butylbenzene	ND	5.0	"	"	"	"		"
Carbon tetrachloride	ND	5.0	"	"	"	"		"
Chlorobenzene	ND	5.0	"	"	"	"		"
Chloroethane	ND	5.0	"	"	"	"		"
Chloroform	ND	5.0	"	"	"	"		"
Chloromethane	ND	5.0	"	"	"	"		"
2-Chlorotoluene	ND	5.0	"	"	"	"	"	"
4-Chlorotoluene	ND	5.0	"	"	"	"		"
Dibromochloromethane	ND	5.0	"	"	"	"		"



Mearns Consulting LLC	Project: Project Number:	SHPI-Amerigas	Reported:
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24
	Volatile Organic Compour	nds by EPA Method 8260B	
	Sierra Analyt	ical Labs, Inc.	

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB15-5 (1701054-17) Soil	Sampled: 01/04/17 13:20	Received: 01/	04/17 16:	27					
1,2-Dibromo-3-chloropropa	ne ND	5.0	µg/kg	1	B7A0572	01/05/17	01/06/17 09:03	8 EPA 8260B	
1,2-Dibromoethane (EDB)	ND	5.0	"	"	"	"	"	"	
Dibromomethane	ND	5.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	5.0	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	5.0	"	"	"	"	"	"	
1,1-Dichloroethane	ND	5.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	5.0	"	"	"	"	"	"	
1,1-Dichloroethene	ND	5.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	5.0	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	5.0	"	"	"	"	"		
1,2-Dichloropropane	ND	5.0	"	"	"	"	"		
1,3-Dichloropropane	ND	5.0	"	"	"	"	"		
2,2-Dichloropropane	ND	5.0	"	"	"	"	"		
1,1-Dichloropropene	ND	5.0	"	"	"		"		
cis-1,3-Dichloropropene	ND	5.0	"	"	"		"		
trans-1,3-Dichloropropene	ND	5.0	"	"	"		"		
Ethylbenzene	ND	5.0	"	"	"		"		
Hexachlorobutadiene	ND	5.0	"	"	"		"		
Isopropylbenzene	ND	5.0	"	"	"		"		
p-Isopropyltoluene	ND	5.0	"	"			"	"	
Methylene chloride	ND	5.0	"	"			"	"	
Methyl tert-butyl ether	ND	5.0	"	"	"	"	"	"	
Naphthalene	ND	5.0	"	"		"	"		
n-Propylbenzene	ND	5.0	"	"			"	"	
Styrene	ND	5.0	"	"			"	"	
1,1,1,2-Tetrachloroethane	ND	5.0	"	"			"	"	
1,1,2,2-Tetrachloroethane	ND	5.0	"	"			"	"	
Tetrachloroethene	ND	5.0	"	"			"	"	
Toluene	ND	5.0	"	"	"		"	"	
1,2,3-Trichlorobenzene	ND	5.0	"	"	"		"	"	
1,2,4-Trichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	5.0	"	"			"	"	
1,1,2-Trichloroethane	ND	5.0	"	"			"	"	
Trichloroethene	ND	5.0	"	"	"	"	"		
Trichlorofluoromethane	ND	5.0	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	5.0	"	"	"	"	"		
1,2,4-Trimethylbenzene	ND	5.0	"	"	"	"	"		
1,3,5-Trimethylbenzene	ND	5.0	"	"	"	"	"		
Vinyl chloride	ND	5.0	"	"	"	"	"	"	



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405	Is Consulting LLC Project: SHPI-Amerigas shland Avenue Project Number: [none] Monica CA, 90405 Project Manager: Susan Mearns Volatile Organic Compounds by EPA Method 8260B									
	volatile O	Sierra Ai	nalytica	l Labs, I	nc.	0200D				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB15-5 (1701054-17) Soil	Sampled: 01/04/17 13:20	Received: 01/	04/17 16:	27						
m,p-Xylene o-Xylene	ND ND	5.0 5.0	µg/kg "	1	B7A0572 "	01/05/17	01/06/17 09:03	8 EPA 8260B "		
Surrogate: Dibromofluoromo Surrogate: Toluene-d8 Surrogate: 4-Bromofluorobe	ethane nzene	106 % 103 % 101 %	80- 81- 74-	120 117 121	" "	" "	" "	" "		
SB15-10 (1701054-18) Soil	Sampled: 01/04/17 13:28	Received: 01	/04/17 16	5:27						
Benzene	ND	4 5	ц <u>о</u> /ko	1	B7A0572	01/05/17	01/06/17 09:03	3 EPA 8260B		
Bromobenzene Bromochloromethane	ND ND	4.5 4.5 4.5	μ <u>ε</u> /κε "	"	"	"	"	"		
Bromodichloromethane Bromoform	ND ND	4.5 4.5			"	"				
Bromomethane n-Butylbenzene	ND ND	4.5 4.5								
sec-Butylbenzene tert-Butylbenzene	ND ND	4.5 4.5				"	"	"		
Chlorobenzene	ND ND	4.5 4.5					"	"		
Chloroform Chloromethane	ND ND	4.5 4.5 4.5					"	"		
2-Chlorotoluene 4-Chlorotoluene	ND ND	4.5 4.5				"	"	"		
Dibromochloromethane 1,2-Dibromo-3-chloropropar	ne ND	4.5 4.5				"	"			
1,2-Dibromoethane (EDB) Dibromomethane	ND ND	4.5 4.5					"	"		
1,2-Dichlorobenzene 1,3-Dichlorobenzene	ND ND	4.5 4.5					"			
1,4-Dichlorobenzene Dichlorodifluoromethane	ND ND	4.5 4.5		"		"	"			
1,1-Dichloroethane 1,2-Dichloroethane	ND ND	4.5 4.5					"			
cis-1,2-Dichloroethene	ND ND	4.5 4.5		"	"	"				
1,2-Dichloropropane	ND ND ND	4.5 4.5 4.5					"	"		
2,2-Dichloropropane 1,1-Dichloropropene	ND ND	4.5 4.5	"			"	"	"		
cis-1,3-Dichloropropene	ND	4.5	"	"		"	"	"		


Mearns Consulting LLC 738 Ashland Avenue	Project: Project Number:	SHPI-Amerigas [none]	Reported:
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24
	Volatile Organic Compour	nds by EPA Method 8260B	

		Sierra An	alytic	al Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB15-10 (1701054-18) Soil	Sampled: 01/04/17 13:28	Received: 01	/04/17 1	6:27					
trans-1,3-Dichloropropene	ND	4.5	µg/kg	1	B7A0572	01/05/17	01/06/17 09:0	3 EPA 8260B	
Ethylbenzene	ND	4.5	"	"	"	"	"	"	
Hexachlorobutadiene	ND	4.5	"	"	"	"	"	"	
Isopropylbenzene	ND	4.5	"	"	"	"	"	"	
p-Isopropyltoluene	ND	4.5	"	"	"	"	"	"	
Methylene chloride	ND	4.5	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	4.5		"	"	"	"	"	
Naphthalene	ND	4.5		"	"	"	"	"	
n-Propylbenzene	ND	4.5		"	"	"	"	"	
Styrene	ND	4.5		"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	4.5		"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	4.5	"	"	"	"	"	"	
Tetrachloroethene	ND	4.5		"	"	"	"	"	
Toluene	ND	4.5	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	4.5	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	4.5		"	"	"	"	"	
1,1,1-Trichloroethane	ND	4.5		"	"	"	"	"	
1,1,2-Trichloroethane	ND	4.5		"	"	"	"	"	
Trichloroethene	ND	4.5		"	"	"	"	"	
Trichlorofluoromethane	ND	4.5	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	4.5	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	4.5		"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	4.5		"	"	"	"	"	
Vinyl chloride	ND	4.5		"	"	"	"	"	
m,p-Xylene	ND	4.5		"	"	"	"	"	
o-Xylene	ND	4.5	"	"	"	"	"	"	
Surrogate: Dibromofluorom	ethane	111 %	80)-120	"	"	"	"	
Surrogate: Toluene-d8		102 %	81	-117	"	"	"	"	
Surrogate: 4-Bromofluorobe	nzene	105 %	74	-121	"	"	"	"	



Mearns Consulting LLC	Project: SHPI-Amerigas								
738 Ashland Avenue	Project Number: [none]	Reported:							
Santa Monica CA, 90405	Project Manager: Susan Mearns	01/12/17 09:24							
Volatile Organic Compounds by EPA Method 8260B									
Sierra Analytical Labs, Inc.									
Duration									

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB16-5 (1701054-19) Soil	Sampled: 01/04/17 13:42	Received: 01/	04/17 16:	27					
Benzene	8.8	3.5	µg/kg	1	B7A0572	01/05/17	01/06/17 09:03	EPA 8260B	
Bromobenzene	ND	3.5	"	"	"	"	"	"	
Bromochloromethane	ND	3.5	"	"	"	"	"	"	
Bromodichloromethane	ND	3.5	"	"	"	"	"	"	
Bromoform	ND	3.5	"	"	"	"	"	"	
Bromomethane	ND	3.5	"	"	"	"	"	"	
n-Butylbenzene	ND	3.5	"	"	"	"	"	"	
sec-Butylbenzene	ND	3.5	"	"	"	"	"	"	
tert-Butylbenzene	ND	3.5		"	"	"	"	"	
Carbon tetrachloride	ND	3.5		"	"	"	"	"	
Chlorobenzene	ND	3.5		"	"	"	"	"	
Chloroethane	ND	3.5		"	"	"	"	"	
Chloroform	ND	3.5		"	"	"	"	"	
Chloromethane	ND	3.5	"	"	"	"	"	"	
2-Chlorotoluene	ND	3.5		"	"	"	"	"	
4-Chlorotoluene	ND	3.5		"	"	"	"	"	
Dibromochloromethane	ND	3.5		"	"	"	"	"	
1,2-Dibromo-3-chloropropar	ne ND	3.5		"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	3.5		"	"	"	"	"	
Dibromomethane	ND	3.5		"	"	"	"	"	
1,2-Dichlorobenzene	ND	3.5		"	"	"	"	"	
1,3-Dichlorobenzene	ND	3.5		"	"	"	"	"	
1,4-Dichlorobenzene	ND	3.5		"	"	"	"	"	
Dichlorodifluoromethane	ND	3.5		"	"	"	"	"	
1,1-Dichloroethane	ND	3.5		"	"	"	"	"	
1,2-Dichloroethane	ND	3.5		"	"	"	"	"	
1,1-Dichloroethene	ND	3.5		"	"	"	"	"	
cis-1,2-Dichloroethene	ND	3.5		"	"	"	"	"	
trans-1,2-Dichloroethene	ND	3.5		"	"	"	"	"	
1,2-Dichloropropane	ND	3.5		"	"	"	"	"	
1,3-Dichloropropane	ND	3.5		"	"	"	"	"	
2,2-Dichloropropane	ND	3.5		"	"	"	"	"	
1,1-Dichloropropene	ND	3.5		"	"	"	"	"	
cis-1,3-Dichloropropene	ND	3.5		"	"	"	"	"	
trans-1,3-Dichloropropene	ND	3.5		"	"	"	"	"	
Ethylbenzene	ND	3.5		"	"	"	"	"	
Hexachlorobutadiene	ND	3.5		"	"	"	"	"	
Isopropylbenzene	ND	3.5		"	"	"		"	
p-Isopropyltoluene	ND	3.5		"	"	"		"	
Methylene chloride	ND	3.5		"	"	"	"	"	
Methyl tert-butyl ether	ND	3.5	"	"	"	"	"	"	



Chlorobenzene

Chloromethane

2-Chlorotoluene

4-Chlorotoluene

Dibromochloromethane

Chloroethane

Chloroform

Mearns Consulting LLC 738 Ashland Avenue	Project: Project Number:	SHPI-Amerigas [none]	Reported:							
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24							
	Volatile Organic Compounds by EPA Method 8260B									
	Sierra Analytical Labs, Inc.									

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB16-5 (1701054-19) Soil S	Sampled: 01/04/17 13:42	Received: 01/	04/17 16:	27					
Naphthalene	ND	3.5	µg/kg	1	B7A0572	01/05/17	01/06/17 09:03	3 EPA 8260B	
n-Propylbenzene	ND	3.5	"	"	"	"	"	"	
Styrene	ND	3.5	"	"	"	"		"	
1,1,1,2-Tetrachloroethane	ND	3.5	"	"	"	"		"	
1,1,2,2-Tetrachloroethane	ND	3.5	"	"	"	"	"	"	
Tetrachloroethene	ND	3.5	"	"	"	"		"	
Toluene	ND	3.5	"	"	"	"		"	
1,2,3-Trichlorobenzene	ND	3.5	"	"	"	"		"	
1,2,4-Trichlorobenzene	ND	3.5	"	"	"	"		"	
1,1,1-Trichloroethane	ND	3.5	"	"	"	"		"	
1,1,2-Trichloroethane	ND	3.5	"	"	"	"		"	
Trichloroethene	ND	3.5	"	"	"	"		"	
Trichlorofluoromethane	ND	3.5	"	"	"	"		"	
1,2,3-Trichloropropane	ND	3.5	"	"	"	"		"	
1,2,4-Trimethylbenzene	ND	3.5	"	"	"	"		"	
1,3,5-Trimethylbenzene	ND	3.5	"	"	"	"		"	
Vinyl chloride	ND	3.5	"	"	"	"		"	
m,p-Xylene	ND	3.5	"	"	"	"		"	
o-Xylene	ND	3.5	"		"	"		"	
Surrogate: Dibromofluoromet	hane	111 %	80-	120	"	"	"	"	
Surrogate: Toluene-d8		87.7 %	81-	117	"	"	"	"	
Surrogate: 4-Bromofluoroben	zene	96.9 %	74-	121	"	"	"	"	
SB16-10 (1701054-20) Soil	Sampled: 01/04/17 13:48	8 Received: 01	/04/17 16	5:27					
Benzene	ND	6.2	µg/kg	1	B7A0572	01/05/17	01/06/17 09:03	3 EPA 8260B	
Bromobenzene	ND	6.2	"	"	"	"		"	
Bromochloromethane	ND	6.2	"	"	"	"		"	
Bromodichloromethane	ND	6.2	"	"	"	"		"	
Bromoform	ND	6.2	"	"	"	"		"	
Bromomethane	ND	6.2	"	"	"	"		"	
n-Butylbenzene	ND	6.2	"	"	"	"		"	
sec-Butylbenzene	ND	6.2	"	"	"	"		"	
tert-Butylbenzene	ND	6.2	"	"	"	"		"	
Carbon tetrachloride	ND	6.2	"	"	"	"		"	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Project: SHPI-Amerig Project Number: [none]	gas Reported:								
Project Manager: Susan Mearns	01/12/17 09:24								
Volatile Organic Compounds by EPA Method 8260B									
Sierra Analytical Labs, Inc.									
	Project: SHPI-Amerig Project Number: [none] Project Manager: Susan Mearns Volatile Organic Compounds by EPA Sierra Analytical Labs, In								

A 1 4-	Deruk	Reporting	U	Dilution	Datah	Durana	A alassa d	Madaad	Nataa
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB16-10 (1701054-20) Soil	Sampled: 01/04/17 13:48	Received: 01	/04/17 16	5:27					
1,2-Dibromo-3-chloropropane	e ND	6.2	µg/kg	1	B7A0572	01/05/17	01/06/17 09:0	3 EPA 8260B	
1,2-Dibromoethane (EDB)	ND	6.2	"	"	"	"	"	"	
Dibromomethane	ND	6.2	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	6.2	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	6.2	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	6.2	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	6.2		"	"	"	"	"	
1,1-Dichloroethane	ND	6.2	"	"	"	"	"	"	
1,2-Dichloroethane	ND	6.2	"	"	"	"	"	"	
1,1-Dichloroethene	ND	6.2	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	6.2	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	6.2	"	"	"	"	"	"	
1,2-Dichloropropane	ND	6.2		"	"	"	"	"	
1,3-Dichloropropane	ND	6.2		"	"	"	"	"	
2,2-Dichloropropane	ND	6.2		"	"	"	"	"	
1,1-Dichloropropene	ND	6.2	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	6.2	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	6.2		"	"	"	"	"	
Ethylbenzene	ND	6.2		"	"	"	"	"	
Hexachlorobutadiene	ND	6.2		"	"	"	"	"	
Isopropylbenzene	ND	6.2		"	"	"	"	"	
p-Isopropyltoluene	ND	6.2		"	"	"	"	"	
Methylene chloride	ND	6.2		"	"	"	"	"	
Methyl tert-butyl ether	ND	6.2		"	"	"	"	"	
Naphthalene	ND	6.2		"	"	"	"	"	
n-Propylbenzene	ND	6.2		"	"	"	"		
Styrene	ND	6.2		"	"	"	"		
1 1 1 2-Tetrachloroethane	ND	6.2		"	"	"	"		
1 1 2 2-Tetrachloroethane	ND	6.2		"	"	"	"		
Tetrachloroethene	ND	6.2		"	"	"	"		
Toluene	ND	6.2		"	"	"	"	"	
1.2.3-Trichlorobenzene	ND	6.2		"	"	"	"	"	
1.2.4-Trichlorobenzene	ND	6.2		"	"	"	"	"	
1 1 1-Trichloroethane	ND	6.2		"	"	"	"	"	
1.1.2-Trichloroethane	ND	6.2		"	"	"	"	"	
Trichloroethene	ND	6.2		"	"	"	"	"	
Trichlorofluoromethane		6.2						"	
1.2.3-Trichloronronane		6.2				"		"	
1.2.3-Trimethylbenzene		6.2				"			
1.2.5-Trimethylbenzene		6.2				"			
Vinyl chloride		0.2 6 2				"			
v myr emonue	ND	0.2							



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405	Volatile O	Pr Project Nu Project Mar rganic Com	Reported: 01/12/17 09:24						
	volutile of	Sierra Ai	nalytica	l Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB16-10 (1701054-20) Soil	Sampled: 01/04/17 13:48	Received: 01	/04/17 16	5:27					
m,p-Xylene o-Xylene	ND ND	6.2 6.2	µg/kg "	1	B7A0572 "	01/05/17	01/06/17 09:0	3 EPA 8260B "	
Surrogate: Dibromofluorome Surrogate: Toluene-d8	ethane	109 % 86.2 %	80- 81-	120 117	"	"	"	"	
Surrogate: 4-Bromofluorobe	nzene	107 %	/4-	121			"		
SB18-5 (1701054-21) Soil	Sampled: 01/04/17 14:11	Received: 01/	04/17 16:	27					
Benzene Bromobenzene	ND ND	5.0 5.0	µg/kg "	1	B7A0572	01/05/17	01/06/17 09:0	3 EPA 8260B	_
Bromochloromethane	ND	5.0					"		
Bromodichloromethane	ND	5.0	"	"	"	"	"	"	
Bromoform	ND	5.0	"	"	"	"	"	"	
Bromomethane	ND	5.0	"	"	"	"	"	"	
n-Butylbenzene	ND	5.0	"	"	"	"	"	"	
sec-Butylbenzene	ND	5.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	5.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	5.0	"	"	"	"	"	"	
Chlorobenzene	ND	5.0	"	"	"	"	"	"	
Chloroethane	ND	5.0	"	"	"	"	"	"	
Chloroform	ND	5.0	"	"	"	"	"	"	
Chloromethane	ND	5.0	"	"	"	"	"	"	
2-Chlorotoluene	ND	5.0	"	"	"	"	"	"	
4-Chlorotoluene	ND	5.0	"	"	"	"	"	"	
Dibromochloromethane	ND	5.0	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropan	e ND	5.0	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	5.0	"	"	"	"	"	"	
Dibromomethane	ND	5.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	5.0					"	"	
1,4-Dichlorobenzene	ND	5.0							
Dichlorodifluoromethane	ND	5.0							
1,1-Dichloroethane	ND	5.0					"	"	
1,2-Dichloroethane	ND	5.0							
1,1-Dichloroethene	ND	5.0							
trang 1.2 Dicklausthan	ND	5.0							
1.2 Dishlaron	ND	5.0							
1,2-Dichloropropane	ND	5.0							
1,5-Dichloropropane	IND	5.0							
2,2-Dichloropropane	IND	5.0						"	
cis-1,3-Dichloropropene	ND ND	5.0	"	"	"	"	"	"	



Mearns Consulting LLC 738 Ashland Avenue	Project: Project Number:	SHPI-Amerigas	Reported:
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24
	Volatile Organic Compour	nds by EPA Method 8260B	

	Sierra Analytical Labs, Inc.											
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes			
SB18-5 (1701054-21) Soil	Sampled: 01/04/17 14:11	Received: 01/	04/17 16	:27								
trans-1,3-Dichloropropene	ND	5.0	µg/kg	1	B7A0572	01/05/17	01/06/17 09:0	3 EPA 8260B				
Ethylbenzene	ND	5.0		"	"	"	"	"				
Hexachlorobutadiene	ND	5.0		"	"	"	"	"				
Isopropylbenzene	ND	5.0		"	"	"	"	"				
p-Isopropyltoluene	ND	5.0		"	"	"	"	"				
Methylene chloride	ND	5.0		"	"	"	"	"				
Methyl tert-butyl ether	ND	5.0		"	"	"	"	"				
Naphthalene	ND	5.0		"	"	"	"	"				
n-Propylbenzene	ND	5.0		"	"	"	"	"				
Styrene	ND	5.0		"	"	"	"	"				
1,1,1,2-Tetrachloroethane	ND	5.0		"	"	"	"	"				
1,1,2,2-Tetrachloroethane	ND	5.0		"	"	"	"	"				
Tetrachloroethene	ND	5.0		"	"	"	"	"				
Toluene	ND	5.0		"	"	"	"	"				
1,2,3-Trichlorobenzene	ND	5.0		"	"	"	"	"				
1,2,4-Trichlorobenzene	ND	5.0		"	"	"	"	"				
1,1,1-Trichloroethane	ND	5.0		"	"	"	"	"				
1,1,2-Trichloroethane	ND	5.0		"	"	"	"	"				
Trichloroethene	ND	5.0		"	"	"	"	"				
Trichlorofluoromethane	ND	5.0		"	"	"	"	"				
1,2,3-Trichloropropane	ND	5.0		"	"	"	"	"				
1,2,4-Trimethylbenzene	ND	5.0		"	"	"	"	"				
1,3,5-Trimethylbenzene	ND	5.0		"	"	"	"	"				
Vinyl chloride	ND	5.0		"	"	"	"	"				
m,p-Xylene	ND	5.0		"	"	"	"	"				
o-Xylene	ND	5.0		"	"	"	"	"				
Surrogate: Dibromofluoron	nethane	97. <i>3</i> %	80	-120	"	"	"	"				
Surrogate: Toluene-d8		96.5 %	81	-117	"	"	"	"				
Surrogate: 4-Bromofluorob	enzene	104 %	74	-121	"	"	"	"				



SB18-10 (1701054-22) Soil	Sampled: 01/04/17 14:20	Received: 01/0	4/17 1	16:27							
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes		
Volatile Organic Compounds by EPA Method 8260B Sierra Analytical Labs, Inc.											
Santa Monica CA, 90405Project Manager:Susan Mearns01/12/17 09:24									9:24		
Mearns Consulting LLC 738 Ashland Avenue		Proje Project Numb	ect: S per: [r	[HPI-Amerig none]	gas			Reported	1:		

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Benzene	ND	6.7	µg/kg	1	B7A0572	01/05/17	01/06/17 09:0	03 EPA 8260B	
Bromobenzene	ND	6.7	"		"	"	"	"	
Bromochloromethane	ND	6.7	"	"	"	"	"	"	
Bromodichloromethane	ND	6.7	"		"	"	"	"	
Bromoform	ND	6.7	"		"	"	"	"	
Bromomethane	ND	6.7	"		"	"	"	"	
n-Butylbenzene	ND	6.7	"	"	"	"		"	
sec-Butylbenzene	ND	6.7	"	"	"	"	"	"	
tert-Butylbenzene	ND	6.7	"	"	"	"		"	
Carbon tetrachloride	ND	6.7	"	"	"	"	"	"	
Chlorobenzene	ND	6.7	"	"	"	"	"	"	
Chloroethane	ND	6.7	"	"	"	"	"	"	
Chloroform	ND	6.7	"	"	"	"	"	"	
Chloromethane	ND	6.7	"	"	"	"	"	"	
2-Chlorotoluene	ND	6.7	"	"	"	"	"	"	
4-Chlorotoluene	ND	6.7	"		"	"			
Dibromochloromethane	ND	6.7	"	"	"	"			
1,2-Dibromo-3-chloropropane	ND	6.7	"	"	"	"			
1,2-Dibromoethane (EDB)	ND	6.7	"	"	"	"			
Dibromomethane	ND	6.7	"		"	"		"	
1,2-Dichlorobenzene	ND	6.7	"		"	"		"	
1,3-Dichlorobenzene	ND	6.7	"		"	"			
1,4-Dichlorobenzene	ND	6.7	"		"	"			
Dichlorodifluoromethane	ND	6.7	"		"	"			
1,1-Dichloroethane	ND	6.7	"		"	"			
1,2-Dichloroethane	ND	6.7	"	"	"	"			
1,1-Dichloroethene	ND	6.7	"	"	"	"			
cis-1,2-Dichloroethene	ND	6.7	"	"	"	"			
trans-1,2-Dichloroethene	ND	6.7	"	"	"	"			
1,2-Dichloropropane	ND	6.7	"	"	"	"			
1,3-Dichloropropane	ND	6.7	"		"	"			
2,2-Dichloropropane	ND	6.7	"		"	"			
1,1-Dichloropropene	ND	6.7	"		"	"			
cis-1,3-Dichloropropene	ND	6.7	"		"	"			
trans-1,3-Dichloropropene	ND	6.7	"		"	"			
Ethylbenzene	ND	6.7	"		"	"			
Hexachlorobutadiene	ND	6.7	"		"	"	"	"	
Isopropylbenzene	ND	6.7			"				
p-Isopropyltoluene	ND	6.7			"				
Methylene chloride	ND	6.7			"		"		
Methyl tert-butyl ether	ND	6.7			"		"		
, , , , , , , , , , , , , , , , , , ,									



Reporting Analytical Labs, Inc.									
Volatile Organic Compounds by EPA Method 8260B Sierra Analytical Labs, Inc.									
Santa Monica CA, 90405		Project Manage	r: Susan Mearn	IS			01/12/17 09	:24	
Mearns Consulting LLC738 Ashland Avenue		Project Project Numbe	t: SHPI-Amer r: [none]	rigas			Reported		

NT 1.1 1		< -	_					
Naphthalene	ND	6.7	µg/kg	1	B7A0572	01/05/17	01/06/17 09:03	3 EPA 8260B
n-Propylbenzene	ND	6.7	"			"		"
Styrene	ND	6.7	"	"		"	"	"
1,1,1,2-Tetrachloroethane	ND	6.7	"	"	"	"	"	"
1,1,2,2-Tetrachloroethane	ND	6.7	"	"	"	"	"	"
Tetrachloroethene	ND	6.7	"	"	"	"	"	"
Toluene	ND	6.7	"	"	"	"	"	"
1,2,3-Trichlorobenzene	ND	6.7	"	"	"	"	"	"
1,2,4-Trichlorobenzene	ND	6.7	"	"	"	"	"	"
1,1,1-Trichloroethane	ND	6.7	"	"	"	"	"	"
1,1,2-Trichloroethane	ND	6.7	"	"	"	"	"	"
Trichloroethene	ND	6.7	"	"	"	"	"	"
Trichlorofluoromethane	ND	6.7	"	"	"	"	"	"
1,2,3-Trichloropropane	ND	6.7	"	"	"	"	"	"
1,2,4-Trimethylbenzene	ND	6.7	"	"	"	"	"	"
1,3,5-Trimethylbenzene	ND	6.7	"	"	"	"	"	"
Vinyl chloride	ND	6.7	"	"	"	"	"	"
m,p-Xylene	ND	6.7	"	"	"	"	"	"
o-Xylene	ND	6.7	"	"	"	"	"	"
Surrogate: Dibromofluoromethane		110 %	80-1	20	"	"	"	"
Surrogate: Toluene-d8		99.7 %	81-1	17	"	"	"	"
Surrogate: 4-Bromofluorobenzene		109 %	74-1	21	"	"	"	"

SB19-5 (1701054-23) Soil Sampled: 01/04/17 14:37 Received: 01/04/17 16:27

Benzene	ND	5.0	µg/kg	1	B7A0572	01/05/17	01/06/17 09:03	EPA 8260B	
Bromobenzene	ND	5.0	"	"	"	"	"	"	
Bromochloromethane	ND	5.0	"	"	"	"	"	"	
Bromodichloromethane	ND	5.0	"	"	"	"	"	"	
Bromoform	ND	5.0	"	"	"	"	"	"	
Bromomethane	ND	5.0	"	"	"	"	"	"	
n-Butylbenzene	ND	5.0	"	"	"	"	"	"	
sec-Butylbenzene	ND	5.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	5.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	5.0	"	"	"	"	"	"	
Chlorobenzene	ND	5.0	"	"	"	"	"	"	
Chloroethane	ND	5.0	"	"	"	"	"	"	
Chloroform	ND	5.0	"	"	"	"	"	"	
Chloromethane	ND	5.0	"	"	"	"	"	"	
2-Chlorotoluene	ND	5.0	"	"	"	"	"	"	
4-Chlorotoluene	ND	5.0	"	"	"	"	"	"	
Dibromochloromethane	ND	5.0	"	"	"	"	"	"	



Mearns Consulting LLC 738 Ashland Avenue	Project: SH Project Number: [nor	IPI-Amerigas one]	Reported:
Santa Monica CA, 90405	Project Manager: Sus	san Mearns	01/12/17 09:24
	Volatile Organic Compounds	by EPA Method 8260B	

		Sierra An	nalytical	Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
SB19-5 (1701054-23) Soil	Sampled: 01/04/17 14:37	Received: 01/	04/17 16:2	27					
1,2-Dibromo-3-chloropropa	ane ND	5.0	µg/kg	1	B7A0572	01/05/17	01/06/17 09:03	3 EPA 8260B	
1,2-Dibromoethane (EDB)	ND	5.0	"	"	"	"	"	"	
Dibromomethane	ND	5.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	5.0	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	5.0	"	"	"	"	"	"	
1,1-Dichloroethane	ND	5.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	5.0	"	"	"	"	"	"	
1,1-Dichloroethene	ND	5.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	5.0	"	"	"	"	"		
trans-1.2-Dichloroethene	ND	5.0	"	"	"	"	"	"	
1.2-Dichloropropane	ND	5.0	"	"	"	"	"	"	
1.3-Dichloropropane	ND	5.0	"	"	"	"	"	"	
2.2-Dichloropropane	ND	5.0	"	"	"	"	"	"	
1.1-Dichloropropene	ND	5.0	"	"	"	"		"	
cis-1.3-Dichloropropene	ND	5.0	"	"	"	"		"	
trans-1.3-Dichloropropene	ND	5.0	"	"	"	"		"	
Ethylbenzene	ND	5.0	"	"	"	"		"	
Hexachlorobutadiene	ND	5.0	"	"	"	"		"	
Isopropylbenzene	ND	5.0	"	"	"	"		"	
p-Isopropyltoluene	ND	5.0	"	"	"	"		"	
Methylene chloride	ND	5.0	"	"	"	"		"	
Methyl tert-butyl ether	ND	5.0	"	"	"	"	"	"	
Naphthalene	ND	5.0	"	"	"	"	"	"	
n-Propylbenzene	ND	5.0	"	"	"	"	"	"	
Styrene	ND	5.0	"	"	"	"	"	"	
1 1 1 2-Tetrachloroethane	ND	5.0	"	"	"	"			
1 1 2 2-Tetrachloroethane	ND	5.0	"	"	"	"	"	"	
Tetrachloroethene	ND	5.0	"	"	"	"	"		
Toluene	ND	5.0	"	"	"	"	"		
1 2 3-Trichlorobenzene	ND	5.0	"	"	"	"	"	"	
1.2.4-Trichlorobenzene	ND	5.0	"	"	"	"	"	"	
1.1.1-Trichloroethane	ND	5.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	5.0	"	"	"	"		"	
Trichloroothone	ND	5.0	"	"	"	"		"	
Trichlorofluoromathana	ND	5.0	"						
1.2.3 Trichloronronana		5.0	"	"	"				
1,2,3-Trimotopiopane		5.0	"	"	"				
1,2,+-11incuryi0enzene		5.0	"	"	"				
Vinyl chloride	ND	5.0			"				
v myr chionae	ND	5.0							



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405	Volatile O	P. Project Nu Project Ma rganic Com	roject: SH umber: [nc nager: Sus	IPI-Ameri one] san Mearns by EPA	igas Method	8260B		Reporte 01/12/17 0	d: 19:24
		Sierra A	nalytica	l Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB19-5 (1701054-23) Soil	Sampled: 01/04/17 14:37	Received: 01/	/04/17 16:	27					
m,p-Xylene o-Xylene	ND ND	5.0 5.0	µg/kg "	1	B7A0572 "	01/05/17	01/06/17 09:0	3 EPA 8260B "	
Surrogate: Dibromofluoromo Surrogate: Toluene-d8 Surrogate: 4 Bromofluoroho	ethane	110 % 97.7 % 100 %	80- 81- 74	120 117 121	""	" "	" "	" "	
Sp10 10 (1701054 24) Soil	Somplod: 01/04/17 14:45	Dessived: 0	-4- 1/0//17 16						
SB19-10 (1/01054-24) S0II	Sampleu: 01/04/17 14:45	Keceiveu: 0	1/04/17 10	1	D7 4 0572	01/05/17	01/06/17 00:0	2 EDA 9260D	
Bromobenzene	ND ND	5.0 5.0	μg/kg "	1	Б/A03/2 "	"	01/06/17 09:0	5 EPA 8200B	
Bromochloromethane	ND	5.0		"	"	"	"		
Bromodichloromethane	ND	5.0	"	"	"	"	"		
Bromoform	ND	5.0	"	"	"	"	"		
Bromomethane	ND	5.0		"	"	"	"	"	
n-Butvlbenzene	ND	5.0		"	"	"	"	"	
sec-Butylbenzene	ND	5.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	5.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	5.0	"	"	"	"	"	"	
Chlorobenzene	ND	5.0	"	"	"	"	"	"	
Chloroethane	ND	5.0	"	"	"	"	"	"	
Chloroform	ND	5.0	"	"	"	"	"	"	
Chloromethane	ND	5.0	"	"	"	"	"	"	
2-Chlorotoluene	ND	5.0	"	"	"	"	"	"	
4-Chlorotoluene	ND	5.0	"	"	"	"	"	"	
Dibromochloromethane	ND	5.0	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropar	ne ND	5.0	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	5.0	"	"	"	"	"	"	
Dibromomethane	ND	5.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	5.0	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	5.0	"	"	"	"	"	"	
1,1-Dichloroethane	ND	5.0					"	"	
1,2-Dichloroethane	ND	5.0							
1,1-Dichloroethene	ND	5.0							
trans 1.2 Dichloroothone	ND ND	5.0							
1.2-Dichloropropaga		5.0			"		"		
1.2-Dichloropropage		5.0			"	"		"	
2.2-Dichloropropage		5.0			"				
1 1-Dichloropropage		5.0			"				
cis-1,3-Dichloropropene	ND	5.0	"	"	"	"	"	"	



Mearns Consulting LLC 738 Ashland Avenue	Project: S Project Number: D	SHPI-Amerigas	Reported:				
Santa Monica CA, 90405	Project Manager: S	Susan Mearns	01/12/17 09:24				
Volatile Organic Compounds by EPA Method 8260B							
Sierra Analytical Labs. Inc.							

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB19-10 (1701054-24) Soil	Sampled: 01/04/17 14:45	Received: 01	/04/17 16	5:27					
trans-1,3-Dichloropropene	ND	5.0	µg/kg	1	B7A0572	01/05/17	01/06/17 09:03	3 EPA 8260B	
Ethylbenzene	ND	5.0	"	"	"	"	"	"	
Hexachlorobutadiene	ND	5.0	"	"	"	"		"	
Isopropylbenzene	ND	5.0	"	"	"	"		"	
p-Isopropyltoluene	ND	5.0	"	"	"	"		"	
Methylene chloride	ND	5.0	"	"	"	"		"	
Methyl tert-butyl ether	ND	5.0	"	"	"	"	"	"	
Naphthalene	ND	5.0	"	"	"	"		"	
n-Propylbenzene	ND	5.0	"	"	"	"		"	
Styrene	ND	5.0	"	"	"	"		"	
1,1,1,2-Tetrachloroethane	ND	5.0	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	5.0	"	"	"	"		"	
Tetrachloroethene	ND	5.0	"	"	"	"	"	"	
Toluene	ND	5.0	"	"	"	"		"	
1,2,3-Trichlorobenzene	ND	5.0	"	"	"	"		"	
1,2,4-Trichlorobenzene	ND	5.0	"	"	"	"		"	
1,1,1-Trichloroethane	ND	5.0	"	"	"	"		"	
1,1,2-Trichloroethane	ND	5.0	"	"	"	"		"	
Trichloroethene	ND	5.0	"	"	"	"		"	
Trichlorofluoromethane	ND	5.0	"	"	"	"		"	
1,2,3-Trichloropropane	ND	5.0	"	"	"	"		"	
1,2,4-Trimethylbenzene	ND	5.0	"	"	"	"		"	
1,3,5-Trimethylbenzene	ND	5.0	"	"	"	"		"	
Vinyl chloride	ND	5.0	"	"	"	"		"	
m,p-Xylene	ND	5.0	"	"	"	"	"	"	
o-Xylene	ND	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluorom	ethane	112 %	80-	120	"	"	"	"	
Surrogate: Toluene-d8		90.5 %	81-	117	"	"	"	"	
Surrogate: 4-Bromofluorobe	nzene	115 %	74-	121	"	"	"	"	



Mearns Consulting LLC	Project: SHPI-Amerigas							
738 Ashland Avenue	Project Number: [none]	Reported:						
Santa Monica CA, 90405	Project Manager: Susan Mearns	01/12/17 09:24						
Volatile Organic Compounds by EPA Method 8260B								

Reporting Landy Reporting Landy Batch Properod Analyzed Method No SR2D-5 (J701054-25) Soil Sampled: 0J/04/17 14:58 Receved: 0J/04/17 16:27 01/05/17 01/05			Sierra An	nalytical	Labs, I	nc.				
StarbetStarbetRecrueIBrackeIBrackeIBrackeIBrackeIBrackeIBrackeIBrackeIBrackeIBrackeIBrackeIBrackeIBrackeIBrackeIBrackeIBrackeIBrackeIBrackeII<	Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
herzene ND 5.0 µg/kg 1 B7A0572 01.05/17 01.06/17 09:03 EPA 82:00B Bromochloromethane ND 5.0 -	SB20-5 (1701054-25) Soil	Sampled: 01/04/17 14:58	Received: 01/	04/17 16:2	27					
BromodichloromethaneND5.0** <t< td=""><td>Benzene</td><td>ND</td><td>5.0</td><td>µg/kg</td><td>1</td><td>B7A0572</td><td>01/05/17</td><td>01/06/17 09:03</td><td>3 EPA 8260B</td><td></td></t<>	Benzene	ND	5.0	µg/kg	1	B7A0572	01/05/17	01/06/17 09:03	3 EPA 8260B	
BromodichloromethaneND5.0** <t< td=""><td>Bromobenzene</td><td>ND</td><td>5.0</td><td>"</td><td>"</td><td>"</td><td>"</td><td>"</td><td>"</td><td></td></t<>	Bromobenzene	ND	5.0	"	"	"	"	"	"	
BromotichloromethaneND5.0 <t< td=""><td>Bromochloromethane</td><td>ND</td><td>5.0</td><td></td><td>"</td><td>"</td><td>"</td><td>"</td><td>"</td><td></td></t<>	Bromochloromethane	ND	5.0		"	"	"	"	"	
Bromore haneND5.0	Bromodichloromethane	ND	5.0	"	"	"	"	"	"	
BromonethaneND5.0'''	Bromoform	ND	5.0	"	"	"	"	"	"	
n-Butylbenzene ND 5.0 · · · · · · · · · · · · · · · · · · ·	Bromomethane	ND	5.0	"	"	"	"	"	"	
see-BuybenzeneND5.0 <td>n-Butylbenzene</td> <td>ND</td> <td>5.0</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td></td> <td>"</td> <td></td>	n-Butylbenzene	ND	5.0	"	"	"	"		"	
International Carbon tetrachlorideND5.0II	sec-Butylbenzene	ND	5.0	"	"	"	"		"	
Carbon tetrachlorideND5.0 <t< td=""><td>tert-Butylbenzene</td><td>ND</td><td>5.0</td><td>"</td><td>"</td><td>"</td><td>"</td><td></td><td>"</td><td></td></t<>	tert-Butylbenzene	ND	5.0	"	"	"	"		"	
ChlorobenzeneND5.0""" <td>Carbon tetrachloride</td> <td>ND</td> <td>5.0</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td></td> <td>"</td> <td></td>	Carbon tetrachloride	ND	5.0	"	"	"	"		"	
ChloroethaneND5.0"""	Chlorobenzene	ND	5.0	"	"	"	"		"	
ChloroformND5.0""" <t< td=""><td>Chloroethane</td><td>ND</td><td>5.0</td><td>"</td><td>"</td><td>"</td><td>"</td><td>"</td><td>"</td><td></td></t<>	Chloroethane	ND	5.0	"	"	"	"	"	"	
ChloromethaneND5.0""" <td>Chloroform</td> <td>ND</td> <td>5.0</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td></td> <td></td> <td></td>	Chloroform	ND	5.0	"	"	"	"			
2-ChlorotolueneND5.0""" </td <td>Chloromethane</td> <td>ND</td> <td>5.0</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td></td>	Chloromethane	ND	5.0	"	"	"	"	"	"	
4-ChlorotolueneND5.0""" </td <td>2-Chlorotoluene</td> <td>ND</td> <td>5.0</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td></td>	2-Chlorotoluene	ND	5.0	"	"	"	"	"	"	
DibromochloromethaneND5.0"" <t< td=""><td>4-Chlorotoluene</td><td>ND</td><td>5.0</td><td></td><td></td><td>"</td><td></td><td>"</td><td>"</td><td></td></t<>	4-Chlorotoluene	ND	5.0			"		"	"	
1,2-Dibromo-3-chloropropane ND 5.0 " <	Dibromochloromethane	ND	5.0			"		"	"	
1.2-Dibromoethane (ED)ND 5.0 "" </td <td>1,2-Dibromo-3-chloropropan</td> <td>e ND</td> <td>5.0</td> <td></td> <td></td> <td>"</td> <td></td> <td>"</td> <td>"</td> <td></td>	1,2-Dibromo-3-chloropropan	e ND	5.0			"		"	"	
Dibromomethane ND 5.0 " " " " " " " 1,2-Dichlorobenzene ND 5.0 " " " " " " 1,3-Dichlorobenzene ND 5.0 " " " " " " 1,4-Dichlorobenzene ND 5.0 " " " " " " Dichlorodifluoromethane ND 5.0 " " " " " " 1,1-Dichloroethane ND 5.0 " " " " " " 1,2-Dichloroethane ND 5.0 " " " " " " 1,1-Dichloroethane ND 5.0 " " " " " " 1,2-Dichloroethane ND 5.0 " " " " " " 1,1-Dichloroethene ND 5.0 " " " " " " 1,2-Dichloropropane ND 5.0 " " " " " " 1,3-Dichloropropane ND 5.0 " " " " " <t< td=""><td>1,2-Dibromoethane (EDB)</td><td>ND</td><td>5.0</td><td></td><td></td><td>"</td><td></td><td>"</td><td>"</td><td></td></t<>	1,2-Dibromoethane (EDB)	ND	5.0			"		"	"	
1,2-Dichlorobenzene ND 5.0 " <td>Dibromomethane</td> <td>ND</td> <td>5.0</td> <td></td> <td></td> <td>"</td> <td></td> <td>"</td> <td>"</td> <td></td>	Dibromomethane	ND	5.0			"		"	"	
1,3-Dichlorobenzene ND 5.0 " <td>1.2-Dichlorobenzene</td> <td>ND</td> <td>5.0</td> <td></td> <td></td> <td>"</td> <td></td> <td>"</td> <td>"</td> <td></td>	1.2-Dichlorobenzene	ND	5.0			"		"	"	
1.4-Dichlorobenzene ND 5.0 " <td>1.3-Dichlorobenzene</td> <td>ND</td> <td>5.0</td> <td></td> <td></td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td></td>	1.3-Dichlorobenzene	ND	5.0			"	"	"	"	
Dichlorodifluoromethane ND 5.0 " </td <td>1.4-Dichlorobenzene</td> <td>ND</td> <td>5.0</td> <td></td> <td></td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td></td>	1.4-Dichlorobenzene	ND	5.0			"	"	"	"	
1,1-DichloroethaneND 5.0 ""<	Dichlorodifluoromethane	ND	5.0	"		"		"	"	
1,2-DichloroothaneND5.0"" <th< td=""><td>1.1-Dichloroethane</td><td>ND</td><td>5.0</td><td></td><td></td><td>"</td><td>"</td><td>"</td><td>"</td><td></td></th<>	1.1-Dichloroethane	ND	5.0			"	"	"	"	
ND 5.0 "	1,2-Dichloroethane	ND	5.0	"		"		"	"	
cis-1,2-Dichloroethene ND 5.0 "<	1.1-Dichloroethene	ND	5.0	"		"		"	"	
International constraints ND 5.0 " <td< td=""><td>cis-1.2-Dichloroethene</td><td>ND</td><td>5.0</td><td></td><td></td><td>"</td><td>"</td><td>"</td><td>"</td><td></td></td<>	cis-1.2-Dichloroethene	ND	5.0			"	"	"	"	
ND 5.0 """"""""""""""""""""""""""""""""""""	trans-1.2-Dichloroethene	ND	5.0	"		"		"	"	
1,3-Dichloropropane ND 5.0 """"""""""""""""""""""""""""""""""""	1.2-Dichloropropane	ND	5.0	"		"		"	"	
2,2-Dichloropropane ND 5.0 " <td>1.3-Dichloropropane</td> <td>ND</td> <td>5.0</td> <td></td> <td></td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td></td>	1.3-Dichloropropane	ND	5.0			"	"	"	"	
1,1-Dichloropropene ND 5.0 " <td>2.2-Dichloropropane</td> <td>ND</td> <td>5.0</td> <td></td> <td></td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td></td>	2.2-Dichloropropane	ND	5.0			"	"	"	"	
ND5.0"""""trans-1,3-DichloropropeneND5.0""""""EthylbenzeneND5.0"""""""HexachlorobutadieneND5.0"""""""IsopropylbenzeneND5.0"""""""p-IsopropyltolueneND5.0"""""""Methylene chlorideND5.0"""""""Methyl tert-butyl etherND5.0"""""""	1.1-Dichloropropene	ND	5.0			"	"	"	"	
trans-1,3-DichloropropeneND5.0""""""EthylbenzeneND5.0""""""""HexachlorobutadieneND5.0""""""""IsopropylbenzeneND5.0""""""""p-IsopropyltolueneND5.0""""""""Methylene chlorideND5.0""""""""Methyl tert-butyl etherND5.0"""""""	cis-1.3-Dichloropropene	ND	5.0			"	"	"	"	
EthylbenzeneND5.0"""""HexachlorobutadieneND5.0"""""""IsopropylbenzeneND5.0""""""""p-IsopropyltolueneND5.0""""""""Methylene chlorideND5.0""""""""Methyl tert-butyl etherND5.0"""""""	trans-1.3-Dichloropropene	ND	5.0			"	"	"	"	
HexachlorobutadieneND5.0"""""IsopropylbenzeneND5.0"""""""p-IsopropyltolueneND5.0"""""""Methylene chlorideND5.0"""""""Methyl tert-butyl etherND5.0"""""""	Ethylbenzene	ND	5.0	"		"			"	
Isopropylbenzene ND 5.0 " " " " " " " " p-Isopropyltoluene ND 5.0 " " " " " " " " " Methylene chloride ND 5.0 " " " " " " " " " " " Methyl tert-butyl ether ND 5.0 " " " " " " " "	Hexachlorobutadiene	ND	5.0			"				
p-Isopropyltoluene ND 5.0 " " " " " " " " " Methylene chloride ND 5.0 " " " " " " " " " " " " " " " " " " "	Isopropylbenzene	ND	5.0		"	"				
Methylene chloride ND 5.0 " " " " Methyl tert-butyl ether ND 5.0 " " " " "	p-Isopropyltoluene	ND	5.0		"	"				
Methyl tert-butyl ether ND 5.0 " " " " " "	Methylene chloride	ND	5.0		"	"				
	Methyl tert-butyl ether	ND	5.0		"	"				



Chloroethane

Chloromethane

2-Chlorotoluene

4-Chlorotoluene

Dibromochloromethane

Chloroform

Mearns Consulting LLC 738 Ashland Avenue	Project: SF Project Number: [no	HPI-Amerigas onel	Reported:				
Santa Monica CA, 90405	Project Manager: Su	Isan Mearns	01/12/17 09:24				
Volatile Organic Compounds by EPA Method 8260B							
Sierra Analytical Labs, Inc.							

			-						
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB20-5 (1701054-25) Soil S	Sampled: 01/04/17 14:58	Received: 01/	04/17 16:	27					
Naphthalene	ND	5.0	µg/kg	1	B7A0572	01/05/17	01/06/17 09:0	3 EPA 8260B	
n-Propylbenzene	ND	5.0		"	"	"	"	"	
Styrene	ND	5.0		"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	5.0		"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	5.0		"	"	"	"	"	
Tetrachloroethene	ND	5.0		"	"	"	"	"	
Toluene	6.3	5.0		"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	5.0		"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	5.0		"	"	"	"	"	
1,1,1-Trichloroethane	ND	5.0		"	"	"	"	"	
1,1,2-Trichloroethane	ND	5.0		"	"	"	"	"	
Trichloroethene	ND	5.0		"	"	"	"	"	
Trichlorofluoromethane	ND	5.0		"	"	"	"	"	
1,2,3-Trichloropropane	ND	5.0		"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	5.0		"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	5.0	"	"	"	"			
Vinyl chloride	ND	5.0	"	"	"	"			
m,p-Xylene	ND	5.0	"	"	"	"			
o-Xylene	ND	5.0		"	"	"	"	"	
Surrogate: Dibromofluorome	thane	105 %	80-	120	"	"	"	"	
Surrogate: Toluene-d8		99.8 %	81-	117	"	"	"	"	
Surrogate: 4-Bromofluoroben	zene	106 %	74-	121	"	"	"	"	
SB20-10 (1701054-26) Soil	Sampled: 01/04/17 15:06	6 Received: 01	1/04/17 16	5:27					
Benzene	ND	3.6	ug/kg	1	B7A0572	01/05/17	01/06/17 09:0	3 EPA 8260B	
Bromobenzene	ND	3.6	"	"	"	"	"	"	
Bromochloromethane	ND	3.6		"	"	"	"	"	
Bromodichloromethane	ND	3.6		"	"	"	"	"	
Bromoform	ND	3.6		"	"	"	"		
Bromomethane	ND	3.6			"			"	
n-Butylbenzene	ND	3.6			"			"	
sec-Butylbenzene	ND	3.6		"	"				
tert-Butylbenzene	ND	3.6		"	"				
Carbon tetrachloride	ND	3.6		"	"				
Chlorobenzene	ND	3.6		"	"	"		"	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Mearns Consulting LLC 738 Ashland Avenue	Project: Project Number:	SHPI-Amerigas	Reported:
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24
	Volatile Organic Compour	nds by EPA Method 8260B	
	Sierra Analyt	ical Labs, Inc.	

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB20-10 (1701054-26) Soil	Sampled: 01/04/17 15:06	Received: 01	1/04/17 16	5:27					
1,2-Dibromo-3-chloropropan	e ND	3.6	µg/kg	1	B7A0572	01/05/17	01/06/17 09:0	3 EPA 8260B	
1,2-Dibromoethane (EDB)	ND	3.6	"	"	"	"	"	"	
Dibromomethane	ND	3.6	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	3.6	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	3.6	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	3.6	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	3.6		"	"	"	"	"	
1,1-Dichloroethane	ND	3.6	"		"	"	"	"	
1,2-Dichloroethane	ND	3.6	"		"	"	"	"	
1,1-Dichloroethene	ND	3.6	"		"	"	"	"	
cis-1,2-Dichloroethene	ND	3.6	"		"	"	"	"	
trans-1,2-Dichloroethene	ND	3.6	"		"	"	"	"	
1,2-Dichloropropane	ND	3.6	"		"	"	"	"	
1,3-Dichloropropane	ND	3.6			"	"	"	"	
2,2-Dichloropropane	ND	3.6			"	"	"	"	
1.1-Dichloropropene	ND	3.6	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	3.6		"	"	"	"	"	
trans-1,3-Dichloropropene	ND	3.6		"	"	"	"	"	
Ethylbenzene	ND	3.6	"		"	"	"	"	
Hexachlorobutadiene	ND	3.6	"		"	"	"	"	
Isopropylbenzene	ND	3.6	"		"	"	"	"	
p-Isopropyltoluene	ND	3.6			"	"	"	"	
Methylene chloride	ND	3.6			"	"	"	"	
Methyl tert-butyl ether	ND	3.6			"	"	"	"	
Naphthalene	ND	3.6			"	"	"	"	
n-Propylbenzene	ND	3.6			"	"	"	"	
Styrene	ND	3.6			"	"	"	"	
1.1.1.2-Tetrachloroethane	ND	3.6			"	"	"	"	
1.1.2.2-Tetrachloroethane	ND	3.6			"	"	"	"	
Tetrachloroethene	ND	3.6			"	"	"	"	
Toluene	ND	3.6			"	"	"	"	
1.2.3-Trichlorobenzene	ND	3.6			"	"	"	"	
1.2.4-Trichlorobenzene	ND	3.6			"	"	"	"	
1.1.1-Trichloroethane	ND	3.6			"	"	"	"	
1.1.2-Trichloroethane	ND	3.6			"	"	"	"	
Trichloroethene	ND	3.6			"		"	"	
Trichlorofluoromethane	ND	3.6		"	"				
1.2.3-Trichloropropane	ND	3.6		"	"			"	
1.2.4-Trimethylbenzene	ND	3.6			"			"	
1.3.5-Trimethylbenzene	ND	3.6			"			"	
Vinyl chloride	ND	3.6		"	"			"	
	T(B)	2.0							



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Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Pr Project Nur Project Mar	oject: SH mber: [no: nager: Sus	PI-Amer ne] an Mearn	igas s			Reporte 01/12/17 (d:)9:24
	Volatile Or	ganic Com	pounds	by EPA	Method	8260B			
		Sierra An	nalytical	Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB20-10 (1701054-26) Soil Sam	pled: 01/04/17 15:06	Received: 01	/04/17 16	:27					
m,p-Xylene o-Xylene	ND ND	3.6 3.6	µg/kg "	1 "	B7A0572 "	01/05/17	01/06/17 09:03	3 EPA 8260B "	
Surrogate: Dibromofluoromethane Surrogate: Toluene-d8		110 % 85.9 %	80 81	120 117	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.1 %	74	121	"	"	"	"	



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Pr Project Nu Project Mar	roject: SH mber: [no nager: Sus	PI-Amer ne] an Mearns	igas s			Reported 01/12/17 09	: 2:24
	Semivolatile O	rganic Co Sierra Au) mpoun alvtical	ds by El Labs I	PA Meth	od 82700	2		
		Poporting	iarytica	1 Labs, 1	nc.				
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB8-5 (1701054-01) Soil Sample	ed: 01/04/17 08:46 Red	ceived: 01/0	4/17 16:2'	7					
Acenaphthene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/06/17 16:3	8 EPA 8270C	
Acenaphthylene	ND	0.33	"	"	"	"		"	
Anthracene	ND	0.33	"	"	"	"		"	
Benzidine	ND	0.33	"	"	"	"		"	
Benzo (a) anthracene	ND	0.33	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.33	"	"	"	"		"	
Benzo (a) pyrene	ND	0.33	"	"	"	"		"	
Benzo (g,h,i) perylene	ND	0.33	"	"	"	"		"	
Benzyl alcohol	ND	0.33	"	"	"	"		"	
Bis(2-chloroethyl)ether	ND	0.33	"	"	"	"		"	
Bis(2-chloroethoxy)methane	ND	0.33	"	"	"	"		"	
Dis(2 athylhoxyl) phthalata	ND	0.22	"	"		"		"	

Denilo (ii) Huorunene	1.2	0.00							
Benzo (a) pyrene	ND	0.33	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	0.33	"	"	"	"	"	"	
Benzyl alcohol	ND	0.33	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.33	"	"	"		"	"	
Bis(2-chloroethoxy)methane	ND	0.33	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	0.33	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.33	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.33	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	0.33	"	"	"	"	"	"	
4-Chloroaniline	ND	0.33	"	"	"	"	"	"	
2-Chlorophenol	ND	0.33	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.33	"	"	"	"	"	"	
2-Chloronaphthalene	ND	0.33	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	0.33	"	"	"	"	"	"	
Chrysene	ND	0.33	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.33	"	"	"	"	"	"	
Dibenzofuran	ND	0.33	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.33	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.33	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.33	"	"	"	"	"	"	
3,3'-Dichlorobenzidine	ND	0.33	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	0.33	"	"	"	"	"	"	
Diethyl phthalate	ND	0.33	"	"	"	"	"	"	
2,4-Dimethylphenol	ND	0.33	"	"	"	"	"	"	
Dimethyl phthalate	ND	0.33	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	0.33	"	"	"	"	"	"	
2,4-Dinitrophenol	ND	0.33	"	"	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	0.33	"	"	"	"	"	"	
2,4-Dinitrotoluene	ND	0.33	"	"	"	"	"	"	
2,6-Dinitrotoluene	ND	0.33	"	"	"	"	"		
Di-n-octyl phthalate	ND	0.33	"	"	"	"	"		
1,2-Diphenylhydrazine	ND	0.33	"	"	"	"	"		
Fluoranthene	ND	0.33	"	"	"	"	"	"	
Fluorene	ND	0.33	"	"	"	"	"	"	



Mearns Consulting LLC		Pr	oject: SHP	I-Amer	igas						
738 Ashland Avenue		Project Number: [none]									
Santa Monica CA, 90405		Project Mar	nager: Susar	n Mearn	s			01/12/17 0	9:24		
	Semivolatile	e Organic Co	mpound	s by El	PA Meth	od 8270	С				
		Sierra Ar	nalytical l	Labs, I	nc.						
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes		
SB8-5 (1701054-01) Soil 5	Sampled: 01/04/17 08:46	Received: 01/0	4/17 16:27								
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/06/17 16:3	8 EPA 8270C			
Hexachlorobutadiene	ND	0.33	"		"	"	"	"			
Hexachlorocvclopentadiene	ND	0.33	"	"	"	"	"	"			
Hexachloroethane	ND	0.33	"	"	"	"	"	"			
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"	"	"			
Isophorone	ND	0.33	"	"	"	"	"	"			
2-Methylnaphthalene	ND	0.33	"	"	"	"	"	"			
2-Methylphenol	ND	0.33	"	"	"	"	"	"			
4-Methylphenol	ND	0.33	"	"	"	"	"	"			
Naphthalene	ND	0.33	"	"	"	"	"	"			
2-Nitroaniline	ND	0.33	"	"	"	"	"	"			
3-Nitroaniline	ND	0.33	"	"	"	"	"	"			
4-Nitroaniline	ND	0.33	"	"	"	"	"	"			
Nitrobenzene	ND	0.33	"	"	"	"	"	"			
2-Nitrophenol	ND	0.33	"	"	"	"	"	"			
4-Nitrophenol	ND	0.33	"	"	"	"	"	"			
N-Nitrosodimethylamine	ND	0.33	"	"	"	"	"	"			
Diphenylamine	ND	0.33	"	"	"	"	"	"			
N-Nitrosodi-n-propylamine	ND	0.33	"	"	"	"	"	"			
Pentachlorophenol	ND	0.33	"	"	"	"	"	"			
Phenanthrene	ND	0.33	"	"	"	"	"	"			
Phenol	ND	0.33	"	"	"	"	"	"			
Pyrene	ND	0.33	"	"	"	"	"	"			
1,2,4-Trichlorobenzene	ND	0.33	"	"	"	"	"	"			
2,4,5-Trichlorophenol	ND	0.33	"	"	"	"	"	"			
2,4,6-Trichlorophenol	ND	0.33	"	"	"	"	"	"			
Surrogate: 2-Fluorophenol		103 %	25-12	21	"	"	"	"			
Surrogate: Phenol-d6		90.6 %	24-11	3	"	"	"	"			
Surrogate: Nitrobenzene-d5		74.5 %	23-12	20	"	"	"	"			
Surrogate: 2-Fluorobipheny	l	105 %	30-11	5	"	"	"	"			
Surrogate: 2,4,6-Tribromop	henol	68.8 %	19-12	22	"	"	"	"			
Surrogate: Terphenyl-d14		112 %	18-13	37	"	"	"	"			



Mearns Consulting LLC 738 Ashland Avenue	Project: SHPI-Amerigas Project Number: [none]	Reported:
Santa Monica CA, 90405	Project Manager: Susan Mearns	01/12/17 09:24
	Semivolatile Organic Compounds by EPA Method 827	/0C

		Sierra Ar	nalytical	Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
SB8-10 (1701054-02) Soil	Sampled: 01/04/17 08:57	Received: 01/	04/17 16:2	27					
Acenaphthene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/06/17 17:18	3 EPA 8270C	
Acenaphthylene	ND	0.33	"	"	"				
Anthracene	ND	0.33	"	"	"		"	"	
Benzidine	ND	0.33	"	"	"		"	"	
Benzo (a) anthracene	ND	0.33		"	"			"	
Benzo (b) fluoranthene	ND	0.33		"	"	"		"	
Benzo (k) fluoranthene	ND	0.33	"	"	"				
Benzo (a) pyrene	ND	0.33	"	"	"				
Benzo (g,h,i) perylene	ND	0.33	"	"	"				
Benzyl alcohol	ND	0.33	"	"	"				
Bis(2-chloroethyl)ether	ND	0.33	"	"	"				
Bis(2-chloroethoxy)methane	ND	0.33	"	"	"				
Bis(2-ethylhexyl)phthalate	ND	0.33	"	"	"				
Bis(2-chloroisopropyl)ether	ND	0.33	"	"	"				
4-Bromophenyl phenyl ether	ND	0.33	"	"	"				
Butyl benzyl phthalate	ND	0.33		"	"		"	"	
4-Chloroaniline	ND	0.33		"	"		"	"	
2-Chlorophenol	ND	0.33		"	"		"	"	
4-Chloro-3-methylphenol	ND	0.33		"	"		"	"	
2-Chloronaphthalene	ND	0.33		"	"		"	"	
4-Chlorophenyl phenyl ether	· ND	0.33		"	"		"	"	
Chrysene	ND	0.33		"	"			"	
Dibenz (a.h) anthracene	ND	0.33		"	"			"	
Dibenzofuran	ND	0.33		"	"			"	
1.3-Dichlorobenzene	ND	0.33		"	"			"	
1.2-Dichlorobenzene	ND	0.33			"				
1 4-Dichlorobenzene	ND	0.33	"	"				"	
3.3´-Dichlorobenzidine	ND	0.33		"	"			"	
2.4-Dichlorophenol	ND	0.33		"	"			"	
Diethyl phthalate	ND	0.33		"	"			"	
2.4-Dimethylphenol	ND	0.33	"	"				"	
Dimethyl phthalate	ND	0.33	"	"				"	
Di-n-butyl phthalate	ND	0.33		"				"	
2 4-Dinitrophenol	ND	0.33		"				"	
4 6-Dinitro-2-methylphenol	ND	0.33		"				"	
2 4-Dinitrotoluene	ND	0.33		"				"	
2,4-Dinitrotoluene	ND	0.33		"				"	
Di-n-octyl nhthalate	ND	0.33		"					
1 2-Dinhenvlhydrazine		0.33		"					
Fluoranthene		0.33		"					
Fluorene		0.33		"					
	ND	0.55							



	Siomo Analyt	ical Laba Inc	
	Semivolatile Organic Compo	unds by FPA Method 8270C	
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24
738 Ashland Avenue	Project Number:	[none]	Reported:
Mearns Consulting LLC	Project:	SHPI-Amerigas	

		5.0							
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB8-10 (1701054-02) Soil	Sampled: 01/04/17 08:57	Received: 01/	04/17 16:2	27					
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/06/17 17:1	8 EPA 8270C	
Hexachlorobutadiene	ND	0.33	"	"	"	"		"	
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"		"	
Hexachloroethane	ND	0.33	"	"	"	"		"	
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"	"	"	
Isophorone	ND	0.33	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.33	"	"	"	"		"	
2-Methylphenol	ND	0.33	"	"	"	"		"	
4-Methylphenol	ND	0.33	"	"	"	"		"	
Naphthalene	ND	0.33	"	"	"	"		"	
2-Nitroaniline	ND	0.33	"	"	"	"		"	
3-Nitroaniline	ND	0.33	"	"	"	"		"	
4-Nitroaniline	ND	0.33	"	"	"	"		"	
Nitrobenzene	ND	0.33	"	"	"	"		"	
2-Nitrophenol	ND	0.33	"	"	"	"		"	
4-Nitrophenol	ND	0.33	"	"	"	"		"	
N-Nitrosodimethylamine	ND	0.33	"	"	"	"		"	
Diphenylamine	ND	0.33	"	"	"	"		"	
N-Nitrosodi-n-propylamine	ND	0.33	"	"	"	"		"	
Pentachlorophenol	ND	0.33	"	"	"	"		"	
Phenanthrene	ND	0.33	"	"	"	"		"	
Phenol	ND	0.33	"	"	"	"		"	
Pyrene	ND	0.33	"	"	"	"		"	
1,2,4-Trichlorobenzene	ND	0.33	"	"	"	"		"	
2,4,5-Trichlorophenol	ND	0.33	"	"	"	"		"	
2,4,6-Trichlorophenol	ND	0.33	"	"	"		"	"	
Surrogate: 2-Fluorophenol		112 %	25-	121	"	"	"	"	
Surrogate: Phenol-d6		79.4 %	24-	113	"	"	"	"	
Surrogate: Nitrobenzene-d5		68.2 %	23-	120	"	"	"	"	
Surrogate: 2-Fluorobipheny	ıl	103 %	30-	115	"	"	"	"	
Surrogate: 2,4,6-Tribromop	henol	69.4 %	19-	122	"	"	"	"	
Surrogate: Terphenyl-d14		130 %	18-	137	"	"	"	"	



Mearns Consulting LLC	Mearns Consulting LLC Project: SHPI-Americas									
738 Ashland Avenue		Project Nu	mber: [nor	ne]	0			Reported:		
Santa Monica CA, 90405		Project Ma	nager: Sus	an Mearns	5			01/12/17 09	9:24	
	Semivolatil	Semivolatile Organic Compounds by EPA Method 8270C								
	Semivolatio		mpound	13 Uy 121		00 0270				
		Sierra Ai	nalytical	Labs, I	nc.					
		Reporting								
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB9-5 (1701054-03) Soil	Sampled: 01/04/17 09:17	Received: 01/0	4/17 16:27	,						
Acenaphthene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/06/17 17:5	8 EPA 8270C		
Acenaphthylene	ND	0.33	"	"	"	"	"	"		
Anthracene	ND	0.33	"	"	"	"	"	"		
Benzidine	ND	0.33	"	"	"	"	"			
Benzo (a) anthracene	ND	0.33	"	"	"	"	"	"		
Benzo (b) fluoranthene	ND	0.33	"	"	"	"	"			
Benzo (k) fluoranthene	ND	0.33	"	"	"	"	"			
Benzo (a) pyrene	ND	0.33	"	"	"	"	"	"		
Benzo (g.h.i) pervlene	ND	0.33		"	"	"	"			
Benzvl alcohol	ND	0.33		"	"	"	"	"		
Bis(2-chloroethyl)ether	ND	0.33	"	"	"	"	"			
Bis(2-chloroethoxy)methan	e ND	0.33		"	"	"		"		
Bis(2-ethylbexyl)phthalate	ND	0.33		"	"	"		"		
Bis(2-chloroisopropyl)ether	ND	0.33		"	"	"	"			
4-Bromophenyl phenyl ethe	r ND	0.33		"	"	"	"			
Butyl benzyl phthalate	ND	0.33		"	"	"	"			
4-Chloroaniline	ND	0.33		"		"	"			
2-Chlorophenol	ND	0.33		"		"				
4-Chloro-3-methylphenol	ND	0.33		"		"				
2-Chloronanhthalene	ND	0.33		"		"		"		
4 Chlorophanyl phanyl atha	r ND	0.33		"	"	"				
Chrysone		0.33		"	"	"				
Dibanz (a b) anthracana	ND	0.33			"	"				
Dibenzofuren		0.33				"	"			
1.2 Dichlorohanzana		0.33				"	"			
1,3-Dichlorobenzene	ND	0.33				"				
1,2-Dichlorobenzene	ND	0.33				"				
1,4-Dichlorobenzene	ND	0.33				"				
3,3 -Dichlorobenzidine	ND	0.33				"				
2,4-Dichlorophenol	ND	0.33				"				
Dietnyl phthalate	ND	0.33								
2,4-DimetnyIpnenol	ND	0.33								
Dimetnyl phthalate	ND	0.33								
Di-n-butyl phthalate	ND	0.33								
2,4-Dinitrophenol	ND	0.33								
4,6-Dinitro-2-methylphenol	ND	0.33								
2,4-Dinitrotoluene	ND	0.33								
2,6-Dinitrotoluene	ND	0.33	"	"	"	"	"	"		
D1-n-octyl phthalate	ND	0.33	"	"	"	"	"	"		
1,2-Diphenylhydrazine	ND	0.33	"	"	"	"	"	"		
Fluoranthene	ND	0.33	"	"	"	"	"	"		
Fluorene	ND	0.33		"		"	"	"		



Mearns Consulting LLC 738 Ashland Avenue	Project: SHPI-Amerigas Project Number: [none]								Reported:	
Santa Monica CA, 90405		Project Mai	nager: Susa	n Mearns	5			01/12/17 0	9:24	
	Semivolatile O	rganic Co	ompound	s by El	PA Meth	od 8270	С			
		Sierra Ai	nalytical	Labs, I	nc.					
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB9-5 (1701054-03) Soil Sampled:	01/04/17 09:17 Re	ceived: 01/0	4/17 16:27							
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/06/17 17:5	8 EPA 8270C		
Hexachlorobutadiene	ND	0.33	"	"	"	"	"	"		
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"	"	"		
Hexachloroethane	ND	0.33	"	"	"	"	"	"		
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"	"	"		
Isophorone	ND	0.33	"	"	"	"	"	"		
2-Methylnaphthalene	ND	0.33	"	"	"	"	"	"		
2-Methylphenol	ND	0.33	"	"	"	"	"	"		
4-Methylphenol	ND	0.33	"	"	"	"	"	"		
Naphthalene	ND	0.33	"	"	"	"	"	"		
2-Nitroaniline	ND	0.33	"	"	"	"	"	"		
3-Nitroaniline	ND	0.33	"	"	"	"	"	"		
4-Nitroaniline	ND	0.33	"	"	"	"	"	"		
Nitrobenzene	ND	0.33	"	"	"	"	"	"		
2-Nitrophenol	ND	0.33	"	"	"	"	"	"		
4-Nitrophenol	ND	0.33	"	"	"	"	"	"		
N-Nitrosodimethylamine	ND	0.33	"	"	"	"	"	"		
Diphenylamine	ND	0.33	"	"	"	"	"	"		
N-Nitrosodi-n-propylamine	ND	0.33	"	"	"	"	"	"		
Pentachlorophenol	ND	0.33	"	"	"	"	"	"		
Phenanthrene	ND	0.33	"	"	"	"	"	"		
Phenol	ND	0.33	"	"	"	"	"	"		
Pyrene	ND	0.33	"	"	"	"	"	"		
1,2,4-Trichlorobenzene	ND	0.33	"	"	"	"	"	"		
2,4,5-Trichlorophenol	ND	0.33	"	"	"	"	"	"		
2,4,6-Trichlorophenol	ND	0.33	"	"	"	"	"	"		
Surrogate: 2-Fluorophenol		104 %	25-12	21	"	"	"	"		
Surrogate: Phenol-d6		89.2 %	24-1	13	"	"	"	"		
Surrogate: Nitrobenzene-d5		67.9 %	23-12	20	"	"	"	"		
Surrogate: 2-Fluorobiphenyl		103 %	30-1	15	"	"	"	"		
Surrogate: 2,4,6-Tribromophenol		75.2 %	19-12	22	"	"	"	"		
Surrogate: Terphenyl-d14		124 %	18-1.	37	"	"	"	"		



Mearns Consulting LLC 738 Ashland Avenue	Project: SF Project Number: [nc	HPI-Amerigas	Reported:						
Santa Monica CA, 90405	Project Manager: Su	san Mearns	01/12/17 09:24						
	Sierra Analytical Labs. Inc.								

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB9-10 (1701054-04) Soil	Sampled: 01/04/17 09:30	Received: 01	/04/17 16:2	27					
Acenaphthene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/06/17 18:3	8 EPA 8270C	
Acenaphthylene	ND	0.33	"	"	"	"	"	"	
Anthracene	ND	0.33	"	"	"	"	"	"	
Benzidine	ND	0.33	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.33	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.33	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	0.33	"	"	"	"	"	"	
Benzyl alcohol	ND	0.33	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.33	"	"	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	0.33	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	0.33	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.33	"	"	"	"	"	"	
4-Bromophenvl phenvl ether	r ND	0.33	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	0.33	"	"	"	"	"	"	
4-Chloroaniline	ND	0.33	"	"	"	"	"	"	
2-Chlorophenol	ND	0.33	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.33	"	"	"	"	"	"	
2-Chloronaphthalene	ND	0.33	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	r ND	0.33	"	"	"	"	"	"	
Chrysene	ND	0.33		"	"	"	"	"	
Dibenz (a h) anthracene	ND	0.33		"	"	"	"	"	
Dibenzofuran	ND	0.33		"	"	"	"	"	
1 3-Dichlorobenzene	ND	0.33	"	"	"	"	"	"	
1 2-Dichlorobenzene	ND	0.33		"	"	"	"	"	
1 4-Dichlorobenzene	ND	0.33		"	"	"	"	"	
3 3´-Dichlorobenzidine	ND	0.33		"	"	"	"	"	
2 4-Dichlorophenol	ND	0.33		"	"	"	"	"	
Diethyl phthalate	ND	0.33		"	"	"	"	"	
2 4-Dimethylphenol	ND	0.33		"	"	"	"	"	
Dimethyl phthalate	ND	0.33		"	"	"	"	"	
Di-n-butyl phthalate	ND	0.33		"	"	"	"	"	
2 4-Dinitrophenol	ND	0.33		"	"	"	"	"	
4.6 Dinitro 2 mathylphanol	ND	0.33		"	"	"			
2.4 Dinitrotoluone	ND	0.33		"	"	"			
2,4-Dinitrotoluono		0.33		"	"				
2,0-Dimuoloituelle Di n octul nothalata		0.33			"				
1.2 Diphonylhydrozino		0.35		"	"				
Fluorenthene		0.33			"				
Fluorancie	ND	0.33							
Fluorene	ND	0.33							



Mearns Consulting LLC 738 Ashland Avenue	Project: SHPI-Amerigas Project Number: [none]	Reported:							
Santa Monica CA, 90405	Project Manager: Susan Mearns	01/12/17 09:24							
	Semivolatile Organic Compounds by EPA Method 8270C								
	Sierra Analytical Labs, Inc.								

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB9-10 (1701054-04) Soil	Sampled: 01/04/17 09:30	Received: 01/	04/17 16:2	7					
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/06/17 18:3	8 EPA 8270C	
Hexachlorobutadiene	ND	0.33	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"	"	"	
Hexachloroethane	ND	0.33	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"	"	"	
Isophorone	ND	0.33	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.33	"	"	"	"	"	"	
2-Methylphenol	ND	0.33	"	"	"	"	"	"	
4-Methylphenol	ND	0.33	"	"	"	"	"	"	
Naphthalene	ND	0.33	"	"	"	"	"	"	
2-Nitroaniline	ND	0.33	"	"	"	"	"	"	
3-Nitroaniline	ND	0.33	"	"	"	"	"	"	
4-Nitroaniline	ND	0.33	"	"	"	"	"	"	
Nitrobenzene	ND	0.33	"	"	"	"	"	"	
2-Nitrophenol	ND	0.33	"	"	"	"	"	"	
4-Nitrophenol	ND	0.33	"	"	"	"	"	"	
N-Nitrosodimethylamine	ND	0.33	"	"	"	"	"	"	
Diphenylamine	ND	0.33	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.33	"	"	"	"	"	"	
Pentachlorophenol	ND	0.33	"	"	"	"	"	"	
Phenanthrene	ND	0.33	"	"	"	"	"	"	
Phenol	ND	0.33	"	"	"	"	"	"	
Pyrene	ND	0.33	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.33	"	"	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.33	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.33	"	"	"		"	"	
Surrogate: 2-Fluorophenol		108 %	25-1	21	"	"	"	"	
Surrogate: Phenol-d6		87.0 %	24-1	13	"	"	"	"	
Surrogate: Nitrobenzene-d5		66.1 %	23-1	20	"	"	"	"	
Surrogate: 2-Fluorobipheny	bl	97.0 %	30-1	15	"	"	"	"	
Surrogate: 2,4,6-Tribromop	henol	76.8 %	19-1	22	"	"	"	"	
Surrogate: Terphenyl-d14		116 %	18-1	37	"	"	"	"	



Mearns Consulting LLC 738 Ashland Avenue	Project: SHPI-Am Project Number: [none]	erigas Reported:						
Santa Monica CA, 90405	Project Manager: Susan Mea	ns 01/12/17 09:24						
	Semivolatile Organic Compounds by EPA Method 8270C							

	Sierra Analytical Labs, Inc.teReporting LimitUnitsDilutionBatchPreparedAnalyzedMethodNoteO-5 (1701054-05) SoilSampled: 01/04/17 09:48Received: 01/04/17 16:27taphtheneND0.33mg/kg1B7A095301/06/1701/06/17 19:19 EPA 8270CtaphtheneND0.33mg/kg1B7A095301/06/1701/06/17 19:19 EPA 8270CtaphtheneND0.33mg/kg1B7A095301/06/1701/06/1719:19 EPA 8270CtaphtheneND0.33mg/kgmg/kg1B7A095301/06/1719:19 EPA 8270CtaphtheneND0.33mg/kgmg/kg1B7A095301/06/1719:19 EPA 8270Ctao									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note	
SB10-5 (1701054-05) Soil	Sampled: 01/04/17 09:48	Received: 01/	04/17 16:2	27						
Acenaphthene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/06/17 19:19	9 EPA 8270C		
Acenaphthylene	ND	0.33	"	"	"	"	"	"		
Anthracene	ND	0.33	"	"	"	"	"	"		
Benzidine	ND	0.33	"	"	"	"	"	"		
Benzo (a) anthracene	ND	0.33	"	"	"	"	"	"		
Benzo (b) fluoranthene	ND	0.33	"	"	"	"				
Benzo (k) fluoranthene	ND	0.33	"	"	"		"	"		
Benzo (a) pyrene	ND	0.33	"	"	"	"		"		
Benzo (g,h,i) perylene	ND	0.33	"	"	"	"		"		
Benzyl alcohol	ND	0.33	"	"	"			"		
Bis(2-chloroethyl)ether	ND	0.33	"	"	"			"		
Bis(2-chloroethoxy)methane	ND	0.33	"	"	"		"			
Bis(2-ethylhexyl)phthalate	ND	0.33	"	"	"		"	"		
Bis(2-chloroisopropyl)ether	ND	0.33	"	"	"		"	"		
4-Bromophenyl phenyl ether	ND	0.33	"	"	"			"		
Butyl benzyl phthalate	ND	0.33	"	"	"		"	"		
4-Chloroaniline	ND	0.33	"	"	"		"	"		
2-Chlorophenol	ND	0.33	"	"	"		"	"		
4-Chloro-3-methylphenol	ND	0.33	"	"	"			"		
2-Chloronaphthalene	ND	0.33	"	"	"			"		
4-Chlorophenyl phenyl ethe	· ND	0.33	"	"	"			"		
Chrysene	ND	0.33	"	"				"		
Dibenz (a, h) anthracene	ND	0.33	"	"				"		
Dibenzofuran	ND	0.33	"		"					
1 3-Dichlorobenzene	ND	0.33	"	"				"		
1.2-Dichlorobenzene	ND	0.33	"							
1 4-Dichlorobenzene	ND	0.33	"	"						
3 3'-Dichlorobenzidine	ND	0.33	"	"						
2 4-Dichlorophenol	ND	0.33	"	"						
Diethyl phthalate	ND	0.33	"	"						
2 4-Dimethylphenol	ND	0.33	"	"				"		
Dimethyl phthalate	ND	0.33	"							
Di-n-butyl phthalate	ND	0.33	"	"				"		
2 4-Dinitrophenol	ND	0.33	"	"				"		
4.6 Dinitro 2 mathulphanal	ND	0.33	"							
2.4 Dinitrotoluono	ND	0.33	"	"						
2,4-Dimitrotoluene	ND	0.33								
2,0-Dimuoloidene	ND	0.33								
1.2 Dimbonylhydrogie	ND	0.33								
T,2-Dipnenyinyarazine	ND	0.33								
Fluorantnene	ND	0.53								
Fluorene	ND	0.33					"			



Mearns Consulting LLC	Project: SHF	PI-Amerigas						
738 Ashland Avenue	Project Number: [non	ne]	Reported:					
Santa Monica CA, 90405	Project Manager: Susa	an Mearns	01/12/17 09:24					
Semivolatile Organic Compounds by EPA Method 8270C								
Sierra Analytical Labs, Inc.								

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB10-5 (1701054-05) Soil	Sampled: 01/04/17 09:48	Received: 01/	04/17 16:2	.7					
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/06/17 19:1	9 EPA 8270C	
Hexachlorobutadiene	ND	0.33	"		"	"		"	
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"	"	"	
Hexachloroethane	ND	0.33	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"	"	"	
Isophorone	ND	0.33	"	"	"	"	"	"	
2-Methylnaphthalene	1.6	0.33	"	"	"	"	"	"	
2-Methylphenol	ND	0.33	"	"	"	"	"	"	
4-Methylphenol	ND	0.33	"	"	"	"	"	"	
Naphthalene	1.8	0.33	"	"	"	"	"	"	
2-Nitroaniline	ND	0.33	"	"	"	"	"	"	
3-Nitroaniline	ND	0.33	"	"	"	"	"	"	
4-Nitroaniline	ND	0.33	"	"	"	"	"	"	
Nitrobenzene	ND	0.33	"	"	"	"	"	"	
2-Nitrophenol	ND	0.33	"	"	"	"	"	"	
4-Nitrophenol	ND	0.33	"	"	"	"	"	"	
N-Nitrosodimethylamine	ND	0.33	"	"	"	"	"	"	
Diphenylamine	ND	0.33	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.33	"	"	"	"	"	"	
Pentachlorophenol	ND	0.33	"	"	"	"	"	"	
Phenanthrene	ND	0.33	"	"	"	"	"	"	
Phenol	ND	0.33	"	"	"		"	"	
Pyrene	ND	0.33	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.33	"	"	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.33	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.33	"		"	"		"	
Surrogate: 2-Fluorophenol		115 %	25-1	21	"	"	"	"	
Surrogate: Phenol-d6		92.8 %	24-1	13	"	"	"	"	
Surrogate: Nitrobenzene-d5		85.9 %	23-1	20	"	"	"	"	
Surrogate: 2-Fluorobipheny	ol –	97.6 %	30-1	15	"	"	"	"	
Surrogate: 2,4,6-Tribromop	henol	74.6 %	19-1	22	"	"	"	"	
Surrogate: Terphenyl-d14		125 %	18-1	37	"	"	"	"	



Mearns Consulting LLC 738 Ashland Avenue	Project: Project Number:	SHPI-Amerigas	Reported:						
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24						
	Semivolatile Organic Compounds by EPA Method 8270C								
Sierra Analytical Labs, Inc.									

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB10-10 (1701054-06) Soil Samp	oled: 01/04/17 10:07	Received: 01	1/04/17 16	:27					
Acenaphthene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/06/17 20:0	1 EPA 8270C	
Acenaphthylene	ND	0.33	"	"	"	"		"	
Anthracene	ND	0.33	"	"	"	"		"	
Benzidine	ND	0.33	"	"	"	"		"	
Benzo (a) anthracene	ND	0.33	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.33	"	"	"	"		"	
Benzo (k) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.33	"	"	"	"		"	
Benzo (g,h,i) perylene	ND	0.33	"	"	"	"		"	
Benzyl alcohol	ND	0.33	"	"	"	"		"	
Bis(2-chloroethyl)ether	ND	0.33	"	"	"	"		"	
Bis(2-chloroethoxy)methane	ND	0.33	"	"	"	"		"	
Bis(2-ethylhexyl)phthalate	ND	0.33	"	"	"			"	
Bis(2-chloroisopropyl)ether	ND	0.33	"	"	"			"	
4-Bromophenyl phenyl ether	ND	0.33	"	"	"			"	
Butyl benzyl phthalate	ND	0.33	"	"	"		"	"	
4-Chloroaniline	ND	0.33	"	"	"		"	"	
2-Chlorophenol	ND	0.33	"	"	"		"	"	
4-Chloro-3-methylphenol	ND	0.33	"	"	"		"	"	
2-Chloronaphthalene	ND	0.33	"	"	"		"	"	
4-Chlorophenyl phenyl ether	ND	0.33	"	"	"		"	"	
Chrysene	ND	0.33	"		"			"	
Dibenz (a,h) anthracene	ND	0.33	"		"			"	
Dibenzofuran	ND	0.33	"		"			"	
1,3-Dichlorobenzene	ND	0.33	"		"			"	
1,2-Dichlorobenzene	ND	0.33	"	"	"	"		"	
1.4-Dichlorobenzene	ND	0.33	"		"			"	
3.3 ⁻ Dichlorobenzidine	ND	0.33	"		"			"	
2.4-Dichlorophenol	ND	0.33	"		"			"	
Diethyl phthalate	ND	0.33	"	"	"		"	"	
2,4-Dimethylphenol	ND	0.33	"		"			"	
Dimethyl phthalate	ND	0.33	"		"			"	
Di-n-butyl phthalate	ND	0.33	"	"	"	"		"	
2,4-Dinitrophenol	ND	0.33	"		"			"	
4.6-Dinitro-2-methylphenol	ND	0.33	"		"			"	
2.4-Dinitrotoluene	ND	0.33	"		"			"	
2.6-Dinitrotoluene	ND	0.33	"	"	"	"		"	
Di-n-octyl phthalate	ND	0.33	"	"	"	"		"	
1.2-Diphenvlhvdrazine	ND	0.33	"	"	"	"		"	
Fluoranthene	ND	0.33		"				"	
Fluorene	ND	0.33	"	"		"		"	



Surrogate: 2-Fluorophenol

Surrogate: Nitrobenzene-d5

Surrogate: 2-Fluorobiphenyl

Surrogate: Terphenyl-d14

Surrogate: 2,4,6-Tribromophenol

Surrogate: Phenol-d6

Mearns Consulting LLC		Pr	oject: SH	IPI-Amer	igas				
738 Ashland Avenue		Project Nu	mber: [no	one]	-			Reported:	
Santa Monica CA, 90405		Project Mar	nager: Sus	san Mearns	5			01/12/17 09	9:24
	Semivolatile	Organic Co	mpoun	ds by El	PA Meth	od 82700	C		
		Sierra Ar	nalytical	l Labs, I	nc.				
		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB10-10 (1701054-06) Soil	Sampled: 01/04/17 10:07	Received: 01	/04/17 16	5:27					
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/06/17 20:01	1 EPA 8270C	
Hexachlorobutadiene	ND	0.33	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"	"	"	
Hexachloroethane	ND	0.33	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"	"	"	
Isophorone	ND	0.33	"	"	"	"		"	
2-Methylnaphthalene	1.6	0.33	"	"	"	"		"	
2-Methylphenol	ND	0.33	"	"	"	"	"	"	
4-Methylphenol	ND	0.33	"	"	"	"	"	"	
Naphthalene	1.9	0.33	"	"	"	"		"	
2-Nitroaniline	ND	0.33	"	"	"	"	"	"	
3-Nitroaniline	ND	0.33	"	"	"	"	"	"	
4-Nitroaniline	ND	0.33	"	"	"	"		"	
Nitrobenzene	ND	0.33	"	"	"	"	"	"	
2-Nitrophenol	ND	0.33	"	"	"	"		"	
4-Nitrophenol	ND	0.33	"	"	"	"	"	"	
N-Nitrosodimethylamine	ND	0.33	"	"	"	"	"	"	
Diphenylamine	ND	0.33	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.33	"	"	"	"	"	"	
Pentachlorophenol	ND	0.33	"	"	"	"	"	"	
Phenanthrene	ND	0.33	"	"	"	"		"	
Phenol	ND	0.33	"	"	"	"		"	
Pyrene	ND	0.33	"	"	"	"		"	
1,2,4-Trichlorobenzene	ND	0.33	"	"	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.33	"	"	"	"		"	
2,4,6-Trichlorophenol	ND	0.33	"	"	"	"		"	

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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

108 %

80.8 %

94.3 %

99.1 %

70.6 %

96.1 %

25-121

24-113

23-120

30-115

19-122

18-137



Mearns Consulting LLC	Project: SHPI-Amerigas	
738 Ashland Avenue	Project Number: [none]	Reported:
Santa Monica CA, 90405	Project Manager: Susan Mearns	01/12/17 09:24
S	emivolatile Organic Compounds by EPA Method 827	70C
	Sierra Analytical Labs, Inc.	

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB11-5 (1701054-07) Soil	Sampled: 01/04/17 10:11	Received: 01/	04/17 16:	27					
Acenaphthene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/06/17 20:42	2 EPA 8270C	
Acenaphthylene	ND	0.33	"	"	"	"	"	"	
Anthracene	ND	0.33	"	"	"	"	"	"	
Benzidine	ND	0.33	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.33	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.33	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	0.33	"	"	"	"	"	"	
Benzyl alcohol	ND	0.33	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.33	"	"	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	0.33	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	0.33	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.33	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.33	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	0.33	"	"	"	"	"	"	
4-Chloroaniline	ND	0.33	"	"	"	"		"	
2-Chlorophenol	ND	0.33	"	"	"	"		"	
4-Chloro-3-methylphenol	ND	0.33	"	"	"	"		"	
2-Chloronaphthalene	ND	0.33	"	"	"	"		"	
4-Chlorophenyl phenyl ether	ND	0.33	"	"	"	"	"	"	
Chrysene	ND	0.33	"	"	"	"		"	
Dibenz (a,h) anthracene	ND	0.33	"	"	"	"		"	
Dibenzofuran	ND	0.33	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.33	"	"	"	"		"	
1,2-Dichlorobenzene	ND	0.33	"	"	"	"		"	
1,4-Dichlorobenzene	ND	0.33	"	"	"	"		"	
3,3'-Dichlorobenzidine	ND	0.33	"	"	"	"		"	
2,4-Dichlorophenol	ND	0.33	"	"	"	"	"	"	
Diethyl phthalate	ND	0.33	"	"	"	"	"	"	
2,4-Dimethylphenol	ND	0.33	"	"	"	"		"	
Dimethyl phthalate	ND	0.33	"	"	"	"		"	
Di-n-butyl phthalate	ND	0.33	"	"	"	"		"	
2,4-Dinitrophenol	ND	0.33	"	"	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	0.33	"	"	"	"	"	"	
2,4-Dinitrotoluene	ND	0.33	"	"	"	"	"	"	
2,6-Dinitrotoluene	ND	0.33	"	"	"	"		"	
Di-n-octyl phthalate	ND	0.33	"	"	"	"		"	
1,2-Diphenylhydrazine	ND	0.33	"	"	"	"		"	
Fluoranthene	ND	0.33	"	"	"	"		"	
Fluorene	ND	0.33	"	"	"	"	"	"	



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Project Num Project Mana	ject: SH iber: [no iger: Su	IPI-Ameri one] san Mearns	gas			Reported 01/12/17 0	d: 19:24
Semivolatile Organic Compounds by EPA Method 8270C Sierra Analytical Labs, Inc.									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB11-5 (1701054-07) Soil	Sampled: 01/04/17 10:11	Received: 01/0	4/17 16:	:27					
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/06/17 20:42	2 EPA 8270C	

Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/06/17 20:4	2 EPA 8270C	
Hexachlorobutadiene	ND	0.33	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.33	"	"		"	"	"	
Hexachloroethane	ND	0.33	"	"		"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"		"	"	"	
Isophorone	ND	0.33	"	"		"	"	"	
2-Methylnaphthalene	ND	0.33	"	"	"	"	"	"	
2-Methylphenol	ND	0.33	"	"	"	"	"	"	
4-Methylphenol	ND	0.33	"	"	"	"	"	"	
Naphthalene	ND	0.33	"	"	"	"	"	"	
2-Nitroaniline	ND	0.33	"	"	"	"	"	"	
3-Nitroaniline	ND	0.33	"	"	"	"	"	"	
4-Nitroaniline	ND	0.33	"	"	"	"	"	"	
Nitrobenzene	ND	0.33	"	"	"	"	"	"	
2-Nitrophenol	ND	0.33	"	"	"	"	"	"	
4-Nitrophenol	ND	0.33	"	"	"	"	"	"	
N-Nitrosodimethylamine	ND	0.33	"	"	"	"	"	"	
Diphenylamine	ND	0.33	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.33	"	"	"	"	"	"	
Pentachlorophenol	ND	0.33	"	"	"	"	"	"	
Phenanthrene	ND	0.33	"	"	"	"	"	"	
Phenol	ND	0.33	"	"	"	"	"	"	
Pyrene	ND	0.33	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.33	"	"	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.33	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.33	"	"	"	"	"	"	
Surrogate: 2-Fluorophenol		85.4 %	25-1	21	"	"	"	"	
Surrogate: Phenol-d6		70.8 %	24-1	13	"	"	"	"	
Surrogate: Nitrobenzene-d5		68.5 %	23-1	20	"	"	"	"	
Surrogate: 2-Fluorobiphenyl		98.8 %	30-1	15	"	"	"	"	
Surrogate: 2,4,6-Tribromophenol		89.2 %	19-1	22	"	"	"	"	
Surrogate: Terphenyl-d14		93.7 %	18-1	37	"	"	"	"	
- • •									



Mearns Consulting LLC		Pre	oject: SE	[PI-Amerig	zas				
738 Ashland Avenue		Project Nur	nber: [nc	ne]	2			Reporte	d:
Santa Monica CA, 90405		Project Man	ager: Su	san Mearns				01/12/17 0	9:24
Semivolatile Organic Compounds by EPA Method 8270C									
		Sierra An	alytica	l Labs, In	ic.				
		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

SB11-10 (1701054-08) Soil	Sampled: 01/04/17 10:19	Received: 0	1/04/17 16:27	7					
Acenaphthene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/06/17 21:2	4 EPA 8270C	
Acenaphthylene	ND	0.33		"	"	"	"	"	
Anthracene	ND	0.33		"		"	"	"	
Benzidine	ND	0.33		"		"	"	"	
Benzo (a) anthracene	ND	0.33		"		"	"	"	
Benzo (b) fluoranthene	ND	0.33		"		"	"	"	
Benzo (k) fluoranthene	ND	0.33		"		"	"	"	
Benzo (a) pyrene	ND	0.33		"		"	"	"	
Benzo (g,h,i) perylene	ND	0.33	"	"		"	"	"	
Benzyl alcohol	ND	0.33		"		"	"	"	
Bis(2-chloroethyl)ether	ND	0.33		"		"	"	"	
Bis(2-chloroethoxy)methane	ND	0.33		"		"	"	"	
Bis(2-ethylhexyl)phthalate	ND	0.33		"		"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.33		"		"	"	"	
4-Bromophenyl phenyl ether	ND	0.33		"		"	"	"	
Butyl benzyl phthalate	ND	0.33		"		"	"	"	
4-Chloroaniline	ND	0.33		"		"	"	"	
2-Chlorophenol	ND	0.33		"		"	"	"	
4-Chloro-3-methylphenol	ND	0.33		"		"	"	"	
2-Chloronaphthalene	ND	0.33		"		"	"	"	
4-Chlorophenvl phenvl ether	ND	0.33		"		"	"	"	
Chrysene	ND	0.33		"		"	"	"	
Dibenz (a.h) anthracene	ND	0.33		"		"	"	"	
Dibenzofuran	ND	0.33		"		"	"	"	
1,3-Dichlorobenzene	ND	0.33		"		"	"	"	
1,2-Dichlorobenzene	ND	0.33		"		"	"	"	
1.4-Dichlorobenzene	ND	0.33		"		"	"	"	
3.3 ² -Dichlorobenzidine	ND	0.33		"		"	"	"	
2.4-Dichlorophenol	ND	0.33		"		"	"	"	
Diethyl phthalate	ND	0.33		"		"	"	"	
2.4-Dimethylphenol	ND	0.33		"		"	"	"	
Dimethyl phthalate	ND	0.33		"		"	"	"	
Di-n-butyl phthalate	ND	0.33		"		"	"	"	
2.4-Dinitrophenol	ND	0.33		"		"	"	"	
4 6-Dinitro-2-methylphenol	ND	0.33		"		"	"	"	
2 4-Dinitrotoluene	ND	0.33		"		"	"	"	
2 6-Dinitrotoluene	ND	0.33				"	"	"	
Di-n-octyl phthalate	ND	0.33		"		"		"	
1 2-Dinhenvlhvdrazine	ND	0.33				"		"	
Fluoranthene		0.33		"	"	"		"	
Fluorene		0.33			"	"		"	
	ND	0.55							



Surrogate: Phenol-d6

Surrogate: Nitrobenzene-d5

Surrogate: 2-Fluorobiphenyl

Surrogate: Terphenyl-d14

Surrogate: 2,4,6-Tribromophenol

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Mearns Consulting LLC		Pr	oject: SH	IPI-Ameri	igas						
738 Ashland Avenue		Project Number: [none]									
Santa Monica CA, 90405		Project Mar	nager: Su	san Mearns	5			01/12/17 09	9:24		
	Semivolatile	Organic Co	mpoun	ds by EI	PA Meth	od 8270	С				
		Sierra Ar	nalytica	l Labs, I	nc.						
Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes		
CD11 10 (1701054 09) Coll	Samala da 01/04/17 10.10	Dessional 01	04/17 14	2.07	Baten	Tiepareu	7 mary 200	Wiethou	Notes		
5B11-10 (1/01054-06) 50II	Sampled: 01/04/17 10:19	Received: 01	1/04/1/ 10):27							
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/06/17 21:2	4 EPA 8270C			
Hexachlorobutadiene	ND	0.33	"	"	"	"	"	"			
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"	"	"			
Hexachloroethane	ND	0.33	"	"	"	"	"	"			
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"	"	"			
Isophorone	ND	0.33	"	"	"	"	"				
2-Methylnaphthalene	ND	0.33		"	"	"	"	"			
2-Methylphenol	ND	0.33	"	"	"	"	"	"			
4-Methylphenol	ND	0.33	"	"	"	"	"	"			
Naphthalene	ND	0.33	"	"	"	"	"	"			
2-Nitroaniline	ND	0.33	"	"	"	"	"	"			
3-Nitroaniline	ND	0.33	"	"	"	"	"	"			
4-Nitroaniline	ND	0.33	"	"	"	"	"	"			
Nitrobenzene	ND	0.33	"	"	"	"	"	"			
2-Nitrophenol	ND	0.33	"	"	"	"	"	"			
4-Nitrophenol	ND	0.33	"	"	"	"	"	"			
N-Nitrosodimethylamine	ND	0.33	"	"	"	"	"	"			
Diphenylamine	ND	0.33	"	"	"	"	"	"			
N-Nitrosodi-n-propylamine	ND	0.33	"	"	"	"	"	"			
Pentachlorophenol	ND	0.33	"	"	"	"	"	"			
Phenanthrene	ND	0.33	"	"	"	"	"	"			
Phenol	ND	0.33		"	"	"	"	"			
Pyrene	ND	0.33		"	"	"	"	"			
1,2,4-Trichlorobenzene	ND	0.33	"	"	"	"	"				
2,4,5-Trichlorophenol	ND	0.33		"	"	"	"				
2,4,6-Trichlorophenol	ND	0.33		"	"	"	"	"			
Surrogate: 2-Fluorophenol		93.2 %	25-	121	"	"	"	"			

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24-113

23-120

30-115

19-122

18-137

77.8 %

68.8 %

99.4 %

106 %

110 %

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Mearns Consulting LLC 738 Ashland Avenue	Project: S Project Number: [r	SHPI-Amerigas	Reported:
Santa Monica CA, 90405	Project Manager: S	usan Mearns	01/12/17 09:24
	Semivolatile Organic Compou	nds by EPA Method 8270C	
	Sierra Analytic	al Labs. Inc.	

		bicita A	liarytica	Labs, 1	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
SB12-5 (1701054-09) Soil	Sampled: 01/04/17 10:48	Received: 01	/04/17 16:2	27					
Acenaphthene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/06/17 22:00	5 EPA 8270C	
Acenaphthylene	ND	0.33	"	"	"	"	"	"	
Anthracene	ND	0.33	"	"	"	"	"	"	
Benzidine	ND	0.33	"	"	"	"		"	
Benzo (a) anthracene	ND	0.33	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.33	"	"	"	"		"	
Benzo (a) pyrene	ND	0.33	"	"	"	"		"	
Benzo (g,h,i) perylene	ND	0.33	"	"	"	"		"	
Benzyl alcohol	ND	0.33		"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.33	"	"	"	"		"	
Bis(2-chloroethoxy)methane	ND	0.33	"	"	"	"		"	
Bis(2-ethylhexyl)phthalate	ND	0.33	"	"	"	"		"	
Bis(2-chloroisopropyl)ether	ND	0.33	"	"	"	"		"	
4-Bromophenvl phenvl ether	ND	0.33	"		"	"		"	
Butyl benzyl phthalate	ND	0.33	"		"	"		"	
4-Chloroaniline	ND	0.33	"		"	"		"	
2-Chlorophenol	ND	0.33	"		"	"		"	
4-Chloro-3-methylphenol	ND	0.33	"		"	"		"	
2-Chloronaphthalene	ND	0.33	"		"	"		"	
4-Chlorophenyl phenyl ether	· ND	0.33	"		"	"		"	
Chrysene	ND	0.33	"		"	"		"	
Dibenz (a,h) anthracene	ND	0.33	"		"	"		"	
Dibenzofuran	ND	0.33	"		"	"		"	
1.3-Dichlorobenzene	ND	0.33			"	"		"	
1.2-Dichlorobenzene	ND	0.33			"	"		"	
1 4-Dichlorobenzene	ND	0.33	"		"	"		"	
3.3'-Dichlorobenzidine	ND	0.33			"	"		"	
2 4-Dichlorophenol	ND	0.33			"	"		"	
Diethyl phthalate	ND	0.33	"		"	"		"	
2 4-Dimethylphenol	ND	0.33			"	"		"	
Dimethyl phthalate	ND	0.33			"	"		"	
Di-n-butyl phthalate	ND	0.33			"	"		"	
2 4-Dinitrophenol	ND	0.33			"	"		"	
4 6-Dinitro-2-methylphenol	ND	0.33			"	"		"	
2 4-Dinitrotoluene		0.33							
2, - Dinitrotoluene		0.33		"		"			
Di-n-octyl nhthalata		0.33		"		"			
1.2-Diphenylhydrazine		0.33		"		"			
Fluoranthene		0.33							
Fluoran		0.35		"		"		"	
Fluorene	ND	0.53							



Mearns Consulting LLC	Project	SHPI-Amerigas			
738 Ashland Avenue	Project Number	: [none]		Reported:	
Santa Monica CA, 90405	Project Manager	Susan Mearns		01/12/17 09:24	4
	Semivolatile Organic Comp	ounds by EPA Method 82	70C		
	Sierra Analy	tical Labs, Inc.			
Archie	Reporting	ite Diletion Detab Dece	and Analysis d	M-4h-1	Nataa

7 mary to	Rebuit	Linin	Onto	Dilution	Butch	riepuieu	7 mary 200	method	110105
SB12-5 (1701054-09) Soil	Sampled: 01/04/17 10:48	Received: 01/	/04/17 16:2	27					
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/06/17 22:06	5 EPA 8270C	
Hexachlorobutadiene	ND	0.33	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"	"	"	
Hexachloroethane	ND	0.33	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"	"	"	
Isophorone	ND	0.33	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.33	"	"	"	"	"	"	
2-Methylphenol	ND	0.33	"	"	"	"	"	"	
4-Methylphenol	ND	0.33	"	"	"	"	"	"	
Naphthalene	ND	0.33	"	"	"	"	"	"	
2-Nitroaniline	ND	0.33	"	"	"	"	"	"	
3-Nitroaniline	ND	0.33	"	"	"	"	"	"	
4-Nitroaniline	ND	0.33	"	"	"	"	"	"	
Nitrobenzene	ND	0.33	"	"	"	"	"	"	
2-Nitrophenol	ND	0.33	"	"	"	"	"	"	
4-Nitrophenol	ND	0.33	"	"	"	"	"	"	
N-Nitrosodimethylamine	ND	0.33	"	"	"	"	"	"	
Diphenylamine	ND	0.33	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.33	"	"	"	"	"	"	
Pentachlorophenol	ND	0.33	"	"	"	"	"	"	
Phenanthrene	ND	0.33	"	"	"	"	"	"	
Phenol	ND	0.33	"	"	"	"	"	"	
Pyrene	ND	0.33	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.33	"	"	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.33	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.33	"	"	"	"	"	"	
Surrogate: 2-Fluorophenol		105 %	25	121	"	"	"	"	
Surrogate: Phenol-d6		80.4 %	24	113	"	"	"	"	
Surrogate: Nitrobenzene-d5		72.1 %	23-	120	"	"	"	"	
Surrogate: 2-Fluorobipheny	l	100 %	30-1	115	"	"	"	"	
Surrogate: 2,4,6-Tribromoph	henol	79.0 %	19-1	122	"	"	"	"	
Surrogate: Terphenyl-d14		113 %	18-1	137	"	"	"	"	



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Projec Project Numbe Project Manager	t: SHPI-Amer r: [none] r: Susan Mearn	igas s			Reported 01/12/17 0	d: 19:24
	Semivolatile	Organic Comp Sierra Analy	pounds by E stical Labs, 1	PA Metl Inc.	nod 8270C			
Analyte	Result	Reporting Limit U	Inits Dilution	Batch	Prepared	Analyzed	Method	Notes
SB12-10 (1701054-10) Soil	Sampled: 01/04/17 10:55	Received: 01/04/	/17 16:27					

SD12-10 (1701054-10) S011	Sampled: 01/04/17 10:55	Received: 0	1/04/17 10:2	/					
Acenaphthene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/06/17 22:4	8 EPA 8270C	
Acenaphthylene	ND	0.33	"	"	"	"	"		
Anthracene	ND	0.33			"	"	"	"	
Benzidine	ND	0.33			"	"	"	"	
Benzo (a) anthracene	ND	0.33	"		"	"	"	"	
Benzo (b) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.33	"		"	"	"	"	
Benzo (a) pyrene	ND	0.33	"		"	"	"	"	
Benzo (g,h,i) perylene	ND	0.33	"		"	"	"	"	
Benzyl alcohol	ND	0.33	"		"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.33	"		"	"	"	"	
Bis(2-chloroethoxy)methane	ND	0.33	"		"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	0.33	"		"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.33	"		"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.33	"		"	"	"	"	
Butyl benzyl phthalate	ND	0.33			"	"	"	"	
4-Chloroaniline	ND	0.33	"	"	"	"	"	"	
2-Chlorophenol	ND	0.33	"		"	"	"	"	
4-Chloro-3-methylphenol	ND	0.33	"	"	"	"	"	"	
2-Chloronaphthalene	ND	0.33	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	0.33	"		"	"	"	"	
Chrysene	ND	0.33			"	"	"	"	
Dibenz (a,h) anthracene	ND	0.33			"	"	"	"	
Dibenzofuran	ND	0.33			"	"	"	"	
1,3-Dichlorobenzene	ND	0.33			"	"	"	"	
1,2-Dichlorobenzene	ND	0.33			"	"	"	"	
1,4-Dichlorobenzene	ND	0.33	"	"	"	"	"	"	
3,3'-Dichlorobenzidine	ND	0.33	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	0.33	"		"	"	"	"	
Diethyl phthalate	ND	0.33	"		"	"	"	"	
2,4-Dimethylphenol	ND	0.33			"	"	"	"	
Dimethyl phthalate	ND	0.33			"	"	"	"	
Di-n-butyl phthalate	ND	0.33			"	"	"	"	
2,4-Dinitrophenol	ND	0.33			"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	0.33	"	"	"	"	"		
2,4-Dinitrotoluene	ND	0.33			"	"	"	"	
2,6-Dinitrotoluene	ND	0.33	"		"	"	"	"	
Di-n-octyl phthalate	ND	0.33	"		"	"	"	"	
1,2-Diphenylhydrazine	ND	0.33	"	"	"	"	"	"	
Fluoranthene	ND	0.33	"	"	"	"	"	"	
Fluorene	ND	0.33	"	"	"	"	"	"	



2,4,5-Trichlorophenol

2,4,6-Trichlorophenol

Surrogate: Phenol-d6

Surrogate: 2-Fluorophenol

Surrogate: Nitrobenzene-d5

Surrogate: 2-Fluorobiphenyl

Surrogate: Terphenyl-d14

Surrogate: 2,4,6-Tribromophenol

Mearns Consulting LLC 738 Ashland Avenue		Project: SHPI-Amerigas Project Number: [none] Project Manager: Susan Mearns							Reported:		
Sama Monica CA, 90405	0 • 1 / 1								0.24		
	Semivolatile	Organic Co	ompoun	as by El	PA Meth	od 82700	C				
Sierra Analytical Labs, Inc.											
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes		
SB12-10 (1701054-10) Soil	Sampled: 01/04/17 10:55	Received: 01	1/04/17 16	5:27							
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/06/17 22:4	8 EPA 8270C			
Hexachlorobutadiene	ND	0.33	"	"	"	"	"	"			
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"	"	"			
Hexachloroethane	ND	0.33	"	"	"	"	"	"			
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"	"	"			
Isophorone	ND	0.33	"	"	"	"	"	"			
2-Methylnaphthalene	ND	0.33	"	"	"	"	"	"			
2-Methylphenol	ND	0.33	"	"	"	"	"	"			
4-Methylphenol	ND	0.33	"	"	"	"	"	"			
Naphthalene	ND	0.33	"	"	"	"	"	"			
2-Nitroaniline	ND	0.33	"	"	"	"	"	"			
3-Nitroaniline	ND	0.33	"	"	"	"	"	"			
4-Nitroaniline	ND	0.33	"	"	"	"	"	"			
Nitrobenzene	ND	0.33	"	"	"	"	"	"			
2-Nitrophenol	ND	0.33	"	"	"	"	"	"			
4-Nitrophenol	ND	0.33	"	"	"	"	"	"			
N-Nitrosodimethylamine	ND	0.33	"	"	"	"	"	"			
Diphenylamine	ND	0.33	"	"	"	"	"	"			
N-Nitrosodi-n-propylamine	ND	0.33	"	"	"	"	"	"			
Pentachlorophenol	ND	0.33	"	"	"	"	"	"			
Phenanthrene	ND	0.33	"	"	"	"	"	"			
Phenol	ND	0.33		"	"	"	"	"			
Pyrene	ND	0.33	"	"	"	"					
1,2,4-Trichlorobenzene	ND	0.33	"	"	"	"	"	"			

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25-121

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18-137

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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

ND

ND

0.33

0.33

96.0 %

75.2 %

71.5 %

103 %

80.2 %

126 %



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405	Semivolatile	Project Nur Project Mar Organic Co	oject: SH mber: [no nager: Su mpoun	IPI-Amer one] san Mearns ds by EI	igas 3 PA Meth	od 82700	<u> </u>	Reported : 01/12/17 09	:):24
		Sierra An	alytica	l Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB13-5 (1701054-11) Soil	Sampled: 01/04/17 11:18	Received: 01/	04/17 16:	27					
Acenaphthene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/06/17 23:30) EPA 8270C	
Acenaphthylene	ND	0.33		"	"	"	"	"	
Anthracene	ND	0.33	"	"	"	"		"	
Benzidine	ND	0.33	"	"	"	"		"	
Benzo (a) anthracene	ND	0.33	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.33	"	"	"	"		"	
Benzo (a) pyrene	ND	0.33	"	"	"	"		"	
Benzo (g,h,i) perylene	ND	0.33	"	"	"	"		"	
Benzyl alcohol	ND	0.33		"	"	"	"	"	

Benzo (b) fluoranthene	ND	0.33	"	"		"	"	"	
Benzo (k) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.33	"	"	"		"	"	
Benzo (g,h,i) perylene	ND	0.33	"	"		"	"	"	
Benzyl alcohol	ND	0.33	"	"		"	"	"	
Bis(2-chloroethyl)ether	ND	0.33	"	"	"		"	"	
Bis(2-chloroethoxy)methane	ND	0.33	"	"		"	"	"	
Bis(2-ethylhexyl)phthalate	ND	0.33	"	"		"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.33	"	"		"	"	"	
4-Bromophenyl phenyl ether	ND	0.33	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	0.33		"	"	"	"		
4-Chloroaniline	ND	0.33		"	"	"	"		
2-Chlorophenol	ND	0.33		"	"	"	"		
4-Chloro-3-methylphenol	ND	0.33		"	"	"	"		
2-Chloronaphthalene	ND	0.33		"	"	"	"		
4-Chlorophenyl phenyl ether	ND	0.33		"	"	"	"		
Chrysene	ND	0.33		"	"	"	"		
Dibenz (a,h) anthracene	ND	0.33		"	"	"	"		
Dibenzofuran	ND	0.33		"	"	"	"		
1,3-Dichlorobenzene	ND	0.33		"	"	"	"		
1,2-Dichlorobenzene	ND	0.33		"	"	"	"		
1,4-Dichlorobenzene	ND	0.33		"	"	"	"		
3,3'-Dichlorobenzidine	ND	0.33		"	"	"	"		
2,4-Dichlorophenol	ND	0.33		"	"	"	"		
Diethyl phthalate	ND	0.33	"	"	"	"	"	"	
2,4-Dimethylphenol	ND	0.33		"	"	"	"		
Dimethyl phthalate	ND	0.33		"	"	"	"		
Di-n-butyl phthalate	ND	0.33		"	"	"	"		
2,4-Dinitrophenol	ND	0.33		"	"	"	"		
4,6-Dinitro-2-methylphenol	ND	0.33		"	"	"	"		
2,4-Dinitrotoluene	ND	0.33		"	"	"	"		
2,6-Dinitrotoluene	ND	0.33		"	"	"	"		
Di-n-octyl phthalate	ND	0.33		"	"	"	"		
1,2-Diphenylhydrazine	ND	0.33		"	"	"	"		
Fluoranthene	ND	0.33	"	"	"	"	"		
Fluorene	ND	0.33		"	"	"	"		
Fluorene	ND	0.33	"	"	"	"	"	"	


Surrogate: Terphenyl-d14

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Mearns Consulting LLC		Pr	oject: SHP	I-Amer	igas					
738 Ashland Avenue		Project Nu	mber: [none]	•			Reported	Reported:	
Santa Monica CA, 90405		Project Mar	nager: Susar	n Mearn	s			01/12/17 09:24		
	Semivolatile	Organic Co	mpounds	s by El	PA Meth	od 82700	С			
		Sierra Ar	nalvtical I	Labs, I	nc.					
		Peporting	0	,						
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB13-5 (1701054-11) Soil	Sampled: 01/04/17 11:18	Received: 01/	04/17 16:27							
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/06/17 23:3	0 EPA 8270C		
Hexachlorobutadiene	ND	0.33	"		"	"	"			
Hexachlorocyclopentadiene	ND	0.33	"		"	"	"	"		
Hexachloroethane	ND	0.33	"		"	"	"			
Indeno (1.2.3-cd) pyrene	ND	0.33	"		"	"	"			
Isophorone	ND	0.33	"		"	"	"			
2-Methylnaphthalene	ND	0.33	"		"	"	"	"		
2-Methylphenol	ND	0.33	"		"	"	"	"		
4-Methylphenol	ND	0.33	"		"	"	"	"		
Naphthalene	ND	0.33	"		"	"	"	"		
2-Nitroaniline	ND	0.33	"		"	"	"	"		
3-Nitroaniline	ND	0.33	"		"	"	"			
4-Nitroaniline	ND	0.33	"		"	"	"			
Nitrobenzene	ND	0.33	"		"	"	"			
2-Nitrophenol	ND	0.33	"		"	"	"			
4-Nitrophenol	ND	0.33	"		"	"	"			
N-Nitrosodimethylamine	ND	0.33	"		"	"	"	"		
Diphenvlamine	ND	0.33	"		"	"	"	"		
N-Nitrosodi-n-propylamine	ND	0.33	"		"	"	"	"		
Pentachlorophenol	ND	0.33	"		"	"	"	"		
Phenanthrene	ND	0.33	"		"	"	"	"		
Phenol	ND	0.33	"		"	"	"			
Pvrene	ND	0.33	"		"	"	"	"		
1.2.4-Trichlorobenzene	ND	0.33	"		"	"	"	"		
2.4.5-Trichlorophenol	ND	0.33	"		"	"	"	"		
2,4,6-Trichlorophenol	ND	0.33	"	"	"	"	"	"		
Surrogate: 2-Fluorophenol		107 %	25-12	1	"	"	"	"		
Surrogate: Phenol-d6		81.0 %	24-11	3	"	"	"	"		
Surrogate: Nitrobenzene-d5		70.3 %	23-12	0	"	"	"	"		
Surrogate: 2-Fluorobiphenv	l	98.8 %	30-11	5	"	"	"	"		
Surrogate: 2,4,6-Tribromop	henol	77.8 %	19-12	2	"	"	"	"		

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

115 %

18-137

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Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405	LLCProject:SHPI-AmerigasleProject Number:[none]Reported:90405Project Manager:Susan Mearns01/12/17 09:24											
	Semivolatile (Organic Co	mpour	nds by El	PA Meth	od 82700	C					
		Sierra Ar	nalytica	l Labs, I	nc.							
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes			
SB13-10 (1701054-12) Soil	Sampled: 01/04/17 11:35	Received: 01	1/04/17 1	6:27								
Acenaphthene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/07/17 00:1	2 EPA 8270C				
Acenaphthylene	ND	0.33	"	"	"	"	"	"				
Anthracene	ND	0.33	"	"	"	"	"	"				
Benzidine	ND	0.33	"	"	"	"	"	"				
Benzo (a) anthracene	ND	0.33	"	"	"	"	"	"				
Benzo (b) fluoranthene	ND	0.33	"	"	"	"	"	"				
		0.00										

Acenaphtnene	ND	0.33	mg/kg	1	B/A0953	01/06/17	01/0//17 00:1	2 EPA 82/0C	
Acenaphthylene	ND	0.33	"	"	"	"	"	"	
Anthracene	ND	0.33	"	"	"	"	"	"	
Benzidine	ND	0.33	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.33	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.33	"		"	"	"	"	
Benzo (a) pyrene	ND	0.33	"		"	"	"	"	
Benzo (g,h,i) perylene	ND	0.33	"	"		"	"	"	
Benzyl alcohol	ND	0.33	"		"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.33	"	"	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	0.33	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	0.33	"		"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.33	"		"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.33	"		"	"	"	"	
Butyl benzyl phthalate	ND	0.33	"		"			"	
4-Chloroaniline	ND	0.33	"		"	"	"	"	
2-Chlorophenol	ND	0.33	"		"	"	"	"	
4-Chloro-3-methylphenol	ND	0.33	"		"	"	"	"	
2-Chloronaphthalene	ND	0.33	"		"	"	"	"	
4-Chlorophenyl phenyl ether	ND	0.33	"		"	"	"	"	
Chrysene	ND	0.33	"		"	"		"	
Dibenz (a.h) anthracene	ND	0.33	"		"	"		"	
Dibenzofuran	ND	0.33	"		"	"		"	
1.3-Dichlorobenzene	ND	0.33	"		"	"		"	
1.2-Dichlorobenzene	ND	0.33	"		"	"		"	
1.4-Dichlorobenzene	ND	0.33	"		"	"		"	
3.3'-Dichlorobenzidine	ND	0.33	"		"	"		"	
2.4-Dichlorophenol	ND	0.33	"		"	"		"	
Diethyl phthalate	ND	0.33	"		"			"	
2.4-Dimethylphenol	ND	0.33	"		"	"		"	
Dimethyl phthalate	ND	0.33	"		"	"		"	
Di-n-butyl phthalate	ND	0.33	"		"	"		"	
2.4-Dinitrophenol	ND	0.33	"		"	"		"	
4.6-Dinitro-2-methylphenol	ND	0.33	"		"	"		"	
2 4-Dinitrotoluene	ND	0.33	"		"			"	
2 6-Dinitrotoluene	ND	0.33	"		"			"	
Di-n-octyl phthalate	ND	0.33	"		"			"	
1 2-Dinhenvlhydrazine	ND	0.33	"		"			"	
Fluoranthene	ND	0.33	"		"			"	
Fluorene	ND	0.33	"		"			"	
	ND	0.55							



Surrogate: 2-Fluorobiphenyl

Surrogate: Terphenyl-d14

Surrogate: 2,4,6-Tribromophenol

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Mearns Consulting LLC		Pr	oject: SF	IPI-Amer	igas				
738 Ashland Avenue		Project Nu	mber: [nc	one]	C .			Reported	:
Santa Monica CA, 90405		Project Mar	nager: Su	san Mearn	8			01/12/17 0	9:24
	Semivolatile	Organic Co	mpoun	ds by El	PA Meth	od 8270	С		
		Sierra Ar	nalytica	l Labs, I	nc.				
		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB13-10 (1701054-12) Soil	Sampled: 01/04/17 11:35	Received: 01	/04/17 16	5:27					
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/07/17 00:1	2 EPA 8270C	
Hexachlorobutadiene	ND	0.33	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"	"	"	
Hexachloroethane	ND	0.33	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"	"	"	
Isophorone	ND	0.33	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.33	"	"	"	"	"	"	
2-Methylphenol	ND	0.33	"	"	"	"	"	"	
4-Methylphenol	ND	0.33	"	"	"	"	"	"	
Naphthalene	ND	0.33	"	"	"	"	"	"	
2-Nitroaniline	ND	0.33	"	"	"	"	"	"	
3-Nitroaniline	ND	0.33	"	"	"	"	"	"	
4-Nitroaniline	ND	0.33	"	"	"	"	"	"	
Nitrobenzene	ND	0.33	"	"	"	"	"	"	
2-Nitrophenol	ND	0.33	"	"	"	"	"	"	
4-Nitrophenol	ND	0.33	"	"	"	"	"	"	
N-Nitrosodimethylamine	ND	0.33		"	"	"	"	"	
Diphenylamine	ND	0.33		"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.33	"	"	"	"	"	"	
Pentachlorophenol	ND	0.33	"	"	"	"	"	"	
Phenanthrene	ND	0.33	"	"	"	"	"	"	
Phenol	ND	0.33		"	"	"	"	"	
Pyrene	ND	0.33		"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.33		"	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.33		"	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.33	"	"	"	"	"	"	
Surrogate: 2-Fluorophenol		101 %	25-	121	"	"	"	"	
Surrogate: Phenol-d6		78.0 %	24-	113	"	"	"	"	
Surrogate: Nitrobenzene-d5		72.1 %	23-	120	"	"	"	"	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

106 %

99.8 %

124 %

30-115

19-122

18-137

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Mearns Consulting LLC 738 Ashland Avenue	Project: Project Number:	SHPI-Amerigas	Reported:
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24
	Semivolatile Organic Compo	unds by EPA Method 82700	2
	Sierra Analyti	ical Labs, Inc.	

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB14-5 (1701054-13) Soil	Sampled: 01/04/17 11:58	Received: 01/	04/17 16:2	27					
Acenaphthene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/07/17 00:53	3 EPA 8270C	
Acenaphthylene	ND	0.33		"	"	"	"	"	
Anthracene	ND	0.33		"	"	"	"	"	
Benzidine	ND	0.33		"	"	"	"	"	
Benzo (a) anthracene	ND	0.33		"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.33		"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.33	"	"	"	"		"	
Benzo (a) pyrene	ND	0.33	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	0.33	"	"	"	"		"	
Benzyl alcohol	ND	0.33	"	"	"	"		"	
Bis(2-chloroethyl)ether	ND	0.33	"	"	"	"		"	
Bis(2-chloroethoxy)methane	ND	0.33	"	"	"	"		"	
Bis(2-ethylhexyl)phthalate	ND	0.33		"	"	"		"	
Bis(2-chloroisopropyl)ether	ND	0.33		"	"	"		"	
4-Bromophenyl phenyl ether	r ND	0.33		"	"	"		"	
Butyl benzyl phthalate	ND	0.33	"	"	"	"		"	
4-Chloroaniline	ND	0.33	"	"	"	"		"	
2-Chlorophenol	ND	0.33		"	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.33		"	"	"	"	"	
2-Chloronaphthalene	ND	0.33		"	"	"	"	"	
4-Chlorophenyl phenyl ether	r ND	0.33		"	"	"	"	"	
Chrysene	ND	0.33		"	"	"		"	
Dibenz (a,h) anthracene	ND	0.33		"	"	"		"	
Dibenzofuran	ND	0.33		"	"	"		"	
1.3-Dichlorobenzene	ND	0.33		"	"	"		"	
1.2-Dichlorobenzene	ND	0.33		"	"	"		"	
1 4-Dichlorobenzene	ND	0.33		"	"	"		"	
3 3'-Dichlorobenzidine	ND	0.33		"	"	"		"	
2 4-Dichlorophenol	ND	0.33		"	"	"		"	
Diethyl phthalate	ND	0.33		"	"	"		"	
2 4-Dimethylphenol	ND	0.33		"	"	"		"	
Dimethyl phthalate	ND	0.33		"	"	"		"	
Di-n-butyl phthalate	ND	0.33		"	"	"		"	
2 4-Dinitrophenol	ND	0.33		"	"	"		"	
4 6-Dinitro-2-methylphenol	ND	0.33			"	"		"	
2 4-Dinitrotoluene		0.33						"	
2,-Dinitrotoluene		0.33							
Di-n-octyl nhthalata		0.33							
1.2-Diphenvlhydrazine		0.33							
Fluoranthene		0.33							
Fluorance		0.35						"	
Fluorene	ND	0.55							



4-Nitrophenol

Diphenylamine

Phenanthrene

Phenol

Pyrene

Pentachlorophenol

1,2,4-Trichlorobenzene

2,4,5-Trichlorophenol

2,4,6-Trichlorophenol

Surrogate: Phenol-d6

Surrogate: 2-Fluorophenol

Surrogate: Nitrobenzene-d5

Surrogate: 2-Fluorobiphenyl

Surrogate: Terphenyl-d14

Surrogate: 2,4,6-Tribromophenol

N-Nitrosodimethylamine

N-Nitrosodi-n-propylamine

Mearns Consulting LLC		Pr	oject: SH	IPI-Ameri	igas			D (1				
738 Ashland Avenue		Project Nu	mber: [no	one				Reported	:			
Santa Monica CA, 90405		Project Mar	hager: Su	san Mearns	8			01/12/17 0):24			
	Semivolatile	Organic Co	mpoun	ds by EI	PA Meth	od 82700	2					
	Sierra Analytical Labs, Inc.											
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes			
SB14-5 (1701054-13) Soil	Sampled: 01/04/17 11:58	Received: 01/	04/17 16:	27								
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/07/17 00:53	EPA 8270C				
Hexachlorobutadiene	ND	0.33	"	"	"	"	"	"				
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"	"	"				
Hexachloroethane	ND	0.33	"	"	"	"	"	"				
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"	"	"				
Isophorone	ND	0.33	"	"	"	"	"	"				
2-Methylnaphthalene	ND	0.33	"	"	"	"	"	"				
2-Methylphenol	ND	0.33		"	"	"	"	"				
4-Methylphenol	ND	0.33		"	"	"	"	"				
Naphthalene	ND	0.33	"	"	"	"	"	"				
2-Nitroaniline	ND	0.33	"	"	"	"	"	"				
3-Nitroaniline	ND	0.33	"	"	"	"	"	"				
4-Nitroaniline	ND	0.33		"	"	"	"	"				
Nitrobenzene	ND	0.33	"	"	"	"	"	"				
2-Nitrophenol	ND	0.33	"		"		"	"				

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25-121

24-113

23-120

30-115

19-122

18-137

0.33

0.33

0.33

0.33

0.33

0.33

0.33

0.33

0.33

0.33

0.33

109 %

90.0 %

76.6 %

107 %

104 %

126 %

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Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405	Somivolatile	Pr Project Nu Project Mar	mber: SH mber: [no nager: Su	IPI-Amer one] san Mearns ds by FI	igas s PA Moth	od 82700	7	Reported 01/12/17 09	: 9:24
	Semivolatile	Sierra Aı	nalytica	l Labs, I	Inc.	0u 02700			
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB14-10 (1701054-14) Soil	Sampled: 01/04/17 12:10	Received: 01	1/04/17 16	5:27					
Acenaphthene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/07/17 01:3	5 EPA 8270C	
Acenaphthylene	ND	0.33	"	"	"	"	"	"	
Anthracene	ND	0.33	"	"	"	"	"	"	
Benzidine	ND	0.33	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.33	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.33	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	0.33		"	"	"	"	"	
Benzyl alcohol	ND	0.33		"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.33		"	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	0.33		"	"	"	"	"	
Bis(2-ethylbeyyl)phthalate	ND	0.33				"	"	"	

Benzo (g,h,i) perylene	ND	0.33	"		"		"	"	
Benzyl alcohol	ND	0.33	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.33	"	"	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	0.33	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	0.33	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.33	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.33	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	0.33	"	"	"	"	"	"	
4-Chloroaniline	ND	0.33	"	"	"	"	"	"	
2-Chlorophenol	ND	0.33	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.33	"	"	"	"	"	"	
2-Chloronaphthalene	ND	0.33	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	0.33	"	"	"	"	"	"	
Chrysene	ND	0.33	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.33	"	"	"	"	"	"	
Dibenzofuran	ND	0.33	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.33	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.33	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.33	"	"	"	"	"	"	
3,3'-Dichlorobenzidine	ND	0.33	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	0.33	"	"	"	"	"	"	
Diethyl phthalate	ND	0.33	"	"	"	"	"	"	
2,4-Dimethylphenol	ND	0.33	"	"	"	"	"	"	
Dimethyl phthalate	ND	0.33	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	0.33	"	"	"	"	"	"	
2,4-Dinitrophenol	ND	0.33	"	"	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	0.33	"	"	"	"	"	"	
2,4-Dinitrotoluene	ND	0.33	"	"	"	"	"	"	
2,6-Dinitrotoluene	ND	0.33	"	"	"	"	"	"	
Di-n-octyl phthalate	ND	0.33	"	"	"	"	"	"	
1,2-Diphenylhydrazine	ND	0.33	"	"	"	"	"	"	
Fluoranthene	ND	0.33	"	"	"	"	"	"	
Fluorene	ND	0.33	"	"	"	"	"	"	



Mearns Consulting LLC		Pr	oject: SH	PI-Ameri	igas					
738 Ashland Avenue		Project Nu	mber: [nor	ne]	C			Reported	Reported:	
Santa Monica CA, 90405		Project Mar	nager: Susa	an Mearns	5			01/12/17 0	9:24	
	Semivolatile (Organic Co	mpound	ls bv EI	PA Meth	od 82700	С			
	~	Sierra Ar	nalytical	Labs, I	nc.					
		Reporting	•	,-						
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB14-10 (1701054-14) Soil	Sampled: 01/04/17 12:10	Received: 01	/04/17 16:	:27						
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/07/17 01:3	5 EPA 8270C		
Hexachlorobutadiene	ND	0.33	"	"	"	"	"	"		
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"		"		
Hexachloroethane	ND	0.33	"	"	"	"		"		
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"		"		
Isophorone	ND	0.33	"	"	"	"		"		
2-Methylnaphthalene	ND	0.33	"	"	"	"		"		
2-Methylphenol	ND	0.33	"	"	"	"		"		
4-Methylphenol	ND	0.33	"	"	"	"		"		
Naphthalene	ND	0.33	"	"	"	"		"		
2-Nitroaniline	ND	0.33	"	"	"	"		"		
3-Nitroaniline	ND	0.33	"	"	"	"		"		
4-Nitroaniline	ND	0.33	"	"	"	"		"		
Nitrobenzene	ND	0.33	"	"	"	"		"		
2-Nitrophenol	ND	0.33	"	"	"	"		"		
4-Nitrophenol	ND	0.33	"	"	"	"		"		
N-Nitrosodimethylamine	ND	0.33	"	"	"	"		"		
Diphenylamine	ND	0.33	"	"	"	"		"		
N-Nitrosodi-n-propylamine	ND	0.33	"	"	"	"	"	"		
Pentachlorophenol	ND	0.33	"	"	"	"		"		
Phenanthrene	ND	0.33	"	"	"	"	"	"		
Phenol	ND	0.33	"	"	"	"		"		
Pyrene	ND	0.33	"	"	"	"		"		
1,2,4-Trichlorobenzene	ND	0.33	"	"	"	"		"		
2,4,5-Trichlorophenol	ND	0.33	"	"	"	"		"		
2,4,6-Trichlorophenol	ND	0.33	"	"	"	"	"	"		
Surrogate: 2-Fluorophenol		108 %	25-1	21	"	"	"	"		
Surrogate: Phenol-d6		82.4 %	24-1	13	"	"	"	"		
Surrogate: Nitrobenzene-d5		72.4 %	23-1	20	"	"	"	"		
Surrogate: 2-Fluorobiphenyl	!	102 %	30-1	15	"	"	"	"		
Surrogate: 2,4,6-Tribromoph	nenol	91.8 %	19-1	22	"	"	"	"		
Surrogate: Terphenyl-d14		116 %	18-1	37	"	"	"	"		



738 Ashland Avenue Santa Monica CA, 90405	Project Number: Project Manager:	[none] Susan Mearns	Reported: 01/12/17 09:24
	Semivolatile Organic Compo	unds by EPA Method 8270C	
	Sierra Analyti	ical Labs, Inc.	

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB17-5 (1701054-15) Soil	Sampled: 01/04/17 12:33	Received: 01/	04/17 16:	27					
Acenaphthene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/07/17 02:1	6 EPA 8270C	
Acenaphthylene	ND	0.33	"	"	"	"		"	
Anthracene	ND	0.33	"	"	"	"		"	
Benzidine	ND	0.33	"	"	"	"		"	
Benzo (a) anthracene	ND	0.33	"	"	"	"		"	
Benzo (b) fluoranthene	ND	0.33	"	"	"	"		"	
Benzo (k) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.33	"	"	"	"		"	
Benzo (g,h,i) perylene	ND	0.33	"	"	"	"		"	
Benzyl alcohol	ND	0.33	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.33	"	"	"	"		"	
Bis(2-chloroethoxy)methane	ND	0.33	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	0.33	"	"	"	"		"	
Bis(2-chloroisopropyl)ether	ND	0.33	"	"	"	"		"	
4-Bromophenyl phenyl ether	ND	0.33	"	"	"	"		"	
Butyl benzyl phthalate	ND	0.33	"	"	"	"		"	
4-Chloroaniline	ND	0.33	"	"	"	"	"	"	
2-Chlorophenol	ND	0.33	"	"	"	"		"	
4-Chloro-3-methylphenol	ND	0.33	"	"	"	"	"	"	
2-Chloronaphthalene	ND	0.33	"	"	"	"		"	
4-Chlorophenvl phenvl ether	ND	0.33	"	"	"	"		"	
Chrysene	ND	0.33	"		"	"		"	
Dibenz (a.h) anthracene	ND	0.33	"		"	"		"	
Dibenzofuran	ND	0.33	"		"	"		"	
1.3-Dichlorobenzene	ND	0.33	"		"	"		"	
1.2-Dichlorobenzene	ND	0.33	"		"	"		"	
1.4-Dichlorobenzene	ND	0.33		"	"	"		"	
3.3´-Dichlorobenzidine	ND	0.33		"	"	"	"	"	
2.4-Dichlorophenol	ND	0.33		"	"	"	"	"	
Diethyl phthalate	ND	0.33		"	"	"		"	
2.4-Dimethylphenol	ND	0.33	"			"		"	
Dimethyl phthalate	ND	0.33	"			"		"	
Di-n-butyl phthalate	ND	0.33	"			"		"	
2.4-Dinitrophenol	ND	0.33	"			"		"	
4 6-Dinitro-2-methylphenol	ND	0.33			"	"	"	"	
2 4-Dinitrotoluene	ND	0.33				"		"	
2.6-Dinitrotoluene	ND	0.33						"	
Di-n-octyl nhthalate		0.33						"	
1 2-Diphenylhydrazine		0.33							
Fluoranthene		0.33							
Fluorene	ND	0.33	"	"	"	"	"	"	



Mearns Consulting LLC	Project: SHPI-Amerigas											
738 Ashland Avenue	Project Number: [none]	Reported:										
Santa Monica CA, 90405	Project Manager: Susan Mearns	01/12/17 09:24										
Semivolatile Organic Compounds by EPA Method 8270C												
Sierra Analytical Labs, Inc.												
	Reporting											
Analyta	agult Limit Units Dilution Datah Dranarad	Analyzed Mathad No										

Anaryte	Kesut	Linit	Onits	Dilution	Daten	Tiepareu	Anaryzeu	Wiethou	Notes
SB17-5 (1701054-15) Soil	Sampled: 01/04/17 12:33	Received: 01/	04/17 16:	27					
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/07/17 02:10	5 EPA 8270C	
Hexachlorobutadiene	ND	0.33	"	"	"	"		"	
Hexachlorocyclopentadiene	ND	0.33		"	"	"	"	"	
Hexachloroethane	ND	0.33	"	"	"	"		"	
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"		"	
Isophorone	ND	0.33	"	"	"	"		"	
2-Methylnaphthalene	ND	0.33	"	"	"	"	"		
2-Methylphenol	ND	0.33	"	"	"	"	"		
4-Methylphenol	ND	0.33	"	"	"	"	"		
Naphthalene	ND	0.33	"	"	"	"	"		
2-Nitroaniline	ND	0.33	"	"	"	"	"		
3-Nitroaniline	ND	0.33	"	"	"	"	"		
4-Nitroaniline	ND	0.33		"	"	"	"		
Nitrobenzene	ND	0.33		"	"	"	"		
2-Nitrophenol	ND	0.33	"	"	"	"	"	"	
4-Nitrophenol	ND	0.33	"	"	"	"	"		
N-Nitrosodimethylamine	ND	0.33	"	"	"	"	"		
Diphenylamine	ND	0.33	"	"	"	"	"		
N-Nitrosodi-n-propylamine	ND	0.33	"	"	"	"	"		
Pentachlorophenol	ND	0.33	"	"	"	"	"	"	
Phenanthrene	ND	0.33	"	"	"	"	"	"	
Phenol	ND	0.33	"	"	"	"	"	"	
Pyrene	ND	0.33	"	"	"	"	"		
1,2,4-Trichlorobenzene	ND	0.33	"	"	"	"	"		
2,4,5-Trichlorophenol	ND	0.33	"	"	"	"	"		
2,4,6-Trichlorophenol	ND	0.33	"	"	"	"	"	"	
Surrogate: 2-Fluorophenol		95.4 %	25-	121	"	"	"	"	
Surrogate: Phenol-d6		82.8 %	24-	113	"	"	"	"	
Surrogate: Nitrobenzene-d5		70.9 %	23-	120	"	"	"	"	
Surrogate: 2-Fluorobipheny	l	99.7 %	30-	115	"	"	"	"	
Surrogate: 2,4,6-Tribromop	henol	82.6 %	19-	122	"	"	"	"	
Surrogate: Terphenyl-d14		114 %	18-	137	"	"	"	"	



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405	Mearns Consulting LLCProject:SHPI-AmerigasV38 Ashland AvenueProject Number:[none]Santa Monica CA, 90405Project Manager:Susan Mearns												
	Semivolatile Organic Compounds by EPA Method 8270C Sierra Analytical Labs, Inc.												
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes				
SB17-10 (1701054-16) Soil	Sampled: 01/04/17 12:40	Received: 01	1/04/17 10	6:27			-						
Acenaphthene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/07/17 02:58	8 EPA 8270C					
Acenaphthylene	ND	0.33	"	"	"	"	"	"					
Anthracene	ND	0.33	"	"	"	"	"	"					

Anthracene	ND	0.33	"	"		"		"
Benzidine	ND	0.33	"	"	"			"
Benzo (a) anthracene	ND	0.33	"	"	"			"
Benzo (b) fluoranthene	ND	0.33	"	"	"			"
Benzo (k) fluoranthene	ND	0.33	"	"	"	"		"
Benzo (a) pyrene	ND	0.33	"	"	"	"		"
Benzo (g,h,i) perylene	ND	0.33	"	"	"	"		"
Benzyl alcohol	ND	0.33	"	"	"	"		"
Bis(2-chloroethyl)ether	ND	0.33	"	"	"	"		"
Bis(2-chloroethoxy)methane	ND	0.33	"	"	"	"		"
Bis(2-ethylhexyl)phthalate	ND	0.33	"	"	"	"		"
Bis(2-chloroisopropyl)ether	ND	0.33	"	"	"	"		"
4-Bromophenyl phenyl ether	ND	0.33	"	"	"	"		"
Butyl benzyl phthalate	ND	0.33	"	"	"	"		"
4-Chloroaniline	ND	0.33	"	"	"	"		"
2-Chlorophenol	ND	0.33	"	"	"	"		"
4-Chloro-3-methylphenol	ND	0.33	"	"	"	"		"
2-Chloronaphthalene	ND	0.33	"	"	"	"		"
4-Chlorophenyl phenyl ether	ND	0.33	"	"	"	"		"
Chrysene	ND	0.33	"	"	"	"		"
Dibenz (a,h) anthracene	ND	0.33	"	"	"	"	"	"
Dibenzofuran	ND	0.33	"	"	"	"		"
1,3-Dichlorobenzene	ND	0.33	"	"	"	"		"
1,2-Dichlorobenzene	ND	0.33	"	"	"	"		"
1,4-Dichlorobenzene	ND	0.33	"	"	"	"		"
3,3'-Dichlorobenzidine	ND	0.33	"	"	"	"		"
2,4-Dichlorophenol	ND	0.33	"	"	"	"	"	"
Diethyl phthalate	ND	0.33	"	"	"	"	"	"
2,4-Dimethylphenol	ND	0.33	"	"	"	"	"	"
Dimethyl phthalate	ND	0.33	"	"	"	"	"	"
Di-n-butyl phthalate	ND	0.33	"	"	"	"		"
2,4-Dinitrophenol	ND	0.33	"	"	"	"		"
4,6-Dinitro-2-methylphenol	ND	0.33	"	"	"	"		"
2,4-Dinitrotoluene	ND	0.33	"	"	"	"		"
2,6-Dinitrotoluene	ND	0.33	"	"	"	"		"
Di-n-octyl phthalate	ND	0.33	"	"	"	"		"
1,2-Diphenylhydrazine	ND	0.33	"	"	"	"		"
Fluoranthene	ND	0.33	"	"	"	"	"	"
Fluorene	ND	0.33	"	"	"	"	"	"



Surrogate: 2,4,6-Tribromophenol

Surrogate: Terphenyl-d14

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Mearns Consulting LLC		Pr	oject: SH	PI-Amer	igas				
738 Ashland Avenue		Project Nu	mber: [no	ne]	-			Reported	:
Santa Monica CA, 90405		Project Mar	nager: Sus	an Mearns	5			01/12/17 09	9:24
	Semivolatile	Organic Co	mpoun	ds by El	PA Meth	od 8270	С		
		Sierra Ar	- nalytical	Labs, I	nc.				
		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB17-10 (1701054-16) Soil	Sampled: 01/04/17 12:40	Received: 01	/04/17 16	:27					
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/07/17 02:5	8 EPA 8270C	
Hexachlorobutadiene	ND	0.33	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"	"	"	
Hexachloroethane	ND	0.33	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"	"	"	
Isophorone	ND	0.33	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.33	"	"	"	"	"	"	
2-Methylphenol	ND	0.33	"	"	"	"	"	"	
4-Methylphenol	ND	0.33		"	"	"	"		
Naphthalene	ND	0.33		"	"	"	"		
2-Nitroaniline	ND	0.33		"	"	"	"		
3-Nitroaniline	ND	0.33	"	"	"	"	"	"	
4-Nitroaniline	ND	0.33	"	"	"	"	"	"	
Nitrobenzene	ND	0.33	"	"	"	"	"	"	
2-Nitrophenol	ND	0.33	"	"	"	"	"	"	
4-Nitrophenol	ND	0.33	"	"	"	"	"	"	
N-Nitrosodimethylamine	ND	0.33	"	"	"	"	"	"	
Diphenylamine	ND	0.33	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.33		"	"	"	"		
Pentachlorophenol	ND	0.33		"	"	"	"		
Phenanthrene	ND	0.33		"	"	"	"		
Phenol	ND	0.33		"	"	"	"	"	
Pvrene	ND	0.33		"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.33	"	"	"	"	"		
2,4,5-Trichlorophenol	ND	0.33		"	"	"	"		
2,4,6-Trichlorophenol	ND	0.33	"	"	"	"	"	"	
Surrogate: 2-Fluorophenol		95.2 %	25-	121	"	"	"	"	
Surrogate: Phenol-d6		76.0 %	24-	113	"	"	"	"	
Surrogate: Nitrobenzene-d5		64.6 %	23-	120	"	"	"	"	
Surrogate: 2-Fluorobiphenyl		92.5 %	30-	115	"	"	"	"	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

87.8 %

105 %

19-122

18-137

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Susan Means 01/12/17 07.24	r
unas dy EPA Methoa 82/0C	
)	unds by EPA Method 8270C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB15-5 (1701054-17) Soil	Sampled: 01/04/17 13:20	Received: 01/	/04/17 16:2	27					
Acenaphthene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/07/17 03:3	9 EPA 8270C	
Acenaphthylene	ND	0.33	"	"	"	"	"	"	
Anthracene	ND	0.33	"	"	"	"	"	"	
Benzidine	ND	0.33	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.33	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.33	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	0.33	"	"	"	"	"	"	
Benzyl alcohol	ND	0.33	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.33	"	"	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	0.33	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	0.33	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.33	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	· ND	0.33	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	0.33	"	"	"	"	"	"	
4-Chloroaniline	ND	0.33	"	"	"	"	"	"	
2-Chlorophenol	ND	0.33	"	"	"	"		"	
4-Chloro-3-methylphenol	ND	0.33	"	"	"	"		"	
2-Chloronaphthalene	ND	0.33	"	"	"	"		"	
4-Chlorophenyl phenyl ether	· ND	0.33			"	"	"	"	
Chrysene	ND	0.33	"	"	"	"		"	
Dibenz (a h) anthracene	ND	0.33	"		"	"	"	"	
Dibenzofuran	ND	0.33	"	"	"	"		"	
1 3-Dichlorobenzene	ND	0.33	"	"	"	"		"	
1.2-Dichlorobenzene	ND	0.33			"	"	"	"	
1.4-Dichlorobenzene	ND	0.33			"	"	"	"	
3 3′-Dichlorobenzidine	ND	0.33			"	"	"	"	
2.4 Dichlorophanol	ND	0.33	"	"	"	"			
Diethyl phthalate	ND	0.33	"	"	"	"			
2.4 Dimethylphonol	ND	0.33			"	"		"	
2,4-Dimensiphenoi	ND	0.33			"			"	
Di n butul phthalata	ND	0.33			"			"	
2.4 Dinitrophenol	ND	0.55			"			"	
2,4-Dimitrophenoi	ND	0.55			"			"	
4,6-Dinitro-2-methylphenol	ND	0.33							
2,4-Dinitrotoluene	ND	0.33							
2,0-Dinitrotoluene	ND	0.33							
Di-n-octyl phthalate	ND	0.33							
1,2-Diphenylhydrazine	ND	0.33							
Fluoranthene	ND	0.33							
Fluorene	ND	0.33	"	"	"	"	"	"	



Mearns Consulting LLC	Project: SHPI-A1	merigas									
738 Ashland Avenue	Project Number: [none]	Reported:									
Santa Monica CA, 90405	Project Manager: Susan Me	earns 01/12/17 09:24									
Semivolatile Organic Compounds by EPA Method 8270C											
	Sierra Analytical Lab	os, Inc.									
	Departing										

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB15-5 (1701054-17) Soil	Sampled: 01/04/17 13:20	Received: 01/	04/17 16:2	7					
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/07/17 03:3	9 EPA 8270C	
Hexachlorobutadiene	ND	0.33	"	"	"	"		"	
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"		"	
Hexachloroethane	ND	0.33	"	"	"	"		"	
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"		"	
Isophorone	ND	0.33	"	"	"	"		"	
2-Methylnaphthalene	ND	0.33	"	"	"	"		"	
2-Methylphenol	ND	0.33	"	"	"	"		"	
4-Methylphenol	ND	0.33	"	"	"	"		"	
Naphthalene	ND	0.33	"	"	"	"		"	
2-Nitroaniline	ND	0.33	"	"	"	"		"	
3-Nitroaniline	ND	0.33	"	"	"	"		"	
4-Nitroaniline	ND	0.33	"	"	"	"		"	
Nitrobenzene	ND	0.33	"	"	"	"		"	
2-Nitrophenol	ND	0.33	"	"	"	"		"	
4-Nitrophenol	ND	0.33	"	"	"	"		"	
N-Nitrosodimethylamine	ND	0.33	"	"	"	"		"	
Diphenylamine	ND	0.33	"	"	"	"		"	
N-Nitrosodi-n-propylamine	ND	0.33	"	"	"	"		"	
Pentachlorophenol	ND	0.33	"	"	"	"		"	
Phenanthrene	ND	0.33	"	"	"	"		"	
Phenol	ND	0.33	"	"	"	"		"	
Pyrene	ND	0.33	"	"	"	"		"	
1,2,4-Trichlorobenzene	ND	0.33	"	"	"	"		"	
2,4,5-Trichlorophenol	ND	0.33	"	"	"	"		"	
2,4,6-Trichlorophenol	ND	0.33	"	"	"	"	"	"	
Surrogate: 2-Fluorophenol		91.2 %	25-1	21	"	"	"	"	
Surrogate: Phenol-d6		79.4 %	24-1	13	"	"	"	"	
Surrogate: Nitrobenzene-d5		68.8 %	23-1	20	"	"	"	"	
Surrogate: 2-Fluorobipheny	l	99.4 %	30-1	15	"	"	"	"	
Surrogate: 2,4,6-Tribromop	henol	81.0 %	19-1	22	"	"	"	"	
Surrogate: Terphenyl-d14		113 %	18-1	37	"	"	"	"	



Mearns Consulting LLC	Project: SHPI-Americas									
738 Ashland Avenue	Project Number: [none]	Reported:								
Santa Monica CA, 90405	Project Manager: Susan Mearns	01/12/17 09:24								
Semivolatile Organic Compounds by EPA Method 8270C										
Sierra Analytical Labs, Inc.										

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB15-10 (1701054-18) Soil	Sampled: 01/04/17 13:28	Received: 01	/04/17 16	:27					
Acenaphthene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/07/17 04:2	1 EPA 8270C	
Acenaphthylene	ND	0.33	"	"	"	"		"	
Anthracene	ND	0.33	"	"	"	"		"	
Benzidine	ND	0.33	"	"	"	"		"	
Benzo (a) anthracene	ND	0.33	"	"	"	"		"	
Benzo (b) fluoranthene	ND	0.33	"	"	"	"		"	
Benzo (k) fluoranthene	ND	0.33	"	"	"			"	
Benzo (a) pyrene	ND	0.33	"	"	"			"	
Benzo (g,h,i) perylene	ND	0.33	"	"	"	"		"	
Benzyl alcohol	ND	0.33	"	"	"	"		"	
Bis(2-chloroethyl)ether	ND	0.33	"	"	"	"		"	
Bis(2-chloroethoxy)methane	ND	0.33	"	"	"	"		"	
Bis(2-ethylhexyl)phthalate	ND	0.33	"	"	"	"		"	
Bis(2-chloroisopropyl)ether	ND	0.33	"	"	"	"		"	
4-Bromophenyl phenyl ether	ND	0.33	"	"	"	"		"	
Butyl benzyl phthalate	ND	0.33	"	"	"			"	
4-Chloroaniline	ND	0.33	"	"	"			"	
2-Chlorophenol	ND	0.33	"	"	"			"	
4-Chloro-3-methylphenol	ND	0.33	"	"	"			"	
2-Chloronaphthalene	ND	0.33	"	"	"			"	
4-Chlorophenyl phenyl ether	ND	0.33	"	"	"	"		"	
Chrysene	ND	0.33	"	"	"	"		"	
Dibenz (a,h) anthracene	ND	0.33	"	"	"	"		"	
Dibenzofuran	ND	0.33	"	"	"	"		"	
1,3-Dichlorobenzene	ND	0.33	"	"	"	"		"	
1,2-Dichlorobenzene	ND	0.33	"	"	"	"		"	
1,4-Dichlorobenzene	ND	0.33	"	"	"	"		"	
3,3'-Dichlorobenzidine	ND	0.33	"	"	"	"		"	
2,4-Dichlorophenol	ND	0.33	"	"	"	"		"	
Diethyl phthalate	ND	0.33	"	"	"	"		"	
2,4-Dimethylphenol	ND	0.33	"	"	"			"	
Dimethyl phthalate	ND	0.33	"	"	"			"	
Di-n-butyl phthalate	ND	0.33	"	"	"			"	
2,4-Dinitrophenol	ND	0.33	"	"	"			"	
4,6-Dinitro-2-methylphenol	ND	0.33	"	"	"	"		"	
2,4-Dinitrotoluene	ND	0.33	"	"	"	"		"	
2,6-Dinitrotoluene	ND	0.33	"	"	"			"	
Di-n-octyl phthalate	ND	0.33	"	"	"			"	
1,2-Diphenylhydrazine	ND	0.33	"	"	"			"	
Fluoranthene	ND	0.33	"	"				"	
Fluorene	ND	0.33	"	"	"	"	"	"	



Surrogate: 2-Fluorobiphenyl

Surrogate: Terphenyl-d14

Surrogate: 2,4,6-Tribromophenol

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Mearns Consulting LLC		Pr	oject: SH	PI-Amer	igas				
738 Ashland Avenue		Project Nu	mber: [no	ne]	C			Reported	:
Santa Monica CA, 90405		Project Mar	nager: Sus	an Mearn	S			01/12/17 09	9:24
	Semivolatile	Organic Co	mpoun	ds bv El	PA Meth	od 8270	С		
		Sierra Ar	nalvtical	Labs. I	nc.				
		Deporting		,					
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB15-10 (1701054-18) Soil	Sampled: 01/04/17 13:28	Received: 01	/04/17 16	:27					
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/07/17 04:2	1 EPA 8270C	
Hexachlorobutadiene	ND	0.33	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"	"	"	
Hexachloroethane	ND	0.33	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"	"	"	
Isophorone	ND	0.33	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.33	"	"	"	"	"	"	
2-Methylphenol	ND	0.33	"	"	"	"	"	"	
4-Methylphenol	ND	0.33	"	"	"	"	"	"	
Naphthalene	ND	0.33	"	"	"	"	"	"	
2-Nitroaniline	ND	0.33	"	"	"	"	"	"	
3-Nitroaniline	ND	0.33	"	"	"	"	"	"	
4-Nitroaniline	ND	0.33	"	"	"	"	"	"	
Nitrobenzene	ND	0.33	"	"	"	"	"	"	
2-Nitrophenol	ND	0.33	"	"	"	"	"	"	
4-Nitrophenol	ND	0.33	"	"	"	"	"	"	
N-Nitrosodimethylamine	ND	0.33	"	"	"	"	"	"	
Diphenylamine	ND	0.33	"		"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.33	"	"	"	"	"	"	
Pentachlorophenol	ND	0.33	"	"	"	"	"	"	
Phenanthrene	ND	0.33	"	"	"	"	"	"	
Phenol	ND	0.33	"	"	"	"	"	"	
Pyrene	ND	0.33	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.33	"		"	"	"	"	
2,4,5-Trichlorophenol	ND	0.33	"		"	"	"	"	
2,4,6-Trichlorophenol	ND	0.33	"	"	"	"	"	"	
Surrogate: 2-Fluorophenol		106 %	25-	121	"	"	"	"	
Surrogate: Phenol-d6		87.6 %	24-	113	"	"	"	"	
Surrogate: Nitrobenzene-d5		76.9 %	23-	120	"	"	"	"	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

110 %

93.8 %

129 %

30-115

19-122

18-137

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Susan Means 01/12/17 07.24	r
unas dy EPA Methoa 82/0C	
)	unds by EPA Method 8270C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB16-5 (1701054-19) Soil	Sampled: 01/04/17 13:42	Received: 01/	/04/17 16:2	27					
Acenaphthene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/07/17 05:0	2 EPA 8270C	
Acenaphthylene	ND	0.33	"	"	"	"	"	"	
Anthracene	ND	0.33	"	"	"	"	"	"	
Benzidine	ND	0.33	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.33	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.33	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	0.33	"	"	"	"	"	"	
Benzyl alcohol	ND	0.33	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.33	"	"	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	0.33	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	0.33	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.33	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	r ND	0.33	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	0.33	"	"	"	"	"	"	
4-Chloroaniline	ND	0.33	"	"	"	"	"	"	
2-Chlorophenol	ND	0.33	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.33	"	"	"	"	"	"	
2-Chloronaphthalene	ND	0.33	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	r ND	0.33	"	"	"	"	"	"	
Chrysene	ND	0.33	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.33	"	"	"	"	"	"	
Dibenzofuran	ND	0.33	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.33	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.33	"	"	"	"	"	"	
1.4-Dichlorobenzene	ND	0.33	"	"	"	"	"	"	
3.3 ⁻ Dichlorobenzidine	ND	0.33	"	"	"	"	"	"	
2.4-Dichlorophenol	ND	0.33	"	"	"	"	"	"	
Diethyl phthalate	ND	0.33	"	"	"	"	"	"	
2.4-Dimethylphenol	ND	0.33	"	"	"	"	"	"	
Dimethyl phthalate	ND	0.33	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	0.33	"	"	"	"	"	"	
2.4-Dinitrophenol	ND	0.33	"	"	"	"	"	"	
4.6-Dinitro-2-methylphenol	ND	0.33	"	"	"	"	"	"	
2.4-Dinitrotoluene	ND	0.33	"	"	"	"	"	"	
2,6-Dinitrotoluene	ND	0.33	"	"	"	"	"	"	
Di-n-octyl phthalate	ND	0.33	"	"	"	"	"	"	
1,2-Diphenylhvdrazine	ND	0.33	"	"	"	"	"	"	
Fluoranthene	ND	0.33	"	"	"	"	"	"	
Fluorene	ND	0.33	"	"	"	"		"	



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Proje Project Numb Project Manag	ct: S] er: [n er: Su	HPI-Amerig one] 1san Mearns	gas			Report 01/12/17	ed: 09:24
	Semivolatile Organic Compounds by EPA Method 8270C Sierra Analytical Labs, Inc.								
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

SB16-5 (1701054-19) Soil	Sampled: 01/04/17 13:42	Received: 01	/04/17 16:27						
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/07/17 05:02	EPA 8270C	
Hexachlorobutadiene	ND	0.33		"	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.33		"	"	"	"	"	
Hexachloroethane	ND	0.33		"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.33		"	"	"	"	"	
Isophorone	ND	0.33		"	"	"	"	"	
2-Methylnaphthalene	ND	0.33		"	"	"	"	"	
2-Methylphenol	ND	0.33		"	"	"	"	"	
4-Methylphenol	ND	0.33		"	"	"	"	"	
Naphthalene	ND	0.33		"	"	"	"	"	
2-Nitroaniline	ND	0.33		"	"	"	"	"	
3-Nitroaniline	ND	0.33		"	"	"	"	"	
4-Nitroaniline	ND	0.33		"	"	"	"	"	
Nitrobenzene	ND	0.33		"	"	"	"	"	
2-Nitrophenol	ND	0.33		"	"	"	"	"	
4-Nitrophenol	ND	0.33		"	"	"	"	"	
N-Nitrosodimethylamine	ND	0.33		"	"	"	"	"	
Diphenylamine	ND	0.33		"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.33		"	"	"	"	"	
Pentachlorophenol	ND	0.33		"	"	"	"	"	
Phenanthrene	ND	0.33		"	"	"	"	"	
Phenol	ND	0.33	"		"	"	"	"	
Pyrene	ND	0.33	"		"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.33	"		"	"	"	"	
2,4,5-Trichlorophenol	ND	0.33	"		"	"	"	"	
2,4,6-Trichlorophenol	ND	0.33	"	"	"		"	"	
Surrogate: 2-Fluorophenol		102 %	25-121	!	"	"	"	"	
Surrogate: Phenol-d6		78.8 %	24-113	}	"	"	"	"	
Surrogate: Nitrobenzene-d5		70.9 %	23-120)	"	"	"	"	
Surrogate: 2-Fluorobipheny	l	98.5 %	30-115	5	"	"	"	"	
Surrogate: 2,4,6-Tribromop	henol	95.0 %	19-122	2	"	"	"	"	
Surrogate: Terphenyl-d14		110 %	18-137	7	"	"	"	"	



Mearns Consulting LLC	Project: SF	IPI-Amerigas	Derectede
738 Ashland Avenue	Project Number: [no	one	Keportea:
Santa Monica CA, 90405	Project Manager: Su	san Mearns	01/12/17 09:24
	Semivolatile Organic Compoun	ds by EPA Method 8270C	
	Sierra Analytica	l Labs, Inc.	

Bite-10 (1701054-20) Soil Sampled: 01/04/17 13:48 Received: 01/04/17 16:27 Acenaphtlylene ND 0.33 $ngkg$ 1 $P7A0953$ 01/07/17 05:44 EPA 8270C Acenaphtlylene ND 0.33 - - - - Anthracene ND 0.33 - - - - Benzo (a) anhracene ND 0.33 - - - - Benzo (a) anhracene ND 0.33 - - - - Benzo (a) funcamhene ND 0.33 - - - - Benzo (a) pyrene ND 0.33 - - - - Benzo (a) pyrene ND 0.33 - - - - Benzo (a) anoporthyliphthilate ND 0.33 - - - - Benzo (a) anoporthyliphthilate ND 0.33 - - - - Benzo (a) anoporthyliphthilate ND 0.33 -	Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Accamphine ND 0.33 mg/kg I B7A0953 0100/17 0107/17 05.44 EPA 8270C Accamphinylene ND 0.33 - 0.0000 0.0000 -	SB16-10 (1701054-20) Soil	Sampled: 01/04/17 13:48	Received: 01	/04/17 16	:27					
AcenaphilyleneND0.33AnthraceneND0.33Benzo (a) andhraceneND0.33Benzo (a) funorantheneND0.33Benzo (b) funorantheneND0.33Benzo (b) funorantheneND0.33Benzo (b) prefereND0.33Benzo (b) prefereND0.33Benzo (b) prefereND0.33Bis/2-chloroethoxylmethaneND0.33Bis/2-chloroethoxylmethaneND0.33Bis/2-chloroethoxylmethaneND0.33Bis/2-chloroethoxylmethaneND0.33 <t< td=""><td>Acenaphthene</td><td>ND</td><td>0.33</td><td>mg/kg</td><td>1</td><td>B7A0953</td><td>01/06/17</td><td>01/07/17 05:44</td><td>4 EPA 8270C</td><td></td></t<>	Acenaphthene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/07/17 05:44	4 EPA 8270C	
AnthraceneND0.33"""<	Acenaphthylene	ND	0.33	"	"	"	"	"	"	
Benzio (a) anthraceneND0.33""	Anthracene	ND	0.33	"		"	"	"	"	
Benzo (a) anthraceneND0.33-'<	Benzidine	ND	0.33	"	"	"	"	"	"	
Benzo (b) fluorantheneND0.33"" <td>Benzo (a) anthracene</td> <td>ND</td> <td>0.33</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td></td>	Benzo (a) anthracene	ND	0.33	"	"	"	"	"	"	
Benzo (a) fuorantheneND0.33""	Benzo (b) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (a) pyreneND0.33"""	Benzo (k) fluoranthene	ND	0.33	"		"	"	"	"	
Benzo (gh.i) peryleneND0.33""	Benzo (a) pyrene	ND	0.33	"	"	"	"	"	"	
Benzy lackoholND0.33""" </td <td>Benzo (g,h,i) perylene</td> <td>ND</td> <td>0.33</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td></td>	Benzo (g,h,i) perylene	ND	0.33	"	"	"	"	"	"	
Bis2-chloroethylpheherND0.33"" <td>Benzyl alcohol</td> <td>ND</td> <td>0.33</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td></td>	Benzyl alcohol	ND	0.33	"	"	"	"	"	"	
Bis(2-chloroethoxy)methaneND0.33""	Bis(2-chloroethyl)ether	ND	0.33	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalateND0.33""	Bis(2-chloroethoxy)methane	ND	0.33	"	"	"	"		"	
Bis/2-chloroisopropyletterND0.33""	Bis(2-ethylhexyl)phthalate	ND	0.33	"	"	"	"		"	
4-Bromophenyl phenyl ether ND 0.33 " <	Bis(2-chloroisopropyl)ether	ND	0.33	"	"	"	"		"	
Butyl benzyl phthalate ND 0.33 " </td <td>4-Bromophenyl phenyl ether</td> <td>ND</td> <td>0.33</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td></td> <td>"</td> <td></td>	4-Bromophenyl phenyl ether	ND	0.33	"	"	"	"		"	
4-Chloroaniline ND 0.33 "	Butyl benzyl phthalate	ND	0.33	"		"	"	"	"	
2-ChlorophenolND0.33""" </td <td>4-Chloroaniline</td> <td>ND</td> <td>0.33</td> <td>"</td> <td></td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td></td>	4-Chloroaniline	ND	0.33	"		"	"	"	"	
4-Chloro-3-methylphenolND 0.33 ""	2-Chlorophenol	ND	0.33	"		"	"	"	"	
2-ChloronaphthaleeND 0.33 ""	4-Chloro-3-methylphenol	ND	0.33	"	"	"	"		"	
4-Chlorophenyl phenyl etherND 0.33 """<	2-Chloronaphthalene	ND	0.33	"	"	"	"		"	
Chrysene ND 0.33 " <t< td=""><td>4-Chlorophenyl phenyl ether</td><td>ND</td><td>0.33</td><td>"</td><td></td><td>"</td><td>"</td><td>"</td><td>"</td><td></td></t<>	4-Chlorophenyl phenyl ether	ND	0.33	"		"	"	"	"	
Diberz (a,h) anthracene ND 0.33 "	Chrysene	ND	0.33	"		"	"	"	"	
Dibenzoftran ND 0.33 "	Dibenz (a,h) anthracene	ND	0.33	"		"	"	"	"	
1,3-Dichlorobenzene ND 0.33 " <td>Dibenzofuran</td> <td>ND</td> <td>0.33</td> <td>"</td> <td></td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td></td>	Dibenzofuran	ND	0.33	"		"	"	"	"	
1,2-DichlorobenzeneND0.33"" <t< td=""><td>1,3-Dichlorobenzene</td><td>ND</td><td>0.33</td><td>"</td><td></td><td>"</td><td>"</td><td>"</td><td>"</td><td></td></t<>	1,3-Dichlorobenzene	ND	0.33	"		"	"	"	"	
1.4-DichlorobenzeneND0.33"" <t< td=""><td>1,2-Dichlorobenzene</td><td>ND</td><td>0.33</td><td>"</td><td></td><td>"</td><td>"</td><td>"</td><td>"</td><td></td></t<>	1,2-Dichlorobenzene	ND	0.33	"		"	"	"	"	
3,3'-Dichlorobenzidine ND 0.33 "	1.4-Dichlorobenzene	ND	0.33	"		"	"	"	"	
2,4-Dichlorophenol ND 0.33 """"""""""""""""""""""""""""""""""""	3.3'-Dichlorobenzidine	ND	0.33	"		"	"	"	"	
Diethyl phthalate ND 0.33 "	2,4-Dichlorophenol	ND	0.33	"		"	"	"	"	
2,4-Dinethylphenol ND 0.33 " <td>Diethyl phthalate</td> <td>ND</td> <td>0.33</td> <td>"</td> <td></td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td></td>	Diethyl phthalate	ND	0.33	"		"	"	"	"	
Dimethyl phthalate ND 0.33 " <td>2.4-Dimethylphenol</td> <td>ND</td> <td>0.33</td> <td>"</td> <td></td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td></td>	2.4-Dimethylphenol	ND	0.33	"		"	"	"	"	
Di-n-butyl phthalate ND 0.33 " </td <td>Dimethyl phthalate</td> <td>ND</td> <td>0.33</td> <td>"</td> <td></td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td></td>	Dimethyl phthalate	ND	0.33	"		"	"	"	"	
2,4-Dinitrophenol ND 0.33 "	Di-n-butyl phthalate	ND	0.33	"		"	"	"	"	
4,6-Dinitro-2-methylphenol ND 0.33 " <	2.4-Dinitrophenol	ND	0.33	"		"	"	"	"	
2,4-Dinitrotoluene ND 0.33 " <td>4.6-Dinitro-2-methylphenol</td> <td>ND</td> <td>0.33</td> <td>"</td> <td></td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td></td>	4.6-Dinitro-2-methylphenol	ND	0.33	"		"	"	"	"	
2,6-Dinitrotoluene ND 0.33 " <td>2,4-Dinitrotoluene</td> <td>ND</td> <td>0.33</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td></td>	2,4-Dinitrotoluene	ND	0.33	"	"	"	"	"	"	
Di-n-octyl phthalate ND 0.33 " </td <td>2.6-Dinitrotoluene</td> <td>ND</td> <td>0.33</td> <td>"</td> <td>"</td> <td>"</td> <td>"</td> <td></td> <td>"</td> <td></td>	2.6-Dinitrotoluene	ND	0.33	"	"	"	"		"	
1,2-Diphenylhydrazine ND 0.33 " <th"< th=""> " " "<!--</td--><td>Di-n-octvl phthalate</td><td>ND</td><td>0.33</td><td>"</td><td>"</td><td>"</td><td>"</td><td></td><td>"</td><td></td></th"<>	Di-n-octvl phthalate	ND	0.33	"	"	"	"		"	
Fluoranthene ND 0.33 " <th"< th=""> " "</th"<>	1.2-Diphenvlhvdrazine	ND	0.33	"	"	"	"		"	
Fluorene ND 0.33 " " " " " "	Fluoranthene	ND	0.33	"			"	"	"	
	Fluorene	ND	0.33	"	"	"	"	"	"	



Pyrene

1,2,4-Trichlorobenzene

2,4,5-Trichlorophenol

2,4,6-Trichlorophenol

Surrogate: Phenol-d6 Surrogate: Nitrobenzene-d5

Surrogate: 2-Fluorophenol

Surrogate: 2-Fluorobiphenyl

Surrogate: Terphenyl-d14

Surrogate: 2,4,6-Tribromophenol

Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Project: SHPI-Amerigas Project Number: [none] Project Manager: Susan Mearns									
	Semivolatile	Organic Co	mpoun	ds by El	PA Meth	od 82700	C				
		Sierra An	nalytica	l Labs, I	nc.						
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes		
SB16-10 (1701054-20) Soil	Sampled: 01/04/17 13:48	Received: 01	/04/17 16	5:27							
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/07/17 05:4	4 EPA 8270C			
Hexachlorobutadiene	ND	0.33	"	"	"	"	"	"			
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"	"	"			
Hexachloroethane	ND	0.33	"	"	"	"	"	"			
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"	"	"			
Isophorone	ND	0.33	"	"	"	"	"	"			
2-Methylnaphthalene	ND	0.33	"	"	"	"	"	"			
2-Methylphenol	ND	0.33	"	"	"	"	"	"			
4-Methylphenol	ND	0.33	"	"	"	"	"	"			
Naphthalene	ND	0.33	"	"	"	"	"	"			
2-Nitroaniline	ND	0.33	"	"	"	"	"	"			
3-Nitroaniline	ND	0.33	"	"	"	"	"	"			
4-Nitroaniline	ND	0.33	"	"	"	"	"	"			
Nitrobenzene	ND	0.33	"	"	"	"	"	"			
2-Nitrophenol	ND	0.33	"	"	"	"	"	"			
4-Nitrophenol	ND	0.33	"	"	"	"	"	"			
N-Nitrosodimethylamine	ND	0.33	"	"	"	"	"	"			
Diphenylamine	ND	0.33	"	"	"	"	"	"			
N-Nitrosodi-n-propylamine	ND	0.33	"	"	"	"	"	"			
Pentachlorophenol	ND	0.33	"	"	"	"	"	"			
Phenanthrene	ND	0.33	"	"	"	"	"	"			
Phenol	ND	0.33	"	"	"	"	"	"			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

ND

ND

ND

ND

0.33

0.33

0.33

0.33

90.4 %

79.2 %

66.1 %

97.6 %

87.8 %

108 %

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25-121

24-113

23-120

30-115

19-122

18-137

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Mearns Consulting LLC	Project:	SHPI-Amerigas	
738 Ashland Avenue	Project Number:	[none]	Reported:
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24
Se	mivolatile Organic Compo	ounds by EPA Method 8270	С
	Sierra Analyt	ical Labs, Inc.	
	Reporting		

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB18-5 (1701054-21) Soil	Sampled: 01/04/17 14:11	Received: 01/	04/17 16:	27					
Acenaphthene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/07/17 06:2	5 EPA 8270C	
Acenaphthylene	ND	0.33	"	"	"	"		"	
Anthracene	ND	0.33	"	"	"	"		"	
Benzidine	ND	0.33	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.33	"	"	"	"		"	
Benzo (b) fluoranthene	ND	0.33	"	"	"	"		"	
Benzo (k) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.33	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	0.33	"		"	"	"	"	
Benzyl alcohol	ND	0.33	"		"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.33	"		"	"	"	"	
Bis(2-chloroethoxy)methane	ND	0.33	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	0.33	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.33	"		"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.33	"		"	"	"	"	
Butyl benzyl phthalate	ND	0.33	"	"	"	"	"	"	
4-Chloroaniline	ND	0.33	"	"	"	"	"	"	
2-Chlorophenol	ND	0.33	"		"	"	"	"	
4-Chloro-3-methylphenol	ND	0.33	"		"	"	"	"	
2-Chloronaphthalene	ND	0.33	"		"	"	"	"	
4-Chlorophenyl phenyl ether	· ND	0.33	"		"	"	"	"	
Chrysene	ND	0.33			"	"		"	
Dibenz (a.h) anthracene	ND	0.33			"	"		"	
Dibenzofuran	ND	0.33			"	"		"	
1.3-Dichlorobenzene	ND	0.33	"		"	"	"	"	
1.2-Dichlorobenzene	ND	0.33			"	"		"	
1.4-Dichlorobenzene	ND	0.33			"	"		"	
3.3´-Dichlorobenzidine	ND	0.33			"	"		"	
2.4-Dichlorophenol	ND	0.33			"	"		"	
Diethyl phthalate	ND	0.33	"		"	"	"	"	
2.4-Dimethylphenol	ND	0.33	"		"	"		"	
Dimethyl phthalate	ND	0.33			"	"		"	
Di-n-butyl phthalate	ND	0.33	"		"	"		"	
2 4-Dinitrophenol	ND	0.33			"	"		"	
4 6-Dinitro-2-methylphenol	ND	0.33			"	"	"	"	
2 4-Dinitrotoluene	ND	0.33			"	"		"	
2 6-Dinitrotoluene		0.33			"			"	
Di-n-octyl nhthalate		0.33			"			"	
1 2-Dinhenvlhydrazine		0.33			"			"	
Fluoranthene		0.33			"			"	
Fluorene		0.33			"				
i iuorene	ND	0.55							



Phenanthrene

1,2,4-Trichlorobenzene

2,4,5-Trichlorophenol

2,4,6-Trichlorophenol

Surrogate: Phenol-d6

Surrogate: 2-Fluorophenol

Surrogate: Nitrobenzene-d5

Surrogate: 2-Fluorobiphenyl

Surrogate: Terphenyl-d14

Surrogate: 2,4,6-Tribromophenol

Phenol

Pyrene

Mearns Consulting LLC 738 Ashland Avenue		Pr Project Nu	oject: SH mber: [no	[PI-Amer one]	igas			Reported	Reported:	
Santa Monica CA, 90405		Project Mar	nager: Sus	san Mearns	8			01/12/17 09	9:24	
	Semivolatile	e Organic Co	mpoun	ds by El	PA Meth	od 82700	С			
		Sierra Ar	nalytica	l Labs, I	nc.					
		Reporting								
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB18-5 (1701054-21) Soil	Sampled: 01/04/17 14:11	Received: 01/	04/17 16:	27						
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/07/17 06:2	5 EPA 8270C		
Hexachlorobutadiene	ND	0.33	"	"	"	"	"	"		
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"	"	"		
Hexachloroethane	ND	0.33	"	"	"	"	"	"		
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"	"	"		
Isophorone	ND	0.33	"	"	"	"	"	"		
2-Methylnaphthalene	ND	0.33	"	"	"	"	"	"		
2-Methylphenol	ND	0.33	"	"	"	"	"	"		
4-Methylphenol	ND	0.33	"	"	"	"	"	"		
Naphthalene	ND	0.33	"	"	"	"	"	"		
2-Nitroaniline	ND	0.33	"	"	"	"	"	"		
3-Nitroaniline	ND	0.33	"	"	"	"	"	"		
4-Nitroaniline	ND	0.33	"	"	"	"	"	"		
Nitrobenzene	ND	0.33	"	"	"	"	"	"		
2-Nitrophenol	ND	0.33	"	"	"	"	"	"		
4-Nitrophenol	ND	0.33	"	"	"	"				
N-Nitrosodimethylamine	ND	0.33	"	"	"	"	"			
Diphenylamine	ND	0.33	"	"	"	"				
N-Nitrosodi-n-propylamine	ND	0.33	"	"	"	"	"			
Pentachlorophenol	ND	0.33	"	"	"	"	"			

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ND

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ND

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ND

ND

0.33

0.33

0.33

0.33

0.33

0.33

94.8 %

81.2 %

70.9 %

102 %

100 %

115 %

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25-121

24-113

23-120

30-115

19-122

18-137



Mearns Consulting LLC 738 Ashland Avenue		Pro Project Num	ject: SH ber: [no	[PI-Amerig ne]	gas			Reporte	d:
Santa Monica CA, 90405		Project Mana	ger: Sus	san Mearns				01/12/17 ()9:24
	Semivolatile Or	ganic Cor	npoun	ds by EP.	A Meth	od 8270C			
	S	Sierra Ana	alytical	l Labs, In	ic.				
		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

SB18-10 (1701054-22) Soil	Sampled: 01/04/17 14:20	Received: 0	1/04/17 16:	27					
Acenaphthene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/07/17 07:06	EPA 8270C	
Acenaphthylene	ND	0.33	"	"	"	"	"	"	
Anthracene	ND	0.33	"	"	"	"	"	"	
Benzidine	ND	0.33	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.33	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.33	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	0.33	"	"	"	"	"	"	
Benzyl alcohol	ND	0.33	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	0.33	"	"	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	0.33	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	0.33	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.33	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.33	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	0.33	"	"	"	"	"	"	
4-Chloroaniline	ND	0.33	"	"	"	"	"	"	
2-Chlorophenol	ND	0.33	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.33	"	"	"	"	"	"	
2-Chloronaphthalene	ND	0.33	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	0.33	"		"	"	"	"	
Chrysene	ND	0.33	"	"	"			"	
Dibenz (a,h) anthracene	ND	0.33	"	"	"	"	"	"	
Dibenzofuran	ND	0.33	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.33	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.33	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.33	"	"	"	"	"	"	
3,3'-Dichlorobenzidine	ND	0.33	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	0.33	"	"	"	"	"	"	
Diethyl phthalate	ND	0.33	"	"	"	"	"	"	
2,4-Dimethylphenol	ND	0.33	"	"	"	"	"	"	
Dimethyl phthalate	ND	0.33	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	0.33	"	"	"	"	"	"	
2,4-Dinitrophenol	ND	0.33	"	"	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	0.33	"	"	"	"	"	"	
2,4-Dinitrotoluene	ND	0.33	"	"	"	"	"	"	
2,6-Dinitrotoluene	ND	0.33	"	"	"	"	"	"	
Di-n-octyl phthalate	ND	0.33	"	"	"	"	"	"	
1,2-Diphenylhydrazine	ND	0.33	"	"	"	"	"	"	
Fluoranthene	ND	0.33	"	"	"	"	"	"	
Fluorene	ND	0.33	"	"	"	"	"	"	



Surrogate: 2-Fluorobiphenyl

Surrogate: Terphenyl-d14

Surrogate: 2,4,6-Tribromophenol

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Mearns Consulting LLC		Project: SHPI-Amerigas									
738 Ashland Avenue		Project Number: [none]									
Santa Monica CA, 90405		Project Mar	nager: Sus	san Mearn	s			01/12/17 09	9:24		
	Semivolatile (Organic Co	mpoun	ds by El	PA Meth	od 8270	С				
Sierra Analytical Labs, Inc.											
		Reporting	-								
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes		
SB18-10 (1701054-22) Soil	Sampled: 01/04/17 14:20	Received: 01	/04/17 16	:27							
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/07/17 07:0	6 EPA 8270C			
Hexachlorobutadiene	ND	0.33	"	"	"	"	"	"			
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"	"	"			
Hexachloroethane	ND	0.33	"	"	"	"	"	"			
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"	"	"			
Isophorone	ND	0.33	"	"	"	"	"	"			
2-Methylnaphthalene	ND	0.33	"	"	"	"	"	"			
2-Methylphenol	ND	0.33	"	"	"	"	"	"			
4-Methylphenol	ND	0.33	"	"	"	"	"	"			
Naphthalene	ND	0.33	"	"	"	"	"				
2-Nitroaniline	ND	0.33	"	"	"	"	"				
3-Nitroaniline	ND	0.33	"	"	"	"	"	"			
4-Nitroaniline	ND	0.33	"	"	"	"	"	"			
Nitrobenzene	ND	0.33	"	"	"	"	"				
2-Nitrophenol	ND	0.33	"	"	"	"	"				
4-Nitrophenol	ND	0.33	"	"	"	"	"				
N-Nitrosodimethylamine	ND	0.33	"	"	"	"	"	"			
Diphenylamine	ND	0.33	"	"	"	"	"	"			
N-Nitrosodi-n-propylamine	ND	0.33	"	"	"	"	"				
Pentachlorophenol	ND	0.33	"	"	"	"	"				
Phenanthrene	ND	0.33	"	"	"	"	"	"			
Phenol	ND	0.33	"	"	"	"	"				
Pyrene	ND	0.33	"	"	"	"	"				
1,2,4-Trichlorobenzene	ND	0.33	"	"	"	"					
2,4,5-Trichlorophenol	ND	0.33	"	"	"	"					
2,4,6-Trichlorophenol	ND	0.33	"	"	"	"	"				
Surrogate: 2-Fluorophenol		66.8 %	25-	121	"	"	"	"			
Surrogate: Phenol-d6		56.2 %	24-	113	"	"	"	"			
Surrogate: Nitrobenzene-d5		47.4 %	23-	120	"	"	"	"			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

68.5 %

70.6 %

78.7 %

30-115

19-122

18-137

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Mearns Consulting LLC	Project:	SHPI-Amerigas						
738 Ashland Avenue	Project Number:	[none]	Reported:					
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24					
Semivolatile Organic Compounds by EPA Method 8270C								
Sierra Analytical Labs. Inc.								

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB10 5 (170105/ 23) Soil	Sampled: 01/04/17 14:37	Pagaivad: 01/	01/17 16.	77	Daten	Tiepareu	7 mary 200	Wellou	10003
Acception there	Sampleu. 01/04/17 14.57	0.22	04/17 10.2	1	D740052	01/06/17	01/07/17 07.4	7 EDA 9270C	
Acenaphthelee	ND	0.55	mg/kg	1	B/A0955	01/06/17	01/07/17 07:4	/ EPA 82/0C	
Arthracana		0.33			"			"	
Panzidina		0.33			"			"	
Panza (a) anthracana		0.33	"	"	"				
Benzo (a) antifiacene Benzo (b) fluorenthene		0.33	"	"	"				
Benzo (b) fluoranthene		0.33			"			"	
Benzo (k) nuorantinene	ND	0.55			"			"	
Benzo (a) pyrene	ND	0.55			"			"	
Benzul alashal	ND	0.55			"			"	
Beilzyi alconol Big(2, shlaraathyl)athar	ND	0.55			"			"	
Bis(2-chloroethyl)ether	ND	0.33							
Bis(2-chloroetnoxy)methane	ND ND	0.33							
Bis(2-ethylnexyl)phthalate	ND	0.33							
Bis(2-chloroisopropyl)ether	ND	0.33							
4-Bromophenyl phenyl ether	ND ND	0.33							
Butyl benzyl phthalate	ND	0.33							
4-Chloroaniline	ND	0.33							
2-Chlorophenol	ND	0.33							
4-Chloro-3-methylphenol	ND	0.33							
2-Chloronaphthalene	ND	0.33	"	"	"			"	
4-Chlorophenyl phenyl ether	ND ND	0.33						"	
Chrysene	ND	0.33	"	"				"	
Dibenz (a,h) anthracene	ND	0.33	"	"	"	"	"	"	
Dibenzofuran	ND	0.33	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.33	"	"	"	"		"	
1,2-Dichlorobenzene	ND	0.33	"	"	"	"		"	
1,4-Dichlorobenzene	ND	0.33	"	"	"	"	"	"	
3,3'-Dichlorobenzidine	ND	0.33	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	0.33	"	"	"	"	"	"	
Diethyl phthalate	ND	0.33	"	"	"	"	"	"	
2,4-Dimethylphenol	ND	0.33	"	"	"	"	"	"	
Dimethyl phthalate	ND	0.33	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	0.33	"	"	"	"		"	
2,4-Dinitrophenol	ND	0.33	"	"	"	"		"	
4,6-Dinitro-2-methylphenol	ND	0.33	"	"	"	"		"	
2,4-Dinitrotoluene	ND	0.33	"	"	"	"		"	
2,6-Dinitrotoluene	ND	0.33	"	"	"	"		"	
Di-n-octyl phthalate	ND	0.33	"	"	"	"		"	
1,2-Diphenylhydrazine	ND	0.33	"	"	"			"	
Fluoranthene	ND	0.33	"	"	"			"	
Fluorene	ND	0.33	"	"	"	"		"	



Mearns Consulting LLC	Project: SHPI-A	Amerigas						
738 Ashland Avenue	Project Number: [none]	Reported:						
Santa Monica CA, 90405	Project Manager: Susan M	Mearns 01/12/17 09:24						
Semivolatile Organic Compounds by EPA Method 8270C								
Sierra Analytical Labs, Inc.								

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB19-5 (1701054-23) Soil	Sampled: 01/04/17 14:37	Received: 01/	04/17 16:2	27					
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/07/17 07:4	7 EPA 8270C	
Hexachlorobutadiene	ND	0.33	"	"	"	"		"	
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"	"	"	
Hexachloroethane	ND	0.33	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"	"	"	
Isophorone	ND	0.33	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.33	"	"	"	"		"	
2-Methylphenol	ND	0.33	"	"	"	"		"	
4-Methylphenol	ND	0.33	"	"	"	"	"	"	
Naphthalene	ND	0.33	"	"	"	"		"	
2-Nitroaniline	ND	0.33	"	"	"	"	"	"	
3-Nitroaniline	ND	0.33	"	"	"	"	"	"	
4-Nitroaniline	ND	0.33	"	"	"	"	"	"	
Nitrobenzene	ND	0.33	"	"	"	"	"	"	
2-Nitrophenol	ND	0.33	"	"	"	"	"	"	
4-Nitrophenol	ND	0.33	"	"	"	"		"	
N-Nitrosodimethylamine	ND	0.33	"	"	"	"		"	
Diphenylamine	ND	0.33	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	0.33	"	"	"	"	"	"	
Pentachlorophenol	ND	0.33	"	"	"	"	"	"	
Phenanthrene	ND	0.33	"	"	"	"	"	"	
Phenol	ND	0.33	"	"	"	"		"	
Pyrene	ND	0.33	"	"	"	"		"	
1,2,4-Trichlorobenzene	ND	0.33	"	"	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.33	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.33			"	"		"	
Surrogate: 2-Fluorophenol		98.2 %	25-1	121	"	"	"	"	
Surrogate: Phenol-d6		75.2 %	24-1	13	"	"	"	"	
Surrogate: Nitrobenzene-d5		65.2 %	23-1	120	"	"	"	"	
Surrogate: 2-Fluorobipheny	ol	94.0 %	30-1	115	"	"	"	"	
Surrogate: 2,4,6-Tribromop	henol	90.2 %	19-1	122	"	"	"	"	
Surrogate: Terphenyl-d14		104 %	18-1	137	"	"	"	"	



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Proje Project Numb Project Manag	et: SHPI-Ame er: [none] er: Susan Mear	erigas ns			Reporte 01/12/17 (d:)9:24	
Semivolatile Organic Compounds by EPA Method 8270C Sierra Analytical Labs, Inc.									
Reporting Analyte Result Limit Units Dilution Batch Prepared Analyzed Method Notes									

SB19-10 (1701054-24) Soil	Sampled: 01/04/17 14:45	Received: 0	1/04/17 16:	27					
Acenaphthene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/07/17 08:29	EPA 8270C	
Acenaphthylene	ND	0.33	"	"	"	"			
Anthracene	ND	0.33	"	"	"	"	"	"	
Benzidine	ND	0.33	"	"	"	"			
Benzo (a) anthracene	ND	0.33	"	"	"	"			
Benzo (b) fluoranthene	ND	0.33	"	"	"	"			
Benzo (k) fluoranthene	ND	0.33	"	"	"	"			
Benzo (a) pyrene	ND	0.33	"	"	"	"			
Benzo (g,h,i) perylene	ND	0.33	"	"	"	"			
Benzyl alcohol	ND	0.33	"	"	"	"			
Bis(2-chloroethyl)ether	ND	0.33	"	"	"	"			
Bis(2-chloroethoxy)methane	ND	0.33	"	"	"	"			
Bis(2-ethylhexyl)phthalate	ND	0.33	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	0.33	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.33	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	0.33	"	"	"	"	"	"	
4-Chloroaniline	ND	0.33	"	"	"	"	"	"	
2-Chlorophenol	ND	0.33	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.33	"	"	"	"	"	"	
2-Chloronaphthalene	ND	0.33	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	0.33	"	"	"	"	"		
Chrysene	ND	0.33	"	"	"		"		
Dibenz (a,h) anthracene	ND	0.33	"	"	"		"		
Dibenzofuran	ND	0.33	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.33	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.33	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.33	"	"	"	"	"	"	
3,3'-Dichlorobenzidine	ND	0.33	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	0.33	"	"	"	"	"	"	
Diethyl phthalate	ND	0.33	"	"	"	"	"	"	
2,4-Dimethylphenol	ND	0.33	"	"	"	"	"	"	
Dimethyl phthalate	ND	0.33	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	0.33	"	"	"	"	"	"	
2,4-Dinitrophenol	ND	0.33	"	"	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	0.33	"	"	"	"	"	"	
2,4-Dinitrotoluene	ND	0.33	"	"	"	"	"	"	
2,6-Dinitrotoluene	ND	0.33	"	"	"	"	"	"	
Di-n-octyl phthalate	ND	0.33	"		"	"			
1,2-Diphenylhydrazine	ND	0.33	"		"	"			
Fluoranthene	ND	0.33	"		"	"			
Fluorene	ND	0.33	"	"		"	"	"	



Surrogate: 2,4,6-Tribromophenol

Surrogate: Terphenyl-d14

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Mearns Consulting LLC	Project: SHPI-Amerigas										
738 Ashland Avenue		Project Number: [none]									
Santa Monica CA, 90405		Project Manager: Susan Mearns									
	Semivolatile	Organic Co	mpound	ds by El	PA Meth	od 82700	С				
Sierra Analytical Labs, Inc.											
		Reporting	·	,							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes		
SB19-10 (1701054-24) Soil	Sampled: 01/04/17 14:45	Received: 01	/04/17 16	:27							
Hexachlorobenzene	ND	0.33	mg/kg	1	B7A0953	01/06/17	01/07/17 08:2	9 EPA 8270C			
Hexachlorobutadiene	ND	0.33	"	"	"	"	"				
Hexachlorocyclopentadiene	ND	0.33	"	"	"	"	"	"			
Hexachloroethane	ND	0.33	"	"	"	"	"	"			
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"	"				
Isophorone	ND	0.33	"	"	"	"	"				
2-Methylnaphthalene	ND	0.33	"	"	"	"	"	"			
2-Methylphenol	ND	0.33	"	"	"	"	"	"			
4-Methylphenol	ND	0.33	"	"	"	"	"	"			
Naphthalene	ND	0.33	"	"	"	"	"	"			
2-Nitroaniline	ND	0.33	"	"	"	"	"	"			
3-Nitroaniline	ND	0.33	"	"	"	"	"	"			
4-Nitroaniline	ND	0.33	"	"	"	"	"	"			
Nitrobenzene	ND	0.33	"	"	"	"	"				
2-Nitrophenol	ND	0.33	"	"	"	"	"				
4-Nitrophenol	ND	0.33	"	"	"	"	"	"			
N-Nitrosodimethylamine	ND	0.33	"	"	"	"	"	"			
Diphenylamine	ND	0.33	"	"	"	"	"	"			
N-Nitrosodi-n-propylamine	ND	0.33	"	"	"	"	"	"			
Pentachlorophenol	ND	0.33	"	"	"	"	"	"			
Phenanthrene	ND	0.33	"	"	"	"	"	"			
Phenol	ND	0.33		"	"	"	"				
Pvrene	ND	0.33		"	"	"	"	"			
1.2.4-Trichlorobenzene	ND	0.33		"	"	"	"	"			
2.4.5-Trichlorophenol	ND	0.33		"	"	"	"	"			
2,4,6-Trichlorophenol	ND	0.33		"	"		"				
Surrogate: 2-Fluorophenol		103 %	25-1	121	"	"	"	"			
Surrogate: Phenol-d6		82.0 %	24-1	113	"	"	"	"			
Surrogate: Nitrobenzene-d5		70.6 %	23-1	120	"	"	"	"			
Surrogate: 2-Fluorobiphenyl	!	101 %	30-1	115	"	"	"	"			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

89.4 %

112 %

19-122

18-137

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Mearns Consulting LLC	Project: SHPI-Amerigas						
738 Ashland Avenue	Project Number: [none]	Reported:					
Santa Monica CA, 90405	Project Manager: Susan Mearns	01/12/17 09:24					
Semivolatile Organic Compounds by EPA Method 8270C							

Sierra Analytical Labs, Inc.

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB20-5 (1701054-25) Soil	Sampled: 01/04/17 14:58	Received: 01/	/04/17 16:2	7					D-34
Acenaphthene	ND	1.6	mg/kg	5	B7A0953	01/06/17	01/07/17 09:1) EPA 8270C	
Acenaphthylene	ND	1.6	"	"	"			"	
Anthracene	ND	1.6	"	"	"	"	"	"	
Benzidine	ND	1.6	"	"	"	"		"	
Benzo (a) anthracene	ND	1.6	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	1.6	"	"	"	"		"	
Benzo (k) fluoranthene	ND	1.6	"		"	"		"	
Benzo (a) pyrene	ND	1.6	"		"	"		"	
Benzo (g,h,i) perylene	ND	1.6	"		"	"		"	
Benzyl alcohol	ND	1.6	"		"	"		"	
Bis(2-chloroethyl)ether	ND	1.6	"		"	"		"	
Bis(2-chloroethoxy)methane	ND	1.6	"		"	"		"	
Bis(2-ethylhexyl)phthalate	ND	1.6	"		"	"		"	
Bis(2-chloroisopropyl)ether	ND	1.6	"		"	"		"	
4-Bromophenyl phenyl ether	ND	1.6	"		"	"		"	
Butyl benzyl phthalate	ND	1.6	"	"	"	"		"	
4-Chloroaniline	ND	1.6	"	"	"	"		"	
2-Chlorophenol	ND	1.6	"	"	"	"		"	
4-Chloro-3-methylphenol	ND	1.6	"	"	"	"		"	
2-Chloronaphthalene	ND	1.6	"	"	"			"	
4-Chlorophenyl phenyl ether	ND	1.6	"	"	"	"		"	
Chrysene	ND	1.6	"	"	"			"	
Dibenz (a,h) anthracene	ND	1.6	"	"	"			"	
Dibenzofuran	ND	1.6	"					"	
1,3-Dichlorobenzene	ND	1.6	"					"	
1,2-Dichlorobenzene	ND	1.6	"					"	
1,4-Dichlorobenzene	ND	1.6	"					"	
3,3'-Dichlorobenzidine	ND	1.6	"					"	
2,4-Dichlorophenol	ND	1.6	"					"	
Diethyl phthalate	ND	1.6	"					"	
2,4-Dimethylphenol	ND	1.6	"		"			"	
Dimethyl phthalate	ND	1.6	"		"			"	
Di-n-butyl phthalate	ND	1.6	"		"			"	
2.4-Dinitrophenol	ND	1.6	"	"	"		"	"	
4.6-Dinitro-2-methylphenol	ND	1.6	"					"	
2,4-Dinitrotoluene	ND	1.6	"	"	"	"		"	
2.6-Dinitrotoluene	ND	1.6	"		"			"	
Di-n-octvl phthalate	ND	1.6	"		"			"	
1.2-Diphenylhydrazine	ND	1.6	"		"			"	
Fluoranthene	ND	1.6	"		"			"	
Fluorene	ND	1.6			"			"	
- lastene	11D	1.0							



Surrogate: Terphenyl-d14

Semivolatile Organic Compounds by EPA Method 8270C							
Project Manager: Susan Mearns	01/12/17 09:24						
Project Number: [none]	Reported:						
Project: SHPI-Amerigas							
	Project: SHPI-Amerigas Project Number: [none] Project Manager: Susan Mearns Semivolatile Organic Compounds by EPA Method 827(

Sierra Analytical Labs, Inc. Reporting Result Limit Units Dilution Batch Prepared Analyzed Method Analyte Notes SB20-5 (1701054-25) Soil Sampled: 01/04/17 14:58 Received: 01/04/17 16:27 **D-34** Hexachlorobenzene ND 1.6 mg/kg B7A0953 01/06/17 01/07/17 09:10 EPA 8270C 5 Hexachlorobutadiene ND 1.6 .. " ., Hexachlorocyclopentadiene ND 1.6 .. ., Hexachloroethane ND 1.6 Indeno (1,2,3-cd) pyrene ND 1.6,, ND Isophorone 1.6 2-Methylnaphthalene ND 1.6 " ., 2-Methylphenol ND 1.6, .. 4-Methylphenol ND 1.6 .. Naphthalene ND 1.6 2-Nitroaniline ND 1.6 3-Nitroaniline ND 1.6 4-Nitroaniline ND 1.6 Nitrobenzene ND 1.6 2-Nitrophenol ND 1.6 4-Nitrophenol ND 1.6 ., .. N-Nitrosodimethylamine ND 1.6 .. ., Diphenylamine ND 1.6 N-Nitrosodi-n-propylamine ND 1.6 Pentachlorophenol ND 1.6 Phenanthrene ND 1.6 Phenol ND 1.6 Pyrene ND .. 1.6 ., 1,2,4-Trichlorobenzene ND 1.6 2,4,5-Trichlorophenol ND 1.6 .. ., .. 2,4,6-Trichlorophenol ND 1.6 " " ,, ,, Surrogate: 2-Fluorophenol 64.6 % 25-121 ,, ,, ,, ,, Surrogate: Phenol-d6 61.4 % 24-113 71.5 % 23-120 ,, ,, ,, ,, Surrogate: Nitrobenzene-d5 56.5 % 30-115 ,, ,, ., Surrogate: 2-Fluorobiphenyl 41.4 % ,, ,, ,, Surrogate: 2,4,6-Tribromophenol 19-122

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

68.5 %

18-137

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Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24
	Project Number.		Acported.
729 Ashland Avanua	Project Number:	[nona]	Departed
Mearns Consulting LLC	Project:	SHPI-Amerigas	

Semivolatile Organic Compounds by EPA Method 8270C

Sierra Analytical Labs, Inc.										
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB20-10 (1701054-26) Soil	Sampled: 01/04/17 15:06	Received: 01	1/04/17 16	:27					D-3 4	
Acenaphthene	ND	1.6	mg/kg	5	B7A0953	01/06/17	01/07/17 09:52	2 EPA 8270C		
Acenaphthylene	ND	1.6	"	"	"	"		"		
Anthracene	ND	1.6	"	"	"	"		"		
Benzidine	ND	1.6	"	"	"	"		"		
Benzo (a) anthracene	ND	1.6	"	"	"	"		"		
Benzo (b) fluoranthene	ND	1.6	"	"	"	"	"	"		
Benzo (k) fluoranthene	ND	1.6	"	"	"	"		"		
Benzo (a) pyrene	ND	1.6	"	"	"	"		"		
Benzo (g,h,i) perylene	ND	1.6	"	"	"	"		"		
Benzyl alcohol	ND	1.6	"	"	"	"		"		
Bis(2-chloroethyl)ether	ND	1.6	"	"	"	"	"	"		
Bis(2-chloroethoxy)methane	ND	1.6	"	"	"	"	"	"		
Bis(2-ethylhexyl)phthalate	ND	1.6	"	"	"	"	"	"		
Bis(2-chloroisopropyl)ether	ND	1.6	"	"	"	"	"	"		
4-Bromophenyl phenyl ether	ND	1.6	"	"	"	"	"	"		
Butyl benzyl phthalate	ND	1.6	"		"	"		"		
4-Chloroaniline	ND	1.6	"	"	"	"		"		
2-Chlorophenol	ND	1.6	"	"	"	"		"		
4-Chloro-3-methylphenol	ND	1.6	"	"	"	"		"		
2-Chloronaphthalene	ND	1.6	"	"	"	"		"		
4-Chlorophenyl phenyl ether	ND	1.6	"	"	"	"		"		
Chrysene	ND	1.6	"	"	"	"		"		
Dibenz (a,h) anthracene	ND	1.6	"	"	"	"		"		
Dibenzofuran	ND	1.6	"	"	"	"		"		
1,3-Dichlorobenzene	ND	1.6	"	"	"	"		"		
1,2-Dichlorobenzene	ND	1.6	"	"	"	"	"	"		
1.4-Dichlorobenzene	ND	1.6	"	"	"	"		"		
3.3 ⁻ Dichlorobenzidine	ND	1.6	"	"	"	"		"		
2,4-Dichlorophenol	ND	1.6	"	"	"	"		"		
Diethyl phthalate	ND	1.6	"	"	"	"		"		
2.4-Dimethylphenol	ND	1.6	"	"	"	"		"		
Dimethyl phthalate	ND	1.6	"	"	"	"		"		
Di-n-butyl phthalate	ND	1.6	"	"	"	"		"		
2.4-Dinitrophenol	ND	1.6	"	"	"	"		"		
4.6-Dinitro-2-methylphenol	ND	1.6	"	"	"	"		"		
2.4-Dinitrotoluene	ND	1.6	"	"	"	"		"		
2.6-Dinitrotoluene	ND	1.6	"	"	"	"		"		
Di-n-octyl phthalate	ND	1.6	"	"	"	"		"		
1.2-Diphenvlhydrazine	ND	1.6	"	"	"	"		"		
Fluoranthene	ND	1.6	"		"	"		"		
Fluorene	ND	1.6	"		"	"		"		



738 Ashland Avenue Santa Monica CA, 90405	Project Number: [none] Project Manager: Susan Mearns	Reported: 01/12/17 09:24
Se	'0C	

		Sierra An	alytical	Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB20-10 (1701054-26) Soil	Sampled: 01/04/17 15:06	Received: 01	/04/17 16:	27					D-34
Hexachlorobenzene	ND	1.6	mg/kg	5	B7A0953	01/06/17	01/07/17 09:52	2 EPA 8270C	
Hexachlorobutadiene	ND	1.6	"		"	"	"	"	
Hexachlorocyclopentadiene	ND	1.6	"		"	"	"	"	
Hexachloroethane	ND	1.6	"		"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	1.6	"		"	"	"	"	
Isophorone	ND	1.6	"		"	"	"	"	
2-Methylnaphthalene	ND	1.6		"	"	"	"	"	
2-Methylphenol	ND	1.6		"	"	"	"	"	
4-Methylphenol	ND	1.6		"	"	"	"	"	
Naphthalene	ND	1.6		"	"	"	"	"	
2-Nitroaniline	ND	1.6		"	"	"	"	"	
3-Nitroaniline	ND	1.6	"		"	"	"	"	
4-Nitroaniline	ND	1.6	"		"	"	"	"	
Nitrobenzene	ND	1.6	"		"	"	"	"	
2-Nitrophenol	ND	1.6	"		"	"	"	"	
4-Nitrophenol	ND	1.6		"	"	"	"	"	
N-Nitrosodimethylamine	ND	1.6		"	"	"	"	"	
Diphenylamine	ND	1.6		"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	1.6		"	"	"	"	"	
Pentachlorophenol	ND	1.6	"		"	"	"	"	
Phenanthrene	ND	1.6	"		"	"	"	"	
Phenol	ND	1.6		"	"	"	"	"	
Pyrene	ND	1.6		"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.6		"	"	"	"	"	
2,4,5-Trichlorophenol	ND	1.6		"	"	"	"	"	
2,4,6-Trichlorophenol	ND	1.6	"		"	"	"	"	
Surrogate: 2-Fluorophenol		87.0 %	25-1	21	"	"	"	"	
Surrogate: Phenol-d6		88.6 %	24-1	13	"	"	"	"	
Surrogate: Nitrobenzene-d5		91.0 %	23-1	20	"	"	"	"	
Surrogate: 2-Fluorobiphenyl		71.5 %	30-1	15	"	"	"	"	
Surrogate: 2,4,6-Tribromoph	enol	115 %	19-1	22	"	"	"	"	
Surrogate: Terphenyl-d14		90.1 %	18-1	37	"	"	"	"	



Cobalt

Copper

Molybdenum

Lead

Nickel

Silver

Zinc

Selenium

Thallium

Vanadium

Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Project: SHPI-Amerigas Project Number: [none] Project Manager: Susan Mearns									
	Metals by EPA	\ 6000/700	0 Series	Methods	- Quality	y Contro	1				
Sierra Analytical Labs, Inc.											
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B7A0578 - EPA 3050B											
Blank (B7A0578-BLK1)				Prepared:	: 01/05/17	Analyzed	1: 01/06/17				
Antimony	ND	2.5	mg/kg								
Arsenic	ND	3.5	"								
Barium	ND	6.5	"								
Beryllium	ND	0.50									
Cadmium	ND	0.50									
Chromium	ND	3.0	"								
Cobalt	ND	2.5	"								
Copper	ND	2.0	"								
Lead	ND	3.0	"								
Molybdenum	ND	1.0	"								
Nickel	ND	4.0	"								
Selenium	ND	6.0	"								
Silver	ND	1.0	"								
Thallium	ND	2.5	"								
Vanadium	ND	6.0	"								
Zinc	ND	10	"								
LCS (B7A0578-BS1)				Prepared:	: 01/05/17	Analyzed	1: 01/06/17				
Antimony	103	2.5	mg/kg	100		103	75-125				
Arsenic	96.1	3.5	"	100		96.1	78-122				
Barium	101	6.5	"	100		101	80-120				
Beryllium	99.4	0.50		100		99.4	80-120				
Cadmium	100	0.50		100		100	80-120				
Chromium	101	3.0		100		101	80-120				

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

104

102

99.6

103

104

95.8

104

98.9

98.4

95.9

2.5

2.0

3.0

1.0

4.0

6.0

1.0

2.5

6.0

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100

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100

100

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100

104

102

99.6

103

104

95.8

104

98.9

98.4

95.9

80-120

78-122

80-120

80-120

80-120 76-124

60-140

80-120

80-120

80-120



Mearns Consulting LLC	Project:	SHPI-Amerigas							
738 Ashland Avenue	Project Number:	[none]	Reported:						
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24						
Metals by EPA 6000/7000 Series Methods - Quality Control									
Sierra Analytical Labs, Inc.									

		Reporting		Snike	Source		%RFC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B7A0578 - EPA 3050B										
LCS Dup (B7A0578-BSD1)				Prepared:	01/05/17	Analyzed	: 01/06/17			
Antimony	98.8	2.5	mg/kg	100		98.8	75-125	4.16	20	
Arsenic	92.1	3.5		100		92.1	78-122	4.25	20	
Barium	97.5	6.5		100		97.5	80-120	3.53	20	
Beryllium	95.6	0.50		100		95.6	80-120	3.90	20	
Cadmium	96.1	0.50		100		96.1	80-120	3.98	20	
Chromium	96.9	3.0		100		96.9	80-120	4.14	20	
Cobalt	100	2.5		100		100	80-120	3.92	20	
Copper	103	2.0		100		103	78-122	0.976	20	
Lead	95.4	3.0		100		95.4	80-120	4.31	20	
Molybdenum	99.6	1.0		100		99.6	80-120	3.36	20	
Nickel	100	4.0		100		100	80-120	3.92	20	
Selenium	91.6	6.0		100		91.6	76-124	4.48	20	
Silver	104	1.0		100		104	60-140	0.00	40	
Thallium	96.9	2.5		100		96.9	80-120	2.04	20	
Vanadium	94.9	6.0		100		94.9	80-120	3.62	20	
Zinc	92.4	10	"	100		92.4	80-120	3.72	20	
Matrix Spike (B7A0578-MS1)	Sou	ırce: 170105	9-01	Prepared:	01/05/17	Analyzed	: 01/06/17			
Antimony	77.9	2.5	mg/kg	95.3	0.32	81.4	60-140			
Arsenic	86.0	3.5		95.3	1.4	88.8	70-130			
Barium	151	6.5		95.3	69	86.0	70-130			
Beryllium	87.1	0.50		95.3	ND	91.4	70-130			
Cadmium	84.5	0.50		95.3	0.25	88.4	70-130			
Chromium	108	3.0		95.3	21	91.3	70-130			
Cobalt	93.0	2.5		95.3	7.0	90.2	70-130			
Copper	107	2.0		95.3	12	99.7	70-130			
Lead	90.0	3.0		95.3	6.9	87.2	70-130			
Molybdenum	88.3	1.0		95.3	0.75	91.9	70-130			
Nickel	93.0	4.0		95.3	7.5	89.7	70-130			
Selenium	83.0	6.0		95.3	ND	87.1	70-130			
Silver	96.4	1.0		95.3	ND	101	60-140			
Thallium	83.4	2.5		95.3	ND	87.5	70-130			
Vanadium	117	6.0		95.3	34	87.1	70-130			
Zinc	117	10		95.3	34	87.1	70-130			



Mearns Consulting LLC	Project: SHPI-Amerigas	
738 Ashland Avenue	Project Number: [none]	Reported:
Santa Monica CA, 90405	Project Manager: Susan Mearns	01/12/17 09:24

Metals by EPA 6000/7000 Series Methods - Quality Control

Sierra rinary view Babby Inc	Sie	ra Ai	nalyti	cal L	abs,	Inc
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	Reporting			Spike Sou	Source		%REC	RPD			
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes	
Batch B7A0578 - EPA 3050B											
Matrix Spike Dup (B7A0578-MSD1)	Sour	ce: 170105	9-01	Prepared:	01/05/17	Analyzed	: 01/06/17				
Antimony	76.2	2.5	mg/kg	95.2	0.32	79.7	60-140	2.21	20		
Arsenic	84.5	3.5	"	95.2	1.4	87.3	70-130	1.76	20		
Barium	147	6.5	"	95.2	69	81.9	70-130	2.68	20		
Beryllium	83.7	0.50	"	95.2	ND	87.9	70-130	3.98	20		
Cadmium	81.1	0.50	"	95.2	0.25	84.9	70-130	4.11	20		
Chromium	99.7	3.0	"	95.2	21	82.7	70-130	7.99	20		
Cobalt	90.1	2.5	"	95.2	7.0	87.3	70-130	3.17	20		
Copper	103	2.0	"	95.2	12	95.6	70-130	3.81	30		
Lead	87.9	3.0	"	95.2	6.9	85.1	70-130	2.36	30		
Molybdenum	85.6	1.0	"	95.2	0.75	89.1	70-130	3.11	20		
Nickel	90.1	4.0	"	95.2	7.5	86.8	70-130	3.17	20		
Selenium	79.9	6.0	"	95.2	ND	83.9	70-130	3.81	20		
Silver	103	1.0	"	95.2	ND	108	60-140	6.62	40		

81.4

113

114

2.5

6.0

10

"

"

"

95.2

95.2

95.2

ND

34

34

85.5

83.0

84.0

70-130

70-130

70-130

2.43

3.48

2.60

Batch B7A0579 - EPA 3050B

Thallium

Vanadium

Zinc

Blank (B7A0579-BLK1)				Prepared: 01/05/17 Analyzed: 01/09/17
Antimony	ND	2.5	mg/kg	
Arsenic	ND	3.5	"	
Barium	ND	6.5	"	
Beryllium	ND	0.50	"	
Cadmium	ND	0.50	"	
Chromium	ND	3.0	"	
Cobalt	ND	2.5	"	
Copper	ND	2.0	"	
Lead	ND	3.0	"	
Molybdenum	ND	1.0	"	
Nickel	ND	4.0	"	
Selenium	ND	6.0	"	
Silver	ND	1.0	"	
Thallium	ND	2.5	"	
Vanadium	ND	6.0	"	
Zinc	ND	10	"	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Mearns Consulting LLC 738 Ashland Avenue	Project: Project Number:	SHPI-Amerigas [none]	Reported:
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24
	Metals by EPA 6000/7000 Ser	ies Methods - Quality Control	

Sierra Analytical Labs, Inc.

	D k	Reporting	TT .	Spike	Source	N DEC	%REC	DDD	RPD	NT /
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B7A0579 - EPA 3050B										
LCS (B7A0579-BS1)				Prepared:	01/05/17	Analyzed	: 01/09/17			
Antimony	101	2.5	mg/kg	100		101	75-125			
Arsenic	95.1	3.5	"	100		95.1	78-122			
Barium	98.3	6.5	"	100		98.3	80-120			
Beryllium	95.6	0.50		100		95.6	80-120			
Cadmium	98.4	0.50		100		98.4	80-120			
Chromium	97.3	3.0		100		97.3	80-120			
Cobalt	101	2.5		100		101	80-120			
Copper	104	2.0		100		104	78-122			
Lead	98.1	3.0		100		98.1	80-120			
Molybdenum	100	1.0		100		100	80-120			
Nickel	100	4.0		100		100	80-120			
Selenium	94.2	6.0		100		94.2	76-124			
Silver	113	1.0	"	100		113	60-140			
Thallium	98.3	2.5	"	100		98.3	80-120			
Vanadium	94.9	6.0	"	100		94.9	80-120			
Zinc	95.9	10		100		95.9	80-120			
LCS Dup (B7A0579-BSD1)				Prepared:	01/05/17	Analyzed	: 01/09/17			
Antimony	99.9	2.5	mg/kg	100		99.9	75-125	1.10	20	
Arsenic	93.6	3.5	"	100		93.6	78-122	1.59	20	
Barium	98.2	6.5		100		98.2	80-120	0.102	20	
Beryllium	96.0	0.50		100		96.0	80-120	0.418	20	
Cadmium	97.7	0.50		100		97.7	80-120	0.714	20	
Chromium	98.4	3.0	"	100		98.4	80-120	1.12	20	
Cobalt	101	2.5	"	100		101	80-120	0.00	20	
Copper	102	2.0	"	100		102	78-122	1.94	20	
Lead	97.1	3.0		100		97.1	80-120	1.02	20	
Molybdenum	100	1.0		100		100	80-120	0.00	20	
Nickel	100	4.0		100		100	80-120	0.00	20	
Selenium	92.4	6.0		100		92.4	76-124	1.93	20	
Silver	111	1.0	"	100		111	60-140	1.79	40	
Thallium	97.0	2.5	"	100		97.0	80-120	1.33	20	
Vanadium	94.9	6.0	"	100		94.9	80-120	0.00	20	
Zinc	95.3	10	"	100		95.3	80-120	0.628	20	



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Reported:
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Metals by EPA 6000/7000 Series Methods - Quality Control

Apolyto	Posult	Reporting	Unito	Spike	Source	% PEC	%REC	חמם	RPD Limit	Notas
Anaryte	Result	Liiiiit	Units	Level	Kesuit	70 KEC	Lillins	KFD	Liiiit	Notes
Batch B7A0579 - EPA 3050B										
Matrix Spike (B7A0579-MS1)	Source: 1701054-10			Prepared: 01/05/17 Analyzed: 01/09/17						
Antimony	85.1	2.5	mg/kg	98.1	0.60	86.1	60-140			
Arsenic	92.0	3.5	"	98.1	ND	93.8	70-130			
Barium	155	6.5	"	98.1	66	90.7	70-130			
Beryllium	92.0	0.50	"	98.1	0.075	93.7	70-130			
Cadmium	91.2	0.50	"	98.1	0.050	92.9	70-130			
Chromium	110	3.0	"	98.1	21	90.7	70-130			
Cobalt	99.0	2.5	"	98.1	6.5	94.3	70-130			
Copper	118	2.0	"	98.1	15	105	70-130			
Lead	94.1	3.0	"	98.1	3.0	92.9	70-130			
Molybdenum	96.0	1.0	"	98.1	ND	97.9	70-130			
Nickel	103	4.0	"	98.1	11	93.8	70-130			
Selenium	91.0	6.0	"	98.1	ND	92.8	70-130			
Silver	96.0	1.0	"	98.1	ND	97.9	60-140			
Thallium	92.2	2.5	"	98.1	ND	94.0	70-130			
Vanadium	118	6.0	"	98.1	30	89.7	70-130			
Zinc	125	10	"	98.1	36	90.7	70-130			
Matrix Spike Dup (B7A0579-MSD1)	Source: 1701054-10			Prepared: 01/05/17 Analyzed: 01/09/17						
Antimony	82.6	2.5	mg/kg	98.0	0.60	83.7	60-140	2.98	20	
Arsenic	88.8	3.5	"	98.0	ND	90.6	70-130	3.54	20	
Barium	154	6.5	"	98.0	66	89.8	70-130	0.647	20	
Beryllium	90.0	0.50	"	98.0	0.075	91.8	70-130	2.20	20	
Cadmium	90.0	0.50	"	98.0	0.050	91.8	70-130	1.32	20	
Chromium	114	3.0	"	98.0	21	94.9	70-130	3.57	20	
Cobalt	97.4	2.5	"	98.0	6.5	92.8	70-130	1.63	20	
Copper	114	2.0	"	98.0	15	101	70-130	3.45	30	
Lead	91.1	3.0	"	98.0	3.0	89.9	70-130	3.24	30	
Molybdenum	92.3	1.0	"	98.0	ND	94.2	70-130	3.93	20	
Nickel	102	4.0	"	98.0	11	92.9	70-130	0.976	20	
Selenium	87.8	6.0	"	98.0	ND	89.6	70-130	3.58	20	
Silver	96.4	1.0	"	98.0	ND	98.4	60-140	0.416	40	
Thallium	89.9	2.5	"	98.0	ND	91.7	70-130	2.53	20	
Vanadium	117	6.0	"	98.0	30	88.8	70-130	0.851	20	
Zinc	123	10	"	98.0	36	88.8	70-130	1.61	20	


Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Pr Project Nu Project Ma	roject: SH mber: [no nager: Su	HPI-Ameri one] san Mearns	igas				Reporte 01/12/17	d: 09:24
	Metals by EP.	A 6000/700	0 Series	Methods	- Quality	y Contro				
		Sierra Ai	nalytica	l Labs, I	nc.					
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7A0580 - EPA 3050B										
Blank (B7A0580-BLK1)				Prepared:	01/05/17	Analyzed	1: 01/09/17			
Antimony	ND	2.5	mg/kg	1						
Arsenic	ND	3.5	"							
Barium	ND	6.5								
Beryllium	ND	0.50								
Cadmium	ND	0.50								
Chromium	ND	3.0								
Cobalt	ND	2.5								
Copper	ND	2.0								
Lead	ND	3.0								
Molybdenum	ND	1.0								
Nickel	ND	4.0								
Selenium	ND	6.0								
Silver	ND	1.0								
Thallium	ND	2.5								
Vanadium	ND	6.0								
Zinc	ND	10	"							
LCS (B7A0580-BS1)				Prepared:	01/05/17	Analyzed	l: 01/09/17			
Antimony	97.8	2.5	mg/kg	100		97.8	75-125			
Arsenic	93.8	3.5	"	100		93.8	78-122			
Barium	98.7	6.5	"	100		98.7	80-120			
Beryllium	99.8	0.50	"	100		99.8	80-120			
Cadmium	99.7	0.50		100		99.7	80-120			
Chromium	102	3.0	"	100		102	80-120			
Cobalt	103	2.5	"	100		103	80-120			
Copper	104	2.0	"	100		104	78-122			
Lead	94.5	3.0		100		94.5	80-120			
Molybdenum	101	1.0		100		101	80-120			
Nickel	102	4.0		100		102	80-120			
Selenium	93.8	6.0		100		93.8	76-124			
Silver	106	1.0		100		106	60-140			
Thallium	97.7	2.5		100		97.7	80-120			
Vanadium	95.5	6.0		100		95.5	80-120			
Zinc	97.6	10		100		97.6	80-120			



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Pr Project Nu Project Mai	roject: S] mber: [n nager: Su	HPI-Ameri one] 1san Mearns	igas				Reporte 01/12/17 (d:)9:24
	Metals by EP.	A 6000/700	0 Series	Methods	- Quality	y Contro	1			
		Sierra Ai	nalytica	al Labs, I	nc.					
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7A0580 - EPA 3050B										
LCS Dup (B7A0580-BSD1)				Prepared:	01/05/17	Analyzed	1: 01/09/17			
Antimony	91.1	2.5	mg/kg	100		91.1	75-125	7.09	20	
Arsenic	85.7	3.5	"	100		85.7	78-122	9.03	20	
Barium	90.0	6.5	"	100		90.0	80-120	9.22	20	
Beryllium	89.0	0.50	"	100		89.0	80-120	11.4	20	
Cadmium	90.5	0.50	"	100		90.5	80-120	9.67	20	
Chromium	89.0	3.0	"	100		89.0	80-120	13.6	20	
Cobalt	92.4	2.5	"	100		92.4	80-120	10.8	20	

				D 1	01/05/17	A 1	1 01/00/17			
LCS Dup (B/A0580-BSD1)	01.1	2.5	4	Prepared:	01/05/17	Analyzed	1: 01/09/17	7.00	20	
Antimony	91.1	2.5	mg/kg	100		91.1	75-125	7.09	20	
Arsenic	85.7	3.5		100		85.7	78-122	9.03	20	
Barium	90.0	6.5		100		90.0	80-120	9.22	20	
Beryllium	89.0	0.50	"	100		89.0	80-120	11.4	20	
Cadmium	90.5	0.50	"	100		90.5	80-120	9.67	20	
Chromium	89.0	3.0	"	100		89.0	80-120	13.6	20	
Cobalt	92.4	2.5	"	100		92.4	80-120	10.8	20	
Copper	92.6	2.0	"	100		92.6	78-122	11.6	20	
Lead	88.5	3.0	"	100		88.5	80-120	6.56	20	
Molybdenum	91.6	1.0	"	100		91.6	80-120	9.76	20	
Nickel	92.6	4.0	"	100		92.6	80-120	9.66	20	
Selenium	87.0	6.0	"	100		87.0	76-124	7.52	20	
Silver	106	1.0		100		106	60-140	0.00	40	
Thallium	90.4	2.5	"	100		90.4	80-120	7.76	20	
Vanadium	86.6	6.0	"	100		86.6	80-120	9.77	20	
Zinc	86.9	10	"	100		86.9	80-120	11.6	20	
Matrix Spike (B7A0580-MS1)	Sou	rce: 170105	4-20	Prepared:	01/05/17	Analyzed	1: 01/09/17			
Antimony	76.4	2.3	mg/kg	90.3	0.42	84.1	60-140			
Arsenic	85.4	3.2	"	90.3	ND	94.6	70-130			
Barium	182	5.9		90.3	80	113	70-130			
Beryllium	84.0	0.45	"	90.3	0.10	92.9	70-130			
Cadmium	83.8	0.45	"	90.3	0.025	92.8	70-130			
Chromium	105	2.7	"	90.3	21	93.0	70-130			
Cobalt	93.0	2.3	"	90.3	7.9	94.2	70-130			
Copper	105	1.8	"	90.3	13	102	70-130			
Lead	84.2	2.7	"	90.3	3.0	89.9	70-130			
Molybdenum	84.4	0.90	"	90.3	0.38	93.0	70-130			
Nickel	101	3.6	"	90.3	13	97.5	70-130			
Selenium	83.8	5.4	"	90.3	ND	92.8	70-130			
Silver	85.6	0.90	"	90.3	0.10	94.7	60-140			
m 11'				00.2	ND	00.0	70 120			
Thallium	81.3	2.3		90.3	ND	90.0	70-150			
Thallium Vanadium	81.3 117	2.3 5.4	"	90.3 90.3	ND 32	90.0 94.1	70-130 70-130			



Mearns Consulting LLC	Project:	SHPI-Amerigas	
738 Ashland Avenue	Project Number:	[none]	Reported:
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24
	Matala ha EDA (000/7000 Sam	ing Mathada - Owality Control	

Metals by EPA 6000/7000 Series Methods - Quality Control

Sierra Analytical	Labs,	Inc.
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		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B7A0580 - EPA 3050B										
Matrix Spike Dup (B7A0580-MSD1)	Sou	rce: 170105	4-20	Prepared:	01/05/17	Analyzed	1: 01/09/17			
Antimony	74.8	2.3	mg/kg	90.5	0.42	82.2	60-140	2.12	20	
Arsenic	83.7	3.2	"	90.5	ND	92.5	70-130	2.01	20	
Barium	178	5.9	"	90.5	80	108	70-130	2.22	20	
Beryllium	82.7	0.45	"	90.5	0.10	91.3	70-130	1.56	20	
Cadmium	82.5	0.45	"	90.5	0.025	91.1	70-130	1.56	20	
Chromium	108	2.7	"	90.5	21	96.1	70-130	2.82	20	
Cobalt	91.5	2.3	"	90.5	7.9	92.4	70-130	1.63	20	
Copper	104	1.8	"	90.5	13	101	70-130	0.957	30	
Lead	82.8	2.7	"	90.5	3.0	88.2	70-130	1.68	30	
Molybdenum	83.1	0.90	"	90.5	0.38	91.4	70-130	1.55	20	
Nickel	98.5	3.6	"	90.5	13	94.5	70-130	2.51	20	
Selenium	80.8	5.4	"	90.5	ND	89.3	70-130	3.65	20	
Silver	87.4	0.90	"	90.5	0.10	96.5	60-140	2.08	40	
Thallium	80.8	2.3	"	90.5	ND	89.3	70-130	0.617	20	
Vanadium	115	5.4	"	90.5	32	91.7	70-130	1.72	20	
Zinc	121	9.0	"	90.5	38	91.7	70-130	1.64	20	

Batch B7A0581 - EPA 7471A

Blank (B7A0581-BLK1)				Prepared:	01/05/17	Analyzed	: 01/06/17		
Mercury	ND	0.01	mg/kg						
LCS (B7A0581-BS1)				Prepared:	01/05/17	Analyzed	: 01/06/17		
Mercury	0.17	0.01	mg/kg	0.167		102	70-130		
Matrix Spike (B7A0581-MS1)	Source	e: 1701054	4-01	Prepared:	01/05/17	Analyzed	: 01/06/17		
Mercury	0.15	0.01	mg/kg	0.151	0.03	79.5	70-130		



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Pr Project Nu Project Ma	roject: SI mber: [na nager: Su	HPI-Ameri one] san Mearns	gas		Reported: 01/12/17 09:24			
	Metals by EPA	6000/700	0 Series	Methods	- Quality	y Contro	1			
		Sierra Ai	nalytica	l Labs, I	nc.					
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7A0581 - EPA 7471A										
Matrix Spike Dup (B7A0581-MSD1)	Sou	rce: 170105	4-01	Prepared:	01/05/17	Analyzed	l: 01/06/17			
Mercury	0.15	0.01	mg/kg	0.151	0.03	79.5	70-130	0.00	30	
Batch B7A0582 - EPA 7471A										
Blank (B7A0582-BLK1)				Prepared:	01/05/17	Analyzed	l: 01/06/17			
Mercury	ND	0.01	mg/kg							
LCS (B7A0582-BS1)				Prepared:	01/05/17	Analyzed	l: 01/06/17			
Mercury	0.17	0.01	mg/kg	0.167		102	70-130			
Matrix Spike (B7A0582-MS1)	Sou	rce: 170105	4-11	Prepared:	01/05/17	Analyzed	l: 01/06/17			
Mercury	0.14	0.01	mg/kg	0.164	0.01	79.3	70-130			
Matrix Spike Dup (B7A0582-MSD1)	Sou	rce: 170105	4-11	Prepared:	01/05/17	Analyzed	1: 01/06/17			
Mercury	0.14	0.01	mg/kg	0.164	0.01	79.3	70-130	0.00	30	
Batch B7A0583 - EPA 7471A										
Blank (B7A0583-BLK1)				Prepared:	01/05/17	Analyzed	l: 01/06/17			
Mercury	ND	0.01	mg/kg							
LCS (B7A0583-BS1)				Prepared:	01/05/17	Analyzed	l: 01/06/17			
Mercury	0.16	0.01	mg/kg	0.167		95.8	70-130			
Matrix Spike (B7A0583-MS1)	Sou	rce: 170105	4-21	Prepared:	01/05/17	Analyzed	l: 01/06/17			
Mercury	0.16	0.01	mg/kg	0.165	0.03	78.8	70-130			



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Pr Project Nu Project Mar	roject: SI mber: [ne nager: Su	HPI-Ameri one] Isan Mearns	gas			Reported: 01/12/17 09:24		
	Metals by EPA	6000/700	0 Series	Methods	- Quality	y Contro	1			
		Sierra Aı	nalytica	l Labs, I	nc.					
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7A0583 - EPA 7471A										
Matrix Spike Dup (B7A0583-MSD1)	Sou	rce: 170105	4-21	Prepared:	01/05/17	Analyzed	1: 01/06/17			
Mercury	0.16	0.01	mg/kg	0.167	0.03	77.8	70-130	0.00	30	
Batch B7A0585 - EPA 3060A										
Blank (B7A0585-BLK1)				Prepared:	01/05/17	Analyzed	l: 01/09/17			
Hexavalent Chromium	ND	0.21	mg/kg							
LCS (B7A0585-BS1)				Prepared:	01/05/17	Analyzed	l: 01/09/17			
Hexavalent Chromium	0.161	0.21	mg/kg	0.150		107	80-120			
Matrix Spike (B7A0585-MS1)	Sou	rce: 170105	4-01	Prepared:	01/05/17	Analyzed	l: 01/09/17			
Hexavalent Chromium	0.163	0.21	mg/kg	0.138	ND	118	75-125			
Matrix Spike Dup (B7A0585-MSD1)	Sou	rce: 170105	4-01	Prepared:	01/05/17	Analyzed	l: 01/09/17			
Hexavalent Chromium	0.159	0.21	mg/kg	0.138	ND	115	75-125	2.48	20	
Batch B7A0586 - EPA 3060A										
Blank (B7A0586-BLK1)				Prepared:	01/05/17	Analyzed	l: 01/09/17			
Hexavalent Chromium	ND	0.21	mg/kg							
LCS (B7A0586-BS1)				Prepared:	01/05/17	Analyzed	1: 01/09/17			
Hexavalent Chromium	0.161	0.21	mg/kg	0.150		107	80-120			
Matrix Spike (B7A0586-MS1)	Sou	rce: 170105	4-11	Prepared:	01/05/17	Analyzed	l: 01/09/17			
Hexavalent Chromium	0.152	0.21	mg/kg	0.140	ND	109	75-125			



Mearns Consulting LLC			Papartadi							
/ 38 Ashiand Avenue Santa Monica CA 90405		Project Nu Project Mar	nager: Su	onej Isan Mearns					мерогие 01/12/17 (u:)Q·2/
Santa MOIIICa CA, 90403		i iojeci iviai	nager. Su	isali ivical'ils					01/12/17	17.24
	Metals by EPA	6000/700	0 Series	Methods	- Quality	y Contro	1			
	S	ierra Aı	nalytica	l Labs, I	nc.					
		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B7A0586 - EPA 3060A										
Matrix Spike Dup (B7A0586-MSD1)	Source: 1701054-11			Prepared:	01/05/17	Analyzed	1: 01/09/17			
Hexavalent Chromium	0.155	0.21	mg/kg	0.140	ND	111	75-125	1.95	20	
Batch B7A0587 - EPA 3060A										
Blank (B7A0587-BLK1)				Prepared:	01/05/17	Analyzed	1: 01/09/17			
Hexavalent Chromium	ND	0.21	mg/kg							
LCS (B7A0587-BS1)				Prepared:	01/05/17	Analyzed	1: 01/09/17			
Hexavalent Chromium	0.151	0.21	mg/kg	0.150		101	80-120			
Matrix Spike (B7A0587-MS1)	Sourc	ce: 170105	4-21	Prepared:	01/05/17	Analyzed	1: 01/09/17			
Hexavalent Chromium	0.244	0.21	mg/kg	0.150	0.12	82.7	75-125			
Matrix Spike Dup (B7A0587-MSD1)	Sourc	ce: 170105	4-21	Prepared:	01/05/17	Analyzed	1: 01/09/17			
Hexavalent Chromium	0.248	0.21	mg/kg	0.150	0.12	85.3	75-125	1.63	20	



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA 200405		Project Nu Project Ma		Reported:						
Santa Monica CA, 90405	(1) D (1		nager: St		O O/FT				01/12/17	J9:24
Total Vola	tile Petroleu	m Hydroca	rbons ('	TVPH) by	GC/FII) - Quali	ty Contro	DI		
		Sierra A	nalytica	ıl Labs, Iı	nc.					
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7A0558 - EPA 5035 P & T										
Blank (B7A0558-BLK1)				Prepared a	& Analyz					
Gasoline Range Hydrocarbons (C4-C12)	ND	0.050	mg/kg	*						
Surrogate: a,a,a-Trifluorotoluene	0.0214		"	0.0200		107	35-130			
Blank (B7A0558-BLK2)				Prepared a	& Analyz					
Gasoline Range Hydrocarbons (C4-C12)	ND	0.050	mg/kg							
Surrogate: a,a,a-Trifluorotoluene	0.0182		"	0.0200		91.0	35-130			
LCS (B7A0558-BS1)				Prepared a	& Analyz	ed: 01/05/	17			
Gasoline Range Hydrocarbons (C4-C12)	0.601	0.050	mg/kg	0.600		100	85-115			
LCS (B7A0558-BS2)				Prepared a	& Analyz	ed: 01/05/	17			
Gasoline Range Hydrocarbons (C4-C12)	0.532	0.050	mg/kg	0.600		88.7	85-115			
Matrix Spike (B7A0558-MS1)	Sou	ırce: 170105	54-19	Prepared a	& Analyz	ed: 01/05/	17			
Gasoline Range Hydrocarbons (C4-C12)	0.624	0.050	mg/kg	0.600	ND	104	50-150			
Matrix Spike (B7A0558-MS2)	Sou	rce: 170105	54-26	Prepared a	& Analyz	ed: 01/05/	17			
Gasoline Range Hydrocarbons (C4-C12)	0.572	0.050	mg/kg	0.600	ND	95.3	50-150			
Matrix Spike Dup (B7A0558-MSD1)	Sou	ırce: 170105	54-19	Prepared a	& Analyz	ed: 01/05/	17			
Gasoline Range Hydrocarbons (C4-C12)	0.566	0.050	mg/kg	0.600	ND	94.3	50-150	9.75	30	
Matrix Spike Dup (B7A0558-MSD2)	Sou	ırce: 170105	54-26	Prepared a	& Analyz	ed: 01/05/	17			
Gasoline Range Hydrocarbons (C4-C12)	0.543	0.050	mg/kg	0.600	ND	90.5	50-150	5.20	30	



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Project Nu Project Ma	Reporte 01/12/17 (Reported: 01/12/17 09:24						
Tota	l Petroleum Hy	drocarbo	ons (TPI	H) by GC/	FID - Qu	ality Co	ontrol			
	S	Sierra A	nalytica	d Labs, I	nc.					
	_	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B7A0954 - EPA 3550B Solid	Ext									
Blank (B7A0954-BLK1)				Prepared	& Analyze	ed: 01/06/	17			
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg							
Oil Range Organics (C22-C36)	ND	5.0	"							
Surrogate: o-Terphenyl	2.40		"	2.50		96.0	60-175			
Surrogate: o-Terphenyl	2.40		"	2.50		96.0	60-175			
Blank (B7A0954-BLK2)				Prepared	& Analyz	ed: 01/06/	17			
Diesel Range Organics (C10-C24)	ND	5.0	mg/kg							
Oil Range Organics (C22-C36)	ND	5.0	"							
Surrogate: o-Terphenyl	2.17		"	2.50		86.8	60-175			
Surrogate: o-Terphenyl	2.17		"	2.50		86.8	60-175			
LCS (B7A0954-BS1)				Prepared	& Analyze	ed: 01/06/	17			
Diesel Range Organics (C10-C24)	52.3	5.0	mg/kg	50.0		105	80-120			
Diesel Range Organics (C10-C24)	52.3	5.0	"	50.0		105	80-120			
LCS (B7A0954-BS2)				Prepared	& Analyze	ed: 01/06/	17			
Diesel Range Organics (C10-C24)	44.0	5.0	mg/kg	50.0	•	88.0	80-120			
Diesel Range Organics (C10-C24)	44.0	5.0	"	50.0		88.0	80-120			
Matrix Spike (B7A0954-MS1)	Sour	ce: 170105	4-01	Prepared	& Analyz	ed: 01/06/	17			
Diesel Range Organics (C10-C24)	61.6	5.0	mg/kg	50.0	ND	123	50-150			
Diesel Range Organics (C10-C24)	61.6	5.0	"	50.0	ND	123	50-150			
Matrix Spike (B7A0954-MS2)	Sour	ce: 170105	4-21	Prepared	& Analyze	ed: 01/06/	17			
Diesel Range Organics (C10-C24)	48.1	5.0	mg/kg	50.0	ND	96.2	50-150			
Diesel Range Organics (C10-C24)	48.1	5.0	"	50.0	ND	96.2	50-150			
Matrix Spike Dup (B7A0954-MSD1)	Sour	ce: 170105	4-01	Prepared	& Analyze	ed: 01/06/	17			
Diesel Range Organics (C10-C24)	58.0	5.0	mg/kg	50.0	ND	116	50-150	6.02	30	
Diesel Range Organics (C10-C24)	58.0	5.0	"	50.0	ND	116	50-150	6.02	30	



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Mearns Consulting LLC Project: SHPI-Amerigas											
738 Ashland Avenue		Project Nu	mber: [no	one]	0		Reported:				
Santa Monica CA, 90405		Project Mar	nager: Su	r: Susan Mearns 01/12/17							
2	Fotal Petroleum H	ydrocarbo Sierra Ar	ns (TPH nalytica	H) by GC/ Il Labs, I	FID - Qu nc.	ality Co	ntrol				
		Reporting		Spike	Source		%REC		RPD		
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes	
Batch B740954 - FP4 3550B So	lid Fyt										

Balch B/A0954 - EPA 5550B Solid Ext

Matrix Spike Dup (B7A0954-MSD2)	Source: 1701054-21 Prepared & Analyzed: 01/06/17								
Diesel Range Organics (C10-C24)	48.4	5.0	mg/kg	50.0	ND	96.8	50-150	0.622	30
Diesel Range Organics (C10-C24)	48.4	5.0	"	50.0	ND	96.8	50-150	0.622	30



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405	Project: SHPI-Amerigas Project Number: [none] Project Manager: Susan Mearns								Reported: 01/12/17 09:24		
Total Petroleu	m Hydrocar	bons Carb	on Rang	e Analysis	s by GC-	FID - Q	uality Co	ntrol			
		Sierra Ai	nalytica	l Labs, I	nc.						
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B7A0558 - EPA 5035 P & T											
Blank (B7A0558-BLK1)				Prepared	& Analyze	ed: 01/05/	17				
$C5 \leq HC < C6$	ND	0.010	mg/kg								
$C6 \leq HC < C7$	ND	0.010	"								
$C7 \leq HC < C8$	ND	0.010	"								
$C8 \leq HC < C9$	ND	0.010	"								
$C9 \le HC < C10$	ND	0.010	"								
C10 <= HC < C11	ND	0.010	"								
C11 <= HC < C12	ND	0.010	"								
$HC \ge C12$	ND	0.010	"								
Total Petroleum Hydrocarbons (C4-C12)	ND	0.050	"								
Surrogate: a,a,a-Trifluorotoluene	0.0214		"	0.0200		107	35-130				
Blank (B7A0558-BLK2)				Prepared	& Analyze	ed: 01/05/	17				
$\overline{C5} \le HC < C6$	ND	0.010	mg/kg								
$C6 \leq HC < C7$	ND	0.010	"								
$C7 \leq HC < C8$	ND	0.010	"								
$C8 \leq HC < C9$	ND	0.010	"								
C9 <= HC < C10	ND	0.010	"								
C10 <= HC < C11	ND	0.010	"								
C11 <= HC < C12	ND	0.010	"								
$HC \ge C12$	ND	0.010	"								
Total Petroleum Hydrocarbons (C4-C12)	ND	0.050	"								
Surrogate: a,a,a-Trifluorotoluene	0.0182		"	0.0200		91.0	35-130				
LCS (B7A0558-BS1)				Prepared	& Analyze	ed: 01/05/	17				
Gasoline Range Hydrocarbons (C4-C12)	0.601	0.050	mg/kg	0.600		100	80-120				
LCS (B7A0558-BS2)				Prepared	& Analyze	ed: 01/05/	17				
Gasoline Range Hydrocarbons (C4-C12)	0.532	0.050	mg/kg	0.600		88.7	80-120				



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405	Project: SHPI-Amerigas Project Number: [none] Project Manager: Susan Mearns								Reported: 01/12/17 09:24		
Total Petroleu	m Hydrocarb	ons Carbo	on Rang	ge Analysis	s by GC-	FID - Q	uality Co	ntrol			
	:	Sierra Ai	nalytica	ıl Labs, Iı	nc.						
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B7A0558 - EPA 5035 P & T											
Matrix Spike (B7A0558-MS1)	Sour	Source: 1701054-19		Prepared	& Analyze	ed: 01/05/	17				
Gasoline Range Hydrocarbons (C4-C12)	0.624	0.050	mg/kg	0.600	ND	104	50-150				
Matrix Spike (B7A0558-MS2)	Sour	·ce: 170105	4-26	Prepared & Analyzed: 01/05/17							
Gasoline Range Hydrocarbons (C4-C12)	0.572	0.050	mg/kg	0.600	ND	95.3	50-150				
Matrix Spike Dup (B7A0558-MSD1)	Sour	·ce: 170105	4-19	Prepared	& Analyze	ed: 01/05/	17				
Gasoline Range Hydrocarbons (C4-C12)	0.566	0.050	mg/kg	0.600	ND	94.3	50-150	9.75	30		
Matrix Spike Dup (B7A0558-MSD2)	Sour	·ce: 170105	4-26	Prepared	& Analyze	ed: 01/05/	17				
Gasoline Range Hydrocarbons (C4-C12)	0.543	0.050	mg/kg	0.600	ND	90.5	50-150	5.20	30		
Datab D740054 ED4 2550D Salid Ev	~t										
Datch D7A0754 - E1 A 5550D Sonu E.	AL			Duananad	P. Analuzz	d. 01/06/	17				
$\frac{\text{Dialk} (\text{D}/\text{A0954-DLK1})}{\text{HC} < C8}$	ND	1.0	mg/kg	riepaieu	& Allalyza	eu. 01/00/	17				
$C8 \leq HC \leq C9$	ND	1.0	" "								
$C9 \leq HC \leq C10$	ND	1.0	"								
$C10 \le HC \le C11$	ND	1.0	"								
$C_{11} \leq HC \leq C_{12}$	ND	1.0	"								
$C12 \le HC \le C14$	ND	1.0	"								
$C14 \le HC \le C16$	ND	1.0	"								
C16 <= HC < C18	ND	1.0	"								
C18 <= HC < C20	ND	1.0	"								
C20 <= HC < C24	ND	1.0	"								
C24 <= HC < C28	ND	1.0	"								
C28 <= HC < C32	ND	1.0	"								
HC >= C32	ND	1.0	"								
Total Petroleum Hydrocarbons (C7-C36)	ND	5.0	"								
Surrogate: o-Terphenyl	2.40		"	2.50		96.0	60-175				



Mearns Consulting LLC	Project: S	SHPI-Amerigas	
738 Ashland Avenue	Project Number: [r	none]	Reported:
Santa Monica CA, 90405	Project Manager: S	usan Mearns	01/12/17 09:24
T-4-1 D-4			

Total Petroleum Hydrocarbons Carbon Range Analysis by GC-FID - Quality Control

Sierra Analytical Labs, Inc.

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B7A0954 - EPA 3550B Solid I	Ext									
Blank (B7A0954-BLK2)				Prepared	& Analyz	ed: 01/06/	17			
HC < C8	ND	1.0	mg/kg							
$C8 \le HC < C9$	ND	1.0	"							
C9 <= HC < C10	ND	1.0	"							
C10 <= HC < C11	ND	1.0	"							
C11 <= HC < C12	ND	1.0	"							
C12 <= HC < C14	ND	1.0	"							
C14 <= HC < C16	ND	1.0	"							
C16 <= HC < C18	ND	1.0	"							
C18 <= HC < C20	ND	1.0	"							
$C20 \ll HC \ll C24$	ND	1.0	"							
$C24 \leq HC < C28$	ND	1.0	"							
C28 <= HC < C32	ND	1.0	"							
$HC \ge C32$	ND	1.0	"							
Total Petroleum Hydrocarbons (C7-C36)	ND	5.0	"							
Surrogate: o-Terphenyl	2.17		"	2.50		86.8	60-175			
LCS (B7A0954-BS1)				Prepared	& Analyz	ed: 01/06/	17			
Diesel Range Organics (C10-C24)	52.3	5.0	mg/kg	50.0		105	80-120			
LCS (B7A0954-BS2)				Prepared	& Analyz	ed: 01/06/	17			
Diesel Range Organics (C10-C24)	44.0	5.0	mg/kg	50.0	i	88.0	80-120			
Matrix Spike (B7A0954-MS1)	Sou	ırce: 170105	4-01	Prepared	& Analyz	ed: 01/06/	17			
Diesel Range Organics (C10-C24)	61.6	5.0	mg/kg	50.0	ND	123	50-150			
Matrix Spike (B7A0954-MS2)	Sou	irce: 170105	4-21	Prepared	& Analyz	ed: 01/06/	17			
Diesel Range Organics (C10-C24)	48.1	5.0	mg/kg	50.0	ND	96.2	50-150			



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Matrix Snike Dun (B7A0954-MSD2)	Sour	ce: 170105	4-21	Prenared	& Analyze	ed: 01/06/	17				
Diesel Range Organics (C10-C24)	58.0	5.0	mg/kg	50.0	ND	116	50-150	6.02	30		
Matrix Spike Dup (B7A0954-MSD1)	Sour	ce: 170105	4-01	Prepared	& Analyze	ed: 01/06/	17				
Batch B7A0954 - EPA 3550B Solid E	xt										
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	КРD	Limit	Notes	
l		Reporting	TT T .	Spike	Source	N DEC	%REC	000	RPD	N7 .	
	\$	Sierra Ar	nalytica	al Labs, I	nc.						
Total Petroleu	m Hydrocarb	ons Carbo	on Rang	ge Analysi	s by GC-	FID - Qı	uality Co	ntrol			
Santa Monica CA, 90405		Project Mar	nager: Su	isan Mearns	5			01/12/17 09:24			
738 Ashland Avenue		Project Nu	mber: [n	one]					Reported:		
Mearns Consulting LLC		Pr	oject: S	HPI-Ameri	gas						

Matrix Spike Dup (D/A0/54-MSD2)	Source. 17	Source: 1701054-21 Trepared & Maryzed. 01/00/17									
Diesel Range Organics (C10-C24)	48.4	5.0	mg/kg	50.0	ND	96.8	50-150	0.622	30		



Mearns Consulting LLC 738 Ashland Avenue	Project: Project Number:	SHPI-Amerigas [none]	Reported:									
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24									
	Volatile Organic Compounds by EPA Method 8260B - Quality Control											
	Sierra Analytical Labs, Inc.											

RPD %REC Reporting Spike Source %REC Result Limit Level Result Limits RPD Limit Notes Analyte Units Batch B7A0571 - EPA 5035 P & T Blank (B7A0571-BLK1) Prepared & Analyzed: 01/05/17 Benzene ND 5.0 µg/kg Bromobenzene ND 5.0 " Bromochloromethane ND 5.0 .. Bromodichloromethane ND 5.0 Bromoform 5.0 ND Bromomethane ND 5.0 n-Butylbenzene ND 5.0 sec-Butylbenzene ND 5.0 tert-Butylbenzene ND 5.0 Carbon tetrachloride ND 5.0 Chlorobenzene ND 5.0 Chloroethane ND 5.0 Chloroform ND 5.0 5.0 Chloromethane ND 2-Chlorotoluene ND 5.0 4-Chlorotoluene ND 5.0 Dibromochloromethane ND 5.0 1,2-Dibromo-3-chloropropane ND 5.0 ND 1,2-Dibromoethane (EDB) 5.0 Dibromomethane ND 5.0 1,2-Dichlorobenzene 5.0 ND 1,3-Dichlorobenzene ND 5.0 1,4-Dichlorobenzene ND 5.0 Dichlorodifluoromethane ND 5.0 1,1-Dichloroethane ND 5.0 1,2-Dichloroethane ND 5.0 1,1-Dichloroethene ND 5.0 ND cis-1,2-Dichloroethene 5.0 trans-1,2-Dichloroethene ND 5.0 1,2-Dichloropropane ND 5.0 1,3-Dichloropropane ND 5.0 2,2-Dichloropropane ND 5.0 ND 1,1-Dichloropropene 5.0 cis-1,3-Dichloropropene ND 5.0 trans-1,3-Dichloropropene ND 5.0 Ethylbenzene ND 5.0 Hexachlorobutadiene ND 5.0



Mearns Consulting LLC 738 Ashland Avenue	Project: SHPI-Amerigas Project Number: [none]								Reported:		
Santa Monica CA, 90405	Project Manager: Susan Mearns								01/12/17 (09:24	
Vol	atile Organic Co	ompounds	by EPA I	Method 8	260B - Q	Quality C	ontrol				
		Sierra Aı	nalytica	l Labs, I	nc.						
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B7A0571 - EPA 5035 P & T	[
Blank (B7A0571-BLK1)				Prepared	& Analvze	ed: 01/05/	17				
Isopropylbenzene	ND	5.0	µg/kg	1							
p-Isopropyltoluene	ND	5.0	"								
Methylene chloride	ND	5.0	"								
Methyl tert-butyl ether	ND	5.0	"								
Naphthalene	ND	5.0	"								
n-Propylbenzene	ND	5.0	"								
Styrene	ND	5.0	"								
1,1,1,2-Tetrachloroethane	ND	5.0	"								
1,1,2,2-Tetrachloroethane	ND	5.0	"								
Tetrachloroethene	ND	5.0	"								
Toluene	ND	5.0	"								
1,2,3-Trichlorobenzene	ND	5.0	"								
1,2,4-Trichlorobenzene	ND	5.0	"								
1,1,1-Trichloroethane	ND	5.0	"								
1,1,2-Trichloroethane	ND	5.0	"								
Trichloroethene	ND	5.0	"								
Trichlorofluoromethane	ND	5.0	"								
1,2,3-Trichloropropane	ND	5.0	"								
1,2,4-Trimethylbenzene	ND	5.0	"								
1,3,5-Trimethylbenzene	ND	5.0	"								
Vinyl chloride	ND	5.0	"								
m,p-Xylene	ND	5.0	"								
o-Xylene	ND	5.0	"								
Surrogate: Dibromofluoromethane	44.8		"	50.0		89.6	80-120				
Surrogate: Toluene-d8	53.6		"	50.0		107	81-117				
Surrogate: 4-Bromofluorobenzene	48.4		"	50.0		96.8	74-121				
LCS (B7A0571-BS1)				Prepared	& Analyze	ed: 01/05/	17				
Benzene	49.8	5.0	µg/kg	50.0	•	99.6	80-120				
Chlorobenzene	49.4	5.0	"	50.0		98.8	80-120				
1,1-Dichloroethene	48.9	5.0	"	50.0		97.8	80-120				
Toluene	52.4	5.0	"	50.0		105	80-120				
Trichloroethene	46.2	5.0	"	50.0		92.4	80-120				



Mearns Consulting LLC	Project:	SHPI-Amerigas	
738 Ashland Avenue	Project Number:	[none]	Reported:
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Sierra Analytical Labs, Inc.

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch B7A0571 - EPA 5035 P & T

Matrix Spike (B7A0571-MS1)	Source: 1'	701054	-15	Prepared: 0	1/05/17	Analyzed:	01/06/17		
Benzene	54.1	5.0	µg/kg	50.0	ND	108	37-151		
Chlorobenzene	54.1	5.0	"	50.0	ND	108	37-160		
1,1-Dichloroethene	54.5	5.0	"	50.0	ND	109	50-150		
Toluene	59.0	5.0	"	50.0	ND	118	47-150		
Trichloroethene	46.7	5.0	"	50.0	ND	93.4	71-157		
Matrix Spike Dup (B7A0571-MSD1)	Source: 1'	701054	-15	Prepared: 0	1/05/17	Analyzed:	01/06/17		
Benzene	54.6	5.0	µg/kg	50.0	ND	109	37-151	0.920	30
Chlorobenzene	53.6	5.0	"	50.0	ND	107	37-160	0.929	30
1,1-Dichloroethene	58.5	5.0	"	50.0	ND	117	50-150	7.08	30
Toluene	58.6	5.0	"	50.0	ND	117	47-150	0.680	30
Trichloroethene	41.2	5.0	"	50.0	ND	82.4	71-157	12.5	30

Batch B7A0572 - EPA 5035 P & T

Blank (B7A0572-BLK1)				Prepared: 01/05/17 Analyzed: 01/06/17
Benzene	ND	5.0	µg/kg	
Bromobenzene	ND	5.0	"	
Bromochloromethane	ND	5.0		
Bromodichloromethane	ND	5.0		
Bromoform	ND	5.0		
Bromomethane	ND	5.0		
n-Butylbenzene	ND	5.0		
sec-Butylbenzene	ND	5.0		
tert-Butylbenzene	ND	5.0		
Carbon tetrachloride	ND	5.0		
Chlorobenzene	ND	5.0		
Chloroethane	ND	5.0		
Chloroform	ND	5.0		
Chloromethane	ND	5.0		
2-Chlorotoluene	ND	5.0		
4-Chlorotoluene	ND	5.0		
Dibromochloromethane	ND	5.0		
1,2-Dibromo-3-chloropropane	ND	5.0		
1,2-Dibromoethane (EDB)	ND	5.0		
Dibromomethane	ND	5.0		
1,2-Dichlorobenzene	ND	5.0		
1,3-Dichlorobenzene	ND	5.0	"	



1,2,4-Trimethylbenzene

1,3,5-Trimethylbenzene

Vinyl chloride

m,p-Xylene

Mearns Consulting LLC 738 Ashland Avenue		Pr Project Nu	mber: [no	lPI-Ameri ne]	gas				Reported:			
Santa Monica CA, 90405		Project Mai	nager: Sus	san Mearns					01/12/17 ()9:24		
V	olatile Organic C	ompounds l	by EPA I	Method 8	260B - Q	Quality C	ontrol					
		Sierra Ai	nalytical	l Labs, I	nc.							
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes		
Batch B7A0572 - EPA 5035 P &	: T											
Blank (B7A0572-BLK1)				Prepared:	01/05/17	Analyzed	: 01/06/17					
,4-Dichlorobenzene	ND	5.0	µg/kg									
Dichlorodifluoromethane	ND	5.0	"									
,1-Dichloroethane	ND	5.0	"									
,2-Dichloroethane	ND	5.0	"									
,1-Dichloroethene	ND	5.0	"									
is-1,2-Dichloroethene	ND	5.0	"									
rans-1,2-Dichloroethene	ND	5.0	"									
,2-Dichloropropane	ND	5.0	"									
,3-Dichloropropane	ND	5.0	"									
,2-Dichloropropane	ND	5.0	"									
,1-Dichloropropene	ND	5.0	"									
is-1,3-Dichloropropene	ND	5.0	"									
rans-1,3-Dichloropropene	ND	5.0	"									
Ethylbenzene	ND	5.0	"									
Iexachlorobutadiene	ND	5.0	"									
sopropylbenzene	ND	5.0	"									
o-Isopropyltoluene	ND	5.0	"									
Aethylene chloride	ND	5.0	"									
Methyl tert-butyl ether	ND	5.0	"									
Naphthalene	ND	5.0	"									
-Propylbenzene	ND	5.0	"									
Styrene	ND	5.0	"									
,1,1,2-Tetrachloroethane	ND	5.0	"									
,1,2,2-Tetrachloroethane	ND	5.0	"									
Tetrachloroethene	ND	5.0	"									
oluene	ND	5.0	"									
,2,3-Trichlorobenzene	ND	5.0	"									
,2,4-Trichlorobenzene	ND	5.0	"									
,1,1-Trichloroethane	ND	5.0	"									
,1,2-Trichloroethane	ND	5.0	"									
richloroethene	ND	5.0	"									
richlorofluoromethane	ND	5.0	"									
,2,3-Trichloropropane	ND	5.0	"									

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

5.0

5.0

5.0

5.0

ND

ND

ND

ND



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Project: SHPI-Amerigas Project Number: [none] Project Manager: Susan Mearns								
Ve	olatile Organic Cor	npounds l	oy EPA	Method 8	8260B - Q	Quality C	ontrol			
	\$	Sierra Ar	nalytica	d Labs, I	nc.					
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7A0572 - EPA 5035 P &	Т									
Blank (B7A0572-BLK1)				Prepared:	01/05/17	Analyzed	l: 01/06/17			
o-Xylene	ND	5.0	µg/kg							
Surrogate: Dibromofluoromethane	50.5		"	50.0		101	80-120			
Surrogate: Toluene-d8	49.0		"	50.0		98.0	81-117			
Surrogate: 4-Bromofluorobenzene	52.8		"	50.0		106	74-121			
LCS (B7A0572-BS1)				Prepared:	01/05/17	Analyzed	1: 01/06/17			
Benzene	49.2	5.0	µg/kg	50.0		98.4	80-120			
Chlorobenzene	48.7	5.0	"	50.0		97.4	80-120			
1,1-Dichloroethene	49.0	5.0	"	50.0		98.0	80-120			
Toluene	53.3	5.0	"	50.0		107	80-120			
Trichloroethene	48.7	5.0	"	50.0		97.4	80-120			
Matrix Spike (B7A0572-MS1)	Sour	ce: 170105	4-16	Prepared:	01/05/17	Analyzed	1: 01/06/17			
Benzene	58.0	5.0	µg/kg	50.0	ND	116	37-151			
Chlorobenzene	49.7	5.0	"	50.0	ND	99.4	37-160			
1,1-Dichloroethene	55.1	5.0	"	50.0	ND	110	50-150			
Toluene	57.8	5.0	"	50.0	ND	116	47-150			
Trichloroethene	49.0	5.0	"	50.0	ND	98.0	71-157			
Matrix Spike Dup (B7A0572-MSD1) Sour	ce: 170105	4-16	Prepared:	01/05/17	Analyzed	1: 01/06/17			
Benzene	55.0	5.0	µg/kg	50.0	ND	110	37-151	5.31	30	
Chlorobenzene	57.9	5.0	"	50.0	ND	116	37-160	15.2	30	
1,1-Dichloroethene	54.1	5.0	"	50.0	ND	108	50-150	1.83	30	
Toluene	51.6	5.0	"	50.0	ND	103	47-150	11.3	30	
Trichloroethene	49.4	5.0	"	50.0	ND	98.8	71-157	0.813	30	



4,6-Dinitro-2-methylphenol

2,4-Dinitrotoluene

2,6-Dinitrotoluene

Mearns Consulting LLC 738 Ashland Avenue	Project: Project Number:	SHPI-Amerigas	Reported:
Santa Monica CA, 90405	Project Manager:	Susan Mearns	01/12/17 09:24
	Semivolatile Organic Compounds by	EPA Method 8270C - Qualit	y Control

		Sierra Ai	nalytical	l Labs, I	nc.					
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7A0953 - EPA 3550B Solid Ext										
Blank (B7A0953-BLK1)				Prepared	& Analyze	ed: 01/05/	17			
Acenaphthene	ND	0.33	mg/kg	•	•					
Acenaphthylene	ND	0.33	"							
Anthracene	ND	0.33	"							
Benzidine	ND	0.33	"							
Benzo (a) anthracene	ND	0.33	"							
Benzo (b) fluoranthene	ND	0.33	"							
Benzo (k) fluoranthene	ND	0.33	"							
Benzo (a) pyrene	ND	0.33	"							
Benzo (g,h,i) perylene	ND	0.33	"							
Benzyl alcohol	ND	0.33	"							
Bis(2-chloroethyl)ether	ND	0.33	"							
Bis(2-chloroethoxy)methane	ND	0.33	"							
Bis(2-ethylhexyl)phthalate	ND	0.33	"							
Bis(2-chloroisopropyl)ether	ND	0.33	"							
4-Bromophenyl phenyl ether	ND	0.33	"							
Butyl benzyl phthalate	ND	0.33	"							
4-Chloroaniline	ND	0.33	"							
2-Chlorophenol	ND	0.33	"							
4-Chloro-3-methylphenol	ND	0.33	"							
2-Chloronaphthalene	ND	0.33	"							
4-Chlorophenyl phenyl ether	ND	0.33	"							
Chrysene	ND	0.33	"							
Dibenz (a,h) anthracene	ND	0.33	"							
Dibenzofuran	ND	0.33	"							
1,3-Dichlorobenzene	ND	0.33	"							
1,2-Dichlorobenzene	ND	0.33	"							
1,4-Dichlorobenzene	ND	0.33	"							
3.3'-Dichlorobenzidine	ND	0.33	"							
2.4-Dichlorophenol	ND	0.33	"							
Diethyl phthalate	ND	0.33	"							
2,4-Dimethylphenol	ND	0.33	"							
Dimethyl phthalate	ND	0.33	"							
Di-n-butyl phthalate	ND	0.33	"							
2,4-Dinitrophenol	ND	0.33	"							
4,6-Dinitro-2-methylphenol	ND	0.33	"							

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

0.33

0.33

ND

ND

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Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405			Reported: 01/12/17 09:24								
Semivolatile Organic Compounds by EPA Method 8270C - Quality Control Sierra Analytical Labs Inc											
		Sierra Ai	alytica	I Labs, I	nc.						
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B7A0953 - EPA 3550B Solie	d Ext										
Blank (B7A0953-BLK1)				Prepared	& Analyze	ed: 01/05/1	17				
Di-n-octyl phthalate	ND	0.33	mg/kg								
1,2-Diphenylhydrazine	ND	0.33	"								
Fluoranthene	ND	0.33	"								
Fluorene	ND	0.33	"								
Hexachlorobenzene	ND	0.33	"								
Hexachlorobutadiene	ND	0.33	"								
Hexachlorocyclopentadiene	ND	0.33	"								
Hexachloroethane	ND	0.33	"								
Indeno (1,2,3-cd) pyrene	ND	0.33	"								

Di-n-octyl phthalate	ND	0.33	mg/kg				
1,2-Diphenylhydrazine	ND	0.33	"				
Fluoranthene	ND	0.33	"				
Fluorene	ND	0.33	"				
Hexachlorobenzene	ND	0.33	"				
Hexachlorobutadiene	ND	0.33	"				
Hexachlorocyclopentadiene	ND	0.33	"				
Hexachloroethane	ND	0.33	"				
Indeno (1,2,3-cd) pyrene	ND	0.33	"				
Isophorone	ND	0.33	"				
2-Methylnaphthalene	ND	0.33					
2-Methylphenol	ND	0.33					
4-Methylphenol	ND	0.33	"				
Naphthalene	ND	0.33	"				
2-Nitroaniline	ND	0.33	"				
3-Nitroaniline	ND	0.33	"				
4-Nitroaniline	ND	0.33	"				
Nitrobenzene	ND	0.33	"				
2-Nitrophenol	ND	0.33	"				
4-Nitrophenol	ND	0.33	"				
N-Nitrosodimethylamine	ND	0.33	"				
Diphenylamine	ND	0.33	"				
N-Nitrosodi-n-propylamine	ND	0.33	"				
Pentachlorophenol	ND	0.33	"				
Phenanthrene	ND	0.33	"				
Phenol	ND	0.33	"				
Pyrene	ND	0.33	"				
1,2,4-Trichlorobenzene	ND	0.33	"				
2,4,5-Trichlorophenol	ND	0.33	"				
2,4,6-Trichlorophenol	ND	0.33	"				
Surrogate: 2-Fluorophenol	0.440		"	0.500	88.0	25-121	
Surrogate: Phenol-d6	0.468		"	0.500	93.6	24-113	
Surrogate: Nitrobenzene-d5	0.289		"	0.333	86.8	23-120	
Surrogate: 2-Fluorobiphenyl	0.298		"	0.333	89.5	30-115	
Surrogate: 2,4,6-Tribromophenol	0.402		"	0.500	80.4	19-122	
Surrogate: Terphenyl-d14	0.298		"	0.333	89.5	18-137	



Mearns Consulting LLC	Project:	SHPI-Amerigas	
738 Ashland Avenue Santa Monica CA, 90405	Project Number: Project Manager:	[none] Susan Mearns	Reported: 01/12/17 09:24
	Semivolatile Organic Compounds by	EPA Method 8270C - Quali	ty Control

Sierra Analytical Labs, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7A0953 - EPA 3550B Solid Ext										
Blank (B7A0953-BLK2)				Prepared a	& Analyze	ed: 01/06/1	17			
Acenaphthene	ND	0.33	mg/kg							
Acenaphthylene	ND	0.33	"							
Anthracene	ND	0.33	"							
Benzidine	ND	0.33	"							
Benzo (a) anthracene	ND	0.33	"							

Anthracene	ND	0.33	"
Benzidine	ND	0.33	"
Benzo (a) anthracene	ND	0.33	"
Benzo (b) fluoranthene	ND	0.33	"
Benzo (k) fluoranthene	ND	0.33	
Benzo (a) pyrene	ND	0.33	
Benzo (g,h,i) perylene	ND	0.33	"
Benzyl alcohol	ND	0.33	"
Bis(2-chloroethyl)ether	ND	0.33	"
Bis(2-chloroethoxy)methane	ND	0.33	
Bis(2-ethylhexyl)phthalate	ND	0.33	"
Bis(2-chloroisopropyl)ether	ND	0.33	"
4-Bromophenyl phenyl ether	ND	0.33	"
Butyl benzyl phthalate	ND	0.33	"
4-Chloroaniline	ND	0.33	"
2-Chlorophenol	ND	0.33	"
4-Chloro-3-methylphenol	ND	0.33	"
2-Chloronaphthalene	ND	0.33	"
4-Chlorophenyl phenyl ether	ND	0.33	"
Chrysene	ND	0.33	"
Dibenz (a,h) anthracene	ND	0.33	"
Dibenzofuran	ND	0.33	"
1,3-Dichlorobenzene	ND	0.33	"
1,2-Dichlorobenzene	ND	0.33	"
1,4-Dichlorobenzene	ND	0.33	"
3,3´-Dichlorobenzidine	ND	0.33	"
2,4-Dichlorophenol	ND	0.33	"
Diethyl phthalate	ND	0.33	"
2,4-Dimethylphenol	ND	0.33	"
Dimethyl phthalate	ND	0.33	"
Di-n-butyl phthalate	ND	0.33	"
2,4-Dinitrophenol	ND	0.33	"
4,6-Dinitro-2-methylphenol	ND	0.33	"
2.4-Dinitrotoluene	ND	0.33	"
2,6-Dinitrotoluene	ND	0.33	"



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405			Reported: 01/12/17 09:24							
Sen	nivolatile Organic	Compound	s by E	PA Method	1 8270C ·	Quality	Control			
		Sierra Aı	nalytic	al Labs, I	nc.					
		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B7A0953 - EPA 3550B S	olid Ext									
Blank (B7A0953-BLK2)				Prepared	& Analyze	ed: 01/06/2	17			
Di-n-octyl phthalate	ND	0.33	mg/kg							
1,2-Diphenylhydrazine	ND	0.33								
Fluoranthene	ND	0.33	"							

Blank (B7A0953-BLK2)				Prepared & Analyz	zed: 01/06/	17	
Di-n-octyl phthalate	ND	0.33	mg/kg				
1,2-Diphenylhydrazine	ND	0.33	"				
Fluoranthene	ND	0.33	"				
Fluorene	ND	0.33					
Hexachlorobenzene	ND	0.33	"				
Hexachlorobutadiene	ND	0.33	"				
Hexachlorocyclopentadiene	ND	0.33					
Hexachloroethane	ND	0.33					
Indeno (1,2,3-cd) pyrene	ND	0.33	"				
Isophorone	ND	0.33	"				
2-Methylnaphthalene	ND	0.33					
2-Methylphenol	ND	0.33	"				
4-Methylphenol	ND	0.33					
Naphthalene	ND	0.33	"				
2-Nitroaniline	ND	0.33	"				
3-Nitroaniline	ND	0.33	"				
4-Nitroaniline	ND	0.33	"				
Nitrobenzene	ND	0.33	"				
2-Nitrophenol	ND	0.33	"				
4-Nitrophenol	ND	0.33	"				
N-Nitrosodimethylamine	ND	0.33	"				
Diphenylamine	ND	0.33	"				
N-Nitrosodi-n-propylamine	ND	0.33	"				
Pentachlorophenol	ND	0.33	"				
Phenanthrene	ND	0.33	"				
Phenol	ND	0.33	"				
Pyrene	ND	0.33	"				
1,2,4-Trichlorobenzene	ND	0.33	"				
2,4,5-Trichlorophenol	ND	0.33	"				
2,4,6-Trichlorophenol	ND	0.33					
Surrogate: 2-Fluorophenol	0.395		"	0.500	79.0	25-121	
Surrogate: Phenol-d6	0.420		"	0.500	84.0	24-113	
Surrogate: Nitrobenzene-d5	0.321		"	0.333	96.4	23-120	
Surrogate: 2-Fluorobiphenyl	0.282		"	0.333	84.7	30-115	
Surrogate: 2,4,6-Tribromophenol	0.393		"	0.500	78.6	19-122	
Surrogate: Terphenyl-d14	0.301		"	0.333	90.4	18-137	



Mearns Consulting LLC 738 Ashland Avenue Santa Monica CA, 90405		Pr Project Nu Project Mar	roject: SH mber: [no nager: Su	HPI-Ameri one] san Mearns	gas				Reporte 01/12/17 (ed: 09:24
Semivolatile	Organic	e Compound	ls bv EP	A Method	8270C ·	- Ouality	Control			
	8	Sierra Aı	nalytica	l Labs, Iı	ıc.					
		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B7A0953 - EPA 3550B Solid Ext										
LCS (B7A0953-BS1)				Prepared a	& Analyze	ed: 01/05/	17			
Acenaphthene	0.288	0.33	mg/kg	0.333		86.5	47-145			
2-Chlorophenol	0.422	0.33		0.667		63.3	23-134			
4-Chloro-3-methylphenol	0.383	0.33		0.667		57.4	22-147			
1,4-Dichlorobenzene	0.291	0.33		0.333		87.4	20-124			
2,4-Dinitrotoluene	0.256	0.33		0.333		76.9	39-139			
4-Nitrophenol	0.284	0.33		0.667		42.6	0-132			
N-Nitrosodi-n-propylamine	0.250	0.33		0.333		75.1	0-230			
Pentachlorophenol	0.279	0.33		0.667		41.8	14-176			
Phenol	0.325	0.33		0.667		48.7	5-112			
Pyrene	0.282	0.33		0.333		84.7	52-115			
1,2,4-Trichlorobenzene	0.301	0.33		0.333		90.4	44-142			
LCS (B7A0953-BS2)				Prepared a	& Analyze	ed: 01/06/	17			
Acenaphthene	0.298	0.33	mg/kg	0.333		89.5	47-145			
2-Chlorophenol	0.440	0.33	"	0.667		66.0	23-134			
4-Chloro-3-methylphenol	0.405	0.33		0.667		60.7	22-147			
1.4-Dichlorobenzene	0.298	0.33		0.333		89.5	20-124			
2.4-Dinitrotoluene	0.250	0.33		0.333		75.1	39-139			
4-Nitrophenol	0.293	0.33		0.667		43.9	0-132			
N-Nitrosodi-n-propylamine	0.255	0.33		0.333		76.6	0-230			
Pentachlorophenol	0.285	0.33		0.667		42.7	14-176			
Phenol	0.310	0.33		0.667		46.5	5-112			
Pyrene	0.291	0.33		0.333		87.4	52-115			
1,2,4-Trichlorobenzene	0.304	0.33		0.333		91.3	44-142			
Matrix Snike (B740953-MS1)	Sc	ource: 170105	4-01	Prepared	& Analyz	ed: 01/05/	17			
Acenaphthene	0.275	0.33	mg/kg	0.333	ND	82.6	47-145			
2-Chlorophenol	0.423	0.33	"	0.667	ND	63.4	23-134			
4-Chloro-3-methylphenol	0.386	0.33		0.667	ND	57.9	22-147			
1 4-Dichlorobenzene	0.310	0.33		0.333	ND	93.1	20-124			
2.4-Dinitrotoluene	0.249	0.33		0.333	ND	74.8	39-139			
4-Nitrophenol	0.275	0.33		0.667	ND	41.2	0-132			
N-Nitrosodi-n-propylamine	0.241	0.33		0 333	ND	72.4	0-230			
Pentachlorophenol	0.241	0.33		0.555	ND	43.0	14-176			
Phenol	0.342	0.33		0.667	ND		5-112			
Pyrene	0.273	0.33		0 333	ND	82.0	52-115			
1.2.4-Trichlorobenzene	0.307	0.33		0.333	ND	92.2	44-142			



Pentachlorophenol

1,2,4-Trichlorobenzene

Phenol

Pyrene

Mearns Consulting LLC		Pi	roject: SI	IPI-Ameri	gas					
738 Ashland Avenue		Project Nu	mber: [no	one]					Report	ed:
Santa Monica CA, 90405		Project Mar	nager: Su	san Mearns					01/12/17	09:24
Semivola	tile Organic (Compound	ls by EP	A Method	8270C ·	- Quality	Control			
		- Sierra Aı	nalytica	l Labs, I	nc.	- •				
	D li	Reporting	T T 1.	Spike	Source	AV DEC	%REC	DDD	RPD	N
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch B7A0953 - EPA 3550B Solid E	xt									
Matrix Spike (B7A0953-MS2)	Sou	rce: 170105	4-21	Prepared	& Analyz	ed: 01/06/	17			
Acenaphthene	0.301	0.33	mg/kg	0.333	ND	90.4	47-145			
2-Chlorophenol	0.472	0.33	"	0.667	ND	70.8	23-134			
4-Chloro-3-methylphenol	0.454	0.33	"	0.667	ND	68.1	22-147			
1,4-Dichlorobenzene	0.306	0.33	"	0.333	ND	91.9	20-124			
2,4-Dinitrotoluene	0.257	0.33	"	0.333	ND	77.2	39-139			
4-Nitrophenol	0.290	0.33	"	0.667	ND	43.5	0-132			
N-Nitrosodi-n-propylamine	0.250	0.33	"	0.333	ND	75.1	0-230			
Pentachlorophenol	0.291	0.33	"	0.667	ND	43.6	14-176			
Phenol	0.306	0.33	"	0.667	ND	45.9	5-112			
Pyrene	0.276	0.33	"	0.333	ND	82.9	52-115			
1,2,4-Trichlorobenzene	0.311	0.33	"	0.333	ND	93.4	44-142			
Matrix Spike Dup (B7A0953-MSD1)	Sou	rce: 170105	4-01	Prepared	& Analyze	ed: 01/05/	17			
Acenaphthene	0.290	0.33	mg/kg	0.333	ND	87.1	47-145	5.31	30	
2-Chlorophenol	0.461	0.33	"	0.667	ND	69.1	23-134	8.60	30	
4-Chloro-3-methylphenol	0.416	0.33	"	0.667	ND	62.4	22-147	7.48	30	
1,4-Dichlorobenzene	0.310	0.33	"	0.333	ND	93.1	20-124	0.00	30	
2,4-Dinitrotoluene	0.242	0.33	"	0.333	ND	72.7	39-139	2.85	30	
4-Nitrophenol	0.276	0.33	"	0.667	ND	41.4	0-132	0.363	30	
N-Nitrosodi-n-propylamine	0.239	0.33	"	0.333	ND	71.8	0-230	0.833	30	
Pentachlorophenol	0.273	0.33	"	0.667	ND	40.9	14-176	5.00	30	
Phenol	0.313	0.33	"	0.667	ND	46.9	5-112	8.85	30	
Pyrene	0.280	0.33	"	0.333	ND	84.1	52-115	2.53	30	
1,2,4-Trichlorobenzene	0.317	0.33	"	0.333	ND	95.2	44-142	3.21	30	
Matrix Spike Dup (B7A0953-MSD2)	Sou	rce: 170105	4-21	Prepared	& Analyze	ed: 01/06/	17			
Acenaphthene	0.307	0.33	mg/kg	0.333	ND	92.2	47-145	1.97	30	
2-Chlorophenol	0.431	0.33	"	0.667	ND	64.6	23-134	9.08	30	
4-Chloro-3-methylphenol	0.427	0.33	"	0.667	ND	64.0	22-147	6.13	30	
1,4-Dichlorobenzene	0.286	0.33	"	0.333	ND	85.9	20-124	6.76	30	
2,4-Dinitrotoluene	0.265	0.33	"	0.333	ND	79.6	39-139	3.07	30	
4-Nitrophenol	0.288	0.33	"	0.667	ND	43.2	0-132	0.692	30	
N-Nitrosodi-n-propylamine	0.248	0.33	"	0.333	ND	74.5	0-230	0.803	30	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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0.667

0.667

0.333

0.333

ND

ND

ND

ND

44.1

48.6

86.5

92.8

14-176

5-112

52-115

44-142

1.03

5.71

4.26

0.645

30

30

30

30

0.33

0.33

0.33

0.33

0.294

0.324

0.288

0.309



Mearns C 738 Ashla Santa Mo	onsulting LLC Ind Avenue nica CA, 90405	Project: Project Number: Project Manager:	SHPI-Amerigas [none] Susan Mearns	Reported: 01/12/17 09:24			
		Notes and Do	finitions				
D-34	Sample diluted due to high levels of petrole	um hydrocarbons.					
D-42	Sample non-detect (ND) for requested fuel t	type. Other hydroca	rbons may be present.				
S-03	Surrogate diluted out.						
DET	Analyte DETECTED						
ND	ND Analyte NOT DETECTED at or above the reporting limit		t				

- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

Page:0f3	re		Geotracker EDD Info:			Client LOGCODE			Site Global ID	Field Point Names / Comments											Sample Disposal:	Return to Client	Lab Disposal *	Archive mus.	Other	_			יכן וובוסן
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APPENDIX B

Jones Environmental Labs, Inc. February 26, 2018 February 22, 2017 Soil Vapor Data



11007 FOREST PLACE Santa FE Springs, ca 90670 WWW.Jonesenv.com

JONES ENVIRONMENTAL LABORATORY RESULTS

Client: Client Address:	Mearns Consulting LLC 738 Ashland Avenue Santa Monica, CA 90405	Report date: JEL Ref. No.:	2/26/2018 ST-11818
Attn:	Susan Mearns	Date Sampled:	2/26/2018
		Date Received:	2/26/2018
Project Name:	Former Amerigas	Date Analyzed:	2/26/2018
Project Address:	2851 Orange Ave	Physical State:	Soil Gas
	Long Beach, CA 90755		

ANALYSES REQUESTED

1. EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sampling - Soil Gas samples were collected in Tedlar bags.

A tracer gas mixture of n-pentane, n-hexane, and n-heptane was placed at the tubing-surface interface before sampling. These compounds were analyzed during the 8260B analytical run to determine if there were surface leaks into the subsurface due to improper installation of the probe. No n-pentane, n-hexane, or n-heptane was found in any of the samples reported herein.

The sampling rate was approximately 200 cc/min, except if noted differently on the chain of custody record, using a Tedlar Bag. Purging was completed using a pump set at approximately 200 cc/min, except if noted differently on the chain of custody record. A default of 3 purge volumes was used as recommended by July 2015 DTSC/RWQCB guidance documents.

Prior to purging and sampling of soil gas at each point, a shut-in test was conducted to check for leaks in the above ground fittings. The shut-in test was performed on the above ground apparatus by evacuating the line to a vacuum of 100 inches of water, sealing the entire system and watching the vacuum for at least one minute. A vacuum gauge attached in parallel to the apparatus measured the vacuum. If there was any observable loss of vacuum, the fittings were adjusted as needed until the vacuum did not change noticeably. The soil gas sample was then taken.

No flow conditions occur when a sampling rate greater than 10 mL/min cannot be maintained without applying a vacuum greater than 100 inches of water to the sampling train. The sampling train is left at a vacuum for no less than three minutes. If the vacuum does not subside appreciably after three minutes, the sample location is determined to be a no flow sample.

Analytical – Soil Gas samples were analyzed using EPA Method 8260 that includes extra compounds required by DTSC/RWQCB (such as Freon 113). Instrument Continuing Calibration Verification, QC Reference Standards, Instrument Blanks and Sampling Blanks were analyzed every 12 hours as prescribed by the method. In addition, a Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (LCSD) were analyzed with each batch of Soil Gas samples. A duplicate/replicate sample was analyzed each day of the sampling activity. All samples were injected into the GC/MS system within 6 hours of sampling.

Approval:

Colby Wakeman QA/QC Manager



SANTA FE SPRINGS, CA 90670

JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Mearns Cons	sulting LLC				Report date:	2/26/2018
Client Address:	738 Ashland	Avenue				JEL Ref. No.:	ST-11818
	Santa Monic	a. CA 90405					
		.,,					
Attn.	Susan Mearn	IS				Date Sampled:	2/26/2018
Attn.	Susan Mean	15				Date Bangived.	2/26/2018
Duciente	E					Date Keterveu.	2/26/2018
Project:	Former Ame	rigas				Date Analyzed:	2/20/2018
Project Address:	2851 Orange	e Ave				Physical State:	Soil Gas
	Long Beach,	CA 90755					
	EPA 82	60B – Volati	le Organics l	by GC/MS +	Oxygenates		
<u>Sample ID:</u>	SV1-5'	SV2-5'	SV3-5'	SV4-5'	SV5-5'		
JEL ID:	ST-11818-01	ST-11818-02	ST-11818-03	ST-11818-04	ST-11818-05	<u>Practical</u> Quantitation	<u>Units</u>
Analytes:						<u>Limit</u>	
Benzene	ND	ND	ND	ND	ND	0.008	μg/L
Bromobenzene	ND	ND	ND	ND	ND	0.008	μg/L
Bromodichloromethane	ND	ND	ND	ND	ND	0.008	μg/L
Bromoform	ND	ND	ND	ND	ND	0.008	μg/L
n-Butylbenzene	ND	ND	ND	ND	ND	0.008	μg/L
sec-Butylbenzene	ND	ND	ND	ND	ND	0.008	μg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.008	μg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.008	μg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.008	μg/L
Chloroform	ND	ND	ND	ND	ND	0.008	μg/L
2-Chlorotoluene	ND	ND	ND	ND	ND	0.008	μg/L
4-Chlorotoluene	ND	ND	ND	ND	ND	0.008	μg/L
Dibromochloromethane	ND	ND	ND	ND	ND	0.008	μg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.008	μg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	0.008	μg/L
Dibromomethane	ND	ND	ND	ND	ND	0.008	μg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	0.008	μg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	μg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	μg/L
Dichlorodifluoromethane	ND	ND	ND	ND	ND	0.008	μg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.008	μg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.008	μg/L
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.008	μg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	μg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	μg/L
1,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	μg/L
1,3-Dichloropropane	ND	ND	ND	ND	ND	0.008	μg/L
2,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	μg/L
1,1-Dichloropropene	ND	ND	ND	ND	ND	0.008	μg/L

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	SV1-5'	SV2-5'	SV3-5'	SV4-5'	SV5-5'		
JEL ID:	ST-11818-01	ST-11818-02	ST-11818-03	ST-11818-04	ST-11818-05	<u>Practical</u> Quantitation	<u>Units</u>
Analytes:						<u>Limit</u>	
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	μg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	μg/L
Ethylbenzene	ND	ND	ND	ND	ND	0.008	μg/L
Freon 113	ND	ND	ND	ND	ND	0.040	μg/L
Hexachlorobutadiene	ND	ND	ND	ND	ND	0.008	μg/L
Isopropylbenzene	ND	ND	ND	ND	ND	0.008	μg/L
4-Isopropyltoluene	ND	ND	ND	ND	ND	0.012	μg/L
Methylene chloride	ND	ND	ND	ND	ND	0.008	μg/L
Naphthalene	ND	ND	ND	ND	ND	0.040	μg/L
n-Propylbenzene	ND	ND	ND	ND	ND	0.008	μg/L
Styrene	ND	ND	ND	ND	ND	0.008	μg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	μg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	μg/L
Tetrachloroethylene	ND	ND	ND	ND	ND	0.008	μg/L
Toluene	ND	ND	ND	ND	ND	0.008	μg/L
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	0.040	μg/L
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	μg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.008	μg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.008	μg/L
Trichloroethylene	ND	ND	ND	ND	ND	0.008	μg/L
Trichlorofluoromethane	ND	0.047	ND	ND	ND	0.008	μg/L
1.2.3-Trichloropropane	ND	ND	ND	ND	ND	0.008	μg/L
1.2.4-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	μg/L
1.3.5-Trimethylbenzene	ND	ND	ND	0.790	ND	0.008	μg/L
Vinyl chloride	ND	ND	ND	ND	ND	0.008	μg/L
m.p-Xvlene	ND	ND	ND	ND	ND	0.010	ug/L
o-Xylene	ND	ND	ND	ND	ND	0.008	ug/L
MTBE	ND	ND	ND	ND	ND	0.040	ug/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	0.040	ug/L
Di-isopropylether	ND	ND	ND	ND	ND	0.040	ug/L
tert-amylmethylether	ND	ND	ND	ND	ND	0.040	ug/L
tert-Butylalcohol	ND	ND	ND	ND	ND	0.400	μg/L
TIC:							
n-pentane	ND	ND	ND	ND	ND	0.400	μg/L
n-hexane	ND	ND	ND	ND	ND	0.400	μg/L
n-heptane	ND	ND	ND	ND	ND	0.400	μg/L
Dilution Factor	10	1	10	10	10		
Surrogate Recoveries:	1050/	0.001	1000/	000/	10.50 (<u>OC Lim</u>	<u>its</u>
Dibromofluoromethane	105%	80%	109%	98%	105%	60 - 140	U
Toluene-d ₈	105%	90%	105%	111%	103%	60 - 140	U
4-Bromofluorobenzene	106%	•	104%	100%	102%	60 - 140	U
	D1-022618-D	D1-022618-D	D1-022618-D	D1-022618-D	D1-022618-D		
	1443	1443	1443	1443	1443		

VOC3-022618-CHECKS

VOC3-022618-CHEC3-022618-CHE3-022618-CHECKS

ND= Not Detected



JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Mearns Consulting LLC	Report date:	2/26/2018
Client Address:	738 Ashland Avenue	JEL Ref. No.:	ST-11818
	Santa Monica, CA 90405		
Attn.	Susan Mearns	Data Samplad:	2/26/2018
Attil.	Susan Means	Date Banpied.	2/26/2018
D : (Date Received:	2/20/2018
Project:	Former Amerigas	Date Analyzed:	2/26/2018
Project Address:	2851 Orange Ave	Physical State:	Soil Gas
	Long Beach, CA 90755		
	EPA 8260B – Volatile Organics by GC/MS + Oxygenate	S	
<u>Sample ID:</u>	SV1-5' DUP		
IFI ID.	ST 11818-06	Practical	
<u>5EE ID.</u>	51-11010-00	Quantitation	<u>Units</u>
Analytes:		<u>Limit</u>	
Benzene	ND	0.008	μg/L
Bromobenzene	ND	0.008	μg/L
Bromodichloromethane	ND	0.008	μg/L
Bromoform	ND	0.008	μg/L
n-Butylbenzene	ND	0.008	μg/L
sec-Butylbenzene	ND	0.008	μg/L
tert-Butylbenzene	ND	0.008	μg/L
Carbon tetrachloride	ND	0.008	μg/L
Chlorobenzene	ND	0.008	μg/L
Chloroform	ND	0.008	μg/L
2-Chlorotoluene	ND	0.008	μg/L
4-Chlorotoluene	ND	0.008	μg/L
Dibromochloromethane	ND	0.008	μg/L
1,2-Dibromo-3-chloropropane	ND	0.008	μg/L
1,2-Dibromoethane (EDB)	ND	0.008	μg/L
Dibromomethane	ND	0.008	μg/L
1,2- Dichlorobenzene	ND	0.008	µg/L
1,3-Dichlorobenzene	ND	0.008	µg/L
1,4-Dichlorobenzene	ND	0.008	µg/L
Dichlorodifluoromethane	ND	0.008	µg/L
1,1-Dichloroethane	ND	0.008	µg/L
1,2-Dichloroethane	ND	0.008	μg/L
1,1-Dichloroethene	ND	0.008	μg/L
cis-1,2-Dichloroethene	ND	0.008	μg/L
trans-1,2-Dichloroethene	ND	0.008	μg/L
1,2-Dichloropropane	ND	0.008	$\mu g/L$
1,3-Dichloropropane	ND	0.008	μg/L
2,2-Dichloropropane		0.008	μg/L
1,1-Dichloropropene	ND	0.008	µg/L

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	SV1-5' DUP
Sample ID.	5VI-5 DUI

<u>JEL ID:</u>	ST-11818-06	<u>Practical</u>	Practical		
		Quantitation	<u>Units</u>		
Analytes:		Limit			
cis-1,3-Dichloropropene	ND	0.008	μg/L		
trans-1,3-Dichloropropene	ND	0.008	μg/L		
Ethylbenzene	ND	0.008	μg/L		
Freon 113	ND	0.040	μg/L		
Hexachlorobutadiene	ND	0.008	μg/L		
Isopropylbenzene	ND	0.008	μg/L		
4-Isopropyltoluene	ND	0.012	μg/L		
Methylene chloride	ND	0.008	μg/L		
Naphthalene	ND	0.040	μg/L		
n-Propylbenzene	ND	0.008	μg/L		
Styrene	ND	0.008	μg/L		
1,1,1,2-Tetrachloroethane	ND	0.008	μg/L		
1,1,2,2-Tetrachloroethane	ND	0.008	μg/L		
Tetrachloroethylene	ND	0.008	μg/L		
Toluene	ND	0.008	μg/L		
1.2.3-Trichlorobenzene	ND	0.040	μg/L		
1.2.4-Trichlorobenzene	ND	0.008	μg/L		
1.1.1-Trichloroethane	ND	0.008	μg/L		
1.1.2-Trichloroethane	ND	0.008	μg/L		
Trichloroethylene	ND	0.008	μg/L		
Trichlorofluoromethane	ND	0.008	μg/L		
1.2.3-Trichloropropane	ND	0.008	μg/L		
1.2.4-Trimethylbenzene	ND	0.008	μg/L		
1.3.5-Trimethylbenzene	ND	0.008	μg/L		
Vinvl chloride	ND	0.008	μg/L		
m.p-Xvlene	ND	0.010	ug/L		
o-Xvlene	ND	0.008	ug/L		
MTBE	ND	0.040	μg/L		
Ethyl-tert-butylether	ND	0.040	ug/L		
Di-isopropylether	ND	0.040	ug/L		
tert-amylmethylether	ND	0.040	ug/L		
tert-Butylalcohol	ND	0.400	ug/L		
tert Butylareonor			1.9 -		
TIC					
n nontono	ND	0.400	ug/I		
n-pentane	ND	0.400	μg/L μg/I		
n-hentane	ND	0.400	μg/L μσ/L		
II-IICptane	ND	0.100	μ <u>6</u> / L		
Dilution Factor	10				
Surrogate Recoveries:		<u>OC Limits</u>	QC Limits		
Dibromofluoromethane	108%	60 - 140			
Toluene-d ₈	106%	60 - 140			
4-Bromofluorobenzene	108%	60 - 140			
	D1-022618-D-				

1443

VOC3-022618-CHECKS

ND= Not Detected



SANTA FE SPRINGS, CA 90670

JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

Client:	Mearns Consulting LLC	Report date:	2/26/2018
Client Address:	738 Ashland Avenue	JEL Ref. No.:	ST-11818
	Santa Monica, CA 90405		
Attn:	Susan Mearns	Date Sampled:	2/26/2018
		Date Received:	2/26/2018
Project:	Former Amerigas	Date Analyzed:	2/26/2018
Project Address:	2851 Orange Ave	Physical State:	Soil Gas
	Long Beach, CA 90755		

EPA 8260B - Volatile Organics by GC/MS + Oxygenates

Sample ID:	METHOD BLANK	SAMPLING BLANK	METHOD BLANK	SAMPLING BLANK		
<u>JEL ID:</u>	022618- D1MB1	022618- D1SB1	022618- VOC3MB1	022618- VOC3SB1	<u>Practical</u> Quantitation	<u>Units</u>
Analytes:					Limit	
Benzene	ND	ND	ND	ND	0.008	μg/L
Bromobenzene	ND	ND	ND	ND	0.008	μg/L
Bromodichloromethane	ND	ND	ND	ND	0.008	μg/L
Bromoform	ND	ND	ND	ND	0.008	μg/L
n-Butylbenzene	ND	ND	ND	ND	0.008	μg/L
sec-Butylbenzene	ND	ND	ND	ND	0.008	μg/L
tert-Butylbenzene	ND	ND	ND	ND	0.008	μg/L
Carbon tetrachloride	ND	ND	ND	ND	0.008	μg/L
Chlorobenzene	ND	ND	ND	ND	0.008	μg/L
Chloroform	ND	ND	ND	ND	0.008	μg/L
2-Chlorotoluene	ND	ND	ND	ND	0.008	μg/L
4-Chlorotoluene	ND	ND	ND	ND	0.008	μg/L
Dibromochloromethane	ND	ND	ND	ND	0.008	μg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	0.008	μg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	0.008	μg/L
Dibromomethane	ND	ND	ND	ND	0.008	μg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	0.008	μg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	0.008	μg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	0.008	μg/L
Dichlorodifluoromethane	ND	ND	ND	ND	0.008	μg/L
1,1-Dichloroethane	ND	ND	ND	ND	0.008	μg/L
1,2-Dichloroethane	ND	ND	ND	ND	0.008	μg/L
1,1-Dichloroethene	ND	ND	ND	ND	0.008	μg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	0.008	μg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	0.008	μg/L
1,2-Dichloropropane	ND	ND	ND	ND	0.008	μg/L
1,3-Dichloropropane	ND	ND	ND	ND	0.008	μg/L
2,2-Dichloropropane	ND	ND	ND	ND	0.008	μg/L
1,1-Dichloropropene	ND	ND	ND	ND	0.008	μg/L

EPA 8260B - Volatile Organics by GC/MS + Oxygenates METHOD SAMPLING METHOD SAMPLING Sample ID: **BLANK BLANK** BLANK **BLANK** 022618-022618-022618-022618-Practical JEL ID: Quantitation D1MB1 **D1SB1** VOC3MB1 VOC3SB1 Units Analytes: Limit 0.008 μg/L ND ND ND ND cis-1,3-Dichloropropene 0.008 μg/L trans-1,3-Dichloropropene ND ND ND ND 0.008 μg/L Ethylbenzene ND ND ND ND 0.040 μg/L Freon 113 ND ND ND ND 0.008 μg/L Hexachlorobutadiene ND ND ND ND 0.008 Isopropylbenzene ND ND ND ND μg/L 4-Isopropyltoluene ND ND ND ND 0.012 μg/L 0.008 Methylene chloride μg/L ND ND ND ND Naphthalene ND ND ND ND 0.040 μg/L 0.008 μg/L n-Propylbenzene ND ND ND ND Styrene ND ND ND ND 0.008 μg/L 0.008 μg/L ND ND ND ND 1,1,1,2-Tetrachloroethane 1,1,2,2-Tetrachloroethane ND ND ND ND 0.008 μg/L Tetrachloroethylene ND ND ND ND 0.008 μg/L Toluene ND ND ND ND 0.008 μg/L 1.2.3-Trichlorobenzene 0.040 μg/L ND ND ND ND 0.008 1,2,4-Trichlorobenzene μg/L ND ND ND ND ND 0.008 μg/L 1,1,1-Trichloroethane ND ND ND 0.008 μg/L 1,1,2-Trichloroethane ND ND ND ND Trichloroethylene ND ND ND ND 0.008 μg/L Trichlorofluoromethane ND 0.008 μg/L ND ND ND 1.2.3-Trichloropropane ND ND ND ND 0.008 μg/L 1,2,4-Trimethylbenzene ND ND ND ND 0.008 μg/L 1,3,5-Trimethylbenzene 0.008 μg/L ND ND ND ND Vinyl chloride ND ND ND ND 0.008 μg/L ND 0.010 μg/L m,p-Xylene ND ND ND 0.008 o-Xylene ND ND ND ND μg/L 0.040 MTBE ND ND ND ND μg/L ND 0.040 μg/L Ethyl-tert-butylether ND ND ND 0.040 **Di-isopropylether** μg/L ND ND ND ND tert-amylmethylether ND ND ND ND 0.040 μg/L tert-Butylalcohol ND ND ND ND 0.400 μg/L TIC: 0.400 μg/L n-pentane ND ND ND ND ND ND ND ND 0.400 μg/L n-hexane 0.400 n-heptane ND ND ND ND μg/L **Dilution Factor** 1 1 1 1 **Surrogate Recoveries: OC** Limits 95% 103% 109% 103% 60 - 140 Dibromofluoromethane 83% 83% 103% 104% 60 - 140 Toluene-d₈ 107% 4-Bromofluorobenzene 80% 85% 107% 60 - 140

ND= Not Detected


JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

Client: Client Address:	Mearns Consulting LLC 738 Ashland Avenue Santa Monica, CA 90405	Report date: JEL Ref. No.:	2/26/2018 ST-11818
Attn:	Susan Mearns	Date Sampled: Date Received:	2/26/2018 2/26/2018
Project: Project Address:	Former Amerigas 2851 Orange Ave Long Beach, CA 90755	Date Analyzed: Physical State:	2/26/2018 Soil Gas

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Batch ID:	D1-022618-D-1443					
JEL ID:	022618-D1LCS1	022618-D1LCSD1		02	2618-D1CC	V1
	LCS	LCSD		Acceptability		Acceptability
Parameter	Recovery (%)	Recovery (%)	<u>RPD</u>	Range (%)	<u>CCV</u>	Range (%)
Vinyl Chloride	138%	123%	11.6%	70 - 130	119%	80 - 120
1,1-Dichloroethylene	128%	108%	16.8%	70 - 130	112%	80 - 120
Cis-1,2-Dichloroethene	113%	103%	9.9%	70 - 130	96%	80 - 120
1,1,1-Trichloroethane	100%	89%	11.9%	70 - 130	83%	80 - 120
Benzene	124%	108%	13.1%	70 - 130	91%	80 - 120
Trichloroethylene	118%	106%	11.4%	70 - 130	94%	80 - 120
Toluene	111%	98%	12.5%	70 - 130	91%	80 - 120
Tetrachloroethene	115%	100%	14.0%	70 - 130	87%	80 - 120
Chlorobenzene	115%	106%	8.3%	70 - 130	92%	80 - 120
Ethylbenzene	125%	110%	13.4%	70 - 130	99%	80 - 120
1,2,4 Trimethylbenzene	111%	100%	10.7%	70 - 130	94%	80 - 120
Surrogate Recovery:						
Dibromofluoromethane	96%	96%		60 - 140	101%	60 - 140
Toluene-d ₈	87%	86%		60 - 140	91%	60 - 140
4-Bromofluorobenzene	86%	84%		60 - 140	91%	60 - 140

LCS = Laboratory Control Sample

LCSD = Laboratory Control Sample Duplicate

CCV = Continuing Calibration Verification

RPD = Relative Percent Difference; Acceptability range for RPD is $\leq 15\%$



JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

Client:	Mearns Consulting LLC	Report date:	2/26/2018
Client Address:	738 Ashland Avenue	JEL Ref. No.:	ST-11818
	Santa Monica, CA 90405		
Attn:	Susan Mearns	Date Sampled:	2/26/2018
		Date Received:	2/26/2018
Project:	Former Amerigas	Date Analyzed:	2/26/2018
Project Address:	2851 Orange Ave	Physical State:	Soil Gas
	Long Beach, CA 90755		

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Batch ID:	VOC3-022618-CHECKS	S				
JEL ID:	022618-VOC3LCS1	022618-VOC3LCSD1		02	2618-VOC3CC	V1
	LCS	LCSD		Acceptability		Acceptability
Parameter	Recovery (%)	Recovery (%)	<u>RPD</u>	Range (%)	<u>CCV</u>	Range (%)
Vinyl Chloride	76%	75%	0.6%	70 - 130	101%	80 - 120
1,1-Dichloroethylene	95%	98%	3.4%	70 - 130	108%	80 - 120
Cis-1,2-Dichloroethene	112%	114%	2.2%	70 - 130	112%	80 - 120
1,1,1-Trichloroethane	110%	108%	1.6%	70 - 130	116%	80 - 120
Benzene	106%	108%	1.5%	70 - 130	110%	80 - 120
Trichloroethylene	108%	109%	1.1%	70 - 130	114%	80 - 120
Toluene	116%	116%	0.5%	70 - 130	119%	80 - 120
Tetrachloroethene	114%	109%	4.4%	70 - 130	119%	80 - 120
Chlorobenzene	110%	111%	0.7%	70 - 130	116%	80 - 120
Ethylbenzene	109%	108%	0.8%	70 - 130	115%	80 - 120
1,2,4 Trimethylbenzene	108%	108%	0.7%	70 - 130	119%	80 - 120
Surrogate Recovery:						
Dibromofluoromethane	97%	100%		60 - 140	88%	60 - 140
Toluene-d ₈	100%	101%		60 - 140	98%	60 - 140
4-Bromofluorobenzene	105%	104%		60 - 140	112%	60 - 140

LCS = Laboratory Control Sample

LCSD = Laboratory Control Sample Duplicate

CCV = Continuing Calibration Verification

RPD = Relative Percent Difference; Acceptability range for RPD is $\leq 15\%$

Client Mearns	IRONN	MENTA	AL. IN	IC.		Date Purge Number: 2/26/2018 Shut-In Test: Ø/ N		EDD EDF	Report Options EDD EDF* - 10% Surcharge			Jones Project # $< T - 11818$						
Project Name Project Address <u>2851 Orange Ave</u> <u>Long Beach</u> , CA 90755 Email Phone Report To Sussan Marcan Kewis Harchler				Client Project #	Flow Rate: <u>200 cc /mi</u> , "Glob If different than above, see Notes. Tracer:			An:	alvsis	Re	aues	ted	Page	of \				
			 Immediate Attention Rush 24 Hours Rush 48 Hours Rush 72 Hours 		br n-pentane br n-hexane br n-heptane □ Helium				ùH₂O)				Sample Co Sealed C Sample C	Sample Condition as Recieved: Sealed yes no Sample Container:				
				In Normal Mobile Lab Reporting Limits Requested:		sted: Units:		lits:	ltrix:), Air (A) B		-15	: Vacuum (In/	Containers	if different t	aan above, see Notes.			
Sample ID	Purge Number	Purge Volume (mL)	Date	Pump Used	Magnehelic	Laboratory Sample ID	Cannister ID	Cannister Start Pressure	Cannister End Pressure	Sampling Start Time	Sampling End Time	Sample Ma Soil Gas (SG	EPA 8260	EPA TO-1	Magnehelic	Number of	Notes &	Special Instruction
SV1-5	3	703	2/26	Exta.l	118012	ST-11818-01				840		sG	×		2	2	Pup,	Tedlar,
SV2-5'	3	703	2/26	Extra. 1	118012	Sr-1181 8-02				852		SG	×		42	1		
5V3-5'	3	703	2/26	Extral	118012	ST-11818-03				905		56	X		-2	1		
514-5	3	703	2/26	Extra.l	118012	57-11818-04				117		sG	×		-2	1		
5 1 5-5	'n	703	2/26	Extra.l	118012	ST - 11818-05				930		SG	*		2	1		
	-			-					_				_					
							· · · · · ·	-										
Relinquished By (Signature)		Printed Na	me			Received By (Signature)			Prin Ké	vin Ho	rchler					6	Total N	umber of Containers
Company		Date: Printed Nat	me	Time:		Company Jones Env Received By Laboratory	/, (Signature)		Date 2 Prin	26/18 ted Name	Time \C	8: 130			Clie	nt sig istitut	nature on this	s Chain of Custody for Igement that the abov
Company		Date:		Time:		Company			Date	:	Tim	8:			lanaiyi	provid	ed herein is (correct and accurate.



714-449-9937 562-646-1611 805-399-0060 11007 FOREST PLACE Santa FE Springs, ca 90670 WWW.Jonesenv.com

JONES ENVIRONMENTAL LABORATORY RESULTS

Client: Client Address:	Meams Consulting Corp 738 Ashland Ave Santa Monica, CA 90405	Report date: JEL Ref. No.:	2/22/2017 E-0680
Attn:	Susan L Meams, PhD	Date Sampled:	2/16/2017
Project Name:	Former AmeriGas	Date Received: Date Analyzed:	2/16/2017 2/16/2017
Project Address:	2851 Orange Ave Long Beach, CA	Physical State:	Soil Gas

ANALYSES REQUESTED

1. EPA 8260B - Volatile Organics by GC/MS + Oxygenates

Sampling – Soil Gas samples were collected in glass gas-tight syringes equipped with Teflon plungers.

A tracer gas mixture of n-pentane, n-hexane, and n-heptane was placed at the tubing-surface interface before sampling. These compounds were analyzed during the 8260B analytical run to determine if there were surface leaks into the subsurface due to improper installation of the probe. No n-pentane, n-hexane, or n-heptane was found in any of the samples reported herein.

The sampling rate was approximately 200 cc/min, except when noted differently on the chain of custody record, using a glass gas-tight syringe. Purging was completed using a pump set at approximately 200 cc/min, except when noted differently on the chain of custody record. A default of 3 purge volumes was used as recommended by July 2015 DTSC/RWQCB guidance documents.

Prior to purging and sampling of soil gas at each point, a shut-in test was conducted to check for leaks in the above ground fittings. The shut-in test was performed on the above ground apparatus by evacuating the line to a vacuum of 100 inches of water, sealing the entire system and watching the vacuum for at least one minute. A vacuum gauge attached in parallel to the apparatus measured the vacuum. If there was any observable loss of vacuum, the fittings were adjusted as needed until the vacuum did not change noticeably. The soil gas sample was then taken.

No flow conditions occur when a sampling rate greater than 10 mL/min cannot be maintained without applying a vacuum greater than 100 inches of water to the sampling train. The sampling train is left at a vacuum for no less than three minutes. If the vacuum does not subside appreciably after three minutes, the sample location is determined to be a no flow sample.

Analytical – Soil Gas samples were analyzed using EPA Method 8260 that includes extra compounds required by DTSC/RWQCB (such as Freon 113). Instrument Continuing Calibration Verification, QC Reference Standards, Instrument Blanks and Sampling Blanks were analyzed every 12 hours as prescribed by the method. In addition, a Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (LCSD) were analyzed with each batch of Soil Gas samples. A duplicate/replicate sample was analyzed each day of the sampling activity. All samples were injected into the GC/MS system within 30 minutes of sampling.

Approval:

Steve Jones, Ph.D. Laboratory Manager



SANTA FE SPRINGS, CA 90670

JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Mearns Cons	sulting Corp				Report date:	2/22/2017
Client Address:	738 Ashland	Ave				Jones Ref. No.:	E-0680
	Santa Monic	a, CA 90405					
		,					
Attn:	Susan L Mea	arns, PhD				Date Sampled:	2/16/2017
		,				Date Received:	2/16/2017
Project:	Former Ame	riGas				Date Analyzed:	2/16/2017
Project Address	2851 Orange	Ave				Physical State	Soil Gas
i roject i tuai ess.	Long Beach	CA				i nysicai State:	Son Gus
	EDA 93		la Ouganias l	COME	Ourseanates		
	EPA 82	60B – Volati	le Organics i	by GC/MS +	Oxygenates		
<u>Sample ID:</u>	SV-1-5'	SV-2-5'	SV-3-5'	SV-4-5'	SV-5-5'		
Jones ID:	E-0680-01	E-0680-02	E-0680-03	E-0680-04	E-0680-05	<u>Practical</u> Quantitation	<u>Units</u>
Analytes:						<u>Limit</u>	
Benzene	ND	ND	ND	ND	ND	8.00	μg/m3
Bromobenzene	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
Bromodichloromethane	ND ND	ND ND	ND ND	ND ND	ND	8.00	$\mu g/m3$
Bromotorm	ND ND	ND ND	ND ND	ND ND	ND ND	8.00	μg/m3
n-Butylbenzene	ND 365	ND	ND	ND 253	ND	8.00	μg/m3
tert-Butylbenzene	JUJ ND	ND	ND	233 51 2	ND	8.00	μg/m3
Carbon tetrachloride	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
Chlorobenzene	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
Chloroform	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
2-Chlorotoluene	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
4-Chlorotoluene	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
Dibromochloromethane	ND	ND	ND	ND	ND	8.00	µg/m3
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	8.00	µg/m3
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	8.00	µg/m3
Dibromomethane	ND	ND	ND	ND	ND	8.00	µg/m3
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	8.00	µg/m3
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	8.00	µg/m3
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	8.00	µg/m3
Dichlorodifluoromethane	ND	ND	ND	ND	ND	8.00	μg/m3
1,1-Dichloroethane	ND	ND	ND	ND	ND	8.00	µg/m3
1,2-Dichloroethane	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
1,1-Dichloroethene	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
cis-1,2-Dichloroethene						ð.UU 8 00	$\mu g/m_3$
trans-1,2-Dichloroethene						0.00 8.00	$\mu g/m_3$
1,2-Dichloropropane						8.00 8.00	μg/1115 μg/m3
2.2 Dichloropropane	ND	ND		ND	ND	8.00	μg/m3
1 1-Dichloropropene	ND	ND	ND	ND	ND	8 00	μg/m3
1,1 Diemoropropene	110			110		5.00	F-8, 1112

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

<u>Sample ID:</u>	SV-1-5'	SV-2-5'	SV-3-5'	SV-4-5'	SV-5-5'		
Jones ID:	E-0680-01	E-0680-02	E-0680-03	E-0680-04	E-0680-05	<u>Practical</u> Quantitation	<u>Units</u>
Analytes:						<u>Limit</u>	
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	8.00	µg/m3
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	8.00	µg/m3
Ethylbenzene	ND	ND	ND	ND	ND	8.00	µg/m3
Freon 113	ND	ND	ND	ND	ND	40.0	µg/m3
Hexachlorobutadiene	ND	ND	ND	ND	ND	8.00	µg/m3
Isopropylbenzene	405	ND	ND	291	143	8.00	µg/m3
4-Isopropyltoluene	ND	ND	ND	15.0	67.2	8.00	μg/m3
Methylene chloride	ND	ND	ND	ND	ND	8.00	μg/m3
Naphthalene	ND	ND	ND	70.2	ND	40.00	μg/m3
n-Propylbenzene	ND	ND	ND	ND	ND	8.00	μg/m3
Styrene	ND	ND	ND	ND	ND	8.00	μg/m3
1.1.1.2-Tetrachloroethane	ND	ND	ND	ND	ND	8.00	μg/m3
1.1.2.2-Tetrachloroethane	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
Tetrachloroethene	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
Toluene	220	ND	ND	ND	47.2	8.00	$\mu g/m3$
1.2.3-Trichlorobenzene	ND	ND	ND	ND	ND	40.0	$\mu g/m3$
1.2.4-Trichlorobenzene	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
1.1.1-Trichloroethane	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
1.1.2-Trichloroethane	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
Trichloroethene	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
Trichlorofluoromethane	ND	ND	87.0	13.4	10.0	8.00	$\mu g/m3$
1 2 3-Trichloropropane	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
1 2 4-Trimethylbenzene	ND	ND	ND	ND	ND	8.00	ug/m3
1 3 5-Trimethylbenzene	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
Vinyl chloride	ND	ND	ND	ND	ND	8.00	ug/m3
m p-Xylene	ND	ND	ND	ND	ND	8.00	ug/m3
o-Xylene	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
MTBE	ND	ND	ND	ND	ND	40.0	$\mu g/m3$
Ethyl-tert-butylether	ND	ND	ND	ND	ND	40.0	$\mu g/m3$
Di-isopropylether	ND	ND	ND	ND	ND	40.0	$\mu g/m3$
tert-amylmethylether	ND	ND	ND	ND	ND	40.0	$\mu g/m3$
tert-Butylalcohol	ND	ND	ND	ND	ND	400	110/m3
	112	T(D)	T(D)	112		100	μ <u>β</u> , 1115
TIC:						100	
n-Pentane	ND	ND	ND	ND	ND	400	$\mu g/m_3$
n-Hexane	ND	ND	ND	ND	ND	400	$\mu g/m_{J}$
n-Heptane	ND	ND	ND	ND	ND	400	μg/m3
Dilution Factor	25	5	5	1	1		
Surrogate Recoveries:						<u>QC Lim</u>	<u>its</u>
Dibromofluoromethane	98%	102%	99%	98%	101%	60 - 14	0
Toluene-d ₈	97%	100%	99%	102%	116%	60 - 14	0
4-Bromofluorobenzene	94%	98%	96%	113%	106%	60 - 14	0
	E1-021617-	E1-021617-	E1-021617-	E1-021617-	E1-021617-		
	E-0680	E-0680	E-0680	E-0680	E-0680		

ND= Not Detected



SANTA FE SPRINGS, CA 90670

JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Mearns Cons	sulting Corp				Report date:	2/22/2017
Client Address:	738 Ashland	Ave				Jones Ref. No.:	E-0680
	Santa Monic	a, CA 90405					
		,					
Attn:	Susan L Mea	ırns, PhD				Date Sampled:	2/16/2017
		,				Date Received:	2/16/2017
Project:	Former Ame	riGas				Date Analyzed:	2/16/2017
Project Address:	2851 Orange	Ave				Physical State	Soil Gas
i roject mui ess.	Long Beach	CA				i nysicai State:	Son Gus
	EDA 93	COD Valati	ile Organies h	COME	Orregonator		
	EPA 82	60B – Volat	lle Organics b	y GC/MS +	Oxygenates		
<u>Sample ID:</u>	SV-7-5'	SV-8-5'	SV-7-5' REP	SV-9-5'	SV-10-5'		
Jones ID:	E-0680-06	E-0680-07	E-0680-08	E-0680-09	E-0680-10	<u>Practical</u> Quantitation	<u>Units</u>
Analytes:						<u>Limit</u>	
Benzene	ND	3060	ND	ND	ND	8.00	μg/m3
Bromobenzene	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
Bromodichloromethane	ND	ND	ND ND	ND	ND	8.00	$\mu g/m3$
Bromotorm	ND	ND 507	ND ND		ND	8.00	μg/m3
n-Butylbenzene	ND	2030	ND	11500	540	8.00	μg/m3
tert-Butylbenzene	ND	2030 ND	ND	ND	ND	8.00	$\mu g/m3$
Carbon tetrachloride	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
Chlorobenzene	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
Chloroform	ND	ND	ND	ND	ND	8.00	μg/m3
2-Chlorotoluene	ND	ND	ND	ND	ND	8.00	µg/m3
4-Chlorotoluene	ND	ND	ND	ND	ND	8.00	µg/m3
Dibromochloromethane	ND	ND	ND	ND	ND	8.00	µg/m3
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	8.00	µg/m3
1,2-Dibromoethane (EDB)	ND	16600	ND	ND	ND	8.00	µg/m3
Dibromomethane	ND	ND	ND	ND	ND	8.00	µg/m3
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
1,4-Dichlorobenzene	ND		ND		ND 10.2	8.00	μg/m3
1 1 Dichloroothano	ND	ND	ND	ND	10.2 ND	8.00	μg/m3
1,1-Dichloroethane	ND	ND	ND	ND	ND	8.00	μg/m3
1,2-Dichloroethene	ND	ND	ND	ND	ND	8.00	μg/m3
cis-1 2-Dichloroethene	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
trans-1.2-Dichloroethene	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
1.2-Dichloropropane	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
1.3-Dichloropropane	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
2,2-Dichloropropane	ND	ND	ND	ND	ND	8.00	μg/m3
1,1-Dichloropropene	ND	ND	ND	ND	ND	8.00	µg/m3

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

<u>Sample ID:</u>	SV-7-5'	SV-8-5'	SV-7-5' REP	SV-9-5'	SV-10-5'		
Jones ID:	E-0680-06	E-0680-07	E-0680-08	E-0680-09	E-0680-10	<u>Practical</u> Quantitation	<u>Units</u>
Analytes:						<u>Limit</u>	
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	8.00	µg/m3
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	8.00	µg/m3
Ethylbenzene	ND	2490	ND	ND	ND	8.00	µg/m3
Freon 113	ND	ND	ND	ND	ND	40.0	µg/m3
Hexachlorobutadiene	ND	ND	ND	ND	ND	8.00	µg/m3
Isopropylbenzene	ND	6740	ND	10700	201	8.00	µg/m3
4-Isopropyltoluene	8.20	404	ND	ND	ND	8.00	µg/m3
Methylene chloride	ND	ND	ND	ND	ND	8.00	µg/m3
Naphthalene	ND	569	66.6	11300	1640	40.00	μg/m3
n-Propylbenzene	ND	5040	ND	8090	441	8.00	μg/m3
Styrene	ND	ND	ND	ND	ND	8.00	µg/m3
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	8.00	μg/m3
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	8.00	μg/m3
Tetrachloroethene	ND	ND	ND	ND	ND	8.00	µg/m3
Toluene	ND	1080	ND	ND	ND	8.00	µg/m3
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	40.0	µg/m3
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	8.00	μg/m3
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	8.00	µg/m3
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	8.00	µg/m3
Trichloroethene	ND	ND	ND	ND	ND	8.00	µg/m3
Trichlorofluoromethane	ND	ND	ND	65.4	ND	8.00	µg/m3
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	8.00	μg/m3
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	8.00	μg/m3
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	8.00	µg/m3
Vinyl chloride	ND	ND	ND	ND	ND	8.00	µg/m3
m,p-Xylene	ND	ND	ND	ND	ND	8.00	µg/m3
o-Xylene	ND	ND	ND	ND	ND	8.00	µg/m3
MTBE	ND	ND	ND	ND	ND	40.0	µg/m3
Ethyl-tert-butylether	ND	ND	ND	ND	ND	40.0	µg/m3
Di-isopropylether	ND	ND	ND	ND	ND	40.0	µg/m3
tert-amylmethylether	ND	ND	ND	ND	ND	40.0	μg/m3
tert-Butylalcohol	ND	ND	ND	ND	ND	400	µg/m3
TIC:							
n-Pentane	ND	ND	ND	ND	ND	400	µg/m3
n-Hexane	ND	ND	ND	ND	ND	400	µg/m3
n-Heptane	ND	ND	ND	ND	ND	400	µg/m3
Dilution Factor	1	1	1	1	1		
Surrogate Recoveries:	0.551		0.571	0.67.1		<u>QC Lim</u>	<u>its</u>
Dibromofluoromethane	98%	77%	99%	96%	101%	60 - 14	0
Toluene-d ₈	111%	•	114%	•	99%	60 - 14	0
4-Bromofluorobenzene	116%	•	118%	•	•	60 - 14	0
	E1-021617-	E1-021617-	E1-021617-	E1-021617-	E1-021617-		
	E-0680	E-0680	E-0680	E-0680	E-0680		

ND= Not Detected

• = Heavy hydrocarbons prevented adequate surrogate recovery



SANTA FE SPRINGS, CA 90670

JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Mearns Cons	sulting Corp				Report date:	2/22/2017
Client Address:	738 Ashland	Ave				Jones Ref. No.:	E-0680
	Santa Monic	a CA 90405					
		u, err >0102					
Attn.	Susan L. Mea	arns PhD				Date Samnled:	2/16/2017
7 XUII.	Subuli E Mee					Date Danpieu:	2/16/2017
Ducient	Eamman Ama	miC ag				Date Analyzadi	2/16/2017
	Former Ame	A				Date Analyzeu:	2/10/2017
Project Address:	2851 Orange	Ave				Physical State:	Soil Gas
	Long Beach,	CA					
	EPA 82	60B – Volati	le Organics l	by GC/MS +	Oxygenates		
<u>Sample ID:</u>	SV-11-5'	SV-12-5'	SV-13-5'	SV-14-5'	SV-15-5'		
Jones ID:	E-0680-11	E-0680-12	E-0680-13	E-0680-14	E-0680-15	<u>Practical</u> Quantitation	<u>Units</u>
Analytes:						Limit	
Benzene	ND	ND	ND	ND	ND	8.00	μg/m3
Bromobenzene	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
Bromodichloromethane	ND	ND	ND	ND	ND	8.00	µg/m3
Bromoform	ND	ND	ND	ND	ND	8.00	µg/m3
n-Butylbenzene	40.8	31.6	21.0	12.8	10.4	8.00	µg/m3
sec-Butylbenzene	83.8	54.8	31.6	19.2	14.2	8.00	µg/m3
tert-Butylbenzene	ND	ND	ND	ND	ND	8.00	μg/m3
Carbon tetrachloride	ND	ND	ND	ND	ND	8.00	μg/m3
Chlorobenzene	ND	ND	ND	ND	ND	8.00	µg/m3
Chloroform	ND	ND	ND	24.6	ND	8.00	µg/m3
2-Chlorotoluene	ND	ND	ND	ND	ND	8.00	µg/m3
4-Chlorotoluene	ND	ND	ND	ND	ND	8.00	µg/m3
Dibromochloromethane	ND	ND	ND	ND	ND	8.00	µg/m3
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	8.00	µg/m3
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	8.00	µg/m3
Dibromomethane	ND	ND	ND	ND	ND	8.00	µg/m3
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	8.00	µg/m3
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	8.00	µg/m3
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	8.00	µg/m3
Dichlorodifluoromethane	10.6	ND	ND	ND	10.2	8.00	µg/m3
1,1-Dichloroethane	ND	ND	ND	ND	ND	8.00	µg/m3
1,2-Dichloroethane	ND	ND	ND	ND	ND	8.00	µg/m3
1,1-Dichloroethene	ND	ND	ND	ND	ND	8.00	µg/m3
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	8.00	µg/m3
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	8.00	µg/m3
1,2-Dichloropropane	ND	ND	ND	ND	ND	8.00	µg/m3
1,3-Dichloropropane	ND	ND	ND	ND	ND	8.00	µg/m3
2,2-Dichloropropane	ND	ND	ND	ND	ND	8.00	µg/m3
1,1-Dichloropropene	ND	ND	ND	ND	ND	8.00	μg/m3

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

<u>Sample ID:</u>	SV-11-5'	SV-12-5'	SV-13-5'	SV-14-5'	SV-15-5'		
Jones ID:	E-0680-11	E-0680-12	E-0680-13	E-0680-14	E-0680-15	<u>Practical</u> Quantitation	<u>Units</u>
Analytes:						<u>Limit</u>	
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	8.00	µg/m3
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	8.00	μg/m3
Ethylbenzene	ND	ND	9.60	ND	ND	8.00	µg/m3
Freon 113	ND	ND	ND	ND	ND	40.0	μg/m3
Hexachlorobutadiene	ND	ND	ND	ND	ND	8.00	μg/m3
Isopropylbenzene	39.2	34.6	24.2	17.4	13.6	8.00	μg/m3
4-Isopropyltoluene	ND	ND	ND	ND	ND	8.00	μg/m3
Methylene chloride	ND	ND	ND	ND	ND	8.00	μg/m3
Naphthalene	504	321	184	111	81.2	40.00	$\mu g/m3$
n-Propylbenzene	101	90.6	58.8	40.4	28.6	8.00	$\mu g/m3$
Styrene	ND	ND	ND	ND	ND	8.00	μg/m3
1.1.1.2-Tetrachloroethane	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
1.1.2.2-Tetrachloroethane	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
Tetrachloroethene	ND	11.2	12.0	10.6	11.8	8.00	$\mu g/m3$
Toluene	ND	ND	ND	12.4	ND	8.00	$\mu g/m3$
1.2.3-Trichlorobenzene	ND	ND	ND	ND	ND	40.0	$\mu g/m3$
1.2.4-Trichlorobenzene	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
1.1.1-Trichloroethane	ND	ND	ND	ND	ND	8.00	ug/m3
1.1.2-Trichloroethane	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
Trichloroethene	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
Trichlorofluoromethane	ND	12.6	15.6	ND	ND	8.00	$\mu g/m3$
1 2 3-Trichloropropane	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
1 2 4-Trimethylbenzene	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
1 3 5-Trimethylbenzene	ND	ND	ND	ND	ND	8.00	ug/m3
Vinyl chloride	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
m n-Xylene	ND	ND	ND	ND	ND	8.00	μg/m3
o-Xylene	ND	ND	ND	ND	ND	8.00	$\mu g/m3$
MTBE	ND	ND	ND	ND	ND	40.0	μg/m3
Ethyl_tert_butylether	ND	ND	ND	ND	ND	40.0	μg/m3
Di-isopropylether	ND	ND	ND	ND	ND	40.0	110/m3
tert-amylmethylether	ND	ND	ND	ND	ND	40.0	μg/m3
tert-Butylalcohol	ND	ND	ND	ND	ND	400	μg/m3
		T(D)	T(D)	T(D)		100	μ <u>β</u> /113
TIC:						100	()
n-Pentane	ND	ND	ND	ND	ND	400	$\mu g/m_3$
n-Hexane	ND	ND	ND	ND	ND	400	$\mu g/m_3$
n-Heptane	ND	ND	ND	ND	ND	400	µg/m3
Dilution Factor	1	1	1	1	1		
Surrogate Recoveries:						<u>QC Lim</u>	<u>its</u>
Dibromofluoromethane	103%	101%	100%	105%	101%	60 - 14	0
Toluene-d ₈	101%	100%	97%	98%	99%	60 - 14	0
4-Bromofluorobenzene	98%	100%	100%	98%	98%	60 - 14	0
	E1-021617-	E1-021617-	E1-021617-	E1-021617-	E1-021617-		
	E-0680	E-0680	E-0680	E-0680	E-0680		

ND= Not Detected



SANTA FE SPRINGS, CA 90670

JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	Mearns Consulting Corp	Report date:	2/22/2017
Client Address:	738 Ashland Ave	Jones Ref. No.:	E-0680
	Santa Monica, CA 90405		2 0000
	Sunta Monica, CA 90 105		
Attne	Susan I Mearns PhD	Data Sampladi	2/16/2017
Attn.	Susan E Means, 1 nD	Date Bassivad	2/16/2017
		Date Received:	2/16/2017
Project:	Former AmeriGas	Date Analyzed	2/16/2017
Project Address:	2851 Orange Ave	Physical State:	Soil Gas
	Long Beach, CA		
	EPA 8260B – Volatile Organio	cs by GC/MS + Oxygenates	
<u>Sample ID:</u>	SV-17-5'		
Ionos ID:	F 0690 16	Practical	
Jones ID:	E-0080-10	<u>Quantitation</u>	<u>Units</u>
Analytes:		Limit	
Benzene	ND	8.00	µg/m3
Bromobenzene	ND	8.00	µg/m3
Bromodichloromethane	ND	8.00	µg/m3
Bromoform	ND	8.00	µg/m3
n-Butylbenzene	ND	8.00	µg/m3
sec-Butylbenzene	ND	8.00	µg/m3
tert-Butylbenzene	ND	8.00	µg/m3
Carbon tetrachloride	ND	8.00	µg/m3
Chlorobenzene	ND	8.00	µg/m3
Chloroform	ND	8.00	µg/m3
2-Chlorotoluene	ND	8.00	µg/m3
4-Chlorotoluene	ND	8.00	µg/m3
Dibromochloromethane	ND	8.00	µg/m3
1,2-Dibromo-3-chloropropane	ND	8.00	µg/m3
1,2-Dibromoethane (EDB)	ND	8.00	µg/m3
Dibromomethane	ND	8.00	µg/m3
1,2- Dichlorobenzene	ND	8.00	µg/m3
1,3-Dichlorobenzene	ND	8.00	µg/m3
1,4-Dichlorobenzene	ND	8.00	µg/m3
Dichlorodifluoromethane	10.0	8.00	µg/m3
1,1-Dichloroethane	ND	8.00	µg/m3
1,2-Dichloroethane	ND	8.00	µg/m3
1,1-Dichloroethene	ND	8.00	µg/m3
cis-1,2-Dichloroethene	ND	8.00	μg/m3
trans-1,2-Dichloroethene	ND	8.00	μg/m3
1,2-Dichloropropane	ND	8.00	μg/m3
1,3-Dichloropropane	ND	8.00	μg/m3
2,2-Dichloropropane	ND	8.00	µg/m3
1,1-Dichloropropene	ND	8.00	μg/m3

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Sample ID:	SV-17-5'
	01110

Iones ID.	F 0(90 1/	<u>Practical</u>
Jones ID:	E-0080-10	<u>Quantitation</u> <u>Units</u>
Analytes:		<u>Limit</u>
cis-1,3-Dichloropropene	ND	8.00 µg/m3
trans-1,3-Dichloropropene	ND	8.00 µg/m3
Ethylbenzene	ND	8.00 µg/m3
Freon 113	ND	40.0 µg/m3
Hexachlorobutadiene	ND	8.00 µg/m3
Isopropylbenzene	ND	8.00 µg/m3
4-Isopropyltoluene	ND	8.00 µg/m3
Methylene chloride	ND	8.00 µg/m3
Naphthalene	45.8	40.00 µg/m3
n-Propylbenzene	8.40	8.00 µg/m3
Styrene	ND	8.00 µg/m3
1,1,1,2-Tetrachloroethane	ND	8.00 µg/m3
1,1,2,2-Tetrachloroethane	ND	8.00 µg/m3
Tetrachloroethene	11.2	8.00 µg/m3
Toluene	ND	8.00 µg/m3
1,2,3-Trichlorobenzene	ND	40.0 µg/m3
1,2,4-Trichlorobenzene	ND	8.00 µg/m3
1,1,1-Trichloroethane	ND	8.00 µg/m3
1,1,2-Trichloroethane	ND	8.00 µg/m3
Trichloroethene	ND	8.00 µg/m3
Trichlorofluoromethane	ND	8.00 µg/m3
1,2,3-Trichloropropane	ND	8.00 µg/m3
1,2,4-Trimethylbenzene	ND	8.00 µg/m3
1,3,5-Trimethylbenzene	ND	8.00 µg/m3
Vinyl chloride	ND	8.00 µg/m3
m,p-Xylene	ND	8.00 µg/m3
o-Xylene	ND	8.00 µg/m3
MTBE	ND	40.0 µg/m3
Ethyl-tert-butylether	ND	40.0 µg/m3
Di-isopropylether	ND	40.0 µg/m3
tert-amylmethylether	ND	40.0 µg/m3
tert-Butylalcohol	ND	400 μg/m3
TIC:		
n-Pentane	ND	400 µg/m3
n-Hexane	ND	400 µg/m3
n-Heptane	ND	400 μg/m3
Dilution Factor	1	
Surrogate Recoveries:		QC Limits
Dibromofluoromethane	102%	60 - 140
Toluene-d ₈	103%	60 - 140
4-Bromofluorobenzene	96%	60 - 140
	E1-021617-	
	E-0680	

ND= Not Detected



SANTA FE SPRINGS, CA 90670

JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

Client:	Mearns Con	sulting Corp	Report date:	2/22/2017
Client Address:	738 Ashland	Ave	Jones Ref. No.:	E-0680
	Santa Monic	CA 90405		E 0000
		<i>a</i> , <i>CA</i> 70405		
Attne	Susan I Ma	orne DhD	Data Samuladi	2/16/2017
Attil:	Susan L Mea	ams, mD	Date Sampleu.	2/10/2017
	-		Date Received:	2/16/2017
Project:	Former Ame	eriGas	Date Analyzed:	2/16/2017
Project Address:	2851 Orange	e Ave	Physical State:	Soil Gas
	Long Beach,	, CA		
	EPA 82	260B – Volatile	e Organics by GC/MS + Oxygenates	
	METHOD	SAMDI INC		
Sample ID:	RLANK	BLANK		
Jones ID:	021617-	021617-	<u>Practical</u>	T T •/
	E1MB1	E1SB1	Quantitation	Units
Analytes:			Limit	
Benzene	ND	ND	8.00	µg/m3
Bromobenzene	ND	ND	8.00	µg/m3
Bromodichloromethane	ND	ND	8.00	μg/m3
Bromoform	ND	ND	8.00	μg/m3
n-Butylbenzene	ND	ND	8.00	µg/m3
sec-Butylbenzene	ND	ND	8.00	µg/m3
tert-Butylbenzene	ND	ND	8.00	µg/m3
Carbon tetrachloride	ND	ND	8.00	µg/m3
Chlorobenzene	ND	ND	8.00	µg/m3
Chloroform	ND	ND	8.00	µg/m3
2-Chlorotoluene	ND	ND	8.00	µg/m3
4-Chlorotoluene	ND	ND	8.00	µg/m3
Dibromochloromethane	ND	ND	8.00	μg/m3
1,2-Dibromo-3-chloropropane	ND	ND	8.00	μg/m3
1,2-Dibromoethane (EDB)	ND	ND	8.00	μg/m3
Dibromomethane	ND	ND	8.00	µg/m3
1,2- Dichlorobenzene	ND	ND	8.00	µg/m3
1,3-Dichlorobenzene	ND	ND	8.00	µg/m3
1,4-Dichlorobenzene	ND	ND	8.00	µg/m3
Dichlorodifluoromethane	ND	ND	8.00	µg/m3
1,1-Dichloroethane	ND	ND	8.00	µg/m3
1,2-Dichloroethane	ND	ND	8.00	µg/m3
1,1-Dichloroethene	ND	ND	8.00	μg/m3
cis-1,2-Dichloroethene	ND	ND	8.00	µg/m3
trans-1,2-Dichloroethene	ND	ND	8.00	µg/m3
1,2-Dichloropropane	ND	ND	8.00	µg/m3
1,3-Dichloropropane	ND	ND	8.00	μg/m3
2,2-Dichloropropane	ND	ND	8.00	µg/m3
1,1-Dichloropropene	ND	ND	8.00	μg/m3

Sample ID:	METHOD BLANK	SAMPLING BLANK		
Jones ID:	021617- E1MB1	021617- E1SB1	<u>Practical</u> Quantitation	<u>Units</u>
Analytes:			Limit	
cis-1.3-Dichloropropene	ND	ND	8.00	ug/m3
trans-1 3-Dichloropropene	ND	ND	8.00	$\mu g/m3$
Ethylbenzene	ND	ND	8.00	$\mu g/m3$
Freon 113	ND	ND	40.0	$\mu g/m3$
Hexachlorobutadiene	ND	ND	8.00	$\mu g/m3$
Isopronylbenzene	ND	ND	8.00	$\mu g/m3$
4-Isopropyltoluene	ND	ND	8.00	$\mu g/m3$
Methylene chloride	ND	ND	8.00	$\mu g/m3$
Naphthalene	ND	ND	40.00	$\mu g/m3$
n-Pronylbenzene	ND	ND	8.00	$\mu g/m3$
Styrene	ND	ND	8.00	$\mu g/m3$
1 1 1 2-Tetrachloroethane	ND	ND	8.00	$\mu g/m3$
1 1 2 2-Tetrachloroethane	ND	ND	8.00	$\mu g/m3$
Tetrachloroethene	ND	ND	8.00	$\mu g/m3$
Toluene	ND	ND	8.00	$\mu g/m3$
1.2.3-Trichlorobenzene	ND	ND	40.0	$\mu g/m3$
1.2.4-Trichlorobenzene	ND	ND	8.00	$\mu g/m3$
1 1 1-Trichloroethane	ND	ND	8.00	$\mu g/m3$
1 1 2-Trichloroethane	ND	ND	8.00	$\mu g/m3$
Trichloroethene	ND	ND	8.00	$\mu g/m3$
Trichlorofluoromethane	ND	ND	8.00	$\mu g/m3$
1.2.3 Trichloronronane	ND	ND	8.00	$\mu g/m3$
1.2.4 Trimethylhonzone	ND	ND	8.00	$\mu g/m3$
1,2,4-Trimethylbenzene	ND	ND	8.00	$\mu g/m3$
Vinyl ablarida	ND	ND	8.00	$\mu g/m3$
m n Xylono	ND	ND	8.00	$\mu g/m3$
a Yulana	ND	ND	8.00	$\mu g/m3$
0-Aylene MTDE	ND	ND	40.0	$\mu g/m3$
IVIIDE Ethyl tart hytylathar	ND	ND	40.0	$\mu g/m3$
Di iconnonvlathan	ND	ND	40.0	$\mu g/m3$
tort omvimethylether	ND	ND	40.0	$\mu g/m3$
tert-amymetrylether	ND	ND	40.0	$\mu g/m3$
tert-Butylaiconol	ND	ND	400	µg/III3
TIC:				
n-Pentane	ND	ND	400	µg/m3
n-Hexane	ND	ND	400	µg/m3
n-Heptane	ND	ND	400	µg/m3
Dilution Factor	1	1		
Surrogate Recoveries:			QC Limits	<u>.</u>
Dibromofluoromethane	101%	126%	60 - 140	
Toluene-d ₈	95%	93%	60 - 140	
4-Bromofluorobenzene	95%	92%	60 - 140	
	E1-021617-	E1-021617-		
	E-0680	E-0680		

EPA 8260B – Volatile Organics by GC/MS + Oxygenates

ND= Not Detected



714-449-993711007 FOREST PLACE562-646-1611SANTA FE SPRINGS, CA 90670805-399-0060WWW.JONESENV.COM

JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

Client: Client Address:	Mearns Consulting Corp 738 Ashland Ave Santa Monica, CA 90405	Report date: Jones Ref. No.: Client Ref. No.:	2/22/2017 E-0680
Attn:	Susan L Mearns, PhD	Date Sampled:	2/16/2017
		Date Received:	2/16/2017
Project:	Former AmeriGas	Date Analyzed:	2/16/2017
Project Address:	2851 Orange Ave	Physical State:	Soil Gas
	Long Beach, CA	-	

EPA 8260B - Volatile Organics by GC/MS + Oxygenates

Batch ID:	E1-021617-E-0680					
Jones ID:	021617-E1LCS1	021617-E1LCSD1		0	21617-E1CC	V1
	LCS	LCSD		Acceptability		Acceptability
Parameter	Recovery (%)	Recovery (%)	<u>RPD</u>	Range (%)	<u>CCV</u>	Range (%)
Vinyl chloride	82%	73%	11.4%	70 - 130	81%	80 - 120
1,1-Dichloroethene	98%	87%	11.5%	70 - 130	110%	80 - 120
Cis-1,2-Dichloroethene	106%	99%	6.5%	70 - 130	99%	80 - 120
1,1,1-Trichloroethane	104%	93%	11.5%	70 - 130	102%	80 - 120
Benzene	119%	107%	10.1%	70 - 130	115%	80 - 120
Trichloroethene	103%	96%	7.3%	70 - 130	102%	80 - 120
Toluene	126%	112%	12.2%	70 - 130	114%	80 - 120
Tetrachloroethene	115%	106%	7.8%	70 - 130	114%	80 - 120
Chlorobenzene	122%	110%	10.5%	70 - 130	112%	80 - 120
Ethylbenzene	117%	103%	12.6%	70 - 130	107%	80 - 120
1,2,4 Trimethylbenzene	134%	121%	10.5%	70 - 130	123%	80 - 120
Gasoline Range Organics (C4-C12)	124%	111%	11.3%	70 - 130		
Surrogate Recovery:						
Dibromofluoromethane	92%	95%		60 - 140	90%	60 - 140
Toluene-d ₈	100%	101%		60 - 140	100%	60 - 140
4-Bromofluorobenzene	98%	99%		60 - 140	97%	60 - 140

LCS = Laboratory Control Sample

LCSD = Laboratory Control Sample Duplicate

CCV = Continuing Calibration Verification

RPD = Relative Percent Difference; Acceptability range for RPD is $\leq 15\%$

JONNES JONNES

11007 Forest PI. Santa Fe Springs, CA 90670 (714) 449-9937 Fax (714) 449-9685 www.jonesenv.com

Soil-Gas Chain-of-Custody Record

Client Meams Consulting Group Project Name Former AmeriGas					Date 2/16/2017 Client Project #		Purge Number: Re DD 27P 0 10P EDD EDF Shut-In Test: 10P N *Giob				Repo EDD EDF* - 1 Global I	nt Option 0% Sur D	ons rchan	9e	LAB USE ONLY Jones Project # E-0680				
Project Address 2851 Orange Ave Long Beach, CA Email Phone 310-403-1921					Turn Around Re Immediate Atter Rush 24 Hours Rush 48 Hours Rush 72 Hours Normal Mobile Lab	quested	T Cn-pent cn-hexa Cn-hept Helium 0 1,1-DF	racer ane ane ane 1 X	(W)	Ana	lysis	Requ	este (O ² H/vil) u	d sa		Page 1 Sample Cont	of ainer:	2	
Susan Meams JSB				Reporting Li	mits Reque	sted	Units ,	Aatrix:). Arr (A), Ma	80			lic Vacuur	of Contain		il different than	ibove, see Not	Ne.		
Sample ID	Purgé Number	Purge Volume (mL)	Date	Sample Collection Time	Sample Analysis Time	Laboratory Sample ID	Purge Rate (mL/min)	Pump Used	Magnehelic	Sample N	EPA 8260			Magnehe	Number o	Notes & Special Instructions		ons	
SV-1-5'	3	176	2/16/17	8:45	9:00	E-0680-01	200	HAND PURGED	M100.103	SG	x			4	2	-			
SV-1-5' DIL	1.2	1.0	2/16/17	9:03	9:17		200	HAND PURGED	M100.103	SG	x			4	1				
SV-2-5'	3	176	2/16/17	9:31	9:34	E-0680-02	200	HAND PURGED	M100.103	SG	x			<2	1				
SV-3-5'	3	176	2/16/17	9:45	9:50	E-0680-03	200	HAND PURGED	M100.103	SG	x			<2	1				
SV-2-5' REP	3	176	2/16/17	10:06	10:12		200	HAND PURGED	M100.103	SG	x			<2	1	REP FAILE	D, TRYIN	3 ELSEV	HERE
SV-4-5'	3	176	2/16/17	10:30	10:33	E-0680-04	200	HAND PURGED	M100.103	SG	x			56	2	LOW FLOV	v		
SV-5-5'	3	176	2/16/17	10:43	10:49	E-0680-05	200	HAND PURGED	M100.103	SG	x			48	2	LOW FLOV	v		
SV-7-5'	3	176	2/16/17	10:56	11:06	E-0680-06	200	HAND PURGED	M100.103	SG	x			<2	2				
SV-8-5'	3	176	2/16/17	11:10	11:24	E-0680-07	200	HAND PURGED	M100.103	SG	x			66	2	LOW FLOW	v		
SV-7-5' REP	3	176	2/16/17	11:37	11:40	E-0680-08	200	HAND PURGED	M100.103	SG	x			<2	2				
Relinquistica By (Signature) Printed Name SUCAN L MEARN'S PHD			Received Byr(Signature)			Print	ed Nar	ne Hr	214	5		16	Total Number o	of Containers	6				
Company Date Time (MEAPNS CONSULTING CORP 2-16-17 1500 (Relinquished By (Signature) Printed Name				Company Jouls Environments Received By Laboratory (Signature) Printed Name Client signature on this Chain of Custody form acknowledgement that the above analyses in regested, and the information provided herein						i constitutes have been n is correct									
Сопралу		Date		Time		Company Date Time and accurate.													

JONES ENVIRONMENTAL. INC.

11007 Forest Pt. Santa Fe Springs, CA 90670 (714) 449-9537 Fax (714) 449-9685 www.jonesenv.com

Soil-Gas Chain-of-Custody Record

Client Meams Consulting Group Project Name					Date 2/16/2017 Client Project #		Purge Number: ED = 1P & 3P = 7P = 10P ED ED				F EDD EDF	teport) (* - 10	% Sur	ons	ge Jones Project #	
Former AmeriGas Project Address 2851 Orange Ave						Turn Around Requested		- Shut	racer	97 N	// N "Giobal ID				d	Page
Long Beach, CA Email					□ Immediate Atter □ Rush 24 Hours □ Rush 48 Hours □ Rush 72 Hours □ Normal	ntion	An-pent An-hexa Cn-hept Helium 0 1,1-DF	ane ane ane 1 A	(W)				(O2H)		2 of 2 Sample Container:	
Phone 310-403-1921 Report To Sampler Susan Meams JSB				Koporting Ling	mits Reque	sted	Units	Matrix: 0. Air (A). Materia	98			fic Vacuum (II	of Containers	el different than above, see Notas.		
Sample ID	Purge Number	Purge Volume (mL)	Date	Sample Collection Time	Sample Analysis Time	Laboratory Sample ID	Purge Rate (mL/min)	Pump Used	Magnehelic	Sample	EPA 826			Magnehe	Number	Notes & Special Instructions
SV-9-5'	3	176	2/16/17	11:55	11:58	E-0680-09	200	HAND PURGED	M100.103	SG	x			10	2	
SV-10-5'	3	176	2/16/17	12:10	12:16	E-0680-10	200	HAND PURGED	M100.103	SG	x			8	2	-
SV-11-5'	3	176	2/16/17	12:28	12:32	E-0680-11	200	HAND PURGED	M100.103	SG	x			8	2	4
SV-12-5'	3	176	2/16/17	12:41	12:50	E-0680-12	200	HAND PURGED	M100.103	SG	x			44	2	LOW FLOW
SV-13-5'	3	176	2/16/17	12:55	13:07	E-0680-13	200	HAND PURGED	M100.103	SG	x			<2	2	
SV-14-5'	3	176	2/16/17	13:14	13:25	E-0680-14	200	HAND PURGED	M100.103	SG	x	- 1	5	14	2	
SV-15-5'	3	176	2/16/17	13:29	13:42	E-0680-15	200	HAND PURGED	M100.103	SG	x			10	2	
SV-17-5'	3	176	2/16/17	13:52	14:00	E-0680-16	200	HAND PURGED	M100.103	SG	x			8	2	
SV-6-5'	6	14	2/16/17	10:52	24	E-0680-17	200	HAND PURGED	M100.103	SG	x			>100	0	NO FLOW
SV-16-5'	1.6		2/16/17	13:48	1.	E-0680-18	200	HAND PURGED	M100.103	SG	x			>100	0	NO FLOW, LOTS OF WATER IN PROBE
Relinquisited By (Signature)		Printed Na	me LI	MEADN	P+D	Received By (Signature)			Prin	ted Na	me 1 f	ASS			16	Total Number of Containers
Company Date Time Company Date Time Company Printed Name				Company JUNES ENVIRONNING 216-17 1430 Received By Laboratory (Signaturu) Printed Name						 Client signature on this Chain of Custody form constitutes acknowledgement that the above analyses have been regested, and the information provided herein is correct and accurate. 						





















Lab File ID:	s:\jones reports\e-lab_2017\e-0680\e1-021617-e-0680\SV-12-5'.SM	Calibration File:	C:VAgile	entWS\2016-D	ATA\07-20	16\CAL 072916\	1000ppb.SM	S
Acquisition Date:	2/16/2017 13:00	Cal. Sample Date I	Range:	7/30/2016	2:37	7/30/2016	2:37	
EPA Sample No:	SV-12-5	Operator:	jsb					
Lab Sample ID:	SV-12-5'	Dilution:	1					











CHROMATOGRAM REPORT EPA Method 8260A

Lab File ID:	s:\jones reports\e-lab_2017\e-0680\e1-021617-e-0680\SV-15-5'.SM	Calibration File: C	: AgilentWS	2016-DA	TA\07-201	6\CAL 072916\	1000ppb.SMS
Acquisition Date:	2/16/2017 13:52	Cal. Sample Date Rai	inge: 7/30/	2016	2:37	7/30/2016	2:37
EPA Sample No:	SV-15-5'	Operator: j	jsb				
Lab Sample ID:	SV-15-5'	Dilution:	1				



Lab File ID:	s:\jones reports\e-lab_2017\e-0680\e1-021617-e-0680\SV-17-5'.SM	Calibration File: C:VAgi	ilentWS\2016-D	ATA\07-20	16\CAL 072916\	1000ppb.SMS
Acquisition Date:	2/16/2017 14:10	Cal. Sample Date Range:	7/30/2016	2:37	7/30/2016	2:37
EPA Sample No:	SV-17-5'	Operator: jsb				
Lab Sample ID:	SV-17-5'	Dilution: 1				











Lab File ID:	s:_jones reports\e-l	ab_2017\e-0680\e1-021617-e-0680\SV-3-5'.SMS	Calibration File:	C:\Agila	entWS\2016-D	ATA\07-20	16\CAL 072916\	1000ppb.SMS
Acquisition Date:	2/16/2017	10:01	Cal. Sample Date	e Range:	7/30/2016	2:37	7/30/2016	2:37
EPA Sample No:	SV-3-5'		Operator:	jsb				
Lab Sample ID:	SV-3-5'		Dilution:	1				











APPENDIX C

Sierra Analytical Labs Background Soil Matrix Data April 4, 2005



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Mearns Consulting Corporation 738 Ashland Avenue	Project: City of Sig		Reported:								
Santa Monica CA, 90405	Project Manager: Susan Mear		04/12/05 14:01								
ANALYTICAL REPORT FOR SAMPLES											
Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received							
SB1-1	0504072-01	Soil	04/04/05 08:30	04/04/05 14:15							
SB1-5	0504072-02	Soil	04/04/05 08:37	04/04/05 14:15							
SB1-10	0504072-03	Soil	04/04/05 08:45	04/04/05 14:15							
SB1-20	0504072-04	Soil	04/04/05 09:05	04/04/05 14:15							
SB2-1	0504072-05	Soil	04/04/05 09:25	04/04/05 14:15							
SB2-5	0504072-06	Soil	04/04/05 09:30	04/04/05 14:15							
SB2-10	0504072-07	Soil	04/04/05 09:35	04/04/05 14:15							
SB2-20	0504072-08	Soil	04/04/05 09:44	04/04/05 14:15							
SB3-1	0504072-09	Soil	04/04/05 10:00	04/04/05 14:15							
SB3-5	0504072-10	Soil	04/04/05 10:05	04/04/05 14:15							
SB3-10	0504072-11	Soil	04/04/05 10:10	04/04/05 14:15							
SB3-20	0504072-12	Soil	04/04/05 10:20	04/04/05 14:15							
SB4-1	0504072-13	Soil	04/04/05 10:35	04/04/05 14:15							
SB4-5	0504072-14	Soil	04/04/05 10:40	04/04/05 14:15							
SB4-10	0504072-15	Soil	04/04/05 10:50	04/04/05 14:15							
SB4-20	0504072-16	Soil	04/04/05 10:57	04/04/05 14:15							
SB5-1	0504072-17	Soil	04/04/05 11:10	04/04/05 14:15							
SB5-5	0504072-18	Soil	04/04/05 11:12	04/04/05 14:15							
SB5-10	0504072-19	Soil	04/04/05 11:15	04/04/05 14:15							
SB5-20	0504072-20	Soil	04/04/05 11:25	04/04/05 14:15							
SB6-1	0504072-21	Soil	04/04/05 11:35	04/04/05 14:15							
SB6-5	0504072-22	Soil	04/04/05 11:39	04/04/05 14:15							
SB6-10	0504072-23	Soil	04/04/05 11:44	04/04/05 14:15							
SB6-20	0504072-24	Soil	04/04/05 11:55	04/04/05 14:15							
SB7-1	0504072-25	Soil	04/04/05 12:10	04/04/05 14:15							
SB7-5	0504072-26	Soil	04/04/05 12:13	04/04/05 14:15							
SB7-10	0504072-27	Soil	04/04/05 12:17	04/04/05 14:15							
SB7-20	0504072-28	Soil	04/04/05 12:24	04/04/05 14:15							
SB8-1	0504072-29	Soil	04/04/05 12:35	04/04/05 14:15							
SB8-5	0504072-30	Soil	04/04/05 12:42	04/04/05 14:15							

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Mearns Consulting Corporation 738 Ashland Avenue	City of Signal Las Brisas		Reported:		
Santa Monica CA, 90405	Project Manager:		04/12/05 14:01		
ANALYTICAL REPORT FOR SAMPLES					
Sample ID	Labo	oratory ID N	Iatrix	Date Sampled	Date Received
SB8-10	050	4072-31 S	Soil	04/04/05 12:44	04/04/05 14:15

SB8-20	0504072-32	Soil	04/04/05 12:51	04/04/05 14:15
Offsite-1	0504072-33	Soil	04/04/05 13:20	04/04/05 14:15
Offsite-5	0504072-34	Soil	04/04/05 13:25	04/04/05 14:15
Offsite-10	0504072-35	Soil	04/04/05 13:29	04/04/05 14:15
Offsite-20	0504072-36	Soil	04/04/05 13:36	04/04/05 14:15

CASE NARRATIVE

SAMPLE RECEIPT:
PRESERVATION:
HOLDING TIMES:
QA/QC CRITERIA:

Samples were received intact, at 4 °C, and accompanied by chain of custody documentation. Samples requiring preservation were verified prior to sample preparation and analysis. All holding times were met, unless otherwise noted in the report with data qualifiers.

ERIA: All quality objective criteria were met, except as noted in the report with data qualifiers.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Mearns Consulting CorporationProjectCity of Signal Hill738 Ashland AvenueProject Number:Las BrisasReported:Santa Monica CA, 90405Project Manager:Susan Mearns04/12/05 14:01

Metals by EPA 6000/7000 Series Methods

Sierra Analytical Labs, Inc.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB1-1 (0504072-01) Soil	Sampled: 04/04/05 08:30	Received: 04/0	4/05 14:15						
Silver	ND	0.80	mg/kg	1	B5D0708	04/07/05	04/08/05	EPA 6010B	
Arsenic	8.6	1.7	"	"	"	"	"	"	
Barium	170	3.3	"	"	"	"		"	
Beryllium	ND	0.75	"	"	"	"	"	"	
Cadmium	ND	0.51	"	"	"	"		"	
Cobalt	12	2.2	"	"	"	"		"	
Chromium	30	0.98	"	"	"	"		"	
Copper	23	2.2	"	"	"	"		"	
Mercury	ND	0.18	"	"	B5D0710	04/07/05	04/08/05	EPA 7471A	
Molybdenum	ND	1.7	"	"	B5D0708	04/07/05	04/08/05	EPA 6010B	
Nickel	19	0.79	"	"	"	"		"	
Lead	15	1.3	"	"	"	"		"	
Antimony	ND	1.6	"	"	"	"		"	
Selenium	ND	1.9	"	"	"	"		"	
Thallium	ND	1.5	"	"	"	"	"	"	
Vanadium	53	0.73	"	"	"	"	"	"	
Zinc	71	1.3	"	"	"	"	"	"	
SB1-5 (0504072-02) Soil	Sampled: 04/04/05 08:37	Received: 04/0	4/05 14:15						
Silver	ND	0.80	mg/kg	1	B5D0708	04/07/05	04/08/05	EPA 6010B	

Silver	ND	0.80	mg/kg	1	B5D0708	04/07/05	04/08/05	EPA 6010B
Arsenic	2.9	1.7	"		"	"	"	"
Barium	67	3.3	"	"	"	"	"	"
Beryllium	ND	0.75	"	"	"	"	"	"
Cadmium	ND	0.51	"	"	"	"		"
Cobalt	7.3	2.2	"	"	"	"		"
Chromium	16	0.98	"	"	"	"	"	"
Copper	90	2.2	"	"	"	"	"	"
Mercury	ND	0.18	"	"	B5D0710	04/07/05	04/08/05	EPA 7471A
Molybdenum	ND	1.7	"	"	B5D0708	04/07/05	04/08/05	EPA 6010B
Nickel	9.3	0.79	"	"	"	"		"
Lead	3.1	1.3	"	"	"	"	"	"
Antimony	ND	1.6	"	"	"	"	"	"
Selenium	ND	1.9	"	"	"	"	"	"
Thallium	ND	1.5	"	"	"	"	"	"
Vanadium	31	0.73	"		"	"	"	"
Zinc	72	1.3	"		"	"	"	"

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.


Zinc

_	Motals by EPA 6000/7000 Series Mathads								
	Santa Monica CA, 90405	Project Manager: Susan Mearns	04/12/05 14:01						
	738 Ashland Avenue	Project Number: Las Brisas	Reported:						
	Mearns Consulting Corporation	Project: City of Signal Hill							

Metals by EPA 6000/7000 Series Methods

	Sierra Analytical Labs, Inc.											
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes			
SB1-10 (0504072-03) Soil	Sampled: 04/04/05 08:45	Received: 04/	04/05 14:1:	5								
Silver	ND	0.80	mg/kg	1	B5D0708	04/07/05	04/08/05	EPA 6010B				
Arsenic	4.0	1.7	"	"	"	"		"				
Barium	52	3.3	"	"	"	"	"	"				
Beryllium	ND	0.75	"	"	"	"	"	"				
Cadmium	ND	0.51	"	"	"	"	"	"				
Cobalt	4.7	2.2	"	"	"	"		"				
Chromium	15	0.98		"	"	"						
Copper	63	2.2		"	"	"						
Mercury	ND	0.18		"	B5D0710	04/07/05	04/08/05	EPA 7471A				
Molybdenum	ND	1.7		"	B5D0708	04/07/05	04/08/05	EPA 6010B				
Nickel	7.5	0.79		"	"	"		"				
Lead	2.3	1.3	"	"	"	"		"				
Antimony	ND	1.6	"	"	"	"		"				
Selenium	ND	1.9	"	"	"	"		"				
Thallium	ND	1.5	"	"	"	"		"				
Vanadium	26	0.73		"	"			"				
Zinc	64	1.3	"	"	"		"	"				
SB1-20 (0504072-04) Soil	Sampled: 04/04/05 09:05	Received: 04/	04/05 14:1:	5								
Silver	ND	0.80	ma/ka	- 1	P5D0708	04/07/05	04/08/05	EDA 6010D				
Arsonia	23	1.7	mg/kg	1	B3D0708	"	04/08/05	LIA 0010B				
Aisellic	2.3	1.7			"							
Darullium	40 ND	5.5 0.75										
Cadmium		0.73										
Cabalt	13	0.51			"							
Cobalt	4.3	2.2						"				
Carpon	10	0.98					"					
Copper	30 ND	2.2			D5D0710	04/07/05	04/08/05	EDA 7471A				
Maluhdanum		0.18			D5D0709	04/07/05	04/08/05	EPA /4/IA				
Nielyouenunn	ND C 0	1./			долотоя "	04/07/05	04/08/05	EPA OUIUB				
INICKEI	6.U	0.79										
	ND	1.3										
Antimony	ND	1.6										
Selenium	ND	1.9										
Thallium	ND	1.5										
Vanadium	17	0.73	"		"	"	"	"				

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Vanadium

Zinc

Motals by EPA 6000/7000 Spring Mathads							
Santa Monica CA, 90405	Project Manager: Susan Mearns	04/12/05 14:01					
738 Ashland Avenue	Project Number: Las Brisas	Reported:					
Mearns Consulting Corporation	Project: City of Signal Hill						

Metals by EPA 6000/7000 Series Methods

	Sierra Analytical Labs, Inc.											
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note			
SB2-1 (0504072-05) Soil	Sampled: 04/04/05 09:25	Received: 04/0	4/05 14:15	5								
Silver	ND	0.80	mg/kg	1	B5D0708	04/07/05	04/08/05	EPA 6010B				
Arsenic	6.1	1.7	"	"	"	"		"				
Barium	120	3.3	"	"	"	"		"				
Beryllium	ND	0.75	"	"	"	"		"				
Cadmium	ND	0.51	"	"	"	"		"				
Cobalt	7.9	2.2	"	"	"	"		"				
Chromium	19	0.98		"	"	"		"				
Copper	33	2.2		"	"	"		"				
Mercury	ND	0.18		"	B5D0710	04/07/05	04/08/05	EPA 7471A				
Molybdenum	ND	1.7	"	"	B5D0708	04/07/05	04/08/05	EPA 6010B				
Nickel	12	0.79	"	"	"	"		"				
Lead	35	1.3	"	"	"	"		"				
Antimony	ND	1.6	"	"	"	"		"				
Selenium	ND	1.9	"	"	"	"		"				
Thallium	ND	1.5	"	"	"	"		"				
Vanadium	35	0.73		"	"	"		"				
Zinc	100	1.3		"	"	"	"	"				
SB2-5 (0504072-06) Soil	Sampled: 04/04/05 09:30	Received: 04/0	4/05 14:15	;								
Silver	ND	0.80	mg/kg	1	B5D0708	04/07/05	04/08/05	EPA 6010B				
Arsenic	6.1	1.7	"	"	"	"		"				
Barium	100	3.3		"	"	"		"				
Bervllium	ND	0.75	"	"	"	"		"				
Cadmium	ND	0.51	"	"	"	"		"				
Cobalt	11	2.2		"	"	"		"				
Chromium	26	0.98	"	"	"	"		"				
Conner	100	2.2		"	"	"		"				
Mercury	ND	0.18	"	"	B5D0710	04/07/05	04/08/05	EPA 7471A				
Molvhdenum	ND	17		"	B5D0708	04/07/05	04/08/05	EPA 6010B				
Nickel	14	0.79		"	"	"	"	"				
Lead	50	13		"	"		"	"				
Antimony	5.0 2 2	1.5		"	"		"	"				
Selenium	2.2 ND	1.0		"	"	"						
Thallium	ND	1.5		"	"		"	"				
	ND	1.5										

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Motals by EDA 6000/7000 Sories Methods							
Santa Monica CA, 90405	Project Manager: Susan Mearns	04/12/05 14:01					
738 Ashland Avenue	Project Number: Las Brisas	Reported:					
Mearns Consulting Corporation	Project: City of Signal Hill						

Sierra Analytical Labs, Inc.											
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note		
SB2-10 (0504072-07) Soil	Sampled: 04/04/05 09:35	Received: 04/	04/05 14:	15							
Silver	ND	0.80	mg/kg	1	B5D0708	04/07/05	04/08/05	EPA 6010B			
Arsenic	5.9	1.7	"	"	"	"		"			
Barium	53	3.3	"	"	"	"		"			
Beryllium	ND	0.75	"	"	"	"		"			
Cadmium	ND	0.51	"	"	"	"		"			
Cobalt	5.8	2.2	"	"	"	"		"			
Chromium	16	0.98	"	"	"	"	"	"			
Copper	110	2.2	"	"	"	"		"			
Mercury	ND	0.18	"	"	B5D0710	04/07/05	04/08/05	EPA 7471A			
Molybdenum	ND	1.7	"	"	B5D0708	04/07/05	04/08/05	EPA 6010B			
Nickel	9.9	0.79	"	"	"	"		"			
Lead	2.6	1.3	"	"	"	"		"			
Antimony	ND	1.6	"	"	"	"		"			
Selenium	ND	1.9	"	"	"	"		"			
Thallium	ND	1.5	"	"	"	"		"			
Vanadium	27	0.73	"	"	"	"		"			
Zinc	83	1.3	"	"	"	"	"	"			
SB2-20 (0504072-08) Soil	Sampled: 04/04/05 09:44	Received: 04/	04/05 14:	15							
Silver	ND	0.80	mg/kg	1	B5D0708	04/07/05	04/08/05	EPA 6010B			
Arsenic	3.9	1.7	"	"	"	"	"	"			
Barium	43	3.3	"	"	"	"		"			
Beryllium	ND	0.75	"	"	"	"		"			
Cadmium	ND	0.51	"	"	"	"		"			
Cobalt	3.7	2.2	"	"	"	"		"			
Chromium	11	0.98	"	"	"	"		"			
Copper	25	2.2	"	"	"	"		"			
Mercury	ND	0.18	"	"	B5D0710	04/07/05	04/08/05	EPA 7471A			
Molybdenum	ND	1.7	"	"	B5D0708	04/07/05	04/08/05	EPA 6010B			
Nickel	5.4	0.79	"	"	"	"		"			
Lead	ND	1.3	"	"	"	"	"	"			
Antimony	ND	1.6	"	"	"	"	"	"			
Selenium	ND	1.9	"	"	"	"	"	"			
Thallium	ND	1.5	"	"	"	"	"	"			
Vanadium	16	0.73	"		"	"	"	"			
Zinc	45	1.3	"	"	"	"		"			



Selenium

Thallium

Zinc

Vanadium

	Matala by EDA 6000/7000 Savias Mathada								
Sa	anta Monica CA, 90405	Project Manager: Susan Mearns	04/12/05 14:01						
73	38 Ashland Avenue	Project Number: Las Brisas	Reported:						
Μ	learns Consulting Corporation	Project: City of Signal Hill							

Metals by EPA 6000/7000 Series Methods

	Sierra Analytical Labs, Inc.											
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note			
SB3-1 (0504072-09) Soil	Sampled: 04/04/05 10:00	Received: 04/0	4/05 14:15									
Silver	ND	0.80	mg/kg	1	B5D0708	04/07/05	04/08/05	EPA 6010B				
Arsenic	5.4	1.7	"	"	"	"	"	"				
Barium	88	3.3	"	"	"	"	"	"				
Beryllium	ND	0.75	"	"	"	"	"	"				
Cadmium	ND	0.51	"	"	"	"	"	"				
Cobalt	6.7	2.2	"	"	"	"	"	"				
Chromium	16	0.98	"	"	"	"	"	"				
Copper	43	2.2	"	"	"	"	"	"				
Mercury	ND	0.16	"	"	B5D0710	04/07/05	04/08/05	EPA 7471A				
Molybdenum	ND	1.7	"	"	B5D0708	04/07/05	04/08/05	EPA 6010B				
Nickel	9.0	0.79	"	"	"	"	"	"				
Lead	9.0	1.3	"	"	"	"	"	"				
Antimony	ND	1.6	"	"	"	"	"	"				
Selenium	ND	1.9	"	"	"	"	"	"				
Thallium	ND	1.5	"	"	"	"	"	"				
Vanadium	28	0.73	"	"	"	"	"	"				
Zinc	71	1.3	"		"	"	"	"				
SB3-5 (0504072-10) Soil	Sampled: 04/04/05 10:05	Received: 04/0	4/05 14:15									
Silver	ND	0.72	mg/kg	1	B5D0708	04/07/05	04/08/05	EPA 6010B				
Arsenic	3.9	1.5	"	"	"	"	"	"				
Barium	78	3.0	"	"	"	"	"	"				
Beryllium	ND	0.68	"	"	"	"	"	"				
Cadmium	ND	0.46	"	"	"	"	"	"				
Cobalt	7.9	2.0	"	"	"	"	"	"				
Chromium	17	0.88	"	"	"	"	"	"				
Copper	110	2.0	"	"	"	"	"	"				
Mercury	ND	0.18	"	"	B5D0710	04/07/05	04/08/05	EPA 7471A				
Molybdenum	ND	1.5	"	"	B5D0708	04/07/05	04/08/05	EPA 6010B				
Nickel	9.5	0.71	"	"	"	"	"	"				
Lead	3.3	1.2	"	"	"	"	"	"				
Antimony	ND	1.4	"	"	"	"	"	"				

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Metals by EPA 6000/7000 Series Methods							
Santa Monica CA, 90405	Project Manager: Susan Mearns	04/12/05 14:01					
738 Ashland Avenue	Project Number: Las Brisas	Reported:					
Mearns Consulting Corporation	Project: City of Signal Hill						

	Sierra Analytical Labs, Inc.											
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note			
SB3-10 (0504072-11) Soil	Sampled: 04/04/05 10:10	Received: 04/	04/05 14:1	15								
Silver	ND	0.80	mg/kg	1	B5D0708	04/07/05	04/08/05	EPA 6010B				
Arsenic	5.2	1.7	"		"	"		"				
Barium	80	3.3	"	"	"	"	"	"				
Beryllium	ND	0.75	"	"	"	"		"				
Cadmium	ND	0.51	"	"	"	"		"				
Cobalt	6.9	2.2	"	"	"	"		"				
Chromium	21	0.98	"	"	"	"		"				
Copper	190	2.2	"	"	"	"		"				
Mercury	ND	0.18	"	"	B5D0710	04/07/05	04/08/05	EPA 7471A				
Molybdenum	ND	1.7	"	"	B5D0708	04/07/05	04/08/05	EPA 6010B				
Nickel	12	0.79	"	"	"	"		"				
Lead	3.0	1.3	"	"	"	"		"				
Antimony	ND	1.6	"	"	"	"		"				
Selenium	ND	1.9	"	"	"	"		"				
Thallium	ND	1.5	"	"	"	"		"				
Vanadium	33	0.73	"	"	"	"		"				
Zinc	130	1.3	"	"	"	"	"	"				
SB3-20 (0504072-12) Soil	Sampled: 04/04/05 10:20	Received: 04/	04/05 14:1	15								
Silver	ND	0.80	mg/kg	1	B5D0708	04/07/05	04/08/05	EPA 6010B				
Arsenic	ND	1.7	"	"	"	"		"				
Barium	23	3.3	"	"	"	"		"				
Beryllium	ND	0.75	"	"	"	"		"				
Cadmium	ND	0.51	"	"	"	"		"				
Cobalt	ND	2.2	"	"	"	"		"				
Chromium	6.3	0.98	"	"	"	"		"				
Copper	29	2.2	"		"	"		"				
Mercury	ND	0.18	"	"	B5D0710	04/07/05	04/08/05	EPA 7471A				
Molybdenum	ND	1.7	"	"	B5D0708	04/07/05	04/08/05	EPA 6010B				
Nickel	3.7	0.79	"	"	"	"		"				
Lead	ND	1.3	"	"	"	"		"				
Antimony	ND	1.6	"	"	"	"	"	"				
Selenium	ND	1.9	"	"	"	"	"	"				
Thallium	ND	1.5	"	"	"	"	"	"				
Vanadium	11	0.73	"	"	"	"	"	"				
Zinc	25	1.3	"	"	"		"	"				



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Chromium

Molybdenum

Copper

Mercury

Nickel

Antimony

Selenium

Thallium

Vanadium

Lead

Zinc

Santa M	onica CA, 90405	Project Manager:	Susan Mearns	04/12/05 14:01
738 Ash	land Avenue	Project Number:	Las Brisas	Reported:
Mearns	Consulting Corporation	Project:	City of Signal Hill	

Metals by EPA 6000/7000 Series Methods

	Sierra Analytical Labs, Inc.									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note	
SB4-1 (0504072-13) Soil	Sampled: 04/04/05 10:35	Received: 04/0	4/05 14:15							
Silver	ND	0.80	mg/kg	1	B5D0708	04/07/05	04/08/05	EPA 6010B		
Arsenic	6.4	1.7	"	"	"	"		"		
Barium	78	3.3	"	"	"	"		"		
Beryllium	ND	0.75	"	"	"	"		"		
Cadmium	ND	0.51	"	"	"	"		"		
Cobalt	7.0	2.2	"		"	"		"		
Chromium	18	0.98	"		"	"		"		
Copper	63	2.2	"		"	"		"		
Mercury	ND	0.18	"		B5D0710	04/07/05	04/08/05	EPA 7471A		
Molybdenum	ND	1.7	"		B5D0708	04/07/05	04/08/05	EPA 6010B		
Nickel	11	0.79	"		"	"		"		
Lead	25	1.3	"		"	"		"		
Antimony	ND	1.6	"	"	"	"		"		
Selenium	ND	1.9	"	"	"	"		"		
Thallium	ND	1.5	"	"	"	"		"		
Vanadium	32	0.73	"		"	"		"		
Zinc	89	1.3	"		"	"	"	"		
SB4-5 (0504072-14) Soil	Sampled: 04/04/05 10:40	Received: 04/0	4/05 14:15							
Silver	ND	0.80	mg/kg	1	B5D0708	04/07/05	04/08/05	EPA 6010B		
Arsenic	4.5	1.7	"		"	"		"		
Barium	110	3.3	"		"	"	"	"		
Beryllium	ND	0.75	"	"	"	"	"	"		
Cadmium	ND	0.51	"	"	"	"	"	"		
Cobalt	5.7	2.2	"	"	"	"	"	"		

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Motals by EPA 6000/7000 Spring Mathads							
Santa Monica CA, 90405	Project Manager: Susan Mearns	04/12/05 14:01					
738 Ashland Avenue	Project Number: Las Brisas	Reported:					
Mearns Consulting Corporation	Project: City of Signal Hill						

	Sierra Analytical Labs, Inc.										
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes		
SB4-10 (0504072-15) Soil	Sampled: 04/04/05 10:50	Received: 04/	04/05 14:	15							
Silver	ND	0.80	mg/kg	1	B5D0708	04/07/05	04/08/05	EPA 6010B			
Arsenic	5.8	1.7	"	"	"	"	"	"			
Barium	57	3.3	"	"	"	"		"			
Beryllium	ND	0.75	"	"	"	"		"			
Cadmium	ND	0.51	"	"	"	"	"	"			
Cobalt	6.0	2.2	"	"	"	"		"			
Chromium	21	0.98	"	"	"	"		"			
Copper	110	2.2	"	"	"	"		"			
Mercury	ND	0.18	"	"	B5D0710	04/07/05	04/08/05	EPA 7471A			
Molybdenum	ND	1.7	"	"	B5D0708	04/07/05	04/08/05	EPA 6010B			
Nickel	10	0.79	"	"	"	"		"			
Lead	3.4	1.3	"	"	"	"		"			
Antimony	ND	1.6	"	"	"	"		"			
Selenium	ND	1.9	"	"	"	"		"			
Thallium	ND	1.5	"	"	"	"		"			
Vanadium	37	0.73	"	"	"	"		"			
Zinc	89	1.3	"		"	"	"	"			
SB4-20 (0504072-16) Soil	Sampled: 04/04/05 10:57	Received: 04/	04/05 14:	15							
Silver	ND	0.80	mg/kg	1	B5D0708	04/07/05	04/08/05	EPA 6010B			
Arsenic	ND	1.7	"	"	"	"	"	"			
Barium	34	3.3	"	"	"	"		"			
Beryllium	ND	0.75	"	"	"	"		"			
Cadmium	ND	0.51	"	"	"	"		"			
Cobalt	3.1	2.2	"	"	"	"		"			
Chromium	7.6	0.98	"	"	"	"		"			
Copper	45	2.2	"	"	"	"		"			
Mercury	ND	0.16	"	"	B5D0710	04/07/05	04/08/05	EPA 7471A			
Molybdenum	ND	1.7	"	"	B5D0708	04/07/05	04/08/05	EPA 6010B			
Nickel	4.2	0.79	"	"	"	"		"			
Lead	ND	1.3	"	"	"	"	"	"			
Antimony	ND	1.6	"	"	"	"	"	"			
Selenium	ND	1.9	"	"	"	"	"	"			
Thallium	ND	1.5	"	"	"	"	"	"			
Vanadium	14	0.73	"	"	"	"	"	"			
Zinc	39	1.3	"		"	"	"	"			



Thallium

Zinc

Vanadium

_	Metals by FPA 6000/7000 Series Methods							
	Santa Monica CA, 90405	Project Manager: Susan Mearns	04/12/05 14:01					
	738 Ashland Avenue	Project Number: Las Brisas	Reported:					
	Mearns Consulting Corporation	Project: City of Signal Hill						

Metals by EPA 6000/7000 Series Methods

Sierra Analytical Labs, Inc.										
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note	
SB5-1 (0504072-17) Soil	Sampled: 04/04/05 11:10	Received: 04/0	4/05 14:15							
Silver	ND	0.80	mg/kg	1	B5D0708	04/07/05	04/08/05	EPA 6010B		
Arsenic	5.9	1.7	"	"	"	"		"		
Barium	140	3.3	"	"	"	"		"		
Beryllium	ND	0.75	"	"	"	"		"		
Cadmium	ND	0.51	"	"	"	"		"		
Cobalt	11	2.2	"	"	"	"		"		
Chromium	22	0.98		"	"	"		"		
Copper	75	2.2		"	"	"		"		
Mercury	ND	0.18		"	B5D0710	04/07/05	04/08/05	EPA 7471A		
Molybdenum	ND	1.7		"	B5D0708	04/07/05	04/08/05	EPA 6010B		
Nickel	15	0.79		"	"	"		"		
Lead	27	1.3		"	"	"		"		
Antimony	ND	1.6		"	"	"		"		
Selenium	ND	1.9		"	"	"		"		
Thallium	ND	1.5		"	"	"		"		
Vanadium	44	0.73		"	"	"	"	"		
Zinc	120	1.3			"	"	"	"		
SB5-5 (0504072-18) Soil	Sampled: 04/04/05 11:12	Received: 04/0	4/05 14:15	;						
Silver	ND	0.80	mg/kg	1	B5D0708	04/07/05	04/08/05	EPA 6010B		
Arsenic	7.1	1.7	"	"	"	"		"		
Barium	130	3.3	"	"	"	"		"		
Beryllium	ND	0.75		"	"	"		"		
Cadmium	ND	0.51		"	"	"		"		
Cobalt	7.4	2.2		"	"	"		"		
Chromium	19	0.98		"	"	"		"		
Copper	47	2.2		"	"	"		"		
Mercury	ND	0.16		"	B5D0710	04/07/05	04/08/05	EPA 7471A		
Molybdenum	ND	1.7		"	B5D0708	04/07/05	04/08/05	EPA 6010B		
Nickel	12	0.79		"	"	"	"	"		
Lead	47	1.3		"	"	"	"	"		
Antimony	ND	1.6	"	"	"	"	"	"		
Selenium	ND	1.9		"	"	"		"		

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1.5

0.73

1.3

ND

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130

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Matals by FPA 6000/7000 Series Mathads							
Santa Monica CA, 90405	Project Manager: Susan Mearns	04/12/05 14:01					
738 Ashland Avenue	Project Number: Las Brisas	Reported:					
Mearns Consulting Corporation	Project: City of Signal Hill						

	Sierra Analytical Labs, Inc.											
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note			
SB5-10 (0504072-19) Soil	Sampled: 04/04/05 11:15	Received: 04/	04/05 14:	15								
Silver	ND	0.80	mg/kg	1	B5D0708	04/07/05	04/08/05	EPA 6010B				
Arsenic	5.1	1.7	"	"	"	"	"	"				
Barium	330	3.3	"	"	"	"		"				
Beryllium	ND	0.75	"	"	"	"	"	"				
Cadmium	3.3	0.51	"	"	"	"	"	"				
Cobalt	4.0	2.2	"	"	"	"		"				
Chromium	15	0.98	"	"	"	"		"				
Copper	77	2.2	"	"	"	"		"				
Mercury	0.28	0.18	"	"	B5D0710	04/07/05	04/08/05	EPA 7471A				
Molybdenum	ND	1.7	"	"	B5D0708	04/07/05	04/08/05	EPA 6010B				
Nickel	7.1	0.79	"	"	"	"		"				
Lead	510	1.3	"	"	"	"		"				
Antimony	4.4	1.6	"	"	"	"		"				
Selenium	ND	1.9	"		"	"		"				
Thallium	ND	1.5	"		"	"		"				
Vanadium	17	0.73	"		"	"	"	"				
Zinc	1100	1.3	"	"	"	"	"	"				
SB5-20 (0504072-20) Soil	Sampled: 04/04/05 11:25	Received: 04/	04/05 14:	15								
Silver	ND	0.80	mg/kg	1	B5D0708	04/07/05	04/08/05	EPA 6010B				
Arsenic	2.6	1.7	"	"	"	"		"				
Barium	53	3.3	"	"	"	"		"				
Beryllium	ND	0.75	"	"	"	"		"				
Cadmium	ND	0.51	"	"	"	"		"				
Cobalt	2.4	2.2	"	"	"	"		"				
Chromium	7.1	0.98	"	"	"	"		"				
Copper	3.0	2.2	"	"	"	"		"				
Mercury	ND	0.18	"	"	B5D0710	04/07/05	04/08/05	EPA 7471A				
Molybdenum	ND	1.7	"	"	B5D0708	04/07/05	04/08/05	EPA 6010B				
Nickel	3.6	0.79	"	"	"	"		"				
Lead	ND	1.3	"	"	"	"	"	"				
Antimony	ND	1.6	"	"	"	"	"	"				
Selenium	ND	1.9	"	"	"	"	"	"				
Thallium	ND	1.5	"	"	"	"	"	"				
Vanadium	13	0.73	"	"	"	"	"	"				
Zinc	27	1.3	"	"	"	"	"	"				



Zinc

Metals by FPA 6000/7000 Series Methods							
Santa Monica CA, 90405	Project Manager: Susan Mearns	04/12/05 14:01					
738 Ashland Avenue	Project Number: Las Brisas	Reported:					
Mearns Consulting Corporation	Project: City of Signal Hill						

Metals by EPA 6000/7000 Series Methods

	Sierra Analytical Labs, Inc.										
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note		
SB6-1 (0504072-21) Soil	Sampled: 04/04/05 11:35	Received: 04/0	4/05 14:15	5							
Silver	ND	0.80	mg/kg	1	B5D0709	04/07/05	04/08/05	EPA 6010B			
Arsenic	2.7	1.7	"	"	"	"	"	"			
Barium	83	3.3	"	"	"	"		"			
Beryllium	ND	0.75	"	"	"	"		"			
Cadmium	ND	0.51	"	"	"	"		"			
Cobalt	3.2	2.2	"	"	"	"	"	"			
Chromium	30	0.98	"	"	"	"		"			
Copper	95	2.2	"	"	"	"	"	"			
Mercury	ND	0.18	"	"	B5D0711	04/07/05	04/08/05	EPA 7471A			
Molybdenum	4.4	1.7	"	"	B5D0709	04/07/05	04/08/05	EPA 6010B			
Nickel	6.4	0.79	"	"	"	"		"			
Lead	6.0	1.3	"	"	"	"		"			
Antimony	ND	1.6	"	"	"	"		"			
Selenium	ND	1.9	"	"	"	"		"			
Thallium	ND	1.5	"	"	"	"		"			
Vanadium	20	0.73	"	"	"	"	"	"			
Zinc	89	1.3	"	"	"	"	"	"			
SB6-5 (0504072-22) Soil	Sampled: 04/04/05 11:39	Received: 04/0	4/05 14:15	5							
Silver	ND	0.80	mg/kg	1	B5D0709	04/07/05	04/11/05	EPA 6010B			
Arsenic	8.6	1.7	"	"	"	"	"	"			
Barium	140	3.3	"	"	"	"		"			
Beryllium	ND	0.75	"	"	"	"		"			
Cadmium	ND	0.51	"	"	"	"		"			
Cobalt	9.6	2.2	"	"	"	"		"			
Chromium	57	0.98	"	"	"	"		"			
Copper	80	2.2	"	"	"	"		"			
Mercury	ND	0.16	"	"	B5D0711	04/07/05	04/08/05	EPA 7471A			
Molybdenum	ND	1.7	"	"	B5D0709	04/07/05	04/11/05	EPA 6010B			
Nickel	29	0.79	"	"	"	"	"	"			
Lead	64	1.3	"	"	"	"	"	"			
Antimony	2.3	1.6	"	"	"	"	"	"			
Selenium	ND	1.9	"	"	"	"		"			
Thallium	ND	1.5	"	"	"	"		"			
Vanadium	41	0.73	"	"	"	"	"	"			

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-	Matals by FPA 6000/7000 Series Methods							
	Santa Monica CA, 90405	Project Manager: Susan Mearns	04/12/05 14:01					
	738 Ashland Avenue	Project Number: Las Brisas	Reported:					
	Mearns Consulting Corporation	Project: City of Signal Hill						

Sierra Analytical Labs, Inc.											
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes		
SB6-10 (0504072-23) Soil	Sampled: 04/04/05 11:44	Received: 04/	04/05 14:	15							
Silver	ND	0.80	mg/kg	1	B5D0709	04/07/05	04/11/05	EPA 6010B			
Arsenic	3.7	1.7	"	"	"	"		"			
Barium	120	3.3	"	"	"	"	"	"			
Beryllium	ND	0.75	"	"	"	"		"			
Cadmium	ND	0.51	"	"	"	"		"			
Cobalt	6.3	2.2	"	"	"	"		"			
Chromium	17	0.98	"	"	"	"		"			
Copper	40	2.2	"	"	"	"		"			
Mercury	ND	0.18	"	"	B5D0711	04/07/05	04/08/05	EPA 7471A			
Molybdenum	ND	1.7	"	"	B5D0709	04/07/05	04/11/05	EPA 6010B			
Nickel	9.1	0.79	"	"	"	"		"			
Lead	16	1.3	"	"	"	"		"			
Antimony	ND	1.6	"	"	"	"		"			
Selenium	ND	1.9	"	"	"	"		"			
Thallium	ND	1.5	"	"	"	"		"			
Vanadium	28	0.73	"	"	"	"		"			
Zinc	61	1.3	"	"	"	"	"	"			
SB6-20 (0504072-24) Soil	Sampled: 04/04/05 11:55	Received: 04/	04/05 14:	15							
Silver	ND	0.80	mg/kg	1	B5D0709	04/07/05	04/11/05	EPA 6010B			
Arsenic	1.9	1.7	"	"	"	"		"			
Barium	70	3.3	"	"	"	"		"			
Beryllium	ND	0.75	"	"	"	"		"			
Cadmium	ND	0.51	"	"	"	"		"			
Cobalt	2.9	2.2	"	"	"	"		"			
Chromium	8.1	0.98	"		"	"		"			
Copper	49	2.2	"	"	"	"		"			
Mercury	ND	0.18	"	"	B5D0711	04/07/05	04/08/05	EPA 7471A			
Molybdenum	ND	1.7	"	"	B5D0709	04/07/05	04/11/05	EPA 6010B			
Nickel	3.7	0.79	"	"	"	"		"			
Lead	ND	1.3	"	"	"	"	"	"			
Antimony	ND	1.6	"	"	"	"	"	"			
Selenium	ND	1.9	"	"	"	"	"	"			
Thallium	ND	1.5	"	"	"	"	"	"			
Vanadium	13	0.73	"		"	"	"	"			
Zinc	37	1.3	"	"	"	"	"	"			



Thallium

Zinc

Vanadium

Metals by EPA 6000/7000 Series Methods							
Santa Monica CA, 90405	Project Manager: Susan Mearns	04/12/05 14:01					
738 Ashland Avenue	Project Number: Las Brisas	Reported:					
Mearns Consulting Corporation	Project: City of Signal Hill						

Metals by EPA 6000/7000 Series Methods

	Sierra Analytical Labs, Inc.										
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note		
SB7-1 (0504072-25) Soil	Sampled: 04/04/05 12:10	Received: 04/0	4/05 14:15	5							
Silver	ND	0.80	mg/kg	1	B5D0709	04/07/05	04/11/05	EPA 6010B			
Arsenic	6.0	1.7	"	"	"	"	"	"			
Barium	110	3.3	"	"	"	"		"			
Beryllium	ND	0.75	"	"	"	"		"			
Cadmium	ND	0.51	"	"	"	"		"			
Cobalt	9.8	2.2	"	"	"	"		"			
Chromium	23	0.98	"	"	"	"		"			
Copper	52	2.2	"	"	"	"		"			
Mercury	ND	0.18	"	"	B5D0711	04/07/05	04/08/05	EPA 7471A			
Molybdenum	ND	1.7	"	"	B5D0709	04/07/05	04/11/05	EPA 6010B			
Nickel	14	0.79	"	"	"	"	"	"			
Lead	40	1.3	"	"	"	"		"			
Antimony	ND	1.6	"	"	"	"		"			
Selenium	ND	1.9	"	"	"	"		"			
Thallium	ND	1.5	"	"	"	"		"			
Vanadium	42	0.73	"	"	"	"		"			
Zinc	430	1.3	"	"	"	"	"	"			
SB7-5 (0504072-26) Soil	Sampled: 04/04/05 12:13	Received: 04/0	4/05 14:15	5							
Silver	ND	0.80	mg/kg	1	B5D0709	04/07/05	04/11/05	EPA 6010B			
Arsenic	6.2	1.7	"	"	"	"		"			
Barium	130	3.3	"	"	"	"		"			
Beryllium	ND	0.75	"	"	"	"		"			
Cadmium	ND	0.51	"	"	"	"		"			
Cobalt	9.5	2.2	"	"	"	"		"			
Chromium	33	0.98	"	"	"	"		"			
Copper	64	2.2	"	"	"	"		"			
Mercury	ND	0.18	"	"	B5D0711	04/07/05	04/08/05	EPA 7471A			
Molybdenum	ND	1.7	"	"	B5D0709	04/07/05	04/11/05	EPA 6010B			
Nickel	13	0.79	"	"	"	"	"	"			
Lead	33	1.3	"	"	"	"	"	"			
Antimony	ND	1.6	"	"	"	"	"	"			
Selenium	ND	1.9	"	"	"	"	"	"			

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1.5 0.73

1.3

ND

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	Metals by EPA 6000/7000 Series Methods								
Santa Moni	ca CA, 90405	Project Manager:	Susan Mearns	04/12/05 14:01					
738 Ashland	d Avenue	Project Number:	Las Brisas	Reported:					
Mearns Cor	nsulting Corporation	Project:	City of Signal Hill						

Sierra Analytical Labs, Inc.										
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note	
SB7-10 (0504072-27) Soil	Sampled: 04/04/05 12:17	Received: 04/	04/05 14:	15						
Silver	ND	0.80	mg/kg	1	B5D0709	04/07/05	04/11/05	EPA 6010B		
Arsenic	3.7	1.7	"	"	"	"		"		
Barium	360	3.3	"	"	"	"		"		
Beryllium	ND	0.75	"	"	"	"		"		
Cadmium	ND	0.51	"	"	"	"		"		
Cobalt	6.6	2.2	"	"	"	"		"		
Chromium	17	0.98	"	"	"	"		"		
Copper	61	2.2	"	"	"	"		"		
Mercury	ND	0.16	"	"	B5D0711	04/07/05	04/08/05	EPA 7471A		
Molybdenum	ND	1.7	"	"	B5D0709	04/07/05	04/11/05	EPA 6010B		
Nickel	10	0.79	"	"	"	"		"		
Lead	3.6	1.3	"	"	"	"		"		
Antimony	ND	1.6	"	"	"	"		"		
Selenium	ND	1.9	"	"	"	"		"		
Thallium	ND	1.5	"	"	"	"		"		
Vanadium	31	0.73	"	"	"	"		"		
Zinc	160	1.3	"	"	"	"	"	"		
SB7-20 (0504072-28) Soil	Sampled: 04/04/05 12:24	Received: 04/	04/05 14:	15						
Silver	ND	0.80	mg/kg	1	B5D0709	04/07/05	04/11/05	EPA 6010B		
Arsenic	2.9	1.7	"	"	"	"		"		
Barium	96	3.3	"	"	"	"		"		
Beryllium	ND	0.75	"	"	"	"		"		
Cadmium	ND	0.51	"	"	"	"		"		
Cobalt	4.1	2.2	"	"	"	"		"		
Chromium	9.9	0.98	"	"	"	"		"		
Copper	20	2.2	"	"	"	"		"		
Mercury	ND	0.18	"	"	B5D0711	04/07/05	04/08/05	EPA 7471A		
Molybdenum	ND	1.7	"	"	B5D0709	04/07/05	04/11/05	EPA 6010B		
Nickel	5.8	0.79	"	"	"	"		"		
Lead	ND	1.3	"	"	"	"	"	"		
Antimony	ND	1.6	"	"	"	"	"	"		
Selenium	ND	1.9	"		"	"	"	"		
Thallium	ND	1.5	"		"	"	"	"		
Vanadium	17	0.73	"		"	"	"	"		
Zinc	30	1.3	"	"	"	"	"	"		



Metals by FPA 6000/7000 Series Methods								
Santa Monica CA, 90405	Project Manager: Susan Mearns	04/12/05 14:01						
738 Ashland Avenue	Project Number: Las Brisas	Reported:						
Mearns Consulting Corporation	Project: City of Signal Hill							

		Sierra Aı	nalytical	Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
SB8-1 (0504072-29) Soil	Sampled: 04/04/05 12:35	Received: 04/0	4/05 14:15						
Silver	ND	0.80	mg/kg	1	B5D0709	04/07/05	04/11/05	EPA 6010B	
Arsenic	6.3	1.7	"	"	"	"	"	"	
Barium	110	3.3	"	"	"	"	"	"	
Beryllium	ND	0.75	"	"	"	"	"	"	
Cadmium	ND	0.51	"	"	"	"	"	"	
Cobalt	7.9	2.2	"	"	"	"	"	"	
Chromium	19	0.98	"	"	"	"	"	"	
Copper	68	2.2	"	"	"	"	"	"	
Mercury	ND	0.18	"	"	B5D0711	04/07/05	04/08/05	EPA 7471A	
Molybdenum	ND	1.7	"	"	B5D0709	04/07/05	04/11/05	EPA 6010B	
Nickel	15	0.79	"	"	"	"	"	"	
Lead	37	1.3	"	"	"	"	"	"	
Antimony	ND	1.6	"	"	"	"	"	"	
Selenium	ND	1.9	"	"	"	"	"	"	
Thallium	ND	1.5	"	"	"	"	"	"	
Vanadium	36	0.73	"	"	"	"	"	"	
Zinc	120	1.3	"	"	"	"	"	"	
SB8-5 (0504072-30) Soil	Sampled: 04/04/05 12:42	Received: 04/0	4/05 14:15						
Silver	ND	0.80	mg/kg	1	B5D0709	04/07/05	04/11/05	EPA 6010B	
Arsenic	4.5	1.7	"	"	"	"	"	"	
Barium	70	3.3	"	"	"	"	"	"	
Beryllium	ND	0.75	"	"	"	"	"	"	
Cadmium	ND	0.51	"	"	"	"	"	"	
Cobalt	6.7	2.2	"	"	"	"	"	"	
Chromium	16	0.98	"	"	"	"	"	"	
Copper	64	2.2	"	"	"	"	"	"	
Mercury	ND	0.18	"	"	B5D0711	04/07/05	04/08/05	EPA 7471A	
Molybdenum	ND	1.7	"	"	B5D0709	04/07/05	04/11/05	EPA 6010B	
Nickel	10	0.79	"	"	"	"	"	"	
Lead	3.3	1.3	"	"	"	"	"	"	
Antimony	ND	1.6	"		"	"	"	"	
Selenium	ND	1.9	"	"	"	"	"	"	
Thallium	ND	1.5	"	"	"	"	"	"	
Vanadium	30	0.73	"	"	"	"	"	"	
Zinc	71	1.3	"	"	"	"	"	"	



	Metals by EPA 6000/7000 Series Methods								
Santa Moni	ca CA, 90405	Project Manager:	Susan Mearns	04/12/05 14:01					
738 Ashland	d Avenue	Project Number:	Las Brisas	Reported:					
Mearns Cor	nsulting Corporation	Project:	City of Signal Hill						

	Sierra Analytical Labs, Inc.											
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note			
SB8-10 (0504072-31) Soil	Sampled: 04/04/05 12:44	Received: 04/	04/05 14:	15								
Silver	ND	0.80	mg/kg	1	B5D0709	04/07/05	04/11/05	EPA 6010B				
Arsenic	5.8	1.7	"	"	"	"	"	"				
Barium	57	3.3	"	"	"	"	"	"				
Beryllium	ND	0.75	"	"	"	"	"	"				
Cadmium	ND	0.51	"	"	"	"	"	"				
Cobalt	6.3	2.2	"	"	"	"	"	"				
Chromium	24	0.98	"	"	"	"	"	"				
Copper	130	2.2	"	"	"	"	"	"				
Mercury	ND	0.16	"	"	B5D0711	04/07/05	04/08/05	EPA 7471A				
Molybdenum	ND	1.7	"	"	B5D0709	04/07/05	04/11/05	EPA 6010B				
Nickel	13	0.79	"	"	"	"						
Lead	3.6	1.3	"	"	"	"						
Antimony	ND	1.6	"	"	"	"						
Selenium	ND	1.9	"	"	"	"	"	"				
Thallium	ND	1.5	"	"	"	"	"	"				
Vanadium	35	0.73	"	"	"	"						
Zinc	110	1.3	"	"		"	"	"				
SB8-20 (0504072-32) Soil	Sampled: 04/04/05 12:51	Received: 04/	04/05 14:1	15								
Silver	ND	0.80	mg/kg	1	B5D0709	04/07/05	04/11/05	EPA 6010B				
Arsenic	2.8	1.7	"	"	"	"	"	"				
Barium	29	3.3	"	"			"	"				
Bervllium	ND	0.75	"	"			"	"				
Cadmium	ND	0.51	"	"	"	"	"					
Cobalt	3.7	2.2	"	"				"				
Chromium	10	0.98	"	"								
Copper	33	2.2	"	"			"	"				
Mercurv	ND	0.18	"	"	B5D0711	04/07/05	04/08/05	EPA 7471A				
Molvbdenum	ND	1.7	"	"	B5D0709	04/07/05	04/11/05	EPA 6010B				
Nickel	5.8	0.79	"	"	"	"	"	"				
Lead	ND	1.3	"	"			"	"				
Antimony	ND	1.6	"	"			"	"				
Selenium	ND	1.9	"	"	"		"	"				
Thallium	ND	1.5	"	"	"		"	"				
Vanadium	16	0.73	"	"			"	"				
Zinc	47	1.3	"	"			"	"				
		110										



Vanadium

Zinc

Santa Monica CA, 90405	Project Manager: Susan Mearns	04/12/05 14:01						
738 Ashland Avenue	Project Number: Las Brisas	Reported:						
Mearns Consulting Corporation	Project: City of Signal Hill							

Metals by EPA 6000/7000 Series Methods

	Sierra Analytical Labs, Inc.										
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes		
Offsite-1 (0504072-33) Soil	Sampled: 04/04/05 13:20	Received: 04	4/04/05 14	4:15							
Silver	ND	0.80	mg/kg	1	B5D0709	04/07/05	04/11/05	EPA 6010B			
Arsenic	5.2	1.7	"	"	"	"	"	"			
Barium	97	3.3	"	"	"	"		"			
Beryllium	ND	0.75	"	"	"	"		"			
Cadmium	ND	0.51	"	"	"	"		"			
Cobalt	8.1	2.2	"	"	"	"		"			
Chromium	21	0.98	"	"	"	"		"			
Copper	25	2.2	"	"	"	"		"			
Mercury	ND	0.16	"	"	B5D0711	04/07/05	04/08/05	EPA 7471A			
Molybdenum	ND	1.7	"	"	B5D0709	04/07/05	04/11/05	EPA 6010B			
Nickel	12	0.79	"	"	"	"	"	"			
Lead	12	1.3	"	"	"	"		"			
Antimony	ND	1.6	"	"	"	"		"			
Selenium	ND	1.9	"	"	"	"		"			
Thallium	ND	1.5	"	"	"	"		"			
Vanadium	35	0.73	"	"	"	"		"			
Zinc	62	1.3			"	"	"	"			
Offsite-5 (0504072-34) Soil	Sampled: 04/04/05 13:25	Received: 04	4/04/05 14	4:15							
Silver	ND	0.80	mø/kø	1	B5D0709	04/07/05	04/11/05	EPA 6010B			
Arsenic	12	1.7	"		"	"	"	"			
Barium	160	33	"	"	"	"		"			
Beryllium	1.1	0.75	"	"	"	"		"			
Cadmium	ND	0.51	"	"	"	"		"			
Cobalt	17	2.2	"	"	"	"		"			
Chromium	50	0.98		"	"	"		"			
Copper	64	2.2		"	"	"		"			
Mercury	ND	0.18		"	B5D0711	04/07/05	04/08/05	EPA 7471A			
Molybdenum	ND	17		"	B5D0709	04/07/05	04/11/05	EPA 6010B			
Nickel	30	0.79		"	"	"	"	"			
Lead	8 1	1 3			"	"		"			
Antimony	23	1.5			"	"		"			
Selenium	2.5 ND	1.0			"	"		"			
Thallium		1.5			"	"		"			
Vanadium	75	0.73			"	"		"			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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0.73

1.3

75

99

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Santa Monica CA, 90405	Project Manager: Susan Mearns	04/12/05 14:01
738 Ashland Avenue	Project Number: Las Brisas	Reported:
Mearns Consulting Corporation	Project: City of Signal Hill	

	Sierra Analytical Labs, Inc.										
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note		
Offsite-10 (0504072-35) Soil	Sampled: 04/04/05 13:29	Received:	04/04/05 1	4:15							
Silver	ND	0.80	mg/kg	1	B5D0709	04/07/05	04/11/05	EPA 6010B			
Arsenic	12	1.7	"	"	"	"		"			
Barium	170	3.3	"	"	"	"		"			
Beryllium	ND	0.75	"	"	"	"		"			
Cadmium	ND	0.51	"	"	"	"		"			
Cobalt	14	2.2	"	"	"	"		"			
Chromium	32	0.98	"	"	"	"		"			
Copper	35	2.2	"	"	"	"		"			
Mercury	ND	0.18	"	"	B5D0711	04/07/05	04/08/05	EPA 7471A			
Molybdenum	ND	1.7	"	"	B5D0709	04/07/05	04/11/05	EPA 6010B			
Nickel	22	0.79	"	"	"	"		"			
Lead	5.6	1.3	"	"	"	"		"			
Antimony	ND	1.6	"	"	"	"		"			
Selenium	ND	1.9	"	"	"	"		"			
Thallium	ND	1.5	"	"	"	"		"			
Vanadium	58	0.73	"	"	"	"		"			
Zinc	67	1.3	"	"	"	"	"	"			
Offsite-20 (0504072-36) Soil	Sampled: 04/04/05 13:36	Received:	04/04/05 1	4:15							
Silver	ND	0.80	mg/kg	1	B5D0709	04/07/05	04/11/05	EPA 6010B			
Arsenic	14	1.7	"	"	"	"		"			
Barium	73	3.3	"	"	"	"		"			
Beryllium	0.95	0.75	"	"	"	"		"			
Cadmium	ND	0.51	"	"	"	"		"			
Cobalt	17	2.2	"	"	"	"		"			
Chromium	35	0.98	"	"	"	"		"			
Copper	80	2.2	"	"	"	"		"			
Mercury	ND	0.15	"	"	B5D0711	04/07/05	04/08/05	EPA 7471A			
Molybdenum	ND	1.7	"	"	B5D0709	04/07/05	04/11/05	EPA 6010B			
Nickel	22	0.79	"	"	"	"		"			
Lead	10	1.3	"	"	"	"		"			
Antimony	ND	1.6	"	"	"	"	"	"			
Selenium	ND	1.9	"	"	"	"	"	"			
Thallium	ND	1.5	"	"	"	"	"	"			
Vanadium	67	0.73	"	"	"	"	"	"			
Zinc	95	1.3	"	"	"	"	"	"			



Total Petroleum Hydrocarbons Carbon Range Analysis by GC-FID

	Sierra Analytical Labs, Inc.									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB1-5 (0504072-02) Soil	Sampled: 04/04/05 08:37	Received: 04/0	4/05 14:1:	5						
HC < C8	ND	1.0	mg/kg	1	B5D1001	04/07/05	04/10/05	EPA 8015B		
$C8 \le HC < C9$	ND	1.0	"	"	"	"		"		
$C9 \le HC < C10$	ND	1.0	"	"	"	"		"		
C10 <= HC < C11	ND	1.0	"	"	"	"		"		
C11 <= HC < C12	ND	1.0	"	"	"	"		"		
C12 <= HC < C14	ND	1.0	"	"	"	"		"		
C14 <= HC < C16	ND	1.0	"	"	"	"		"		
C16 <= HC < C18	ND	1.0	"	"		"		"		
C18 <= HC < C20	ND	1.0	"	"		"		"		
C20 <= HC < C24	ND	1.0	"	"		"		"		
C24 <= HC < C28	ND	1.0	"	"		"		"		
C28 <= HC < C32	ND	1.0	"	"	"	"		"		
$HC \ge C32$	ND	1.0	"		"	"		"		
Total Petroleum Hydrocarb (C7-C36)	ons ND	5.0	"	"	"	"	"	"		
Surrogate: o-Terphenyl		70.7 %	50-	150	"	"	"	"		
SB1-10 (0504072-03) Soil	Sampled: 04/04/05 08:45	Received: 04/	04/05 14:	15						
HC < C8	ND	1.0	mg/kg	1	B5D1001	04/07/05	04/10/05	EPA 8015B		
C8 <= HC < C9	ND	1.0	"	"		"		"		
C9 <= HC < C10	ND	1.0	"	"		"		"		
C10 <= HC < C11	ND	1.0	"	"		"		"		
C11 <= HC < C12	ND	1.0	"	"		"		"		
C12 <= HC < C14	ND	1.0	"		"	"		"		
C14 <= HC < C16	ND	1.0	"	"	"	"		"		
C16 <= HC < C18	ND	1.0	"	"		"		"		
C18 <= HC < C20	ND	1.0	"	"		"		"		
C20 <= HC < C24	ND	1.0	"	"		"		"		
$C24 \le HC \le C28$	ND	1.0	"	"	"	"		"		
$C28 \le HC < C32$	ND	1.0	"		"	"	"	"		
$HC \ge C32$	ND	1.0	"		"	"	"	"		
Total Petroleum Hydrocarh	ons ND	5.0	"		"	"	"	"		
(C7-C36)		5.0								
Surrogate: o-Terphenyl		68.0 %	50-	150	"	"	"	"		



Total Petroleum Hydrocarbons Carbon Range Analysis by GC-FID

		Sierra Aı	nalytical	l Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB2-5 (0504072-06) Soil	Sampled: 04/04/05 09:30	Received: 04/0	4/05 14:1:	5					
HC < C8	ND	1.0	mg/kg	1	B5D1001	04/07/05	04/10/05	EPA 8015B	
$C8 \le HC < C9$	ND	1.0	"	"	"	"	"	"	
C9 <= HC < C10	ND	1.0	"	"	"	"	"	"	
C10 <= HC < C11	ND	1.0	"	"	"	"	"	"	
C11 <= HC < C12	ND	1.0	"	"	"	"	"	"	
C12 <= HC < C14	ND	1.0	"	"	"	"	"	"	
C14 <= HC < C16	ND	1.0	"	"	"	"		"	
C16 <= HC < C18	ND	1.0	"	"	"	"		"	
C18 <= HC < C20	ND	1.0	"	"	"	"		"	
C20 <= HC < C24	ND	1.0	"	"	"	"		"	
C24 <= HC < C28	ND	1.0	"	"	"	"		"	
C28 <= HC < C32	ND	1.0	"	"	"	"		"	
$HC \ge C32$	ND	1.0	"	"	"	"		"	
Total Petroleum Hydrocart (C7-C36)	bons ND	5.0	"	"	"	"	"	"	
Surrogate: o-Terphenyl		74.7 %	50-	150	"	"	"	"	
SB2-10 (0504072-07) Soil	Sampled: 04/04/05 09:35	Received: 04/	04/05 14:	15					
HC < C8	ND	1.0	mg/kg	1	B5D1001	04/07/05	04/10/05	EPA 8015B	
C8 <= HC < C9	ND	1.0	"	"	"	"		"	
C9 <= HC < C10	ND	1.0	"	"	"	"		"	
C10 <= HC < C11	ND	1.0	"	"	"	"		"	
C11 <= HC < C12	ND	1.0	"	"	"	"		"	
C12 <= HC < C14	ND	1.0	"			"	"	"	
C14 <= HC < C16	ND	1.0	"			"	"	"	
C16 <= HC < C18	ND	1.0	"			"	"	"	
C18 <= HC < C20	ND	1.0	"			"	"	"	
$C20 \le HC \le C24$	ND	1.0	"			"	"	"	
$C24 \le HC \le C28$	ND	1.0	"			"	"	"	
$C28 \le HC < C32$	ND	1.0	"		"	"	"	"	
$HC \ge C32$	ND	1.0	"		"	"	"	"	
Total Petroleum Hydrocar	bons ND	5.0	"		"	"	"	"	
(C7-C36)		210							
Surrogate: o-Terphenyl		89.3 %	50-	150	"	"	"	"	



Total Petroleum Hydrocarbons Carbon Range Analysis by GC-FID

Sierra Analytical Labs, Inc.												
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes			
SB3-5 (0504072-10) Soil	Sampled: 04/04/05 10:05	Received: 04/0	4/05 14:1:	5								
HC < C8	ND	1.0	mg/kg	1	B5D1001	04/07/05	04/10/05	EPA 8015B				
$C8 \le HC < C9$	ND	1.0	"	"	"	"	"	"				
C9 <= HC < C10	ND	1.0	"	"	"	"	"	"				
C10 <= HC < C11	ND	1.0	"	"	"	"	"	"				
C11 <= HC < C12	ND	1.0	"	"	"	"	"	"				
C12 <= HC < C14	ND	1.0	"	"	"	"	"	"				
C14 <= HC < C16	ND	1.0	"	"	"	"	"	"				
C16 <= HC < C18	ND	1.0	"	"	"	"	"	"				
C18 <= HC < C20	ND	1.0	"	"	"	"	"	"				
C20 <= HC < C24	ND	1.0	"	"	"	"	"	"				
C24 <= HC < C28	ND	1.0	"	"	"	"	"	"				
C28 <= HC < C32	ND	1.0	"	"	"	"	"	"				
HC >= C32	ND	1.0	"	"	"	"	"	"				
Total Petroleum Hydrocar (C7-C36)	bons ND	5.0	"	"	"	"	"	"				
Surrogate: o-Terphenyl		84.0 %	50-	150	"	"	"	"				
SB3-10 (0504072-11) Soil	l Sampled: 04/04/05 10:10	Received: 04/	04/05 14:	15								
HC < C8	ND	1.0	mg/kg	1	B5D1001	04/07/05	04/10/05	EPA 8015B				
C8 <= HC < C9	ND	1.0	"	"	"	"	"	"				
C9 <= HC < C10	ND	1.0	"	"	"	"	"	"				
C10 <= HC < C11	ND	1.0	"	"	"	"	"	"				
C11 <= HC < C12	ND	1.0	"	"	"	"	"	"				
C12 <= HC < C14	ND	1.0	"	"	"	"	"	"				
C14 <= HC < C16	ND	1.0	"	"	"	"	"	"				
C16 <= HC < C18	ND	1.0	"	"	"	"	"	"				
C18 <= HC < C20	ND	1.0	"	"	"	"	"	"				
$C20 \le HC \le C24$	ND	1.0	"	"	"	"	"	"				
C24 <= HC < C28	ND	1.0	"	"	"	"	"	"				
C28 <= HC < C32	ND	1.0	"	"	"	"	"	"				
$HC \ge C32$	ND	1.0	"	"	"	"	"	"				
Total Petroleum Hydrocar (C7-C36)	bons ND	5.0	"	"	"	"	"	"				
Surrogate: o-Terphenyl		94.7 %	50-	150	"	"	"	"				



Total Petroleum Hydrocarbons Carbon Range Analysis by GC-FID

Sierra Analytical Labs, Inc.												
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes			
SB4-5 (0504072-14) Soil	Sampled: 04/04/05 10:40	Received: 04/0	4/05 14:1	5								
HC < C8	ND	5.0	mg/kg	5	B5D1001	04/07/05	04/10/05	EPA 8015B				
$C8 \le HC < C9$	ND	5.0	"	"	"	"	"	"				
$C9 \le HC < C10$	ND	5.0	"	"	"	"	"	"				
$C10 \le HC < C11$	ND	5.0	"	"	"	"	"	"				
C11 <= HC < C12	ND	5.0	"	"	"	"	"	"				
C12 <= HC < C14	ND	5.0	"	"	"	"	"	"				
C14 <= HC < C16	ND	5.0	"	"	"	"		"				
C16 <= HC < C18	ND	5.0	"	"	"	"		"				
C18 <= HC < C20	9.0	5.0	"	"	"	"	"	"				
$C20 \le HC \le C24$	65	5.0	"	"	"	"		"				
C24 <= HC < C28	120	5.0	"	"	"	"		"				
C28 <= HC < C32	88	5.0	"	"	"	"		"				
$HC \ge C32$	ND	5.0	"	"	"	"		"				
Total Petroleum Hydrocar (C7-C36)	rbons 280	25	"	"	"	"	"	"				
Surrogate: o-Terphenyl		127 %	50-	150	"	"	"	"				
SB4-10 (0504072-15) Soil	Sampled: 04/04/05 10:50	Received: 04/	04/05 14:	15								
HC < C8	ND	1.0	mg/kg	1	B5D1001	04/07/05	04/10/05	EPA 8015B				
C8 <= HC < C9	ND	1.0	"	"	"	"	"	"				
C9 <= HC < C10	ND	1.0	"	"	"	"	"	"				
C10 <= HC < C11	ND	1.0	"	"	"	"	"	"				
C11 <= HC < C12	ND	1.0	"	"	"	"	"	"				
C12 <= HC < C14	ND	1.0	"	"	"	"	"	"				
C14 <= HC < C16	ND	1.0	"	"	"	"	"	"				
C16 <= HC < C18	ND	1.0	"	"	"	"	"	"				
C18 <= HC < C20	ND	1.0	"	"	"	"	"	"				
C20 <= HC < C24	ND	1.0	"	"	"	"	"	"				
C24 <= HC < C28	ND	1.0		"	"	"	"	"				
C28 <= HC < C32	ND	1.0		"	"	"	"	"				
HC >= C32	ND	1.0		"	"	"	"	"				
Total Petroleum Hydrocarbo (C7-C36)	ons ND	5.0	"	"	"	"	"	"				
Surrogate: o-Terphenyl		88.0 %	50-	150	"	"	"	"				



Total Petroleum Hydrocarbons Carbon Range Analysis by GC-FID

Sierra Analytical Labs, Inc.												
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes			
SB5-5 (0504072-18) Soil	Sampled: 04/04/05 11:12	Received: 04/0	4/05 14:1	5								
HC < C8	ND	5.0	mg/kg	5	B5D1001	04/07/05	04/10/05	EPA 8015B				
$C8 \le HC < C9$	ND	5.0	"	"	"	"	"	"				
C9 <= HC < C10	ND	5.0	"	"	"	"	"	"				
C10 <= HC < C11	ND	5.0	"	"	"	"	"	"				
C11 <= HC < C12	ND	5.0	"	"	"	"	"	"				
C12 <= HC < C14	ND	5.0	"	"	"	"	"	"				
C14 <= HC < C16	ND	5.0	"	"	"	"		"				
C16 <= HC < C18	ND	5.0	"	"	"	"		"				
C18 <= HC < C20	26	5.0	"	"	"	"	"	"				
$C20 \le HC \le C24$	150	5.0	"	"	"	"	"	"				
C24 <= HC < C28	200	5.0	"	"	"	"		"				
$C28 \le HC \le C32$	160	5.0	"	"	"	"	"	"				
$HC \ge C32$	ND	5.0	"	"	"	"		"				
Total Petroleum Hydroc (C7-C36)	arbons 530	25	"	"	"	"	"	"				
Surrogate: o-Terphenyl		147 %	50-	150	"	"	"	"				
SB5-10 (0504072-19) Soi	Sampled: 04/04/05 11:15	Received: 04/	04/05 14:	15								
HC < C8	ND	5.0	mg/kg	5	B5D1001	04/07/05	04/10/05	EPA 8015B				
C8 <= HC < C9	ND	5.0	"	"	"	"		"				
C9 <= HC < C10	ND	5.0	"	"	"	"		"				
C10 <= HC < C11	ND	5.0	"	"	"	"		"				
C11 <= HC < C12	ND	5.0	"	"	"	"		"				
C12 <= HC < C14	ND	5.0	"	"	"	"	"	"				
C14 <= HC < C16	ND	5.0	"	"	"	"	"	"				
C16 <= HC < C18	ND	5.0	"	"	"	"	"	"				
C18 <= HC < C20	9.0	5.0	"	"	"	"	"	"				
$C20 \le HC \le C24$	65	5.0	"	"	"	"	"	"				
$C24 \le HC \le C28$	150	5.0	"	"	"	"	"	"				
$C_{28} \le HC < C_{32}$	140	5.0		"		"	"	"				
HC >= C32	ND	5.0		"	"	"	"	"				
Total Petroleum Hydroc	arbons 370	25		"	"	"	"	"				
(C7-C36)		23										
Surrogate: o-Terphenyl		93.3 %	50-	150	"	"	"	"				



SB6-5 (0504072-22) Soil	Sampled: 04/04/05 11:39	Received: 04/0	4/05 14:15						
HC < C8	ND	5.0	mg/kg	5	B5D1001	04/07/05	04/10/05	EPA 8015B	
C8 <= HC < C9	ND	5.0	"	"	"	"	"	"	
C9 <= HC < C10	ND	5.0	"	"	"	"	"	"	
C10 <= HC < C11	ND	5.0	"	"	"	"	"	"	
C11 <= HC < C12	ND	5.0	"	"	"	"	"	"	
C12 <= HC < C14	ND	5.0	"	"	"	"	"	"	
C14 <= HC < C16	ND	5.0	"	"	"	"	"	"	
C16 <= HC < C18	19	5.0	"	"	"	"	"	"	
C18 <= HC < C20	18	5.0	"	"	"	"	"	"	
C20 <= HC < C24	150	5.0	"	"	"	"	"	"	
C24 <= HC < C28	210	5.0	"	"	"	"	"	"	
C28 <= HC < C32	160	5.0	"	"	"	"	"	"	
$HC \ge C32$	ND	5.0	"	"	"	"	"	"	
Total Petroleum Hydroca (C7-C36)	arbons 560	25	"	"	"	"	"	"	

Surrogate: o-Terphenyl

140 % 50-150

"

"

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SB6-10 (0504072-23) Soil Sampled: 04/04/05 11:44 Received: 04/04/05 14:15

HC < C8	ND	5.0	mg/kg	5	B5D1001	04/07/05	04/10/05	EPA 8015B	
$C8 \le HC < C9$	ND	5.0	"	"	"	"		"	
C9 <= HC < C10	ND	5.0	"	"	"	"		"	
C10 <= HC < C11	ND	5.0	"		"	"	"	"	
C11 <= HC < C12	ND	5.0	"	"	"	"		"	
$C12 \le HC < C14$	ND	5.0	"	"	"	"		"	
C14 <= HC < C16	ND	5.0	"	"	"	"		"	
C16 <= HC < C18	ND	5.0	"	"	"	"		"	
C18 <= HC < C20	9.0	5.0	"	"	"	"		"	
C20 <= HC < C24	78	5.0	"		"	"	"	"	
C24 <= HC < C28	130	5.0	"		"	"	"	"	
C28 <= HC < C32	110	5.0	"		"	"	"	"	
$HC \ge C32$	ND	5.0	"	"	"	"		"	
Total Petroleum Hydrocarbons	330	25	"	"	"	"		"	
(C7-C36)									
Surrogate: o-Terphenyl		120 %	50-1	150	"	"	"	"	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Notes

Mearns Consulting Corpor	ration	P								
738 Ashland Avenue		Project Nu	mber: La	s Brisas				Reported	1:	
Santa Monica CA, 90405		Project Ma	nager: Su	san Mearns	8			04/12/05 14:01		
	Total Petroleum	Hydrocarbo	ns Carl	bon Ran	ge Analy	sis by GO	C-FID			
		Sierra Ai	nalytica	l Labs, I	nc.	U				
		Reporting								
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
SB7-5 (0504072-26) Soil	Sampled: 04/04/05 12:13	Received: 04/0	4/05 14:1	5						
HC < C8	ND	5.0	mg/kg	5	B5D1001	04/07/05	04/10/05	EPA 8015B		
$C8 \le HC < C9$	ND	5.0	"	"	"	"	"	"		
$C9 \le HC < C10$	ND	5.0	"	"	"	"	"			
$C10 \le HC < C11$	ND	5.0	"	"	"	"	"	"		
C11 <= HC < C12	ND	5.0	"	"	"	"	"	"		
$C12 \le HC < C14$	ND	5.0	"	"	"	"	"	"		
C14 <= HC < C16	12	5.0	"	"	"	"	"	"		
C16 <= HC < C18	29	5.0	"	"	"	"		"		
C18 <= HC < C20	72	5.0	"	"	"	"		"		
C20 <= HC < C24	330	5.0	"	"	"	"	"			
C24 <= HC < C28	440	5.0	"	"	"	"		"		
C28 <= HC < C32	330	5.0	"	"		"	"			
HC >= C32	ND	5.0	"	"	"	"	"			
Total Petroleum Hydroca	rbons 1200	25	"	"	"	"	"	"		
<u>(C7-C36)</u>										
Surrogate: o-Terphenyl		260 %	50-	-150	"	"	"	"	S-0	
SB7-10 (0504072-27) Soil	Sampled: 04/04/05 12:17	Received: 04/	04/05 14:	:15						
HC < C8	ND	5.0	mg/kg	5	B5D1001	04/07/05	04/10/05	EPA 8015B		
$C8 \le HC < C9$	ND	5.0	"	"	"	"	"	"		
$C9 \le HC < C10$	ND	5.0	"	"	"	"	"			
$C10 \le HC < C11$	ND	5.0	"	"	"	"	"	"		
C11 <= HC < C12	ND	5.0	"	"	"	"	"	"		
C12 <= HC < C14	8.0	5.0	"	"		"	"	"		
C14 <= HC < C16	58	5.0	"	"	"	"		"		
C16 <= HC < C18	110	5.0	"	"	"	"				
C18 <= HC < C20	130	5.0	"	"	"	"				
C20 <= HC < C24	580	5.0	"	"	"	"	"	"		
C24 <= HC < C28	450	5.0	"	"	"	"	"	"		
C28 <= HC < C32	290	5.0	"	"	"	"	"	"		
$HC \ge C32$	ND	5.0	"	"	"	"	"	"		
Total Petroleum Hydroca	rbons 1600	25	"	"	"	"	"	"		
(C7-C36)										

Surrogate: o-Terphenyl

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

353 %

50-150

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S-07



Total Petroleum Hydrocarbons Carbon Range Analysis by GC-FID

Sierra Analytical Labs, Inc.											
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes		
SB8-5 (0504072-30) Soil	Sampled: 04/04/05 12:42	Received: 04/0	4/05 14:15	5							
HC < C8	ND	1.0	mg/kg	1	B5D1001	04/07/05	04/10/05	EPA 8015B			
$C8 \le HC < C9$	ND	1.0	"	"	"	"		"			
C9 <= HC < C10	ND	1.0	"	"	"	"		"			
C10 <= HC < C11	ND	1.0	"	"	"	"		"			
C11 <= HC < C12	ND	1.0	"	"	"	"		"			
C12 <= HC < C14	ND	1.0	"	"	"	"		"			
C14 <= HC < C16	ND	1.0	"	"	"	"		"			
C16 <= HC < C18	ND	1.0		"		"		"			
C18 <= HC < C20	ND	1.0		"	"	"		"			
C20 <= HC < C24	ND	1.0	"	"	"	"		"			
C24 <= HC < C28	ND	1.0	"	"	"	"		"			
C28 <= HC < C32	ND	1.0	"	"	"	"		"			
$HC \ge C32$	ND	1.0	"	"	"	"		"			
Total Petroleum Hydrocard (C7-C36)	bons ND	5.0	"	"	"	"	"	"			
Surrogate: o-Terphenyl		93.3 %	50-1	150	"	"	"	"			
SB8-10 (0504072-31) Soil	Sampled: 04/04/05 12:44	Received: 04/	04/05 14:1	15							
HC < C8	ND	1.0	mg/kg	1	B5D1001	04/07/05	04/10/05	EPA 8015B			
C8 <= HC < C9	ND	1.0	"	"	"	"		"			
C9 <= HC < C10	ND	1.0	"	"	"	"		"			
C10 <= HC < C11	ND	1.0		"		"		"			
C11 <= HC < C12	ND	1.0		"		"		"			
C12 <= HC < C14	ND	1.0	"	"	"	"		"			
C14 <= HC < C16	ND	1.0		"	"	"		"			
C16 <= HC < C18	ND	1.0		"		"		"			
C18 <= HC < C20	ND	1.0	"	"	"	"		"			
C20 <= HC < C24	ND	1.0		"	"	"		"			
$C24 \le HC \le C28$	ND	1.0	"	"	"	"		"			
$C28 \le HC < C32$	ND	1.0		"	"	"	"	"			
$HC \ge C32$	ND	1.0		"	"	"	"	"			
Total Petroleum Hydrocarl (C7-C36)	bons ND	5.0	"	"	"	"	"	"			
Surrogate: o-Terphenyl		85.3 %	50-1	150	"	"	"	"			

Mearns Consulting Corporation Project: City of Signal Hill 738 Ashland Avenue Project Number: Las Brisas **Reported:** Santa Monica CA, 90405 Project Manager: Susan Mearns 04/12/05 14:01 Volatile Organic Compounds by EPA Method 8260B Sierra Analytical Labs, Inc. Reporting Limit Units Dilution Batch Prepared Analyzed Method Analyte Result Notes 04/04/05 00 25 -04/04/05 14.15

SB1-5 (0504072-02) Soil S	Sampled: 04/04/05 08:37	Received: 04/0	4/05 14:15						
Benzene	ND	5.0	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B	
Bromobenzene	ND	5.0	"	"	"	"	"	"	
Bromochloromethane	ND	5.0	"	"	"	"	"	"	
Bromodichloromethane	ND	5.0	"	"	"	"	"	"	
Bromoform	ND	5.0	"	"	"	"	"	"	
Bromomethane	ND	5.0	"	"	"	"	"	"	
n-Butylbenzene	ND	5.0	"	"	"	"	"	"	
sec-Butylbenzene	ND	5.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	5.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	5.0	"	"	"	"	"	"	
Chlorobenzene	ND	5.0	"	"	"	"	"	"	
Chloroethane	ND	5.0	"	"	"	"	"	"	
Chloroform	ND	5.0	"	"	"	"	"	"	
Chloromethane	ND	5.0	"	"	"	"	"	"	
2-Chlorotoluene	ND	5.0	"	"	"	"	"	"	
4-Chlorotoluene	ND	5.0	"	"	"	"	"	"	
Dibromochloromethane	ND	5.0	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropar	ne ND	5.0	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	5.0	"	"	"	"	"	"	
Dibromomethane	ND	5.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	5.0	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	5.0	"	"	"	"	"	"	
1,1-Dichloroethane	ND	5.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	5.0	"	"	"	"	"	"	
1,1-Dichloroethene	ND	5.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	5.0	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	5.0	"	"	"	"	"	"	
1,2-Dichloropropane	ND	5.0	"	"	"	"	"	"	
1,3-Dichloropropane	ND	5.0	"	"	"	"	"	"	
2,2-Dichloropropane	ND	5.0	"	"	"	"	"	"	
1,1-Dichloropropene	ND	5.0	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	5.0	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	5.0	"	"	"	"	"	"	
Ethylbenzene	ND	5.0	"	"	"	"	"	"	
Hexachlorobutadiene	ND	5.0	"	"	"	"	"	"	
Isopropylbenzene	ND	5.0	"	"	"	"	"	"	
p-Isopropyltoluene	ND	5.0	"	"	"	"	"	"	
Methylene chloride	ND	5.0	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	5.0	"	"	"	"	"	"	



Mearns Consulting Corporation Project: City of Signal Hill 738 Ashland Avenue Project Number: Las Brisas **Reported:** Santa Monica CA, 90405 Project Manager: Susan Mearns 04/12/05 14:01 Volatile Organic Compounds by EPA Method 8260B Sierra Analytical Labs, Inc. Г D

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB1-5 (0504072-02) Soil	Sampled: 04/04/05 08:37	Received: 04/0	4/05 14:1	5					
Naphthalene	ND	5.0	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B	
n-Propylbenzene	ND	5.0		"	"	"	"	"	
Styrene	ND	5.0		"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	5.0	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	5.0	"	"	"	"	"	"	
Tetrachloroethene	ND	5.0	"	"	"	"	"	"	
Toluene	ND	5.0		"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	5.0		"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	5.0	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	5.0	"	"	"	"	"	"	
Trichloroethene	ND	5.0		"	"	"	"	"	
Trichlorofluoromethane	ND	5.0		"	"	"	"	"	
1,2,3-Trichloropropane	ND	5.0		"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	5.0		"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	5.0	"	"	"	"	"	"	
Vinyl chloride	ND	5.0	"	"	"	"	"	"	
m,p-Xylene	ND	5.0	"	"	"	"	"	"	
o-Xylene	ND	5.0		"	"	"	"	"	
Surrogate: Dibromofluoro	methane	105 %	80-	120	"	"	"	"	
Surrogate: Toluene-d8		98.0 %	81-	117	"	"	"	"	
Surrogate: 4-Bromofluoro	benzene	93.5 %	74-	121	"	"	"	"	
SB1-10 (0504072-03) Soil	Sampled: 04/04/05 08:45	Received: 04/	04/05 14:	15					

ND	5.7	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B
ND	5.7	"	"	"	"	"	"
ND	5.7	"	"	"	"	"	"
ND	5.7	"	"	"	"	"	"
ND	5.7	"	"	"	"	"	"
ND	5.7	"	"	"	"	"	"
ND	5.7	"		"	"	"	"
ND	5.7	"	"	"	"	"	"
ND	5.7	"	"	"	"	"	"
ND	5.7	"	"	"	"	"	"
ND	5.7	"	"	"	"	"	"
ND	5.7	"	"	"	"	"	"
ND	5.7	"	"	"	"	"	"
ND	5.7	"	"	"	"	"	"
ND	5.7	"		"	"	"	"
ND	5.7	"		"	"	"	"
ND	5.7	"		"	"	"	"
	ND ND ND ND ND ND ND ND ND ND ND ND ND N	ND 5.7	ND 5.7 μg/kg ND 5.7 " ND 5.7 " <tr td=""> <tr td=""> <tr td=""> <tr <="" td=""><td>ND 5.7 μg/kg 1 ND 5.7 " " ND 5.7 " <t< td=""><td>ND 5.7 μg/kg 1 B5D0712 ND 5.7 " " " ND 5.7</td><td>ND 5.7 μg/kg 1 B5D0712 04/06/05 ND 5.7 " " " " " ND 5.7 " " " " " "</td><td>ND 5.7 μg/kg 1 B5D0712 04/06/05 04/06/05 ND 5.7 " " " " " " " ND 5.7 " " " " " " " ND 5.7 " "</td></t<></td></tr></tr></tr></tr>	ND 5.7 μg/kg 1 ND 5.7 " " ND 5.7 " <t< td=""><td>ND 5.7 μg/kg 1 B5D0712 ND 5.7 " " " ND 5.7</td><td>ND 5.7 μg/kg 1 B5D0712 04/06/05 ND 5.7 " " " " " ND 5.7 " " " " " "</td><td>ND 5.7 μg/kg 1 B5D0712 04/06/05 04/06/05 ND 5.7 " " " " " " " ND 5.7 " " " " " " " ND 5.7 " "</td></t<>	ND 5.7 μg/kg 1 B5D0712 ND 5.7 " " " ND 5.7	ND 5.7 μg/kg 1 B5D0712 04/06/05 ND 5.7 " " " " " ND 5.7 " " " " " "	ND 5.7 μg/kg 1 B5D0712 04/06/05 04/06/05 ND 5.7 " " " " " " " ND 5.7 " " " " " " " ND 5.7 " "
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Mearns Consulting Corporation Project: City of Signal Hill 738 Ashland Avenue Project Number: Las Brisas **Reported:** Santa Monica CA, 90405 Project Manager: Susan Mearns 04/12/05 14:01 Volatile Organic Compounds by EPA Method 8260B Sierra Analytical Labs, Inc. Reporting Result Limit Units Dilution Batch Prepared Analyzed Method Analyte Notes

SB1-10 (0504072-03) Soil	Sampled: 04/04/05 08:45	Received: 04/	04/05 14:15						
1,2-Dibromo-3-chloropropa	ne ND	5.7	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B	
1,2-Dibromoethane (EDB)	ND	5.7	"	"	"	"	"	"	
Dibromomethane	ND	5.7		"	"	"			
1,2-Dichlorobenzene	ND	5.7		"	"	"			
1,3-Dichlorobenzene	ND	5.7		"	"	"			
1,4-Dichlorobenzene	ND	5.7	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	5.7	"	"	"	"	"	"	
1,1-Dichloroethane	ND	5.7		"	"	"		"	
1,2-Dichloroethane	ND	5.7		"	"	"			
1,1-Dichloroethene	ND	5.7		"	"	"			
cis-1,2-Dichloroethene	ND	5.7		"	"	"		"	
trans-1,2-Dichloroethene	ND	5.7		"	"	"		"	
1,2-Dichloropropane	ND	5.7		"	"	"		"	
1,3-Dichloropropane	ND	5.7		"	"	"		"	
2,2-Dichloropropane	ND	5.7		"	"	"		"	
1,1-Dichloropropene	ND	5.7		"	"	"		"	
cis-1,3-Dichloropropene	ND	5.7		"	"	"		"	
trans-1,3-Dichloropropene	ND	5.7		"	"	"		"	
Ethylbenzene	ND	5.7		"	"	"		"	
Hexachlorobutadiene	ND	5.7	"	"	"	"	"	"	
Isopropylbenzene	ND	5.7	"	"	"	"	"	"	
p-Isopropyltoluene	ND	5.7		"	"	"			
Methylene chloride	ND	5.7	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	5.7		"	"	"		"	
Naphthalene	ND	5.7		"	"	"		"	
n-Propylbenzene	ND	5.7		"	"	"		"	
Styrene	ND	5.7		"	"	"		"	
1,1,1,2-Tetrachloroethane	ND	5.7		"	"	"		"	
1,1,2,2-Tetrachloroethane	ND	5.7		"	"	"		"	
Tetrachloroethene	ND	5.7		"	"	"		"	
Toluene	ND	5.7		"	"	"		"	
1,2,3-Trichlorobenzene	ND	5.7		"	"	"		"	
1,2,4-Trichlorobenzene	ND	5.7		"	"	"		"	
1,1,1-Trichloroethane	ND	5.7		"	"	"		"	
1,1,2-Trichloroethane	ND	5.7		"	"	"		"	
Trichloroethene	ND	5.7		"	"	"		"	
Trichlorofluoromethane	ND	5.7		"	"	"			
1,2,3-Trichloropropane	ND	5.7		"	"	"		"	
1,2,4-Trimethylbenzene	ND	5.7	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	5.7	"	"	"	"	"	"	
Vinyl chloride	ND	5.7	"	"	"	"	"	"	



Mearns Consulting Corpo 738 Ashland Avenue Santa Monica CA, 90405	ration	Pr Project Nu Project Mar	roject: Cit mber: Las nager: Sus		Reported: 04/12/05 14:01				
	Volatile O	rganic Com Sierra Au	pounds	by EPA	Method	8260B			
		Paparting	iarytica	1 Labs, 1	iic.				
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB1-10 (0504072-03) Soil	Sampled: 04/04/05 08:45	Received: 04/	04/05 14:	15					
m,p-Xylene	ND	5.7	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B	
o-Xylene	ND	5.7	"	"	"	"	"	"	
Surrogate: Dibromofluoron	nethane	104 %	80-	120	"	"	"	"	
Surrogate: Toluene-d8		97.7 %	81-	117	"	"	"	"	
Surrogate: 4-Bromofluorob	penzene	93.7 %	74-	121	"	"	"	"	
SB2-5 (0504072-06) Soil	Sampled: 04/04/05 09:30	Received: 04/0	4/05 14:1	5					
Benzene	ND	5.0	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B	
Bromobenzene	ND	5.0	"	"	"	"		"	
Bromochloromethane	ND	5.0	"	"	"	"		"	
Bromodichloromethane	ND	5.0	"	"	"	"		"	
Bromoform	ND	5.0	"	"	"	"		"	
Bromomethane	ND	5.0	"	"	"	"		"	
n-Butylbenzene	ND	5.0	"	"	"	"	"	"	
sec-Butylbenzene	ND	5.0	"	"	"	"		"	
tert-Butylbenzene	ND	5.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	5.0	"	"	"	"	"	"	
Chlorobenzene	ND	5.0	"	"	"	"		"	
Chloroethane	ND	5.0	"	"	"	"	"	"	
Chloroform	ND	5.0	"	"	"	"		"	
Chloromethane	ND	5.0	"	"	"	"	"	"	
2-Chlorotoluene	ND	5.0	"	"	"	"		"	
4-Chlorotoluene	ND	5.0	"	"	"	"		"	
Dibromochloromethane	ND	5.0	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropa	ane ND	5.0	"	"	"	"		"	
1,2-Dibromoethane (EDB)	ND	5.0	"	"	"	"		"	
Dibromomethane	ND	5.0	"	"	"	"		"	
1,2-Dichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	5.0	"	"	"	"		"	
1,4-Dichlorobenzene	ND	5.0	"	"	"	"		"	
Dichlorodifluoromethane	ND	5.0	"	"	"	"		"	
1,1-Dichloroethane	ND	5.0	"	"	"	"		"	
1,2-Dichloroethane	ND	5.0	"	"	"	"		"	
1,1-Dichloroethene	ND	5.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	5.0	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	5.0	"	"	"	"	"	"	
1,2-Dichloropropane	ND	5.0	"	"	"	"	"	"	
1,3-Dichloropropane	ND	5.0	"	"	"	"	"	"	
2,2-Dichloropropane	ND	5.0	"	"	"	"	"	"	
1,1-Dichloropropene	ND	5.0	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	5.0	"	"	"	"	"	"	

Mearns Consulting Corporation Project: City of Signal Hill 738 Ashland Avenue Project Number: Las Brisas **Reported:** Santa Monica CA, 90405 Project Manager: Susan Mearns 04/12/05 14:01 Volatile Organic Compounds by EPA Method 8260B Sierra Analytical Labs, Inc. Reporting Result Limit Units Dilution Batch Prepared Analyzed Method Notes Analyte

SB2-5 (0504072-06) Soil	Sampled: 04/04/05 09:30	Received: 04/0	4/05 14:1	5					
trans-1,3-Dichloropropene	ND	5.0	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B	
Ethylbenzene	ND	5.0	"	"	"	"		"	
Hexachlorobutadiene	ND	5.0	"	"	"	"		"	
Isopropylbenzene	ND	5.0	"	"	"	"		"	
p-Isopropyltoluene	ND	5.0	"	"	"	"		"	
Methylene chloride	ND	5.0	"	"	"	"		"	
Methyl tert-butyl ether	ND	5.0	"	"	"	"		"	
Naphthalene	ND	5.0	"	"	"	"		"	
n-Propylbenzene	ND	5.0	"	"	"	"		"	
Styrene	ND	5.0	"	"	"	"		"	
1,1,1,2-Tetrachloroethane	ND	5.0	"	"	"	"		"	
1,1,2,2-Tetrachloroethane	ND	5.0	"	"	"	"		"	
Tetrachloroethene	ND	5.0	"	"	"	"		"	
Toluene	ND	5.0	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	5.0	"	"	"	"		"	
1,2,4-Trichlorobenzene	ND	5.0	"	"	"	"		"	
1,1,1-Trichloroethane	ND	5.0	"	"	"	"		"	
1,1,2-Trichloroethane	ND	5.0	"	"	"	"		"	
Trichloroethene	ND	5.0	"	"	"	"		"	
Trichlorofluoromethane	ND	5.0	"	"	"	"		"	
1,2,3-Trichloropropane	ND	5.0	"	"	"	"		"	
1,2,4-Trimethylbenzene	ND	5.0	"	"	"	"		"	
1,3,5-Trimethylbenzene	ND	5.0	"	"	"	"		"	
Vinyl chloride	ND	5.0	"	"	"	"		"	
m,p-Xylene	ND	5.0	"	"	"	"		"	
o-Xylene	ND	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoro	methane	102 %	80-	120	"	"	"	"	
Surrogate: Toluene-d8		98.2 %	81-	117	"	"	"	"	
Surrogate: 4-Bromofluorol	benzene	93.1 %	74-	121	"	"	"	"	

Mearns Consulting Corporation Project: City of Signal Hill 738 Ashland Avenue Project Number: Las Brisas **Reported:** Santa Monica CA, 90405 Project Manager: Susan Mearns 04/12/05 14:01 Volatile Organic Compounds by EPA Method 8260B Sierra Analytical Labs, Inc. Reporting Result Limit Units Dilution Batch Prepared Analyzed Method Notes Analyte

SB2-10 (0504072-07) Soil	Sampled: 04/04/05 09:35	Received: 04/	04/05 14:15						
Benzene	ND	6.4	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B	
Bromobenzene	ND	6.4	"	"	"	"	"	"	
Bromochloromethane	ND	6.4	"	"	"	"	"	"	
Bromodichloromethane	ND	6.4	"	"	"	"	"	"	
Bromoform	ND	6.4	"	"	"	"	"	"	
Bromomethane	ND	6.4	"	"	"	"	"	"	
n-Butylbenzene	ND	6.4	"	"	"	"		"	
sec-Butylbenzene	ND	6.4	"	"	"	"		"	
tert-Butylbenzene	ND	6.4	"	"	"	"		"	
Carbon tetrachloride	ND	6.4	"	"	"	"		"	
Chlorobenzene	ND	6.4	"	"	"	"		"	
Chloroethane	ND	6.4	"	"	"	"	"	"	
Chloroform	ND	6.4	"	"	"	"	"	"	
Chloromethane	ND	6.4	"	"	"	"	"	"	
2-Chlorotoluene	ND	6.4	"	"	"	"		"	
4-Chlorotoluene	ND	6.4	"	"	"	"		"	
Dibromochloromethane	ND	6.4	"	"	"	"		"	
1,2-Dibromo-3-chloropropan	ne ND	6.4	"	"	"	"		"	
1,2-Dibromoethane (EDB)	ND	6.4	"	"	"	"		"	
Dibromomethane	ND	6.4	"	"	"	"		"	
1,2-Dichlorobenzene	ND	6.4	"	"	"	"		"	
1,3-Dichlorobenzene	ND	6.4	"	"	"	"		"	
1,4-Dichlorobenzene	ND	6.4	"	"	"	"		"	
Dichlorodifluoromethane	ND	6.4	"	"	"	"		"	
1,1-Dichloroethane	ND	6.4	"	"	"	"	"	"	
1,2-Dichloroethane	ND	6.4	"	"	"	"	"	"	
1,1-Dichloroethene	ND	6.4	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	6.4	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	6.4	"	"	"	"	"	"	
1,2-Dichloropropane	ND	6.4	"	"	"	"	"	"	
1,3-Dichloropropane	ND	6.4	"	"	"	"		"	
2,2-Dichloropropane	ND	6.4	"	"	"	"		"	
1,1-Dichloropropene	ND	6.4	"	"	"	"		"	
cis-1,3-Dichloropropene	ND	6.4	"	"	"	"		"	
trans-1,3-Dichloropropene	ND	6.4	"	"	"	"		"	
Ethylbenzene	ND	6.4	"	"	"	"		"	
Hexachlorobutadiene	ND	6.4	"	"	"	"		"	
Isopropylbenzene	ND	6.4	"	"	"	"	"	"	
p-Isopropyltoluene	ND	6.4	"	"	"	"	"	"	
Methylene chloride	ND	6.4	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	6.4	"	"		"	"	"	

Mearns Consulting Corporation Project: City of Signal Hill 738 Ashland Avenue Project Number: Las Brisas Reported: Santa Monica CA, 90405 Project Manager: Susan Mearns 04/12/05 14:01 Volatile Organic Compounds by EPA Method 8260B Sierra Analytical Labs, Inc.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB2-10 (0504072-07) Soil	Sampled: 04/04/05 09:35	Received: 04/	04/05 14	:15					
Naphthalene	ND	6.4	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B	
n-Propylbenzene	ND	6.4	"	"	"	"	"	"	
Styrene	ND	6.4		"	"	"		"	
1,1,1,2-Tetrachloroethane	ND	6.4		"	"	"		"	
1,1,2,2-Tetrachloroethane	ND	6.4		"	"	"		"	
Tetrachloroethene	ND	6.4		"	"	"		"	
Toluene	ND	6.4		"	"	"		"	
1,2,3-Trichlorobenzene	ND	6.4		"	"	"		"	
1,2,4-Trichlorobenzene	ND	6.4		"	"	"		"	
1,1,1-Trichloroethane	ND	6.4		"	"	"		"	
1,1,2-Trichloroethane	ND	6.4		"	"	"		"	
Trichloroethene	ND	6.4		"	"	"		"	
Trichlorofluoromethane	ND	6.4	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	6.4		"	"	"		"	
1,2,4-Trimethylbenzene	ND	6.4		"	"	"		"	
1,3,5-Trimethylbenzene	ND	6.4		"	"	"	"	"	
Vinyl chloride	ND	6.4		"	"	"		"	
m,p-Xylene	ND	6.4		"	"	"		"	
o-Xylene	ND	6.4	"	"	"	"	"	"	
Surrogate: Dibromofluorom	ethane	103 %	80	-120	"	"	"	"	
Surrogate: Toluene-d8		98.7 %	81	-117	"	"	"	"	
Surrogate: 4-Bromofluorobe	enzene	94.7 %	74	-121	"	"	"	"	

SB3-5 (0504072-10) Soil Sampled: 04/04/05 10:05 Received: 04/04/05 14:15

Benzene	ND	4.2	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B	
Bromobenzene	ND	4.2	"	"	"	"	"	"	
Bromochloromethane	ND	4.2	"	"	"	"	"	"	
Bromodichloromethane	ND	4.2	"	"	"	"	"	"	
Bromoform	ND	4.2	"		"		"	"	
Bromomethane	ND	4.2	"	"	"	"	"	"	
n-Butylbenzene	ND	4.2	"	"	"	"	"	"	
sec-Butylbenzene	ND	4.2	"	"	"	"	"	"	
tert-Butylbenzene	ND	4.2	"	"	"	"	"	"	
Carbon tetrachloride	ND	4.2	"	"	"	"	"	"	
Chlorobenzene	ND	4.2	"	"	"	"	"	"	
Chloroethane	ND	4.2	"	"	"	"	"	"	
Chloroform	ND	4.2	"	"	"	"	"	"	
Chloromethane	ND	4.2	"	"	"	"	"	"	
2-Chlorotoluene	ND	4.2	"	"	"	"	"	"	
4-Chlorotoluene	ND	4.2	"	"	"	"	"	"	
Dibromochloromethane	ND	4.2	"		"	"	"	"	

Mearns Consulting Corporation Project: City of Signal Hill 738 Ashland Avenue Project Number: Las Brisas **Reported:** Santa Monica CA, 90405 Project Manager: Susan Mearns 04/12/05 14:01 Volatile Organic Compounds by EPA Method 8260B Sierra Analytical Labs, Inc. Reporting Result Limit Units Dilution Batch Prepared Analyzed Method Notes Analyte

SB3-5 (0504072-10) Soil	Sampled: 04/04/05 10:05	Received: 04/0	4/05 14:15						
1,2-Dibromo-3-chloropropa	nne ND	4.2	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B	
1,2-Dibromoethane (EDB)	ND	4.2	"	"	"	"	"	"	
Dibromomethane	ND	4.2	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	4.2	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	4.2	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	4.2	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	4.2	"	"	"	"	"	"	
1,1-Dichloroethane	ND	4.2	"	"	"	"	"	"	
1,2-Dichloroethane	ND	4.2	"	"	"	"	"	"	
1,1-Dichloroethene	ND	4.2	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	4.2	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	4.2	"	"	"	"	"	"	
1,2-Dichloropropane	ND	4.2	"	"	"	"	"	"	
1,3-Dichloropropane	ND	4.2	"	"	"	"	"	"	
2,2-Dichloropropane	ND	4.2	"	"	"	"	"	"	
1,1-Dichloropropene	ND	4.2	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	4.2	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	4.2	"	"	"	"	"	"	
Ethylbenzene	ND	4.2	"	"	"	"	"	"	
Hexachlorobutadiene	ND	4.2	"	"	"	"	"	"	
Isopropylbenzene	ND	4.2	"	"	"	"	"	"	
p-Isopropyltoluene	ND	4.2	"	"	"	"	"	"	
Methylene chloride	ND	4.2	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	4.2	"	"	"	"	"	"	
Naphthalene	ND	4.2	"	"	"	"	"	"	
n-Propylbenzene	ND	4.2	"	"	"	"	"	"	
Styrene	ND	4.2	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	4.2	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	4.2	"	"	"	"	"	"	
Tetrachloroethene	ND	4.2	"	"	"	"	"	"	
Toluene	ND	4.2	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	4.2	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	4.2	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	4.2	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	4.2	"	"	"	"	"	"	
Trichloroethene	ND	4.2	"	"	"	"	"	"	
Trichlorofluoromethane	ND	4.2	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	4.2	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	4.2	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	4.2	"	"	"	"	"	"	
Vinyl chloride	ND	4.2	"	"		"	"	"	



Mearns Consulting Corpor 738 Ashland Avenue Santa Monica CA, 90405	ation	Pr Project Nu Project Mar	Reported: 04/12/05 14:01						
	Volatile O	Organic Com	pounds	by EPA	Method	8260B			
		Sierra Ai	nalytical	l Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB3-5 (0504072-10) Soil	Sampled: 04/04/05 10:05	Received: 04/0	4/05 14:1	5					
m,p-Xylene	ND ND	4.2	µg/kg "	1	B5D0712	04/06/05	04/06/05	EPA 8260B	
Sumoaata Dibnomofluorom	othana	105.0/	80	120	"	"	"	"	
Surrogate: Toluene d8	emune	105 /0	81	120	"	"	"	"	
Surrogate: A-Bromofluorob	21170110	97.8 /0	- 01 74	121	"	"	"	"	
SD3 10 (0504072 11) Soil	Somplad: 04/04/05 10:10	Dessived: 04/	, 04/05 14.	121					
<u>565-10 (0504072-11) 5011</u>	Sampleu: 04/04/05 10:10	Keceiveu: 04/	04/05 14:	15	D5D0712	04/06/05	04/05/05	EDA 0260D	
Benzene	ND	5.0	µg/kg	1	B5D0/12	04/06/05	04/06/05	EPA 8260B	
Bromobenzene Dugung schlausene stham s	ND	5.0							
Bromodiableremethere	ND	5.0							
Promoform	ND	5.0							
Bromomothana		5.0		"					
n Putulbanzana	ND	5.0		"					
n-Dutyibelizene	ND	5.0		"					
tert Butylbenzene	ND	5.0		"			"		
Carbon tetrachloride	ND	5.0		"					
Chlorobanzana	ND	5.0				"			
Chloroethane	ND	5.0		"			"		
Chloroform	ND	5.0							
Chloromethane	ND	5.0							
2-Chlorotoluene	ND	5.0						"	
4-Chlorotoluene	ND	5.0				"		"	
Dibromochloromethane	ND	5.0						"	
1.2-Dibromo-3-chloropropa	ne ND	5.0						"	
1 2-Dibromoethane (EDB)	ND	5.0		"		"	"	"	
Dibromomethane	ND	5.0	"	"			"		
1.2-Dichlorobenzene	ND	5.0		"		"	"		
1.3-Dichlorobenzene	ND	5.0	"	"	"	"		"	
1.4-Dichlorobenzene	ND	5.0	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	5.0	"	"	"	"	"	"	
1,1-Dichloroethane	ND	5.0	"	"	"	"		"	
1,2-Dichloroethane	ND	5.0	"	"	"	"		"	
1,1-Dichloroethene	ND	5.0		"	"	"	"	"	
cis-1,2-Dichloroethene	ND	5.0		"	"	"	"		
trans-1,2-Dichloroethene	ND	5.0		"		"	"	"	
1,2-Dichloropropane	ND	5.0		"		"	"	"	
1,3-Dichloropropane	ND	5.0	"	"	"	"	"	"	
2,2-Dichloropropane	ND	5.0	"	"	"	"	"	"	
1,1-Dichloropropene	ND	5.0	"	"		"	"	"	
cis-1,3-Dichloropropene	ND	5.0		"	"	"	"	"	

Mearns Consulting Corporation Project: City of Signal Hill 738 Ashland Avenue Project Number: Las Brisas **Reported:** Santa Monica CA, 90405 Project Manager: Susan Mearns 04/12/05 14:01 Volatile Organic Compounds by EPA Method 8260B Sierra Analytical Labs, Inc. Reporting Analyte Result Limit Units Dilution Batch Prepared Analyzed Method Notes

SB3-10 (0504072-11) Soil	Sampled: 04/04/05 10:10	Received: 04/	04/05 14:1	15					
trans-1,3-Dichloropropene	ND	5.0	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B	
Ethylbenzene	ND	5.0	"		"	"	"	"	
Hexachlorobutadiene	ND	5.0	"	"	"	"		"	
Isopropylbenzene	ND	5.0	"	"	"	"		"	
p-Isopropyltoluene	ND	5.0	"		"	"	"	"	
Methylene chloride	ND	5.0	"		"	"		"	
Methyl tert-butyl ether	ND	5.0	"	"	"	"		"	
Naphthalene	ND	5.0	"	"	"	"		"	
n-Propylbenzene	ND	5.0	"	"	"	"		"	
Styrene	ND	5.0	"	"	"	"		"	
1,1,1,2-Tetrachloroethane	ND	5.0	"	"	"	"		"	
1,1,2,2-Tetrachloroethane	ND	5.0	"	"	"	"		"	
Tetrachloroethene	ND	5.0	"		"	"		"	
Toluene	ND	5.0	"		"	"		"	
1,2,3-Trichlorobenzene	ND	5.0	"	"	"	"		"	
1,2,4-Trichlorobenzene	ND	5.0	"	"	"	"		"	
1,1,1-Trichloroethane	ND	5.0	"	"	"	"		"	
1,1,2-Trichloroethane	ND	5.0	"	"	"	"		"	
Trichloroethene	ND	5.0	"	"	"	"		"	
Trichlorofluoromethane	ND	5.0	"		"	"		"	
1,2,3-Trichloropropane	ND	5.0	"		"	"		"	
1,2,4-Trimethylbenzene	ND	5.0	"	"	"	"		"	
1,3,5-Trimethylbenzene	ND	5.0	"	"	"	"		"	
Vinyl chloride	ND	5.0	"	"	"	"		"	
m,p-Xylene	ND	5.0	"	"	"	"		"	
o-Xylene	ND	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluorom	nethane	105 %	80	120	"	"	"	"	
Surrogate: Toluene-d8		98.4 %	81-	117	"	"	"	"	
Surrogate: 4-Bromofluorobe	enzene	94.2 %	74-	121	"	"	"	"	

Mearns Consulting Corporation Project: City of Signal Hill 738 Ashland Avenue Project Number: Las Brisas **Reported:** Santa Monica CA, 90405 Project Manager: Susan Mearns 04/12/05 14:01 Volatile Organic Compounds by EPA Method 8260B Sierra Analytical Labs, Inc. Reporting Result Limit Units Dilution Batch Prepared Analyzed Method Analyte Notes Sampled: 04/04/05 10:40 Received: 04/04/05 14:15 SB4-5 (0504072-14) Soil

Benzene	ND	5.0	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B	
Bromobenzene	ND	5.0	"		"	"	"	"	
Bromochloromethane	ND	5.0	"		"	"	"	"	
Bromodichloromethane	ND	5.0	"		"	"	"	"	
Bromoform	ND	5.0	"		"	"	"	"	
Bromomethane	ND	5.0	"		"	"	"	"	
n-Butylbenzene	ND	5.0	"		"	"	"	"	
sec-Butylbenzene	ND	5.0	"		"	"	"	"	
tert-Butylbenzene	ND	5.0	"		"	"	"	"	
Carbon tetrachloride	ND	5.0	"		"	"	"	"	
Chlorobenzene	ND	5.0	"		"	"	"	"	
Chloroethane	ND	5.0	"		"	"	"	"	
Chloroform	ND	5.0	"		"	"	"	"	
Chloromethane	ND	5.0	"		"	"	"	"	
2-Chlorotoluene	ND	5.0	"		"	"	"	"	
4-Chlorotoluene	ND	5.0	"		"	"	"	"	
Dibromochloromethane	ND	5.0	"		"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	5.0	"		"	"	"	"	
1,2-Dibromoethane (EDB)	ND	5.0	"		"	"	"	"	
Dibromomethane	ND	5.0	"		"	"	"	"	
1,2-Dichlorobenzene	ND	5.0	"		"	"	"	"	
1,3-Dichlorobenzene	ND	5.0	"		"	"	"	"	
1,4-Dichlorobenzene	ND	5.0	"		"	"	"	"	
Dichlorodifluoromethane	ND	5.0	"		"	"	"	"	
1,1-Dichloroethane	ND	5.0	"		"	"	"	"	
1,2-Dichloroethane	ND	5.0	"		"	"	"	"	
1,1-Dichloroethene	ND	5.0	"		"	"	"	"	
cis-1,2-Dichloroethene	ND	5.0	"		"	"	"	"	
trans-1,2-Dichloroethene	ND	5.0	"		"	"	"	"	
1,2-Dichloropropane	ND	5.0	"		"	"	"	"	
1,3-Dichloropropane	ND	5.0	"		"	"	"	"	
2,2-Dichloropropane	ND	5.0	"		"	"	"	"	
1,1-Dichloropropene	ND	5.0	"		"	"	"	"	
cis-1,3-Dichloropropene	ND	5.0	"		"	"	"	"	
trans-1,3-Dichloropropene	ND	5.0	"		"	"	"	"	
Ethylbenzene	ND	5.0	"		"	"	"	"	
Hexachlorobutadiene	ND	5.0	"		"	"	"	"	
Isopropylbenzene	ND	5.0	"		"	"	"	"	
p-Isopropyltoluene	ND	5.0	"		"	"	"	"	
Methylene chloride	ND	5.0	"		"	"	"	"	
	ND	5.0							
Mearns Consulting Corporation Project: City of Signal Hill 738 Ashland Avenue Project Number: Las Brisas Reported: Santa Monica CA, 90405 Project Manager: Susan Mearns 04/12/05 14:01 Volatile Organic Compounds by EPA Method 8260B Sierra Analytical Labs, Inc. Reporting Analyte Result Limit Units Dilution Batch Prepared Analyzed Method Notes

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB4-5 (0504072-14) Soil	Sampled: 04/04/05 10:40	Received: 04/0							
Naphthalene	ND	5.0	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B	
n-Propylbenzene	ND	5.0	"	"	"	"		"	
Styrene	ND	5.0	"	"	"	"		"	
1,1,1,2-Tetrachloroethane	ND	5.0	"		"	"		"	
1,1,2,2-Tetrachloroethane	ND	5.0	"	"	"	"		"	
Tetrachloroethene	ND	5.0	"	"	"	"		"	
Toluene	ND	5.0		"	"	"		"	
1,2,3-Trichlorobenzene	ND	5.0		"	"	"		"	
1,2,4-Trichlorobenzene	ND	5.0		"	"	"		"	
1,1,1-Trichloroethane	ND	5.0		"	"	"		"	
1,1,2-Trichloroethane	ND	5.0		"	"	"		"	
Trichloroethene	ND	5.0	"	"	"	"		"	
Trichlorofluoromethane	ND	5.0	"	"	"	"		"	
1,2,3-Trichloropropane	ND	5.0	"	"	"	"		"	
1,2,4-Trimethylbenzene	ND	5.0	"	"	"	"		"	
1,3,5-Trimethylbenzene	ND	5.0		"	"	"		"	
Vinyl chloride	ND	5.0		"	"	"		"	
m,p-Xylene	ND	5.0		"	"	"		"	
o-Xylene	ND	5.0		"	"	"	"	"	
Surrogate: Dibromofluoron	nethane	104 %	80	0-120	"	"	"	"	
Surrogate: Toluene-d8		97.6 %	8.	1-117	"	"	"	"	
Surrogate: 4-Bromofluorok	penzene	95.5 %	74	4-121	"	"	"	"	
QD 4 10 (050 4053 15) Q. 1		D	04/05 1	4.15					

SB4-10 (0504072-15) Soil Sampled: 04/04/05 10:50 Received: 04/04/05 14:15

Benzene	ND	10	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B
Bromobenzene	ND	10	"	"	"	"		"
Bromochloromethane	ND	10	"	"	"	"		"
Bromodichloromethane	ND	10	"	"	"	"		"
Bromoform	ND	10	"	"	"	"		"
Bromomethane	ND	10	"	"	"	"		"
n-Butylbenzene	ND	10	"	"	"	"		"
sec-Butylbenzene	14	10	"	"	"	"		"
tert-Butylbenzene	ND	10	"	"	"	"		"
Carbon tetrachloride	ND	10	"	"	"	"		"
Chlorobenzene	ND	10	"	"	"	"		"
Chloroethane	ND	10	"	"	"	"		"
Chloroform	ND	10	"	"	"	"		"
Chloromethane	ND	10		"	"	"	"	"
2-Chlorotoluene	ND	10	"	"	"	"		"
4-Chlorotoluene	ND	10	"	"	"	"	"	"
Dibromochloromethane	ND	10	"	"	"	"	"	"

SB4-10 (0504072-15) Soil	Sampled: 04/04/05 10:50	Received: 04/	04/05 14:15	5					
1,2-Dibromo-3-chloropropa	ne ND	10	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B	
1,2-Dibromoethane (EDB)	ND	10	"		"	"	"	"	
Dibromomethane	ND	10	"		"	"	"	"	
1,2-Dichlorobenzene	ND	10	"		"	"	"	"	
1,3-Dichlorobenzene	ND	10	"		"	"	"	"	
1,4-Dichlorobenzene	ND	10	"		"	"	"	"	
Dichlorodifluoromethane	ND	10	"		"	"	"	"	
1,1-Dichloroethane	ND	10	"		"	"	"	"	
1,2-Dichloroethane	ND	10	"		"	"	"	"	
1,1-Dichloroethene	ND	10	"		"	"	"	"	
cis-1,2-Dichloroethene	ND	10	"		"	"	"	"	
trans-1,2-Dichloroethene	ND	10	"		"	"	"	"	
1,2-Dichloropropane	ND	10	"		"	"	"	"	
1,3-Dichloropropane	ND	10	"		"	"	"	"	
2,2-Dichloropropane	ND	10	"		"	"	"	"	
1,1-Dichloropropene	ND	10	"		"	"	"	"	
cis-1,3-Dichloropropene	ND	10	"		"	"	"	"	
trans-1,3-Dichloropropene	ND	10	"		"	"	"	"	
Ethylbenzene	45	10	"	"	"	"	"	"	
Hexachlorobutadiene	ND	10	"		"	"	"	"	
Isopropylbenzene	31	10	"		"	"	"	"	
p-Isopropyltoluene	ND	10	"		"	"	"	"	
Methylene chloride	ND	10	"		"	"	"	"	
Methyl tert-butyl ether	ND	10	"		"	"	"	"	
Naphthalene	28	10	"		"	"	"	"	
n-Propylbenzene	37	10	"		"	"	"	"	
Styrene	ND	10	"		"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	10	"		"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	10	"		"	"	"	"	
Tetrachloroethene	ND	10	"		"	"	"	"	
Toluene	ND	10	"		"	"	"	"	
1,2,3-Trichlorobenzene	ND	10	"		"	"	"	"	
1,2,4-Trichlorobenzene	ND	10	"		"	"	"	"	
1,1,1-Trichloroethane	ND	10	"		"	"	"	"	
1,1,2-Trichloroethane	ND	10	"		"	"	"	"	
Trichloroethene	ND	10	"		"	"	"	"	
Trichlorofluoromethane	ND	10	"		"	"	"	"	
1,2,3-Trichloropropane	ND	10	"		"	"	"	"	
1,2,4-Trimethylbenzene	36	10	"		"	"	"	"	
1,3,5-Trimethylbenzene	ND	10	"		"	"	"	"	
Vinyl chloride	ND	10	"	"	"	"	"	"	



Mearns Consulting Corporation 738 Ashland Avenue Santa Monica CA 20405		Pr Project Nu: Project Mar	Reported: 04/12/05 14:01						
Santa Monica CA, 90405					, Mathad	9360D		04/12/03 1-	+.01
	volatile O	rganic Com Sierra Ar	nalytical	l Labs, I	nc.	8200D			
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB4-10 (0504072-15) Soil Sampled: 04/0	04/05 10:50	Received: 04/	04/05 14:	15					
m,p-Xylene	ND	10	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B	
o-Xylene	ND	10	"	"	"	"		"	
Surrogate: Dibromofluoromethane		106 %	80-	120	"	"	"	"	
Surrogate: Toluene-d8		97.8 %	81-	117	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.7 %	74-	121	"	"	"	"	
SB5-5 (0504072-18) Soil Sampled: 04/04	1/05 11.12 1	Received · 04/0	4/05 14.1	5					
Bangana	ND	0 2	4/03 14.1	1	D5D0712	04/06/05	04/06/05	EDA 9260D	
Bromohongono		0.2 8 2	µg/kg "	1	взр0/12	04/00/03	04/06/03	EPA 8200B	
Bromoshlaramathana		0.2 8 2		"	"	"			
Bromodiableromothene		0.2 8 2		"	"	"			
Bromoform		0.2 8 2		"	"	"			
Bromomethane	ND ND	8.2 8.2			"	"		"	
n Butulhanzana		0.2 8 2		"	"	"		"	
		0.2 8 2		"	"	"		"	
sec-BulyIDenzene		0.2 8 2		"	"	"		"	
Carbon tatrachlarida		8.2 8.2			"	"		"	
Chlorobanzona		8.2 8.2			"	"		"	
Chloroothana		8.2 8.2			"	"		"	
Chloroform		0.2 8 2		"	"	"			
Chloromothana		0.2 8 2		"	"	"			
2 Chlorotaliane		8.2 8.2		"	"	"			
2-Chlorotoluene		8.2		"	"	"			
2-Chiorotoluene		8.2		"	"	"			
1.2 Dibromo 2 oblogomono		0.2 8 2		"	"	"			
1.2 Dibromoethene (EDP)		8.2 8.2			"	"		"	
Dibromomethane		0.2 8 2	"		"	"		"	
1.2 Dichlorohanzana		8.2	"	"	"	"			
1,2-Dichlorobenzene		0.2 8 2	"		"	"	"		
1.4 Dichlorobenzene		8.2	"	"	"	"			
Dichlorodifluoromethane	ND	8.2	"		"	"		"	
1 1-Dichloroethane	ND	8.2	"	"	"	"			
1.2-Dichloroethane	ND	8.2	"	"	"	"		"	
1 1-Dichloroethene	ND	8.2	"		"	"	"	"	
cis-1 2-Dichloroethene	ND	8.2			"			"	
trans-1 2-Dichloroethene	ND	8.2			"			"	
1 2-Dichloropropane	ND	8.2 8.2			"			"	
1 3-Dichloropropane	ND	8.2	"		"	"	"	"	
2.2-Dichloropropane	ND	8.2	"		"	"	"	"	
1.1-Dichloropropene	ND	8.2	"		"	"	"	"	
cis-1,3-Dichloropropene	ND	8.2	"		"	"	"	"	

5B5-5 (0504072-18) Soil Sampled: 04/04/05 11:12 Received: 04/04/05 14:15												
trans-1,3-Dichloropropene	ND	8.2	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B				
Ethylbenzene	ND	8.2	"	"	"	"		"				
Hexachlorobutadiene	ND	8.2	"	"	"	"	"	"				
Isopropylbenzene	ND	8.2	"	"	"	"		"				
p-Isopropyltoluene	ND	8.2	"	"	"	"		"				
Methylene chloride	ND	8.2	"	"	"	"	"	"				
Methyl tert-butyl ether	ND	8.2	"	"	"	"	"	"				
Naphthalene	ND	8.2	"	"	"	"		"				
n-Propylbenzene	ND	8.2	"	"	"	"		"				
Styrene	ND	8.2	"	"	"	"		"				
1,1,1,2-Tetrachloroethane	ND	8.2	"	"	"	"		"				
1,1,2,2-Tetrachloroethane	ND	8.2	"	"	"	"		"				
Tetrachloroethene	ND	8.2	"	"	"	"		"				
Toluene	ND	8.2	"	"	"	"		"				
1,2,3-Trichlorobenzene	ND	8.2	"	"	"	"		"				
1,2,4-Trichlorobenzene	ND	8.2	"	"	"	"		"				
1,1,1-Trichloroethane	ND	8.2	"	"	"	"		"				
1,1,2-Trichloroethane	ND	8.2	"	"	"	"		"				
Trichloroethene	ND	8.2	"	"	"	"		"				
Trichlorofluoromethane	ND	8.2	"	"	"	"		"				
1,2,3-Trichloropropane	ND	8.2	"	"	"	"		"				
1,2,4-Trimethylbenzene	ND	8.2	"	"	"	"		"				
1,3,5-Trimethylbenzene	ND	8.2	"	"	"	"		"				
Vinyl chloride	ND	8.2	"	"	"	"	"	"				
m,p-Xylene	ND	8.2	"	"	"	"	"	"				
o-Xylene	ND	8.2		"	"	"	"	"				
Surrogate: Dibromofluoromethane		105 %	80	-120	"	"	"	"				
Surrogate: Toluene-d8		98.1 %	81	-117	"	"	"	"				
Surrogate: 4-Bromofluorobenzene		94.6 %	74	-121	"	"	"	"				

SB5-10 (0504072-19) Soil	Sampled: 04/04/05 11:15	Received: 04/	04/05 14:15						
Benzene	ND	6.2	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B	
Bromobenzene	ND	6.2	"	"	"	"	"	"	
Bromochloromethane	ND	6.2		"	"	"	"	"	
Bromodichloromethane	ND	6.2		"	"	"	"	"	
Bromoform	ND	6.2		"	"	"	"	"	
Bromomethane	ND	6.2	"	"	"	"	"	"	
n-Butylbenzene	ND	6.2		"	"	"	"	"	
sec-Butylbenzene	ND	6.2		"	"	"	"	"	
tert-Butylbenzene	ND	6.2		"	"	"	"	"	
Carbon tetrachloride	ND	6.2		"	"	"	"	"	
Chlorobenzene	ND	6.2		"	"	"	"	"	
Chloroethane	ND	6.2		"	"	"	"	"	
Chloroform	ND	6.2		"	"	"	"	"	
Chloromethane	ND	6.2		"	"	"	"	"	
2-Chlorotoluene	ND	6.2		"	"	"	"	"	
4-Chlorotoluene	ND	6.2		"	"	"	"	"	
Dibromochloromethane	ND	6.2		"	"	"	"	"	
1,2-Dibromo-3-chloropropar	ne ND	6.2		"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	6.2		"	"	"	"	"	
Dibromomethane	ND	6.2		"	"	"	"	"	
1,2-Dichlorobenzene	ND	6.2		"	"	"	"	"	
1,3-Dichlorobenzene	ND	6.2	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	6.2		"	"	"	"	"	
Dichlorodifluoromethane	ND	6.2		"	"	"	"	"	
1,1-Dichloroethane	ND	6.2	"	"	"	"	"	"	
1,2-Dichloroethane	ND	6.2		"	"	"	"	"	
1,1-Dichloroethene	ND	6.2		"	"	"	"	"	
cis-1,2-Dichloroethene	ND	6.2		"	"	"	"	"	
trans-1,2-Dichloroethene	ND	6.2		"	"	"	"	"	
1,2-Dichloropropane	ND	6.2		"	"	"	"	"	
1,3-Dichloropropane	ND	6.2		"	"	"	"	"	
2,2-Dichloropropane	ND	6.2		"	"	"	"	"	
1,1-Dichloropropene	ND	6.2		"	"	"	"	"	
cis-1,3-Dichloropropene	ND	6.2		"	"	"	"	"	
trans-1,3-Dichloropropene	ND	6.2		"	"	"	"	"	
Ethylbenzene	ND	6.2		"	"	"	"	"	
Hexachlorobutadiene	ND	6.2	"	"	"	"	"	"	
Isopropylbenzene	ND	6.2	"	"	"	"	"	"	
p-Isopropyltoluene	ND	6.2		"	"	"	"	"	
Methylene chloride	ND	6.2	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	6.2	"	"	"	"	"	"	
5									

Mearns Consulting CorporationProject:City of Signal Hill738 Ashland AvenueProject Number:Las BrisasReported:Santa Monica CA, 90405Project Manager:Susan Mearns04/12/05 14:01Volatile Organic Compounds by EPA Method 8260BSierra Analytical Labs, Inc.Reporting

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB5-10 (0504072-19) Soil	Sampled: 04/04/05 11:15	Received: 04/	04/05 14	:15					
Naphthalene	ND	6.2	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B	
n-Propylbenzene	ND	6.2	"	"	"	"		"	
Styrene	ND	6.2	"	"	"	"		"	
1,1,1,2-Tetrachloroethane	ND	6.2	"	"	"	"		"	
1,1,2,2-Tetrachloroethane	ND	6.2	"	"	"	"		"	
Tetrachloroethene	ND	6.2	"	"	"	"		"	
Toluene	6.2	6.2	"	"	"	"		"	
1,2,3-Trichlorobenzene	ND	6.2	"	"	"	"		"	
1,2,4-Trichlorobenzene	ND	6.2	"	"	"	"		"	
1,1,1-Trichloroethane	ND	6.2	"	"	"	"		"	
1,1,2-Trichloroethane	ND	6.2	"	"	"	"		"	
Trichloroethene	ND	6.2	"	"	"	"		"	
Trichlorofluoromethane	ND	6.2	"	"	"	"		"	
1,2,3-Trichloropropane	ND	6.2	"	"	"	"		"	
1,2,4-Trimethylbenzene	ND	6.2	"	"	"	"		"	
1,3,5-Trimethylbenzene	ND	6.2	"	"	"	"		"	
Vinyl chloride	ND	6.2	"	"	"	"		"	
m,p-Xylene	ND	6.2	"	"	"	"		"	
o-Xylene	ND	6.2	"	"	"	"	"	"	
Surrogate: Dibromofluoron	ıethane	104 %	80)-120	"	"	"	"	
Surrogate: Toluene-d8		98.7 %	81	-117	"	"	"	"	
Surrogate: 4-Bromofluorob	enzene	94.3 %	74	-121	"	"	"	"	
-	~								

SB6-5 (0504072-22) Soil Sampled: 04/04/05 11:39 Received: 04/04/05 14:15

Benzene	ND	4.2	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B
Bromobenzene	ND	4.2	"	"	"	"		"
Bromochloromethane	ND	4.2	"	"	"	"		"
Bromodichloromethane	ND	4.2	"	"	"	"		"
Bromoform	ND	4.2	"	"	"	"		"
Bromomethane	ND	4.2	"	"	"	"		"
n-Butylbenzene	ND	4.2	"	"	"	"		"
sec-Butylbenzene	ND	4.2	"	"	"	"		"
tert-Butylbenzene	ND	4.2	"	"	"	"		"
Carbon tetrachloride	ND	4.2	"	"	"	"		"
Chlorobenzene	ND	4.2	"	"	"	"		"
Chloroethane	ND	4.2	"	"	"	"		"
Chloroform	ND	4.2	"	"	"	"		"
Chloromethane	ND	4.2	"	"	"	"		"
2-Chlorotoluene	ND	4.2	"	"	"	"		"
4-Chlorotoluene	ND	4.2	"	"	"	"		"
Dibromochloromethane	ND	4.2	"	"	"	"	"	"

SB6-5 (0504072-22) Soil	Sampled: 04/04/05 11:39	Received: 04/0	4/05 14:15						
1,2-Dibromo-3-chloropropa	nne ND	4.2	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B	
1,2-Dibromoethane (EDB)	ND	4.2	"		"	"	"	"	
Dibromomethane	ND	4.2	"		"	"	"	"	
1,2-Dichlorobenzene	ND	4.2	"		"	"	"	"	
1,3-Dichlorobenzene	ND	4.2	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	4.2	"		"	"	"	"	
Dichlorodifluoromethane	ND	4.2	"	"	"	"	"	"	
1,1-Dichloroethane	ND	4.2	"		"	"	"	"	
1,2-Dichloroethane	ND	4.2	"		"	"	"	"	
1,1-Dichloroethene	ND	4.2		"	"	"	"	"	
cis-1,2-Dichloroethene	ND	4.2		"	"	"	"	"	
trans-1,2-Dichloroethene	ND	4.2	"		"	"	"	"	
1,2-Dichloropropane	ND	4.2	"		"	"	"	"	
1,3-Dichloropropane	ND	4.2		"	"	"	"	"	
2,2-Dichloropropane	ND	4.2	"		"	"	"	"	
1,1-Dichloropropene	ND	4.2	"		"	"	"	"	
cis-1,3-Dichloropropene	ND	4.2	"		"	"	"	"	
trans-1,3-Dichloropropene	ND	4.2		"	"	"	"	"	
Ethylbenzene	ND	4.2	"		"	"	"	"	
Hexachlorobutadiene	ND	4.2	"	"	"	"	"	"	
Isopropylbenzene	ND	4.2	"		"	"	"		
p-Isopropyltoluene	ND	4.2	"		"	"	"	"	
Methylene chloride	ND	4.2	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	4.2	"		"	"	"		
Naphthalene	ND	4.2	"		"	"	"		
n-Propylbenzene	ND	4.2	"		"	"	"		
Styrene	ND	4.2	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	4.2	"		"	"	"		
1,1,2,2-Tetrachloroethane	ND	4.2	"	"	"	"	"	"	
Tetrachloroethene	ND	4.2	"	"	"	"	"	"	
Toluene	ND	4.2	"		"	"	"		
1,2,3-Trichlorobenzene	ND	4.2	"		"	"	"		
1,2,4-Trichlorobenzene	ND	4.2	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	4.2	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	4.2	"	"	"	"	"	"	
Trichloroethene	ND	4.2	"	"	"	"	"	"	
Trichlorofluoromethane	ND	4.2	"		"	"	"	"	
1,2,3-Trichloropropane	ND	4.2	"		"	"	"	"	
1,2,4-Trimethylbenzene	ND	4.2		"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	4.2	"	"	"	"	"	"	
Vinyl chloride	ND	4.2		"	"		"	"	



Mearns Consulting Corpo 738 Ashland Avenue	ration	Pr Project Nu	oject: Cit mber: Las		Reported:						
Santa Monica CA, 90405		Project Mar	nager: Sus	an Mearns	5			04/12/05 14:01			
	Volatile O	rganic Com	pounds	by EPA	Method	8260B					
		Sierra Aı	nalytical	l Labs, I	nc.						
		Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes		
SB6-5 (0504072-22) Soil	Sampled: 04/04/05 11:39	Received: 04/0	4/05 14:1:	5							
m,p-Xylene	ND	4.2	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B			
o-Xylene	ND	4.2	"	"	"	"					
Surrogate: Dibromofluoron	iethane	105 %	80-	120	"	"	"	"			
Surrogate: Toluene-d8		98.3 %	81-	117	"	"	"	"			
Surrogate: 4-Bromofluorob	enzene	94.3 %	74-	121	"	"	"	"			
SB6-10 (0504072-23) Soil	Sampled: 04/04/05 11:44	Received: 04/	04/05 14:	15							
Benzene	ND	7.4	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B			
Bromobenzene	ND	7.4	"	"	"	"	"	"			
Bromochloromethane	ND	7.4	"	"	"	"	"	"			
Bromodichloromethane	ND	7.4	"	"	"	"		"			
Bromoform	ND	7.4	"	"	"	"		"			
Bromomethane	ND	7.4	"	"	"	"	"	"			
n-Butylbenzene	ND	7.4	"	"	"	"	"	"			
sec-Butylbenzene	ND	7.4	"	"	"	"					
tert-Butylbenzene	ND	7.4	"	"	"	"					
Carbon tetrachloride	ND	7.4	"	"	"	"					
Chlorobenzene	ND	7.4	"	"	"	"	"	"			
Chloroethane	ND	7.4	"	"	"	"	"	"			
Chloroform	ND	7.4	"	"	"	"		"			
Chloromethane	ND	7.4	"	"	"	"	"	"			
2-Chlorotoluene	ND	7.4	"	"	"	"		"			
4-Chlorotoluene	ND	7.4	"	"	"	"		"			
Dibromochloromethane	ND	7.4	"	"	"	"	"	"			
1,2-Dibromo-3-chloropropa	ne ND	7.4	"	"	"	"		"			
1,2-Dibromoethane (EDB)	ND	7.4	"	"	"	"		"			
Dibromomethane	ND	7.4	"	"	"	"		"			
1,2-Dichlorobenzene	ND	7.4	"	"	"	"					
1,3-Dichlorobenzene	ND	7.4	"	"	"	"		"			
1,4-Dichlorobenzene	ND	7.4	"	"	"	"	"	"			
Dichlorodifluoromethane	ND	7.4	"	"	"	"	"	"			
1,1-Dichloroethane	ND	7.4	"	"	"	"	"	"			
1,2-Dichloroethane	ND	7.4						"			
1,1-Dichloroethene	ND	7.4									
cis-1,2-Dichloroethene	ND	7.4									
trans-1,2-Dichloroethene	ND	7.4									
1,2-Dichloropropane	ND	7.4									
1,3-Dichloropropane	ND	1.4									
2,2-Dichloropropane	ND	1.4									
ais 1.2 Diableropropene	ND	1.4						"			
cis-1,5-Dichloropropene	ND	7.4									

SB6-10 (0504072-23) Soil	Sampled: 04/04/05 11:44	Received: 04/	04/05 14:1:	5					
trans-1,3-Dichloropropene	ND	7.4	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B	
Ethylbenzene	ND	7.4	"	"	"	"	"	"	
Hexachlorobutadiene	ND	7.4	"	"	"	"	"	"	
Isopropylbenzene	ND	7.4	"	"	"	"	"	"	
p-Isopropyltoluene	ND	7.4	"	"	"	"	"	"	
Methylene chloride	ND	7.4	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	7.4	"	"	"	"	"	"	
Naphthalene	ND	7.4	"	"	"	"	"	"	
n-Propylbenzene	ND	7.4	"	"	"	"	"	"	
Styrene	ND	7.4	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	7.4	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	7.4	"	"	"	"		"	
Tetrachloroethene	ND	7.4	"	"	"	"		"	
Toluene	ND	7.4	"	"	"	"		"	
1,2,3-Trichlorobenzene	ND	7.4	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	7.4	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	7.4	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	7.4	"	"	"	"		"	
Trichloroethene	ND	7.4	"	"	"	"		"	
Trichlorofluoromethane	ND	7.4	"	"	"	"		"	
1,2,3-Trichloropropane	ND	7.4	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	7.4	"	"	"	"		"	
1,3,5-Trimethylbenzene	ND	7.4	"	"	"	"		"	
Vinyl chloride	ND	7.4	"	"	"	"		"	
m,p-Xylene	ND	7.4	"	"	"	"		"	
o-Xylene	ND	7.4	"	"	"	"	"	"	
Surrogate: Dibromofluoron	nethane	106 %	80-1	20	"	"	"	"	
Surrogate: Toluene-d8		98.1 %	81-1	17	"	"	"	"	
Surrogate: 4-Bromofluorob	enzene	93.8 %	74-1	21	"	"	"	"	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Mearns Consulting Corporation

Benzene	ND	4.3	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B	
Bromobenzene	ND	4.3	"	"	"	"	"	"	
Bromochloromethane	ND	4.3	"	"	"	"	"	"	
Bromodichloromethane	ND	4.3	"	"	"	"	"	"	
Bromoform	ND	4.3	"	"	"	"	"	"	
Bromomethane	ND	4.3	"	"	"	"	"	"	
n-Butylbenzene	ND	4.3		"	"	"	"	"	
sec-Butylbenzene	ND	4.3	"	"	"	"	"	"	
tert-Butylbenzene	ND	4.3	"	"	"	"	"	"	
Carbon tetrachloride	ND	4.3	"	"	"	"	"	"	
Chlorobenzene	ND	4.3	"	"	"	"	"	"	
Chloroethane	ND	4.3	"	"	"	"	"	"	
Chloroform	ND	4.3	"	"	"	"	"	"	
Chloromethane	ND	4.3	"	"	"	"	"	"	
2-Chlorotoluene	ND	4.3	"	"	"	"	"	"	
4-Chlorotoluene	ND	4.3	"	"	"	"	"	"	
Dibromochloromethane	ND	4.3	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	4.3	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	4.3	"	"	"	"	"	"	
Dibromomethane	ND	4.3	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	4.3	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	4.3	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	4.3	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	4.3	"	"	"	"	"	"	
1,1-Dichloroethane	ND	4.3	"	"	"	"	"	"	
1,2-Dichloroethane	ND	4.3	"	"	"	"	"	"	
1,1-Dichloroethene	ND	4.3	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	4.3	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	4.3	"	"	"	"	"	"	
1,2-Dichloropropane	ND	4.3	"	"	"	"	"	"	
1,3-Dichloropropane	ND	4.3	"	"	"	"	"	"	
2,2-Dichloropropane	ND	4.3	"	"	"	"	"	"	
1,1-Dichloropropene	ND	4.3	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	4.3	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	4.3	"	"	"	"	"	"	
Ethylbenzene	ND	4.3	"	"	"	"	"	"	
Hexachlorobutadiene	ND	4.3	"	"	"	"	"	"	
Isopropylbenzene	ND	4.3	"	"	"	"	"	"	
p-Isopropyltoluene	ND	4.3		"	"	"	"	"	
Methylene chloride	ND	4.3		"	"	"	"	"	
Methyl tert-butyl ether	ND	4.3		"	"	"	"	"	
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Mearns Consulting Corporation Project: City of Signal Hill 738 Ashland Avenue Project Number: Las Brisas Reported: Santa Monica CA, 90405 Project Manager: Susan Mearns 04/12/05 14:01 Volatile Organic Compounds by EPA Method 8260B Sierra Analytical Labs, Inc. Reporting Analyte Result Limit Units Dilution Batch Prepared Analyzed Method Notes

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB7-5 (0504072-26) Soil	Sampled: 04/04/05 12:13	Received: 04/0	4/05 14:1	15					
Naphthalene	ND	4.3	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B	
n-Propylbenzene	ND	4.3		"	"	"		"	
Styrene	ND	4.3	"	"	"	"		"	
1,1,1,2-Tetrachloroethane	ND	4.3	"	"	"	"		"	
1,1,2,2-Tetrachloroethane	ND	4.3	"	"	"	"		"	
Tetrachloroethene	ND	4.3	"	"	"	"		"	
Toluene	ND	4.3		"	"	"		"	
1,2,3-Trichlorobenzene	ND	4.3		"	"	"		"	
1,2,4-Trichlorobenzene	ND	4.3		"	"	"	"	"	
1,1,1-Trichloroethane	ND	4.3		"	"	"	"	"	
1,1,2-Trichloroethane	ND	4.3	"	"	"	"		"	
Trichloroethene	ND	4.3	"	"	"	"		"	
Trichlorofluoromethane	ND	4.3	"	"	"	"		"	
1,2,3-Trichloropropane	ND	4.3	"	"	"	"		"	
1,2,4-Trimethylbenzene	ND	4.3	"	"	"	"		"	
1,3,5-Trimethylbenzene	ND	4.3	"	"	"	"		"	
Vinyl chloride	ND	4.3	"	"	"	"		"	
m,p-Xylene	ND	4.3	"	"	"	"		"	
o-Xylene	ND	4.3	"	"	"	"	"	"	
Surrogate: Dibromofluoron	nethane	104 %	80	-120	"	"	"	"	
Surrogate: Toluene-d8		97.4 %	81	-117	"	"	"	"	
Surrogate: 4-Bromofluorol	benzene	94.1 %	74	-121	"	"	"	"	

SB7-10 (0504072-27) Soil Sampled: 04/04/05 12:17 Received: 04/04/05 14:15

Benzene	ND	14	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B
Bromobenzene	ND	14	"	"	"	"	"	"
Bromochloromethane	ND	14	"	"	"	"	"	"
Bromodichloromethane	ND	14	"	"	"	"	"	"
Bromoform	ND	14	"	"	"	"	"	"
Bromomethane	ND	14	"	"	"	"	"	"
n-Butylbenzene	ND	14	"	"	"	"	"	"
sec-Butylbenzene	ND	14	"	"	"	"	"	"
tert-Butylbenzene	ND	14	"	"	"	"	"	"
Carbon tetrachloride	ND	14	"	"	"	"	"	"
Chlorobenzene	ND	14	"	"	"	"	"	"
Chloroethane	ND	14	"	"	"	"	"	"
Chloroform	ND	14	"	"	"	"	"	"
Chloromethane	ND	14	"	"	"	"	"	"
2-Chlorotoluene	ND	14	"	"	"	"	"	"
4-Chlorotoluene	ND	14	"	"	"	"	"	"
Dibromochloromethane	ND	14	"	"	"	"	"	"

SB7-10 (0504072-27) Soil	Sampled: 04/04/05 12:17	Received: 04/	04/05 14:15						
1,2-Dibromo-3-chloropropa	ne ND	14	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B	
1,2-Dibromoethane (EDB)	ND	14	"	"	"	"	"	"	
Dibromomethane	ND	14	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	14	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	14	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	14	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	14	"	"	"	"		"	
1,1-Dichloroethane	ND	14	"	"	"	"	"	"	
1,2-Dichloroethane	ND	14	"	"	"	"	"	"	
1,1-Dichloroethene	ND	14	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	14	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	14	"	"	"	"	"	"	
1,2-Dichloropropane	ND	14	"	"	"	"	"	"	
1,3-Dichloropropane	ND	14	"	"	"	"	"	"	
2,2-Dichloropropane	ND	14	"	"	"	"	"	"	
1,1-Dichloropropene	ND	14	"	"	"	"		"	
cis-1,3-Dichloropropene	ND	14	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	14	"	"	"	"	"	"	
Ethylbenzene	ND	14	"	"	"	"	"	"	
Hexachlorobutadiene	ND	14	"	"	"	"	"	"	
Isopropylbenzene	ND	14	"	"	"	"	"	"	
p-Isopropyltoluene	ND	14	"	"	"	"		"	
Methylene chloride	ND	14	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	14	"	"	"	"	"	"	
Naphthalene	ND	14	"	"	"	"	"	"	
n-Propylbenzene	ND	14	"	"	"	"	"	"	
Styrene	ND	14	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	14	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	14	"	"	"	"	"	"	
Tetrachloroethene	ND	14	"	"	"	"	"	"	
Toluene	ND	14	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	14	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	14	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	14	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	14	"	"	"	"	"	"	
Trichloroethene	ND	14	"	"	"	"	"	"	
Trichlorofluoromethane	ND	14	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	14	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	14	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	14	"	"	"	"	"	"	
Vinyl chloride	ND	14	"	"		"	"	"	





Mearns Consulting Corpo 738 Ashland Avenue Santa Monica CA, 90405	oration	Pr Project Nu Project Mar	oject: Cit mber: Las nager: Sus	y of Signa Brisas an Mearns	al Hill			Reported 04/12/05 14	: 4:01
	Volatile O	rganic Com	pounds	by EPA	Method	8260B			
		Sierra Ar	nalytical	Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB7-10 (0504072-27) Soil	Sampled: 04/04/05 12:17	Received: 04/	04/05 14:	15					
m,p-Xylene o-Xylene	ND ND	14 14	µg/kg "	1 "	B5D0712 "	04/06/05	04/06/05	EPA 8260B	
Surrogate: Dibromofluoro Surrogate: Toluene-d8	methane	106 % 98.5 %	80- 81-	120 117	"	"	"	"	
Surrogate: 4-Bromofluorol	Somplod: 04/04/05 12:42	95.6 % Baasiyad: 04/0	74	121 5			,,	"	
5D8-5 (0504072-50) 5011	Sampleu: 04/04/05 12:42	Keceiveu: 04/0	4/05 14:1:	5	D5D0510	04/06/05	04/05/05		
Benzene Bromobenzene	ND	4.0	µg/kg "	1	B5D0/12	04/06/05	04/06/05	EPA 8260B "	
Bromochloromethane	ND	4.0	"	"					
Bromodichloromethane	ND	4.0	"	"		"			
Bromoform	ND	4.0	"	"			"		
Bromomethane	ND	4.0	"						
n-Butylbenzene	ND	4.0	"	"			"	"	
sec-Butylbenzene	ND	4.0	"	"			"	"	
tert-Butylbenzene	ND	4.0	"	"		"	"	"	
Carbon tetrachloride	ND	4.0	"	"		"	"	"	
Chlorobenzene	ND	4.0	"	"			"	"	
Chloroethane	ND	4.0	"	"		"	"	"	
Chloroform	ND	4.0	"	"		"		"	
Chloromethane	ND	4.0	"	"		"		"	
2-Chlorotoluene	ND	4.0	"	"		"	"	"	
4-Chlorotoluene	ND	4.0	"	"		"	"	"	
Dibromochloromethane	ND	4.0	"	"		"		"	
1,2-Dibromo-3-chloroprop	ane ND	4.0	"	"	"	"		"	
1,2-Dibromoethane (EDB)	ND	4.0	"	"		"		"	
Dibromomethane	ND	4.0	"	"		"	"	"	
1,2-Dichlorobenzene	ND	4.0	"	"	"	"		"	
1,3-Dichlorobenzene	ND	4.0	"	"	"	"		"	
1,4-Dichlorobenzene	ND	4.0	"	"	"	"		"	
Dichlorodifluoromethane	ND	4.0	"	"	"	"	"	"	
1,1-Dichloroethane	ND	4.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	4.0	"	"	"	"	"	"	
1,1-Dichloroethene	ND	4.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	4.0	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	4.0	"	"	"	"	"	"	
1,2-Dichloropropane	ND	4.0	"	"	"	"	"	"	
1,3-Dichloropropane	ND	4.0	"	"	"	"	"	"	
2,2-Dichloropropane	ND	4.0	"	"	"	"	"	"	
1,1-Dichloropropene	ND	4.0	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	4.0	"			"		"	

SB8-5 (0504072-30) Soil	Sampled: 04/04/05 12:42	Received: 04/0	4/05 14:1	5					
trans-1,3-Dichloropropene	ND	4.0	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B	
Ethylbenzene	ND	4.0	"	"	"	"	"	"	
Hexachlorobutadiene	ND	4.0	"	"	"	"	"	"	
Isopropylbenzene	ND	4.0	"	"	"	"	"	"	
p-Isopropyltoluene	ND	4.0	"	"	"	"	"	"	
Methylene chloride	ND	4.0	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	4.0	"	"	"	"	"	"	
Naphthalene	ND	4.0	"	"	"	"	"	"	
n-Propylbenzene	ND	4.0	"	"	"	"	"	"	
Styrene	ND	4.0	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	4.0	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	4.0	"	"	"	"	"	"	
Tetrachloroethene	ND	4.0	"	"	"	"	"	"	
Toluene	ND	4.0	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	4.0	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	4.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	4.0	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	4.0	"	"	"	"	"	"	
Trichloroethene	ND	4.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	4.0	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	4.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	4.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	4.0	"	"	"	"	"	"	
Vinyl chloride	ND	4.0	"	"	"	"	"	"	
m,p-Xylene	ND	4.0	"	"	"	"	"	"	
o-Xylene	ND	4.0	"	"	"	"	"	"	
Surrogate: Dibromofluoron	nethane	104 %	80-	120	"	"	"	"	
Surrogate: Toluene-d8		98.8 %	81-	117	"	"	"	"	
Surrogate: 4-Bromofluorol	penzene	93.1 %	74-	121	"	"	"	"	

SB8-10 (0504072-31) Soil	Sampled: 04/04/05 12:44	Received: 04/	04/05 14:15						
Benzene	ND	4.1	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B	
Bromobenzene	ND	4.1	"	"	"	"	"	"	
Bromochloromethane	ND	4.1	"	"	"	"	"	"	
Bromodichloromethane	ND	4.1		"	"	"		"	
Bromoform	ND	4.1		"	"	"		"	
Bromomethane	ND	4.1		"	"	"		"	
n-Butylbenzene	ND	4.1		"	"	"		"	
sec-Butylbenzene	ND	4.1		"	"	"		"	
tert-Butylbenzene	ND	4.1		"	"	"		"	
Carbon tetrachloride	ND	4.1	"	"	"	"	"	"	
Chlorobenzene	ND	4.1		"	"	"		"	
Chloroethane	ND	4.1		"	"	"		"	
Chloroform	ND	4.1		"	"	"		"	
Chloromethane	ND	4.1		"	"	"		"	
2-Chlorotoluene	ND	4.1		"	"	"		"	
4-Chlorotoluene	ND	4.1	"	"	"	"	"	"	
Dibromochloromethane	ND	4.1		"	"	"		"	
1,2-Dibromo-3-chloropropar	ne ND	4.1		"	"	"		"	
1,2-Dibromoethane (EDB)	ND	4.1		"	"	"		"	
Dibromomethane	ND	4.1		"	"	"		"	
1,2-Dichlorobenzene	ND	4.1		"	"	"		"	
1,3-Dichlorobenzene	ND	4.1		"	"	"		"	
1,4-Dichlorobenzene	ND	4.1	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	4.1		"	"	"		"	
1,1-Dichloroethane	ND	4.1		"	"	"		"	
1,2-Dichloroethane	ND	4.1		"	"	"	"	"	
1,1-Dichloroethene	ND	4.1		"	"	"	"	"	
cis-1,2-Dichloroethene	ND	4.1		"	"	"	"	"	
trans-1,2-Dichloroethene	ND	4.1		"	"	"	"	"	
1,2-Dichloropropane	ND	4.1		"	"	"	"	"	
1,3-Dichloropropane	ND	4.1		"	"	"	"	"	
2,2-Dichloropropane	ND	4.1		"	"	"	"	"	
1,1-Dichloropropene	ND	4.1		"	"	"	"	"	
cis-1,3-Dichloropropene	ND	4.1		"	"	"	"	"	
trans-1,3-Dichloropropene	ND	4.1		"	"	"		"	
Ethylbenzene	ND	4.1	"	"	"	"	"	"	
Hexachlorobutadiene	ND	4.1		"	"	"	"	"	
Isopropylbenzene	ND	4.1		"	"	"	"	"	
p-Isopropyltoluene	ND	4.1	"	"	"	"	"	"	
Methylene chloride	ND	4.1	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	4.1	"	"		"	"	"	



SB8-10 (0504072-31) Soil	Sampled: 04/04/05 12:44	Received: 04/	04/05 14:15	5					
Naphthalene	ND	4.1	µg/kg	1	B5D0712	04/06/05	04/06/05	EPA 8260B	
n-Propylbenzene	ND	4.1	"	"	"	"	"		
Styrene	ND	4.1	"	"	"	"			
1,1,1,2-Tetrachloroethane	ND	4.1	"	"	"	"			
1,1,2,2-Tetrachloroethane	ND	4.1	"	"	"	"	"		
Tetrachloroethene	ND	4.1	"	"	"	"		"	
Toluene	ND	4.1	"	"	"	"	"		
1,2,3-Trichlorobenzene	ND	4.1	"	"	"	"	"		
1,2,4-Trichlorobenzene	ND	4.1	"	"	"	"	"		
1,1,1-Trichloroethane	ND	4.1	"	"	"	"		"	
1,1,2-Trichloroethane	ND	4.1	"	"	"	"		"	
Trichloroethene	ND	4.1	"	"	"	"		"	
Trichlorofluoromethane	ND	4.1	"	"	"	"		"	
1,2,3-Trichloropropane	ND	4.1	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	4.1	"	"	"	"		"	
1,3,5-Trimethylbenzene	ND	4.1	"	"	"	"		"	
Vinyl chloride	ND	4.1	"	"	"	"		"	
m,p-Xylene	ND	4.1	"	"	"	"		"	
o-Xylene	ND	4.1	"	"	"	"	"	"	
Surrogate: Dibromofluoron	nethane	106 %	80-12	20	"	"	"	"	
Surrogate: Toluene-d8		97.6 %	81-1	17	"	"	"	"	
Surrogate: 4-Bromofluorob	enzene	93.5 %	74-12	21	"	"	"	"	



Mearns Consulting Corporation Project: City of Signal Hill 738 Ashland Avenue Project Number: Las Brisas Reported: Santa Monica CA, 90405 Project Manager: Susan Mearns 04/12/05 14:01 Polynuclear Aromatic Hydrocarbons (GC/MS) by EPA 8270C Sierra Analytical Labs, Inc.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB1-5 (0504072-02) Soil	Sampled: 04/04/05 08:37	Received: 04/0	4/05 14:1:	5					
Acenaphthene	ND	0.33	mg/kg	1	B5D0623	04/06/05	04/07/05	EPA 8270C	
Acenaphthylene	ND	0.33	"	"	"	"		"	
Anthracene	ND	0.33	"	"	"	"		"	
Benzo (a) anthracene	ND	0.33	"	"	"	"		"	
Benzo (b) fluoranthene	ND	0.33	"	"	"	"		"	
Benzo (k) fluoranthene	ND	0.33	"	"	"	"		"	
Benzo (a) pyrene	ND	0.33	"	"	"	"		"	
Benzo (g,h,i) perylene	ND	0.33	"	"	"	"		"	
Chrysene	ND	0.33	"	"	"	"		"	
Dibenz (a,h) anthracene	ND	0.33	"	"	"	"		"	
Dibenzofuran	ND	0.33	"	"	"	"		"	
Fluoranthene	ND	0.33	"	"	"	"		"	
Fluorene	ND	0.33	"	"	"	"		"	
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"		"	
2-Methylnaphthalene	ND	0.33	"	"	"	"		"	
Naphthalene	ND	0.33	"	"	"	"		"	
Phenanthrene	ND	0.33	"	"	"	"		"	
Pyrene	ND	0.33	"	"		"	"	"	
Surrogate: Nitrobenzene-d5	ī	59.5 %	23-	120	"	"	"	"	
Surrogate: 2-Fluorobipheny	vl	66.1 %	30-	115	"	"	"	"	
Surrogate: Terphenyl-d14		107 %	18-	137	"	"	"	"	
SB1-10 (0504072-03) Soil	Sampled: 04/04/05 08:45	Received: 04	/04/05 14:1	15					
Acenaphthene	ND	0.33	mg/kg	1	B5D0623	04/06/05	04/07/05	EPA 8270C	
Acenaphthylene	ND	0.33	"	"	"	"	"		
Anthracene	ND	0.33	"	"	"	"		"	
Benzo (a) anthracene	ND	0.33	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.33	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	0.33		"	"	"	"	"	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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0.33

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0.33

ND

Chrysene

Fluorene

Dibenzofuran

Fluoranthene

Naphthalene

Phenanthrene

Pyrene

Dibenz (a,h) anthracene

Indeno (1,2,3-cd) pyrene

2-Methylnaphthalene

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Mearns Consulting Corporatio 738 Ashland Avenue Santa Monica CA, 90405	n	Pr Project Nur Project Mar	oject: Cit mber: Las nager: Sus	y of Sign Brisas an Mearns	al Hill			Reported 04/12/05 14	: 4:01
	Polynuclear A	romatic Hyd	rocarb	ons (GC	/MS) by	EPA 827	0C		
		Sierra An	alytical	Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB1-10 (0504072-03) Soil Sat	mpled: 04/04/05 08:45	Received: 04/	04/05 14:	15					
Surrogate: Nitrobenzene-d5 Surrogate: 2-Fluorobiphenyl Surrogate: Terphenyl-d14		60.7 % 73.9 % 76.0 %	23- 30- 18-	120 115 137	B5D0623 "	04/06/05 "	04/07/05 " "	EPA 8270C "	
SB2-5 (0504072-06) Soil Sam	npled: 04/04/05 09:30	Received: 04/04	4/05 14:1	5					
Acenaphthene	ND	0.33	mø/kø	1	B5D0623	04/06/05	04/07/05	EPA 8270C	
Acenaphthylene	ND	0.33	"	"	"	"	"	"	
Anthracene	ND	0.33		"	"	"	"	"	
Benzo (a) anthracene	ND	0.33		"	"	"		"	
Benzo (b) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.33	"	"	"	"		"	
Benzo (g,h,i) perylene	ND	0.33		"	"	"	"	"	
Chrysene	ND	0.33		"	"	"		"	
Dibenz (a,h) anthracene	ND	0.33		"	"	"		"	
Dibenzofuran	ND	0.33	"	"	"	"		"	
Fluoranthene	ND	0.33	"	"	"	"		"	
Fluorene	ND	0.33	"	"	"	"		"	
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"		"	
2-Methylnaphthalene	ND	0.33	"	"	"	"		"	
Naphthalene	ND	0.33	"	"	"	"		"	
Phenanthrene	ND	0.33	"	"	"	"	"	"	
Pyrene	ND	0.33	"	"	"	"	"	"	
Surrogate: Nitrobenzene-d5		53.5 %	23-	120	"	"	"	"	
Surrogate: 2-Fluorobiphenvl		70.3 %	30-	115	"	"	"	"	
Surrogate: Terphenyl-d14		59.5 %	18-	137	"	"	"	"	

Mearns Consulting CorporationProject:City of Signal Hill738 Ashland AvenueProject Number:Las BrisasReported:Santa Monica CA, 90405Project Manager:Susan Mearns04/12/05 14:01Polynuclear Aromatic Hydrocarbons (GC/MS) by EPA 8270CSierra Analytical Labs, Inc.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB2-10 (0504072-07) Soil	Sampled: 04/04/05 09:35	Received: 04/	04/05 14:	15					
Acenaphthene	ND	0.33	mg/kg	1	B5D0623	04/06/05	04/07/05	EPA 8270C	
Acenaphthylene	ND	0.33	"	"	"	"		"	
Anthracene	ND	0.33	"	"	"	"		"	
Benzo (a) anthracene	ND	0.33	"	"	"	"		"	
Benzo (b) fluoranthene	ND	0.33	"	"	"	"		"	
Benzo (k) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.33		"	"	"	"	"	
Benzo (g,h,i) perylene	ND	0.33		"	"	"		"	
Chrysene	ND	0.33		"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.33	"	"	"	"		"	
Dibenzofuran	ND	0.33		"	"	"	"	"	
Fluoranthene	ND	0.33	"	"	"	"		"	
Fluorene	ND	0.33	"	"	"	"		"	
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"		"	
2-Methylnaphthalene	ND	0.33		"	"	"		"	
Naphthalene	ND	0.33		"	"	"		"	
Phenanthrene	ND	0.33		"	"	"		"	
Pyrene	ND	0.33		"	"	"	"	"	
Surrogate: Nitrobenzene-d5		53.2 %	23-	-120	"	"	"	"	
Surrogate: 2-Fluorobipheny	vl	65.2 %	30-	115	"	"	"	"	
Surrogate: Terphenyl-d14		79.9 %	18-	137	"	"	"	"	
SB3-5 (0504072-10) Soil	Sampled: 04/04/05 10:05	Received: 04/0	4/05 14:1	5					

Acenaphthene	ND	0.33	mg/kg	1	B5D0623	04/06/05	04/07/05	EPA 8270C
Acenaphthylene	ND	0.33	"	"	"	"	"	"
Anthracene	ND	0.33	"	"	"	"	"	"
Benzo (a) anthracene	ND	0.33	"	"	"	"	"	"
Benzo (b) fluoranthene	ND	0.33	"	"	"	"	"	"
Benzo (k) fluoranthene	ND	0.33	"	"	"	"	"	"
Benzo (a) pyrene	ND	0.33	"	"	"	"	"	"
Benzo (g,h,i) perylene	ND	0.33	"	"	"	"	"	"
Chrysene	ND	0.33	"	"	"	"	"	"
Dibenz (a,h) anthracene	ND	0.33	"	"	"	"	"	"
Dibenzofuran	ND	0.33	"	"	"	"	"	"
Fluoranthene	ND	0.33	"	"	"	"	"	"
Fluorene	ND	0.33	"	"	"	"	"	"
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"	"	"
2-Methylnaphthalene	ND	0.33	"	"	"	"	"	"
Naphthalene	ND	0.33	"	"	"	"	"	"
Phenanthrene	ND	0.33	"	"	"	"	"	"
Pyrene	ND	0.33	"	"	"	"	"	"



Mearns Consulting Corporatio 738 Ashland Avenue Santa Monica CA, 90405	Mearns Consulting CorporationProject:City of Signal Hill738 Ashland AvenueProject Number:Las BrisasSanta Monica CA, 90405Project Manager:Susan Mearns										
	Polynuclear An	omatic Hyd	lrocarbo	ons (GC	/MS) by	EPA 827	0C				
		Sierra An	nalytical	Labs, I	nc.						
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes		
SB3-5 (0504072-10) Soil Sam	npled: 04/04/05 10:05	Received: 04/04	4/05 14:15	;							
Surrogate: Nitrobenzene-d5 Surrogate: 2-Fluorobiphenyl Surrogate: Terphenyl-d14		62.2 % 82.6 % 78.7 %	23-1 30-1 18-1	120 115 137	B5D0623 "	04/06/05 " "	04/07/05 "	EPA 8270C "			
SB3-10 (0504072-11) Soil San	mpled: 04/04/05 10:10	Received: 04/	04/05 14:1	5							
Acenaphthene Acenaphthylene	ND ND	0.33 0.33	mg/kg "	1 "	B5D0623 "	04/06/05	04/07/05	EPA 8270C "			
Anthracene Benzo (a) anthracene	ND ND	0.33 0.33		"	"		"	"			
Benzo (b) fluoranthene Benzo (k) fluoranthene	ND ND	0.33 0.33		"		"	"	"			
Benzo (a) pyrene Benzo (g,h,i) perylene	ND ND	0.33						"			
Dibenz (a,h) anthracene	ND ND	0.33		"	"	"	"	"			
Fluorene	ND ND	0.33				"	"				
Indeno (1,2,3-cd) pyrene	ND ND	0.33					"				
Naphthalene Phenanthrene	ND	0.33					"				
Pyrene	ND	0.33	"	"	"	"	"	"			
Surrogate: Nıtrobenzene-d5 Surrogate: 2-Fluorobiphenyl Surrogate: Terphenyl-d14		53.8 % 64.6 % 50.8 %	23-1 30-1 18-1	120 115 137	"	"	" "	"			

Mearns Consulting Corporation Project: City of Signal Hill 738 Ashland Avenue Project Number: Las Brisas Reported: Santa Monica CA, 90405 Project Manager: Susan Mearns 04/12/05 14:01 Polynuclear Aromatic Hydrocarbons (GC/MS) by EPA 8270C Sierra Analytical Labs, Inc.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB4-5 (0504072-14) Soil	Sampled: 04/04/05 10:40	Received: 04/0	4/05 14:1	5					
Acenaphthene	ND	33	mg/kg	100	B5D0623	04/06/05	04/07/05	EPA 8270C	D-34
Acenaphthylene	ND	33	"	"	"	"	"	"	D-34
Anthracene	ND	33	"	"	"	"	"	"	D-34
Benzo (a) anthracene	ND	33	"	"	"	"	"	"	D-34
Benzo (b) fluoranthene	ND	33	"	"	"	"	"	"	D-34
Benzo (k) fluoranthene	ND	33	"	"	"	"	"	"	D-34
Benzo (a) pyrene	ND	33	"	"	"	"	"	"	D-34
Benzo (g,h,i) perylene	ND	33	"	"	"	"	"	"	D-34
Chrysene	ND	33	"	"	"	"	"	"	D-34
Dibenz (a,h) anthracene	ND	33	"	"	"	"	"	"	D-34
Dibenzofuran	ND	33	"	"	"	"	"	"	D-34
Fluoranthene	ND	33	"	"	"	"	"	"	D-34
Fluorene	ND	33	"	"	"	"	"	"	D-34
Indeno (1,2,3-cd) pyrene	ND	33	"	"	"	"	"	"	D-34
2-Methylnaphthalene	ND	33	"	"	"	"	"	"	D-34
Naphthalene	ND	33	"	"	"	"	"	"	D-34
Phenanthrene	ND	33	"	"	"	"	"	"	D-34
Pyrene	ND	33	"	"	"	"	"	"	D-34
Surrogate: Nitrobenzene-d.	5	%	23-	120	"	"	"	"	S-06
Surrogate: 2-Fluorobiphen	yl	%	30-	115	"	"	"	"	S-06
Surrogate: Terphenyl-d14	~	%	18-	137	"	"	"	"	S-06
SB4-10 (0504072-15) Soil	Sampled: 04/04/05 10:50	Received: 04	/04/05 14:	15					
Acenaphthene	ND	0.33	mg/kg	1	B5D0623	04/06/05	04/07/05	EPA 8270C	
Acenaphthylene	ND	0.33	"	"	"	"	"	"	
Anthracene	ND	0.33	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.33	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.33	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	0.33	"	"	"	"	"	"	
Chrysene	ND	0.33	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.33	"	"	"	"	"	"	
Dibenzofuran	ND	0.33	"	"	"	"	"	"	
Fluoranthene	ND	0.33	"	"	"	"	"	"	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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0.33

0.33

0.33

0.33

0.33

0.33

ND

ND

ND

ND

ND

ND

Fluorene

Naphthalene

Phenanthrene

Pyrene

Indeno (1,2,3-cd) pyrene

2-Methylnaphthalene

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Mearns Consulting Corpo 738 Ashland Avenue Santa Monica CA, 90405	ration	Reported: 04/12/05 14:01							
	Polynuclear A	romatic Hyd	rocarb	ons (GC	/MS) by	EPA 827	0C		
		Sierra Ar	alytica	l Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB4-10 (0504072-15) Soil	Sampled: 04/04/05 10:50	Received: 04/	04/05 14:	:15					
Surrogate: Nitrobenzene-d5 Surrogate: 2-Fluorobiphen Surrogate: Terphenyl-d14	5 vI	55.3 % 72.1 % 69.1 %	23- 30- 18-	-120 -115 -137	B5D0623 " "	04/06/05 "	04/07/05 "	EPA 8270C "	
SB5-5 (0504072-18) Soil	Sampled: 04/04/05 11:12	Received: 04/0	4/05 14:1	.5					
Acenaphthene	ND	33	mg/kg	100	B5D0623	04/06/05	04/07/05	EPA 8270C	D-34
Acenaphthylene	ND	33	"	"	"	"	"	"	D-34
Anthracene	ND	33		"	"	"		"	D-34
Benzo (a) anthracene	ND	33		"	"	"		"	D-34
Benzo (b) fluoranthene	ND	33		"	"	"	"	"	D-34
Benzo (k) fluoranthene	ND	33		"	"	"	"	"	D-34
Benzo (a) pyrene	ND	33		"	"	"		"	D-34
Benzo (g,h,i) perylene	ND	33		"	"	"		"	D-34
Chrysene	ND	33		"	"	"		"	D-34
Dibenz (a,h) anthracene	ND	33		"	"	"	"	"	D-34
Dibenzofuran	ND	33	"	"	"	"		"	D-34
Fluoranthene	ND	33		"	"	"	"	"	D-34
Fluorene	ND	33	"	"	"	"		"	D-34
Indeno (1,2,3-cd) pyrene	ND	33		"	"	"	"	"	D-34
2-Methylnaphthalene	ND	33		"	"	"		"	D-34
Naphthalene	ND	33	"	"	"	"	"	"	D-34
Phenanthrene	ND	33	"	"	"	"	"	"	D-34
Pyrene	ND	33	"	"	"	"	"	"	D-34
Surrogate: Nitrobenzene-d5	5	%	23-	-120	"	"	"	"	S-06
Surrogate: 2-Fluorobipheny	yl	%	30-	-115	"	"	"	"	S-06
Surrogate: Terphenyl-d14		%	18-	-137	"	"	"	"	S-06

Mearns Consulting Corporation Project: City of Signal Hill 738 Ashland Avenue Project Number: Las Brisas Reported: Santa Monica CA, 90405 Project Manager: Susan Mearns 04/12/05 14:01 Polynuclear Aromatic Hydrocarbons (GC/MS) by EPA 8270C Sierra Analytical Labs, Inc.

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB5-10 (0504072-19) Soil	Sampled: 04/04/05 11:15	Received: 04/	04/05 14:	15					
Acenaphthene	ND	33	mg/kg	100	B5D0623	04/06/05	04/07/05	EPA 8270C	D-34
Acenaphthylene	ND	33	"	"	"	"		"	D-34
Anthracene	ND	33	"	"	"	"		"	D-34
Benzo (a) anthracene	ND	33	"	"	"	"		"	D-34
Benzo (b) fluoranthene	ND	33	"	"	"	"		"	D-34
Benzo (k) fluoranthene	ND	33	"	"	"	"		"	D-34
Benzo (a) pyrene	ND	33	"	"	"	"		"	D-34
Benzo (g,h,i) perylene	ND	33	"	"	"	"		"	D-34
Chrysene	ND	33	"	"	"	"		"	D-34
Dibenz (a,h) anthracene	ND	33	"	"	"	"		"	D-34
Dibenzofuran	ND	33	"	"	"	"		"	D-34
Fluoranthene	ND	33	"	"	"	"		"	D-34
Fluorene	ND	33	"	"	"	"		"	D-34
Indeno (1,2,3-cd) pyrene	ND	33	"	"	"	"		"	D-34
2-Methylnaphthalene	ND	33	"	"	"	"		"	D-34
Naphthalene	ND	33	"	"	"	"		"	D-34
Phenanthrene	ND	33	"	"	"	"		"	D-34
Pyrene	ND	33	"	"	"	"	"	"	D-34
Surrogate: Nitrobenzene-d.	5	%	23-	120	"	"	"	"	S-06
Surrogate: 2-Fluorobiphen	yl (%	30-	115	"	"	"	"	S-06
Surrogate: Terphenyl-d14		%	18-	137	"	"	"	"	S-06
SB6-5 (0504072-22) Soil	Sampled: 04/04/05 11:39	Received: 04/0	4/05 14:1	5					
Acenaphthene	ND	33	mg/kg	100	B5D0623	04/06/05	04/07/05	EPA 8270C	D-34
Acenaphthylene	ND	33	"	"	"	"		"	D-34
Anthracene	ND	33	"	"	"	"		"	D-34
Benzo (a) anthracene	ND	33	"	"	"	"		"	D-34
Benzo (b) fluoranthene	ND	33	"	"	"	"		"	D-34
Benzo (k) fluoranthene	ND	33	"	"	"	"		"	D-34
Benzo (a) pyrene	ND	33	"	"	"	"		"	D-34
Benzo (g,h,i) perylene	ND	33	"	"	"	"		"	D-34
Chrysene	ND	33	"	"	"	"		"	D-34
Dibenz (a,h) anthracene	ND	33	"	"	"	"		"	D-34
Dibenzofuran	ND	33	"	"	"	"		"	D-34
Fluoranthene	ND	33		"	"	"	"	"	D-34
Fluorene	ND	33		"	"	"	"	"	D-34
Indeno (1,2,3-cd) pyrene	ND	33		"	"	"	"	"	D-34
2-Methylnaphthalene	ND	33		"	"	"	"	"	D-34
Naphthalene	ND	33	"	"	"	"	"	"	D-34
Phenanthrene	ND	33	"	"	"	"	"	"	D-34

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

33

ND

Pyrene

D-34

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Mearns Consulting Corpora 738 Ashland Avenue Santa Monica CA, 90405	tion	Reported: 04/12/05 14:01							
	Polynuclear A	romatic Hyd	lrocart	oons (GC	/MS) by	EPA 827	0C		
		Sierra Ar	nalytica	al Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB6-5 (0504072-22) Soil S	ampled: 04/04/05 11:39	Received: 04/0	4/05 14:	15					
Surrogate: Nitrobenzene-d5 Surrogate: 2-Fluorobiphenyl Surrogate: Terphenyl-d14		% % %	23 30 18	-120 -115 -137	B5D0623 "	04/06/05 " "	04/07/05 " "	EPA 8270C "	S-06 S-06 S-06
SB6-10 (0504072-23) Soil	Sampled: 04/04/05 11:44	Received: 04/	04/05 14	:15					
Acenaphthene	ND	33	mg/kg	100	B5D0623	04/06/05	04/07/05	EPA 8270C	D-34
Acenaphthylene	ND	33	"	"	"	"	"	"	D-34
Anthracene	ND	33	"	"	"	"		"	D-34
Benzo (a) anthracene	ND	33	"	"	"	"		"	D-34
Benzo (b) fluoranthene	ND	33	"	"	"	"	"	"	D-34
Benzo (k) fluoranthene	ND	33	"	"	"	"	"	"	D-34
Benzo (a) pyrene	ND	33	"	"	"	"		"	D-34
Benzo (g,h,i) perylene	ND	33	"	"	"	"		"	D-34
Chrysene	ND	33	"	"	"	"		"	D-34
Dibenz (a,h) anthracene	ND	33	"	"	"	"		"	D-34
Dibenzofuran	ND	33	"	"	"	"		"	D-34
Fluoranthene	ND	33	"	"	"	"		"	D-34
Fluorene	ND	33	"	"	"	"		"	D-34
Indeno (1,2,3-cd) pyrene	ND	33		"	"	"		"	D-34
2-Methylnaphthalene	ND	33	"	"	"	"		"	D-34
Naphthalene	ND	33	"	"	"	"		"	D-34
Phenanthrene	ND	33	"	"	"	"	"	"	D-34
Pyrene	ND	33		"	"	"	"	"	D-34
Surrogate: Nitrobenzene-d5		%	23	-120	"	"	"	"	S-06
Surrogate: 2-Fluorobiphenyl		%	30	-115	"	"	"	"	S-06
Surrogate: Terphenyl-d14		%	18	-137	"	"	"	"	S-06

Mearns Consulting CorporationProject:City of Signal Hill738 Ashland AvenueProject Number:Las BrisasReported:Santa Monica CA, 90405Project Manager:Susan Mearns04/12/05 14:01Polynuclear Aromatic Hydrocarbons (GC/MS) by EPA 8270CSierra Analytical Labs, Inc.

Analyta	D14	Reporting	Unito	Dibution	Detab	Dropanad	Analyzad	Mothod	Not
Апатуце	Kesuit	Limit	Units	Dilution	Daten	riepared	Analyzed	Meulod	INOTES
SB7-5 (0504072-26) Soil S	Sampled: 04/04/05 12:13	Received: 04/0	4/05 14:1	5					
Acenaphthene	ND	33	mg/kg	100	B5D0623	04/06/05	04/07/05	EPA 8270C	D-34
Acenaphthylene	ND	33	"	"	"	"		"	D-34
Anthracene	ND	33	"	"	"	"		"	D-34
Benzo (a) anthracene	ND	33	"	"	"	"		"	D-34
Benzo (b) fluoranthene	ND	33	"	"	"	"		"	D-34
Benzo (k) fluoranthene	ND	33	"	"	"	"		"	D-34
Benzo (a) pyrene	ND	33	"	"	"	"		"	D-34
Benzo (g,h,i) perylene	ND	33	"	"	"	"		"	D-34
Chrysene	ND	33	"	"	"	"		"	D-34
Dibenz (a,h) anthracene	ND	33	"	"	"	"		"	D-34
Dibenzofuran	ND	33	"	"	"	"		"	D-34
Fluoranthene	ND	33	"	"	"	"		"	D-34
Fluorene	ND	33	"	"	"	"	"	"	D-34
Indeno (1,2,3-cd) pyrene	ND	33	"	"	"	"		"	D-34
2-Methylnaphthalene	ND	33	"	"	"	"		"	D-34
Naphthalene	ND	33	"	"	"	"		"	D-34
Phenanthrene	ND	33	"	"	"	"		"	D-34
Pyrene	ND	33	"	"	"	"	"	"	D-34
Surrogate: Nitrobenzene-d5		%	23-	120	"	"	"	"	S-06
Surrogate: 2-Fluorobiphenyl	l	%	30-	115	"	"	"	"	S-06
Surrogate: Terphenyl-d14		%	18-	137	"	"	"	"	S-06
SB7-10 (0504072-27) Soil	Sampled: 04/04/05 12:17	Received: 04/	04/05 14:	15					
Acenaphthene	ND	33	mg/kg	100	B5D0623	04/06/05	04/07/05	EPA 8270C	D-34
Acenaphthylene	ND	33	"	"	"	"		"	D-34
Anthracene	ND	33	"	"	"	"		"	D-34
Benzo (a) anthracene	ND	33	"	"	"	"		"	D-34
Benzo (b) fluoranthene	ND	33	"	"	"	"		"	D-34
Benzo (k) fluoranthene	ND	33	"	"	"	"		"	D-34
Benzo (a) pyrene	ND	33	"	"	"	"		"	D-34
Benzo (g,h,i) perylene	ND	33	"	"	"	"		"	D-34
Chrysene	ND	33	"	"	"	"		"	D-34
Dibenz (a.h) anthracene	ND	33	"	"	"	"		"	D-34
Dibenzofuran	ND	33	"	"	"	"	"	"	D-34
Fluoranthene	ND	33		"	"	"	"	"	D-34
Fluorene	ND	33			"	"	"	"	D-34
Indeno (1,2,3-cd) pvrene	ND	33	"	"	"	"	"	"	D-34
2-Methylnaphthalene	ND	33	"	"	"	"	"	"	D-34
Naphthalene	ND	33		"	"	"	"	"	D-34

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33

33

ND

ND

Phenanthrene

Pyrene

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D-34

D-34

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Mearns Consulting Corporation 738 Ashland Avenue Santa Monica CA, 90405	Reported: 04/12/05 14:01								
	Polynuclear A	romatic Hyd	rocarbo	ons (GC	/MS) by	EPA 827	0C		
		Sierra An	alytical	Labs, I	nc.				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SB7-10 (0504072-27) Soil San	npled: 04/04/05 12:17	Received: 04/	04/05 14:	15					
Surrogate: Nitrobenzene-d5 Surrogate: 2-Fluorobiphenyl Surrogate: Terphenyl-d14		% % %	23- 30- 18-	120 115 137	B5D0623 "	04/06/05 " "	04/07/05 "	EPA 8270C "	S-06 S-06 S-06
SB8-5 (0504072-30) Soil Sam	pled: 04/04/05 12:42	Received: 04/04	4/05 14:1	5					
Acenaphthene	ND	0.33	mg/kg	1	B5D0623	04/06/05	04/07/05	EPA 8270C	
Acenaphthylene	ND	0.33		"	"	"	"	"	
Anthracene	ND	0.33		"	"	"	"	"	
Benzo (a) anthracene	ND	0.33		"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.33	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.33		"	"	"	"	"	
Benzo (a) pyrene	ND	0.33		"	"	"	"	"	
Benzo (g,h,i) perylene	ND	0.33		"	"	"	"	"	
Chrysene	ND	0.33		"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.33		"	"	"	"	"	
Dibenzofuran	ND	0.33		"	"	"	"	"	
Fluoranthene	ND	0.33		"	"	"	"	"	
Fluorene	ND	0.33	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.33	"	"	"	"	"	"	
Naphthalene	ND	0.33	"	"	"	"	"	"	
Phenanthrene	ND	0.33	"	"	"	"	"	"	
Pyrene	ND	0.33		"	"	"	"	"	
Surrogate: Nitrobenzene-d5		98.5 %	23-	120	"	"	"	"	
Surrogate: 2-Fluorobiphenvl		73.0 %	30-	115	"	"	"	"	
Surrogate: Terphenyl-d14		50.5 %	18-	137	"	"	"	"	

Mearns Consulting Corporation Project: City of Signal Hill 738 Ashland Avenue Project Number: Las Brisas Reported: Santa Monica CA, 90405 Project Manager: Susan Mearns 04/12/05 14:01 Polynuclear Aromatic Hydrocarbons (GC/MS) by EPA 8270C Sierra Analytical Labs, Inc.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prenared	Analyzed	Method	Notes
SB8-10 (0504072-31) Soil	Sampled: 04/04/05 12:44	Received: 04/	04/05_14	:15	Baten	riepareu	7 maryzeu	meniou	Holes
Acenaphthene	ND	0.33	mg/kg	1	B5D0623	04/06/05	04/07/05	EPA 8270C	
Acenaphthylene	ND	0.33	"	"	"	"	"	"	
Anthracene	ND	0.33	"	"	"	"		"	
Benzo (a) anthracene	ND	0.33	"	"	"	"		"	
Benzo (b) fluoranthene	ND	0.33	"	"	"	"		"	
Benzo (k) fluoranthene	ND	0.33	"	"	"	"		"	
Benzo (a) pyrene	ND	0.33	"	"	"	"		"	
Benzo (g,h,i) perylene	ND	0.33	"	"	"	"		"	
Chrysene	ND	0.33	"	"	"	"		"	
Dibenz (a,h) anthracene	ND	0.33	"	"	"	"		"	
Dibenzofuran	ND	0.33	"	"	"	"		"	
Fluoranthene	ND	0.33	"	"	"	"	"	"	
Fluorene	ND	0.33	"	"	"	"		"	
Indeno (1,2,3-cd) pyrene	ND	0.33	"	"	"	"		"	
2-Methylnaphthalene	ND	0.33	"	"	"	"		"	
Naphthalene	ND	0.33	"	"	"	"		"	
Phenanthrene	ND	0.33	"	"	"	"		"	
Pyrene	ND	0.33	"	"	"	"	"	"	
Surrogate: Nitrobenzene-d5	ī	61.0 %	23	8-120	"	"	"	"	
Surrogate: 2-Fluorobipheny	vl	75.4 %	30)-115	"	"	"	"	
Surrogate: Terphenyl-d14		84.4 %	18	8-137	"	"	"	"	

Mearns Consulting Corporation 738 Ashland Avenue Santa Monica CA, 90405			Reported: 04/12/05 14:01							
	Metals by EP	A 6000/700	0 Series	Methods	- Quality	y Contro	1			
	·	Sierra A	nalytica	l Labs, I	nc.	, ,				
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B5D0708 - EPA 3050B										
Blank (B5D0708-BI K1)				Prepared	. 04/07/05	Analyzed	1. 04/08/05			
Antimony	ND	16	mg/kg	Treparea.	. 04/07/05	7 mary 200	1. 04/00/05			
Arsenic	ND	1.0	"							
Barium	ND	3.3								
Bervllium	ND	0.75								
Cadmium	ND	0.75								
Chromium	ND	0.98								
Cobalt	ND	2.20								
Copper	ND	2.2								
Lead	ND	13								
Molyhdenum	ND	1.3								
Nickel	ND	0.79								
Selenium	ND	1.9								
Silver	ND	0.80								
Thallium	ND	1.5								
Vanadium	ND	0.73								
Zinc	ND	1.3								
L CS (B5D0708 BS1)				Draparad	04/07/05	Analyzad	1. 04/08/05			
Antimony	101	16	mg/kg	100	. 04/07/05	101	75-125			
Arsenic	93.0	1.0	" "	100		93.0	78-122			
Barium	93.0	33		100		93.2	80-120			
Bervllium	92.8	0.75		100		92.8	80-120			
Cadmium	92.3	0.73		100		92.3	80-120			
Chromium	97.9	0.98		100		97.9	80-120			
Cobalt	93.7	2.2		100		93.7	80-120			
Copper	93.5	2.2		100		93.5	78-122			
Lead	95.9	1.3		100		95.9	80-120			
Molybdenum	96.6	1.7		100		96.6	80-120			
Nickel	94.6	0.79		100		94.6	80-120			
Selenium	91.1	1.9		100		91.1	76-124			
Silver	90.7	0.80		100		90.7	60-140			
Thallium	88.3	1.5	"	100		88.3	80-120			
Vanadium	94.6	0.73		100		94.6	80-120			

"

1.3

91.7

Zinc

100

91.7

78-122

Mearns Consulting Corporation Project: City of Signal Hill 738 Ashland Avenue Project Number: Las Brisas **Reported:** Santa Monica CA, 90405 Project Manager: Susan Mearns 04/12/05 14:01 Metals by EPA 6000/7000 Series Methods - Quality Control Sierra Analytical Labs, Inc. RPD %REC Reporting Spike Source Limit %REC RPD Notes Result Units Level Result Limits Limit Analyte Batch B5D0708 - EPA 3050B LCS Dup (B5D0708-BSD1) Prepared: 04/07/05 Analyzed: 04/08/05 101 75-125 0.00 20 Antimony 1.6 mg/kg 100 101 Arsenic 94.2 1.7 " 100 94.2 78-122 1.28 20 Barium 95.2 3.3 .. 100 95.2 80-120 2.12 20 .. 0.75 100 91.6 80-120 1.30 20 Beryllium 91.6 .. Cadmium 92.1 100 92.1 80-120 0.217 20 0.51 .. Chromium 99.9 0.98 100 99.9 80-120 2.02 20 Cobalt 93.1 2.2 100 93.1 80-120 0.642 20 .. Copper 95.7 2.2 100 95.7 78-122 2.33 20 " Lead 97.7 1.3 100 97.7 80-120 1.86 20 .. 97.3 1.7 100 97.3 80-120 0.722 20 Molybdenum .. Nickel 95.5 0.79 100 95.5 80-120 0.947 20 Selenium 92.3 1.9 .. 100 92.3 76-124 1.31 20 .. 60-140 40 Silver 95.8 0.80 100 95.8 5.47 89.1 0.902 20 Thallium 89.1 1.5 100 80-120 .. Vanadium 96.8 0.73 100 96.8 80-120 2.30 20 .. Zinc 94.3 1.3 100 94.3 78-122 2.80 20 Matrix Spike (B5D0708-MS1) Source: 0504072-01 Prepared: 04/07/05 Analyzed: 04/08/05 30.8 ND 33.1 Antimony 1.6 93.1 60-140 QM-07 mg/kg 102 93.1 100 70-130 Arsenic 1.7 .. 8.6 .. 259 93.1 170 95.6 70-130 Barium 3.3 .. Beryllium 92.7 0.75 93.1 0.67 98.9 70-130 •• Cadmium 91.8 0.51 93.1 ND 98.6 70-130 Chromium 124 0.98 .. 93.1 30 101 70-130 Cobalt 98.3 2.2 93.1 12 92.7 70-130

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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2.2

1.3

1.7

0.79

1.9

0.80

1.5

0.73

1.3

113

110

90.8

106

92.9

81.0

82.6

149

164

Copper Lead

Nickel

Silver

Zinc

Selenium

Thallium

Vanadium

Molybdenum

93.1

93.1

93.1

93.1

93.1

93.1

93.1

93.1

93.1

23

15

1.3

19

0.65

ND

ND

53

71

96.7

102

96.1

93.4

99.1

87.0

88.7

103

99.9

70-130

70-130

70-130

70-130

70-130

60-140

70-130

70-130

70-130



Sierra Analytical Labs, Inc.

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch B5D0708 - EPA 3050B

Matrix Spike Dup (B5D0708-MSD1)	Sour	ce: 050407	2-01	Prepared:	04/07/05	Analyze				
Antimony	32.4	1.6	mg/kg	93.0	ND	34.8	60-140	5.06	20	QM-07
Arsenic	103	1.7	"	93.0	8.6	102	70-130	0.976	20	
Barium	262	3.3	"	93.0	170	98.9	70-130	1.15	20	
Beryllium	94.5	0.75	"	93.0	0.67	101	70-130	1.92	20	
Cadmium	93.7	0.51	"	93.0	ND	101	70-130	2.05	20	
Chromium	125	0.98	"	93.0	30	102	70-130	0.803	20	
Cobalt	98.9	2.2	"	93.0	12	93.4	70-130	0.609	20	
Copper	113	2.2	"	93.0	23	96.8	70-130	0.00	20	
Lead	107	1.3	"	93.0	15	98.9	70-130	2.76	20	
Molybdenum	93.9	1.7	"	93.0	1.3	99.6	70-130	3.36	20	
Nickel	108	0.79	"	93.0	19	95.7	70-130	1.87	20	
Selenium	94.9	1.9	"	93.0	0.65	101	70-130	2.13	20	
Silver	74.0	0.80	"	93.0	ND	79.6	60-140	9.03	40	
Thallium	85.2	1.5	"	93.0	ND	91.6	70-130	3.10	20	
Vanadium	149	0.73	"	93.0	53	103	70-130	0.00	20	
Zinc	167	1.3	"	93.0	71	103	70-130	1.81	20	

Batch B5D0709 - EPA 3050B

Blank (B5D0709-BLK1)				Prepared: 04/07/05 Analyzed: 04/08/05
Antimony	ND	1.6	mg/kg	
Arsenic	ND	1.7		
Barium	ND	3.3	"	
Beryllium	ND	0.75	"	
Cadmium	ND	0.51	"	
Chromium	ND	0.98	"	
Cobalt	ND	2.2	"	
Copper	ND	2.2	"	
Lead	ND	1.3	"	
Molybdenum	ND	1.7	"	
Nickel	ND	0.79	"	
Selenium	ND	1.9	"	
Silver	ND	0.80	"	
Thallium	ND	1.5	"	
Vanadium	ND	0.73		
Zinc	ND	1.3	"	

Mearns Consulting Corporation Project: City of Signal Hill 738 Ashland Avenue Project Number: Las Brisas **Reported:** Santa Monica CA, 90405 Project Manager: Susan Mearns 04/12/05 14:01 Metals by EPA 6000/7000 Series Methods - Quality Control Sierra Analytical Labs, Inc. RPD %REC Reporting Spike Source Limit %REC RPD Limit Result Units Level Result Limits Notes Analyte Batch B5D0709 - EPA 3050B LCS (B5D0709-BS1) Prepared: 04/07/05 Analyzed: 04/08/05 98.3 98.3 75-125 Antimony 1.6 mg/kg 100 Arsenic 92.2 1.7 " 100 92.2 78-122 Barium 91.2 3.3 .. 100 91.2 80-120 .. 90.2 0.75 100 90.2 Beryllium 80-120 .. Cadmium 90.6 100 90.6 80-120 0.51 .. Chromium 96.2 0.98 100 96.2 80-120 Cobalt 92.1 2.2 100 92.1 80-120 .. Copper 89.3 2.2 100 89.3 78-122 " Lead 94.6 1.3 100 94.6 80-120 .. 90.6 90.6 1.7 100 80-120 Molybdenum .. Nickel 93.5 0.79 100 93.5 80-120 .. Selenium 88.7 1.9 100 88.7 76-124 .. 60-140 **OM-08** Silver 45.8 0.80 100 45.8 Thallium 84.4 1.5 100 84.4 80-120 .. Vanadium 92.5 0.73 100 92.5 80-120 .. Zinc 89.9 1.3 100 89.9 78-122 LCS Dup (B5D0709-BSD1) Prepared: 04/07/05 Analyzed: 04/08/05 101 101 20 Antimony 1.6 100 75-125 2.71 mg/kg 90.5 1.7 100 90.5 78-122 20 Arsenic .. 1.86 .. 92.4 3.3 100 92.4 80-120 1.31 20 Barium .. Beryllium 91.4 0.75 100 91.4 80-120 1.32 20 •• Cadmium 90.1 0.51 100 90.1 80-120 0.553 20 Chromium 97.5 0.98 .. 100 97.5 80-120 1.34 20 Cobalt 91.5 2.2 100 91.5 80-120 0.654 20 .. 91.1 78-122 20 91.1 2.2 100 2.00 Copper Lead 95.6 1.3 " 100 95.6 80-120 1.05 20 .. 95.3 5.06 Molybdenum 95.3 1.7 100 80-120 20 Nickel 94.5 0.79 " 100 94.5 80-120 1.06 20 .. 20 Selenium 89.8 1.9 100 89.8 76-124 1.23 .. Silver 41.0 0.80 100 41.0 60-140 11.1 40 QM-08

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1.5

0.73

1.3

85.4

94.3

91.6

Thallium

Zinc

Vanadium

100

100

100

85.4

94.3

91.6

80-120

80-120

78-122

1.18

1.93

1.87

20

20

20

Mearns Consulting Corporation Project: City of Signal Hill 738 Ashland Avenue Project Number: Las Brisas **Reported:** Santa Monica CA, 90405 Project Manager: Susan Mearns 04/12/05 14:01 Metals by EPA 6000/7000 Series Methods - Quality Control Sierra Analytical Labs, Inc. RPD %REC Reporting Spike Source Result Limit Level Result %REC RPD Limit Notes Analyte Units Limits Batch B5D0709 - EPA 3050B Matrix Spike (B5D0709-MS1) Source: 0504072-21 Prepared: 04/07/05 Analyzed: 04/11/05 51.1 mg/kg 0.74 52.5 60-140 QM-07 Antimony 1.6 95.9 Arsenic 99.4 1.7 " 95.9 2.7 101 70-130 Barium 181 3.3 .. 95.9 83 102 70-130 .. Beryllium 102 0.75 95.9 0.26 106 70-130 " Cadmium 92.5 0.51 95.9 ND 96.5 70-130 0.98 .. Chromium 115 95.9 30 88.6 70-130 2.2 95.9 3.2 70-130 Cobalt 88.3 88.7

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95.9

95.9

95.9

95.9

95.9

95.9

95.9

95.9

95

6.0

4.4

6.4

ND

ND

ND

20

104

94.6

106

90.8

98.7

24.2

87.9

102

70-130

70-130

70-130

70-130

70-130

60-140

70-130

70-130

2.2

1.3

1.7

0.79

1.9

0.80

1.5

0.73

195

96.7

106

93.5

94.7

23.2

84.3

118

Copper

Molybdenum

Lead

Nickel

Silver

Selenium

Thallium

Vanadium

Zinc	178	1.3	"	95.9	89	92.8	70-130			
Matrix Spike Dup (B5D0709-MSD1)	Sour	ce: 050407	2-21	Prepared:	04/07/05	Analyzed	d: 04/11/05			
Antimony	50.0	1.6	mg/kg	93.0	0.74	53.0	60-140	2.18	20	QM-07
Arsenic	99.5	1.7	"	93.0	2.7	104	70-130	0.101	20	
Barium	181	3.3	"	93.0	83	105	70-130	0.00	20	
Beryllium	101	0.75	"	93.0	0.26	108	70-130	0.985	20	
Cadmium	91.9	0.51	"	93.0	ND	98.8	70-130	0.651	20	
Chromium	119	0.98	"	93.0	30	95.7	70-130	3.42	20	
Cobalt	88.1	2.2	"	93.0	3.2	91.3	70-130	0.227	20	
Copper	191	2.2	"	93.0	95	103	70-130	2.07	20	
Lead	96.2	1.3	"	93.0	6.0	97.0	70-130	0.518	20	
Molybdenum	105	1.7	"	93.0	4.4	108	70-130	0.948	20	
Nickel	93.9	0.79	"	93.0	6.4	94.1	70-130	0.427	20	
Selenium	94.1	1.9	"	93.0	ND	101	70-130	0.636	20	
Silver	38.0	0.80	"	93.0	ND	40.9	60-140	48.4	40	QM-08
Thallium	82.4	1.5	"	93.0	ND	88.6	70-130	2.28	20	
Vanadium	118	0.73	"	93.0	20	105	70-130	0.00	20	
Zinc	178	1.3	"	93.0	89	95.7	70-130	0.00	20	

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OM-08



Mearns Consulting Corporation 738 Ashland Avenue Santa Monica CA, 90405	Project: City of Signal Hill Project Number: Las Brisas Project Manager: Susan Mearns								Reported: 04/12/05 14:01		
	Metals by EP.	A 6000/700	0 Series	Methods	- Quality	y Contro	l				
Sierra Analytical Labs, Inc.											
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B5D0710 - EPA 7471A											
Blank (B5D0710-BLK1)				Prepared: 04/07/05 Analyzed: 04/08/05							
Mercury	ND	0.18	mg/kg			î					
LCS (B5D0710-BS1)				Prepared:	04/07/05	Analyzed	1: 04/08/05				
Mercury	0.19	0.18	mg/kg	0.167		114	70-130				
Matrix Spike (B5D0710-MS1)	Source: 0504072-01			Prepared: 04/07/05 Analyzed: 04/08/05							
Mercury	0.23	0.18	mg/kg	0.167	0.05	108	70-130				
Matrix Spike Dup (B5D0710-MSD1)	Sou	irce: 050407	2-01	Prepared: 04/07/05 Analyzed: 04/08/05							
Mercury	0.22	0.18	mg/kg	0.156	0.05	109	70-130	4.44	25		
Batch B5D0711 - EPA 7471A											
Blank (B5D0711-BLK1)				Prepared:	04/07/05	Analyzed	l: 04/08/05				
Mercury	ND	0.18	mg/kg								
LCS (B5D0711-BS1)				Prepared:	04/07/05	Analyzed	l: 04/08/05				
Mercury	0.20	0.18	mg/kg	0.167		120	70-130				
Matrix Spike (B5D0711-MS1)	Sou	irce: 050407	2-21	Prepared: 04/07/05 Analyzed: 04/08/05							
Mercury	0.21	0.18	mg/kg	0.154	0.02	123	70-130				
Matrix Spike Dup (B5D0711-MSD1)	Sou	irce: 050407	2-21	Prepared: 04/07/05 Analyzed: 04/08/05							
Mercury	0.22	0.18	mg/kg	0.156	0.02	128	70-130	4.65	25		



Mearns Consulting Corporation	Project:	City of Signal Hill	
738 Ashland Avenue	Project Number:	Las Brisas	Reported:
Santa Monica CA, 90405	Project Manager:	Susan Mearns	04/12/05 14:01
Total Petroleun	ality Control		

Sierra Analytical Labs, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B5D1001 - EPA 3550B Solid E	xt									
Blank (B5D1001-BLK1)				Prepared	& Analyze	ed: 04/10/	05			
HC < C8	ND	1.0	mg/kg		2					
C8 <= HC < C9	ND	1.0	"							
C9 <= HC < C10	ND	1.0	"							
C10 <= HC < C11	ND	1.0	"							
C11 <= HC < C12	ND	1.0	"							
C12 <= HC < C14	ND	1.0	"							
C14 <= HC < C16	ND	1.0	"							
C16 <= HC < C18	ND	1.0	"							
C18 <= HC < C20	ND	1.0	"							
$C20 \le HC < C24$	ND	1.0	"							
$C24 \leq HC \leq C28$	ND	1.0	"							
C28 <= HC < C32	ND	1.0	"							
HC >= C32	ND	1.0	"							
Total Petroleum Hydrocarbons (C7-C36)	ND	5.0	"							
Surrogate: o-Terphenyl	5.70		"	7.50		76.0	50-150			
LCS (B5D1001-BS1)				Prepared	& Analyze	ed: 04/10/	05			
Diesel Range Organics (C10-C24)	120	5.0	mg/kg	100		120	80-120			
Matrix Spike (B5D1001-MS1)	So	urce: 050409	3-06	Prepared & Analyzed: 04/10/05						
Diesel Range Organics (C10-C24)	124	5.0	mg/kg	100	ND	124	50-150			
Matrix Spike Dup (B5D1001-MSD1)	So	urce: 050409	3-06	Prepared	& Analyze	ed: 04/10/	05			
Diesel Range Organics (C10-C24)	136	5.0	mø/kø	100	ND	136	50-150	9.23	30	

Hexachlorobutadiene

Mearns Consulting Corporation	Project:	City of Signal Hill	
738 Ashland Avenue	Project Number:	Las Brisas	Reported:
Santa Monica CA, 90405	Project Manager:	Susan Mearns	04/12/05 14:01
	Volatile Organic Compounds by El	PA Method 8260B - Quality Control	

Sierra Analytical Labs, Inc.										
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B5D0712 - EPA 5035 P & T										
Blank (B5D0712-BLK1)				Prepared	& Analyze	ed: 04/06/0	05			
Benzene	ND	5.0	µg/kg	•	•					
Bromobenzene	ND	5.0	"							
Bromochloromethane	ND	5.0	"							
Bromodichloromethane	ND	5.0	"							
Bromoform	ND	5.0	"							
Bromomethane	ND	5.0	"							
n-Butylbenzene	ND	5.0	"							
sec-Butylbenzene	ND	5.0	"							
tert-Butylbenzene	ND	5.0	"							
Carbon tetrachloride	ND	5.0	"							
Chlorobenzene	ND	5.0	"							
Chloroethane	ND	5.0	"							
Chloroform	ND	5.0	"							
Chloromethane	ND	5.0	"							
2-Chlorotoluene	ND	5.0	"							
4-Chlorotoluene	ND	5.0	"							
Dibromochloromethane	ND	5.0	"							
1,2-Dibromo-3-chloropropane	ND	5.0	"							
1,2-Dibromoethane (EDB)	ND	5.0	"							
Dibromomethane	ND	5.0	"							
1,2-Dichlorobenzene	ND	5.0	"							
1,3-Dichlorobenzene	ND	5.0	"							
1,4-Dichlorobenzene	ND	5.0	"							
Dichlorodifluoromethane	ND	5.0	"							
1,1-Dichloroethane	ND	5.0	"							
1,2-Dichloroethane	ND	5.0	"							
1,1-Dichloroethene	ND	5.0	"							
cis-1,2-Dichloroethene	ND	5.0	"							
trans-1,2-Dichloroethene	ND	5.0	"							
1,2-Dichloropropane	ND	5.0	"							
1,3-Dichloropropane	ND	5.0	"							
2,2-Dichloropropane	ND	5.0	"							
1,1-Dichloropropene	ND	5.0	"							
cis-1,3-Dichloropropene	ND	5.0	"							
trans-1,3-Dichloropropene	ND	5.0	"							
Ethylbenzene	ND	5.0	"							

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ND

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Mearns Consulting Corporation Project: City of Signal Hill

738 Ashland Avenue	Ashland Avenue Project Number: Las Brisas								Reported: 04/12/05 14:01			
Santa Monica CA, 90405		Project Manager: Susan Mearns								Reported: 04/12/05 14:01		
Vola	atile Organic Co	mpounds l	oy EPA	Method 8	260B - Q	Quality C	ontrol					
		Sierra Ar	alytical	l Labs, I	nc.							
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes		
Batch B5D0712 - EPA 5035 P & T												
Blank (B5D0712-BLK1)				Prepared	& Analvze	ed: 04/06/	05					
Isopropylbenzene	ND	5.0	µg/kg									
p-Isopropyltoluene	ND	5.0	"									
Methylene chloride	ND	5.0										
Methyl tert-butyl ether	ND	5.0										
Naphthalene	ND	5.0										
n-Propylbenzene	ND	5.0										
Styrene	ND	5.0										
1,1,1,2-Tetrachloroethane	ND	5.0										
1,1,2,2-Tetrachloroethane	ND	5.0										
Tetrachloroethene	ND	5.0										
Toluene	ND	5.0										
1,2,3-Trichlorobenzene	ND	5.0										
1,2,4-Trichlorobenzene	ND	5.0	"									
1,1,1-Trichloroethane	ND	5.0	"									
1,1,2-Trichloroethane	ND	5.0	"									
Trichloroethene	ND	5.0										
Trichlorofluoromethane	ND	5.0	"									
1,2,3-Trichloropropane	ND	5.0										
1,2,4-Trimethylbenzene	ND	5.0										
1,3,5-Trimethylbenzene	ND	5.0	"									
Vinyl chloride	ND	5.0										
m,p-Xylene	ND	5.0										
o-Xylene	ND	5.0										
Surrogate: Dibromofluoromethane	50.4		"	50.0		101	80-120					
Surrogate: Toluene-d8	48.6		"	50.0		97.2	81-117					
Surrogate: 4-Bromofluorobenzene	46.9		"	50.0		93.8	74-121					
LCS (B5D0712-BS1)				Prepared	& Analyze	ed: 04/06/0	05					
Benzene	47.3	5.0	µg/kg	50.0		94.6	80-120					
Chlorobenzene	52.1	5.0		50.0		104	80-120					
1,1-Dichloroethene	42.2	5.0		50.0		84.4	80-120					
Toluene	46.3	5.0		50.0		92.6	80-120					
Trichloroethene	52.5	5.0		50.0		105	80-120					


Mearns Consulting Corporation	Project:	City of Signal Hill	
738 Ashland Avenue	Project Number:	Las Brisas	Reported:
Santa Monica CA, 90405	Project Manager:	Susan Mearns	04/12/05 14:01
	Volatile Organic Compounds by El	PA Method 8260B - Qualit	y Control

Sierra Analytical Labs, Inc.

	F	leporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch B5D0712 - EPA 5035 P & T

Matrix Spike (B5D0712-MS1)	Sourc	Source: 0504072-02				Prepared & Analyzed: 04/06/05				
Benzene	47.0	5.0	µg/kg	50.0	ND	94.0	37-151			
Chlorobenzene	52.2	5.0	"	50.0	ND	104	37-160			
1,1-Dichloroethene	40.2	5.0	"	50.0	ND	80.4	50-150			
Toluene	46.2	5.0	"	50.0	ND	92.4	47-150			
Trichloroethene	50.8	5.0	"	50.0	ND	102	71-157			
Matrix Spike Dup (B5D0712-MSD1)	Source: 0504072-02			Prepared & Analyzed: 04/06/05						
Benzene	46.6	5.0	µg/kg	50.0	ND	93.2	37-151	0.855	30	
Chlorobenzene	51.9	5.0	"	50.0	ND	104	37-160	0.576	30	
1,1-Dichloroethene	40.5	5.0	"	50.0	ND	81.0	50-150	0.743	30	
Toluene	45.7	5.0	"	50.0	ND	91.4	47-150	1.09	30	
Trichloroethene	50.5	5.0	"	50.0	ND	101	71-157	0.592	30	



Mearns Consulting Corporation	Project:	City of Signal Hill	
738 Ashland Avenue	Project Number:	Las Brisas	Reported:
Santa Monica CA, 90405	Project Manager:	Susan Mearns	04/12/05 14:01
Pol	vnuclear Aromatic Hydrocarbons (G	C/MS) by EPA 8270C - Ouality	Control

Polynuclear Aromatic Hydrocarbons (GC/MS) by EPA 8270C - Quality Control

Sierra Analytical Labs, Inc.

Analyte Result Limit Units Level Result %REC Limits RPD Limit			Reporting		Spike	Source		%REC		RPD	
	Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch B5D0623 - EPA 3550B Solid Ext

Blank (B5D0623-BLK1)		Prepared: 04/0	Prepared: 04/06/05 Analyzed: 04/07/05				
Acenaphthene	ND	0.33	mg/kg				
Acenaphthylene	ND	0.33					
Anthracene	ND	0.33					
Benzo (a) anthracene	ND	0.33	"				
Benzo (b) fluoranthene	ND	0.33					
Benzo (k) fluoranthene	ND	0.33	"				
Benzo (a) pyrene	ND	0.33					
Benzo (g,h,i) perylene	ND	0.33					
Chrysene	ND	0.33					
Dibenz (a,h) anthracene	ND	0.33					
Dibenzofuran	ND	0.33					
Fluoranthene	ND	0.33	"				
Fluorene	ND	0.33					
Indeno (1,2,3-cd) pyrene	ND	0.33					
2-Methylnaphthalene	ND	0.33					
Naphthalene	ND	0.33					
Phenanthrene	ND	0.33	"				
Pyrene	ND	0.33					
Surrogate: Nitrobenzene-d5	0.230		"	0.333	69.1	23-120	
Surrogate: 2-Fluorobiphenyl	0.264		"	0.333	79.3	30-115	
Surrogate: Terphenyl-d14	0.308		"	0.333	92.5	18-137	
LCS (B5D0623-BS1)				Prepared: 04/0	06/05 Analyzed	: 04/07/05	
Acenaphthene	0.222	0.33	mg/kg	0.333	66.7	47-145	
Pyrene	0.303	0.33	"	0.333	91.0	52-115	
LCS (B5D0623-BS2)				Prepared: 04/0	06/05 Analyzed	: 04/07/05	
Acenaphthene	0.275	0.33	mg/kg	0.333	82.6	47-145	
Pyrene	0.270	0.33		0.333	81.1	52-115	



Mearns Consulting Corporation	Project:	City of Signal Hill							
738 Ashland Avenue	Project Number:	Las Brisas	Reported:						
Santa Monica CA, 90405	Project Manager:	Susan Mearns	04/12/05 14:01						
Polynucle	Control								
Sierra Analytical Labs, Inc.									

RPD %REC Reporting Spike Source Analyte Result Limit Level Result %REC Limits RPD Limit Notes Units Batch B5D0623 - EPA 3550B Solid Ext

LCS Dup (B5D0623-BSD1)		Prepared: 04/06/05 Analyzed: 04/07/05							
Acenaphthene	0.300	0.33	mg/kg	0.333	90.1	47-145	29.9	30	
Pyrene	0.233	0.33		0.333	70.0	52-115	26.1	30	



Mearns C	consulting Corporation	Project:	vject: City of Signal Hill						
738 Ashla	and Avenue	Project Number:	Las Brisas	Reported:					
Santa Mo	nica CA, 90405	Project Manager:	Susan Mearns	04/12/05 14:01					
		Notes and De	finitions						
D-34	Sample diluted due to high levels of p	etroleum hydrocarbons.							
QM-07	The spike recovery was outside accept recovery.	ance limits for the MS an	nd/or MSD. The batch was accepted based on a	acceptable LCS					
QM-08	-08 Spike recovery outside acceptable range for LCS due to low solubility in the presence of Hydrochloric Acid.								
S-06	Surrogate recovery outside of control and/or matrix interference.	imits due to sample dilut	ion. Sample dilued due to high levels of petrolo	eum hydrocarbons					
S-07	Surrogate recovery outside of control	imits due to coelution wi	th high levels of petroleum hydrocarbons.						
DET	Analyte DETECTED								
ND	Analyte NOT DETECTED at or above the report	rting limit							
NR	Not Reported								
dry	Sample results reported on a dry weight basis								
RPD	Relative Percent Difference								

APPENDIX D

Arsenic Statistical Analyses

	А	В	С	D	E	F	G	H		J	K	L
1			Wilcoxon-M	ann-Whitney	/ Sample 1 v	/s Sample 2	Comparison	Test for Da	ta Sets with	Non-Detects	•	
2												
3		User Sele	cted Options		0/00/0017 0	50 07 DM						
4	Da	te/Time of Co		ProUCL 5.1	3/22/2017 2:	52:37 PM						
5			From File	Metals w Bk	grnd.xls							
6		Fu										
7		Confidence	Coefficient	95%								
8	Se	elected Null I	Hypothesis	Sample 1 M	ean/Median	<= Sample 2	Mean/Media	an (Form 1)				
9		Alternative	Hypotnesis	Sample 1 IVI	ean/iviedian	> Sample 2	viean/iviediar	1				
10								1				
11	Oammia 1 F	ata: Aa										
12	Sample 1 L	ata: As	A -									
13	Sample 2 L	ata: Bkgrnd	AS									
14			r	Dow Statistic								
15			r	Raw Statistic	Sompla 1	Sampla 2						
16			Number of	/alid Data								
17		N	Number of No		40	4						
18		יז 		n-Delecis	30							
19	Number of Detect Data 4 4 Minimum Non Detect 2.2 N/A											
20			Movimum N	on-Delect	3.2	N/A						
21	Maximum Non-Detect 3.5 N/A											
22			Minim		90.00%	0.00% E 2						
23			Movim		3.5	J.Z						
24			Moon	of Dotocts	5.075	14						
25			Median	of Detects	1.6	10.0						
26				of Detects	1 909	3 851						
27			50 (of Delects	1.303	5.651						
28			Wilcoxon-Ma	ann-Whitney		27						
29					(((((((((((((((((((((((((((((((((((((((
30	H0: Mean/N	ledian of Sa	mple 1 <= M	ean/Median	of Sample 2	2						
31												
32		Sa	mple 1 Rank	Sum W-Stat	822							
33		St	andardized V	VMW U-Stat	-5.033							
34				Mean (U)	80							
30			SD	(U) - Adj ties	24.49							
27	Ap	proximate U	-Stat Critical	Value (0.05)	1.645							
3/	· · ·	Р-	Value (Adjus	ted for Ties)	1							
30												
39	Conclusion	with Alpha :	= 0.05									
40	Do Not F	Reject H0, Co	onclude Sam	ple 1 <= Sar	mple 2							
41 12	P-Value	>= alpha (0.	05)									
42		• • •	•									
43												

	A	В	С	D	E	F	G	Н	I	J	K	L
1			Gehan S	Sample 1 vs S	Sample 2 Co	omparison H	ypothesis Te	est for Data	Sets with No	n-Detects		
2		-										
3		User Seleo	cted Options									
4	Da	te/Time of Co	omputation	ProUCL 5.1	3/22/2017 2:	50:30 PM						
5			From File	Metals w Bk	grnd.xls							
6		Ful	I Precision	OFF								
7		Confidence	Coefficient	95%								
8	Se	elected Null H	-lypothesis	Sample 1 M	lean/Median	<= Sample 2	2 Mean/Media	an (Form 1)				
9		Alternative H	Hypothesis	Sample 1 M	lean/Median	> Sample 2	Mean/Mediar	ו				
10								1			1	
11												
12	Sample 1 D	ata: As										
13	Sample 2 L	ata: Bkgrnd	As									
14												
15				Raw Statistic	s lo							
16					Sample 1	Sample 2	1					
17			Number of	Valid Data	40	4						
18	Number of Non-Detects 36 0											
19	Number of Detect Data 4 4											
20				Ion-Detect	3.2	N/A						
21	-			ion-Detect	3.5	N/A						
22			Percent N	on-detects	90.00%	0.00%						
23			IVIINIM		3.5	5.2						
24			Maxim	um Detect	7.0	14						
25			Median	of Detects	5.075	10.8						
26			Median	of Detects	4.6	12						
27			5D	VI Detects	1.909	3.851						
28					3.300	10.0						
29				KIVI SD	0.768	3.851						
30			Somela 1	a Sampla 2	Cohon Toot							
31			Sample I	/s Sample z	Genan rest							
32	H0: Mean/N	ledian of Sa	mple 1 <= N	lean/Median	of backgrou	Ind						
33					OI Dackylot							
34			Gehan	z Test Value	_4 734							
35			Cr	$\frac{1}{1}$ itical z (0.05)	1 645							
36												
37				. vaide		<u> </u>						
38	Conclusion	with Alpha =	= 0.05									
39	Do Not F	eiect H0 Cc	onclude Sam	nole 1 <= Sar	mple 2							
40	P-Value	>= alpha (0 (05)									
41			,									
42												

	A	В	С	D	E	F	G	Н		J	K	L
1			l arone-War	re Sample 1	vs Sample 2	Comparisor	n Hypothesis	lest for Da	ta Sets with	Non-Detects	3	
2												
3		User Sele	cted Options		0/00/0017 0	54 50 DM						
4	Da	te/Time of Co		ProUCL 5.1	3/22/2017 2	:51:50 PM						
5			From File	Metals w Bk	grnd.xls							
6		Fu	Il Precision	OFF								
7		Confidence	Coefficient	95%				<u> </u>				
8	S	elected Null I	Hypothesis	Sample 1 M	lean/Median	<= Sample 2	Mean/Media	an (Form 1)				
9		Alternative	Hypotnesis	Sample 1 M	lean/iviedian	> Sample 2 I	viean/iviediar	1				
10												
11	Sample 1 F)ata: Ae										
12 Sample 2 Data: Bkgmd As												
13			/ 10									
14				Raw Statistic	s							
10					Sample 1	Sample 2						
17	L		Number of	Valid Data	40	4						
18	Number of Non-Detects 36 0											
19	Number of Detects 4 4											
20	Minimum Non-Detect 3.2 N/A											
21	Maximum Non-Detect 3.5 N/A											
22	Percent Non-detects 90.00% 0.00%											
23			Minim	um Detect	3.5	5.2						
24			Maxim	um Detect	7.6	14						
25			Mean	of Detects	5.075	10.8						
26			Median	of Detects	4.6	12						
27			SD	of Detects	1.909	3.851						
28				KM Mean	3.388	10.8						
29				KM SD	0.768	3.851						
30												
31		Sa	ample 1 vs S	Sample 2 Tar	one-Ware T	est						
32	110. Maar #	Andler of Co			of Community							
33	HU: Mean/M	viedian of Sa	imple 1 <= N	lean/median	or Sample 2	2						
34				TW/ Statiatia	6.026							
35			TW/ Critical		-0.920							
36				D. Volue	1.045							
37	37 P-value I											
38	Conclusion	with Alpha	= 0.05									
39			- 0.00 anclude Ser	nle 1 <= Sou	mnle ?							
40	P-Value	>= alpha (0)	(15)	ואס -ר ו סוקי	inhia z							
41		aipiia (0.	,									
42												

Multiple Box Plots





As

Total Number of Data = 40 Number of Non-Detects = 36 Number of Detects = 4 Detected Mean = 5.075 Detected Sd = 1.909 Slope (displayed data) = 0.419 Intercept (displayed data) = 3.605 Correlation, R = 0.558

BkgrndAs

Total Number of Data = 4 Number of Non-Detects = 0 Number of Detects = 4 Detected Mean = 10.8 Detected Sd = 3.851 Slope (displayed data) = 3.878 Intercept (displayed data) = 10.8 Correlation, R = 0.897

🛃 Best Fit Line

APPENDIX E

Hexavalent Chromium Statistical Analyses

	А	В	С	D	E	F	G	H		J	K	L
1			Wilcoxon-M	ann-Whitney	/ Sample 1 v	/s Sample 2	Comparison	Test for Da	ta Sets with	Non-Detects	•	
2												
3		User Sele	cted Options		0/00/0017 1/							
4	Da	te/Time of Co		ProUCL 5.1	3/23/2017 10	0:50:42 AM						
5			From File	Metals w Bk	grnd.xls							
6		Fu										
7		Confidence	Coefficient	95%								
8	Se	elected Null I	Hypothesis	Sample 1 M	ean/Median	<= Sample 2	Mean/Media	an (Form 1)				
9		Alternative	Hypotnesis	Sample 1 M	ean/iviedian	> Sample 2	viean/iviediar	1				
10									1			
11	Oomenia 1 F	atas Ors C										
12		ata: Cr+o	0-16									
13	Sample 2 L	ata: Bkgrnd	Cr+6									
14			r	Dow Statistic								
15			F	Raw Statistic	S	Commis 2						
16			Number of V	(alid Data		Sample 2						
17		N	Number of No		40	4						
18		יז 		n-Detects	37	0						
19					3	4						
20			Maximum N	on-Detect	0.19	N/A						
21				on-Detect	0.21	N/A						
22			Percentino		92.50%	0.00%						
23			Movin		0.25	3.5						
24			Moon		0.77	0.34 5.752						
25			Modian	of Detects	0.77	5.755						
26				of Detects	0.30	1 005						
27			301	UI Delects	0.807	1.995						
28			Wilcoxon-Ma	ann-Whitney		st						
29					(((((((((((((((((((((((((((((((((((((((5.						
30	H0: Mean/M	ledian of Sa	mple 1 <= M	ean/Median	of Sample 2	2						
31												
32		Sa	mple 1 Rank	Sum W-Stat	820							
33		St	andardized V	VMW U-Stat	-5.161							
34				Mean (U)	80							
30 26			SD	(U) - Adj ties	24.49							
30 27	Ap	proximate U	-Stat Critical	Value (0.05)	1.645							
3/	F	Р-	Value (Adjus	ted for Ties)	1							
30 20			()· ·	- /								
10	Conclusion	with Alpha :	= 0.05									
40	Do Not F	Reject H0, Co	onclude Sam	ple 1 <= Sar	mple 2							
41 12	P-Value	>= alpha (0.	05)		•							
42		• • •	,									
43												

	A	В	C	D	E	F	G	Н		J	K	L
1			Gehan S	Sample 1 vs S	Sample 2 Co	omparison H	ypothesis Te	est for Data	Sets with No	n-Detects		
2				T								
3		User Sele	cted Options									
4	Da	te/Time of Co	omputation	ProUCL 5.1	3/23/2017 1	0:49:14 AM						
5			From File	Metals w Bk	grnd.xls							
6		Ful	Il Precision	OFF								
7		Confidence	Coefficient	95%								
8	Se	elected Null I	Hypothesis	Sample 1 M	lean/Median	<= Sample 2	2 Mean/Media	an (Form 1)				
9		Alternative I	Hypothesis	Sample 1 M	lean/Median	> Sample 2	Mean/Mediar	า				
10									1		1	
11												
12	Sample 1 D	Data: Cr+6										
13	Sample 2 D	Data: Bkgrnd	Cr+6									
14												
15				Raw Statistic	s							
16			<u> </u>		Sample 1	Sample 2						
17			Number of	Valid Data	40	4						
18		N	Number of No	on-Detects	37	0						
19			Number of D	etect Data	3	4						
20			Minimum N	Ion-Detect	0.19	N/A						
21			Maximum N	Ion-Detect	0.21	N/A						
22			Percent No	on-detects	92.50%	0.00%						
23			Minim	um Detect	0.25	3.5						
24			Maxim	um Detect	1.7	8.34						
25			Mean	of Detects	0.77	5.753						
26			Median	of Detects	0.36	5.585						
27			SD	of Detects	0.807	1.995						
28				KM Mean	0.234	5.753						
29				KM SD	0.236	1.995						
30			<u> </u>		<u></u> .							
31			Sample 1	/s Sample 2	Genañ i est							
32	UQ Maar /	Andian of Co	mala 1 <- N	loon/Madia-	of bookgro	und						
33		vieulari of Sa	impie i <= N		or backgrol							
34			Oshar	- T +) / -	F 100							
35			Genan		-5.129							
36			Cr	D Volue	1.645							
37				P-Value	1							
38	Oppolyation		- 0.05									
39		with Alpha =		mla 1 - 0	male 0							
40			DINCIUDE Sam	ipie i <= Sar	mpie 2							
41	P-Value	>= aipha (0.0	(5)									
42												

	A	В	C Tarone Way	D D	E E	F Compariso	G	H Test for Da	 ta Sata with	J Non-Detecto	К	L
1			Tal Une-Wai				TTypoulesis			NOII-Delecta	•	
2		Lisor Solo	cted Options									
3	Da	to/Time of C		ProLICE 5.1	3/22/2017 1							
4	Da		Erom Eilo	Motole w Pk	arpd vlo	0.30.00 AW						
5		Eul			ginu.xis							
6		Confidence		05%								
7				90% Somple 1 M	oon/Modion	<- Sampla 2	Moon/Modia	n (Form 1)				
8	5		Hypothesis	Sample 1 M			Mean/Mediar					
9		Alternative i	Typotriesis	Sample 1 M				1				
10												
11	Sample 1 [)ata: Cr+6										
12	Sample 2 [Data: Bkornd	Cr+6									
14												
14			l	Raw Statistic	s							
16					Sample 1	Sample 2						
17			Number of	Valid Data	40	4						
18		Ν	Number of No	on-Detects	37	0						
19			Number	of Detects	3	4						
20			Minimum N	Ion-Detect	0.19	N/A						
21			Maximum N	Ion-Detect	0.21	N/A						
22			Percent No	on-detects	92.50%	0.00%						
23			Minim	um Detect	0.25	3.5						
24			Maxim	um Detect	1.7	8.34						
25			Mean	of Detects	0.77	5.753						
26			Median	of Detects	0.36	5.585						
27			SD	of Detects	0.807	1.995						
28				KM Mean	0.234	5.753						
29				KM SD	0.236	1.995						
30												
31		Sa	ample 1 vs S	Sample 2 Tar	one-Ware T	est						
32	110. Mar "	Andler of C	manle d - *	100m/141" -	of Commits of	.						
33	HU: Mean/I	viedian of Sa	imple 1 <= N	lean/median	or Sample 2	2						
34				TW/ Statiatia	9.047							
35			TW/ Critical		-8.047							
36				D. Volue	1.045							
37				r-value	1							
38	Conclusion	with Alpha	= 0.05									
39	Do Not 5		- 0.00 onclude Sem	nnle 1 <= Sau	mnle 2							
40	P-Value	>= alnha /0 /	(15)	ואס -ר ו סוקי	inhia T							
41	r-value	aipiia (0.	,									
42												

Multiple Box Plots





Cr+6

Total Number of Data = 40 Number of Non-Detects = 37 Number of Detects = 3 Detected Mean = 0.77 Detected Sd = 0.807 Slope (displayed data) = 0.1 Intercept (displayed data) = 0.249 Correlation, R = 0.414

BkgrndCr+6

Total Number of Data = 4 Number of Non-Detects = 0 Number of Detects = 4 Detected Mean = 5.753 Detected Sd = 1.995 Slope (displayed data) = 2.195 Intercept (displayed data) = 5.753 Correlation, R = 0.98

💌 Best Fit Line

APPENDIX F

Thallium Statistical Analyses

	А	В	С	D	E	F	G	Н		J	K	L
1			Gehan S	ample 1 vs S	Sample 2 Co	omparison H	ypothesis Te	est for Data	Sets with No	n-Detects		
2				1								
3		User Sele	cted Options									
4	Da	te/Time of Co	omputation	ProUCL 5.1	3/26/2017 8	:43:09 AM						
5			From File	Metals w Bk	grnd.xls							
6		Ful	Il Precision	OFF								
7		Confidence	Coefficient	95%								
8	Se	elected Null I	Hypothesis	Sample 1 M	ean/Median	<= Sample 2	2 Mean/Media	an (Form 1)				
9		Alternative I	Hypothesis	Sample 1 M	ean/Median	> Sample 2	Mean/Mediar	n				
10								1	1	1	1	
11												
12	Sample 1 D	Data: TI										
13	Sample 2 D	Data: Bkgrnd	TI									
14												
15				Raw Statistic	S							
16					Sample 1	Sample 2	1					
17			Number of	Valid Data	40	4						
18		N	lumber of No	on-Detects	39	4						
19			Number of D	etect Data	1	0						
20			Minimum N	lon-Detect	2.3	1.5						
21			Maximum N	lon-Detect	2.5	1.5						
22			Percent No	on-detects	97.50%	100.00%						
23			Minim	um Detect	13	N/A						
24			Maxim	um Detect	13	N/A						
25			Mean	of Detects	13	N/A						
26			Median	of Detects	13	N/A						
27			SD	of Detects	N/A	N/A						
28				KM Mean	2.568	N/A						
29				KM SD	1.671	N/A						
30			<u> </u>	<u> </u>	<u></u>							
31			Sample 1 v	s Sample 2	Gehan Test							
32												
33	H0: Mean/N	Median of Sa	mple 1 <= N	lean/Median	of backgrou	Ind						
34						1	1					
35			Gehan	z Test Value	0.316							
36			Cri	tical z (0.05)	1.645							
37				P-Value	0.376							
38												
39	Conclusion	with Alpha =	= 0.05									
40	Do Not F	Reject H0, Co	onclude Sam	ple 1 <= Sar	mple 2							
41	P-Value	>= alpha (0.0	05)									
42												

Multiple Box Plots





TI

Total Number of Data = 40 Number of Non-Detects = 39 Number of Detects = 1 Detected Mean = 13 Detected Sd = N/A Slope (displayed data) = 0.655 Intercept (displayed data) = 2.733 Correlation, R = 0.385

Bkgrnd TI

Total Number of Data = 4 Number of Non-Detects = 4 Number of Detects = 0 Detected Mean = N/A Detected Sd = N/A Slope (displayed data) = 1.399E-16 Intercept (displayed data) = 1.5 Correlation, R = N/A

🛃 Best Fit Line

APPENDIX G

ProUCL Statistics Soil Matrix

	А	В	С	D	E	F	G	Н		J	К	L
1					UCL Statis	ucs for Data	Sets with No	on-Detects				
2												
3	Det	User Sele			000017.00							
4	Da			TDU via	5/20/2017 2.	17.36 PIM						
5		Eul										
6				95%								
7	Number o	of Bootstran		2000								
8		Dootstrap	operations	2000								
9	TPH-a											
10												
12						General	Statistics					
12			Total	Number of O	bservations	40			Numbe	of Distinct O	bservations	23
14				Numbe	r of Detects	10				Number of N	Ion-Detects	30
15			N	umber of Dist	inct Detects	10			Numbe	er of Distinct N	Ion-Detects	13
16				Minir	num Detect	0.084				Minimum	Non-Detect	0.033
17				Maxir	num Detect	810				Maximum	Non-Detect	0.073
18				Varia	nce Detects	72406				Percent N	Ion-Detects	75%
19				Me	ean Detects	149					SD Detects	269.1
20				Med	lian Detects	7.45					CV Detects	1.806
21				Skewn	ess Detects	2.007				Kurto	sis Detects	3.863
22				Mean of Log	ged Detects	1.806				SD of Logg	jed Detects	3.447
23												
24					Norm	al GOF Tes	t on Detects	Only				
25			S	hapiro Wilk T	est Statistic	0.647			Shapiro Wi	lk GOF Test		
26			5% SI	hapiro Wilk C	ritical Value	0.842	D	etected Dat	a Not Norma	al at 5% Signif	icance Leve	l
27				Lilliefors T	est Statistic	0.392			Lilliefors	GOF Test		
28			5	% Lilliefors C	ritical Value	0.262	D	etected Dat	a Not Norma	al at 5% Signif	Icance Leve	
29				D		a Not Norma	i at 5% Signi	ricance Lev	el			
30			Kaplan	Mojor (KM) S	tatistics usi	ng Normal C	ritical Values	and other	Nonnaramat			
31			Каріан-		KM Mean	37.28			KN	A Standard Er	ror of Mean	23.84
32					KM SD	143				95% KM	(BCA) LICI	84 51
33				95%	KM (t) UCI	77 44			95% KM (P	ercentile Boo	(BOR) UCL	77.75
34				95%	KM (z) UCL	76.49				95% KM Boot	strap t UCL	137.8
აე ეი			ç	0% KM Chet	yshev UCL	108.8			ç	95% KM Cheb	yshev UCL	141.2
30			97	.5% KM Chet	yshev UCL	186.1			ę	9% KM Cheb	yshev UCL	274.4
38												
39				G	amma GOF	Tests on De	etected Obser	rvations Or	ly			
40				A-D T	est Statistic	0.581		A	nderson-Da	rling GOF Te	st	
41				5% A-D C	ritical Value	0.844	Detected	data appea	ır Gamma Di	stributed at 5°	% Significan	ce Level
42				K-S T	est Statistic	0.242		ł	Kolmogorov-	Smirnov GOF	-	
43				5% K-S C	ritical Value	0.293	Detected	data appea	r Gamma Di	stributed at 59	% Significand	ce Level
44				Detected	data appea	r Gamma Dis	stributed at 5	% Significa	nce Level			
45												
46					Gamma	Statistics or	Detected Da	ata Only				
47					k hat (MLE)	0.226			k	star (bias corr	ected MLE)	0.225
48				Thet	a hat (MLE)	660.2			Thetas	star (bias corr	ected MLE)	663.3
49				n	u hat (MLE)	4.515				nu star (bias	s corrected)	4.494
50				Me	an (detects)	149						

	A		В		С		D		Е		F		G		Н		I			J	L	k	<		L
51																									
52								Gam	ma RC	os s	Statistics u	usin	ig Impu	ted	Non-De	tects									
53				Gł	ROS ma	iy no	beuse	ed whe	en data	se	t has > 50°	% N	IDs with	ma	ny tied o	obser	vation	is at r	mult	iple DI	Ls				
54			GROS ma	ay no	t be use	d wh	en ksta	ar of de	etects	IS SI	mall such a	as <	<1.0, es	oeci	ally whe	en the	samp	ole siz	ze is	small	l (e.g	1., <1	5-20)		
55						or su	ich situ	ations	, GRO	S m	nethod may	y yie	eld inco	rrect	values	of UC	JLs ar	nd B I	Vs						
56								Inis	IS espe	ecia	lly true wh	ien t	ine sam	pie :		mall.									
57			For ga	mma	a distribi	uted	detecte	d data	n, BIVS	s an		iay t	be comp	oute	d using	gamr	na dis	tribut	lion		l esti	mate)S		07.00
58								r 	/iinimu	m	0.01											M	Iviean	-	37.26
59								IV		m	810														2 997
60								- Lí b			0.12							k _	tor	(hing (otod		_	3.887
61										=)	211						Τŀ		star					-	0.127
62										-) =)	0.585									ctar (10.2
63					Adjusto	dla				-)	9.565								nu		Dias			+	10.2
64			An	nrov	imate C			alua (a)	4 067					۵	diusto	d Chi	Sai	uare V	مىراد/	(10)	20 B)	_	3 922
65		0	AP						n	0)	4.007				05%	Com						(10.2	$\frac{20, p}{p < 50}$	_	06.01
66		3.	5 /6 Gamm	адр	pioxime				1112-5	0)	93.40				35 /0	Gam		ujusie	eu u		5e w		11~30)		90.91
67								Fetim	ates of	Ga	mma Para	amo	tore ue	ina	KM Feti	mata	e								
68								Me	an (Ki	<u>л</u>	37.28			ing i		mate	5					SD	(KM)		143
69								Variar		<u>/)</u>	20454									SF	= of N	Mean	(KM)	<u> </u>	23.84
70								k	hat (KN	л) Л)	0.068										- 01 H	star	(KM)	-	0.0795
71								nu	hat (KN	л) Л)	5.436										nı	u star	(KM)	<u> </u>	6.362
72								theta	hat (KN	л)	548.6										theta	star	(KM)	2	468.8
73					80	% aa	mma c	ercen	tile (KN	M)	17.54							90%	aa	mma r	oerce	entile	(KM)		88.06
74					95	% ga	imma p	ercen	tile (KN	, Л)	216.7							99%	5 gai	mma r	perce	entile	(KM)	E	362.1
75									,	,															
70									Gan	nma	a Kaplan-N	<i>l</i> leie	er (KM)	Stat	istics										
78			A	ppro	ximate (Chi S	quare	Value	(6.36,	α)	1.828					ŀ	Adjust	ed Ch	hi So	quare	Valu	e (6.	36, β))	1.738
70	(95% (Gamma Ap	oprox	kimate K	M-U	CL (use	e wher	n n>=5	0)	129.8			9	5% Gar	nma	Adjust	ted Kl	M-U	JCL (u	se w	hen	n<50)	1	136.4
80							95%	Gamn	na Adju	iste	d KM-UCL	_ (us	se wher	ı k<∹	=1 and 1	5 < r	i < 50))							
81																									
82								Logno	ormal C	GOF	- Test on I	Dete	ected O	bse	rvations	only	/								
83						Shap	iro Will	k Test	Statist	ic	0.912					S	Shapir	o Wil	k G	OF Te	est				
84					5% \$	Shap	iro Wilk	Critic	al Valu	Je	0.842		D	etec	ted Dat	a app	ear L	ognor	rmal	at 5%	₀́ Sig	nifica	ance l	Leve	el
85						l	illiefor	s Test	Statist	ic	0.164						Lillie	fors (GOF	= Test	i				
86						5% L	illiefors	s Critic	al Valu	Je	0.262		D	etec	cted Dat	a app	ear L	ognor	rmal	at 5%	₀́ Sig	nifica	ance l	_eve	el
87							De	etected	d Data	app	bear Logno	orma	al at 5%	6 Si	gnifican	ce Le	evel				-	-	-		
88																									
89								_ogno	rmal R	OS	Statistics	Usi	ing Imp	uteo	d Non-D	etect	S								
90						Ν	lean in	Origir	al Sca	le	37.26									Mea	an in	Log	Scale		-8.051
91							SD in	Origir	al Sca	le	144.8									S	D in	Log	Scale	1	6.869
92			95% t	UCL	(assum	es n	ormality	y of R0	OS dat	a)	75.84						9	5% P	Perc	entile	Boot	strap) UCL		77.48
93						95%	BCA	Bootst	rap UC	L	98.35								ç	Э5% В	oots	trap	t UCL	. 1	139.5
94						95	5% H-U	CL (L	og ROS	S) 2	2.165E+12														
95								145.5				_													
96					Stat	istics	using	KM e	stimate	es o	on Logged	Dat	ta and /	Assi	uming L	ogno	rmal [Distrit	butio	ิท					0.40-
97							KM	Mean	(logge	d)	-2.107							- ()			км (Geo	Mean		0.122
98					10:		K		(logge	d)	2.789						9	5% C	ritic	al H V	/alue	: (KM	I-Log)	_	4.992
99				K١	/I Standa	ard E	rror of	Mean	(logge	d)	0.465						~	F0/ 0	95	י% H-l		(KM	-Log)	_	55.13
100							K	MSD	(logge	d)	2.789						9	5% C	ritic	ai H V	alue	; (KM	I-Log)		4.992

	А	В	С	D	E	F	G	Н	I	J	K	L			
101			KM Standa	rd Error of M	lean (logged)	0.465									
102															
103						DL/2 S	Statistics								
104	A B C D E F G H I J K KM Standard Error of Mean (logged) 0.465 DL/2 Statistics DL/2 Normal DL/2 Normal Mean in Original Scale 37.27 Mean in Log Scale -2. SD in Original Scale 37.27 Mean in Log Scale -2. SD in Original Scale 144.8 SD in Log Scale 2 95% t UCL (Assumes normality) 75.86 95% H-Stat UCL 86 DL/2 is not a recommended method, provided for comparisons and historical reasons Nonparametric Distribution Free UCL Statistics Suggested UCL to Use Adjusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1) 136.4 136.4														
105				Mean in C	Priginal Scale	37.27				Mean	in Log Scale	-2.355			
106				SD in C	Priginal Scale	144.8				SD	in Log Scale	2.946			
107			95% t l	JCL (Assum	es normality)	75.86				95%	6 H-Stat UCL	86.46			
108		DL/2 is not a recommended method, provided for comparisons and historical reasons													
109	DL/2 is not a recommended method, provided for comparisons and historical reasons														
110		DL/2 is not a recommended method, provided for comparisons and historical reasons Nonparametric Distribution Free UCL Statistics													
111				Detected	d Data appea	r Gamma D	istributed at	5% Significa	ance Level						
112															
113						Suggested	UCL to Use)							
114	Adjusted K	M-UCL (use	e when k<=1 a	and 15 < n <	50 but k<=1)	136.4									
115															
116		Note: Sugge	estions regard	ing the sele	ction of a 95%	6 UCL are p	rovided to he	lp the user to	o select the n	nost appropri	iate 95% UCL	•			
117			F	Recommend	ations are ba	sed upon da	ta size, data	distribution,	and skewnes	SS.					
118		These reco	ommendations	are based	upon the resu	lts of the sir	nulation stud	ies summari	zed in Singh,	Maichle, an	d Lee (2006).				
119	Ho	owever, sim	ulations result	s will not co	ver all Real V	/orld data se	ets; for addition	onal insight t	he user may	want to cons	sult a statisticia	an.			
120															

	A	В	С	D	E	F	G	Н	I	J	K	L
1					UCL Statis	stics for Data	Sets with N	on-Detects				
2												
3		User Seleo	cted Options									
4	Date	e/Time of Co	omputation	ProUCL 5.1	3/20/2017 2:	18:38 PM						
5			From File	TPH.xls								
6		Ful	I Precision	OFF								
7	,	Confidence	Coefficient	95%								
8	Number o	f Bootstrap (Operations	2000								
9												
10	TPH-d											
11												
12						General	Statistics					
13			Total	Number of C	bservations)	40			Numbe	r of Distinct (Observations	5
14				Numbe	er of Detects	1				Number of	Non-Detects	39
15			N	umber of Dist	inct Detects	1			Numbe	er of Distinct	Non-Detects	4
16												
17	V	Varning: On	ly one distin	ct data value	was detect	ed! ProUCL	(or any othe	r software) s	hould not be	e used on su	uch a data se	t!
18	It is sugge	ested to use	alternative s	site specific v	alues deter	mined by the	Project Tea	im to estimat	e environm	ental param	eters (e.g., E	PC, BTV).
19												
20				Т	he data set	for variable ⁻	rPH-d was n	ot processe	1!			
21												
22												

	А	В	С	D	E	F	G	Н		J	K	L
1					UCL Statis	tics for Data	Sets with No	on-Detects				
2												
3		User Sele	cted Options									
4	Dat	te/Time of Co	omputation	ProUCL 5.13	3/20/2017 2:	19:14 PM						
5			From File	TPH.xls								
6		Fu	Il Precision	OFF								
7		Confidence	Coefficient	95%								
8	Number o	of Bootstrap	Operations	2000								
9												
10												
11						General	Statistics					
12			Total	Number of O	hservations	40	Glausiles		Numbe	r of Distinct (bservations	14
13			lota	Numbe	r of Detects	13			Numbe	Number of N	Non-Detects	27
14			N	umber of Disti	nct Detects	13			Numbe	er of Distinct N	Von-Detects	1
15				Minir	num Detect	10				Minimum	Non-Detect	5
16				Maxir	num Detect	5000				Maximum	Non-Detect	5
1/				Varia	nce Detects	3069105				Percent N	Non-Detects	67.5%
18				Me	an Detects	1157					SD Detects	1752
19				Med	ian Detects	280					CV Detects	1.514
20				Skewne	ess Detects	1.481				Kurte	osis Detects	0.683
21				Mean of Logo	ged Detects	5.476				SD of Log	ged Detects	2.142
22					-					-	-	
23					Norm	nal GOF Tes	t on Detects	Only				
25			S	hapiro Wilk T	est Statistic	0.691			Shapiro Wi	lk GOF Test		
26			5% SI	hapiro Wilk C	ritical Value	0.866	D	etected Dat	a Not Norma	al at 5% Signi	ficance Leve	
27				Lilliefors T	est Statistic	0.323			Lilliefors	GOF Test		
28			5	% Lilliefors C	ritical Value	0.234	D	etected Dat	a Not Norma	al at 5% Signi	ficance Leve	1
29				D	etected Data	a Not Norma	l at 5% Signi	ficance Lev	el			
30												
31			Kaplan-	Meier (KM) S	tatistics usi	ng Normal C	ritical Values	and other	Nonparame	tric UCLs		
32					KM Mean	379.4			K	A Standard E	rror of Mean	181.2
33					KM SD	1101				95% KM	(BCA) UCL	695.1
34				95%	KM (t) UCL	684.6			95% KM (F	ercentile Boo	otstrap) UCL	697.7
35				95%	KM (z) UCL	677.3				95% KM Boo	tstrap t UCL	883.6
36			ę	0% KM Cheb	yshev UCL	922.8			9	95% KM Chel	byshev UCL	1169
37			97	.5% KM Cheb	yshev UCL	1511			ļ	99% KM Chel	byshev UCL	2182
38												
39				Ga	amma GOF	Tests on De	etected Obse	rvations Or	ly _			
40				A-D T	est Statistic	0.515	D-1. 1	A	nderson-Da	riing GOF Te	st	
41				5% A-D C		0.807	Detected	data appea	ir Gamma D	stributed at 5	% Significan	ce Level
42				K-S I	est Statistic	0.1/1	Datasta			Smirnov GO		
43				5% K-S C		U.203	Delected			istributed at 5	no Significan	Ce Level
44				Derected	uata appeal			no Significa	IICE LEVEI			
45					Gammo	Statistics or	Detected D	ata Only				
46					k hat (MLE)	0 415			لم ا	star (hias cor	rected MI E)	0.37
47				Thet	a hat (MLE)	2789			Thete	star (hias con	rected MLE)	3124
48				n	u hat (MLE)	10.78			meta	nu star (hia	s corrected)	9.629
49				Me	an (detects)	1157						0.020
50				Wie c	(0010013)	,						

	A		В	0))	E	Ξ	F	G		Н		I		J			K	I	L
51																						
52				0.000	_			amma	a ROS	Statistics u	sing Imp		Non-Dete	ects			1.2 1					
53			0000	GROS	S may	not be	e used	when	data s	et has > 50%	NDS WI	ith ma	ny tied of	bserv	/ation	is at m	ultiple	DLs	i	15.00		
54			GROS may	y not be	e used	when	kstar	of dete		small such a	s <1.0, e	speci	ally when	1 the	samp		e is sm		ə.g.,	<15-20))	
55					FO	r such	situat	ions, G	iROS	method may	yield inc	correct	values c	of UC	Ls ar		/s					
56					- 4 - 1 4		41		especi	ally true whe	n the sa	imple s	size is sn	nall.				<u> </u>				
57			For gar	mma dis	stribut		ected	uata, E	31 VS 2		y be cor	npute	a using g	amm	ia dis	tributio	on on r		suma	ates		270
58								Mov		0.01										Media		3/6
59								Nax		1116												2.069
60								k hot		0.11						k et	or (hio		rroot			2.900
61							The	to bot		3404					Th			5 00	rroct			3164
62										9 9 9 9 7 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9								5 CUI				0 508
63				۸di	iustod			nifican		0.037							nu sta		35 00	mecleu	-	9.008
64			Δr			hi Saus	are Va		$\frac{ce(p)}{51(\alpha)}$	3 637				Δ	diust	ed Ch	i Sauai	re V:	مرياد	(9 51 B		3 501
65		c	مر 5% Gamma		vimate			when n	$\frac{51, 0}{5=50}$	983			95% (Gami	ma Δι	diuste			whe	$\frac{0.01}{0}$	/ \	1021
66					Annau	5 UCL	(use i	menn		300			3570 0			ujuste		(use			/	1021
67							F	stimate	e of G	amma Para	neters i	isina l	(M Estim	nates	2							
68							L.\	Mear) (KM)	379.4		Joing		nated							<u>)</u> .	1101
69							Va	ariance	• (KM)	1211787								SFc	of Me	an (KM	<u>/</u>	181.2
70								k hat	$\frac{1}{1}$ (KM)	0.119									ks	tar (KM		0.127
71								nu ha	t (KM)	9.5									nus	tar (KM)	10.12
72							th	eta ha	t (KM)	3194								th	eta s	tar (KM	$\frac{1}{2}$	2998
73					80%	aamn	na pe	rcentile	• (KM)	352.4						90%	gamm	a ne	rcent	tile (KM) ·	1090
74					95%	aamn	na pe	rcentile	• (KM)	2149						99%	aamm	ape	rcent	tile (KM) !	5342
75						- J -											J-			- (/	
70									Gamn	na Kaplan-M	eier (KN	1) Stat	istics									
78			Арр	oroxima	te Chi	Squar	re Val	ue (10.	.12, α)	4.018	•	-		Ad	ljuste	d Chi	Square	e Val	ue (1	I0.12, β)	3.874
70		95%	Gamma Ap	proxima	ate KN	1-UCL	(use v	when n	>=50)	955.6		9	5% Gam	ima A	Adjust	ted KN	/I-UCL	(use	whe	en n<50)	991.1
80																					_	
81							Lo	ognorn	nal GC	OF Test on D	etected	Obse	rvations	Only	,							
82					S	hapiro	Wilk	Test St	atistic	0.935				S	hapir	o Wilk	GOF	Test	t			
83					5% Sł	napiro	Wilk (Critical	Value	0.866		Detec	ted Data	app	ear Lo	ognori	nal at !	<u></u> 5% इ	Signif	ficance	Le	vel
84						Lillie	efors -	Test St	atistic	0.126					Lillie	fors C	iOF Te	əst				
85					5	% Lillie	efors (Critical	Value	0.234		Detec	ted Data	app	ear Lo	ognori	mal at !	५% इ	Signif	ficance	Le	vel
86							Dete	ected D)ata ar	opear Logno	rmal at §	5% Sig	gnificanc	e Le	vel							
87																			-			
88							Lo	gnorm	al RO	S Statistics	Jsing Im	nputec	l Non-De	etects	5							
89						Mea	n in O	riginal	Scale	377							Μ	lean	in Lo	og Scale	э	0.543
90						S	D in O	riginal	Scale	1116								SD	in Lo	og Scale	Э	4.377
91			95% t L	JCL (as	ssume	s norm	nality o	of ROS	data)	674.2					9	5% Pe	ercenti	le Bo	ootsti	rap UCI	-	675.3
92					ç	95% B(CA Bo	ootstrap	p UCL	772							95%	Boo	otstra	ap t UCI	-	940.9
93						95%	H-UC	L (Log	ROS)	4979590												
94																						
95					Statis	tics us	sing K	M esti	mates	on Logged I	Data and	d Assu	iming Lo	gnor	mal C	Distrib	ution					
96						I	KM M	ean (lo	gged)	2.866								K	M Ge	eo Mear	٦	17.57
97							KM	SD (lo	gged)	2.158					9	5% Cı	ritical H	1 Val	ue (ł	≺M-Log)	4.013
98				KM St	tandar	d Erro	r of M	ean (lo	gged)	0.355							95% I	H-UC	CL (K	(M -Log)	721.2
99							KM	SD (lo	gged)	2.158					9	5% Ci	ritical H	1 Val	ue (ł	≺M-Log)	4.013
100				KM St	tandar	d Erro	r of M	ean (lo	gged)	0.355												

	А	В	С	D	E	F	G	Н	I	J	K	L		
101														
102						DL/2 S	tatistics							
103			DL/2	Normal					DL/2 Log-1	Fransformed				
104				Mean in O	riginal Scale	377.7				Mean	in Log Scale	2.398		
105				SD in O	riginal Scale	1115				SD	in Log Scale	2.468		
106			95% t l	JCL (Assume	es normality)	674.8				95%	6 H-Stat UCL	1363		
107		DL/2 is not a recommended method, provided for comparisons and historical reasons												
108	DL/2 is not a recommended method, provided for comparisons and historical reasons Nonparametric Distribution Free UCL Statistics													
109	Nonparametric Distribution Free UCL Statistics													
110				Detected	Data appea	r Gamma Di	stributed at	5% Significa	ance Level					
111														
112						Suggested	UCL to Use							
113	Adjusted K	M-UCL (use	when k<=1 a	and 15 < n <	50 but k<=1)	991.1								
114														
115	I	Note: Sugge	stions regard	ling the seled	tion of a 95%	6 UCL are pr	ovided to hel	p the user to	select the n	nost appropri	ate 95% UCI			
116			F	Recommenda	ations are ba	sed upon dat	a size, data	distribution,	and skewnes	SS.				
117		These reco	mmendations	s are based u	ipon the resu	Its of the sim	ulation studi	es summariz	zed in Singh,	Maichle, an	d Lee (2006).			
118	Но	wever, simu	lations result	s will not cov	ver all Real V	Vorld data se	ts; for additic	onal insight t	he user may	want to cons	ult a statistic	ian.		
119														

	А	В	С	D	E	F	G	Н		J	K	L
1					UCL Statis	tics for Data	Sets with N	on-Detects				
2			-	1								
3		User Sele	cted Options									
4	Da	te/Time of Co	omputation	ProUCL 5.13	3/20/2017 2:	20:11 PM						
5			From File	TPH.xls								
6		Ful	Il Precision	OFF								
7		Confidence	Coefficient	95%								
8	Number o	of Bootstrap (Operations	2000								
9	Americation											
10	Aromatic L	w										
11						Gonoral	Statistics					
12			Total	Number of O	hearvations	200	Statistics		Numbo	r of Distinct (beenvations	25
13			TOtal	Number of O	or of Detects	200			Number	Number of N	Non-Detects	174
14			N		inct Detects	20			Numbe	ar of Distinct	Non-Detects	4
15				Minii		1			Numbe	Minimum	Non-Detect	1
16				Махі		930				Maximum	Non-Detect	20
17				Varia	nce Detects	57931				Percent	Non-Detects	87%
18				M	ean Detects	195.1					SD Detects	240.7
19				Med	lian Detects	103					CV Detects	1.234
20				Skewn	ess Detects	1.569				Kurte	osis Detects	2.22
21				Mean of Log	ged Detects	4.124				SD of Log	ged Detects	1.934
22											•	
23					Norm	nal GOF Tes	t on Detects	Only				
24			S	hapiro Wilk T	est Statistic	0.791			Shapiro Wi	lk GOF Test		
26			5% S	hapiro Wilk C	ritical Value	0.92	[Detected Dat	a Not Norma	al at 5% Signi	ficance Leve	
27				Lilliefors T	est Statistic	0.218			Lilliefors	GOF Test		
28			5	% Lilliefors C	ritical Value	0.17	[Detected Dat	a Not Norma	al at 5% Signi	ficance Leve	
29				D	etected Data	a Not Norma	l at 5% Sign	ificance Lev	el			
30												
31			Kaplan-	Meier (KM) S	tatistics usi	ng Normal C	ritical Value	s and other	Nonparamet	tric UCLs		
32					KM Mean	26.24			KN	I Standard E	rror of Mean	7.734
33					KM SD	107.3				95% KM	(BCA) UCL	41.13
34				95%	KM (t) UCL	39.02			95% KM (P	ercentile Boo	otstrap) UCL	39.18
35				95%	KM (z) UCL	38.96				95% KM Boo	tstrap t UCL	44.78
36			ç	90% KM Chet	byshev UCL	49.44			(95% KM Chel	byshev UCL	59.95
37			97	.5% KM Chet	byshev UCL	74.54			ę	99% KM Chel	byshev UCL	103.2
38												
39				G	amma GOF	Tests on De	etected Obse	ervations On	ly			
40				A-D T	est Statistic	0.401		A	nderson-Da	rling GOF Te	st	
41				5% A-D C	ritical Value	0.804	Detected	data appea	ir Gamma Di	stributed at 5	% Significant	ce Level
42				K-S I	est Statistic	0.126	D · · ·	۴ 	Colmogorov-	Smirnov GO	F	
43				5% K-S C	deta area	0.181	Detected	u data appea	ir Gamma Di	stributed at 5	5 Significant	ce Level
44				Detected	uata appea	Gamma Di	Surpried at 5	o % significa	IICE LEVEI			
45					Commo	Statistics cr		ata Only				
46									با	star (biac cor		በ ፍሰջ
47				That	a hat (MLE)	357.0			Theta	star (bias con		384 1
48				n	u hat (MLE)	28.35			i ileid 3	nıı star (hia		26.41
49					and (MLL)	195 1				ווט סנמו (טומ	s conecteu)	20.71
50				ivie		195.1						

	A	В		E	F		G	Н					J		K			L						
51																								
52							(Jamm		5 Statistics	usi	ng Imputed	I Non-De	etects	3									
53			0000	GRO	S may	not be	e usec	I wher	i data s	set has > 50)%	NDs with m	any tied	obse	rvatio	ns at r	mult		_S		- 00			
54			GROS may	y not b	e used	wnen	kstar	of det		small such	as	<1.0, espe	cially wh	en th	e sam			small	(e.g	., <15	5-20)			
55					FO	r sucn	situat	This is	JRUS	method ma	iy y	the comple			CLS a	ina B I	IVS							
56				mma di	iotribut	od dot	aatad		espec		nen			sman	madi	otribut	tion		ooti	moto				
57			FOI gai	mma u	ISTIDUT	eu uei	ecteu	uata,			0.01 Mean													
58								Ma	vimum	0.01										N			0.37	
59								IVIA		107.7													1 245	
60								k hat		0 118			CV											
61							The	ta hat		214.1					т	heta s	star	(bias c	orre	cted I		21	14	
62								nu hat		47.4					•		nıı	star (h	nias		cted)	4	8.02	
63				Ac	liusted	Level	of Sic	inifica	$\frac{(m-2)}{nce(\beta)}$	0.0488														
64			Apr	oroxima	ate Chi	i Sauai	re Val	ue (48	3.02. α)	33.11				A	diuste	ed Chi	i Saı	Jare Va	alue	(48.0)2. B)	3	3.02	
65		95% Gamma	36.8			95%	Gar	nma /	Adiuste	ed U		se w	hen r	(<50)	3	6.9								
66									. ajuon		01 (40			,										
6/							E	stimat	es of C	amma Par	am	eters using	KM Est	imate	es									
68								Mea	n (KM)	26.24										SD	(KM)	10	7.3	
- 69 - 70							V	arianc	e (KM)	11503								SE	of N	Jean	(KM)		7.734	
70								k ha	at (KM)	0.0599									k	star	(KM)	0	.0623	
71	nu hat (KM									23.95									nu	ı star	(KM)	2	4.92	
72	theta hat (KM)									438.3								t	heta	a star	(KM)	42	1.2	
73	80% gamma percentile (KM)									7.027						90%	6 gai	mma p	erce	entile	(KM)	5	1.21	
74	95% gamma percentile (KM)									148.2		99% gamma percentile (KM)											0.9	
76																								
77	Gamm										Mei	ier (KM) St	atistics											
78			App	proxima	ate Chi	i Squa	re Val	ue (24	1.92, α)	14.55				A	djuste	ed Chi	i Sqı	Jare Va	alue	(24.9	θ2, β)	1	4.49	
79		95%	Gamma Ap	proxim	ate KM	1-UCL	(use v	when	n>=50)	44.94			95% Gamma Adjusted KM-UCL (use when n<50)										5.12	
80																								
81							L	ognor	mal GC	OF Test on	est on Detected Observations Only													
82					S	hapiro	Wilk	Test S	tatistic	0.929			Shapiro Wilk GOF Test											
83					5% Sł	napiro	Wilk (Critica	l Value	0.92		Dete	ected Da	ta ap	pear l	ogno	rmal	at 5%	Sig	nifica	nce L	evel		
84						Lilli	efors	Test S	tatistic	0.177					Lilli	efors	GOF	- Test						
85					59	% Lillie	efors (Critica	l Value	0.17		De	etected D)ata I	Not Lo	gnorm	nal a	it 5% S	Signi	ficano	ce Le	/el		
86						Detec	cted D)ata a	ppear /	Approximat	e L	ognormal a	at 5% Sig	gnific	ance	Level								
87																								
88							Lo	ognorr	nal RO	S Statistics	s U	sing Impute	ed Non-I	Detec	ts									
89						Mea	n in C	rigina	l Scale	25.75								Mea	n in	Log S	Scale	-3	.013	
90						S	D in C	rigina	l Scale	107.6								SI	D in	Log S	Scale	2	1.325	
91			95% t l	UCL (a	ssume	s norm	nality	of RO	S data)	38.32						95% F	Perc	entile E	Boot	strap	UCL	3	9.46	
92	95% BCA Bootstrap								ip UCL	43.04							ç	95% B	oots	trap t	UCL	4	3.73	
93	95% H-UCL (Log ROS							J ROS)	3794															
94	On the state of th																							
95					Statis	tics us	sing K	M est	imates	on Logged	1 Da	ata and As	suming l	ogno	ormal	Distril	butio	on			_			
96							KM M	ean (l	ogged)	0.539								I	KM (Geo M	Mean		1.714	
97							KM	SD (I	ogged)	1.547						95% C	Critic	al H V	alue	: (KM-	-Log)	2	2.714	
98				KM S	Standar	rd Erro	or of M	ean (l	ogged)	0.112							95	5% H-L	JCL	(KM -	-Log)	-	7.633	
99	KM SD (logg									1.547						95% C	Critic	al H V	alue	: (KM-	-Log)	2	2.714	
100				KM S	standar	rd Erro	r ot M	ean (l	ogged)	0.112														

	А	В	С	D	E	F	G	Н	I	J	K	L							
101																			
102						DL/2 S	tatistics												
103			DL/2	Normal			DL/2 Log-Transformed												
104				Mean in O	riginal Scale	26.19				Mean	in Log Scale	0.161							
105				SD in O	riginal Scale	107.5				SD	in Log Scale	1.796							
106			95% t l	JCL (Assume	es normality)	38.76				95%	6 H-Stat UCL	8.63							
107		DL/2 is not a recommended method, provided for comparisons and historical reasons																	
108		Nonnegementatic Distribution Error U.O. Otestistics																	
109	Nonparametric Distribution Free UCL Statistics																		
110	Detected Data appear Gamma Distributed at 5% Significance Level																		
111																			
112						Suggested	UCL to Use												
113			95% KM A	pproximate (Gamma UCL	44.94													
114																			
115	1	Note: Sugge	stions regard	ing the selec	tion of a 95%	6 UCL are pr	ovided to hel	p the user to	select the n	nost appropri	iate 95% UCL								
116			F	Recommenda	tions are ba	sed upon dat	a size, data	distribution,	and skewnes	SS.									
117		These record	mmendations	s are based ι	ipon the resu	Its of the sim	nulation studi	es summariz	zed in Singh,	Maichle, an	d Lee (2006).								
118	Но	wever, simu	lations result	s will not cov	er all Real V	/orld data se	ts; for additic	onal insight th	ne user may	want to cons	sult a statistic	ian.							
119																			

	А	В	С	D	E	F	G	Н		J	К	L
1					UCL Statis	tics for Data	Sets with No	on-Detects				
2				T								
3		User Sele	cted Options		0000017.0							
4	Da	te/Time of Co		TDU vie	3/20/2017 2:	21:11 PM						
5		Eul										
6		Confidence										
7	Number	of Bootstran (2000								
8	Number (Operations	2000								
9	Aromatic M	edium										
10		Culum										
10						General	Statistics					
12			Total	Number of O	bservations	200			Numbe	r of Distinct O	bservations	47
14				Numbe	r of Detects	44				Number of N	Ion-Detects	156
15			N	umber of Dist	inct Detects	43			Numbe	er of Distinct N	Ion-Detects	5
16				Mini	mum Detect	1.1				Minimum	Non-Detect	1
17				Maxi	mum Detect	1300				Maximum	Non-Detect	20
18				Varia	nce Detects	102581				Percent N	Ion-Detects	78%
19				M	ean Detects	191.9					SD Detects	320.3
20				Med	lian Detects	21.5					CV Detects	1.669
21				Skewn	ess Detects	1.86				Kurto	osis Detects	2.807
22				Mean of Log	ged Detects	3.386				SD of Log	ged Detects	2.192
23						•						
24					Norm	nal GOF Tes	t on Detects	Only				
25			S	hapiro Wilk T	est Statistic	0.657			Shapiro Wi	lk GOF Test	-	
26			5% SI	hapiro Wilk C	ritical Value	0.944		Detected Dat	a Not Norma	al at 5% Signi	ficance Level	
27				Lilliefors T	est Statistic	0.329			Lilliefors	GOF Test	<u> </u>	
28			5	% Lilliefors C	ritical Value	0.132	Lat 5% Olari	Detected Dat	a Not Norma	al at 5% Signi	ficance Level	
29				D		a Not Norma	i at 5% Sign	ITICANCE Lev	el			
30			Kanlan-	Moior (KM) S	tatietice uei	ng Normal C	ritical Value	s and other	Nonnaramet			
31			Каріан-		KM Mean					A Standard Er	ror of Mean	12.03
32						168.2						63.43
33				95%	KM (t) UCI	62.89			95% KM (P	ercentile Boo	(BOA) UCL	63 22
34				95%	KM (z) UCL	62.8				95% KM Boot	tstrap t UCL	69.56
35			ç	0% KM Chel	oyshev UCL	79.11			g	95% KM Chet	oyshev UCL	95.46
30 27			97	.5% KM Chel	byshev UCL	118.2			(99% KM Chet	byshev UCL	162.7
32												
39				G	amma GOF	Tests on De	tected Obse	rvations On	ly			
40				A-D T	est Statistic	2.162		Α	nderson-Da	rling GOF Te	st	
41				5% A-D C	ritical Value	0.847	Detecte	ed Data Not	Gamma Dis	tributed at 5%	Significance	e Level
42				K-S T	est Statistic	0.169		k	Colmogorov-	Smirnov GO	=	
43				5% K-S C	ritical Value	0.144	Detecte	ed Data Not	Gamma Dis	tributed at 5%	Significance	e Level
44				Detecte	d Data Not (Gamma Dist	ributed at 5%	6 Significano	ce Level			
45												
46					Gamma	Statistics or	Detected D	ata Only				
47					k hat (MLE)	0.358			k	star (bias corr	ected MLE)	0.349
48				Thet	a hat (MLE)	535.7			Thetas	star (bias corr	ected MLE)	550
49				n	u hat (MLE)	31.52				nu star (bias	s corrected)	30.7
50				Me	an (detects)	191.9						

	A		В		С		D		E	F		G	Н		I		J		k	(L			
51												<u> </u>													
52								Gamn	na ROS	5 Statistics															
53				GF	ROS may	/ not l	be used	d wher	n data s	set has > 50	% N	NDs with n	hany tied	obse	rvatio	ns at n	nultiple I	DLs		- 00					
54	For such situations, GROS method may vield in													. < i.u, especially when the sample size is small (e.g., <15-20)											
55					FC	or suc	h situa	tions,	GROS	method ma															
56								I his is	s espec	any rue when the sample size is small.															
57			For gai	amma	distribu	ted d	etected	data,	BIVS		UCLS may be computed using gamma distribution on KM estimates														
58								IVI	inimum	0.01										Mean	4	,2.22			
59								Ma	aximum	1300	_								IVI	edian		1.01			
60								. I. I		168.9			CV k otor (bios corrected MIE												
61							Th	к na		0.12						K S	tar (blas	corr			- 24	J. 122			
62							Ine			350.9					1	neta s	tar (blas	(bier			34	0.0			
63					Adjustes	11.01				40.12	_						nu star	(bias	s corre	ecieu)	4	:0.73			
64				nrovi					$\frac{1}{2}$	0.0400				^	diucto	d Chi	Squara	Volu	0 (19	72 0)		2 62			
65					61.04			059/	F Cor				valu	e (40.	73, p		3.02								
66		5% Gamma	01.04			95%	Gar	nma A	ajuste		use	when i	1<50))1.2										
67								otimot	too of (Sommo Dor		toro unin	a KM Eat	imot											
68								Moa			ame			inau	55					(KM)	16	222			
69								Varianc		43.01							c	E of	Moon			12.03			
70							v	anano k h		0.0653									k star	(KM)		2.03			
71			26.14								r				0077										
72			658 1								tho			67	25.2										
73			14.22						0.00/					03	0.22										
74			246.3		80	10.33																			
75	95% gamma percentile (KM)									240.5						9970	yamma	i perc	,enuie		02	.2.0			
76											Meie	er (KM) St	atistics												
77			Anı	nroxi	mate Ch	i Sau	are Va	lue (2	7 08 a					Δ	diuste	d Chi	Square	Valu	e (27 (08 B)	1	6 15			
78		95%	Gamma An		imate KN			when	$\frac{1}{n > = 50}$	71.83	_		Adjusted Chi Square Value (27.08, β)												
79		0070		pprox			2 (000			71.00				3570 Gamma Aujusteu Awi-UCL (USE When N<50)											
08							L	oanor	mal G(OF Test on	Detected Observations Only														
81					S	Shapir	o Wilk	Test S	Statistic	0.913															
82					5% S	hapir	o Wilk	Critica	l Value	0.944		D	Detected Data Not Lognormal at 5% Significance Lev												
83						Li	liefors	Test S	Statistic	0.132			Lilliefors GOF Test												
84 95					5	5% Lil	liefors	Critica	l Value	0.132		Detected Data appear Loanormal at 5% Significance Leve													
C0 32						Det	ected [Data a	ppear	Approximat	e Lo	ognormal	at 5% Sic	nific	ance l	_evel									
00 07									••			•	-												
07 89							L	ognori	mal RC	S Statistics	s Us	ing Imput	ed Non-D	Detec	ts										
80						Me	an in C	Drigina	I Scale	42.35	Τ						Me	ean ii	n Log :	Scale	-2	2.795			
09							SD in C	- Drigina	I Scale	168.8	+							SD ii	n Log :	Scale	4	4.537			
Q1			95% t l	UCL	(assume	es noi	mality	of RO	S data)	62.08	+				ç	95% P	ercentile	e Boo	otstrap	UCL	6	3.3			
91	95% BCA Bootstran UC									66.67	+	95% Bootstrap t UCL									6	\$8.77			
02						95%	6 H-UC	L (Log	g ROS)	14480	+														
93 Q/I										1															
95	Statistics using KM estima								timates	on Logged	l Da	ta and As	suming L	ogno	ormal	Distrik	oution								
96							KM N	lean (l	ogged)	0.753			-					ΚN	l Geo	Mean	;	2.124			
97							KN	1 SD (I	ogged)	1.732					ç	95% C	ritical H	Valu	ie (KM	-Log)	;	2.919			
98				KN	I Standa	rd Er	or of N	lean (l	ogged)	0.124							95% H	I-UCI	L (KM	-Log)	1	3.62			
99							KN	1 SD (I	ogged)	1.732					ç	95% C	ritical H	Valu	ie (KM	-Log)	;	2.919			
100				KN	I Standa	rd Er	or of N	lean (l	ogged)	0.124															
100								(,																

	А	В	С	D	E	F	G	Н	I	J	K	L							
101																			
102						DL/2 S	tatistics												
103			DL/2	Normal			DL/2 Log-Transformed												
104				Mean in C	riginal Scale	42.85				Mean	in Log Scale	0.356							
105				SD in C	riginal Scale	168.7				SD	in Log Scale	1.978							
106			95% t l	JCL (Assume	es normality)	62.57				95%	6 H-Stat UCL	15.84							
107		DL/2 is not a recommended method, provided for comparisons and historical reasons																	
108																			
109	Nonparametric Distribution Free UCL Statistics																		
110	Detected Data appear Approximate Lognormal Distributed at 5% Significance Level																		
111																			
112						Suggested	UCL to Use												
113					KM H-UCL	13.62													
114																			
115	1	Note: Sugge	stions regard	ling the seled	tion of a 95%	6 UCL are pr	ovided to he	lp the user to	o select the r	nost appropr	iate 95% UCL								
116			F	Recommenda	ations are ba	sed upon dat	a size, data	distribution,	and skewne	SS.									
117		These reco	mmendation	s are based u	ipon the resu	Its of the sim	nulation studi	ies summari:	zed in Singh	, Maichle, an	d Lee (2006).								
118	Но	wever, simu	lations result	s will not cov	ver all Real V	/orld data se	ts; for additio	onal insight t	he user may	want to cons	sult a statistici	an.							
119																			

	А	В	С	D	E	F	G	Н		J	K	L
1					UCL Statis	tics for Data	Sets with N	on-Detects				
2				T								
3		User Sele	cted Options									
4	Da	te/Time of Co	omputation	ProUCL 5.13	3/20/2017 2:	21:58 PM						
5			From File	TPH.xls								
6		Ful	Il Precision	OFF								
7		Confidence	Coefficient	95%								
8	Number o	of Bootstrap (Operations	2000								
9	A	! la										
10	Aromatic H	ign										
11						Gonoral	Statistics					
12			Total	Number of O	hearvations	120	Statistics		Numbo	r of Distinct ()	beenvations	33
13			10141	Number of O	or of Detects	39			Number	Number of N	Non-Detects	81
14			N		inct Detects	33			Numbe	ar of Distinct N	Non-Detects	1
15				Minii		1			Numbe	Minimum	Non-Detect	1
16				Maxii	num Detect	1200				Maximum	Non-Detect	1
17				Varia	nce Detects	162179				Percent	Non-Detects	67.5%
18				M	ean Detects	284.2					SD Detects	402.7
19				Mec	lian Detects	78					CV Detects	1 417
20				Skewn	ess Detects	1.397				Kurto	osis Detects	0.448
21				Mean of Log	aed Detects	4.17				SD of Log	aed Detects	2.073
22					J					3	J	
23					Norm	nal GOF Tes	t on Detects	Only				
24			S	hapiro Wilk T	est Statistic	0.698		•	Shapiro Wi	lk GOF Test		
20			5% S	hapiro Wilk C	ritical Value	0.939	[Detected Dat	a Not Norma	al at 5% Signi	ficance Leve	l
20				Lilliefors T	est Statistic	0.281			Lilliefors	GOF Test		
27			5	% Lilliefors C	ritical Value	0.14	[Detected Dat	a Not Norma	al at 5% Signi	ficance Leve	
29				D	etected Dat	a Not Norma	l at 5% Sign	ificance Lev	el			
30												
31			Kaplan-	Meier (KM) S	statistics usi	ng Normal C	ritical Value	s and other	Nonparamet	tric UCLs		
32					KM Mean	93.05			KN	A Standard E	rror of Mean	24.28
33					KM SD	262.6				95% KM	(BCA) UCL	135.7
34				95%	KM (t) UCL	133.3			95% KM (P	ercentile Boo	otstrap) UCL	133.5
35				95%	KM (z) UCL	133				95% KM Boo	tstrap t UCL	143.8
36			ę	0% KM Chet	byshev UCL	165.9			ę	95% KM Chel	byshev UCL	198.9
37			97	.5% KM Chet	oyshev UCL	244.7			ę	99% KM Chel	byshev UCL	334.7
38												
39				G	amma GOF	Tests on De	etected Obse	ervations On	ly			
40				A-D T	est Statistic	0.963		A	nderson-Da	rling GOF Te	st	
41				5% A-D C	ritical Value	0.827	Detecte	ed Data Not	Gamma Dis	tributed at 5%	5 Significance	e Level
42				K-S T	est Statistic	0.136		ŀ	Colmogorov-	Smirnov GO	F	
43				5% K-S C	ritical Value	0.151	Detected	d data appea	r Gamma Di	stributed at 5	% Significan	ce Level
44				Detected da	ta follow Ap	pr. Gamma I	Distribution a	at 5% Signifi	cance Leve			
45						0	B =					
46					Gamma	Statistics or	Detected D	ata Only				0.400
47					κ nat (MLE)	0.438				star (bias cori	rected MLE)	0.422
48				Thet	a hat (MLE)	648.5			I heta s	star (bias cori	rected MLE)	6/4.1
49				n	u hat (MLE)	34.18				nu star (bia	s corrected)	32.89
50				Me	an (detects)	284.2						

	A	1	В	Е		F		G		Н		I			J		K			L					
51					tatietice u	eina	Imput	tod N	lon-De	tocte															
52				GR	OS may	(not	house		n data	sot sot	$has > 50^{\circ}$) mpu		ov tied	obsor	vation	ne at r	nulti	nla Di	\$				
53			GROS ma				n ksta			sem	nall such a	n 112		necia	ally whe	obsci	samr			small		<15	-20)		
54				iy not	Fc		h situ	ations	GROS	S me	thod may		d inco	rrect	values		l s ar	nd BT		oman	(0.g.	, 10	20)		
55					1.6			This i	s espe	ciall	v true whe	en th	e sam	noet inle s	ize is s	small	20 01		••						
56			For da	mma	distribu	ted d	etecte	d data	BTVs	and	UCI s ma	av be	e comr		Lusina	namn	na dis	tribut	ion d	on KM	estir	nates			
57								N	, <u> </u>	n	0.01	.,			. aong	94						N	lean		92.38
58								M	aximur	 n 1	1200											Me	dian		0.01
59									S	D	263.9												CV	'	2.857
60								k ha	at (MLE)	0.126							k s	tar (bias c	orrec	ted N	ILE)		0.128
62							Th	neta ha	at (MLE)	735.9						Tł	neta s	star (bias c	orrec	ted N	, /LE)	7	/22
62								nu ha	at (MLE)	30.13								nu	star (t	oias d	correc	ted)		30.71
64	Adjusted Level of Significance (β)										0.048														
65	Approximate Chi Square Value (30.71, α)										19.05					Ac	ljuste	d Chi	Squ	are V	alue	(30.7	1, β)		18.94
66	95% Gamma Approximate UCL (use when n>=50)										148.9				95%	Gam	ma A	djuste	ed U	CL (us	se wł	ien n	<50)	1	49.8
67							-			-															
68							E	Estima	ates of	Gan	nma Para	mete	ers us	ing k	M Est	imate	5								
69								Ме	an (KN	1)	93.05											SD ((KM)	2	262.6
70							١	Varian	ce (KN	1) 6	8953									SE	of M	ean ((KM)		24.28
71								k١	nat (KM	1)	0.126										k	star ((KM)		0.128
72								nu ł	nat (KM	1)	30.13										nu	star ((KM)		30.71
73	theta hat (KM)										741.1									t	heta	star ((KM)	7	27.1
74	80% gamma percentile (KM)										87.48							90%	gar	nma p	erce	ntile ((KM)	2	268
75	95% gamma percentile (KM)										526.3	99% gamma percentile (KM)											1	303	
76																									
77	7 Gamma Kaplan-Meier (KM) Stati													stics											
78			Ap	proxir	nate Ch	i Squ	iare Va	alue (3	80.71, c	a)	19.05	Adjusted Chi Square Value (30.71, β)													18.94
79		95% (Gamma Ap	oproxi	mate KN	M-UC	L (use	when	n>=50))	150		95% Gamma Adjusted KM-UCL (use when n<50)											1	50.9
80																									
81								Logno	rmal G	iOF	Test on D)etec	cted O	bser	vation	s Only	'								
82					S	Shapi	ro Wilk	Test	Statisti	С	0.938					S	hapir	o Will	k G0	OF Te	st				
83					5% S	hapir	o Wilk	Critic	al Valu	е	0.939			Detected Data Not Lognormal at 5% Significance Leve										evel	
84						Li	lliefors	Test	Statisti	с	0.0912		Lilliefors GOF Test												
85					5	5% Li	liefors	Critic	al Valu	е	0.14		D	etec	ted Dat	ta app	ear L	ognor	rmal	at 5%	Sigr	ificar	nce l	_eve	el
86						Det	ected	Data a	appear	Арг	proximate	Log	Inorma	al at	5% Sig	Inifica	nce L	.evel							
87																									
88							L	.ognor	rmal R	oss	Statistics	Usin	ng Imp	uted	Non-E)etect	S							-	
89						Me	ean in	Origin	al Scal	е	92.84									Mea	n in l	_og S	cale		-0.171
90							SD in	Origin	al Scal	e	263.8									S	D in l	_og S	cale		3.901
91			95% t	UCL (assume	es no	rmality	of RC	DS data	a)	132.8	95% Percentile Bootstrap UCL									1	35.8			
92	95% BCA Bootstrap									L	141.4								9	95% B	ootst	rap t	UCL	1	43.1
93	95% H-UCL (Log ROS								5) 1	3868															
94					<u> </u>			1/1 *									• -								
95									stimate	s or		Data	a and /	Assu	ming L	ognoi	mal [Jistrik	outic	n	1/1 / -		4 -		0.070
96							KMI	viean	logged	1)	1.355												iean		3.878
97				1/1.4	0		K	VI SD (logged	1)	2.275						9	15% C	ritic	ai H V		(KM-	Log)		3.684
98				КM	Standa	rd Er	ror of I	viean	logged	1)	0.21								95	% H-l		KM -	Log)	1	11.2
99	KM Standard Error of Moon (lagged)										2.275						9	15% C	ritic	ai H V	aiue	(KIVI-	∟og)		3.084
100				ΝM	Sianda	iu Eľ	I UT OT I	viean	linddeo	ı)	U.Z I														
	А	В	С	D	E	F	G	Н	I	J	K	L													
-----	--	--------------	------------------	----------------	----------------	-----------------	-----------------	-----------------	---------------	---------------	-----------------	-------	--	--	--										
101																									
102						DL/2 S	tatistics																		
103			DL/2	Normal					DL/2 Log-	Fransformed															
104				Mean in C	riginal Scale	92.71				Mean	in Log Scale	0.887													
105				SD in C	riginal Scale	263.8				SD	in Log Scale	2.57													
106			95% t l	JCL (Assum	es normality)	132.6				95%	6 H-Stat UCL	172													
107			DL/2	is not a reco	mmended m	ethod, provi	ded for comp	parisons and	historical r	easons		1													
108																									
109					Nonparame	etric Distribu	tion Free UC	L Statistics																	
110	10 Detected Data appear Approximate Gamma Distributed at 5% Significance Level																								
111																									
112						Suggested	UCL to Use																		
113			95% KM A	pproximate	Gamma UCL	150																			
114																									
115			When a c	lata set follo	ws an approx	kimate (e.g., i	normal) distri	bution passi	ng one of the	e GOF test															
116		When app	licable, it is s	suggested to	use a UCL b	ased upon a	distribution (e.g., gamma) passing bo	oth GOF tests	s in ProUCL														
117																									
118	١	lote: Sugge:	stions regard	ling the sele	ction of a 95%	6 UCL are pr	ovided to hel	p the user to	select the n	nost appropri	iate 95% UCI														
119			F	Recommenda	ations are ba	sed upon dat	a size, data o	distribution, a	and skewnes	SS.															
120		These recor	mmendations	s are based	upon the resu	Its of the sim	ulation studi	es summariz	ed in Singh	Maichle, and	d Lee (2006).														
121	Ho	wever, simu	lations result	s will not co	ver all Real W	Vorld data se	ts; for additio	nal insight th	ne user may	want to cons	ult a statistic	ian.													
122																									

	А	В	С	D	E	F	G	Н		J	K	L
1					UCL Statis	stics for Data	Sets with N	on-Detects				
2				1								
3		User Sele	cted Options									
4	Da	te/Time of Co	omputation	ProUCL 5.13	3/20/2017 2:	33:42 PM						
5			From File	VOCs.xls								
6		Fu	Il Precision	OFF								
7		Confidence	Coefficient	95%								
8	Number o	of Bootstrap	Operations	2000								
9												
10	1,1,2,2-Tet	rachloroetha	ne									
11							.					
12				<u></u>		General	Statistics			() :		
13			lotal	Number of O	bservations	40			Numbe	r of Distinct C	bservations	19
14				Numbe	r of Detects	4				Number of I	Non-Detects	36
15			N	umber of Dist	inct Detects	3			Numbe	er of Distinct I	Non-Detects	16
16				Minii	num Detect	0.074				Minimum	Non-Detect	0.0035
17				Maxii	num Detect	0.37				Maximum	Non-Detect	0.0083
18				Varia	nce Detects	0.0146				Percent I	Non-Detects	90%
19				M	ean Detects	0.226					SD Detects	0.121
20				Mec	lian Detects	0.23					CV Detects	0.535
21				Skewn	ess Detects	-0.198				Kurt	osis Detects	1.522
22				Mean of Log	ged Detects	-1.634				SD of Log	ged Detects	0.684
23							<u> </u>					
24					Norn	nal GOF Tes	t on Detects	Only				
25			S	hapiro Wilk I	est Statistic	0.943			Shapiro Wi	Ik GOF Test		
26			5% S	hapiro Wilk C	ritical Value	0.748	De	etected Data	appear Norr	nal at 5% Sig	inificance Lev	'el
27				Lilliefors T	est Statistic	0.263			Lilliefors	GOF Test		
28			5	% Lilliefors C	ritical Value	0.375	De	etected Data	appear Norr	nal at 5% Sig	inificance Lev	'el
29				Det	ected Data	appear Norn	nal at 5% Sig	gnificance Le	evel			
30												
31			Kaplan-	Meier (KM) S	tatistics usi	ng Normal C	ritical Value	s and other	Nonparamet			
32					KM Mean	0.0258			KN	/I Standard E	rror of Mean	0.0136
33					KM SD	0.0745				95% KM	I (BCA) UCL	N/A
34				95%	KM (t) UCL	0.0487			95% KM (F	ercentile Boo	otstrap) UCL	N/A
35				95%	KM (z) UCL	0.0481				95% KM Boo	tstrap t UCL	N/A
36			ç 	0% KM Chet	byshev UCL	0.0666				95% KM Che	byshev UCL	0.0851
37			97	.5% KM Chet	bysnev UCL	0.111			ç	99% KM Che	bysnev UCL	0.161
38												
39				G	amma GOF	Tests on De	tected Obse	ervations On	lly			
40				A-D I	est Statistic	0.404	<u> </u>	A	nderson-Da		est	
41				5% A-D C	ritical Value	0.659	Detected	d data appea	ir Gamma Di	stributed at 5	Significant	ce Level
42				K-S I	est Statistic	0.333	Detecto	۴	Colmogorov-	Smirnov GO	F	
43				5% K-S C	dete	0.396	Detected	u data appea	ir Gamma Di	stributed at 5	5 Significant	e level
44				Detected	uata appea	r Gamma Dis	scriduted at 5	o% significa	nce Level			
45					0	Oteti-ti	Deter 17	ata C!				
46						Statistics or	Detected D	ata Only				1.050
47					κ nat (MLE)	3.55/				star (blas cor	rected MLE)	1.056
48				Ihet	a nat (MLE)	0.0635			I heta :	star (blas cor	rected MLE)	0.214
49				n	u hat (MLE)	28.46				nu star (bia	is corrected)	8.447
50				Me	an (detects)	0.226						

	A	1	В	C		D)		E	F		G	Н		I			J	\Box	К	Т	L
51																						
52								Jamm		Statistics L		Imputed	Non-Dei	tects								
53			0000	GROS	may	not be	used	when	data s	set has > 50%	% ND	s with ma	any tied c		vatioi	ns at r	nultip		.s	.15.0		
54			GROS may	y not be	used	when	kstar	of dete		small such a	as <1	.0, espec	ally whe	en the	e sam			small	(e.g.	, <15-2	J)	
55					FO	rsuch	Situat	ions, (JRUS	method may	/ yieid			of U	JLS a	na B I	vs					
56				mma dia	tribut		- otod		espec				size is s		ma dia	stributi	ion o	n KM	ootin			
57			FOI yai	nina uis	andut	eu uele	ecieu	uata,			ay be	compute	eu using g	yann	na us	sindui			esun	Maies		0.0216
58								Ma		0.01	_									Modi	111 	0.0310
59								IVIA		0.37											311 V	2 332
60								k hat		0.0737						ke	tar (k	niae co	orrec			0.671
61							The	ta hat		0.0447					т	heta s	tar (l	nias co	orrec	ted MI	-/ F)	0.071
62							1110	nu hat		56.57					•			star (h	ias c		-/ d)	53.66
63				Adiu	usted	level	of Sig	inificar	$\frac{(m-2)}{mce(\beta)}$	0.044												
64			Apr	proximat	te Chi	Squar	e Val	ue (53	$\frac{100}{100}$	37.83				A	diuste	d Chi	Sau	are Va	alue (53.66.	B)	37.33
65		ç	95% Gamma	a Approx	kimate	e UCL ((use v	when r	$\frac{100, 0}{1 > = 50}$	0.0448			95%	Gam	ima A	diuste	ed U(CL (us	e wh	en n<5	0)	N/A
66		-					(- (- /	
60							E۶	stimate	es of C	amma Para	amete	ers usina	KM Esti	mate	S							
68								Mea	n (KM)	0.0258										SD (KI	N)	0.0745
70							Va	arianc	e (KM)	0.00555								SE	of M	ean (Kl	v)	0.0136
70								k ha	at (KM)	0.119									k	star (Kl	v)	0.127
71								nu ha	at (KM)	9.554									nu	star (Kl	(N	10.17
72							th	eta ha	at (KM)	0.216								tł	heta	star (Kl	v)	0.203
73					80%	b gamm	na pe	rcentil	e (KM)	0.024						90%	gan	nma pe	ercer	ntile (Kl	(N	0.074
74					95%	5 gamm	na pe	rcentil	e (KM)	0.146						99%	gan	nma pe	ercer	ntile (Kl	V)	0.362
76																						
77									Gamn	na Kaplan-N	leier	(KM) Sta	tistics									
78			Арр	oroximat	te Chi	Squar	e Val	ue (10	ι.17, α)	4.049				A	djuste	ed Chi	Squ	are Va	alue ((10.17,	β)	3.904
79		95%	Gamma Ap	proxima	te KN	1-UCL ((use v	when r	า>=50)	0.0647			95% Gar	nma	Adjus	ted Kl	M-U(CL (us	e wh	en n<5	0)	0.0671
80											_											
81							Lo	ognorr	nal GC	OF Test on D	Detec	ted Obs	ervations	s Onl	у							
82					S	hapiro	Wilk ⁻	Test S	tatistic	0.872				5	Shapii	ro Will	k GC)F Tes	st			
83				5	5% Sł	napiro \	Wilk (Critical	Value	0.748		Dete	cted Data	a app	bear L	ognor	mal	at 5%	Sign	ificance	e Le	evel
84						Lillie	efors	Test S	tatistic	0.345					Lillie	efors (GOF	Test	-			
85					5	% Lillie	efors (Critical	Value	0.375		Dete	cted Data	a app	bear L	.ognor	mal	at 5%	Sign	ificance	э Le	evel
86							Dete	ected [Data a	ppear Logno	ormal	at 5% S	ignifican	ce Le	evel							
87																						
88							Lo	gnorn	nal RO	S Statistics	Usin	g Impute	d Non-D	etec	ts							
89						Mear	n in O	riginal	l Scale	0.0288								Mear	ו in L	.og Sca	le	-5.122
90						SE	D in O	riginal	i Scale	0.0749								SE) in L	.og Sca	le	1.578
91			95% t l	JCL (as	sume	s norm	ality o	of ROS	3 data)	0.0488					ę	95% P	erce	ntile E	loots	trap UC	Ľ	0.0483
92		95% BCA Bootstra								0.0578							9	5% Bc	otstr	rap t UC	Ľ	0.0646
93						95% H	H-UC	L (Log	(ROS)	0.046												
94										-												
95					Statis	tics us	sing K	M est	imates	on Logged	Data	and Ass	uming Lo	ogno	rmal	Distrit	outio	n				
96						ŀ	KM M	ean (lo	ogged)	-5.253								ł	(M G	ieo Mea	зn	0.00523
97							KM	SD (lo	ogged)	1.221					ç	95% C	ritica	al H Va	alue ((KM-Lo	g)	2.677
98				KM Sta	andar	d Error	r of M	ean (lo	ogged)	0.223							959	% H-U	CL (KM -Lo	g)	0.0186
99							KM	SD (lo	ogged)	1.221					ç	95% C	ritica	al H Va	alue ((KM-Lo	g)	2.677
100				KM Sta	andar	d Error	r of M	ean (lo	ogged)	0.223												

	А	В	С	D	E	F	G	Н	I	J	K	L		
101														
102						DL/2 S	tatistics							
103			DL/2	Normal					DL/2 Log-	Transformed				
104				Mean in O	riginal Scale	0.0248				Mean	in Log Scale	-5.592		
105				SD in O	riginal Scale	0.0757				SD	in Log Scale	1.364		
106			95% t l	JCL (Assume	es normality)	0.045				95%	H-Stat UCL	0.0177		
107			DL/2	is not a reco	mmended m	ethod, provi	ded for com	parisons and	l historical r	easons		I		
108	108 Negeorgenetrie Distribution Erec UCL Statistics													
109	Nonparametric Distribution Free UCL Statistics													
110				Detected	l Data appea	r Normal Di	stributed at {	5% Significa	nce Level					
111														
112						Suggested	UCL to Use							
113				95%	5 KM (t) UCL	0.0487								
114														
115	1	Note: Sugge	stions regard	ling the seled	tion of a 95%	6 UCL are pr	ovided to he	p the user to	select the r	nost appropri	ate 95% UCL			
116			F	Recommenda	ations are ba	sed upon dat	a size, data	distribution,	and skewne	SS.				
117		These record	mmendations	s are based ι	ipon the resu	Its of the sim	nulation studi	es summariz	zed in Singh	, Maichle, an	d Lee (2006).			
118	Ho	wever, simu	lations result	s will not cov	ver all Real V	/orld data se	ts; for additio	onal insight th	ne user may	want to cons	ult a statistici	an.		
119														

	А	В	С	D	E	F	G	Н		J	K	L
1					UCL Statis	stics for Data	Sets with N	on-Detects				
2				1								
3		User Sele	cted Options									
4	Da	te/Time of Co	omputation	ProUCL 5.13	3/20/2017 2:	35:00 PM						
5			From File	VOCs.xls								
6		Fu	Il Precision	OFF								
7		Confidence	Coefficient	95%								
8	Number o	of Bootstrap	Operations	2000								
9												
10	1,2,4-Trime	thylbenzene)									
11							.					
12				<u></u>		General	Statistics			() :		
13			lotal	Number of O	bservations	40			Numbe	r of Distinct C	bservations	19
14				Numbe	r of Detects	5				Number of I	Non-Detects	35
15			N	umber of Dist	inct Detects	5			Numbe	er of Distinct I	Non-Detects	15
16				Mini	mum Detect	0.0045				Minimum	Non-Detect	0.0035
17				Maxi	mum Detect	0.63				Maximum	Non-Detect	0.0083
18				Varia	nce Detects	0.0738				Percent I	Non-Detects	87.5%
19				M	ean Detects	0.145					SD Detects	0.272
20				Mec	lian Detects	0.034					CV Detects	1.8/8
21				Skewn	ess Detects	2.217				Kurt	osis Detects	4.933
22				Mean of Log	ged Detects	-3.363				SD of Log	ged Detects	1.854
23												
24					Norn	nal GOF Tes	t on Detects	Only				
25			S	hapiro Wilk I	est Statistic	0.606			Shapiro Wi	Ik GOF Test		
26			5% S	hapiro Wilk C	ritical Value	0.762		Detected Dat	a Not Norma	al at 5% Sign	ificance Leve	i
27				Lilliefors T	est Statistic	0.446			Lilliefors	GOF Test		
28			5	% Lilliefors C	ritical Value	0.343]	Detected Dat	a Not Norma	al at 5% Sign	ificance Leve	i
29				D	etected Dat	a Not Norma	l at 5% Sign	ificance Lev	el			
30												
31			Kaplan-	Meier (KM) S	statistics usi	ng Normal C	ritical Value	s and other	Nonparamet			
32					KM Mean	0.0212			KN	/I Standard E	rror of Mean	0.0173
33					KM SD	0.0978				95% KM	I (BCA) UCL	0.0522
34				95%	KM (t) UCL	0.0503			95% KM (F	ercentile Boo	otstrap) UCL	0.0525
35				95%	KM (z) UCL	0.0496				95% KM Boo	otstrap t UCL	0.262
36			ç 	0% KM Chel	byshev UCL	0.073				95% KM Che	byshev UCL	0.0965
37			97	.5% KM Chel	bysnev UCL	0.129			ç	99% KM Che	bysnev UCL	0.193
38						<u> </u>						
39				G		lests on De		ervations On	lly			
40					est Statistic	0.563	.	A	nderson-Da		est	
41				5% A-D C	ritical Value	0.718	Detected	d data appea	ir Gamma Di	stributed at 5	Significant	e Level
42				K-S I	est Statistic	0.362	Detector	r	Colmogorov-	Smirnov GO		
43				5% K-S C	ntical value	0.3/4	Detected	u data appea	ir Gamma Di	stributed at 5	5% Significant	;e Level
44				Detected	uata appea	r Gamma Dis	scriduted at 5	o% significa	nce Level			
45					0	Otati-ti	Deter 17	ata Cirl				
46						Statistics or	Detected D	ata Only				0.017
47				 1	κ nat (MLE)	0.451				star (blas cor	rected MLE)	0.314
48				Ihet	a nat (MLE)	0.321			I heta :	star (blas cor	rected MLE)	0.461
49				n	u hat (MLE)	4.513				nu star (bia	as corrected)	3.139
50				Me	an (detects)	0.145						

	А		В		С		D		Е		F		G		Н		I			J		K	\Box	L
51																								
52								Gam	ma RC	os s	Statistics	usi	ng Imp	outed	Non-De	etects								
53				GR	OS may	/ not	be use	ed whe	en data	set	t has > 50	J% I	NDs w	ith ma	any tied	obsei	vation	is at n	nulti	ple DL	.s			
54			GROS ma	iy not	be used	1 whe	en ksta	r of de	etects	s sr	nall such	as	<1.0, e	espec	ially who	en the	e samp	ole siz	ze is	small	(e.g.	, <15-2	.0)	
55					FC	or su	ch situa	ations	, GRO	Sm	ethod ma	ay y	ield ind	correc	t values	s of U	JLs ar	nd B I	Vs					
56								Inis	is espe	ecial	lly true w	nen	the sa	ample	size is :	small.						<u> </u>		
57			For ga	mma	distribu	ted d	etecte	d data	, BIVS	s an		nay	be co	mpute	ed using	gamr	na dis	tributi	ion o	n KM	estin	nates		0.0000
58								IN M	/iinimu	m	0.0045											IVIE Modi	an	0.0268
59								IV	aximu	m	0.03													0.01
60								li bi	0 		0.090							k o	tor /l	hing				0.696
61							ТИ			=)	0.723						ТИ		tar (I					0.000
62										-) =)	57.85									star (k				54.84
63					diustor			ignific		-) B)	0.044								nu				;u)	54.64
64			An		nate Ch					P) ~)	28.83					۵	diusto	d Chi	Sau	are V	ر رور او	(5/ 8/	<u>B)</u>	38 32
65		0								u) 0)	0.0370				05%	- Com		diusto				,04.04,	P)	0.0384
66		5.		а Арр	TUXIMA		L (use		11/-5	0)	0.0379				3370	Gan		ujusie	u 00				0)	0.0304
67								etima	ates of	Ga	mma Pai	ram	otore	ueina	KM Fet	imate	e							
68								Me	an (KN	/)	0 0212			using		mate						SD (K	M)	0 0978
69							,	Varian		л) Л)	0.00956	5								SF	of M	ean (K	M)	0.0173
70								kl	nat (KN	л) Л)	0.0469										k	star (K	M)	0.06
71				nu l	nat (KN	л) Л)	3.75										nu	star (K	M)	4.803				
72				theta l	nat (KN	, Л)	0.452									t	heta	star (K	, M)	0.353				
73					80%	% gai	nma p	ercen	tile (KN	, Л)	0.00512	2						90%	gan	nma p	ercer	ntile (K	, M)	0.0399
74					95%	% gai	nma p	ercen	tile (KN	, Л)	0.119							99%	gan	nma p	ercer	ntile (K	, M)	0.427
75						-													-					
77									Gam	nma	Kaplan-	Mei	ier (KN	/) Sta	tistics									
78			A	pprox	imate C	hi So	quare \	/alue	(4.80, 0	α)	1.062					1	Adjust	ed Ch	ni Sq	uare \	/alue	• (4.80,	β)	0.999
79	ç	95% (Gamma Ap	proxi	mate KI	N-UC	L (use	wher	n n>=5	0)	0.0958			ę	95% Ga	mma	Adjus	ted Kl	M-U	CL (us	se wh	ien n<5	50)	0.102
80							95% (Gamm	na Adju	isteo	d KM-UC	:L (ι	use wh	en k<	=1 and	15 < r	n < 50))						
81																								
82								Logno	rmal C	GOF	Test on	De	tected	Obse	ervation	s Onl	у							
83					S	Shapi	ro Will	Test	Statist	ic	0.938					ę	Shapir	o Will	k GC)F Te	st			
84					5% S	hapiı	o Wilk	Critic	al Valu	le	0.762			Dete	cted Da	ta app	bear L	ognor	mal	at 5%	Sign	iificanc	e Le	evel
85						L	illiefors	Test	Statist	ic	0.253						Lillie	fors (GOF	Test				
86					5	i% Li	lliefors	Critic	al Valu	le	0.343			Dete	cted Da	ta app	bear L	ognor	mal	at 5%	Sign	iificanc	e Le	evel
87							De	tectec	l Data	app	ear Logr	norn	nal at	5% Si	gnificar	nce Le	evel							
88																								
89							L	.ogno	rmal R	os	Statistic	s U	sing In	npute	d Non-[Detec	is							
90						M	ean in	Origin	al Sca	le	0.0181									Mea	n in L	.og Sca	ile	-11.49
91							SD in	Origin	al Sca	le	0.0996									S) in L	.og Sca	зle	4.063
92			95% t l	UCL (assume	es no	rmality	of RC	DS data	a)	0.0447						9	05% P	erce	ntile E	3oots	trap U		0.0492
93		95% BCA Bootstr									0.0678								9	5% Bo	ootstr	ap t U	JL	0.334
94				bg ROS	5)	3.845																		
95				<u> </u>						<u></u>	-		·····			Net "								
96					Statis	STICS	using		sumate	3 5 0			ata an	a Ass	uming L	.ogno	rmai [JISTRIE	Dutio	n 				0.00400
97							KMI	viean	(logge	u)	-5.362									1			an	0.00469
98				1/14	Ohere !		K	vi SD	(logge	u)	0.95/						9	5% C	ritica	ы н Va)g)	2.358
99				ĸМ	Standa	ra Ei	ror of I	viean	(logge	u)	0.169							E0/ 0	95	% H-U)g)	0.0106
100							K	vi SD	logge	u)	0.957						9	5% C	ritica		aiue	(KIVI-LC)g)	2.358

	А	В	С	D	E	F	G	Н	I	J	K	L		
101			KM Standa	rd Error of M	lean (logged)	0.169								
102						•								
103						DL/2 S	tatistics							
104			DL/2	Normal					DL/2 Log-	Transformed				
105				Mean in C	riginal Scale	0.0202				Mean	in Log Scale	-5.712		
106				SD in C	riginal Scale	0.0992				SD	in Log Scale	1.093		
107			95% t l	JCL (Assum	es normality)	0.0466				95%	H-Stat UCL	0.00934		
108			DL/2 i	is not a reco	mmended m	ethod, provi	ded for com	parisons and	d historical r	easons				
109														
110	19 Nonparametric Distribution Free UCL Statistics													
111				Detected	l Data appea	r Gamma D	istributed at	5% Significa	ance Level					
112														
113						Suggested	UCL to Use							
114	Adjusted K	M-UCL (use	e when k<=1 a	and 15 < n <	50 but k<=1)	0.102								
115														
116		Note: Sugge	estions regard	ing the seled	ction of a 95%	5 UCL are p	ovided to he	lp the user to	select the r	nost appropri	ate 95% UCL	•		
117			F	Recommenda	ations are bas	sed upon da	ta size, data	distribution,	and skewne	SS.				
118		These reco	ommendations	s are based u	upon the resu	Its of the sin	nulation studi	ies summari:	zed in Singh	, Maichle, an	d Lee (2006).			
119	Ho	wever, simu	ulations result	s will not cov	ver all Real W	/orld data se	ets; for addition	onal insight t	he user may	want to cons	sult a statisticia	an.		
120														

	А	В	С	D	E	F	G	H Bata ata	I	J	K	L
1					UCL Statis	sucs for Data	Sets with N	on-Detects				
2												
3	De	User Sele			20/2017 2.4	25.42 DM						
4	Da		Erom Filo		20/2017 2.	55.42 FIM						
5		Eul										
6		Confidence										
7	Number			95%								
8	Number		Operations	2000								
9	135 Trime	thylbonzone										
10	1,5,5-111116	anyibenzene	,									
11						General	Statistics					
12			Total	Number of Ob	servations	40			Number	r of Distinct C	bservations	17
13				Number	of Detects	3				Number of I	Non-Detects	37
14			N	umber of Distin	ct Detects	3			Numbe	er of Distinct I	Non-Detects	15
15				Minim	um Detect	0.0039				Minimum	Non-Detect	0.0035
16				Maxim	um Detect	0.33				Maximum	Non-Detect	0.0083
10				Varian	ce Detects	0.0319				Percent I	Non-Detects	92.5%
10				Mea	an Detects	0.125					SD Detects	0.179
20				Media	an Detects	0.041					CV Detects	1.429
20				Skewne	ss Detects	1.648				Kurt	osis Detects	N/A
21				Mean of Logge	ed Detects	-3.283				SD of Log	ged Detects	2.22
22										-		
23				١	Narning: D	ata set has	only 3 Detec	ted Values.				
25			Т	his is not enou	gh to comp	oute meaning	gful or reliab	le statistics	and estimate	es.		
26												
27												
28					Norm	nal GOF Tes	t on Detects	Only				
29			S	hapiro Wilk Te	st Statistic	0.834			Shapiro Wi	lk GOF Test		
30			5% SI	hapiro Wilk Cri	tical Value	0.767	De	etected Data	appear Norr	nal at 5% Sig	nificance Lev	/el
31				Lilliefors Te	st Statistic	0.348			Lilliefors	GOF Test		
32			5	% Lilliefors Cri	tical Value	0.425	De	etected Data	appear Norr	nal at 5% Sig	nificance Lev	vel
33				Dete	cted Data	appear Norn	nal at 5% Sig	inificance Le	evel			
34												
35			Kaplan-	Meier (KM) Sta	atistics usi	ng Normal C	ritical Value	s and other	Nonparamet	tric UCLs		
36					KM Mean	0.0126			KN	/I Standard E	rror of Mean	0.00991
37					KM SD	0.0512				95% KM	(BCA) UCL	N/A
38				95% k	KM (t) UCL	0.0293			95% KM (P	ercentile Boo	otstrap) UCL	N/A
39				95% K	M (z) UCL	0.0289				95% KM Boo	tstrap t UCL	N/A
40			<u> </u>	0% KM Cheby	shev UCL	0.0424			(95% KM Che	byshev UCL	0.0558
41			97	.5% KM Cheby	shev UCL	0.0745			Q	99% KM Che	byshev UCL	U.111
42						Teete - F			h.			
43				Ga	mma GOF	lests on De		ervations On	ıy			
44					Not En	ougn Data to	Perform GC	JF Test				
45					Com	Statistics	Doto at	ata Onte				
46				1.						ntor (higg as		NI/A
47				K		0.024			Thata	star (bias cor		
48				i neta		0.238			i neta s			N/A
49				nu		3.144 0.10E				nu stař (bla	s corrected)	IN/A
50				IVIea	n (uetects)	0.125						

	А		В		С		D		Е		F		G		Н					J			K	I	L
51																									
52								Gam	ma Ro	S	Statistics	usi	ing Imp	puted	Non-Do	etects									
53				Gl	ROS ma	y not	be use	ed whe	en data	a se	et has > 50	0%	NDs w	vith ma	any tied	obse	rvatior	ns at i	mul	tiple D	Ls				
54			GROS ma	ay no	t be use	d wh	en ksta	ar of d	etects	is s	small such	as	<1.0, €	espec	ially wh	en the	e sam	ole si	ize i	s smal	ll (e.	g., <	:15-20))	
55					F	or su	ch situ	ations	, GRO		nethod ma	ay y	/ield ind	correc	t values	s of U	CLs a	nd B	IVS						
56								Inis	is esp	ecia	ally true w	nen	n the sa	ample	size is	small.							<u>. </u>		
57			For ga	amma	a distribi	ited (letecte	d data	a, BIV	s ai		may	/ be coi	mpute	ed using	gami	ma dis	stribu	tion	on KN	/l est	limat	tes		0.0100
58								r N	Viinimu	Im	0.0039												Media	1 	0.0186
59								IV		im Im	0.33	,													0.01
60								k h			1.002								otor	(hice)				/ 	2.720
61							т				0.017						т	K :	star		corre))	0.0181
62											87.46								Siai		/biac				0.0101
63					Adjusto					L)	0.044								п		JIAS			<u> </u>	02.23
64			An	nrov	imate C				82 23	(P)	62 33					Δ	diusto	d Ch	i Sa		/2/10/	0 (87	2 2 2 B	0	61.69
65		0	AP						02.20,	u)	02.55	:			05%			diuct					$\frac{1.23}{0.000}$		01.09 N/A
66		3.	5 /6 Gamm		рюліпа				11/-3)	0.0240				307			ujust			156 1			/	N/A
67								Fetim	ates o	f G	amma Pai	ram	notore i	ueina	KM Fe	imate									
68								Me	an (K	M)	0 0126			using		innate						SI	D (KM)	0.0512
69								Variar	nce (K	M)	0.00262	2								SE	= of	Mea	n (KM		0.00991
70								k	hat (K	M)	0.0611	-										k sta	ar (KM		0.0732
71								nu	hat (K	M)	4.886										n	u sta	ar (KM)	5.853
72		theta) M)	0.207										theta	a sta	ar (KM)	0.173
73		theta 80% gamma perce) M)	0.005							90%	% qa	mma	perc	entil	le (KM)	0.0282
74					95	% ga	mma p	bercen	tile (K	, M)	0.0731							99%	% ga	imma	, perc	entil	le (KM)	0.233
75						-				,											-				
77									Gar	nma	a Kaplan-	Me	ier (KN	/I) Sta	tistics										
78			A	ppro	ximate (Chi S	quare	Value	(5.85,	α)	1.565						Adjust	ed C	hi S	quare	Valu	ue (5	5.85, β)	1.484
79	ę	95% (Gamma Ap	oprox	kimate K	M-U	CL (use	e whei	n n>=5	60)	0.0473	6		9	95% Ga	mma	Adjus	ted K	KM-L	JCL (u	ise v	vher	າ n<50)	0.0498
80							95%	Gamn	na Adj	uste	ed KM-UC	:L (เ	use wh	en k<	=1 and	15 < 1	n < 50)							
81																									
82								Logno	ormal (GO	F Test on	De	etected	Obse	ervation	s Onl	у								
83					:	Shap	iro Wil	k Test	Statis	tic	0.999					5	Shapir	o Wi	ilk G	iOF Te	est				
84					5% \$	Shapi	ro Will	< Critic	al Val	ue	0.767			Dete	cted Da	ita ap	pear L	ogno	orma	al at 5%	% Sig	gnific	cance	Lev	rel
85						L	lliefor	s Test	Statis	tic	0.183						Lillie	fors	GO	F Tes	t				
86						5% L	illiefors	s Critic	al Val	ue	0.425			Dete	cted Da	ita ap	pear L	ogno	orma	al at 5%	% Sig	gnific	cance	Lev	'el
87							De	etecteo	d Data	ар	pear Logr	norr	mal at !	5% Si	ignifica	nce Lo	evel								
88																									
89								Logno	rmal F	ROS	S Statistic	s U	lsing In	npute	d Non-l	Detec	ts								
90						N	lean in	Origir	nal Sca	ile	0.00946	6								Mea	an in	I Log	J Scale	э	-11.85
91							SD in	Origir	nal Sca	ale	0.0524									S	SD in	I Log	J Scale	э 	3.715
92		95% t UCL (assumes normality of RO									0.0234						ç	95% F	Perc	centile	Boo	tstra	ap UCL	-	0.0251
93		95% BCA Bootstr									0.0361									95% E	Boots	strap) t UCL	-	0.801
94				og RO	S)	0.335																			
95					01-1			<u></u>	<u>atim - *</u>		onless	4 0	ote cr	dAcc		0.7	une c l l		b	0.7					
96					Stat	ISUCS			sumat	es (u Da	ବାସ ସମ	u ASS	uming I	_ogno	n nai I	Istri	IDUTI	ULI	K M	Cai	- Ma		0.00400
97								wean	(loge	:u)	-0.400)E0/ 4	· · · · ·	00111					0.00422
98				124	1 Stored		K		(loge	:u)	0.797						ç	JO 70 (<u>/</u>	2.18/
99				KI	n standa			Men	(logge	u)	0.155						~)E0/ 7	9	070 H-				<u>/</u>	0.00700
100							K	IVI SD	logge	ea)	0.797						ç	o5% (Critic	cal H \	value	e (Kl	IVI-LOG	7	2.18/

	А	В	С	D	E	F	G	Н	I	J	K	L	
101			KM Standa	rd Error of M	ean (logged)	0.155							
102											•		
103						DL/2 S	tatistics						
104			DL/2	Normal					DL/2 Log-	Transformed	i		
105				Mean in C	riginal Scale	0.0116				Mean	in Log Scale	-5.843	
106				SD in C	riginal Scale	0.052				SD	in Log Scale	0.912	
107			95% t l	JCL (Assum	es normality)	0.0254				95%	6 H-Stat UCL	0.00616	
108	DL/2 is not a recommended method, provided for comparisons and historical reasons												
109													
110					Nonparame	etric Distribu	tion Free U	CL Statistics	i				
111				Detected	d Data appea	r Normal Di	stributed at	5% Significa	nce Level				
112													
113						Suggested	UCL to Use)					
114				95%	6 KM (t) UCL	0.0293							
115													
116		Note: Sugge	estions regard	ling the seled	ction of a 95%	UCL are p	ovided to he	lp the user to	o select the r	nost appropr	iate 95% UCL	•	
117			F	Recommenda	ations are bas	sed upon da	ta size, data	distribution,	and skewne	SS.			
118		These reco	ommendations	s are based (upon the resu	Its of the sin	nulation stud	ies summari	zed in Singh	, Maichle, an	nd Lee (2006).		
119	H	owever, sim	ulations result	s will not co	ver all Real W	/orld data se	ets; for addition	onal insight t	he user may	want to cons	sult a statisticia	an.	
120													

	А	В	С	D	Е	F	G	Н	Ι	J	K	L
1					UCL Statis	tics for Data	Sets with N	on-Detects				
2												
3		User Seleo	cted Options									
4	Dat	e/Time of Co	omputation	ProUCL 5.13	3/20/2017 2:	26:10 PM						
5			From File	VOCs.xls								
6		Ful	I Precision	OFF								
7		Confidence	Coefficient	95%								
8	Number o	f Bootstrap (Operations	2000								
9												
10	Benzene											
11												
12						General	Statistics					
13			Total	Number of O	bservations	40			Numbe	r of Distinct (Observations	16
14				Numbe	er of Detects	1				Number of	Non-Detects	39
15			N	umber of Dist	inct Detects	1			Numbe	er of Distinct	Non-Detects	15
16												
17	v	Varning: On	ly one distin	ct data value	was detect	ed! ProUCL	(or any othe	r software) s	hould not be	e used on su	ich a data se	tl
18	It is sugge	ested to use	alternative s	site specific v	alues deter	mined by the	Project Tea	im to estimat	e environm	ental param	eters (e.g., E	PC, BTV).
19												
20				Th	e data set fo	or variable B	enzene was	not processe	əd!			
21												
22												

	A	В	С	D	E	F	G	Н	Ι	J	K	L
1					UCL Statis	tics for Data	Sets with N	on-Detects				
2												
3		User Selec	cted Options									
4	Dat	e/Time of Co	omputation	ProUCL 5.1	3/20/2017 2:	27:02 PM						
5			From File	VOCs.xls								
6		Ful	I Precision	OFF								
7		Confidence	Coefficient	95%								
8	Number o	f Bootstrap (Operations	2000								
9												
10	Bromodichle	oromethane										
11												
12						General	Statistics					
13			Total	Number of C	bservations	40			Numbe	r of Distinct (Observations	17
14				Numbe	er of Detects	1				Number of	Non-Detects	39
15			N	umber of Dis	tinct Detects	1			Numbe	er of Distinct	Non-Detects	16
16												
17	v	Varning: On	ly one distin	ct data value	was detect	ed! ProUCL	(or any othe	r software) s	hould not be	e used on su	uch a data se	t!
18	lt is sugge	ested to use	alternative s	site specific v	alues deter	mined by the	Project Tea	m to estimat	e environm	ental param	eters (e.g., E	PC, BTV).
19												
20				The data	set for varia	ble Bromodio	chlorometha	ne was not p	rocessed!			
21												
22												

	А	В	С	D	E	F	G	Н		J	K	L
1					UCL Statis	tics for Data	Sets with N	on-Detects				
2												
3		User Sele	cted Options		000/0017.0	00 40 514						
4	Da	te/ I ime of Co		Prouce 5.1	3/20/2017 2:	30:18 PM						
5			From File									
6		Confidance										
7	Numbor	of Bootstrap (2000								
8	Number		Operations	2000								
9	Ethylbenze	no										
10	Luiyibenze											
11						General	Statistics					
12			Total	Number of O	bservations	40			Number	of Distinct C	bservations	18
13				Numbe	er of Detects	2				Number of I	Non-Detects	38
14			Nu	umber of Dist	inct Detects	2			Numbe	er of Distinct I	Non-Detects	16
10				Mini	mum Detect	0.0049				Minimum	Non-Detect	0.0035
10				Maxi	mum Detect	0.0079				Maximum	Non-Detect	0.0083
17 19				Varia	nce Detects	4.5000E-6				Percent I	Non-Detects	95%
10				M	ean Detects	0.0064					SD Detects	0.00212
20				Med	lian Detects	0.0064					CV Detects	0.331
20				Skewn	ess Detects	N/A				Kurte	osis Detects	N/A
22				Mean of Log	ged Detects	-5.08				SD of Log	ged Detects	0.338
23												
24					Warning: D	ata set has o	only 2 Detec	ted Values.				
25			TI	nis is not end	ough to com	pute meaning	gful or reliab	le statistics	and estimate	es.		
26												
27												
28					Norn	nal GOF Tes	t on Detects	Only				
29					Not En	ough Data to	Perform GC	OF Test				
30												
31			Kaplan-I	Meier (KM) S	statistics usi	ng Normal C	ritical Value	s and other	Nonparamet	ric UCLs		
32					KM Mean	0.00368			KN	I Standard E	rror of Mean	1.8127E-4
33					KM SD	7.4775E-4				95% KM	(BCA) UCL	N/A
34				95%	KM (t) UCL	0.00399			95% KM (P	ercentile Boo	otstrap) UCL	N/A
35				95%	KM (z) UCL	0.00398				95% KM Boo	tstrap t UCL	N/A
36			9	0% KM Chel	byshev UCL	0.00422			9	95% KM Che	byshev UCL	0.00447
37			97	.5% KM Chel	byshev UCL	0.00481			ç	9% KM Che	byshev UCL	0.00548
38						Tests on De	to sta d Oh a s		h			
39				G	Amma GOF	Tests on De			iy			
40					NOLEN	ougn Data to	Periorni GC	JFTest				
41					Gammo	Statistics on		ata Only				
42					k hat (MLE)	17 86				star (bias con	rected MLE)	N/A
43				Thet	a hat (MLE)	3.5825F-4			Theta	star (bias con	rected MI F)	N/A
44				n	u hat (MLE)	71.46				nu star (bia	s corrected)	N/A
45				Me	an (detects)	0.0064						
40					()							
4/ 10				Es	timates of G	iamma Parai	neters usina	KM Estima	tes			
40 40					Mean (KM)	0.00368					SD (KM)	7.4775E-4
49 50				Va	riance (KM)	5.5913E-7				SE of	Mean (KM)	1.8127E-4
50					. /						、 /	

	А	В	С	D	E	F	G	Н		J	K	L
51					k hat (KM)	24.23					k star (KM)	22.43
52					nu hat (KM)	1939					nu star (KM)	1795
53				th	eta hat (KM)	1.5189E-4				the	eta star (KM)	1.6409E-4
54			80%	5 gamma per	centile (KM)	0.00431			90)% gamma pe	rcentile (KM)	0.00471
55			95%	5 gamma per	centile (KM)	0.00505			99)% gamma pe	rcentile (KM)	0.00573
56												
57					Gamm	a Kaplan-M	eier (KM) Si	tatistics				
58									Adjuste	ed Level of Sig	nificance (β)	0.044
59		A	pproximate C	hi Square Va	alue (N/A, α)	1697			Adjusted	Chi Square V	alue (N/A, β)	1694
60	95%	Gamma Ap	proximate KM	1-UCL (use v	/hen n>=50)	0.00389		95% Gamm	a Adjusted	KM-UCL (use	when n<50)	0.0039
61												
62				Lo	gnormal GC	F Test on D	etected Obs	servations O	nly			
63					Not En	ough Data to	Perform G	OF Test				
64												
65				Lo	gnormal RO	S Statistics	Using Imput	ed Non-Dete	ects			
66				Mean in O	riginal Scale	0.00159				Mean	in Log Scale	-6.634
67				SD in O	riginal Scale	0.00132				SD	in Log Scale	0.577
68		95% t L	JCL (assume	s normality c	f ROS data)	0.00195			95%	Percentile Bo	ootstrap UCL	0.00196
69			9	95% BCA Bo	otstrap UCL	0.0021				95% Boo	otstrap t UCL	0.00219
70				95% H-UCI	(Log ROS)	0.00186						
71												
72			Statis	tics using K	M estimates	on Logged I	Data and As	suming Logi	normal Dist	ribution		
73				KM Me	ean (logged)	-5.618				K	M Geo Mean	0.00363
74				KM	SD (logged)	0.145			95%	Critical H Val	ue (KM-Log)	1.716
75			KM Standar	d Error of Me	ean (logged)	0.0364				95% H-UC	CL (KM -Log)	0.00382
76				KM	SD (logged)	0.145			95%	Critical H Val	ue (KM-Log)	1.716
77			KM Standar	d Error of Me	ean (logged)	0.0364						
78												
79						DL/2 S	tatistics					
80			DL/2	Normal					DL/2 Log	-Transformed		
81				Mean in O	riginal Scale	0.00263				Mean	in Log Scale	-5.993
82				SD in O	riginal Scale	0.00108				SD	in Log Scale	0.3
83			95% t L	JCL (Assume	es normality)	0.00292				95%	H-Stat UCL	0.00285
84			DL/2 i	s not a reco	mmended m	ethod, provid	ded for com	parisons and	l historical	reasons		
85												
86					Nonparame	etric Distribu	tion Free U	CL Statistics				
87				Data do no	ot follow a D	iscernible Di	stribution a	t 5% Signific	ance Leve			
88												
89						Suggested	UCL to Use)				
90				95%	KM (t) UCL	0.00399					KM H-UCL	0.00382
91				95% KM	(BCA) UCL	N/A						
92				Warn	ing: One or i	more Recom	mended UC	CL(s) not ava	liable!			
93												
94		Note: Sugge	stions regard	ing the selec	tion of a 95%	OUCL are pr	ovided to he	ip the user to	select the	most appropri	ate 95% UCL	
95		T I	F	kecommenda	tions are bas	sed upon dat	a sıze, data	distribution,	and skewne	ess.		
96		I nese recoi	mmendations	are based u	pon the resu	its of the sim	ulation stud	ies summariz	zea in Singl	n, Maichle, an	a Lee (2006).	
97	Ho	owever, simu	lations result	s will not cov	er all Real W	/orld data se	ts; tor additio	onal insight t	ne user ma	y want to cons	ult a statistici	an.
98												

	А	В	С	D	E	F	G	Н		J	K	L
1					UCL Statis	stics for Data	Sets with N	on-Detects				
2				1								
3		User Sele	cted Options									
4	Da	te/Time of Co	omputation	ProUCL 5.13	3/20/2017 2:	42:57 PM						
5			From File	VOCs.xls								
6		Fu	II Precision	OFF								
7		Confidence	Coefficient	95%								
8	Number of	of Bootstrap	Operations	2000								
9												
10	Isopropylbe	enzene										
11												
12						General	Statistics			(5)		
13			lotal	Number of O	bservations	40			Numbe	r of Distinct C	bservations	21
14				Numbe	er of Detects	6				Number of I	Non-Detects	34
15			N	umber of Dist	inct Detects	6			Numbe	er of Distinct I	Non-Detects	15
16				Mini	mum Detect	0.0047				Minimum	Non-Detect	0.0035
17				Maxi	mum Detect	0.61				Maximum	Non-Detect	0.0083
18				Varia	nce Detects	0.0499				Percent I	Non-Detects	85%
19				M	ean Detects	0.276					SD Detects	0.223
20				Mec	dian Detects	0.28					CV Detects	0.808
21				Skewn	ess Detects	0.301				Kurt	osis Detects	-0.654
22				Mean of Log	ged Detects	-1.99				SD of Log	ged Detects	1.802
23							<u> </u>					
24					Norn	nal GOF Tes	t on Detects	Only				
25			S	hapiro Wilk T	est Statistic	0.973			Shapiro Wi	Ik GOF Test		-
26			5% S	hapiro Wilk C	ritical Value	0.788	De	etected Data	appear Norr	nal at 5% Sig	nificance Lev	rel
27				Lilliefors T	est Statistic	0.152			Lilliefors	GOF Test		_
28			5	% Lilliefors C	ritical Value	0.325	De	etected Data	appear Norr	nal at 5% Sig	nificance Lev	rel
29				Det	ected Data	appear Norn	nal at 5% Sig	gnificance Le	evel			
30			<u> </u>									
31			Kaplan-	Meier (KM) S	Statistics usi	ng Normal C	ritical Value	s and other	Nonparamet			0.00/7
32					KM Mean	0.0444			KN	/ Standard E	rror of Mean	0.0217
33	-			050/	KM SD	0.125			050/ 1/04/19	95% KM	(BCA) UCL	0.0812
34				95%	KM (t) UCL	0.081			95% KM (P	ercentile Boo	otstrap) UCL	0.0794
35				95%	KM (z) UCL	0.0802				95% KM Boo	tstrap t UCL	0.0827
36				30% KM Chel	byshev UCL	0.11			(95% KM Che	byshev UCL	0.139
37			97	.5% KIN Chel	bysnev UCL	0.18			Ç	99% KM Che	bysnev UCL	0.261
38						Tests on De	to stad Oh a		h			
39				G				ervations On	iy 		- 4	
40					est Statistic	0.375	Detecto	A A				
41				5% A-D C		0.719	Detected	a data appea		Stributed at 5	-% Significant	ce Level
42				K-S I	est Statistic	0.25	Datasta			omimov GO	C/ Significant	
43				5% K-5 C		0.343		u uata appea		sinduted at 5	5 Significant	Ce Level
44				Detected	uata appea	r Gamma Dis	SINDUTED AT 5	5% SIGNITICA	IICE LEVEI			
45					Correct	Statistics	Doto at	ata Onle				
46						Statistics of	Detected D	ata Oniy		tor (hiss st		0.52
47					к nat (MLE)	0.838			K :	star (blas con	rected MLE)	0.53
48				Ihet	a nat (MLE)	0.33			Ineta	star (blas cor	rected MLE)	0.521
49				n	u nat (MLE)	10.06				nu star (bia	s corrected)	6.361
50				Me	an (detects)	0.276						

	A		В	С		D)		E	F		G	Н					J		К	I	L
51																						
52				0.000			(Jamm		5 Statistics	usi	ng Imputed	Non-De	tects								
53			0000	GROS	may	not be	e used	i wher	n data s	set has > 50	1% ľ	NDS with m	any tied	obse	rvatio	ns at r	nultip		.S	.15.0		
54			GROS may	y not be l	used	wnen	kstar	of det		small such	as ·	<1.0, espec	cially whe	en the	e sam		zeis	small	(e.g.	, <15-2	J)	
55					FO	rsuch	situat	ions, (GROS	method ma	y yı	the events	ct values	ofU	CLS a	ING B I	VS					
56			- For gor	mmo diot	ribut		ootod		BTVe		ien	the sample			ma di	otribut	ion o	n KM	ootin			
57			For gar	nma disti	ribut		ected	data,	BIVS		lay	be comput	ea using	gam	ma di	stribut			estin	Mates		0.0400
58								IVII Mo	vinum	0.0047										Modia	111	0.0499
59								IVIa		0.01											111	2.506
60								k hot		0.125						ko	tor (k	bioc of	orroo			2.500
61							The	ta hat		0.019					т	hota s	tar (l	hias co	orrec		-/ E)	0.437
62								nu hat		41 54								star (h	ias c		-)	39.76
63				Adiu	sted	Level	of Sig	mifica	nce (B)	0.044							nu v	star (b		oncete		33.70
64			Anr	proximate	e Chi	Squar	re Val	ue (39	76 a	26.31				Α	diuste	ed Chi	Sau	are Va	alue (39 76	B)	25.9
65		c	5% Gamma	Annroxi	imate			when i	n > = 50	0.0755			95%	Gan	nma A		ed U(e wh	en n<5	0)	0.0767
66						002	(400)			0.0700								02 (00			•/	0.0707
67							F	stimat	es of (amma Par	am	eters using	KM Esti	imate	35							
68								Mea	n (KM)	0.0444										SD (KI	<u>(N</u>	0.125
69 70							V	arianc	e (KM)	0.0157								SE	of M	ean (KI	<u>م</u>	0.0217
70								k ha	at (KM)	0.126									k	star (KI	ر ارا	0.133
71								nu ha	at (KM)	10.05									nu	star (Kl	ر ار	10.63
72							th	neta ha	at (KM)	0.354								tł	heta	star (Kl	ر ار	0.334
73					80%	aamn	na pe	rcentil	e (KM)	0.0434						90%	aan	nma pe	ercer	ntile (KI	<u>ر</u>	0.129
74					95%	5 gamn	na pe	rcentil	e (KM)	0.25						99%	gan	nma pe	ercer	ntile (KI	ر ار	0.61
75							•		. ,								•	•				
70									Gamr	na Kaplan-I	Mei	er (KM) Sta	atistics									
78			Арр	proximate	e Chi	Squar	re Val	ue (10).63, α)	4.341				A	djuste	ed Chi	Squ	are Va	alue ((10.63,	β)	4.191
79		95%	Gamma Ap	proximate	e KN	1-UCL	(use v	when	n>=50)	0.109			95% Gai	mma	Adjus	sted K	M-U	CL (us	e wh	en n<5	0)	0.113
80																						
81							L	ognor	mal G	OF Test on	Det	tected Obs	ervations	s On	ly							
82					S	hapiro	Wilk	Test S	Statistic	0.818				;	Shapi	ro Wil	k GC	OF Tes	st			
83				59	% Sł	napiro V	Wilk (Critica	l Value	0.788		Dete	ected Dat	ta ap	pear L	ognor	rmal	at 5%	Sign	ificance	e Le	vel
84						Lillie	efors	Test S	Statistic	0.28					Lilli	efors (GOF	Test				
85					5	% Lillie	efors (Critica	l Value	0.325		Dete	ected Dat	ta ap	pear L	ognor	rmal	at 5%	Sign	ificance	e Le	vel
86							Dete	ected	Data a	ppear Logn	orn	nal at 5% S	ignifican	nce L	evel							
87																						
88							Lo	gnorr	nal RC	S Statistic:	s Us	sing Impute	ed Non-D)etec	ts							
89						Mear	n in C	rigina	l Scale	0.0419								Mear	n in L	.og Sca	le	-8.323
90						SE	D in C	rigina	l Scale	0.128								SE) in L	.og Sca	le	3.424
91			95% t l	JCL (assi	ume	s norm	nality o	of ROS	S data)	0.076					9	95% P	Perce	entile E	Boots	trap UC	Ľ	0.0787
92					ę	95% BC	CA Bo	ootstra	ap UCL	0.0913							9	5% Bc	ootsti	rap t UC	Ľ	0.117
93					_	95% I	H-UC	L (Log	g ROS)	2.304												
94																						
95				S	tatis	tics us	sing K	M est	imates	on Logged	I Da	ata and Ass	suming L	.ognc	ormal	Distrit	outio	n				
96						ł	KM M	ean (l	ogged)	-5.098								ł	KM G	ieo Mea	n	0.00611
97							КM	SD (I	ogged)	1.454				_	ļ	95% C	ritica	al H Va	alue	(KM-Lo	g)	2.985
98				KM Sta	ndar	d Error	r of M	ean (l	ogged)	0.252							959	% H-Ū	ICL (KM -Lo	g)	0.0352
99							KM	SD (I	ogged)	1.454					ļ	95% C	Critica	al H Va	alue	(KM-Lo	g)	2.985
100				KM Sta	ndar	d Error	r of M	ean (l	ogged)	0.252											\bot	

	А	В	С	D	E	F	G	Н		J	K	L		
101														
102						DL/2 S	tatistics							
103			DL/2	Normal					DL/2 Log-	Transformed				
104				Mean in O	riginal Scale	0.0435				Mean	in Log Scale	-5.444		
105				SD in O	riginal Scale	0.127				SD	in Log Scale	1.615		
106			95% t l	JCL (Assume	es normality)	0.0774				95%	H-Stat UCL	0.0365		
107			DL/2	is not a reco	mmended m	ethod, provi	ded for com	parisons and	d historical r	easons				
108	Nonparametric Distribution Free UCL Statistics													
109	Nonparametric Distribution Free UCL Statistics													
110				Detected	l Data appea	ar Normal Di	stributed at {	5% Significa	nce Level					
111														
112						Suggested	UCL to Use							
113				95%	5 KM (t) UCL	0.081								
114														
115	1	Note: Sugge	stions regard	ling the seled	tion of a 95%	6 UCL are pr	ovided to he	p the user to	select the i	most appropr	ate 95% UCL			
116			F	Recommenda	ations are ba	sed upon dat	a size, data	distribution,	and skewne	SS.				
117		These record	mmendations	s are based ι	ipon the resu	Its of the sim	ulation studi	es summariz	zed in Singh	, Maichle, an	d Lee (2006).			
118	Но	wever, simu	lations result	s will not cov	ver all Real W	/orld data se	ts; for additic	onal insight t	he user may	want to cons	ult a statistici	an.		
119														

	A	В	С	D	E	F	G	Н	I	J	K	L
1					UCL Statis	tics for Data	Sets with N	on-Detects				
2				I								
3		User Sele	cted Options									
4	Da	te/Time of Co	omputation	ProUCL 5.13	3/20/2017 2:	36:21 PM						
5			From File	VOCs.xls								
6		Ful	Il Precision	OFF								
7		Confidence	Coefficient	95%								
8	Number	of Bootstrap	Operations	2000								
9												
10	m,p-Xylene	S										
11	-						.					
12				<u></u>		General	Statistics					10
13			lotal	Number of O	bservations	40			Number	of Distinct O	bservations	18
14			NI	Numbe	er of Detects	2			N Is see in a	Number of f	Non-Detects	38
15			INU	Imper of Dist		2			NUMDE		Non-Detects	10
16				IVIINI	mum Detect	0.0047				Massiana	Non-Detect	0.0035
17				Maxi		0.0069					Non-Detect	0.0083
18				varia	Detects	2.4200E-0				Percent		90%
19					ean Detects	0.0058					SD Detects	0.00156
20				Med	an Detects	0.0058				17. unit.		0.268
21				Skewn	ess Detects	N/A						N/A
22				Mean of Log	ged Detects	-5.168				SD of Log	ged Detects	0.271
23					Mamina, D		mb O Data a	to d Malusa				
24					warning: D	ata set nas (only 2 Detec	ted values.				
25			11	his is not end	bugn to com	pute meaning	grui or reliad		and estimati	es.		
26												
27					Norm		t on Dotooto	Only				
28					Not En		Perform G(
29								7 1631				
30			Kanlan-	Meier (KM) S	Statistics usi	ng Normal C	ritical Value	s and other	Nonnaramet	ric IICI s		
31			Kapian		KM Mean				KN	A Standard Fi	rror of Mean	1 4673E-4
32					KM SD	5 9367E-4				95% KM	(BCA) LICI	N/A
33	-			95%	KM (t) UCI	0.0039			95% KM (P	ercentile Boc	(BOR) UCL	N/A
34				95%	KM (z) UCI	0.00389				95% KM Boo	tstrap t UCI	N/A
35			ç	0% KM Chel	ovshev UCI	0.00409			ç	5% KM Chel	byshev UCI	0.00429
30			97	.5% KM Chel	byshev UCL	0.00456				9% KM Chel	byshev UCL	0.00511
ა/ აი												
38				G	amma GOF	Tests on De	tected Obse	ervations On	ly			
39					Not En	ough Data to	Perform GC	OF Test				
40 1						_						
41 10					Gamma	Statistics on	Detected D	ata Only				
42 12					k hat (MLE)	27.46			ks	star (bias cori	rected MLE)	N/A
43				Thet	a hat (MLE)	2.1118E-4			Theta s	star (bias cori	rected MLE)	N/A
44 15				n	u hat (MLE)	109.9				nu star (bia	s corrected)	N/A
40				Ме	an (detects)	0.0058					,	
40 17					. ,							
47 12				Es	timates of G	iamma Parai	meters using	KM Estima	tes			
40 /0					Mean (KM)	0.00365	Ū				SD (KM)	5.9367E-4
+3 50				Va	riance (KM)	3.5244E-7				SE of	Mean (KM)	1.4673E-4
50				14		····· · · · · · · · · · · · · · · · ·				52 0		

	А	В	С	D	E	F	G	Н			J	K	L
51					k hat (KM)	37.76						k star (KM)	34.94
52					nu hat (KM)	3021						nu star (KM)	2795
53				th	eta hat (KM)	9.6615E-5					the	eta star (KM)	1.0440E-4
54			80%	5 gamma per	centile (KM)	0.00415			ę	90%	gamma per	centile (KM)	0.00446
55			95%	5 gamma per	centile (KM)	0.00472			ç	99%	gamma per	centile (KM)	0.00523
56													
57					Gamm	a Kaplan-M	eier (KM) Si	tatistics					
58									Adjus	sted	Level of Sig	nificance (β)	0.044
59		A	pproximate C	hi Square Va	alue (N/A, α)	2674			Adjuste	ed Cl	ni Square Va	alue (N/A, β)	2669
60	95%	Gamma Ap	proximate KN	1-UCL (use v	/hen n>=50)	0.00381		95% Gamm	na Adjuste	d Kl	M-UCL (use	when n<50)	0.00382
61													
62				Lo	gnormal GC	F Test on D	etected Ob	servations O	nly				
63					Not En	ough Data to	Perform G	OF Test					
64													
65				Lo	gnormal RO	S Statistics	Using Imput	ed Non-Dete	ects				
66				Mean in O	riginal Scale	0.00184					Mean	in Log Scale	-6.421
67				SD in O	riginal Scale	0.00113					SD	in Log Scale	0.466
68		95% t l	JCL (assume	s normality c	f ROS data)	0.00214			95	% P	ercentile Bo	otstrap UCL	0.00215
69			9	95% BCA Bo	otstrap UCL	0.00223					95% Boo	otstrap t UCL	0.00232
70				95% H-UCI	(Log ROS)	0.00209							
71													
72			Statis	tics using K	M estimates	on Logged I	Data and As	suming Log	normal Di	strib	oution		
73				KM Me	ean (logged)	-5.623					KI	M Geo Mean	0.00361
74				KM	SD (logged)	0.124			95	% C	ritical H Val	ue (KM-Log)	1.708
75			KM Standa	d Error of Me	ean (logged)	0.0314					95% H-UC	CL (KM -Log)	0.00377
76				KM	SD (logged)	0.124			95	% C	ritical H Val	ue (KM-Log)	1.708
77			KM Standa	d Error of Me	ean (logged)	0.0314							
78													
79						DL/2 S	tatistics				<u> </u>		
80			DL/2 I	Normal		0.0000			DL/2 Lo	g-Tr	ansformed		- 007
81				Mean in O	riginal Scale	0.0026					Mean	in Log Scale	-5.997
82			050/ 11		riginal Scale	9.5299E-4					SD	In Log Scale	0.284
83			95% t L	JCL (Assume	es normality)	0.00286			l biotorioo		95%	H-Stat UCL	0.00281
84			DL/21	s not a reco	nmenaea m	etnoa, provid	ded for com	parisons and	1 nistorica		asons		
85					Nonnorom	tuio Distribu	tion Free LV						
86	-			Doto do n		inc Distribu		t 5% Signific					
87								t 5% Signing		ei			
88						Suggested							
89				95%				,					0 00377
90				95% KM		0.0033 N/A						NWIT-OCL	0.00377
91				Warn	ing: One or I	nore Recom	mended LIC) (s) not ava	ilahlal				
92				**alli									
93		Note: Sugge	stions record	ing the selec	tion of a 95%	UCL are pr	ovided to be	In the user to) select the	e m	ost annronri	ate 95% LICI	
94			F	ecommenda	tions are bas	sed upon dat	a size, data	distribution	and skew	ness	5. oppiopii		
95		These reco	mmendations	are based u	pon the resu	Its of the sim	ulation stud	ies summari:	zed in Sin	ah. I	 Maichle, and	d Lee (2006)	
96	Hr	wever. simu	lations result	s will not cov	er all Real W	/orld data se	ts: for addition	onal insight t	he user m	av v	ant to cons	ult a statistici	an.
97				1101 001						~, 1			
98													

	А	В	С	D	E	F	G	Н		J	K	L
1					UCL Statis	tics for Data	Sets with N	on-Detects				
2				1								
3		User Sele	cted Options									
4	Da	te/Time of Co	omputation	ProUCL 5.13	3/20/2017 2:	44:21 PM						
5			From File	VOCs.xls								
6		Fu	Il Precision	OFF								
7		Confidence	Coefficient	95%								
8	Number of	of Bootstrap	Operations	2000								
9												
10	Naphthalen	e										
11						Osmanal	Otatiatiaa					
12			Tatal	Number of O	haanvationa		Statistics		Numbo	r of Diatinat C	booniotiono	22
13			TOLA	Number of O		40			Number	Number of I	Von Detecto	22
14	-		Ni		inot Detects	0			Numbe	Number of I	Non-Delects	3Z 15
15			IN			/			Numbe	Minimum	Non Dotoct	0.0035
16				Moxi		0.0046				Moximum	Non-Delect	0.0035
17				Varia		0.040 3 1363E 1				Percont	Non-Detects	0.0000 80%
18				M	an Detects	0.0246				reicenti	SD Detects	0.0177
19				Mer	lian Detects	0.0240					CV Detects	0.0177
20				Skewn		0.0200				Kurt	osis Detects	-2.052
21				Mean of Log	ned Detects	-4 044				SD of Log	aed Detects	0.969
22										00 01 209	gou Dotooto	0.000
23					Norm	nal GOF Tes	t on Detects	Only				
24			S	hapiro Wilk T	est Statistic	0.841		,	Shapiro Wi	lk GOF Test		
25			5% SI	hapiro Wilk C	ritical Value	0.818	De	etected Data	appear Norr	nal at 5% Sig	nificance Lev	rel
20				Lilliefors T	est Statistic	0.212			Lilliefors	GOF Test		
27			5	% Lilliefors C	ritical Value	0.283	De	etected Data	appear Norr	nal at 5% Sig	nificance Lev	'el
20				Det	ected Data	appear Norm	nal at 5% Sig	inificance Le	evel			
30												
31			Kaplan-	Meier (KM) S	tatistics usi	ng Normal C	ritical Value	s and other	Nonparamet	ric UCLs		
32					KM Mean	0.00776			KN	/I Standard E	rror of Mean	0.0019
33					KM SD	0.0112				95% KM	(BCA) UCL	0.0112
34				95%	KM (t) UCL	0.011			95% KM (P	ercentile Boo	otstrap) UCL	0.0109
35				95%	KM (z) UCL	0.0109				95% KM Boo	tstrap t UCL	0.0116
36			ę	90% KM Chel	byshev UCL	0.0134			ę	95% KM Che	byshev UCL	0.016
37			97	.5% KM Chel	byshev UCL	0.0196			ę	99% KM Che	byshev UCL	0.0266
38												
39				G	amma GOF	Tests on De	etected Obse	ervations On	ly			
40				A-D T	est Statistic	0.603		Α	nderson-Da	rling GOF Te	est	
41				5% A-D C	ritical Value	0.727	Detected	d data appea	r Gamma Di	stributed at 5	% Significand	ce Level
42				K-S T	est Statistic	0.217		۲	Colmogorov-	Smirnov GO	F	
43				5% K-S C	ritical Value	0.299	Detected	d data appea	r Gamma Di	stributed at 5	% Significant	ce Level
44				Detected	data appea	r Gamma Dis	stributed at 5	5% Significa	nce Level			
45												
46					Gamma	Statistics on	Detected D	ata Only				
47					к hat (MLE)	1.626			k :	star (bias cor	rected MLE)	1.1
48				Thet	a hat (MLE)	0.0151			Thetas	star (bias cor	rected MLE)	0.0223
49				n	u hat (MLE)	26.02				nu star (bia	s corrected)	17.59
50				Me	an (detects)	0.0246						

	A		В	C	;		D		E	F		G	Н					J		K			L
51																							
52							(Gamm	na ROS	S Statistics	usin	g Imputed	l Non-De	etects	3								
53				GROS	S may	not be	e usec	d wher	1 data s	set has > 50	% N	IDs with m	any tied	obse	rvatio	ns at ı	mult	iple DL	S				
54			GROS may	y not be	used	when	kstar	of det	ects is	small such	as <	:1.0, espe	cially whe	en th	e sam	ple siz	ze is	small	(e.g	., <15-	20)		
55					Fo	r such	situat	tions,	GROS	method may	y yie	eld incorre	ct values	s of U	CLs a	and BT	TVs						
56							-	This is	espec	ially true wh	en t	the sample	e size is s	small	•								
57			For gar	mma dis	stribut	ed det	tected	data,	BTVs	and UCLs m	ay b	pe comput	ed using	gam	ma di	stribut	tion	on KM	estir	mates			
58								Mi	nimum	0.0048										M	ean	0.	0129
59								Ma	iximum	0.045										Med	lian	0.	01
60									SD	0.00955											CV	0	.739
61								k hat	(MLE)	3.641						k s	star	(bias c	orreo	cted M	LE)	3	.384
62							The	eta hat	(MLE)	0.00355					Т	heta s	star	(bias c	orreo	cted M	LE)	0.0)0382
63								nu hat	: (MLE)	291.3							nu	star (b	oias d	correc	:ed)	270).8
64				Adjı	usted	Level	of Sig	gnifica	nce (β)	0.044													
65			Appr	oximate	e Chi S	Square	e Valu	ie (270).75, α)	233.6				Ac	ljusteo	d Chi S	Squa	are Val	lue (2	270.75	, β)	232	2.4
66		ç	95% Gamma	a Approx	kimate	e UCL	(use	when	n>=50)	0.015			95%	Gar	nma A	Adjuste	ed U	ICL (us	se wl	hen n<	50)	0.	015
67																							
68							E	stimat	es of C	amma Para	ame	eters using	KM Est	imate	əs								
69								Mea	ın (KM)	0.00776										SD (I	<m)< th=""><th>0.</th><th>0112</th></m)<>	0.	0112
70							V	arianc	;e (KM)	1.2564E-4								SE	of N	lean (l	(M)	0.0)019
71								k ha	at (KM)	0.479									k	star (I	(M)	0	.46
72								nu ha	at (KM)	38.34									nu	star (I	<m)< th=""><th>36</th><th>5.79</th></m)<>	36	5.79
73							th	neta ha	at (KM)	0.0162								t	heta	star (I	۲M)	0.	0169
74					80%	6 gamı	ma pe	rcentil	ie (KM)	0.0127						90%	% gai	mma p	erce	entile (I	<m)< th=""><th>0.</th><th>0214</th></m)<>	0.	0214
75					95%	6 gamı	ma pe	rcentil	ie (KM)	0.0307						99%	6 gai	mma p	erce	entile (I	(M)	0.	0539
76																							
77									Gamn	na Kaplan-N	<i>l</i> leie	er (KM) Sta	atistics										
78			Арр	proximat	te Chi	i Squa	re Val	ue (36	3.79, α)	23.91				А	djuste	ed Chi	i Sqı	uare Va	alue	(36.79	, β)	23	3.52
79		95%	Gamma Ap	proxima	ite KN	1-UCL	(use	when	n>=50)	0.0119			95% Ga	mma	Adju	sted K	(M-U	ICL (us	se wl	hen n<	50)	0.	0121
80															_								
81								ognor	mal GO		Dete	ected Obs	ervation	s On									
82					S	hapiro	VVIIK	Test S		0.832				-	Shapi	ro Wil	IK G		st				
83				5	o% Sł	napiro	Wilk	Critica	I Value	0.818		Dete	ected Dat	ta ap	pear l	_ogno	ormal	at 5%	Sig	nifican	ce L	evel	
84							etors	lest S		0.235						efors	GO		0.				
85					5	% LIIII	etors (Critica	I Value	0.283		Dete	ected Dat	ta ap	pear I	_ogno	rma	at 5%	Sigi	nifican		evel	
86							Dete	ected	Data a	ppear Logn	orma	ai at 5% s	significar		evei								
87										C Statiation			d Non F) oto c									
88						Maa		gnorr			USI	ing impute	a Non-L	Jetec	:15			Maa					005
89						Iviea		rigina		0.00554	_							Iviea	n in i		ale	-0.	905
90			050/ +1			5				0.0122							D = # =	J.				1. 	.704
91			95% t (JCL (as	sume	s norn				0.0088						95% F	Perc		30019	strap (0.0	0102
92					Į.	95% B				0.00995							,	95% B0	ootst	trapt	JCL	0.	0103
93						95%	н-ОС	L (LO	J KOS)	0.0125													
94					04-**	Ale		()	luc et :		D = 1	he end A				D: ''	h						
95					Statis	SUCS U			imates		Dat	ia and As	suming L	.ogno	ormal	UIStri	DUTIC			M			0400
96									ogged)	-5.322	_					050/ 0	:•:• •				ean	0.0	140
97				KM O:	- 1- 20		KM	1 SD (I	ogged)	0.759	-					30% (.og)	2	. 149
98				KM Sta	andar	a Erro	or of M	iean (l	ogged)	0.129	_					050/ 2	95	0% H-U			.og)	0.0	140
99				KM O:	- 1- 20		KM		ogged)	0.759	_					95% (ritic	ai H Va	aiue	(KM-L	.og)	2	. 149
100				r IVI Sta	andar	u Erro	or ot M	iean (I	ogged)	0.129													

	А	В	С	D	E	F	G	Н	I	J	K	L		
101														
102						DL/2 S	tatistics							
103			DL/2	Normal					DL/2 Log-	Transformed				
104				Mean in O	riginal Scale	0.00685				Mean	in Log Scale	-5.645		
105				SD in O	riginal Scale	0.0117				SD	in Log Scale	0.926		
106			95% t l	JCL (Assume	es normality)	0.00997				95%	6 H-Stat UCL	0.00766		
107			DL/2	is not a reco	mmended m	ethod, provi	ded for comp	parisons and	l historical r	easons				
108	Nonparametric Distribution Free UCL Statistics													
109	Nonparametric Distribution Free UCL Statistics													
110				Detected	l Data appea	r Normal Di	stributed at §	5% Significa	nce Level					
111														
112						Suggested	UCL to Use							
113				95%	KM (t) UCL	0.011								
114														
115	I	Note: Sugge	stions regard	ing the seled	tion of a 95%	6 UCL are pr	ovided to hel	p the user to	select the r	nost appropri	ate 95% UCL			
116			F	Recommenda	tions are ba	sed upon dat	a size, data	distribution,	and skewne	SS.				
117		These record	mmendations	s are based ι	ipon the resu	Its of the sim	ulation studi	es summariz	zed in Singh	, Maichle, an	d Lee (2006).			
118	Ho	wever, simu	lations result	s will not cov	er all Real W	/orld data se	ts; for additic	onal insight t	he user may	want to cons	ult a statistici	an.		
119														

	А	В	С	D	E	F	G	Н		J	K	L
1					UCL Statis	stics for Data	Sets with N	on-Detects				
2				1								
3		User Sele	cted Options									
4	Dat	e/Time of Co	omputation	ProUCL 5.13	3/20/2017 2:	28:17 PM						
5			From File	VOCs.xls								
6		Fu	II Precision	OFF								
7		Confidence	Coefficient	95%								
8	Number o	of Bootstrap	Operations	2000								
9												
10	n-Butylbenz	zene										
11							.					
12				<u></u>		General	Statistics			() :		
13			lotal	Number of O	bservations	40			Numbe	r of Distinct C	bservations	20
14				Numbe	r of Detects	5				Number of I	Non-Detects	35
15			N	umber of Dist	inct Detects	5			Numbe	er of Distinct I	Non-Detects	15
16				Mini	mum Detect	0.022				Minimum	Non-Detect	0.0035
17				Maxi	mum Detect	0.089				Maximum	Non-Detect	0.0083
18				Varia	nce Detects	7.6350E-4				Percent I	Non-Detects	87.5%
19				M	ean Detects	0.053					SD Detects	0.0276
20				Mec	lian Detects	0.043					CV Detects	0.521
21				Skewn	ess Detects	0.415				Kurt	osis Detects	-1.839
22				Mean of Log	ged Detects	-3.057				SD of Log	ged Detects	0.56
23												
24					Norn	nal GOF Tes	t on Detects	Only				
25			S	hapiro Wilk I	est Statistic	0.936			Shapiro Wi	Ik GOF Test		
26			5% S	hapiro Wilk C	ritical Value	0.762	De	etected Data	appear Norr	nal at 5% Sig	inificance Lev	el
27				Lilliefors T	est Statistic	0.241			Lilliefors	GOF Test		
28			5	% Lilliefors C	ritical Value	0.343	De	etected Data	appear Norr	nal at 5% Sig	inificance Lev	el
29				Det	ected Data	appear Norm	al at 5% Sig	inificance Le	evel			
30			<u> </u>									
31			Kaplan-	Meier (KM) S	statistics usi	ng Normal C	ritical Value	s and other	Nonparamet			
32					KM Mean	0.00969			KN	A Standard E	rror of Mean	0.00328
33					KM SD	0.0186				95% KM	I (BCA) UCL	0.0156
34				95%	KM (t) UCL	0.0152			95% KM (F	ercentile Boo	otstrap) UCL	0.0154
35				95%	KM (z) UCL	0.0151				95% KM Boo	tstrap t UCL	0.0135
36			(0% KM Chel	byshev UCL	0.0195				95% KM Che	byshev UCL	0.024
37			97	.5% KM Chel	bysnev UCL	0.0302			ç	99% KM Che	bysnev UCL	0.0423
38						Tasta - F			h.			
39				G	amma GOF		elected Obse	ervations On	ly ndore en D			
40				A-D I		0.25/	D-+ -	A	nderson-Da		IST	
41				5% A-D C		0.681	Detected	d data appea	ir Gamma Di	stributed at 5	Significant	ce Level
42				K-S I	est Statistic	0.214	Detert		Comogorov-	omirnov GO		
43				5% K-S C	ntical Value	0.358	Detected	a data appea	ir Gamma Di	stributed at 5	5 Significant	e Level
44				Detected	uata appea	r Gamma Dis	scriduted at 5	o% Significa	nce Level			
45					0	Otatiatic	Detecto d D	ata Ontr				
46						Statistics on	Detected D	ata Uniy				1.070
47					κ nat (MLE)	4.35/				star (blas cor	rected MLE)	1.8/6
48				Ihet	a nat (MLE)	0.0122			I heta :	star (blas cor	rected MLE)	0.0282
49				n	u hat (MLE)	43.57				nu star (bia	is corrected)	18.76
50				Me	an (detects)	0.053						

	A	1	В	С)	D		E	E	F	G		Н		I			J		К	I	L
51								_														
52							(Gamma	a ROS	Statistics u	sing Imp	outed	Non-Dete	ects								
53				GROS	S may	not be	used	when	data s	et has > 50%	NDs wi	ith ma	ny tied o	bser	vatior	ns at m	nultipl	e DL:	s			
54			GROS may	y not be	used	when k	star	of dete	cts is	small such a	s <1.0, e	especi	ally wher	n the	samp	ole siz	e is s	mall ((e.g.,	, <15-2	J)	
55					Fo	r such s	situat	ions, G	ROS	method may	yield inc	correc	t values o	of UC	CLs ar	nd BT	Vs					
56								This is o	especi	ially true whe	n the sa	mple	size is sr	mall.								
57			For gar	mma dis	stribut	ed dete	cted	data, E	3TVs a	and UCLs ma	y be cor	npute	d using g	gamn	na dis	tributi	on on	KM	estin	nates		
58								Min	iimum	0.01										Me	зn	0.0154
59								Max	cimum	0.089										Media	зn	0.01
60									SD	0.0169										C	;V	1.099
61								k hat ((MLE)	2.266						k st	tar (bi	as co	orrec	ted ML	E)	2.113
62							The	eta hat ((MLE)	0.00678					Tł	neta st	tar (bi	as co	orrec	ted ML	E)	0.00728
63							I	nu hat ((MLE)	181.3							nu st	ar (bi	ias c	orrecte	d)	169
64				Adj	usted	Level o	of Sig	Inifican	ice (β)	0.044												
65			Appr	roximate	e Chi S	Square	Valu	e (169.	.02, α)	140				Adj	usted	Chi S	quare	e Valı	ue (1	69.02,	β)	139
66		g	95% Gamma	a Approx	ximate	e UCL (I	use \	when n	>=50)	0.0186			95% (Gam	ma A	djuste	d UC	L (us	e wh	en n<5	0)	0.0187
67																						
68							Es	stimate	s of G	amma Para	neters ι	using	KM Estin	nates	5							
69								Mean	ι (KM)	0.00969										SD (KI	۷)	0.0186
70							Va	ariance) (KM)	3.4435E-4								SE	of Me	ean (Kl	√)	0.00328
71								k hat	t (KM)	0.273									k	star (Kl	N)	0.269
72								nu hat	t (KM)	21.8									nus	star (Kl	۷)	21.5
73							th	eta hat	t (KM)	0.0355								th	neta s	star (Kl	۷)	0.036
74					80%	b gamm	a pe	rcentile) (KM)	0.0144						90%	gamı	na pe	ercer	ntile (Kl	۷)	0.0289
75					95%	b gamm	a pe	rcentile) (KM)	0.0459						99%	gami	na pe	ercer	ntile (Kl	N)	0.0906
76																						
77								(01	Gamm	na Kaplan-M	eier (KM	i) Stat	listics		P .					04 50	0)	44 7
78		050/	App	proximat	te Chi	Square	e Val	ue (21.	.50, α)	11.97				Ac	ljuste	d Chi	Squa	re Va	ilue (21.50,	β)	11./
79		95%	Gamma Ap	proxima	ate KN	1-UCL (I	use \	when n	>=50)	0.0174		ç	5% Gam	nma /	Adjus	ted KN	M-UC	L (us	e wh	en n<5	0)	0.0178
80												Ohaa		01-	-							
81						henine V	L0				eleclea	Obse	rvations		honin	- \A/:II						
82										0.957		Deter	tod Data	3 				+ E 0/	Sign	ificana		
83				:	5% SI		fore -		value	0.762		Detec	cted Data	a app		ognon			Sign	incanc	e Le	evei
84					5					0.191		Dotor	tod Data	000				+ 5%	Sign	ificano		wol
85					5						rmal at F	5% Si				ognon	iiiai a	1 J /0	Sign	incanc	, Le	
86							Dele			spear Logilo		J /0 Ol	ynnicanc									
87								anorm	al RO	S Statistics	lsina Im	nuter	1 Non-De	etect	•							
88						Mean	in O	riginal	Scale		Joing III	putot		51001				Mear	n in I	00 502		-5 76
89						SD	in O	riginal	Scale	0.00020								SD) in I			1 34
90			95% t l	ICL (as	sume	s norma	ality o	of ROS	data)	0.0144					C	5% P	ercen	tile B		tran LI	21	0.0145
91			557010			3 101112				0.0171						5701	95	% Bo		an t LIC	יר ז	0.0140
92					•	95% DC			BOSI	0.0171							35	70 DU		aprov	<u></u>	0.0201
93						55701				0.0142												
94					Static	tice nei	na k	M Acti	matee	on Longed I)ata and	ا ۵۰۰	imina Lo	יסחסו	mai r)jetrih	ution					
95					Juna	uai		ean (lo	narea	-5.33		. , 1931	iy L0	-911UI		-15010		k	<u>ې ۸۸ </u>	ieo Me	an	0 00484
96							KM	SD (In	aged)	0.877					g	5% C	ritical	H Va	alue ((KM-I o	a)	2.271
97				KM St	andar	d Error	of M	ean (lo	aged)	0.155							95%	H-11		KM -I o	a)	0.00979
98					anuul	3 21101	KM	SD (Io	aaca)	0.877					Q	5% C	ritical	<u>H V</u> =		(KM-L o	a) a)	2 271
99				KM St	andar	d Frror	of M	ean (lo	aged)	0 155					5	5700		vc			3/	
100					anual			5411 (10	ggcu)	5.100												

	А	В	С	D	E	F	G	Н	I	J	K	L		
101														
102						DL/2 S	tatistics							
103			DL/2	Normal					DL/2 Log-1	Fransformed				
104				Mean in O	riginal Scale	0.00874				Mean	in Log Scale	-5.672		
105				SD in O	riginal Scale	0.0191				SD	in Log Scale	1.034		
106			95% t l	JCL (Assume	es normality)	0.0138				95%	6 H-Stat UCL	0.0088		
107			DL/2	is not a reco	mmended m	ethod, provi	ded for comp	parisons and	l historical r	easons		I		
108	Nonparametric Distribution Free LICL Statistics													
109	Nonparametric Distribution Free UCL Statistics													
110				Detected	l Data appea	ar Normal Di	stributed at §	5% Significa	nce Level					
111														
112						Suggested	UCL to Use							
113				95%	KM (t) UCL	0.0152								
114														
115	1	Note: Sugge	stions regard	ing the seled	tion of a 95%	6 UCL are pr	ovided to hel	p the user to	select the n	nost appropri	ate 95% UCL	.		
116			F	Recommenda	tions are ba	sed upon dat	a size, data	distribution,	and skewnes	SS.				
117		These record	mmendations	s are based ι	ipon the resu	Its of the sim	nulation studi	es summariz	zed in Singh,	Maichle, an	d Lee (2006).			
118	Но	wever, simu	lations result	s will not cov	er all Real V	/orld data se	ts; for additic	onal insight th	he user may	want to cons	ult a statistici	an.		
119														

	А	В	С	D	E	F	G	Н		J	K	L
1					UCL Statis	stics for Data	Sets with N	on-Detects				
2				1								
3		User Sele	cted Options									
4	Da	e/Time of Co	omputation	ProUCL 5.13	3/20/2017 2:	32:57 PM						
5			From File	VOCs.xls								
6		Ful	II Precision	OFF								
7		Confidence	Coefficient	95%								
8	Number of	of Bootstrap	Operations	2000								
9												
10	n-Propylbe	nzene										
11												
12						General	Statistics			(5)		
13			lotal	Number of O	bservations	40			Numbe	r of Distinct C	bservations	21
14				Numbe	er of Detects	6				Number of I	Non-Detects	34
15			N	umber of Dist	inct Detects	6			Numbe	er of Distinct I	Non-Detects	15
16				Mini	mum Detect	0.0063				Minimum	Non-Detect	0.0035
17				Maxi	mum Detect	0.38				Maximum	Non-Detect	0.0083
18				Varia	nce Detects	0.0197				Percent	Non-Detects	85%
19				M	ean Detects	0.138					SD Detects	0.14
20				Mec	lian Detects	0.095					CV Detects	1.019
21				Skewn	ess Detects	1.164				Kurte	osis Detects	0.832
22				Mean of Log	ged Detects	-2.629				SD of Log	ged Detects	1.468
23												
24					Norn	nal GOF Tes	t on Detects	Only				
25			S	hapiro Wilk T	est Statistic	0.889			Shapiro Wi	lk GOF Test		_
26			5% S	hapiro Wilk C	ritical Value	0.788	De	etected Data	appear Norr	nal at 5% Sig	inificance Lev	rel
27				Lilliefors T	est Statistic	0.234			Lilliefors	GOF Test		
28			5	% Lilliefors C	ritical Value	0.325	De	etected Data	appear Norr	nal at 5% Sig	inificance Lev	'el
29				Det	ected Data	appear Norn	nal at 5% Sig	inificance Le	evel			
30			<u> </u>									
31			Kaplan-	Meier (KM) S	Statistics usi	ng Normal C	ritical Value	s and other	Nonparamet			0.0110
32					KM Mean	0.0236			KN	A Standard E	rror of Mean	0.0119
33	-			050/	KM SD	0.069			050(101/5	95% KM	(BCA) UCL	0.0473
34				95%	KM (t) UCL	0.0438			95% KM (P	ercentile Boo	otstrap) UCL	0.0434
35				95%	KM (z) UCL	0.0433				95% KM Boo	tstrap t UCL	0.0507
36					bysnev UCL	0.0595				95% KM Chel	bysnev UCL	0.0757
37			97	.5% KIN Chel	bysnev UCL	0.0982			Ç	99% KIN Chel	bysnev UCL	0.143
38						Tests on De	to stad Oh a		b .			
39				G	amma GOF			ervations On	iy ndaman Dai		-	
40					est Statistic	0.188	Detector	A A			SL	
41				5% A-D C		0.717	Detected	a data appea		Stributed at 5	5% Significant	ce Level
42				K-S I	est Statistic	0.1/4	Datasta			ominov GO	F	
43				5% K-5 C		0.342		uaia appea		subuted at 5	o /o Significano	Le Level
44				Detected	uata appea	r Gamma Dis	sinduted at 5	o % Significa	ICE LEVEI			
45					Correct	Statistics	Doto at	oto Onka				
46						Statistics of	Detected D	ata Uniy		tor (hiss		0.500
47					к nat (MLE)	0.903				star (blas cori		0.563
48				Ihet	a nat (MLE)	0.152			I neta :	star (blas cor	rected MLE)	0.245
49				n	u nat (MLE)	10.84				nu star (bia	is corrected)	b./54
50				Me	an (detects)	0.138						

	A	1	В	С	;	D			E	F	G		Н		I			J	丄	K	\Box	L
51												<u> </u>										
52							(Jamm		Statistics u	sing im	puted	Non-Det	iects								
53			0000	GRUS	s may	not be	used	when	data s	set has > 50%	NDS V	vith ma	iny tied o	bser	vatior	ns at n	nultip		.s	.15.0	<u></u>	
54			GROS may	y not be	used	when k	star	of dete		small such a	s <1.0,	especi	ally whe	n the	sam			small	(e.g.	, <15-2	0)	
55					Fo	r such s	situat	ions, (JROS	method may	yield in	correc	t values	of UC	JLs a	na B I	VS					
56						1 -1 - 4 -		I NIS IS	espec	ally true who	en the s	ampie	SIZE IS SI	maii.				- 1/14	41			
57			For gar	mma dis	stribut	ea aete	ctea	data,	BIVSa		ay be co	mpute	a using g	gamr	na dis	stributi	ion oi	n KIVI	estin	nates		0.0000
58								IVII	nimum	0.0063										Mea Meadi	an	0.0292
59								Ma		0.38											an	0.01
60								l. h at		0.0682						li a	to # /b					2.341
61							The	K nat		0.771					τı	K S	tar (b					0.73
62							ine			0.0376					11	ieta s		tar (h			に) (1)	0.04 E9.27
63				۸di	uatad		of Cia			01.07							nu s	star (D			;u)	56.37
64			٨٥٢	Auj	to Chi	Square			$\frac{1}{2} \frac{1}{2} \frac{1}$	0.044				^	diucto	d Chi	Sauc			(50 27	0)	11 20
65			App		vimot				$\frac{1.57, u}{2}$	41.01			05%	Au Com						$\frac{100.37}{00000}$	(q	41.20
66		ä	5 % Gamina	а Арріол	xiiiiau	9 UCL (use	wiieii i	12-30)	0.0407			90 /0	Gam	illia A	ujuste	uuu	L (us	ewn		(0)	0.0412
67							E 4	etimot	os of (Commo Doro	motore	ueina	KM Eatir	moto								
68								Mea			meters	using		nate	3					SD (K	M)	0.069
69							V	arianc		0.0230								SE	of M		M)	0.003
70							v	k ha	$\frac{1}{1}$	0.00470								0L	k	star (K	M)	0.0115
71								nuha		0.117										star (K	M)	10.02
72							th	nu ne		0.201								++	hota	star (Ki	M)	0 180
73					80%	aamm	u 2 no			0.201						00%	aam	u ma na		ntilo (Ki	M)	0.109
74					95%	aamm		rcentil		0.0217						90%	gam			ntile (K	M)	0.0077
75					00 /	gannin	a pe			0.104						0070	gam				•••	0.000
76									Gamr	na Kaplan-N	eier (Kl	M) Sta	tistics									
77	_		Apr	proximat	te Chi	Square	e Val	ue (10).02. α)	3.957		,		A	diuste	d Chi	Saua	are Va	alue ((10.02.	B)	3.815
78		95%	Gamma Ap	proxima	ate KN	1-UCL (use	when r	n>=50)	0.0599		ç	95% Gan	nma	Adius	ted Kl	M-UC	CL (us	e wh	en n<5	50)	0.0621
79																		- (-/	
80							L	ognorr	mal G(OF Test on D	etected	l Obse	rvations	Only	/							
01 02					S	hapiro V	Nilk [·]	Test S	tatistic	0.946					hapir	o Will	k GO	F Tes	st			
02 02					5% Sł	napiro V	Vilk (Critical	l Value	0.788		Dete	cted Data	a app	ear L	ognor	mal a	at 5%	Sign	ificanc	e Le	evel
81 81						Lilliet	fors	Test S	tatistic	0.177					Lillie	efors (GOF	Test				
85					5	% Lillief	fors (Critical	l Value	0.325		Dete	cted Data	a app	ear L	ognor	mal a	at 5%	Sign	ificanc	e Le	evel
86							Dete	ected [Data a	ppear Logno	rmal at	5% Si	gnificand	ce Le	evel							
87																						
88							Lc	gnorn	nal RO	S Statistics	Using I	mpute	d Non-De	etect	S							
89						Mean	in C	riginal	l Scale	0.0209								Mear	n in L	.og Sca	ale	-8.511
90						SD	in C	rigina	l Scale	0.0707								SE) in L	.og Sca	ale	3.147
91			95% t l	JCL (as	sume	s norma	ality o	of ROS	S data)	0.0398					ç	95% P	erce	ntile B	Boots	trap UC	CL	0.041
92					ę	95% BC	A Bo	ootstra	ap UCL	0.0507							95	5% Bc	ootsti	rap t U(CL	0.0704
93	I					95% H	I-UC	L (Log	J ROS)	0.469											+	
94										1	1											
95	L			;	Statis	tics usi	ing K	M est	imates	on Logged	Data an	d Ass	uming Lo	ogno	rmal I	Distrib	outior	ı				
96						K	(M M	ean (lo	ogged)	-5.2								ł	KM G	ieo Me	an	0.00552
97	L						KM	SD (lo	ogged)	1.198					ç	95% C	ritica	I H Va	alue	(KM-Lc)g)	2.649
98	L			KM St	andar	d Error	of M	ean (lo	ogged)	0.208							95%	% H-U	ICL (KM -Lc)g)	0.0188
99							KM	SD (lo	ogged)	1.198					g	95% C	ritica	I H Va	alue	(KM-Lc)g)	2.649
100				KM St	andar	d Error	of M	ean (lo	ogged)	0.208											1	
	1									1	1											

	А	В	С	D	E	F	G	Н	I	J	K	L	
101													
102						DL/2 S	tatistics						
103			DL/2	Normal					DL/2 Log-	Fransformed			
104				Mean in C	riginal Scale	0.0227				Mean	in Log Scale	-5.539	
105				SD in C	riginal Scale	0.0701				SD	in Log Scale	1.357	
106			95% t l	JCL (Assum	es normality)	0.0414				95%	H-Stat UCL	0.0183	
107			DL/2	is not a reco	mmended m	ethod, provi	ded for comp	parisons and	l historical r	easons		I	
108	Nonparametric Distribution Free LICL Statistics												
109	Nonparametric Distribution Free UCL Statistics												
110				Detected	l Data appea	ar Normal Di	stributed at §	5% Significa	nce Level				
111													
112						Suggested	UCL to Use						
113				95%	6 KM (t) UCL	0.0438							
114													
115	1	Note: Sugge	stions regard	ling the seled	ction of a 95%	6 UCL are pr	ovided to hel	p the user to	select the r	nost appropri	ate 95% UCL		
116			F	Recommenda	ations are ba	sed upon dat	a size, data	distribution,	and skewne	SS.			
117		These record	mmendations	s are based u	upon the resu	Its of the sim	nulation studi	es summariz	zed in Singh	Maichle, an	d Lee (2006).		
118	Но	wever, simu	lations result	s will not cov	/er all Real V	/orld data se	ts; for additic	onal insight th	ne user may	want to cons	ult a statistici	an.	
119													

	A	В	С	D	E	F	G	Н	I	J	K	L
1					UCL Statis	tics for Data	Sets with N	on-Detects				
2												
3		User Seleo	cted Options									
4	Dat	e/Time of Co	omputation	ProUCL 5.1	3/20/2017 2:	36:59 PM						
5			From File	VOCs.xls								
6		Ful	I Precision	OFF								
7		Confidence	Coefficient	95%								
8	Number o	of Bootstrap (Operations	2000								
9												
10	o-Xylene											
11												
12						General	Statistics					
13			Total	Number of C	bservations	40			Numbe	r of Distinct (Observations	17
14				Numbe	er of Detects	1				Number of	Non-Detects	39
15			N	umber of Dist	inct Detects	1			Numbe	er of Distinct	Non-Detects	16
16												
17	V	Warning: On	ly one distin	ct data value	was detect	ed! ProUCL	(or any othe	r software) s	hould not be	e used on su	ich a data se	tl
18	It is sugge	ested to use	alternative s	ite specific v	alues deter	mined by the	Project Tea	m to estimat	te environm	ental param	eters (e.g., E	PC, BTV).
19												
20				Th	e data set fo	or variable o-	Xylene was	not processe	ed!			
21												
22												

	Α	В	С	D	E	F	G	Н	Ι	J	K	L
1					UCL Statis	tics for Data	Sets with N	on-Detects				
2												
3	Det	User Sele			2/20/2017 2.	40.40 DM						
4	Dai	e/Time of Co		Prouce 5. I	3/20/2017 2:4	43:43 PIN						
5												
6		Confidance										
7	Number			30.00								
8	Number (2000								
9	n-leonronyl	oluene										
10	р-ізоргоруг											
11						General	Statistics					
12			Total	Number of C	bservations	40			Numbe	r of Distinct C	bservations	17
14				Numbe	er of Detects	2				Number of N	Non-Detects	38
14			N	umber of Dist	tinct Detects	2			Numbe	er of Distinct N	Non-Detects	15
10				Mini	mum Detect	0.0046				Minimum	Non-Detect	0.0035
10				Maxi	mum Detect	0.025				Maximum	Non-Detect	0.0083
12				Varia	nce Detects	2.0808E-4				Percent N	Non-Detects	95%
19				М	ean Detects	0.0148					SD Detects	0.0144
20				Med	dian Detects	0.0148					CV Detects	0.975
21				Skewn	ess Detects	N/A				Kurte	osis Detects	N/A
22				Mean of Log	ged Detects	-4.535				SD of Log	ged Detects	1.197
23												
24					Warning: D	ata set has	only 2 Detec	ted Values.				
25			TI	nis is not end	ough to comp	oute meaning	gful or reliab	le statistics	and estimate	es.		
26												
27												
28					Norm	nal GOF Tes	t on Detects	Only				
29					Not En	ough Data to	Perform G	OF Test				
30												
31			Kaplan-	Meier (KM) S	Statistics usi	ng Normal C	ritical Value	s and other l	Nonparamet	tric UCLs		
32					KM Mean	0.00409			KN	A Standard E	rror of Mean	7.5206E-4
33					KM SD	0.00336				95% KM	(BCA) UCL	N/A
34				95%	KM (t) UCL	0.00536			95% KM (P	ercentile Boo	otstrap) UCL	N/A
35				95%	KM (z) UCL	0.00533				95% KM Boo	tstrap t UCL	N/A
36				0% KM Che	byshev UCL	0.00634				95% KM Chel	byshev UCL	0.00737
37			97.	.5% KM Che	bysnev UCL	0.00879			ç	99% KM Chel	bysnev UCL	0.0116
38						Teete en De			. .			
39				G	amma GOF	Tests on De		Prvations On	iy			
40					NOT EN	ougn Data to	Perform GC	JF Test				
41					Gammo	Statistics or		lata Only				
42					k hat (MLE)	1 7			k	star (bias cor	rected MLE)	N/A
43				The	ta hat (MLE)	0 00871			Thete	star (bias con	rected MLE)	N/A
44				rite	u hat (MLE)	6,798			incld s	nu star (bia	s corrected)	N/A
45				Me	an (detects)	0.0148						
46						0.0140						
47				Fs	timates of G	amma Para	meters using	KM Estimat	tes			
48					Mean (KM)	0.00409		,	-		SD (KM)	0.00336
49 E0				Va	ariance (KM)	1.1266E-5				SE of	f Mean (KM)	7.5206E-4
50												

	А	В	С	D	E	F	G	Н			J	К	L
51					k hat (KM)	1.484						k star (KM)	1.389
52					nu hat (KM)	118.7						nu star (KM)	111.1
53				th	eta hat (KM)	0.00276					tł	neta star (KM)	0.00294
54			80%	5 gamma per	centile (KM)	0.00638			ę	90%	gamma pe	ercentile (KM)	0.00868
55			95%	5 gamma per	centile (KM)	0.0109			9	99%	gamma pe	ercentile (KM)	0.016
56						1	ŀ					ļ	
57					Gamm	na Kaplan-M	eier (KM) St	atistics					
58									Adjus	sted	Level of Si	gnificance (β)	0.044
59		Appr	oximate Chi	Square Value	e (111.13, α)	87.8		A	djusted C	Chi S	Square Val	ue (111.13, β)	87.02
60	95%	6 Gamma Ap	proximate KN	1-UCL (use v	vhen n>=50)	0.00518		95% Gamm	a Adjuste	ed K	M-UCL (us	e when n<50)	0.00522
61													
62				Lo	gnormal GC	F Test on D	etected Obs	servations O	nly				
63					Not En	ough Data to	Perform G	OF Test					
64													
65				Lo	gnormal RO	S Statistics	Using Imput	ed Non-Dete	ects				
66				Mean in O	riginal Scale	8.4285E-4					Mear	n in Log Scale	-10.16
67				SD in O	riginal Scale	0.00399					SE) in Log Scale	2.108
68		95% t l	JCL (assume	s normality c	of ROS data)	0.00191			95	5% F	Percentile B	ootstrap UCL	0.00211
69			9	95% BCA Bo	otstrap UCL	0.00289					95% Bo	otstrap t UCL	0.0136
70				95% H-UCI	_ (Log ROS)	0.00135							
71						<u> </u>		<u> </u>					
72			Statis	tics using K	M estimates	on Logged I	Data and As	suming Logi	normal Di	istril	oution		
73				KM Me	ean (logged)	-5.593					ŀ	(M Geo Mean	0.00372
74				KM	SD (logged)	0.31			95	% C	critical H Va	alue (KM-Log)	1.797
75			KM Standa	d Error of Me	ean (logged)	0.0704					95% H-U	CL (KM -Log)	0.00427
76				KM	SD (logged)	0.31			95	% C	critical H Va	alue (KM-Log)	1.797
77			KM Standar	rd Error of Me	ean (logged)	0.0704							
78													
79						DL/2 S	tatistics						
80			DL/2 I	Normal		1			DL/2 Lo	ю - Т	ransforme	d	
81				Mean in O	riginal Scale	0.00301					Mear	n in Log Scale	-5.978
82				SD in O	riginal Scale	0.00362					SE) in Log Scale	0.429
83			95% t L	JCL (Assume	es normality)	0.00398					959	% H-Stat UCL	0.00316
84			DL/2 i	s not a reco	mmended m	ethod, provi	ded for com	parisons and	1 historica	al re	asons		
85													
86				.	Nonparame	etric Distribu	tion Free UC	CL Statistics					
87				Data do no	ot follow a D	Iscernible D	istribution at	t 5% Signific	ance Lev	el			
88						Currented							
89			05				UCL to Use						
90			95		ysnev) UCL	0.00737							
91		Note: Sugar	stions record	ing the color	tion of a OF ⁰		ovided to be	In the upper to	solaat th	0 m	oet approp		
92		Note. Sugge			tions are be			distribution	and skow		osi appiop		
93		These roces			non the recu					ab	a. Maichlo ar	nd I ap (2006)	
94						lorid data as	te: for addition			iyii,	want to con		20
95	П	Swever, Sirnu	nauons result			ronu uata se		anai msiyrit ti	ie usei m	ay \		SUIL & STATISTICI	aii.
96													

	A	В	С	D	E	F	G	Н		J	K	L
1					UCL Statis	tics for Data	Sets with N	on-Detects				
2												
3	D	User Sele	cted Options		00/0017 0	20.50 DM						
4	Da	te/Time of Co		Prouce 5.1	3/20/2017 2:	28:58 PM						
5		Eul										
6		Confidence										
7	Number	of Bootstran (2000								
8	Number (operations	2000								
9	sec-Butvlbe	nzene										
10												
10						General	Statistics					
12			Total	Number of O	bservations	40			Numbe	of Distinct C	bservations	20
14				Numbe	r of Detects	5				Number of I	Non-Detects	35
14			N	umber of Dist	inct Detects	5			Numbe	er of Distinct I	Non-Detects	15
16				Mini	mum Detect	0.0076				Minimum	Non-Detect	0.0035
17				Maxi	mum Detect	0.29				Maximum	Non-Detect	0.0083
18				Varia	nce Detects	0.0141	<u> </u>			Percent	Non-Detects	87.5%
19				M	ean Detects	0.0851					SD Detects	0.119
20				Med	lian Detects	0.03					CV Detects	1.395
21				Skewn	ess Detects	1.887				Kurt	osis Detects	3.555
22				Mean of Log	ged Detects	-3.3				SD of Log	ged Detects	1.481
23						1					I	
24					Norn	nal GOF Tes	t on Detects	Only				
25			S	hapiro Wilk T	est Statistic	0.749			Shapiro Wi	lk GOF Test		
26			5% SI	napiro Wilk C	ritical Value	0.762	Γ	Detected Dat	a Not Norma	al at 5% Signi	ficance Leve	l
27				Lilliefors T	est Statistic	0.297			Lilliefors	GOF Test		
28			5	% Lilliefors C	ritical Value	0.343	De	etected Data	appear Norr	nal at 5% Sig	nificance Lev	vel
29				Detected I	Data appear	Approximat	e Normal at	5% Significa	ance Level			
30												
31			Kaplan-	Meier (KM) S	statistics usi	ng Normal C	ritical Value	s and other	Nonparamet	ric UCLs		
32					KM Mean	0.0137			KN	A Standard E	rror of Mean	0.00817
33				050/	KM SD	0.0462			050/ 1/04/15	95% KM	(BCA) UCL	0.0279
34				95%		0.0275			95% KM (P		tstrap) UCL	0.0279
35				95%		0.02/1				5% KM Ch-	byshow UCL	0.0700
36			: حە	5% KM Chai		0.0362						0.0493
37			57		., on ov OOL	0.0047						0.000
38				G	amma GOF	Tests on De	tected Obse	ervations On	lv			
39				A-D T	est Statistic	0.328		A	nderson-Da	rlina GOF Te	st	
40				5% A-D C	ritical Value	0.7	Detected	d data appea	r Gamma Di	stributed at 5	% Significan	ce Level
41				K-S T	est Statistic	0.232		···	Kolmogorov-	Smirnov GO	F	
42				5% K-S C	ritical Value	0.367	Detected	d data appea	r Gamma Di	stributed at 5	% Significan	ce Level
43				Detected	data appea	r Gamma Di	stributed at 5	5% Significa	nce Level		-	
45								-				
46					Gamma	Statistics or	Detected D	ata Only				
47					k hat (MLE)	0.72			k	star (bias cor	rected MLE)	0.421
48				Thet	a hat (MLE)	0.118			Theta	star (bias cor	rected MLE)	0.202
49				n	u hat (MLE)	7.198				nu star (bia	s corrected)	4.213
50				Ме	an (detects)	0.0851						

	А	В		С		D		Е		F		G		Н					J		K			L
51																								
52							Gam	ma RC	os s	tatistics	using	g Impi	uted	Non-De	etects									
53			GRC	JS may	not	be use	ed whe	n data	set	has > 50	% N	Ds wit	th ma	iny tied	obser	vation	is at n	nulti	ple DL	_S				
54		GROS ma	ay not b	be used	whe	n ksta	r of de	ects i	s sm	all such	as <	1.0, es	speci	ally whe	en the	samp	ole siz	ze is	small	(e.g.	, <15-2	20)		
55				Fo	r suc	h situa	ations,	, GROS	S me	ethod ma	y yıe		orrec	t values	of U(JLs ar	nd B I	Vs						
56						<u> </u>	Inisi	s espe	eciali	y true wr	ien ti	ne sar	mple	size is s	small.						<u> </u>			
57		For ga	amma c	listribut	ed d	etecte	d data	, BIVS	s and		nay b	be com	npute	a using	gamr	na dis	tributi	ion o	n KM	estir	nates			0104
58							N	/iinimui	m	0.0076											IVIE	en :	0.	0194
59							IVI		m	0.29											Med	ian	0.	01
60								5		0.0456							1	/l					Z.	.351
61						ты	K Na		=)	1.14						ты	K S	tar (I		orrec				.071
62						In	ieta na		=)	0.017						11	ieta s	tar (i				_E)	.0	
63				ما:،،مەم ما			nu na		=)	91.18								nus	star (b		correct	ea)	80	.07
64		۸	A		Leve				p) ~)	65.24					Δ.	diucto	4 06	Sau			(0E 67	0)	6/	1.67
65		AL						5.07, C	a)	00.34				050/	A			Squ			05.07	, p)	04	1.07
66		95% Gamm	па Аррі	oximate		L (use	when	10-50	0)	0.0254				90%	Gan	ima A	ujuste			se wi		50)		0257
67							Totime	too of	Car	nmo Dor		torou	oina		Imoto									
68							_Suma				ame		Sing		mate	3					SD (k	(1)	0	0462
69							Varian		/) /)	0.0137										of M	00 (N		0.0	0402
70							k ł		/) /)	0.00214										01 W	star (k	(M)	0.0	0017
71					/) /)	7 029											star (k	(M)	7	835				
72							theta ł		/) /)	0 156	_								t	theta	star (k	(M)		14
73				80%	6 aar	nma n	orcont		/) /)	0.100							Q0%	aan			ntilo (k		0	0362
74				95%	6 yai	nma p	ercent		/) /)	0.00322	·						90%	, yan	nma p		ntile (k	(M)	0.	22
75				557	o gai		creen		///	0.0750							0070	gan						
76								Garr	ıma	Kaplan-I	Veie	r (KM)) Stat	tistics										
77		Δ	Approxi	mate Cl	hi Sa	uare \	/alue ((7.84. (α)	2.64		. (,		-	Adiuste	ed Ch	ni Sa	uare \	Value	e (7.84	. B)	2	.528
78	95	% Gamma A	pproxim	nate KM	л-UС	L (use	when	n>=5	0)	0.0407			ç)5% Ga	mma	Adiust	ted Kl	M-U(CL (us	se wł	ien n<	50)	0.	0425
79						95% (Gamm	na Adiu	isted	KM-UC	L (us	se whe	en k<:	=1 and	15 < r	1 < 50))					,		
8U 01											(-	/								
01							Logno	rmal C	GOF	Test on	Dete	ected (Obse	rvation	s Only	v								
02				S	hapii	o Wilk	Test	Statist	ic	0.956					5	, Shapir	o Will	k GC	OF Te	st				
03				5% SI	hapir	o Wilk	Critic	al Valu	le	0.762			Deteo	cted Da	ta app	Dear Lo	ognor	mal	at 5%	Sigr	nifican	ce L	evel	
85					Li	lliefors	Test	Statist	ic	0.176						Lillie	fors (GOF	Test					
86				5	% Lil	liefors	Critic	al Valu	ıe	0.343			Deteo	cted Da	ta app	bear Lo	ognor	mal	at 5%	Sigr	nifican	ce L	evel	
87						De	tected	l Data	appo	ear Logn	orma	al at 5	% Si	gnificar	nce Le	evel								
88																								
89						L	.ognoi	rmal R	os	Statistics	s Usi	ing Im	puteo	d Non-E	Detect	s								
90					Me	ean in	Origin	al Sca	le	0.0107									Mea	n in l	_og Sc	ale	-1().36
91						SD in	Origin	al Sca'	le	0.0475									SI	D in l	_og Sc	ale	3	.51
92		95% t	UCL (a	assume	s no	mality	of RC)S data	a)	0.0234						9	5% P	erce	entile E	Boots	strap U	CL	0.	025
93				9	95%	BCA E	Bootsti	rap UC	L	0.0372								9	5% Bo	ootst	rap t U	CL	0	.106
94					95%	% H-U	CL (Lo	bg ROS	S)	0.473														
95																								
96				Statis	stics	using	KM es	stimate	es or	n Logged	l Dat	ta and	Assu	uming L	ogno	rmal C	Distrib	outio	'n					
97						KM	Mean	(logged	d)	-5.36										KM C	ieo Me	ean	0.0	047
98						K	M SD	(logged	d)	0.909						9	5% C	ritica	al H V	alue	(KM-L	og)	2	.304
99			KMS	Standar	rd Er	ror of I	Mean	(logged	d)	0.161								95	% Н-L	JCL (KM -L	og)	0.0)0993
—						K	M SD	(logged	d)	0.909						9	5% C	ritica	al H V	alue	(KM-L	og)	2	.304

	А	В	С	D	E	F	G	Н		J	K	L				
101			KM Standa	rd Error of M	ean (logged)	0.161										
102																
103						DL/2 S	tatistics									
104			DL/2	Normal					DL/2 Log	g-Transformed	ł					
105				Mean in O	riginal Scale	0.0127				Mear	in Log Scale	-5.71				
106				SD in O	riginal Scale	0.047				SE	in Log Scale	1.053				
107			95% t l	JCL (Assume	es normality)	0.0253				959	% H-Stat UCL	0.00874				
108			DL/2	is not a reco	mmended m	ethod, provi	ded for com	parisons and	d historical	reasons						
109																
110		Nonparametric Distribution Free UCL Statistics Detected Data appear Approximate Normal Distributed at 5% Significance Level														
111		Detected Data appear Approximate Normal Distributed at 5% Significance Level														
112																
113						Suggested	UCL to Use									
114				95%	KM (t) UCL	0.0275										
115																
116			When a d	data set follow	vs an approx	timate (e.g., i	normal) distr	bution pass	ing one of	the GOF test						
117		When app	licable, it is s	suggested to	use a UCL b	ased upon a	distribution	e.g., gamm	a) passing	both GOF test	s in ProUCL					
118																
119		Note: Sugge	stions regard	ling the selec	tion of a 95%	6 UCL are pr	ovided to he	p the user to	o select the	e most approp	riate 95% UCL	•				
120			F	Recommenda	tions are bas	sed upon dat	a size, data	distribution,	and skewn	iess.						
121		These reco	mmendation	s are based u	pon the resu	Its of the sim	ulation studi	es summari	zed in Sing	h, Maichle, ar	nd Lee (2006).					
122	Ho	wever, simu	lations resul	ts will not cov	er all Real W	/orld data se	ts; for additio	nal insight t	he user ma	ay want to con	sult a statisticia	an.				
100																

	А	В	С	D	E	F	G	Н		J	K	L
1					UCL Statis	sucs for Data	Sets with N	on-Detects				
2												
3	D	User Sele	cted Options		00/0017 0	20.20 DM						
4	Da	te/ I ime of Co		ProUCL 5. I	3/20/2017 2:	29:38 PM						
5		- Ful										
6		Fu	Coofficient									
7	Number	Confidence		95%								
8	Number o	of Bootstrap	Operations	2000								
9	tort Butylbo	07000										
10	tert-Butyibe											
11						General	Statistics					
12			Total	Number of O	bservations	40			Number	r of Distinct C	bservations	20
13				Numbe	r of Detects	4				Number of I	Non-Detects	36
14			N	umber of Dist	inct Detects	4			Numbe	er of Distinct I	Non-Detects	16
15				Mini	mum Detect	0.036				Minimum	Non-Detect	0.0035
16				Maxi	mum Detect	0.06				Maximum	Non-Detect	0.0083
1/				Varia	nce Detects	1.0025E-4				Percent I	Non-Detects	90%
10				M	ean Detects	0.0483					SD Detects	0.01
20				Med	lian Detects	0.0485					CV Detects	0.208
20				Skewn	ess Detects	-0.137				Kurt	osis Detects	0.318
21				Mean of Log	ged Detects	-3.048				SD of Log	ged Detects	0.214
22					-					-	-	
23					Norm	nal GOF Tes	t on Detects	Only				
25			S	hapiro Wilk T	est Statistic	0.999			Shapiro Wi	lk GOF Test		
26			5% SI	hapiro Wilk C	ritical Value	0.748	De	etected Data	appear Norr	nal at 5% Sig	nificance Lev	vel
27				Lilliefors T	est Statistic	0.161			Lilliefors	GOF Test		
28			5	% Lilliefors C	ritical Value	0.375	De	etected Data	appear Norr	nal at 5% Sig	nificance Lev	vel
29				Det	ected Data	appear Norm	nal at 5% Sig	gnificance Le	evel			
30	-											
31			Kaplan-	Meier (KM) S	tatistics usi	ng Normal C	ritical Value	s and other	Nonparamet	tric UCLs		
32					KM Mean	0.00798			KN	/I Standard E	rror of Mean	0.0025
33					KM SD	0.0137				95% KM	(BCA) UCL	N/A
34				95%	KM (t) UCL	0.0122			95% KM (P	ercentile Boo	otstrap) UCL	N/A
35				95%	KM (z) UCL	0.0121				95% KM Boo	tstrap t UCL	N/A
36			Ç	90% KM Chel	byshev UCL	0.0155			(95% KM Che	byshev UCL	0.0189
37			97	.5% KM Chel	byshev UCL	0.0236			Q	99% KM Che	byshev UCL	0.0329
38												
39				G	amma GOF	Tests on De	etected Obse	ervations On	ly			
40				A-D T	est Statistic	0.208		A	nderson-Da	rling GOF Te	st	
41				5% A-D C	ritical Value	0.657	Detected	d data appea	r Gamma Di	stributed at 5	% Significant	ce Level
42				K-S T	est Statistic	0.178	D · · ·	ا	Colmogorov-	Smirnov GO		
43				5% K-S C	ritical Value	0.394	Detected	d data appea	ir Gamma Di	stributed at 5	% Significant	ce Level
44				Detected	data appea	r Gamma Dis	stributed at 5	o% Significa	nce Level			
45					0	Ototiotic -	Data at a D					
46						Statistics of	Detected D	ata Oniy		tor (higg as		7640
47				ΤЬ		29.9			Th -+-	star (bias cor		0.00621
48				Inet		0.00161			i neta s	star (Dias cor		0.00631
49				n 		239.2				nu star (bia	s corrected)	1.14
50				Me	an (detects)	0.0483						

	A	A I	В		С		D		Е		F		G		Н		I			J			K	T	L
51								Gam	ma PC		tatietice (ieina	Impute	ad N	on-De	tacte									
52				GR		v not	house	d who	n data		has $> 50^\circ$		s with	man	v tied (been	vation	ne at	mult	tinla D	اد				
53			GROS ma			d whe	on keta			is em	hall such a			ecial		n the	samr			s sma			15-20	<u>) </u>	
54					Fr		h situ	ations	GRO	S me	ethod may		1 incorr	rect v	values		l s ai	nd B	TVs	5 51110	ii (c.g	j., `	10-20	/	
55						51 044	on ond	This	is espe	eciall	lv true wh	en the	e samr	ole si	ize is s	mall	20 0								
56			For da	mma	distribu	ited d	etecte	d data	BTVs	sanc	d UCI s m	av be		uted	usina	aamn	na dis	stribut	tion	on KN	/ esti	imat	es		
57									/inimu	m	0.01	.,			uomg	94							Mea	n	0.0144
58								M	aximu	m	0.06											1	Media	n	0.01
59									S	D	0.012												C/	V	0.836
60								k ha	at (MLE	E)	3.119							ks	star	(bias	corre	ecter	d MLE)	2.902
62							Tł	neta ha	at (MLE	E)	0.0046						Tł	heta s	star	(bias	corre	ecter	d MLE	<u>;</u>)	0.00495
62								nu ha	at (MLE	E)	249.5								nı	ı star (bias	cori	rected))	232.2
64					Adjusted	d Lev	el of S	ignific	ance (β)	0.044													-	
65			Арр	roxim	ate Chi	Squa	are Val	lue (23	32.15, 0	α)	197.9					Adj	usted	I Chi	Squ	are Va	alue ((232	2.15, β	5)	196.7
66		9	5% Gamm	na App	proximat	te UC	CL (use	e wher	n n>=50	0)	0.0168				95%	Gam	ma A	djust	ed l	JCL (ι	ise w	/hen	n<50))	N/A
67																								_	
68							I	Estima	ates of	Gar	nma Para	amete	ers usir	ng K	M Esti	mates	5								
69								Ме	an (KN	N)	0.00798											SI	D (KM)	0.0137
70								Variar	ice (KN	И) 1.	.8775E-4									SI	E of N	Mea	n (KM	i)	0.0025
71								kl	nat (KN	N)	0.339										ŀ	k sta	ar (KM)	0.33
72								nu l	nat (KN	N)	27.1										nı	u sta	ar (KM)	26.4
73								theta l	nat (KN	۸)	0.0235										theta	a sta	ar (KM)	0.0242
74					809	% gai	mma p	ercen	tile (KN	N)	0.0125							90%	% ga	mma	perce	entil	e (KM	i)	0.0232
75					959	% gai	mma p	ercen	tile (KN	N)	0.0354							99%	% ga	mma	perce	entil	e (KM)	0.0665
76										I															
77									Gam	nma	Kaplan-M	leier	(KM) S	Statis	stics										
78			Ар	proxi	mate Ch	ni Squ	uare Va	alue (2	26.40, 0	α)	15.69					Ac	ljuste	d Ch	i Sq	uare \	/alue	9 (26	6.40, β)	15.38
79		95%	Gamma Ap	oproxi	imate Kl	M-UC	CL (use	e wher	n n>=50	0)	0.0134			95	5% Gar	nma /	Adjus	ted K	KM-L	JCL (ι	ise w	hen	n<50)	0.0137
80																									
81								Logno	rmal G	GOF	Test on [Detec	ted Ob	oser\	ations	: Only	'								
82					S	Shapi	ro Will	< Test	Statist	ic	0.987					S	hapir	ro Wi	lk G	iOF T	est				
83					5% S	Shapii	ro Wilk	Critic	al Valu	le	0.748		De	etect	ed Dat	а арр	ear L	.ogno	orma	l at 5%	% Sig	Jnific	cance	Lev	el
84						L	illiefors	s Test	Statist	ic	0.193						Lillie	efors	GO	F Tes	t				
85					5	5% Li	lliefors	critic	al Valu	e	0.375		De	etect	ed Dat	a app	ear L	.ogno	orma	l at 5%	% Sig	Inific	cance	Lev	el
86							De	tected	l Data	appo	ear Logno	ormal	at 5%	Sig	nifican	ce Le	vel								
87											0														
88							L		rmal R		Statistics	Usin	g Impu	Ited	Non-D	etect	S								4.00
89						M	ean in	Origin	al Sca	le	0.0167									Me	an in	Log	Scal	e	-4.26
90			050/ +		/		SD in	Origin		ie	0.012								D	2		Log) Scal	э 	0.548
91			95% t	UCL	(assume		rmality			a)	0.0199						5	95% F	Perc		BOOI	tstra			0.02
92		95% BCA Bootstr									0.0204									95% E	300ts	arap		L	0.0213
93		95% H-UCL (Lc									0.0195														
94					Ct-t	otics	uelee	KM	time +-			Data	ond ^	001	ning	0000-	mali	Diate	b*!	<u></u>					
95					চ্বব্য	SUCS	using			d)	5 204	Jata	and A	ssur	ning L	ugnol	mai l	ואטויט	DUTI	on	KV	<u></u>	Mag	n	0.00454
96										u) d)	0 794						-)50/ C	~ri+i.	<u>ы п г</u>				<u> </u>	0.00404 2.175
97				L/M	Standa	ard E	ror of	Mean		u) d)	0.764						9	5070 C				; (r\l 		<u>り</u> い	2.1/0
98				r IVI	Sidnua	nu El				u) d)	0.143						-)50/ C	9: Oriti	о ли ч		(NN)		り い	0.0001Z
99				KW	Standa	ard E		Mean		u) d)	0.704						9	J /0 (JIII		vaiue	; (r/l	vi-LOG	J	2.173
100				IXIV				wedit	liogye	u)	0.143														
	А	В	С	D	E	F	G	Н	I	J	K	L													
-----	---	-------------	----------------	----------------	----------------	----------------	-----------------	----------------	----------------	---------------	------------------	---------	--	--											
101																									
102						DL/2 S	tatistics																		
103			DL/2	Normal					DL/2 Log-	Fransformed															
104				Mean in O	riginal Scale	0.00701				Mean	in Log Scale	-5.746													
105				SD in O	riginal Scale	0.0142				SD	in Log Scale	0.934													
106			95% t l	JCL (Assume	es normality)	0.0108				95%	6 H-Stat UCL	0.00701													
107			DL/2	is not a reco	mmended m	ethod, provi	ded for comp	parisons and	d historical r	easons		L													
108	Nonnerometric Distribution Erec LICL Statistics																								
109	Nonparametric Distribution Free UCL Statistics																								
110				Detected	l Data appea	ar Normal Di	stributed at §	5% Significa	nce Level																
111																									
112						Suggested	UCL to Use																		
113				95%	5 KM (t) UCL	0.0122																			
114																									
115	1	Note: Sugge	stions regard	ling the seled	tion of a 95%	6 UCL are pr	ovided to hel	p the user to	o select the n	nost appropri	ate 95% UCL														
116			F	Recommenda	ations are ba	sed upon dat	a size, data	distribution,	and skewnes	SS.															
117		These reco	mmendation	s are based u	ipon the resu	Its of the sim	nulation studi	es summariz	zed in Singh	Maichle, an	d Lee (2006).														
118	Но	wever, simu	lations result	s will not cov	ver all Real V	/orld data se	ts; for additic	onal insight t	he user may	want to cons	ult a statistici	an.													
119																									

	А	В	С	D	E	F	G	Н	I	J	K	L
1					UCL Statis	tics for Data	Sets with N	on-Detects				
2												
3		User Seleo	cted Options									
4	Dat	e/Time of Co	omputation	ProUCL 5.1	3/20/2017 2:	34:25 PM						
5			From File	VOCs.xls								
6		Ful	I Precision	OFF								
7		Confidence	Coefficient	95%								
8	Number o	of Bootstrap (Operations	2000								
9												
10	Toluene											
11												
12						General	Statistics					
13			Total	Number of C	bservations	40			Numbe	r of Distinct (Observations	17
14				Numbe	er of Detects	1				Number of	Non-Detects	39
15			N	umber of Dist	inct Detects	1			Numbe	er of Distinct	Non-Detects	16
16												
17	V	Warning: On	ly one distin	ct data value	was detect	ed! ProUCL	(or any othe	r software) s	hould not be	e used on su	ich a data se	t!
18	It is sugge	ested to use	alternative s	ite specific v	alues deter	mined by the	Project Tea	im to estimat	te environm	ental param	eters (e.g., E	PC, BTV).
19												
20				Tł	e data set fo	or variable T	oluene was i	not processe	ed!			
21												
22												

	A	В	С	D	Е	F	G	Н	I	J	K	L
1					UCL Statis	tics for Data	Sets with N	on-Detects				
2												
3		User Seleo	cted Options									
4	Dat	e/Time of Co	omputation	ProUCL 5.1	3/22/2017 12	2:07:56 PM						
5			From File	VOCs.xls								
6		Ful	I Precision	OFF								
7	1	Confidence	Coefficient	95%								
8	Number o	f Bootstrap (Operations	2000								
9												
10	Vinyl Chlori	de										
11												
12						General	Statistics					
13			Total	Number of C	bservations	40			Numbe	r of Distinct (Observations	17
14				Numbe	er of Detects	1				Number of	Non-Detects	39
15			N	umber of Dist	inct Detects	1			Numbe	er of Distinct	Non-Detects	16
16												
17	v	Varning: On	ly one distin	ct data value	was detect	ed! ProUCL	(or any othe	r software) s	hould not be	e used on su	uch a data se	t!
18	It is sugge	ested to use	alternative s	ite specific v	alues deter	mined by the	Project Tea	m to estimat	te environm	ental param	eters (e.g., E	PC, BTV).
19												
20				The c	lata set for v	ariable Viny	I Chloride wa	as not proce	ssed!			
21												
22												

	А	В	С	D	E	F	G	Н		J	K	L
1					UCL Statis	tics for Data	Sets with N	on-Detects				
2												
3		User Sele	cted Options									
4	Da	te/Time of Co	omputation	ProUCL 5.13	3/21/2017 2:	10:26 PM						
5			From File	PCB.xls								
6		Ful	Il Precision	OFF								
7		Confidence	Coefficient	95%								
8	Number of	of Bootstrap	Operations	2000								
9												
10	Aroclor 124	8										
11						Conorol	Statiation					
12			Total	Number of O	beenvetions		Statistics		Numbo	r of Dictingt (beenvetione	41
13			TULAI			445			Numbe	of Missing (-+1
14				Numbe	er of Detects	24			Number	Number of	Non-Detects	425
15			Ni	imber of Dist	inct Detects	27			Numbe	er of Distinct	Non-Detects	22
16				Minii	mum Detect	0.032				Minimum	Non-Detect	0.051
1/				Maxii	mum Detect	2.6				Maximum	Non-Detect	0.55
18				Varia	nce Detects	0.529				Percent	Non-Detects	94.65%
19				M	ean Detects	0.456					SD Detects	0.727
20				Мес	lian Detects	0.155					CV Detects	1.595
21				Skewn	ess Detects	2.199				Kurt	osis Detects	4.047
22				Mean of Log	ged Detects	-1.715				SD of Log	ged Detects	1.318
23												
25					Norm	al GOF Tes	t on Detects	Only				
26			S	hapiro Wilk T	est Statistic	0.615			Shapiro Wi	lk GOF Test		
27			5% SI	napiro Wilk C	ritical Value	0.916	Γ	Detected Dat	a Not Norma	al at 5% Sign	ificance Level	
28				Lilliefors T	est Statistic	0.346			Lilliefors	GOF Test		
29			5	% Lilliefors C	ritical Value	0.177	[Detected Dat	a Not Norma	al at 5% Sign	ificance Level	
30				D	etected Data	a Not Norma	l at 5% Sign	ificance Lev	el			
31												
32			Kaplan-	Meier (KM) S	statistics usi	ng Normal C	ritical Value	s and other	Nonparame	tric UCLs		
33					KM Mean	0.0605			K	/I Standard E	rror of Mean	0.00986
34					KM SD	0.19				95% KN	I (BCA) UCL	0.0813
35				95%	KM (t) UCL	0.0767			95% KM (F	ercentile Boo	otstrap) UCL	0.0799
36				95%	KM (z) UCL	0.0767				95% KM Boo	tstrap t UCL	0.0897
37			ç	0% KM Chel	byshev UCL	0.09			9	95% KM Che	byshev UCL	0.103
38			97	.5% KM Cheł	byshev UCL	0.122			9	99% KM Che	byshev UCL	0.159
39						Teets an P		motion - O	h <i>.</i>			
40				G	oct Stotictic		neciea UDSe		iy ndereen D-		et	
41					ritical Value	0.701	Detect				Significance	
42				J ⁄0 -A-D C	est Statistic	0.791	Delecte			Smirnov CO		LEVEI
43				ר-ט ד 5% ג-פ ר	ritical Value	0.240	Detect	r ed Data Not	Gamma Die	tributed at 5%	Significance	
44				Detecte	d Data Not (Gamma Diet	ributed at 5%	6 Significant				20101
45				2010016				- eiginioalle				
46					Gamma	Statistics or	Detected D	ata Onlv				
4/					k hat (MLE)	0.656			k	star (bias cor	rected MLE)	0.602
4ŏ				Thet	a hat (MLE)	0.695			Theta	star (bias cor	rected MLE)	0.758
49 E0				n	u hat (MLE)	31.49				nu star (bia	is corrected)	28.89
50					、 /					(,	

\square	А		В			С		D	Ма	E an (dataat	(a)	F		G		Н		I			J		k	(L
51									ivie	an (detect	.s)	0.456														
52									6	amma D(20	Statistics up	eina	Impute	ad N	lon-Do	torte									
53				6	BO	S may	/ no	heus	- has		3 54	$\frac{1}{2}$		s with	mar	ny tied (hser	vation	ns at	mul	ltinle D	اد				
54			GROS m	av n	not b		1 wh	en kst	tar	of detects	is s	small such a	s <1	0 esp	ecia	ally whe	en the	sami	nle si	ze i	s smal	L(e	n <1	5-20)		
55				ay n		Fr	or su	ch sit	uati	ons GRO	S r	method may	vield	Lincorr	rect	values	ofUC	2 s ai	nd B	TVs	o oma	1 (0.	g., .	0 20)		
56									Т	his is esne	ecia	ally true whe	en the	samr		size is s	mall	520 a								
57			For a	amm	na d	istribu	ted	detect	ed o	data BTV	s a	nd UCI s ma	av be	comp	utec	l usina	aamn	na dis	tribut	tion	on KM	1 est	imate	s		
58										Minimu	m	0.01	., 20			a a a a a a a	94				•••••			Mean	(0.0364
59										Maximu	m	2.6											M	edian	(0.01
61										S	D	0.194												CV		5.322
62										k hat (ML	E)	0.571							ks	star	(bias d	corre	ected	MLE)		0.569
63								1	The	a hat (ML	E)	0.0638						TI	neta s	star	(bias d	corre	ected	MLE)	(0.064
64									r	u hat (ML	E)	513.1								nı	u star (bias	corre	ected)	5	11
65					Ac	djustec	Le	/el of	Sig	nificance (β)	0.0495														
66			App	oroxi	ima	te Chi	Squ	are Va	alue	e (510.99,	α)	459.6					Adj	usted	Chi	Squ	iare Va	alue	(510.9	99, β)	4	59.4
67		9	5% Gamm	na A	ppro	oximat	e U	CL (us	se v	/hen n>=5	0)	0.0405				95%	Gam	ma A	djust	ed I	UCL (u	ise v	vhen i	า<50)	(0.0405
68																										
69									Es	timates of	f G	amma Para	mete	rs usir	ng k	(M Esti	mate	s								
70										Mean (KI	N)	0.0605											SD	(KM)		0.19
71									Va	riance (KI	N)	0.036									SE	E of	Mean	(KM)	0	.00986
72										k hat (K	N)	0.102											k star	(KM)		0.102
73										nu hat (KM	N)	91.24										n	u star	(KM)	ç	91.97
74									th	eta hat (KN	N)	0.595										thet	a star	(KM)		0.591
75						80%	% ga	mma	per	centile (KI	N)	0.0434							90%	∕₀ ga	amma j	perc	entile	(KM)		0.163
76						95%	% ga	mma	per	centile (KI	N)	0.35							99%	∕₀ ga	amma j	perc	entile	(KM)		0.949
77																										
78										Gan	nm	a Kaplan-M	eier ((KM) S	Stati	stics										
79			Ap	opro	oxima	ate Ch	i Sq	uare \	Valu	ie (91.97,	α)	/0.85					Ac	djuste	d Ch		luare V	/alue	e (91.9	97, β)		/0./9
80	,	95%	Gamma A	ppro	oxim	ate KI	vi-U	JL (us	se v	/hen n>=5	0)	0.0785			9:	5% Gar	nma /	Adjus	ted K	(M-I	UCL (u	ise v	vhen i	า<50)	(J.0786
81										an ormal (E Toot on D	otoo			votiona										
82							`hon	ire Mi		gnormal C	JU		etec		bser	vations		/	o \//i							
83						5% 9	han			ritical Value		0.913		r	Doto		oto N			n C		Sign	ifican		101	
84						5%5		illiofo		Cost Statist	ue tic	0.910		L	Jeie							- Siyi	incan			
85						5	- 	illiefor		ritical Valu		0.140		De	otec	ted Dat	a ann	earl		rma	al at 5%	6.Si	nifica	ancel	eve	1
86						0	De	tecte	d D	ata appea	r A	oproximate	Loar	ormal	at	5% Sia	nifica	ncel	evel				Jimoc			
87												PP	g.													
88									Lo	anormal R	0	S Statistics	Usin	g Impu	ited	Non-D	etect	s								
89							N	lean ir	ו O	iginal Sca	le	0.051		5							Меа	an ir	Log	Scale	-,	3.937
90								SD ir	ו O	iginal Sca	le	0.193									S	SD ir	Log	Scale		1.186
91			95% t	UC	L (a	ssume	es no	ormali	ty o	f ROS dat	a)	0.066						ç	95% F	Perc	centile	Boo	tstrap	UCL	(0.0675
92							95%	BCA	Во	otstrap UC	CL	0.074	-								95% E	Boot	strap 1	UCL	(0.0768
94							95	% H-I	UCI	(Log RO	S)	0.0447														
95													1													
96						Statis	stics	using	g K	V estimate	es	on Logged I	Data	and A	ssu	ming L	ogno	rmal I	Distri	but	ion					
97								KN	1 Me	ean (logge	d)	-3.201										KM	Geo	Mean	(0.0407
98								ł	۲M	SD (logge	d)	0.496	1					ç	95% C	Criti	cal H \	/alu	e (KM	-Log)		1.784
99				K	KM S	Standa	rd E	rror o	f Me	ean (logge	d)	0.0961								9	5% H-	UCL	(KM	-Log)	(0.048
100								ł	<m></m>	SD (logge	d)	0.496						ç	95% C	Criti	cal H \	/alu	e (KM	-Log)		1.784

	А	В	С	D	E	F	G	Н		J	K	L			
101			KM Standar	rd Error of M	ean (logged)	0.0961									
102											•				
103						DL/2 S	tatistics								
104			DL/2	Normal					DL/2 Log-	Transformed					
105				Mean in O	riginal Scale	0.0616				Mean	in Log Scale	-3.234			
106				SD in O	riginal Scale	0.191				SD	in Log Scale	0.591			
107			95% t L	JCL (Assume	es normality)	0.0764				95%	6 H-Stat UCL	0.0494			
108	DL/2 is not a recommended method, provided for comparisons and historical reasons														
109															
110		Nonparametric Distribution Free UCL Statistics													
111			Dete	cted Data ap	opear Approx	imate Logn	ormal Distril	outed at 5%	Significance	Level					
112															
113						Suggested	UCL to Use)							
114					KM H-UCL	0.048									
115															
116		Note: Sugge	estions regard	ing the seled	tion of a 95%	UCL are pr	ovided to he	lp the user to	o select the r	nost appropr	iate 95% UCL				
117			F	Recommenda	ations are bas	sed upon dat	a size, data	distribution,	and skewne	SS.					
118		These reco	ommendations	s are based u	pon the resu	Its of the sin	nulation stud	ies summariz	zed in Singh	, Maichle, an	d Lee (2006).				
119	Н	owever, sim	ulations result	s will not cov	ver all Real W	orld data se	ts; for additi	onal insight t	he user may	want to cons	sult a statisticia	an.			
120															

	А	В	С	D	E	F	G	H		J	K	L
1					UCL Statis	tics for Data	Sets with N	on-Detects				
2				1								
3	D	User Sele	cted Options		01/0017 00	11.07 DM						
4	Da	te/ Time of Co		Prouce 5.1	3/21/2017 2:	11:37 PM						
5		Eul										
6		Confidonco										
7	Numbor	of Bootstrap (2000								
8	Number		operations	2000								
9	Aroclor 125	54										
10												
11						General	Statistics					
12			Total	Number of O	bservations	476			Numbe	r of Distinct C	Observations	82
13									Number	of Missing C	Observations	1
14				Numbe	er of Detects	114				Number of	Non-Detects	362
16			N	umber of Dist	inct Detects	74			Numbe	er of Distinct	Non-Detects	16
17				Minii	mum Detect	0.018				Minimum	Non-Detect	0.051
18				Maxii	mum Detect	20				Maximum	Non-Detect	0.12
19				Varia	nce Detects	6.48				Percent	Non-Detects	76.05%
20				M	ean Detects	0.733					SD Detects	2.546
21				Mec	lian Detects	0.14					CV Detects	3.474
22				Skewn	ess Detects	6.387				Kurt	osis Detects	43.37
23				Mean of Log	ged Detects	-1.679				SD of Log	ged Detects	1.311
24												
25					Norm	al GOF Tes	t on Detects	Only				
26			S	hapiro Wilk T	est Statistic	0.285	1	Normal GOF	Test on De	tected Obse	rvations Only	
27				5% Shapiro V	Vilk P Value	0	[Detected Dat	a Not Norma	al at 5% Sign	ificance Leve	
28				Lilliefors I	est Statistic	0.389			Lilliefors	GOF Test		
29			5	% Lilliefors C	ritical Value	0.0833		Detected Dat	a Not Norma	al at 5% Sign	ificance Leve	
30				D		a not norma	i at 5% Sign	incance Lev	ei			
31			Kanlan-	Meier (KM) S	tatistics usi	a Normal C	ritical Value	s and other	Nonnaramet	ric UCI s		
32			Rapian-		KM Mean	0.202			K	A Standard F	rror of Mean	0.0588
33					KM SD	1.276				95% KN	I (BCA) UCL	0.319
34				95%	KM (t) UCL	0.299			95% KM (F	ercentile Boo	otstrap) UCL	0.307
36				95%	KM (z) UCL	0.299			, , , , , , , , , , , , , , , , , , ,	95% KM Boo	otstrap t UCL	0.481
37			ç	0% KM Chet	byshev UCL	0.378			9	95% KM Che	byshev UCL	0.458
38	L		97	.5% KM Chet	byshev UCL	0.569			(99% KM Che	byshev UCL	0.787
39												
40				G	amma GOF	Tests on De	tected Obse	rvations On	ly			
41				A-D T	est Statistic	13.06		Α	nderson-Da	rling GOF Te	est	
42				5% A-D C	ritical Value	0.826	Detecte	ed Data Not	Gamma Dis	tributed at 5%	6 Significance	e Level
43				K-S T	est Statistic	0.281		k	Colmogorov-	Smirnov GO	F	
44				5% K-S C	ritical Value	0.0912	Detecte	ed Data Not	Gamma Dis	tributed at 5%	6 Significance	e Level
45				Detecte	d Data Not (Gamma Dist	ributed at 5%	6 Significano	ce Level			
46					0	Otatiat's -	Detected D	ata Ortha				
47						Statistics or	Detected D	ata Uniy		tor (hing -		0.460
48				TL - +		0.469			Th -1-5	star (blas cor		1 504
49				inet		1.502			i neta :			1.584
50				n	u nat (IVILE)	106.9				nu star (bia	is corrected)	105.4

	A		В		С			D	E E	F		G	H		I		J		K		L
51								IVI		0.755											
52									Gamma ROS	Statistics (usi	na Impute	d Non-De	etects							
53				G	ROS r	nav	not	be used	d when data s	set has > 50°	% 1	NDs with n	nanv tied	obser	vations	satn	nultiple DI	Ls			
54			GROS ma	av no	ot be u	sed	whe	n kstar	of detects is	small such a	as ·	<1.0. espe	cially wh	en the	samp	le siz	e is small		<15-20)		
55				. <u>,</u>		Fo	r suc	h situa	tions. GROS	method may	v vi	ield incorre	ect values	s of U(CLs an	d BT	Vs	. (e.g.,			
56									This is espec	ially true wh	en	the sampl	e size is	small.							
57			For ga	mm	a distr	ibut	ed d	etected	data. BTVs a	and UCLs m	av	be compu	ted usinc	aamr	na dist	ributi	ion on KM	lestim	nates		
56			- 3-						Minimum	0.01				J -					Mean		0.183
59									Maximum	20									Median	(0.01
61									SD	1.279									CV	1	6.988
62									k hat (MLE)	0.311						k s	tar (bias c	correct	ted MLE)	1	0.31
63								The	eta hat (MLE)	0.589					Th	eta s	tar (bias c	correct	ted MLE)	(0.59
64									nu hat (MLE)	295.8							nu star (l	bias c	orrected)	29	95.3
65					Adjus	sted	Lev	el of Sig	gnificance (β)	0.0495											
66			Аррі	roxi	mate C	Chi S	Squa	re Valu	ie (295.27, α)	256.5				Adj	usted	Chi S	Square Va	lue (2	95.27, β)	25	56.4
67		ç	95% Gamma	a A	pproxir	nate	e UC	L (use	when n>=50)	0.211			95%	6 Gam	ma Ad	ljuste	ed UCL (u	se wh	en n<50)	(0.211
68																				L	
69								E	stimates of C	amma Para	am	eters usin	g KM Es	timate	s						
70									Mean (KM)	0.202									SD (KM)		1.276
71								V	ariance (KM)	1.627							SE	E of Me	ean (KM)	C	0.0588
72									k hat (KM)	0.025								k s	star (KM)	C	0.0263
73									nu hat (KM)	23.83								nu s	star (KM)	2	25.02
74								tł	neta hat (KM)	8.062							1	theta s	star (KM)		7.681
75					1	80%	6 gar	nma pe	rcentile (KM)	9.0403E-4						90%	gamma p	bercer	ntile (KM)	C	8080.0
76					9	95%	6 gar	nma pe	rcentile (KM)	0.681						99%	gamma p	bercer	ntile (KM)	!	5.383
77																					
78									Gamr	na Kaplan-N	/lei	er (KM) Si	atistics								
79			Ар	prox	kimate	Chi	i Squ	are Va	ue (25.02, α)	14.62				A	djusted	l Chi	Square V	alue (25.02, β)	1	14.6
80		95%	Gamma Ap	opro	ximate	e K№	1-UC	L (use	when n>=50)	0.345			95% Ga	imma .	Adjuste	ed Kl	M-UCL (u	se wh	en n<50)	(0.346
81																					
82								L	ognormal GC		Det	tected Ob	servation	s Only	/	. VA (?)					
83			S	shap	oiro vvii	IK A	ppro	ximate	Test Statistic	0.909								est Diamiti			
84						;	5 % C		Toot Statiatic	0.156		D		Jata N				Signin	cance Le	vei	
85						5				0.100			otootod [)oto N				Signifi			
86						5	/0 LII		tootod Data			U at 5% Si						Signin		vei	
87											ma		ynnicand	C LOV	01						
88									ognormal BC	S Statistics		sina Imput	ed Non-	Detect	.e						
89							Me	an in C)riginal Scale	0 196		sing imput			.5		Mea	n in l	on Scale		3 556
90								SD in C)riginal Scale	1 278							S	D in I	og Scale		1 589
91			95% t l		(assi	ime	s no	mality	of ROS data	0 293					9!	5% P	ercentile	Boots	tran UCI	, ,	0.308
92					- (4000		95%	BCA B	ootstrap UCL	0.344							95% B	ootstr	aptUCL	,	0.466
93							959	6 H-UC	L (Log ROS)	0.122	+									\vdash	
94									(3											L	
90					St	tatis	tics	using k	M estimates	on Logged	Da	ata and As	suming	ogno	rmal D	istrib	oution				
90 07						-	-	KM N	lean (logged)	-3.014				•	_			KM G	ieo Mean	(0.0491
31								KN	I SD (logged)	1.036	+				95	5% C	ritical H V	/alue ((KM-Log)		2.137
90				K	M Star	ndar	rd Er	ror of N	lean (logged)	0.0854							95% H-l	UCL (I	KM -Log)	(0.093
100								KN	I SD (logged)	1.036	+				95	5% C	ritical H V	, /alue ((KM-Log)		2.137
100									. 55 -7	1								```	. 0/		

	А	В	С	D	E	F	G	Н	I	J	K	L				
101			KM Standa	rd Error of M	lean (logged)	0.0854										
102																
103						DL/2 S	tatistics									
104			DL/2	Normal					DL/2 Log-	Transformed						
105				Mean in C	Driginal Scale	0.204				Mean	in Log Scale	-2.935				
106				SD in C	Driginal Scale	1.277				SD	in Log Scale	0.993				
107			95% t l	JCL (Assum	es normality)	0.301				95%	6 H-Stat UCL	0.0957				
108		DL/2 is not a recommended method, provided for comparisons and historical reasons														
109																
110	Nonparametric Distribution Free UCL Statistics															
111		Nonparametric Distribution Free UCL Statistics Data do not follow a Discernible Distribution at 5% Significance Level														
112																
113						Suggested	UCL to Use)								
114			95	5% KM (Che	byshev) UCL	0.458										
115																
116		Note: Sugge	estions regard	ing the sele	ction of a 95%	UCL are pr	ovided to he	elp the user to	o select the r	nost appropr	iate 95% UCL	•				
117			F	Recommend	ations are bas	sed upon dat	a size, data	distribution,	and skewne	SS.						
118		These reco	ommendations	are based	upon the resu	Its of the sin	nulation stud	lies summari	zed in Singh	, Maichle, an	d Lee (2006).					
119	H	owever, sim	ulations result	s will not co	ver all Real W	/orld data se	ts; for additi	onal insight t	he user may	want to cons	sult a statistici	an.				
120																

45 4 442 23 0.051 0.57
45 4 442 23 0.051 0.57
4 442 23 0.051 0.57
442 23 0.051 0.57
23 0.051 0.57
0.051
0.57
02 450/
93.45%
0.338
2.192
25.74
1.141
0.00518
0.0478
0.0472
0.0505
0.0004
0.0093
Level
0.685
0.352
0.220

	А		В	С	;	[D	E (detects)	F	G	Н			J		К	L
51							IVIC		0.134								
52								amma ROS	Statistics up	sina Impute	d Non-Detec	te					
53				GROS	Smay	not be	haeu	when data s	et has > 50%		hany tied obs		at mu	Itinle DI	\$		
54		0	BOS may			when	kstar	of detects is	small such a	s < 1.0 escale	cially when t			is small		<15-20)	
55				y not be	Fo	r such	situat	ions GROS	method may	vield incorre	ect values of		BTVs		(c.g.	, 10-20)	
56							Т	This is especi	ially true whe	n the sampl	e size is sma						
5/			For gar	nma dis	stribut	ed det	ected	data. BTVs a	and UCLs ma	v be compu	ted using gai	mma distr	ibution	on KM	estin	nates	
58			ga					Minimum	0.01	,						Mean	0.0321
59								Maximum	1.9							Median	0.01
61								SD	0.0974							CV	3.037
62								k hat (MLE)	0.838				k star	· (bias c	orrec	ted MLE)	0.835
63							The	ta hat (MLE)	0.0382			The	eta star	(bias c	orrec	ted MLE)	0.0384
64							r	nu hat (MLE)	793.2				n	u star (t	oias c	corrected)	789.5
65				Adj	usted	Level	of Sig	nificance (β)	0.0495								
66			Appr	oximate	Chi S	Square	e Value	e (789.52, α)	725.3		A	djusted C	Chi Squ	uare Va	lue (7	/89.52, β)	725.1
67		95	% Gamma	a Approx	ximate	e UCL	(use v	when n>=50)	0.0349		95% Ga	amma Adj	usted	UCL (us	se wh	ien n<50)	0.0349
68									1	I							
69							Es	stimates of G	iamma Para	meters using	g KM Estima	tes					
70								Mean (KM)	0.0378							SD (KM)	0.0913
71							Va	ariance (KM)	0.00834					SE	of M	ean (KM)	0.00518
72								k hat (KM)	0.171						k	star (KM)	0.172
73								nu hat (KM)	162.1						nu	star (KM)	162.4
74							th	eta hat (KM)	0.221					t	heta	star (KM)	0.22
75					80%	5 gamr	ma pei	rcentile (KM)	0.0455			9	90% ga	amma p	ercer	ntile (KM)	0.114
76					95%	5 gamr	ma pei	rcentile (KM)	0.202			9	99% ga	amma p	ercer	ntile (KM)	0.453
77								0	o Konlon M								
78			Appr	ovimata	Chi	Square	- Volu			eler (KM) Si		diucted (hi Cau		luo (1	62 27 0)	122.0
79	0	w c		oximate				$\frac{102.37, 0}{102.57, 0}$	0.0459		05% Comm					(02.37, p)	0.0450
80	50	// u		proxima		FUCL	(use v	Mien n/ = 30)	0.0450		35 % Camin					ieii ii <00)	0.0433
81							Lo	ognormal GC	OF Test on D	etected Obs	servations O	nlv					
82 02					S	hapiro	Wilk	Fest Statistic	0.941			Shapiro	Wilk C	GOF Te	st		
03 04				Ę	5% Sł	napiro	Wilk C	Critical Value	0.929	Det	ected Data a	ppear Log	gnorma	al at 5%	Sign	ificance L	evel
04 85						Lilli	efors 7	Fest Statistic	0.113			Lilliefo	ors GC	F Test			
86					5	% Lillie	efors C	Critical Value	0.156	Det	ected Data a	ppear Lo	gnorma	al at 5%	Sign	ificance L	evel
87							Dete	cted Data a	opear Logno	rmal at 5% \$	Significance	Level					
88																	
89							Lo	gnormal RO	S Statistics	Using Imput	ed Non-Dete	ects					
90						Mea	in in O	riginal Scale	0.0405					Mea	n in L	og Scale	-3.586
91						SI	D in O	riginal Scale	0.0928					SI	D in L	og Scale	0.761
92			95% t L	JCL (as	sume	s norm	nality o	of ROS data)	0.0475			95	% Per	centile E	Boots	trap UCL	0.0485
93					ę	95% B	CA Bo	otstrap UCL	0.0524					95% B	ootsti	rap t UCL	0.0576
94						95%	H-UC	L (Log ROS)	0.0396								
95																	
96				ļ	Statis	tics us	sing K	M estimates	on Logged I	Data and As	suming Log	normal Di	stribut	ion			
97							KM M	ean (logged)	-3.553						KM G	ieo Mean	0.0286
98							KM	SD (logged)	0.567			95	% Criti	ical H V	alue	(KM-Log)	1.821
99				KM St	andar	d Erro	or of M	ean (logged)	0.112				g	95% H-L	JCL (KM -Log)	0.0352
100							KM	SD (logged)	0.567			95	% Criti	ical H V	alue	(KM-Log)	1.821

	А	В	С	D	E	F	G	Н	I	J	K	L			
101			KM Standa	rd Error of M	lean (logged)	0.112									
102															
103						DL/2 S	tatistics								
104			DL/2	Normal					DL/2 Log-	Transformed	l				
105				Mean in C	riginal Scale	0.0476				Mean	in Log Scale	-3.284			
106				SD in C	riginal Scale	0.0944				SD	in Log Scale	0.509			
107			95% t l	JCL (Assum	es normality)	0.0548				95%	6 H-Stat UCL	0.0445			
108		DL/2 is not a recommended method, provided for comparisons and historical reasons													
109															
110		Nonparametric Distribution Free UCL Statistics													
111				Detected	Data appear	Lognormal I	Distributed a	t 5% Signific	ance Level						
112															
113						Suggested	UCL to Use)							
114					KM H-UCL	0.0352									
115															
116		Note: Sugge	estions regard	ing the seled	ction of a 95%	UCL are pr	ovided to he	lp the user to	select the r	nost appropr	iate 95% UCL	•			
117			F	Recommenda	ations are bas	sed upon da	ta size, data	distribution,	and skewne	SS.					
118		These reco	ommendations	s are based u	upon the resu	Its of the sin	nulation stud	ies summari:	zed in Singh	, Maichle, an	d Lee (2006).				
119	Ho	wever, sim	ulations result	s will not cov	ver all Real W	orld data se	ets; for addition	onal insight t	ne user may	want to cons	sult a statistici	an.			
120															

	А	В	С	D	E	F	G	H		J	K	L
1					UCL Statis	ucs for Data	Sets with N	on-Detects				
2				1								
3	D	User Sele	cted Options		0/01/0017 00	10.01 DM						
4	Da	te/ I ime of Co		Prouce 5. I	3/21/2017 2:	12:21 PM						
5		Eul										
6		Confidonco										
7	Numbor	of Bootstran		2000								
8	Number (Dootstrap	Operations	2000								
9	Total PCBs											
10												
11						General	Statistics					
12			Total	Number of O	bservations	476			Numbe	r of Distinct C	Observations	96
13									Number	of Missing C	Observations	1
14				Numbe	er of Detects	118				Number of I	Non-Detects	358
16			N	umber of Dist	inct Detects	90			Numbe	er of Distinct I	Non-Detects	16
17				Mini	mum Detect	0.017				Minimum	Non-Detect	0.051
18				Maxi	mum Detect	23				Maximum	Non-Detect	0.12
19				Varia	nce Detects	9.39				Percent I	Non-Detects	75.21%
20				M	ean Detects	0.94					SD Detects	3.064
21				Med	dian Detects	0.176					CV Detects	3.261
22				Skewn	ess Detects	5.741				Kurt	osis Detects	35.7
23				Mean of Log	ged Detects	-1.528				SD of Log	ged Detects	1.409
24												
25					Norm	al GOF Tes	t on Detects	Only				
26			S	hapiro Wilk T	est Statistic	0.316	1	Normal GOF	Test on De	tected Obse	rvations Only	r
27				5% Shapiro V	Vilk P Value	0	Γ	Detected Dat	a Not Norma	al at 5% Sign	ificance Leve	l
28				Lilliefors T	est Statistic	0.382			Lilliefors	GOF Test		
29			5	% Lilliefors C	ritical Value	0.0819		Detected Dat	a Not Norma	al at 5% Sign	ificance Leve	l
30				D	etected Data	a Not Norma	i at 5% Sign	ITICANCE LEV	el			
31			Koplon	Major (KM) S		ng Normol C	ritical Valua	a and other	Nonnoromo			
32			Каріан-		KM Moon					A Standard E	rror of Moon	0.0723
33					KM SD	1 569				95% KM		0.0723
34				95%		0.375			95% KM (F	ercentile Bor	otstran) UCL	0.378
35				95%	KM (z) UCI	0.375				95% KM Boo	otstrap t UCI	0.486
36			ç	00% KM Chel	byshev UCL	0.473			9	95% KM Che	byshev UCL	0.571
3/ 20			97	.5% KM Chel	byshev UCL	0.707			(99% KM Che	byshev UCL	0.975
30												
40				G	iamma GOF	Tests on De	tected Obse	ervations On	ly			
41				A-D T	est Statistic	12.5		A	nderson-Da	rling GOF Te	est	
42				5% A-D C	ritical Value	0.833	Detect	ed Data Not	Gamma Dis	tributed at 5%	6 Significance	Level
43				K-S T	est Statistic	0.273		ŀ	Kolmogorov-	Smirnov GO	F	
44				5% K-S C	ritical Value	0.0904	Detect	ed Data Not	Gamma Dis	tributed at 5%	6 Significance	Level
45				Detecte	d Data Not (Gamma Dist	ributed at 5%	6 Significan	ce Level			
46												
47					Gamma	Statistics on	Detected D	ata Only				
48					k hat (MLE)	0.442			k	star (bias cor	rected MLE)	0.436
49				Thet	ta hat (MLE)	2.126			Theta	star (bias cor	rected MLE)	2.154
50				n	u hat (MLE)	104.3				nu star (bia	as corrected)	103

	А		В			С			D M	E E	F		G	Н					J			Κ		L
51											0.34													
52										Gamma ROS	S Statistics	usi	ina Imputea	l Non-De	etect	s								
53					GR	OS ma	v no	ot b	e used	l when data s	set has > 50	%	NDs with m	anv tied	obse	ervati	ions	at m	ultiple	DLs				
54			GROS m	av	not	be use	, d w	/her	kstar	of detects is	small such	as	<1.0. espe	cially wh	en th	e sa	mple	size	e is sm	all (e	e a .	<15-20)	
55			0	,		F	or s	such	situa	tions. GROS	method ma	v v	vield incorre	ct values	s of L	JCLs	and	BTV	/s		o.g.,			
56						-				This is espec	ially true wh) ner	n the sample	e size is	smal	I.								
57			For g	am	ıma	distrib	uted	d de	tected	data, BTVs	and UCLs m	nav	/ be comput	ed usinc	gam	ıma o	distri	butic	on on K	Me	stima	ates		
50			- 3	-						Minimum	0.01				3-					-		Mear	۱	0.24
60										Maximum	23											Mediar	1	0.01
61										SD	1.573											C\	/	6.542
62										k hat (MLE)	0.287							k sta	ar (bias	5 COI	rrecte	d MLE)	0.287
63									The	eta hat (MLE)	0.837						The	ta sta	ar (bias	s coi	rrecte	ed MLE)	0.838
64										nu hat (MLE)	273.5								nu star	bia	as co	rrected)	273.1
65					A	djuste	d Le	eve	of Sig	gnificance (β)	0.0495													
66			Ap	pro	oxim	ate Ch	Sq	luar	e Valu	e (273.13, α)	235.9				A	djust	ed C	hi So	quare \	/alu	e (27	3.13, β)	235.7
67		9	5% Gamr	na	App	roxima	te l	JCL	(use	when n>=50)	0.278			95%	Ga	mma	Adjı	usted	UCL	(use	whe	n n<50)	0.279
68											1													
69									E	stimates of C	amma Par	arr	neters using	, KM Est	imat	es								
70										Mean (KM)	0.256										S	SD (KM)	1.569
71									V	ariance (KM)	2.462								ŝ	SE o	of Me	an (KM)	0.0723
72										k hat (KM)	0.0266										k st	ar (KM)	0.0279
73										nu hat (KM)	25.36										nu si	ar (KM)	26.54
74									tł	neta hat (KM)	9.614									the	eta si	tar (KM)	9.189
75						80	% g	jam	ma pe	rcentile (KM)	0.00176						9	0%	gamma	a pe	rcent	ile (KM)	0.122
76						95	% g	jam	ma pe	rcentile (KM)	0.922						9	9% (gamma	a pe	rcent	ile (KM)	6.737
77										-														
78										Gamr	na Kaplan-I	v le	ier (KM) St	atistics						<u> </u>				
79				ppr	roxin	nate C	hi S	qua	ire Val	ue (26.54, α)	15.79				A	Adjus	sted (Chi S	Square	Val	ue (2	6.54, β)	15.77
80	ę	15%	Gamma A	\pp	roxii	mate K	M-L	JCL	(use	when n>=50)	0.43			95% Ga	mma	a Adj	usteo	dKN	I-UCL	(use	e whe	n n<50)	0.431
81											DE Test en		to ate d Oha											
82				Ch		- _/;!!.	A		L	ognormal Go		De		ervation	s On			A/:11-	005	Faat				
83				Sna	apiro		App			Wilk D Volue	0.923			staatad [)oto			vviik			L anifio	0000 L		
84							570		iofore	Tost Statistic	0 1/1		De		Jala		lliefo			et	ynnic			
85							5%			Critical Value	0.0819	_	De	etected [)ata	Not I	oan	orma	al at 5%	Sic	nific	ancele	avel	
86							0 /0		De	etected Data	Not Logno	m	al at 5% Sic	nificanc	ele	vel	Jogn	onne			grinic			
8/											Logio			Jinioana										
88									Lo	anormal RC	S Statistics	: U	lsina Impute	ed Non-l	Dete	cts								
89								Меа	an in C	Priginal Scale	0.251		gp						M	ean	in Lo	a Scale	9	-3.694
90								S	D in C	Priginal Scale	1.572	_								SD	in Lo	g Scale	•	1.825
91			95% 1	t U	CL (assum	es r	norr	nality	of ROS data	0.37						959	% Pe	ercentil	e Bo	ootstr	ap UCL	_	0.384
92							95	% E	CA B	ootstrap UCL	0.428								95%	Boo	otstra	ptUCL	_	0.508
93 Q/							9	95%	H-UC	L (Log ROS)	0.167	+											-	
94										_ ,	1												1	
96						Stat	istic	cs u	sing k	M estimates	on Logged	D	ata and As	suming l	.ogn	orma	al Dis	stribu	ution					
97									KM N	lean (logged)	-3.058			-						K	M Ge	o Mear	۱	0.047
98									KN	SD (logged)	1.174	+					959	% Cr	itical H	Val	lue (k	(M-Log)	2.251
99					KM	Standa	ard	Erro	or of N	lean (logged)	0.0939	+							95% H	1-UC	CL (K	M -Log)	0.106
100									KN	SD (logged)	1.174	╡					95%	% Cr	itical H	Val	lue (k	(M-Log)	2.251

	А	В	С	D	E	F	G	Н	I	J	K	L	
101			KM Standa	rd Error of M	lean (logged)	0.0939							
102													
103						DL/2 S	tatistics						
104			DL/2	Normal					DL/2 Log-	Transformed			
105				Mean in C	Driginal Scale	0.261				Mean	in Log Scale	-2.89	
106				SD in C	Driginal Scale	1.57				SD	in Log Scale	1.086	
107			95% t l	JCL (Assum	es normality)	0.38				95%	6 H-Stat UCL	0.112	
108	DL/2 is not a recommended method, provided for comparisons and historical reasons												
109		DL/2 is not a recommended method, provided for comparisons and historical reasons											
110					Nonparame	etric Distribu	tion Free U	CL Statistics	i				
111				Data do n	not follow a D	iscernible D	istribution a	t 5% Signific	ance Level				
112													
113						Suggested	UCL to Use)					
114			95	% KM (Che	byshev) UCL	0.571							
115													
116		Note: Sugge	estions regard	ing the sele	ction of a 95%	UCL are pr	ovided to he	lp the user to	o select the r	nost appropr	iate 95% UCL	•	
117			F	Recommend	ations are bas	sed upon da	a size, data	distribution,	and skewne	SS.			
118		These reco	ommendations	are based	upon the resu	Its of the sin	nulation stud	ies summari	zed in Singh	, Maichle, an	d Lee (2006).		
119	Н	owever, simi	ulations result	s will not co	ver all Real W	/orld data se	ts; for addition	onal insight t	he user may	want to cons	sult a statistici	an.	
120													

	А	В	С	D	E	F	G	Н		J	К	L
1					UCL Statis	tics for Data	Sets with N	on-Detects				
2		Llaar Cala	ated Oations									
3	Da	User Sele		DrollCL 5 1	2/17/2017 2.	17·09 DM						
4	Da		From File	Motals vis	5/17/2017 5.	17.00 FIVI						
5		Ful										
6				95%								
/	Number	of Bootstran (2000								
8		, Booton ap	oporationo	2000								
9	Sb											
11												
12						General	Statistics					
13			Total	Number of C	bservations	40			Numbe	r of Distinct C	bservations	4
14				Numbe	er of Detects	2				Number of N	Non-Detects	38
15			Nu	umber of Dist	inct Detects	2			Numbe	er of Distinct N	Non-Detects	2
16				Mini	mum Detect	4.8				Minimum	Non-Detect	2.3
17				Maxi	mum Detect	11				Maximum	Non-Detect	2.5
18				Varia	nce Detects	19.22				Percent N	Non-Detects	95%
19				М	ean Detects	7.9					SD Detects	4.384
20				Med	dian Detects	7.9					CV Detects	0.555
21				Skewn	ess Detects	N/A				Kurte	osis Detects	N/A
22				Mean of Log	ged Detects	1.983				SD of Log	ged Detects	0.586
23												
24					Warning: D	ata set has	only 2 Detec	ted Values.				
25			Tł	nis is not end	ough to com	pute meaning	gful or reliab	le statistics	and estimate	es.		
26												
27					Nam		t an Data ata	Only				
28					Norn		Con Detects					
29					NOLEN			JFTest				
30	-		Kaplan-I	Meier (KM) S	Statistics usi	ng Normal C	ritical Value	s and other	Nonparamet	ric UCLs		
31			Taplari		KM Mean	2.58			KN	/ Standard E	rror of Mean	0.314
32					KM SD	1.404				95% KM	(BCA) UCL	N/A
33				95%	KM (t) UCL	3.109			95% KM (P	ercentile Boo	otstrap) UCL	N/A
34				95%	KM (z) UCL	3.096				95% KM Boo	tstrap t UCL	N/A
36			9	0% KM Chel	byshev UCL	3.522			ę	95% KM Chel	byshev UCL	3.948
37			97.	.5% KM Chel	byshev UCL	4.54			(99% KM Chel	byshev UCL	5.703
38						1	1					
39				G	iamma GOF	Tests on De	etected Obse	ervations Or	ly			
40					Not En	ough Data to	Perform G	OF Test				
41												
42					Gamma	Statistics or	Detected D	ata Only				
43					k hat (MLE)	6.142			k	star (bias cor	rected MLE)	N/A
44				The	ta hat (MLE)	1.286			Thetas	star (bias cor	rected MLE)	N/A
45				n	u hat (MLE)	24.57				nu star (bia	s corrected)	N/A
46				Ме	an (detects)	7.9						
47							<u> </u>					
48				Es	timates of G	iamma Para	meters using	J KM Estima	tes		05 // 22	4 46 4
49					Mean (KM)	2.58				05	SD (KM)	1.404
50				Va	riance (KM)	1.97				SE of	Mean (KM)	0.314

	А	В	С	D	E	F	G	Н			J	К	L
51					k hat (KM)	3.379						k star (KM)	3.142
52					nu hat (KM)	270.3						nu star (KM)	251.4
53				th	eta hat (KM)	0.764					t	heta star (KM)	0.821
54			80%	6 gamma per	centile (KM)	3.66		ercentile (KM)	4.532				
55			95%	6 gamma per	centile (KM)	5.343				99%	6 gamma p	ercentile (KM)	7.099
56													
57					Gamm	ia Kaplan-M	eier (KM) St	atistics					
58				<u> </u>	(051.00)	015.0			Adj	usted	Level of S	ignificance (β)	0.044
59	050/	Appr	oximate Chi	Square Value	e (251.36, α)	215.6		A	Adjusted	1 Chi S	Square Val	ue (251.36, β)	214.4
60	95%	Gamma Ap	proximate KI	/I-UCL (use v	vnen n>=50)	3.007		95% Gamm	ia Adjus	sted K	M-UCL (us	se when n<50)	3.025
61							ata ata d Oha	am vation a O					
62				LC	Not En	PF Test on D		OF Test	niy				
63					NOT EN	ougn Data to	o Perform G	OFTest					
64					anormal BO	S Statistics	loing Imput	ad Non Date	orto				
65				Moon in O		0.528			5015		Moa	n in Log Scalo	3 574
66						1 973						D in Log Scale	-3.574
67		95% +1	ICL (assume	s normality o	of ROS data)	1.073				05% E	Orcentile F		1.063
68		557010			otstran LICI	1.027				00701	95% B		3 624
69				95% H-UCI		5 651					55% D		5.024
70					- (Log 1(00)	0.001							
71			Statis	tics usina K	M estimates	on Loaaed I	Data and As	sumina Loai	normal	Distri	bution		
72				KM Me	ean (logged)	0.89						KM Geo Mean	2.436
73				KM	SD (logged)	0.267			ç	95% C	Critical H V	alue (KM-Log)	1.773
74			KM Standa	rd Error of Me	ean (logged)	0.0598					95% H-L	JCL (KM -Log)	2.724
75				KM	SD (logged)	0.267			ç	95% C	Critical H V	alue (KM-Log)	1.773
70			KM Standa	rd Error of Me	ean (logged)	0.0598							
78													
79						DL/2 S	tatistics						
80			DL/2	Normal					DL/2	Log-T	ransforme	d	
81				Mean in O	riginal Scale	1.568					Mea	n in Log Scale	0.299
82				SD in O	riginal Scale	1.631					SI	D in Log Scale	0.404
83			95% t l	JCL (Assume	es normality)	2.002					95	% H-Stat UCL	1.648
84			DL/2	s not a reco	mmended m	ethod, provi	ded for com	parisons and	l histori	ical re	asons		
85													
86					Nonparame	etric Distribu	tion Free UC	CL Statistics					
87				Data do n	ot follow a D	iscernible Di	istribution at	5% Signific	ance Le	evel			
88													
89						Suggested	UCL to Use						
90			95	% KM (Cheb	yshev) UCL	3.948							
91													
92		Note: Sugge	stions regard	ing the selec	tion of a 95%	UCL are pr	ovided to he	lp the user to	select	the m	iost approp	oriate 95% UCL	
93			F	Recommenda	tions are bas	sed upon dat	a size, data	distribution,	and ske	wnes	S.		
94		These record	mmendations	are based u	pon the resu	Its of the sim	ulation studi	ies summariz	zed in S	Singh,	Maichle, a	nd Lee (2006).	
95	Ho	wever, simu	lations result	s will not cov	er all Real W	/orld data se	ts; for additio	onal insight t	ne user	may	want to cor	nsult a statistici	an.
96													

	А	В	С	D	Е	F	G	Н		J	K	L
1					UCL Statis	tics for Data	Sets with N	on-Detects				
2												
3		User Sele	cted Options									
4	Da	te/Time of Co	omputation	ProUCL 5.13	3/17/2017 3:	04:56 PM						
5			From File	Metals.xls								
6		Fu	II Precision	OFF								
7		Confidence	Coefficient	95%								
8	Number o	of Bootstrap	Operations	2000								
9	-											
10	As											
11												
12						General	Statistics		<u> </u>			
13			lotal	Number of O	bservations	40			Numbe	r of Distinct OI	bservations	5
14				Numbe	r of Detects	4				Number of N	Ion-Detects	36
15			N	umber of Dist	inct Detects	4			Numbe	er of Distinct N	Ion-Detects	2
16				Mini	mum Detect	3.5				Minimum	Non-Detect	3.2
17				Maxi	mum Detect	7.6				Maximum	Non-Detect	3.5
18				Varia	nce Detects	3.643				Percent N	Ion-Detects	90%
19				M	ean Detects	5.075					SD Detects	1.909
20				Mec	lian Detects	4.6					CV Detects	0.376
21				Skewn	ess Detects	0.927				Kurto	sis Detects	-0.835
22				Mean of Log	ged Detects	1.573				SD of Logg	jed Detects	0.364
23												
24					Norn	nal GOF Tes	t on Detects	Only				
25			S	hapiro Wilk T	est Statistic	0.89			Shapiro Wi	Ik GOF Test		
26			5% S	hapiro Wilk C	ritical Value	0.748	De	etected Data	appear Nor	nal at 5% Sigr	nificance Lev	vel
27				Lilliefors I	est Statistic	0.264			Lilliefors	GOF Test		
28			5	% Lilliefors C	ritical Value	0.375	De	etected Data	appear Nor	nal at 5% Sigr	nificance Lev	vel
29				Det	ected Data	appear Norn	nal at 5% Sig	inificance Lo	evel			
30												
31			Kaplan-	Meier (KM) S	statistics usi	ng Normal C	ritical Value	s and other	Nonparame			
32					KM Mean	3.388			KI	A Standard Er	ror of Mean	0.14
33				050/	KM SD	0.768				95% KM	(BCA) UCL	N/A
34				95%		3.624			95% KM (F		(strap) UCL	
35				95%		3.018						N/A
36						3.808					ysnev UCL	3.999
37			97		Jyshev UCL	4.203			:		ysnev UCL	4.702
38						Tooto on Dr	taatad Obac					
39				G ADT	annia GOF				ndorson Do			
40				5% A-D C	ritical Value	0.504	Detector			stributed at 50	». <u> </u>	
41				3%A-DC		0.007	Delected			Smirnov GOE		
42				5% K-S C	ritical Value	0.0	Detector	I data annos	ar Gamma Di	stributed at 50	% Significant	<u>רם בעם </u>
43				Detected	data anneo	r Gamma Di	stributed at 5	So Significa				
44					aara ahhea				100 LG461			
45					Gamma	Statistics or	Detected D	ata Only				
46					k hat (MLE)	10			k.	star (hias corr	ected MLE	2 667
47				Thot	a hat (MLE)	0.507			Theta	star (hias corr	ected MLE)	1 903
48				n		80.01			i iieid	nu star (bias	s corrected)	21 32
49				Mo		5 075					, conecieu)	21.00
50				ivie	an (uelecis)	5.075						

	A		В	С		D			E	F		G	Н					J			K	I	L
51												<u> </u>											
52							(Gamm	a ROS	5 Statistics	usin	g Imputed	I Non-D	etect	S								
53			0000	GROST	nay	not be u	isec	I wnen	data s	set has > 50	% N	IDs with m	any tied		ervatio	ons a	nt mu	ittiple L			.15.00		
54			GROS may	y not be u	sed	when ks	star	of dete		small such	as <	1.0, espec	cially wr	ien tr	le san	npie	size	is sma	ll (e.	.g.,	<15-20)	
55					Fo	r such si	tuat	This is	GROS	method may	y yie	eld incorre	ct value	s of L		and E	BIV	5					
56				mmo diotr	iht	od dotor	to d		espec	ally true wr			e size is	smai	l.	iotrib	ution	o on KA	Mag	atima	-		
57			For gar	nma distr	ibut	ea aetec	tea					be comput	ea using	g gan	ima d	ISTID	oution		vies		Mag		0.560
58										0.01											Modia	1 	0.569
59										1.62													0.01
60								k hot		0.226						L	(cto	r (hiac		root			2.002
61							The	ta hat		2.52					-	Theta		r (bias	corr	recte			2 523
62								nu hat		18.08						mete	n 1 1 1		(hia	<u>s co</u>			18.06
63				Adius	ted	l evel of	Sic	mificar		0.044								u star (incoloc	+	10.00
64			Anr		Chi	Square	Val	ue (18	(q) 301	9 432					Adiust	ted C	hi S	nuare \	Valu	ie (1	8.06 6	0	9 198
65		c	5% Gamma		nate		ISE	when r	n > = 50	1.09			959	, % Ga	mma	Adius	sted			whe	en n<50))	N/A
66										1.00						, ajac	otou	002(0				/	
67							E	stimat	es of C	amma Para	ame	eters usinc	KM Es	timat	es								
68								Mea	n (KM)	3.388			,								SD (KN)	0.768
69 70							V	arianc	e (KM)	0.59								S	E of	f Me	an (KN)	0.14
70								k ha	at (KM)	19.46										k s	tar (KN)	18.02
71								nu ha	at (KM)	1557									r	nu s	tar (KN)	1442
72							th	neta ha	at (KM)	0.174									the	ta s	tar (KN)	0.188
73				;	80%	gamma	n pe	rcentil	e (KM)	4.034						90)% g	amma	perc	cent	ile (KN)	4.442
74					95%	gamma	, pe	rcentil	e (KM)	4.798						99	- 9% g	amma	perc	cent	ile (KN)	5.515
76																							
77									Gamn	na Kaplan-N	<i>l</i> eie	er (KM) Sta	atistics										
78			A	pproximat	te C	hi Squai	re V	'alue (l	N/A, α)	1354					Adju	isted	Chi	Square	e Va	alue	(N/A, f) -	1351
79		95%	Gamma Ap	proximate	KN	I-UCL (u	se	when r	n>=50)	3.606			95% Ga	amma	a Adju	sted	KM-	UCL (ι	use	whe	en n<50)	3.614
80																							
81							L	ognorr	mal GC	OF Test on	Dete	ected Obs	ervatior	ns Or	ly								
82					S	hapiro W	/ilk	Test S	tatistic	0.904					Shap	iro V	Vilk (GOF T	est				
83				5%	6 Sł	napiro W	'ilk (Critical	l Value	0.748		Dete	ected Da	ata ap	pear	Logn	norm	al at 59	% Si	ignif	icance	Lev	/el
84						Lillief	ors	Test S	tatistic	0.267					Lill	iefor	s GC	OF Tes	;t				
85					5	% Lilliefo	ors (Critical	l Value	0.375		Dete	ected Da	ata ap	pear	Logn	norm	al at 59	% Si	ignif	icance	Lev	/el
86						Γ	Dete	ected [Data a	ppear Logn	orm	al at 5% S	Significa	nce l	.evel								
87																							
88							Lo	gnorm	nal RO	S Statistics	Us	ing Impute	ed Non-	Dete	cts								
89						Mean	in C	riginal	I Scale	1.108								Me	an ii	n Lo	og Scal	Э	-0.57
90						SD	in C	riginal	l Scale	1.542								S	SD ii	n Lo	og Scal	э	1.177
91			95% t l	JCL (assu	ime	s norma	lity (of ROS	3 data)	1.518						95%	5 Per	centile	Boo	otstr	ap UC	-	1.533
92					ç	95% BC/	A Bo	ootstra	IP UCL	1.622								95% E	Boot	tstra	ip t UC	-	1.766
93						95% H	-UC	L (Log	IROS)	1.852													
94				-																			
95				St	atis			M esti	Imates	on Logged	Dat	ta and As	suming	∟ogn	orma	Dist	ribu	lion		<u>. </u>			0.001
96						KI	VI M	lean (lo	ogged)	1.204						050/	0.1		κΝ	/I Ge	eo Mea		3.334
97							KM	SD (lo	ogged)	0.158						95%	Crit		valu	Je (h		<u>)</u>	1./21
98				KM Star	ndar	d Error o	ot M	lean (lo	ogged)	0.0289						050/	(95% H-		L (K			3.527
99				KM C:			KM	SD (lo	ogged)	0.158						95%	o Crit	ical H	valu	le (k	M-Log)	1./21
100				KIVI Star	idar	a Error a	лM	lean (lo	ogged)	0.0289												\bot	

	А	В	С	D	E	F	G	Н	I	J	K	L
101												
102						DL/2 S	tatistics					
103			DL/2	Normal					DL/2 Log-	Fransformed		
104				Mean in O	riginal Scale	2.056				Mean	in Log Scale	0.645
105				SD in O	riginal Scale	1.15				SD	in Log Scale	0.331
106			95% t l	JCL (Assume	es normality)	2.363				95%	6 H-Stat UCL	2.216
107			DL/2	is not a reco	mmended m	ethod, provi	ded for com	parisons and	l historical r	easons		L
108												
109					Nonparam	etric Distribu	tion Free UC	CL Statistics				
110				Detected	l Data appea	ar Normal Di	stributed at {	5% Significa	nce Level			
111												
112						Suggested	UCL to Use					
113				95%	5 KM (t) UCL	3.624						
114												
115	1	Note: Sugge	stions regard	ling the seled	tion of a 95%	6 UCL are pr	ovided to he	p the user to	select the n	nost appropri	ate 95% UCL	
116			F	Recommenda	ations are ba	sed upon dat	a size, data	distribution,	and skewnes	SS.		
117		These record	mmendations	s are based ι	ipon the resi	Its of the sim	ulation studi	es summariz	zed in Singh	Maichle, and	d Lee (2006).	
118	Но	wever, simu	lations result	s will not cov	ver all Real V	Vorld data se	ts; for additio	onal insight th	ne user may	want to cons	ult a statistic	ian.
119												

	А	В	С	D	E	F	G	Н			J	K		L
1					UCL Statis	tics for Data	Sets with N	on-Detects						
2				1										
3		User Sele	cted Options											
4	D	ate/Time of C	omputation	ProUCL 5.1	3/17/2017 3:	10:12 PM								
5			From File	Metals.xls										
6		Fu	II Precision	OFF										
7		Confidence	Coefficient	95%										
8	Number	of Bootstrap	Operations	2000										
9														
10														
11	Ba													
12														
13						General	Statistics							
14			Total	Number of C	bservations	40			Num	nber of Dis	stinct Ob	oservation	S	31
15									Num	ber of Mis	sing Ob	oservation	S	0
16					Minimum	32						Mea	n	84.8
17					Maximum	230						Media	n	76
18					SD	44.75					Std. Err	or of Mea	n	7.076
19				Coefficient	of Variation	0.528						Skewnes	s	1.491
20														
21						Normal C	GOF Test							
22			S	hapiro Wilk T	est Statistic	0.865			Shapiro	Wilk GO	= Test			
23			5% S	hapiro Wilk C	ritical Value	0.94		Data No	ot Normal	at 5% Sig	nificanc	e Level		
24				Lilliefors T	est Statistic	0.209			Lillief	ors GOF	Fest			
25			5	% Lilliefors C	ritical Value	0.139		Data No	ot Normal	at 5% Sig	nificanc	e Level		
26					Data Not	Normal at 5	% Significar	ice Level						
27					-									
28					As	suming Nor	nal Distributi	on						
29			95% No	ormal UCL				95%	b UCLs (A	djusted fo	or Skew	ness)		
30				95% Stud	dent's-t UCL	96.72			95% Adji	usted-CLT	UCL (C	Chen-1995)	98.22
31									95% Mo	dified-t UC	JL (Johi	nson-1978)	97
32						0								
33						Gamma	GOF Test					· - ·		
34					est Statistic	0.556	.	Ande	rson-Dari	Ing Gamn				
35				5% A-D C	ritical Value	0.752	Detected	data appea	ar Gamma	a Distribut	ed at 5%	% Significa	nce	Level
36				K-S I	est Statistic	0.149	D		jorov-Sm	irnov Gan				
37				Detected d		0.14	Dietributien a				n no sign	meance Le	-vei	
38				Derected da		pr. Gamma		a o % olgnii	icance Le					
39						Gamme	Statistics							
40					k bot (MLE)		Statistics			k etar (bi	26 corre	octod MI E)	4 087
41				That		10 27			The	ta etar (hi	as corr)	20.75
42				n	u hat (MLE)	352					ar (hias			326.9
43			N/I	F Mean (hia		84.8				MIE	Sd (bias	corrected)	41 95
44			1011			UT.U			Approxim	nate Chi S		alue (0.05) :	286
45			Adius	ted Level of	Significance	0.044				Adjuster	Chi Sa	uare Value	/ ² e 2	284.6
46			7 10/00								Oq			
47					Δο	sumina Gar	ma Distribut	ion						
48		95% Approx	imate Gamm		/hen n>=50)	96.92		95% Ar	liusted Ga			vhen n<50)	97.41
49						00.02		55 /0 AL					/	J7.TI
50														

	А	В	С	D		E	F	G	Н		J	K	L
51							Lognorma	I GOF Test					
52			S	Shapiro Wi	ilk Tes	st Statistic	0.969		Shap	oiro Wilk Lo	gnormal GC	OF Test	
53			5% S	hapiro Wi	lk Crit	ical Value	0.94		Data appea	r Lognorma	l at 5% Sign	ificance Level	
54				Lilliefo	rs Tes	st Statistic	0.116		Lill	liefors Logn	ormal GOF	Test	
55			5	5% Lilliefor	rs Crit	ical Value	0.139		Data appea	r Lognorma	l at 5% Sign	ificance Level	
56					Da	ata appea	Lognormal	at 5% Signif	icance Leve	I			
57													
58							Lognorma	I Statistics					
59				Minimum	of Log	gged Data	3.466				Mean o	of logged Data	4.322
60				Maximum	of Log	gged Data	5.438				SD c	of logged Data	0.485
61													
62						Ass	uming Logno	ormal Distrib	ution				
63				-	95	% H-UCL	98.33			90%	Chebyshev	(MVUE) UCL	104.8
64			95%	Chebyshe	ev (M∖	/UE) UCL	114			97.5%	Chebyshev	(MVUE) UCL	126.8
65			99%	Chebyshe	ev (M∖	/UE) UCL	151.9						
66													
67					N	lonparame	etric Distribu	tion Free UC	CL Statistics				
68				Data app	pear to	o follow a	Discernible	Distribution a	at 5% Signifi	icance Leve			
69													
70						Nonpa	rametric Dis	tribution Fre	e UCLs				
71					95%	CLT UCL	96.44				95% J	lackknife UCL	96.72
72			95%	Standard	Boots	strap UCL	96.07				95% Bo	ootstrap-t UCL	99.14
73			Q	95% Hall's	Boots	strap UCL	99.7			95%	Percentile E	Bootstrap UCL	96.73
74				95% BCA	Boots	strap UCL	97.7						
75			90% CI	nebyshev(Mean	, Sd) UCL	106			95% C	hebyshev(M	lean, Sd) UCL	115.6
76			97.5% CI	nebyshev(Mean	, Sd) UCL	129			99% C	hebyshev(M	lean, Sd) UCL	155.2
77													
78				-		-	Suggested	UCL to Use					
79			95	5% Adjuste	ed Gai	mma UCL	97.41						
80													
81			When a	data set fo	ollows	an approx	imate (e.g., i	normal) distri	bution passi	ng one of th	e GOF test		
82		When app	licable, it is a	suggested	to us	e a UCL b	ased upon a	distribution (e.g., gamma) passing b	oth GOF tes	ts in ProUCL	
83													
84		Note: Sugge	stions regard	ding the se	electio	n of a 95%	6 UCL are pr	ovided to hel	p the user to	select the r	nost approp	riate 95% UCL	
85				Recomme	ndatio	ons are ba	sed upon dat	a size, data o	distribution, a	and skewne	SS.		
86		These reco	mmendation	s are base	ed upo	on the resu	Its of the sim	ulation studi	es summariz	ed in Singh	, Maichle, a	nd Lee (2006).	
87	Ho	wever, simu	llations resul	ts will not	cover	all Real V	/orld data se	ts; for additio	onal insight th	ne user may	want to con	isult a statistici	an.
88													

	А	В	С	D	E	F	G	Н		J	K	L
1					UCL Statis	sucs for Data	Sets with N	on-Detects				
2		Llaar Cala	ata d Ontiona									
3	Da			DrollCL 5 1	2/17/2017 2.							
4	Da		Erom File	Motals vis	5/17/2017 5.	11.09 FIVI						
5		Ful										
6		Confidence		95%								
/	Number	of Bootstran		2000								
8		Boototrup	oporationo	2000								
9	Cd											
11												
12						General	Statistics					
13			Total	Number of C	bservations	40			Numbe	r of Distinct O	bservations	4
14				Numbe	er of Detects	2				Number of N	Non-Detects	38
15			Nu	umber of Dist	inct Detects	2			Numbe	er of Distinct N	Non-Detects	2
16				Mini	mum Detect	0.77				Minimum	Non-Detect	0.45
17				Maxi	mum Detect	1.1				Maximum	Non-Detect	0.5
18				Varia	nce Detects	0.0545				Percent N	Non-Detects	95%
19				М	ean Detects	0.935					SD Detects	0.233
20				Med	dian Detects	0.935					CV Detects	0.25
21				Skewn	ess Detects	N/A				Kurto	osis Detects	N/A
22				Mean of Log	ged Detects	-0.083				SD of Log	ged Detects	0.252
23												
24					Warning: D	ata set has	only 2 Detec	ted Values.				
25			Tł	nis is not enc	ough to com	oute meanin	gful or reliab	le statistics	and estimate	es.		
26												
27					Nam		t an Data ata	Only				
28					Norn		Con Detects					
29					NOLEI			JFTest				
30	-		Kaplan-I	Meier (KM) S	Statistics usi	ng Normal C	ritical Value	s and other	Nonparamet	ric UCLs		
31			Rapian		KM Mean	0.474			KN	/ Standard E	rror of Mean	0.025
32					KM SD	0.112				95% KM	(BCA) UCL	N/A
33				95%	KM (t) UCL	0.516			95% KM (P	ercentile Boo	otstrap) UCL	N/A
34				95%	KM (z) UCL	0.515				95% KM Boo	tstrap t UCL	N/A
36			9	0% KM Chel	byshev UCL	0.549			ę	95% KM Chel	byshev UCL	0.583
37			97.	5% KM Chel	byshev UCL	0.631			(99% KM Chel	byshev UCL	0.723
38						1	1					
39				G	amma GOF	Tests on De	etected Obse	ervations Or	ly			
40					Not En	ough Data to	Perform GO	OF Test				
41												
42					Gamma	Statistics or	Detected D	ata Only				
43					k hat (MLE)	31.77			k	star (bias cori	rected MLE)	N/A
44				The	a hat (MLE)	0.0294			Thetas	star (bias cori	rected MLE)	N/A
45				n	u hat (MLE)	127.1				nu star (bia	s corrected)	N/A
46				Ме	an (detects)	0.935						
47												
48				Es	timates of G	amma Para	meters using	J KM Estima	tes		05 // 20	0.110
49					Mean (KM)	0.474				~- `	SD (KM)	0.112
50				Va	iriance (KM)	0.0125				SE of	Mean (KM)	0.025

	А	В	С	D	E	F	G	Н			J	K	L
51					k hat (KM)	17.94						k star (KM)	16.61
52					nu hat (KM)	1435						nu star (KM)	1329
53				th	eta hat (KM)	0.0264		eta star (KM)	0.0285				
54			80%	6 gamma per	centile (KM)	0.568				90%	6 gamma per	rcentile (KM)	0.628
55			95%	6 gamma per	centile (KM)	0.68				99%	6 gamma per	rcentile (KM)	0.786
56													
57					Gamm	ia Kaplan-M	eier (KM) St	atistics				10 (0)	
58						1010			Adj	justed	Level of Sig	nificance (β)	0.044
59	050/		pproximate C	ni Square Va	alue (N/A, α)	1246			Adjus	sted C	ni Square Va	alue (N/A, β)	1242
60	95%	Gamma Ap	proximate Ki	1-UCL (use v	/nen n>=50)	0.506		95% Gamm	ia Adjus	stea k	IM-UCL (use	wnen n<50)	0.507
61					anormal GC	E Tost on D	otactod Obs	onvotions O	nly				
62					Not En		Perform G		illy				
63					NOLEIN			OFTESL					
64					anormal RO	S Statistics	lsina Imput	ed Non-Dete	ente				
65				Mean in O	riginal Scale	0 155					Mean	in Log Scale	-2 473
66				SD in O	riginal Scale	0.212					SD	in Log Scale	1 115
67		95% t l	JCL (assume	s normality c	f ROS data)	0.212			9	95% F	Percentile Bo	otstrap UCL	0.215
68				95% BCA Bo	otstrap UCL	0.224					95% Boo	otstrap t UCL	0.251
69 70				95% H-UCI	_ (Log ROS)	0.247							
70					(-3/								
71			Statis	tics using K	M estimates	on Logged I	Data and As	suming Log	normal	Distri	bution		
72				KM Me	ean (logged)	-0.763					K	M Geo Mean	0.466
73				KM	SD (logged)	0.161		ue (KM-Log)	1.722				
74			KM Standa	rd Error of Me	ean (logged)	0.036		CL (KM -Log)	0.494				
76				KM	SD (logged)	0.161		ue (KM-Log)	1.722				
77			KM Standa	rd Error of Me	ean (logged)	0.036							
78													
79						DL/2 S	tatistics						
80			DL/2	Normal					DL/2	Log-T	ransformed		
81				Mean in O	riginal Scale	0.281					Mean	in Log Scale	-1.337
82				SD in O	riginal Scale	0.157					SD	in Log Scale	0.297
83			95% t l	JCL (Assume	es normality)	0.322					95%	H-Stat UCL	0.299
84			DL/2 i	s not a reco	mmended m	ethod, provi	ded for com	parisons and	d histori	ical re	asons		
85													
86					Nonparame	etric Distribu	tion Free UC	CL Statistics	i				
87				Data do no	ot follow a D	iscernible D	istribution at	5% Signific	ance Lo	evel			
88													
89						Suggested	UCL to Use						
90				95%	KM (t) UCL	0.516						KM H-UCL	0.494
91				95% KM	(BCA) UCL	N/A							
92				warn	ing: One or r	nore Recom	imended UC	L(S) NOT AVA	IIIadie!				
93		Noto: Sugar	otiona ragand	ing the color	tion of a OEM		ovidod to bal	In the user to		the m	oct opproart		
94		NOLE: SUGGE	suons regard		tions are been			distribution	ond elect			ate 95% UCL	•
95		These rocci	r mmendations		non the rocu	lts of the size	a size, uata		anu ske	Singh	o. Maichle an		
96	LIV	Wever simu			er all Real M	lorld data so	ts: for addition	nal insight t		myn,	want to core	$u \vdash e (2000).$	an
97		wever, sinu		S WIII HUL COV				nai məiyni t	ne user	шду	want to cons		ail.
98													

	A	В	С	D	Е	F	G	Н		J	K	\Box	L
1					UCL Statis	tics for Data	Sets with N	Ion-Detects					
2													
3		User Sele	ected Options										
4	D	ate/Time of C	Computation	ProUCL 5.13	3/17/2017 3:	12:33 PM							
5			From File	Metals.xls									
6		Fu	Ill Precision	OFF									
7		Confidence	Coefficient	95%									
8	Numbe	of Bootstrap	Operations	2000									
9													
10													
11	Cr												
12												-	
13						General	Statistics						
14			Total	Number of O	bservations	40			Num	ber of Distir	nct Observatio	ns	20
15									Num	ber of Missi	ng Observatio	ns	0
16					Minimum	14					Me	an	30.2
17					Maximum	220					Medi	an	21.5
18					SD	35.56				Si	td. Error of Me	an	5.622
19				Coefficient	of Variation	1.177					Skewne	ss	4.681
20													
21						Normal (GOF Test						
22			S	hapiro Wilk T	est Statistic	0.368			Shapiro	Wilk GOF	Test		
23			5% S	napiro Wilk C	ritical Value	0.94		Data N	ot Normal	at 5% Signi	ficance Level		
24				Lilliefors T	est Statistic	0.375			Lilliefo	ors GOF Te	st		
25			5	% Lilliefors C	ritical Value	0.139		Data N	ot Normal	at 5% Signi	ficance Level		
26					Data Not	Normal at 5	% Significa	nce Level					
27													
28					As	suming Nori	nal Distribu	tion					
29			95% No	ormal UCL				95%	6 UCLs (A	djusted for	Skewness)		
30				95% Stud	dent's-t UCL	39.67			95% Adju	usted-CLT U	ICL (Chen-199)5)	43.89
31									95% Mo	dified-t UCL	(Johnson-197	'8)	40.37
32													
33						Gamma	GOF Test						
34				A-D T	est Statistic	6.269		Ande	erson-Darl	ing Gamma	GOF Test		
35				5% A-D C	ritical Value	0.757	D	ata Not Gar	nma Distri	buted at 5%	Significance	_eve	I
36				K-S T	est Statistic	0.311		Kolmo	gorov-Smi	irnov Gamm	na GOF Test		
37				5% K-S C	ritical Value	0.141	D	ata Not Gar	nma Distri	buted at 5%	Significance	_eve	I
38				Da	ta Not Gami	na Distribut	ed at 5% Sig	gnificance L	evel				
39													
40						Gamma	Statistics						
41					k hat (MLE)	2.475				k star (bias	s corrected ML	E)	2.306
42				Thet	a hat (MLE)	12.2			The	eta star (bias	s corrected ML	E)	13.09
43				n	u hat (MLE)	198				nu star	(bias correcte	;d)	184.5
44			M	LE Mean (bia	s corrected)	30.2				MLE Sd	l (bias correcte	:d)	19.89
45									Approxim	ate Chi Squ	are Value (0.0	/5)	154.1
46			Adjus	ted Level of S	Significance	0.044				Adjusted C	chi Square Val	ue	153
47													
48					As	suming Gam	ima Distribu	tion					
49		95% Approxi	mate Gamma	UCL (use wi	hen n>=50))	36.16		95% A	djusted Ga	amma UCL	(use when n<5	0)	36.41
50													

	А	В		С	Т	D		E	F	G	Γ	Н	I	Ι	T	J			K	Т	L
51									Lognorma	GOF Test											
52				ę	Shap	iro Wilk	Test	Statistic	0.668			Sha	oiro V	Vilk L	.ogi	normal G	OF	Tes	st		
53				5% S	Shapi	ro Wilk	Critica	al Value	0.94			Data Not	Logn	orma	l at	5% Sign	ifica	nce	Level		
54					L	illiefors	Test	Statistic	0.244			Lil	liefor	s Log	jno	rmal GO	F Te	est			
55				Ę	5% Li	illiefors	Critica	al Value	0.139			Data Not	Logn	orma	l at	5% Sign	ifica	nce	Level		
56							Da	ata Not L	ognormal at	5% Signific	an	nce Level									
57																					
58									Lognorma	I Statistics											
59					Mini	mum of	Logg	ed Data	2.639							Mear	oflo	ogge	ed Data	э	3.192
60					Maxi	mum of	Logg	ed Data	5.394							SD	of lo	ogge	ed Data	a	0.507
61									<u> </u>												
62								Assi		ormal Distrib	uti	ion									
63							95%	3 H-UCL	32.37					90	% C	Chebyshe	ev (N	/IVU	E) UCL	L	34.54
64				95%	o Che	byshev	(MVL	JE) UCL	37.69					97.5	% C	Chebyshe	ev (N	/IVU	E) UCL	L	42.06
65				99%	o Che	byshev	(MVL	JE) UCL	50.65												
66																					
67							No	nparame	etric Distribu	tion Free UC	CL	Statistics									
68							Data	do not f	ollow a Disc	ernible Distr	ib	ution (0.0	5)								
69																					
70								Nonpa	rametric Dis	tribution Fre	e١	UCLs									
71						9	95% C	LT UCL	39.45							95%	Jac	kkn	ife UCL	L	39.67
72				95%	6 Sta	ndard B	ootstr	rap UCL	39.05							95% E	Boots	strap	p-t UCL	L	83.78
73					95%	Hall's B	ootstr	rap UCL	86.56					95%	% P	ercentile	Boo	otstra	ap UCI	L	39.75
74					95%	BCA B	ootstr	rap UCL	46.58												
75			g	30% CI	heby	shev(M	ean, S	3d) UCL	47.07					95%	Che	ebyshev(Mea	n, S	3d) UCl	L	54.7
76			97	.5% CI	heby	shev(M	ean, S	3d) UCL	65.31					99%	Che	ebyshev(Mea	in, S	3d) UCl	L	86.14
77																					
78									Suggested	UCL to Use											
79			9	5% Ch	hebys	shev (M	ean, S	3d) UCL	54.7												
80																					
81		Note: Sugge	estions	regar	ding	the sele	ection	of a 95%	6 UCL are pr	ovided to hel	lp [·]	the user to	sele	ct the	e mo	ost appro	pria	te 9	5% UC	L.	
82					Reco	mmend	lation	s are bas	sed upon dat	a size, data o	dis	stribution,	and s	kewn	iess	6.					
83		These reco	ommen	Idation	ns are	e based	upon	the resu	Its of the sim	ulation studi	ies	s summariz	zed ir	n Sing	jh, I	Maichle,	and	Lee) (200 <u>6</u>)).	
84	Ho	wever, simu	ulation	s resu	lts wi	ll not co	over a	ll Real W	/orld data se	ts; for additio	ona	al insight t	ne us	er ma	ay v	vant to co	onsu	lt a	statisti	cian	۱.
85																					

	Α	В	С	D	E	F	G	Н		J	K	匚	L
1					UCL Statis	tics for Data	Sets with N	Ion-Detects					
2				1									
3		User Sele	ected Options										
4	D	ate/Time of C	computation	ProUCL 5.13	3/20/2017 3:	02:07 PM							
5			From File	Metals.xls									
6		Fu	Ill Precision	OFF									
7		Confidence	Coefficient	95%									
8	Number	of Bootstrap	Operations	2000									
9													
10	-												
11	Со												
12													
13						General	Statistics						
14			Total	Number of O	bservations	40			Numb	er of Distinct (Observations		30
15									Numbe	er of Missing (Observations		0
16					Minimum	4.2					Mean	<u> </u>	13.61
17					Maximum	240				0.1.5	Median		7.55
18				0 11 1	SD	36.77				Std. E	rror of Mean	I	5.813
19				Coefficient	of Variation	2.702					Skewness	·	6.296
20						Normal							
21									Oh an ing M				
22			5		est Statistic	0.201		Data N	Snapiro v		t		
23			5% 5		ritical value	0.94		Data N		t 5% Significa	nce Level		
24			F	Lilliefors I	ritical Value	0.492		Data N		s GOF Test			
25			5	70 LIIIIEIOIS C	Data Not	Normal at 5	% Significa			t 5 % Significa			
26					Data Not								
27					As	sumina Nori	nal Distribu	tion					
28			95% No	ormal UCI	/10			95%	6 UCI s (Ad	iusted for Ske	wness)		
29				95% Stu	lent's-t UCI	23.4			95% Adius	ted-CI T UCI	(Chen-1995)		29.35
30									95% Modi	fied-t UCL (Jo	(energial) hnson-1978)		24.36
31											,		
32 22						Gamma	GOF Test						
33 24				A-D T	est Statistic	9.095		Ande	rson-Darlin	g Gamma GC	OF Test		
34				5% A-D C	ritical Value	0.775	C	ata Not Gar	nma Distribu	uted at 5% Sig	gnificance Le	vel	
36				K-S T	est Statistic	0.4		Kolmo	gorov-Smirr	nov Gamma G	GOF Test		
37				5% K-S C	ritical Value	0.143	C	ata Not Gar	nma Distribu	uted at 5% Sig	gnificance Le	vel	
38	l			Da	ta Not Gami	na Distribute	ed at 5% Sig	gnificance L	evel				
39													
40						Gamma	Statistics						
41					k hat (MLE)	1.135			ŀ	k star (bias co	rrected MLE)	1	1.067
42				Thet	a hat (MLE)	11.98			Theta	a star (bias co	rrected MLE)	,	12.75
43				n	u hat (MLE)	90.82				nu star (bi	as corrected)	1	85.34
44			M	LE Mean (bia	s corrected)	13.61				MLE Sd (bia	as corrected)	i i	13.17
45									Approxima	te Chi Square	Value (0.05)	1	65.04
46			Adjus	sted Level of	Significance	0.044			-	Adjusted Chi S	Square Value)	64.38
47													
48					As	suming Garr	ma Distribu	ition					
49		95% Approxi	mate Gamma	UCL (use w	hen n>=50))	17.85		95% A	djusted Gan	nma UCL (use	e when n<50)	/	18.03
50													

	А	В	С		D		E	F	G	Н				J		L	K		L
51								Lognormal	GOF Test										
52				Sha	piro Wilk	Test	Statistic	0.555		Sh	api	ro Wil	lk Log	normal	GO)F Te	est		
53			5%	Shap	oiro Wilk	Critic	al Value	0.94		Data No	ot L	ognor	mal a	t 5% Sig	Jnifi	canc	e Level		
54					Lilliefors	Test	Statistic	0.241		I	Lilli	efors	Logno	ormal G	OF	Test	t		
55				5% l	Lilliefors	Critic	al Value	0.139		Data No	ot L	ognor	mal a	t 5% Sig	ynifio	canc	e Level		
56						Da	ata Not L	ognormal at	5% Significa	ance Leve	e								
57																			
58								Lognorma	I Statistics										
59				Mir	nimum of	Logg	jed Data	1.435						Mea	an o	of log	ged Dat	а	2.109
60				Мах	kimum of	Logg	jed Data	5.481						S	SD o	of log	ged Dat	а	0.602
61																			
62							Assı	uming Logno	ormal Distrib	ution									
63						95%	6 H-UCL	11.98					90%	Chebys	hev	(MV	UE) UC	L	12.82
64			959	% Che	ebyshev	(MVL	JE) UCL	14.18				97	7.5%	Chebys	hev	(MV	UE) UC	L	16.06
65			999	% Che	ebyshev	(MVL	JE) UCL	19.76											
66																			
67						No	nparame	etric Distribu	tion Free UC	L Statistic	cs								
68						Data	do not f	ollow a Disc	ernible Distr	ibution (0.	.05))							
69																			
70							Nonpa	ametric Dist	tribution Free	e UCLs									
71					9	95% C	LT UCL	23.17						95	% J	ackk	nife UC	L	23.4
72			95	% Sta	andard B	ootst	rap UCL	22.96						95%	» Bo	otstr	rap-t UC	L	140.6
73				95%	b Hall's B	ootst	rap UCL	74.08				9	95% F	Percenti	le B	oots	trap UC	L	25.24
74				95%	% BCA B	ootst	rap UCL	31.36											
75			90% (Cheby	yshev(M	ean, S	Sd) UCL	31.04				95	5% Ch	ebyshe	v(M	ean,	Sd) UC	L	38.94
76			97.5% (Cheby	yshev(M	ean, S	Sd) UCL	49.91				99	9% Ch	ebyshe	v(M	ean,	Sd) UC	L	71.45
77																			
78								Suggested	UCL to Use										
79			95% C	heby	shev (M	ean, S	Sd) UCL	38.94											
80																			
81	1	Note: Sugge	stions rega	irding	the sele	ection	of a 95%	UCL are pro	ovided to hel	p the user	tos	select	the m	iost app	ropi	riate	95% UC	CL.	
82				Rec	ommend	lation	s are bas	sed upon dat	a size, data o	distributior	n, ai	nd ske	ewnes	S.					
83		These reco	mmendatio	ins ar	e based	upon	the resu	Its of the sim	ulation studi	es summa	rize	ed in S	Singh,	Maichle	ə, ar	nd Le	e (2006	i).	
84	Ho	wever, simu	lations res	ults w	vill not co	over a	ll Real W	orld data se	ts; for additio	nal insight	t the	e user	may	want to	con	sult	a statisti	ciar	n.
85																			

	А	В	С	D	E	F	G	Н		J	K		L
1					UCL Statis	tics for Data	a Sets with N	Ion-Detects					
2													
3		User Sele	ected Options										
4	Da	ate/Time of C	computation	ProUCL 5.13	8/17/2017 3:	13:56 PM							
5			From File	Metals.xls									
6		Fu	Ill Precision	OFF									
7		Confidence	Coefficient	95%									
8	Number	of Bootstrap	Operations	2000									
9													
10													
11	Cu												
12													
13						General	Statistics						
14			Total	Number of O	bservations	40			Numb	er of Distinct C	Observations	23	3
15									Numb	er of Missing C	Observations	C)
16					Minimum	7.5					Mean	2	6.8
17					Maximum	200					Median	1(6.5
18					SD	39.92				Std. E	rror of Mean	6	6.312
19				Coefficient	of Variation	1.49					Skewness	4	l.017
20													
21						Normal	GOF Test						
22			S	hapiro Wilk T	est Statistic	0.41			Shapiro V	Vilk GOF Test			
23			5% SI	napiro Wilk Ci	ritical Value	0.94		Data N	ot Normal at	t 5% Significar	nce Level		
24				Lilliefors T	est Statistic	0.343			Lilliefor	s GOF Test			
25			5	% Lilliefors Ci	ritical Value	0.139		Data N	ot Normal at	t 5% Significar	nce Level		
26					Data Not	Normal at §	5% Significa	nce Level					
27													
28					As	suming Nor	mal Distribut	tion					
29			95% No	ormal UCL				95%	6 UCLs (Ad	justed for Ske	wness)		
30				95% Stud	lent's-t UCL	37.43			95% Adjus	ted-CLT UCL	(Chen-1995)	4	1.46
31									95% Modi	fied-t UCL (Jo	hnson-1978)	3	8.1
32												L	
33						Gamma	GOF Test						
34				A-D T	est Statistic	4.045		Ande	rson-Darlin	g Gamma GO	F Test		
35				5% A-D Ci	ritical Value	0.766	D	ata Not Gar	nma Distribu	uted at 5% Sig	nificance Le	vel	
36				K-S T	est Statistic	0.231		Kolmo	gorov-Smirr	nov Gamma G	OF Test		
37				5% K-S Ci	ritical Value	0.142	D	ata Not Gar	nma Distribi	uted at 5% Sig	nificance Le	vel	
38				Dat	a Not Gamr	na Distribut	ed at 5% Sig	nificance L	evel				
39													
40						Gamma	Statistics						
41					k hat (MLE)	1.485			ŀ	k star (bias cor	rected MLE)	1	.39
42				Theta	a hat (MLE)	18.04			Theta	a star (bias cor	rected MLE)	19	9.27
43				n	u hat (MLE)	118.8				nu star (bia	as corrected)	11	1.2
44			M	E Mean (bias	s corrected)	26.8				MLE Sd (bia	as corrected)	2	2.73
45									Approxima	te Chi Square	Value (0.05)	8	7.88
46			Adjus	ted Level of S	Significance	0.044			ŀ	Adjusted Chi S	quare Value	8	7.11
47													
48					Ass	suming Gan	nma Distribu	tion					
49		95% Approxii	mate Gamma	UCL (use wh	nen n>=50))	33.92		95% A	djusted Gan	nma UCL (use	when n<50)	34	4.22
50													

	А	В	С		D		Е	F	G	Н			J		L	K	L	L
51								Lognorma	I GOF Test									
52				Sha	piro Wilk	Test	Statistic	0.821		Sha	piro V	Vilk Lo	gnormal	GO	F Te	st		
53			5%	Shap	oiro Wilk	Critic	al Value	0.94		Data Not	Logn	ormal a	ıt 5% Siç	Jnific	cance	e Level		
54					Lilliefors	Test	Statistic	0.15		L	lliefor	s Logn	ormal G	OF	Test			
55				5%	Lilliefors	Critic	al Value	0.139		Data Not	Logn	ormal a	ıt 5% Siç	Jnific	cance	e Level		
56						Da	ata Not L	.ognormal at	t 5% Significa	ance Level								
57																		
58								Lognorma	I Statistics									
59				Mir	nimum of	fLogg	ged Data	2.015					Mea	an of	flog	ged Data	3	2.915
60				Max	kimum of	fLogg	ged Data	5.298					S	D of	flogo	ged Data	3	0.695
61																		
62							Ass	uming Logno	ormal Distrib	ution								
63						95%	6 H-UCL	29.65				90%	Chebys	hev	(MVI	UE) UCL	-	31.7
64			959	% Ch	ebyshev	(MVl	JE) UCL	35.49				97.5%	Chebys	hev	(MVI	UE) UCI	- '	40.76
65			999	% Ch	ebyshev	(MVl	JE) UCL	51.1										
66																		
67						No	onparame	etric Distribu	tion Free UC	L Statistics	3							
68						Data	a do not f	ollow a Disc	ernible Distr	ibution (0.0	5)							
69																		
70							Nonpa	rametric Dis	tribution Free	e UCLs								
71					9	95% C	CLT UCL	37.18					95	% Ja	ackk	nife UCl	-	37.43
72			95	% Sta	andard B	Bootst	rap UCL	36.96					95%	Bo	otstra	ap-t UCl	-	74.55
73				95%	6 Hall's B	Bootst	rap UCL	94.67				95%	Percenti	le B	ootst	trap UCI	-	38.33
74				959	% BCA B	lootst	rap UCL	41.61										
75			90%	Cheb	yshev(M	ean, s	Sd) UCL	45.73				95% CI	nebyshe	v(Me	ean,	Sd) UCI	-	54.31
76			97.5%	Cheb	yshev(M	ean, s	Sd) UCL	66.22			9	99% CI	nebyshe	v(Me	ean,	Sd) UCL	-	89.6
77																		
78								Suggested	UCL to Use									
79			95% C	Cheby	/shev (M	ean, s	Sd) UCL	54.31										
80																		
81	1	Note: Sugge	stions rega	arding	the sele	ection	of a 95%	6 UCL are pr	ovided to hel	p the user t	o sele	ct the r	nost app	ropr	iate	95% UC	L.	
82				Rec	commend	lation	is are bas	sed upon dat	a size, data o	distribution,	and s	kewne	SS.					
83		These reco	mmendatio	ons ar	re based	upon	the resu	Its of the sim	ulation studi	es summar	zed ir	l Singh	, Maichle	ə, an	ıd Le	e (2006))	
84	Ho	wever, simu	lations res	ults v	vill not co	over a	all Real W	/orld data se	ts; for additio	nal insight	the us	er may	want to	cons	sult a	a statistio	cian.	
85																		

	А	В	С	D	E	F	G	Н	I	J	K	L
1					UCL Statis	tics for Data	Sets with No	on-Detects				
2												
3		User Sele	cted Options									
4	Dat	e/Time of Co	omputation	ProUCL 5.13/	17/2017 3:	13:15 PM						
5			From File	Metals.xls								
6		Ful	Il Precision	OFF								
7		Confidence	Coefficient	95%								
8	Number o	of Bootstrap (Operations	2000								
9												
10	Cr+6											
11												
12						General	Statistics					
13			Total	Number of Ob	servations	40			Number	r of Distinct O	bservations	5
14				Number	of Detects	3				Number of N	Non-Detects	37
15			N	umber of Distir	nct Detects	3			Numbe	er of Distinct N	Non-Detects	2
16				Minim	um Detect	0.25				Minimum	Non-Detect	0.19
17				Maxim	um Detect	1.7				Maximum	Non-Detect	0.21
18				Varian	ce Detects	0.652				Percent N	Ion-Detects	92.5%
19				Me	an Detects	0.77					SD Detects	0.807
20				Media	an Detects	0.36					CV Detects	1.048
21				Skewne	ss Detects	1.696				Kurto	osis Detects	N/A
22				Mean of Logg	ed Detects	-0.626				SD of Log	ged Detects	1.018
23												
24				١	Warning: D	ata set has	only 3 Detect	ted Values.				
25			TI	nis is not enou	igh to comp	oute meaning	gful or reliab	le statistics	and estimate	es.		
26												
27												
28					Norm	al GOF Tes	t on Detects	Only				
29			S	hapiro Wilk Te	st Statistic	0.807			Shapiro Wi	lk GOF Test		
30			5% SI	napiro Wilk Cri	tical Value	0.767	De	tected Data	appear Norn	nal at 5% Sig	nificance Lev	vel
31				Lilliefors Te	st Statistic	0.361			Lilliefors	GOF Test		
32			5	% Lilliefors Cri	tical Value	0.425	De	tected Data	appear Norn	nal at 5% Sig	nificance Lev	vel
33				Dete	cted Data a	appear Norn	nal at 5% Sig	nificance Le	evel			
34												
35			Kaplan-	Meier (KM) St	atistics usi	ng Normal C	ritical Values	s and other	Nonparamet	ric UCLs		
36					KM Mean	0.234			KN	A Standard Er	ror of Mean	0.0458
37					KM SD	0.236				95% KM	(BCA) UCL	N/A
38				95% k	<m (t)="" th="" ucl<=""><th>0.311</th><th></th><th></th><th>95% KM (P</th><th>ercentile Boo</th><th>tstrap) UCL</th><th>N/A</th></m>	0.311			95% KM (P	ercentile Boo	tstrap) UCL	N/A
39				95% K	(M (z) UCL	0.309			9	95% KM Boo	tstrap t UCL	N/A
40			ç	0% KM Cheby	/shev UCL	0.371			ç	95% KM Cheb	byshev UCL	0.433
41			97	.5% KM Cheby	/shev UCL	0.519			ç	9% KM Chet	byshev UCL	0.689
42												
43				Ga	mma GOF	Tests on De	tected Obse	ervations On	ly			
44					Not End	ough Data to	Perform GC	OF Test				
45												
46					Gamma	Statistics or	Detected D	ata Only				
47				k	hat (MLE)	1.517			k s	star (bias corr	rected MLE)	N/A
48				Theta	hat (MLE)	0.507			Theta s	star (bias corr	rected MLE)	N/A
49				nu	hat (MLE)	9.103				nu star (bia	s corrected)	N/A
50				Mea	n (detects)	0.77						

	A		В	С			D		Е	F		G	i	Н		I			J		K			L
51										Ctatiot		la a la	n de la come	Non De	tooto									
52				0000				Gamm		Statist			puted	NON-De										
53				GRUS		not be	e usec				> 50%				obse					_S	~15	20)		
54			GRUS IIIa	y not be	E o		KSIdi			mothod		$\frac{5 < 1.0}{1.0}$	especi						Sman	(e.y	., <15	-20)		
55					FU	i such	- Situa	This is		iolly true		n tho c						1 1 5						
56			For gar	nma dict	tribut	od dot	octod									ma di	stribut	tion	on KM	octi	matas			
57			FUI yai		unbut	eu uei	lecieu	uala,	DIVS .		_5 IIIa 1	y De Cl	Inpute	u using	yanı		sinbui			esu	Males	loon	6	067
58								Ma	vinun	17	1										Mo	dian		1.007
59								IVIC		0.2	73										IVIC			1.01 1.071
60								k hot		0.2	73 00						ko	stor (bias o	orro	ctod N			4.074
61							The	ta hat		0.4	64					т	hota s	star (bias c	orre				0.333
62								nu hai		32	71								star (h					1 59
63				۵diu	istad		of Sic	mifica		0.04	14							nu	Star (L	143		,icu)	,	
64			Anr	proximate	e Chi		re Val		1 59 a	19	75				Δ	diuste	d Chi	i Sai	iare Va	alue	(31.5	9 B)	-	194
65		с	5% Gamma	Annrox	imate			when	$\frac{100, 0}{n \ge 50}$	0.1	07			95%	Gan	nma A				se w	hen n	< <u>50)</u>	N	I/A
66					innau	000	(000	Which	n= 00)	0.1	07			00 /		11107	lajuoli					.00)		
67							E	stimat	tes of (amma	Parar	neters	usina	KM Est	imate	26								
68								Mea	n (KM)	0.2	34		uomg								SD (KM)		0.236
69							V	arianc	e (KM)	0.05	559								SF	of M	lean (<u>KM)</u>	(0.0458
70								k ha	at (KM)	0.9	75									k	star (KM)		0.919
71								nu ha	at (KM)	78										nu	star (KM)	7	73.48
72							tł	neta ha	at (KM)	0.2	39								t	heta	star (, KM)		0.254
73					80%	6 aami	ma pe	rcenti	le (KM)	0.3	78						90%	6 dai	nma p	erce	entile (KM)		0.549
74					95%	6 aami	ma pe	rcenti	le (KM)	0.7	21						99%	6 dai	nma p	erce	entile (KM)		1.123
75																						,		
70									Gamr	na Kapla	an-Me	eier (K	M) Sta	tistics										
78			Арр	proximate	e Chi	i Squa	re Val	ue (73	3.48, α)	54.7	74	•	-		A	djuste	d Chi	i Squ	uare Va	alue	(73.4	8, β)	5	54.13
70		95%	Gamma Ap	proximat	te KN	1-UCL	(use	when	n>=50)	0.3	13		ç	95% Ga	mma	Adjus	sted K	M-U	CL (us	se w	hen n	<50)		0.317
80																								
81							L	ognor	mal G	OF Test	on De	etected	d Obse	rvation	s On	у								
82					S	hapiro	Wilk	Test S	Statistic	0.8	87					Shapi	ro Wil	lk G	OF Te	st				
83				5	% Sł	napiro	Wilk (Critica	l Value	0.7	67		Dete	cted Da	ta ap	pear L	ognoi	rmal	at 5%	Sig	nificar	nce L	eve	l
84						Lilli	efors	Test S	Statistic	0.3	18					Lillie	efors	GOF	- Test					
85					5	% Lillie	efors (Critica	l Value	0.4	25		Dete	cted Da	ta ap	pear L	ognoi	rmal	at 5%	Sig	nificar	nce L	eve	i
86							Dete	ected	Data a	ppear L	ognor	mal at	5% Si	gnificar	nce L	evel								
87																								
88							Lo	ognorr	mal RC	S Statis	stics l	Jsing I	mpute	d Non-D)etec	ts								
89						Mea	n in C	Drigina	I Scale	0.06	618								Mea	n in	Log S	cale	-7	7.84
90						S	D in C	Origina	I Scale	0.2	74								SI	D in	Log S	cale		3.679
91			95% t l	JCL (ass	sume	s norn	nality	of RO	S data)	0.1	35					9	95% F	Perce	entile E	Boot	strap	UCL		0.141
92					ç	95% B	CA B	ootstra	ap UCL	0.1	86							ç	95% Bo	ootsi	trap t	JCL		0.439
93						95%	H-UC	L (Lo	g ROS)	15.0)5													
94										•														
95				S	Statis	tics u	sing K	(M est	timates	on Log	ged C	Data ar	nd Ass	uming L	.ognc	ormal	Distril	butic	on					
96							KM M	lean (l	ogged)	-1.58	83									KM (Geo N	lean		0.205
97							KM	SD (I	ogged)	0.3	55					ę	95% C	Critic	al H V	alue	(KM-	Log)		1.823
98				KM Sta	andar	rd Erro	or of M	lean (l	ogged)	0.06	688							95	5% H-L	JCL	(KM -	Log)		0.243
99							KM	SD (I	ogged)	0.3	55					ę	95% C	Critic	al H V	alue	(KM-	Log)		1.823
100				KM Sta	andar	rd Erro	or of M	lean (l	ogged)	0.06	688													

	А	В	С	D	E	F	G	Н	L			
101												
102						DL/2 S	tatistics					
103			DL/2	Normal					DL/2 Log-	Fransformed		
104				Mean in O	riginal Scale	0.153				Mean	in Log Scale	-2.149
105				SD in O	riginal Scale	0.255				SD	in Log Scale	0.498
106			95% t l	JCL (Assume	es normality)	0.221			6 H-Stat UCL	0.154		
107			DL/2	is not a reco	mmended m	ethod, provi	ded for com	parisons and	l historical r	easons		I
108												
109					Nonparam	etric Distribu	tion Free UC	CL Statistics				
110				Detected	l Data appea	ar Normal Di	stributed at {	5% Significa	nce Level			
111												
112						Suggested	UCL to Use					
113				95%	6 KM (t) UCL	0.311						
114												
115	1	Note: Sugge	stions regard	ling the seled	ction of a 95%	6 UCL are pr	ovided to he	lp the user to	select the r	nost appropri	ate 95% UCL	
116			F	Recommenda	ations are ba	sed upon dat	a size, data	distribution,	and skewne	SS.		
117		These record	mmendations	s are based ι	upon the resu	Its of the sim	ulation studi	ies summariz	zed in Singh	Maichle, an	d Lee (2006).	
118	Но	wever, simu	lations result	s will not cov	ver all Real V	Vorld data se	ts; for additio	onal insight th	ne user may	want to cons	ult a statistici	an.
119												

	A	В	С	D	E	F	G	Н	I	J	K	L
1					UCL Statis	tics for Data	Sets with No	on-Detects				
2				1								
3		User Sele	cted Options									
4	Dat	te/Time of Co	omputation	ProUCL 5.13	/17/2017 3:	16:33 PM						
5			From File	Metals.xls								
6		Fu	Il Precision	OFF								
7		Confidence	Coefficient	95%								
8	Number o	of Bootstrap	Operations	2000								
9	DL											
10	PD											
11						General	Statistics					
12			Total	Number of O	servations	40	Statistics		Numbo	of Distinct (beenvations	23
13			I Otdi	Number	of Detects	27			Number	Number of N		13
14			Nı	imber of Disti	nct Detects	27			Numbe	of Distinct N	Von-Detects	2
15				Minin	num Detect	3			Numbe	Minimum	Non-Detect	27
16				Maxin	num Detect	450				Maximum	Non-Detect	3
1/				Variar	ce Detects	7756				Percent N	Non-Detects	32.5%
18				Me	an Detects	34.37					SD Detects	88.07
19				Med	ian Detects	4.4					CV Detects	2.563
20				Skewne	ess Detects	4.388				Kurto	osis Detects	20.73
21				Mean of Logo	ed Detects	2.22				SD of Log	ged Detects	1.396
22											•	
23					Norm	al GOF Tes	t on Detects	Only				
25			S	hapiro Wilk Te	est Statistic	0.397			Shapiro Wi	lk GOF Test		
26			5% SI	napiro Wilk Cr	itical Value	0.923	C	Detected Dat	a Not Norma	al at 5% Signi	ficance Level	
27				Lilliefors Te	est Statistic	0.361			Lilliefors	GOF Test		
28			5	% Lilliefors Cr	itical Value	0.167	C	Detected Dat	a Not Norma	al at 5% Signi	ficance Level	
29				De	etected Data	a Not Norma	l at 5% Signi	ificance Lev	el			
30	-											
31			Kaplan-	Meier (KM) Si	tatistics usir	ng Normal C	ritical Values	s and other	Nonparamet	ric UCLs		
32					KM Mean	24.08			KN	I Standard E	rror of Mean	11.69
33					KM SD	72.53				95% KM	(BCA) UCL	47.56
34				95%	KM (t) UCL	43.77			95% KM (P	ercentile Boo	otstrap) UCL	45.99
35				95% ł	KM (z) UCL	43.3				95% KM Boo	tstrap t UCL	97.58
36			ç	0% KM Cheb	yshev UCL	59.14			(95% KM Chel	byshev UCL	75.02
37			97	5% KM Cheb	yshev UCL	97.06			Q	9% KM Chel	byshev UCL	140.4
38						_			-			
39				Ga	amma GOF	Tests on De	tected Obse	ervations On	ly			
40				A-D Te	est Statistic	3.496		A	nderson-Da	ling GOF Te	st	
41				5% A-D Cr	itical Value	0.811	Detecte	ed Data Not	Gamma Dist	ributed at 5%	Significance	Level
42				K-S Te	est Statistic	0.303	D · · ·	1	olmogorov-	Smirnov GO		1
43				5% K-S Cr	itical Value	0.1/8	Detecte	ed Data Not	Gamma Dist	ributed at 5%	 Significance 	Level
44				Detected		Jamma Dist	riduted at 5%	o Significano	ce Level			
45					Com	Statistics	Detected	ata Onki				
46							Delected D		I	tor (biog ogr		0.456
47				Thete		70.01			Thata			0.400 75 45
48				ineta	ubat (MLE)	26 17			meta			24.6
49						20.17				nu star (bla	s corrected)	24.0
50				Niea	iii (uetects)	34.37						

	A		В	С)		E	F	(à	Н		l			J	\Box	K	I	L
51																						
52							(Jamm	a ROS	Statistics u	sing In	nputed	Non-Dei	tects								
53			0000	GROS	may	not be	e used	when		set has > 50%	6 NDS V	with ma	any tied c	obser	vatioi	ns at r	nultip		.s	15.0		
54			GROS may	y not be	used	when	kstar	of det		small such a	s <1.0,	espec	ially whe		e sam			small	(e.g.	, <15-2	J)	
55					FO	r such	situat	ions, (JROS	method may	yield ii	ncorrec	t values	of U	JLs a	na B I	VS					
56			F		4		41		espec	ally true who	en the s	ample	size is s	maii.								
57			For gar	mma dis	tribut		ectea	data,	BIVSa		ay be c	ompute	a using (gamr	na dis	stribut	ion o		esun	nates		22.2
58								IVII Mo		0.01										Modia	an an	23.2
59								IVIA		400												3.00
60								k hot		0.220						ko	tor (k				, V	0.220
61							The	K Hat		101.2					т	K S	tar (L				=)	101 /
62										101.2					1			tar (h			-) a)	101.4
63				۸diu	ustad		of Sic			0.044							nu a	stat (D		Unecle	u)	10.5
64			Δnr	rovimat		Squar	re Val		(p)	9.605				Δ	diuste	d Chi	Sau	are Va		18 30	R)	9 368
65		C	TPF		vimate			when	$\frac{1}{2}$	<i>1/</i> 10			95%	Gam		diuste				n n<5	0)	15 31
66					linau	UCL	(use)	when	12-50)	44.13			3570	Gan		ujusie					0)	40.01
67							F	stimat	es of G	amma Para	metere	using	KM Feti	mate	s							
68							L.	Mea	n (KM)	24.08		using		mate	.0					SD (KI	<u>(I)</u>	72 53
69							V	arianc	e (KM)	5261								SF	of M	ean (KI	<u>v)</u>	11.69
70								k ha	at (KM)	0.11								02	<u>k</u>	star (KI	<u>(N)</u>	0.119
/1								nu ha	at (KM)	8 813									nu	star (KI	v) v)	9 486
72							th	neta ha	at (KM)	218.5								tł	neta	star (KI	<u>(N</u>	203
73					80%	aamn	na pe	rcentil	e (KM)	20.83						90%	aam	ima ne	ercer	ntile (KI	(N	67.98
74					95%	6 gamn	na pe	rcentil	e (KM)	137.6						99%	aam	ima pe	ercer	ntile (KI	v) V)	350.7
75						5			- ()								3	P			,	
70									Gamn	na Kaplan-N	eier (K	M) Sta	tistics									
77			Ap	oproxima	ate Cl	hi Squa	are Va	alue (9	.49, α)	3.623		,			Adjust	ted Ch	ni Squ	Jare V	/alue	(9.49,	β)	3.488
70		95%	Gamma Ap	proximat	te KN	1-UCL	(use v	when r	י 1>=50)	63.03		ç	95% Gar	nma	Adjus	ted Kl	M-UC	CL (us	e wh	en n<5	0)	65.48
80				-											-							
81							L	ognori	mal GC	OF Test on D	etecte	d Obse	ervations	s Only	у							
82					S	hapiro	Wilk [·]	Test S	tatistic	0.781				5	Shapii	ro Will	k GO	F Tes	st			
83				5	5% Sł	napiro	Wilk (Critical	l Value	0.923		Det	tected Da	ata N	lot Lo	gnorm	nal at	5% S	ignifi	cance l	Lev	el
84						Lillie	efors	Test S	tatistic	0.267					Lillie	efors (GOF	Test				
85					5	% Lillie	efors (Critica	l Value	0.167		Det	tected Da	ata N	lot Lo	gnorm	nal at	5% S	ignifi	cance l	Lev	el
86							De	etected	d Data	Not Lognor	nal at 5	i% Sigi	nificance	e Lev	el							
87																						
88							Lo	gnorn	nal RO	S Statistics	Using	mpute	d Non-D	etect	ts							
89						Mea	n in C	rigina	l Scale	23.35								Mear	n in L	.og Sca	le	1.159
90						SI	D in O	rigina	l Scale	73.68								SE) in L	.og Sca	le	1.981
91			95% t l	JCL (ass	sume	s norm	nality o	of ROS	S data)	42.98					ç	95% P	erce	ntile B	Boots	trap UC	Ľ	44.39
92					ę	95% B	CA Bo	ootstra	p UCL	62.94							95	5% Bc	ootstr	ap t UC	Ľ	93.86
93						95%	H-UC	L (Log	(ROS	74.43											\uparrow	
94											i.											
95				5	Statis	tics us	sing K	M est	imates	on Logged	Data a	nd Ass	uming Lo	ogno	rmal	Distrik	oution	า				
96							KM M	ean (le	ogged)	1.821								٢	KM G	ieo Mea	an	6.181
97							KM	SD (le	ogged)	1.264					ç	95% C	ritica	I H Va	alue ((KM-Lo	g)	2.732
98				KM Sta	andar	d Erro	r of M	ean (le	ogged)	0.204							95%	% H-U	ICL (KM -Lo	g)	23.88
99							KM	SD (le	ogged)	1.264					ç	95% C	ritica	I H Va	alue ((KM-Lo	g)	2.732
100				KM Sta	andar	d Erro	r of M	ean (le	ogged)	0.204												

	А	В	С	D	E	F	G	H I J K s DL/2 Log-Transformed Mean in Log Scale SD in Log Scale SD in Log Scale 95% H-Stat UCL comparisons and historical reasons 95% H-Stat UCL comparisons and historical reasons 95% UCL o Use 0 to help the user to select the most appropriate 95% UC data distribution, and skewness. n studies summarized in Singh, Maichle, and Lee (2006)												
101																				
102						DL/2 S	tatistics													
103			DL/2	Normal					DL/2 Log-	Transformed										
104				Mean in O	riginal Scale	23.68				Mean	in Log Scale	1.625								
105				SD in O	riginal Scale	73.58		G H I J K tics DL/2 Log-Transformed Mean in Log Scale SD in Log Scale SD in Log Scale 95% H-Stat UCL for comparisons and historical reasons Free UCL Statistics pution at 5% Significance Level to Use ed to help the user to select the most appropriate 95% UCL ce, data distribution, and skewness. ion studies summarized in Singh, Maichle, and Lee (2006). or additional insight the user may want to consult a statistici												
106			95% t l	JCL (Assume	es normality)	43.28	G H I J K 2 Statistics DL/2 Log-Transformed Mean in Log Scale SD in Log Scale 95% H-Stat UCL 95% H-Stat UCL ovided for comparisons and historical reasons Button Free UCL Statistics P Distribution at 5% Significance Level Button Free UCL statistics ed UCL to Use Distribution at 5% Significance Level provided to help the user to select the most appropriate 95% UCL data size, data distribution, and skewness. simulation studies summarized in Singh, Maichle, and Lee (2006). sets; for additional insight the user may want to consult a statisticial													
107			DL/2	is not a reco	mmended m	ethod, provi	ded for com	parisons and	l historical r	easons										
108																				
109					Nonparam	etric Distribu	tion Free UC	CL Statistics												
110				Data do n	ot follow a D	iscernible D	istribution at	5% Signific	ance Level											
111							ribution Free UCL Statistics e Distribution at 5% Significance Level													
112						Suggested	UCL to Use													
113			95	5% KM (Chel	yshev) UCL	75.02														
114																				
115	I	Note: Sugge	stions regard	ing the seled	tion of a 95%	6 UCL are pr	ovided to he	lp the user to	select the n	nost appropri	ate 95% UCI									
116			F	Recommenda	tions are ba	sed upon dat	a size, data	distribution,	and skewnes	SS.										
117		These recor	mmendations	s are based ι	ipon the resi	Its of the sim	ulation studi	ies summariz	zed in Singh	, Maichle, an	d Lee (2006).									
118	Ho	wever, simu	lations result	s will not cov	er all Real V	/orld data se	ts; for additio	onal insight th	ne user may	want to cons	ult a statistic	ian.								
119																				
	Α	В	С	D	E	F	G	Н		J	K		L							
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1					UCL Statis	tics for Data	Sets with N	Ion-Detects												
2				1																
3		User Sele	ected Options																	
4	C	ate/Time of C	computation	ProUCL 5.13	3/17/2017 3:	14:33 PM														
5			From File	Metals.xls																
6		Fu	Ill Precision	OFF																
7		Confidence	Coefficient	95%																
8	Numbe	of Bootstrap	Operations	2000																
9																				
10																				
11	Hg																			
12																				
13						General	Statistics													
14			Total	Number of O	bservations	40			Num	ber of Distinct	Observations	;	15							
15									Num	ber of Missing	Observations	;	0							
16					Minimum	0.01					Mear	1	0.282							
17					Maximum	3.56					Mediar	1	0.04							
18					SD	0.753				Std.	Error of Mear	1	0.119							
19				Coefficient	of Variation	2.672					Skewness	;	3.418							
20																				
21						Normal (GOF Test													
22			S	hapiro Wilk T	est Statistic	0.4			Shapiro	Wilk GOF Tes	st									
23			5% S	hapiro Wilk C	ritical Value	0.94		Data N	ot Normal	at 5% Significa	ance Level									
24				Lilliefors T	est Statistic	0.435			Lilliefo	ors GOF Test										
25			5	% Lilliefors C	ritical Value	0.139		Data N	ot Normal	at 5% Significa	ance Level									
26					Data Not	Normal at §	% Significa	nce Level												
27																				
28					As	suming Nor	mal Distribu	tion												
29			95% No	ormal UCL				95%	6 UCLs (A	djusted for Sk	ewness)									
30				95% Stud	dent's-t UCL	0.482			95% Adju	sted-CLT UCL	. (Chen-1995))	0.546							
31									95% Moo	dified-t UCL (J	ohnson-1978))	0.493							
32																				
33						Gamma	GOF Test													
34				A-D T	est Statistic	6.956		Ande	erson-Darli	ng Gamma G	OF Test									
35				5% A-D C	ritical Value	0.832	D	ata Not Gar	nma Distri	buted at 5% Si	gnificance Le	vel								
36				K-S T	est Statistic	0.351		Kolmo	gorov-Smi	rnov Gamma	GOF Test									
37				5% K-S C	ritical Value	0.149	D	ata Not Gar	nma Distri	buted at 5% Si	gnificance Le	vel								
38				Da	ta Not Gami	na Distribut	ed at 5% Sig	inificance L	evel											
39																				
40						Gamma	Statistics													
41					к hat (MLE)	0.415				k star (bias co	prrected MLE	1	0.401							
42				Thet	a hat (MLE)	0.678			The	ta star (bias co	prrected MLE	1	0.703							
43				n	u hat (MLE)	33.23				nu star (b	ias corrected		32.07							
44			M	LE Mean (bia	s corrected)	0.282				MLE Sd (b	ias corrected	1	0.445							
45									Approxim	ate Chi Square	e Value (0.05)	1	20.13							
46			Adjus	sted Level of S	Significance	0.044				Adjusted Chi	Square Value	;	19.77							
47																				
48					As	suming Gam	ima Distribu	tion					a /							
49		95% Approxi	mate Gamma	UCL (use wl	hen n>=50))	0.449		95% A	djusted Ga	ımma UCL (us	e when n<50)	1	0.457							
50																				

	А	В		С		D		E	F	G	Γ	Н	I	I		J			K	Т	L
51									Lognorma	GOF Test											
52				S	Shapi	ro Wilk	Test	Statistic	0.778			Sha	piro \	Vilk L	.ogi	normal G	OF	Tes	st		
53				5% S	Shapir	o Wilk	Critica	al Value	0.94			Data Not	Logn	orma	l at	5% Sign	ificar	nce	Level		
54					Li	illiefors	Test	Statistic	0.269			Lil	liefo	's Log	jno	rmal GO	F Te	est			
55				5	5% Lil	lliefors	Critica	al Value	0.139			Data Not	Logn	orma	l at	5% Sign	ificar	nce	Level		
56							Da	ita Not L	ognormal at	5% Signific	ar	nce Level									
57																					
58									Lognorma	I Statistics										- 1	
59					Minir	num of	Logg	ed Data	-4.605							Mean	of lo	ogge	ed Data	a 🛛	-2.841
60					Maxir	mum of	Logg	ed Data	1.27							SD	of lo	ogge	ed Data	a	1.407
61									<u> </u>												
62								Assi	uming Logno	ormal Distrib	ut	ion									
63							95%	H-UCL	0.303					909	% C	Chebyshe	ev (M	1VU	E) UCL	-	0.278
64				95%	Chet	oyshev	(MVU	IE) UCL	0.336					97.5	% C	Chebyshe	ev (M	1VU	E) UCL	-	0.416
65				99%	Cheb	oyshev	(MVU	IE) UCL	0.574												
66																					
67							Nor	nparame	etric Distribu	tion Free UC	CL	Statistics									
68							Data	do not f	ollow a Disc	ernible Distr	rib	oution (0.0	5)								
69																					
70								Nonpa	rametric Dis	tribution Fre	e	UCLs									
71						9	5% C	LT UCL	0.478							95%	Jac	kkni	ife UCL	-	0.482
72				95%	5 Star	ndard B	ootstr	ap UCL	0.471							95% E	Boots	strap	p-t UCL	-	0.716
73				ę	95% ł	Hall's B	ootstr	ap UCL	0.501					95%	% P	ercentile	Boo	otstra	ap UCL	-	0.483
74					95%	BCA B	ootstr	ap UCL	0.528												
75			9	0% CI	hebys	shev(M	ean, S	Sd) UCL	0.639					95%	Che	ebyshev(Mea	n, S	Sd) UCL	-	0.801
76			97.	.5% CI	hebys	shev(M	ean, S	Sd) UCL	1.025					99%	Che	ebyshev(Mea	n, S	Sd) UCL	-	1.466
77																					
78									Suggested	UCL to Use											
79			95	5% Ch	nebys	hev (M	ean, S	Sd) UCL	0.801												
80																					
81		Note: Sugge	estions	regard	ding t	he sele	ction	of a 95%	5 UCL are pr	ovided to hel	lp	the user to	sele	ct the	e m	ost appro	priat	te 9	5% UC	L.	
82					Reco	mmend	lations	s are bas	sed upon dat	a size, data	dis	stribution,	and s	kewn	ess	6.					
83		These reco	ommen	dation	is are	based	upon	the resu	Its of the sim	ulation studi	ies	s summari:	zed ir	n Sing	jh, l	Maichle,	and	Lee	e (2006)).	
84	Ho	wever, simu	ulations	s resul	lts wil	l not co	over al	l Real W	/orld data se	ts; for additic	ona	al insight t	he us	er ma	ay v	vant to co	onsul	lt a s	statistic	cian	
85																					

	А	В	С	D	E	F	G	Н	I	J	K	L
1					UCL Statis	tics for Data	Sets with No	on-Detects				
2												
3		User Sele	cted Options									
4	Da	e/Time of Co	omputation	ProUCL 5.13	3/17/2017 3:	15:10 PM						
5			From File	Metals.xls								
6		Ful	I Precision	OFF								
7		Confidence	Coefficient	95%								
, 8	Number o	of Bootstrap (Operations	2000								
0												
10	Мо											
11												
12						General	Statistics					
12			Total	Number of O	bservations	40			Number	r of Distinct C	Observations	6
1/				Numbe	r of Detects	3				Number of	Non-Detects	37
14			N	umber of Disti	nct Detects	3			Numbe	er of Distinct	Non-Detects	3
10				Minir	num Detect	0.93				Minimum	Non-Detect	0.9
10				Maxir	num Detect	23				Maximum	Non-Detect	1
17				Variar	nce Detects	161.1				Percent	Non-Detects	92.5%
10				Me	ean Detects	8.343					SD Detects	12.69
19				Med	ian Detects	1.1					CV Detects	1.521
20				Skewne	ess Detects	1.732				Kurt	osis Detects	N/A
21				Mean of Logo	ed Detects	1.053				SD of Loc	aed Detects	1.806
22					,						.9	
23					Warning: D	ata set has o	only 3 Detect	ted Values.				
24			Т	his is not eno	ugh to com	oute meaning	aful or reliabl	e statistics	and estimate	es.		
20					<u> </u>							
20												
27					Norm	al GOF Tes	t on Detects	Only				
20			S	hapiro Wilk T	est Statistic	0.756		-	Shapiro Wi	lk GOF Test		
30			5% SI	hapiro Wilk C	ritical Value	0.767	C	Detected Dat	a Not Norma	al at 5% Sign	ificance Leve	I
31	-			Lilliefors T	est Statistic	0.383			Lilliefors	GOF Test		
32			5	% Lilliefors C	ritical Value	0.425	De	tected Data	appear Norr	nal at 5% Sig	nificance Lev	/el
33				Detected [Data appear	Approximat	e Normal at	5% Significa	nce Level			
34												
35			Kaplan-	Meier (KM) S	tatistics usi	ng Normal C	ritical Values	s and other	Nonparamet	ric UCLs		
36					KM Mean	1.462			KN	I Standard E	rror of Mean	0.668
37					KM SD	3.449				95% KN	I (BCA) UCL	N/A
38				95%	KM (t) UCL	2.588			95% KM (P	ercentile Bo	otstrap) UCL	N/A
39				95%	KM (z) UCL	2.561			!	95% KM Boo	otstrap t UCL	N/A
40			ç	0% KM Cheb	yshev UCL	3.466			ę	95% KM Che	byshev UCL	4.374
41			97	.5% KM Cheb	yshev UCL	5.633			ę	9% KM Che	byshev UCL	8.108
42												
43				G	amma GOF	Tests on De	etected Obse	rvations On	ly			
44					Not End	ough Data to	Perform GC	OF Test				
45												
46					Gamma	Statistics on	Detected Da	ata Only				
47					k hat (MLE)	0.581			ks	star (bias cor	rected MLE)	N/A
48				Theta	a hat (MLE)	14.36			Theta s	star (bias cor	rected MLE)	N/A
40				n	u hat (MLE)	3.486				nu star (bia	s corrected)	NI/A
49					· · ·						is conceleu)	IN/A

	A		В		С		D		Е		F		G		Н		I			J		k	<		L
51																									
52								Gamr	na RO	S Sta	tistics u	ising	Imput	ted N	lon-De	tects									
53				GRO	OS may	not b	e useo	d whe	n data	set ha	is > 50%	% ND	s with	man	iy tied o	obser	vatior	ns at r	mult	iple D	Ls				
54		(GROS ma	ay not l	be used	wher	n kstar	of de	tects is	s smal	l such a	as <1	.0, esp	pecia	lly whe	n the	sam	ple siz	ze is	s smal	l (e.g	j., <1	5-20)		
55					Fo	r such	n situa	tions,	GROS	meth	od may	yielo	d inco	rrect	values	of UC	CLs a	nd BT	「Vs						
56								This is	s espe	cially t	rue whe	en th	e sam	ple s	ize is s	mall.									
57			⊦or ga	amma o	distribut	ed de	tected	data,	BIVs	and L	ICLs ma	ay be	e comp	outed	using	gamn	na dis	stribut	tion	on KN	1 esti	mate	es		
58								N	linimun	n O	.01												Mean	í 	0.69
59								IVI	aximun	n 2	3											IVI	edian	-	0.01
60								L. Is a		, , , ,	3.641									(1. :		- +		_	5.276
61							The	K na			J.Z						т	K S	star		corre	cted			0.202
62							1116			$\frac{1}{1}$	6 02								nu	(Dias C	bias				16 15
63				^	diustod	Lovo					0.02								nu	star (Dias		ecteu)	-	10.15
64			An	nrovin	nate Chi				6 15 a		2 068					Δα	liuste	d Chi	i Sa	uare V	/alue	(16	15 R)	, —	7 854
65		95	مہر Gamm		rovimate			when	n>=50		1 381				95%	Gam	ma A	diuste			se w	hen	$\frac{10, p}{10}$		V/A
66			Gamm				(use	which	112 - 50	,	1.501				5570	Gam		lujusit		/OL (u	30 W		11.00)		W/A
67							F	stima	tes of (Gamn	na Para	mete	ers us	ina K	M Esti	mate	5								
68							_	Mea	an (KM)	1.462						-					SD	(KM)	<u>, </u>	3.449
69 70							V	arian	ce (KM	/) 1	1.9									SE	E of N	Vean	(KM))	0.668
70								k h	at (KM) (0.18										k	< star	(KM))	0.183
71								nu h	at (KM) 1	4.38										nu	u star	(KM))	14.63
72							tł	heta h	at (KM) 8	3.135										theta	a star	(KM))	7.993
73					80%	6 gam	ma pe	ercent	ile (KM) .	1.832							90%	6 ga	mma p	perce	entile	(KM))	4.413
74				ercent	ile (KM)	7.705							99%	6 ga	mma p	perce	entile	(KM))	16.91				
76																									
77									Gam	ma Ka	aplan-M	leier	(KM)	Statis	stics										
78			Ap	proxim	nate Chi	i Squa	are Val	lue (1	4.63, α)	7.008					Ac	djuste	d Chi	i Sq	uare V	/alue	: (14.0	63, β))	6.81
79		95% G	iamma Ap	oproxir	mate KM	1-UCL	(use	when	n>=50) :	3.054			95	5% Gar	nma /	Adjus	ted K	M-L	JCL (u	se w	hen i	n<50)	1	3.142
80																									
81							L	ogno	rmal G	OF Te	est on D	Detec	ted O	bser	vations	; Only	/								
82					S	hapiro	o Wilk	Test	Statisti	с ().789					S	hapiı	ro Wil	lk G	OF Te	est				
83					5% SI	napiro	Wilk (Critica	al Value	е ().767		D	etect	ed Dat	а арр	ear L	.ognoi	rma	l at 5%	6 Sig	nifica	ance	Leve	əl
84						Lill	iefors	Test	Statisti	с (0.369						Lillie	efors	GOI	F Test	1				
85					5	% Lilli	efors	Critica	al Value	е ().425		D	etect	ed Dat	а арр	ear L	.ognoi	rma	l at 5%	6 Sig	nifica	ance	Leve	el
86							Dete	ected	Data a	appea	r Logno	ormal	at 5%	6 Sig	nifican	ce Le	vel								
87																									
88							Lo	ognor	mal RO	DS Sta	atistics	Usin	g Imp	uted	Non-D	etect	S								
89						Mea	an in C	Drigina	al Scale	e ().746									Mea	an in	Log	Scale	: -	-3.446
90			050/ 1			5	SD in C			e .	3.624									S	D in	Log	Scale	+	2.4/2
91			95% t	UCL (a	assume	s norr	nality	of RC	S data)	1./11							95% F	Perc		Boot	strap			1.883
92		95% BCA Bootstra									2.481									95% B	oots	trap	t UCL	·	9.785
93		95% H-UCL (Log									4.UIX														
94					Ctoti-	tice	eina 4	(M ~~	timete	o on l	ogged	Data	and f	100	ming	0000	mal		hui	on					
95					Statis	อนตรี น						Jata	anu A	าอรนไ	ппу с	JUNIO	inidi i	ווזאיט	Duti		KM	Geo	Mean		0 08e
96									londed) -0) 505						c)5% C	ritic	al H V				<u> </u>	1 925
97				КM			098						2	,0 /0 C		5% H-I		(KM	-L og)	<u> </u>	1.309				
98					Janual		KM		louuey) () 505)5% C	ritic	al H \	/alue	(KM		<u> </u>	1 925
99				KM	Standar	d Frr		lean (lonned		098						2	,0 /0 C			ande		-LUY)	+	1.525
100					Janual				ggeu	, 0															

	А	В	С	D	E	F	G	Н	I	J	K	L			
101															
102						DL/2 S	tatistics								
103			DL/2	Normal					DL/2 Log-T	ransformed					
104				Mean in O	riginal Scale	1.083				Mean	in Log Scale	-0.574			
105				SD in O	riginal Scale	3.556				SD	in Log Scale	0.623			
106			95% t l	JCL (Assume	es normality)	2.03				95%	H-Stat UCL	0.837			
107			DL/2	is not a reco	mmended m	ethod, provi	ded for comp	arisons and	historical re	easons					
108															
109					Nonparame	etric Distribu	tion Free UC	L Statistics							
110	Detected Data appear Approximate Normal Distributed at 5% Significance Level														
111															
112						Suggested	UCL to Use								
113				95%	5 KM (t) UCL	2.588									
114															
115			When a c	lata set follo	ws an approx	timate (e.g., i	normal) distri	bution passi	ng one of the	e GOF test					
116		When app	licable, it is s	suggested to	use a UCL b	ased upon a	distribution (e.g., gamma) passing bo	th GOF tests	s in ProUCL				
117															
118	1	Note: Sugge	stions regard	ling the seled	tion of a 95%	6 UCL are pr	ovided to hel	p the user to	select the m	nost appropri	ate 95% UCI				
119			F	Recommenda	ations are ba	sed upon dat	a size, data o	distribution, a	and skewnes	S.					
120		These recor	mmendations	s are based u	pon the resu	Ilts of the sim	ulation studi	es summariz	ed in Singh,	Maichle, and	d Lee (2006).				
121	Но	wever, simu	lations result	s will not cov	ver all Real V	/orld data se	ts; for additio	nal insight th	ne user may	want to cons	ult a statistic	ian.			
122															

	А	В	С	D	E	F	G	Н		J	K	\Box	L
1					UCL Statis	tics for Data	Sets with N	Ion-Detects					
2													
3		User Sele	ected Options										
4	D	ate/Time of C	Computation	ProUCL 5.13	/17/2017 3:	15:57 PM							
5			From File	Metals.xls									
6		Fu	Ill Precision	OFF									
7		Confidence	Coefficient	95%									
8	Numbe	of Bootstrap	Operations	2000									
9													
10													
11	Ni												
12							.						
13						General	Statistics				<u></u>		45
14			lotal	Number of OI	oservations	40			Numb	er of Distinct	Observations	í	15
15									Numb	er of Missing	Observations	; 	0
16					Mauimum	8.2					Iviean	1	14.45
17					Maximum	30				0.4	Median	-	13
18				Coofficient	5D	4.022				5ta. 1		-	0.731
19				Coefficient	or variation	0.32					Skewness	·	1.505
20						Normal (
21				haniro Wilk T	oct Statistic	0.853			Shaniro V		+		
22			5% 9		itical Value	0.000		Data N		t 5% Significa			
23			570 51		est Statistic	0.34		Data N					
24			5	% Lilliefors Cr	ritical Value	0.139		Data N	ot Normal a	t 5% Significa	ance l evel		
25					Data Not	Normal at 5	% Significa	nce Level					
26							,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						
27					As	suming Nori	nal Distribut	tion					
28			95% No	ormal UCL				95%	6 UCLs (Ad	justed for Sk	ewness)		
29				95% Stud	ent's-t UCL	15.68			95% Adjus	- sted-CLT UCL	(Chen-1995))	15.84
30									95% Modi	ified-t UCL (Jo)	15.71
32													
33						Gamma	GOF Test						
34				A-D Te	est Statistic	1.273		Ande	rson-Darlir	ig Gamma Go	OF Test		
35				5% A-D Cr	itical Value	0.748	D	ata Not Gar	nma Distrib	uted at 5% Sig	gnificance Le	vel	
36				K-S T	est Statistic	0.18		Kolmo	gorov-Smir	nov Gamma (GOF Test		
37				5% K-S Cr	itical Value	0.139	D	ata Not Gar	nma Distrib	uted at 5% Sig	gnificance Le	vel	
38				Dat	a Not Gamr	na Distribute	ed at 5% Sig	nificance L	evel				
39													
40						Gamma	Statistics						
41					k hat (MLE)	11.97				k star (bias co	rrected MLE))	11.09
42				Theta	a hat (MLE)	1.207			Theta	a star (bias co	rrected MLE))	1.303
43				n	u hat (MLE)	957.8				nu star (bi	as corrected)	8	87.3
44			M	E Mean (bias	s corrected)	14.45				MLE Sd (bi	as corrected))	4.338
45									Approxima	te Chi Square	• Value (0.05)	8	19.2
46			Adjus	ted Level of S	Significance	0.044				Adjusted Chi	Square Value	: 8	316.7
47								_					
48					Ass	suming Gam	ma Distribu	tion					
49		95% Approxi	imate Gamma	UCL (use wh	ien n>=50))	15.65		95% A	djusted Gar	mma UCL (use	e when n<50)	'	15.7
50													

	А	В	С		D		E	F	G	Н		J		K	L
51								Lognorma	GOF Test						
52				Sh	apiro Wilk	Test	Statistic	0.938		Sha	piro Wilk Lo	gnormal G	iof t	est	
53			5	5% Sh	apiro Wilk	Critic	al Value	0.94		Data Not	Lognormal	at 5% Sign	ifican	ce Level	
54					Lilliefors	Test	Statistic	0.163		Lil	liefors Logr	ormal GO	F Tes	st	
55				5%	6 Lilliefors	Critic	al Value	0.139		Data Not	Lognormal	at 5% Sign	ifican	ce Level	
56						Da	ata Not L	ognormal at	5% Significa	ance Level					
57															
58								Lognorma	I Statistics						1
59				N	linimum o	f Logg	jed Data	2.104				Mear	of lo	gged Data	2.628
60				M	aximum o	f Logg	jed Data	3.401				SE) of lo	gged Data	0.285
61															
62							Assı	iming Logno	rmal Distribu	ution					1
63						95%	6 H-UCL	15.65			90%	Chebyshe	ev (M۱	VUE) UCL	16.39
64			9	95% C	hebyshev	' (MVL	JE) UCL	17.29			97.5%	Chebyshe	ev (M)	VUE) UCL	18.53
65			ę	99% C	hebyshev	' (MVL	JE) UCL	20.98							
66															
67						No	nparame	tric Distribu	tion Free UC	L Statistics					
68						Data	do not f	ollow a Disc	ernible Distri	bution (0.0	5)				
69															
70							Nonpa	ametric Dist	ribution Free	UCLs					1
71					ç	95% C	LT UCL	15.65				95%	Jack	knife UCL	15.68
72				95% S	Standard E	Bootst	rap UCL	15.64				95% I	Bootst	trap-t UCL	15.94
73				95	% Hall's E	Bootst	rap UCL	15.99			95%	Percentile	Boot	strap UCL	15.66
74				9	5% BCA E	Bootst	rap UCL	15.85							
75			909	% Che	ebyshev(M	lean, S	Sd) UCL	16.64			95% C	hebyshev(Mean	i, Sd) UCL	17.63
76			97.5	% Che	byshev(M	lean, S	Sd) UCL	19.01			99% C	hebyshev(Mean	i, Sd) UCL	21.72
77								-	· · · · · · · ·						
78							-	Suggested	UCL to Use						1
79					95% St	tudent	's-t UCL	15.68				or 95%	Modi	fied-t UCL	15.71
80		-						-							
81		Note: Sugge	estions re	egardir	ng the sele	ection	of a 95%	UCL are pro	ovided to help	p the user to	select the	nost appro	opriate	e 95% UCI	
82				Re	ecommen	dation	s are bas	ed upon dat	a size, data d	listribution,	and skewne	SS.			
83		These reco	ommenda	ations	are based	upon	the resu	Its of the sim	ulation studie	es summariz	zed in Singh	, Maichle,	and L	.ee (2006).	
84	Ho	wever, simu	ulations r	results	will not co	over a	ll Real W	orld data set	ts; for addition	nal insight tl	he user may	want to co	onsult	a statistic	ian.
85															

	А	В	С	D	Е	F	G	Н	Ι	J	K	L
1					UCL Statis	tics for Data	Sets with N	on-Detects				
2												
3		User Selec	cted Options									
4	Dat	e/Time of Co	omputation	ProUCL 5.1	3/17/2017 3:	17:44 PM						
5			From File	Metals.xls								
6		Ful	I Precision	OFF								
7		Confidence	Coefficient	95%								
8	Number o	f Bootstrap (Operations	2000								
9												
10	TI											
11												
12						General	Statistics					
13			Total	Number of C	bservations	40			Numbe	r of Distinct (Observations	3
14				Numbe	er of Detects	1				Number of	Non-Detects	39
15			N	umber of Dis	inct Detects	1			Numbe	er of Distinct	Non-Detects	2
16												
17	v	Varning: On	ly one distin	ct data value	was detect	ed! ProUCL	(or any other	r software) s	hould not be	e used on su	ich a data se	t!
18	It is sugge	ested to use	alternative s	site specific v	alues deter	mined by the	Project Tea	m to estimat	e environm	ental param	eters (e.g., E	PC, BTV).
19												
20					The data se	et for variable	e TI was not	processed!				
21												
22												

	A	В	С	D	E	F	G	Н	I		J	K	L	L
1					UCL Statis	tics for Data	Sets with N	on-Detects						
2				I										
3		User Sele	ected Options											
4	D	ate/Time of C	Computation	ProUCL 5.13	3/17/2017 3:	18:22 PM								
5			From File	Metals.xls										
6		Fi	Ill Precision	OFF										
7		Confidence	e Coefficient	95%										
8	Numbe	of Bootstrap	Operations	2000										
9														
10														
11	v													
12														
13						General	Statistics							
14			Total	Number of O	bservations	40			Nun	nber of [Distinct (Observation	5	23
15									Num	nber of N	/lissing (Observation	S	0
16					Minimum	13						Mea	n	30.48
17					Maximum	51						Media	n	30
18					SD	8.224					Std. E	Error of Mea	n	1.3
19				Coefficient	of Variation	0.27						Skewnes	S	0.489
20														
21						Normal (GOF Test							
22			S	hapiro Wilk T	est Statistic	0.975			Shapiro	Wilk G	OF Test	t		
23			5% SI	napiro Wilk C	ritical Value	0.94		Data app	ear Norm	al at 5%	Signific	ance Level		
24				Lilliefors T	est Statistic	0.126			Lillief	ors GOI	- Test			
25			5	% Lilliefors C	ritical Value	0.139		Data app	ear Norm	al at 5%	Signific	ance Level		
26					Data appe	ar Normal a	5% Signific	ance Level						
27						<u> </u>								
28					As	suming Nor	nal Distribut	ion						
29			95% No			00.07		95%		Adjusted	for Ske	wness)		00.70
30				95% Stud	dent's-t UCL	32.67			95% Adj	usted-Cl		(Chen-1995)	32.72
31									95% MO	amea-t	UCL (JO	nnson-1978)	32.68
32						Commo								
33					ant Ctatiatia		GOF Test	Anda						
34						0.190	Detector					F lest		
35				5% A-D C		0.740	Delected						nce	Levei
36				5% K S C		0.0925	Dotoctor		ar Comm	a Distrib		5% Signific		
37				Detected	data annea	r Gamma Di	stributed at F	Significa						20101
38				Delected						51				
39						Gamma	Statistics							
40					k hat (MLF)	13.92				k star	(bias co	rrected MI F		12.89
41				Thet	a hat (MLE)	2 19			The	eta star		rrected MLE	<u>/</u>	2 364
42				n	u hat (MLE)	1113				nu	star (bi	as corrected	/ 0 1	031
43			М	_E Mean (bia	s corrected)	30.48				MIF	E Sd (bi:	as corrected		8,488
44									Approxin	nate Chi	Sauare	Value (0.05	,) c	957.7
45			Adius	ted Level of	Significance	0.044				Adjust	ed Chi §	Square Valu	é s	955.1
46					3					,				
4/					As	sumina Gam	ma Distribut	ion						
48		95% Approxi	mate Gamma	UCL (use wi	hen n>=50))	32.82		95% Ar	diusted G	amma II	JCL (USF	when n<50)	32.91
49				2 - 2 (200 M					,				<u> </u>	
50														

	А	В		С	Τ	D		E	F	G	Н	I		J		К		L
51									Lognormal	GOF Test								
52				S	Shapi	ro Wilk	Test St	tatistic	0.982		Shap	oiro Wilk	Log	normal G	OF T	est		
53				5% S	Shapir	o Wilk	Critical	Value	0.94		Data appea	r Lognorr	nala	at 5% Sigi	nifica	nce Leve		
54					Li	illiefors	Test St	tatistic	0.0809		Lil	liefors Lo	gno	rmal GOF	: Tes	t		
55				5	5% Lil	lliefors	Critical	Value	0.139		Data appea	r Lognorr	mala	at 5% Sigi	nifica	nce Leve		
56							Data	appear	Lognormal	at 5% Signif	icance Leve	l						
57																		
58									Lognorma	I Statistics								
59					Minir	num of	Logge	d Data	2.565					Mean		Jged Data	1 3	3.381
60					Maxir	num of	Logge	d Data	3.932					SD	of log	Jged Data).278
61																		
62								ASSL		ormal Distrib	ution							
63							95% F	H-UCL	33.05			90)%(Chebyshev	√ (M\		. 3	4.59
64				95%	Chet	oyshev	(MVUE	E) UCL	36.44			97.5	5% (Chebyshev	√ (M\	/UE) UCL	. 3	9
65				99%	Chet	oyshev	(MVUE	E) UCL	44.04									
66																		
67							Nong	parame	etric Distribu	tion Free UC	CL Statistics							
68					Data	a appea	ar to fo	llow a	Discernible	Distribution	at 5% Signifi	cance Le	evel					
69										<u> </u>								
70								Nonpai	ametric Dist	tribution Fre	e UCLs							
71						9	5% CL	T UCL	32.61					95%	Jackl	knife UCL	. 3	2.67
72				95%	5 Star	ndard B	ootstra	p UCL	32.59					95% B	ootst	rap-t UCL	. 3	2.78
73				9	95% ł	Hall's B	ootstra	p UCL	32.88			95	% P	ercentile	Boots	strap UCL	. 3	2.48
74					95%	BCA B	ootstra	p UCL	32.68									
75			9	0% Cl	hebys	shev(Me	ean, So	d) UCL	34.38			95%	Che	ebyshev(N	/lean	, Sd) UCL	. 3	6.14
76			97.	5% Cl	hebys	shev(Me	ean, Sc	d) UCL	38.6			99%	Che	ebyshev(N	/lean	, Sd) UCL	- 43	3.41
77																		
78									Suggested	UCL to Use								
79					ç	95% Stu	udent's	-t UCL	32.67									
80																		
81		Note: Sugge	estions	regard	ding t	he sele	ction of	f a 95%	UCL are pro	ovided to hel	p the user to	select th	e m	ost approp	oriate	95% UC	L.	
82				I	Reco	mmend	ations	are bas	sed upon dat	a size, data o	distribution, a	and skew	nes	6.				
83		These reco	ommen	dation	is are	based	upon th	ne resu	Its of the sim	ulation studi	es summariz	ed in Sin	gh,	Maichle, a	ind L	ee (2006)	-	
84	Ho	wever, simu	ulations	s resul	lts wil	l not co	ver all	Real W	orld data se	ts; for additio	nal insight th	ne user m	ay v	vant to co	nsult	a statistic	cian.	
85																		

	A	В	С	D	E	F	G	Н	I	J	K	L	L
1					UCL Statis	tics for Data	a Sets with N	lon-Detects					
2													
3		User Sele	ected Options										
4	Da	ate/Time of C	omputation	ProUCL 5.13	3/17/2017 3:	18:56 PM							
5			From File	Metals.xls									
6		Fu	II Precision	OFF									
7		Confidence	Coefficient	95%									
8	Number	of Bootstrap	Operations	2000									
9													
10													
11	Zn												
12													
13						General	Statistics						
14			Total	Number of O	bservations	40			Numb	er of Distinct C	Observations		27
15									Numb	er of Missing C	Observations	i	0
16					Minimum	24					Mean	i f	66
17					Maximum	520					Median	ı ;	37
18					SD	87.39				Std. E	rror of Mean	í ·	13.82
19				Coefficient	of Variation	1.324					Skewness	;	4.105
20													
21						Normal	GOF Test						
22			S	hapiro Wilk T	est Statistic	0.484			Shapiro V	Vilk GOF Test			
23			5% SI	hapiro Wilk Ci	ritical Value	0.94		Data N	ot Normal a	t 5% Significar	nce Level		
24				Lilliefors T	est Statistic	0.346			Lilliefor	s GOF Test			
25			5	% Lilliefors C	ritical Value	0.139		Data N	ot Normal a	t 5% Significar	nce Level		
26					Data Not	Normal at §	5% Significa	nce Level					
27													
28					As	suming Nor	mal Distribut	tion					
29			95% No	ormal UCL				95%	6 UCLs (Ad	justed for Ske	wness)		
30				95% Stud	lent's-t UCL	89.28			95% Adjus	ted-CLT UCL	(Chen-1995)		98.31
31									95% Modi	fied-t UCL (Jo	hnson-1978)	, 9	90.78
32							1						
33						Gamma	GOF Test						
34				A-D T	est Statistic	4.761		Ande	erson-Darlin	ig Gamma GC	F Test		
35				5% A-D C	ritical Value	0.764	D	ata Not Gar	nma Distrib	uted at 5% Sig	nificance Le	vel	
36				K-S T	est Statistic	0.313		Kolmo	gorov-Smiri	nov Gamma G	OF Test		
37				5% K-S C	ritical Value	0.142	D	ata Not Gar	nma Distrib	uted at 5% Sig	nificance Le	vel	
38				Dat	ta Not Gamr	na Distribut	ed at 5% Sig	inificance L	evel				
39													
40						Gamma	Statistics						
41					k hat (MLE)	1.606				k star (bias cor	rected MLE)	ł	1.502
42				Theta	a hat (MLE)	41.1			Theta	a star (bias cor	rected MLE)	, ,	43.94
43				n	u hat (MLE)	128.5				nu star (bia	as corrected)	1:	20.2
44			M	E Mean (bias	s corrected)	66				MLE Sd (bia	as corrected)	, ,	53.85
45									Approxima	te Chi Square	Value (0.05)	, ,	95.85
46			Adjus	ted Level of S	Significance	0.044			/	Adjusted Chi S	quare Value	, ,	95.04
47							JI						
48					Ass	suming Gan	nma Distribu	tion					
49		95% Approxi	mate Gamma	UCL (use wh	nen n>=50))	82.74		95% A	djusted Gar	nma UCL (use	when n<50)	1	83.45
50	1						J						

	А	В	(С	Т	D		E	F	G	Γ	Н	Τ	I			J	Т	ŀ	K		L
51									Lognorma	GOF Test												
52				S	Shapir	ro Wilk	Test S	Statistic	0.777			Sha	piro	Will	k Log	inorn	nal G	OF T	est			
53				5% S	Shapir	ro Wilk	Critica	al Value	0.94			Data Not	Log	norr	nal a	t 5%	Signi	fican	ce L	evel		
54					Li	illiefors	Test S	Statistic	0.261			Li	lliefc	ors l	ogno	orma	GOI	- Tes	st			
55				5	5% Lil	lliefors	Critica	al Value	0.139			Data Not	Log	norr	nal a	t 5%	Signi	fican	ce L	evel		
56							Da	ta Not L	.ognormal at	5% Signific	ar	nce Level										
57																						
58									Lognorma	I Statistics												
59					Minir	num of	Logge	ed Data	3.178							Ν	lean	of lo	gged	1 Data	3	.847
60				1	Maxir	num of	Logge	ed Data	6.254								SD	of lo	gged	J Data	0	.689
61																						
62								Ass	uming Logno	ormal Distrib	ut	ion										
63							95%	H-UCL	74.74						90%	Cheb	yshe	v (M)	VUE) UCL	79	9.94
64				95%	Cheb	oyshev	(MVU	E) UCL	89.43					97	.5%	Cheb	yshe	v (M	VUE) UCL	102	2.6
65				99%	Cheb	oyshev	(MVU	E) UCL	128.5													
66																						
67							Nor	nparame	etric Distribu	tion Free UC	CL	. Statistics	;									
68							Data	do not f	ollow a Disc	ernible Distr	rib	oution (0.0	5)									
69																						
70								Nonpa	rametric Dis	tribution Fre	e	UCLs										
71						9	5% CI	LT UCL	88.73								95%	Jack	cknife	e UCL	89	9.28
72				95%	5 Stan	ndard B	ootstr	ap UCL	88.38							9	5% B	oots	trap-	t UCL	120	0
73				9	95% ŀ	Hall's B	ootstr	ap UCL	178.7					ç	95% F	Perce	entile	Boot	strap	o UCL	91	1.05
74					95%	BCA B	ootstr	ap UCL	107.9													
75			90	0% Cł	nebys	shev(M	ean, S	Sd) UCL	107.5					95	% Ch	ebys	hev(l	Vean	ı, Sd) UCL	126	6.2
76			97.	5% Cł	nebys	shev(M	ean, S	Sd) UCL	152.3					99	% Ch	ebys	hev(I	Vean	ı, Sd) UCL	203	3.5
77																						
78									Suggested	UCL to Use												
79			95	5% Ch	iebysl	hev (M	ean, S	Sd) UCL	126.2													
80																						
81		Note: Sugge	estions	regard	ding t	he sele	ection	of a 95%	6 UCL are pr	ovided to he	lp	the user to	o sel	lect	the m	nost a	ppro	priate	e 95%	% UCL	•	
82				F	Recor	mmend	lations	s are bas	sed upon dat	a size, data	dis	stribution,	and	ske	wnes	ss.						
83		These reco	ommena	dation	s are	based	upon	the resu	lts of the sim	ulation studi	ies	s summari	zed	in S	ingh,	Maio	hle, a	and L	.ee (2	2006).		
84	Ho	wever, simu	ulations	s resul	its wil	l not co	over al	I Real W	/orld data se	ts; for additic	ona	al insight t	he u	iser	may	want	to co	nsult	t a st	atistici	an.	
85																						

APPENDIX H

ProUCL Statistics Soil Vapor

	А	В	С	D	E	F	G	Н	I	J	K	L
1					UCL Statis	tics for Data	Sets with N	on-Detects				
2												
3		User Seleo	cted Options									
4	Dat	e/Time of Co	omputation	ProUCL 5.14	4/11/2018 11	1:03:34 AM						
5			From File	Soil Vapor.x	ls							
6		Ful	I Precision	OFF								
7		Confidence	Coefficient	95%								
8	Number o	f Bootstrap (Operations	2000								
9												
10	1,3,5-trimet	hylbenzene										
11												
12						General	Statistics					
13			Total	Number of C	bservations	20			Numbe	r of Distinct (Observations	2
14				Numbe	er of Detects	1				Number of	Non-Detects	19
15			N	umber of Dist	inct Detects	1			Numbe	er of Distinct	Non-Detects	1
16												
17	v	Varning: On	ly one distin	ct data value	was detect	ed! ProUCL	(or any othei	r software) s	hould not be	e used on su	ich a data se	t!
18	lt is sugge	ested to use	alternative s	ite specific v	alues deter	mined by the	Project Tea	m to estimat	e environm	ental param	eters (e.g., E	PC, BTV).
19												
20				The data	set for varia	ble 1,3,5-trin	nethylbenzer	ne was not p	rocessed!			
21												
22												

	А	В	С	D	E	F	G	H	I	J	K	L
1					UCL Statis	tics for Data	Sets with N	on-Detects				
2				1								
3		User Sele	cted Options									
4	Da	te/Time of Co	omputation	ProUCL 5.14	/11/2018 10	0:59:31 AM						
5			From File	Soil Vapor.xl	S							
6		Fu	Il Precision	OFF								
7		Confidence	Coefficient	95%								
8	Number	of Bootstrap	Operations	2000								
9												
10	4-Isopropy	toluene										
11						0	0					
12			T-+-1	Normali and O		General	Statistics		Nhumber			
13			I Otal	Number of OI	oservations	20			Numbe	r of Distinct O	oservations	5
14				Number	of Detects	3			N la sua la s	Number of N	on-Detects	17
15			IN	Umber of Disti		3			NUMDE	Minimum	Non-Detects	
16				Maxim		8.Z				Maximum	Non-Detect	8 100
17				Warian		07.2 1042						12U 85%
18				Valla		20.12				Fercentin	SD Detects	20.00
19				Mod	ian Detects	15					CV Detects	1 071
20				Skowne		1.6/6				Kurto	cie Detecte	N/A
21				Mean of Logo		3.007				SD of Logo	and Detects	1.083
22				Mean of Logg	Jeu Delecis	5.007				SD OI LOGE	Jeu Delecis	1.005
23					Warning: D	ata set has	only 3 Detec	ted Values				
24			т	his is not eno	uah to com	oute meanin	oful or reliab	le statistics	and estimat	es.		
25			•				giar or rollab					
20												
27					Norm	al GOF Tes	t on Detects	Only				
28			S	hapiro Wilk Te	est Statistic	0.835			Shapiro Wi	lk GOF Test		
29			5% S	hapiro Wilk Cr	itical Value	0.767	De	etected Data	appear Norr	nal at 5% Sigr	nificance Lev	/el
21				Lilliefors Te	est Statistic	0.347			Lilliefors	GOF Test		
32			5	% Lilliefors Cr	itical Value	0.425	De	etected Data	appear Norr	nal at 5% Sigr	nificance Lev	/el
33				Dete	ected Data	appear Norr	nal at 5% Sig	nificance L	evel			
34												
35			Kaplan-	Meier (KM) S	tatistics usi	ng Normal C	ritical Value	s and other	Nonparame	tric UCLs		
36					KM Mean	12.43			K	A Standard Er	ror of Mean	4.662
37					KM SD	14.74				95% KM	(BCA) UCL	N/A
38				95%	KM (t) UCL	20.49			95% KM (F	Percentile Boot	tstrap) UCL	N/A
39				95% I	KM (z) UCL	20.09				95% KM Boot	strap t UCL	N/A
40			9	90% KM Cheb	yshev UCL	26.41			9	95% KM Cheb	yshev UCL	32.75
41			97	.5% KM Cheb	yshev UCL	41.54			9	99% KM Cheb	yshev UCL	58.81
42												
43				Ga	amma GOF	Tests on D	etected Obse	ervations Or	nly			
44					Not En	ough Data te	Perform G	OF Test				
45												
46					Gamma	Statistics of	n Detected D	ata Only				
47				I	k hat (MLE)	1.396			k	star (bias corr	ected MLE)	N/A
48				Theta	a hat (MLE)	21.58			Theta	star (bias corr	ected MLE)	N/A
49				ทเ	u hat (MLE)	8.378				nu star (bias	corrected)	N/A
50				Mea	an (detects)	30.13						

	A		В	(2		D		Е	F		G		Н		I		J			К		L
51																							
52					_		(Gamm	na ROS	5 Statistic	s us	ing Imput	ted N	on-Dete	ects								
53				GROS	S may	not be	e usec	1 wher	n data s	set has > t	0%	NDs with	man	y tied of	bser	/ation	s at m	nultiple	DLs		45.00		
54			GROS may	y not be	e used	wnen	kstar	of det		small suc	n as	s <1.0, esp	beciai	lly when	the	samp		e is sm	all (e).g., <	<15-20)		
55					Fo	r such	situat	tions,	GROS	method m	iay y	yield incor	rect v	values o	of UC	Ls ar	Id BT	Vs					
56								I his is	espec	ially true v	vne	n the sam	pie si	ze is sm	nall.				~				
57			For gai	mma di	stribut	ed det	ected	data,	BIVS		ma	y be comp	outed	using g	amm	ia disi	tributi	on on K		stima	ites		4 500
58								IVII	inimum	0.01											Mean	<u> </u>	4.529
59								Ma	IXIMUM	67.2											Median		0.01
60								1. 1	SD	15.21	1						1	(l-:				_	3.36
61							The	k nat		0.154	·					ть	K St	ar (bias	s cor	recte			0.164
62							Ine			29.42	,					In	ieta st						27.58
63				٨ ٩	instad		of Cia			0.150)							nu sta	(Dia		rected)	<u> </u>	0.307
64			<u>^</u>	Auj					nce (p)	1.026					^	diucte	od Ch	i Squar			6 57 0		1 7//
65									$\frac{5.57, 0}{5.57, 0}$	15.26)			050/ 0	A 						(0.57, p)	<u> </u>	1.744
66		9	5% Gamma	а Аррго	ximate	9 UCL	(use	when	n>-50)	15.30				95% (Jam	na Au	ujuste		(use	wnei	n n<50)		N/A
67							C.	otimot		amme D	arer	notoro uc!	ing V	M Eatim	notor								
68								Moo				neters usi	ing K		alea	•				c			1/ 7/
69							V			217.45										f Mor			4.74
70							v			0.711											ar (KM)	_	4.002
71										28.42												_	25.40
72							+			17.42									the				10.5
73					000/	aomi	u 20 00	roontil		20.47							00%	aammi					21.00
74					95%	o yanni	na pe	rcentil		20.47 /3.75							90 %	gamma		centi		_	72 32
75					3570	s yann	na pe	Centi		43.75							9970	yannina	a per				72.52
76									Gamr	na Kanlar	-Me	aier (KM) 9	Static	stics									
77			Anr	nroxima	ate Chi	Sana	re Val	ue (25	5 49 a)	14 99			otatic	5105	Ad	liuster	d Chi	Square	Valı	ue (2	5 49 B)		14 35
78		95%	Camma An	proxima				when	$\frac{1}{n > = 50}$	21 13			95	% Gam	ma l	Adjust					$\frac{1}{10}, \frac{1}{10}, \frac{1}{10}$	<u> </u>	22.07
/9		0070		proxime		TOOL	(000	when	II ² 00)	21.10				o dam	11107	lajuot			(450		1111-00)		22.07
80							L	oanor	mal G(OF Test o	n De	etected O	bserv	vations (Only	,							
81					S	hapiro	Wilk	Test S	Statistic	0.943	3				S	hapiro	o Wilk	GOF	Test				
82					5% Sł	napiro	Wilk (Critica	I Value	0.767	,	De	etecte	ed Data	app	earlo	oanori	mal at 5	5% S	Sianifi	cance	eve	2
83						Lilli	efors	Test S	Statistic	0.275	;			ou Duiu	app	Lillie	fors C	OF Te	st	- <u>g</u>			
84 95					5	% Lillie	efors (Critica	I Value	0.425	;	De	etecte	ed Data	app	ear Lo	ognori	mal at 5	5% S	Signifi	cance	eve	əl
00 96							Dete	ected	Data a	ppear Log	Inor	mal at 5%	6 Sigr	nificanc	e Le	vel							
00 07																							
07 88							Lo	ognorr	nal RC	S Statisti	cs l	Jsing Imp	uted	Non-De	tects	5							
80						Mea	in in C	Drigina	l Scale	5.075	5	- •						М	ean	in Lo	g Scale	-	-1.598
00						S	D in C	- Drigina	l Scale	15.1									SD	in Lo	g Scale	-	2.989
Q1			95% t l	UCL (as	sume	s norn	nality	of RO	S data)	10.91						9	5% P	ercentil	e Bo	otstr	ap UCL		11.5
91					ę	95% B	CA Bo	ootstra	ap UCL	15.62								95%	Boo	otstra	p t UCL		39.76
02						95%	H-UC	L (Loc	g ROS)	1186												+	
93 Q/I										1												1	
95					Statis	tics u	sing K	(M est	timates	on Logge	ed D	ata and A	Assur	ning Lo	gnor	mal C	Distrib	ution					
96							KM M	lean (l	ogged)	2.265	5								K	/ Ge	o Mean		9.63
97							KM	I SD (I	ogged)	0.542	2					9	5% C	ritical H	l Val	ue (K	(M-Log)		2.061
98				KM S	tandar	d Erro	or of M	lean (l	ogged)	0.171								95% H	I-UC	L (K	M -Log)		14.41
90							KM	I SD (I	ogged)	0.542	2					9	5% C	ritical H	l Val	ue (K	(M-Log)		2.061
100				KM S	tandar	d Erro	or of M	lean (l	ogged)	0.171												+	
100								`	/	1												<u> </u>	

	А	В	С	D	E	F	G	K	L								
101																	
102						DL/2 S	tatistics										
103			DL/2	Normal													
104				Mean in O	riginal Scale	21.92		in Log Scale	2.306								
105				SD in O	riginal Scale	26.55		in Log Scale	1.256								
106			95% t l	JCL (Assume	es normality)	32.18		6 H-Stat UCL	52.76								
107			DL/2	is not a reco	mmended m	ethod, provi	ded for comp	parisons and	l historical r	easons		L					
108																	
109					Nonparame	etric Distribu	stribution Free UCL Statistics										
110				Detected	l Data appea	ar Normal Di	stributed at §	5% Significa	nce Level								
111																	
112						Suggested	UCL to Use										
113				95%	5 KM (t) UCL	20.49											
114																	
115	1	Note: Sugge	stions regard	ling the seled	tion of a 95%	6 UCL are pr	ovided to hel	p the user to	select the r	nost appropri	ate 95% UCL						
116			F	Recommenda	ations are ba	sed upon dat	a size, data	distribution,	and skewne	SS.							
117		These record	mmendations	s are based ι	ipon the resu	Its of the sim	nulation studi	es summariz	zed in Singh	Maichle, an	d Lee (2006).						
118	Но	wever, simu	lations result	s will not cov	ver all Real W	/orld data se	ts; for additic	onal insight th	ne user may	want to cons	ult a statistic	ian.					
119							SD in Log Scale 95% H-Stat UCL vided for comparisons and historical reasons Distributed at 5% Significance Level d UCL to Use provided to help the user to select the most appropriate 95% UCL. ata size, data distribution, and skewness. imulation studies summarized in Singh, Maichle, and Lee (2006). sets; for additional insight the user may want to consult a statistician.										

	А	В	С	D	Е	F	G	Н	Ι	J	K	L
1					UCL Statis	tics for Data	Sets with N	on-Detects				
2												
3		User Seleo	cted Options									
4	Date	e/Time of Co	omputation	ProUCL 5.14	1/11/2018 10):56:19 AM						
5			From File	Soil Vapor.x	ls							
6		Ful	I Precision	OFF								
7		Confidence	Coefficient	95%								
8	Number o	f Bootstrap (Operations	2000								
9												
10	Chloroform											
11												
12						General	Statistics					
13			Total	Number of O	bservations	20			Number	of Distinct (Observations	2
14				Numbe	r of Detects	1				Number of	Non-Detects	19
15			N	umber of Dist	inct Detects	1			Numbe	er of Distinct	Non-Detects	1
16												
17	V	Varning: On	ly one distin	ct data value	was detected	ed! ProUCL	(or any othe	r software) s	hould not be	e used on su	ich a data se	t!
18	It is sugge	ested to use	alternative s	site specific v	alues deter	mined by the	Project Tea	m to estimat	e environm	ental param	eters (e.g., E	PC, BTV).
19												
20				The	data set for	variable Ch	loroform was	s not process	sed!			
21												
22												

	А	В	С	D	E	F	G	Н		J	K	L
1					UCL Statis	tics for Data	Sets with N	on-Detects				
2				1								
3		User Sele	cted Options									
4	Dat	e/Time of Co	omputation	ProUCL 5.14	1/11/2018 10):57:16 AM						
5			From File	Soil Vapor.x	s							
6		Ful	Il Precision	OFF								
7		Confidence	Coefficient	95%								
8	Number o	of Bootstrap	Operations	2000								
9												
10	Dichlorodifi	uoromethan	e									
11							o					
12						General	Statistics					
13			lotal	Number of O	bservations	20			Numbe	r of Distinct O	bservations	4
14				Numbe	r of Detects	4				Number of N	Ion-Detects	16
15			N	umber of Dist	Inct Detects	3			Numbe		Non-Detects	1
16				Mini	num Detect	10				Minimum	Non-Detect	8
17				Maxi		10.6					INON-Detect	ð 800/
18				varia		10.0533				Percentin	NON-Detects	80%
19				M		10.25						0.252
20				Niec	lian Detects	1.120				Kurte	CV Detects	0.0246
21				Skewn		1.129					osis Detects	2.227
22				wear or Log	Jeu Delecis	2.327					Jeu Delecis	0.0244
23					Norm		t on Dotooto	Only				
24			S	haniro Wilk T	oet Statistic			Only	Shaniro Wi	IK GOE Test		
25			5% 9	hapiro Wilk C	ritical Value	0.895	De	stacted Data	annear Norr	nal at 5% Sig	nificance Lev	رما
26			570 5		oet Statistic	0.740	De					
27			5		ritical Value	0.329	De	tected Data	annear Nor	nal at 5% Sig	nificance Lev	ام
28				Det	ected Data	appear Norm	al at 5% Sic					
29												
30			Kaplan-	Meier (KM) S	tatistics usi	ng Normal C	ritical Value	s and other	Nonparame	ric UCLs		
31			. apian		KM Mean	8 45			K	A Standard Fr	ror of Mean	0.234
32					KM SD	0.905				95% KM	(BCA) UCI	N/A
33				95%	KM (t) UCL	8.854			95% KM (F	ercentile Boo	(strap) UCL	N/A
34				95%	KM (z) UCL	8.834				95% KM Boot	tstrap t UCL	N/A
30 26			ç	0% KM Chel	yshev UCL	9.151				95% KM Cheb	yshev UCL	9.469
27			97	.5% KM Chel	yshev UCL	9.91				99% KM Chet	yshev UCL	10.78
32												
39				G	amma GOF	Tests on De	etected Obse	ervations On	nly			
40				A-D T	est Statistic	0.43		A	nderson-Da	rling GOF Te	st	
41				5% A-D C	ritical Value	0.657	Detected	d data appea	ar Gamma D	stributed at 5	% Significan	ce Level
42				K-S T	est Statistic	0.348		ł	Kolmogorov-	Smirnov GO	=	
43				5% K-S C	ritical Value	0.394	Detected	d data appea	ar Gamma D	stributed at 5	% Significan	ce Level
44	<u> </u>			Detected	data appea	r Gamma Dis	stributed at 5	5% Significa	nce Level			
45												
46					Gamma	Statistics on	Detected D	ata Only				
47					k hat (MLE)	2232			k	star (bias corr	ected MLE)	558.1
48				Thet	a hat (MLE)	0.00459			Theta	star (bias corr	ected MLE)	0.0184
49				n	u hat (MLE)	17853				nu star (bias	s corrected)	4465
50				Me	an (detects)	10.25						

	A	A	В		С		D		Е		F		G		Н		I			J		K			L
51								Com	ma PC	NC C+	otictice	icina		ited N	lon Do	tooto									
52				CP	05 may	(not	bouse	dwbc							av tiod	obsor	vation	ne at r	multi		<u> </u>				
53			CPOS ma							Set i		/0 INL		noci		on the	som				_3 (0.0	<15	20)		
54			GNO5 IIIa	ay not						S SIII			I.U, ES	rroct			Saint Na ai			Sman	(e.y	., <13	.20)		
55					10	J Su	JII Situa	This i				on th		neci		mall	JL3 ai		v3						
56			For da	mma	distribu	ted d	etecte	d data	BTVs	and		av he				namn	na dis	tribut	ion	on KM	estir	mates			
57			i oi ga		uistribu				, DTV3	m	8 083		c com	pulci	a using	gann		Sinbut			Com	M	lean	T	9 289
58								M	aximur	m	10.6											Me	dian	+	9 268
59									S	D	0.666													+	0.0717
60								k ha	at (MLE	=) 2	204.7							ks	star (bias c	orreo	cted N	ILE)	1	74
62							T۲	neta ha	at (MLE)	0.0454						Tł	neta s	star (bias c	orreo	cted N	ILE)		0.0534
62								nu ha	at (MLE) 8	189								nu	star (ł	oias d	correc	ted)	69	962
64				А	djusted	l Lev	el of S	ignific	ance (f) 3)	0.038													+	
65			A	Approx	imate C	Chi S	quare	Value	(N/A, c	x) 6	769						Adjus	ted C	hi S	quare	Valu	e (N//	λ, β)	6	754
66		9	5% Gamm	a App	roximat	e UC	L (use	wher	n>=5())	9.554				95%	Gam	ma A	djuste	ed U	CL (u	se wl	nen n	<50)	1	N/A
67																									
68							E	Estima	ates of	Gam	nma Para	amet	ers us	sing k	(M Est	imate	s								
69								Ме	an (KN	1)	8.45											SD (KM)		0.905
70							١	Varian	ce (KN	1)	0.82									SE	of N	lean (KM)	+	0.234
71								k ł	nat (KM	1)	87.13										k	star (KM)		74.09
72								nu ł	nat (KM	1) 3-	485										nu	star (KM)	29	964
73							1	theta ł	nat (KM	1)	0.097									t	heta	star (KM)		0.114
74					80%	% gai	nma p	ercent	ile (KN	1)	9.263							90%	5 gar	nma p	erce	ntile (KM)		9.73
75					95%	% gai	mma p	ercent	ile (KN	1)	10.13							99%	gar	mma p	erce	ntile (KM)	1	10.9
76																									
77									Gam	ma k	Kaplan-N	leier	' (KM)	Stat	stics										
78			A	Approx	cimate C	Chi S	quare	Value	(N/A, c	a) 2	838						Adjus	ted C	hi S	quare	Valu	e (N//	λ, β)	28	829
79		95%	Gamma Ap	oproxir	mate KN	N-UC	CL (use	wher	n>=50	D)	8.824			9	5% Ga	mma /	Adjus	ted Kl	M-U	CL (u	se wl	nen n·	<50)		8.854
80										·		·													
81								Logno	rmal G	iof 1	Test on [Deteo	cted C)bsei	vation	s Only	/								
82					S	Shapi	ro Wilk	Test	Statisti	ic	0.898					S	hapir	o Will	k G0	OF Te	st				
83					5% S	hapiı	o Wilk	Critic	al Valu	e	0.748		D	Detec	ted Dat	ta app	ear L	ognor	rmal	at 5%	Sigr	nificar	ice L	eve)
84						Li	illiefors	s Test	Statisti	ic	0.326						Lillie	fors (GOF	Test					
85					5	5% Li	lliefors	Critic	al Valu	e	0.375		D	Detec	ted Dat	ta app	ear L	ognor	rmal	at 5%	5 Sigr	nificar	ice L	eve	3
86							De	tected	Data	appe	ar Logno	orma	al at 59	% Sig	Inifican	ice Le	evel								
87																									
88							L	.ognoi	mal R	os s	Statistics	Usir	ng Imp	outed	Non-E)etect	S								0.000
89						M	ean in	Origin	al Scal	e	9.343									Mea	n in l		cale	<u> </u>	2.233
90			050()				SD in	Origin		è	0.617									S	Dini	Log S			0.0658
91			95% t	UCL (assume	es no	rmality	of RC)S data	a)	9.582						ç	95% P	'erce	entile I	Boots	strap		<u> </u>	9.565
92						95%	BCAE			L	9.562								Ę.	95% B	ootst	rapt	JCL	<u> </u>	9.598
93						95	% H-U	UL (LC	IG ROS)	N/A														
94					01-1						100001	Det		Acci	minc '	0.000									
95					তথোগ	SUCS	using			+S ON	2 120	Data	a and ,	ASSU	ining L	ognol	mai l	JISTI	outic	חו			000		8 106
96								viean		4) 	2.129						~	NE 0/ 0	ritio					┣.	0.400
97					Standa	rd E-		VI SD		4) 4)	0.0995						9	5% C		ai H V		(NIVI-I		ļ r	N/A
98				r IVI	Standa	iu El		viean		4) 	0.0207							NE 0/ 0	95	070 H-U			LUG)	r	N/A
99				KW.	Standa	rd E-		VI SD		4) 4)	0.0995						9	5% C	JIIIC	ai H V	aiue	(r\IVI-I	_og)		N/A
100				r\IVI	Juliua			viedil	,iogge0	<i></i>	0.0207														

	А	В	С	D	E	F	G	K	L								
101																	
102						DL/2 S	tatistics										
103			DL/2	Normal					DL/2 Log-	Fransformed							
104				Mean in C	riginal Scale	5.25		in Log Scale	1.574								
105				SD in C	riginal Scale	2.567		in Log Scale	0.386								
106			95% t l	JCL (Assume	es normality)	6.242		6 H-Stat UCL	6.165								
107			DL/2	is not a reco	mmended m	ethod, provi	ded for com										
108																	
109					Nonparamo	etric Distribu	stribution Free UCL Statistics										
110				Detected	l Data appea	ar Normal Di	stributed at {	5% Significa	nce Level								
111																	
112						Suggested	UCL to Use										
113				95%	5 KM (t) UCL	8.854											
114																	
115	1	Note: Sugge	stions regard	ling the seled	tion of a 95%	6 UCL are pr	ovided to he	lp the user to	select the n	nost appropri	ate 95% UCL						
116			F	Recommenda	ations are ba	sed upon dat	a size, data	distribution,	and skewnes	SS.							
117		These record	mmendations	s are based u	ipon the resi	Its of the sim	ulation studi	ies summariz	zed in Singh	Maichle, an	d Lee (2006).						
118	Но	wever, simu	lations result	s will not cov	ver all Real V	/orld data se	ts; for additio	onal insight th	ne user may	want to cons	sult a statistic	ian.					
119							Mean in Log Scale SD in Log Scale 95% H-Stat UCL rided for comparisons and historical reasons ution Free UCL Statistics Distributed at 5% Significance Level d UCL to Use d UCL to Use										

	А	В	С	D	E	F	G	Н	I	J	K	L
1					UCL Statis	tics for Data	Sets with N	on-Detects				
2												
3		User Seleo	cted Options									
4	Dat	e/Time of Co	omputation	ProUCL 5.14	1/11/2018 10):58:05 AM						
5			From File	Soil Vapor.x	s							
6		Ful	I Precision	OFF								
7		Confidence	Coefficient	95%								
8	Number o	f Bootstrap (Operations	2000								
9												
10	Ethylbenzer	ne										
11												
12						General	Statistics					
13			Total	Number of O	bservations	20			Numbe	r of Distinct (Observations	2
14				Numbe	r of Detects	1				Number of	Non-Detects	19
15			N	umber of Disti	inct Detects	1			Numbe	er of Distinct	Non-Detects	1
16												
17	V	Varning: On	ly one distin	ct data value	was detected	ed! ProUCL	(or any othe	r software) s	hould not be	e used on su	ich a data se	t!
18	It is sugge	ested to use	alternative s	ite specific v	alues deter	mined by the	Project Tea	m to estimat	e environm	ental param	eters (e.g., E	PC, BTV).
19												
20				The d	lata set for v	ariable Ethy	lbenzene wa	as not proces	ssed!			
21												
22												

	А	В	С	D	Е	F	G	Н	I	J	K	L	
1					UCL Statis	stics for Data	Sets with No	on-Detects					
2				1									
3		User Sele	cted Options										
4	Dat	te/Time of Co	omputation	ProUCL 5.14	1/11/2018 10):58:46 AM							
5			From File	Soil Vapor.x	s								
6		Fu	II Precision	OFF									
7		Confidence	Coefficient	95%									
8	Number o	of Bootstrap	Operations	2000									
9													
10	Isopropylbe	enzene											
11													
12						General	Statistics		<u> </u>				
13			lotal	Number of O	bservations	20			Numbe	r of Distinct O	bservations	11	
14				Numbe	r of Detects	10				Number of N	Jon-Detects	10	
15			N	umber of Dist	inct Detects	10			Numbe	er of Distinct N	Jon-Detects	1	
16				Minii	num Detect	13.6				Minimum	Non-Detect	8	
17				Maxii	num Detect	10700				Maximum	Non-Detect	8	
18				Varia	nce Detects	11190672				Percent N	√on-Detects	50%	
19				M	ean Detects	1187					SD Detects	3345	
20				Mec	lian Detects	91.1					CV Detects	2.818	3
21				Skewn	ess Detects	3.153				Kurto	osis Detects	9.956	;
22				Mean of Log	ged Detects	4.709				SD of Log	ged Detects	2.014	ţ
23													
24					Norn	nal GOF Tes	t on Detects	Only					
25			S	hapiro Wilk T	est Statistic	0.399			Shapiro Wi	Ik GOF Test		<u> </u>	
26			5% S	hapiro Wilk C	ritical Value	0.842		Detected Da	ta Not Norma	al at 5% Signi	ficance Leve	:I	
27					est Statistic	0.492			Lillietors	GOF Test	<u> </u>	<u> </u>	
28			5	% Lilliefors C	ritical Value	0.262		Detected Da	ta Not Norma	al at 5% Signi	ficance Leve	#	
29				D	etected Dat	a Not Norma	l at 5% Sign	ificance Lev	/el				
30													
31			Kapian-	Meier (KM) S			ritical values	s and other	Nonparame			F 40.0	
32					KM Mean	597.5			KI	VI Standard El	ror of Mean	546.9	
33				050/	KM SD	2320				95% KM	(BCA) UCL	1674	
34				95%		1543			95% KIVI (F			1004	
35				95%		1497				30% KW D0		10311	
36					wshew UCL	2238 1012					byshev UCL	∠901	
37			97		Jyshev UCL	4013			:		Jysnev UCL	0039	
38					amma COE	Toete on Dr	tacted Ober	nyations Or					
39					annia GOI				nderson-Da		et		
40				5% A-D C	ritical Value	0.817	Detecto	n ad Data Not	Gamma Dis	tributed at 5%	Significanc		
41				3%A-DC		0.345	Delecte			Smirnov GO		5 Level	
42				ר.יס ד 5% גריס ד	ritical Value	0.040	Detect	ed Data Not	Gamma Die	tributed at 5%	Significanc	م مررما	
43				Detecto		Gamma Dict	ributed at 5%			and at 3%			
44				Delecte				olymicall					
45					Gammo	Statistics or		ata Only					
46									. با	star (hiac cor		0 271	1
47				That		4062			Thota	star (bias con		0.27 4277	'
48						-τυυ <u>2</u> Ε Ω/2			illeid			5 / 10	1
49				N/~		0.043				nu stat (Dla	s corrected)	5.424	*
50				IVIE	an (uetects)	110/						l	

	А		В		С		D		Е		F		G		Н		I		J	J	L	К	Ι	L
51																								
52								Gam	ma RC	S St	atistics u	using	Impute	ed No	n-Det	tects								
53				GF	OS may	/ not	be use	ed whe	en data	set h	has > 50°	% ND	s with r	many	tied c	bser	vation	s at m	nultiple	ə DLs	S		<u> </u>	
54			GROS ma	ay not	be used	d whe	en ksta	r of de	etects is	s sm	all such a	as <1	.0, espe	eciall	y whe	n the	samp	lesiz	e is sr	nall (e.g.,	<15-20)	
55					FC	or su	ch situa	ations.	, GROS	s me	thod may	y yielo	dincorr	ect va	alues	of UC	CLs ar	Id B I V	Vs					
56								Inisi	is espe	cially	y true wh	en th	e samp	le siz	e is s	mall.								
57			For ga	mma	distribu	ted d	etecte	d data	, BIVS	and	UCLS m	ay be	e compu	ited i	ising (gamn	na disi	tributio	on on		estim	lates		
58								N.	/iinimur	n 	0.01											Madia	n 	593.5
59								IVI	aximur		J/UU													0.805
60								l h			0 125							l. ot	or /bid		rraat		<u></u>	4.013
61							ты			-)	764						ТЬ	K SL			rrect		.) .)	0.139
62										-) 4	1 083									$\frac{15}{20}$			<u>)</u> .	5 568
63					Adjustor	11.01	ol of Si	ianifia		-)	4.903								nu su			Jilecleu	·)	5.506
64			Δ	nnroy	vimate C					2) Y)	1 / 23					^	diucta	od Ch	i Saus	aro V	مراد/	(5 57 ß	0	1 266
65		QF							$\frac{(3.37, 0)}{(3.37, 0)}$	4))\ 2	1.420				05%	- Com		diusto				(5.57, p)	<u>)</u>	2610
66		5.		а Ар	JUXIMA		L (use		11/-50	2	.522				90 /0	Gam		Jusie		- (use	5 WIIC)	2010
67							F	etime	ates of	Gam	ma Par	amoto	are uein	a KN	l Feti	mate								
68								Me	an (KM	1) F	597.5			ig i tit		mate						SD (KM	0	2320
69								Varian	ice (KN	1) 53	83254									SE	of Me	ean (KM	$\frac{1}{0}$	546.9
70								kł	nat (KM	1)	0.0663										k s	star (KM	0	0.0897
71								nu ł	nat (KM	1)	2.652										nus	star (KM	0	3.588
72							1	theta h	nat (KM) 1) 9	010									th	ieta s	star (KM	$\frac{1}{0}$	6661
73					809	% aai	mma p	ercent	tile (KN	1) 3	349.8							90%	aamn	na pe	ercen	tile (KM	<i>,</i> D	1512
74					959	% gai	nma p	ercent	tile (KN	1) 3	481							99%	gamn	na pe	ercen	tile (KM) 1	10015
75							•		,	,									0			,	, 	
70									Gam	ma k	Kaplan-N	<i>l</i> leier	(KM) S	tatist	ics									
78			A	pprox	kimate C	hi So	quare \	/alue ((3.59, c	x)	0.566					A	djuste	ed Ch	i Squa	are V	alue	(3.59, β	5)	0.484
79	ę	95% (Gamma Ap	oprox	imate Kl	M-UC	L (use	wher	n n>=5()) 3	787			95%	6 Gan	nma /	Adjust	ed KN	Л-UCL	_ (use	e whe	en n<50	ı) ·	4432
80							95% (Gamm	na Adju	sted	KM-UCL	(use	when l	<=1	and 1	5 < n	< 50)							
81																								
82							I	Logno	rmal G	iOF ⁻	Test on I	Detec	ted Ob	serva	ations	Only	/							
83					S	Shapi	ro Wilk	Test	Statisti	ic	0.878					S	hapiro	o Wilk	GOF	Tes	at			
84					5% S	hapii	o Wilk	Critic	al Valu	е	0.842		De	tecte	d Data	a app	ear Lo	ognori	mal at	5%	Signi	ificance	Lev	vel
85						L	illiefors	Test	Statisti	ic	0.197						Lillie	fors G	GOF T	est				
86					5	5% Li	lliefors	Critic	al Valu	е	0.262		De	tecte	d Data	a app	ear Lo	ognori	mal at	. 5% :	Signi	ificance	Lev	vel
87							De	tected	l Data	appe	ear Logno	ormal	l at 5%	Sign	ifican	ce Le	vel							
88																								
89							L	.ognoi	rmal R	oss	Statistics	Usin	ig Impu	ted N	lon-D	etect	S							
90						M	ean in	Origin	al Scal	e 5	594								Ν	Vean	i in Lo	og Scal	e	1.806
91							SD in	Origin	al Scal	e 2	381									SD	in Lo	og Scal	e	3.547
92			95% t l	UCL	(assume	es no	rmality	of RC	DS data	a) 1	515						9	5% Pe	ercent	tile B	ootst	trap UC	Ľ	1651
93						95%	BCA E	Bootst	rap UC	L 2	218								95%	% Bo	otstra	ap t UC	L 1	17540
94						95	% H-U	CL (Lo	og ROS	5) 11	39420													
95					.	- 42		1/1 4				<u> </u>						N						
96					Stati	stics	using	KMes	stimate	s on		Data	and As	ssum	ing Lo	ognoi	rmal C	vistrib	ution		<u></u>			00.70
97							KMI	viean	(logged	1) 	3.394									К 		eo Mea	n 	29.79
98				1/1			K	vi SD	(logged	1) 	1.885						9	5% CI	ritical	н Va	ilue (l	KM-Log)	4.098
99				ΚN	Standa	rd Er	ror of I	viean	(logged	1) 1)	0.444						~	E0/ 0	95%	н-U(1036
100							K	vi SD	(logged	1)	1.885						9	5% CI	ritical	н Vа	iiue (l	KM-Log)	4.098

	А	В	С	D	E	F	G	Н		J	K	L	
101			KM Standar	rd Error of M	ean (logged)	0.444							
102													
103						DL/2 S	tatistics						
104			DL/2	Normal					DL/2 Log-	Transformed			
105				Mean in C	riginal Scale	595.5				Mean	in Log Scale	3.047	
106				SD in C	riginal Scale	2381				SD	in Log Scale	2.197	
107			95% t L	JCL (Assum	es normality)	1516				95%	6 H-Stat UCL	2466	
108	DL/2 is not a recommended method, provided for comparisons and historical reasons												
109													
110					Nonparame	etric Distribu	ition Free UC	CL Statistics					
111				Detected	Data appear	Lognormal	Distributed a	t 5% Signific	ance Level				
112													
113						Suggested	UCL to Use						
114			97.5	% KM (Chel	yshev) UCL	4013							
115													
116		Note: Sugge	estions regard	ing the seled	tion of a 95%	6 UCL are pi	ovided to he	Ip the user to	select the r	nost appropr	iate 95% UCL		
117			F	Recommenda	ations are ba	sed upon da	ta size, data	distribution,	and skewne	SS.			
118		These reco	ommendations	s are based u	ipon the resu	Its of the sin	nulation studi	ies summari:	zed in Singh	, Maichle, an	d Lee (2006).		
119	Ho	wever, sim	ulations result	s will not cov	ver all Real W	/orld data se	ets; for addition	onal insight t	ne user may	want to cons	sult a statistici	an.	
120													

	А	В	С	D	E	F	G	Н		J	K	L
1					UCL Statis	sucs for Data	Sets with No	on-Detects				
2				1								
3		User Sele	cted Options		1111001011							
4	Dat	e/Time of Co		ProUCL 5.14	/11/2018 11	1:00:16 AM						
5			From File	Soil Vapor.xl	S							
6		Ful	Il Precision	OFF								
7		Confidence	Coefficient	95%								
8	Number o	of Bootstrap (Operations	2000								
9												
10	Naphthalen	e										
11							o					
12						General	Statistics					10
13			lotal	Number of Or	servations	20			Number	r of Distinct O	Diservations	12
14				Number	of Detects	10				Number of N	Ion-Detects	10
15			N	umber of Disti	nct Detects	10			Numbe	er of Distinct N	Ion-Detects	2
16				Minin	num Detect	45.8				Minimum	Non-Detect	8
17				Maxin	num Detect	11300				Maximum	Non-Detect	400
18				Variar	Detects	12253752				Percent N	Ion-Detects	50%
19				Me	an Detects	1432					SD Detects	3501
20				Med	an Detects	147.5				14 suite	CV Detects	2.444
21				Skewne	ess Detects	3.057				Kurto	sis Detects	9.473
22				Mean of Logg	ed Detects	5.532				SD of Logg	jed Detects	1.728
23					NI			0				
24							t on Detects	Only	Oh an ina M/			
25			5			0.457			Snapiro wi			
26			5% 5			0.842	D	etected Da			Icance Leve	
27			F			0.405		ata ata d Day		GOF Test	Gaaraa Lawa	1
28			5	% Lilliefors Cr	itical Value	0.262	D		a Not Norma	al at 5% Signif	icance Leve)
29				De	etected Data	a not norma	i at 5% Signi	ricance Lev	el			
30			Kanlan				ritical \/aluaa	and athen				
31			Kapian-	Meler (KM) Si			ritical values	and other				
32					KIM Mean	737.4			KI	A Standard Er	ror of iviean	5/7.5
33				050/		2449				95% KIVI		1870
34				95%		1/30			95% KM (P		(strap) UCL	10041
35				95% h		1007						12041
36						2470 1211						5200
37			97		ysnev UCL	4044					ysnev UCL	0400
38				C/		Tooto on Do	tootod Obso	nuctions Or	hz.			
39					anima GOF	1 266			ndoroon Do			
40						0.700	Dataata				Significano	
41				570 A-D CI		0.799	Delecte			Smirnov GOE		
42				5% K S Cr		0.290	Dotocto	r d Data Not	Commo Dist	tributed at 5%	Significance	
43				Detector		Gamma Dict	ributed at 5%	Significant		andul c u di 0%	Significance	
44				Deleciel			ibul o u di 5%	Significan	79 F9A01			
45					Gamma	Statistics or		ata Only				
46						0 222			با	star (hias corr		0 334
47				Thet		37/18			Thoto	star (bias corr		4286
48						7610			meta			4200
49				n. Maa		1/22				nu star (Dias	sconectea)	0.064
50				Mea	iii (uetects)	1432						

	A		В		С		D		Е		F		G		Н		I			J		K	l	L
51								0		0.0					D-4									
52				0	200 may	(not	ho 1100	Gam	ma RO	5 5					on-Det	ects	votion				_			
53			CROSma	Gr			be use			set		70 INL				n the					.s	<15.00	<u></u>	
54			GRUS IIIa	ау по			ch eitus			5 5111 5 mo			I.U, espe				, le ar			llidii	(e.g.	, <15-20	<i>''</i>	
55					10	JI SU	JII Situa	This i	s esne	cially	v true wh	on th	he samn			mall	25 ai		v5					
56			For da	amma	distribu	ted c	etecter	d data	BTVs	and		av h		ited		nam.	na dis	tributi	ion or	n KM	estir	nates		
57			i oi ge					n aara	, DTV0	n	0.01		e compe		uonig g	Janni		, and a la			com	Mea	n	735 7
58								M	aximur	n 1	1300											Media	n	56.2
59									SI	D 2	2514											C	V	3.418
61								k ha	at (MLE	.)	0.139							k s	tar (bi	ias co	orrec	ted MLE	=)	0.151
62							Th	eta ha	at (MLE) 5	308						Tł	neta s	tar (bi	ias co	orrec	ted MLE)	4868
63								nu ha	at (MLE)	5.544								nu si	tar (b	ias c	orrected	(b	6.046
64					Adjusted	d Lev	el of Si	ignifica	ance (β	3)	0.038												-	
65			A	ppro	ximate C	hi So	quare V	/alue ((6.05, o	()	1.663					Α	djust	ed Ch	ni Squ	iare V	/alue	e (6.05, f	3)	1.489
66		9	5% Gamm	na Ap	proximat	te UC	CL (use	when	n>=50)) 2	2674				95%	Gam	ma A	djuste	ed UC	L (us	e wł	nen n<50))	2987
67																								
68							E	Estima	ates of	Gan	nma Para	amet	ters usin	g K	M Estir	nates	S							
69								Me	an (KM	I)	737.4											SD (KN	1)	2449
70							١	Varian	ce (KM	1) 59	99863									SE	of M	ean (KN	1)	577.5
71								k٢	nat (KM	1)	0.0906										k	star (KN	/1)	0.11
72								nu ł	nat (KM	1)	3.625										nu	star (KN	1)	4.414
73							t	theta ł	nat (KM	1) 8	8137									tł	heta	star (KN	1)	6681
74					809	% ga	mma pe	ercent	tile (KM	1) !	584.9							90%	gamı	ma p	erce	ntile (KN	1)	2036
75					959	% ga	mma pe	ercent	tile (KM	1) 4	247							99%	gami	ma pe	erce	ntile (KN	1)	11143
76									_															
77					· · · · ·				Gam		Kaplan-M	/leiei	r (KM) S	tatis	stics		P .		· 0		<u>, , , , , , , , , , , , , , , , , , , </u>	(4.44.4	2	0 777
78		050/	A	ppro	ximate C	thi Se	quare V	/alue ((4.41, 0	()	0.892			05		A	djust			are v	/alue	e (4.41,	3)	0.///
79		95% (Jamma Ap	oprox	imate Ki	VI-UC		when	n>=50)) 3 	649 KM LICI	(95	% Gam	nma /			M-UC	L (us	e wr	ien n<50	(נ	4189
80							95% (Jamm	la Adju	stea	KIVI-UCL	_ (us	e when h	<<=	Tand T	n > c	< 50))						
81								oano	rmal G	OF	Test on [Dete	cted Ob	sen	ations	Only	,							
82						Shapi	ro Wilk	Test	Statisti	c	0.867					S	hapir	o Will	k GO	F Tes	st			
83					5% S	hapi	ro Wilk	Critic	al Valu	e	0.842		De	tecte	ed Data	a app	ear L	oanor	mal a	at 5%	Siar	nificance	Le	evel
84 95							illiefors	Test	Statisti	с	0.183						Lillie	fors (GOF -	Test				
86					5	5% Li	lliefors	Critic	al Valu	e	0.262		De	tecte	ed Data	a app	ear L	ognor	mal a	at 5%	Sigr	ificance	Le	evel
87							Det	tected	Data a	appe	ear Logno	orma	al at 5%	Sigr	nificanc	ce Le	vel	-			-			
88																								
89							L	.ognor	rmal R	os s	Statistics	Usi	ng Impu	ted	Non-De	etect	s							
90						Μ	ean in (Origin	al Scal	e	734.3									Mear	n in L	og Sca	e	3.984
91							SD in (Origin	al Scal	e 2	2514									SE) in L	.og Sca	le	2.27
92			95% t	UCL	(assume	es no	rmality	of RC	OS data	a) 1	706						9	95% P	ercer	ntile E	Boots	strap UC	;L	1821
93						95%	BCA E	Bootsti	rap UC	L 2	2511								95	5% Bo	ootst	rap t UC	;L	13731
94						95	% H-U0	CL (Lo	g ROS	6) 8	3595													
95																								
96					Stati	stics	using	KM es	stimate	s on	Logged	Data	a and As	ssur	ning Lo	ognor	mal [Distrib	oution)				
97							KM	Mean	(logged	I)	4.177									ŀ	KM C	ieo Mea	n	65.17
98							K	M SD	(logged	I)	1.976			_			9	5% C	ritical	I H Va	alue	(KM-Lo	3)	4.263
99				K١	I Standa	rd E	ror of N	Mean	(logged	I)	0.502								95%	6 H-U	ICL (KM -Log	3)	3174
100							KN	VI SD ((logged	1)	1.976						9	15% C	ritical	I H Va	alue	(KM-Lo])	4.263

	А	В	С	D	E	F	G	Н	I	J	K	L			
101			KM Standar	rd Error of M	lean (logged)	0.502									
102						•	•								
103						DL/2 S	tatistics								
104			DL/2	Normal					DL/2 Log-	Transformed					
105				Mean in C	riginal Scale	767.2				Mean	in Log Scale	4.437			
106				SD in C	riginal Scale	2505				SD	in Log Scale	2.166			
107			95% t L	JCL (Assum	es normality)	1736				95%	6 H-Stat UCL	8704			
108			DL/2 i	s not a reco	mmended m	ethod, provi	ded for com	parisons and	d historical r	reasons					
109															
110					Nonparam	etric Distribu	ition Free UC	CL Statistics							
111				Detected	Data appear	Lognormal	Distributed a	t 5% Signific	cance Level						
112															
113						Suggested	UCL to Use								
114			95	% KM (Chel	byshev) UCL	3255									
115															
116		Note: Sugge	estions regard	ing the seled	ction of a 95%	6 UCL are p	ovided to he	lp the user to	select the r	nost appropr	iate 95% UCL				
117			F	Recommenda	ations are ba	sed upon da	ta size, data	distribution,	and skewne	SS.					
118		These reco	ommendations	s are based u	upon the resu	Its of the sin	nulation studi	ies summariz	zed in Singh	, Maichle, an	d Lee (2006).				
119	Ho	wever, sim	ulations result	s will not cov	ver all Real V	Vorld data se	ets; for addition	onal insight t	he user may	want to cons	sult a statistici	an.			
120															

	А	В	С	D	E	F	G	Н		J	K	L	
1					UCL Statis	tics for Data	Sets with N	on-Detects					
2				T									
3		User Sele	cted Options										
4	Dat	te/Time of Co	omputation	ProUCL 5.14	/11/2018 10):53:26 AM							
5			From File	Soil Vapor.xl	S								
6		Fu	Il Precision	OFF									
7		Confidence	Coefficient	95%									
8	Number o	of Bootstrap	Operations	2000									
9													
10	n-Butylbenz	zene											
11													
12						General	Statistics			(5) () ()			
13			lotal	Number of O	bservations	20			Numbe	r of Distinct O	oservations	6	
14				Numbe	r of Detects	5			<u> </u>	Number of N	Ion-Detects	15	
15			N	umber of Disti	nct Detects	5			Numbe	er of Distinct N	Ion-Detects	1	
16				Minir	num Detect	10.4				Minimum	Non-Detect	8	
17				Maxir	num Detect	40.8				Maximum	Non-Detect	8	
18				Variar	nce Detects	164.3				Percent N	Ion-Detects	/5%	%
19				Me	ean Detects	23.32					SD Detects	12.8	82
20				Med	ian Detects	21				17	UV Detects	0.5	5
21				Skewne	ess Detects	0.51				Kurto	sis Detects	-1.59	98
22				Mean of Logo	jed Detects	3.02				SD of Logg	jed Detects	0.5	8
23													
24					Norm	nal GOF Tes	t on Detects	Only	<u></u>				
25			S	hapiro Wilk I	est Statistic	0.932			Shapiro Wi	Ik GOF Test			
26			5% S	hapiro Wilk Ci	ritical Value	0.762	De	etected Data	appear Norr	nal at 5% Sigr	hificance Lev	/el	
27					est Statistic	0.194			Lilliefors	GOF Test	·c		
28			5	% Lilliefors Ci	ritical Value	0.343	De	etected Data	appear Norr	nal at 5% Sigr	hificance Lev	/el	
29				Det	ected Data	appear Norn	nal at 5% Sig	inificance Lo	evel				
30			Kanlan						NI				
31			Kapian-	Meier (KM) S		ng Normal C	ritical values	s and other	Nonparamet				00
32					KM Mean	11.83			KI	A Standard Er	ror of Mean	2.1	92
33				059/		8.767				95% KIVI	(BCA) UCL	15.1	11 F0
34				95%		15.62			95% KM (P		(strap) UCL	15.5	59
35				95%		10.44						10.4	4 20
36			<u>ج</u> ں			10.4 l						21.3	50 64
37			97		yanev UCL	20.02					yanev UCL		04
38				G		Tests on De	stacted Obse	nyations Or	ahy .				
39					anima GOF	0.266			nderson-Da		et		
40					ritical Value	0.200	Dotoctor			stributed at 5	». V. Significan		
41				5% A-D C		0.001	Delected						
42				ר-ט ד 5% ג-פ רי	ritical Value	0.221	Detector	I conce etch I	ar Gamma Di	stributed at 50	% Significan		ما
43				Detected	data anneo	Gamma Di	stributed at 5	So Significa					GI
44				Delected	aara ahhegi								
45					Gamma	Statistics or		ata Only					
46				I					. با	star (hias corr	ected MIE	17	128
47				Thet		-+.012 5 813			Thoto (star (bias corr		12 /	42
48				inet		0.013			inetas			13.4	+∠ 20
49				n Mar		40.12				nu star (Dias	s correctea)	17.3	00
50				IVIE	an (uetects)	23.32							

	A		В	C)	[D		E		F	(ż	Н					J			K	\Box	L
51																								
52				0000				Jamn		Stati	ISTICS U		nputec	I NON-L	Peteci	:S								
53			0000	GROS	s may	not be	e used	i whei	n data :	set has	s > 50%	NDS	with m	any tie		ervatio	ons at	mu	Itiple D	LS		1 - 00		
54		(GRUS ma	y not be	e usea	wnen	kstar	or de		small	sucn a	s < 1.0	espec		nen tr	ie san	npie s		is sma	li (e.(g., <	15-20)		
55					FO	rsuch	situat	IONS,	GRUS	metric	bu may	yield I			es or u		and B	o i vs	6					
56			For go	mmo dia	otribut	od dot	ootod									II.	ictribu	ution	on KI	1 oct	imot			
57			FOI yai	mma uis	sindui	eu uei	lected	uata,				ay be c	omput	eu usin	y yan	ima u	ISUIDU			/i est	limat	Moor		5 021
58								Ma			18										Ν			0.01
59								IVIC		1 1	1 87										1			2 005
60								k ha			178						k	star	(hias	corre	octed		, —	0 184
61							The	eta ha	t (MLE) 33	3.35					-	Theta	star	(bias	corre	ected)	32.13
62								nu ha	t (MLE) 7	.102							n	u star (bias	corr	ected)	, —	7.37
63				Adi	iusted	Level	of Sid	inifica	ance (ß) 0.	038											,	+	
64 65			A	pproxim	ate Cl	hi Squ	are Va	, alue (7.37, α) 2	.376					Adju	sted C	Chi S	Square	Valu	Je (7	.37, β))	2.158
66		95	5% Gamma	a Approx	ximate	e UCL	(use v	when	n>=50) 18	3.37			95	% Ga	mma	Adjus	ted	UCL (ι	ise v	vhen	n<50))	20.22
67																	,					,	_	
68							E	stima	tes of (Gamm	a Para	meters	using	KM E	stimat	ies								
69								Меа	an (KM) 11	1.83		-								S) (KM))	8.767
70							V	ariand	ce (KM) 76	5.86								SI	E of I	Mear	n (KM))	2.192
71								k h	at (KM) 1	.821									l	k sta	r (KM)	,	1.581
72								nu h	at (KM) 72	2.83									n	u sta	r (KM)	,	63.24
73							th	neta h	at (KM) 6	.497									theta	a sta	r (KM)	,	7.483
74					80%	6 gamr	ma pe	rcenti	le (KM) 18	3.2						90	% ga	amma	perc	entile	e (KM)	,	24.34
75					95%	6 gamr	ma pe	rcenti	le (KM) 30).28						99	% g	amma	perc	entile	e (KM)	1	43.66
76																							_	
77									Gam	na Ka	plan-M	eier (K	M) Sta	atistics										
78			Ар	proximat	te Chi	i Squa	re Val	ue (6	3.24, α) 45	5.95					Adjust	ted Cł	ni So	quare \	/alue	e (63	.24, β))	44.78
79		95% C	amma Ap	proxima	ate KN	1-UCL	(use v	when	n>=50) 16	5.28			95% G	amma	a Adju	isted I	KM-	UCL (ι	ise v	vhen	n<50))	16.71
80																								
81							Lo	ognor	mal G	OF Te	st on D	etecte	d Obs	ervatio	ns Or	nly								
82					S	hapiro	Wilk	Test S	Statistic	c 0	.944					Shap	oiro W	'ilk (GOF T	est				
83				į	5% Sł	napiro	Wilk (Critica	il Value	e 0	.762		Dete	ected D	ata a	opear	Logno	orma	al at 5%	% Sig	gnific	ance	Leve	el
84						Lilli	efors	Test S	Statistic	0	.191					Lill	iefors	GC	OF Tes	t				
85					59	% Lillie	efors (Critica	I Value	e 0	.343		Dete	ected D	ata a	opear	Logno	orma	al at 5%	% Sig	gnific	ance	Leve	el
86							Dete	ected	Data a	ppear	Logno	rmal a	t 5% S	Significa	ince	_evel								
87										0.01-	4-4				Data									
88						Maa		ognor				Using	Impute		Dete	CIS			Ma			Caala		1 1 4 2
89						Iviea		rigina			./12								ivie			Scale	; 	1.143
90			0.5% + 1								1.1 2.01						05%	Dor					-	1.430
91			95%10		sume	5 HOIH				12	2.01						90 /0	rei		BOOL	atrop		-	15.5
92					\$	95 % D				- 10	5.04								30 /0 E	50018	suap	1 UCL	-	10.0
93						5570	1-00		9100	/ 20	ו ד. כ													
94					Statie	tics	sina K	Mee	timate	sonla	naned	Data a	nd Ase	sumina	Loan	orma	Distr	ribut	ion					
95					J.au3	ut	KM M	ean () 2	314		na 1131	Janniy	Logi	Jind	. Jiou	isul		KM	Geo	Mean		10.12
96							KM	SD (loaded) <u> </u>	.483						95%	Criti	ical H \	/alue	e (KN	<u>-1 on</u>	<u> </u>	2.002
9/				KM St	tandar	rd Erro	or of M	ean (loaaed) 0	.121						/ /	ç)5% H-		. (KM) 	14.19
98				01		2 2/10	KM	SD (loaaed	, σ) ο	.483						95%	Criti	ical H \	/alue	e (KN	N-Loa) 	2.002
99				KM St	tandar	rd Erro	or of M	ean (loaaed	, J) 0	.121						/ /			2.00	- (+	
100						2 -110				, J														

	А	В	С	D	E	F	G	Н	I	J	K	L	
101													
102						DL/2 S	tatistics						
103			DL/2	Normal					DL/2 Log-1	Fransformed			
104				Mean in O	riginal Scale	8.83				Mean	in Log Scale	1.795	
105				SD in O	riginal Scale	10.4				SD	in Log Scale	0.773	
106			95% t l	JCL (Assume	es normality)	12.85				95%	6 H-Stat UCL	12.25	
107		DL/2 is not a recommended method, provided for comparisons and historical reasons Nonparametric Distribution Free UCL Statistics											
108			Nonparametric Distribution Free UCL Statistics										
109		Mean In Original Scale 5.83 Integration of the scale SD in Original Scale 10.4 SD in Log Scale 95% t UCL (Assumes normality) 12.85 95% H-Stat UCL DL/2 is not a recommended method, provided for comparisons and historical reasons Nonparametric Distribution Free UCL Statistics Detected Data appear Normal Distributed at 5% Significance Level Suggested UCL to Use 95% KM (t) UCL 15.62											
110	DL/2 is not a recommended method, provided for comparisons and historical reasons Nonparametric Distribution Free UCL Statistics Detected Data appear Normal Distributed at 5% Significance Level												
111													
112						Suggested	UCL to Use						
113				95%	5 KM (t) UCL	15.62							
114													
115	1	Note: Sugge	stions regard	ling the seled	tion of a 95%	6 UCL are pr	ovided to he	p the user to	select the n	nost appropri	iate 95% UCL		
116			F	Recommenda	ations are ba	sed upon dat	a size, data	distribution,	and skewnes	SS.			
117		These record	mmendations	s are based ι	ipon the resu	DL/2 Statistics DL/2 Log-Transformed inal Scale 8.83 Mean in Log Scale 1. inal Scale 10.4 SD in Log Scale 0. normality) 12.85 95% H-Stat UCL 12 nended method, provided for comparisons and historical reasons 12 Ionparametric Distribution Free UCL Statistics 12 rata appear Normal Distributed at 5% Significance Level 12 M (t) UCL 15.62 12 on of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. 12 on the results of the simulation studies summarized in Singh, Maichle, and Lee (2006). 13 all Real World data sets; for additional insight the user may want to consult a statistician. 14							
118	Но	wever, simu	DL/2 Normal DL/2 Log-I ransformed Mean in Original Scale 8.83 Mean in Log Scale SD in Original Scale 10.4 SD in Log Scale 95% t UCL (Assumes normality) 12.85 95% H-Stat UCL 1 DL/2 is not a recommended method, provided for comparisons and historical reasons 95% H-Stat UCL 1 DL/2 is not a recommended method, provided for comparisons and historical reasons 95% H-Stat UCL 1 Nonparametric Distribution Free UCL Statistics 95% H-Stat UCL 1 Detected Data appear Normal Distributed at 5% Significance Level 95% KM (t) UCL 15.62 Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. Recommendations are based upon data size, data distribution, and skewness. e recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006). , simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.									an.	
119													

	А	В	С	D	Е	F	G	Н		J	K		L
1					UCL Statis	tics for Data	Sets with No	on-Detects					
2				T									
3		User Sele	cted Options										
4	Dat	te/Time of Co	omputation	ProUCL 5.14	1/11/2018 11	:00:52 AM							
5			From File	Soil Vapor.x	S								
6		Fu	II Precision	OFF									
7		Confidence	Coefficient	95%									
8	Number o	of Bootstrap	Operations	2000									
9													
10	n-Propylbei	nzene											
11													
12						General	Statistics		<u> </u>				
13			l otal	Number of O	bservations	20			Numbe	r of Distinct O	bservations	9	
14				Numbe	r of Detects	8			<u> </u>	Number of N	Non-Detects	12	2
15			N	umber of Disti	nct Detects	8			Numbe	er of Distinct N	Non-Detects	1	
16				Minir	num Detect	8.4				Minimum	Non-Detect	8	
17				Maxir	num Detect	8090				Maximum	Non-Detect	8	
18				Variai	nce Detects	/9/959/				Percent N	Non-Detects	60)%
19				Me	ean Detects	1107					SD Detects	282	5
20				Med	lian Detects	74.7					CV Detects	2.	.551
21				Skewn	ess Detects	2.815				Kurto	osis Detects	7.	.942
22				Mean of Loge	ged Detects	4.683				SD of Log	ged Detects	2.	.079
23							<u> </u>						
24				· · · · · · · · · · · · · · · · · · ·	Norn	nal GOF Tes	t on Detects	Only					
25			S	hapiro Wilk I	est Statistic	0.454			Shapiro Wi	Ik GOF Test	<u> </u>		
26			5% S	hapiro Wilk C	ritical Value	0.818		Detected Da	ta Not Norma	al at 5% Signi	ficance Leve	el	
27					est Statistic	0.468			Lilliefors	GOF Test	<u> </u>		
28			5	% Lilliefors C	ritical Value	0.283		Detected Da	ta Not Norma	al at 5% Signi	ficance Leve	el	
29				D	etected Dat	a Not Norma	l at 5% Signi	ificance Lev	rel				
30						I 0							
31			Kapian-	Meier (KM) S			ritical values	s and other	Nonparame			440	
32					KM Mean	447.7			KI	A Standard Er	ror of Mean	419)./
33				05%	KM SD	1/56				95% KM	(BCA) UCL	123	4
34				95%		11/3			95% KIVI (F			124	4
35				95%		1138				50% KIVI BOO		2/5/	'0 7
36			<u>ج</u> 0			3060						227	, Л
37			97		ysnev UCL	3009			:		Jysnev UCL	402	7
38				6	amma COE	Teste on Dr	tected Obse	nvatione Or	hv				
39					est Statistic	1 174			nderson-Da	rling GOE Te	et		
40				5% A-D C	ritical Value	0 798	Detecto	n ad Data Not	Gamma Dis	tributed at 5%	Significanc		al
41				5% X-D C		0.730	Delection			Smirnov GO		C LCV	
42				5% K-S C	ritical Value	0.317	Detecto	ed Data Not	Gamma Die	tributed at 5%	Significanc	elev	el
43				Detected	d Data Not	Gamma Diet	ributed at 5%					5 250	
44				Dotoolo				- ciginicali					
45					Gamma	Statistics or	Detected D	ata Only					
46					k hat (MLE)	0 297			k	star (hias corr	ected MI E	0	269
47				Thet	a hat (MLE)	3730			Theta	star (hias corr	rected MLE)	411	8
48				n 11101		4 75			i licia	nu star (hia	S COrrected)	<u> </u>	302
49				۱۱ Me	and (MLL)	1107							.502
50				IVIE		1107							

	А		В		С		D			Е		F		G		Н		I			J		K		L	
51														-		Non Def										
52									amr		53				ea	Non-Dei										
53				G				useu			sei		70 IN				n the	valior					1	= 20)		
54			GRUS IIIa	ay no				ituati			2 m	othod may		I.U, ESP	roc			Samp N s a			Silidi	ı (e.ţ	J., < K	5-20)		
55					Į	015		т	This i		cial		on t	he sami			mall	JL5 a		1 1 5						
56			For da	mm	a distrih	uted	deter	' heta	data	BTVs	an		av h				namn	na dis	tribut	tion	on KM	l est	imate	<u>م</u>		
57			i oi ga	411111		uicu	ucici	cicu	M	linimur	n	0.01			uic	u using (ganni		Sindu			1031	1	J Mean	442	9
58									M	aximur	n a	8090	_										M	edian	0.0	1
59										SI	D	1803												CV	4.0)7
60									k ha	at (MLE)	0.114	-						ks	star	(bias c	corre	ected	MLE)	0.1	13
61								The	ta ha	t (MLE)	3875	-					TI	neta s	star	(bias c	corre	ected	MLE)	3395	
62								r	nu ha	t (MLE)	4.572	-							nu	、 star (I	bias	corre	, cted)	5.2	22
64					Adjuste	ed Le	evel o	f Sig	nifica	ance (f	3)	0.038												,		
65			A	ppro	ximate	Chi S	Squar	re Va	lue (5.22, c	x)	1.255					A	\ djust	ed Cl	hi So	quare	Valu	Je (5.2	22, β)	1.1	1
66		95	5% Gamm	a Ap	proxim	ate L	JCL (i	use v	vhen	n>=50))	1842	_			95%	Gam	ma A	djuste	ed U	JCL (u	se w	/hen r	n<50)	2083	
67																										
68								Es	stima	tes of	Gai	mma Para	ame	ters usi	ng	KM Esti	mate	s								
69									Mea	an (KN	1)	447.7											SD	(KM)	1756	
70								Va	arian	ce (KN	1) 3	082916									SE	of	Mean	(KM)	419.	7
71		r									1)	0.065										ļ	k star	(KM)	0.0	886
72				nu h	at (KN	1)	2.601										nı	u star	(KM)	3.5	544					
73							th	eta h	at (KN	1)	6886									1	theta	a star	(KM)	5053		
74					80)% g	amma	a per	cent	ile (KN	1)	256.8							90%	6 ga	mma p	berc	entile	(KM)	1126	
75					9	5% g	amma	a per	cent	ile (KN	1)	2609							99%	6 ga	mma p	berc	entile	(KM)	7550	
76																										
77										Gam	ma	Kaplan-M	<i>l</i> leie	er (KM) S	Sta	tistics										
78			A	ppro	oximate	Chi S	Squar	re Va	lue (3.54, c	x)	0.55					A	Adjust	ed Cl	hi So	quare	Valu	ıe (3.5	54, β)	0.4	17
79	ç	95% (Gamma Ap	oprox	ximate I	KM-L	JCL (ι	use v	vhen	n>=50))	2883			ç	95% Gan	nma	Adjus	ted K	(M-U	JCL (u	se w	/hen r	n<50)	3377	
80							95	% Ga	amm	a Adju	steo	d KM-UCL	_ (us	se when	k<	=1 and 1	5 < n	< 50)							
81															-											
82								Lo	ogno	rmal G	iOF	Test on I	Dete	ected O	bse	ervations	Only	/								
83					F 0/	Sha	piro V	Vilk I	lest	Statisti	с	0.896					s	shapir	'o Wil	IK G		est				
84					5%	Shap					e	0.818		De	ete	cted Data	a app	ear L	ogno	rma	at 5%	SIC	Inifica	nce L	evel	
85						E 0/	Lillief		rition	Statisti	C	0.203	_		<u></u>	ated Date			nors	GOI			mifier		aval	
86						5 %	Lillet	Doto			e	0.283	orma	De		cted Data	a app		ogno	rma	1 at 5%	o Sig	Jninca	nce L	evei	
87								Dele	cieu		app	ear Loyne	UIIII			iyimcan										
88								10	anor	mal R(05	Statistics	llei	ina Impi		d Non-D	atart	·e								
89							Mean	in O	riain	al Scal		443.4		ing inp	ute		CICCI	3			Mea	n in	log	Scale	0.6	36
90							SD	in O	rigina	al Scal	e	1803	_								S	D in		Scale	4.0)82
91			95% t	UCI	(assur	nes r	Iorma	ality o	of RC)S data	- 1)	1140	-					ç)5% F	Perc	entile	Boo	tstran		1232	
92					(959	% BC	A Bo	otstr	ap UC	L	1673									95% B	oots	strap t	UCL	25937	7
93						9	5% H	I-UCI	L (Lo	g ROS	5) 1	2115356														
94 05								_			1															
90					Sta	tistic	s usi	ng K	M es	timate	s o	n Logged	Dat	ta and A	ss	uming Lo	ogno	rmal I	Distril	butio	on					
90							K	MM	ean (logged	1)	3.121				-	-					KM	Geo I	Mean	22.0	67
97 QR								KM	SD (logged	i)	1.772	-					g	95% C	Critic	al H V	/alue	e (KM	-Log)	3.8	397
90				KI	M Stand	lard I	Error	of Me	ean (logged	i)	0.424	+							95	5% H-l	JCL	(KM -	-Log)	531.	3
100								KM	SD (logged	i)	1.772						ç	95% C	Critic	al H V	/alue	e (KM	-Log)	3.8	397
100													1											= /		

	А	В	С	D	E	F	G	Н	I	J	K	L			
101			KM Standa	rd Error of M	ean (logged)	0.424									
102						•									
103						DL/2 S	tatistics								
104			DL/2	Normal					DL/2 Log-	Transformed					
105				Mean in C	riginal Scale	445.3				Mean	in Log Scale	2.705			
106				SD in C	riginal Scale	1802				SD	in Log Scale	2.083			
107			95% t L	JCL (Assum	es normality)	1142				95%	6 H-Stat UCL	1101			
108		DL/2 is not a recommended method, provided for comparisons and historical reasons													
109															
110					Nonparame	etric Distribu	tion Free UC	CL Statistics							
111				Detected	Data appear	Lognormal	Distributed a	t 5% Signific	cance Level						
112															
113						Suggested	UCL to Use	l							
114			97.5	% KM (Chel	oyshev) UCL	3069									
115															
116		Note: Sugge	estions regard	ing the seled	tion of a 95%	6 UCL are pi	ovided to he	Ip the user to	select the r	most appropr	iate 95% UCL				
117			F	Recommenda	ations are ba	sed upon da	ta size, data	distribution,	and skewne	SS.					
118		These reco	ommendations	s are based u	ipon the resu	Ilts of the sin	nulation studi	ies summariz	zed in Singh	, Maichle, an	d Lee (2006).				
119	Но	owever, sim	ulations result	s will not cov	ver all Real V	/orld data se	ts; for additio	onal insight t	he user may	want to cons	sult a statistici	an.			
120															

	А	В	С	D	E	F	G	Н		J	K	L
1					UCL Statis	tics for Data	Sets with N	on-Detects				
2				1								
3		User Sele	cted Options									
4	Dat	te/Time of Co	omputation	ProUCL 5.14/	/11/2018 11	:01:41 AM						
5			From File	Soil Vapor.xls	3							
6		Ful	II Precision	OFF								
7		Confidence	Coefficient	95%								
8	Number o	of Bootstrap (Operations	2000								
9												
10	PCE											
11												
12						General	Statistics		<u> </u>			
13			Total	Number of Ob	servations	20			Numbe	r of Distinct C	Observations	5
14				Number	of Detects	5				Number of I	Non-Detects	15
15			N	umber of Distir	nct Detects	4			Numbe	er of Distinct I	Non-Detects	1
16				Minim	um Detect	10.6				Minimum	Non-Detect	8
17				Maxim	um Detect	12				Maximum	Non-Detect	8
18				Varian	ce Detects	0.308				Percent I	Non-Detects	75%
19				Me	an Detects	11.36					SD Detects	0.555
20				Medi	an Detects	11.2					CV Detects	0.0489
21				Skewne	ss Detects	-0.243				Kurt	osis Detects	-0.882
22				Mean of Logg	ed Detects	2.429				SD of Log	ged Detects	0.0491
23												
24					Norm	al GOF Tes	t on Detects	Only				
25			S	hapiro Wilk Te	est Statistic	0.938			Shapiro Wi	lk GOF Test		
26			5% SI	napiro Wilk Cri	itical Value	0.762	De	etected Data	appear Norr	nal at 5% Sig	inificance Lev	vel
27				Lilliefors Te	est Statistic	0.213			Lilliefors	GOF Test		
28			5	% Lilliefors Cri	tical Value	0.343	De	etected Data	appear Norr	nal at 5% Sig	inificance Lev	vel
29				Dete	cted Data	appear Norm	nal at 5% Sig	inificance Le	evel			
30												
31			Kaplan-	Meier (KM) St	atistics usi	ng Normal C	ritical Value	s and other	Nonparamet			
32					KM Mean	8.84			KI	A Standard E	rror of Mean	0.369
33				050/ 1	KM SD	1.476			050/ 1/14/15	95% KM	I (BCA) UCL	N/A
34				95% ł		9.478			95% KM (P	ercentile Boo	otstrap) UCL	N/A
35				95% K		9.447					hugh and UCL	N/A
36					vsnev UCL	9.947					byshev UCL	10.45
37			97		ysnev UCL	11.14			Į		bysnev UCL	12.31
38						Tooto on Do	tected Oher	nyations O-	hz			
39									ndoroon Do		ot	
40						0.014	Dotosta	A			Sol Gignificant	
41				5% A-D CI		0.076	Delected					
42				5% K. C. C.	itical Value	0.221	Detoctor	r conne eteb l	r Gamma Di	stributed at 5	Significant	
43				Detected a		Camma Di		W Significa			v /o Significano	
44					ara ahheai							
45					Gamme	Statistics on		ata Only				
46				Ŀ		520 5			با	star (biac cor		208.3
47				Thota		0.0210			Thoto	star (biac cor		0.05/5
48				neta		5205			meta	nu etor (bio		2082
49				nu		11 26				nu star (bla	is corrected)	2003
50				iviea	ii (uetects)	11.30						

	A		В	С		D			E	F	G		Н		I			J		K		L
51																						
52							(Jamma	a ROS	Statistics u	sing Im	puted	Non-Det	ects								
53			0000	GROS	may	not be u	used	when	data s	set has > 50%	NDs w	vith ma	ny tied o	bser	vatior	ns at n	nultip		.s	.45.6		
54			GROS may	y not be i	used	when ks	star	of dete		small such a	s <1.0, e	especi	ally wher	n the	sam			small	(e.g.	, <15-2	.0)	
55					FO	r such si	ituat	This is	JRUS	method may	yield in	correc			Ls a	na B I	vs					
56			- For gor	mma diat		od dotor	oto d			ally true whe	en the sa		size is sr		no dia	tributi		n KM	ootir		-	
57			For gar	nma dist	Indut		cied				iy be co	mpute	a using g	Jamr	na dis	stributi	ion o	n Kivi	estin	nates	<u></u>	0.661
58										12										Modi	an	9.001
59										12												9.000
60								k hot		1.293 59.42						ka	tor /k		orroc		-v	40.60
61							The			0 165					T	K S	tar (L				.E) E)	49.09
62							ine			0.105								star (h			.L)	1088
63				۸diu	istod		f Sic			2337							nu a				;u)	1900
64			Δ	nnrovima		hi Squa	re V			1885					۵dius	ted C	hi So	u are \	Valu	<u>ο (Ν/Δ</u>	B)	1877
65		0	5% Gamma		imate				$\frac{1}{2}$	10 19			95%	Gam	ma A	diuste				$\frac{5}{10/7}$	50)	10.23
66					inau	5 00L (t	130			10.15			3370	Gam		ujuste					,0)	10.25
67							F	stimate	as of C	amma Para	metere	usina	KM Fetin	nate	s							
68								Mear	n (KM)	8 84		using		nato	5					SD (K	M)	1 476
69							V	ariance	= (KM)	2,178								SF	of M	ean (K	M)	0.369
70								k ha	t (KM)	35.87								02	k	star (K	M)	30.53
/1		ni							t (KM)	1435										star (K	M)	1221
72		r the							t (KM)	0.246								tł	heta	star (K	M)	0.29
73		the 80% gamma perc							= (KM)	10.15						90%	aam		erce	ntile (K	M)	10.94
74		thet 80% gamma perc 95% gamma perc						rcentile	= (KM)	11.63						99%	aan	nma p	erce	ntile (K	M)	12.98
75						J											3-			- ('	
70									Gamn	na Kaplan-M	eier (KN	/I) Stat	tistics									
78			A	pproxima	ate C	hi Squai	re V	alue (N	√A, α)	1141		-			Adjus	ted Cl	hi Sq	uare '	Valu	e (N/A,	β)	1135
70		95%	Gamma Ap	proximat	te KN	1-UCL (L	use v	when n	ı>=50)	9.461		ç	5% Gam	nma	Adjus	ted Kl	M-UC	CL (us	se wł	ien n<	50)	9.512
80																						
81							L	ognorn	nal GC	OF Test on D	etected	Obse	rvations	Only	/							
82					S	hapiro V	Vilk [·]	Test St	tatistic	0.937				S	Shapiı	o Will	k GC)F Tes	st			
83				5	% Sł	napiro W	/ilk (Critical	Value	0.762		Deteo	cted Data	a app	ear L	ognor	mal	at 5%	Sigr	nificanc	e Le	evel
84						Lillief	ors	Test St	tatistic	0.206					Lillie	efors (GOF	Test				
85					5	% Lilliefo	ors (Critical	Value	0.343		Deteo	cted Data	a app	ear L	ognor	mal	at 5%	Sigr	ificanc	e Le	evel
86						[Dete	ected C)ata aj	ppear Logno	rmal at	5% Si	gnificanc	ce Le	evel							
87																						
88							Lo	gnorm	al RO	S Statistics	Using Ir	npute	d Non-De	etect	S							
89						Mean	in C	riginal	Scale	9.794								Mear	n in l	_og Sca	ale	2.275
90						SD	in C	riginal	Scale	1.163								S) in L	_og Sca	ale	0.118
91			95% t l	JCL (ass	sume	s norma	lity o	of ROS	data)	10.24					ę	95% P	erce	ntile E	3oots	strap U	CL	10.22
92		95% BCA Bootstr							p UCL	10.22							9	5% Bo	ootst	rap t U	CL	10.27
93		95% H-UCL (L								10.27											1	
94																						
95				S	Statis	tics usir	ng K	M esti	mates	on Logged	Data an	d Assi	uming Lo	ogno	rmal I	Distrik	outio	n				
96						KI	MM	ean (lo	ogged)	2.167								ł	KM C	ieo Me	an	8.731
97							KM	SD (lo	ogged)	0.153					9	95% C	ritica	al H Va	alue	(KM-Lo)g)	1.759
98				KM Sta	andar	d Error o	of M	ean (lo	ogged)	0.0383							959	% H-U	JCL (KM -Lo)g)	9.396
99							KM	SD (lo	ogged)	0.153					ç	95% C	ritica	al H Va	alue	(KM-Lo)g)	1.759
100				KM Sta	andar	d Error o	of M	ean (lo	ogged)	0.0383												
	А	В	С	D	E	F	G	Н	I	J	K	L										
-----	----	--------------	----------------	----------------	----------------	----------------	--	---	--------------	---------------	-----------------	------	--	--	--	--						
101																						
102						DL/2 S	tatistics															
103			DL/2	Normal					DL/2 Log-	Fransformed												
104				Mean in O	riginal Scale	5.84		G H I J K ics DL/2 Log-Transformed Mean in Log So SD in Log So SD in Log So 95% H-Stat U or comparisons and historical reasons Free UCL Statistics Ited at 5% Significance Level to Use Ited at 5% Significance Level Ited at 5% Significance Level ed to help the user to select the most appropriate 95% Ited at 35% Significance Level ed to help the user to select the most appropriate 95% Ited at 35% Significance Level														
105				SD in O	riginal Scale	3.28		G H I J K ics DL/2 Log-Transformed Mean in Log So SD in Log So SD in Log So 95% H-Stat L or comparisons and historical reasons Free UCL Statistics tted at 5% Significance Level to Use e, data distribution, and skewness. on studies summarized in Singh, Maichle, and Lee (20) r additional insight the user may want to consult a stati														
106			95% t l	JCL (Assume	es normality)	7.108		G H I J K cs DL/2 Log-Transformed Mean in Log Sca SD in Log Sca SD in Log Sca 95% H-Stat U 95% H-Stat U or comparisons and historical reasons Image: Scale of the statistics ted at 5% Significance Level Image: Scale of the scal														
107			DL/2	is not a reco	mmended m	ethod, provi	ded for com	G H I J K L istics DL/2 Log-Transformed 1.64 SD in Log Scale 1.64 SD in Log Scale 0.46 95% H-Stat UCL 7.14 d for comparisons and historical reasons 7.14 m Free UCL Statistics 5 buted at 5% Significance Level 5 CL to Use 2 ded to help the user to select the most appropriate 95% UCL. 5 ize, data distribution, and skewness. 3 ation studies summarized in Singh, Maichle, and Lee (2006). 5														
108							In Log Scale 1.64 SD in Log Scale 0.46 95% H-Stat UCL 7.14 Inded for comparisons and historical reasons tion Free UCL Statistics stributed at 5% Significance Level UCL to Use															
109					Nonparam	etric Distribu	G H I J K L Statistics DL/2 Log-Transformed Mean in Log Scale 1.647 SD in Log Scale 0.464 95% H-Stat UCL 7.141 ided for comparisons and historical reasons ution Free UCL Statistics istributed at 5% Significance Level Tovided to help the user to select the most appropriate 95% UCL. at a size, data distribution, and skewness. mulation studies summarized in Singh, Maichle, and Lee (2006). ets; for additional insight the user may want to consult a statistician.															
110				Detected	l Data appea	ar Normal Di	G H I J K L Statistics DL/2 Log-Transformed Mean in Log Scale 1.64' SD in Log Scale 0.46 95% H-Stat UCL 7.14' rided for comparisons and historical reasons ution Free UCL Statistics d UCL to Use Introvided to help the user to select the most appropriate 95% UCL. ata size, data distribution, and skewness. mulation studies summarized in Singh, Maichle, and Lee (2006). ets; for additional insight the user may want to consult a statistician.															
111							Statistics DL/2 Log-Transformed Mean in Log Scale 1.64 SD in Log Scale 0.46 95% H-Stat UCL 7.14 rided for comparisons and historical reasons 7.14 ution Free UCL Statistics 1 istributed at 5% Significance Level 7 d UCL to Use 7 urovided to help the user to select the most appropriate 95% UCL. 7 ata size, data distribution, and skewness. 1 mulation studies summarized in Singh, Maichle, and Lee (2006). 1															
112						Suggested	atistics DL/2 Log-Transformed Mean in Log Scale 1.64 SD in Log Scale 0.46 95% H-Stat UCL 7.14 led for comparisons and historical reasons 7.14 ion Free UCL Statistics 1 tributed at 5% Significance Level 1 JCL to Use 1 ovided to help the user to select the most appropriate 95% UCL. 1 a size, data distribution, and skewness. 1 ulation studies summarized in Singh, Maichle, and Lee (2006). 1 s; for additional insight the user may want to consult a statistician. 1															
113				95%	5 KM (t) UCL	9.478																
114																						
115	1	Note: Sugge	stions regard	ling the seled	tion of a 95%	6 UCL are pr	ovided to he	lp the user to	select the r	nost appropri	ate 95% UCL											
116			F	Recommenda	ations are ba	sed upon dat	a size, data	distribution,	and skewne	SS.												
117		These record	mmendations	s are based ι	ipon the resu	Its of the sim	ulation studi	ies summariz	zed in Singh	Maichle, an	d Lee (2006).											
118	Но	wever, simu	lations result	s will not cov	ver all Real V	Vorld data se	ts; for additio	onal insight th	ne user may	want to cons	ult a statistic	ian.										
119							DL/2 Log-Transformed 1.64 Mean in Log Scale 1.64 SD in Log Scale 0.46 95% H-Stat UCL 7.14 vided for comparisons and historical reasons 7.14 vided for comparisons and historical reasons 0.46 Distributed at 5% Significance Level 0.46 d UCL to Use 0.46 provided to help the user to select the most appropriate 95% UCL. 0.46 ata size, data distribution, and skewness. 0.46 mulation studies summarized in Singh, Maichle, and Lee (2006). 0.46															

	А	В	С	D	E	F	G	Н		J	K	L
1					UCL Statis	tics for Data	Sets with N	on-Detects				
2				1								
3		User Sele	cted Options									
4	Da	te/Time of Co		ProUCL 5.14	/11/2018 10):54:51 AM						
5			From File	Soil Vapor.xi	S							
6		Fu		OFF								
7		Confidence		95%								
8	Number o	of Bootstrap	Operations	2000								
9	a a a Dutalla											
10	Sec-Butylde	enzene										
11						Gonoral	Statistics					
12			Total	Number of O	hearvatione	20	Statistics		Numbo	r of Distinct (bearvations	11
13			TOTAL	Number of O	r of Dotocte	10			Number	Number of I	Non Dotocts	10
14			N	umber of Disti	inct Detects	10			Numbe	ar of Distinct I	Non-Detects	10
15				Minir		14.2			Numbe	Minimum		
16	_			Maxir	num Detect	11500				Maximum	Non-Detect	8
17				Varia		12892903					Non-Detecte	50%
18				M	an Detects	12032303				T CICCIII I	SD Detects	3591
19				Med	lian Detects	76.2					CV Detects	2 777
20				Skewn	ess Detects	3 148				Kurt	osis Detects	9 934
21				Mean of Log	ned Detects	4 88				SD of Log	and Detects	1 987
22						4.00				00 01 209	geu Deleela	
23					Norm	nal GOF Tes	t on Detects	Only				
24			S	haniro Wilk T	est Statistic	0 405			Shapiro Wi	lk GOF Test		
25			5% S	hapiro Wilk C	ritical Value	0.842	F)etected Dat	a Not Norma	al at 5% Signi	ificance Leve	<u></u>
26				Lilliefors T	est Statistic	0.483			Lilliefors	GOF Test		
27			5	% Lilliefors C	ritical Value	0.262	Г	Detected Dat	a Not Norma	al at 5% Signi	ificance Leve	
28				D	etected Dat	a Not Norma	- I at 5% Signi	ificance Lev	el			
29												
30			Kaplan-	Meier (KM) S	tatistics usi	ng Normal C	ritical Values	s and other	Nonparamet	ric UCLs		
31					KM Mean	650.5			KN	/ Standard E	rror of Mean	587.6
32	_				KM SD	2493				95% KM	I (BCA) UCL	1779
33				95%	KM (t) UCL	1667			95% KM (P	ercentile Boo	otstrap) UCL	1788
34				95%	KM (z) UCL	1617			, , , , , , , , , , , , , , , , , , ,	95% KM Boo	otstrap t UCL	17131
20			ç	0% KM Chet	yshev UCL	2413				95% KM Che	byshev UCL	3212
30			97	.5% KM Chet	yshev UCL	4320			ę	99% KM Che	byshev UCL	6497
37												
30				G	amma GOF	Tests on De	etected Obse	rvations On	ly			
40				A-D T	est Statistic	1.35		A	nderson-Da	rling GOF Te	est	
40				5% A-D C	ritical Value	0.813	Detecte	ed Data Not	Gamma Dist	tributed at 5%	6 Significance	e Level
42				K-S T	est Statistic	0.32		k	Kolmogorov-	Smirnov GO	F	
43				5% K-S C	ritical Value	0.288	Detecte	ed Data Not	Gamma Dis	tributed at 5%	6 Significance	e Level
44	-			Detecte	d Data Not	Gamma Dist	ributed at 5%	6 Significan	ce Level			
45	4											
46	-				Gamma	Statistics or	Detected D	ata Only				
47	-				k hat (MLE)	0.302			k	star (bias cor	rected MLE)	0.278
48	4			Thet	a hat (MLE)	4288			Thetas	star (bias cor	rected MLE)	4656
49				n	u hat (MLE)	6.03				nu star (bia	is corrected)	5.555
50				Mea	an (detects)	1293						
20 21 22 23 24 25 26 27 28 29 30 31 32 33 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50			S 5% S 5 Kaplan-	Mean of Logg hapiro Wilk T hapiro Wilk C Lilliefors T % Lilliefors C 00% KM Chet 5% KM Chet 5% KM Chet 5% K-S C 00% K-S C Detected Thet n	Norm est Statistic ritical Value est Statistic ritical Value est Statistic ritical Value etected Data KM Mean KM SD KM (t) UCL KM (z) UCL byshev UCL byshe	70.2 3.148 4.88 nal GOF Tes 0.405 0.842 0.842 0.483 0.262 a Not Normal C 650.5 2493 1667 1617 2413 4320 Tests on De 1.35 0.813 0.32 0.288 Gamma Dist Statistics or 0.302 4288 6.03 1293	t on Detects	Only Detected Dat Detected Dat ificance Lev s and other s and other orvations On A ed Data Not b ed Data Not c Significance ata Only	Shapiro Wi a Not Norma clilliefors a Not Norma el Nonparamet KM 95% KM (P 95% KM (P 95% KM (P 95% KM (P 95% Comparamet Solmogorov- Gamma Dist Colmogorov- Gamma Dist Colmogorov- Gamma Dist Colmogorov- Gamma Dist Colmogorov- Gamma Dist Colmogorov- Gamma Dist Colmogorov- Gamma Dist Colmogorov- Gamma Dist Colmogorov- Gamma Dist Colmogorov- Gamma Dist	Kurtu SD of Log Ik GOF Test al at 5% Signi GOF Test al at 5% Signi rric UCLs A Standard E 95% KM Boo 95% KM Chel 95% KM Chel 95% KM Chel 95% KM Chel 99% KM Chel 99% KM Chel 95% SM Chel 9	ificance Leve ificance Leve itstrap UCL itstrap UCL itstrap UCL itstrap tucc isstra ificance ificance isstra ificance isstra ificance isstra ificance isstra ificance isstra ificance isstra ificance isstra ificance isstra isstr	2. 9. 1. 1. 587 1779 1778 1778 1778 1778 1778 1778 17

	A		В		С		D		Е		F		G		Н		I			J		K		L
51								Com		C C+c	tiatiaa (Joing			lon Dot	ooto								
52				00	00 000	(not	houso	Gam		o ola					ion-Det	beer	votior	no ot r	multir		<u> </u>			
53			GROS ma				n keta			set na		/0 INL				n tho	samr				.s (<u>o n</u>	<15_2	0)	
54				ay not	Fc		h situs		GROS	moth	n Such a		Id incorr				301114 ارد عار	nd BT		Sman	(e.g.	, <10-20		
55					10	Ji Su	Sil Siluc	This i	s esner	rially	true wh	en th			ize is sr	mall	JL3 ai		v3					
56			For da	mma	distribut	ted c	etecter	d data	BTVs	and I		av be		uted	Lusina	namn	na dis	tributi	ion o	n KM	estir	nates		
57			i oi gu		alotinou			N	, Divo	n (0.01					ganni						Me	an	646 5
58								M	aximun	n 11	500	_										Media	an	7.105
59									SE) 25	59	_										C	2V	3.958
61								k ha	at (MLE)	0.125							k s	star (t	oias co	orrec	ted ML	E)	0.139
62							Th	eta ha	at (MLE) 51	90						Tł	neta s	tar (t	oias co	orrec	ted ML	E)	4644
63								nu ha	at (MLE)	4.982	_							nus	star (b	ias d	correcte	d)	5.568
64					Adjusted	d Lev	el of Si	gnifica	ance (β) (0.038												-	
65			A	pprox	kimate C	hi So	quare V	/alue ((5.57, α)	1.423	_				A	Adjust	ed Ch	ni Sq	uare V	/alue	e (5.57,	β)	1.266
66		9	5% Gamm	ia App	proximat	te UC	L (use	when	n>=50) 25	29				95%	Gam	ma A	djuste	ed UC	CL (us	e wł	1en n<5	0)	2844
67																								
68							E	stima	tes of	Gamr	na Para	amet	ers usin	ng K	(M Estir	mate	s							
69								Me	an (KM) 6	50.5											SD (KM	V)	2493
70							١	/arian	ce (KM) 621	4625									SE	of M	lean (KN	V)	587.6
71								k٢	nat (KM) (0.0681										k	star (KN	V)	0.0912
72								nu h	nat (KM)	2.724										nu	star (KN	V)	3.648
73							t	theta h	nat (KM) 95	53									tl	heta	star (KM	V)	7132
74					80%	% ga	nma p	ercent	ile (KM) 39	91.6							90%	gan	nma p	erce	ntile (KN	V)	1660
75					95%	% ga	nma pe	ercent	ile (KM) 37	89							99%	gan	nma p	erce	ntile (KN	V)	10815
76																								
77									Gam	ma K	aplan-M	leier	r (KM) S	Stati	stics									
78			A	pprox	kimate C	hi So	quare V	/alue ((3.65, α)	0.588					A	Adjust	ed Ch	ni Sq	uare \	/alue	÷(3.65,	β)	0.503
79		95% (Gamma Ap	oproxi	imate KN	M-UC	L (use	when	n>=50) 40	37			95	5% Gan	nma /	Adjus	ted Kl	M-UC	CL (us	se wł	1en n<5	0)	4717
80							95% (Gamm	a Adjus	sted k	(M-UCL	. (use	e when l	k<=	1 and 1	5 < n	< 50)						
81												Data				0-1	-							
82						hon			rmal G			Jete	cted Ob	ser	vations	Only	/		k 00		-			
83					50/ 0	hani		Critic			0.902		Do	tool	rad Data	с 	napir		KGC		Siar	ificano		
84					5%5			Tost	Statisti	-	0.042		De			a app					Sigi		5 LC	
85					5	- 5% Li	lliefors	Critic	al Value	- -	0.10	_	De	tect	ted Data	a ann	earl		rmal	at 5%	Siar	nificance		avel
86						, , o E	Det	tected	Data a		o.202	orma	al at 5%	Sia	nificand	ce Le	vel	ognor			oigi			
87																								
88							L	ognor	mal R	DS SI	atistics	Usir	ng Impu	ited	Non-De	etect	s							
09						М	ean in (Origin	al Scale	e 64	47.1		• •							Mear	n in l	Log Sca	le	1.994
90							SD in (Origin	al Scale	e 25	59									SE	D in l	_og Sca	le	3.523
92			95% t	UCL	(assume	es no	rmality	of RC)S data) 16	36						ç	95% P	erce	ntile E	Boots	strap UC)L	1786
92						95%	BCA E	Bootstr	ap UCI	_ 23	77								9	5% Bo	ootst	rap t UC)L	17062
94						95	% H-U0	CL (Lc	g ROS) 117	7732												+	
95																								
96	L				Statis	stics	using	KM es	stimate	s on l	_ogged	Data	a and As	ssu	ming Lo	ognoi	rmal I	Distrit	outio	n				
97							KM	Mean ((logged)	3.48									ł	KM C	eo Mea	an	32.45
98							K	/ISD ((logged)	1.933						g	95% C	Critica	al H Va	alue	(KM-Lo	g)	4.185
99				KM	l Standa	rd E	ror of N	Mean ((logged)	0.456								959	% H-U	JCL ((KM -Lo	g)	1345
100							K	/ISD ((logged)	1.933						9	95% C	ritica	al H Va	alue	(KM-Lo	g)	4.185

	А	В	С	D	E	F	G	Н	I	J	K	L		
101			KM Standar	rd Error of M	ean (logged)	0.456								
102														
103						DL/2 S	tatistics							
104			DL/2	Normal					DL/2 Log-	Transformed				
105				Mean in C	riginal Scale	648.5				Mean	in Log Scale	3.133		
106				SD in C	riginal Scale	2558				SD	in Log Scale	2.254		
107			95% t L	JCL (Assum	es normality)	1638				95%	6 H-Stat UCL	3430		
108		DL/2 is not a recommended method, provided for comparisons and historical reasons												
109		DL/2 is not a recommended method, provided for comparisons and historical reasons												
110					Nonparame	etric Distribu	ition Free UC	CL Statistics						
111				Detected	Data appear	Lognormal	Distributed a	t 5% Signific	cance Level					
112														
113						Suggested	UCL to Use							
114			95	% KM (Chel	byshev) UCL	3212								
115														
116		Note: Sugge	estions regard	ing the seled	ction of a 95%	6 UCL are p	ovided to he	Ip the user to	select the r	nost appropr	iate 95% UCL			
117			F	Recommenda	ations are ba	sed upon da	ta size, data	distribution,	and skewne	SS.				
118		These reco	ommendations	s are based u	upon the resu	Its of the sin	nulation stud	ies summari:	zed in Singh	, Maichle, an	d Lee (2006).			
119	Ho	wever, sim	ulations result	s will not cov	ver all Real V	/orld data se	ets; for addition	onal insight t	he user may	want to cons	sult a statistici	an.		
120														

	A	В	С	D	Е	F	G	Н	I	J	K	L
1					UCL Statis	tics for Data	Sets with N	on-Detects				
2												
3		User Selec	cted Options									
4	Dat	e/Time of Co	omputation	ProUCL 5.14	/11/2018 10):55:35 AM						
5			From File	Soil Vapor.xl	S							
6		Ful	I Precision	OFF								
7	1	Confidence	Coefficient	95%								
8	Number o	f Bootstrap (Operations	2000								
9												
10	tert-Butylbe	nzene										
11												
12						General	Statistics					
13			Total	Number of O	bservations	20			Numbe	r of Distinct (Observations	2
14				Numbe	r of Detects	1				Number of	Non-Detects	19
15			N	umber of Disti	nct Detects	1			Numbe	er of Distinct	Non-Detects	1
16												
17	v	Varning: On	ly one distin	ct data value	was detect	ed! ProUCL	(or any othe	r software) s	hould not be	e used on su	ich a data se	t!
18	It is sugge	ested to use	alternative s	ite specific v	alues deter	mined by the	Project Tea	m to estimat	te environm	ental param	eters (e.g., E	PC, BTV).
19												
20				The dat	a set for va	riable tert-Bu	itylbenzene	was not proc	cessed!			
21												
22												

	А	В	С	D	E	F	G	Н		J	K	L
1					UCL Statis	tics for Data	Sets with N	on-Detects				
2												
3		User Sele	cted Options									
4	Dat	e/Time of Co	omputation	ProUCL 5.14/	11/2018 11	:02:14 AM						
5			From File	Soil Vapor.xls	;							
6		Ful	II Precision	OFF								
7		Confidence	Coefficient	95%								
, 8	Number o	of Bootstrap	Operations	2000								
0		-										
9 10	Toluene											
10												
12						General	Statistics					
12			Total	Number of Ob	servations	20			Numbe	r of Distinct C	Observations	4
14				Number	of Detects	3				Number of	Non-Detects	17
14			N	umber of Distin	ct Detects	3			Numbe	er of Distinct	Non-Detects	1
10				Minim	um Detect	12.4				Minimum	Non-Detect	8
10				Maxim	um Detect	220				Maximum	Non-Detect	8
17				Varian	ce Detects	12361				Percent	Non-Detects	85%
18				Mea	an Detects	93.2					SD Detects	111.2
19				Media	an Detects	47.2					CV Detects	1,193
20				Skewne	ss Detects	1.543				Kurt	osis Detects	N/A
21				Mean of Logg	ed Detects	3 922				SD of Log	aed Detects	1.439
22						0.022				02 0. 209	900 2010010	
23					Narning: D	ata set has (only 3 Detec	ted Values.				
24			т	his is not enou	ah to comr	oute meanin	oful or reliab	le statistics	and estimate	es.		
25							.					
20												
27					Norm	al GOF Tes	t on Detects	Only				
20			S	hapiro Wilk Te	st Statistic	0.872		-	Shapiro Wi	lk GOF Test		
29			5% SI	hapiro Wilk Cri	tical Value	0.767	De	tected Data	appear Norr	nal at 5% Sig	nificance Lev	el
21				Lilliefors Te	st Statistic	0.327			Lilliefors	GOF Test	·	
32			5	% Lilliefors Cri	tical Value	0.425	De	tected Data	appear Norr	nal at 5% Sig	nificance Lev	el
32				Dete	cted Data a	appear Norn	nal at 5% Sig	nificance Le	evel		-	
2/							-					
35			Kaplan-	Meier (KM) Sta	atistics usi	ng Normal C	ritical Value	s and other	Nonparamet	ric UCLs		
36				-	KM Mean	20.78			KN	/I Standard E	rror of Mean	12.73
37					KM SD	46.49				95% KN	I (BCA) UCL	N/A
38				95% k	KM (t) UCL	42.8	<u> </u>		95% KM (P	ercentile Boo	otstrap) UCL	N/A
39				95% K	M (z) UCL	41.72			-	95% KM Boo	otstrap t UCL	N/A
40			ç	0% KM Cheby	shev UCL	58.98	<u> </u>		ç	95% KM Che	byshev UCL	76.28
<u>4</u> 1			97	.5% KM Cheby	shev UCL	100.3			ç	99% KM Che	byshev UCL	147.5
42												
43				Ga	mma GOF	Tests on De	etected Obse	rvations On	ly			
<u>4</u> 1					Not En	ough Data to	Perform GC	OF Test				
45												
46					Gamma	Statistics or	Detected D	ata Only				
<u>4</u> 7				k	hat (MLE)	0.948			k	star (bias cor	rected MLE)	N/A
48				Theta	hat (MLE)	98.32			Theta	star (bias cor	rected MLE)	N/A
<u>4</u> 0				nu	hat (MLE)	5.687				nu star (bia	as corrected)	N/A
50				Меа	n (detects)	93.2				•	,	
ວບ					、/							

	А		В		С		D		E	F		G		Н					J		K			L
51																								
52								Gamr	na ROS	5 Statisti	cs us	sing Im	puted	Non-De	etects	3								
53			0000	GR	OS may	/ not	be used	d whe	n data s	set has >	50%	NDs w	ith ma	any tied	obse	rvatio	ons at	mult	iple DL		.45	00)		
54			GROS may	iy not	be used	d whe	en kstar	of de	tects is	small su	ich as	s <1.0, 0	espec	ally whe	en th	e sam	iple si		s small	(e.g	., <15-	20)		
55					FC	or suc	ch situa	tions,	GROS	method	may	yield in	correc	t values	of U	CLS a	and B	IVS						
56			-		والمعالم وال					ally true	wne	n the sa	ampie	size is s	smail		- 4 - 1			4				
57			For gar	mma	distribu	ted d	etected	data,	BIVS		s ma	у be со	mpute	a using	gam	ma di	stribu	ition	on KM	esti	mates			
58								IVI	Inimum	0.01												ean	1.	3.99 01
59								IVIa	aximum	220	7										wec		0.	
60								1.1		49.6	/								//-:				3	.551
61							Th	к na		100 5	51					т	K :	star	(blas c	orre			0	. 145
62							Ine	eta na		100.5	-0					I	netas	star	(blas c	orre			90).5 700
63					A 1'		1 (0)	nu na		5.25	o3 0							nu	i star (t	bias (correct	(ea)	5	.798
64			A		Adjusted		el of Sig		ance (β)	0.03	8					A				(-l.,	- /5 00			070
65			Ar	pprox	cimate C	ini So	uare v	alue (5.80, α)	1.5	58			050/		Adjus				value	e (5.80	i, β)	1	.372
66		9	5% Gamma	a App	proximat	te UC	L (use	when	n>=50)	52.7	5			95%	Gar	nma A	Adjust	ted L	JCL (us	se w	hen n<	:50)	N/.	<u>م</u>
67)				Inc : *									
68							E	stima			arar	neters	using	KM ESt	imat	es					00 (1			2.40
69								IVIea	an (Kivi)	20.7	8									- 6 1			46).49
70							V	ariano		2162									SE		lean (r		<u>دا</u>	2.73
71								к n		0.2	、 、									K			0	.203
72								nu n	at (KM)	7.95	1									nu	star (F		8	.125
73							tł	neta h	at (KM)	104									t	heta	star (F	(M)	102	2.3
74					80%	% gai	nma pe	rcenti	ile (KM)	27.6							90%	% ga	mma p	erce	ntile (ł	<m)< th=""><th>62</th><th>2.85</th></m)<>	62	2.85
75					95%	% gai	nma pe	rcenti	ile (KM)	106.6							99%	% ga	mma p	erce	ntile (ł	(M)	226	3.9
76									0															
77									Gamr	na Kapia	in-Me	eler (KN	n) Sta	tistics		A 11					(0.10			500
78		F 0(4	A¢	pprox	cimate C		uare v		8.13, α)	2.80	8					Adjus			quare v	value	e (8.13	i, β)	2	.566
79	5	5%(Jamma Ap	prox	imate Ki	VI-UC	L (use	wnen	n>=50)	60.1	4			15% Ga	mma	Aaju	stea r		JCL (US	se w	nen n<	50)	63).8
80											D		Ohaa			h.,								
81						<u></u>		ognoi				elected	Obse	ervations	s On	ly Charl								
82					500	snapi		Test a	Statistic	0.95	38		Data			Snap		IIK G		St			1	
83					5% 5	napii				0.76)/)_		Dete	cted Da	та ар	pear i	Logno	orma	1 at 5%	Sig	nifican	ce L	evei	
84					5	L	liefore	Critico		0.10	50 DE		Data	ated Day	+0.00		elors	GU		Cia	nificon	<u></u>	<u></u>	
85					5	070 LI	Det			0.42	20	malat					Logno	Jima	1 at 5%	Sig		CeL	evei	
86							Deu	ecieu	Data a	ppear Lo	gnor	inai at	576 51	gnincan		evei								
87									mel PC	Q Statia	tice '	leing le	nnute	d Non F)otor	te								
88						N.4.	L(ong ir	npute	u INON-L)ele(.15			Maa	n in			2	155
89						IVI		Driging		14.1	ว 1								iviea			ale	-3.	400
90			050/ +1		(2001000	20 00	rmality			49.0	7						050/ 1	Doro			etrop !		4	1 5
91			95% []	UCL	(สรรมเทย	55 110 0E 0/				33.3	5						30% I	rerc					ა² 	1.0
92						30%				47.2	20								90% B	JUIS	uaptu	,CL	23,)./
93						90,	/0 IT-UC	,L (LO	y RUS	234000	20													
94					Ct-1	otica		<u> </u>	timata	onlas)oto	d Acc	umin- '	07-		Distri	ib. A	<u></u>					
95					Statis	อนตร				2 2 2 E	3 6 I	vala an	u ASS	unning L	.oyno	niiai	ואנוו	innti		KW		000	1/) 55
96										2.35	JU							C + i + i -					ı (م	250
97				1214	Ctord-				logged)	0.0	10						30% (.og)	2	.559
98				ĸN	Standa	ra Er	I OF OF IV		logged)	0.2	ıэ						050/ 4	9:	5% H-L			.og)	22	2.39
99				1214	Ctord-			1 SD (logged)	0.8	10						yo% (Critic	ai H V	aiue	(rivi-L	.og)	2	.359
100				NIV	1 2131103	nu El	I OF OT IV	iean (logged)	0.2	19													

	А	В	С	D	E	F	G	Н	I	J	K	L				
101																
102						DL/2 S	tatistics									
103			DL/2	Normal				G H I J K stics DL/2 Log-Transformed Mean in Log Sca SD in Log Sca SD in Log Sca 95% H-Stat UC for comparisons and historical reasons Pree UCL Statistics Duted at 5% Significance Level L to Use ded to help the user to select the most appropriate 95% U ded to help the user to select the most appropriate 95% U ded to help the user to select the most appropriate 95% U distribution, and skewness. tion studies summarized in Singh, Maichle, and Lee (200 for additional insight the user may want to consult a statistical								
104				Mean in O	riginal Scale	17.38		G H I J K tistics DL/2 Log-Transformed Mean in Log S SD in Log S 95% H-Stat I d for comparisons and historical reasons on Free UCL Statistics ibuted at 5% Significance Level CL to Use ided to help the user to select the most appropriate 95% size, data distribution, and skewness. ation studies summarized in Singh, Maichle, and Lee (20)								
105				SD in O	riginal Scale	48.67		in Log Scale	1.04							
106			95% t l	JCL (Assume	es normality)	36.2		SD in Log S SD in Log S 95% H-Stat I on Free UCL Statistics ributed at 5% Significance Level								
107			DL/2	is not a reco	mmended m	ethod, provi	vided for comparisons and historical reasons									
108							vided for comparisons and historical reasons									
109					Nonparam	etric Distribu	rovided for comparisons and historical reasons ribution Free UCL Statistics I Distributed at 5% Significance Level									
110				Detected	l Data appea	ar Normal Di	7 SD in Log Scale 1.04 95% H-Stat UCL 19.09 rovided for comparisons and historical reasons ribution Free UCL Statistics I Distributed at 5% Significance Level									
111																
112						Suggested	UCL to Use									
113				95%	5 KM (t) UCL	42.8										
114																
115	1	Note: Sugge	stions regard	ling the seled	tion of a 95%	6 UCL are pr	ovided to hel	lp the user to	select the n	nost appropri	ate 95% UCL	.				
116			F	Recommenda	ations are ba	sed upon dat	a size, data	distribution,	and skewnes	SS.						
117		These record	mmendations	s are based ι	ipon the resu	Its of the sim	ulation studi	ies summariz	zed in Singh,	Maichle, an	d Lee (2006).					
118	Но	wever, simu	lations result	s will not cov	ver all Real V	/orld data se	ts; for additic	onal insight t	ne user may	want to cons	ult a statistici	an.				
119																

	А	В	С	D	E	F	G	Н		J	K	L
1					UCL Statis	tics for Data	Sets with N	on-Detects				
2				1								
3		User Sele	cted Options									
4	Da	e/Time of Co	omputation	ProUCL 5.14	1/11/2018 11	:02:49 AM						
5			From File	Soil Vapor.x	ls							
6		Ful	II Precision	OFF								
7		Confidence	Coefficient	95%								
8	Number o	of Bootstrap	Operations	2000								
9												
10	Trichloroflu	oromethane										
11												
12				<u></u>		General	Statistics			(5)		
13			lotal	Number of O	bservations	20			Numbe	r of Distinct C	bservations	8
14				Numbe	r of Detects	/				Number of I	Non-Detects	13
15			N	umber of Dist	inct Detects	/			Numbe	er of Distinct I	Non-Detects	1
16				Mini	mum Detect	10				Minimum	Non-Detect	8
17				Maxi	mum Detect	87				Maximum	Non-Detect	8
18				Varia	nce Detects	956.1				Percent	Non-Detects	65%
19				M	ean Detects	35.86					SD Detects	30.92
20				Mec	lian Detects	15.6					CV Detects	0.862
21				Skewn	ess Detects	0.879				Kurte	osis Detects	-0.918
22				Mean of Log	ged Detects	3.239				SD of Log	ged Detects	0.894
23							<u> </u>					
24					Norm	nal GOF Tes	t on Detects	Only				
25			S	hapiro Wilk T	est Statistic	0.823			Shapiro Wi	lk GOF Test		-
26			5% S	hapiro Wilk C	ritical Value	0.803	De	etected Data	appear Norr	nal at 5% Sig	nificance Lev	el
27				Lilliefors T	est Statistic	0.315			Lilliefors	GOF Test		
28			5	% Lilliefors C	ritical Value	0.304]	Detected Dat	a Not Norma	al at 5% Signi	ficance Level	
29				Detected	Data appear	Approximat	e Normal at	5% Significa	ance Level			
30												
31			Kaplan-	Meier (KM) S	statistics usi	ng Normal C	ritical Value	s and other	Nonparamet			
32					KM Mean	17.75			KN	A Standard E	rror of Mean	5.199
33				050/	KM SD	21.53			050(101/5	95% KM	(BCA) UCL	27.15
34				95%	KM (t) UCL	26.74			95% KM (P	ercentile Boo	otstrap) UCL	26.34
35				95%	KM (z) UCL	26.3				95% KM Boo	tstrap t UCL	33.88
36					bysnev UCL	33.35				95% KM Chel	bysnev UCL	40.41
37			97	.5% KIN Chel	bysnev UCL	50.22			Ç	99% KIN Chel	bysnev UCL	งษ.48
38						Tooto an Di	toolod Ober	motion - O-	h <i>.</i>			
39				G	amma GOF			ervations On	iy ndaman Dai		-	
40						0.70	Datasta	A			0/ Significant	
41				5% A-D C		0.72	Detected	a data appea		Stributed at 5	-% Significant	ce Level
42				K-SI		0.314	Dotooto			smirnov GO	C Q Significant	
43				Dotocto-		U.317		uata appea		sulbuled at 5		Le Level
44				Derected	uata appea			o o o o o o o o o o o	ICE LEVEI			
45					Commo	Statistics c-	Detected D	ata Only				
46							Delected D			tor (bioc oc.		1 0 1 0
47				Th		1.010			Thata	star (bias cori		35.10
48				Inet		22.19			meta			14.00
49				n 		22.03				nu star (bia	s corrected)	14.20
50				Me	an (detects)	35.86						

	A		В	С		D)		Е	F		C	à	Н		l			J		К	T	L
51																							
52							(Gamm	na ROS	6 Statistic		sing Im	puted	Non-De	etects	;							
53				GROS	may	not be	usec	l wher	n data s	set has >	50%		with ma	any tied	obse	rvatio	ns at r	nultip	DIE DL	.S	45.00	<u> </u>	
54			GROS may	y not be	used	wnen	kstar	of det		small su	ch as	s <1.0,	espec	ally whe	en the	e sam	ple siz		small	(e.g.	, <15-20)	
55					Fo	r such	situat	tions,	GROS	method r	may	yield ir	correc	t values	s of U	CLs a	IND B I	Vs					
56								I his is	espec	ially true	wne	n the s	ample	size is s	small								
57			For gai	mma disi	tribut	ed dete	ected	data,	BIVS		s ma	у ве со	ompute	a using	gam	ma di	stribut	ion o	n KM	estin	nates		10 50
58								IVII	inimum	0.01											Mea	n 	12.56
59								Ma	IXIMUM	8/	~										Media	n 	0.01
60								1. 1		24.6	9											/	1.966
61							The	K nat		0.17	2						K S			orrec		.)	0.179
62							ine			/3.10	0					I	neta s			orrec		.)	70.06
63				۸diu	unto d	Loval	of Cia			0.00	0							nus	star (D	las c	onected)	7.109
64			<u>^</u>	Auju				jninca	$\frac{1}{7}$	0.030	0 :4					Adiuc	tod Ck			/01.00	(7 17 0		2.052
65					im of			alue (7	$\frac{17, 0}{2}$	2.20	7			050/	Car	Aujus					(/.1/, p	<u> </u>	2.052
66		9	5% Gamma	a Approx	linat	9 UCL	(use	when	n>-50)	39.7	/			95%	Gar	nma P	ajuste		JL (US	e wi)	43.07
67								otimot		ammo 5)oro-	notoro	ueina	KM Eat	imet	20							
68								Moo				IIEIEI S	using		IIIIau	73					SD (KN	n –	21 52
69							V			163.4	5								SE	of M			5 100
70							v			403.4 0.68	2								36		edii (Kiv) N	0.611
71										0.00)									R DU	star (KN) N	24.45
72							+			27.2	1								+	hota	star (KN		24.45
73					000/	aomn	u no no	roontil		20.1	1 6						0.00/	aon	u 	aroor) N	45.07
74					00 /0	gann		rcontil		63.4	1						90%	gan		orcor	nile (KN) N	45.97
75					90 /	ganni		i centi		05.44	+						3370	yan	ina p	ercer		,	105.0
76									Gamr	na Kanla	n-Me	aior (K	M) Sta	tistics									
77			Anr	oroximate	e Chi	Squar	e Val	ue (24	1 45 a)	14 10	9			00000	Δ	diuste	d Chi	Sau	are Va	alue (24 45 6	0	13 58
78		95%	Camma An	nrovimat				when	$\frac{1}{n} = 50$	30.58	8)5% Ga	mma			M_I IC			27.70, p	<u>)</u>	31.97
/9		0070		proximat		TOOL	(000	when	II ² 00)	00.00	0			<i>io</i> // au		/ tujuc			5E (u5			/	01.07
80							L	oanor	mal G()F Test o	on De	etecter	d Obse	rvation	s On	v							
81					S	hapiro	Wilk	Test S	Statistic	0.85	4					., Shapi	ro Wil	k GC)F Tes	st			
82				5	5% Sł		Wilk (Critica	I Value	0.80	3		Dete	cted Da	ta an	pear l	oanoi	rmal	at 5%	Sian	ificance	l ev	vel
83						Lillie	efors	Test S	Statistic	0.28			2010			Lilli	efors (GOF	Test	0.g.			
84 95					5	% Lillie	efors (Critica	l Value	0.30	4		Dete	cted Da	ta ap	pear L	oanor	rmal	at 5%	Sian	ificance	Lev	vel
00 20							Dete	ected	Data a	ppear Lo	gnor	mal at	5% Si	gnificar	nce L	evel	5.5			3.			
00 07											•			•									
0/							Lo	ognorr	nal RC	S Statist	tics l	Jsing I	mpute	d Non-E	Detec	ts							
00 20						Mear	n in C	- Drigina	l Scale	13.79	9	•	-						Mear	n in L	.og Scal	е	1.214
09						SE	D in C)rigina	l Scale	24.08	8								SE) in L	.og Scal	e	1.865
Q1			95% t l	JCL (ass	sume	s norm	ality	of RO	S data)	23.1						ļ	95% P	Perce	ntile E	Boots	trap UC	Ē	22.7
91				-	ę	95% BC	CA Bo	ootstra	ap UCL	26.49	9							9	5% Bc	ootsti	ap t UC		30
02						95% I	H-UC	L (Loc	g ROS)	108.9											-	+	
93 Q/I										I												_	
95				5	Statis	tics us	sing K	(M est	timates	on Logg	jed D	Data ar	nd Ass	uming L	ogno	ormal	Distrit	butio	n				
96						ł	KM M	lean (l	ogged)	2.48	5			-					ł	KM G	ieo Mea	n	12.01
97							KM	SD (I	ogged)	0.73	9					ę	95% C	Critica	al H Va	alue	(KM-Log	J)	2.283
98				KM Sta	andar	d Erroi	r of M	lean (l	ogged)	0.17	8							959	% H-U	ICL (KM -Log	J)	23.23
99							KM	SD (I	ogged)	0.73	9					ę	95% C	Critica	al H Va	alue	(KM-Log	J)	2.283
100				KM Sta	andar	d Erroi	r of M	lean (l	ogged)	0.17	8											+	
100								`	/														

	А	В	С	D	E	F	G	Н	I	J	K	L		
101														
102						DL/2 S	tatistics							
103			DL/2	Normal					DL/2 Log-1	ransformed				
104				Mean in O	riginal Scale	15.15				Mean	in Log Scale	2.035		
105				SD in O	riginal Scale	23.34				SD	in Log Scale	1.037		
106			95% t l	JCL (Assume	es normality)	24.18				95%	H-Stat UCL	24.82		
107			DL/2	is not a reco	mmended m	ethod, provi	ded for comp	parisons and	l historical re	easons		1		
108														
109					Nonparam	etric Distribu	tion Free UC	CL Statistics						
110	Detected Data appear Approximate Normal Distributed at 5% Significance Level													
111														
112						Suggested	UCL to Use							
113				95%	5 KM (t) UCL	26.74								
114												1		
115			When a c	lata set follov	ws an approx	kimate (e.g., i	normal) distri	bution passi	ng one of the	e GOF test				
116		When app	licable, it is s	suggested to	use a UCL b	ased upon a	distribution (e.g., gamma	a) passing bo	th GOF tests	s in ProUCL			
117														
118	۱	Note: Sugge	stions regard	ling the seled	tion of a 95%	6 UCL are pr	ovided to hel	p the user to	select the n	nost appropri	ate 95% UCL			
119			F	Recommenda	ations are ba	sed upon dat	ta size, data (distribution, a	and skewnes	SS.				
120		These record	mmendation	s are based u	ipon the resi	Its of the sim	nulation studi	es summariz	zed in Singh,	Maichle, and	d Lee (2006).			
121	Но	wever, simu	lations result	s will not cov	ver all Real V	Vorld data se	ts; for additic	onal insight th	ne user may	want to cons	ult a statistic	ian.		
122														

APPENDIX I

Johnson & Ettinger Model Results Soil Vapor – Residential

Version 2.0, 04/2003

DTSC Modification

December 2014

Department of Toxic Substances Control Vapor Intrusion Screening Model - Soil Gas

DATA ENTRY SHEET

Scenario: Residential Chemical: Chloroform

		Soil	Gas Concentration	n Data				Resu
D ()	ENTER	ENTER		ENTER			Soil Gas Conc	Attenuation Factor
Reset to		Soil		Soil			(µg/m³)	(unitless)
Defaults	Chemical	gas	OR	gas			2.46E+01	1.3E-03
/	CAS No.	conc.,		conc.,		Ľ		
	(numbers only,	Ca		Ca				
	no dashes)	(µg/m³)		(ymqq)	Chemical			
				(PP)				=
	67663	2.46E+01			Chloroform			_
								_
	ENTER Depth	ENTER	ENTER	ENTER		ENTER		
MORE	below grade	Soil gas		Vadose zone		User-defined		
↓	to bottom	sampling	Average	SCS		vadose zone		
L	of enclosed	depth	soil	soil type		soil vapor		
	space floor.	below grade.	temperature.	(used to estimate	OR	permeability.		
	L _F	L,	Ts	soil vapor		k _v		
	(15 or 200 cm)	(cm)	(°Č)	permeability)		(cm ²)		
		(011)	(-)		:			
	15	152	24	S	ן			
MORE ↓	ENTER Vandose zone SCS soil type Lookup Soil	$\begin{array}{c} \textbf{ENTER} \\ \text{Vadose zone} \\ \text{soil dry} \\ \text{bulk density,} \\ \rho_{\text{b}}^{\text{A}} \\ (g/\text{cm}^{\circ}) \end{array}$	ENTER Vadose zone soil total porosity, n [°] (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^{v} (cm [°] /cm [°])		ENTER Average vapor flow rate into bldg. (Leave blank to calcula Q _{soil} (L/m)	te)	
	S	1.66	0.375	0.054]	5		
MORE ↓	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER		
	Averaging	Averaging		_				
	time for	time for	Exposure	Exposure	Exposure	Air Exchange		
	carcinogens,	noncarcinogens,	duration,	frequency,	Time	Rate		
Parameters	AT _C	AT _{NC}	ED	EF	ET	ACH		
	(yrs)	(yrs)	(yrs)	(days/yr)	(hrs/day)	(hour)		
Residential	70	26	26	350	24	0.5		
		-		-	(NEW)	(NEW)		
END								

Ilts Summary		
Indoor Air Conc.	Cancer	Noncancer
(µg/m ³)	Risk	Hazard
3.2E-02	2.6E-07	3.1E-04

Version 2.0, 04/2003

DTSC Modification

December 2014

Reset to

Defaults

MORE

 $\mathbf{\Psi}$

MORE

 $\mathbf{\Psi}$

 L_{F}

15

SCS

Department of Toxic Substances Control Vapor Intrusion Screening Model - Soil Gas

Scenario: Residential Chemical: Cumene DATA ENTRY SHEET Resu Soil Gas Concentration Data ENTER ENTER Soil Gas Conc. Attenuation Factor **ENTER** (µg/m³) Soil Soil (unitless) OR Chemical 1.1E-03 gas gas 1.07E+04 CAS No. conc., conc., C_{g} C_{g} (numbers only, (µg/m°) no dashes) (ppmv) Chemical 98828 1.07E+04 Cumene MESSAGE: See VLOOKUP table comments on chemical properties and/or toxicity criteria for this chemical ENTER **ENTER** ENTER **ENTER** ENTER Depth below grade Soil gas Vadose zone User-defined SCS to bottom sampling Average vadose zone of enclosed depth soil soil type soil vapor space floor, below grade, temperature, (used to estimate OR permeability, L_{s} T_S soil vapor k_v (°C) (cm[∠]) (15 or 200 cm) permeability) (cm) 152 24 S ENTER ENTER ENTER ENTER ENTER Vandose zone Vadose zone Vadose zone Vadose zone Average vapor soil total soil water-filled flow rate into bldg. soil dry soil type bulk density, (Leave blank to calculate) porosity, porosity,

	Lookup Soil	ρ _b ົ (g/cm³)	n (unitless)	θ _w ઁ (cm³/cm³)		Q _{soil} (L/m)
	S	1.66	0.375	0.054		5
MORE ↓	ENTER Averaging	ENTER Averaging	ENTER	ENTER	ENTER	ENTER
	time for	time for	Exposure	Exposure	Exposure	Air Exchange
Lookup Receptor Parameters	Carcinogens, AT _C (yrs)	noncarcinogens, AT _{NC} (yrs)	duration, ED (yrs)	frequency, EF (days/yr)	l îme ET (hrs/day)	Rate ACH (hour) ⁻ '
	70		26	250	24	0.5
	/0	20	20	350	(NEW)	(NEW)
END END						

Its Summary		
Indoor Air Conc.	Cancer	Noncancer
(µg/m ³)	Risk	Hazard
1.2E+01	NA	2.9E-02

Version 2.0, 04/2003

DTSC Modification

December 2014

Department of Toxic Substances Control Vapor Intrusion Screening Model - Soil Gas

DATA ENTRY SHEET

Scenario: Residential Chemical: Dichlorodifluoromethane

		Soil	Gas Concentratio	n Data				Resu
	ENTER	ENTER		ENTER		-	Soil Gas Conc.	Attenuation Factor
Reset to		Soil		Soil			(µg/m ³)	(unitless)
Defaults	Chemical	gas	OR	qas		-	1.06E+01	1.3E-03
/	CAS No.	conc.		conc		Ľ		
	(numbers only	C _a		C _a				
	(nambere eniy,	(µɑ/m³)		(nnmy)	Chemical			
		(¤g/…)		(ppinv)	Chemical			-
	75718	1.06E+01			Dichlorodifluoro	omethane		_
								_
	ENTER Depth	ENTER	ENTER	ENTER		ENTER		
MORE	below grade	Soil gas		Vadose zone		User-defined		
↓ ↓	to bottom	sampling	Average	SCS		vadose zone		
	of enclosed	depth	soil	soil type		soil vapor		
	space floor.	below grade.	temperature.	(used to estimate	OR	permeability.		
	L ^E	Le	Ts	soil vapor		κ _ν		
	(15 or 200 cm)	(cm)	(°C)	nermeability)		(cm ²)		
		(cm)	()	permeability)	:	(0)		
	15	152	24	S	ן			
MODE	ENTER	ENTER	ENTER	ENTER		ENTER		
MORE	vandose zone	vadose zone	vadose zone	vadose zone		Average vapor		
•	SUS	SOII CITY	soll total	soll water-filled		flow rate into bldg.	•->	
	soil type	DUIK density,	porosity,	porosity,		(Leave blank to calcula	te)	
	Lookup Soil	ρ_b	11	Θ_{W}		Q _{soil}		
		(g/cm)	(unitless)	(cm /cm)	:	(L/m)		
	S	1.66	0.375	0.054]	5		
MODE								
↓				ENTER	ENTER	ENTER		
	time for	Averaging	Exposuro	Exposure	Evposure	Air Evolopae		
			⊏xposure duration	⊏xposure	⊏xposure Timo			
Lookup Receptor				requency,		rtale ACU		
Parameters	AIC	A INC						
	(yrs)	(yrs)	(yrs)	(days/yr)	(hrs/day)	(11001)		
Residential	70	26	26	350	24	0.5		
					(NEW)	(NEW)		
END								

ults	Summary		
-	Indoor Air Conc.	Cancer	Noncancer
	(µg/m ³)	Risk	Hazard
	1.4E-02	NA	1.3E-04

Version 2.0, 04/2003

DTSC Modification December 2014

Department of Toxic Substances Control Vapor Intrusion Screening Model - Soil Gas

DATA ENTRY SHEET

Scenario: Residential Chemical: Ethylbenzene

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C _g (μg/m ³)	OR	ENTER Soil gas			Soil Gas Conc. (µg/m ³)	Attenuation Facto (unitless)
Chemical CAS No. (numbers only, no dashes)	Soil gas conc., C _g (µg/m³)	OR	Soil gas			(µg/m ³)	(unitless)
Chemical CAS No. (numbers only, no dashes)	gas conc., C _g (μg/m³)	OR	gas		ll ll	(1.2.7	(4.1.1.0000)
CAS No. (numbers only, no dashes)	conc., C _g (μg/m³)		e e			9.60E+00	1.2E-03
(numbers only, no dashes)	C _g (μg/m³)		conc		Ľ		
no dashes)	(µg/m³)		C _a				
			(nnmv)	Chemical			
			(ppiiiv)	Onennear			=
100414	9.60E+00		r	Ethylbenzene			-
							-
ENTER Depth	ENTER	ENTER	ENTER		ENTER		
below grade	Soil gas		Vadose zone		User-defined		
to bottom	sampling	Average	SCS		vadose zone		
of enclosed	depth	soil	soil type		soil vapor		
space floor,	below grade,	temperature,	(used to estimate	OR	permeability,		
L _F	Ls	T _s	soil vapor		k _v		
(15 or 200 cm)	(cm)	(°C)	permeability)		(cm ²)		
(,	(0)	()					
15	152	24	S				
ENTER Vandose zone SCS soil type	$\begin{array}{c} \textbf{ENTER} \\ \text{Vadose zone} \\ \text{soil dry} \\ \text{bulk density,} \\ \rho_{\text{b}}^{\text{A}} \\ (\text{g/cm}^{3}) \end{array}$	ENTER Vadose zone soil total porosity, n ^v (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm ³ /cm ³)		ENTER Average vapor flow rate into bldg. (Leave blank to calcula Q _{soil} (L/m)	ite)	
S	1.66	0.375	0.054		5		
S	1.66	0.375	0.054		5		
ENTER	ENTER	ENTER	ENTER	ENTER	ENTER		
Averaging	Averaging						
time for	time for	Exposure	Exposure	Exposure	Air Exchange		
carcinogens	noncarcinodens	duration	frequency	Time	Rate		
AT ₂	AT _{NO}	FD	FF	FT	ACH		
(vrs)	(vrs)	(vrc)	(days/yr)	(bre/day)	(hour) ⁻¹		
(915)	(915)	(915)	(uays/yr)	(1115/udy)	(1001)		
70	26	26	350	24	0.5		
	-	-		(NEW)	(NEW)		
	ENTER Depth below grade to bottom of enclosed space floor, L _F (15 or 200 cm) 15 ENTER Vandose zone SCS soil type ookup Soil S ENTER Averaging time for carcinogens, AT _C (yrs) 70	ENTER DepthENTER Depthbelow grade to bottomSoil gas sampling of enclosed depthof enclosed space floor, L_F depth selow grade, L_s (15 or 200 cm)(cm)15152ENTER Vandose zone SCS soil typeSoil type ookup SoilDulk density, ρ_b^A (g/cm ³)S1.66ENTER Averaging time for carcinogens, AT_C (yrs)ENTER (yrs)7026	ENTER DepthENTER Soil gas samplingENTER Soil gas soilbelow grade to bottomSoil gas samplingAverage soilof enclosed of enclosed to below grade, L_F depth L_S soil temperature, L_F L_F L_S T_S (15 or 200 cm)(cm)(°C)1515224ENTER Vadose zone soil dry bulk density, ρ_b^A ENTER vadose zone soil total porosity, n^{\vee} (unitless)S1.660.375ENTER SENTER time for carcinogens, AT_C (yrs)ENTER (yrs)ENTER (yrs)702626	ENTER DepthENTERENTERENTERDepthSoil gas samplingAverage soilSCS soil typeof enclosed space floor, L_{F} below grade, L_{S} temperature, TSVadose zone SCS soil type(15 or 200 cm)(cm)(°C)permeability)1515224SENTER Vadose zone SCS soil typeENTER Vadose zone soil dry bulk density, ρ_b^A ENTER vadose zone soil total porosity, n^V ENTER θ_w^V θ_w^V S1.660.3750.054ENTER Varaging time for carcinogens, AT _C ENTER Averaging time for time for (yrs)ENTER (yrs)ENTER (yrs)702626350	ENTER DepthENTER Soil gasENTER ENTERENTER ENTERbelow grade space floor, L_{r} Soil gas depth below grade, L_{r} Vadose zone soil temperature, Ts SVadose zone soil vapor permeability)1515224SENTER (15 or 200 cm) (cm)C) (cm)C) (°C)1515224SENTER Vadose zone SCS soil type bulk density, pokaENTER vadose zone soil total (g/cm ³)CHTER (unitless)CHTER (m ³)S1.660.3750.054ENTER varing fime for carcinogens, ATc (yrs)ENTER (yrs)ENTER (yrs)ENTER (yrs)ENTER (days/yr)70262635024 (NEW)	ENTER Depth below gradeENTERENTERENTERENTERDepth below gradeSoil gas to bottomAverage soilSCS soil typeVadose zone SCS soil typeUser-defined vadose zone soil vapor permeability, (cm ²)L r r (15 or 200 cm)L r cm ²)L r r sCR r soil vaporUser-defined vadose zone soil vapor permeability)ENTER (15 or 200 cm)ENTER (cm)ENTER r r soil vaporENTER r soil vaporENTER r soil vaporENTER Vadose zone SCS soil typeENTER vadose zone soil total soil valuer-filled pph ⁵ ENTER r r r r r r r r r r r r r exercisedENTER r exercisedENTER r exercisedENTER Vadose zone Soil typeENTER vadose zone soil total gokup SoilENTER ph ⁵ ENTER r r r r r r r r r r r r r r r exercisedENTER r exercisedENTER r exercisedENTER r <br< td=""><td>ENTER Depth below gradeENTERENTERENTERENTERbelow grade to bottomSoil gas sampling depth space floor, L_rSoil gas depth L_rVadose zone SCSUser-defined vadose zone soil vapor (used to estimate soil vaporUser-defined vadose zone soil vapor (cm²)1515224SENTER Vadose zone vadose zoneENTER Vadose zone vadose zoneVadose zone SCS soil dryENTER vadose zone vadose zoneENTER vadose zone vadose zone vados</td></br<>	ENTER Depth below gradeENTERENTERENTERENTERbelow grade to bottomSoil gas sampling depth space floor, L_r Soil gas depth L_r Vadose zone SCSUser-defined vadose zone soil vapor (used to estimate soil vaporUser-defined vadose zone soil vapor (cm ²)1515224SENTER Vadose zone vadose zoneENTER Vadose zone vadose zoneVadose zone SCS soil dryENTER vadose zone vadose zoneENTER vadose zone vadose zone vados

Results	s Summary		
n Factor	Indoor Air Conc.	Cancer	Noncancer
itless)	(µg/m³)	Risk	Hazard
2E-03	1.2E-02	1.0E-08	1.1E-05

Version 2.0, 04/2003

DTSC Modification

December 2014

Department of Toxic Substances Control Vapor Intrusion Screening Model - Soil Gas

DATA ENTRY SHEET

Scenario: Residential Chemical: Naphthalene

		Soil	Gas Concentratio	n Data				Resu
	ENTER	ENTER		ENTER			Soil Gas Conc.	Attenuation Factor
Reset to		Soil		Soil			(µg/m ³)	(unitless)
Defaults	Chemical	gas	OR	gas			1.13E+04	1.1E-03
/	CAS No.	conc		conc		Ľ		
	(numbers only.	C _a		C _o				
	no dashes)	(ua/m [°])		(nnmy)	Chemical			
		(1.9)		(ppiiit)	ononnoar			=
	91203	1.13E+04			Naphthalene			-
		•						-
	ENTER Depth	ENTER	ENTER	ENTER		ENTER		
MORE	below grade	Soil gas		Vadose zone		User-defined		
$\mathbf{\Psi}$	to bottom	sampling	Average	SCS		vadose zone		
	of enclosed	depth	soil	soil type		soil vapor		
	space floor.	below grade.	temperature.	(used to estimate	OR	permeability.		
	Le ,	L,	Ts	soil vapor		k _v		
	(15 or 200 cm)	(cm)	(°Č)	permeability)		(cm ²)		
		(611)	(-)		:	(0)		
	15	152	24	S	ן			
MORE ↓	ENTER Vandose zone SCS soil type Lookup Soil	ENTER Vadose zone soil dry bulk density, ρ _b ^A (g/cm ³)	ENTER Vadose zone soil total porosity, n ^v (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^{\vee} (cm [°] /cm [°])		ENTER Average vapor flow rate into bldg. (Leave blank to calcula Q _{soil} (L/m)	te)	
	S	1.66	0.375	0.054]	5		
MORE ↓	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER		
	Averaging	Averaging		F	F	Ain Evekers		
	time for	time for	⊨xposure	⊨xposure	⊢xposure			
Lookun Recentor	carcinogens,	noncarcinogens,	duration,	trequency,	l ime	Rate		
Parameters	AIC	AINC	ED	EF	EI	ACH		
	(yrs)	(yrs)	(yrs)	(days/yr)	(hrs/day)	(hour)		
Residential	70	26	26	350	24	0.5		
					(NEW)	(NEW)		
END								

ılts	Summary		
•	Indoor Air Conc.	Cancer	Noncancer
	(µg/m³)	Risk	Hazard
	1.3E+01	1.6E-04	4.1E+00

Version 2.0, 04/2003

DTSC Modification December 2014

Department of Toxic Substances Control Vapor Intrusion Screening Model - Soil Gas

DATA ENTRY SHEET

Scenario: Residential Chemical: n-Butylbenzene

		Soil	Gas Concentratio	n Data				Resu
D	ENTER	ENTER		ENTER]		Soil Gas Conc.	Attenuation Factor
Reset to		Soil		Soil			(µg/m ³)	(unitless)
Defaults	Chemical	gas	OR	gas			4.08E+01	1.1E-03
/	CAS No.	conc.,		conc.,		ľ	MESSAGE: Risk an	d/or hazard quotient
	(numbers only,	C _q		C _q				
	no dashes)	(µg/m³)		(ppmv)	Chemical			
	/	<u> </u>						
	104518	4.08E+01			n-Butylbenzene			
	ENTER Depth	ENTER	ENTER	ENTER		ENTER		
MORE	below grade	Soil gas		Vadose zone		User-defined		
•	to bottom	sampling	Average	SCS		vadose zone		
	of enclosed	depth	soil	soil type		soil vapor		
	space floor,	below grade,	temperature,	(used to estimate	OR	permeability,		
	L _F	L _s	Τ _s	soil vapor		k _v		
	(15 or 200 cm)	(cm)	(°C)	permeability)	_	(cm ²)		
	15	150	24		-			
	15	152	24	5				
MORE ↓	ENTER Vandose zone SCS soil type Lookup Soil	$\begin{array}{c} \textbf{ENTER} \\ \text{Vadose zone} \\ \text{soil dry} \\ \text{bulk density,} \\ \rho_{\text{b}}^{\text{A}} \\ (g/\text{cm}^{3}) \end{array}$	ENTER Vadose zone soil total porosity, n ^v (unitless)	ENTER Vadose zone soil water-filled porosity, θ _w ^V (cm ³ /cm ³)	(ENTER Average vapor flow rate into bldg. (Leave blank to calcula Q _{soil} (L/m)	ate)	
					1			
	S	1.66	0.375	0.054]	5		
MORE ↓	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER		
	Averaging	Averaging						
	time for	time for	Exposure	Exposure	Exposure	Air Exchange		
	carcinogens,	noncarcinogens,	duration,	frequency,	Time	Rate		
Lookup Receptor	AT _c	AT _{NC}	ED	EF	ET	ACH		
Parameters	(yrs)	(yrs)	(yrs)	(days/yr)	(hrs/day)	(hour) ⁻¹		
	70	26	26	350	24	0.5		
		_~	•	L	(NEW)	(NEW)		
END								

Results Summary									
n Factor	Indoor Air Conc.	Cancer	Noncancer						
itless)	(µg/m ³)	Risk	Hazard						
E-03	4.3E-02	NA	2.4E-04						

rd quotient is based on route-to-route extrapolation.

Version 2.0, 04/2003

DTSC Modification

December 2014

Department of Toxic Substances Control Vapor Intrusion Screening Model - Soil Gas

DATA ENTRY SHEET

Scenario: Residential Chemical: n-Propylbenzene

		Soil	Gas Concentratio	n Data				Resu
-	ENTER	ENTER		ENTER]		Soil Gas Conc.	Attenuation Factor
Reset to		Soil		Soil			(µg/m ³)	(unitless)
Defaults	Chemical	gas	OR	gas			8.09E+03	1.1E-03
	CAS No.	conc		conc		Ľ		
	(numbers only.	Ca		Ca				
	no dashes)	(ug/m ³)		(nnmy)	Chemical			
		(1.3)		(ppiiit)	ononnoa			=
	103651	8.09E+03			n-Propylbenzen	10		-
								-
	ENTER Depth	ENTER	ENTER	ENTER		ENTER		
MORE	below grade	Soil gas		Vadose zone		User-defined		
$\mathbf{\Psi}$	to bottom	sampling	Average	SCS		vadose zone		
	of enclosed	depth	soil	soil type		soil vapor		
	space floor.	below grade.	temperature.	(used to estimate	OR	permeability.		
	L ^E	L,	Ts	soil vapor		k _v		
	(15 or 200 cm)	(cm)	(°Č)	permeability)		(cm ²)		
		(em)	(-)		:	(0)		
	15	152	24	S	ו			
MORE ↓	ENTER Vandose zone SCS soil type Lookup Soil	ENTER Vadose zone soil dry bulk density, ρ _b ^A (g/cm [°])	ENTER Vadose zone soil total porosity, n ^v (unitless)	ENTER Vadose zone soil water-filled porosity, θ _w ^v (cm [°] /cm [°])	-	ENTER Average vapor flow rate into bldg. (Leave blank to calcular Q _{soil} (L/m)	te)	
	S	1.66	0.375	0.054]	5		
	ENTER Averaging time for carcinogens,	ENTER Averaging time for noncarcinogens,	ENTER Exposure duration,	ENTER Exposure frequency,	ENTER Exposure Time	ENTER Air Exchange Rate		
Lookup Receptor	AT _C	AT _{NC}	ED	EF	ET	ACH		
Parameters	(yrs)	(yrs)	(yrs)	(days/yr)	(hrs/day)	(hour) ⁻ '		
Residential	70	26	26	350	24	0.5		
					(NEW)	(NEW)		
END								

ults	Summary		
-	Indoor Air Conc.	Cancer	Noncancer
	(µg/m ³)	Risk	Hazard
	9.2E+00	NA	8.8E-03

Version 2.0, 04/2003

DTSC Modification

December 2014

Department of Toxic Substances Control Vapor Intrusion Screening Model - Soil Gas

DATA ENTRY SHEET

Scenario: Residential Chemical: Tetrachloroethylene

		Soil	Gas Concentratior	n Data				Rest
Desette	ENTER	ENTER		ENTER			Soil Gas Conc.	Attenuation Factor
Reset to		Soil		Soil			(µg/m³)	(unitless)
Defaults	Chemical	gas	OR	gas			1.20E+01	1.0E-03
/	CAS No.	conc.,		conc.,		1		
	(numbers only,	Ca		Ca				
	no dashes)	(µg/m³)		(vmqq)	Chemical			
				(FF····)				=
	127184	1.20E+01		[Tetrachloroethyle	ne		-
				•				-
	ENTER	ENTER	ENTER	ENTER		ENTER		
MORE	below grade	Soil das		Vadose zone		User-defined		
	to bottom	sampling	Average	SCS		vadose zone		
· ·	of enclosed	denth	soil	soil type		soil vapor		
	snace floor	below grade	temperature	(used to estimate	OR	nermeability		
				(used to estimate	ON	k		
	LF (15 ar 200 arm)	L _S	(°C)			(cm^2)		
	(15 or 200 cm)	(cm)	(C)	permeability)	•	(cm)		
	15	152	24	S	ו			
MORE ↓	ENTER Vandose zone SCS soil type Lookup Soil	ENTER Vadose zone soil dry bulk density, ρ _b ^A (g/cm [°])	ENTER Vadose zone soil total porosity, n ^v (unitless)	ENTER Vadose zone soil water-filled porosity, θ _w ^v (cm [°] /cm [°])	(ENTER Average vapor flow rate into bldg. Leave blank to calcula Q _{soil} (L/m)	ate)	
	<u> </u>	1.66	0 375	0.054	ı	5		
	5	1.00	0.373	0.004	1	5		
MORE								
•			ENTER	ENTER	ENTER	ENTER		
	time for	time for	Exposuro	Exposuro	Exposuro	Air Exchange		
			duration	froquency	Timo			
Lookup Recentor				requency,		Rale		
Parameters	AIC	AI _{NC}	ED			ACH		
	(yrs)	(yrs)	(yrs)	(days/yr)	(hrs/day)	(nour)		
Residential	70	26	26	350	24	0.5		
					(NEW)	(NEW)		

Results	Summary		
on Factor	Indoor Air Conc.	Cancer	Noncancer
itless)	(µg/m³)	Risk	Hazard
)E-03	1.2E-02	2.6E-08	3.4E-04

Version 2.0, 04/2003

DTSC Modification

December 2014

Department of Toxic Substances Control Vapor Intrusion Screening Model - Soil Gas

DATA ENTRY SHEET

Scenario: Residential Chemical: sec-Butylbenzene

		Soil	Gas Concentration	n Data				Resu
	ENTER	ENTER		ENTER			Soil Gas Conc.	Attenuation Factor
Reset to		Soil		Soil			(µg/m ³)	(unitless)
Defaults	Chemical	das	OR	das			1.15E+04	1.1E-03
/	CAS No	conc		conc		L		
	(numbers only	C _a		C _a				
	(numbers only,	(uq/m ^s)		(nnmu)	Chamical			
	no uasiles)	(µg/11)		(ppinv)	Chemical			=
	135088	1 15E+0/			sec-Butylbenze	ne		_
	133300	1.132+04			Sec-DutyiDenze			-
	ENTER	ENTER	ENTER	ENTER		ENTER		
	Depth							
MORE	below grade	Soil gas		Vadose zone		User-defined		
•	to bottom	sampling	Average	SCS		vadose zone		
	of enclosed	depth	soil	soil type		soil vapor		
	space floor,	below grade,	temperature,	(used to estimate	OR	permeability,		
	L _F	Ls	Ts	soil vapor		k _v		
	(15 or 200 cm)	(cm)	(°C)	permeability)		(cm²)		
	15	152	24	S				
MORE ↓	ENTER Vandose zone SCS soil type Lookup Soil	ENTER Vadose zone soil dry bulk density, ρ _b ^A (g/cm [°])	ENTER Vadose zone soil total porosity, n ^v (unitless)	ENTER Vadose zone soil water-filled porosity, θ _w ^v (cm [°] /cm [°])		ENTER Average vapor flow rate into bldg. (Leave blank to calcula Q _{soil} (L/m)	ite)	
	S	1.66	0.375	0.054		5		
MORE								
↓	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER		
	Averaging	Averaging						
	time for	time for	Exposure	Exposure	Exposure	Air Exchange		
	carcinogens,	noncarcinogens,	duration,	frequency,	Time	Rate		
Lookup Receptor	AT _c	AT _{NC}	ED	EF	ET	ACH		
Parameters	(yrs)	(yrs)	(yrs)	(days/yr)	(hrs/day)	(hour) ⁻ '		
=> Residential	70	26	26	350	24	0.5		
	,,,		20		(NEW)	(NEW)		
END					(=.)			

ults	Summary		
-	Indoor Air Conc.	Cancer	Noncancer
	(µg/m ³)	Risk	Hazard
	1.2E+01	NA	2.9E-02

Version 2.0, 04/2003

DTSC Modification

December 2014

Department of Toxic Substances Control Vapor Intrusion Screening Model - Soil Gas

DATA ENTRY SHEET

Scenario: Residential Chemical: tert-Butylbenzene

		Soil	Gas Concentratio	n Data				Res
D 11	ENTER	ENTER		ENTER]		Soil Gas Conc.	Attenuation Fact
Reset to		Soil		Soil			(µg/m ³)	(unitless)
Defaults	Chemical	gas	OR	gas			5.12E+01	1.1E-03
/	CAS No.	conc.,		conc.,				
	(numbers only,	Cg		Cg				
	no dashes)	(µg/m³)		(ppmv)	Chemical			
	· · · · ·							=
	98066	5.12E+01			tert-Butylbenzene			-
	ENTER Depth	ENTER	ENTER	ENTER		ENTER		
MORE	below grade	Soil gas		Vadose zone		User-defined		
↓	to bottom	sampling	Average	SCS		vadose zone		
	of enclosed	depth	soil	soil type		soil vapor		
	space floor,	below grade,	temperature,	(used to estimate	OR	permeability,		
	L _F	Ls	'T _s	soil vapor		, k _v		
	(15 or 200 cm)	(cm)	(°C)	permeability)		(cm ²)		
	(10 01 200 011)	(0)	~ /		=			
	15	152	24	S]			
MORE ↓	ENTER Vandose zone SCS soil type Lookup Soil	ENTER Vadose zone soil dry bulk density, ρ _b ^A (g/cm ³)	ENTER Vadose zone soil total porosity, n ^v (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^{v} (cm [°] /cm [°])	(L	ENTER Average vapor flow rate into bldg. Leave blank to calcula Q _{soil} (L/m)	ate)	
	S	1.66	0 375	0.054	1	5		
	0	1.00	0.070	0.004	1			
MORE								
•	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER		
	Averaging	Averaging	_	_	_			
	time for	time for	Exposure	Exposure	Exposure	Air Exchange		
Lookun Pocontor	carcinogens,	noncarcinogens,	duration,	trequency,	lime	Kate		
Parameters	AIC	AINC	ED	EF	El	ACH		
	(yrs)	(yrs)	(yrs)	(days/yr)	(hrs/day)	(hour)		
Residential	70	26	26	350	24	0.5		
					(NEW)	(NEW)		
END								

Results	Summary		
on Factor	Indoor Air Conc.	Cancer	Noncancer
itless)	(µg/m³)	Risk	Hazard
LE-03	5.4E-02	NA	1.3E-04

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Department of Toxic Substances Control Vapor Intrusion Screening Model - Soil Gas

DATA ENTRY SHEET

Scenario: Residential Chemical: Toluene

		Soil	Gas Concentratio	n Data				Res
D	ENTER	ENTER		ENTER			Soil Gas Conc.	Attenuation Fact
Reset to		Soil		Soil			(µg/m ³)	(unitless)
Defaults	Chemical	gas	OR	gas			2.20E+02	1.3E-03
v	CAS No.	conc.,		conc.,				
	(numbers only,	C _a		C				
	no dashes)	(µg/m³)		(ymaa)	Chemical			
				(PP)				
	108883	2 20E+02			Toluene			
	100000	2.202.02		1	Tolucito			
	ENTER	ENTER	ENTER	ENTER		ENTER		
MORE	below grade	Soil das		Vadose zone		User-defined		
	to bottom	sampling	Average	SCS		vadose zone		
	of enclosed	depth	soil	soil type		soil vapor		
	space floor.	below grade.	temperature.	(used to estimate	OR	permeability.		
	Le	L.	T _s	soil vapor		k.,		
	(15 or 200 cm)	(cm)	(°Č)	permeability)		(cm ²)		
		(em)	(-)		:			
	15	152	24	S]			
MORE ↓	ENTER Vandose zone SCS soil type Lookup Soil	$\begin{array}{c} \textbf{ENTER} \\ \text{Vadose zone} \\ \text{soil dry} \\ \text{bulk density,} \\ \rho_{\text{b}}^{\text{A}} \\ (g/\text{cm}^{3}) \end{array}$	ENTER Vadose zone soil total porosity, n ^v (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm ³ /cm ³)	-	ENTER Average vapor flow rate into bldg. (Leave blank to calcul Q _{soil} (L/m)	ate)	
	S	1.66	0.375	0.054]	5]	
MORE]							
↓ ↓	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER		
	Averaging	Averaging						
	time for	time for	Exposure	Exposure	Exposure	Air Exchange		
	carcinogens,	noncarcinogens,	duration,	frequency,	Time	Rate		
Lookup Receptor	AT _c	AT _{NC}	ED	EF	ET	ACH		
Parameters	(yrs)	(yrs)	(yrs)	(days/yr)	(hrs/day)	(hour)⁻¹		
Residential	70	26	26	350	24	0.5	1	
	• ·				(NEW)	(NEW)		
	1							

Result	s Summary		
n Factor	Indoor Air Conc.	Cancer	Noncancer
tless)	(µg/m³)	Risk	Hazard
E-03	2.8E-01	NA	9.1E-04

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Department of Toxic Substances Control Vapor Intrusion Screening Model - Soil Gas

DATA ENTRY SHEET

Scenario: Residential Chemical: Trichlorofluoromethane

		Soil	Gas Concentratio	n Data				Res
D 11	ENTER	ENTER		ENTER]		Soil Gas Conc.	Attenuation Fac
Reset to		Soil		Soil			(µg/m ³)	(unitless)
Defaults	Chemical	gas	OR	gas			8.70E+01	1.2E-03
/	CAS No.	conc.,		conc.,				
	(numbers only,	C _a		Ca				
	no dashes)	(µg/m³)		(ymag)	Chemical			
				(PP)				
	75694	8.70E+01			Trichlorofluorom	ethane		
	ENTER Depth	ENTER	ENTER	ENTER		ENTER		
MORE	below grade	Soil gas		Vadose zone		User-defined		
	to bottom	sampling	Average	SCS		vadose zone		
· · · ·	of enclosed	depth	soil	soil type		soil vapor		
	space floor	below grade	temperature	(used to estimate	OR	nermeability		
			T _c	soil vapor	OIT	k		
	(15 or 200 om)	(om)	(°C)	son vapor		(cm^2)		
		(cm)	(0)	permeability)	•			
	15	152	24	S	ן			
MORE ↓	ENTER Vandose zone SCS soil type Lookup Soil	ENTER Vadose zone soil dry bulk density, ρ _b ^A (g/cm [°])	ENTER Vadose zone soil total porosity, n ^v (unitless)	ENTER Vadose zone soil water-filled porosity, θ _w ^v (cm [°] /cm [°])	_	ENTER Average vapor flow rate into bldg. (Leave blank to calcula Q _{soil} (L/m)	ate)	
	S	1.66	0.375	0.054]	5		
MORE					-			
	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER		
· ·	Averaging	Averaging						
	time for	time for	Exposure	Exposure	Exposure	Air Eychange		
	carcinogene	noncarcinogene	duration	frequency	Time	Rate		
Lookup Receptor								
Parameters		AINC	ED					
	(yrs)	(yrs)	(yrs)	(days/yr)	(hrs/day)	(nour)		
Residential	70	26	26	350	24	0.5		
					(NEW)	(NEW)		
END								

Results Summary								
n Factor	Indoor Air Conc.	Cancer	Noncancer					
tless)	(µg/m³)	Risk	Hazard					
E-03	1.0E-01	NA	1.4E-04					

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Department of Toxic Substances Control Vapor Intrusion Screening Model - Soil Gas

DATA ENTRY SHEET

Scenario: Residential Chemical: 1,3,5-Trimethylbenzene

		Soil	Gas Concentration	n Data				Resi
D ()	ENTER	ENTER		ENTER]		Soil Gas Conc.	Attenuation Factor
Reset to		Soil		Soil			(µg/m ³)	(unitless)
Defaults	Chemical	gas	OR	gas			7.90E+02	1.1E-03
)	CAS No.	conc.,		conc.,		Ľ	MESSAGE: Risk a	nd/or hazard quotient
	(numbers only,	Ca		C _a				
	no dashes)	(µg/m³)		(vmaa)	Chemical			
				(PP)				:
	108678	7.90E+02			1,3,5-Trimethylb	enzene		
	ENTER Depth	ENTER	ENTER	ENTER		ENTER		
MORE	below grade	Soil gas		Vadose zone		User-defined		
↓	to bottom	sampling	Average	SCS		vadose zone		
	of enclosed	depth	soil	soil type		soil vapor		
	space floor,	below grade,	temperature,	(used to estimate	OR	permeability,		
	L _F	L	Τ _s	soil vapor		k,		
	(15 or 200 cm)	(cm)	(°Č)	nermeability)		(cm ²)		
	(10 01 200 011)	(611)	()		:	(0)		
	15	152	24	S	1			
MORE ↓	ENTER Vandose zone SCS soil type Lookup Soil	ENTER Vadose zone soil dry bulk density, ρ _b ^A (α/cm ³)	ENTER Vadose zone soil total porosity, n ^v (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm ³ /cm ³)		ENTER Average vapor flow rate into bldg. (Leave blank to calcula Q _{soil}	ite)	
		,	(4.1.1.000)	· /	•	(
	S	1.66	0.375	0.054]	5		
MORE								
↓	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER		
	Averaging	Averaging						
	time for	time for	Exposure	Exposure	Exposure	Air Exchange		
	carcinogens,	noncarcinogens,	duration,	frequency,	Time	Rate		
Lookup Receptor	AT _c	AT _{NC}	ED	EF	ET	ACH		
Parameters	(yrs)	(yrs)	(yrs)	(days/yr)	(hrs/day)	(hour)⁻¹		
Residential	70	26	26	350	24	0.5		
					(NEW)	(NEW)		

Result	s Summary		
n Factor	Indoor Air Conc.	Cancer	Noncancer
tless)	(µg/m ³)	Risk	Hazard
E-03	8.9E-01	NA	2.4E-02

d quotient is based on route-to-route extrapolation.

APPENDIX J

Johnson & Ettinger Model Results Soil Vapor - Commercial

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Department of Toxic Substances Control Vapor Intrusion Screening Model - Soil Gas

DATA ENTRY SHEET

Scenario: Commercial Chemical: Chloroform

		Soil	Gas Concentratio	n Data				Resu
D 11	ENTER	ENTER		ENTER			Soil Gas Conc	Attenuation Factor
Reset to		Soil		Soil			(µg/m³)	(unitless)
Defaults	Chemical	gas	OR	gas			2.46E+01	6.4E-04
/	CAS No.	conc.,		conc.,		J		
	(numbers only.	Ca		Ca				
	no dashes)	(µg/m³)		(nnmv)	Chemical			
		(13)		(ppm)	Chonnoal			=
	67663	2.46E+01		[Chloroform			_
								_
	ENTER	ENTER	ENTER	ENTER		ENTER		
MORE	Deptn below grade	Soil goo		Vadaga zana		Lloor defined		
	to bottom	Soli yas	Average			User-denned		
	of opelocod	sampling	Average	soil type				
	or enclosed	bolow grado	tomporaturo	Soli type	OP	soli vapoi		
					UN	permeability,		
	LF (15 ar 200 arr)	L _S	(°C)	Soli vapoi		(om^2)		
	(15 or 200 cm)	(cm)	(0)	permeability)	:			
	15	152	24	S	ן			
	15	152	24	5				
MORE ↓	ENTER Vandose zone SCS soil type Lookup Soil	ENTER Vadose zone soil dry bulk density, ρ _b ^A (g/cm [°])	ENTER Vadose zone soil total porosity, n [×] (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^v (cm³/cm³)		ENTER Average vapor flow rate into bldg. (Leave blank to calcula Q _{soil} (L/m)	ate)	
	S	1.66	0.375	0.054	ı	5		
	5	1.00	0.373	0.034	l	5		
MORE								
↓	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER		
	Averaging	Averaging						
	time for	time for	Exposure	Exposure	Exposure	Air Exchange		
	carcinogens,	noncarcinogens,	duration,	frequency,	Time	Rate		
Lookup Receptor	AT _c	AT _{NC}	ED	EF	ET	ACH		
Parameters	(yrs)	(yrs)	(yrs)	(days/yr)	(hrs/day)	(hour) [·]		
Commercial	70	25	25	250	8	1		
		_0	20	200	(NEW)	(NEW)		
END					()			

Ilts	Summary		
	Indoor Air Conc.	Cancer	Noncancer
	(µg/m³)	Risk	Hazard
	1.6E-02	3.0E-08	3.7E-05

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Reset to

Defaults

 $\mathbf{\Psi}$

 $\mathbf{\Psi}$

 $\mathbf{\Psi}$

Department of Toxic Substances Control Vapor Intrusion Screening Model - Soil Gas

Scenario: Commercial Chemical: Cumene DATA ENTRY SHEET Resu Soil Gas Concentration Data ENTER ENTER Soil Gas Conc. Attenuation Factor ENTER Soil $(\mu g/m^3)$ Soil (unitless) OR 5.7E-04 Chemical gas gas 1.07E+04 CAS No. conc., conc., (numbers only, C_{g} C_{g} (µg/m°) no dashes) Chemical (ppmv) 98828 1.07E+04 Cumene MESSAGE: See VLOOKUP table comments on chemical properties and/or toxicity criteria for this chemical **ENTER** ENTER **ENTER ENTER** ENTER Depth MORE below grade Soil gas Vadose zone User-defined to bottom sampling Average SCS vadose zone of enclosed depth soil soil type soil vapor space floor, below grade, temperature, (used to estimate OR permeability, LF T_S soil vapor k_v L_{s} (°C) (cm[∠]) (15 or 200 cm) permeability) (cm) 15 152 24 S ENTER ENTER **ENTER** ENTER ENTER MORE Vandose zone Vadose zone Vadose zone Vadose zone Average vapor SCS soil water-filled flow rate into bldg. soil dry soil total bulk density, (Leave blank to calculate) soil type porosity, porosity, nř θ_w^v ρ_b^A $\mathsf{Q}_{\mathsf{soil}}$ Lookup Soil (cm°/cm°) (g/cm[°]) (unitless) (L/m) 0.375 0.054 1.66 S 5 MORE ENTER ENTER ENTER ENTER **ENTER** ENTER Averaging Averaging Air Exchange time for time for Exposure Exposure Exposure Time noncarcinogens, duration, frequency, Rate carcinogens, Lookup Receptor AT_{C} EF ΕT ACH AT_{NC} ED

	Parameters	(yrs)	(yrs)	(yrs)	(days/yr)	(hrs/day)	(hour) ⁻ '
NEW=>	Commercial	70	25	25	250	8	1
						(NEW)	(NEW)
	END						

Its Summary		
Indoor Air Conc.	Cancer	Noncancer
(µg/m ³)	Risk	Hazard
6.1E+00	NA	3.5E-03

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Department of Toxic Substances Control Vapor Intrusion Screening Model - Soil Gas

DATA ENTRY SHEET

Scenario:CommercialChemical:Dichlorodifluoromethane

		Soil	Gas Concentration	n Data				Resu
	ENTER	ENTER		ENTER			Soil Gas Conc.	Attenuation Factor
Reset to		Soil		Soil			(µg/m ³)	(unitless)
Defaults	Chemical	das	OR	das			1.06E+01	6.4E-04
	CAS No.	conc		conc		Ľ		
	(numbers only	C _a		Ca				
	(nambere enly,	(µɑ/m³)		(nnmy)	Chemical			
	no dasnes/	(,~g,)	1	(ppinv)	Chemical			=
	75718	1.06E+01	l		Dichlorodifluor	omethane		_
	/0/10	1.002.01			District Galilacity			_
	ENTER Depth	ENTER	ENTER	ENTER		ENTER		
MORE	below grade	Soil gas		Vadose zone		User-defined		
↓	to bottom	sampling	Average	SCS		vadose zone		
	of enclosed	depth	soil	soil type		soil vapor		
	space floor.	below grade.	temperature.	(used to estimate	OR	permeability.		
	L ^E	Le	Ts	soil vapor	••••	k,		
	(15 or 200 cm)	(cm)	(°C)	permeability)		(cm ²)		
		(cm)	(0)	permeability)		(0111)		
	15	152	24	S				
MORE ↓	ENTER Vandose zone SCS soil type Lookup Soil	$\begin{array}{c} \textbf{ENTER} \\ \text{Vadose zone} \\ \text{soil dry} \\ \text{bulk density,} \\ \rho_{\text{b}}^{\text{A}} \\ (g/\text{cm}^{\circ}) \end{array}$	ENTER Vadose zone soil total porosity, n [×] (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^v (cm°/cm°)		ENTER Average vapor flow rate into bldg. (Leave blank to calcula Q _{soil} (L/m)	ite)	
	S	1.66	0.375	0.054		5		
MORE ↓	ENTER	ENTER Averaging	ENTER	ENTER	ENTER	ENTER		
	time for	time for	Exposure	Exposure	Exposure	Air Exchange		
		noncarcinodens	duration	frequency	Time	Rate		
Lookup Recepto		AT _{NO}	ED	FF	FT			
Parameters	(vrs)	(vrs)	(vrs)	(days/yr)	(hrs/day)	(hour) ⁻		
		· · · · /	()···/	\	(`````````````````````````````````		
Commercial	70	25	25	250	8	1		
	-				(NEW)	(NEW)		
END								

ults	Summary		
-	Indoor Air Conc.	Cancer	Noncancer
	(µg/m ³)	Risk	Hazard
	6.8E-03	NA	1.5E-05

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Department of Toxic Substances Control Vapor Intrusion Screening Model - Soil Gas

DATA ENTRY SHEET

Scenario: Commercial Chemical: Ethylbenzene

		Soil	Gas Concentratio	n Data				Resu
_	ENTER	ENTER		ENTER			Soil Gas Conc.	Attenuation Factor
Reset to		Soil		Soil			(µg/m ³)	(unitless)
Defaults	Chemical	das	OR	aas			9.60E+00	6.1E-04
	CAS No.	conc.		conc		l		
	(numbers only	C _a		C _a				
	no dashes)	(ua/m ³)		(nnmy)	Chemical			
	no dasnesj	(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		(ppinv)				=
	100414	9.60E+00			Ethylbenzene			-
								_
	ENTER Depth	ENTER	ENTER	ENTER		ENTER		
MORE	below grade	Soil gas		Vadose zone		User-defined		
↓	to bottom	sampling	Average	SCS		vadose zone		
	of enclosed	depth	soil	soil type		soil vapor		
	space floor.	below grade.	temperature.	(used to estimate	OR	permeability.		
	L _E	L,	Ts	soil vapor		k,		
	(15 or 200 cm)	(cm)	(°Č)	permeability)		(cm ²)		
		(611)	(•)		:	(0)		
	15	152	24	S	1			
MORE ↓	ENTER Vandose zone SCS soil type Lookup Soil	ENTER Vadose zone soil dry bulk density, ρ _b ^A (g/cm³)	ENTER Vadose zone soil total porosity, n ^v (unitless)	$\begin{array}{c} \textbf{ENTER} \\ \text{Vadose zone} \\ \text{soil water-filled} \\ \text{porosity,} \\ \theta_w^V \\ (\text{cm}^3/\text{cm}^3) \end{array}$		ENTER Average vapor flow rate into bldg. (Leave blank to calcula Q _{soil} (L/m)	ate)	
	S	1.66	0.375	0.054]	5		
MORE V	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER		
	Averaging	Averaging						
	time for	time for	Exposure	Exposure	Exposure	Air Exchange		
	carcinogens,	noncarcinogens,	duration,	frequency,	Time	Rate		
Lookup Receptor	AT _C	AT _{NC}	ED	EF	ET	ACH		
Faidilleteis	(yrs)	(yrs)	(yrs)	(days/yr)	(hrs/day)	(hour) ⁻¹		
Commercial	70	25	25	250	8	1		
					(NEW)	(NEW)		
END								

Results	s Summary		
n Factor	Indoor Air Conc.	Cancer	Noncancer
itless)	(µg/m³)	Risk	Hazard
LE-04	5.8E-03	1.2E-09	1.3E-06

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DTSC Modification

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Department of Toxic Substances Control Vapor Intrusion Screening Model - Soil Gas

DATA ENTRY SHEET

Scenario: Commercial Chemical: Naphthalene

			Soil	Gas Concentratio	n Data				Resu
		ENTER	ENTER		ENTER			Soil Gas Conc	. Attenuation Factor
Reset to)		Soil		Soil			(µa/m ³)	(unitless)
Defaults	5	Chemical	das	OR	aas			1.13F+04	5.7E-04
	/	CAS No	conc		conc				
		(numbers only	C _a		Ca				
		no dashes)	(ua/m [°])		(nnmy)	Chemical			
			(P.g)		(ppiiit)	Offerined			=
		91203	1.13E+04			Naphthalene			_
									_
		ENTER	ENTER	ENTER	ENTER		ENTER]	
MOR		below grade	Soil das		Vadose zone		l Iser-defined		
J J		to bottom	sampling	Δνετασε	SCS		vadose zone		
•		of enclosed	denth	soil	soil type		soil vanor		
		snace floor	below grade	temperature	(used to estimate	OR	nermeability		
				T _e	soil vapor	on	k.		
		(15 or 200 cm)	(cm)	(°C)	nermeshility)		(cm ²)		
			(cm)	(0)	permeability)		(011)	-	
		15	152	24	S			-	
MOR ↓	RE	ENTER Vandose zone SCS soil type Lookup Soil	ENTER Vadose zone soil dry bulk density, ρ _b ^A (g/cm [°])	ENTER Vadose zone soil total porosity, n [°] (unitless)	ENTER Vadose zone soil water-filled porosity, θ _w ^v (cm [°] /cm [°])		ENTER Average vapor flow rate into bldg. (Leave blank to calcula Q _{soil} (L/m)	ate) =	
		S	1.66	0.375	0.054		5]	
MOR	RE .	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER		
↓		Averaging	Averaging						
		time for	time for	Exposure	Exposure	Fynosure	Air Exchange		
		carcinodens	noncarcinodens	duration	frequency	Time	Rate		
Lookup Red	ceptor		AT _{NO}	FD	FF	FT			
Paramete	ers	(vrs)	(vrs)	(vrs)	(davs/vr)	L ∣ (hrs/dav)	(hour) ⁻		
	/	(913)	(313)	(313)		(110/003)	(-	
=> Comme	ercial	70	25	25	250	8	1		
						(NEW)	(NEW)		
END)								

ılts	Summary		
•	Indoor Air Conc.	Cancer	Noncancer
	(µg/m³)	Risk	Hazard
	6.4E+00	1.8E-05	4.9E-01

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Department of Toxic Substances Control Vapor Intrusion Screening Model - Soil Gas

DATA ENTRY SHEET

Scenario: Commercial Chemical: n-Butylbenzene

		Soil	Gas Concentration	n Data				Resi
D	ENTER	ENTER		ENTER			Soil Gas Conc.	Attenuation Factor
Reset to		Soil		Soil			(µg/m³)	(unitless)
Defaults	Chemical	gas	OR	gas			4.08E+01	5.3E-04
)	CAS No.	conc.,		conc.,			MESSAGE: Risk ar	nd/or hazard quotient
	(numbers only,	Cg		Cg				
	no dashes)	(µg/m³)		(ppmv)	Chemical			
				X				
	104518	4.08E+01			n-Butylbenzene			
	ENTER Depth	ENTER	ENTER	ENTER		ENTER		
MORE	below grade	Soil gas		Vadose zone		User-defined		
↓	to bottom	sampling	Average	SCS		vadose zone		
	of enclosed	depth	soil	soil type		soil vapor		
	space floor,	below grade,	temperature,	(used to estimate	OR	permeability,		
	L _F	Ls	Τ _s	soil vapor		k _v		
	(15 or 200 cm)	(cm)	(°C)	permeability)		(cm ²)		
					-			
	15	152	24	S				
MORE ↓	ENTER Vandose zone SCS soil type Lookup Soil	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm ³)	ENTER Vadose zone soil total porosity, n ^v (unitless)	ENTER Vadose zone soil water-filled porosity, θ _w ^V (cm ³ /cm ³)	-	ENTER Average vapor flow rate into bldg. (Leave blank to calcula Q _{soil} (L/m)	te)	
		1.00	0.075		1			
	5	1.00	0.375	0.054	J	5		
MORE								
•	ENIER Averaging	ENIER Averaging	ENTER	ENTER	ENTER	ENTER		
	time for	time for	Exposure	Exposure	Exposure	Air Exchange		
	carcinodens	noncarcinogene	duration	frequency	Time	Rate		
Lookup Receptor			ED	FE	FT			
Parameters				LF (daye/yr)	⊑ I (bre/dov)	(hour) ⁻¹		
		(918)	(yrs)	(uays/yr)	(ms/uay)	(1001)		
Commercial	70	25	25	250	8	1		
					(NEW)	(NEW)		
END								

Result	s Summary		
n Factor	Indoor Air Conc.	Cancer	Noncancer
itless)	(µg/m ³)	Risk	Hazard
8E-04	2.1E-02	NA	2.8E-05

rd quotient is based on route-to-route extrapolation.

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Department of Toxic Substances Control Vapor Intrusion Screening Model - Soil Gas

DATA ENTRY SHEET

Scenario: Commercial Chemical: n-Propylbenzene

		Soil	Gas Concentratio	n Data				Resu
D 11	ENTER	ENTER		ENTER		ľ	Soil Gas Conc.	Attenuation Factor
Reset to		Soil		Soil			(µg/m³)	(unitless)
Defaults	Chemical	gas	OR	gas			8.09E+03	5.7E-04
/	CAS No.	conc.,		conc.,				
	(numbers only,	Cg		Cg				
	no dashes)	(µg/m°)		(ppmv)	Chemical			
	,							
	103651	8.09E+03			n-Propylbenzen	10		_
	ENTER Depth	ENTER	ENTER	ENTER		ENTER		
MORE	below grade	Soil gas		Vadose zone		User-defined		
↓	to bottom	sampling	Average	SCS		vadose zone		
	of enclosed	depth	soil	soil type		soil vapor		
	space floor,	below grade,	temperature,	(used to estimate	OR	permeability,		
	L _F	Ls	Ts	soil vapor		k _v		
	(15 or 200 cm)	(cm)	(°C)	permeability)		(cm²)		
					:			
	15	152	24	S				
MORE ↓	ENTER Vandose zone SCS soil type Lookup Soil	ENTER Vadose zone soil dry bulk density, ρ _b ^A (g/cm [°])	ENTER Vadose zone soil total porosity, n ^v (unitless)	ENTER Vadose zone soil water-filled porosity, θ _w ^v (cm³/cm³)		ENTER Average vapor flow rate into bldg. (Leave blank to calcular Q _{soil} (L/m)	te)	
	S	1.66	0.375	0.054]	5		
MORE ↓	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER		
	Averaging	Averaging	-	-	-			
	time for	time for	Exposure	Exposure	Exposure	Air Exchange		
Lookup Recentor	carcinogens,	noncarcinogens,	duration,	trequency,	l ime	Rate		
Parameters	AIC	AI _{NC}	ED	EF	ET	ACH		
	(yrs)	(yrs)	(yrs)	(days/yr)	(hrs/day)	(hour)		
Commercial	70	25	25	250	8	1		
					(NEW)	(NEW)		
END								

ults	Summary		
-	Indoor Air Conc.	Cancer	Noncancer
	(µg/m ³)	Risk	Hazard
	4.6E+00	NA	1.0E-03

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DTSC Modification

December 2014

Department of Toxic Substances Control Vapor Intrusion Screening Model - Soil Gas

DATA ENTRY SHEET

Scenario:CommercialChemical:Tetrachloroethylene

		Soil	Gas Concentratior	n Data				Rest
Depot to	ENTER	ENTER		ENTER			Soil Gas Conc.	Attenuation Factor
		Soil		Soil			(µg/m³)	(unitless)
Defaults	Chemical	gas	OR	gas			1.20E+01	1.0E-03
/	CAS No.	conc.,		conc.,				
	(numbers only,	Cg		Cg				
	no dashes)	(µg/m³)		(ppmv)	Chemical			
								=
	127184	1.20E+01			Tetrachloroethyle	ne		_
	ENTER	ENTER	ENTER	ENTER		ENTER		
MORE	Depth below grade	Soil das		Vadose zone		User-defined		
J J	to bottom	sampling	Average	SCS		vadose zone		
•	of enclosed	denth	soil	soil type		soil vanor		
	snace floor	below grade	temperature	(used to estimate	OR	normoshility		
						permeability, لا		
		L _S	(°C)			(om^2)		
	(15 or 200 cm)	(cm)	(0)	permeability)	•	(cm)		
	15	152	24	S	ן			
MORE ↓	ENTER Vandose zone SCS soil type Lookup Soil	ENTER Vadose zone soil dry bulk density, ρ _b ^A (g/cm [°])	ENTER Vadose zone soil total porosity, n ^v (unitless)	ENTER Vadose zone soil water-filled porosity, θ _w ^v (cm [°] /cm [°])	(ENTER Average vapor flow rate into bldg. Leave blank to calcula Q _{soil} (L/m)	ate)	
	S	1.66	0.375	0.054]	5		
MORE ↓	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER		
	Averaging	Averaging						
	time for	time for	Exposure	Exposure	Exposure	Air Exchange		
	carcinogens,	noncarcinogens,	duration,	frequency,	Time	Rate		
Lookup Receptor	AT _C	AT _{NC}	ED	EF	ET	ACH		
	(yrs)	(yrs)	(yrs)	(days/yr)	(hrs/day)	(hour) ⁻ '		
	70	26	26	350	24	0.5		
					(NEW)	(NEW)		

Results	Summary		
on Factor	Indoor Air Conc.	Cancer	Noncancer
itless)	(µg/m³)	Risk	Hazard
)E-03	1.2E-02	2.6E-08	3.4E-04

Version 2.0, 04/2003

DTSC Modification

December 2014

Department of Toxic Substances Control Vapor Intrusion Screening Model - Soil Gas

DATA ENTRY SHEET

Scenario: Commercial Chemical: sec-Butylbenzene

		Soil	Gas Concentratio	n Data				Resu
D	ENTER	ENTER		ENTER			Soil Gas Conc.	Attenuation Factor
Reset to		Soil		Soil			(µg/m ³)	(unitless)
Defaults	Chemical	gas	OR	gas			1.15E+04	5.3E-04
	CAS No.	conc.,		conc.,		E		
	(numbers only,	Cq		Cq				
	no dashes)	(µg/m³)		(ymqq)	Chemical			
								=
	135988	1.15E+04			sec-Butylbenze	ne		_
	ENTER Depth	ENTER	ENTER	ENTER		ENTER		
MORE	below grade	Soil gas		Vadose zone		User-defined		
\checkmark	to bottom	sampling	Average	SCS		vadose zone		
_	of enclosed	depth	soil	soil type		soil vapor		
	space floor,	below grade,	temperature,	(used to estimate	OR	permeability,		
	L _F	Ls	Ts	soil vapor		k _v		
	(15 or 200 cm)	(cm)	(°C)	permeability)		(cm ²)		
					:			
	15	152	24	S				
MORE ↓	ENTER Vandose zone SCS soil type Lookup Soil	ENTER Vadose zone soil dry bulk density, ρ _b ^A (g/cm [°])	ENTER Vadose zone soil total porosity, n ^v (unitless)	ENTER Vadose zone soil water-filled porosity, θ _w ^v (cm³/cm³)		ENTER Average vapor flow rate into bldg. (Leave blank to calcula Q _{soil} (L/m)	te)	
	S	1.66	0.375	0.054]	5		
MORE ↓	ENTER Averaging time for	ENTER Averaging time for	ENTER	ENTER	ENTER			
			⊂xposure duration	⊏xµosure frequency	⊏xposure			
Lookup Receptor								
Parameters	AIC	A I NC						
	(yrs)	(yrs)	(yrs)	(days/yr)	(nrs/day)	(11001)		
Commercial	70	25	25	250	8	1		
					(NEW)	(NEW)		
END								

ults	Summary		
-	Indoor Air Conc.	Cancer	Noncancer
	(µg/m ³)	Risk	Hazard
	6.0E+00	NA	3.5E-03

Version 2.0, 04/2003

DTSC Modification

December 2014

Department of Toxic Substances Control Vapor Intrusion Screening Model - Soil Gas

DATA ENTRY SHEET

Scenario: Commercial Chemical: tert-Butylbenzene

		Soil	Gas Concentration	n Data				Resu
	ENTER	ENTER		ENTER			Soil Gas Conc.	Attenuation Factor
Reset to		Soil		Soil			(µg/m ³)	(unitless)
Defaults	Chemical	gas	OR	gas			5.12E+01	5.3E-04
	CAS No.	conc		conc		1		
	(numbers only.	Ca		Ca				
	no dashes)	(µg/m°)		(ppmv)	Chemical			
		(13)	1	(ppint)	ononnoar			=
	98066	5.12E+01			tert-Butvlbenzer	ne		-
								_
	ENTER	ENTER	ENTER	ENTER		ENTER		
	Depth							
MORE	below grade	Soil gas		Vadose zone		User-defined		
•	to bottom	sampling	Average	SCS		vadose zone		
	of enclosed	depth	soil	soil type		soil vapor		
	space floor,	below grade,	temperature,	(used to estimate	OR	permeability,		
	L _F	Ls	Ts	soil vapor		k _v		
	(15 or 200 cm)	(cm)	(°C)	permeability)		(cm²)		
	15	150	24					
	10	152	24	5				
MORE ↓	ENTER Vandose zone SCS soil type Lookup Soil	ENTER Vadose zone soil dry bulk density, ρ _b ^A (g/cm [°])	ENTER Vadose zone soil total porosity, n ^v (unitless)	ENTER Vadose zone soil water-filled porosity, θ _w ^v (cm [°] /cm [°])		ENTER Average vapor flow rate into bldg. (Leave blank to calcula Q _{soil} (L/m)	ite)	
	6	1.66	0.275	0.054		5		
	3	1.00	0.375	0.034		5		
MORE ↓	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER		
	time for	time for	Exposuro	Exposuro	Exposure	Air Evobongo		
			duration	frequency	Time			
Lookup Receptor								
Parameters	AIC (A INC						
	(yrs)	(yrs)	(yrs)	(days/yr)	(hrs/day)	(nour)		
Commercial	70	25	25	250	8	1		
	-				(NEW)	(NEW)		
END								

ılts	Summary		
	Indoor Air Conc.	Cancer	Noncancer
	(µg/m³)	Risk	Hazard
	2.7E-02	NA	1.5E-05
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Department of Toxic Substances Control Vapor Intrusion Screening Model - Soil Gas

DATA ENTRY SHEET

Scenario: Commercial Chemical: Toluene

		Soil (Gas Concentratior	n Data				Re
	ENTER	ENTER		ENTER			Soil Gas Conc.	Attenuation Fac
Reset to		Soil		Soil			(µg/m ³)	(unitless)
Defaults	Chemical	gas	OR	gas			2.20E+02	6.4E-04
	CAS No.	conc.,		conc.,		Ľ		
	(numbers only.	C _a		C _a				
	no dashes)	(ug/m ³)		(nnmv)	Chemical			
		(1-5 /		(ppint)	Chenned			
	108883	2 20E+02			Toluene			
	100003	2.201.02			Tolucito			
	ENTER	ENTER	ENTER	ENTER		ENTER		
	Depth							
MORE	below grade	Soil gas		Vadose zone		User-defined		
↓	to bottom	sampling	Average	SCS		vadose zone		
	of enclosed	depth	soil	soil type		soil vapor		
	space floor,	below grade,	temperature,	(used to estimate	OR	permeability,		
	L_{F}	Ls	Τs	soil vapor		k _v		
	(15 or 200 cm)	(cm)	(°C)	permeability)		(cm ²)		
	45	450	0.1		1			
	15	152	24	S				
MORE ↓	ENTER Vandose zone	ENTER Vadose zone	ENTER Vadose zone	ENTER Vadose zone		ENTER Average vapor		
	SCS soil type Lookup Soil	soil dry bulk density, ρ _b ^A (g/cm³)	soil total porosity, n ^v (unitless)	soil water-filled porosity, θ _w [∨] (cm ³ /cm ³)		flow rate into bldg. (Leave blank to calcula Q _{soil} (L/m)	ate)	
	SCS soil type Lookup Soil	soil dry bulk density, ρ _b ^A (g/cm³)	soil total porosity, n ^v (unitless)	soil water-filled porosity, θ _w ^V (cm ³ /cm ³)		flow rate into bldg. (Leave blank to calcula Q _{soil} (L/m)	ate)	
	SCS soil type Lookup Soil	soil dry bulk density, ρ _b ^A (g/cm ³) 1.66	soil total porosity, n ^v (unitless) 0.375	soil water-filled porosity, θ _w ^V (cm ³ /cm ³) 0.054		flow rate into bldg. (Leave blank to calcula Q _{soil} (L/m) 5	ate)	
MORE	SCS soil type Lookup Soil	soil dry bulk density, ρ _b ^A (g/cm ³)	soil total porosity, n ^v (unitless) 0.375	soil water-filled porosity, θ _w ^V (cm ³ /cm ³)		flow rate into bldg. (Leave blank to calcula Q _{soil} (L/m) 5	ate)	
MORE ↓	SCS soil type Lookup Soil S ENTER Averaging	soil dry bulk density, ρ _b ^A (g/cm ³) 1.66 ENTER Averaging	soil total porosity, n ^v (unitless) 0.375 ENTER	soil water-filled porosity, θ _w ^V (cm ³ /cm ³) 0.054 ENTER	ENTER	flow rate into bldg. (Leave blank to calcula Q _{soil} (L/m) 5	ite)	
MORE ↓	SCS soil type Lookup Soil S ENTER Averaging time for	soil dry bulk density, ρ _b ^A (g/cm ³) 1.66 ENTER Averaging time for	soil total porosity, n ^v (unitless) 0.375 ENTER Exposure	soil water-filled porosity, θ _w ^V (cm ³ /cm ³) 0.054 ENTER Exposure	ENTER Exposure	flow rate into bldg. (Leave blank to calcula Q _{soil} (L/m) 5 ENTER Air Exchange	ite)	
MORE ↓	SCS soil type Lookup Soil S ENTER Averaging time for carcinogens.	soil dry bulk density, ρ _b ^A (g/cm ³) 1.66 ENTER Averaging time for noncarcinogens.	soil total porosity, n ^v (unitless) 0.375 ENTER Exposure duration.	soil water-filled porosity, θ_w^V (cm ³ /cm ³) 0.054 ENTER Exposure frequency.	ENTER Exposure Time	flow rate into bldg. (Leave blank to calcula Q _{soil} (L/m) 5 ENTER Air Exchange Rate	ate)	
MORE	SCS soil type Lookup Soil S ENTER Averaging time for carcinogens, AT _c	soil dry bulk density, ρ _b ^A (g/cm ³) 1.66 ENTER Averaging time for noncarcinogens, AT _{NC}	soil total porosity, n ^v (unitless) 0.375 ENTER Exposure duration, FD	soil water-filled porosity, θ_w^V (cm ³ /cm ³) 0.054 ENTER Exposure frequency, EF	ENTER Exposure Time FT	flow rate into bldg. (Leave blank to calcula Q _{soil} (L/m) 5 ENTER Air Exchange Rate ACH	ate)	
MORE ↓ Lookup Receptor Parameters	SCS soil type Lookup Soil S ENTER Averaging time for carcinogens, AT _C (yrs)	soil dry bulk density, ρ _b ^A (g/cm ³) 1.66 ENTER Averaging time for noncarcinogens, AT _{NC} (yrs)	soil total porosity, n ^v (unitless) 0.375 ENTER Exposure duration, ED (yrs)	soil water-filled porosity, θ _w ^V (cm ³ /cm ³) 0.054 ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	flow rate into bldg. (Leave blank to calcula Q _{soil} (L/m) 5 ENTER Air Exchange Rate ACH (hour) ⁻¹	ite)	
MORE ↓ Lookup Receptor Parameters	SCS soil type Lookup Soil S ENTER Averaging time for carcinogens, AT _C (yrs)	soil dry bulk density, ρ _b ^A (g/cm ³) 1.66 ENTER Averaging time for noncarcinogens, AT _{NC} (yrs)	soil total porosity, n ^v (unitless) 0.375 ENTER Exposure duration, ED (yrs)	soil water-filled porosity, θ _w ^V (cm ³ /cm ³) 0.054 ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	flow rate into bldg. (Leave blank to calcula Q _{soil} (L/m) 5 ENTER Air Exchange Rate ACH (hour) ⁻¹	ite)	
MORE ↓ Lookup Receptor Parameters Commercial	SCS soil type Lookup Soil S ENTER Averaging time for carcinogens, AT _c (yrs) 70	soil dry bulk density, ρ _b ^A (g/cm ³) 1.66 ENTER Averaging time for noncarcinogens, AT _{NC} (yrs) 25	soil total porosity, n ^v (unitless) 0.375 ENTER Exposure duration, ED (yrs) 25	soil water-filled porosity, θ_w^V (cm ³ /cm ³) 0.054 ENTER Exposure frequency, EF (days/yr) 250	ENTER Exposure Time ET (hrs/day)	flow rate into bldg. (Leave blank to calcula Q _{soil} (L/m) 5 ENTER Air Exchange Rate ACH (hour) ⁻¹	ate)	

Results Summary									
n Factor	Indoor Air Conc.	Cancer	Noncancer						
tless)	(µg/m³)	Risk	Hazard						
E-04	1.4E-01	NA	1.1E-04						

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Version 2.0, 04/2003

DTSC Modification

December 2014

Department of Toxic Substances Control Vapor Intrusion Screening Model - Soil Gas

DATA ENTRY SHEET

Scenario: Commercial Chemical: Trichlorofluoromethane

			Soil	Gas Concentration	n Data				Resu
_		ENTER	ENTER		ENTER			Soil Gas Conc.	Attenuation Factor
R	eset to		Soil		Soil			(µg/m ³)	(unitless)
D	efaults	Chemical	gas	OR	das			8.70E+01	1.2E-03
	/	CAS No	conc		conc		Ľ		
		(numbers only	C _a		Ca				
		(nambers only,	(un/m³)		(ppmy)	Chemical			
			(µg/m)		(ppinv)	Chemical			=
		75694	8 70E+01			Trichlorofluoro	methane		-
		/0001	0.702.01			memorenaere			-
		ENTER	ENTER	ENTER	ENTER		ENTER		
		Depth							
	MORE	below grade	Soil gas		Vadose zone		User-defined		
	1	to bottom	sampling	Average	SCS		vadose zone		
		of enclosed	depth	soil	soil type		soil vapor		
		space floor,	below grade,	temperature,	(used to estimate	OR	permeability,		
		L _F	Ls	Ts	soil vapor		k _v		
		(15 or 200 cm)	(cm)	(°C)	permeability)		(cm²)		
			170						
		15	152	24	S				
	MORE ↓	ENTER Vandose zone SCS soil type Lookup Soil	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm [°])	ENTER Vadose zone soil total porosity, n ^v (unitless)	ENTER Vadose zone soil water-filled porosity, θ _w ^v (cm [°] /cm [°])		ENTER Average vapor flow rate into bldg. (Leave blank to calcula Q _{soil} (L/m)	ite)	
		S	1.66	0.375	0.054		5		
_	1								
	MORE								
L	•				ENTER				
		time for	time for	Exposure	Exposure	Exposure	Air Exchange		
				duration	frequency	Time			
Lo	okup Receptor				EE				
20	Parameters	AIC	A I NC						
		(yrs)	(yrs)	(yrs)	(days/yr)	(nrs/day)	(11001)		
<mark>></mark>	Commercial	70	26	26	350	24	0.5		
_						(NEW)	(NEW)		
	END								

ults	Summary		
-	Indoor Air Conc.	Cancer	Noncancer
	(µg/m ³)	Risk	Hazard
	1.0E-01	NA	1.4E-04

USEPA SG-SCREEN

Version 2.0, 04/2003

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Department of Toxic Substances Control Vapor Intrusion Screening Model - Soil Gas

DATA ENTRY SHEET

Scenario: Commercial Chemical: 1,3,5-Trimethylbenzene

		Soil	Gas Concentratior	n Data				Resu
Desette	ENTER	ENTER		ENTER			Soil Gas Conc.	Attenuation Factor
Reset to		Soil		Soil			(µg/m³)	(unitless)
Defaults	Chemical	gas	OR	gas			7.90E+02	5.7E-04
	CAS No.	conc.,		conc.,			MESSAGE: Risk a	nd/or hazard quotient
	(numbers only,	Cg		Cg				
	no dashes)	(µg/m³)		(ppmv)	Chemical			
	108678	7.90E+02			1,3,5-Trimethylb	enzene		
	ENTER Depth	ENTER	ENTER	ENTER		ENTER		
MORE	below grade	Soil gas		Vadose zone		User-defined		
¥	to bottom	sampling	Average	SCS		vadose zone		
	of enclosed	depth	soil	soil type		soil vapor		
	space floor.	below grade.	temperature.	(used to estimate	OR	permeability.		
	Lr	L.	T _c	soil vapor	••••	k.		
	(15 or 200 om)	-s (cm)	(°C)	normoshility)		(cm^2)		
		(CIII)	(0)		=			
	15	152	24	S	1			
MORE ↓	ENTER Vandose zone SCS soil type Lookup Soil	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm ³)	ENTER Vadose zone soil total porosity, n ^v (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm ³ /cm ³)	-	ENTER Average vapor flow rate into bldg. (Leave blank to calcula Q _{soil} (L/m)	te)	
	S	1.66	0.375	0.054	1	5		
MORE								
	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER		
•	Averaging	Averaging						
	time for	time for	Exposure	Exposure	Fynosure	Air Eychange		
	carcinogene	noncarcinogens	duration	frequency	Time	Rata		
Lookup Receptor				EE				
Parameters	AIC (vra)	(vra)			⊏ I (bro/dou)	(hour) ⁻¹		
((yrs)	(yrs)	(yrs)	(days/yr)	(nrs/day)	(11001)		
Commercial	70	25	25	250	8	1		
		<u> </u>			(NEW)	(NEW)		
END								

Results Summary									
n Factor	Indoor Air Conc.	Cancer	Noncancer						
itless)	(µg/m³)	Risk	Hazard						
'E-04	4.5E-01	NA	2.9E-03						

d quotient is based on route-to-route extrapolation.