

PARS Environmental Inc.

FINAL REPORT BENCH SCALE TESTING OF REMEDIAL ALTERNATIVES

FORT DRUM PCE REMEDIAL INVESTIGATION FOR SOLVENT CONTAMINANTS FORT DRUM, NEW YORK

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1.0 INTRODUCTION

PARS Environmental, Inc. (PARS) is pleased to submit to the United States Army Corp of Engineers – Baltimore District, this Draft Report for the Bench-Scale Testing of Remedial Alternatives. Bench scale testing was performed as part of the Fort Drum PCE Remedial Investigation for Solvent Contaminants, Fort Drum, New York (RI; PARS, 2010) initiated to characterize the presence of tetrachloroethene (PCE) contamination that was discovered during the Gasoline Alley Area Installation Restoration Program (IRP). Several tasks were identified in the RI Work Plan which included, among other items, a multi-phase field investigation, groundwater monitoring well installation, soil and groundwater sampling, aquifer testing, a source area investigation (SAI), and reporting. One optional item, Bench Scale Studies (Task 10) was activated and is the focus of this report. This work was performed under Contract No.W912DR-10-D034.

1.1 Bench Scale Study Objectives

The primary objective of the bench scale study was to identify and evaluate one, or a combination of commercially available remediation products within each of three remedial technology categories – Biological, Enhanced Reductive Dechlorination (ERD), and Chemical Oxidation – that demonstrate the most potential to meet site remedial goals with respect to PCE in groundwater beneath Gasoline Alley Areas 1800, 1900, and 3800. Results from the bench scale testing program are intended to support the selection of a pilot scale testing program, and potentially a full scale remedial approach. Proven short-term removal efficiency and cost effectiveness will be the primary characteristics of the selected technology.

Specific goals of the bench-scale studies are as follows:

- Determine whether intrinsic aquifer bio-geochemical conditions will foster or inhibit biostimulation alone, and to ascertain the potential for successful bioaugmentation;
- Evaluate the effectiveness of nano-scale zero-valent iron [NZVI] to treat PCE in groundwater; and
- Evaluate the effectiveness of potassium permanganate as a potential remedial technology.

This report includes a brief overview of the site history, hydrogeology, and contamination; a discussion of several remedial alternatives that mediate PCE degradation (and potential degradation products – trichloroethene (TCE), cis-1,2-dichloroethene [*c*DCE], and vinyl chloride [VC]); a description of the bench scale testing procedures, data evaluation, results and discussion.



2.0 BACKGROUND

2.1 Site Description and History

Fort Drum Military Reservation is located in upstate New York approximately 10 miles northeast of Watertown, 80 miles north of Syracuse, and 25 miles southeast of the U.S./Canada border. Fort Drum occupies a large portion of northeastern Jefferson County and a portion of western Lewis County. The Reservation encompasses approximately 168 square miles.

Gasoline Alley was used for fuel storage and dispensing at least since the 1940s when Fort Drum was expanded. Nine fuel dispensing areas were located along Gasoline Alley where kerosene, gasoline, diesel fuel and JP-4 were stored and dispensed from 22 underground storage tanks (USTs) ranging in capacity from 5,000 to 25,000 gallons. The dispensing areas are referred to as Areas 1195, 1295, 1395, 1495, 1595, 1795, 1895, 1995, and 3805. The USTs, fuel dispensers, and associated piping were removed in 1994 and 1995.

The OSL is an approximately 50-acre closed landfill consisting of two cells on the north side of New York Route 26. Both cells are capped with synthetic covers. The geosynthetic cap for Cell 2 was installed in the summer of 2008. Leachate from the Old Sanitary Landfill (OSL) commingles with the dissolved phase fuel plume originating at Area 3805 and discharges to the OSL creek via seeps in the face of the ravine on the north side of the OSL. The primary contaminants in the leachate are benzene, toluene, ethylbenzene, and xylene (BTEX).

Dissolved-phase PCE contamination was discovered during the investigation near the Gasoline Alley Areas 1800, 1900, and 3800 targeting a historical release of fuel related compounds; the RI (in preparation) is currently underway to address PCE in groundwater beneath the site.

2.2 Summary of Site Geology and Hydrogeology

A complete description of the site geology and hydrogeology was presented in the original RI Work Plan (PARS, 2010). Presented herein is a summary of the site conditions specific to the bench scale testing and to the remedial efforts anticipated at the site.

The uppermost stratigraphic unit is comprised of unconsolidated, Pleistocene-age, glaciallyderived deltaic deposits of the Pine Plains Delta. The Pine Plains Delta complex is bordered on the northwest and south by previously deposited till and ground moraine, and on the east by a metamorphic-igneous bedrock complex (EA, 2000). Based on boreholes drilled as part of the field investigation, the deltaic deposits were observed to be between approximately 70 and 90 feet thick. The upper portions of the deltaic deposits are chiefly fine- to medium-grained deltaic sands with an increasing proportion of finer-grained sands, silt, and clay with depth. Hydraulic conductivity values range from 0.01 feet per day (ft/day) in the silt layer which forms the aquitard at the base of the surficial aquifer to 21 ft/day in the upper portion of the surficial aquifer.



The deltaic deposits are underlain by approximately 30 feet of stratified Pleistocene-age lacustrine deposits of silt and silty clay. These silts and clays overlie glacial till deposits or bedrock and appear to be an effective aquitard to downward groundwater flow.

The bedrock units underlying the deltaic and lacustrine deposits consist of the Cambrian-age Potsdam Sandstone and Theresa Formation (calcareous sandstones and dolomites, respectively) and the Ordovician-age Black River Group (carbonates), which are underlain by Precambrian-age metamorphic and igneous rocks (Reynolds, 1986).

Analysis of water-level elevations measured in wells screened in alluvial and bedrock units indicate that the hydraulic head elevation is higher in the deltaic aquifer than in the underlying bedrock, indicating a downward groundwater flow gradient. Based on the results of aquifer pumping tests conducted in the area, the glacial outwash and underlying bedrock units do not appear to be hydraulically connected, likely due to the presence of the clayey aquitard. Analytical results from a sample collected in one exploratory boring drilled into the underlying bedrock indicated that PCE has not migrated into the basal clay unit, or into the underlying bedrock.

2.3 Summary of Site Hydrochemistry and Chlorinated Solvent Impacts

Chlorinated solvent contamination consists almost exclusively of PCE; very limited concentrations of TCE were detected in samples, while no cDCE, VC, or ethene has been detected in groundwater from site wells. The historical maximum PCE concentration at the site is 2,700 µg/L at monitoring well 3805-MWI9 (shallow aquifer) measured in 1999. The maximum PCE concentration measured during the PCERI to date is 906 µg/L measured at well PCERI-MW-19S during the Fall 2011 sampling event.

The most highly impacted areas of the study area have been identified to be near monitoring well PCERI-MW19, in the transition between the shallow and intermediate aquifer zones (Figure 1, approximately 40 feet below grade). The PCE plume is thickest in this area; however the horizontal extent is relatively limited with respect to the full lateral PCE extent (Figures 1 and 2). The greatest horizontal extent was found to exist in the intermediate vertical section of aquifer which extends approximately 2,500 feet downgradient and covers approximately 19 acres (Figure 2). The deep aquifer has a very limited impacted area both laterally and vertically (Figure 3). Figure 4 shows the most upgradient portion of the plume where the SAI was conducted.

Monitored natural attenuation (MNA) parameters (dissolved oxygen [DO], oxygen-reduction potential [ORP], nitrate-N, and sulfate [SO₄-]) were measured on samples from four of the wells sampled during the Spring 2011 groundwater monitoring event (3805-PZ2D, PCERI-MW20I, PCERI-MW23I, and PCERI-MW-25S). Results from these analyses indicate that reducing conditions are not prevalent and suggest that there is limited intrinsic dechlorination of PCE occurring naturally at the site. This conclusion is supported by the relative absence of PCE



daughter products (TCE, cDCE, VC, ethene/ethane) present in groundwater samples, and the lack of methane in the samples.

2.4 PCE Plume Geometry

Laboratory analytical results from soil, groundwater, and soil-gas samples collected during the initial field work and subsequent SAI conducted in Area 3805 support the horizontal and vertical PCE plume delineation shown in Figures 1, 2, and 3. All PCE impacts to groundwater were found to be limited to the sands and silty sands of the Pine Plains Delta. Based on the results to date, the horizontal and vertical extent of PCE contamination has been delineated.

3.0 PRODUCT SELECTION CRITERIA

Several products are available in each of the technology categories; however, in the interest of keeping the testing program as focused as possible, one product from each remedial technology was selected for evaluation in the laboratory bench-scale tests. An abbreviated basis for product selection is described below; a complete discussion of the technology review was submitted under separate cover (PARS, August 2011, Appendix C).

3.1 Biological Technology

Recognizing that all of the biological products presented herein contain the *dehalococcoidies*microorganisms, and that many of those products are manufactured by the same laboratory for different vendors, the major factor to consider when selecting a biological culture is cost. Shaw Technology Group SDC-9TM was selected for this testing program which offers a highly concentrated and proven product at a competitive price, which under the proper geochemical conditions, will increase bacterial populations and reduce target compounds. This product has been successfully applied at over 100 sites throughout the USA, and is easily applied to the subsurface through injection points or dedicated wells.

The effectiveness of bioaugmentation depends significantly on subsurface geochemical conditions. Elevated DO, nitrate, and sulfate concentrations, as well as very high or low pH can significantly inhibit microbial growth and proliferation. A carbon source is typically used to ensure optimal geochemical conditions; carbon based substrates (food source for microbes) can be applied prior to or concurrent with bioaugmentation to minimize bacterial population loss due to unfavorable aquifer conditions. Emulsified vegetable oil and molasses and were used in the testing protocol to assess the dependence of the SDC-9TM on the carbon source for survival.

3.2 ERD Technology

The commercially available injectable reagents that promote enhanced reductive dechlorination offer different characteristics with respect to contaminant break down mechanism, short- and long-term effectiveness, ease of applicability, cost, regulatory acceptance, and synergy with other technologies. Products such as molasses and cheese whey are relatively inexpensive and



offer an immediate and easily metabolized source of carbon for dechlorinating microbes; however, these reagents are quickly metabolized and require constant reapplication. Engineered substrates such as EOS[®] and HRC[®] (Regenesis) also offer a rich carbon source and contain advanced molecules that provide a more long-lasting food source. These products are highly effective, and while they do cost more than molasses and cheese whey, they require significantly less frequent reapplication (up to 3 to 5 years). Both are easily applied in the field.

Zero valent iron differs from the other products presented herein because it mediates the β elimination (abiotic) process, but also inherently supports biological process as well (ITRC, 2005a). These two processes working simultaneously have proven to rapidly reduce PCE concentrations in contaminated aquifers. The abiotic process can be extremely rapid; studies have shown a 100-fold decrease in PCE/TCE concentrations in 3 weeks. Some applications of NZVI have used vegetable oil and/or molasses together with NZVI prior to injection to take advantage of both the biotic and abiotic degradation pathways.

Recognizing the merits of a reagent that is able to take advantage of both the abiotic and biotic degradation pathways, NZVI was selected for use during the ERD bench scale tests. However; additional ERD testing was inherently conducted as part of the biological testing (discussed above) to ascertain the nutrient needs of the SDC-9TM culture. This included a test using a 50/50-percent blend of molasses and EVO as a separate treatment from the bioaugmented and nutrient amended test.

3.3 Chemical Oxidation Technology

Each of the ISCO remedial options reviewed are extremely effective in rapidly attacking and destroying chlorinated solvents. Because of their highly reactive nature, these approaches can potentially be detrimental to biological or ERD remedial approaches due to the oxidative processes involved; ERD and biological treatment of chlorinated solvents requires highly anaerobic conditions. However, when carefully selected and designed, remedial approaches involving ISCO can be successfully applied along with ERD technologies to achieve a 2-phase approach: rapid solvent destruction in "hot-spots" followed by reductive dechlorination of residual dissolved contaminant mass (ITRC, 2005a).

Potassium permanganate is a very powerful oxidant. The product is relatively easy to transport and administer in the field, is fast-acting, and when mixed in modest concentrations, does not react adversely with other contaminants (i.e., BTEX) or cause drastic and long-term reductions in microbial populations. The effects of this treatment persist in the aquifer for a relatively short time following oxidation of the contaminants allowing a return to background conditions within a relatively short time frame.

While most of the ISCO options reviewed offer rapid contaminant destruction, potassium permanganate offers the greatest number of attributes that would be most favorable for



application at Ft. Drum, and was selected for use in the laboratory testing of ISCO remedial options.

4.0 BENCH SCALE TESTING METHODOLOGY

The following sections provide an overview of the procedures followed in the field and laboratory for bench scale testing of the various technologies and products presented herein.

All groundwater and soil samples collected for the bench scale testing were collected, transported, stored, and handled in accordance with the Quality Assurance Project Plan (QAPP) prepared for the project (PARS, 2010). The QAPP describes in detail all soil and groundwater sampling procedures, laboratory QA/QC procedures, and chain of custody protocols for all aspects of the project.

Results of the field work and plume delineation were used as a basis for selection of appropriate sample locations for the bench scale testing of remedial alternatives task. Based on the results of the RI field program completed to date, groundwater samples were collected from monitoring well PCERI-MW19S located in the most highly concentrated portion of the plume. Soil samples were collected during excavation of soil borings SB-1 drilled during the Source Area Investigation from aquifer zones with the highest field-screened chlorinated solvent values. Sampling locations are shown on Figure 4.

Soil and groundwater samples were delivered to New Jersey Analytical Laboratories (NJAL) located in Pennington, New Jersey (NJDEP certified lab 11005); split groundwater and soil samples were then couriered to Terra Systems, Inc. (TSI) located in Wilmington, Delaware for the biotreatibility evaluation. New Jersey Analytical Laboratories conducted the ERD and chemical oxidation tests; TSI conducted the biological portion of the bench scale testing program.

4.1 Groundwater Sampling

Groundwater samples were extracted from monitoring well PCERI-MW-19S using a ProactiveTM Monsoon stainless steel submersible pump following low-flow sampling procedures. This pump operates using power from a car battery hooked to a control box used to regulate flow rates by adjusting the voltage delivered to the pump. The decontaminated pump was connected to virgin polyethylene tubing and lowered into the well near the middle of the screened section. The pump was activated while water level drawdown was monitored as to maintain a flow rate that induced minimal drawdown. A rate of approximately 1 gallon per minute was used to withdraw water from the well into 5-liter polyethylene bags with minimal headspace. Approximately 25 liters of groundwater were collected.



4.2 Soil Sampling

Soil samples were collected from borehole PCERI-SB-1 located approximately 230 feet upgradient of well PCERI-MW-19S. This borehole was excavated during the Source Area Investigation (SAI) and was selected based on "live" field PCE vapor screening data indicating the presence of elevated PCE concentrations in the soil matrix. Saturated aquifer material from soil boring PCERI SB-1was collected for the microcosm study. Soil boring SB-1 was excavated using a rotosonic drilling rig that was equipped to collect a continuous core throughout borehole advancement. Based on field screening of soil-pore gas using a photoionization device (PID), the samples were collected from the depth interval between 35 and 45 feet bgs, which corresponded to the highest PID readings.

The soil samples were recovered inside an acetate liner which was retrieved from the rotosonic drill stem. The liner was cut lengthwise, screened with the PID, and then the soils were composited into 12, 1-liter wide mouth glass jars. The jars were filled with minimal headspace, sealed and then transported on ice.

4.3 Biotreatability Study Approach & Methodology

The protocol for the biological treatment was developed by TSI, per the requirements set forth in the Work Plan.

4.3.1 Initial Characterization

In an anaerobic chamber, the soil was passed through a 4.5 mm screen to remove debris and rocks and then mixed by hand to apparent homogeneity. The soil samples were composited in an anaerobic glove box.

Groundwater samples were submitted to Lancaster, Laboratories (Lancaster, PA) on July 14, 2011 to be analyzed for volatiles (EPA Method 8260); methane, ethene, and ethane (EPA Method 8015 modified); chloride, nitrate-nitrogen, and sulfate by EPA 300.0; total phosphorus as phosphate by EPA 365.1; and ferrous iron by SM20 3500 Fe B modified.

Samples of the groundwater were sent on July 14 to Microbial Insights, Inc. (Rockford, TN) to be analyzed for the numbers of *Dehalococcoides* and the tceA, bvcA, and vinyl chloride reductase genes.

4.3.2 VOC Microcosm Study

Microcosms were prepared in 250 mL bottles with 60 g soil (approximately 12% by volume soil) and 220 mL groundwater (88% by volume) and amended with the treatments shown below. All microcosms were amended with PCE to reach the desired target concentration of 300 to 600 μ g/L. One microcosm was amended with 1 mg/L Resazurin to monitor redox conditions. The microcosms were sealed with MininertTM valves.



The 12-week anaerobic biodegradation study (July 26, 2011 to October 18, 2011) was designed to evaluate the completeness of VOC dechlorination occurring with indigenous microorganisms, as well as to determine whether biostimulation and bioaugmentation with a dechlorinating culture containing *Dehalococcoides ethenogenes* would significantly improve the dechlorination rates. A combination of Terra Systems, Inc. Slow Release Substrate (SRS[®]), an emulsified vegetable oil product (EVO), and molasses were used as the substrate. Four treatment conditions were evaluated in triplicate:

- 1A, 1B, 1C Sterile Control autoclaved and amended with sodium azide
- 2A, 2B, 2C Intrinsic Control
- 3A, 3B, 3C Molasses and EVO
- 4A, 4B, 4C Molasses and EVO + Bioaugmentation electron donor plus Shaw SDC-9[™] culture

The "Sterile Control" was designed to monitor for abiotic loss of CVOCs. The "Intrinsic Control" condition was used to simulate existing site conditions in the laboratory. The "Molasses and EVO" condition (no microbes added) was used to increase ambient anaerobic biodegradation rates by creating more favorable growth conditions for the indigenous microorganisms, allowing the biochemical transformation of CVOCs to be unambiguously observed in a much shorter period of time. The "Molasses and EVO + Bioaugmentation" condition was evaluated to demonstrate whether complete dechlorination would occur with the addition of a microbial population containing *Dehalococcoides ethenogenes*. The amendments for each treatment are shown in Table 2. Molasses contains 29% carbon and SRS contains about 51% carbon. A loading of 500 mg C/L of molasses and 500 mg C/L EVO was added to each microcosm.

Aqueous samples from each condition were taken at the beginning of the study, as well as after 1, 2, and 3 months of incubation. These samples were analyzed for VOCs, ethene, ethane, methane, pH, redox potential (or ORP), volatile fatty acids (VFA) as acetate (using a Hach method which converted the fatty acids to acetate), and chloride, nitrate-nitrogen, and sulfate by ion chromatography using EPA 300.0. The IC analyses were conducted on composites of the three replicates for each treatment.

4.3.3 pH Buffering Study

Samples were collected from the all twelve microcosms throughout the study to be analyzed for pH and oxidation-reduction potential (ORP). The initial pH for the microcosms ranged between 6.8 and 7.6. The pH remained constant (6.9 to 7.2) in the Sterile Control Treatment 1 and ranged between 6.8 and 7.1 in the Treatment 2 (Intrinsic Control). However, the pH fell to as low as 5.5 in Treatments 3 and 4 with Molasses and EVO; this low pH could inhibit reductive dechlorination. After the samples were collected at Month 2, 1 g/L of sodium bicarbonate was added to Treatments 3 and 4. The pH increased to 6.5 in treatment 4B after the sodium



bicarbonate. The pH in the substrate-amended treatments remained favorable (above 6.4) at Month 3.

4.4 ERD Study Approach & Methodology

The ERD bench-scale study specifically targeted PCE and subsequent remediation breakdown products as the analytical parameters. New Jersey Analytical labs performed the study and analyses. Samples were delivered to NJAL in liter amber glass vessels ensuring the temperature is maintained below 4 degrees C. The samples were stored in refrigeration 4C until the study began.

4.4.1 Task 1 – Initial Characterization

The samples were homogenized and an initial aliquot was tested to verify concentration of the chemical target prior to the actual set up. Analyses included EPA method 8260B for initial characterization of all control and treated samples in triplicate.

4.4.2 Task 2 – Removal Efficiency Testing

Removal Efficiency Testing is performed for the purposes of identifying an optimum product dosage required to effectively remediate the specific concentrations of contaminants in affected groundwater. The homogenized sample was split into sacrificial vials of 40 ml to 60 ml volumes; the vials were sealed until the desired chemical addition of the NZVI is added to achieve the concentration indicated on the set up summary. Doses of 0.5, 1.0, and 2.0 grams per liter (g/L) were used. After additions, crimp seal using Teflon septa permanently sealed the vessels. The samples were incubated on a rotation table and intervals of 1 revolution per 12 hours over the course of each specified time. Triplicate analyses were performed on each set of batch bottles to address sample preparation and sampling variations. Clean control samples were also treated and tested in parallel with the contaminated samples to establish the reliability of the test results. The residual analytical results were then compared with the pre-test chlorinated hydrocarbon concentrations to evaluate the contaminant reduction achieved by each dosage and to select candidate dosages for further testing.

In the case of this study the sample time line was T= 24 hours, T=48 hours, T=72 hours, T=7 days, and T=34 days.

4.5 Chemical Oxidation Study Approach & Methodology

The chemical oxidation bench-scale study specifically targeted PCE and subsequent remediation breakdown products as the analytical parameters. New Jersey Analytical labs performed the study. Samples were delivered to NJAL in liter amber glass vessels ensuring the temperature is maintained below 4° C. The samples were stored in refrigeration 4° C until the study began.



The following is the bench test protocol was employed.

- (1) There were three different tests (each with a different volume of oxidant), plus a zero oxidant control, for a total of four tests:
 - a. Control Sample (which receives pH and iron amendments, but no oxidant)
 - b. 0.5 grams per liter of KMnO₄⁻
 - c. 1.0 grams per liter of KMnO₄⁻
 - d. 2.0 grams per liter of KMnO₄⁻
- (2) $KMnO_4$ was added to the three test reactors.
- (3) The slurries were stirred mechanically until the $KMnO_4^-$ is consumed.
- (4) Samples were collected and analyzed at 24 hours, 48-hours, and 168 hours to confirm any observed PCE reduction.

5.0 BENCH SCALE TESTING RESULTS

In general, analytical results of the bench scale testing suggest that each of the three technologies have the potential to remove or significantly decrease PCE concentrations in site groundwater in a laboratory setting. The bioaugmentation/electron donor approach (EDB sample) proved capable of PCE reductions of 98 percent (average) while promoting TCE, cDCE, VC, and ethene generation together with the "classic" reductive dechlorination geochemical sequence. Concentrations of PCE actually increased in the electron donor only batch (explanation below in Section 5.2). Nano-scale zero valent iron also showed substantial PCE reduction ranging from 51 percent at a 0.5 g/L dose to 100 percent PCE reduction with a 2.0 g/L dose. The chemical oxidation approach using KMnO₄⁻ produced the most rapid results with 100 percent PCE destruction within 48-hours using only a 0.5 g/L dose of KMnO₄⁻. Laboratory Reports of all analytical runs are included in Appendix D.

	Initial PCE Concentration	Final PCE Concentration	
Method	(µg/L)	(µg/L)	Percent Reduction
Bioaugmentation	317	4.8	98.5
Electron Donor Only	200	1080	0
Nano-scale ZVI (0.5 g/L)	940	462	50.9
Nano-scale ZVI (1.0 g/L)	940	10	98.9
Nano-scale ZVI (2.0 g/L)	940	0	100
Potassium Permanganate	1100	0	100

Table 1.	Results summary	of remedial alternatives	Bench Scale Testing.
Lable 1.	Results summary	of remember after natives	Denen Scale Testing.



5.1 Initial Characterization Results

The Initial Characterization results confirmed the presence of the target VOCs; however the concentration of PCE was somewhat variable between samples. The samples analyzed at NJAL yielded initial PCE concentrations that ranged between 940 μ g/L and 1,100 μ g/L, which is consistent with results obtained during the Spring and Fall 2011 groundwater monitoring events (AccuTest Laboratories). The PCE concentrations measured in the samples analyzed by TSI (Lancaster Analytical) were between 120 μ g/L and 330 μ g/L. The cause for the analytical variability is unknown. It is possible that PCE off-gassed into the sample container headspace during transport or volatilized during experiment set-up. However, provided that each sample set was run in triplicate, the internal data variability (precision) has been accounted for, and the results of these analyses are considered acceptable for their intended purposes. The groundwater samples also contained trace levels of TCE (2 μ g/L), chloroform (5 μ g/L), and methylene chloride (2 μ g/L); and no detectable cDCE (<0.8 μ g/L), VC (<1.0 μ g/L), ethene (<1.0 μ g/L), or ethane (<1.0 μ g/L).

Initial characterization results failed to show that substantial anaerobic biodegradation is occurring under the existing site conditions. The groundwater had moderate levels of the competing electron acceptors nitrate (3.7 mg/L) and sulfate (44.1 mg/L), but no detectable ferrous iron and very little methane (0.010 mg/L). The numbers of *Dehalococcoides ethenogenes* were reported as less than 0.5 cells/mL with no detectable *Dehalobacter spp.* (<2.8 cells/mL), and no tceA reductase genes, bvcA, or vinyl chloride reductase genes (<0.5 genes copies/mL each). No dechlorinating microbes were detected and the microbial population does not appear capable of transforming VC to ethene and ethane and is limited by environmental conditions (such as oxygenated conditions, substrate availability, or low pH).

The pH's of the soil and groundwater were both slightly alkaline (8.1 for the groundwater and 8.7 for 20 g soil in 50 mL distilled water). Additional buffer was not needed to raise the pH under initial conditions. Reductive dechlorination is often slowed at pH's below 6.0. Addition of a buffer can counteract the acids produced from the fermentation of the emulsified vegetable oil.

5.2 Biological Testing Results

The biological treatment bench scale study was conducted over a period of three months. Analyses were conducted on sterile control (SC), intrinsic control (IC), electron donor amended (ED), and electron donor amended and bioaugmented samples (EDB). Each of these samples sets were analyzed in triplicate at each time step. Results of the analyses are presented in timeseries charts included in Appendix A; Appendix B contains a report prepared by TSI presenting a detailed account of the study.

Each analytical parameter is plotted individually and represents an average concentration of each of the triplicate samples for each treatment group. Chlorinated ethene species (PCE, TCE, cDCE, VC, ethene, ethane) are also plotted together for each treatment group.



As shown in the charts in Appendix A, the following observations are apparent:

- There was very limited dechlorination under the existing site conditions based upon the absence of dechlorinating bacteria or functional genes for the degradation of TCE or VC and absence of final degradation products including ethene and ethane in the groundwater and the results of the intrinsic control microcosm treatment over the 3 month incubation period.
- The growth of indigenous microorganisms at the Fort Drum site could not be stimulated through the addition of molasses and EVO alone to completely biodegrade the CVOCs. cDCE production was stimulated in one of the three replicates with the substrate. Concentrations of PCE actually increased. This observation may be due to mass transfer of PCE from the soil into the dissolved phase; some of the increase is due to spiking the original samples with a solution of PCE in methanol to 500 µg/L.
- Molasses and EVO did support almost complete dechlorination of the PCE in conjunction with bioaugmentation. Bioaugmentation with a dechlorinating appears to be necessary for this site.
- The addition of the 1,000 mg/L sodium bicarbonate buffer maintained the pH in the optimal range for reductive dechlorination.
- After 2-months, the EDB sample demonstrated 100 percent PCE removal with corresponding reduction of TCE and cDCE together with VC and ethene generation.
- ORP, NO₃, and SO₄ all decreased significantly after the 2-month incubation period, while VFA and methane increased substantially.
- pH decreased to below 6.0; buffering was initiated to increase the pH to 6.5 using 1.0 g/L of sodium bicarbonate; pH remained relatively unchanged in the untreated control samples.
- ORP decreased in all samples to as low as -100 mV (EDB sample) after 2 months.
- Chloride concentrations increased in the sterile control sample and decreased by approximately the same amount in the remaining three samples.
- Initial PCE concentrations ranged from 200 µg/L to 330 µg/L. The intrinsic control and electron donor amended samples showed an increase in PCE concentration while the sterile control and bioaugmented samples showed an initial PCE decrease.
- TCE, cDCE, VC and ethene were all initially non-detect in all samples. TCE, cDCE, VC and ethene generation was observed in all samples, with the sterile control exhibiting the greatest increase.
- Detectable populations of *dehalococcoides* were not identified in the characterization samples.

In general, the results display the "classic" reductive dechlorination sequence with decreased nitrate and sulfate, and increased methane, VFAs, TCE, and cDCE. The initial PCE results were somewhat variable and lower than have been observed at well PCERI-MW19S. However, as



discussed above, the growth of indigenous microorganisms at the Fort Drum site could not be stimulated through the addition of molasses and EVO alone. These results suggest that intrinsic site conditions are not susceptible to ERD processes using reagents that promote an exclusively biotic degradation pathway.

5.3 ERD Testing Results

The initial characterization and post-treatment samples have been collected and analyzed. Analyses were conducted on intrinsic control, and three dosing concentrations of the NZVI (0.5, 1.0, and 2.0 g/L). Each of these samples sets were analyzed in triplicate. Results of the analyses are presented in time-series charts included in Appendix A.

The initial PCE concentration for the NZVI sample groups was measured at 960 μ g/L. As shown in the time-series chart (Appendix A), the following observations are noted:

- With the exception of the 0.5 g/L dose sample, all samples showed a decrease in PCE concentration at the first time-step (24 hours).
- Following the 24-hour decrease of 200 mg/L, the 0.5 g/L dose realized an additional 225 μg/L of PCE reduction after 816 hours (34 days).
- After a modest PCE rebound at the 48-hour time-step, PCE concentrations were reduced The 1.0 g/L NZVI sample to an average of 10 µg/L, representing a 99 percent decrease in PCE concentrations
- The 2.0 g/L NZVI sample exhibited the greatest and most progressive PCE reduction profile with approximately 90 percent PCE reduction in the initial 168 hours, followed by 100 percent reduction after 34 days.
- The gradual PCE concentration decrease observed in the control sample is likely due to the long storage and daily agitation of the sample; when considered together with the 0.5 g/L dose, it can be concluded that no removal was achieved with the 0.5 g/L dose.

In general, the results are indicative of the PCE reduction typically achieved using NZVI; however, the rates of decrease were observed to be slower than typically observed using this technology. Complete PCE loss was achieved through the use of a 2.0 g/L solution of the NZVI, while 99 percent reduction was achieved using a 1.0 g/L dose.

5.4 Potassium Permanganate Testing Results

To date, the initial characterization, and all post-treatment samples have been collected and analyzed. Analyses were conducted on intrinsic control, and three dosing concentrations of potassium permanganate (0.5, 1.0, and 2.0 g/L). Each of these samples sets were analyzed in triplicate. Results of the analyses are presented in time-series charts included in Appendix A.

The initial PCE concentration for the $KMnO_4^-$ sample groups was 1,100 µg/L. As shown in the time-series chart, the following observations are noted:



- Each of the permanganate dosing levels achieved 100 percent PCE reduction within 48 hours.
- With the exception of one of the triplicate 0.5 g/L dose samples, 100 percent PCE reduction was achieved within 24 hours.
- Confirmation samples analyzed at 168 hours confirmed 100 percent PCE reduction with no concentration rebound.

These results suggest that potassium permanganate is an extremely effective and rapid agent for PCE removal in site groundwater. No further analyses will be conducted for this portion of the testing.

6.0 DATA DISCUSSION

Results of the remedial alternatives bench scale testing further characterized the soil and groundwater in the most highly contaminated portion of the PCE plume. Results generally supported those obtained during the spring and fall groundwater sampling events. Each of the technologies evaluated during the bench scale testing provided significant cVOC reduction, recognizing specific conditions to each technology.

Biological testing was evaluated using the Shaw SDC-9TM bioaugmentation culture together with an electron donor substrate consisting of a 50/50 blend of molasses and emulsified vegetable oil. The electron donor substrate was also evaluated as a stand-alone comparison to the bioaugmented sample in order to 1) evaluate the ability of intrinsic microbes to respond positively to the addition of an electron donor, and 2) compare to the NZVI (abiotic) tests conducted for the ERD portion of the study.

Bioaugmentation was required for the complete dechlorination sequence of the PCE to ethene to be observed in Treatment 4 (Molasses, EVO, and Bioaugmentation). This test produced the most analytical parameters indicative of PCE reduction and geochemical changes to a reducing state. An average of 84.6% of the Sum CE without gases was removed in the bioaugmented treatments in the three month study. Vinyl chloride concentrations were decreasing in all replicates between months 2 and 3 and would have been completely consumed with a longer incubation period.

The Molasses and EVO only treatment 3 showed the conversion of most of the PCE to cDCE in replicate 3A; PCE predominated in the replicates 3B and 3C. Relatively low concentrations of VC, ethene, and ethane were generated in all three replicates at Month 2. However, VC, ethene, and ethane were not detected at Month 3 in any of the replicates. The total chlorinated ethenes (without the gases) actually increased by 24.9%.

In summary, bioaugmentation with electron donor addition appears to be capable of reducing PCE concentrations in a laboratory setting within a time span of three months. However, VC concentrations increased to concentrations well above maximum contaminant levels (MCLs) as a result of reductive dechlorination of PCE. Ethene concentrations increased significantly which indicates that the full reductive dechlorination sequence is occurring. Geochemical parameters



also indicate that the appropriate redox shifts are occurring which should promote full dechlorination of PCE to ethene. The third month sample results should provide an indication as to whether the VC will degrade to below MCL values.

Results from the bench scale tests using NZVI suggest that this particular technology is effective in removing PCE from site groundwater in a laboratory setting. Near-complete removal (99 percent) of PCE was achieved with a 1.0 g/L solution of the amendment, while 100 percent removal was achieved using a 2.0 g/L solution. At lower NZVI concentrations (0.5 g/L), the PCE reduction observed was not significantly different from that observed in the control (unamended) sample. The 1.0 g/L dose imparted a more linear PCE reduction while the 2.0 g/L dose rapidly reduced PCE concentrations by 90 percent (within 168 hours) with the remaining 9 percent required an additional 646 hours. There was no daughter product generation as a result of PCE degradation, rather the results suggest that the degradation pathway was exclusively abiotic. The implication of these results being that there is a relatively low risk of producing an undesirable amount of secondary regulated by-products such vinyl chloride). Based on these results, it is apparent that NZVI is an effective agent for PCE reduction in site groundwater.

The results of the potassium permanganate bench scale tests were the most rapid and convincing. All three doses of the product induced 100 percent reduction in PCE in the laboratory within 48 hours. This product is well known to be an effective and rapid agent in destroying PCE and other chlorinated compounds. Recognizing that site soils at Ft. Drum contain very little natural organic matter and do not contain significant volumes of oxidant scavangers, the effectiveness of this product in the field is not expected to be much less that that observed in the laboratory using only site groundwater.



7.0 **REFERENCES**

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FIGURES











APPENDIX A

TIME SERIES CHARTS OF BENCH SCALE TESTING RESULTS



BIOLOGICAL TESTING BENCH SCALE TESTING RESULTS






























ERD BENCH SCALE TESTING RESULTS





CHEMICAL OXIDATION BENCH SCALE TESTING RESULTS





APPENDIX B

FINAL REPORT FOR FORT DRUM, NY MICROCOSM TREATABILITY STUDY, TERRA SYSTEMS





December 7, 2011

Eric White PARS Environmental, Inc. 500 Horizon Drive Suite 540 Robbinsville, NJ

Arul Ayyaswami Gannett Fleming, Inc. 47 Waterman Avenue East Longmeadow, MA 01028-1728

RE: Final Report for Fort Drum, NY Microcosm Treatability Study Version 2

Dear Eric and Arul:

The results of the treatability testing performed for the Fort Drum in New York are discussed in this report. The technologies evaluated focused on the treatment of various chlorinated volatile organic compounds (CVOCs; tetrachloroethene [PCE], trichloroethene [TCE], *cis*-1,2-dichloroethene [cDCE], and vinyl chloride [VC]).

The study was designed to evaluate the effectiveness of: (1) biostimulation under reductive dechlorination conditions to treat various CVOCs; (2) bioaugmentation with biostimulation to treat CVOCs.

The laboratory work was performed by Erich Hauptmann under the direction of Dr. Michael Lee at Terra Systems, Inc. (TSI, Wilmington, DE).

1.0 SUPPLY OF SAMPLES

Personnel from PARS/Gannett Fleming were responsible for collecting and packaging the field samples. The samples were delivered by New Jersey Analytical Laboratories under standard Chain of Custody procedures.

Approximately 12.3 kilograms of soil and 59.0 kg of groundwater were delivered on ice on July 13, 2011 to:

Dr. Michael D. Lee Terra Systems, Inc. 1035 Philadelphia Pike, Suite E Wilmington, DE 19809

302-798-9553

All site materials were stored refrigerated until used in the study.

2.0 TREATABILITY TESTING

The treatability testing consisted of two tasks of work, as described in the sections that follow.

2.1 Task 1, Initial Characterization of Soil and Groundwater

In an anaerobic chamber, the soil was passed through a 4.5 mm screen to remove debris and rocks, then mixed by hand to apparent homogeneity.

Groundwater samples were submitted to Lancaster, Laboratories (Lancaster, PA) on July 14, 2011 to be analyzed for volatiles (EPA Method 8260); methane, ethene, and ethane (EPA Method 8015 modified); chloride, nitrate-nitrogen, and sulfate by EPA 300.0; total phosphorus as phosphate by EPA 365.1; and ferrous iron by SM20 3500 Fe B modified.

Samples of the groundwater were sent on July 14 to Microbial Insights, Inc. (Rockford, TN) to be analyzed for the numbers of *Dehalococcoides* and the tceA, bvcA, and vinyl chloride reductase genes.

Initial characterization results are shown in Table 1. The groundwater showed a moderate concentration of PCE (150 μ g/L); trace levels of TCE (2 μ g/L), chloroform (5 μ g/L), and methylene chloride (2 μ g/L); and no detectable cDCE (<0.8 μ g/L), VC (<1.0 μ g/L), ethene (<1.0 μ g/L), or ethane (<1.0 μ g/L). The groundwater had moderate levels of the competing electron acceptors nitrate (3.7 mg/L) and sulfate (44.1 mg/L), but no detectable ferrous iron and very little methane (0.010 mg/L). The numbers of *Dehalococcoides ethenogenes* were reported by Microbial Insights as less than 0.5 cells/mL with no detectable *Dehalobacter spp.* (<2.8 cells/mL), and no tceA reductase genes, bvcA, or vinyl chloride reductase genes (<0.5 genes copies/mL each). No dechlorinating microbes were detected and the microbial population does not appear capable of transforming VC to ethene and ethane and is limited by environmental conditions (such as oxygenated conditions, substrate availability, or low pH).

The pHs of the soil and groundwater were both slightly alkaline (8.1 for the groundwater and 8.7 for 20 g soil in 50 mL distilled water). Additional buffer was not needed to raise the pH under existing conditions. Reductive dechlorination is often slowed at pHs below 6.0. Addition of a buffer can counteract the acids produced from the fermentation of the emulsified vegetable oil.

The Initial Characterization results confirmed the presence of the target VOCs, but failed to show that substantial anaerobic biodegradation is occurring under the existing site conditions.

Initial Characterization	Units	GW	Soil
Inorganics			
Ferrous Iron	mg/L	< 0.010	
Nitrate-Nitrogen	mg/L	3.7	
Sulfate	mg/L	44.1	
Chloride	mg/L	149	
VOCs			
Tetrachloroethene	μg/L	150	
Trichloroethene	µg/L	2 J	
Cis-1,2-Dichloroethene	µg/L	< 0.8	
Vinyl Chloride	µg/L	<1.0	
Chloroform	µg/L	5.0	
Methylene Chloride	µg/L	2 J	
Endproduct Gases			
Ethane	µg/L	<1.0	
Ethene	µg/L	<1.0	
Methane	µg/L	10 J	
Properties			
pH	SU	8.1	8.7
Density	g/mL		1.79
Microbial Populations			
Dehalococcoides spp.	cells/mL	<5.0E-01	
Dehalobacter spp.	cells/mL	<2.8E0	
tceA Reductase genes	cells/mL	<5.0E-01	
bvcA Reductase genes	cells/mL	<5.0E-01	
Vinyl Chloride Reductase genes	cells/mL	<5.0E-01	

J estimated below practical quantification limits, but above the lower quantification limit

2.2 Task 2, Treatment of Chlorinated VOCs Using Reductive Dechlorination

2.2.1 Introduction

Under appropriate reducing conditions, *Dehalococcoides ethenogenes* bacteria are able to sequentially dechlorinate PCE to TCE, cDCE, VC, and ethene (ethane is sometimes also produced). The absence of these specialized bacteria results in dechlorination only to cDCE, a daughter product that is undesirable from an environmental perspective.

The 12-week anaerobic biodegradation study (July 26, 2011 to October 18, 2011) was designed to evaluate the completeness of VOC dechlorination occurring with indigenous microorganisms, as well as to determine whether biostimulation and bioaugmentation with a dechlorinating culture containing *Dehalococcoides ethenogenes* would significantly improve the dechlorination rates. A combination of Terra Systems, Inc. Slow Release Substrate or SRS[®] (an emulsified vegetable oil product or EVO) and molasses were used as the substrate. Four treatment conditions were evaluated in triplicate:

- 1A. 1B, 1C Sterile Control autoclaved and amended with sodium azide
- 2A, 2B, 2C Intrinsic Control
- 3A, 3B, 3C Molasses and EVO
- 4A, 4B, 4C Molasses and EVO + Bioaugmentation the selected electron donor with the Shaw SDC-9 culture

The "Sterile Control" was designed to monitor for abiotic loss of CVOCs. The "Intrinsic Control" condition was used to simulate existing site conditions in the laboratory. The "Molasses and EVO Biostimulated" condition was used to increase ambient anaerobic biodegradation rates by creating more favorable growth conditions for the indigenous microorganisms, allowing the biochemical transformation of CVOCs to be unambiguously observed in a much shorter period of time. The substrate and bioaugmented conditions demonstrated whether complete dechlorination would occur with the addition of a microbial population containing *Dehalococcoides ethenogenes*. The amendments for each treatment are shown in Table 2. Molasses contains 29% carbon and SRS contains about 51% carbon. A loading of 500 mg C/L of molasses and 500 mg C/L EVO was added to each microcosm. The electron donor loading was chosen by PARS Environmental and Gannett Fleming.

Aqueous samples from each condition were taken at the beginning of the study, as well as after 1, 2, and 3 months of incubation. These samples were analyzed for VOCs, ethene, ethane, methane, pH, redox potential (or ORP), volatile fatty acids (VFA) as acetate (using a Hach method which converted the fatty acids to acetate), and chloride, nitrate-nitrogen, and sulfate by ion chromatography using EPA 300.0. The IC analyses were conducted on composites of the three replicates for each treatment.

The PCE concentration as measured by Lancaster Laboratories was 150 μ g/L. To provide a concentration more representative of the typical in situ conditions, the groundwater was spiked with a solution of PCE in methanol to 500 μ g/L. A PCE Spiking Solution containing 100,000 mg/L PCE (62 μ L) and 958 μ L methanol was prepared. Eight hundred mL of the sterile groundwater was spiked with 4.0 μ L of the PCE solution. 2.4 L of the non-sterile groundwater was transferred to a 1 gallon bottle and spiked with 8.4 μ L of the PCE solution to give a total of 500 μ g/L PCE.

Appendix I presents the VOC, dissolved gases (ethene, ethane and methane), pH, ORP, VFA, chloride, nitrate-nitrogen, and sulfate results for each of the twelve microcosm treatments over time. Average concentrations of the VOCs and other parameters for all three replicates of each treatment are also shown.

No	Treatment	Soil	Groundwater	SRS	Molasses	Resazurin	Bioaugmentation Culture (Month 1)
		g	mL	mL	mL	mL	mL
1A	Sterile	60	220				
1B	Sterile	60	220				
1C	Sterile	60	220				
2A	Intrinsic	60	220				
2B	Intrinsic	60	220				
2C	Intrinsic	60	220				
3A	Molasses and EVO	60	220	0.22	0.38	0.22	
3B	Molasses and EVO	60	220	0.22	0.38		
3C	Molasses and EVO	60	220	0.22	0.38		
4A	Molasses and EVO +	60	220	0.22	0.38		2.2
	Bioaugmentation						
4B	Molasses and EVO +	60	220	0.22	0.38		2.2
	Bioaugmentation						
4C	Molasses and EVO +	60	220	0.22	0.38		2.2
	Bioaugmentation						
Total		720	2640	1.32	2.28	0.22	6.6

Table 2. Amendments

2.2.2 Metabolic Activity

Metabolic activity refers to the level of anaerobic biological degradation that is occurring and has been evaluated in this study by measuring nitrate-nitrogen, sulfate, dissolved methane, and VFA concentrations. Decreases in the nitrate-nitrogen and sulfate concentrations and increases in methane concentrations in a microcosm were indications that anaerobic microorganisms are present and actively biodegrading the organic substrates. Methane is produced when other electron acceptors (e.g., oxygen, nitrate, sulfate, iron) have largely been depleted, and reductive dechlorination occurs most readily under these methanogenic conditions.

Figure 1 depicts the average nitrate-nitrogen, sulfate, and dissolved methane concentrations for each treatment (nitrate-nitrogen and sulfate were measured in a composite from all three replicates where methane represents averages for that treatment with the ranges shown by the error bars). Nitrate-nitrogen was consumed within one month in the sterile control, molasses and EVO, and molasses and EVO + bioaugmentation treatments. Nitrate-nitrogen was non-detect after two months in the Intrinsic Control. The nitrate-nitrogen may have been consumed by microorganisms using the 3% hydrogen in the glove box atmosphere. Sulfate was not consumed in the sterile control and was reduced by 26% in the Intrinsic Control. Sulfate concentrations in the Molasses and EVO treatment decreased to 18.8 mg/L by Month 2 and to 4.1 mg/L (below the method detection limit) at Month 3. In the Molasses and EVO bioaugmented treatment, sulfate decreased to 2.9 mg/L by Month 2 and 7.8 mg/L at Month 3. Methane concentrations in the microcosms at the beginning of the study were all non-detect (<0.0007 mg/L). Methane was not detected in the Treatment 1 Sterile Control until Month 3 in one replicate at 0.0018 mg/L. Methane was detected at low concentrations of 0.0016 mg/L or less in the Treatment 2 Intrinsic Controls throughout the 3-month study. Methane was detected at 0.0034 to 0.0091 mg/L at Month 1 in the Treatment 3 Molasses and EVO and then increased to 0.028 to 0.040 mg/L at Month 2 and to 0.67 to 10.4 mg/L at Month 3. Methane concentrations above 0.56 mg/L are estimated as they were above the calibration standard curve. Elevated methane levels were also observed in the Treatments 4 Molasses and EVO + Bioaugmentation Culture at Months 2 and 3.

Figure 2 and Appendix I show the VFA averages and ranges for the four treatments. At Month 0, the VFA concentrations ranged from 0 to 128 mg/L with the highest VFA found with Treatment 1 Sterile Control. The autoclaving process may have released organics that were showed up as VFAs. The Sterile Control Treatment 1 had between 103 and 314 mg/L VFA for the remainder of the treatment period. The VFA concentrations were low (0 to 12 mg/L) in the intrinsic control and substrate amended treatments at Month 0 as little of the substrate had been converted to fatty acids. The VFA remained low (54 mg/L or less) in Treatment 2 Intrinsic Control. The VFA increased to between 538 and 7825 mg/L at Month 1 in the molasses and EVO amended Treatments 3 and 4. The maximum VFA were found at month 2 with concentrations ranging from 860 to 1,076 mg/L. VFA concentrations decreased to a range of 460 to 750 mg/L in the Molasses, EVO, and Bioaugmentation Treatment 4.

The chloride concentrations were measured for the four treatments over time. Chloride is produced as PCE is degraded with 0.86 mg/L chloride produced from the conversion of 1 mg/L

PCE to ethene. Chloride concentrations decreased in three of the four treatments. There was not enough PCE in the microcosms to see a significant change in the chloride concentrations.

The results of the electron acceptor evaluations in the microcosm study indicate:

- The Sterile Control treatment showed losses of nitrate, but no reduction of sulfate and production of methane.
- The Intrinsic Control microcosms did show losses of nitrate to below the detection limits and some reduction in the sulfate concentration, but no methane production as there is little available organic matter;
- Growth of the anaerobic microorganisms can be stimulated through the addition of organic substrates. This conclusion is based on the decreases in nitrate and sulfate and increases in methane concentrations observed in substrate-amended and substrate-amended + bioaugmented microcosms relative to the control microcosms.

2.2.3 pH AND ORP IN ANAEROBIC MICROCOSMS

Samples were collected from the all twelve microcosms throughout the study to be analyzed for pH and oxidation-reduction potential (ORP). Figures 3 and 4 show the average pH and ORP for each treatment along with the ranges. Appendix I also provide the results of the pH and ORP analyses. The initial pH for the microcosms ranged between 6.8 and 7.6. The pH remained constant (6.9 to 7.2) in the Sterile Control Treatment 1. The pH ranged between 6.8 and 7.1 in the Treatment 2 (Intrinsic Control). The pH fell to as low as 5.5 in Treatments 3 and 4 with Molasses and EVO; this low pH could inhibit reductive dechlorination. After the samples were collected at Month 2, 1 g/L of sodium bicarbonate was added to Treatments 3 and 4. The pH increased to 6.5 in treatment 4B after the sodium bicarbonate. The pH in the substrate-amended treatments remained favorable (above 6.4) at Month 3.

Reducing conditions (-20 to -41 millivolts or mV) were found initially in all treatments. ORPs ranged from -91 to 78 mV were found from Month 0 to 3 in Treatment 1 (Sterile Control). Reducing conditions of -12 to -162 mV were seen in Treatment 2 (Intrinsic Control). The ORP were reducing (-5 to -136 mV) in substrate amended Treatments 3 and 4. Treatment 3A was amended with 1 mg/L of resazurin, a dye sensitive to redox conditions. Under oxidizing conditions, it is blue, under mildly reducing conditions, it becomes pink, and under strongly reducing conditions it is clear. The samples collected from Bottle 3A at Months 1, 2, and 3 were all clear, indicating reducing conditions.

2.2.4 CVOC BIODEGRADATION IN ANAEROBIC MICROCOSMS

Appendix I presents the analytical results for the anaerobic microcosms containing the Fort Drum groundwater and soils. Figures presenting the chlorinated ethene results for each treatment are summarized as follows:

Figure	Microcosm	Amendments
5	1	Sterile Control
6	2	Intrinsic Control
8	3	Molasses and EVO
9	4	Molasses and EVO + Bioaugmentation

CVOC concentrations presented on the figures are expressed in micromolar (μ M) units. Molar units were used so that each CVOC is expressed on an equivalent mass basis for comparison purposes. The micromolar concentrations are calculated by dividing the concentration in μ g/L by the molecular weight of the CVOC (PCE = 165.8 grams per mole [g/mol]; TCE = 131.4 g/mol; cDCE = 96.9 g/mol; VC = 62.5 g/mol; acetylene = 26 g/mol; ethene = 28 g/mol; and ethane = 30 g/mol). Each replicate for the treatments is shown in the Figures.

The following Table 3 and section summarize the average results for microcosms containing Fort Drum groundwater and soils from Months 0 to 3:

Treatment	1 Sterile	2 Intrinsic	3 Molasses	4 Molasses and EVO +
	Control	Control	and EVO	Bioaugmentation
PCE	86.7	-8.4	16.7	>98.2
TCE	>-237.2	>-151.2	>-107.0	0
cDCE	>-8.6	>-329.3	>-612.1	0
VC	0	0	0	>-225.6
Sum CE w/o Gases	73.9	-35.4	-24.9	84.6
Methane	>14.3	>24.3	>-999900	>-3385614
Ethene	0	0	0	>-597.7
Ethane	0	0	0	0

 Table 3. Percent Removals Months 0 to 3

Bold values represent changes greater than observed in sterile control. < = Compound not detected at Month 0, detection limit used for T=0 result. >- = Compound concentration increased from non-detect at Month 0

In the Sterile Control Treatment 1, there was a loss of 86.7% of the PCE with limited transformation to TCE and cDCE. Replicate 1A showed more transformation to TCE and cDCE than the other two replicates where PCE predominated. VC, ethene, and ethane were not produced in this treatment. There was a moderate loss (73.9%) of the chlorinated ethenes. The losses are likely due to volatilization into the small volume of headspace in the bottles or sorption onto the soil particles. Analytical errors may also have contributed the variability in measured PCE concentrations.

Average PCE concentrations increased by 8.4% in Treatment 2 Intrinsic Control microcosm with relatively low levels of TCE and cDCE detected at Months 1, 2, and 3. Between Months 2 and 3, PCE concentrations decreased in bottle 2C with increases in TCE. VC, ethene, and ethane were not produced in this treatment. The native microbial population was not able to support much reductive dechlorination under the existing site conditions within the 3 month incubation period.

The Molasses and EVO only treatment 3 showed the conversion of most of the PCE to cDCE in replicate 3A; PCE predominated in the replicates 3B and 3C. Relatively low concentrations of VC, ethene, and ethane were generated in all three replicates at Month 2. However, VC, ethene, and ethane were not detected at Month 3 in any of the replicates. The total chlorinated ethenes (without the gases) increased by 24.9%.

Bioaugmentation was required for the complete dechlorination sequence of the PCE to ethene to be observed in Treatment 4 (Molasses, EVO, and Bioaugmentation). An average of 84.6% of the Sum CE without gases was removed in the bioaugmented treatments in the three month study. Vinyl chloride concentrations were decreasing in all replicates between months 2 and 3 and would have been completely consumed with a longer incubation period.

3.0 CONCLUSIONS

Based on the results of the treatability test performed, the following conclusions can be made:

- There was very limited dechlorination under the existing site conditions based upon the absence of dechlorinating bacteria or functional genes for the degradation of TCE or VC and absence of final degradation products including ethene and ethane in the groundwater and the results of the intrinsic control microcosm treatment over the 3 month incubation period.
- The growth of indigenous microorganisms at the Fort Drum site could not be stimulated through the addition of molasses and EVO to completely biodegrade the CVOCs. cDCE production was stimulated in one of the three replicates with the substrates.
- Molasses and EVO in conjunction with bioaugmentation did support almost complete dechlorination of the PCE during the three month microcosm study. Bioaugmentation with a dechlorinating appears to be necessary for this site.
- The addition of the 1,000 mg/L sodium bicarbonate buffer maintained the pH in the optimal range for reductive dechlorination.

The results of this study indicate that enhanced anaerobic bioremediation with bioaugmentation is a viable remedial alternatives for the Fort Drum facility to address the chlorinated VOC plumes. Remedial performance can be evaluated and modified as part of a field-scale pilot test. If bioremediation is chosen, it is recommended that injection of the molasses and EVO, sodium bicarbonate buffer, and bioaugmentation culture be conducted and monitored for at least three months to determine if the substrate can be effectively distributed.

Should you have any questions about the results of the studies or need additional information, please feel free to contact me by phone or e-mail.

Sincerely,

michael I lee, PRd.

Michael D. Lee, Ph.D. Vice President Research and Development

FIGURES



Figure 1. Electron Acceptors in Microcosm Treatments















Figure 8. Molasses, EVO, and Bioaugmentation Treatments 4A-4C Chlorinated Ethenes

APPENDIX I

Treatment	1A	Sterile Contr	ol		
Months	Units	0	1	2	3
pН	SU	7.6	7.1	7.1	7.1
ORP	mV	-32	11	-87	78
VFA as Acetate	mg/L	49	231	314	158
Nitrate-N	mg/L	3.7	<2.5	< 0.25	<2.5
Sulfate	mg/L	44.1	52.8	42.4	56.4
Chloride	mg/L	149	190	129	152
PCE	μg/L	120	46	18	6.9
TCE	μg/L	<5.5	140	31	21
cDCE	μg/L	<5.5	65	15	8.4
VC	μg/L	<5.5	<5.5	<5.5	<5.5
Ethene	μg/L	<1.3	<1.3	<1.3	<1.3
Ethane	μg/L	<1.3	<1.3	<1.3	<1.3
Methane	μg/L	< 0.7	< 0.7	< 0.7	< 0.7
PCE	μΜ	0.72	0.28	0.11	0.042
TCE	μM	< 0.042	1.07	0.24	0.16
cDCE	μΜ	< 0.057	0.67	0.15	0.087
VC	μM	< 0.088	< 0.088	< 0.088	< 0.088
Ethene	μM	< 0.046	< 0.046	< 0.046	< 0.046
Ethane	μM	< 0.043	< 0.043	< 0.043	< 0.043
Sum CE + Gases	μM	0.72	2.01	0.50	0.29
Treatment	1 B	Sterile Contr	ol		
Months	Units	0	1	2	3
nH	SU	68	70	69	72
ORP	mV	-37	-26	-91	34
VFA as Acetate	mg/L	128	293	310	270
Nitrate-N	mg/L	3.7	<2.5	< 0.25	<2.5
Sulfate	mg/L	44.1	52.8	42.4	56.4
Chloride	mg/L	149	190	129	152
PCE	μg/L	200	100	75	29
TCE	µg/L	<5.5	30	15	14
cDCE	µg/L	<5.5	<5.5	7.1	<5.5
VC	μg/L	<5.5	<5.5	<5.5	<5.5
Ethene	μg/L	<1.3	<1.3	<1.3	<1.3
Ethane	μg/L	<1.3	<1.3	<1.3	<1.3
Methane	μg/L	< 0.7	< 0.7	<0.7	< 0.7
PCE	μM	1.21	0.60	0.45	0.17
TCE	μM	< 0.042	0.23	0.11	0.11
cDCE	μΜ	< 0.057	< 0.057	0.073	< 0.057
VC	μM	< 0.088	< 0.088	< 0.088	< 0.088
Ethene	µM	< 0.046	< 0.046	< 0.046	< 0.046
Ethana	P				
Lunanc	μM	< 0.043	< 0.043	< 0.043	< 0.043
Sum CE + Gases	μM μM	<0.043 1.21	<0.043 0.83	<0.043 0.64	<0.043 0.28

Treatment	1C	Sterile Control			
Months	Units	0	1	2	3
рН	SU	6.8	7.0	6.9	7.0
ORP	mV	-37	-22	-86	-10
VFA as Acetate	mg/L	6	134	113	103
Nitrate-N	mg/L	3.7	<2.5	< 0.25	<2.5
Sulfate	mg/L	44.1	52.8	42.4	56.4
Chloride	mg/L	149	190	129	152
PCE	µg/L	490	110	130	72
TCE	µg/L	<5.5	60	30	22
cDCE	µg/L	<5.5	21	13	10
VC	µg/L	<5.5	<5.5	<5.5	<5.5
Ethene	µg/L	<1.3	<1.3	<1.3	<1.3
Ethane	µg/L	<1.3	<1.3	<1.3	<1.3
Methane	µg/L	< 0.7	< 0.7	< 0.7	1.8
PCE	μM	2.96	0.66	0.78	0.43
TCE	μM	< 0.042	0.46	0.23	0.17
cDCE	μM	< 0.057	0.22	0.13	0.10
VC	μM	< 0.088	< 0.088	< 0.088	< 0.088
Ethene	μM	< 0.046	< 0.046	< 0.046	< 0.046
Ethane	μM	< 0.043	< 0.043	< 0.043	< 0.043
Sum CE + Gases	μΜ	2.96	1.34	1.15	0.70
Traatmant	1A C	Starila Control	Avorago		
Treatment	1A-C Units	Sterile Control	Average	2	3
Treatment Months	1A-C Units	Sterile Control	Average 1 7 0	2	3
Treatment Months pH ORP	1A-C Units SU mV	Sterile Control . 0 7.1 -35	Average 1 7.0 -12	2 7.0 -88	3 7.1 34
Treatment Months pH ORP VFA as Acetate	1A-C Units SU mV mg/L	Sterile Control . 0 7.1 -35 61	Average 1 7.0 -12 219	2 7.0 -88 246	3 7.1 34 177
Treatment Months pH ORP VFA as Acetate Nitrate-N	1A-C Units SU mV mg/L mg/L	Sterile Control : 0 7.1 -35 61 3.7	Average 1 7.0 -12 219 <2.5	2 7.0 -88 246 <0.25	3 7.1 34 177 <2.5
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate	1A-C Units SU mV mg/L mg/L mg/L	Sterile Control 2 0 7.1 -35 61 3.7 44.1	Average 1 7.0 -12 219 <2.5 52.8	2 7.0 -88 246 <0.25 52.8	3 7.1 34 177 <2.5 56.4
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride	1A-C Units SU mV mg/L mg/L mg/L mg/L	Sterile Control 2 0 7.1 -35 61 3.7 44.1 149	Average 1 7.0 -12 219 <2.5 52.8 190	2 7.0 -88 246 <0.25 52.8 190	3 7.1 34 177 <2.5 56.4 152
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE	1A-C Units SU mV mg/L mg/L mg/L ug/L	Sterile Control 2 0 7.1 -35 61 3.7 44.1 149 270	Average 1 7.0 -12 219 <2.5 52.8 190 85	2 7.0 -88 246 <0.25 52.8 190 74	3 7.1 34 177 <2.5 56.4 152 36
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE	1A-C Units SU mV mg/L mg/L mg/L µg/L µg/L	Sterile Control . 0 7.1 -35 61 3.7 44.1 149 270 <5.5	Average 1 7.0 -12 219 <2.5 52.8 190 85 77	2 7.0 -88 246 <0.25 52.8 190 74 25	3 7.1 34 177 <2.5 56.4 152 36 19
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE	1A-C Units SU mV mg/L mg/L mg/L µg/L µg/L µg/L ug/L	Sterile Control . 0 7.1 -35 61 3.7 44.1 149 270 <5.5 <5.5	Average 1 7.0 -12 219 <2.5 52.8 190 85 77 29	2 7.0 -88 246 <0.25 52.8 190 74 25 12	3 7.1 34 177 <2.5 56.4 152 36 19 6.1
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC	1A-C Units SU mV mg/L mg/L μg/L μg/L μg/L μg/L ug/L	Sterile Control 0 7.1 -35 61 3.7 44.1 149 270 <5.5 <5.5 <5.5 <5.5	Average 1 7.0 -12 219 <2.5 52.8 190 85 77 29 <5.5	2 7.0 -88 246 <0.25 52.8 190 74 25 12 <5.5	3 7.1 34 177 <2.5 56.4 152 36 19 6.1 <5.5
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene	1A-C Units SU mV mg/L mg/L μg/L μg/L μg/L μg/L μg/L μg/L	Sterile Control 2 0 7.1 -35 61 3.7 44.1 149 270 <5.5 <5.5 <5.5 <5.5 <1.3	Average 1 7.0 -12 219 <2.5 52.8 190 85 77 29 <5.5 <1.3	2 7.0 -88 246 <0.25 52.8 190 74 25 12 <5.5 <1.3	3 7.1 34 177 <2.5 56.4 152 36 19 6.1 <5.5 <1.3
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane	1A-C Units SU mV mg/L mg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L	Sterile Control 0 7.1 -35 61 3.7 44.1 149 270 <5.5 <5.5 <5.5 <1.3 <1.3 <1.3	Average 1 7.0 -12 219 <2.5 52.8 190 85 77 29 <5.5 <1.3 <1.3	2 7.0 -88 246 <0.25 52.8 190 74 25 12 <5.5 <1.3 <1.3	$\begin{array}{c} 3 \\ 7.1 \\ 34 \\ 177 \\ < 2.5 \\ 56.4 \\ 152 \\ 36 \\ 19 \\ 6.1 \\ < 5.5 \\ < 1.3 \\ < 1.3 \end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane	1A-C Units SU mV mg/L mg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μ	Sterile Control 0 7.1 -35 61 3.7 44.1 149 270 <5.5 <5.5 <5.5 <1.3 <1.3 <0.0007	Average 1 7.0 -12 219 <2.5 52.8 190 85 77 29 <5.5 <1.3 <1.3 <0.0007	2 7.0 -88 246 <0.25 52.8 190 74 25 12 <5.5 <1.3 <1.3 <0.0007	$\begin{array}{c} 3 \\ 7.1 \\ 34 \\ 177 \\ < 2.5 \\ 56.4 \\ 152 \\ 36 \\ 19 \\ 6.1 \\ < 5.5 \\ < 1.3 \\ < 1.3 \\ 0.00060 \end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE	1A-C Units SU mV mg/L mg/L mg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µ	Sterile Control . 0 7.1 -35 61 3.7 44.1 149 270 <5.5 <5.5 <5.5 <1.3 <1.3 <0.0007 1.6	Average 1 7.0 -12 219 <2.5 52.8 190 85 77 29 <5.5 <1.3 <1.3 <0.0007 0.51	$\begin{array}{c} 2\\ 7.0\\ -88\\ 246\\ <0.25\\ 52.8\\ 190\\ 74\\ 25\\ 12\\ <5.5\\ <1.3\\ <1.3\\ <0.0007\\ 0.45\end{array}$	$\begin{array}{c} 3\\ 7.1\\ 34\\ 177\\ <2.5\\ 56.4\\ 152\\ 36\\ 19\\ 6.1\\ <5.5\\ <1.3\\ <1.3\\ 0.00060\\ 0.22 \end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE	1A-C Units SU mV mg/L mg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μ	Sterile Control . 0 7.1 -35 61 3.7 44.1 149 270 <5.5 <5.5 <5.5 <5.5 <1.3 <1.3 <0.0007 1.6 <0.042	Average 1 7.0 -12 219 <2.5 52.8 190 85 77 29 <5.5 <1.3 <1.3 <0.0007 0.51 0.58	$\begin{array}{c} 2\\ 7.0\\ -88\\ 246\\ <0.25\\ 52.8\\ 190\\ 74\\ 25\\ 12\\ <5.5\\ <1.3\\ <1.3\\ <0.0007\\ 0.45\\ 0.19\end{array}$	$\begin{array}{c} 3\\ 7.1\\ 34\\ 177\\ <2.5\\ 56.4\\ 152\\ 36\\ 19\\ 6.1\\ <5.5\\ <1.3\\ <1.3\\ 0.00060\\ 0.22\\ 0.14\end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE TCE CLE	1A-C Units SU mV mg/L mg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μ	Sterile Control . 0 7.1 -35 61 3.7 44.1 149 270 <5.5 <5.5 <5.5 <5.5 <1.3 <1.3 <0.0007 1.6 <0.042 <0.057	Average 1 7.0 -12 219 <2.5 52.8 190 85 77 29 <5.5 <1.3 <1.3 <0.0007 0.51 0.58 0.30	$\begin{array}{c} 2\\ 7.0\\ -88\\ 246\\ <0.25\\ 52.8\\ 190\\ 74\\ 25\\ 12\\ <5.5\\ <1.3\\ <1.3\\ <0.0007\\ 0.45\\ 0.19\\ 0.12\end{array}$	$\begin{array}{c} 3\\ 7.1\\ 34\\ 177\\ <2.5\\ 56.4\\ 152\\ 36\\ 19\\ 6.1\\ <5.5\\ <1.3\\ <1.3\\ 0.00060\\ 0.22\\ 0.14\\ 0.063\end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE cDCE VC	1A-C Units SU mV mg/L mg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μ	Sterile Control 0 7.1 -35 61 3.7 44.1 149 270 <5.5 <5.5 <5.5 <5.5 <1.3 <1.3 <0.0007 1.6 <0.042 <0.057 <0.088	Average 1 7.0 -12 219 <2.5 52.8 190 85 77 29 <5.5 <1.3 <1.3 <0.0007 0.51 0.58 0.30 <0.088	$\begin{array}{c} 2\\ 7.0\\ -88\\ 246\\ <0.25\\ 52.8\\ 190\\ 74\\ 25\\ 12\\ <5.5\\ <1.3\\ <1.3\\ <0.0007\\ 0.45\\ 0.19\\ 0.12\\ <0.088\end{array}$	$\begin{array}{c} 3\\ 7.1\\ 34\\ 177\\ <2.5\\ 56.4\\ 152\\ 36\\ 19\\ 6.1\\ <5.5\\ <1.3\\ <1.3\\ 0.00060\\ 0.22\\ 0.14\\ 0.063\\ <0.088\end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE cDCE VC Ethene Ethane Methane PCE TCE cDCE VC Ethene Ethane	1A-C Units SU mV mg/L mg/L mg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µ	Sterile Control 0 7.1 -35 61 3.7 44.1 149 270 <5.5 <5.5 <5.5 <1.3 <1.3 <0.0007 1.6 <0.042 <0.057 <0.088 <0.046	Average 1 7.0 -12 219 <2.5 52.8 190 85 77 29 <5.5 <1.3 <1.3 <0.0007 0.51 0.58 0.30 <0.088 <0.046	$\begin{array}{c} 2\\ 7.0\\ -88\\ 246\\ <0.25\\ 52.8\\ 190\\ 74\\ 25\\ 12\\ <5.5\\ <1.3\\ <1.3\\ <0.0007\\ 0.45\\ 0.19\\ 0.12\\ <0.088\\ <0.046\end{array}$	$\begin{array}{c} 3\\ 7.1\\ 34\\ 177\\ <2.5\\ 56.4\\ 152\\ 36\\ 19\\ 6.1\\ <5.5\\ <1.3\\ <1.3\\ 0.00060\\ 0.22\\ 0.14\\ 0.063\\ <0.088\\ <0.046\end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE cDCE VC EtCE CDCE VC Ethene Ethane	1A-C Units SU mV mg/L mg/L mg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µ	Sterile Control 0 7.1 -35 61 3.7 44.1 149 270 <5.5 <5.5 <5.5 <5.5 <1.3 <1.3 <0.0007 1.6 <0.042 <0.057 <0.088 <0.046 <0.043	Average 1 7.0 -12 219 <2.5 52.8 190 85 77 29 <5.5 <1.3 <1.3 <0.0007 0.51 0.58 0.30 <0.088 <0.046 <0.043	$\begin{array}{c} 2\\ 7.0\\ -88\\ 246\\ <0.25\\ 52.8\\ 190\\ 74\\ 25\\ 12\\ <5.5\\ <1.3\\ <1.3\\ <0.0007\\ 0.45\\ 0.19\\ 0.12\\ <0.088\\ <0.046\\ <0.043\end{array}$	$\begin{array}{c} 3\\ 7.1\\ 34\\ 177\\ <2.5\\ 56.4\\ 152\\ 36\\ 19\\ 6.1\\ <5.5\\ <1.3\\ <1.3\\ 0.00060\\ 0.22\\ 0.14\\ 0.063\\ <0.088\\ <0.046\\ <0.043\end{array}$

Treatment	2A	Intrinsic C	Control		
Months	Units	0	1	2	3
pH	SU	6.8	7.0	6.9	6.9
ORP	mV	-24	-26	-75	-32
VFA as Acetate	mg/L	0	0	54	0
Nitrate-N	mg/L	3.7	0.59	< 0.25	< 0.25
Sulfate	mg/L	44.1	53.2	41.2	32.5
Chloride	mg/L	149	113	98.7	120
PCE	µg/L	160	290	500	330
TCE	μg/L	<5.5	15	11	8.6
cDCE	μg/L	<5.5	29	17	7.5
VC	μg/L	<5.5	<5.5	<5.5	<5.5
Ethene	μg/L	<1.3	<1.3	<1.3	<1.3
Ethane	μg/L	<1.3	<1.3	<1.3	<1.3
Methane	μg/L	< 0.7	< 0.7	1.1	< 0.7
PCE	μM	0.97	1.75	3.02	0.22
TCE	μM	< 0.042	0.11	0.084	0.065
cDCE	μM	< 0.057	0.30	0.18	0.077
VC	μM	< 0.088	< 0.088	< 0.088	< 0.088
Ethene	µM	< 0.046	< 0.046	< 0.046	< 0.046
Ethane	µM	< 0.043	< 0.043	< 0.043	< 0.043
Sum CE + Gases	uM	0.97	2.16	3.27	0.36
	•				
-	a D	T			
Treatment	2B	Intrinsic C	Control	2	2
Treatment Months	2B Units	Intrinsic C	Control	2	3
Treatment Months pH	2B Units SU	Intrinsic C 0 6.8	Control 1 7.0	2 6.9	3 6.9
Treatment Months pH ORP	2B Units SU mV mg/I	Intrinsic C 0 6.8 -25	Control 1 7.0 -13	2 6.9 -49 54	3 6.9 -69
Treatment Months pH ORP VFA as Acetate	2B Units SU mV mg/L mg/L	Intrinsic C 0 6.8 -25 0 2.7	Control 1 7.0 -13 0	2 6.9 -49 54	3 6.9 -69 13
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate	2B Units SU mV mg/L mg/L	Intrinsic C 0 6.8 -25 0 3.7 44 1	Control 1 7.0 -13 0 0.59 53.2	2 6.9 -49 54 <0.25 41.2	3 6.9 -69 13 <0.25 32 5
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride	2B Units SU mV mg/L mg/L mg/L	Intrinsic C 0 6.8 -25 0 3.7 44.1 149	Control 1 7.0 -13 0 0.59 53.2 113	2 6.9 -49 54 <0.25 41.2 98 7	3 6.9 -69 13 <0.25 32.5 120
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE	2B Units SU mV mg/L mg/L mg/L	Intrinsic C 0 6.8 -25 0 3.7 44.1 149 260	Control 1 7.0 -13 0 0.59 53.2 113 600	2 6.9 -49 54 <0.25 41.2 98.7 680	3 6.9 -69 13 <0.25 32.5 120 670
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE	2B Units SU mV mg/L mg/L mg/L µg/L	Intrinsic C 0 6.8 -25 0 3.7 44.1 149 260 <5.5	Control 1 7.0 -13 0 0.59 53.2 113 600 23	2 6.9 -49 54 <0.25 41.2 98.7 680	3 6.9 -69 13 <0.25 32.5 120 670
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE	2B Units SU mV mg/L mg/L mg/L µg/L µg/L	Intrinsic C 0 6.8 -25 0 3.7 44.1 149 260 <5.5 <5 5	Control 1 7.0 -13 0 0.59 53.2 113 600 23 38	2 6.9 -49 54 <0.25 41.2 98.7 680 18 21	3 6.9 -69 13 <0.25 32.5 120 670 14 13
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE	2B Units SU mV mg/L mg/L mg/L µg/L µg/L µg/L	Intrinsic C 0 6.8 -25 0 3.7 44.1 149 260 <5.5 <5.5 <5.5	Control 1 7.0 -13 0 0.59 53.2 113 600 23 38 -5.5	2 6.9 -49 54 <0.25 41.2 98.7 680 18 21 <55	3 6.9 -69 13 <0.25 32.5 120 670 14 13 <5.5
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC	2B Units SU mV mg/L mg/L mg/L µg/L µg/L µg/L µg/L	Intrinsic C 0 6.8 -25 0 3.7 44.1 149 260 <5.5 <5.5 <5.5 <5.5 <1.3	Control 1 7.0 -13 0 0.59 53.2 113 600 23 38 <5.5 <1.2	2 6.9 -49 54 <0.25 41.2 98.7 680 18 21 <5.5 <1.2	3 6.9 -69 13 <0.25 32.5 120 670 14 13 <5.5 <1.2
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE CDCE VC Ethene Ethene	2B Units SU mV mg/L mg/L mg/L µg/L µg/L µg/L µg/L µg/L	Intrinsic C 0 6.8 -25 0 3.7 44.1 149 260 <5.5 <5.5 <5.5 <1.3 <1.2	Control 1 7.0 -13 0 0.59 53.2 113 600 23 38 <5.5 <1.3 (1.2)	2 6.9 -49 54 <0.25 41.2 98.7 680 18 21 <5.5 <1.3 <1.2	3 6.9 -69 13 <0.25 32.5 120 670 14 13 <5.5 <1.3 <1.2
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Matheme	2B Units SU mV mg/L mg/L mg/L µg/L µg/L µg/L µg/L µg/L	Intrinsic C 0 6.8 -25 0 3.7 44.1 149 260 <5.5 <5.5 <5.5 <1.3 <1.3 <0.7	Control 1 7.0 -13 0 0.59 53.2 113 600 23 38 <5.5 <1.3 <1.3 <1.5	$\begin{array}{c} 2\\ 6.9\\ -49\\ 54\\ <0.25\\ 41.2\\ 98.7\\ 680\\ 18\\ 21\\ <5.5\\ <1.3\\ <1.3\\ <0.9\end{array}$	$\begin{array}{c} 3 \\ 6.9 \\ -69 \\ 13 \\ < 0.25 \\ 32.5 \\ 120 \\ 670 \\ 14 \\ 13 \\ < 5.5 \\ < 1.3 \\ < 1.3 \\ < 1.3 \end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane	2B Units SU mV mg/L mg/L mg/L µg/L µg/L µg/L µg/L µg/L µg/L	Intrinsic C 0 6.8 -25 0 3.7 44.1 149 260 <5.5 <5.5 <5.5 <1.3 <1.3 <0.7 1.57	Control 1 7.0 -13 0 0.59 53.2 113 600 23 38 <5.5 <1.3 <1.3 1.5 2.62	$\begin{array}{c} 2\\ 6.9\\ -49\\ 54\\ <0.25\\ 41.2\\ 98.7\\ 680\\ 18\\ 21\\ <5.5\\ <1.3\\ <1.3\\ 0.9\\ 4.10\end{array}$	$\begin{array}{c} 3\\ 6.9\\ -69\\ 13\\ <0.25\\ 32.5\\ 120\\ 670\\ 14\\ 13\\ <5.5\\ <1.3\\ <1.3\\ 1.6\\ 1.04\end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE	2B Units SU mV mg/L mg/L mg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µ	Intrinsic C 0 6.8 -25 0 3.7 44.1 149 260 <5.5 <5.5 <5.5 <1.3 <1.3 <0.7 1.57 <0.42	$\begin{array}{c} \text{control} \\ 1 \\ 7.0 \\ -13 \\ 0 \\ 0.59 \\ 53.2 \\ 113 \\ 600 \\ 23 \\ 38 \\ <5.5 \\ <1.3 \\ <1.3 \\ 1.5 \\ 3.62 \\ 0.18 \end{array}$	$\begin{array}{c} 2\\ 6.9\\ -49\\ 54\\ <0.25\\ 41.2\\ 98.7\\ 680\\ 18\\ 21\\ <5.5\\ <1.3\\ <1.3\\ 0.9\\ 4.10\\ 0.14\end{array}$	$\begin{array}{c} 3\\ 6.9\\ -69\\ 13\\ <0.25\\ 32.5\\ 120\\ 670\\ 14\\ 13\\ <5.5\\ <1.3\\ <1.3\\ 1.6\\ 4.04\\ 0.11\end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE	2B Units SU mV mg/L mg/L mg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µ	Intrinsic C 0 6.8 -25 0 3.7 44.1 149 260 <5.5 <5.5 <5.5 <1.3 <1.3 <0.7 1.57 <0.042 <0.57	$\begin{array}{c} \text{control} \\ 1 \\ 7.0 \\ -13 \\ 0 \\ 0.59 \\ 53.2 \\ 113 \\ 600 \\ 23 \\ 38 \\ < 5.5 \\ < 1.3 \\ < 1.3 \\ 1.5 \\ 3.62 \\ 0.18 \\ 0.20 \end{array}$	$\begin{array}{c} 2\\ 6.9\\ -49\\ 54\\ <0.25\\ 41.2\\ 98.7\\ 680\\ 18\\ 21\\ <5.5\\ <1.3\\ <1.3\\ 0.9\\ 4.10\\ 0.14\\ 0.22\end{array}$	$\begin{array}{c} 3\\ 6.9\\ -69\\ 13\\ <0.25\\ 32.5\\ 120\\ 670\\ 14\\ 13\\ <5.5\\ <1.3\\ <1.3\\ 1.6\\ 4.04\\ 0.11\\ 0.12\end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE cDCE	2B Units SU mV mg/L mg/L mg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µ	Intrinsic C 0 6.8 -25 0 3.7 44.1 149 260 <5.5 <5.5 <5.5 <1.3 <1.3 <0.7 1.57 <0.042 <0.057 <0.020	Control 1 7.0 -13 0 0.59 53.2 113 600 23 38 <5.5 <1.3 <1.3 1.5 3.62 0.18 0.39 0.990	$\begin{array}{c} 2\\ 6.9\\ -49\\ 54\\ < 0.25\\ 41.2\\ 98.7\\ 680\\ 18\\ 21\\ < 5.5\\ < 1.3\\ < 1.3\\ 0.9\\ 4.10\\ 0.14\\ 0.22\\ 0.000\end{array}$	$\begin{array}{c} 3\\ 6.9\\ -69\\ 13\\ <0.25\\ 32.5\\ 120\\ 670\\ 14\\ 13\\ <5.5\\ <1.3\\ <1.3\\ 1.6\\ 4.04\\ 0.11\\ 0.13\\ 0.000\\ \end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE CDCE VC	2B Units SU mV mg/L mg/L mg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µ	Intrinsic C 0 6.8 -25 0 3.7 44.1 149 260 <5.5 <5.5 <5.5 <1.3 <1.3 <0.7 1.57 <0.042 <0.057 <0.088 >2.15	Control 1 7.0 -13 0 0.59 53.2 113 600 23 38 <5.5 <1.3 <1.3 1.5 3.62 0.18 0.39 <0.088 <0.59	$\begin{array}{c} 2\\ 6.9\\ -49\\ 54\\ < 0.25\\ 41.2\\ 98.7\\ 680\\ 18\\ 21\\ < 5.5\\ < 1.3\\ < 1.3\\ 0.9\\ 4.10\\ 0.14\\ 0.22\\ < 0.088\\ 0.015\end{array}$	$\begin{array}{c} 3\\ 6.9\\ -69\\ 13\\ <0.25\\ 32.5\\ 120\\ 670\\ 14\\ 13\\ <5.5\\ <1.3\\ <1.3\\ 1.6\\ 4.04\\ 0.11\\ 0.13\\ <0.088\\ <0.088\end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE cDCE VC Ethene	2B Units SU mV mg/L mg/L mg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µ	Intrinsic C 0 6.8 -25 0 3.7 44.1 149 260 <5.5 <5.5 <5.5 <1.3 <1.3 <0.7 1.57 <0.042 <0.057 <0.088 <0.046	Control 1 7.0 -13 0 0.59 53.2 113 600 23 38 <5.5 <1.3 <1.3 1.5 3.62 0.18 0.39 <0.088 <0.046	$\begin{array}{c} 2\\ 6.9\\ -49\\ 54\\ <0.25\\ 41.2\\ 98.7\\ 680\\ 18\\ 21\\ <5.5\\ <1.3\\ <1.3\\ 0.9\\ 4.10\\ 0.14\\ 0.22\\ <0.088\\ <0.046\\ \end{array}$	$\begin{array}{c} 3\\ 6.9\\ -69\\ 13\\ <0.25\\ 32.5\\ 120\\ 670\\ 14\\ 13\\ <5.5\\ <1.3\\ <1.3\\ 1.6\\ 4.04\\ 0.11\\ 0.13\\ <0.088\\ <0.046\\ \end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE cDCE VC Ethene Ethane	2B Units SU mV mg/L mg/L mg/L µg/L µg/L µg/L µg/L µg/L µg/L µM µM µM µM µM	Intrinsic C 0 6.8 -25 0 3.7 44.1 149 260 <5.5 <5.5 <5.5 <1.3 <1.3 <0.7 1.57 <0.042 <0.057 <0.043 <0.043	Control 1 7.0 -13 0 0.59 53.2 113 600 23 38 <5.5 <1.3 <1.3 1.5 3.62 0.18 0.39 <0.048 <0.044 <0.043	$\begin{array}{c} 2\\ 6.9\\ -49\\ 54\\ <0.25\\ 41.2\\ 98.7\\ 680\\ 18\\ 21\\ <5.5\\ <1.3\\ <1.3\\ 0.9\\ 4.10\\ 0.14\\ 0.22\\ <0.088\\ <0.046\\ <0.043\\ \end{array}$	$\begin{array}{c} 3\\ 6.9\\ -69\\ 13\\ <0.25\\ 32.5\\ 120\\ 670\\ 14\\ 13\\ <5.5\\ <1.3\\ <1.3\\ 1.6\\ 4.04\\ 0.11\\ 0.13\\ <0.088\\ <0.046\\ <0.043\\ \end{array}$

Treatment	2C	Intrinsic Con	trol		
Months	Units	0	1	2	3
pH	SU	6.8	6.9	6.8	7.1
ORP	mV	-20	-12	-93	-162
VFA as Acetate	mg/L	0	0	54	14
Nitrate-N	mg/L	3.7	0.59	< 0.25	< 0.25
Sulfate	mg/L	44.1	53.2	41.2	32.5
Chloride	mg/L	149	113	98.7	120
PCE	μg/L	240	180	770	9.6
TCE	μg/L	<5.5	20	50	20
cDCE	μg/L	<5.5	24	23	52
VC	μg/L	<5.5	<5.5	<5.5	<5.5
Ethene	μg/L	<1.3	<1.3	<1.3	<1.3
Ethane	μg/L	<1.3	<1.3	<1.3	<1.3
Methane	μg/L	< 0.7	< 0.7	< 0.7	< 0.7
PCE	μM	1.45	1.09	4.64	0.06
TCE	μM	< 0.042	0.15	0.38	0.15
cDCE	μΜ	< 0.057	0.25	0.24	0.54
VC	µM	< 0.088	< 0.088	< 0.088	< 0.088
Ethene	µM	< 0.046	< 0.046	< 0.046	< 0.046
Ethane	uM	< 0.043	< 0.043	< 0.043	< 0.043
Sum CE + Gases	μM	1.45	1.49	5.26	0.75
The states and	24.0	I	1		
Treatment	2A-C	Intrinsic Con	trol Average	2	2
Treatment Months	2A-C Units	Intrinsic Con	trol Average	2	3
Treatment Months pH	2A-C Units SU	Intrinsic Con 0 6.8 23	trol Average 1 7.0 17	2 6.9 72	3 7.0
Treatment Months pH ORP VEA as Acotate	2A-C Units SU mV mg/I	Intrinsic Con 0 6.8 -23 0	trol Average 1 7.0 -17	2 6.9 -72	3 7.0 -88
Treatment Months pH ORP VFA as Acetate	2A-C Units SU mV mg/L	Intrinsic Con 0 6.8 -23 0 3.7	trol Average 1 7.0 -17 0 0 59	2 6.9 -72 54	3 7.0 -88 9
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate	2A-C Units SU mV mg/L mg/L	Intrinsic Con 0 6.8 -23 0 3.7 44 1	trol Average 1 7.0 -17 0 0.59 53.2	2 6.9 -72 54 <0.25 41 2	3 7.0 -88 9 <0.25 32 5
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride	2A-C Units SU mV mg/L mg/L mg/L	Intrinsic Con 0 6.8 -23 0 3.7 44.1 149	trol Average 1 7.0 -17 0 0.59 53.2 113	2 6.9 -72 54 <0.25 41.2 98 7	3 7.0 -88 9 <0.25 32.5 120
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCF	2A-C Units SU mV mg/L mg/L mg/L ug/L	Intrinsic Con 0 6.8 -23 0 3.7 44.1 149 220	trol Average 1 7.0 -17 0 0.59 53.2 113 357	2 6.9 -72 54 <0.25 41.2 98.7 650	3 7.0 -88 9 <0.25 32.5 120 337
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE	2A-C Units SU mV mg/L mg/L mg/L µg/L	Intrinsic Con 0 6.8 -23 0 3.7 44.1 149 220 <5.5	trol Average 1 7.0 -17 0 0.59 53.2 113 357 19	$\begin{array}{c} 2 \\ 6.9 \\ -72 \\ 54 \\ < 0.25 \\ 41.2 \\ 98.7 \\ 650 \\ 26 \end{array}$	3 7.0 -88 9 <0.25 32.5 120 337 14
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE	2A-C Units SU mV mg/L mg/L mg/L µg/L µg/L µg/L	Intrinsic Con 0 6.8 -23 0 3.7 44.1 149 220 <5.5 <5.5	trol Average 1 7.0 -17 0 0.59 53.2 113 357 19 30	$\begin{array}{c} 2 \\ 6.9 \\ -72 \\ 54 \\ < 0.25 \\ 41.2 \\ 98.7 \\ 650 \\ 26 \\ 20 \end{array}$	$ \begin{array}{c} 3\\ 7.0\\ -88\\ 9\\ <0.25\\ 32.5\\ 120\\ 337\\ 14\\ 24 \end{array} $
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC	2A-C Units SU mV mg/L mg/L μg/L μg/L μg/L μg/L	Intrinsic Con 0 6.8 -23 0 3.7 44.1 149 220 <5.5 <5.5 <5.5	trol Average 1 7.0 -17 0 0.59 53.2 113 357 19 30 <5.5	$2 \\ 6.9 \\ -72 \\ 54 \\ < 0.25 \\ 41.2 \\ 98.7 \\ 650 \\ 26 \\ 20 \\ < 5.5 \\ \end{cases}$	3 7.0 -88 9 <0.25 32.5 120 337 14 24 <55
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene	2A-C Units SU mV mg/L mg/L μg/L μg/L μg/L μg/L μg/L	Intrinsic Con 0 6.8 -23 0 3.7 44.1 149 220 <5.5 <5.5 <5.5 <5.5 <1.3	trol Average 1 7.0 -17 0 0.59 53.2 113 357 19 30 <5.5 <1.3	2 6.9 -72 54 <0.25 41.2 98.7 650 26 20 <5.5 <1.3	3 7.0 -88 9 <0.25 32.5 120 337 14 24 <5.5 <13
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane	2A-C Units SU mV mg/L mg/L μg/L μg/L μg/L μg/L μg/L μg/L	Intrinsic Con 0 6.8 -23 0 3.7 44.1 149 220 <5.5 <5.5 <5.5 <5.5 <1.3 <1.3	trol Average 1 7.0 -17 0 0.59 53.2 113 357 19 30 <5.5 <1.3 <1.3	$\begin{array}{c} 2\\ 6.9\\ -72\\ 54\\ < 0.25\\ 41.2\\ 98.7\\ 650\\ 26\\ 20\\ < 5.5\\ < 1.3\\ < 1.3\end{array}$	$\begin{array}{c} 3 \\ 7.0 \\ -88 \\ 9 \\ < 0.25 \\ 32.5 \\ 120 \\ 337 \\ 14 \\ 24 \\ < 5.5 \\ < 1.3 \\ < 1.3 \end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane	2A-C Units SU mV mg/L mg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μ	Intrinsic Con 0 6.8 -23 0 3.7 44.1 149 220 <5.5 <5.5 <5.5 <5.5 <1.3 <1.3 <0.0007	trol Average 1 7.0 -17 0 0.59 53.2 113 357 19 30 <5.5 <1.3 <1.3 0.0005	$\begin{array}{c} 2\\ 6.9\\ -72\\ 54\\ < 0.25\\ 41.2\\ 98.7\\ 650\\ 26\\ 20\\ < 5.5\\ < 1.3\\ < 1.3\\ 0.0007\end{array}$	$\begin{array}{c} 3\\ 7.0\\ -88\\ 9\\ <0.25\\ 32.5\\ 120\\ 337\\ 14\\ 24\\ <5.5\\ <1.3\\ <1.3\\ 0.0005\end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE	2A-C Units SU mV mg/L mg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μ	Intrinsic Con 0 6.8 -23 0 3.7 44.1 149 220 <5.5 <5.5 <5.5 <1.3 <1.3 <0.0007 1.3	trol Average 1 7.0 -17 0 0.59 53.2 113 357 19 30 <5.5 <1.3 <1.3 0.0005 2 2	$\begin{array}{c} 2\\ 6.9\\ -72\\ 54\\ <0.25\\ 41.2\\ 98.7\\ 650\\ 26\\ 20\\ <5.5\\ <1.3\\ <1.3\\ 0.0007\\ 3.9\end{array}$	$\begin{array}{c} 3\\ 7.0\\ -88\\ 9\\ <0.25\\ 32.5\\ 120\\ 337\\ 14\\ 24\\ <5.5\\ <1.3\\ <1.3\\ 0.0005\\ 1.4\end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE	2A-C Units SU mV mg/L mg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μ	Intrinsic Con 0 6.8 -23 0 3.7 44.1 149 220 <5.5 <5.5 <5.5 <1.3 <1.3 <0.0007 1.3 <0.042	trol Average 1 7.0 -17 0 0.59 53.2 113 357 19 30 <5.5 <1.3 <1.3 0.0005 2.2 0.15	$\begin{array}{c} 2\\ 6.9\\ -72\\ 54\\ < 0.25\\ 41.2\\ 98.7\\ 650\\ 26\\ 20\\ < 5.5\\ < 1.3\\ < 1.3\\ 0.0007\\ 3.9\\ 0.20\end{array}$	$\begin{array}{c} 3\\ 7.0\\ -88\\ 9\\ < 0.25\\ 32.5\\ 120\\ 337\\ 14\\ 24\\ < 5.5\\ < 1.3\\ < 1.3\\ 0.0005\\ 1.4\\ 0.11\end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE TCE CE	2A-C Units SU mV mg/L mg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μ	Intrinsic Con 0 6.8 -23 0 3.7 44.1 149 220 <5.5 <5.5 <5.5 <1.3 <1.3 <0.0007 1.3 <0.042 <0.057	trol Average 1 7.0 -17 0 0.59 53.2 113 357 19 30 <5.5 <1.3 <1.3 0.0005 2.2 0.15 0.31	$\begin{array}{c} 2\\ 6.9\\ -72\\ 54\\ < 0.25\\ 41.2\\ 98.7\\ 650\\ 26\\ 20\\ < 5.5\\ < 1.3\\ < 1.3\\ 0.0007\\ 3.9\\ 0.20\\ 0.21 \end{array}$	$\begin{array}{c} 3 \\ 7.0 \\ -88 \\ 9 \\ < 0.25 \\ 32.5 \\ 120 \\ 337 \\ 14 \\ 24 \\ < 5.5 \\ < 1.3 \\ < 1.3 \\ 0.0005 \\ 1.4 \\ 0.11 \\ 0.25 \end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE CCE TCE CDCE VC	2A-C Units SU mV mg/L mg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μ	Intrinsic Con 0 6.8 -23 0 3.7 44.1 149 220 <5.5 <5.5 <5.5 <1.3 <1.3 <0.0007 1.3 <0.0042 <0.057 <0.088	trol Average 1 7.0 -17 0 0.59 53.2 113 357 19 30 <5.5 <1.3 <1.3 0.0005 2.2 0.15 0.31 <0.088	$\begin{array}{c} 2\\ 6.9\\ -72\\ 54\\ < 0.25\\ 41.2\\ 98.7\\ 650\\ 26\\ 20\\ < 5.5\\ < 1.3\\ < 1.3\\ 0.0007\\ 3.9\\ 0.20\\ 0.21\\ < 0.088\end{array}$	$\begin{array}{c} 3\\ 7.0\\ -88\\ 9\\ < 0.25\\ 32.5\\ 120\\ 337\\ 14\\ 24\\ < 5.5\\ < 1.3\\ < 1.3\\ 0.0005\\ 1.4\\ 0.11\\ 0.25\\ < 0.088\end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE cDCE TCE cDCE VC Ethene	2A-C Units SU mV mg/L mg/L mg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µ	Intrinsic Con 0 6.8 -23 0 3.7 44.1 149 220 <5.5 <5.5 <5.5 <1.3 <1.3 <0.0007 1.3 <0.0042 <0.057 <0.088 <0.046	trol Average 1 7.0 -17 0 0.59 53.2 113 357 19 30 <5.5 <1.3 <1.3 0.0005 2.2 0.15 0.31 <0.088 <0.046	$\begin{array}{c} 2\\ 6.9\\ -72\\ 54\\ < 0.25\\ 41.2\\ 98.7\\ 650\\ 26\\ 20\\ < 5.5\\ < 1.3\\ < 1.3\\ 0.0007\\ 3.9\\ 0.20\\ 0.21\\ < 0.088\\ < 0.046\end{array}$	$\begin{array}{c} 3 \\ 7.0 \\ -88 \\ 9 \\ < 0.25 \\ 32.5 \\ 120 \\ 337 \\ 14 \\ 24 \\ < 5.5 \\ < 1.3 \\ < 1.3 \\ 0.0005 \\ 1.4 \\ 0.11 \\ 0.25 \\ < 0.088 \\ < 0.046 \end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE cDCE VC TCE cDCE VC Ethene Ethane	2A-C Units SU mV mg/L mg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μ	Intrinsic Con 0 6.8 -23 0 3.7 44.1 149 220 <5.5 <5.5 <5.5 <1.3 <1.3 <0.0007 1.3 <0.0042 <0.057 <0.088 <0.043	trol Average 1 7.0 -17 0 0.59 53.2 113 357 19 30 <5.5 <1.3 <1.3 0.0005 2.2 0.15 0.31 <0.088 <0.046 <0.043	$\begin{array}{c} 2\\ 6.9\\ -72\\ 54\\ < 0.25\\ 41.2\\ 98.7\\ 650\\ 26\\ 20\\ < 5.5\\ < 1.3\\ < 1.3\\ 0.0007\\ 3.9\\ 0.20\\ 0.21\\ < 0.088\\ < 0.046\\ < 0.043\end{array}$	$\begin{array}{c} 3\\ 7.0\\ -88\\ 9\\ <0.25\\ 32.5\\ 120\\ 337\\ 14\\ 24\\ <5.5\\ <1.3\\ <1.3\\ 0.0005\\ 1.4\\ 0.11\\ 0.25\\ <0.088\\ <0.046\\ <0.043\end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE cDCE VC Ethene Ethane VC Ethene Ethane Sum CE + Gases	2A-C Units SU mV mg/L mg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μ	Intrinsic Con 0 6.8 -23 0 3.7 44.1 149 220 <5.5 <5.5 <5.5 <1.3 <1.3 <0.0007 1.3 <0.042 <0.057 <0.088 <0.046 <0.043 1.33	trol Average 1 7.0 -17 0 0.59 53.2 113 357 19 30 <5.5 <1.3 <1.3 0.0005 2.2 0.15 0.31 <0.088 <0.046 <0.043 2.61	$\begin{array}{c} 2\\ 6.9\\ -72\\ 54\\ <0.25\\ 41.2\\ 98.7\\ 650\\ 26\\ 20\\ <5.5\\ <1.3\\ <1.3\\ 0.0007\\ 3.9\\ 0.20\\ 0.21\\ <0.088\\ <0.046\\ <0.043\\ 4\ 33\end{array}$	$\begin{array}{c} 3\\ 7.0\\ -88\\ 9\\ <0.25\\ 32.5\\ 120\\ 337\\ 14\\ 24\\ <5.5\\ <1.3\\ <1.3\\ 0.0005\\ 1.4\\ 0.11\\ 0.25\\ <0.088\\ <0.046\\ <0.043\\ 1.80\end{array}$

Treatment	3A	Molasses and H	EVO		
Months	Units	0	1	2	3
pН	SU	6.8	5.5	5.6	6.5
ORP	mV	-20	-16	-102	-80
VFA as Acetate	mg/L	0	721	969	639
Nitrate-N	mg/L	3.7	< 0.25	< 0.25	< 0.25
Sulfate	mg/L	44.1	36.4	18.8	4.1 J
Chloride	mg/L	149	109	117	106
PCE	µg/L	160	330	1200	<5.5
TCE	µg/L	<5.5	30	74	<5.5
cDCE	µg/L	<5.5	<5.5	6.6	120
VC	µg/L	<5.5	<5.5	8.5	<5.5
Ethene	µg/L	<1.3	<1.3	<1.3	<1.3
Ethane	µg/L	<1.3	<1.3	<1.3	<1.3
Methane	µg/L	<0.7	9.1	40	10400 E
PCE	μΜ	0.97	1.99	7.24	< 0.033
TCE	μM	< 0.042	0.23	0.56	< 0.042
cDCE	μM	< 0.057	< 0.057	0.068	1.2
VC	μM	$<\!0.088$	< 0.088	0.14	< 0.088
Ethene	μM	< 0.046	< 0.046	< 0.046	< 0.046
Ethane	μM	< 0.043	< 0.043	< 0.043	< 0.043
Sum CE + Gases	μΜ	0.97	2.22	8.00	1.24
Treatment	3B	Molasses and E	EVO		
Treatment Months	3B Units	Molasses and E 0	EVO 1	2	3
Treatment Months pH	3B Units SU	Molasses and E 0 6.8	EVO 1 5.7	2 5.8	3 6.4
Treatment Months pH ORP	3B Units SU mV	Molasses and E 0 6.8 -35	EVO 1 5.7 -5	2 5.8 -85	3 6.4 -65
Treatment Months pH ORP VFA as Acetate	3B Units SU mV mg/L	Molasses and E 0 6.8 -35 1	EVO 1 5.7 -5 684	2 5.8 -85 883	3 6.4 -65 460
Treatment Months pH ORP VFA as Acetate Nitrate-N	3B Units SU mV mg/L mg/L	Molasses and E 0 6.8 -35 1 3.7	EVO 1 5.7 -5 684 <0.25	2 5.8 -85 883 <0.25	3 6.4 -65 460 <0.25
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate	3B Units SU mV mg/L mg/L mg/L	Molasses and E 0 6.8 -35 1 3.7 44.1	EVO 1 5.7 -5 684 <0.25 36.4	2 5.8 -85 883 <0.25 18.8	3 6.4 -65 460 <0.25 4.1 J
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride	3B Units SU mV mg/L mg/L mg/L	Molasses and E 0 6.8 -35 1 3.7 44.1 149	EVO 1 5.7 -5 684 <0.25 36.4 109	2 5.8 -85 883 <0.25 18.8 117	3 6.4 -65 460 <0.25 4.1 J 106
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE	3B Units SU mV mg/L mg/L mg/L µg/L	Molasses and E 0 6.8 -35 1 3.7 44.1 149 200	EVO 1 5.7 -5 684 <0.25 36.4 109 220	2 5.8 -85 883 <0.25 18.8 117 780	3 6.4 -65 460 <0.25 4.1 J 106 180
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE	3B Units SU mV mg/L mg/L mg/L µg/L µg/L	Molasses and E 0 6.8 -35 1 3.7 44.1 149 200 <5.5	EVO 1 5.7 -5 684 <0.25 36.4 109 220 24	2 5.8 -85 883 <0.25 18.8 117 780 49	3 6.4 -65 460 <0.25 4.1 J 106 180 16
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE	3B Units SU mV mg/L mg/L μg/L μg/L μg/L	Molasses and E 0 6.8 -35 1 3.7 44.1 149 200 <5.5 <5.5	EVO 1 5.7 -5 684 <0.25 36.4 109 220 24 56	$\begin{array}{c} 2 \\ 5.8 \\ -85 \\ 883 \\ < 0.25 \\ 18.8 \\ 117 \\ 780 \\ 49 \\ 20 \end{array}$	3 6.4 -65 460 <0.25 4.1 J 106 180 16 <5.5
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC	3B Units SU mV mg/L mg/L mg/L µg/L µg/L µg/L	Molasses and E 0 6.8 -35 1 3.7 44.1 149 200 <5.5 <5.5 <5.5 <5.5	$\begin{array}{c} 1 \\ 5.7 \\ -5 \\ 684 \\ < 0.25 \\ 36.4 \\ 109 \\ 220 \\ 24 \\ 56 \\ 6.4 \end{array}$	$\begin{array}{c} 2 \\ 5.8 \\ -85 \\ 883 \\ < 0.25 \\ 18.8 \\ 117 \\ 780 \\ 49 \\ 20 \\ 8.4 \end{array}$	3 6.4 -65 460 <0.25 4.1 J 106 180 16 <5.5 <5.5
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene	3B Units SU mV mg/L mg/L mg/L µg/L µg/L µg/L µg/L µg/L	Molasses and E 0 6.8 -35 1 3.7 44.1 149 200 <5.5 <5.5 <5.5 <1.3	EVO 1 5.7 -5 684 <0.25 36.4 109 220 24 56 6.4 <1.3	$\begin{array}{c} 2 \\ 5.8 \\ -85 \\ 883 \\ < 0.25 \\ 18.8 \\ 117 \\ 780 \\ 49 \\ 20 \\ 8.4 \\ < 1.3 \end{array}$	$\begin{array}{c} 3 \\ 6.4 \\ -65 \\ 460 \\ < 0.25 \\ 4.1 \text{ J} \\ 106 \\ 180 \\ 16 \\ < 5.5 \\ < 5.5 \\ < 1.3 \end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane	3B Units SU mV mg/L mg/L mg/L µg/L µg/L µg/L µg/L µg/L µg/L	Molasses and E 0 6.8 -35 1 3.7 44.1 149 200 <5.5 <5.5 <5.5 <5.5 <1.3 <1.3	EVO 1 5.7 -5 684 <0.25 36.4 109 220 24 56 6.4 <1.3 <1.3	$\begin{array}{c} 2\\ 5.8\\ -85\\ 883\\ <0.25\\ 18.8\\ 117\\ 780\\ 49\\ 20\\ 8.4\\ <\!1.3\\ <\!1.3\end{array}$	$\begin{array}{c} 3 \\ 6.4 \\ -65 \\ 460 \\ < 0.25 \\ 4.1 \text{ J} \\ 106 \\ 180 \\ 16 \\ < 5.5 \\ < 5.5 \\ < 1.3 \\ < 1.3 \end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE CDCE VC Ethene Ethane Methane	3B Units SU mV mg/L mg/L mg/L µg/L µg/L µg/L µg/L µg/L µg/L	Molasses and E 0 6.8 -35 1 3.7 44.1 149 200 <5.5 <5.5 <5.5 <1.3 <1.3 <0.7	$\begin{array}{c} 1 \\ 5.7 \\ -5 \\ 684 \\ < 0.25 \\ 36.4 \\ 109 \\ 220 \\ 24 \\ 56 \\ 6.4 \\ < 1.3 \\ < 1.3 \\ 7.4 \end{array}$	$\begin{array}{c} 2\\ 5.8\\ -85\\ 883\\ <0.25\\ 18.8\\ 117\\ 780\\ 49\\ 20\\ 8.4\\ <1.3\\ <1.3\\ 150\\ \end{array}$	$\begin{array}{c} 3\\ 6.4\\ -65\\ 460\\ <0.25\\ 4.1\ J\\ 106\\ 180\\ 16\\ <5.5\\ <5.5\\ <1.3\\ <1.3\\ 9800\ E\end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE	3B Units SU mV mg/L mg/L mg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µ	Molasses and E 0 6.8 -35 1 3.7 44.1 149 200 <5.5 <5.5 <5.5 <1.3 <1.3 <0.7 1.21	$\begin{array}{c} 1 \\ 5.7 \\ -5 \\ 684 \\ < 0.25 \\ 36.4 \\ 109 \\ 220 \\ 24 \\ 56 \\ 6.4 \\ < 1.3 \\ < 1.3 \\ 7.4 \\ 1.33 \end{array}$	$\begin{array}{c} 2\\ 5.8\\ -85\\ 883\\ < 0.25\\ 18.8\\ 117\\ 780\\ 49\\ 20\\ 8.4\\ < 1.3\\ < 1.3\\ 150\\ 4.70\end{array}$	$\begin{array}{c} 3\\ 6.4\\ -65\\ 460\\ <0.25\\ 4.1\ J\\ 106\\ 180\\ 16\\ <5.5\\ <5.5\\ <1.3\\ <1.3\\ 9800\ E\\ 1.09\end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE	3B Units SU mV mg/L mg/L mg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µ	Molasses and E 0 6.8 -35 1 3.7 44.1 149 200 <5.5 <5.5 <5.5 <5.5 <1.3 <1.3 <0.7 1.21 <0.042	$\begin{array}{c} 1 \\ 5.7 \\ -5 \\ 684 \\ < 0.25 \\ 36.4 \\ 109 \\ 220 \\ 24 \\ 56 \\ 6.4 \\ < 1.3 \\ < 1.3 \\ 7.4 \\ 1.33 \\ 0.18 \end{array}$	$\begin{array}{c} 2\\ 5.8\\ -85\\ 883\\ < 0.25\\ 18.8\\ 117\\ 780\\ 49\\ 20\\ 8.4\\ < 1.3\\ < 1.3\\ 150\\ 4.70\\ 0.37\end{array}$	$\begin{array}{c} 3\\ 6.4\\ -65\\ 460\\ <0.25\\ 4.1\ J\\ 106\\ 180\\ 16\\ <5.5\\ <5.5\\ <1.3\\ <1.3\\ 9800\ E\\ 1.09\\ 0.12\end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE CCE	3B Units SU mV mg/L mg/L mg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µ	Molasses and E 0 6.8 -35 1 3.7 44.1 149 200 <5.5 <5.5 <5.5 <1.3 <1.3 <0.7 1.21 <0.042 <0.057	$\begin{array}{c} 1 \\ 5.7 \\ -5 \\ 684 \\ < 0.25 \\ 36.4 \\ 109 \\ 220 \\ 24 \\ 56 \\ 6.4 \\ < 1.3 \\ < 1.3 \\ 7.4 \\ 1.33 \\ 0.18 \\ 0.58 \end{array}$	$\begin{array}{c} 2\\ 5.8\\ -85\\ 883\\ < 0.25\\ 18.8\\ 117\\ 780\\ 49\\ 20\\ 8.4\\ < 1.3\\ < 1.3\\ 150\\ 4.70\\ 0.37\\ 0.21\\ \end{array}$	$\begin{array}{c} 3\\ 6.4\\ -65\\ 460\\ <0.25\\ 4.1 \text{ J}\\ 106\\ 180\\ 16\\ <5.5\\ <5.5\\ <1.3\\ <1.3\\ 9800 \text{ E}\\ 1.09\\ 0.12\\ <0.057\end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE cDCE VC	3B Units SU mV mg/L mg/L mg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µ	$\begin{array}{c} \text{Molasses and F} \\ 0 \\ 6.8 \\ -35 \\ 1 \\ 3.7 \\ 44.1 \\ 149 \\ 200 \\ <5.5 \\ <5.5 \\ <5.5 \\ <5.5 \\ <1.3 \\ <1.3 \\ <0.7 \\ 1.21 \\ <0.042 \\ <0.057 \\ <0.088 \end{array}$	$\begin{array}{c} 1 \\ 5.7 \\ -5 \\ 684 \\ < 0.25 \\ 36.4 \\ 109 \\ 220 \\ 24 \\ 56 \\ 6.4 \\ < 1.3 \\ < 1.3 \\ < 1.3 \\ 7.4 \\ 1.33 \\ 0.18 \\ 0.58 \\ 0.10 \end{array}$	$\begin{array}{c} 2\\ 5.8\\ -85\\ 883\\ < 0.25\\ 18.8\\ 117\\ 780\\ 49\\ 20\\ 8.4\\ < 1.3\\ < 1.3\\ 150\\ 4.70\\ 0.37\\ 0.21\\ 0.13\end{array}$	$\begin{array}{c} 3\\ 6.4\\ -65\\ 460\\ <0.25\\ 4.1\ J\\ 106\\ 180\\ 16\\ <5.5\\ <5.5\\ <1.3\\ <1.3\\ 9800\ E\\ 1.09\\ 0.12\\ <0.057\\ <0.088\end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE cDCE VC EDCE VC Ethene	3B Units SU mV mg/L mg/L mg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µ	$\begin{array}{c} \text{Molasses and E} \\ 0 \\ 6.8 \\ -35 \\ 1 \\ 3.7 \\ 44.1 \\ 149 \\ 200 \\ <5.5 \\ <5.5 \\ <5.5 \\ <5.5 \\ <1.3 \\ <1.3 \\ <0.7 \\ 1.21 \\ <0.042 \\ <0.057 \\ <0.088 \\ <0.046 \end{array}$	$\begin{array}{c} 1 \\ 5.7 \\ -5 \\ 684 \\ < 0.25 \\ 36.4 \\ 109 \\ 220 \\ 24 \\ 56 \\ 6.4 \\ < 1.3 \\ < 1.3 \\ < 1.3 \\ 7.4 \\ 1.33 \\ 0.18 \\ 0.58 \\ 0.10 \\ < 0.046 \end{array}$	$\begin{array}{c} 2\\ 5.8\\ -85\\ 883\\ <0.25\\ 18.8\\ 117\\ 780\\ 49\\ 20\\ 8.4\\ <1.3\\ <1.3\\ 150\\ 4.70\\ 0.37\\ 0.21\\ 0.13\\ <0.046\end{array}$	$\begin{array}{c} 3\\ 6.4\\ -65\\ 460\\ <0.25\\ 4.1 \text{ J}\\ 106\\ 180\\ 16\\ <5.5\\ <5.5\\ <1.3\\ <1.3\\ 9800 \text{ E}\\ 1.09\\ 0.12\\ <0.057\\ <0.088\\ <0.046\end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE cDCE VC Ethene Ethane VC Ethene Ethane	3B Units SU mV mg/L mg/L mg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µ	$\begin{array}{c} \text{Molasses and E} \\ 0 \\ 6.8 \\ -35 \\ 1 \\ 3.7 \\ 44.1 \\ 149 \\ 200 \\ <5.5 \\ <5.5 \\ <5.5 \\ <5.5 \\ <1.3 \\ <1.3 \\ <0.7 \\ 1.21 \\ <0.042 \\ <0.057 \\ <0.088 \\ <0.046 \\ <0.043 \end{array}$	$\begin{array}{c} 1 \\ 5.7 \\ -5 \\ 684 \\ < 0.25 \\ 36.4 \\ 109 \\ 220 \\ 24 \\ 56 \\ 6.4 \\ < 1.3 \\ < 1.3 \\ < 1.3 \\ 7.4 \\ 1.33 \\ 0.18 \\ 0.58 \\ 0.10 \\ < 0.046 \\ < 0.043 \end{array}$	$\begin{array}{c} 2\\ 5.8\\ -85\\ 883\\ <0.25\\ 18.8\\ 117\\ 780\\ 49\\ 20\\ 8.4\\ <1.3\\ <1.3\\ 150\\ 4.70\\ 0.37\\ 0.21\\ 0.13\\ <0.046\\ <0.043\end{array}$	$\begin{array}{c} 3\\ 6.4\\ -65\\ 460\\ <0.25\\ 4.1 \text{ J}\\ 106\\ 180\\ 16\\ <5.5\\ <5.5\\ <1.3\\ <1.3\\ 9800 \text{ E}\\ 1.09\\ 0.12\\ <0.057\\ <0.088\\ <0.046\\ <0.043\end{array}$

Treatment	3C	Molasses and E	EVO		
Months	Units	0	1	2	3
pH	SU	6.8	5.9	6.0	6.5
ORP	mV	-36	-45	-86	-65
VFA as Acetate	mg/L	0	538	889	750
Nitrate-N	mg/L	3.7	< 0.25	< 0.25	< 0.25
Sulfate	mg/L	44.1	36.4	18.8	4.1 J
Chloride	mg/L	149	109	117	106
PCE	μg/L	240	310	1260	320
TCE	μg/L	<5.5	16	64	19
cDCE	μg/L	<5.5	25	12	<5.5
VC	μg/L	<5.5	<5.5	8.7	<5.5
Ethene	μg/L	<1.3	9.2	9.4	<1.3
Ethane	µg/L	<1.3	4.5	3.2	<1.3
Methane	µg/L	< 0.7	3.4	28	670 E
PCE	μM	1.45	1.87	7.60	1.93
TCE	μΜ	< 0.042	0.12	0.49	0.14
cDCE	µM	< 0.057	0.26	0.12	< 0.057
VC	uM	< 0.088	< 0.088	0.14	< 0.088
Ethene	μM	< 0.046	0.33	0.34	< 0.046
Ethane	uМ	< 0.043	0.15	0.11	< 0.043
Sum CE + Gases	μM	1.45	2.73	8.79	2.07
Tractionent	24.0	Malassa and T			
I reatment Months	JA-C	Molasses and E	2VO Average	2	2
nul	SU	68	1 5 7	2 5 9	5
OBD DBD	SU mV	0.8	3.7 22	J.8 01	0.5
VFA as Acetate	ma/I	-30	-22	-91	-70
VIA as Acciaic		0	648	01/	616
Nitrate-N	mg/L	0	648 <0.25	914 <0.25	616 <0.25
Nitrate-N Sulfate	mg/L mg/L	0 3.7 44 1	648 <0.25 36.4	914 <0.25 18.8	616 <0.25 4 1 I
Nitrate-N Sulfate Chloride	mg/L mg/L mg/L mg/L	0 3.7 44.1 149	648 <0.25 36.4 109	914 <0.25 18.8 117	616 <0.25 4.1 J 106
Nitrate-N Sulfate Chloride PCE	mg/L mg/L mg/L mg/L	0 3.7 44.1 149 200	648 <0.25 36.4 109 287	914 <0.25 18.8 117 1080	616 <0.25 4.1 J 106 167
Nitrate-N Sulfate Chloride PCE TCE	mg/L mg/L mg/L μg/L μg/L	0 3.7 44.1 149 200 <5 5	648 <0.25 36.4 109 287 23	914 <0.25 18.8 117 1080 62	616 <0.25 4.1 J 106 167 12
Nitrate-N Sulfate Chloride PCE TCE cDCE	mg/L mg/L mg/L μg/L μg/L μg/L	0 3.7 44.1 149 200 <5.5 <5 5	648 <0.25 36.4 109 287 23 41	$914 \\ < 0.25 \\ 18.8 \\ 117 \\ 1080 \\ 62 \\ 13$	616 <0.25 4.1 J 106 167 12 40
Nitrate-N Sulfate Chloride PCE TCE cDCE VC	mg/L mg/L mg/L μg/L μg/L μg/L	$ \begin{array}{r} 0\\ 3.7\\ 44.1\\ 149\\ 200\\ <5.5\\ <5.5\\ <5.5\\ <5.5\\ \end{array} $	648 <0.25 36.4 109 287 23 41 6.4	$914 \\ < 0.25 \\ 18.8 \\ 117 \\ 1080 \\ 62 \\ 13 \\ 8.5 \\ 8.5 \\ 14 \\ 108 \\ 10$	616 <0.25 4.1 J 106 167 12 40
Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene	mg/L mg/L mg/L μg/L μg/L μg/L μg/L	$ \begin{array}{c} 0\\ 3.7\\ 44.1\\ 149\\ 200\\ <5.5\\ <5.5\\ <5.5\\ <5.5\\ <1.3\\ \end{array} $	648 <0.25 36.4 109 287 23 41 6.4 9 2	914 <0.25 18.8 117 1080 62 13 8.5 9.4	616 <0.25 4.1 J 106 167 12 40 <5.5 <1.3
Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethene	mg/L mg/L mg/L μg/L μg/L μg/L μg/L μg/L	$ \begin{array}{c} 0\\ 3.7\\ 44.1\\ 149\\ 200\\ <5.5\\ <5.5\\ <5.5\\ <1.3\\ <1.3\\ <1.3\\ <1.3\\ $	$ \begin{array}{r} 648 \\ < 0.25 \\ 36.4 \\ 109 \\ 287 \\ 23 \\ 41 \\ 6.4 \\ 9.2 \\ 4.5 \\ \end{array} $	914 <0.25 18.8 117 1080 62 13 8.5 9.4 3.2	616 <0.25 4.1 J 106 167 12 40 <5.5 <1.3 <1.3
Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane	mg/L mg/L mg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L	$ \begin{array}{c} 0\\ 3.7\\ 44.1\\ 149\\ 200\\ <5.5\\ <5.5\\ <5.5\\ <1.3\\ <1.3\\ <0.0007 \end{array} $	$ \begin{array}{r} 648 \\ < 0.25 \\ 36.4 \\ 109 \\ 287 \\ 23 \\ 41 \\ 6.4 \\ 9.2 \\ 4.5 \\ 0.0066 \\ \end{array} $	$914 < 0.25 \\ 18.8 \\ 117 \\ 1080 \\ 62 \\ 13 \\ 8.5 \\ 9.4 \\ 3.2 \\ 0.073$	616 <0.25 4.1 J 106 167 12 40 <5.5 <1.3 <1.3 7.0 F
Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE	mg/L mg/L mg/L μg/L μg/L μg/L μg/L μg/L mg/L mg/L	$\begin{array}{c} 0\\ 3.7\\ 44.1\\ 149\\ 200\\ <5.5\\ <5.5\\ <5.5\\ <5.5\\ <1.3\\ <1.3\\ <0.0007\\ 1.2\end{array}$	$ \begin{array}{r} 648 \\ < 0.25 \\ 36.4 \\ 109 \\ 287 \\ 23 \\ 41 \\ 6.4 \\ 9.2 \\ 4.5 \\ 0.0066 \\ 1.7 \\ \end{array} $	$914 < 0.25 \\ 18.8 \\ 117 \\ 1080 \\ 62 \\ 13 \\ 8.5 \\ 9.4 \\ 3.2 \\ 0.073 \\ 65$	616 <0.25 4.1 J 106 167 12 40 <5.5 <1.3 <1.3 7.0 E
Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE	mg/L mg/L mg/L μg/L μg/L μg/L μg/L μg/L mg/L μM uM	$\begin{array}{c} 0\\ 3.7\\ 44.1\\ 149\\ 200\\ <5.5\\ <5.5\\ <5.5\\ <5.5\\ <1.3\\ <1.3\\ <0.0007\\ 1.2\\ <0.042\end{array}$	$648 < 0.25 \\ 36.4 \\ 109 \\ 287 \\ 23 \\ 41 \\ 6.4 \\ 9.2 \\ 4.5 \\ 0.0066 \\ 1.7 \\ 0.18 $	$914 < 0.25 \\ 18.8 \\ 117 \\ 1080 \\ 62 \\ 13 \\ 8.5 \\ 9.4 \\ 3.2 \\ 0.073 \\ 6.5 \\ 0.47 \\ 100 \\ $	$\begin{array}{c} 616 \\ < 0.25 \\ 4.1 \text{ J} \\ 106 \\ 167 \\ 12 \\ 40 \\ < 5.5 \\ < 1.3 \\ < 1.3 \\ 7.0 \text{ E} \\ 1.5 \\ 0.080 \end{array}$
Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE cDCE	mg/L mg/L mg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μ	$\begin{array}{c} 0\\ 3.7\\ 44.1\\ 149\\ 200\\ <5.5\\ <5.5\\ <5.5\\ <1.3\\ <1.3\\ <0.0007\\ 1.2\\ <0.042\\ <0.057\end{array}$	$ \begin{array}{r} 648 \\ < 0.25 \\ 36.4 \\ 109 \\ 287 \\ 23 \\ 41 \\ 6.4 \\ 9.2 \\ 4.5 \\ 0.0066 \\ 1.7 \\ 0.18 \\ 0.42 \\ \end{array} $	$914 < 0.25 \\ 18.8 \\ 117 \\ 1080 \\ 62 \\ 13 \\ 8.5 \\ 9.4 \\ 3.2 \\ 0.073 \\ 6.5 \\ 0.47 \\ 0.13 \\ 0.$	$\begin{array}{c} 616 \\ < 0.25 \\ 4.1 \text{ J} \\ 106 \\ 167 \\ 12 \\ 40 \\ < 5.5 \\ < 1.3 \\ < 1.3 \\ 7.0 \text{ E} \\ 1.5 \\ 0.089 \\ 0.41 \end{array}$
Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE cDCE VC	mg/L mg/L mg/L μg/L μg/L μg/L μg/L μg/L mg/L μM μM μM μM	$\begin{array}{c} 0\\ 3.7\\ 44.1\\ 149\\ 200\\ <5.5\\ <5.5\\ <5.5\\ <5.5\\ <1.3\\ <1.3\\ <0.0007\\ 1.2\\ <0.007\\ 1.2\\ <0.042\\ <0.057\\ <0.088\end{array}$	$ \begin{array}{c} 648 \\ < 0.25 \\ 36.4 \\ 109 \\ 287 \\ 23 \\ 41 \\ 6.4 \\ 9.2 \\ 4.5 \\ 0.0066 \\ 1.7 \\ 0.18 \\ 0.42 \\ 0.10 \\ \end{array} $	$914 < 0.25 \\ 18.8 \\ 117 \\ 1080 \\ 62 \\ 13 \\ 8.5 \\ 9.4 \\ 3.2 \\ 0.073 \\ 6.5 \\ 0.47 \\ 0.13 \\ 0.14$	$\begin{array}{c} 616 \\ < 0.25 \\ 4.1 \text{ J} \\ 106 \\ 167 \\ 12 \\ 40 \\ < 5.5 \\ < 1.3 \\ < 1.3 \\ 7.0 \text{ E} \\ 1.5 \\ 0.089 \\ 0.41 \\ < 0.089 \end{array}$
Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethene Ethane Methane PCE TCE cDCE VC	mg/L mg/L mg/L μg/L μg/L μg/L μg/L μg/L μg/L μM μM μM μM	$\begin{array}{c} 0\\ 3.7\\ 44.1\\ 149\\ 200\\ <5.5\\ <5.5\\ <5.5\\ <1.3\\ <1.3\\ <0.0007\\ 1.2\\ <0.042\\ <0.057\\ <0.088\\ <0.046\end{array}$	$ \begin{array}{c} 648 \\ < 0.25 \\ 36.4 \\ 109 \\ 287 \\ 23 \\ 41 \\ 6.4 \\ 9.2 \\ 4.5 \\ 0.0066 \\ 1.7 \\ 0.18 \\ 0.42 \\ 0.10 \\ 0.22 \\ \end{array} $	$914 < 0.25 \\ 18.8 \\ 117 \\ 1080 \\ 62 \\ 13 \\ 8.5 \\ 9.4 \\ 3.2 \\ 0.073 \\ 6.5 \\ 0.47 \\ 0.13 \\ 0.14 \\ 0.24$	616 <0.25 4.1 J 106 167 12 40 <5.5 <1.3 <1.3 7.0 E 1.5 0.089 0.41 <0.088
Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE cDCE VC Ethene Ethene Ethene	mg/L mg/L mg/L μg/L μg/L μg/L μg/L μg/L μg/L μM μM μM μM μM	$\begin{array}{c} 0\\ 3.7\\ 44.1\\ 149\\ 200\\ <5.5\\ <5.5\\ <5.5\\ <1.3\\ <1.3\\ <0.0007\\ 1.2\\ <0.042\\ <0.042\\ <0.057\\ <0.088\\ <0.046\\ <0.042\end{array}$	$\begin{array}{c} 648 \\ < 0.25 \\ 36.4 \\ 109 \\ 287 \\ 23 \\ 41 \\ 6.4 \\ 9.2 \\ 4.5 \\ 0.0066 \\ 1.7 \\ 0.18 \\ 0.42 \\ 0.10 \\ 0.33 \\ 0.15 \end{array}$	914 < 0.25 18.8 117 1080 62 13 8.5 9.4 3.2 0.073 6.5 0.47 0.13 0.14 0.34 0.11	$\begin{array}{c} 616 \\ < 0.25 \\ 4.1 \text{ J} \\ 106 \\ 167 \\ 12 \\ 40 \\ < 5.5 \\ < 1.3 \\ < 1.3 \\ 7.0 \text{ E} \\ 1.5 \\ 0.089 \\ 0.41 \\ < 0.088 \\ < 0.046 \\ < 0.046 \end{array}$
Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane PCE TCE cDCE VC Ethene Ethane	mg/L mg/L mg/L μg/L μg/L μg/L μg/L μg/L μg/L μM μM μM μM μM	$\begin{array}{c} 0\\ 3.7\\ 44.1\\ 149\\ 200\\ <5.5\\ <5.5\\ <5.5\\ <1.3\\ <1.3\\ <0.0007\\ 1.2\\ <0.042\\ <0.042\\ <0.057\\ <0.088\\ <0.046\\ <0.043\\ i 2i \end{array}$	$\begin{array}{c} 648 \\ < 0.25 \\ 36.4 \\ 109 \\ 287 \\ 23 \\ 41 \\ 6.4 \\ 9.2 \\ 4.5 \\ 0.0066 \\ 1.7 \\ 0.18 \\ 0.42 \\ 0.10 \\ 0.33 \\ 0.15 \\ 2.5 \end{array}$	914 < 0.25 18.8 117 1080 62 13 8.5 9.4 3.2 0.073 6.5 0.47 0.13 0.14 0.34 0.11 7.52	$\begin{array}{c} 616 \\ < 0.25 \\ 4.1 \text{ J} \\ 106 \\ 167 \\ 12 \\ 40 \\ < 5.5 \\ < 1.3 \\ < 1.3 \\ 7.0 \text{ E} \\ 1.5 \\ 0.089 \\ 0.41 \\ < 0.088 \\ < 0.046 \\ < 0.043 \end{array}$

	4A	Molasses and E	VO + Bioaugr	nent	
Months	Units	0	1	2	3
рН	SU	6.9	5.5	5.7	6.8
ORP	mV	-30	57	-104	-136
VFA as Acetate	mg/L	0	738	1013	298
Nitrate-N	mg/L	3.7	< 0.25	< 0.25	< 0.25
Sulfate	mg/L	44.1	23.3	2.9 J	7.8
Chloride	mg/L	149	113	117	136
PCE	µg/L	330	47	1.8	<5.5
TCE	μg/L	<5.5	57	11	<5.5
cDCE	μg/L	<5.5	20	<5.5	<5.5
VC	μg/L	<5.5	<5.5	150	37
Ethene	μg/L	<1.3	<1.3	59	4.4
Ethane	μg/L	<1.3	<1.3	<1.3	<1.3
Methane	μg/L	<0.7	3.4	16000 E	24000 E
PCE	μΜ	1.99	0.28	0.011	< 0.033
TCE	μM	< 0.042	0.43	0.084	< 0.042
cDCE	μM	< 0.057	0.21	< 0.057	< 0.057
VC	μM	< 0.088	< 0.088	2.40	0.59
Ethene	μM	< 0.046	< 0.046	2.11	0.16
Ethane	μM	< 0.043	< 0.043	< 0.043	< 0.043
Sum CE + Gases	μM	1.99	0.92	4.60	0.75
Treatment	4B	Molasses and E	VO + Bioaugi	nent	
Treatment Months	4B Units	Molasses and E 0	VO + Bioaugr 1	nent 2	3
Treatment Months pH	4B Units SU	Molasses and E 0 6.8	VO + Bioaugr 1 6.0	nent 2 5.7/6.5	3 6.7
Treatment Months pH ORP	4B Units SU mV	Molasses and E 0 6.8 -41	VO + Bioaugr 1 6.0 -55	nent 2 5.7/6.5 -83	3 6.7 -125
Treatment Months pH ORP VFA as Acetate	4B Units SU mV mg/L	Molasses and E 0 6.8 -41 0	VO + Bioaugr 1 6.0 -55 567	nent 2 5.7/6.5 -83 860	3 6.7 -125 194
Treatment Months pH ORP VFA as Acetate Nitrate-N	4B Units SU mV mg/L mg/L	Molasses and E 0 6.8 -41 0 3.7	VO + Bioaugr	nent 2 5.7/6.5 -83 860 <0.25	3 6.7 -125 194 <0.25
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate	4B Units SU mV mg/L mg/L mg/L	Molasses and E 0 6.8 -41 0 3.7 44.1	VO + Bioaugr 1 6.0 -55 567 <0.25 23.3	nent 2 5.7/6.5 -83 860 <0.25 2.9 J	3 6.7 -125 194 <0.25 7.8
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride	4B Units SU mV mg/L mg/L mg/L	Molasses and E 0 6.8 -41 0 3.7 44.1 149	VO + Bioaugr 1 6.0 -55 567 <0.25 23.3 113	nent 2 5.7/6.5 -83 860 <0.25 2.9 J 117	3 6.7 -125 194 <0.25 7.8 136
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE	4B Units SU mV mg/L mg/L mg/L μg/L	Molasses and E 0 6.8 -41 0 3.7 44.1 149 330	VO + Bioaugr 1 6.0 -55 567 <0.25 23.3 113 1080	nent 2 5.7/6.5 -83 860 <0.25 2.9 J 117 7.7	3 6.7 -125 194 <0.25 7.8 136 <5.5
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE	4B Units SU mV mg/L mg/L mg/L μg/L μg/L	Molasses and E 0 6.8 -41 0 3.7 44.1 149 330 <5.5	VO + Bioaugr 1 6.0 -55 567 <0.25 23.3 113 1080 60	nent 2 5.7/6.5 -83 860 <0.25 2.9 J 117 7.7 8.9	$\begin{array}{c} 3 \\ 6.7 \\ -125 \\ 194 \\ < 0.25 \\ 7.8 \\ 136 \\ < 5.5 \\ < 5.5 \end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE	4B Units SU mV mg/L mg/L μg/L μg/L μg/L	Molasses and E 0 6.8 -41 0 3.7 44.1 149 330 <5.5 <5.5	VO + Bioaugr 1 6.0 -55 567 <0.25 23.3 113 1080 60 15	nent 2 5.7/6.5 -83 860 <0.25 2.9 J 117 7.7 8.9 <5.5	$\begin{array}{c} 3 \\ 6.7 \\ -125 \\ 194 \\ < 0.25 \\ 7.8 \\ 136 \\ < 5.5 \\ < 5.5 \\ < 5.5 \\ < 5.5 \end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC	4B Units SU mV/L mg/L mg/L μg/L μg/L μg/L μg/L	Molasses and E 0 6.8 -41 0 3.7 44.1 149 330 <5.5 <5.5 <5.5 <5.5	VO + Bioaugr 1 6.0 -55 567 <0.25 23.3 113 1080 60 15 <5.5	nent 2 5.7/6.5 -83 860 <0.25 2.9 J 117 7.7 8.9 <5.5 38	$\begin{array}{c} 3 \\ 6.7 \\ -125 \\ 194 \\ < 0.25 \\ 7.8 \\ 136 \\ < 5.5 \\ < 5.5 \\ < 5.5 \\ < 5.5 \\ 13 \end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene	4B Units SU mV/L mg/L mg/L μg/L μg/L μg/L μg/L μg/L	Molasses and E 0 6.8 -41 0 3.7 44.1 149 330 <5.5 <5.5 <5.5 <5.5 <1.3	VO + Bioaugr 1 6.0 -55 567 <0.25 23.3 113 1080 60 15 <5.5 <1.3	nent 2 5.7/6.5 -83 860 <0.25 2.9 J 117 7.7 8.9 <5.5 38 120	$\begin{array}{c} 3 \\ 6.7 \\ -125 \\ 194 \\ < 0.25 \\ 7.8 \\ 136 \\ < 5.5 \\ < 5.5 \\ < 5.5 \\ < 5.5 \\ 13 \\ 16 \end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane	4B Units SU mV mg/L mg/L μg/L μg/L μg/L μg/L μg/L μg/L	Molasses and E 0 6.8 -41 0 3.7 44.1 149 330 <5.5 <5.5 <5.5 <5.5 <1.3 <1.3	VO + Bioaugr 1 6.0 -55 567 <0.25 23.3 113 1080 60 15 <5.5 <1.3 <1.3	nent 2 5.7/6.5 -83 860 <0.25 2.9 J 117 7.7 8.9 <5.5 38 120 <1.3	$\begin{array}{c} 3 \\ 6.7 \\ -125 \\ 194 \\ < 0.25 \\ 7.8 \\ 136 \\ < 5.5 \\ < 5.5 \\ < 5.5 \\ < 5.5 \\ 13 \\ 16 \\ < 1.3 \end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane	4B Units SU mV mg/L mg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L	Molasses and E 0 6.8 -41 0 3.7 44.1 149 330 <5.5 <5.5 <5.5 <5.5 <1.3 <1.3 <0.7	VO + Bioaugr 1 6.0 -55 567 <0.25 23.3 113 1080 60 15 <5.5 <1.3 <1.3 5.3	nent 2 5.7/6.5 -83 860 <0.25 2.9 J 117 7.7 8.9 <5.5 38 120 <1.3 9900 E	3 6.7 -125 194 <0.25 7.8 136 <5.5 <5.5 <5.5 13 16 <1.3 30000 E
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE	4B Units SU mV/L mg/L mg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μ	Molasses and E 0 6.8 -41 0 3.7 44.1 149 330 <5.5 <5.5 <5.5 <5.5 <1.3 <1.3 <0.7 1.99	VO + Bioaugr 1 6.0 -55 567 < $0.2523.311310806015<5.5<1.3<1.35.36.51$	nent 2 5.7/6.5 -83 860 <0.25 2.9 J 117 7.7 8.9 <5.5 38 120 <1.3 9900 E 0.046	$\begin{array}{c} 3\\ 6.7\\ -125\\ 194\\ <0.25\\ 7.8\\ 136\\ <5.5\\ <5.5\\ <5.5\\ <5.5\\ 13\\ 16\\ <1.3\\ 30000\ \text{E}\\ <0.033\end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE	4B Units SU mV mg/L mg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μ	Molasses and E 0 6.8 -41 0 3.7 44.1 149 330 <5.5 <5.5 <5.5 <1.3 <1.3 <0.7 1.99 <0.042	VO + Bioaugr 1 6.0 -55 567 <0.25 23.3 113 1080 60 15 <5.5 <1.3 <1.3 5.3 6.51 0.46	nent 2 5.7/6.5 -83 860 <0.25 2.9 J 117 7.7 8.9 <5.5 38 120 <1.3 9900 E 0.046 0.068	$\begin{array}{c} 3\\ 6.7\\ -125\\ 194\\ < 0.25\\ 7.8\\ 136\\ < 5.5\\ < 5.5\\ < 5.5\\ 13\\ 16\\ < 1.3\\ 30000 \ \text{E}\\ < 0.033\\ < 0.042 \end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE CE TCE cDCE	4B Units SU mV mg/L mg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μ	Molasses and E 0 6.8 -41 0 3.7 44.1 149 330 <5.5 <5.5 <5.5 <1.3 <1.3 <0.7 1.99 <0.042 <0.057	VO + Bioaugr 1 6.0 -55 567 < $0.2523.311310806015<5.5<1.3<1.35.36.510.460.15$	nent 2 5.7/6.5 -83 860 <0.25 2.9 J 117 7.7 8.9 <5.5 38 120 <1.3 9900 E 0.046 0.068 <0.057	$\begin{array}{c} 3\\ 6.7\\ -125\\ 194\\ < 0.25\\ 7.8\\ 136\\ < 5.5\\ < 5.5\\ < 5.5\\ < 5.5\\ 13\\ 16\\ < 1.3\\ 30000 \ E\\ < 0.033\\ < 0.042\\ < 0.057\end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE cDCE VC	4B Units SU mV/L mg/L mg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μ	$\begin{array}{c} \text{Molasses and E} \\ 0 \\ 6.8 \\ -41 \\ 0 \\ 3.7 \\ 44.1 \\ 149 \\ 330 \\ < 5.5 \\ < 5.5 \\ < 5.5 \\ < 5.5 \\ < 5.5 \\ < 1.3 \\ < 1.3 \\ < 0.7 \\ 1.99 \\ < 0.042 \\ < 0.057 \\ < 0.088 \end{array}$	VO + Bioaugi 1 6.0 -55 567 < $0.2523.311310806015<5.5<1.3<1.35.36.510.460.15<0.088$	nent 2 5.7/6.5 -83 860 <0.25 2.9 J 117 7.7 8.9 <5.5 38 120 <1.3 9900 E 0.046 0.068 <0.057 0.61	$\begin{array}{c} 3\\ 6.7\\ -125\\ 194\\ < 0.25\\ 7.8\\ 136\\ < 5.5\\ < 5.5\\ < 5.5\\ < 5.5\\ 13\\ 16\\ < 1.3\\ 30000 \ E\\ < 0.033\\ < 0.042\\ < 0.057\\ 0.21 \end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE cDCE VC ECE TCE cDCE VC Ethene	4B Units SU mV mg/L mg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μ	$\begin{array}{c} \text{Molasses and E} \\ 0 \\ 6.8 \\ -41 \\ 0 \\ 3.7 \\ 44.1 \\ 149 \\ 330 \\ < 5.5 \\ < 5.5 \\ < 5.5 \\ < 5.5 \\ < 5.5 \\ < 1.3 \\ < 1.3 \\ < 0.7 \\ 1.99 \\ < 0.042 \\ < 0.057 \\ < 0.088 \\ < 0.046 \end{array}$	VO + Bioaugr 1 6.0 -55 567 < $0.2523.311310806015<5.5<1.3<1.35.36.510.460.15<0.088<0.046$	nent 2 5.7/6.5 -83 860 <0.25 2.9 J 117 7.7 8.9 <5.5 38 120 <1.3 9900 E 0.046 0.068 <0.057 0.61 4.29	$\begin{array}{c} 3\\ 6.7\\ -125\\ 194\\ < 0.25\\ 7.8\\ 136\\ < 5.5\\ < 5.5\\ < 5.5\\ < 5.5\\ 13\\ 16\\ < 1.3\\ 30000 \ E\\ < 0.033\\ < 0.042\\ < 0.057\\ 0.21\\ 0.57\end{array}$
Treatment Months pH ORP VFA as Acetate Nitrate-N Sulfate Chloride PCE TCE cDCE VC Ethene Ethane Methane PCE TCE cDCE VC Ethene Ethane VC Ethene Ethane	4B Units SU mV mg/L mg/L mg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μ	$\begin{array}{c} \text{Molasses and E} \\ 0 \\ 6.8 \\ -41 \\ 0 \\ 3.7 \\ 44.1 \\ 149 \\ 330 \\ < 5.5 \\ < 5.5 \\ < 5.5 \\ < 5.5 \\ < 5.5 \\ < 1.3 \\ < 1.3 \\ < 0.7 \\ 1.99 \\ < 0.042 \\ < 0.057 \\ < 0.088 \\ < 0.046 \\ < 0.043 \end{array}$	$\begin{array}{c} \text{VO + Bioaugn} \\ 1 \\ 6.0 \\ -55 \\ 567 \\ < 0.25 \\ 23.3 \\ 113 \\ 1080 \\ 60 \\ 15 \\ < 5.5 \\ < 1.3 \\ < 1.3 \\ 5.3 \\ 6.51 \\ 0.46 \\ 0.15 \\ < 0.088 \\ < 0.046 \\ < 0.043 \end{array}$	nent 2 5.7/6.5 -83 860 <0.25 2.9 J 117 7.7 8.9 <5.5 38 120 <1.3 9900 E 0.046 0.068 <0.057 0.61 4.29 <0.043	$\begin{array}{c} 3\\ 6.7\\ -125\\ 194\\ <0.25\\ 7.8\\ 136\\ <5.5\\ <5.5\\ <5.5\\ <5.5\\ 13\\ 16\\ <1.3\\ 30000\ E\\ <0.033\\ <0.042\\ <0.057\\ 0.21\\ 0.57\\ <0.043\\ \end{array}$

Treatment	4C	Molasses and EVO + Bioaugment			
Months	Units	0	ĩ	2	3
pH	SU	6.8	5.5	5.6	6.7
ORP	mV	-37		-110	-117
VFA as Acetate	mg/L	12	825	1076	325
Nitrate-N	mg/L	3.7	< 0.25	< 0.25	< 0.25
Sulfate	mg/L	44.1	23.3	2.9 J	7.8
Chloride	mg/L	149	113	117	136
PCE	µg/L	290	370	<5.5	<5.5
TCE	µg/L	<5.5	38	8.5	<5.5
cDCE	µg/L	<5.5	<5.5	<5.5	<5.5
VC	µg/L	<5.5	<5.5	20	5.0
Ethene	µg/L	<1.3	5.2	130	4.8
Ethane	μg/L	<1.3	<1.3	<1.3	<1.3
Methane	μg/L	<0.7	14	16000 E	17000 E
PCE	μM	1.75	2.23	< 0.033	< 0.033
TCE	μM	< 0.042	0.29	0.065	< 0.042
cDCE	μM	< 0.057	< 0.057	< 0.057	< 0.057
VC	µM	< 0.088	< 0.088	0.32	0.080
Ethene	μM	< 0.046	0.19	4.64	0.17
Ethane	µM	< 0.043	< 0.043	< 0.043	< 0.043
Sum CE + Gases	μΜ	1.75	2.71	5.03	0.25
Treatment	4A-C	Molasses and EVO + Bioaugment Average			
Months	Units	0	1	2	3
pН	SU	6.8	5.7	5.7	6.7
ORP	mV	-36	1	-99	-126
VFA as Acetate	mg/L	4	710	983	272
Nitrate-N	mg/L	3.7	< 0.25	< 0.25	< 0.25
Sulfate	mg/L	44.1	23.3	2.9 J	7.8
Chloride	mg/L	149	113	117	136
PCE	µg/L	317	499	4.8	0.0
TCE	µg/L	<5.5	52	9.5	0.0
cDCE	µg/L	<5.5	12	0.0	0.0
VC	μg/L	<5.5	<5.5	69.3	18.3
Ethene	µg/L	<1.3	<1.3	103.0	8.4
Ethane	µg/L	<1.3	<1.3	0.0	0.0
Methane	mg/L	< 0.0007	0.0076	14.0 E	23.7 E
PCE	μM	1.9	3.0	0.019	0.000
TCE	μM	< 0.042	0.39	0.072	0.000
cDCE	μM	< 0.057	0.12	0.000	0.000
VC	μΜ	< 0.088	< 0.088	1.1	0.29
Ethene	μΜ	< 0.046	< 0.046	3.7	0.30
Ethane	µM	< 0.043	< 0.043	< 0.043	< 0.043
Sum CE + Gases	uM	1 91	3 52	4 88	0.59

Sum CE + Gases μM 1.91 3.52 4.88 0.59 J = compound detected below method calibration range, but above method detection limit E=concentration estimated, result above method calibration range
APPENDIX C

TREATMENT TECHNOLOGY OVERVIEW AND PRODUCT RECOMMENDATIONS





PARS Environmental

TECHNICAL MEMORANDUM

TREATMENT TECHNOLOGY OVERVIEW AND PRODUCT RECOMMENDATIONS FOR BENCH SCALE TESTING OF REMEDIAL ALTERNATIVES

FORT DRUM PCE REMEDIAL INVESTIGATION FOR SOLVENT CONTAMINANTS FORT DRUM, NEW YORK

Contract Number: W912DR-10-D-0034

PARS PROJECT NO. 802-01

Prepared For:



U.S. ARMY CORPS OF ENGINEERS, BALTIMORE DISTRICT 10 South Howard Street Baltimore, Maryland 21201

> Prepared By: PARS Environmental, Inc.



500 Horizon Drive, Suite 540 Robbinsville, New Jersey 08691

August 2011

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1.0 INTRODUCTION

On behalf of the United Stated Army Corp of Engineers, Baltimore District (CENAB), PARS Environmental, Inc. (PARS) is pleased to submit this technical memorandum presenting recommendations for reagent selection to be evaluated in the laboratory as described in the Workplan – Bench Scale Testing of Remedial Alternatives (PARS, 2011). This work is being conducted as part of the Fort Drum PCE Remedial Investigation for Solvent Contaminants, Fort Drum, New York" (RI; PARS, 2010).

Accordingly, this technical memo introduces several commercially available substrates/reagents in each of three remedial technology groups – biological, enhanced reductive dechlorination (ERD), and in-situ chemical oxidation (ISCO), and provides a recommendation for the selection of one reagent from each group based on site and product characteristics for use in bench scale testing and in laboratory columns.

1.1 Bench Scale Study Objectives

The primary objective of this bench scale study is to identify and evaluate one commercially available remediation product within each of three remedial technology categories – Biological, ERD, and ISCO – that demonstrate the most potential to meet site remedial goals with respect to tetrachloroethene (PCE) in groundwater beneath Fort Drum Site 3805. Results from the bench-scale and column testing program will be used to support the selection of a remedial approach for Pilot Scale testing in the field to obtain site specific parameters in support of full-scale remedial implementation at the site. Proven short-term removal efficiency and life-cycle cost effectiveness will be the primary characteristics of the selected technology.

1.2 Summary of Groundwater Contamination

During the course of the phased site RI, PCE impacts to groundwater were found to be limited to the sands and silty sands of the Pine Plains Delta. PCE has not migrated downward into the basal clay unit, or into the underlying bedrock. While PCE has been frequently detected in shallow, intermediate, and deep wells since 1995, the highest concentrations exist in the deeper portion of the alluvial aquifer. The highest recorded concentration of PCE was 2700 micrograms per liter (μ g/L) detected in 1999 at 3805-MWI9. While dissolved oxygen (DO) and oxidation-reduction potential (ORP) values measured during earlier groundwater sampling events indicated aerobic conditions, data collected as part of this RI show localized areas of low to non-detect levels of DO and negative ORP values (anaerobic conditions). Chlorinated ethenes (i.e., PCE) degrade most rapidly under strongly reducing (anaerobic) geochemical conditions.

As detailed in the RI Work Plan, a fuel (BTEX) plume overlies the PCE plume. The highest concentrations of BTEX compounds are found in the shallow portions of the aquifer, while PCE is most concentrated in the lower portions of the aquifer. The BTEX plume therefore overrides and intermingles with the PCE plume to some degree.



The extent of PCE contamination has been defined through site investigation activities conducted in 2010. The major portion of the plume lies within the lower surficial aquifer below the BTEX plume and is perched in the basal clay aquitard of the Pine Plains Delta. The upper vertical extent of the PCE plume comingles with the BTEX plume to varying degrees along its axis. The maximum PCE concentration measured to date is 960 μ g/L.

2.0 REMEDIAL TECHNOLOGY OVERVIEW

The following sections present a brief description of the products that are currently available to mediate Biological, ERD, and ISCO remediation approaches with respect to site conditions, effectiveness, and estimated cost.

2.1 Biological Technology

Biological approaches to groundwater remediation typically involve the addition of a desired microbial population, *dehalococcoidies*-related organisms (DHC) in particular, known to mediate reductive dechlorination of chlorinated compounds to completion ([bioaugmentation]; ITRC, 2005a; AFCEE, 2004). These microbes may or may not naturally occur in the aquifer; in some instances they are present but in insufficient numbers to carry out complete dechlorination. When absent, the dechlorination sequence tends to "stall" at cis-1,2-dichloroethene (cDCE) or vinyl chloride (VC). In many aquifers, these microbes are present naturally and they grow rapidly with the addition of electron donors; however, they are not always available or are dormant due to various site conditions. Several commercial products are now available that can be used to introduce these micro-organisims to enhance biological activity in the subsurface.

Below is a summary of the leading commercially available products and a brief description of each. It is important to recognize that while several vendors offer these biological additives, all of them contain DHCs as their primary active components. The differences lie primarily in the characteristics of the growth media and additional bacterial strains included in the product (ESTCP, 2005). Shaw Technology Group developed SDC-9; Shaw does not sell the product directly, however it is sold by Terra Systems as TSI DCTM. SiREM Labs (a subsidiary of GeoSyntec Consultants) offers KB-1[®] Dechlorinator. Regenesis offers Bio-Dechlor INOCULUM[®] Plus, while EOS Remediation offers its BAC-9TM product.

2.1.1 Shaw Technology Group – SDC-9TM

The Shaw Dechlorinating Culture – SDC-9TM is a product created specifically to treat chlorinated solvent contaminated aquifers. The culture contains DHC bacteria that degrade highly chlorinated solvents to non-toxic ethene, making it well suited for treating sites where degradation products are absent. The SDC-9TM culture has been successfully applied at sites throughout the United States, including some of the largest in situ bioaugmentation project performed to date (http://www.shawgrp.com/markets/envservices/envtechnology/techbioaug).



2.1.2 Regenesis – Bio-Dechlor INOCULUM[®] Plus

Bio-Dechlor INOCULUM[®] Plus (BDI Plus^{M}) is an enriched natural microbial consortium containing species of DHC. This microbial consortium has been enriched to increase its ability to rapidly dechlorinate contaminants during in situ bioremediation processes. BDI Plus^{M} has been shown to stimulate the rapid and complete dechlorination of compounds such as PCE, trichloroethene (TCE), cDCE, VC. The current formulation also is capable of dehalogenating halomethanes (e.g. carbon tetrachloride and chloroform) and haloethanes (e.g. 1,1,1-TCA and 1,1-DCA) as well as mixtures of these halogenated contaminants. BDI Plus^{M} is provided in a liquid form and is designed to be injected directly into the contaminated subsurface (http://www.regenesis.com/contaminated-site-remediation-products/bioaugmentation/bio-dechlor/).

2.1.3 EOS Remediation – BAC- 9^{TM}

EOS Remediation offers BAC-9TM which is an enriched bioaugmentation culture capable of degrading chlorinated solvents to innocuous compounds efficiently by providing beneficial DHC microbial populations in effective cell densities. The product can be injected directly for in situ treatment of chlorinated ethenes or used in on-site bioreactors. BAC-9TM provides large population of DHC when inadequate native dechlorinator population densities exist at the site. BAC-9TM is also effective in degrading many other chlorinated solvents such as carbon tetrachloride (CT) and chloroform (CF) (http://www.eosremediation.com/products/BAC-9.html).

If indigenous DHCS occur at low population densities, EOS Remediation has resources to develop custom enrichments from site groundwater for use during bioaugmentation. Based on site requirements, custom enrichments can be produced in fermentors ranging from 7 to 4000 liters per batch. *Dehalococcoides sp.* cell density is monitored using real-time quantitative polymerase chain reaction (PCR).

2.1.4 Terra Systems – TSI DC^{TM}

TSI DC Bioaugmentation CultureTM is an enriched natural bacteria culture that contains *Dehalococcoides* species for bioaugmentation; it is produced by Shaw Technology Group and is identical to SDC-9. This culture dechlorinates PCE and TCE to the non-toxic product ethene. It can be used at sites where bacteria capable of complete reductive dechlorination are not present or there is a need to decrease the remediation time frame

(http://www.terrasystems.net/Products/products_TSI_DC.htm).

2.1.5 SiREM Labs - KB-1[®] Dechlorinator

KB-1[®] Dechlorinator (KB-1[®]) is a natural microbial culture used to introduce *Dehalococcoides* organisms to sites where they are absent, present at low concentrations, or the wrong strain to promote the complete dechlorination of PCE, TCE, cDCE, and VC in groundwater. This product was the first commercially available culture of this type and is still widely accepted and extensively used today. KB-1[®] has been positively evaluated by the US EPA Superfund Innovative Technology Evaluation Program (SITE), is the topic of peer reviewed articles and has



been used extensively in the field at sites across the United States, and in Denmark, England and Sweden.

KB-1[®] bioaugmentation includes the SiREM exclusive KB-1[®] money back Guarantee which specifies complete dechlorination within a predetermined time frame, and also includes Gene-Trac Dehalococcoides analyses to determine the successful introduction and spread of these organisms after bioaugmentation (http://www.siremlab.com/kb1bioaugmentation.html).

2.2 ERD Technology

Enhanced Reductive Dechlorination (ERD) involves the delivery of a reagent into the subsurface for the purposes of creating an anaerobic groundwater treatment zone to stimulate microbial growth and development (bioremediation), or inducing a chemically driven reductive dechlorination reaction. There are abiotic and biotic reductive dechlorination pathways: reductive β -elimination (abiotic) and hydrogenolysis (biotic), each leading to different reaction products. Because both reactive minerals and microorganisms are present at contaminated sites, both abiotic and biotic reductive dechlorination have the potential to occur simultaneously (AFCEE, 2004). Thus the relative abundance of the products of abiotic and biotic reductive dechlorination of PCE and TCE can indicate the predominant transformation process, i.e., abiotic or biotic.

It is well documented that chlorinated VOCs, including PCE and TCE, can naturally degrade in an anaerobic environment by biotic processes. Reductive dechlorination (below) is a biotic process whereby chlorine atoms are replaced with hydrogen atoms during microbial respiration (AFCEE, 2004). For example, TCE is formed when a chlorine atom is removed from PCE. Under the proper reducing conditions, this process can continue, resulting in the successive formation of *c*DCE, VC, and finally ethene. Ethene is then degraded anaerobically to ethane, and finally carbon dioxide and water. Chlorinated VOCs are also biodegraded via cometabolism where the degradation is catalyzed by enzymes that are produced by anaerobic bacteria.



Oxygen is the most thermodynamically favorable electron acceptor. Once depleted, alternate electron acceptors can be used by the bacteria in the respiration process, including nitrates (denitrification), ferric iron, manganese, sulfates (sulfanogenesis) and finally carbon dioxide (methanogenesis). Depletion of these electron acceptors leads to successively stronger reducing conditions in the groundwater as the reduction-oxidation (redox) potential is lowered. Strongly reducing conditions in groundwater are necessary to degrade the constituents at acceptable rates.



In addition to generating the proper reducing conditions, addition of electron donors or substrate material can promote further reductive dechlorination.

Unlike biologically mediated reductive dechlorination, which often results in accumulation of harmful intermediates such as cDCE and VC, abiotic mineral-mediated dechlorination of PCE and TCE (β -elimination) tends to result in complete transformation to non-toxic products such as acetylene (below). This process is a result of the interaction of ethenes (PCE, TCE) and reduced metals species (e.g., Fe⁰ or Fe²⁺), transforming PCE to dichloroacetylene. Dichloroacetylene is then transformed to chloroacetylene and finally to acetylene during further electron transfer. The benefit of this process is that hydrogen is generated which becomes available for microbes in support of reductive dechlorination, resulting in a synergy of biological and abiotic destruction of PCE.



2.2.1 Zero Valent Iron

It is well known that zero valent iron (Fe⁰ [ZVI]) technology is effective in treating chlorinated organics (i.e., ethenes and ethanes; Arnold and Roberts, 2000). Both biotic and abiotic processes occur in iron systems. The β -elimination pathway, however, dominates the reaction and produces chloroacetylene intermediates, which are unstable and are rapidly reduced to ethene. The hydrogenolysis pathway is a slower reaction during which lesser-chlorinated intermediates are produced and subsequently degraded (Arnold and Roberts, 2000). The technology can effectively treat not only the dissolved plume but also highly concentrated source areas. As described above, the interaction of reduced iron (Fe⁰ is highly reduced) and PCE generates hydrogen, which then promotes biological reductive dechlorination as well as abiotic PCE destruction.

One specific variant of ZVI, Nanoscale ZVI, consists of submicron ($<10^{-6}$ m), bacteria-sized particles of ZVI (Fe⁰). Nano-iron particles are very highly reactive due to their high specific surface area (approximately 33.5 square meters per gram [m²/gm]). Because of its high reactivity and extremely small particle size, nanoscale ZVI represents an extremely effective and versatile remediation tool. A ZVI-water slurry (or ZVI-vegetable oil emulsion) can be injected under pressure or by gravity into the treatment areas as needed. The particles are then transported by groundwater flow (advection) to establish *in-situ* reaction (treatment) zones. Since this technology induces strongly negative redox conditions within the injection zone, it can stimulate the growth of anaerobic microbial consortia capable of enhanced degradation of certain recalcitrant contaminants.



2.2.2 Regenesis – Hydrogen Release Compound (HRC®)

HRC[®] is a controlled release, electron donor material, that when hydrated is specifically designed to produce a controlled release of lactic acid. HRC[®] is typically applied using direct-injection techniques, however, is equally suited to injection well applications. Once in the subsurface, HRC[®] can reside within the soil matrix fueling reductive dechlorination by promoting reducing aquifer conditions for periods of up to 24 months or longer through the release of lactic acid and subsequent hydrogen production.

The lactic acid is metabolized by microbes to produce hydrogen which is then used in the anaerobic reductive dechlorination process. HRC[®] can be used to degrade a range of contaminants, particularly PCE and its breakdown products. HRC[®] increases the rate of dechlorination up to several orders of magnitude, rapidly taking the contaminant through a stepwise dechlorination process that ultimately results in the production of non-toxic compounds such as ethene and ethane.

Several variants of the HRC[®] product are available; each of these provides for a slightly different application or time frame. 3DMe[®] produces a sequential, staged release of its electron donor components. This staged fermentation provides an immediate, mid-range and long-term, controlled-release supply of hydrogen (electron donor) to fuel the reductive dechlorination process. Alternatively, HRC-X[®] will reside within the soil matrix for up to 60 months through the extra-slow, controlled release of lactic acid, producing reducing conditions over an extended period of time.

2.2.3 EOS Remediation – Emulsified Oil Substrate (EOS®)

EOS Remediation uses sustainable green chemistry in its family of groundwater bioremediation products. The EOS[®] family of products are formulated with renewable, biodegradable vegetable oil feed stock supporting sustainability both above and below ground. Since first developed in 1999, millions of pounds of EOS[®] have been successfully applied at sites throughout the world.

The EOS[®] emulsified vegetable oil (EVOTM) products incorporate a proven, patented method that provides food for the microorganisms and stimulates biodegradation activity. EOS offers several product formulations of soybean oil emulsions / EVOTM. EOS Remediation's oil-in-water emulsions are much less viscous than NAPL oils and do not require any special handling equipment. Several studies have shown that growth of dechlorinating microorganisms may be enhanced by providing these bacteria with amino acids and/or vitamins. Consequently, microbiologists often include vitamin B₁₂ and yeast extract to generate conditions for optimum growth to remediate chloroethenes. EOS[®] offers this nutritional advantage in its 598B42 EVO formulation.

2.2.4 Molasses

Molasses is one of the most common substrates applied as a dissolved phase, although other soluble substrates are also used, including sodium lactate, ethanol, methanol, butyrate, and sodium benzoate. Soluble substrates travel with advective groundwater flow, and are typically applied in a continuous or periodic (pulsed) mode to maintain a specified reactive treatment



zone. Substrates applied as a dissolved or "aqueous" phase offer the greatest potential for uniform distribution throughout the aquifer matrix relative to substrates applied as a viscous fluid or solid phase. The mobility of soluble substrates allows for greater distance between rows of injection wells relative to slow-release substrates.

Molasses is comprised primarily of sugars (sucrose), but may contain other minor constituents such as sulfur, sulfate, and metals that may be of potential concern. Higher grades of molasses or high fructose corn syrup (HFCS) can be used in situations where the addition of additional sulfur or other impurities to an aquifer is undesirable. Molasses is typically injected in a water solution of 10 percent molasses or less, although historically molasses has been injected at concentrations as high as 88 percent. Soluble substrates may be used for source area, biobarrier, or plume-wide applications using direct injection and/or recirculation wells. Direct-push techniques may be used to install small-diameter injection points.

The use of molasses as a remedial alternative requires periodic injection and process monitoring. Ability to adjust substrate strength, volume, and injection frequency over time is an advantage for optimizing system performance. However, adjusting substrate loading rates and mixing ratios during the initial phase of injection is often necessary to achieve target substrate levels, to avoid adverse impacts to pH, and to maximize radius of influence. Process monitoring and optimization increase the cost of O&M during startup, and the lifecycle cost of O&M for soluble substrate systems is high relative to other substrate options.

2.2.5 Emulsified Oils

Edible oils have been used in a variety of locations throughout the United States to stimulate anaerobic biodegradation of chlorinated solvents and other contaminants (ESTCP, 2006). The emulsified oil process is designed to generate conditions necessary for microbial anaerobic biodegradation (e.g., reductive dechlorination of chlorinated solvents). Edible oils are relatively inexpensive, innocuous, food-grade substrates. When properly prepared and injected, edible oils are immobile and slowly biodegraded in most aquifers. A single, low-cost injection can provide sufficient carbon to drive reductive dechlorination for several years. The emulsified oil process can be used either in the contaminant source zone or downgradient as a barrier to contaminant migration (AFCEE, 2004).

Edible oils can also be distributed in aquifers as oil-in-water emulsions. Ideally, the emulsion should be stable (e.g., non-coalescing); have small, uniform droplets to allow transport in most aquifers; and have a negative surface charge to reduce droplet capture by the solid surfaces. The emulsion is then injected into the aquifer with water to distribute and immobilize the oil droplets. As oil droplets migrate through the aquifer pore spaces, they collide with sediment surfaces and stick. The sediment surfaces gradually become coated with a thin layer of oil droplets that provides a carbon source for long-term reductive dechlorination. Field and laboratory studies have shown that emulsified oils can be transported substantial distances (up to 50 feet) in a variety of aquifer materials with low to moderate oil retention and little permeability loss. As a consequence, emulsified edible oils are more appropriate for use in barriers where minimizing permeability loss is important.



2.3 Chemical Oxidation Technology

Contaminated groundwater remediation using chemical oxidation technologies involves the injection of chemical oxidants directly into the affected source and/or downgradient contaminated zones (ITRC, 2005b). The injected oxidants react with the contaminants; breaking them down and producing less harmful by-products such as carbon dioxide and water. Additional compounds can be released depending upon which contaminant group is being targeted. Many of the chemical reactions that occur can have several steps to reach the desired remedial end points; some of which can be undesirable and have to be managed accordingly. Many contaminant species are treatable using chemical oxidation technologies, including chlorinated ethene compounds (PCE, TCE, cDCE, VC).

Chemical oxidation can be an advantageous remedial approach because treatment takes place over a relatively rapid time frame, and there are generally lower volumes of by-product produced when compared to other treatment approaches (ITRC, 2005b). As with all treatment technologies, however, there are limitations that have to be recognized to ensure that the approach is cost-effective. It is important to characterize the site in terms of hydrogeology and contaminant mass/concentration, and to characterize the soils in terms of their temperature, pH, reactant concentrations, by-products, and inherent oxidant demand – both organic and inorganic. In addition, delivery of the oxidant is a major consideration in terms of achieving maximum contact of the oxidant with the affected soils and contaminant mass, as different oxidants have various solubility and reactive properties, and laboratory conditions seldom closely represent those in the field (ITRC, 2005b).

It is well documented that chemical oxidants such as free hydroxyl radical (Fenton's Reagent), ozone, persulfate, peroxide and permanganate contain enough oxidative potential to remediate most organic contaminants (ITRC, 2005b). Each oxidant has a different standard potential which needs to be considered when selecting an oxidant for use at any particular site. Since actual oxidation reaction rates in a field setting are heavily affected by site conditions, selection of a product based on thermodynamics, kinetics, and stoichiometry alone must be tempered with site specific parameters.

2.3.1 Potassium Permanganate

There are two common forms of permanganate – potassium permanganate (KMnO₄) and sodium permanganate (NaMnO₄). Both forms of permanganate are strong oxidizing agents with a unique affinity for oxidizing organic compounds containing carbon–carbon double bonds, aldehyde groups, or hydroxyl groups. Sodium permanganate is usually supplied as a concentrated liquid which allows greater flexibility in the design of the injection volume; however, it also has the hazard of being highly reactive with the potential for strong exothermic release when in contact with concentrated reductants. Potassium permanganate is generally provided as a powder; this allows for easier transportation, and can be mixed on-site using locally available water, but poses exposure hazards associated with dust during mixing operations.



Potassium permanganate (KMnO₄) readily reacts with available organic compounds – no catalyst is required, and no daughter products are produced that would require additional reactions. The reactions by which potassium permanganate oxidizes organic contaminants essentially involve the production of carbon dioxide, manganese dioxide (MnO₂), potassium, hydrogen, and halide ions as follows:

 $RHX + KMnO_4 \iff CO_2 + MnO_2 + K^+ + H^+ + X^-$

During the reaction, carbon dioxide will combine with water (reducing pH) and will also be released as a gas within the soil matrix (McKay, et al, 1998). Dissolved carbon dioxide and intermediate organic acids formed by oxidation of organic matter in the aquifer can drive the pH to strongly acidic conditions, requiring a buffer. Under adequately buffered conditions, manganese dioxide will precipitate out of solution and become immobilized in the soil matrix.

In general, chlorinated hydrocarbons with higher chlorine substitution consume less oxidant (per the stoichiometric requirement) and produce less MnO₂ solids. Four moles MnO₄ are needed to mineralize 3 moles of PCE producing 4 moles of MnO₂(s) (below), compared to 10 moles of MnO₄ needed to mineralize 3 moles of vinyl chloride producing 10 moles of MnO₂(s).

Perchloroethene (PCE)

 $4KMnO_4 + 3C_2Cl_4 + 4H_2O \rightarrow 6CO_2 + 4MnO_2(s) + 4K_+ + 12Cl_- + 8H_+$

Permanganate is a stable oxidant and can persist in the subsurface for months. Thus, for ISCO projects with permanganate, the application rate and the total mass introduced must be balanced with the subsurface oxidizable material. For the degradation of chlorinated organic compounds, the oxidation involves direct electron transfer rather than free radical processes that characterize oxidation by persulfate, hydrogen peroxide, or ozone.

2.3.2 Sodium Persulfate

There are three main forms of persulfate, however, for ISCO applications, potassium persulfate has a low solubility, and the injection of ammonium persulfate may lead to the generation of ammonia, which is regulated in groundwater. Therefore, the most common salt used is sodium persulfate.

Persulfate salts dissociate in water to persulfate anions $(S_2O_8^{2-})$ which, although strong oxidants, are kinetically slow in destroying many organic contaminants. To overcome the relative slowness of the reactions and subsequent degradation of target compounds (i.e., PCE), an activator (heat, or more commonly, ferrous salts [Fe²⁺]) can be used to initiate the production of sulfate free radicals (SO₄⁻⁻). The free radicals are very reactive and thus very potent oxidizing agents roughly equivalent to the hydroxyl radicals generated using ozone or peroxide.

Ferrous ions require highly reducing conditions such as an acidic pH to remain in solution. It may be necessary to lower the pH as with peroxide systems to achieve this environment. Transport capabilities are important to all remedial technologies. For persulfate to be effective in field applications, the activator must be distributed and transported with the persulfate. One of the issues with Fe(II) salts is that they are oxidized to Fe(III). In a soil environment, where the



soil has pH buffering capacity, the Fe(III) that is formed precipitates out onto the soil. Thus, the effectiveness of the iron activation degrades with time and distance.

Oxidation of VOCs in groundwater with persulfate also has the potential to lower the pH. In water, without soil present to buffer the pH, the pH generally drops to the range of 1.5–2.5, depending on the amount of persulfate used. This change in conditions could act to mobilize naturally occurring and/or anthropogenic metals present in the soil. In a soil environment, however, the pH drop may not be as severe as observed in water only because many soils have a pH-buffering capacity and can mitigate the formation of sulfuric acid. Therefore, several concerns should be addressed when using persulfate to oxidize VOCs in soil and groundwater:

- The catalytic effect of the iron appears to decay with time and distance from injection. This decrease could be the result of either poor transport of the dissolved Fe(II) in a soil environment or the depletion of the iron as it activates the persulfate.
- Low pH conditions may be generated by persulfate decomposition, which can cause dissolved metal concentrations to increase in the groundwater. Natural soil buffering capacity can help alleviate this phenomenon.
- As with all oxidants, metals can be mobilized within the treatment zone due to a change in oxidation states and/or pH.

2.3.3 Fenton's Reagent

In-situ chemical oxidation of organic contaminants can be achieved by carefully controlled injection of Fenton's reagent into the affected media. Fenton's reagent consists of hydrogen peroxide and iron salts which are used to initiate a "Fenton's reaction"; the oxidation of organic compounds by producing hydroxyl radicals ('OH), as follows:

$$H_2O_2 + Fe^{2+} \Rightarrow Fe^{3+} + OH^{\bullet} + OH^{\bullet}$$

During the reaction, ferrous iron (Fe^{2+}) is converted to ferric iron (Fe^{3+}) . Ferrous iron is generally soluble at a pH between 5 and 6, while ferric iron will generally precipitate out of solution. By buffering pH and providing adequate amounts of hydrogen peroxide, ferric iron can be converted back to ferrous form. However, as hydrogen peroxide is consumed, some ferric iron will precipitate out of solution.

The hydroxyl radicals formed by the Fenton's reagent are one of the most powerful oxidizers known, more powerful than ozone, potassium permanganate, chlorine, and chlorine dioxide. The reactions by which organic contaminants are oxidized are complex, but essentially involve the contaminant, hydrogen peroxide, and the ferrous iron catalyst reacting to produce water and carbon dioxide, as follows:

$$RHX^{Fe2^+} + H_2O_2 \iff H_2O + CO_2 + H^+ + X^-$$

In the above reaction, RHX represents a halogenated organic compound, where X is the halide (in this case, chloride). The complete destruction of the halogenated organic compound yields water, carbon dioxide, a hydrogen ion, and a halide anion (Jerome, et al., 1998). This reaction is rapid, non-selective (natural organic material in the treatment zone will also be oxidized), and



generates heat and pressure in the subsurface. The use of Fenton's reagent has not been documented to cause mobilization of inorganics or chemical constituents outside the treatment area.

2.3.4 Ozone & Ozone with Hydrogen Peroxide

Ozonation is a very common municipal water treatment technology, however, over the past 20 years, more and more literature has been published that supports the concept of also using ozonation for treating complex organic pollutants. Ozone-based processes are unique to most other ISCO processes in that they involve application of a gas (ozone) posing very different design and operational issues than those faced with the application of the peroxide, persulfate, and permanganate liquid systems. More recently ozone has been injected dissolved in water. Because of the differences in subsurface flow physics and chemical transport in these different applications, the operational and treatment considerations for these approaches are very different than that of the other oxidants.

Ozone is one of the strongest oxidants available for ISCO. It is usually generated on site using ozone generators. Commercial generators using an air or oxygen stream usually generate ozone within the 2–10 wt% range. When ozone is introduced via the gas phase, the application rate is controlled by the phase equilibrium between gases and liquids. When typical ozonated feed gases are sparged into tanks containing clean water, the aqueous equilibrium ozone concentrations generally range 5–30 mg/L (Langlais, Reckhow, and Brink 1991). More recently, ozone has been injected in a dissolved phase as ozonated water or as an ozone/peroxide mixture, both of which have liquid distribution properties. This type of application is similar to that of the other oxidants.

Ozone oxidation chemical reactions may be divided into two categories: direct oxidation and indirect oxidation. Direct oxidation involves the oxidation of the targeted chemical by the parent oxidizer, ozone and does not rely heavily on the hydroxyl radical (OH•) for achieving targeted results. The second form of ozone oxidation reactions follows an indirect pathway and results in the production of the hydroxyl radical (OH•) for contaminant oxidation. Hydroxyl radicals are nonselective oxidizers, which, as with other ISCO approaches, rapidly attack organic contaminants and break down their carbon-to-carbon bonds. Oxidation by hydroxyl radicals is a faster reaction than direct oxidation by the ozone itself.

Numerous successful applications of ozonation ISCO processes have been reported using ozone injection alone as well as ozone in combination with hydrogen peroxide Ozone–hydrogen peroxide reactions result in enhanced generation of hydroxyl radicals. This mechanism for the formation of hydroxyl radical during ozone–hydrogen peroxide treatment involves production of hydroxyl radicals by direct hydrogen peroxide and ozone reactions and through intermediate ozone and hydrogen peroxide reactions.

Ozone-hydrogen peroxide injection has been used for many years to treat contaminants in water ex situ. Ozone and hydrogen peroxide injection is considered to be one of the most aggressive forms of in situ chemical oxidation technologies due to the high yields of hydroxyl radicals



obtainable. When implementing ozone-hydrogen peroxide injection, there are more oxidizing species introduced into the subsurface reacting with many different contaminants and there can be significant downgradient dissolved oxygen bioremediation effects. Issues involved with the use of ozone-hydrogen peroxide to oxidize VOCs in groundwater are the same as those for the individual oxidants.

3.0 PRODUCT SELECTION CRITERIA AND RANKING SYSTEM

Several products are available in each of the technology categories; however, in the interest of keeping the testing program as focused as possible, one product from each remedial technology will be selected for evaluation in the laboratory bench-scale and laboratory column tests. The basis for product selection is described below, and is further detailed for each remedial alternative.

Several criteria were selected for use in a ranking system that was developed to provide a basis for product selection; a separate criteria list was used for each technology as each has its own set of characteristics to evaluate. In general, cost and short-term effectiveness are applicable to each (and is the main basis for biological product selection; no scoring is provided for biological products). Hydrochemical specific properties for ERD and ISCO are presented for those categories, and include (among others) cost, short- and long-term effectiveness, ease of application, regulatory acceptance, and the product's ability to perform when used in conjunction with other technologies. The scores are relative and qualitative, and are intended to be used as a general guidance for product selection. Scores rank between 1 and 5, with 5 being the "most favorable" in each category. These criteria were selected based on site clean-up goals, expected remedial time frames, and with the anticipation that more than one remedial approach may be necessary to completely mitigate the plume extent.

3.1 Biological Technology

Recognizing that all of the biological products presented herein contain the *dehalococcoidies*microorganisms, and that many of those products are manufactured by the same laboratory for different vendors, the major factor to consider when selecting a biological culture is cost. The Shaw product SDC-9 offers a highly concentrated and proven product at a competitive price, which under the proper geochemical conditions, will increase bacterial populations and reduce target compounds. This product has been successfully applied at over 100 sites throughout the USA, and is easily applied to the subsurface through injection points or dedicated wells. However, as is true with all bioaugmentation cultures, their effectiveness depends on subsurface geochemical conditions. Elevated DO and ORP, and a low or high pH can seriously inhibit the ability of the microbes to perform as desired. A carbon source is typically used to achieve this condition; carbon based substrates (food source for microbes) can be applied prior to or concurrent with bioaugmentation to minimized bacterial population loss due to unfavorable aquifer conditions.



For the purposes of the bench scale testing for evaluating the potential for full-scale application PARS recommends using SDC-9. This product represents the most cost-effective option as it meets all of the criteria described above, and can be obtained at a lower cost than the other products presented herein.

3.2 ERD Technology

Each of the ERD technology products presented herein offer differ characteristics with respect to contaminant break down mechanism, short- and long-term effectiveness, ease of applicability, cost, regulatory acceptance, and synergy with other technologies. Products such as molasses and cheese whey are relatively inexpensive and offer an immediate and easily metabolized source of carbon for dechlorinating microbes; however, these reagents are quickly metabolized and require constant reapplication. Engineered substrates such as EOS and HRC also offer a rich carbon source and contain advanced molecules that provide a more long-lasting food source. These products are highly effective, and while they do cost more than molasses and cheese whey, they require significantly less frequent reapplication (up to 3 to 5 years). Both are easily applied in the field.

Zero valent iron differs from the other products presented herein because it mediates the β elimination (abiotic) process, but also inherently supports biological process as well (ITRC, 2005a). These two processes working simultaneously have proven to rapidly reduce PCE concentrations in contaminated aquifers. The abiotic process can be extremely rapid; studies have shown a 100-fold decrease in PCE/TCE concentrations in 3 weeks. In order to maximize the effectiveness of the biotic pathway component, a recommended approach is to emulsify the ZVI with vegetable oil and/or molasses prior to injection to provide a long- and short-term carbon source (respectively) for dechlorinating microbes.

The matrix presented below provides a relative ranking system for each of the available ERD products discussed with respect to their desired remedial characteristics. While capital cost of the product is a concern, the overall life cycle costs of the treatment represents the true cost-effectiveness; multiple injections of a relatively inexpensive product (e.g., molasses) will not always yield the most cost-effective solution. Recognizing the merits of a reagent that is able to take advantage of both the abiotic and biotic degradation pathways, emulsified ZVI is the recommended reagent for use in bench scale testing of the ERD technology.



ERD Scoring	٨ċ	al cost	ort Long	the cive	enerse cine	plication,	Acceptance agration with Total	(⁶⁰
Molasses	5	5	1	1	5	2	19	
Cheese Whey	5	4	1	3	5	2	20	
EOS	3	3	3	4	5	3	21	
HRC	3	4	4	3	5	3	22	
Zero Valent Iron	3	5	4	4	5	4	25	

3.3 Chemical Oxidation Technology

Each of the ISCO remedial options presented here are extremely effective in rapidly attacking and destroying chlorinated solvents. Because of their highly reactive nature, these approaches can potentially be detrimental to biological or ERD remedial approaches due to the oxidative processes involved; ERD and biological treatment of chlorinated solvents requires highly anaerobic conditions. However, when carefully selected and designed, remedial approaches involving ISCO can be successfully applied along with ERD technologies to achieve a 2-phase approach: rapid solvent destruction in "hot-spots" followed by reductive dechlorination of residual dissolved contaminant mass (ITRC, 2005a).

A Fenton's reagent causes a very powerful reaction that rapidly destroys VOC in subsurface. The use of a Fenton's reagent typically results in a significant production and release of oxygen to the subsurface, as well as a great amount of heat. These reactions can become uncontrolled, and there is a high potential for negative interaction with BTEX compounds and can melt PVC well casing near the injection site. It can also significantly decrease the pH of the aquifer system. While very effective on their own, these conditions can be detrimental to the efforts of ERD or biological treatments and thus, do not interact favorably with biological or ERD administration.

Ozone is one of the most powerful oxidants. While extremely effective, it is also the only ISCO product that has the potential to completely destroy the microbial communities near the injection site. While this effect is relatively difficult to achieve in the field, great care is required to control dosing strengths as to prevent complete biocide. The ozone is produced on site using an ozone generator and injected as a gas; this approach is relatively expensive when compared to the other ISCO options, and thus, it not recommended for testing at this site.

Sodium persulfate is a powerful but relatively slow reactant; the rate at which this reagent performs can be increased through the use of an activator such as Fe^{2+} . Persulfate has the potential to drastically reduce system pH if the aquifer has a low pH buffering capacity, which can potentially mobilize unwanted metals to the dissolved phase. Another drawback is that the activator (e.g., Fe^{2+}) is rapidly oxidized (Fe^{3+}) which can precipitate out as a solid in the soil matrix if pH remains relatively high.



Potassium permanganate is also a very powerful oxidant. The product is relatively easy to transport and administer in the field, is fast-acting, and when mixed in modest concentrations, does not react adversely with other contaminants (i.e., BTEX) or cause drastic and long-term reductions in microbial populations. The effects of this treatment persist in the aquifer for a relatively short time following oxidation of the contaminants allowing a return to background conditions within a relatively short time frame.

The existing data characterizing the impacts of oxidants of anaerobic bioremediation processes provide contradictory evidence for the feasibility of utilizing bioremediation following oxidation. In the case of permanganate, oxidation of constituents of the aquifer matrix can produce soluble products. For example, sulfide minerals may be oxidized to produce sulfate (Nelson et al. 2002), while some of the natural insoluble organic carbon content of the soil is partially oxidized to carboxylic acids and aldehydes (Hayes 1989). Increases in dissolved organic carbon concentrations observed at some field sites (Droste et al. 2002) may promote reducing conditions favoring reductive dechlorination. However, permanganate oxidation results in the deposition of manganese oxide (MnO₂). The amount of MnO₂ generated is minimal when treating PCE exclusively, and increases as the concentrations of TCE, cDCE, and VC increase. As an oxidizing agent, contact with permanganate can adversely impact microorganisms present in groundwater; however, it has proven difficult to completely destroy microbial population. Furthermore, the redox shift required to support reductive processes can be achieved through the introduction of electron donors or reduced iron downgradient of the treatment area; microbial populations have been documented to return after ISCO treatment as advection flushed the treatment zone and background conditions are re-established. These conditions then allow for the flexibility of integrating ERD to treat the residual (or advected) portion of the dissolved plume.

ISCO Scoring	٨Č	ia cost	oft PC	Ettective Dential A	in eres the photometers of the p	noaibilit Dependence	ancylet ancylet	ects equilation v	in ERO al
Fenton's Reagent	4	5	1	2	4	1	1	18	
Ozone/Ozone-Peroxide	1	5	1	1	4	1	1	14	
Sodium Persulfate	2	2	3	3	4	5	2	21	
Potassium Permanganate	3	5	3	3	5	5	4	28	

While most of the ISCO options presented herein offer rapid contaminant destruction, potassium permanganate offers the greatest number of attributes that would be most favorable for application at Ft. Drum, and is therefore the recommended product for laboratory testing of ISCO remedial options.



4.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the expected interaction of site conditions and the characteristics of the remediation products available and presented herein, PARS recommends conducting bench scale testing of the following remedial alternatives:

Biological: SDC-9.

ERD: ZVI with an electron donor delivery substrate (i.e., molasses and/or EVO).

ISCO: Potassium Permanganate.

Based on the results of the laboratory batch testing, a column test will be conducted using the product that illustrates the most effective remedial response during the bench scale testing. Analytical results will be available nearly "real-time" throughout the bench scale testing process which will allow for the early identification of the most effective remedial approach. Conducting the column test will provide additional information regarding the effect of site specific soils on the treatment substrate and will provide a stronger basis for dosing requirements and overall remedial design.



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APPENDIX D

LABORATORY ANALYTICAL REPORTS FOR TREATMENT ANALYSES





2340 Stock Creek Blvd. Rockford TN 37853-3044 Phone: (865) 573-8188 Fax: (865) 573-8133 Email: info@microbe.com

Client:	Mike Lee Terra Systems, Ir 1035 S. Philadelp Suite E Wilmington, DE 1	nc. hia Pike 9809	Phone:	(302) 798-9553 (302) 798-9554
Identifier:	034IG	Date Rec: 07/14/2011	Fax.	ort Date: 07/20/2011
Client Proj	ect #:	Client Proj	ect Name: Fo	rt Drum
Purchase (Order #:			
Analysis R	equested:	CENSUS		

Reviewed By:

Arita Biernacki

NOTICE: This report is intended only for the addressee shown above and may contain confidential or privileged information. If the recipient of this material is not the intended recipient or if you have received this in error, please notify Microbial Insights, Inc. immediately. The data and other information in this report represent only the sample(s) analyzed and are rendered upon condition that it is not to be reproduced without approval from Microbial Insights, Inc. Thank you for your cooperation.

2340 Stock Creek Blvd. Rockford, TN 37853-3044 Tel. (865) 573-8188 Fax. (865) 573-8133

()	()					
Client: Project:	Terra System s Fort Drum	s, Inc.		MI Project Number: Date Received:	034IG 07/14/2011	
Sample Infor	mation					
Client Sa	ample ID:		1			
Sample [Date:		07/13/2011			
Units:			cells/mL			
Analyst:			СТ			
Dechlorinati	ng Bacteria					
Dehalococ	coides spp.	DHC	<5.00E-01			
Dehalobac	ter spp.	DHBt	<2.80E+00			
Functional G	Senes					
tceA Redu	ctase	TCE	<5.00E-01			
bvcA Redu	ictase	BVC	<5.00E-01			
Vinyl Chlor	ide Reductase	VCR	<5.00E-01			
Legend:						

CENSUS

NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited < = Result not detected





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ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories 2425 New Holland Pike Lancaster, PA 17605-2425 Prepared for:

Terra Systems, Inc. 1035 Philadelphia Pike, Ste. E Wilmington DE 19809-2039

September 15, 2011

Project: Ft Drum

Submittal Date: 08/26/2011 Group Number: 1263826 State of Sample Origin: NA

Client Sample Description

1-1 Composite Water Sample

2-1 Composite Water Sample

3-1 Composite Water Sample

4-1 Composite Water Sample

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC Terra Systems, Inc. COPY TO ELECTRONIC Terra Systems, Inc. COPY TO 6389502 6389503 6389504 6389505

Lancaster Labs (LLI) #

Attn: Michael D. Lee Attn: Mike Lee





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Questions? Contact your Client Services Representative Nancy J Bornholm at (717) 656-2300 Ext. 1310

Respectfully Submitted,

Robert Heisey Senior Specialist



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Page 1 of 1

Sample Description: 1-1 Composite Water Sample Ft Drum	LLI Sample # WW 6389502 LLI Group # 1263826 Account # 09984
Project Name: Ft Drum	
Collected: 08/25/2011 15:00 by ML	Terra Systems, Inc. 1035 Philadelphia Pike, Ste. E
Submitted: 08/26/2011 18:15	Wilmington DE 19809-2039
Reported: 09/15/2011 13:17	

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Wet Ch	emistry	EPA 300.0		mg/l	mg/l	
00224	Chloride		16887-00-6	190	10.0	50
00368	Nitrate Nitrogen		14797-55-8	N.D.	2.5	50
	Reporting limits w The holding time w	vere raised due vas not met.	to interference	e from the sample matrix.		
00228	Sulfate		14808-79-8	52.8	1.5	5

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT	Analysis Name	Method	Trial#	Batch#	Analysis		Analyst	Dilution
No.					Date and Tim	e		Factor
00224	Chloride	EPA 300.0	1	11239373601A	08/31/2011	17:31	Ashley M Adams	50
00368	Nitrate Nitrogen	EPA 300.0	1	11239373601A	08/31/2011	17:31	Ashley M Adams	50
00228	Sulfate	EPA 300.0	1	11239373601A	08/27/2011	10:05	Joseph E McKenzie	5



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Page 1 of 1

Sample Description: 2-1 Composite Water Sample Ft Drum	LLI Sample # WW 6389503 LLI Group # 1263826 Account # 09984
Project Name: Ft Drum	
Collected: 08/25/2011 15:30 by ML	Terra Systems, Inc. 1035 Philadelphia Pike, Ste. E
Submitted: 08/26/2011 18:15	Wilmington DE 19809-2039
Reported: 09/15/2011 13:17	

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Wet C	hemistry	EPA 300.0		mg/l	mg/l	
00224	Chloride		16887-00-6	113	4.0	20
00368	Nitrate Nitrogen		14797-55-8	0.59	0.25	5
00228	Sulfate		14808-79-8	53.2	6.0	20

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Tim	e	Analyst	Dilution Factor
00224	Chloride	EPA 300.0	1	11239373601A	08/30/2011	02:07	Ashley M Adams	20
00368	Nitrate Nitrogen	EPA 300.0	1	11239373601A	08/27/2011	10:45	Joseph E McKenzie	5
00228	Sulfate	EPA 300.0	1	11239373601A	08/30/2011	02:07	Ashley M Adams	20



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Page 1 of 1

Sample Description: 3-1 Compos: Ft Drum	ite Water Sample	LLI Sample # WW 6389504 LLI Group # 1263826 Account # 09984
Project Name: Ft Drum		
Collected: 08/25/2011 16:00	by ML	Terra Systems, Inc. 1035 Philadelphia Pike, Ste. E
Submitted: 08/26/2011 18:15		Wilmington DE 19809-2039
Reported: 09/15/2011 13:17		

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Wet Ch	lemistry	EPA 300.0		mg/l	mg/l	
00224	Chloride		16887-00-6	109	10.0	50
00368	Nitrate Nitrogen		14797-55-8	N.D.	0.25	5
00228	Sulfate		14808-79-8	36.4	1.5	5

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Tim	e	Analyst	Dilution Factor
00224	Chloride	EPA 300.0	1	11239373601A	08/30/2011	02:20	Ashley M Adams	50
00368	Nitrate Nitrogen	EPA 300.0	1	11239373601A	08/27/2011	10:58	Joseph E McKenzie	5
00228	Sulfate	EPA 300.0	1	11239373601A	08/27/2011	10:58	Joseph E McKenzie	5



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Sample Description: 4-1 Composite Water Sample Ft Drum	LLI Sample # WW 6389505 LLI Group # 1263826 Account # 09984
Project Name: Ft Drum	
Collected: 08/25/2011 16:30 by ML	Terra Systems, Inc. 1035 Philadelphia Pike, Ste. E
Submitted: 08/26/2011 18:15	Wilmington DE 19809-2039
Reported: 09/15/2011 13:17	

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Wet C	hemistry	EPA 300.0		mg/l	mg/l	
00224	Chloride		16887-00-6	113	10.0	50
00368	Nitrate Nitrogen		14797-55-8	N.D.	0.25	5
00228	Sulfate		14808-79-8	23.3	1.5	5

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Tim	e	Analyst	Dilution Factor
00224	Chloride	EPA 300.0	1	11239373601A	08/30/2011	02:34	Ashley M Adams	50
00368	Nitrate Nitrogen	EPA 300.0	1	11239373601A	08/27/2011	11:11	Joseph E McKenzie	5
00228	Sulfate	EPA 300.0	1	11239373601A	08/27/2011	11:11	Joseph E McKenzie	5



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Quality Control Summary

Client Name: Terra Systems, Inc. Reported: 09/15/11 at 01:17 PM Group Number: 1263826

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

Analysis Name	Blank <u>Result</u>	Blank <u>MDL</u>	Report <u>Units</u>	LCS <u>%REC</u>	LCSD <u>%REC</u>	LCS/LCSD <u>Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 11239373601A	Sample numbe	r(s): 638	9502-63895	505				
Chloride	N.D.	0.20	mg/l	109		90-110		
Nitrate Nitrogen	N.D.	0.050	mg/l	110		90-110		
Sulfate	N.D.	0.30	mg/l	102		90-110		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike Background (BKG) = the sample used in conjunction with the duplicate

	MS	MSD MS/MSD	RPD	BKG	DUP	DUP	Dup RPD
<u>Analysis Name</u>	<u>%REC</u>	<u>%REC</u> Limits	<u>RPD</u> <u>MAX</u>	Conc	Conc	RPD	Max
Batch number: 11239373601A	Sample	number(s): 6389502	-6389505 UNS	SPK: 638950	2 BKG: 63895	02	
Chloride	118*	90-110		190	197	3	20
Nitrate Nitrogen	84*	90-110		N.D.	N.D.	0 (1)	20
Sulfate	96	90-110		52.8	51.9	2	20

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

	Andi	VSIS KE	F	or Lar		Labora	tories us	se only	511 2 S	9870.					<u>ay</u>
Lancaster	Acct. #	<u>784</u> a	Group#	12	638	<u>x</u> ,	Sample #		38	7500	~~~~	_ CC	DC # 2	252630	
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Project Manager: Mike Lee	P.O.#:				Å Ç		si 🗁						N=HNO₃	B =NaOH	
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Issued by Dept. 6042 Management 2102.05

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL N.D. TNTC IU	Reporting Limit none detected Too Numerous To Count International Units	BMQL MPN CP Units NTU	Below Minimum Quantitation Level Most Probable Number cobalt-chloroplatinate units nephelometric turbidity units
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	I	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- < less than The number following the sign is the <u>limit of quantitation</u>, the smallest amount of analyte which can be reliably determined using this specific test.
- > greater than
- J estimated value The result is \geq the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- **ppm** parts per million One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.
- ppb parts per billion
- **Dry weight** basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

- A TIC is a possible aldol-condensation product
- **B** Analyte was also detected in the blank
- **C** Pesticide result confirmed by GC/MS
- D Compound quantitated on a diluted sample
- E Concentration exceeds the calibration range of the instrument
- **N** Presumptive evidence of a compound (TICs only)
- P Concentration difference between primary and confirmation columns >25%
- U Compound was not detected
- **X,Y,Z** Defined in case narrative

Inorganic Qualifiers

- **B** Value is <CRDL, but \ge IDL
- E Estimated due to interference
- M Duplicate injection precision not met
- N Spike sample not within control limits
- **S** Method of standard additions (MSA) used for calculation
- U Compound was not detected
- W Post digestion spike out of control limits
- * Duplicate analysis not within control limits
- + Correlation coefficient for MSA < 0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories 2425 New Holland Pike Lancaster, PA 17605-2425 Prepared for:

Terra Systems, Inc. 1035 Philadelphia Pike, Ste. E Wilmington DE 19809-2039

September 27, 2011

Project: PARS Fort Drum

Submittal Date: 09/21/2011 Group Number: 1267604 State of Sample Origin: NY

Client Sample Description 1-A-C-2 Composite Water Sample 2-A-C-2 Composite Water Sample 3-A-C-2 Composite Water Sample 4-A-C-2 Composite Water Sample Lancaster Labs (LLI) # 6414140 6414141 6414142 6414143

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC Terra Systems, Inc. COPY TO ELECTRONIC Terra Systems, Inc. COPY TO Attn: Michael D. Lee Attn: Mike Lee





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Questions? Contact your Client Services Representative Nancy J Bornholm at (717) 656-2300 Ext. 1310

Respectfully Submitted,

Robert Heisey Senior Specialist



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Page 1 of 1

Sample Description: 1-A-C-2 Composite Water Sample PARS Fort Drum	LLI Sample # WW 6414140 LLI Group # 1267604 Account # 09984
Project Name: PARS Fort Drum	
Collected: 09/20/2011 10:30 by MDL	Terra Systems, Inc. 1035 Philadelphia Pike, Ste. E
Submitted: 09/21/2011 17:56	Wilmington DE 19809-2039
Reported: 09/27/2011 15:06	

CAT No.	Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Wet Ch	nemistry	EPA 300.0		mg/l	mg/l	
00224	Chloride		16887-00-6	129	10.0	50
00368	Nitrate Nitrogen		14797-55-8	N.D.	0.25	5
00228	Sulfate		14808-79-8	42.4	1.5	5

General Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT	Analysis Name	Method	Trial#	Batch#	Analysis		Analyst	Dilution
No.					Date and Time	е		Factor
00224	Chloride	EPA 300.0	1	11264196901B	09/26/2011	15:32	Ashley M Adams	50
00368	Nitrate Nitrogen	EPA 300.0	1	11264196901B	09/22/2011	06:31	James S Mathiot	5
00228	Sulfate	EPA 300.0	1	11264196901B	09/22/2011	06:31	Ashley M Adams	5



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Page 1 of 1

Sample Description: 2-A-C-2 Composite Water Sample PARS Fort Drum	LLI Sample # WW 6414141 LLI Group # 1267604 Account # 09984
Project Name: PARS Fort Drum	
Collected: 09/20/2011 10:45 by MDL	Terra Systems, Inc. 1035 Philadelphia Pike, Ste. E
Submitted: 09/21/2011 17:56	Wilmington DE 19809-2039
Reported: 09/27/2011 15:06	

CAT No.	NT >. Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Wet Ch	emistry	EPA 300.0		mg/l	mg/l	
00224	Chloride		16887-00-6	98.7	10.0	50
00368	Nitrate Nitrogen		14797-55-8	N.D.	0.25	5
00228	Sulfate		14808-79-8	41.2	1.5	5

General Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT	Analysis Name	Method	Trial#	Batch#	Analysis		Analyst	Dilution
No.					Date and Time	e		Factor
00224	Chloride	EPA 300.0	1	11264196901B	09/22/2011	08:45	Ashley M Adams	50
00368	Nitrate Nitrogen	EPA 300.0	1	11264196901B	09/22/2011	09:25	James S Mathiot	5
00228	Sulfate	EPA 300.0	1	11264196901B	09/22/2011	09:25	Ashley M Adams	5


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Page 1 of 1

Sample Description: 3-A-C-2 Composite Water Sample PARS Fort Drum	LLI Sample # WW 6414142 LLI Group # 1267604 Account # 09984
Project Name: PARS Fort Drum	
Collected: 09/20/2011 11:00 by MDL	Terra Systems, Inc. 1035 Philadelphia Pike, Ste. E
Submitted: 09/21/2011 17:56	Wilmington DE 19809-2039
Reported: 09/27/2011 15:06	

CAT No.	T Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Wet Ch	lemistry	EPA 300.0		mg/l	mg/l	
00224	Chloride		16887-00-6	117	10.0	50
00368	Nitrate Nitrogen		14797-55-8	N.D.	0.25	5
00228	Sulfate		14808-79-8	18.8	1.5	5

General Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT	Analysis Name	Method	Trial#	Batch#	n# Analysis		Analyst	Dilution	
No.					Date and Time			Factor	
00224	Chloride	EPA 300.0	1	11264196901B	09/25/2011	20:07	Ashley M Adams	50	
00368	Nitrate Nitrogen	EPA 300.0	1	11264196901B	09/22/2011	06:58	James S Mathiot	5	
00228	Sulfate	EPA 300.0	1	11264196901B	09/22/2011	06:58	Ashley M Adams	5	



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Page 1 of 1

Sample Description: 4-A-C-2 Composite Water Sample PARS Fort Drum	LLI Sample # WW 6414143 LLI Group # 1267604 Account # 09984
Project Name: PARS Fort Drum	
Collected: 09/20/2011 11:15 by MDL	Terra Systems, Inc. 1035 Philadelphia Pike, Ste. E
Submitted: 09/21/2011 17:56	Wilmington DE 19809-2039
Reported: 09/27/2011 15:06	

CAT No.	AT o. Analysis Name		CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Wet Ch	emistry	EPA 300.0		mg/l	mg/l	
00224 00368 00228	Chloride Nitrate Nitrogen Sulfate		16887-00-6 14797-55-8 14808-79-8	117 N.D. 2.9 J	10.0 0.25 1.5	50 5 5

General Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT	Analysis Name	Method	Trial#	Batch#	n# Analysis		Analyst	Dilution
No.					Date and Time			Factor
00224	Chloride	EPA 300.0	1	11264196901B	09/25/2011	20:19	Ashley M Adams	50
00368	Nitrate Nitrogen	EPA 300.0	1	11264196901B	09/22/2011	07:11	James S Mathiot	5
00228	Sulfate	EPA 300.0	1	11264196901B	09/22/2011	07:11	Ashley M Adams	5





Group Number: 1267604

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Page 1 of 1

Quality Control Summary

Client Name: Terra Systems, Inc. Reported: 09/27/11 at 03:06 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank <u>Result</u>	Blank <u>MDL</u>	Report <u>Units</u>	LCS <u>%REC</u>	LCSD <u>%REC</u>	LCS/LCSD <u>Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 11264196901B	Sample number	r(s): 6414	1140-64141	43				
Chloride	N.D.	0.20	mg/l	99		90-110		
Nitrate Nitrogen	N.D.	0.050	mg/l	98		90-110		
Sulfate	N.D.	0.30	mg/l	98		90-110		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike Background (BKG) = the sample used in conjunction with the duplicate

	MS	MSD MS/MSD		RPD BKG	DUP	DUP	Dup RPD
<u>Analysis Name</u>	<u>%REC</u>	<u>%REC</u> Limits	<u>RPD</u>	MAX Conc	Conc	<u>RPD</u>	Max
Batch number: 11264196901B	Sample	number(s): 6414140	-6414143	UNSPK: P41308	4 BKG: P413084		
Chloride	95	90-110		3,610	3,610	0	20
Nitrate Nitrogen	98	90-110		3.8	3.7	0	20
Sulfate	90	90-110		2,150	2,110	2	20

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

	Anal	ysis Re	equ	Jes	st/	En	vi	ron	mer	ntal	Ser	vices	Chain	ofCu	isto	dy
Lancaster Laboratories	Acct. #	184 c	F Group# structic	ior Lar E <u>/Z</u> ons on	icaster <u>6760</u> reverse	Labo 04 e side	ratori _San e corr	ies use nple #_ respond	only <u>64141</u> 1 with circle	40-4 ed numbe	<u>13</u> ers.	_ C	OC #	2526	31	
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Project Name/#: Ft Drum	PWSID	#:		-	eck if			8		+ + +			Preservatio	on Codes T=Thiosulfa	ate	6
Project Manager: Mike Leo	P.O.#: _			_	Å C		ers	\geq					N=HNO ₃	B=NaOH		
Sampler: M D 4	Quote #	:			table		tain	Ś					S=H₂SO₄	0 =Other		ples
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Type III (Reduced NJ) Site-specific QC Type IV (CLP SOW) (If yes indicate QC sample and Type VI (Raw Data Only)	C (MS/MSD/Dup)? submit tipicale volume.) equired? Yes / No	Yes No 	F	Reling	uishec	l by:		-/		Date	Time	Received t	oy: 7 ~	9/21/	Date	Time

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Issued by Dept. 6042 Management 2102.05

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL N.D. TNTC IU	Reporting Limit none detected Too Numerous To Count International Units	BMQL MPN CP Units NTU	Below Minimum Quantitation Level Most Probable Number cobalt-chloroplatinate units nephelometric turbidity units
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	I	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- < less than The number following the sign is the <u>limit of quantitation</u>, the smallest amount of analyte which can be reliably determined using this specific test.
- > greater than
- J estimated value The result is \geq the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- **ppm** parts per million One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.
- ppb parts per billion
- **Dry weight** basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

- A TIC is a possible aldol-condensation product
- **B** Analyte was also detected in the blank
- **C** Pesticide result confirmed by GC/MS
- D Compound quantitated on a diluted sample
- E Concentration exceeds the calibration range of the instrument
- **N** Presumptive evidence of a compound (TICs only)
- P Concentration difference between primary and confirmation columns >25%
- U Compound was not detected
- **X,Y,Z** Defined in case narrative

Inorganic Qualifiers

- **B** Value is <CRDL, but \ge IDL
- E Estimated due to interference
- M Duplicate injection precision not met
- N Spike sample not within control limits
- **S** Method of standard additions (MSA) used for calculation
- U Compound was not detected
- W Post digestion spike out of control limits
- * Duplicate analysis not within control limits
- + Correlation coefficient for MSA < 0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories 2425 New Holland Pike Lancaster, PA 17605-2425 Prepared for:

Terra Systems, Inc. 1035 Philadelphia Pike, Ste. E Wilmington DE 19809-2039

November 03, 2011

Project: Fort Drum Microcosm

Submittal Date: 10/19/2011 Group Number: 1272197 State of Sample Origin: NY

Client Sample Description 1-A-C-3 Composite Water Sample 2-A-C-3 Composite Water Sample 3-A-C-3 Composite Water Sample 4-A-C-3 Composite Water Sample Lancaster Labs (LLI) # 6443046 6443047 6443048 6443049

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC Terra Systems, Inc. COPY TO ELECTRONIC Terra Systems, Inc. COPY TO Attn: Michael D. Lee Attn: Mike Lee





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Questions? Contact your Client Services Representative Nancy J Bornholm at (717) 656-2300 Ext. 1310

Respectfully Submitted,

Robert Heisey Senior Specialist



Account

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Page 1 of 1

LLI Sample # WW 6443046

09984

LLI Group # 1272197

Sample Description: 1-A-C-3 Composite Water Sample Fort Drum Microcosm

Project Name: Fort Drum Microcosm

Collected: 10/18/2011 12:30 by MDL

Submitted: 10/19/2011 19:45 Reported: 11/03/2011 09:05

Terra Systems, Inc.
1035 Philadelphia Pike, Ste. E
Wilmington DE 19809-2039

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Wet (Chemistry EPA 300	.0	mg/l	mg/l	
00224	Chloride	16887-00-6	152	10.0	50
00368	8 Nitrate Nitrogen	14797-55-8	N.D.	2.5	50
	Reporting limits were raised of	due to interferend	ce from the sample matrix.		
00228	Sulfate	14808-79-8	56.4	1.5	5

General Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT	Analysis Name	Method	Trial#	Batch#	Analysis		Analyst	Dilution
No.					Date and Tim	le		Factor
00224	Chloride	EPA 300.0	1	11292196902B	10/20/2011	11:26	Ashley M Adams	50
00368	Nitrate Nitrogen	EPA 300.0	2	11292196902B	10/20/2011	11:26	Ashley M Adams	50
00228	Sulfate	EPA 300.0	1	11292196902B	10/20/2011	10:51	Ashley M Adams	5



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Page 1 of 1

Sample Description: 2-A-C-3 Composite Water Sample Fort Drum Microcosm

Project Name: Fort Drum Microcosm

Collected: 10/18/2011 13:00 by MDL

Submitted: 10/19/2011 19:45 Reported: 11/03/2011 09:05

LLI Sample	#	WW 6443047
LLI Group	#	1272197
Account	#	09984

Terra Systems, Inc. 1035 Philadelphia Pike, Ste. E Wilmington DE 19809-2039

CAT No.	Analysis Name		As Received CAS Number Result		As Received Method Detection Limit	Dilution Factor
Wet Ch	nemistry	EPA 300.0		mg/l	mg/l	
00224	Chloride		16887-00-6	120	10.0	50
00368	Nitrate Nitrogen		14797-55-8	N.D.	0.25	5
00228	Sulfate		14808-79-8	32.5	1.5	5

General Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT	Analysis Name	Method	Trial#	Batch#	Analysis		Analyst	
No.					Date and Tim		Factor	
00224	Chloride	EPA 300.0	1	11292196902B	10/23/2011	12:30	Ashley M Adams	50
00368	Nitrate Nitrogen	EPA 300.0	1	11292196902B	10/20/2011	11:14	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	11292196902B	10/20/2011	11:14	Ashley M Adams	5



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Page 1 of 1

Sample Description: 3-A-C-3 Composite Water Sample Fort Drum Microcosm

Project Name: Fort Drum Microcosm

Collected: 10/18/2011 13:30 by MDL

Submitted: 10/19/2011 19:45 Reported: 11/03/2011 09:05

LLI Sample	#	WW 6443048
LLI Group	#	1272197
Account	#	09984

Terra Systems, Inc. 1035 Philadelphia Pike, Ste. E Wilmington DE 19809-2039

CAT No. Analysis Name			CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Wet Ch	nemistry	EPA 300.0		mg/l	mg/l	
00224 00368 00228	Chloride Nitrate Nitrogen Sulfate		16887-00-6 14797-55-8 14808-79-8	106 N.D. 4.1 J	10.0 0.25 1.5	50 5 5

General Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT	Analysis Name	Method	Trial#	Batch#	Analysis		Analyst	Dilution
No.					Date and Tim		Factor	
00224	Chloride	EPA 300.0	1	11292196902B	10/23/2011	12:54	Ashley M Adams	50
00368	Nitrate Nitrogen	EPA 300.0	1	11292196902B	10/20/2011	11:49	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	11292196902B	10/20/2011	11:49	Ashley M Adams	5



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Page 1 of 1

Sample Description: 4-A-C-3 Composite Water Sample Fort Drum Microcosm

Project Name: Fort Drum Microcosm

Collected: 10/18/2011 14:00 by MDL

Submitted: 10/19/2011 19:45 Reported: 11/03/2011 09:05

LLI Sample	#	WW 6443049
LLI Group	#	1272197
Account	#	09984

Terra Systems, Inc. 1035 Philadelphia Pike, Ste. E Wilmington DE 19809-2039

CAT No.	T Analysis Name		As Received CAS Number Result		As Received Method Detection Limit	Dilution Factor
Wet Chemistry EPA 300.		EPA 300.0		mg/l	mg/l	
00224	Chloride		16887-00-6	136	10.0	50
00368	Nitrate Nitrogen		14797-55-8	N.D.	0.25	5
00228	Sulfate		14808-79-8	7.8	1.5	5

General Sample Comments

State of New York Certification No. 10670

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

CAT	Analysis Name Method		Trial#	Batch#	Analysis		Analyst	Dilution
No.					Date and Tim		Factor	
00224	Chloride	EPA 300.0	1	11292196902B	10/23/2011	13:17	Ashley M Adams	50
00368	Nitrate Nitrogen	EPA 300.0	1	11292196902B	10/20/2011	12:48	Ashley M Adams	5
00228	Sulfate	EPA 300.0	1	11292196902B	10/20/2011	12:48	Ashley M Adams	5



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Page 1 of 1

Quality Control Summary

Client Name: Terra Systems, Inc. Reported: 11/03/11 at 09:05 AM Group Number: 1272197

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

<u>Analysis Name</u>	Blank <u>Result</u>	Blank Report LCS <u>MDL Units %REC</u>		LCSD <u>%REC</u>	LCS/LCSD <u>Limits RP</u>		<u>RPD Max</u>	
Batch number: 11292196902B	Sample numbe	er(s): 644	3046-6443	049				
Chloride	N.D.	0.20	mg/l	100	108	90-110	8	20
Nitrate Nitrogen	N.D.	0.050	mg/l	102	105	90-110	3	20
Sulfate	N.D.	0.30	mg/l	99	108	90-110	8	20

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike Background (BKG) = the sample used in conjunction with the duplicate

	MS	MSD	MS/MSD		RPD	BKG		DUP		DU	JP	Dup RPD
<u>Analysis Name</u>	<u>%REC</u> <u>%REC</u>		<u>Limits</u>	<u>RPD</u>	MAX Conc			Conc		RI	D	Max
Batch number: 11292196902B	Sample	number(s	s): 6443046	5-6443	049 UNS	PK: P442	2077	BKG: P4	14207	7		
Chloride	101	95	90-110	4	20	8.2		8.3		2	(1)	20
Nitrate Nitrogen	101	91	90-110	10	20	N.D.		N.D.		0	(1)	20
Sulfate	103	98	90-110	5	20	2.1	J	2.1	J	4	(1)	20

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

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2-9- (-3	10/2/11	13:30		X		ア		Ď												
4-A-(-3	10/18/11	14:20		7		×		×												
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Type III (Reduced NJ) Site-specific (Type IV (CLP SOW) If yes indicate 0C sample	C (MS/MSD/Dup) and submit triplicate volume.)	? Yes No		Reli	inqu	ished	by:				Da	ate	Time	Recei	ived by	y:	/	D Ið	ate Iqlu	Tim 1 G

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Issued by Dept. 6042 Management 2102.05 Explanation of Symbols and Abbreviations

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RL N.D. TNTC IU	Reporting Limit none detected Too Numerous To Count International Units	BMQL MPN CP Units NTU	Below Minimum Quantitation Level Most Probable Number cobalt-chloroplatinate units nephelometric turbidity units
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
ug	microgram(s)	mg	milligram(s)
ml	milliliter(s)	I	liter(s)
m3	cubic meter(s)	ul	microliter(s)

- < less than The number following the sign is the <u>limit of quantitation</u>, the smallest amount of analyte which can be reliably determined using this specific test.
- > greater than
- J estimated value The result is \geq the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).
- **ppm** parts per million One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.
- ppb parts per billion
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- M Duplicate injection precision not met
- N Spike sample not within control limits
- **S** Method of standard additions (MSA) used for calculation
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- W Post digestion spike out of control limits
- * Duplicate analysis not within control limits
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Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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Laboratory Deliverables

Prepared For PARS Environmental Drum Bench Study

Lab ID Enhanced Reductive Dechlorination (ERD)

> Samples Received 27-Jul-11

> > Reported

7/27/11 to 8/12/11

NJDEP Certified Lab 11005

Precision testing for a cleaner environment.

Data Summaries

				CT	EPA SAN	MPLE NO.	
	V0	LATILE ORGANICS ANAL	YSIS DATA SHE	EI	=0 GW I	nitial Ev	
Lab Name:	NJAL		Contract: PAF	IS			
Lab Code:	DEP 1100	5 Case No.: Drum	SAS No.:	S	DG No.:		
Matrix: (soil/	water) V	VATER	Lab San	nple ID:	0000316 drum scre		
Sample wt/v	ol: 5	.0 (g/ml) ML	Lab File	ID:	S62409.D		
level: (low/r	med) I	OW/	Date Re	ceived:	07/27/11		
			Date ite		01/2//11		
% Moisture:	not dec.		Date An	alyzed:	07/27/11		
GC Column:	rt502.2-1	ID: 0.53 (mm)	Dilution	Factor:	1.0		
Soil Extract	Volume:	(uL)	Soil Aliq	uot Volu	me:	(uL	
		CC	NCENTRATION	UNITS:			
CAS NO	О.	COMPOUND (ug	µ/L or ug/Kg)	UG/L		Q	
75 74	0	Dishlass difulses as athe					
75-71	-8	Dichlorodifuloromethal	1e		2	<u> </u>	
74-87	-3	chloromethane			2	<u> </u>	
75-01	-4	Villyi chioride			2		
74-63	-9	bromomethane			2	0	
75-00	-3	chioroethane					
75-15	0				2		
1624	04.4			+	2		
79.02	2				<u> </u>		
67.64	1				5		
75.60		trichlarofluoromothona			2		
75-09					2		
75-35		T, T-dichloroethene					
156.6	<u>-2</u>	trans 1.2 dichlorootho			2		
75.34	-3				2	<u> </u>	
67-66	-3	chloroform		+	2		
108-1	0-1	MIBK			2	<u> </u>	
74-07	<u></u>	bromochloromethane			2	<u> </u>	
71-55	-6				2	<u> </u>	
56-23	-5	carbon tetrachloride			2	<u> </u>	
107-0	6-2	1 2-dichloroethane			2	<u> </u>	
71-43	-2	benzene			2	U	
79-01	-6	trichloroethene			4		
78-87	-5	1.2-dichloropropane			2	U	
156-5	9-4	cis-1,2-dichloroethene			2	U	
75-27	-4	bromodichloromethan	e		2	U	
10061	1-01-5	cis-1,3-dichloropropen	e		2	U	
108-8	8-3	toluene			2	U	
10061	1-02-6	trans-1,3-dichloroprop	ene		2	U	
591-7	'8-6	2-hexanone			5	U	
79-00	-5	1,1,2-trichloroethane			2	U	
127-1	8-4	tetrachloroethene			380		
124-4	8-1	dibromochloromethan	9		2	U	
108-9	0-7	chlorobenzene			2	U	
108-3	8-3	m/p-xylene			2	U	
95-47	-6	o-xylene			2	U	
100-4	2-5	styrene			2	U	
98-82	-8	isopropyl benzene			2	U	
75-25	-2	bromoform			2	U	

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				1A			-	EPA SA	MPLE	NO.
Lab Name:	NJAL	OLATILE	CRGAN	CS ANAL	Contract:	PARS	5	=0 GW	Initial	Eν
Lab Code:	DEP 110	005 0	Case No.:	Drum	SAS No	.:	S	DG No.:		
Matrix: (soil/w	vater)	WATER			La	b Sam	ole ID:	0000316	drum se	cre
Sample wt/vo	ol:	5.0	(g/ml)	ML	La	b File I	D:	S62409.0	0	
Level: (low/m	ned)	LOW			Da	te Rec	eived:	07/27/11		
% Moisture: r	not dec.				Da	te Ana	lyzed:	07/27/11		
GC Column:	rt502.2	2-1 ID:	0.53 (m	nm)	Dil	ution F	actor:	1.0		
Soil Extract V	/olume:		(uL)		So	il Aliqu	ot Volu	me:		(uL)
				CO	NCENTRA		INITS:			
CAS NO).	COM	IPOUND	(ug/	/L or ug/Kg)	L	JG/L		Q	
79-34-	5	1,1	,2,2-tetrac	hloroethar	ne			2	U	
541-73	3-1	1,3	-dichlorobe	enzene				2	U	
95-50-	1	1,2	-dichlorobe	enzene				2	U	
106-46	3-7	1,4	-dichlorobe	enzene				2	U	
120-82	2-1	1,2	,4-trichloro	benzene				2	U	
87-61-	6	1,2	,3-trichlord	benzene				2	U	

	,				EPA SA	MPLE NO.
1 . I. NI.	V	VOLATILE ORGANICS AI			NZ	Г24 C1
Lab Name:	NJAL		Contract: PA	R S	2)	
Lab Code:	DEP 110	005 Case No.: Drum	SAS No.:	S	DG No.:	
Matrix: (soil/	water)	WATER	Lab Sar	nple ID:	Ctrl T24-1	5d
Sample wt/v	ol:	1.0 (g/ml) ML	Lab File	ID:	TS62401	D
					1002101.	
Level: (low/i	med)	LOW	Date Re	eceived:	07/28/12	
% Moisture:	not dec.		Date Ar	alyzed:	07/29/11	
GC Column:	rt502.2	2-1 ID: 0.53 (mm)	Dilution	Factor:	5.0	
Soil Extract		()	Coll Alia			 (]
Soll Extract	volume:	(uL)	Soil Alic	juot volu	me:	(uL
	~		CONCENTRATION	UNITS:		
CAS NO	Э.	COMPOUND	(ug/L or ug/Kg)	UG/L		Q
75-71	-8	Dichlorodifuloromet	lhane		10	11
74-87	-3	chloromethane			10	<u> </u>
75-01	-4	vinvl chloride			10	U
74-83	-9	bromomethane			10	<u> </u>
75-00	-3	chloroethane			10	Ū
75-15	-0	carbon disulfide			10	Ū
75-65	-0	tert-butyl alcohol			10	U
1634-	04-4	MTBE			10	U
78-93	-3	MEK			25	U
67-64	-1	acetone			30	D
75-69	-4	trichlorofluorometha	ane	0	10	U
75-35	-4	1,1-dichloroethene			10	U
75-09	-2	methylene chloride			10	D
156-6	0-5	trans-1,2-dichloroe	thene		10	U
75-34	-3	1,1-dichloroethane			10	U
67-66	-3	chloroform			10	U
108-1	0-1	MIBK			10	U
74-97	-5	bromochlorometha	ne		10	U
71-55	<u>-6</u>	1,1,1-trichloroethan	le		10	<u> U </u>
56-23	-5	carbon tetrachloride	Э		10	0
107-0	6-2	1,2-dichloroethane			10	<u> </u>
71-43	-2	Denzene		<u>+</u>	10	
79-01	-0	1.2 dichloropropag			10	
76-13	-0	112-Trichloro-122-	e Frifluoroethane		10	U
01-20	-1	Nanthalene	Thiuoroethane		10	<u> </u>
79-20	-9	Methyl Acetate	- <u></u>		25	<u> </u>
110-8	2-7	Cyclohexane			10	<u> </u>
108-8	7-2	Methyl Cyclohexan	e	-	10	U U
156-5	9-4	cis-1.2-dichloroethe	ene		10	U
75-27	-4	bromodichlorometh	ane		10	U
10061	-01-5	cis-1,3-dichloropror	pene		10	U
108-8	8-3	toluene			10	U
10061	-02-6	trans-1,3-dichlorop	ropene		10	U
591-7	8-6	2-hexanone			25	U
79-00	-5	1,1,2-trichloroethan	e		10	U
124-4	8-1	dibromochlorometh	ane		380	D
127-1	8-4	tetrachloroethene			470	D
108-9	0-7	chlorobenzene			10	U

	VO					CT.	EPA SA	MPLE	NO.
Lab Name:	NJAL			Contra	ict: PAR	S	NZ	Г24 C1	
Lab Code:	DEP 1100	5 Cas	e No.: Drur	n SAS	No.:	S	DG No.:		
Matrix: (soil/w	vater) V	VATER			Lab Sam	ple ID:	Ctrl T24-1	5d	
Sample wt/vo	ol: 1	.0	(g/ml) ML		Lab File	ID:	TS62401.	D	
Level: (low/m	ned) L	.ow			Date Re	ceived:	07/28/12		
% Moisture: r	not dec.				Date An	alyzed:	07/29/11		
GC Column:	rt502.2-1	I ID: 0.5	3 (mm)		Dilution	Factor:	5.0	and a second	
Soil Extract V	olume:		(uL)		Soil Aliq	uot Volu	ime:		(uL)
		COMPC			RATION (Ka)	UNITS:		0	
CASINO	<i>.</i>	COMPC		(ug/L or ug/	Ny)	UG/L		Q	
108-38	3-3	m/p-x	/lene				10	U	
95-47-	6	o-xyle	ne				10	U	_
100-42	2-5	styren	e				10	U	
75-25-	2	bromo	form				10	U	
98-82-	8	isopro	pyl benzene				10	U	
79-34-	5	1,1,2,2	2-tetrachloro	ethane			10	U	
541-73	3-1	1,3-dic	chlorobenzei	ne			10	U	
95-50-	1	1,2-dic	chlorobenze	ne			10	U	
106-46	6-7	1,4-dic	chlorobenzei	ne			10	U	
120-82	!-1	1,2,4-t	richlorobenz	zene			10	U	
87-61-	6	1,2,3-t	richlorobenz	ene			10	U	

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VOLATILE ORGANICS ANALYSIS DATA SHEET EPA SAMPLE NO. TENTATIVELY IDENTIFIED COMPOUNDS

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		TENTP			JUNDS		N7 T24	C1
Lab Name:	NJAL			Contrac	: PARS		NZ 124	01
Lab Code:	DEP 11	005 (SAS	SAS No.: SD			a una e antidat dina	
Matrix: (soil/	water)	WATER		L	ab Sample	ID:	Ctrl T24-1 5d	
Sample wt/vo	ol:	1.0	(g/ml) ML	L	ab File ID:		TS62401.D	anatur et t
Level: (low/r	ned)	LOW		[Date Receive	ed:	07/28/12	
% Moisture:	not dec.			[Date Analyze	ed:	07/29/11	
GC Column:	rt502.	2-1 ID:	0.53 (mm)	[Dilution Fact	or:	5.0	
Soil Extract \	Volume:		(uL)		me:	(uL)		
Number TIC:	s found:	(CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L					
CAS NO.		COMP	OUND NAME		RT	ES	ST. CONC.	Q

	1A		EPA SA	MPLE NO.
N N	OLATILE ORGANICS ANALYSIS DAT	A SHEET		F24 C2
Lab Name: NJAL	Contract	PARS		24 62
Lab Code: DEP 11	005 Case No.: Drum SAS N	No.: 5	SDG No.:	
Matrix: (soil/water)	WATER L	ab Sample ID	: Ctrl T24-2	2 5d
Sample wt/vol:	1.0 (a/ml) Ml	ah File ID [.]	TS62402	D
			1002402.	
Level: (low/med)	LOW	Date Received:	: 07/28/12	
% Moisture: not dec.	C	Date Analyzed:	07/29/11	
GC Column: rt502.	2-1 ID: 0.53 (mm) E	Dilution Factor:	5.0	
Soil Extract Volume:	(III.) S	Soil Aliquet Vel	umo.	(uL)
Soli Extract volume.	(UL) 3		ume	(uc)
	CONCENTR	ATION UNITS		
CASNO				0
CAS NO.		9) 00/L		S.
75-71-8	Dichlorodifuloromethane		10	U
74-87-3	chloromethane		10	U
75-01-4	vinyl chloride		10	U
74-83-9	bromomethane		10	U
75-00-3	chloroethane		10	U
75-15-0	carbon disulfide		10	U
75-65-0	tert-butyl alcohol		10	U
1634-04-4	MTBE		10	U
78-93-3	MEK		25	U
67-64-1	acetone		25	JD
75-69-4	trichlorofluoromethane		10	U
75-35-4	1,1-dichloroethene		10	
75-09-2	methylene chloride		10	0
156-60-5	trans-1,2-0ichioroethene		10	<u> </u>
10-04-0			10	0
108.10.1	MIRK		10	
74-97-5	bromochloromethane		10	<u> </u>
71-55-6	1 1 1-trichloroethane		10	Ŭ
56-23-5	carbon tetrachloride		10	Ū
107-06-2	1,2-dichloroethane		10	U
71-43-2	benzene		10	U
79-01-6	trichloroethene		10	U
78-87-5	1,2-dichloropropane		10	U
76-13-1	112-Trichloro-122-Trifluoroethan	e	10	U
91-20-3	Napthalene		10	U
79-20-9	Methyl Acetate		25	U
110-82-7	Cyclohexane		10	U
108-87-2	Methyl Cyclohexane		10	
156-59-4			10	U
10061 01 5			10	
10001-01-5	toluene		10	
100-00-0	trans-1 3-dichloropropene		10	U U
591-78-6	2-hexanone		25	U
79-00-5	1.1.2-trichloroethane	<u> </u>	10	Ŭ
124-48-1	dibromochloromethane		380	D
127-18-4	tetrachloroethene		460	D D

chlorobenzene

108-90-7

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Lab Name: NJAL	VOLATILE ORGANICS ANAL	YSIS DATA SHEET Contract: PARS	NZ T24 C					
Lab Code: DEP 1	1005 Case No.: Drum	SAS No.: S	DG No.:					
Matrix: (soil/water)	WATER	Lab Sample ID:	Ctrl T24-2	5d				
Sample ut/vol:	1.0 (a/ml) MI		TS624021					
Sample wivol.	1.0 (g/m) ML	Lab Flie ID:	1502402.1	<u>U</u>				
Level: (low/med)	LOW	Date Received:	07/28/12					
% Moisture: not dec		Date Analyzed:	07/29/11					
GC Column: rt502	2.2-1 ID: 0.53 (mm)	Dilution Factor:	5.0					
Soil Extract Volume:		Soil Aliquot Volu	ime:		(uL)			
	<u> </u>							
	COL	ICENTRATION UNITS:						
CAS NO.	COMPOUND (ug/	L or ug/Kg) UG/L		Q				
108-38-3	m/p-xylene		10	U				
95-47-6	o-xylene		10	U	_			
100-42-5	styrene		10	U				
75-25-2	bromoform		10	U				
98-82-8	isopropyl benzene		10	U				
79-34-5	1,1,2,2-tetrachloroethan	le	10	U	_			
541-73-1	1,3-dichlorobenzene		10	U				
95-50-1	1,2-dichlorobenzene		10	U				
106-46-7	1,4-dichlorobenzene		10	U				
120-82-1	1,2,4-trichlorobenzene		10	U				
87-61-6	1,2,3-trichlorobenzene		10	U				

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

		IENI	ATIVELTIDENTIFIE	DCOMPOUNDS		c2		
Lab Name:	NJAL		1919 1919 1923 - 1919 - 1919 - 1919 - 1919 - 1919 - 1919 - 1919 - 1919 - 1919 - 1919 - 1919 - 1919 - 1919 - 191	Contract: PARS	INZ 124	C2		
Lab Code:	DEP 11	005	Case No.: Drum	SAS No.: S	DG No.:			
Matrix: (soil/v	water)	WATE	R	Lab Sample ID:	Ctrl T24-2 5d			
Sample wt/vo	ol:	1.0	(g/ml) ML	Lab File ID:	TS62402.D			
Level: (low/r	ned)	LOW		Date Received:	07/28/12			
% Moisture:	not dec.		·	Date Analyzed:	07/29/11	n n. ma		
GC Column:	rt502.	2-1 ID:	0.53 (mm)	Dilution Factor:	5.0			
Soil Extract \	/olume:		(uL)	Soil Aliquot Volu	ume:	(uL)		
Number TIC:	s found:	0	CC (uç	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L				
CAS NO.		СОМ	POUND NAME	RT E	ST. CONC.	Q		

				1A			ICCT	EPA SA	MPLE NO	Э.
			VOLA	FILE ORGANICS	ANALYSIS	DATAS		NZ	Г24 C3	
Lab Na	ame:	NJAL		- Apple 19 has been about the same apple top the	Con	tract: P	ARS			
Lab Co	ode:	DEP 1	1005	Case No.: Dru	um S	AS No.:	S	DG No.:		-
Matrix:	(soil/v	water)	WAT	ER		Lab S	ample ID:	Ctrl T24-3	5d	
Sample	e wt/v	ol.	1.0	(a/ml) M	L	Lab F	ile ID:	TS62403.	 D	_
u an pr	()			(9,111)		Dete		07/09/40		
Level:	(low/r	ned)	LOV	/		Date	Received:	07/28/12		
% Mois	sture:	not dec.				Date	Analyzed:	07/29/11		
GC Co	olumn:	rt502	.2-1 [[D: 0.53 (mm)		Dilutio	n Factor:	5.0		
Soil Ex	vtract \	/oluma:		(uL)		Soil A	liquot Volu	ime:	(ω Y
	(llact)	olume.		(UL)		50ii A			(uL)
					CONCEN					
C	AS NO	`	C						0	
C	ASINC).	C	OWFOUND	(ug/L of t	iy/ng)	00/L		Q	
	75-71	-8		Dichlorodifuloron	nethane			10	U	
	74-87	-3		chloromethane				10	U	
	75-01	-4		vinyl chloride				10	U	
	74-83	-9		bromomethane				10	U	
	75-00	-3		chloroethane				10	U	
	75-15	-0		carbon disulfide			_	10	U	
	75-65	-0		tert-butyl alcohol				10	U	
	1634-	04-4		MTBE				10	U	_
	78-93	- <u>3</u>		MEK				25	<u> </u>	_
	67-64	-1		acetone				25	<u>D</u>	4
-	75-69	-4		trichlorofluorome	thane			10	<u> </u>	-
_	75-35	-4		1,1-dichloroether	<u>ne</u>			10	<u> </u>	-
	75-09	-2		methylene chlori	de			10	<u> </u>	_
	156-6	0-5		trans-1,2-dichlor	oethene			10	<u> </u>	_
-	15-34	-3		1,1-dichioroethal	ne			10		-
-	100 1	-3		MIRK				10		-
-	74 07	5		bromachlaramet	hano			10	<u> </u>	-
	71-55	-5		1 1 1-trichloroeth				10	<u> </u>	-
	56-23	-5		carbon tetrachlo	ride			10	<u> </u>	-
	107-0	6-2		1.2-dichloroetha	ne			10	Ŭ	1
	71-43	-2		benzene				10	Ū	1
	79-01	-6		trichloroethene				10	U	1
	78-87	-5		1,2-dichloroprop	ane			10	U	7
	76-13	-1		112-Trichloro-12	2-Trifluoroe	thane		10	U	
	91-20	-3	_	Napthalene				10	U	
	79-20	-9		Methyl Acetate				25	U	
	110-8	2-7		Cyclohexane		-		10	U	_
-	108-8	7-2		Methyl Cyclohex	ane			10	<u> U </u>	
	156-5	9-4		cis-1,2-dichloroe	thene			10	U	_
	75-27	-4		bromodichlorom	ethane			10	U	_
	10061	-01-5		cis-1,3-dichlorop	ropene			10	U	-
	108-8	8-3		toluene				10	U U	-
-	10061	-02-6		trans-1,3-dichlor	opropene			10		-
	70.00	<u>6-0</u>		2-nexanone				25	<u> </u>	-
	124 4	-0 Q 1		dibromochloroetr	athana			280		-
	124-4	0-1 8_4		tetrachloroethon				460		-
1	121-1	U- 1		le la achioi de li en	0			+00	<u> </u>	

						EPA SA	MPLE	NO.
Lab Name:	VOL⁄ NJAL	ATTLE ORGANICS A	Contract	A SHEET		NZ	Г24 C3	
Lab Code:	DEP 11005	Case No.: Drur	n SAS N	ło.:	SDG	No.:		
Matrix: (soil/w	vater) WA	TER	L	ab Sample I	D: C	trl T24-3	3 5d	
Sample wt/vc	1.0	(a/ml) Ml	-	ah Eile ID:	т. Т	\$62403		
Sample wood	л. <u>1.0</u>	(g/iii) <u>ML</u>		au i lie iu.		502405.	<u> </u>	
Level: (low/n	ned) LO	W	C	ate Receive	d: 0	7/28/12		
% Moisture: r	not dec.		C	ate Analyze)	d: 0	7/29/11		
GC Column:	rt502.2-1	ID: 0.53 (mm)	C	ilution Facto	or: 5.	.0		
Soil Extract V	/olume:	(uL)	S	Soil Aliquot V	olume	9:		(uL)
			CONCENTR/	ATION UNIT	S:			
CAS NO).	COMPOUND	(ug/L or ug/K	g) <u>UG/L</u>			Q	
108-38	3-3	m/p-xylene				10	U	
95-47-	6	o-xylene				10	U	
100-42	2-5	styrene				10	U	
75-25-	2	bromoform				10	U	
98-82-	8	isopropyl benzene				10	U	
79-34-	5	1,1,2,2-tetrachloro	ethane			10	U	
541-73	3-1	1,3-dichlorobenze	ne			10	U	
95-50-	.1	1,2-dichlorobenze	ne			10	U	
106-46	6-7	1,4-dichlorobenze	ne			10	<u> </u>	_
120-82	2-1	1,2,4-trichloroben:	zene			10	<u> </u>	_
87-61-	-6	1,2,3-trichlorobena	zene			10	U	

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VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

		TENTATIVELTIDENTIFIED COMPOUNDS						
Lab Name:	NJAL			Contract: PARS		NZ 124 C	3	
Lab Code:	DEP 11	005	Case No.: Drum	SAS No.:	SDG N	0.:		
Matrix: (soil/	water)	WATE	R	Lab Sample ID	Ctrl T	⁻ 24-3 5d		
Sample wt/v	ol:	1.0	(g/ml) ML	Lab File ID:	TS62	2403.D	27 a	
Level: (low/r	ned)	LOW	uuuuuuuuu kuuu	Date Received	1: 07/28	3/12	afts	
% Moisture:	not dec.			Date Analyzed	: 07/29	9/11		
GC Column:	rt502.	2-1 ID:	0.53 (mm)	Dilution Factor	5.0		_	
Soil Extract	Volume:		(uL)	Soil Aliquot Vo	lume:		(uL)	
Number TIC:	s found:	C)	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L				
CAS NO.		СОМ	POUND NAME	RT	EST. CO	DNC.	Q	

		1A		EPA SA	MPLE NO.
	\	VOLATILE ORGANICS ANALY	SIS DATA SHEET	NZ T2	24 .5g-1
Lab Name:	NJAL		Contract: PARS		
Lab Code:	DEP 11	005 Case No.: Drum	SAS No.: S	SDG No.:	
Matrix: (soil/	water)	WATER	Lab Sample ID:	0.5g/I T24	-1 5d
Sample wt/w	ol·	10 (g/ml) MI	l ah Eile ID:	TS62404	D
	JI.			1302404.	
Level: (low/r	ned)	LOW	Date Received:	07/28/12	
% Moisture:	not dec.		Date Analyzed:	07/29/11	
GC Column:	rt502.	2-1 ID: 0.53 (mm)	Dilution Factor:	5.0	
	/al				(
Soll Extract	volume:	(UL)	Soll Aliquot Vol	ume:	(uL)
		CO			
	-		ICENTRATION UNITS:		<u>^</u>
CAS NO	Э.	COMPOUND (ug/L	or ug/Kg) UG/L		Q
75-71	8	Dichlorodifuloromothana		10	11
74-87	-3	chloromethane		10	<u>U</u>
75-01	-4	vinvl chloride		10	<u> </u>
74-83	-9	bromomethane		10	<u> </u>
75-00	-3	chloroethane		10	U U
75-15	-0	carbon disulfide		10	Ū
75-65	-0	tert-butyl alcohol		10	U
1634-0	04-4	MTBE		10	U
78-93	-3	MEK		25	U
67-64	-1	acetone		89	D
75-69	-4	trichlorofluoromethane		10	U
75-35	-4	1,1-dichloroethene		10	U
75-09	-2	methylene chloride		13	D
156-6	0-5	trans-1,2-dichloroethene)	10	U
75-34	-3	1,1-dichloroethane		10	U
67-66	-3	chloroform		10	<u> </u>
108-10	0-1	MIBK		10	<u> U </u>
74-97	-5	bromochloromethane		10	<u> </u>
71-55	-6	1,1,1-trichloroethane		10	<u> </u>
56-23	-5	carbon tetrachloride		10	<u> </u>
71 42	2	1,2-dichloroethane		10	<u> </u>
71-43	6	trichloroethono		10	<u> </u>
79-01-	-0			10	<u> </u>
76-13	-1	112-Trichloro-122-Trifluc	proethane	10	
91-20	-3	Napthalene		10	<u> </u>
79-20-	-9	Methyl Acetate		25	- Ŭ
110-82	2-7	Cyclohexane		10	U
108-8	7-2	Methyl Cyclohexane		10	U
156-59	9-4	cis-1,2-dichloroethene		10	U
75-27	-4	bromodichloromethane		10	U
10061	-01-5	cis-1,3-dichloropropene		10	U
108-8	8-3	toluene		10	U
10061	-02-6	trans-1,3-dichloroproper	1e	10	U
591-78	8-6	2-hexanone		25	U
79-00-	-5	1,1,2-trichloroethane		10	U
124-4	8-1	dibromochloromethane		410	D
127-1	5-4	tetrachloroethene		520	<u>D</u>
108-90	0-7	chlorobenzene		10	U

		1A	EPA SAMPLE NO.					
Lab Name:	NJAL	ATTLE ORGANICS	Contrac	ta sheet		NZ T2	24 .5g-′	1
Lab Code:	DEP 11005	Case No.: Dru	im SAS	No.:	SE	G No.:		
Matrix: (soil/v	vater) W	ATER	999 - 1999 - - 1	Lab Sample	ID:	0.5g/I T24	-1 5d	19 / Aufo
Sample wt/vo	ol: 1.0) (a/ml) Ml	_	Lab File ID:	-	TS62404.	D	
Level: (low/n	ned) IC	ν		Date Receiv	ed.	07/28/12		
0/ Mainturo					od.	07/20/14		
% Moisture: r				Date Analyzo	ea:	07/29/11		
GC Column:	rt502.2-1	ID: 0.53 (mm)		Dilution Fact	or:	5.0		
Soil Extract V	/olume:	(uL)		Soil Aliquot	Volun	ne:		(uL)
			CONCENTE	RATION UNI	TS:			
CAS NO	D.	COMPOUND	(ug/L or ug/ł	(g) <u>UG</u> /	L		Q	
108-38	3-3	m/p-xylene				10	U	
95-47-	6	o-xylene				10	U	
100-42	2-5	styrene				10	U	
75-25-	2	bromoform				10	U	
98-82-	8	isopropyl benzen	e			10	<u>U</u>	
79-34-	-5	1,1,2,2-tetrachlor	oethane			10	U	
541-73	541-73-1 1,3-dichlorobenzene		ene			10	U	
95-50-	<u>.1</u>	1,2-dichlorobenz	ene			10	U	
106-46	5-7	1,4-dichlorobenz	ene			10	<u> </u>	_
120-82	2-1	1,2,4-trichlorober	izene			10	<u> </u>	
87-61-	6	87-61-6 1,2,3-trichlorobenzen				10	- U	

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

		IENI	ATIVELY IDENT	IFIED COMP	JOUNDS			
Lab Name:	NJAL			Contra	ct: PARS		NZ 124.5	.g-1
Lab Code:	DEP 11	005	Case No.: Drur	n SAS	No.:	S	DG No.:	
Matrix: (soil/w	/ater)	WATE	۲		Lab Sample	e ID:	0.5g/l T24-1 5	d
Sample wt/vo	l:	1.0	(g/ml) ML		Lab File ID	:	TS62404.D	-
Level: (low/m	ned)	LOW	~		Date Recei	ved:	07/28/12	
% Moisture: n	not dec.				Date Analy	zed:	07/29/11	
GC Column:	rt502.2	2-1 ID:	0.53 (mm)		Dilution Fa	ctor:	5.0	
Soil Extract V	olume:		(uL)		Soil Aliquot	t Volu	ume:	(uL)
Number TICs	found:	0		CONCENTI (ug/L or ug/	RATION UN Kg) UG	NTS: B/L		
CAS NO.		COMP			RT	E	ST. CONC.	Q

		1A		EPA SA	MPLE NO.
		VOLATILE ORGANICS ANALY	SIS DATA SHEET	NZ T	24 .5g-2
Lab Name:	NJAL		Contract: PARS		· _
Lab Code:	DEP 11	005 Case No.: Drum	SAS No.:	SDG No.:	
Matrix: (soil/	water)	WATER	Lab Sample II	D: 0.5g/I T24	-2 5d
Sample wt/v	ol.	1.0 (a/ml) MI	Lah File ID:	TS62405	D
				1002400.	
Level: (low/i	med)	LOW	Date Receive	d: 07/28/12	
% Moisture:	not dec.		Date Analyze	d: 07/29/11	
GC Column:	rt502.	2-1 ID: 0.53 (mm)	Dilution Facto	r: 5.0	
Soil Extract	Volume:	(ul.)	Soil Aliquot V	olume:	 (ul.)
	volume.	(dL)			
		CON	CENTRATION UNIT	S:	
CAS NO	Э.	COMPOUND (ug/l	or ua/Ka) UG/L		Q
					-
75-71	-8	Dichlorodifuloromethane)	10	U
74-87	-3	chloromethane		10	U
75-01	-4	vinyl chloride		10	U
74-83	-9	bromomethane		10	U
75-00	-3	chloroethane		10	U
75-15	-0	carbon disulfide		10	U
75-65	-0	tert-butyl alcohol		10	U
1634-	04-4	MIBE		10	<u> </u>
78-93	-3	MEK		25	0
67-64	-1			93	<u> </u>
75-09	-4	tricniorofiuoromethane		10	0
75-35	-4			10	
156-6	<u>-2</u>	trans_1.2-dichloroethene	<u> </u>	10	
75-34	-3			10	
67-66	-3	chloroform		10	<u> </u>
108-1	0-1	MIBK		10	<u> </u>
74-97	-5	bromochloromethane		10	Ŭ
71-55	-6	1,1,1-trichloroethane		10	U
56-23	-5	carbon tetrachloride		10	U
107-0	6-2	1,2-dichloroethane		10	U
71-43	-2	benzene		10	U
79-01	-6	trichloroethene		10	U
78-87	-5	1,2-dichloropropane		10	U
_ 76-13	-1	112-Trichloro-122-Triflu	oroethane	10	U
91-20	-3	Napthalene		10	U
79-20	-9	Methyl Acetate		25	U
110-8	2-7	Cyclohexane		10	U
108-8	7-2	Methyl Cyclohexane		10	<u> </u>
75.07	9-4	cis-1,2-dichlosomethene		10	U
10061	-+	cis_1 3-dichloropropage		10	
108-9	8-3	toluene		10	<u> </u>
100-0	1-02-6	frans-1 3-dichloroproper	he	10	<u> </u>
591-7	8-6	2-hexanone		25	ŭ
79-00	-5	1.1.2-trichloroethane		10	Ŭ
124-4	8-1	dibromochloromethane		390	D
127-1	8-4	tetrachloroethene		490	D
108-9	0-7	chlorobenzene		10	U

						EPA SA	MPLE	NO.
Lab Name: N	JAL	TILE ORGANIC	S ANALYS	ontract: PA	RS	NZ T2	24 .5g-2	2
Lab Code: D	EP 11005	Case No.: D	rum	SAS No.:	S	DG No.:		
Matrix: (soil/wat	ter) WA	TER		Lab Sa	mple ID:	0.5g/I T24	-2 5d	
Sample wt/vol:	1.0	(a/ml)	ИL	Lab File	e ID:	TS62405.	D	
Level: (low/me	d) (O)	(3) <u>·</u>		Date R	eceived [.]	07/28/12		
% Maiatura: pat		· · · · · · · · · · · · · · · · · · ·				07/20/12		
% woisture: not	dec.			Date A	nalyzed:	07/29/11		
GC Column:	rt502.2-1	D: 0.53 (mm	ו)	Dilutior	Factor:	5.0		
Soil Extract Vol	ume:	(uL)		Soil Ali	quot Volu	me:		(uL)
			00110					
			CONC	ENTRATION	IUNITS:			
CAS NO.		COMPOUND	(ug/L c	r ug/Kg)	UG/L		Q	
108-38-3		m/p-xylene				10	U	
95-47-6		o-xylene				10	U	
100-42-5		styrene			_	10	U	
75-25-2		bromoform				10	U	
98-82-8		isopropyl benze	ene			10	U	
79-34-5		1,1,2,2-tetrachl	oroethane			10	U	
541-73-1		1,3-dichloroben	izene			10	<u> </u>	
95-50-1		1,2-dichloroben	zene			10	<u> </u>	
106-46-7		1,4-dichlorober	zene			10	U	_
120-82-1		1,2,4-trichlorob	enzene		-	10	<u> </u>	
87-61-6		1,2,3-trichlorob	enzene			_10	U	

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

		TENTATIVELY IDENTIFIED COMPOUNDS				17 704 5	
Lab Name:	NJAL			Contract	PARS	NZ 124 .5g	J-2
Lab Code:	DEP 11	005	Case No.: Drum	SAS N	lo.:	SDG No.:	
Matrix: (soil/w	vater)	WATE	۲	L	ab Sample ID): 0.5g/l T24-2 5d	
Sample wt/vo	ol:	1.0	(g/ml) ML	un i 17 million	ab File ID:	TS62405.D	_
Level: (low/n	ned)	LOW		D	ate Received	d: 07/28/12	_
% Moisture: r	not dec.			D	ate Analyzed	1: 07/29/11	-
GC Column:	rt502.2	2-1 ID:	0.53 (mm)	D	ilution Factor	r: 5.0	Tank .
Soil Extract V	/olume:	- F	(uL)	S	oil Aliquot Vo	olume:	(uL)
				CONCENTRA	ATION UNITS	S:	
Number TICs	s found:	0		(ug/L or ug/K	g) UG/L		
CAS NO.		COMF	POUND NAME		RT	EST. CONC.	Q

VOL			1A ATILE ORGANICS ANALYSIS DATA SHEET			EPA SA	EPA SAMPLE NO.		
						NZ T24 .5-3			
Lab Name:	NJAL			Contract: PAR	S	_	_		
Lab Code:	DEP 110	005	Case No.: Drum	SAS No.:	S	DG No.:			
Matrix: (soil/v	water)	WAT	ER	Lab San	ple ID:	0.5g/I T24	-3 5d		
Sample wt/vo	ol:	10	(a/ml) MI	l ab File		TS62406		nero o stat	
Sample wi/vol:		1.0 (g/mi) ML			Lab File ID.				
Level: (low/med)		LOW		Date Re	Date Received:				
% Moisture: not dec.				Date An	Date Analyzed:				
GC Column: rt502.		2-1 1	D: 0.53 (mm)	Dilution	Dilution Factor: 5				
Soil Extract \	Volume:		(uL)	Soil Alia	uot Volu	me:		(uL	
						men og 4- 1		(
			CC	NCENTRATION	UNITS:				
CAS NO) .	C	OMPOUND (uc	ı/L or ua/Ka)	UG/L		Q		
			(43	, - 0. (g, . (g)		L.s.	~		
75-71-	-8		Dichlorodifuloromethar	ne		10	U		
74-87-	-3		chloromethane			10	U		
75-01-	-4		vinyl chloride			10	U		
74-83-	74-83-9		bromomethane			10	U		
75-00-	75-00-3		chloroethane			10	U		
75-15-	75-15-0		carbon disulfide			10	U		
75-65-	75-65-0		tert-butyl alcohol			10	<u>U</u>		
1634-0	1634-04-4		MTBE		 	10	<u>U</u>		
<u>78-9</u> 3-	78-93-3		MEK			25	U		
67-64-	67-64-1		acetone			92	D		
75-69-	75-69-4		trichlorofluoromethane			10	U		
75-35-	75-35-4		1,1-dichloroethene			10	<u> </u>		
75-09-	75-09-2 156-60-5		methylene chloride			12	<u>D</u>		
156-60			trans-1,2-dichloroether	ne	<u> </u>	10	<u> </u>		
75-34-	75-34-3		1,1-dichloroethane				<u> </u>		
07-00-	67-66-3						<u> </u>	_	
74.07	108-10-1		MIBK			10	<u> </u>	_	
74-97-	71.55.6		Dromocniorometnane			10	<u> </u>	_	
56.23	71-55-0		corbon totrachlorida				<u> </u>	-	
107_06	107-06-2		1 2 dichloroethane				<u> </u>	_	
71-43-	71-43-2		henzene					_	
79-01-	79-01-6		trichloroethene			10	<u> </u>		
78-87-	78-87-5		1.2-dichloropropane			10	<u> </u>		
76-13-	76-13-1		112-Trichloro-122-Trifl		thane		<u> </u>		
91-20-	91-20-3		Napthalene				<u> </u>		
79-20-	79-20-9		Methyl Acetate			25	U	-	
110-82	110-82-7		Cyclohexane			10	U	_	
108-87	108-87-2		Methyl Cyclohexane			10	U		
156-59	156-59-4		cis-1,2-dichloroethene			10	U		
75-27-	75-27-4		bromodichloromethane				Ų		
10061	10061-01-5		cis-1,3-dichloropropene			10	U		
108-88	3-3		toluene			10	U		
10061	-02-6		trans-1,3-dichloropropene			10	U		
591-78	3-6		2-hexanone				Ų		
79-00-	.5		1,1,2-trichloroethane			10	U		
124-48	3-1		dibromochloromethane)		380	D		
127-18	3-4		tetrachloroethene			480	D		
108-90	J-7		chlorobenzene		İ	10	U		

							EPA SAMPLE NO.		
Lab Name:	NJAL	Contract: PARS			NZ	NZ T24 .5-3			
Lab Code:	DEP 1100)5 Case No.: D	rum SAS	No.:	SDG No.:				
Matrix: (soil/v	vater) V	VATER	and a constant of a constant	Lab Sample I	D: 0.5g/I T24	4-3 5d			
Sample wt/vol: 10		.0 (a/ml) [(o/ml) ML Lab File I		TS62406.D				
		OW.			d: 07/28/12				
				Date Analyze	d: 07/20/11				
% MOISTURE.					u. <u>07723711</u>				
GC Column:	rt502.2-	1 ID: 0.53 (mn	n)	Dilution Facto	or: 5.0				
Soil Extract Volume: (uL)				Soil Aliquot Volume:					
					•				
			CONCENT	RATION UNIT	S:				
CAS NO) .	COMPOUND	(ug/L or ug/	Kg) UG/L		Q			
108-38	3-3	m/p-xylene			10	U			
95-47-	6	o-xylene			10	U			
100-42	2-5	styrene			10	U			
75-25-	2	bromoform			10	U	_		
98-82-	.8	isopropyl benze	ene		10	U			
79-34-5		1,1,2,2-tetrachl	1,1,2,2-tetrachloroethane		10	U			
541-73-1		1,3-dichlorober	1,3-dichlorobenzene		10	U			
95-50-	.1	1,2-dichlorober	nzene		10	U			
106-46-7		1,4-dichlorober	1,4-dichlorobenzene			U			
120-82	2-1	1,2,4-trichlorob	enzene		10	U			
87-61-	-6	1,2,3-trichlorob	enzene		10	U			

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

		IENI	ATTVELY IDENT	IFIED COMP	JUNDS					
Lab Name:	NJAL			Contrac	Contract: PARS			-3		
Lab Code: DEP 11005 C			Case No.: Drum SA		S No.: S		DG No.:			
Matrix: (soil/v	vater)	WATE	R	l	_ab Sample	ID:	0.5g/l T24-3 5d			
Sample wt/vo	ol:	1.0	(g/ml) ML	- 1 (2000) 2 1 1 2 2 4	_ab File ID:		TS62406.D			
Level: (low/med) LOW			ſ	Date Receive	ed:	07/28/12				
% Moisture: not dec.				ſ	Date Analyzed: 07/29/11					
GC Column: rt502.2-1 ID: 0.53 (mm)				ſ	Dilution Factor: 5.0					
Soil Extract Volume:			(uL) Soil Aliquot Volum		me:	(uL)				
Number TICs found: 0				CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L						
CAS NO.		сом	POUND NAME		RT	ES	T. CONC.	Q		
	,		1/	A				EPA S	AMPLE I	NO.
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Lab Name:	NJAL	VOLATII	LE ORGANICS	SANALY:	SIS DATA	PAR	EI S	NZ	T24 1g-1	,
Lob Codo:		005			SAS N					
Lap Code:	DEP II	005	Case No Dr	um	545 N	J	3	DG NO.:		
Matrix: (soil/	water)	WATE	R		La	ib Sarr	ple ID:	1.0g/I T2	24-1 5d	
Sample wt/v	ol:	1.0	(g/ml) M	۱L	La	ıb File	ID:	TS6240	7.D	
Level: (low/i	med)	LOW			Da	ate Re	ceived:	07/28/12	2	
% Moisture:	not dec.				Da	ate Ana	alyzed:	07/29/1	1	
GC Column:	rt502.	2-1 ID:	0.53 (mm)	Di	lution I	Factor	50		
Soil Extract	Volume		(ul.)	,	Sc		int Volu	mo		(11)
	volume.		(uc)		00				· · · · · · · · · · · · · · · · · · ·	(uL)
				CON						
CASN	0	<u> </u>		(10/1					0	
CAS NO	J.		MPOUND	(ug/L	or ug/ng)	UG/L		Q	
75-71	-8	D	ichlorodifuloror	methane				10	U	
74-87	-3	cl	nloromethane					10	Ū	_
75-01	-4	vi	nyl chloride					10	U	
74-83	-9	bi	romomethane			_		10	U	\neg
75-00	-3	cl	nloroethane					10	U	
75-15	-0	Ca	arbon disulfide					10	U	
75-65	-0	te	rt-butyl alcoho					10	U	
1634-	04-4	M	TBE					10	U	
78-93	-3	M	IEK					25	U	
67-64	-1	a	<u>cetone</u>		_			100	D	
75-69	-4	tr	ichlorofluorome	ethane	_			10	U	
75-35	-4	1	,1-dichloroethe	ne				10	U	
75-09	-2	m	ethylene chlor	ide	· · · -			14	D	
156-6	0-5	tr	ans-1,2-dichlor	roethene				10	U	_
75-34	-3	1	1-dichloroetha	ne				10	U	_
67-66	-3	c	loroform					10	<u> </u>	_
108-1	0-1	N	IBK					10	U	_
74-97	-5	DI	romochloromet	thane				10	<u> </u>	_
/1-55	-6	1	1,1-trichloroeti	nane				10		
107.0	- <u> </u>		arbon tetrachio					10		_
71 43	0-2		2-dichioroeina	ine				10		
70-01	<u>-2</u>	tr	ichloroethene					10		_
78-87		1	2-dichloropron	ane				10	<u> </u>	
76-13	-1	1,	12-Trichloro-12	2-Trifluo	roethane			10	<u> </u>	-
91-20	-3	N	apthalene	2 111100	localiane			10		-
79-20	-9	M	ethyl Acetate			_		25	U U	
110-8	2-7	C	vclohexane					10	Ū	
108-8	7-2	M	ethyl Cyclohe	kane				10	U	_
156-5	9-4	ci	s-1,2-dichloroe	ethene				10	U	
75-27	-4	bi	romodichlorom	ethane				10	U	
10061	1-01-5	ci	s-1,3-dichlorop	propene				10	U	
108-8	8-3	to	luene					10	U	
10061	-02-6	tr	ans-1,3-dichlor	opropene	е			10	U	
591-7	8-6	2	hexanone					25	U	
79-00	-5	1,	1,2-trichloroet	hane		<u> </u>		10	U	
124-4	8-1	di	bromochlorom	ethane		•	ļ	290	D	
127-1	8-4	te	trachloroethen	e	Autor			360	D	
108-9	0-7	c	nlorobenzene					10	U	

	V			1A			IEET	EPA SA	MPLE	NO.
Lab Name:	NJAL	OLATI		ICS A	Con	tract: PA		NZ T	24 1g-1	1
Lab Code:	DEP 110	05	Case No.:	Drum	n S	AS No.:	S	DG No.:		
Matrix: (soil/v	vater)	WATE	R			Lab Sa	ample ID:	1.0g/l T24	I-1 5d	
Sample wt/vo	ol:	1.0	(g/ml)	ML		Lab Fi	le ID:	TS62407.	D	
Level: (low/n	ned)	LOW	(0)			Date F	Received:	07/28/12		
% Moisture: r	not dec.					Date A	analyzed:	07/29/11		
GC Column	rt502.2	-1 ID·	0.53 (n	nm)		Dilutio	n Factor:	5.0		
Soil Extract V	/olume:		(uL)	,		Soil Al	iquot Volu	me:	·	(uL)
	-		()							()
					CONCE	NTRATIO	N UNITS:			
CAS NC).	CO	MPOUND		(ug/L or u	ug/Kg)	UG/L		Q	
108-38	3-3	m	/p-xylene					10	U	
95-47-	6	0.	xylene					10	U	
100-42	2-5	st	yrene					10	U	
75-25-	2	b	romoform			_		10	U	
98-82-	8	is	opropyl ben	zene				10	U	
79-34-	5	1	1,2,2-tetrac	hloroe	ethane			10	U	
541-73	3-1	1,	3-dichlorob	enzer	e			10	U	
95-50-	1	1	2-dichlorob	enzer	e			10	U	
106-46	6-7	1	4-dichlorob	enzer	ie			10	U	
120-82	2-1	1	2,4-trichloro	obenz	ene			10	U	
87-61-	6	1	2,3-trichloro	obenz	ene			10	U	

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. _____

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		TENT	ATTVELYIDENT	IFIED COMPO	JUNDS			
Lab Name:	NJAL			Contrac	t: PARS	_	NZ 124 1g	-1
Lab Code:	DEP 11	005	Case No.: Drun	n SAS I	No.:	S	DG No.:	1111 1 at all 1
Matrix: (soil/v	vater)	WATE	R	l	_ab Sample	ID:	1.0g/l T24-1 5d	
Sample wt/vo	ol:	1.0	(g/ml) ML	L	ab File ID:		TS62407.D	
Level: (low/r	ned)	LOW		[Date Receiv	ed:	07/28/12	_
% Moisture:	not dec.			[Date Analyz	ed:	07/29/11	_
GC Column:	rt502.2	2-1 ID:	0.53 (mm)	[Dilution Fact	tor:	5.0	_
Soil Extract \	/olume:		(uL)	S	Soil Aliquot V	Volu	me:	(uL)
Number TIC:	s found:	0		CONCENTR (ug/L or ug/K	ATION UNI (g) UG/	TS: L		
CAS NO.		СОМ			RT	ES	ST. CONC.	Q

VOLATILE ORGANICS ANALYSIS DATA SHEET NZ T24 1g-2 .ab Name: NJAL Contract: PARS .ab Code: DEP 11005 Case No.: Drum SAS No.: SDG No.: .ab Code: DEP 11005 Case No.: Drum SAS No.: SDG No.: .ab Code: DEP 11005 Case No.: Drum SAS No.: SDG No.: .ab Code: UC (g/ml) ML Lab Sample UD: 1.0.0 (g/ml) ML Lab Sample UD: 1.0.0 (g/ml) ML Level: (low/med) LOW Date Received: 07/28/12 % Moisture: nt dec. Date Analyzed: 07/28/12 GC Column: rt doc. Date Analyzed: 07/28/12 Soil Extract Volume: (uL) Soil Aliquot Volume: (uL) Soil Extract Volume: (uL) Soil Aliquot Volume: (uL) CAS NO. COMPOUND (ug/L or ug/Kg) UG/L Q 75-71-8 Dichlorodrifuloromethane 10 U 75-50-3 75-00-3 chioroethane 10 U <td< th=""><th></th><th>,</th><th></th><th></th><th></th><th>EPA SAI</th><th></th><th>10.</th></td<>		,				EPA SAI		10.	
Lab Code: DEP 11005 Case No.: Drum SAS No.: SDG No.: Matrix: (soil/water) WATER Lab Sample ID: 1.0g/l T24-2 5d Sample wilvol: 1.0 (g/ml) ML Lab Sample ID: 1.0g/l T24-2 5d Sample wilvol: 1.0 (g/ml) ML Lab Sample ID: 1.0g/l T24-2 5d Sample wilvol: 1.0 (g/ml) ML Lab Sample Wilvol: 1.0g/l T24-2 5d Level: (low/med) LOW Date Received: 07/28/12 % Moisture: not Date Analyzed: 07/28/12 Scol Extract Volume: (uL) Soil Aliquot Volume: (uL) Soil Extract Volume: (uL) Soil Aliquot Volume: (uL) CAS NO. COMPOUND (ug/L or ug/Kg) UG/L Q 75-71-8 Dichlorodifuloromethane 10 U 74-83-9 75-00-3 chloroethane 10 U 75-60- actron disufide 10 U 75-80-4 trichlorofluoromethane 10 U 75-36- U		\	VOLATILE ORGANICS A	NALYSIS DATA SHEE	- 1	NZ T	24 1g-2		
Lab Code: DEP 11005 Case No.: Drum SAS No.: SDG No.: Matrix: (solif/water) WATER Lab Sample UD: 1.0g/l T24-2 5d Sample wt/vol: 1.0 (g/ml) ML Lab Sample ID: 1.0g/l T24-2 5d Sample wt/vol: 1.0 (g/ml) ML Lab Sample ID: 1.0g/l T24-2 5d Level: (low/med) LOW Date Received: 07/28/12 % Moisture: not dec. Date Analyzed: 07/29/11 GC GC Column: rt502.2-1 ID: 0.53 (mm) Dilution Factor: 5.0 Soil Extract Volume: (uL) Soil Aliquot Volume: (uL) CAS NO. COMPOUND (ug/L or ug/Kg) UG/L Q 75-71-8 Dichlorodifuloromethane 10 U 74-87-3 chloromethane 10 U 75-81-4 vinyl chloride 10 U 75-81-8 10 U 75-80-5 tert-butyl alcohol 10 U 75-83-4 1.1-dichloroethane 10 U	Lab Name:	NJAL		Contract: PARS	5				
Matrix: (soil/water) WATER Lab Sample UD: 1.0/line 1.0/line Lab Sample UD: 1.0/line	Lab Code:	DEP 11	005 Case No.: Drur	n SAS No.:	S	DG No.:			
Sample wi/vol: 1.0 (g/ml) ML Lab File ID: TS62408.D Level: (low/med) LOW Date Received: 07/28/12 % Moisture: not dec. Date Analyzed: 07/29/11 GC Column: rt502.2-1 ID: 0.53 (mm) Dilution Factor: 5.0 Soil Extract Volume: (uL) Soil Aliquot Volume: (uL) Soil Extract Volume: (uL) Soil Aliquot Volume: (uL) 75-71-8 Dichlorodifuloromethane 10 U 75-71-8 Dichlorodifuloromethane 10 U 75-71-8 Dichlorodifuloromethane 10 U 75-85-0 tert-butyl cohol 10 U 75-65-0 tert-butyl alcohol 10 U 75-66-0 tert-butyl alcohol 10 U 75-85-0 tert-butyl alcohol 10 U 75-86-1 tert-butyl alcohol 10 U 75-86-2 methylene chlorode 12 D	Matrix: (soil/	water)	WATER	Lab Sam	ple ID:	1.0g/I T24	-2 5d		
Level: (low/med) LOW Date Received: 07/28/12 & Moisture: not dec. Date Analyzed: 07/28/12 07/28/12 & Moisture: not dec. Date Analyzed: 07/28/11 07/28/12 Soil Extract Volume: (uL) Soil Aliquot Volume: (uL) Soil Extract Volume: (uL) Soil Aliquot Volume: (uL) CAS NO. COMPOUND (ug/L or ug/Kg) UG/L Q 75-71-8 Dichlorodifuloromethane 10 U 74-87-3 chloromethane 10 U 75-01-4 vinyl chloride 10 U 75-90-4 10 U 75-90-3 chloroethane 10 U 75-96-0 10 U 75-96-0 tert-butyl alcohol 10 U 76-97-2 10 U 76-99-2 methylene chloride 12 D 16-6-0-5 trahouto-1 10 U 76-99-2 methylene chloride 12 D 156-60-5 trahouto-1 10 U 75-35-3	Sample wt/w	ol [.]	1.0 (o/ml) Ml	Lab File I	י ח	TS62408			
Level: (low/med) LOW Date Received: 07/28/12 % Moisture: not dec. Date Analyzed: 07/28/12 % Moisture: not dec. Date Analyzed: 07/28/12 GC Column: rt502.2-1 ID: 0.53 (mm) Dilution Factor: 5.0 Soil Extract Volume: (uL) Soil Aliquot Volume: (uL) CONCENTRATION UNITS: CAS NO. COMPOUND (ug/L or ug/Kg) UG/L Q 75-71-8 Dichlorodifuloromethane 10 U 74-83-9 bromomethane 10 U 75-01-4 vinyl chloride 10 U 75-65-0 carbon disulfide 10 U 75-65-0 carbon disulfide 10 U 75-65-0 tert-butyl alcohol 10 U 75-69-4 trichlorofluoromethane 10 U 75-35-4 1,1-dichloroethene 10 U 75-35-4 1,1-dichloroethene 10 U 75-34-3 1,1-dichloroethene 10 U 75-34	Sample wow	01.	<u>1.0</u> (g/m) <u>ML</u>		υ.	1002400.			
% Moisture: not dec. Date Analyzed: 07/29/11 GC Column: rt502.2-1 ID: 0.53 (mm) Dilution Factor: 5.0 Soil Extract Volume: (uL) Soil Aliquot Volume: (uL) Soil Extract Volume: (uL) Soil Aliquot Volume: (uL) CONCENTRATION UNITS: CAS NO. COMPOUND (ug/L or ug/Kg) UG/L Q 75-71-8 Dichlorodifuloromethane 10 U 7.5-01-4 vinyl choride 10 U 74-87-3 chloromethane 10 U 7.5-01-4 vinyl choride 10 U 75-60- carbon disulfide 10 U 10 U 16.34-04-4 MTBE 10 U 16.34-04-4 MTBE 10 U 17.5-69-4 trichlorofluoromethane 10 U 17.5-69-4 trichlorofluoromethane 10 U 17.5-69-4 trichlorofluoromethane 10 U 17.5-69-2 methylene chloride 12 D 15.6-6 1.1-4:1-fichloroethane 10 U	Level: (low/r	med)	LOW	Date Rec	eived:	07/28/12			
SC Column: rt502.2-1 ID: 0.53 (mm) Dilution Factor: 5.0 Soil Extract Volume: (uL) Soil Aliquot Volume: (uL) Soil Extract Volume: (uL) Soil Aliquot Volume: (uL) CONCENTRATION UNITS: COMPOUND (ug/L or ug/Kg) UG/L Q 75-71-8 Dichlorodifuloromethane 10 U 74-87-3 chloromethane 10 U 74-87-3 chloromethane 10 U 75-01-4 vinyl chloride 10 U 75-00-3 chloroethane 10 U 75-65-0 terhoutyl alcohol 10 U 75-65-0 terhoutyl alcohol 10 U 75-85-0 terhoutyl alcohol 10 U 75-69-4 trichlorofluoromethane 10 U 75-39-2 methylene chloride 12 D 75-69-2 methylene chloride 12 D 16-6-60-5 trans-1,2-dichloroethane 10 U 75-34-3 1,1-dichloroethane 10 U <td>% Moisture:</td> <td>not dec.</td> <td></td> <td>Date Ana</td> <td>lyzed:</td> <td>07/29/11</td> <td></td> <td></td>	% Moisture:	not dec.		Date Ana	lyzed:	07/29/11			
Soil Extract Volume: (uL) Soil Aliquot Volume: (uL) CONCENTRATION UNITS: CAS NO. COMPOUND (ug/L or ug/Kg) UG/L Q 75-71-8 Dichlorodifuloromethane 10 U 74-87-3 chlorodifuloromethane 10 U 75-71-8 Dichlorodifuloromethane 10 U 75-61-4 vinyl colspan="2">vinyl colspan="2" Vinyl colspan="2" <td cols<="" td=""><td>GC Column:</td><td>rt502.2</td><td>2-1 ID: 0.53 (mm)</td><td>Dilution F</td><td>actor:</td><td>5.0</td><td></td><td></td></td>	<td>GC Column:</td> <td>rt502.2</td> <td>2-1 ID: 0.53 (mm)</td> <td>Dilution F</td> <td>actor:</td> <td>5.0</td> <td></td> <td></td>	GC Column:	rt502.2	2-1 ID: 0.53 (mm)	Dilution F	actor:	5.0		
Concentration units: Concentration units: CAS NO. COMPOUND (ug/L or ug/Kg) UG/L Q 75-71-8 Dichlorodifuloromethane 10 U 74-87-3 chloromethane 10 U 75-01-4 vinyl chloride 10 U 75-03 chloromethane 10 U 75-60-3 chloroethane 10 U 75-60-4 tert-butyl alcohol 10 U 75-60-5 tert-butyl alcohol 10 U 75-69-4 trichlorofluoromethane 10 U 75-69-4 trichlorofluoromethane 10 U 75-69-4 trichlorofluoromethane 10 U 75-69-4 trichlorofluoromethane 10 U 75-69-5 trans-1,2-dichloroethene 10 U 75-69-6 trans-1,2-dichloroethene 10 U 76-63-3 1,1-trichloroethane 10 U 76-63-4 1,1.1-trichloroethane 10 U <	Soil Extract	Volumor	(11)	Soil Aligu	at Valu			(
CAS NO. COMPOUND (ug/L or ug/Kg) UG/L Q 75-71-8 Dichlorodifuloromethane 10 U 74-87-3 chloromethane 10 U 74-87-3 bromomethane 10 U 75-01-4 vinyl chloride 10 U 75-03 chloroethane 10 U 75-65-0 tert-butyl alcohol 10 U 75-65-0 tert-butyl alcohol 10 U 75-65-0 tert-butyl alcohol 10 U 75-85-0 tert-butyl alcohol 10 U 75-86-0 tert-butyl alcohol 10 U 78-90-2 methylene chloride 12 D 75-69-4 trichloroefhane 10 U 75-35-4 1,1-dichloroethene 10 U 75-36-5 trans-1,2-dichloroethene 10 U 75-36-5 trans-1,2-dichloroethene 10 U 75-36-6 1,1.1-trichloroethane 10 U	Soli Extract	volume.	(uL)	Soli Aliqu		me.		(uL)	
CAS NO. COMPOUND (ug/L or ug/Kg) UG/L Q 75-71-8 Dichlorodifuloromethane 10 U 74-87-3 chloromethane 10 U 74-87-3 chloromethane 10 U 74-83-9 bromomethane 10 U 75-01-4 vinyl chloride 10 U 75-03 chloroethane 10 U 75-04 carbon disulfide 10 U 75-65-0 tert-butyl alcohol 10 U 76-64-1 acetone 97 D 75-69-4 trichlorofluoromethane 10 U 75-69-4 trichlorofluoromethane 10 U 75-69-2 methylene chloride 12 D 156-60-5 trans-1,2-dichloroethene 10 U 75-92-2 methylene chloride 12 D 156-60-5 trans-1,1-dichloroethene 10 U 74-97-5 bromochloromethane 10 U									
CAS NO. COMPOUND (ug/L or ug/Ng) UG/L U 75-71-8 Dichlorodifuloromethane 10 U 74-87-3 chloromethane 10 U 75-01-4 vinyl chloride 10 U 75-00-3 chloroethane 10 U 75-00-3 chloroethane 10 U 75-15-0 carbon disulfide 10 U 75-65-0 tert-butyl alcohol 10 U 78-93-3 MEK 25 U 75-64-4 trichlorofluoromethane 10 U 75-35-4 1,1-dichloroethene 10 U 75-36-4 trichlorofluoromethane 10 U 75-37-4 1,1-dichloroethene 10 U 75-34-3 1,1-dichloroethane 10 U 75-34-3 1,1-dichloroethane 10 U 75-34-3 1,1-dichloroethane 10 U 74-87-5 bromochloromethane 10 U <td< td=""><td>CARNI</td><td>2</td><td></td><td></td><td></td><td></td><td>~</td><td></td></td<>	CARNI	2					~		
75-71-8 Dichlorodifuloromethane 10 U 74-87-3 chloromethane 10 U 75-01-4 vinyl chloride 10 U 74-83-9 bromomethane 10 U 74-83-9 bromomethane 10 U 75-00-3 chloroethane 10 U 75-05 carbon disulfide 10 U 75-60-1 tert-butyl alcohol 10 U 78-93-3 MEK 25 U 67-64-1 acetone 97 D 75-09-2 methylene chloride 12 D 75-09-2 methylene chloride 12 D 75-69-4 trichloroethene 10 U 75-35-4 1,1-dichloroethene 10 U 75-36-5 trans-1,2-dichloroethene 10 U 75-34-3 1,1-teichloroethane 10 U 76-66-3 chloroform 10 U 71-55-6 1,1,1-trichloroethane 10 U 71-55-6 1,2-dichloroethane 10	CAS NO	J.	COMPOUND	(ug/L or ug/Kg)	JG/L		Q		
74-87-3 Chloromethane 10 U 75-01-4 vinyl chloride 10 U 74-83-9 bromomethane 10 U 75-01-4 vinyl chloride 10 U 75-00-3 chloroethane 10 U 75-15-0 carbon disulfide 10 U 75-60-1 tert-butyl alcohol 10 U 1634-04-4 MTBE 10 U 75-65-0 tert-butyl alcohol 10 U 75-69-4 trichloroethene 25 U 67-64-1 acetone 97 D 75-69-2 methylene chloride 12 D 176-60-3 1,1-dichloroethene 10 U 75-34-3 1,1-dichloroethane 10 U 76-66-3 trans-1,2-dichloroethane 10 U 74-97-5 bromochloromethane 10 U 74-97-5 bromochloromethane 10 U 71-43-2 benzene	75-71	-8	Dichlorodifulorom	ethane		10	U		
75-01-4 vinyl chloride 10 U 74-83-9 bromomethane 10 U 75-00-3 chloroethane 10 U 75-15-0 carbon disulfide 10 U 75-60-3 tert-butyl alcohol 10 U 1634-04-4 MTBE 10 U 78-93-3 MEK 25 U 67-64-1 acetone 97 D 75-69-4 trichlorofluoromethane 10 U 75-35-4 1,1-dichloroethene 10 U 75-35-4 1,1-dichloroethene 10 U 75-36-5 trans-1,2-dichloroethene 10 U 75-34-3 1,1-dichloroethane 10 U 75-34-3 1,1-trichloroethane 10 U 75-34-3 1,1-trichloroethane 10 U 75-65-5 trans-1,2-dichloroethane 10 U 74-97-5 bromochloromethane 10 U 71-55-6 1,1,1-trichloroethane 10 U 71-55-7 carbon tetrachloride	74-87	-3	chloromethane			10	Ū		
74-83-9 bromomethane 10 U 75-00-3 chloroethane 10 U 75-15-0 carbon disulfide 10 U 75-15-0 carbon disulfide 10 U 75-15-0 carbon disulfide 10 U 1634-04-4 MTBE 10 U 78-93-3 MEK 25 U 07-64-1 acetone 97 D 75-69-4 trichlorofluoromethane 10 U 75-09-2 methylene chloride 12 D 156-60-5 trans-1,2-dichloroethene 10 U 75-34-3 1,1-dichloroethane 10 U 75-66-3 chloroform 10 U 108-10-1 MIBK 10 U 108-23-5 carbon tetrachloride 10 U 71-55-6 1,1,1-trichloroethane 10 U 107-06-2 1,2-dichloroethane 10 U 71-43-2 benzene 10 U 78-87-5 1,2-dichloroethane 10 U	75-01	-4	vinyl chloride			10	Ŭ		
75-00-3 chloroethane 10 U 75-15-0 carbon disulfide 10 U 75-65-0 tert-butyl alcohol 10 U 1634-04-4 MTBE 10 U 1634-04-4 MTBE 10 U 75-69-1 trichlorofluoromethane 25 U 67-64-1 acetone 97 D 75-69-4 trichlorofluoromethane 10 U 75-09-2 methylene chloride 12 D 156-60-5 trans-1,2-dichloroethene 10 U 75-33-3 1,1-dichloroethane 10 U 75-66-3 chloroform 10 U 74-97-5 bromochloromethane 10 U 71-55-6 1,1,1-trichloroethane 10 U 71-43-2 benzene 10 U 71-43-2 benzene 10 U 71-43-2 benzene 10 U 71-43-2 benzene 10	74-83	-9	bromomethane			10	Ū		
75-15-0 carbon disulfide 10 U 75-65-0 tert-butyl alcohol 10 U 1634-04-4 MTBE 10 U 78-93-3 MEK 25 U 67-64-1 acetone 97 D 75-69-4 trichlorofluoromethane 10 U 75-35-4 1, 1-dichloroethene 10 U 75-35-4 1, 1-dichloroethene 10 U 75-34-3 1, 1-dichloroethene 10 U 75-69-2 methylene chloride 12 D 156-60-5 trans-1,2-dichloroethane 10 U 75-34-3 1,1-dichloroethane 10 U 76-66-3 chloroform 10 U 74-97-5 bromochloromethane 10 U 71-55-6 1,1,1-trichloroethane 10 U 71-45-7 bromochloropane 10 U 71-43-2 benzene 10 U 71-43-2 benzene 10 U 76-13-1 112-Trichloro-122-Trifluoroethane	75-00	-3	chloroethane			10	U		
75-65-0 tert-butyl alcohol 10 U 1634-04-4 MTBE 10 U 78-93-3 MEK 25 U 67-64-1 acetone 97 D 75-69-4 trichlorofluoromethane 10 U 75-35-4 1,1-dichloroethene 10 U 75-69-2 methylene chloride 12 D 156-60-5 trans-1,2-dichloroethane 10 U 75-34-3 1,1-dichloroethane 10 U 67-66-3 chloroform 10 U 108-10-1 MIBK 10 U 74-97-5 bromochloromethane 10 U 74-97-5 bromochloromethane 10 U 17-452-6 1,1,1-trichloroethane 10 U 17-43-2 benzene 10 U 17-43-2 benzene 10 U 78-87-5 1,2-dichloroethane 10 U 78-87-5 1,2-dichloroethane 10 </td <td>75-15</td> <td>-0</td> <td>carbon disulfide</td> <td></td> <td></td> <td>10</td> <td>U</td> <td>_</td>	75-15	-0	carbon disulfide			10	U	_	
1634-04-4 MTBE 10 U 78-93-3 MEK 25 U 67-64-1 acetone 97 D 75-69-4 trichlorofluoromethane 10 U 75-35-4 1,1-dichloroethene 10 U 75-09-2 methylene chloride 12 D 156-60-5 trans-1,2-dichloroethene 10 U 75-34-3 1,1-dichloroethane 10 U 75-34-3 1,1-dichloroethane 10 U 76-6-3 chloroform 10 U 74-97-5 bromochloromethane 10 U 74-97-5 bromochloromethane 10 U 71-55-6 1,1,1-trichloroethane 10 U 71-55-6 carbon tetrachloride 10 U 70-6-2 1,2-dichloroethane 10 U 71-43-2 benzene 10 U 78-75 1,2-dichloropropane 10 U 78-75 1,2-dichloropropane<	75-65	-0	tert-butyl alcohol			10	U		
78-93-3 MEK 25 U 67-64-1 acetone 97 D 75-69-4 trichlorofluoromethane 10 U 75-69-4 trichlorofluoromethane 10 U 75-69-2 methylene chloride 12 D 156-60-5 trans-1,2-dichloroethene 10 U 75-34-3 1,1-dichloroethane 10 U 67-66-3 chloroform 10 U 67-66-3 chloroform 10 U 74-97-5 bromochloromethane 10 U 74-97-5 bromochloroethane 10 U 71-55-6 1,1,1-trichloroethane 10 U 107-06-2 1,2-dichloroethane 10 U 71-43-2 benzene 10 U 76-13-1 112-Trichloro-122-Trifluoroethane 10 U 76-13-1 112-Trichloro-122-Trifluoroethane 10 U 76-63-7 Cyclohexane 10 U 108-87-2 <td>1634-</td> <td>04-4</td> <td>MTBE</td> <td></td> <td></td> <td>10</td> <td>U</td> <td></td>	1634-	04-4	MTBE			10	U		
67-64-1 acetone 97 D $75-69-4$ trichlorofluoromethane 10 U $75-35-4$ 1,1-dichloroethene 10 U $75-35-4$ 1,1-dichloroethene 10 U $75-09-2$ methylene chloride 12 D $156-60-5$ trans-1,2-dichloroethene 10 U $75-34-3$ 1,1-dichloroethane 10 U $75-34-3$ 1,1-dichloroethane 10 U $67-66-3$ chloroform 10 U $108-10-1$ MIBK 10 U $74-97-5$ bromochloromethane 10 U $74-97-5$ bromochloromethane 10 U $74-97-5$ carbon tetrachloride 10 U $107-06-2$ 1,2-dichloroethane 10 U $107-06-2$ 1,2-dichloropropane 10 U $71-43-2$ benzene 10 U $76-13-1$ 112-Trichloro-122-Trifluoroethane 10 U </td <td>78-93</td> <td>-3</td> <td>MEK</td> <td></td> <td></td> <td>25</td> <td>U</td> <td></td>	78-93	-3	MEK			25	U		
75-69-4 trichlorofluoromethane 10 U 75-35-4 1,1-dichloroethene 10 U 75-09-2 methylene chloride 12 D 156-60-5 trans-1,2-dichloroethene 10 U 75-34-3 1,1-dichloroethane 10 U 67-66-3 chloroform 10 U 108-10-1 MIBK 10 U 74-97-5 bromochloromethane 10 U 74-97-5 carbon tetrachloride 10 U 107-06-2 1,1,1-trichloroethane 10 U 107-06-2 1,2-dichloroethane 10 U 74-37-5 benzene 10 U 71-43-2 benzene 10 U 76-13-1 112-Trichloro-122-Trifluoroethane 10 U 76-13-1 112-Trichloro-122-Trifluoroethane 10 U 91-20-3 Napthalene 10 U 108-87-2 Methyl Acetate 25 U 108-8	67-64	-1	acetone			97	D		
75-35-4 1,1-dichloroethene 10 U 75-09-2 methylene chloride 12 D 156-60-5 trans-1,2-dichloroethene 10 U 75-34-3 1,1-dichloroethane 10 U 67-66-3 chloroform 10 U 108-10-1 MIBK 10 U 74-97-5 bromochloromethane 10 U 75-35-6 1,1,1-trichloroethane 10 U 76-62 1,2-dichloroethane 10 U 107-06-2 1,2-dichloroethane 10 U 71-43-2 benzene 10 U 76-13-1 112-Trichloro-122-Trifluoroethane 10 U 76-13-1 112-Trichloro-122-Trifluoroethane 10 U 79-20-9 Methyl Acetate 25 U U 108-87-2 Methyl Acetate 25 U U 108-87-2 Methyl Cyclohexane 10 U U 108-87-2 Methyl Cyclohexane 10 U U 108-88-3 toluene 10	75-69	-4	trichlorofluorometh	nane		10	U		
75-09-2 methylene chloride 12 D 156-60-5 trans-1,2-dichloroethene 10 U 75-34-3 1,1-dichloroethane 10 U 67-66-3 chloroform 10 U 108-10-1 MIBK 10 U 74-97-5 bromochloromethane 10 U 71-55-6 1,1,1-trichloroethane 10 U 56-23-5 carbon tetrachloride 10 U 107-06-2 1,2-dichloroethane 10 U 74-32 benzene 10 U 78-87-5 1,2-dichloropropane 10 U 78-87-5 1,2-dichloropropane 10 U 78-87-5 1,2-dichloropropane 10 U 79-20-9 Methyl Acetate 25 U 110-82-7 Cyclohexane 10 U 108-87-2 Methyl Acetate 25 U 108-87-2 Methyl Cyclohexane 10 U 105-59-4 cis	75-35	-4	1,1-dichloroethene			10	<u> </u>	_	
156-60-5 trans-1,2-dichloroethene 10 U 75-34-3 1,1-dichloroethane 10 U 67-66-3 chloroform 10 U 108-10-1 MIBK 10 U 74-97-5 bromochloromethane 10 U 74-97-5 bromochloromethane 10 U 71-55-6 1,1,1-trichloroethane 10 U 56-23-5 carbon tetrachloride 10 U 107-06-2 1,2-dichloroethane 10 U 74-32 benzene 10 U 78-87-5 1,2-dichloroptopane 10 U 78-87-5 1,2-dichloroptopane 10 U 78-87-5 1,2-dichloroptopane 10 U 91-20-3 Napthalene 10 U 10-82-7 Cyclohexane 10 U 108-87-2 Methyl Acetate 25 U 110-82-7 Cyclohexane 10 U 108-87-2 Methyl Cyclohex	75-09	-2	methylene chloride	<u> </u>		12	D		
75-34-3 $1,1-dichloroethane$ 10 U $67-66-3$ chloroform 10 U $108-10-1$ MIBK 10 U $74-97-5$ bromochloromethane 10 U $71-55-6$ $1, 1, 1-trichloroethane$ 10 U $75-25-6$ carbon tetrachloride 10 U $107-06-2$ $1, 2-dichloroethane$ 10 U $107-06-2$ $1, 2-dichloroethane$ 10 U $79-01-6$ trichloroethene 10 U $78-87-5$ $1, 2-dichloropropane$ 10 U $78-87-5$ $1, 2-dichloropropane$ 10 U $79-01-6$ trichloro- 122 -Trifluoroethane 10 U $76-13-1$ 112 -Trichloro- 122 -Trifluoroethane 10 U $91-20-3$ Napthalene 10 U $10-82-7$ Cyclohexane 10 U $110-82-7$ Cyclohexane 10 U $108-87-2$ Methyl Acetate 10 U $106-90-4$ <td>156-6</td> <td>0-5</td> <td>trans-1,2-dichloroe</td> <td>ethene</td> <td></td> <td>10</td> <td><u> </u></td> <td>_</td>	156-6	0-5	trans-1,2-dichloroe	ethene		10	<u> </u>	_	
07-06-3 Chloroform 10 U 108-10-1 MIBK 10 U 74-97-5 bromochloromethane 10 U 71-55-6 1,1,1-trichloroethane 10 U 56-23-5 carbon tetrachloride 10 U 107-06-2 1,2-dichloroethane 10 U 71-43-2 benzene 10 U 79-01-6 trichloroethene 10 U 78-87-5 1,2-dichloropropane 10 U 76-13-1 112-Trichloro-122-Trifluoroethane 10 U 91-20-3 Napthalene 10 U 91-20-3 Napthalene 10 U 108-87-2 Methyl Acetate 25 U 110-82-7 Cyclohexane 10 U 108-87-2 Methyl Cyclohexane 10 U 108-87-2 bromodichloromethane 10 U 1061-01-5 cis-1,3-dichloropropene 10 U 10061-02-6	75-34	-3	1,1-dichloroethane	<u>}</u>		10	<u> </u>	_	
108-10-1MIBK10U $74-97-5$ bromochloromethane10U $71-55-6$ $1,1,1$ -trichloroethane10U $56-23-5$ carbon tetrachloride10U $107-06-2$ $1,2$ -dichloroethane10U $71-43-2$ benzene10U $79-01-6$ trichloroethene10U $78-87-5$ $1,2$ -dichloropropane10U $76-13-1$ 112 -Trichloro- 122 -Trifluoroethane10U $79-20-3$ Napthalene10U $79-20-9$ Methyl Acetate25U $110-82-7$ Cyclohexane10U $108-87-2$ Methyl Cyclohexane10U $106-01-5$ cis- $1,2$ -dichloropropene10U $106-01-5$ cis- $1,3$ -dichloropropene10U $106-02-6$ trans- $1,3$ -dichloropropene10U $106-02-6$ trans- $1,3$ -dichloropropene10U $106-02-6$ trans- $1,3$ -dichloropropene10U $106-02-6$ trans- $1,3$ -dichloropropene10U $102-78-6$ 2 -hexanone 25 U $79-00-5$ $1,1,2$ -trichloroethane10U $127-18-4$ dibromochloromethane290D $127-18-4$ tetrachloroethene 360 D $108-90-7$ chloropenzene10U	67-66	-3	Chloroform			10	<u> </u>		
74-97-5 Dromochoromethane 10 U $71-55-6$ $1,1,1$ -trichloroethane 10 U $56-23-5$ carbon tetrachloride 10 U $107-06-2$ $1,2$ -dichloroethane 10 U $71-43-2$ benzene 10 U $79-01-6$ trichloroethene 10 U $79-01-6$ trichloropropane 10 U $78-87-5$ $1,2$ -dichloropropane 10 U $76-13-1$ 112 -Trichloro- 122 -Trifluoroethane 10 U $91-20-3$ Napthalene 10 U $91-20-3$ Napthalene 10 U $108-87-2$ Methyl Acetate 25 U $110-82-7$ Cyclohexane 10 U $106-19-5$ cis- $1,2$ -dichloroethene 10 U $106-19-5$ cis- $1,3$ -dichloropropene 10 U<	108-1	0-1	MIBK			10	<u> </u>		
71-35-6 $1, 1, 1-41/chlorobethalle$ 10 0 $56-23-5$ carbon tetrachloride 10 0 $107-06-2$ $1, 2-dichloroethane$ 10 0 $71-43-2$ benzene 10 0 $79-01-6$ trichloroethene 10 0 $79-01-6$ trichloropropane 10 0 $78-87-5$ $1, 2$ -dichloropropane 10 0 $76-13-1$ 112 -Trichloro- 122 -Trifluoroethane 10 0 $91-20-3$ Napthalene 10 0 $91-20-3$ Napthalene 10 0 $110-82-7$ Cyclohexane 10 0 $110-82-7$ Cyclohexane 10 0 $108-87-2$ Methyl Acetate 10 0 $108-87-2$ Methyl Cyclohexane 10 0 $108-87-2$ Methyl Cyclohexane 10 0 $108-87-2$ Methyl Cyclohexane 10 0 $108-88-3$ toluene 10 0 $10061-01-5$ cis- $1, 3$ -di	74-97	-0				10	<u> </u>	_	
30-23-5 Carbon retraction de 10 0 107-06-2 1,2-dichloroethane 10 U 71-43-2 benzene 10 U 79-01-6 trichloroethene 10 U 78-87-5 1,2-dichloropropane 10 U 76-13-1 112-Trichloro-122-Trifluoroethane 10 U 91-20-3 Napthalene 10 U 79-20-9 Methyl Acetate 25 U 110-82-7 Cyclohexane 10 U 108-87-2 Methyl Cyclohexane 10 U 1061-01-5 cis-1,2-dichloroethene 10 U 1061-01-5 cis-1,3-dichloropropene 10 U 108-88-3 toluene 10 U 10061-02-6 trans-1,3-dichloropropene 10 U 109-00-5 1,1,2-trichloroethane 25 U 79-00-5 1,1,2-trichloroethane 290 D 127-18-4 tetrachloroethene 360 D	56-23	-5				10	<u>U</u>	_	
$10^{-1} - 43 - 2$ benzene $10^{-1} - 10^{-1$	107-0	- <u>-</u> 6-2	1 2-dichloroethane			10	<u> </u>	_	
10 10 10 79-01-6 trichloroethene 10 U 78-87-5 1,2-dichloropropane 10 U 76-13-1 112-Trichloro-122-Trifluoroethane 10 U 91-20-3 Napthalene 10 U 91-20-3 Napthalene 10 U 79-20-9 Methyl Acetate 25 U 110-82-7 Cyclohexane 10 U 108-87-2 Methyl Cyclohexane 10 U 108-87-2 Methyl Cyclohexane 10 U 1061-01-5 cis-1,2-dichloroethene 10 U 1061-01-5 cis-1,3-dichloropropene 10 U 108-88-3 toluene 10 U 10061-02-6 trans-1,3-dichloropropene 10 U 10061-02-6 trans-1,3-dichloropropene 10 U 1091-78-6 2-hexanone 25 U 1091-78-6 2-hexanone 290 D 124-48-1 dibromochloro	71-43	-2	benzene			10	<u> </u>		
78-87-5 1,2-dichloropropane 10 U 76-13-1 112-Trichloro-122-Trifluoroethane 10 U 91-20-3 Napthalene 10 U 79-20-9 Methyl Acetate 25 U 110-82-7 Cyclohexane 10 U 108-87-2 Methyl Cyclohexane 10 U 156-59-4 cis-1,2-dichloroethene 10 U 1061-01-5 cis-1,3-dichloropropene 10 U 108-88-3 toluene 10 U 108-88-3 toluene 10 U 108-88-3 toluene 10 U 10061-02-6 trans-1,3-dichloropropene 10 U 10061-02-6 trans-1,3-dichloropropene 10 U 10061-02-6 trans-1,3-dichloropropene 10 U 10061-02-6 trans-1,3-dichloropropene 10 U 1091-78-6 2-hexanone 25 U 79-00-5 1,1,2-trichloroethane 10 U	79-01	-6	trichloroethene			10	U		
76-13-1 112-Trichloro-122-Trifluoroethane 10 U 91-20-3 Napthalene 10 U 79-20-9 Methyl Acetate 25 U 110-82-7 Cyclohexane 10 U 108-87-2 Methyl Cyclohexane 10 U 156-59-4 cis-1,2-dichloroethene 10 U 1061-01-5 cis-1,3-dichloropropene 10 U 108-88-3 toluene 10 U 1061-02-6 trans-1,3-dichloropropene 10 U 1061-02-6 trans-1,3-dichloropropene 10 U 109-00-5 1,1,2-trichloroethane 10 U 124-48-1 dibromochloromethane 290 D 127-18-4 tetrachloroethene 360 D 108-90-7 chlorobenzene 10 U	78-87	-5	1,2-dichloropropar	1e		10	Ū		
91-20-3 Napthalene 10 U 79-20-9 Methyl Acetate 25 U 110-82-7 Cyclohexane 10 U 108-87-2 Methyl Cyclohexane 10 U 156-59-4 cis-1,2-dichloroethene 10 U 75-27-4 bromodichloromethane 10 U 1061-01-5 cis-1,3-dichloropropene 10 U 108-88-3 toluene 10 U 10061-02-6 trans-1,3-dichloropropene 10 U 101001-02-6 trans-1,3-dichloropropene 10 U 101001-02-6 trans-1,3-dichloropropene 10 U 101001-02-6 trans-1,3-dichloropropene 10 U 101001-02-6 trans-1,3-dichloropr	76-13	-1	112-Trichloro-122	-Trifluoroethane		10	U		
79-20-9 Methyl Acetate 25 U 110-82-7 Cyclohexane 10 U 108-87-2 Methyl Cyclohexane 10 U 156-59-4 cis-1,2-dichloroethene 10 U 75-27-4 bromodichloromethane 10 U 1061-01-5 cis-1,3-dichloropropene 10 U 108-88-3 toluene 10 U 10061-02-6 trans-1,3-dichloropropene 10 U 1091-78-6 2-hexanone 25 U 79-00-5 1,1,2-trichloroethane 10 U 124-48-1 dibromochloromethane 290 D 127-18-4 tetrachloroethene 360 D 108-90-7 chlorobenzene 10 U	91-20	-3	Napthalene			10	U		
110-82-7 Cyclohexane 10 U 108-87-2 Methyl Cyclohexane 10 U 156-59-4 cis-1,2-dichloroethene 10 U 75-27-4 bromodichloromethane 10 U 1061-01-5 cis-1,3-dichloropropene 10 U 108-88-3 toluene 10 U 1061-02-6 trans-1,3-dichloropropene 10 U 1061-02-6 trans-1,3-dichloropropene 10 U 1061-02-6 trans-1,3-dichloropropene 10 U 1091-78-6 2-hexanone 25 U 79-00-5 1,1,2-trichloroethane 10 U 124-48-1 dibromochloromethane 290 D 127-18-4 tetrachloroethene 360 D 108-90-7 chlorobenzene 10 U	79-20	-9	Methyl Acetate			25	U		
108-87-2 Methyl Cyclohexane 10 U 156-59-4 cis-1,2-dichloroethene 10 U 75-27-4 bromodichloromethane 10 U 10061-01-5 cis-1,3-dichloropropene 10 U 108-88-3 toluene 10 U 10061-02-6 trans-1,3-dichloropropene 10 U 10061-02-6 trans-1,3-dichloropropene 10 U 10061-02-6 trans-1,3-dichloropropene 10 U 10061-02-6 trans-1,3-dichloropropene 10 U 109-07-5 1,1,2-trichloroethane 10 U 124-48-1 dibromochloromethane 290 D 127-18-4 tetrachloroethene 360 D 108-90-7 chlorobenzene 10 U	110-8	2-7	Cyclohexane			10	U		
156-59-4 cis-1,2-dichloroethene 10 U 75-27-4 bromodichloromethane 10 U 1061-01-5 cis-1,3-dichloropropene 10 U 108-88-3 toluene 10 U 10061-02-6 trans-1,3-dichloropropene 10 U 591-78-6 2-hexanone 25 U 79-00-5 1,1,2-trichloroethane 10 U 124-48-1 dibromochloromethane 290 D 127-18-4 tetrachloroethene 360 D 108-90-7 chlorobenzene 10 U	108-8	7-2	Methyl Cyclohexa	ne		10	U		
75-27-4 bromodichloromethane 10 U 10061-01-5 cis-1,3-dichloropropene 10 U 108-88-3 toluene 10 U 10061-02-6 trans-1,3-dichloropropene 10 U 591-78-6 2-hexanone 25 U 79-00-5 1,1,2-trichloroethane 10 U 124-48-1 dibromochloromethane 290 D 127-18-4 tetrachloroethene 360 D 108-90-7 chlorobenzene 10 U	156-5	9-4	cis-1,2-dichloroeth	iene		10	U		
10061-01-5 cis-1,3-dichloropropene 10 U 108-88-3 toluene 10 U 10061-02-6 trans-1,3-dichloropropene 10 U 591-78-6 2-hexanone 25 U 79-00-5 1,1,2-trichloroethane 10 U 124-48-1 dibromochloromethane 290 D 127-18-4 tetrachloroethene 360 D 108-90-7 chlorobenzene 10 U	75-27	-4	bromodichloromet	hane		10	<u> </u>		
108-88-3 toluene 10 U 10061-02-6 trans-1,3-dichloropropene 10 U 591-78-6 2-hexanone 25 U 79-00-5 1,1,2-trichloroethane 10 U 124-48-1 dibromochloromethane 290 D 127-18-4 tetrachloroethene 360 D 108-90-7 chlorobenzene 10 U	10061	-01-5	cis-1,3-dichloropro	pene		10	<u> </u>		
10001-02-0 trans-1,3-dichloropropene 10 U 591-78-6 2-hexanone 25 U 79-00-5 1,1,2-trichloroethane 10 U 124-48-1 dibromochloromethane 290 D 127-18-4 tetrachloroethene 360 D 108-90-7 chlorobenzene 10 U	108-8	8-3	toluene			10	U		
391-70-0 2-nexanone 25 0 79-00-5 1,1,2-trichloroethane 10 0 124-48-1 dibromochloromethane 290 D 127-18-4 tetrachloroethene 360 D 108-90-7 chlorobenzene 10 0	10061	-02-0	trans-1,3-dichloror	propene		10	<u> </u>		
124-48-1dibromochloromethane290D127-18-4tetrachloroethene360D108-90-7chlorobenzene10U	70.00	5	2-nexarione	ne		20	U 11		
127-18-4tetrachloroethene360D108-90-7chlorobenzene10U	124.4	<u>-5</u> 8_1	dibromochloromot	hane		200			
108-90-7 chlorobenzene 10 U	124-4	8-4	tetrachloroethene		100.00 L	360			
	108-9	0-7	chlorobenzene			10		_	

	,					FFT	EPA SA	MPLE	NO.
Lab Name:	NJAL	OLATIL	E ORGANIC	S ANAL IS	Contract: PA	RS	NZ T	24 1g-2	2
Lab Code:	DEP 110	005	Case No.: D	rum	SAS No.:	S	DG No.:		
Matrix: (soil/v	water)	WATE	R		Lab Sa	mple ID:	1.0g/I T24	-2 5d	
Sample wt/vo	ol:	1.0	(g/ml) N	ИL	Lab Fil	e ID:	TS62408.	D	
Level: (low/r	ned)	LOW			Date R	eceived:	07/28/12		
% Moisture:	not dec.				Date A	nalyzed:	07/29/11		
GC Column:	rt502.2	2-1 ID:	0.53 (mm	ר)	Dilutior	n Factor:	5.0		
Soil Extract \	/olume:		(uL)	,	Soil Ali	quot Volu	ime:		(uL)
				CON					
CAS NO	D.	CO	MPOUND	(ug/L	or ug/Kg)	UG/L		Q	
108-38	<u> </u>	m	/p-xylene				10	U	
95-47-	-6	0-	xylene				10	U	_
100-42	2-5	st	yrene				10	U	
75-25-	-2	br	omoform				10	U	
98-82-	-8	ise	opropyl benze	ene			10	U	
79-34-	-5	1,	1,2,2-tetrachle	oroethane			10	U	
541-73	3-1	1,	<u>3-dichloroben</u>	zene			10	U	
95-50-	.1	1,	<u>2-dichloroben</u>	zene			10	<u> </u>	
106-46	5-7	1,	4-dichloroben	zene			10	U	
120-82	2-1	1,	2,4-trichlorob	enzene			10	U	
87-61-	6	1,	2,3-trichlorob	enzene			10	U	

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. _____

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		IENI	AIIVELTIDENTIFIE	ED COMPOUNDS	NZ T24.4m	2
Lab Name:	NJAL		· · · · · · · · · · · · · · · · · · ·	Contract: PARS	NZ 124 19	-2
Lab Code:	DEP 11	005	Case No.: Drum	SAS No.: S	DG No.:	
Matrix: (soil/v	water)	WATE	R	Lab Sample ID:	1.0g/l T24-2 5d	
Sample wt/vo	ol:	1.0	(g/ml) ML	Lab File ID:	TS62408.D	_
Level: (low/r	med)	LOW	هست البری ا	Date Received:	07/28/12	14
% Moisture:	not dec.			Date Analyzed:	07/29/11	
GC Column:	rt502.	2-1 ID:	0.53 (mm)	Dilution Factor:	5.0	_
Soil Extract \	Volume:		(uL)	Soil Aliquot Volu	ume:	(uL)
			CC	DNCENTRATION UNITS:		
Number TIC:	s found:	0)(uį	g/L or ug/Kg) UG/L		
CAS NO.		СОМ	POUND NAME	RT E	ST. CONC.	Q

			EPA SA	MPLE NO.
	VOLATILE ORGANICS ANAL	YSIS DATA SHEET	NZ T	24 1g-3
Lab Name: NJAL	амара 1 0 го — Пала Мака Илицийний с Парариулан, «н. 1	Contract: PARS		
Lab Code: DEP	11005 Case No.: Drum	SAS No.: S	DG No.:	
Matrix: (soil/water)	WATER	Lab Sample ID:	1.0g/l T24	-3 5d
Sample wt/vol:	1.0 (g/ml) MI	Lab File ID:	TS62400	D
			1302409.	D
Level: (low/med)	LOW	Date Received:	07/28/12	
% Moisture: not dea	2.	Date Analyzed:	07/29/11	
GC Column: rt50	2.2-1 ID: 0.53 (mm)	Dilution Factor:	5.0	
Soil Extract Volume	· (11)	Soil Aliquot Volu	ime.	/ul
	·· (uc)			
	100	NCENTRATION UNITS:		
				0
CAS NO.				Q
75-71-8	Dichlorodifuloromethan	e	10	U
74-87-3	chloromethane		10	Ū
75-01-4	vinyl chloride		10	U
74-83-9	bromomethane		10	U
75-00-3	chloroethane		10	U
75-15-0	carbon disulfide		10	U
75-65-0	tert-butyl alcohol		10	U
1634-04-4	MTBE		10	U
78-93-3	MEK		25	U
67-64-1	acetone		100	D
75-69-4	trichlorofluoromethane		10	U
75-35-4	1,1-dichloroethene		10	U
75-09-2	methylene chloride		14	D
156-60-5	trans-1,2-dichloroethen	e	10	U
75-34-3	1,1-dichloroethane		10	U
67-66-3	chloroform		10	<u> </u>
108-10-1	MIBK		10	<u> </u>
74-97-5	bromochloromethane		10	<u> </u>
71-55-6			10	<u> </u>
50-23-5	Carbon tetrachioride		10	0
71 42 2	honzono		10	
79-01-6	trichloroethene		10	<u> </u>
78-87-5	1 2-dichloropropane		10	<u> </u>
76-13-1	112-Trichloro-122-Triflu	oroethane	10	- U
91-20-3	Napthalene		10	Ŭ
79-20-9	Methyl Acetate		25	Ū
110-82-7	Cyclohexane		10	U
108-87-2	Methyl Cyclohexane		10	U
156-59-4	cis-1,2-dichloroethene		10	U
75-27-4	bromodichloromethane		10	U
10061-01-5	cis-1,3-dichloropropene		10	U
108-88-3	toluene		10	U
10061-02-6	trans-1,3-dichloroprope	ne	10	U
591-78-6	2-hexanone		25	U
79-00-5	1,1,2-trichloroethane		10	U
124-48-1	dibromochloromethane		290	D
127-18-4	tetrachloroethene	****	360	D
108-90-7	chlorobenzene		10	U

				1A				EPA SA	AMPLE I	NO.
Lab Name:	NJAL	OLATI	LE ORGAN	IICS A	Contra	ct: PAF	RS	NZ	Г24 1g-3	3
Lab Code:	DEP 110	005	Case No.:	Drun	n SAS	No.:	S	DG No.:		
Matrix: (soil/v	vater)	WATE	R		manana	Lab Sar	nple ID:	1.0g/I T2	4-3 5d	
Sample wt/vo	ol:	1.0	 (g/ml)) ML		Lab File	ID:	TS62409).D	ter - analysis
Level: (low/n	ned)	LOW			an annan an Anna Anna Anna	Date Re	eceived:	07/28/12		
% Moisture: r	not dec.		t man a f and san a faith and san a faith and san a faith and san a faith a fa			Date Ar	alyzed:	07/29/11	- ^	
GC Column:	rt502.2	2-1 ID:	0.53 (r	nm)		Dilution	Factor:	5.0		
Soil Extract V	/olume:	,	(uL)	,		Soil Aliq	juot Volu	ime:		(uL)
					CONCENT					
CAS NC).	СО	MPOUND		(ug/L or ug/	Kg)	UG/L		Q	
108-38	3-3	m	/p-xvlene			······		10	U	_
95-47-	6	0-	xylene					10	U	
100-42	2-5	st	yrene					10	U	
75-25-	2	br	omoform					10	U	
98-82-	88	is	opropyl ber	nzene				10	U	
79-34-	5	1,	1,2,2-tetrac	chloro	ethane			10	U	
541-73	3-1	1,	3-dichlorob	enzer	ne			10	U	
95-50-	1	1,	2-dichlorob	enzer	ne		_	10	U	
106-46	6-7	1,	4-dichlorob	enzer				10	U	
120-82	2-1	1,	2,4-trichlor	obenz	ene			10		_
<u>87-6</u> 1-	6	1,	2,3-trichlor	obenz	ene			10	U	

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

NZ T24 1g-3 Lab Name: NJAL Contract: PARS SAS No.: Lab Code: DEP 11005 Case No.: Drum SDG No.: Lab Sample ID: 1.0g/I T24-3 5d Matrix: (soil/water) WATER Lab File ID: Sample wt/vol: 1.0 (g/ml) ML TS62409.D Level: (low/med) LOW Date Received: 07/28/12 % Moisture: not dec. Date Analyzed: 07/29/11 Dilution Factor: 5.0 GC Column: rt502.2-1 ID: 0.53 (mm) Soil Aliquot Volume: Soil Extract Volume: (uL) (uL) CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Number TICs found: 0 COMPOUND NAME RT EST. CONC. Q CAS NO.

EPA SAMPLE NO.

	,				EPA SA		10.
Leb News	V.	OLATILE ORGANICS ANAL	PSIS DATA SHEET		NZ T	24 2g-1	
Lab Name:	NJAL		Contract: PARS				
Lab Code:	DEP 110	005 Case No.: Drum	SAS No.:	SD)G No.: _		
Matrix: (soil/	water)	WATER	Lab Sample	e ID:	2.0g/l T24	-1 5d	
Sample wt/ve	ol:	1.0 (g/ml) ML	Lab File ID:		TS62410.	D	
l evel: (low/r	med)		Date Recei	ved ·	07/28/12		
			Dichel	•CU	07/20/12	And an and a second	
% Moisture:	not dec.		Date Analy:	zed:	07/29/11	ريرة فرميسا	
GC Column:	rt502.2	2-1 ID: 0.53 (mm)	Dilution Fac	ctor:	5.0	· · · · · · · · · · · · · · · · · · ·	
Soil Extract	Volume:	(uL)	Soil Aliquot	Volun	ne:		(uL)
							()
		COI	NCENTRATION UN	ITS:			
CAS NO	D.	COMPOUND (ug/	L or ug/Kg) UG	i/L		Q	
		· ·					
75-71	-8	Dichlorodifuloromethan	e		10	U	
74-87	-3	chloromethane			10	U	
75-01	-4	vinyl chloride			10	<u>U</u>	_
74-83	-9	bromomethane			10	<u> </u>	_
75-00	-3	chloroethane			10	<u> </u>	_
75-15	-0				10	<u> </u>	_
1624	-0				10	<u> </u>	_
78-03	-3	MEK				<u> </u>	_
67-64	-0				110	<u> </u>	
75-69	-4	trichlorofluoromethane			10		_
75-35	-4	1.1-dichloroethene			10	<u> </u>	
75-09	-2	methylene chloride			15	<u></u>	
156-6	0-5	trans-1,2-dichloroethen	e		10		\neg
75-34	-3	1,1-dichloroethane			10	Ū	
67-66	-3	chloroform			10	U	
108-1	0-1	MIBK			10	U	
74-97	-5	bromochloromethane			10	U	
71-55	-6	1,1,1-trichloroethane			10	U	
56-23	-5	carbon tetrachloride			10	U	_
107-0	6-2	1,2-dichloroethane			10	U	
71-43	-2	benzene			10	U	_
79-01	-6	trichloroethene			10	<u> </u>	
76.42	-5	1,2-dichloropropane	are ath an a		10	<u> </u>	
70-13	-1	Nontholono	oroetnane		10		
70-20	-0	Methyl Acetate			25	<u> </u>	_
110-8	- <u>-</u>	Cyclobexane			10	<u> </u>	_
108-8	7-2	Methyl Cyclohexane			10	<u> </u>	
156-5	9-4	cis-1.2-dichloroethene	A1990	plaste.	10	<u> </u>	_
75-27	-4	bromodichloromethane	L	-0.	10	<u> </u>	
10061	-01-5	cis-1,3-dichloropropene			10	Ū	
108-8	8-3	toluene			10	U	
10061	-02-6	trans-1,3-dichloroprope	ne		10	U	
591-7	8-6	2-hexanone			25	U	
79-00	-5	1,1,2-trichloroethane			10	U	
124-4	8-1	dibromochloromethane			290	D	
127-1	8-4	tetrachloroethene			360	D	_
108-9	0-7	chlorobenzene			10	U	

	,			1A			FFT	EPA SA	MPLE	NO.
Lab Name:	NJAL	/OLATI	Contract: PARS					NZT	1	
Lab Code:	DEP 110	005	Case No.:	Drun	n s	SAS No.:	S	DG No.:		
Matrix: (soil/v	vater)	WATE	R		6.3 at 2 at	Lab Sa	mple ID:	2.0g/I T24	-1 5d	
Sample wt/vol: 1.0		1.0	(g/ml)	ML		Lab Fi	e ID:	TS62410.D		
Level: (low/n	ned)	LOW				Date F	Received:	07/28/12		
% Moisture: not dec.						Date Analyzed:		07/29/11		
GC Column:	rt502.2	2-1 ID:	0.53 (n	nm)		Dilutio	n Factor:	5.0		
Soil Extract \	/olume:		(uL)			Soil Al	iquot Volu	ime:		(uL)
					CONCE					
CAS NO)	CC				ua/Ka)			0	
0/10/110					(09/2 01	ug/itg/	00/2		9	
108-38	3-3	n	n/p-xylene					10	U	
95-47-	-6	0	-xylene					10	U	
100-42	2-5	s	tyrene					10	U	
75-25-	-2	b	romoform					10	U	
98-82-	.8	is	sopropyl ber	izene				10	U	
79-34-	-5	1	,1,2,2-tetrac	hloro	ethane			10	U	
541-73	3-1	1	,3-dichlorob	enzer	ne			10	U	
95-50-	.1	1	,2-dichlorob	enzer	ne			10	U	
106-46	6-7	1	,4-dichlorob	enzer	ne			10	U	
120-82	2-1	1	,2,4-trichlor	obenz	ene			10	U	
87-61-	6	1	1,2,3-trichlorobenzene			10	U			

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

NZ T24 2g-1 Contract: PARS Lab Name: NJAL SAS No.: SDG No.: Lab Code: DEP 11005 Case No.: Drum Matrix: (soil/water) WATER Lab Sample ID: 2.0g/I T24-1 5d Lab File ID: TS62410.D Sample wt/vol: 1.0 (g/ml) ML Level: (low/med) LOW Date Received: 07/28/12 % Moisture: not dec. Date Analyzed: 07/29/11 GC Column: rt502.2-1 ID: 0.53 (mm) Dilution Factor: 5.0 Soil Extract Volume: (uL) Soil Aliquot Volume: (uL) CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Number TICs found: 0 EST. CONC. Q COMPOUND NAME RT CAS NO.

EPA SAMPLE NO.

		1A		EPA SAMPLE NO.		
	VO	LATILE ORGANICS ANAL	YSIS DATA SHEE	=	NZ T24 2g-2	
Lab Name:	NJAL		Contract: PARS	S		
Lab Code:	DEP 1100	5 Case No.: Drum	SAS No.:	SI	DG No.:	
Matrix: (soil/	water) W	/ATER	Lab Sam	ple ID:	2.0g/I T24	-2 5d
Comple with	al. 1		Lob Filo (n.	TC624111	`
Sample w/v	01. 1.			D.	1302411.1	,
Level: (low/r	med) Lo	WC	Date Rec	eived:	07/28/12	
% Moisture:	not dec.		Date Ana	lyzed:	07/29/11	
GC Column	rt502 2-1	ID: 0.53 (mm)	Dilution F	actor.	50	
	1002.21					
Soil Extract	Volume:	(uL)	Soil Aliqu	iot volu	me:	(u
		00				
	_	CO				
CAS NO	Э.	COMPOUND (ug/	L or ug/Kg)	JG/L		Q
75 74	_8	Dichlorodifuloromothan	A		10	
74-87	-0	chloromethane	e		10	<u> </u>
75-01	- <u>5</u>	vipyl chloride			10	
74-83	_9	bromomethane			10	<u> </u>
75-00	-3	chloroethane			10	
75-15	-0	carbon disulfide			10	U
75-65	-0	tert-butyl alcohol			10	Ŭ
1634-	04-4	MTBE			10	U
78-93	-3	MEK			25	U
67-64	-1	acetone			120	D
75-69		trichlorofluoromethane			10	U
75-35	-4	1,1-dichloroethene			10	U
75-09	-2	methylene chloride			15	D
156-6	0-5	trans-1,2-dichloroethen	e		10	U
75-34	-3	1,1-dichloroethane			10	U
67-66	-3	chloroform			10	U
108-1	0-1	MIBK			10	U
74-97	-5	bromochloromethane			10	<u>U</u>
71-55	-6	1,1,1-trichloroethane			10	<u> </u>
56-23	-5	carbon tetrachloride			10	<u> </u>
107-0	6-2	1,2-dichloroethane			10	<u> </u>
71-43	-2	benzene			10	<u> </u>
79-01	-6			·	10	
76-87	-0	1,2-dichloropropane	loroothono		10	
01 20	-1	Nanthalana			10	
79-20		Methyl Acetate			25	
110-8	- <u>-</u>	Cyclobexane			10	<u> </u>
108-8	7-2	Methyl Cyclohexane			10	<u> </u>
156-5	9-4	cis-1.2-dichloroethene	***····		10	Ū
75-27	-4	bromodichloromethane	·····		10	U
10061	1-01-5	cis-1,3-dichloropropene	9		10	U
108-8	8-3	toluene			10	U
10061	1-02-6	trans-1,3-dichloroprope	ene		10	U
591-7	'8-6	2-hexanone			25	U
79-00	-5	1,1,2-trichloroethane			10	U
124-4	8-1	dibromochloromethane)		280	D
127-1	8-4	tetrachloroethene			350	D

chlorobenzene

108-90-7

U

			1	A		0.155T	EPA SA		NO.
Lab Name:	V NJAL	/OLATII	LE ORGANICS	S ANALYS	SIS DATA	PARS	NZ T	24 2g-2	2
Lab Code:	DEP 110	005	Case No.: Dr	rum	SAS No.		SDG No.:		
Matrix: (soil/	water)	WATE	R		Lab	Sample ID	2.0a/l T 24	1-2 5d	A faces and
							T O 00 444	<u> </u>	1. 2.2 %
Sample wt/v	ol:	1.0	(g/ml) N	/L	Lab	File ID:	1\$62411	.D	
Level: (low/r	med)	LOW			Dat	e Received	07/28/12		
% Moisture:	not dec.				Dat	e Analyzed:	07/29/11		
GC Column:	rt502.2	2-1 ID:	0.53 (mm)	Dilu	ition Factor:	5.0		
Soil Extract	Volume:		(uL)		Soi	l Aliquot Vol	ume:		(uL)
				CON	CENTRAT	ION UNITS			
CAS NO	Э.	CO	MPOUND	(ug/L	or ug/Kg)	UG/L		Q	
108-3	8-3	m	/p-xylene				10	U	
95-47	-6	0	xylene				10	U	
100-4	2-5	st	yrene				10	U	
75-25	-2	b	romoform				10	Ų	
98-82	-8	is	opropyl benze	ne			10	U	
79-34	-5	1	1,2,2-tetrachlo	proethane			10	U	
541-7	3-1	1	<u>,3-dichloroben</u>	zene			10	U	
95-50	-1	1	,2-dichloroben	zene			10	U	
106-4	6-7	1	,4-dichloroben	zene			10	U	
120-8	2-1	1	,2,4-trichlorobe	enzene			10	U	
87-61	-6	1	2,3-trichlorobe	enzene			10	U	

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

NZ T24 2g-2 Lab Name: NJAL Contract: PARS SAS No.: SDG No.: Lab Code: DEP 11005 Case No.: Drum Matrix: (soil/water) WATER Lab Sample ID: 2.0g/I T24-2 5d Sample wt/vol: 1.0 Lab File ID: TS62411.D (g/ml) ML Level: (low/med) LOW Date Received: 07/28/12 % Moisture: not dec. Date Analyzed: 07/29/11 GC Column: rt502.2-1 ID: 0.53 (mm) Dilution Factor: 5.0 Soil Extract Volume: (uL) Soil Aliquot Volume: (uL) CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Number TICs found: 0 CAS NO. COMPOUND NAME RT EST. CONC. Q

EPA SAMPLE NO.

		1A			EPA SA	MPLE NO.
	\	VOLATILE ORGANICS ANAL	YSIS DATA SHEET			24.2 - 2
Lab Name:	NJAL		Contract: PARS			24 2g-3
Lab Code:	DEP 11	005 Case No.: Drum	SAS No.:	SD	G No.:	
Matrix: (soil/	water)	WATER	Lab Sample	e ID: 2	2.0g/I T24	-3 5d
Sample wt/v	ol:	1.0 (g/ml) MI	Lab File ID	-	FS62412.	D
		<u>(9</u> ,11,1)	- Data Dasai	=	7/20/42	
Level: (IOW/I	mea)		Date Recei	vea: ()//28/12	
% Moisture:	not dec.		Date Analy	zed: (07/29/11	
GC Column:	rt502.2	2-1 ID: 0.53 (mm)	Dilution Fac	ctor: 8	5.0	
Soil Extract	Volume:	(uL)	Soil Aliquot	Volum	ne:	(uL
			•			```````````````````````````````````````
		CO	NCENTRATION UN	ITS:		
CAS NO	Э.	COMPOUND (ug/	/Lorug/Kg) UG	i/L		Q
		· ·				
75-71	-8	Dichlorodifuloromethan	e		10	U
74-87	-3	chloromethane			10	U
75-01	-4	vinyl chloride			10	<u> </u>
74-83	-9	bromomethane			10	U
75-00	-3	chloroethane			10	0
75-15	-0				10	0
1624	-0				10	<u> </u>
79.02	04-4				25	<u> </u>
67-64	-5				100	D
75-69	-1	trichlorofluoromethane			10	<u> </u>
75-35	-4	1 1-dichloroethene			10	U
75-09	-2	methylene chloride			15	D
156-6	 i0-5	trans-1.2-dichloroethen	e		10	 U
75-34	-3	1,1-dichloroethane			10	U
67-66	j-3	chloroform			10	U
108-1	0-1	MIBK			10	U
74-97	-5	bromochloromethane			10	U
71-55	-6	1,1,1-trichloroethane			10	U
56-23	-5	carbon tetrachloride			10	U
107-0	6-2	1,2-dichloroethane			10	U
71-43	-2	benzene			10	<u> </u>
79-01	<u>-6</u>	trichloroethene			10	<u> </u>
78-87	-5	1,2-dichloropropane	largethere		10	<u> </u>
70-13	-1	Northolono	loroeinane		10	<u> </u>
70.20	-0	Methyl Acetate			25	
110-8	-9 2-7	Cyclobexape			10	<u> </u>
108-8	7-2	Methyl Cyclohexane			10	<u> </u>
156-5	9-4	cis-1.2-dichloroethene			10	<u> </u>
75-27	<u></u> 4	bromodichloromethane		44 A	10	Ū
10061	1-01-5	cis-1,3-dichloropropene	Э		10	U
108-8	8-3	toluene			10	U
10061	1-02-6	trans-1,3-dichloroprope	ene		10	U
591-7	8-6	2-hexanone			25	U
79-00	-5	1,1,2-trichloroethane			10	U
124-4	8-1	dibromochloromethane			280	D
127-1	8-4	tetrachloroethene			350	D
108-9	0-7	chlorobenzene			10	<u> </u>

					EPA S		10.
Lab Name:	NJAL	ATILE ORGANICS	Contra	ct: PARS	NZ	T24 2g-3	
Lab Code:	DEP 11005	Case No.: Dr	um SAS	No.:	SDG No.:		
Matrix: (soil/v	vater) W	ATER	100 1 10 add	Lab Sample I	D: 2.0g/I T2	24-3 5d	
Sample wt/vo	ol: 1.0) (a/ml) N	۱L	Lab File ID:	TS62412	2.D	
Level: (low/n	ned) I.C	W/		Date Receive	d 07/28/12	>	
0/ Moisturo:					d: 07/20/11		
% Moisture.				Date Analyze	u. 0772971		
GC Column:	rt502.2-1	ID: 0.53 (mm)	Dilution Facto	or: 5.0		
Soil Extract Volume: (1				Soil Aliquot V	'olume:		(uL)
			CONCENT		· C .		
			CONCENTI		3.	-	
CAS NO) .	COMPOUND	(ug/L or ug/	Kg) UG/L		Q	
108-38	3-3	m/p-xylene			10	U	
95-47-	-6	o-xylene			10	U	
100-42	2-5	styrene			10	<u>U</u>	
75-25-	2	bromoform			10	U	
98-82-	.8	isopropyl benze	ne		10	U	_
79-34-	-5	1,1,2,2-tetrachlo	proethane		10	U	
541-73	3-1	1,3-dichloroben	zene		10	U	_
95-50-	.1	1,2-dichloroben	zene		10	<u> </u>	_
106-46	6-7	1,4-dichloroben	zene		10	<u> </u>	_
120-82	2-1	1,2,4-trichlorobe	enzene		10	<u> </u>	
<u>87-6</u> 1-	.6	1,2,3-trichlorobe	enzene		10	U	

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

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		IENI	ATTVELTIDENT		JUNDS			~ 2
Lab Name:	NJAL			Contrac	t: PARS		NZ 124 Z	g-3
Lab Code:	DEP 110	005	Case No.: Drun	n SAS	No.:	S	DG No.:	
Matrix: (soil/v	vater)	WATE	۲	l	_ab Sample	ID:	2.0g/l T24-3 5	d
Sample wt/vo	ol:	1.0	(g/ml) ML		_ab File ID:		TS62412.D	- ,
Level: (low/n	ned)	LOW		I	Date Receiv	ed:	07/28/12	
% Moisture: r	not dec.			ĺ	Date Analyzed: 07/29/11			
GC Column:	rt502.2	2-1 ID:	0.53 (mm)	I	Dilution Fact	or:	5.0	
Soil Extract Volume: (uL)			(uL)	:	Soil Aliquot	Volu	me:	(uL)
Number TICs	s found:	0		CONCENTR (ug/L or ug/K	ATION UNI	TS: L	·	
CAS NO.		COMF	OUND NAME		RT	ES	T. CONC.	Q

III-1 Raw Chromatograms

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TS62401.D Vial: 14 Acq On : 29 Jul 2011 12:53 am Operator: A. Thomas Sample : Misc : : Ctrl T24-1 5d Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Time: Jul 29 6:45 19111 Quant Results File: T6072011.RES Quant Method : Y:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) ______ 1) fluorobenzene9.9696462954715.00 ug/l-0.1544) chlorobenzene-d515.22117481276515.00 ug/L-0.1656) 1,4-dichlorobenzene-d419.59152282581415.00 ug/L-0.16 System Monitoring Compounds 21) dibromofluoromethane (S) 8.67 113 1553225 28.50 ug/L -0.16 Spiked Amount 30.000 Range 80 - 120 Recovery = 95.00% 26) 1,2-dichloroethane-d4 (S) 9.45 102 376110 31.47 ug/L -0.15

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 104.90%

 36) toluene-d8 (S)
 12.58
 98
 5273975
 29.61
 ug/L
 -0.16

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 98.70%

 53) 4-bromofluorobenzene (BFB)
 17.39
 95
 3189398
 29.23
 ug/L
 -0.16

 Spiked Amount 30.000 Range 80 - 120 Recovery = 97.43% Target Compounds 14) acetone Qvalue 14) acetone5.27581176016.00 ug/L6717) methylene chloride6.15842141282.01 ug/L #10041) tetrachloroethene13.85166858804294.15 ug/L #7642) dibromochloromethane13.85129601158475.74 ug/L #61

24.00 25.00 26.00 27.00 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 Quant Results File: T6072011.RES A. Thomas GC/MS Ins 1,4-dichlorobenzene-d4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 14 4-bromofluorobenzene (BFB), S Multiplr: Vial: Operator: GCMS2 TIC: TS62401.D Inst chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\JUL11\LUL28\TS62401.D M,T,9M6Titemeriteda 24 10:29:36 2012 S ((S) 8b-ensulo? 27 16:32:48 2011 I, eneznedorouft Calibration 2,(2) 4b-ensiteotolicib-2,1 12:53 am 9.00 Feb ns: events.e 6:45 19111 2 (2) anerthamorouftomordib 8.00 Ъгі 7.00 Ctrl T24-1 5d 29 Jul 2011 MS Integration Params: Quant Time: Jul 29 6:4 Wed Jul Initial 6.00 M,T, abitotido enelyntem T6072011.M VOA 5.00 M,T ,enotects 4.00 Response via Abundance 1200000 •• Last Update 3.00 Data File TS62401.D Acq On Sample Method Title Misc 1100000 800000 700000 600000 300000 000006 500000 400000 200000 100000 0 100000 Time--> 43

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TS62402.D Vial: 15 Acq On : 29 Jul 2011 1:26 am Operator: A. Thomas Sample : Ctrl T24-2 5d Misc : Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Jul 29 6:45 19111 Quant Method : Y:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene9.9696445105915.00 ug/l-0.1544) chlorobenzene-d515.22117476655715.00 ug/L-0.1656) 1,4-dichlorobenzene-d419.59152273835215.00 ug/L-0.16 System Monitoring Compounds 21) dibromofluoromethane (S) 8.68 113 1540153 29.39 ug/L -0.15 Spiked Amount 30.000 Range 80 - 120 Recovery = 97.97% 26) 1,2-dichloroethane-d4 (S) 9.45 102 360712 31.39 ug/L -0.15 Spiked Amount 30.000 Range 80 - 120 Recovery = 104.63% 36) toluene-d8 (S)12.5898529263530.91 ug/L-0.15Spiked Amount30.000Range80 - 120Recovery=103.03% 53) 4-bromofluorobenzene (BFB) 17.39 95 3105031 28.73 ug/L -0.16 Spiked Amount 30.000 Range 80 - 120 Recovery = 95.77%
 Target Compounds
 Qvalue

 14) acetone
 5.25
 58
 93598
 4.97 ug/L
 49

 41) tetrachloroethene
 13.85
 166
 8092991
 92.28 ug/L
 #
 76

 42) dibromochloromethane
 13.85
 129
 5818562
 76.24 ug/L
 #
 61

20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES Thomas GC/MS Ins i,4-dichlorobenzene-d4, i 14.00 15.00 16.00 17.00 18.00 19.00 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 Å. 15 4-bromofluorobenzene (BFB), S Multiplr: C:\HPCHEM\1\DATA2011\JUL11\LUL28\TS62402.D Vial: 29 Jul 2011 1:26 am Operator: TIC: TS62402.D Inst chlorobenzene-d5, l M,T, shishterruthda 10.00 11.00 12.00 13.00 S ((S) 8b-eneulo) 27 16:32:48 2011 I, sneznedorouft Calibration 2 (2) 4b-ensiteoroldolb-2,1 9.00 Params: events.e dibromofluoromethane (S), S 8.00 ъ С 7.00 Wed Jul Initial Ctrl T24-2 6.00 Quant Time: Jul 29 VOA 5.00 M,T ,enotece MS Integration 4.00 Response via Abundance ••• Last Update 3.00 Data File Sample Acq On Method Title Misc 1000000 000006 800000 700000 600000 500000 400000 300000 200000 100000 0 1100000 Time--> 45

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GCMS2

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T6072011.M

TS62402.D

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TS62403.D Vial: 16 Acq On : 29 Jul 2011 1:59 am Operator: A. Thomas : Ctrl T24-3 5d Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Jul 29 6:45 19111 Quant Method : Y:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene9.9696441622215.00 ug/l-0.1544) chlorobenzene-d515.22117466662615.00 ug/L-0.1656) 1,4-dichlorobenzene-d419.60152267394415.00 ug/L-0.16 System Monitoring Compounds 21) dibromofluoromethane (S) 8.67 113 1529771 29.43 ug/L -0.16 Spiked Amount 30.000 Range 80 - 120 Recovery = 98.10%

 26) 1,2-dichloroethane-d4 (S)
 9.44
 102
 360306
 31.60 ug/L
 -0.16

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 105.33%

 36) toluene-d8 (S)
 12.58
 98
 5155756
 30.34 ug/L
 -0.16

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 101.13%

 53) 4-bromofluorobenzene (BFB) 17.39 95 2999220 28.35 ug/L -0.16 Spiked Amount 30.000 Range 80 - 120 Recovery = 94.50%

 Target Compounds
 Qvalue

 14) acetone
 5.26
 58
 94994
 5.08 ug/L
 47

 41) tetrachloroethene
 13.85
 166
 7954895
 91.42 ug/L #
 100

 42) dibromochloromethane
 13.85
 129
 5743731
 75.86 ug/L #
 61

 (\land) Page -10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES GC/MS Ins 1.00 A. Thomas 1,4-dichlorobenzene-d4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 16 4-bromofluorobenzene (BFB), 5 Multiplr: Operator: Vial: •• GCMS2 TIC: TS62403.D Inst chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\JUL11\LUL28\TS62403.D M,T,eMisTitermoritaideme 24 10:29:43 2012 2 ((2) 8b-eneulot 2011 I, anexnedorout 27 16:32:48 Calibration S ((S) \$b-ensite-onloroldaib-2,1 1:59 am 9.00 Feb MS Integration Params: events.e Quant Time: Jul 29 6:45 19111 2 (2) ensitemorouflomordib 8.00 Εri 7.00 Ctrl T24-3 5d 29 Jul 2011 Wed Jul Initial 6.00 TS62403.D T6072011.M VOA 5.00 М,Т ,елотерв 4.00 Response via ... Last Update 3.00 Data File Sample Acq On Method Title Abundance Misc 800000 700000 600000 500000 400000 300000 200000 100000 000006 0 1100000 100000 Time--> 47

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TS62404.D Vial: 17 Acq On : 29 Jul 2011 2:33 am Operator: A. Thomas : 0.5g/l T24-1 5d Sample Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Jul 29 6:45 19111 Quant Results File: T6072011.RES Quant Method : Y:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9596435189015.00 ug/l-0.1644) chlorobenzene-d515.22117453481115.00 ug/L-0.1656) 1,4-dichlorobenzene-d419.59152269396815.00 ug/L-0.16 System Monitoring Compounds 21) dibromofluoromethane (S) 8.67 113 1549713 30.25 ug/L -0.16 Spiked Amount 30.000 Range 80 - 120 Recovery = 100.83% 26) 1,2-dichloroethane-d4 (S) 9.44 102 346387 30.83 ug/L -0.15 Spiked Amount30.000Range80 - 120Recovery=102.77%36) toluene-d8 (S)12.5898506539230.25ug/L-0.16Spiked Amount30.000Range80 - 120Recovery=100.83% 53) 4-bromofluorobenzene (BFB) 17.39 95 2914111 28.34 ug/L -0.16 Spiked Amount 30.000 Range 80 - 120 Recovery = 94.47% Target Compounds 14) acetone Qvalue 14) acetone5.265832877117.85 ug/L8217) methylene chloride6.15842570022.57 ug/L #10041) tetrachloroethene13.851668915376103.97 ug/L #10042) dibromochloromethane13.84129619078182.97 ug/L #61

Quant Results File: T6072011.RES GC/MS Ins 1.00 Thomas 1,4-dichlorobenzene-d4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) A. 17 4-bromofluorobenzene (BFB), S Multiplr: Vial: Operator: TIC: TS62404.D Inst chlorobenzene-d5, l \Box C:\HPCHEM\1\DATA2011\JUL11\LUL28\TS62404 M,T, shishtemethidammand C ((C) 8b-eneulot 2011 I, eneznedorouñ 27 16:32:48 Calibration 2:33 am 2 ,(2) 4b-enanteoroldoib-2,1 MS Integration Params: events.e Quant Time: Jul 29 6:45 19111 dibromofluoromethane (S), S 50 0.5g/l T24-1 29 Jul 2011 Wed Jul Initial methylene chloride, T,M VOA M,T ,enoteca ., Response via •• Last Update Data File Acq On Sample Method Title Abundance 1100000 600000 Misc 000006 800000 700000 500000 400000 300000 200000 1200000 1000000 49

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23.00 24.00 25.00 26.00 27.00

22.00

10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00

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TS62404.D T6072011.M

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TS62405.D Vial: 18 Acq On : 29 Jul 2011 3:06 am Operator: A. Thomas Sample : 0.5g/l T24-2 5d Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Jul 29 6:45 19111 Quant Results File: T6072011.RES Quant Method : Y:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene9.9696430914415.00 ug/l-0.1544) chlorobenzene-d515.22117452792415.00 ug/L-0.1656) 1,4-dichlorobenzene-d419.59152263901115.00 ug/L-0.16 System Monitoring Compounds 21) dibromofluoromethane (S) 8.67 113 1514044 29.85 ug/L -0.16 Spiked Amount 30.000 Range 80 - 120 Recovery = 99.50% 26) 1,2-dichloroethane-d4 (S) 9.44 102 339657 30.53 ug/L -0.16 Spiked Amount30.000Range80 - 120Recovery= 101.77%36) toluene-d8 (S)12.5898498095130.04 ug/L-0.16Spiked Amount30.000Range80 - 120Recovery= 100.13% 53) 4-bromofluorobenzene (BFB) 17.39 95 2941089 28.65 ug/L -0.16 Spiked Amount 30.000 Range 80 - 120 Recovery = 95.50% Target Compounds Qvalue 14) acetone5.255833853318.56 ug/L9017) methylene chloride6.15842465642.49 ug/L #10041) tetrachloroethene13.85166829157197.66 ug/L #7642) dibromochloromethane13.85129576917178.09 ug/L #61

 \sim Page 22.00 23.00 24.00 25.00 26.00 27.00 20.00 21.00 Quant Results File: T6072011.RES GC/MS Ins 1.00 A. Thomas 1,4-dichlorobenzene-d4,1 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 18 4-bromofluorobenzene (BFB), S Multiplr: C:\HPCHEM\1\DATA2011\JUL11\LUL28\TS62405.D Vial: 29 Jul 2011 3:06 am Operator: GCMS 2 TIC: TS62405.D Inst chlorobenzene-d5, l M,T, ship Ttemantai dramen Fri Feb 24 10:29:51 2012 S ((S) 8b-eneulot 2011 I , eneznedorouft 27 16:32:48 Calibration S ((S) 4b-ensiteoroldolb-S, f 9.00 MS Integration Params: events.e Quant Time: Jul 29 6:45 19111 S ((S) ensitiemoroultomordib 8.00 5d 2.00 T24-2 29 Jul 2011 0.5g/l T24-2 Wed Jul Initial 6.00 M,T ,ebinoldo enelydfem T6072011.M VOA 5.00 M,T ,enotece 4.00 Response via Abundance •• Last Update 3.00 Data File TS62405.D Acq On Sample Method Title Misc 1000000 800000 1200000 900006 700000 600000 500000 300000 200000 0 1100000 400000 100000 Time-> 51

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TS62406.D Vial: 19 Acq On : 29 Jul 2011 3:39 am Operator: A. Thomas : 0.5g/l T24-3 5d Sample : Misc : Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Time: Jul 29 6:45 19111 Quant Results File: T6072011.RES Quant Method : Y:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev (Min) _____ 1) fluorobenzene9.9596424406615.00 ug/l-0.1644) chlorobenzene-d515.22117440242515.00 ug/L-0.1656) 1,4-dichlorobenzene-d419.59152260332415.00 ug/L-0.17 System Monitoring Compounds 21) dibromofluoromethane (S) 8.67 113 1471459 29.45 ug/L -0.16 Spiked Amount 30.000 Range 80 - 120 Recovery = 98.17% 26) 1,2-dichloroethane-d4 (S) 9.44 102 319319 29.14 ug/L -0.15 Spiked Amount30.000Range80 - 120Recovery=97.13%36) toluene-d8 (S)12.5898484921429.70 ug/L-0.16Spiked Amount30.000Range80 - 120Recovery=99.00% 53) 4-bromofluorobenzene (BFB) 17.39 95 2870038 28.75 ug/L -0.16 Spiked Amount 30.000 Range 80 - 120 Recovery = 95.83% Target Compounds 14) acetone Qvalue 14) acetone5.255833123518.44 ug/L9317) methylene chloride6.16842348982.41 ug/L #10041) tetrachloroethene13.85166794451595.00 ug/L #7642) dibromochloromethane13.85129555966776.40 ug/L #61

14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Résults File: T6072011.RES GC/MS Ins A. Thomas 1,4-dichlorobenzene-d4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 19 8.(818) energeneoutomond-b Multiplr: Vial: Operator: GCMS2 TIC: TS62406.D Inst cylorobenzene-d5, l C:\HPCHEM\1\DATA2011\JUL11\LUL28\TS62406.D M,T,sMpTiemptudaum Fri Feb 24 10:29:54 2012 10.00 11.00 12.00 13.00 2 (C) 8b-eneulor 27 16:32:48 2011 I, ensanedorouft Calibration 3:39 am S ((S) 4b-ensiteorolitaib-S, 9.00 MS Integration Params: events.e Quant Time: Jul 29 6:45 19111 dibromofluoromethane (S), S 8.00 5d 7.00 T24-3 29 Jul 2011 Wed Jul Initial 6.00 теthylene chloride, T,M T6072011.M 0.5g/l VOA 5.00 M,T, enotece 4.00 Response via •• Last Update 3.00 Data File TS62406.D Sample Acq On Method Title Abundance Misc 700000 000006 600000 500000 400000 300000 200000 100000 1100000 800000 0 1000000 Time--> 53

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TS62407.D Vial: 20 Acq On : 29 Jul 2011 4:12 am Operator: A. Thomas : 1.0g/l T24-1 5d Sample : Misc : Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Time: Jul 29 6:45 19111 Quant Results File: T6072011.RES Quant Method : Y:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9596411077215.00 ug/l-0.1644) chlorobenzene-d515.22117436757515.00 ug/L-0.1656) 1,4-dichlorobenzene-d419.59152256127215.00 ug/L-0.17 System Monitoring Compounds 21) dibromofluoromethane (S) 8.67 113 1489284 30.78 ug/L -0.16 Spiked Amount 30.000 Range 80 - 120 Recovery = 102.60% 26) 1,2-dichloroethane-d4 (S) 9.44 102 341139 32.14 ug/L -0.15 Spiked Amount30.000Range80 - 120Recovery=107.13%36) toluene-d8 (S)12.5898477730430.21 ug/L-0.16Spiked Amount30.000Range80 - 120Recovery=100.70% 53) 4-bromofluorobenzene (BFB) 17.39 95 2879208 29.07 ug/L -0.16 Spiked Amount 30.000 Range 80 - 120 Recovery = 96.90% Target Compounds 14) acetone Qvalue 14) acetone5.265835479920.39 ug/L8417) methylene chloride6.15842556042.71 ug/L #10041) tetrachloroethene13.85166578025871.36 ug/L #7642) dibromochloromethane13.84129414380558.79 ug/L #61

11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES A. Thomas GC/MS Ins i,4-dichlorobenzene-d4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 20 4-bromofluorobenzene (BFB), 5 Multiplr: Operator: Vial: GCMS2 TIC: TS62407.D Inst l , chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\JUL11\LUL28\TS62407.D M,T,eMsTtenartadrammanda 24 10:29:58 2012 2 ((2) 8b-eneulot 2011 10.00 fuorobenzene, l 27 16:32:48 Calibration am 2,(2) 4b-ensthane-d4 (S), 5 9.00 Fri Feb MS Integration Params: events.e Quant Time: Jul 29 6:45 19111 4:12 dibromofluoromethane (S), S 8.00 5d 7.00 T24-1 29 Jul 2011 1.0g/l T24-1 Wed Jul Initial 6.00 M,T, ebinoldo enelydfen T6072011.M VOA M,T ,enotece 5.00 4.00 Response via •• Last Update 3.00 Data File TS62407.D Acq On Sample Method Title Abundance Misc 800000 700000 650000 750000 600000 550000 500000 450000 400000 350000 300000 250000 200000 150000 100000 50000 0 Time--> 55

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TS62408.D Vial: 21 Acq On : 29 Jul 2011 4:45 am Sample : 1.0g/l T24-2 5d Operator: A. Thomas Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Jul 29 6:46 19111 Quant Method : Y:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene9.9596412197615.00 ug/l-0.1644) chlorobenzene-d515.21117439925715.00 ug/L-0.1656) 1,4-dichlorobenzene-d419.59152254023915.00 ug/L-0.17 System Monitoring Compounds 21) dibromofluoromethane (S) 8.67 113 1476358 30.43 ug/L -0.16 Spiked Amount 30.000 Range 80 - 120 Recovery = 101.43% Spiked Amount30.000Range80 - 120Recovery= 101.43%26) 1,2-dichloroethane-d4 (S)9.4410232525030.56ug/L-0.15Spiked Amount30.000Range80 - 120Recovery= 101.87%36) toluene-d8 (S)12.5898476537730.05ug/L-0.16Spiked Amount30.000Range80 - 120Recovery= 100.17%53) 4-bromofluorobenzene(BFB)17.3995279792828.05ug/L-0.17Spiked Amount 30.000 Range 80 - 120 Recovery = 93.50%

 Target Compounds
 Qvalue

 14) acetone
 5.26
 58
 339907
 19.48 ug/L
 87

 17) methylene chloride
 6.15
 84
 230655
 2.44 ug/L
 #
 100

 41) tetrachloroethene
 13.84
 166
 5799515
 71.41 ug/L
 #
 76

 42) dibromochloromethane
 13.84
 129
 4089397
 57.86 ug/L
 #
 61

14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES A. Thomas GC/MS Ins I,4-dichlorobenzene-d4, I C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 21 4-bromofluorobenzene (BFB), S Multiplr: Operator: Vial: GCMS2 TIC: TS62408.D Inst | 'Sb-ensensenedorolet C:\HPCHEM\1\DATA2011\JUL11\LUL28\TS62408.D , Ttenentaldradmaardat Fri Feb 24 10:30:01 2012 10.00 11.00 12.00 13.00 S '(S) gp-eueniot 27 16:32:48 2011 1, enstredorout Calibration 1,2-dichloroethane-d4 (S), S ап 9.00 MS Integration Params: events.e Quant Time: Jul 29 6:46 19111 4:45 8 (8) ensitemoroultomordia 8.00 Ъd 00.7 1.0g/l T24-2 29 Jul 2011 Wed Jul Initial 6.00 M,T ,ebitotido enelytitem TS62408.D T6072011.M VOA 5.00 M,T ,enotecs 4.00 Response via ••• Last Update 3.00 Data File Acq On Sample Method Title **000055** 57 Abundance Misc 800000 700000 750000 600000 500000 450000 400000 350000 300000 200000 650000 250000 150000 100000 50000 o Time-->

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TS62409.D Vial: 22 Acq On : 29 Jul 2011 5:19 am Operator: A. Thomas Inst : GC/MS Ins Sample : Misc : : 1.0g/l T24-3 5d Multiplr: 1.00 MS Integration Params: events.e Quant Time: Jul 29 6:46 19111 Quant Results File: T6072011.RES Quant Method : Y:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9596408144915.00 ug/l-0.1644) chlorobenzene-d515.21117440107815.00 ug/L-0.1656) 1,4-dichlorobenzene-d419.59152258221115.00 ug/L-0.17 System Monitoring Compounds 21) dibromofluoromethane (S) 8.67 113 1503772 31.30 ug/L -0.16 Spiked Amount 30.000 Range 80 - 120 Recovery = 104.33% 26) 1,2-dichloroethane-d4 (S) 9.44 102 336907 31.97 ug/L -0.16

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 106.57%

 36) toluene-d8 (S)
 12.58
 98
 4745323
 30.22
 ug/L
 -0.16

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 106.57%

 36) toluene-d8 (S)
 12.58
 98
 4745323
 30.22
 ug/L
 -0.16

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 100.73%

 53) 4-bromofluorobenzene
 (BFB)
 17.39
 95
 2774719
 27.81
 ug/L
 -0.16

 Spiked Amount 30.000 Range 80 - 120 Recovery = 92.70% Target Compounds Qvalue 14) acetone5.255835028520.28 ug/L8717) methylene chloride6.15842589872.76 ug/L #10041) tetrachloroethene13.85166571438871.06 ug/L #10042) dibromochloromethane13.85129403923457.72 ug/L #61

10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES GC/MS Ins 1.00 A. Thomas 1,4-dichlorobenzene-d4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 22 4-bromofluorobenzene (BFB), S Multiplr: Operator: Vial: TIC: TS62409.D Inst chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\JUL11\LUL28\TS62409.D M,T,9M6Rtemental@automa 2 ((2) Sb-eneulof 2011 I, ensznadoroult 27 16:32:48 Calibration 5:19 am 2 ,(2) 4b-ensiteorolidaib-2,1 9.00 Params: events.e dibromofluoromethane (S), S 8.00 50 7.00 T24-3 29 Jul 2011 1.0g/l T24-0 Wed Jul Initial 6.00 M,T ,ebinoldo enelydfem Quant Time: Jul 29 VOA 5.00 M,T ,enotece MS Integration 4.00 Response via •• Last Update 3.00 Data File Acq On Sample Method Title Misc Abyggggge 750000 650000 400000 350000 250000 150000 700000 600000 550000 500000 450000 300000 200000 100000 50000 0 Time-> 59

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GCMS2

Feb 24 10:30:05 2012

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T6072011.M

TS62409.D

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TS62410.D Vial: 23 Acq On : 29 Jul 2011 5:51 am Operator: A. Thomas Sample : 2.0g/1 T24-1 5d Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Jul 29 6:46 19111 Quant Results File: T6072011.RES Quant Method : Y:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9596391376715.00 ug/l-0.1644) chlorobenzene-d515.21117416023115.00 ug/L-0.1656) 1,4-dichlorobenzene-d419.59152239269315.00 ug/L-0.17 System Monitoring Compounds 21) dibromofluoromethane (S) 8.67 113 1369401 29.72 ug/L -0.16 Spiked Amount 30.000 Range 80 - 120 Recovery = 99.07% 26) 1,2-dichloroethane-d4 (S) 9.44 102 316488 31.32 ug/L -0.16 Spiked Amount30.000Range80 - 120Recovery=104.40%36) toluene-d8 (S)12.5798457544330.39 ug/L-0.16Spiked Amount30.000Range80 - 120Recovery=101.30% 53) 4-bromofluorobenzene (BFB) 17.39 95 2644870 28.04 ug/L -0.17 Spiked Amount 30.000 Range 80 - 120 Recovery = 93.47% Target Compounds 14) acetone Qvalue 14) acetone5.255836786022.21 ug/L9217) methylene chloride6.15842630952.93 ug/L #10041) tetrachloroethene13.84166554413771.89 ug/L #7642) dibromochloromethane13.84129388093957.83 ug/L #61

 \sim Page 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES Inst : GC/MS Ins Multiplr: 1.00 A. Thomas I,4b-eneznedoroldoib-4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 23 4-bromofluorobenzene (BFB), S Operator: Vial: GCMS2 FIC: TS62410.D chlorobenzena-d5, l Ω C:\HPCHEM\1\DATA2011\JUL11\LUL28\TS62410. MELTOLIA TROPHYSIC Fri Feb 24 10:30:09 2012 S ((S) 8b-ensulo) 2011 I, ensznedorouñ 27 16:32:48 Calibration 2,(2) to ethane-d4 (5), 5 5:51 am 9.00 MS Integration Params: events.e Quant Time: Jul 29 6:46 19111 dibromofluoromethane (S), S 8.00 59 7.00 29 Jul 2011 2.0g/l T24-1 Wed Jul Initial 6.00 M,T ,sbiroldo enelydsen T6072011.M VOA м,Т ,епотере 5.00 4.00 Response via •• Last Update 3.00 Data File TS62410.D Method Title Acq On Sample Abundance 800000-Misc 750000 700000 650000 600000 550000 500000 400000 350000 300000 250000 200000 150000 100000 50000 450000 0 Time-> 61

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TS62411.D Vial: 24 Acq On : 29 Jul 2011 6:25 am Sample : 2.0g/l T24-2 5d Operator: A. Thomas Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Jul 29 9:52 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9596392573715.00 ug/l-0.1644) chlorobenzene-d515.21117418642915.00 ug/L-0.1656) 1,4-dichlorobenzene-d419.59152240020315.00 ug/L-0.17 System Monitoring Compounds 21) dibromofluoromethane (S) 8.67 113 1412955 30.57 ug/L -0.16 Spiked Amount 30.000 Range 80 - 120 Recovery = 101.90%

 26) 1,2-dichloroethane-d4 (S)
 9.44
 102
 290522
 28.66
 ug/L
 -0.16

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 95.53%

 36) toluene-d8 (S)
 12.57
 98
 4476938
 29.64
 ug/L
 -0.16

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 98.80%

 53) 4-bromofluorobenzene
 (BFB)
 17.39
 95
 2656404
 27.99
 ug/L
 -0.17

 Spiked Amount 30.000 Range 80 - 120 Recovery = 93.30%

 Target Compounds
 Qvalue

 14) acetone
 5.26
 58
 399719
 24.06 ug/L
 93

 17) methylene chloride
 6.14
 84
 271368
 3.01 ug/L #
 100

 41) tetrachloroethene
 13.84
 166
 5355630
 69.24 ug/L #
 76

 42) dibromochloromethane
 13.84
 129
 3799111
 56.44 ug/L #
 61

 \sim 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES Thomas GC/MS Ins 1,4b-eneznedoroldbib-4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 A. 24 4-bromofluorobenzene (BFB), 5 Multiplr: Operator: Vial: GCMS2 TIC: TS62411.D Inst 1 'gp-euszuegoueius Ω. C:\HPCHEM\1\DATA2011\JUL11\LUL28\TS62411 nenterenterenterenter 24 10:30:12 2012 2 ((2) 8b-eneulor 27 16:32:48 2011 fluorobenzene, l Calibration am S ,(S) 4b-enertreorothoib-S, f Feb 9.00 Params: events.e 6:25 dibromofluoromethane (S), S 9:52 19111 8.00 Fri 5d 7.00 2.0g/l T24-2 29 Jul 2011 Wed Jul Initial 6.00 methylene chloride, T,M Quant Time: Jul 29 T6072011.M VOA 5.00 M,T ,enotece MS Integration 4.00 Response via .. Last Update 3.00 Data File TS62411.D Method Title Acq On Sample Abundance Misc 700000 650000 600000 550000 500000 450000 350000 300000 250000 750000 400000 200000 150000 100000 50000 0 Time-> 63

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TS62412.D Vial: 25 Acq On : 29 Jul 2011 6:58 am Operator: A. Thomas : 2.0g/l T24-3 5d Inst : GC/MS Ins Sample Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Jul 29 9:52 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene9.9596404796315.00 ug/l-0.1644) chlorobenzene-d515.21117434301715.00 ug/L-0.1756) 1,4-dichlorobenzene-d419.59152255290615.00 ug/L-0.17 System Monitoring Compounds 21) dibromofluoromethane (S) 8.67 113 1479847 31.05 ug/L -0.16 Spiked Amount 30.000 Range 80 - 120 Recovery = 103.50% 26)1,2-dichloroethane-d4(S)9.4410232325630.93ug/L-0.16Spiked Amount30.000Range80 - 120Recovery=103.10%36)toluene-d8(S)12.5798464373629.82ug/L-0.16Spiked Amount30.000Range80 - 120Recovery=99.40% 53) 4-bromofluorobenzene (BFB) 17.39 95 2723098 27.65 ug/L -0.17 Spiked Amount 30.000 Range 80 - 120 Recovery = 92.17%

 Target Compounds
 Qvalue

 14) acetone
 5.25
 58
 358758
 20.94 ug/L
 83

 17) methylene chloride
 6.14
 84
 275426
 2.96 ug/L #
 100

 41) tetrachloroethene
 13.84
 166
 5602315
 70.24 ug/L #
 76

 42) dibromochloromethane
 13.84
 129
 3916875
 56.44 ug/L #
 61

10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES Thomas GC/MS Ins 1,4b-ensznadoroldsib-4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 A. 25 4-bromofluorobenzene (BFB), S Multiplr: Vial: Operator: GCMS2 TIC: TS62412.D Inst chlorobenzene-d5, l Ω. C:\HPCHEM\1\DATA2011\JUL11\LUL28\TS62412 6719mentadrasinaard 24 10:30:16 2012 2 ,(2) 8b-eneutos 2011 1, energenedoroult 27 16:32:48 Calibration am 1,2-dichloroethane-d4 (S), S 9.00 Feb MS Integration Params: events.e Quant Time: Jul 29 9:52 19111 6:58 C (C) and the more than a (C), S 8.00 БТİ Sd 7.00 2.0g/l T24-3 29 Jul 2011 Wed Jul Initial 6.00 methylene chloride, T,M T6072011.M VOA M,T ,enotece 4.00 5.00 Response via .. Last Update 3.00 Data File TS62412.D Acq On Sample Method Title Abundance Misc 800000 750000 700000 650000 600000 550000 500000 450000 400000 350000 300000 250000 200000 150000 100000 50000 0 Time-> 65

 \sim Page IV-1 Method Tunes

IV-2 Method Blanks

IV-3 Daily Calibration

IV-4 Laboratory Control Samples

Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL27\S62409.D Vial: 13 Acq On : 27 Jul 2011 5:22 pm Sample : 0000316 drum screen Operator: A. Thomas Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 2 17:24 19111 Quant Results File: 62072711.RES Quant Method : C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 02 16:45:00 2011 Response via : Initial Calibration DataAcg Meth : VOC2 R.T. QIon Response Conc Units Dev(Min) Internal Standards _____ 1) fluorobenzene10.0196456703415.00 ug/l0.0058) chlorobenzene-d515.28117461507215.00 ug/L0.0084) 1,4-dichlorobenzene-d419.65152253657715.00 ug/L0.00 System Monitoring Compounds 29) dibromofluoromethane (S) 8.73 113 1679765 28.64 ug/L 0.00 Spiked Amount 30.000 Range 80 - 120 Recovery = 95.47% 35) 1,2-dichloroethane-d4 (S) 9.50 102 369860 29.26 ug/L 0.00 Spiked Amount30.000Range80 - 120Recovery=97.53%48) toluene-d8 (S)12.6498522000229.20 ug/L0.00Spiked Amount30.000Range80 - 120Recovery=97.33% 68) 4-bromofluorobenzene (BFB) 17.45 95 3002846 29.96 ug/L 0.00 Spiked Amount 30.000 Range 80 - 120 Recovery = 99.87% Target Compounds Qvalue 11) MTBE6.39733193211.30ug/L#5738) trichloroethene10.651303479944.22ug/L#6755) tetrachloroethene13.9116655352961380.21ug/L#9656) dibromochloromethane13.9112941464726530.71ug/L#10069) 1,2,3-trichloropropane17.4575177271923.33ug/L#100

	S)																	21.00 22.00 23.00 24.00 25.00 26.00 27.00	a Ded
lon keport	.D Vial: 13 Operator: A. Thomas Inst : GC/MS Ins Multiplr: 1.00 esults File: 62072711.RE	station Integrator)	C: S62409.D										S '(8	ا, ا الآية بهرهم ۱, ۵۵-۵۹، ۱	p-enezna	odorold: Iomotola, Iomotola, I	•	0 15.00 16.00 17.00 18.00 19.00 20.00	
Quantitat	2011\JUL11\LUL27\S62409 22 pm een s.e Quant R	3THODS\62072711.M (Chem :18:57 2011 cation		T gan din	nga saya ya	a lap al	•							2 (2) a	nacthermo b-e-nachte l, e-ne M,T,er 8,(2)8	ioufform oroldraft sonedorc nerfseorc b-eneule	олайb хий - кий	9.00 10.00 11.00 12.00 13.00 14.0	
Ŀ	<pre>le : C:\HPCHEM\1\DATA2 : 27 Jul 2011 5:2 : 0000316 drum scre : tration Params: events tme: Aug 2 17:24 1911</pre>	: C:\HPCHEM\1\MF : VOA date : Tue Aug 09 17: e via : Initial Calibi														M,T ,	,38TM	00 4.00 5.00 6.00 7.00 8.00	
	Data Fil Acq On Sample Misc MS Intec Quant Ti	Method Title Last Upc Response	Abundance 850000	800000	750000	700000	650000	600000 5500000	500000	450000	400000	350000	300000	250000	150000	100000	50000	0 0	

Study: ERD NZVI

Time point: T=1 days/ 24Hours

Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TBF62401.D Vial: 11 : 28 Jul 2011 10:41 pm Operator: A. Thomas Acq On : 50ng bfb 624/5ml 7/28/11 : GC/MS Ins Sample Inst Misc Multiplr: 1.00 MS Integration Params: events.e Method : C:\HPCHEM\1\METHODS\T8071811.M (Chemstation Integrator) Title : VOA



Spectrum Information: Average of 17.377 to 17.411 min.

 	Target Mass	 	Rel. to Mass	 	Lower Limit%	 	Upper Limit%	 	Rel. Abn%	 	Raw Abn	 	Result Pass/Fail	
	50		95		15		40		26.4		16618		PASS	
İ	75	Ì	95		30	I.	70	1	49.9	Ì	31485		PASS	
Ì	95		95		100		100		100.0		63040		PASS	
Ì	96	1	95		5		9		6.9		4364		PASS	
	173		174		0.00		2		0.0		0		PASS	
	174		95		50		100		76.3		48120		PASS	
	175		174		5		9		7.8		3738		PASS	
	176		174		95		101		100.7		48448		PASS	
	177	ł	176		5		9		7.2		3477	ł	PASS	

Quantitation Report (QT Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TBL62401.D Vial: 11 Acq On : 28 Jul 2011 11:14 pm Sample : Blank 624/5ml 7/28/11 Operator: A. Thomas Sample : Misc : Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Feb 24 11:16 19112 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9596481876315.00 ug/l-0.1644) chlorobenzene-d515.21117502053015.00 ug/L-0.1656) 1,4-dichlorobenzene-d419.59152292873415.00 ug/L-0.17 System Monitoring Compounds 21) dibromofluoromethane (S) 8.68 113 1600981 28.22 ug/L -0.16 Spiked Amount 30.000 Range 80 - 120 Recovery = 94.07% 26) 1,2-dichloroethane-d4 (S) 9.44 102 393502 31.63 ug/L -0.16 Spiked Amount 30.000 Range 80 - 120 Recovery = 105.43% 36) toluene-d8 (S)12.5798559585530.18 ug/L-0.16Spiked Amount30.000Range80 - 120Recovery=100.60%53) 4-bromofluorobenzene (BFB)17.3995335886829.51 ug/L-0.16 Spiked Amount 30.000 Range 80 - 120 Recovery = 98.37%

Target Compounds

Ovalue

Results File: T6072011.RES A. Thomas GC/MS Ins I, Ab-eneznedoveldeib A, C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 3 Multiplr: C:\HPCHEM\1\DATA2011\JUL11\LUL28\TBL62401.D Vial: Operator: TIC: TBL62401.D Inst | 'cp-euezuego-ojuc Quant S ((S) 8b-eneutor 2011 I, eneznedoren i 27 16:32:48 Calibration 2,(2) 4b-ensiteorolitaib-2,f 28 Jul 2011 11:14 pm Blank 624/5ml 7/28/11 MS Integration Params: events.e Quant Time: Feb 24 11:16 19112 C (C) enertiemorouffomordib Wed Jul Initial VOA Response via •• Last Update Data File Acq On Sample Method Title Abundance 550000 Misc 100000 500000 450000 400000 350000 300000 250000 200000 150000 50000 74

Page 2

10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00

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TBL62401.D T6072011.M

9.00

8.00

7.00

6.00

5.00

4.00

3.00

Time-->

0

Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TDC62401.D Vial: 12 Acq On : 28 Jul 2011 11:47 pm Sample : 20ppb cal 624/5ml 7/28/11 Misc : Operator: A. Thomas Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Multiple Level Calibration Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min Max. RRF Dev : 30% Max. Rel. Area : 200% AvgRF CCRF %Dev Area% Dev(min) Compound

1	I	fluorobenzene	1.000	1.000	0.0	99	-0.16
3	Т,М	chloromethane	0.312	0.217	30.4#	68	-0.10
4	С,Т,1	M vinyl chloride	0.184	0.155	15.8	89	-0.10
5	Т,М	bromomethane	0.144	0.057	60.4#	41#	-0.12
6	Т,М	chloroethane	0.225	0.234	-4.0	97	-0.12
7	t	112-Trichloro-122-Trifluoro	0.289	0.216	25.3	68	-0.13
8	t	Methyl Acetate	0.047	0.050	-6.4	96	-0.15
9	Т,М	carbon disulfide	0.586	0.428	27.0	64	-0.16
10	Т,М	MTBE	0.785	0.722	8.0	96	-0.14
11	t	1,4 Dioxane	0.028	0.023	17.9	69	-0.14
12	Т,М	tert-butyl alcohol	0.054	0.045	16.7	76	-0.17
13	Т,М	MEK	0.044	0.036	18.2	75	-0.16
14	Т,М	acetone	0.049	0.042	14.3	92	-0.12
15	Т,М	trichlorofluoromethane	0.385	0.275	28.6	61	-0.13
16	С,Т,І	M 1,1-dichloroethene	0.514	0.380	26.1	66	-0.15
17	Т,М	methylene chloride	0.345	0.269	22.0	76	-0.15
18	Т,М	trans-1,2-dichloroethene	0.525	0.435	17.1	78	-0.15
19	Т,М	1,1-dichloroethane	0.651	0.562	13.7	79	-0.16
20	С,Т,1	M chloroform	0.380	0.339	10.8	83	-0.16
21	S	dibromofluoromethane (S)	0.177	0.183	-3.4	102	-0.15
22	Т,М	bromochloromethane	0.149	0.131	12.1	76	-0.16
23	t	Cyclohexane	0.417	0.333	20.1	70	-0.16
24	Т,М	1,1,1-trichloroethane	0.440	0.398	9.5	81	-0.16
25	Т,М	carbon tetrachloride	0.326	0.297	8.9	79	-0.16
26	S	1,2-dichloroethane-d4 (S)	0.039	0.040	-2.6	99	-0.16
27	Т,М	1,2-dichloroethane	0.545	0.495	9.2	86	-0.16
28	Т,М	benzene	1.096	0.936	14.6	77	-0.16
29	Т,М	trichloroethene	0.285	0.266	6.7	79	-0.16
30	t	Methyl Cyclohexane	0.479	0.405	15.4	74	-0.16
31	С,Т,1	M 1,2-dichloropropane	0.325	0.299	8.0	85	-0.15
32	Т,М	MIBK	0.036	0.030	16.7	79	-0.14
33	Т,М	cis-1,2-dichloroethene	0.532	0.463	13.0	81	-0.16
34	т,М	bromodichloromethane	0.353	0.327	7.4	82	-0.16
35	Т,М	cis-1,3-dichloropropene	0.426	0.385	9.6	80	-0.16
36	S	toluene-d8 (S)	0.577	0.587	-1.7	98	-0.16
37	С,Т,1	M toluene	1.119	0.955	14.7	71	-0.16
38	т,М	trans-1,3-dichloropropene	0.447	0.330	26.2	68	-0.04
39	т,М	2-hexanone	0.130	0.109	16.2	92	-0.16
40	Т,М	1,1,2-trichloroethane	0.210	0.200	4.8	87	-0.16
41	т,М	tetrachloroethene	0.296	0.291	1.7	82	-0.16
42	т,М	dibromochloromethane	0.218	0.210	3.7	80	-0.16
43	Т,М	1,2-dibromoethane	0.253	0.240	5.1	84	-0.16
44	I	chlorobenzene-d5	1.006	1.000	0.0	87	-0.16
45	М,Т	chlorobenzene	0.554	0.551	0.5	82	-0.16

46	С,Т,М	1 ethyl benzene	1.066	1.044	2.1	80	-0.16
47	Т,М	m/p-xylene	0.929	0.881	5.2	69	-0.16
48	Т,М	o-xylene	0.874	0.871	0.3	81	-0.16
49	т,М	styrene	0.528	0.513	2.8	79	-0.16
50	Т,М	isopropyl benzene	0.953	0.947	0.6	81	-0.16
51	Т,М	bromoform	0.123	0.118	4.1	82	-0.17
52	Т,М	1,1,2,2-tetrachloroethane	0.274	0.269	1.8	86	-0.16
53	S	4-bromofluorobenzene (BFB)	0.340	0.329	3.2	85	-0.16
54	Т,М	1,3-dichlorobenzene	0.404	0.392	3.0	78	-0.16
55	Т,М	1,2-dichlorobenzene	0.383	0.393	-2.6	85	-0.17
56	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	76	-0.17
57	Т,М	1,4-dichlorobenzene	0.639	0.727	-13.8	86	-0.18
58	Т,М	1,2-dibromo-3-chloropropane	0.069	0.066	4.3	96	-0.16
59	Т,М	1,2,4-trichlorobenzene	0.387	0.425	-9.8	80	-0.17
60	Т,М	Napthalene	0.822	0.820	0.2	83	-0.17
61	Т,М	1,2,3-trichlorobenzene	0.343	0.380	-10.8	85	-0.17

(#) = Out of Range SPCC's out = 0 CCC's out = 0 BF62401.D T6072011.M Fri Feb 24 11:39:45 2012 GCMS2

Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TDC62402.D Vial: 27

 Acq On
 : 29 Jul 2011 8:04 am
 Operator: A. Thomas

 Sample
 : 20ppb cal2 624/5ml 7/28/11
 Inst : GC/MS Ins

 Misc
 :
 Multiplr: 1.00

 MS Integration Params: events.e : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Method : VOA Title Last Update : Wed Jul 27 16:32:48 2011 Response via : Multiple Level Calibration Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min Max. RRF Dev : 30% Max. Rel. Area : 200% CompoundAvgRFCCRFYDev Area% Dev(min1Ifluorobenzenee1.0001.0000.082-0.163T,Mchloromethane0.3120.20733.7#53-0.104C,T,Mvinylchloromethane0.1440.1773.884-0.105T,Mbromomethane0.2250.234-4.079-0.127t112-Trichloro-122-Trifluoro0.2890.24216.363-0.159T,Mcarbon disulfide0.5860.43026.653-0.1610T,MMTEE0.7850.7751.385-0.1511t1.4bioxane0.0280.0267.165-0.1613T,MMEK0.0440.02738.6#47#-0.1614T,Macetone0.0490.03822.470-0.1415T,Mtrichlorofluoromethane0.5140.43515.463-0.1517T,Mmethylene chloride0.3450.33413.261-0.1617T,Mmethylene chloride0.3450.4449.770-0.1616T,Mtrans-1,2-dichloroethene0.5250.4749.770-0.1617T,Mmethylene chloride0.3450.34413.261-0.1517T,Mtrans-1,2-dichloroethane0.1490.33515.463-0.16</t Compound AvgRF CCRF %Dev Area% Dev(min) 44 Ichlorobenzene-d51.07801.0000.073-0.1745 M,Tchlorobenzene0.5540.580-4.773-0.17

46	С,Т,М	1 ethyl benzene	1.066	1.111	-4.2	71	-0.17
4/	Ί,М	m/p-xylene	0.929	0.963	-3.1	63	-0.17
48	Т,М	o-xylene	0.874	0.927	-6.1	72	-0.17
49	т,М	styrene	0.528	0.552	-4.5	71	-0.17
50	Т,М	isopropyl benzene	0.953	0.999	-4.8	72	-0.17
51	т,М	bromoform	0.123	0.117	4.9	68	-0.17
52	т,М	1,1,2,2-tetrachloroethane	0.274	0.273	0.4	73	-0.17
53	S	4-bromofluorobenzene (BFB)	0.340	0.327	3.8	71	-0.17
54	Т,М	1,3-dichlorobenzene	0.404	0.436	-7.9	73	-0.18
55	Т,М	1,2-dichlorobenzene	0.383	0.414	-8.1	75	-0.19
56	Ι	1,4-dichlorobenzene-d4	1.000	1.000	0.0	66	-0.17
57	т,М	1,4-dichlorobenzene	0.639	0.714	-11.7	74	-0.18
58	Т,М	1,2-dibromo-3-chloropropane	0.069	0.062	10.1	79	-0.17
59	Т,М	1,2,4-trichlorobenzene	0.387	0.401	-3.6	66	-0.18
60	Т,М	Napthalene	0.822	0.741	9.9	65	-0.18
61	Т,М	1,2,3-trichlorobenzene	0.343	0.372	-8.5	72	-0.18

(#) = Out of Range SPCC's out = 0 CCC's out = 0 BF62401.D T6072011.M Fri Feb 24 11:41:18 2012 GCMS2

Quantitation Report (QT Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TDC62401.D Vial: 12 Acq On: 28 Jul 2011 11:47 pmOperator: A. ThomasSample: 20ppb cal 624/5ml 7/28/11Inst: GC/MS InsMisc:Multiplr: 1.00 MS Integration Params: events.e Quant Time: Feb 24 11:39 19112 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9596484843815.00 ug/l-0.1644) chlorobenzene-d515.22117516214715.00 ug/L-0.1656) 1,4-dichlorobenzene-d419.59152301841615.00 ug/L-0.17 System Monitoring Compounds 21) dibromofluoromethane (S) 8.68 113 1774608 31.09 ug/L -0.15

 21) dibromorluoromethane (S)
 8.68
 113
 1774608
 31.09
 ug/L
 -0.15

 Spiked Amount
 30.000
 Range
 80
 - 120
 Recovery
 =
 103.63%

 26) 1,2-dichloroethane-d4
 (S)
 9.44
 102
 391291
 31.26
 ug/L
 -0.16

 Spiked Amount
 30.000
 Range
 80
 - 120
 Recovery
 =
 104.20%

 36) toluene-d8
 (S)
 12.58
 98
 5689322
 30.50
 ug/L
 -0.16

 Spiked Amount
 30.000
 Range
 80
 - 120
 Recovery
 =
 101.67%

 53) 4-bromofluorobenzene
 (BFB)
 17.39
 95
 3396958
 29.02
 ug/L
 -0.16

 Spiked Amount 30.000 Range 80 - 120 Recovery = 96.73% Target Compounds Qvalue

 3) chloromethane
 3.48
 50
 1402039m
 13.88 ug/L

 4) vinyl chloride
 3.63
 62
 1002481m
 16.83 ug/L

 5) bromomethane
 4.23
 96
 366065
 7.88 ug/L

 6) chloroethane
 4.30
 64
 1513440m
 20.84 ug/L

 3) chloromethane 95

 6) chloroethane
 4.30
 64
 1513440m
 20.84 ug/L

 7) 112-Trichloro-122-Trifluor
 5.20
 101
 1397619m
 14.94 ug/l

 8) Methyl Acetate
 5.86
 74
 321782m
 17.65 ug/l

 9) carbon disulfide
 6.26
 76
 2769129m
 14.62 ug/L

 10) MTBE
 6.32
 73
 4667780
 18.41 ug/L
 95

 11) 1,4 Dioxane
 6.15
 88
 148924
 14.64 ug/l
 #
 100

 12) tert-butyl alcohol
 5.50
 59
 1468551m
 84.81 ug/l
 100

 13) MEK
 7.74
 72
 232831m
 16.42 ug/L
 14.31 ug/L

 14) acetone
 5.27
 58
 269521m
 13.13 ug/L

 13)16117.1417.212.02031m16.1210.121

(#) = qualifier out of range (m) = manual integration TDC62401.D T6072011.M Fri Feb 24 891:42:43 2012 GCMS2 Page 1

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Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TDC62401.D Vial: 12
Acq On : 28 Jul 2011 11:47 pm
                                                  Operator: A. Thomas
Sample : 20ppb cal 624/5ml 7/28/11
Misc :
                                                  Inst : GC/MS Ins
                                                  Multiplr: 1.00
MS Integration Params: events.e
Quant Time: Feb 24 11:39 19112
                                        Quant Results File: T6072011.RES
Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator)
Title : VOA
Last Update : Wed Jul 27 16:32:48 2011
Response via : Initial Calibration
DataAcq Meth : VOC2
```

	Compound	R.T.	QION	Response	Conc Uni	t	Qv	alue
31)	1,2-dichloropropane	10.88	63	1930326	18.37 u	a/L		95
32)	MIBK	11.75	100	193944	15.06 u	q/L		68
33)	cis-1,2-dichloroethene	8.10	61	2994518	17.41 u	q/L		98
34)	bromodichloromethane	11.27	83	2114295	16.62 u	g/L	#	99
35)	cis-1,3-dichloropropene	12.14	75	2491733	16.72 u	g/L	#	93
37)	toluene	12.71	91	6173451	17.06 u	g/L	#	75
38)	trans-1,3-dichloropropene	12.97	75	2135854	14.78 u	g/L	#	93
39)	2-hexanone	13.21	58	702621	16.67 u	g/L	#	100
40)	1,1,2-trichloroethane	13.26	83	1291657	18.99 u	g/L	#	45
41)	tetrachloroethene	13.85	166	1882922	19.71 u	g/L	#	100
42)	dibromochloromethane	14.20	129	1357291	16.33 u	g/L		100
43)	1,2-dibromoethane	14.55	107	1550245	18.99 u	g/L	#	99
45)	chlorobenzene	15.29	112	3793626	19.90 u	g/L	#	85
46)	ethyl benzene	15.35	91	7188122	19.59 u	g/L	#	100
47)	m/p-xylene	15.49	91	6061188	18.97 u	g/L	#	100
48)	o-xylene	16.28	91	5994943	19.94 u	g/L	#	81
49)	styrene	16.34	104	3530752	19.43 u	g/L		93
50)	isopropyl benzene	16.92	105	6520239	19.88 u	g/L		100
51)	bromoform	16.99	173	809228	14.52 u	g/L		99
52)	1,1,2,2-tetrachloroethane	17.22	83	1853046	16.70 u	g/L	#	100
54)	1,3-dichlorobenzene	19.46	146	2701049	19.41 u	g/L	#	99
55)	1,2-dichlorobenzene	20.35	146	2704412m	20.54 u	g/L		
57)	1,4-dichlorobenzene	19.64	146	2924326m	22.73 u	g/L		
58)	1,2-dibromo-3-chloropropan	21.82	75	267235	12.95 u	g/L		83
59)	1,2,4-trichlorobenzene	23.50	180	1710607	21.96 u	g/L		97
60)	Napthalene	24.00	128	3301848	19.97 u	g/L		100
61)	1,2,3-trichlorobenzene	24.47	180	1531053	22.18 u	g/L		100

_____ _____

26.00 25.00 M,T, enexnedoroldoid-E, S, f 24.00 M,T ,ensishtgeN M,T, enschlorobenzene, T, M 23.00 22.00 M,T ,ensqorqorold>-6-omordib-2,f 21.00 Results File: T6072011.RES 20.00 M,T, ensine donoldalb-S, f A, 1 – anesned () () – anesned () () – (Thomas GC/MS Ins 18.00 19.00 (Chemstation Integrator) 1.00 A. 12 S (BTB) ensanceobenzene (BFB), S 16.00 17.00 M,T.enstherototicstasters.Y,t,t Vial: Operator: M,T ,enezned lyqorei Multiplr GCMS2 M,T,enelyx-o - M,T.,enelyte TIC: TDC62401.D Inst ແມ່ນຈັກການເຊິ່ງ ເພິ່ງ 4.00 15.00 Ω. C:\HPCHEM\1\DATA2011\JUL11\LUL28\TDC62401 M,T,ensrheomordib-S,1 M,T ,ensitiemorolihoomordib 2012 M,T ,enetheoroldosttet Quant 13.00 W,T ,ensetoropropene, T,M M,T ,enstateMoroethane, T,Moroethane, T,M 11:42:46 s '(S) boots (S) signification C:\HPCHEM\1\METHODS\T6072011.M 11.00 12.00 M,T,enegorgoroldoib-E,f-eio MIBK, T,M M,T,ensithenonolichloromoti 2011 Tichlorgethera TV Propane, t M,1,2-dichloropropane, t M,1,2-dichloropropane, t 624/5ml 7/28/11 10.00 24 I, ensanedorouft M, Menonation of Landonski Modelski M 27 16:32:48 Calibration mq Feb 9.00 Cycloride to the set and the s Φ 11:47 Params: events. 24 11:39 19112 M,T, energy and homoral b БĽі M,T,J. dichloroethene, T,M, chloroform, C,T,M 8.00 MEK' 1'W 7.00 M,T, ensiteorolitisib-1,1 28 Jul 2011 M,T,enetheoroldolb-S,f-enet Wed Jul Initial 20ppb cal Params 6.00 T6072011.M Methyl Acetate, t M,T,O, eliteritoble itry is the test VOA 5.00 acetone 3, 4, ichloro-1222-Trifluoro ethane, t Feb M,T ,ensitemoroufloroliti MS Integration 4.00 Prochestersenance The Response via Quant Time: Chloromethane, 1, 3, 600 chlorometha •• Last Update 3.00 File TDC62401.D ч О Sample Method Title Abundance Misc Data 600000 550000 500000 300000 250000 200000 150000 50000 0 450000 350000 100000 400000 Acq Time--> 82

Page 3

27.00

Quantitation Report (QT Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TDC62402.D Vial: 27

 Acq On
 : 29 Jul 2011
 8:04 am
 Operator: A. Thomas

 Sample
 : 20ppb cal2 624/5ml 7/28/11
 Inst
 : GC/MS Ins

 Misc
 :
 Multiplr: 1.00

 Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Feb 24 11:41 19112 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene9.9596399489815.00 ug/l-0.1644) chlorobenzene-d515.21117432734115.00 ug/L-0.1756) 1,4-dichlorobenzene-d419.58152262409315.00 ug/L-0.17 System Monitoring Compounds 21) dibromofluoromethane (S) 8.67 113 1551412 32.99 ug/L -0.16

 21) dibromolluoromethane (S)
 8.67
 113
 1351412
 32.99
 ug/L
 -0.16

 Spiked Amount
 30.000
 Range
 80
 - 120
 Recovery
 =
 109.97%

 26) 1,2-dichloroethane-d4
 (S)
 9.44
 102
 321241
 31.15
 ug/L
 -0.16

 Spiked Amount
 30.000
 Range
 80
 - 120
 Recovery
 =
 103.83%

 36) toluene-d8
 (S)
 12.57
 98
 4694933
 30.55
 ug/L
 -0.16

 Spiked Amount
 30.000
 Range
 80
 - 120
 Recovery
 =
 101.83%

 53) 4-bromofluorobenzene
 (BFB)
 17.39
 95
 2831905
 28.86
 ug/L
 -0.17

 Spiked Amount 30.000 Range 80 - 120 Recovery = 96.20%

 Target Compounds
 Qvalue

 3) chloromethane
 3.48
 50
 1101558m
 13.24
 ug/L

 4) vinyl chloride
 3.63
 62
 940878m
 19.18
 ug/L

 5) bromomethane
 4.23
 96
 343416m
 8.97
 ug/L

 6) chloroethane
 4.23
 96
 343416m
 8.97
 ug/L

 7) 112-Trichloro-122-Trifluor
 5.19
 101
 1288623
 16.72
 ug/l
 100

 8) Methyl Acetate
 5.86
 74
 252289m
 16.79
 ug/L
 90

 9) carbon disulfide
 6.26
 76
 2288331m
 14.67
 ug/L
 96

 11) 1,4
 Dioxane
 6.14
 88
 139962
 16.70
 ug/L
 96

 11) 1,4
 Dioxane
 6.14
 88
 139962
 16.70
 ug/L
 96

 11) 1,4
 Dioxane
 6.14
 88
 139962
 16.70
 ug/L
 100

 12) tert-butyl alcohol
 5.52
 59
 1166447m
 81.76
 ug/L
 97

 16) 1,1-dichloroethane
 5.48
 61
 Target Compounds

(#) = qualifier out of range (m) = manual integration TDC62402.D T6072011.M Fri Feb 24 83:42:48 2012 GCMS2 Page 1

Data File :	C:\HPCHEM\1\DATA2011\JUL11\LUL2	3\TDC62402.D Vial: 27
Acq On :	29 Jul 2011 8:04 am	Operator: A. Thomas
Sample :	20ppb cal2 624/5ml 7/28/11	Inst : GC/MS Ins
Misc :		Multiplr: 1.00
MS Integrat	ion Params: events.e	
Quant Time:	Feb 24 11:41 19112	Quant Results File: T6072011.RES
Quant Metho	d : C:\HPCHEM\1\METHODS\T6072011	.M (Chemstation Integrator)
Title	: VOA	
Last Update	: Wed Jul 27 16:32:48 2011	
Response vi	a : Initial Calibration	
DataAcq Met	h : VOC2	

	Compound	R.T.	QIon	Response	Conc Unit	Qv	alue
31)	1,2-dichloropropane	10.87	63	1656366	19.14 ug/L	#	86
32)	MIBK	11.74	100	172188	16.22 ug/L		81
33)	cis-1,2-dichloroethene	8.10	61	2719128	19.18 ug/L	#	63
34)	bromodichloromethane	11.27	83	1989063	18.97 ug/L	#	100
35)	cis-1,3-dichloropropene	12.13	75	2007647	16.35 ug/L	#	93
37)	toluene	12.71	91	5400098	18.12 ug/L	#	75
38)	trans-1,3-dichloropropene	12.97	75	1769927	14.87 ug/L	#	93
39)	2-hexanone	13.22	58	526689	15.16 ug/L	#	95
40)	1,1,2-trichloroethane	13.25	83	1090897	19.47 ug/L	#	45
41)	tetrachloroethene	13.84	166	1624515	20.64 ug/L	#	100
42)	dibromochloromethane	14.19	129	1238795	18.09 ug/L		100
43)	1,2-dibromoethane	14.55	107	1386695	20.62 ug/L	#	97
45)	chlorobenzene	15.28	112	3344337	20.93 ug/L	#	100
46)	ethyl benzene	15.35	91	6408638	20.84 ug/L	#	100
47)	m/p-xylene	15.48	91	5556131	20.74 ug/L	#	100
48)	o-xylene	16.28	91	5350448	21.23 ug/L		99
49)	styrene	16.34	104	3182299	20.89 ug/L		92
50)	isopropyl benzene	16.91	105	5766281	20.98 ug/L		99
51)	bromoform	16.99	173	673206	14.41 ug/L		99
52)	1,1,2,2-tetrachloroethane	17.22	83	1576338	16.94 ug/L	#	100
54)	1,3-dichlorobenzene	19.45	146	2514869m	21.55 ug/L		
55)	1,2-dichlorobenzene	20.33	146	2388092m	21.63 ug/L		
57)	1,4-dichlorobenzene	19.64	146	2498658m	22.34 ug/L		
58)	1,2-dibromo-3-chloropropan	21.81	75	218649	12.19 ug/L		79
59)	1,2,4-trichlorobenzene	23.48	180	1402093	20.71 ug/L		94
60)	Napthalene	23.99	128	2592617	18.03 ug/L		100
61)	1,2,3-trichlorobenzene	24.46	180	1302524	21.71 ug/L		98

27.00 26.00 25.00 M,T ,eneznedoroldoint-8,2,1 24.00 M,T, enels/1996M M,T,eneznedoroldord, T,M 23.00 22.00 M,T, ensoroproprose-3-chloropropane, T 21.00 File: T6072011.RES 20.00 M,T, enexnedoroldoib-S, f Thomas GC/MS Ins M,T,enernedomoticale.t.h. M,T,enernedonoicale.t.h. 19.00 Integrator 1.00 18.00 A. 27 4-bromofluorobenzene (BFB), S 16.00 17.00 Vial: Operator: M,T, enscenzione in M, T, enscene, T, M Multiplr GCMS2 M,T , anal we for any the TIC: TDC62402.D (Chemstation Quant Results Inst 13.00 14.00 15.00 О. C:\HPCHEM\1\DATA2011\JUL11\LUL28\TDC62402 M,T, anshreomordib-S, I M,T ,ensittemoroldcomordib 2012 M,T ,errenteroothene, T,M M,T ,ensite to propropered to M,T ,ensite to M,T ,ensite to M,T ,ensite to M,T ,ensite to M, T C:\HPCHEM\1\METHODS\T6072011.M toluene-d8 (S) 8b-snsulot 11:42:51 12.00 M,T ,eneqoropropholdsib-E, t-ais WIBK' 1'W 11.00 M,T ,anethamoroldoibomord 2011 1. Support of the second of th 624/5ml 7/28/11 10.00 24 I, enexnedoroult M.M., Prostand doils S., S. (S) MJ and reading backets 27 16:32:48 Calibration Feb am 9.00 events.e M,T, ansiteoroinpithitane. 8:04 Fr. M,T,2-dichlorosthene, T,M,T,O,miorotone, T,M,T,O,miorotone, Chlorotone, C,T,M 8.00 MEK, T,M 7.00 M,T, ensitieorothane, T,h 24 11:41 29 Jul 2011 Jul M,T, enertheroethene, t-ansit Params: Oppb cal2 Initial W. M. Schild State Mark 6.00 TDC62402.D T6072011.M Methyl Acetate, t Wed M,T,D, snetteorolapphatochodons (T,T,M, VOA acetotaria, Trighloro-122-Trifluoro ethane, t 5.00 Feb M,T,ensitemoroultorolitaint MS Integration M,T ,ensinemennen 4.00 \sim via Quant Time: ••• MLT, O - abriding the officer Last Update 3.00 Data File Response чО Sample Method Title Abundance 50000 Misc 500000 450000 200000 100000 C 400000 350000 300000 250000 150000 Acq Time--> 85

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Quantitation Report (QT Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TLC62401.D Vial: 13

 Acq On
 : 29 Jul 2011 12:20 am
 Operator: A. Thomas

 Sample
 : 20ppb lcs 624/5ml 7/28/11
 Inst : GC/MS Ins

 Misc
 .
 .

 Sample : Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Feb 24 11:42 19112 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9696482103715.00 ug/l-0.1644) chlorobenzene-d515.22117503337315.00 ug/L-0.1656) 1,4-dichlorobenzene-d419.59152304735015.00 ug/L-0.16 System Monitoring Compounds 21) dibromofluoromethane (S) 8.67 113 1749764 30.83 ug/L -0.16 21) dibromorluoromethane (5)8.67113174976430.83ug/L-0.16Spiked Amount30.000Range80-120Recovery=102.77%26) 1,2-dichloroethane-d4(S)9.4410239189431.48ug/L-0.16Spiked Amount30.000Range80-120Recovery=104.93%36) toluene-d8(S)12.5898569312330.69ug/L-0.16Spiked Amount30.000Range80-120Recovery=102.30%53) 4-bromofluorobenzene(BFB)17.3995340407129.83ug/L-0.16Spiked Amount 30.000 Range 80 - 120 Recovery = 99.43%

 Target Compounds
 Qvalue

 3) chloromethane
 3.50
 50
 981061m
 9.77
 ug/L

 4) vinyl chloride
 3.63
 62
 1060346m
 17.91
 ug/L

 5) bromomethane
 4.23
 96
 380013
 8.23
 ug/L
 97

 6) chloroethane
 4.31
 64
 867274
 12.01
 ug/L
 # 90

 7) 112-Trichloro-122-Trifluor
 5.20
 101
 1350647
 14.52
 ug/L
 # 100

 10) MTBE
 6.32
 73
 459615
 18.22
 ug/L
 # 100

 11) 1, 4 Dioxane
 6.15
 88
 139874
 13.83
 ug/L
 # 100

 12) tert-butyl alcohol
 5.53
 59
 1491423m
 86.62
 ug/L
 10

 13) MEK
 7.78
 72
 225844m
 16.02
 ug/L
 15

 14) acetone
 5.25
 58
 280035m
 13.72
 ug/L
 15

 15) trichlorofluoromethane
 4.64
 101
 1782436
 14.41
 ug/L
 98

 16) 1,1-dichloroethane
 6.15
 84
 17401 Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration TLC62401.D T6072011.M Fri Feb 24 87:42:54 2012 GCMS2 Page 1

Data File : C:\H Acq On : 29 C	HPCHEM\1\DATA2011\JUL11\LUL28 Jul 2011 12:20 am	\TLC62401.D Vial: 13 Operator: A. Thomas
Sample : 20pp	pb lcs 624/5ml 7/28/11	Inst : GC/MS Ins
Misc :		Multiplr: 1.00
MS Integration H	Params: events.e	
Quant Time: Feb	24 11:42 19112	Quant Results File: T6072011.RES
Quant Method : (C:\HPCHEM\1\METHODS\T6072011. VOA	M (Chemstation Integrator)
Last Update : W Response via :	Wed Jul 27 16:32:48 2011 Initial Calibration	

DataAcq Meth : VOC2

	Compound	R.T.	QIon	Response	Conc Unit	Qva	alue
31)	1,2-dichloropropane	10.88	63	1949883	18.67 ug/L	#	86
32)	MIBK	11.75	100	194671	15.20 ug/L		79
33)	cis-1,2-dichloroethene	8.10	61	3138840	18.35 ug/L		96
34)	bromodichloromethane	11.27	83	2187982	17.29 ug/L	#	99
35)	cis-1,3-dichloropropene	12.14	75	2522930	17.03 ug/L	#	93
37)	toluene	12.71	91	6209621	17.26 ug/L	#	75
38)	trans-1,3-dichloropropene	12.97	75	2127672	14.81 ug/L	#	93
39)	2-hexanone	13.23	58	658034	15.70 ug/L	#	96
40)	1,1,2-trichloroethane	13.26	83	1304471	19.29 ug/L	#	97
41)	tetrachloroethene	13.85	166	1919843	20.21 ug/L	#	76
42)	dibromochloromethane	14.20	129	1359661	16.45 ug/L	#	61
43)	1,2-dibromoethane	14.56	107	1560271	19.22 ug/L		99
45)	chlorobenzene	15.29	112	3884876	20.90 ug/L	#	100
46)	ethyl benzene	15.36	91	7255333	20.28 ug/L	#	100
47)	m/p-xylene	15.49	91	6157815	19.76 ug/L	#	100
48)	o-xylene	16.29	91	5963411	20.34 ug/L	#	81
49)	styrene	16.35	104	3680884	20.78 ug/L		93
50)	isopropyl benzene	16.92	105	6633936	20.75 ug/L		99
51)	bromoform	17.00	173	839572	15.45 ug/L		100
52)	1,1,2,2-tetrachloroethane	17.23	83	1884573	17.42 ug/L	#	100
54)	1,3-dichlorobenzene	19.46	146	2785516	20.53 ug/L	#	100
55)	1,2-dichlorobenzene	20.36	146	2509465	19.54 ug/L	#	76
57)	1,4-dichlorobenzene	19.64	146	2989517m	23.02 ug/L		
58)	1,2-dibromo-3-chloropropan	21.82	75	249852	11.99 ug/L		84
59)	1,2,4-trichlorobenzene	23.50	180	1795880	22.84 ug/L		97
60)	Napthalene	24.00	128	3577618	21.43 ug/L		100
61)	1,2,3-trichlorobenzene	24.47	180	1642280	23.57 ug/L		98

27.00 26.00 25.00 M,T, energenedoroldoins-E,S, h 24.00 M,T, eneledigeN M,T, energedorolotota-A,2,5 23.00 22.00 M,T ,ansqorqotold>-£-omordib-S,f 21.00 File: T6072011.RES M,T,enesnedoroldoib-S,f 20.00 Thomas l,¢b-en∰nnegagikeite k.t.ib.¢,**P**. M,T ,ensznedorol/zib-£,F. GC/MS Ins 16.00 17.00 18.00 19.00 Integrator) 1.00 A. 13 8 (BTB) energedoroultomord-b Operator: M,T,enezned lyqorqeat Vial Multiplr GCMS 2 M,T ,ensity -0 -xylene, T,M TIC: TLC62401.D (Chemstation Quant Results Inst l 'Sb-enerry the shere of the start of the s 15.00 Ω. C:\HPCHEM\1\DATA2011\JUL11\LUL28\TLC62401 M,T , anshfeomordib-S, h 12.00 13.00 14.00 M,T,ensthemoroldoomordib M,T ,enertherrold/santet 2012 trans.t.a.tenetoropropene, T,M M,T ,9nsthationopropene, T,Methane, T,Methane, T,M C:\HPCHEM\1\METHODS\T6072011.M Reid States and the second sec 11:42:56 M,T, enegoropropene, T, eio MIBK' 1'W 11.00 M,T ,ensitemorolichibomord 2011 1, angxadolav 5 anadioroldani M. T. J. angdordoroldani 2, r 29 Jul 2011 12:20 am 20ppb lcs 624/5ml 7/28/11 10.00 24 fluorobenzene, l 27 16:32:48 Calibration Feb 9.00 events.e 12 19112 M,T ,ยกธภาษณ**ุณศ∌ร์ชาญ**5¢O M,T ,ənsrBə(893AlbA9AAAAbantomoratib Fгі M,T, enertheroethene, T,M chloroform, C,T,M 8.00 MEK' L'M 7.00 M,T ,enscheoroldoib-1,1 24 11:42 Jul •• M,T ,enerteoroldolb-S,f-anst Initial M,T ,ebmuzil managen and Params 6.00 T6072011.M Methyl Acetate, t Wed ງ ,ອnshite orolifitTSS1-orolgich ໂດຊຢູ່ໃດດີ. M,T,ວ ,ອneriteorolici**M,†**,ຄິດດວາສ ໄປນີດຈະອາຍ VOA 5.00 Feb M,T ,ensitemorouflorolitait MS Integration M;T ;8fi8fff8gfoffg3d 4.00 via Quant Time: ... Last Update M.T. J. IBBHERRS RURD 3.00 File Response TLC62401.D u O Sample Method Title Abundance Data Misc 600000 550000 250000 100000 500000 450000 400000 350000 300000 200000 150000 50000 0 Acq Time--> 89

Page 3



1580 Reed Road Suite A1 Pennington, NJ 08534

Tel: (609) 737-3477 Fax: (609) 737-3052 www.njal.com

Laboratory Deliverables

Prepared For PARS Environmental Drum Bench Study

Lab ID Enhanced Reductive Dechlorination (ERD)

> Samples Received 27-Jul-11

> > Reported

7/27/11 to 8/12/11

NJDEP Certified Lab 11005

Precision testing for a cleaner environment.

Study: ERD NZVI

Time point: T=2 days/ 48Hours

Data Summaries

			EPA SAN	MPLE NO
	VULATILE ORGANIUS ANALY	I DIS DATA SMEET	T48 I	NZ C-1
Lab Name: NJAL	•	Contract:		
Lab Code: DEP	11005 Case No.:	SAS No.: S	DG No.:	
Matrix: (soil/water)	WATER	Lab Sample ID:	T48 NZ C-	1
Sample wt/vol [.]	0.5 (g/ml) MI	Lab File ID ^r	TS62401 [ר ר
			0021011	
Level: (low/med)	LOW	Date Received:	07/27/11	
% Moisture: not de	C.	Date Analyzed:	07/29/11	
GC Column: rt50)2.2-1 ID: 0.53 (mm)	Dilution Factor:	10.0	
Soil Extract Volum	e: /ul)	Soil Aliquet Volu		
	s (uc)			(0
	CON			
		ICENTRATION UNITS:		~
CAS NO.	COMPOUND (ug/L	L or ug/Kg) UG/L		Q
75.71.8	Dichlorodifuloromothans		20	11
74-87-3	chloromethane	·	20	<u> </u>
75-01-4	vinvl chloride		20	Ŭ
74-83-9	bromomethane		20	U
75-00-3	chloroethane		20	U
75-15-0	carbon disulfide		20	U
75-65-0	tert-butyl alcohol		20	U
1634-04-4	MTBE		20	U
78-93-3	MEK		50	U
67-64-1	acetone		740	D
75-69-4	trichlorofluoromethane		20	U
75-35-4	1,1-dichloroethene		20	U
75-09-2	methylene chloride		38	D
156-60-5	trans-1,2-dichloroethene	<u>e</u>	20	U
75-34-3	1,1-dichloroethane		20	U
67-66-3	chloroform		20	U
108-10-1	MIBK		20	<u> </u>
74-97-5	bromochloromethane		20	<u> </u>
71-55-0	1,1,1-trichloroethane		20	
107.06.2			20	
71_43_2	henzene		20	<u> </u>
79-01-6	trichloroethene		20	<u> </u>
78-87-5	1.2-dichloropropane		20	<u> </u>
76-13-1	112-Trichloro-122-Triflue	oroethane	20	Ū
91-20-3	Napthalene		20	U
79-20-9	Methyl Acetate		50	U
110-82-7	Cyclohexane		20	U
108-87-2	Methyl Cyclohexane		20	U
156-59-4	cis-1,2-dichloroethene		20	U
75-27-4	bromodichloromethane		20	U
10061-01-5	cis-1,3-dichloropropene		20	U
108-88-3			20	<u> </u>
10061-02-6	trans-1,3-dichloroproper	ne	20	U
591-78-0 70.00 F			20	<u> </u>
124.49.1	dibromochloromothono		870	
127-18-4	tetrachloroethene		1100	
108-90-7	chlorobenzene		20	
1 100-001-0		1	<u> </u>	

					EPA SAMPLE NO		
	V	VULATILE OKGANICS	ANAL I SIS DATA SHE		T48 I	NZ C-2	
Lab Name:	NJAL		Contract:				
Lab Code:	DEP 110	005 Case No.:	SAS No.:	SE)G No.:		
Matrix: (soil/	water)	WATER	Lab Sa	mple ID:	T48 NZ C-	-2	
Samplo ut/v	ol:	0.5 (o/ml) MI	Lab File		TS62402 I		
Sample w/w	01.	0.5 (g/m) M		; ID.	1302402.1	<u> </u>	
Level: (low/r	med)	LOW	Date Re	eceived:	07/27/11		
% Moisture:	not dec.		Date Ar	nalyzed:	07/29/11		
GC Column:	rt502.2	2-1 ID: 0.53 (mm)	Dilution	Factor:	10.0		
Coll Extract	Volumor	· · · · · · · · · · · · · · · · ·	Soil Alia	wat Value		· · ·	
Soli Extract	volume.	(uL)	Soli Alic	luor voini	ne.	(u	
			CONCENTRATION	LINUTO.			
0.4.0.N/	<u> </u>	00100100	CONCENTRATION	UNITS:		~	
CAS NO	Э.	COMPOUND	(ug/L or ug/Kg)	UG/L		Q	
75 71	8	Dichlorodifulorom	ethane		20		
74-87	-0	chloromethane	lethane		20	U	
75-01	-4	vinyl chloride			20	<u> </u>	
74-83	-9	bromomethane			20	- U	
75-00	-3	chloroethane			20	U	
75-15	-0	carbon disulfide			20	Ū	
75-65	-0	tert-butyl alcohol			20	U	
1634-	04-4	MTBE			20	U	
78-93	-3	MEK			50	U	
67-64	-1	acetone			610	D	
75-69	-4	trichlorofluorome	thane		20	U	
75-35	-4	1,1-dichloroether	ne		20	U	
75-09	-2	methylene chlorid	de		40	D	
156-6	0-5	trans-1,2-dichloro	bethene		20	U	
75-34	-3	1,1-dichloroethar	<u>ne</u>		20	U	
67-66	-3	chloroform			20	U	
108-1	0-1	MIBK			20	U	
74-97	-5	bromochlorometh	nane		20	U	
71-55	-6	1,1,1-trichloroeth	ane		20	U	
56-23	-5	carbon tetrachlor	ide		20	U	
107-0	6-2	1,2-dichloroethar	1e		20		
71-43	-2	benzene			20	<u> </u>	
79-01	-0				20	<u> </u>	
76 12	- <u>)</u>	1,2-dichioropropa	ane 2 Trifluoroothano		20	U	
01 20	-1	Nanthalana	2-Trinuoroethane		20		
79-20	-0	Methyl Acetate			50		
110-8	2-7	Cyclohexane			20	<u> </u>	
108-8	7-2	Methyl Cyclohex	ane		20	U	
156-5	9-4	cis-1.2-dichloroe	hene		20	Ū	
75-27	-4	bromodichlorome	ethane		20	U	
10061	1-01-5	cis-1,3-dichlorop	ropene		20	U	
108-8	8-3	toluene			20	U	
10061	1-02-6	trans-1,3-dichloro	propene		20	U	
591-7	8-6	2-hexanone			50	U	
79-00	-5	1,1,2-trichloroeth	ane		20	U	
124-4	8-1	dibromochlorome	ethane		850	D	
127-1	8-4	tetrachloroethene	9		1000	D	
108-9	0-7	chlorobenzene			20	U	
		1A		EPA SA	MPLE N	IO.	
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	V	OLATILE ORGANICS AN	ALYSIS DATA SHEET	T48 I	NZ C-3		
Lab Name:		05 Casa No :					
					• • • • • • • • • • • • • • • • • • • •		
Matrix: (soil/	water)	WATER	Lab Sample ID	: 148 NZ C-	•3		
Sample wt/v	ol:	5.5 (g/ml) ML	Lab File ID:	TS62403.I	D		
Level: (low/	med)	LOW	Date Received	: 07/27/11			
% Moisture:	not dec.		Date Analyzed	07/29/11			
GC Column:	rt502.2	-1 ID: 0.53 (mm)	Dilution Factor	10.0			
Soil Extract	Volume:		Soil Aliquet Ve	ume.	·	(uL)	
SOIL EXILACI	volume.	(uL)		ume.		(ur)	
		(CONCENTRATION UNITS				
CASN	0				0		
CASIN	0.				G		
75-71	-8	Dichlorodifulorometh	ane	2	U		
74-87	·-3	chloromethane		2	U		
75-01	-4	vinyl chloride		2	U		
74-83	J-9	bromomethane		2	U		
75-00)-3	chloroethane		2	U	-	
75-15	5-0	carbon disulfide		2	U		
75-65	5-0	tert-butyl alcohol		2	U		
1634-	-04-4	MTBE		2	<u> </u>		
78-93	3-3	MEK		4	<u> </u>		
67-64	<u> </u>	acetone		60	<u>D</u>	$\neg \times 10$	
75-69	<u>)</u>	trichlorofluorometha	ne	2	<u> </u>	-1	
75-35	5-4	1 1-dichloroethene		2	<u> </u>		
75-09)_2	methylene chloride		<u> </u>		-	
156-6	30-5	trans-1 2-dichloroeth)ene	2	<u> </u>		
75-34	1-3	1 1-dichloroethane		2	<u> </u>		
67-66	3-3	chloroform		2	<u>U</u>		
108-1	0-1	MIBK		2	<u> </u>		
74-97	7-5	bromochloromethan	Ω	2	<u> </u>		
71-55	<u>-0</u> 5-6	1 1 1-trichloroethane		2	<u> </u>		
56-23	3-5	carbon tetrachloride		2	<u> </u>		
107-0)6-2	1 2-dichloroethane		2	<u> </u>		
71-43	3-2	benzene		2	<u> </u>		
79-01	-6	trichlorgethene		2	<u> </u>		
78-87	7-5	1 2-dichloropropage		2	<u> </u>		
76-13	<u> </u>	112-Trichloro-122-T	rifluoroethane	2	<u> </u>		
91-20)-3	Nanthalene		2	<u> </u>		
79-20)-9	Methyl Acetate		4	<u> </u>		
110-8	32-7	Cyclohexane		2	<u> </u>		
108-8	37-2	Methyl Cyclohexane	· · · · · · · · · · · · · · · · · · ·	2	<u> </u>		
156-5	59-4	cis-1 2-dichloroether	ne	2	<u> </u>		
75-27	7-4	bromodichlorometha		2	<u>U</u>		
1006	1-01-5	cis-1.3-dichloroprop	ene	2	Ū		
108-8	38-3	toluene		2	Ū		
1006	1-02-6	trans-1.3-dichloropro	opene	2	<u> </u>		
591-7	78-6	2-hexanone	<u></u>	4	<u> </u>		
79-00)-5	1.1.2-trichloroethane	9	2	<u> </u>		
124-4	48-1	dibromochlorometha	ine	81	 D	-	
127-1	8-4	tetrachloroethene		99	 D		
108-9) 0-7	chlorobenzene		2	U		

			1A			EPA SA	MPLE NO.
		VOLATILE ORGA	NICS ANALYS	IS DATA SH	EET	T48 N	Z 0.5-2
Lab Name:	NJAL		Co	ontract:	_,	_	
Lab Code:	DEP 1	1005 Case No.		SAS No.:	S	DG No.:	
Matrix: (soil/	water)	WATER		Lab Sa	mple ID:	T48 NZ .5	-2
Sample wt/v	vol:	0.5 (alm	I) MI	Lah Fil	م ال	TS62405	
	01.	0.5 (g/ii		Lapin	e iD.	1002400.	
Level: (low/i	med)	LOW		Date R	eceived:	07/27/11	
% Moisture:	not dec.			Date A	nalyzed:	07/29/11	
GC Column	rt502	2-1 ID: 0.53	(mm)	Dilutior	Eactor	10.0	
			、 、				
Soll Extract	volume:	(UL)	Soil Ali	quot volu	ime:	(UL
			CONC				
0.10 N	~		CONC	ENTRATION			0
CASIN	0.	COMPOUND	(ug/L o	r ug/Kg)	UG/L		Q
75-71	-8	Dichlorodifu	loromethane			20	
74-87	<u>-0</u> ′-3	chlorometh	ane			20	<u> </u>
75-01	-4	vinyl chloric	A	1		20	<u> </u>
74-83	3-9	bromometh	ane			20	Ū
75-00	1-3	chloroethar				20	<u> </u>
75-15	<u>, 0</u>	carbon disu	lfide			20	<u> </u>
75-65	<u>, 0</u>	tert-hutvl al	cobol			20	<u> </u>
1634-	-04-4	MTRE	501101			20	<u> </u>
78-93	<u>1-3</u>	MFK				50	<u> </u>
67-64	<u>, 0</u> L-1	acetone				540	
75-69	<u>}_4</u>	trichloroflug	romethane			20	<u> </u>
75-35	5-4	1 1-dicblore	ethene			20	<u> </u>
75-09)- 1)-2	methylene	chloride			36	
156-6	30-5	trans-1 2-di	chloroethene			20	
75-34	-3		ethane			20	<u> </u>
67-66	3-3	chloroform	othario			20	
108-1	0-1	MIBK				20	<u> </u>
74-97	<u>-5</u>	bromochlor	omethane			20	<u> </u>
71-55	<u> </u>	1 1 1-trichle	roethane			20	<u> </u>
56-23	3-5	carbon tetra	achloride			20	<u> </u>
107-0)6-2	1.2-dichlord	bethane			20	U
71-43	3-2	benzene				20	U
79-01	-6	trichloroeth	ene			20	U
78-87	'-5	1,2-dichloro	propane			20	U
76-13	3-1	112-Trichlo	ro-122-Trifluoro	bethane		20	U
91-20)-3	Napthalene				20	U
79-20)-9	Methyl Ace	tate			50	U
110-8	32-7	Cyclohexar	ie			20	U
108-8	37-2	Methyl Cyc	ohexane			20	U
156-5	59-4	cis-1,2-dich	loroethene			20	U
75-27	'-4	bromodichl	oromethane			20	U
10061	1-01-5	cis-1,3-dich	loropropene			20	U
108-8	38-3	toluene				20	U
10061	1-02-6	trans-1,3-di	chloropropene			20	U
591-7	'8-6	2-hexanone)			50	U
79-00)-5	1,1,2-trichlo	proethane			20	U
124-4	8-1	dibromochl	oromethane			620	D
127-1	8-4	tetrachloroe	ethene			790	D
108-9	0-7	chlorobenze	ene			20	U

		1/ VOLATILE ORGANICS	A SANALYSIS DATA	SHEET	EPA SA	MPLE NO.
l ah Name [.]	NJAI		Contract	(ON LE I	T48 N	Z 0.5-3
Lab Code:	DEP 1	1005 Case No.:	SAS No).: S		
Matrix: (apil/				h Sampla ID:	T49 N7 E	2
Matrix: (Soll/	water)	WATER	La	b Sample ID:	148 NZ .5	-3
Sample wt/v	ol:	0.5 (g/ml) M	L La	b File ID:	TS62406.I	D
Level: (low/	med)	LOW	Da	te Received:	07/27/11	
% Moisture	not dec		Da	ite Analyzed [.]	07/29/11	
	not dec.				01120111	
GC Column:	rt502) Dil	ution Factor:	10.0	
Soil Extract	Volume:	(uL)	So	il Aliquot Volu	ıme:	(uL
			CONCENTRA	TION UNITS:		
CAS NO	Ο.	COMPOUND	(ug/L or ug/Kg)) UG/L		Q
75 74	9	Diablassatifulses	nothana		20	
71.97	-0 '-3	chloromethano	neurane		20	<u> </u>
75.01	-3	vinvl chloride			20	U
75-01	-4	bromomothano			20	
74-03	-9	bromomethane			20	<u> </u>
75-00	-3				20	
75-15	-0				20	<u> </u>
10-00	04.4				20	<u> </u>
1034-	04-4	MIBE			20	
78-93	-3				50	0
07-04	·- !	acetone			470	
75-69	-4	trichlorofluorome	etnane		20	0
75-35	-4	1,1-dichloroethe	ne		20	<u> </u>
75-09	-2	methylene chlor			34	
156-6	10-5	trans-1,2-dichlor	oethene		20	<u> </u>
75-34	3	1,1-dichloroetha	ne	_	20	
67-66	-3	Chlorotorm			20	
108-1	0-1	MIBK			20	0
74-97	-5	bromochloromet	nane		20	U
71-55	-0				20	
56-23	H-5	carbon tetrachio			20	<u> </u>
107-0	10-2	I,2-dichloroetha	ne		20	
71-43	-2	Denzene			20	
79-01	-0				20	0
76-87	-5	1,2-dichloroprop			20	<u> </u>
76-13	<u>i-1</u>		2-1 muoroetnane		20	U
91-20	-3		Al		20	
79-20	-9	Methyl Acetate			50	0
110-8	<u>-2-1</u>	Cyclonexane			20	
108-8	11-Z	Methyl Cyclone			20	<u>U</u>
100-0	19-4	CIS-1,2-CICNIOFOE			20	
15-21	-4				20	<u> </u>
1006	1-01-5		ropene		20	U
108-8	1 0 0				20	U
1006	1-02-0		opropene		20	
591-7	0-0				00	
19-00	1-0	I, I, Z-IRICNIOROE	athana		20	0
124-4	0-1				700	
127-1	0-4		e		100	
108-9	10-1	chloropenzene			20	U

	,	1A			EPA SA	MPLE NO.
	V	VOLATILE ORGANICS A	ANALYSIS DATA SHE	EI	T48-N	IZ 1.0-1
Lab Name:	NJAL		Contract:			
Lab Code:	DEP 110	005 Case No.:	SAS No.:	SI	DG No.:	
Matrix: (soil/	water)	WATER	Lab San	nple ID:	T48 NZ 1.	0-1
Sample wt/w	ol.	0.5 (a/ml) MI	Lah File	חו.	TS62407	
	01.			10.	1302407.	<u> </u>
Level: (low/r	med)	LOW	Date Re	ceived:	07/27/11	
% Moisture:	not dec.		Date An	alyzed:	07/29/11	
GC Column:	rt502.2	2-1 ID: 0.53 (mm)	Dilution	Factor:	10.0	
Soil Extract \		(ul.)	Soil Alia			(),(
Soli Extract	volume:	(UL)	Soll Aliq	uot volui	me:	(uL)
			CONCENTRATION			
CASNO	2					0
CASING	J.	COMPOUND	(ug/L or ug/Kg)	UG/L		Q
75-71	-8	Dichlorodifulorome	ethane		20	U
74-87	-3	chloromethane			20	U
75-01	-4	vinyl chloride			20	U
74-83	-9	bromomethane	<u> </u>		20	U
75-00	-3	chloroethane			20	U
75-15	-0	carbon disulfide			20	U
75-65	-0	tert-butyl alcohol			20	U
1634-	04-4	MTBE			_20	U
78-93	-3	MEK			50	U
67-64	-1	acetone			600	D
75-69	-4	trichlorofluorometh	nane		20	U
75-35	-4	1,1-dichloroethene	9		20	<u> </u>
75-09	-2	methylene chloride	9		38	
156-6	0-5	trans-1,2-dichloroe	ethene		20	<u> </u>
75-34	-3	1,1-dichloroethane	9		20	<u> </u>
07-00	-3				20	0
74.07	5	MIBK			20	0
74-97	-0				20	
56.23	-0	carbon tetrachloric		+	20	<u> </u>
107-0	6-2	1.2-dichloroethane			20	<u> </u>
71-43	-2	henzene			20	U U
79-01	-6	trichloroethene	•,		20	U
78-87	-5	1,2-dichloropropar	ne		20	Ū
76-13	-1	112-Trichloro-122	-Trifluoroethane		20	U
91-20	-3	Napthalene	and a second sec		20	U
79-20	-9	Methyl Acetate			50	U
110-8	2-7	Cyclohexane			20	U
108-8	7-2	Methyl Cyclohexa	ne		20	U
156-5	9-4	cis-1,2-dichloroeth	iene		20	U
75-27	-4	bromodichloromet	hane		20	U
10061	-01-5	cis-1,3-dichloropro	ppene	<u> </u>	20	<u> </u>
108-8	8-3	toluene			20	U
10061	-02-6	trans-1,3-dichlorop	propene		20	<u> </u>
591-7	5	2-nexanone			00	<u> </u>
19-00	-0 8.1	dibromochloromot	hano		680	
124-4	8-4	tetrachloroethene			840	
108-0	0-7	chlorohenzene	0.0	1	20	
100-9	<u>~ !</u>	0110100012010			20	

			EPA SA	MPLE NO.
	VOLATILE ORGANICS ANALYSIS E	DATA SHEET	T48-1	NZ 1.0-2
Lab Name: NJ/	LContr	act:		
Lab Code: DE	P 11005 Case No.: SA	S No.: S	DG No.:	
Matrix: (soil/wate) WATER	Lab Sample ID:	T48 NZ 1	.0-2
Sample wt/vol	0.5 (a/ml) MI	Lab Eile ID:	TS62408	D
Sample wuvoi.		Lab File ID.	1302400.	
Level: (low/med)	LOW	Date Received:	07/27/11	
% Moisture: not o	ec.	Date Analyzed:	07/29/11	
GC Column rt	502 2-1 ID: 0.53 (mm)	Dilution Factor	10.0	
Soll Extract Volur	ne: (uL)	Soil Aliquot Vol	ume:	(UL)
		RATION UNITS:		0
CAS NO.	COMPOUND (ug/L or ug	J/Kg) <u>UG/L</u>		Q
75-71-8	Dichlorodifuloromethane		20	
74-87-3	chloromethane		20	U
75-01-4	vinyl chloride		20	<u> </u>
74-83-9	bromomethane		20	<u> </u>
75-00-3	chloroethane		20	<u> </u>
75-15-0	carbon disulfide		20	<u> </u>
75-65-0	tert-butyl alcohol		20	U
1634-04-4	MTBE		20	Ŭ
78-93-3	MEK		50	U
67-64-1	acetone		600	D
75-69-4	trichlorofluoromethane		20	U
75-35-4	1,1-dichloroethene		20	U
75-09-2	methylene chloride		38	D
156-60-5	trans-1,2-dichloroethene		20	U
75-34-3	1,1-dichloroethane		20	U
67-66-3	chloroform		20	U
108-10-1	MIBK		20	U
74-97-5	bromochloromethane		20	U
71-55-6	1,1,1-trichloroethane		20	U
56-23-5	carbon tetrachloride		20	U
107-06-2	1,2-dichloroethane		20	<u> </u>
71-43-2	benzene		20	0
79-01-6			20	0
76-12-1	1,2-dichloropropane		20	0
10-13-1	Neetholone	ane	20	
70.20.0	Mothyl Acotato		<u></u> 50	<u> </u>
110-82-7	Cyclobexane		20	<u> </u>
108-87-2	Methyl Cyclohexane		20	
156-59-4	cis-1 2-dichloroethene		20	U U
75-27-4	bromodichloromethane		20	ŭ
10061-01-	5 cis-1.3-dichloropropene		20	Ŭ
108-88-3	toluene		20	Ū
10061-02-	3 trans-1,3-dichloropropene		20	U
591-78-6	2-hexanone		50	U
79-00-5	1,1,2-trichloroethane		20	U
124-48-1	dibromochloromethane		670	D
127-18-4	tetrachloroethene		830	D
108-90-7	chlorobenzene		20	U

	,		1A				EPA SA	MPLE NO.
	\	VOLATILE OF	(GANICS /	ANALYSIS DA	ATA SHEI	=1	T48 I	NZ 1.0-3
Lab Name:	NJAL			Contra	ct:		_	
Lab Code:	DEP 11	005 Case	e No.:	SAS	No.:	S	DG No.:	
Matrix: (soil/	water)	WATER			Lah Sam	nle ID.	T48 N7 1	0-3
Sample wt/v	ol:	0.5	(g/ml) ML		Lab File	ID:	TS62409	D
Level: (low/r	med)	LOW			Date Red	ceived:	07/27/11	
% Moisture	not dec				Date Ana	alvzed [.]	07/29/11	
							10.0	
GC Column:	rt502.2	2-1 ID: 0.53	3 (mm)		Dilution I	-actor:	10.0	
Soil Extract	Volume:		(uL)		Soil Aliqu	iot Volu	me:	(ul
				CONCENT	RATION	JNITS:		
CAS NO	D.	COMPO	UND	(ug/L or ug/	Kg) l	JG/L		Q
			<u>_</u>					
75-71	-8	Dichlor	odifulorom	ethane			20	U
74-87	-3	chloron	nethane				20	<u> </u>
75-01	-4	Vinyi cr	loride				20	0
74-83	-9	Dromor	netnane				20	0
75-00	-3	chloroe	tinane				20	<u> </u>
75-10	-0	tort but					20	
1624	-0		yr alconol				20	
78-93	23	MEK	·				50	
67-64	<u>-3</u> _1	aceton				····	610	
75-69	-4	trichlor	ofluoromet	hane			20	
75-35	-4	1 1-dic	bloroethen				20	U U
75-09	-2	methyle	ene chlorid	<u>e</u>			42	D
156-6	0-5	trans-1	.2-dichloro	ethene			20	U
75-34	-3	1,1-dic	hloroethan	e			20	U
67-66	-3	chlorof	orm				20	U
108-1	0-1	MIBK					20	U
74-97	-5	bromoc	chlorometh	ane			20	U
71-55	-6	1,1,1-tr	ichloroetha	ane			20	U
56-23	-5	carbon	tetrachlori	de			20	U
107-0	6-2	1,2-dicl	hloroethan	e			20	U
71-43	-2	benzen	1e				20	U
79-01	-6	trichlor	oethene				20	<u> </u>
78-87	-5	1,2-dicl	hloropropa	ne			20	U
76-13	<u>-1</u>	<u>112-1ri</u>	chloro-122	-Trifluoroetha	ne		20	U
91-20	-3	Naptha	lene				20	<u> </u>
110.9	<u>-9</u>	Methyl	Acetate				50	<u> </u>
109.9	<u>Z-1</u> 7 2	Mothul	Cucloboxa				20	0
156-5	<u>1-2</u> 0_1		-dicbloroet	hene			20	
75-27	-4	bromoc	tichlorome	thane			20	U U
10061	-01-5	cis-1 3-	-dichloropr	opene			20	U
108-8	8-3	toluene)				20	Ŭ
10061	-02-6	trans-1	3-dichloro	propene			20	Ŭ
591-7	8-6	2-hexa	none			····	50	U
79-00	-5	1,1,2-tr	ichloroetha	ane			20	U
124-4	8-1	dibrom	ochlorome	thane			640	D
127-1	8-4	tetrach	loroethene				800	D
108-9	0-7	chlorob	enzene				20	U

				OUCET	EPA SA	MPLE NO.
Lah Nama	NILAI	VOLATILE ORGANICS	Contract:	SHEET	T48 N	IZ 2.0-1
Lab Code:		1005 Case No :				
Matrix: (soil/	water)	WATER	Lab	Sample ID:	T48 NZ 2.	0-1
Sample wt/v	ol:	0.5 (g/ml) N	/L Lab	File ID:	TS62410.	D
Level: (low/	med)	LOW	Date	e Received:	07/27/11	
			Duk		07/00///	
% Moisture:	not dec.		Date	e Analyzed:	07/30/11	
GC Column:	: rt502	.2-1 ID: 0.53 (mm	i) Dilut	tion Factor:	10.0	
Soil Extract	Volume:	(uL)	Soil	Aliquot Volu	ime:	(ul
			CONCENTRATI	ON UNITS:		
CAS N	0	COMPOUND	(ua/L or ua/Ka)	UG/I		Q
	0.		(09,20,09,1(9)	U U/L		~
75-71	-8	Dichlorodifuloro	methane		20	U
74-87	'-3	chloromethane			20	U
75-01	-4	vinyl chloride			20	U
74-83	9-9	bromomethane			20	<u> </u>
75-00	1-3	chloroethane	····		20	U
75-15	<u>i-0</u>	carbon disulfide			20	U
75-65	j-0	tert-butyl alcoho			20	U
1634-	-04-4	MTBE			20	U
78-93	-3	MEK			50	U
_67-64	-1	acetone			590	D
75-69	-4	trichlorofluorom	ethane		20	U
75-35	5-4	1,1-dichloroethe	ene		20	U
75-09	-2	methylene chlor	ide		42	D
156-6	60-5	trans-1,2-dichlo	roethene		20	U
75-34	-3	1,1-dichloroetha	ane		20	U
67-66	5-3	chloroform			20	U
108-1	0-1	MIBK			20	U
74-97	-5	bromochlorome	thane		20	U
71-55	<u>i-6</u>	1,1,1-trichloroet	hane		20	<u> </u>
56-23	5	carbon tetrachic	pride		20	<u> </u>
107-0	16-2	1,2-dichloroetha	ane		20	
71-43	5-2	benzene			20	<u> </u>
79-01	-0				20	<u> </u>
78-87	-5				20	<u> </u>
70-13)-	Nanthalana	zz-Trinuoroetnane		20	
91-20	1-5				20	<u> </u>
110_8	2.7	Cyclobeyane			20	<u> </u>
108-8	2-1	Methyl Cyclobe			20	<u> </u>
156-5	9-4	cis_1 2-dichloro	ethene		20	<u> </u>
75-27	/_4	bromodichlorom	ethane		20	
10061	1-01-5	cis-1.3-dichloro			20	
108-8	8-3	toluene			20	<u> </u>
10061	1-02-6	trans-1.3-dichlo	ropropene		20	Ū
591-7	/8-6	2-hexanone			50	U U
79-00)-5	1.1.2-trichloroet	hane		20	Ū
124-4	8-1	dibromochlorom	nethane		520	D
127-1	8-4	tetrachloroether	1e		630	 D
108-9	0-7	chlorobenzene			20	
					<u></u>	-

					EPA SA	MPLE NO.
	V	OLATILE ORGANICS ANA	ALYSIS DATA SHE	ET	T48 N	Z 2.0-2
Lab Name:	NJAL		Contract:			
Lab Code:	DEP 110	05 Case No.:	SAS No.:	S	DG No.:	
Matrix: (soil/	water)	WATER	Lab Sar	nple ID:	T48 NZ 2.	0-2
Sample ut/u	ol:		Lob Filo		TEEDAAA	<u> </u>
Sample w/vo	01.			ID.	1302411.	D
Level: (low/r	med)	LOW	Date Re	ceived:	07/27/11	
% Moisture:	not dec.		Date An	alyzed:	07/30/11	
GC Column:	H502.2	-1 ID: 0.53 (mm)	Dilution	Factor	10.0	
oo column.	1002.2	- <u>-</u> ID. <u>0.55</u> (IIIII)	Diatori	ractor.	10.0	
Soil Extract \	Volume:	(uL)	Soil Aliq	uot Volu	ime:	(uL)
		С	ONCENTRATION	UNITS:		
CAS NO	Э.	COMPOUND (L	ıg/L or ug/Kg)	UG/L		Q
75 74	8	Dichlorodifulorometh		1	20	
71_97	-0	chloromethane			20	<u> </u>
75-01	-4	vinyl chloride			20	<u> </u>
74-83	-9	bromomethane		L ^a r	20	<u> </u>
75-00	-3	chloroethane			20	U
75-15-	-0	carbon disulfide			20	Ŭ
75-65	-0	tert-butyl alcohol			20	<u> </u>
1634-0	04-4	MTBE			20	U
78-93	-3	MEK			50	U
67-64	-1	acetone			540	D
75-69	-4	trichlorofluoromethan	e		20	U
75-35	-4	1,1-dichloroethene			20	U
75-09-	-2	methylene chloride			40	D
156-6	0-5	trans-1,2-dichloroeth	ene		20	U
75-34	-3	1,1-dichloroethane			20	U
67-66	-3	chloroform			20	U
108-1	0-1	MIBK		-	_20	U
74-97	-5	bromochloromethane)		_ 20	U
71-55	-6	1,1,1-trichloroethane			20	0
56-23-	-5	carbon tetrachloride			20	<u> </u>
71.42	0-2	1,2-dichloroethane			20	<u> </u>
7 1-43	<u>-2</u>	trichleroothono		-	20	<u> </u>
78-87	-0				20	
76-13	-0	112-Trichloro-122-Tri	ifluoroethane		20	<u> </u>
91-20	-3	Napthalene			20	<u> </u>
79-20	-9	Methyl Acetate			50	U
110-82	2-7	Cyclohexane			20	U
108-8	7-2	Methyl Cyclohexane			20	U
156-59	9-4	cis-1,2-dichloroethen	e		20	U
75-27	-4	bromodichloromethar	ne		20	U
10061	-01-5	cis-1,3-dichloroprope	ne		20	U
108-8	8-3	toluene			20	U
10061	-02-6	trans-1,3-dichloropro	pene		20	U
591-78	8-6	2-hexanone			50	U
79-00	-5	1,1,2-trichloroethane			20	U
124-44	8-1	dibromochloromethar	ne		570	D
127-10	8-4	tetrachloroethene			700	D
108-9	0-/	chlorobenzene			20	U

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III-1 Raw Chromatograms

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62401.D Vial: 3 Acq On : 29 Jul 2011 7:23 pm Operator: A. Thomas Sample : T48 NZ C-1 Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:19 19111 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9696380871715.00 ug/l-0.1544) chlorobenzene-d515.22117408824415.00 ug/L-0.1556) 1,4-dichlorobenzene-d419.60152237989415.00 ug/L-0.16 System Monitoring Compounds 21) dibromofluoromethane (S) 8.68 113 1414584 31.55 ug/L -0.16

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 105.17%

 26)
 1,2-dichloroethane-d4
 (S)
 9.44
 102
 301178
 30.63
 ug/L
 -0.15

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 102.10%

 36)
 toluene-d8
 (S)
 12.58
 98
 4527302
 30.90
 ug/L
 -0.15

 Spiked Amount 30.000 Range 80 - 120 Recovery = 103.00% 53) 4-bromofluorobenzene (BFB) 17.40 95 2627485 28.35 ug/L -0.15 Spiked Amount 30.000 Range 80 - 120 Recovery = 94.50% Target Compounds Qvalue Arget CompoundsQvalue14) acetone5.2658118499373.51 ug/L8417) methylene chloride6.16843347223.83 ug/L #10041) tetrachloroethene13.851668089105107.79 ug/L #7642) dibromochloromethane13.85129565212686.55 ug/L #61

(#) = qualifier out of range (m) = manual integration TS62401.D T6072011.M Fri Feb 24 10.30:38 2012 GCMS2

Page 9.00 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES Thomas GC/MS Ins 1,4b-enesnedoroldoldb-4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Multiplr: 1.00 A. \sim 4-bromofluorobenzene (BFB), 5 C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62401.D Vial: 29 Jul 2011 7:23 pm Operator: GCMS 2 TIC: TS62401 D Inst chlorobenzene-d5, l M,T,eM6715emaritaideain 24 10:30:39 2012 S ((S) 8b-eneutor 27 16:32:48 2011 I, aneznedorouft Calibration 7:23 pm 2,(2) 4b-ensiteeroidoib-S,f Fri Feb MS Integration Params: events.e 2 ,(2) ensitismorouffomordib 1 10:19 19111 8.00 7.00 29 Jul 2011 T48 NZ C-1 Wed Jul Initial 6.00 M,T,ebiroldo enelydiem TS62401.D T6072011.M VOA 5.00 M,T ,enotece Quant Time: Aug 4.00 Response via Abundance •• Last Update 3.00 Data File Sample Acq On Method Title Misc 600000 1100000 000006 800000 700000 500000 400000 300000 200000 100000 0 100000 Time-> 106

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62402.D Vial: 4 Acq On : 29 Jul 2011 7:56 pm Operator: A. Thomas : T48 NZ C-2 Sample : Misc : Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:19 19111 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9596376901515.00 ug/l-0.1644) chlorobenzene-d515.22117385909015.00 ug/L-0.1656) 1,4-dichlorobenzene-d419.60152229031815.00 ug/L-0.16 System Monitoring Compounds 21) dibromofluoromethane (S) 8.67 113 1361351 30.68 ug/L -0.16 Spiked Amount 30.000 Range 80 - 120 Recovery = 102.27% 26) 1,2-dichloroethane-d4 (S) 9.44 102 307137 31.56 ug/L -0.16

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 105.20%

 36) toluene-d8 (S)
 12.58
 98
 4348846
 29.99
 ug/L
 -0.16

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 99.97%

 53) 4-bromofluorobenzene (BFB) 17.39 95 2574020 29.42 ug/L -0.16 Spiked Amount 30.000 Range 80 - 120 Recovery = 98.07% Target Compounds Qvalue 14) acetone5.265897614861.19 ug/L8317) methylene chloride6.15843418013.95 ug/L #10041) tetrachloroethene13.851667649155103.00 ug/L #10042) dibromochloromethane13.85129552088085.43 ug/L #61

Page 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES Thomas GC/MS Ins 1,4-dichlorobenzene-d4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 A. 4 A-bromofluorobenzene (BFB), S Operator: Multiplr: Vial: GCMS 2 **FIC: TS62402.D** Inst chlorobenzene-d5, l Ω C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62402 M,T,9M6719mmtbidvalrie Fri Feb 24 10:30:43 2012 S ((S) 8b-ensulo) 2011 l, eneznedorouñ 27 16:32:48 Calibration 7:56 pm C (C) bb-anshboroldolb-S, 9.00 Params: events.e dibromofluoromethane (S), S 11101 01:01 1 8.00 7.00 29 Jul 2011 T48 NZ C-2 Wed Jul Initial 6.00 methylene chloride, T,M T6072011.M VOA 5.00 M,T, enotece Quant Time: Aug MS Integration 4.00 Response via •• Last Update 3.00 Data File TS62402.D Method Title Sample Acq On Abundance Misc 500000 1000000 000006 800000 700000 600000 400000 300000 200000 100000 0 1100000 Time-> 108

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62403.D Vial: 5 Acq On : 29 Jul 2011 8:30 pm Operator: A. Thomas Sample : T48 NZ C-3 Misc : Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:19 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9596364771915.00 ug/l-0.1644) chlorobenzene-d515.22117390412115.00 ug/L-0.1656) 1,4-dichlorobenzene-d419.59152234099015.00 ug/L-0.17 System Monitoring Compounds 21) dibromofluoromethane (S) 8.67 113 1356246 31.58 ug/L -0.16 Spiked Amount 30.000 Range 80 - 120 Recovery = 105.27% 26) 1,2-dichloroethane-d4 (S) 9.44 102 308870 32.80 ug/L -0.16 Spiked Amount 30.000 Range 80 - 120 Recovery = 109.33% 36) toluene-d8 (S)12.5898430227030.66 ug/L-0.16Spiked Amount30.000Range80 - 120Recovery=102.20%53) 4-bromofluorobenzene (BFB)17.3995250842028.34 ug/L-0.16 Spiked Amount 30.000 Range 80 - 120 Recovery = 94.47% Target Compounds Ovalue 14) acetone5.2558102321666.27ug/L8117) methylene chloride6.16843441664.11ug/L#10041) tetrachloroethene13.841667864350109.42ug/L#7642) dibromochloromethane13.84129555610288.84ug/L#61

 \sim Page 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES Thomas GC/MS Ins 1,4-dichlorobenzene-d4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 À. ഹ 4-bromofluorobenzene (BFB), S Multiplr: Operator: Vial: GCMS2 TIC: TS62403.D Inst chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62403.D 29 Jul 2011 8:30 pm T48 NZ C-3 In M,T,eMsAtemetaldradearda Feb 24 10:30:46 2012 C ((C) 8b-eneulor 2011 fluorobenzene, l 27 16:32:48 Calibration S ((S) Ab-ensiteoroldoib-S, 9.00 Params: events.e dibromofluoromethane (S), S 8.00 Fri 7.00 Wed Jul Initial 6.00 methylene chloride, T,M T6072011.M VOA 5.00 M,T,enotece Quant Time: Aug MS Integration 4.00 Response via •• Last Update 3.00 Data File TS62403.D Acq On Sample Method Title Abundance Misc 1000000 000006 800000 700000 600000 500000 400000 300000 200000 100000 0 1100000 Fime--> 110

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62404.D Vial: 6 Acq On : 29 Jul 2011 9:03 pm Operator: A. Thomas : T48 NZ .5-1 Sample Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:19 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene9.9596372225115.00 ug/l-0.1644) chlorobenzene-d515.21117395813315.00 ug/L-0.1756) 1,4-dichlorobenzene-d419.59152229732115.00 ug/L-0.17 System Monitoring Compounds 21) dibromofluoromethane (S) 8.66 113 1322570 30.18 ug/L -0.17 Spiked Amount 30.000 Range 80 - 120 Recovery = 100.60%

 26) 1,2-dichloroethane-d4 (S)
 9.44
 102
 300592
 31.28
 ug/L
 -0.16

 Spiked Amount
 30.000
 Range
 80
 - 120
 Recovery
 =
 104.27%

 36) toluene-d8 (S)
 12.57
 98
 4205471
 29.37
 ug/L
 -0.17

 Spiked Amount
 30.000
 Range
 80
 - 120
 Recovery
 =
 97.90%

 53) 4-bromofluorobenzene (BFB) 17.39 95 2513495 28.01 ug/L -0.17 Spiked Amount 30.000 Range 80 - 120 Recovery = 93.37%
 Target Compounds
 Qvalue

 14) acetone
 5.25
 58
 961792
 61.05 ug/L
 86

 17) methylene chloride
 6.14
 84
 342027
 4.00 ug/L #
 100

Quant Results File: T6072011.RES Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62404.D Vial: 6 Acq On : 29 Jul 2011 9:03 pm Operator: A. Thomas Sample : T48 NZ .5-1 Inst : GC/MS Inst Inst : GC/MS Inst : GC/MS Ins Inst : GC/MS Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:19 19111 Acq On Sample Mísc

Childromontomonultomonthamedia 2 (2) aneritemorouthomontha 2 (2) aneritemorouthomontha 2 (2) 2 (2) 48 2 (2) 48 2 (2) 48 2 (2) 11 1, anestradorouth (childrometication (2) (2) (2) 11 1 (2) 12 1 (2)
0

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Fri Feb 24 10:30:50 2012

TS62404.D T6072011.M

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62405.D Vial: 7 Acq On : 29 Jul 2011 9:37 pm Operator: A. Thomas : T48 NZ .5-2 Inst : GC/MS Ins Sample Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:19 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene9.9496366284115.00 ug/l-0.1744) chlorobenzene-d515.21117404272715.00 ug/L-0.1756) 1,4-dichlorobenzene-d419.59152237657115.00 ug/L-0.17 System Monitoring Compounds 21) dibromofluoromethane (S) 8.66 113 1324211 30.71 ug/L -0.17 Spiked Amount 30.000 Range 80 - 120 Recovery = 102.37%

 26) 1,2-dichloroethane-d4 (S)
 9.43
 102
 273955
 28.97
 ug/L
 -0.16

 Spiked Amount
 30.000
 Range
 80
 - 120
 Recovery
 =
 96.57%

 36) toluene-d8 (S)
 12.57
 98
 4368795
 31.00
 ug/L
 -0.17

 Spiked Amount
 30.000
 Range
 80
 - 120
 Recovery
 =
 103.33%

 53) 4-bromofluorobenzene (BFB) 17.38 95 2597152 28.33 ug/L -0.17 Spiked Amount 30.000 Range 80 - 120 Recovery = 94.43%

 Target Compounds
 Qvalue

 14) acetone
 5.25
 58
 843833
 54.43 ug/L
 81

 17) methylene chloride
 6.14
 84
 299192
 3.56 ug/L #
 100

 41) tetrachloroethene
 13.84
 166
 5721275
 79.27 ug/L #
 99

 42) dibromochloromethane
 13.84
 129
 3910240
 62.26 ug/L #
 61

9.00 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES Thomas GC/MS Ins 1,4-dichlorobenzene-d4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 A. ~ 4-bromofluorobenzene (BFB), S Multiplr: Vial: Operator: TIC: TS62405.D Inst chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62405.D M,T, sritting 2 (C) 8b-eneulof 2011 I, eneznedorouft 27 16:32:48 Calibration md 1,2-dichloroethane-d4 (S), S events.e 9:37 dibromofluoromethane (S), S 1 10:19 19111 8.00 7.00 .5-2 29 Jul 2011 Params: Wed Jul Initial 6.00 M,T, sbholds enelydfen T48 NZ VOA 5.00 M,T ,enotece Quant Time: Aug MS Integration 4.00 Response via ••• Last Update 3.00 Data File Acq On Sample Method Title Abundance 850000 800000 750000 700000 650000 600000 550000 500000 450000 400000 350000 300000 250000 200000 150000 100000 50000 0 Misc Time--> 114

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T6072011.M

TS62405.D

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62406.D Vial: 8 Acq On : 29 Jul 2011 10:10 pm Operator: A. Thomas Sample : Misc : : T48 NZ .5-3 Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:19 19111 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9496353558415.00 ug/l-0.1744) chlorobenzene-d515.20117380283415.00 ug/L-0.1756) 1,4-dichlorobenzene-d419.58152226655815.00 ug/L-0.17 System Monitoring Compounds 21) dibromofluoromethane (S) 8.66 113 1294110 31.09 ug/L -0.17 Spiked Amount 30.000 Range 80 - 120 Recovery = 103.63% 26) 1,2-dichloroethane-d4 (S) 9.43 102 274489 30.07 ug/L -0.17

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 100.23%

 36) toluene-d8 (S)
 12.56
 98
 4114098
 30.24 ug/L
 -0.17

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 100.23%

 53) 4-bromofluorobenzene (BFB)
 17.38
 95
 2443915
 28.34 ug/L
 -0.17

 Spiked Amount 30.000 Range 80 - 120 Recovery = 94.47%

 Target Compounds
 Qvalue

 14) acetone
 5.25
 58
 703572
 47.02 ug/L
 86

 17) methylene chloride
 6.14
 84
 275148
 3.39 ug/L #
 100

 41) tetrachloroethene
 13.83
 166
 5468509
 78.50 ug/L #
 76

 42) dibromochloromethane
 13.83
 129
 3918110
 64.63 ug/L #
 61

 \sim Page 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 File: T6072011.RES Thomas GC/MS Ins 1,4-dichlorobenzene-d4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 Α. ω 8 ((BTB) ensanedorouflomord-4 Multiplr: Vial: Operator: GCMS2 TIC: TS62406.D Inst Quant Results chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62406.D M,T, shishterented warnes 24 10:30:57 2012 2 ((2) 8b-ensulo? 2011 I, ensznedoroult 27 16:32:48 Calibration mq S .(S) 4b-ensiteoroldoib-S, f 9.00 Feb 1 10:19 19111 10:10 2 ,(2) ensitemoroutiomordib 8.00 Fri 7.00 29 Jul 2011 T48 NZ .5-3 Params: Wed Jul Initial 6.00 м,Т ,өbiroldo sneide, Т,М T6072011.M VOA 5.00 M,T, enotece Quant Time: Aug MS Integration 3.00 4.00 Response via ••• Last Update Data File TS62406.D Acq On Sample Method Title Abundance 800000 750000 550000 700000 650000 600000 500000 450000 400000 350000 300000 250000 200000 150000 100000 50000 Misc 0 Time-> 116

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62407.D Vial: 9 Acq On : 29 Jul 2011 10:43 pm Operator: A. Thomas Sample : T48 NZ 1.0-1 Misc : Inst : GC/MS Ins Misc Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:19 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9496347619915.00 ug/l-0.1744) chlorobenzene-d515.20117383749215.00 ug/L-0.1756) 1,4-dichlorobenzene-d419.58152231711115.00 ug/L-0.18 System Monitoring Compounds 21) dibromofluoromethane (S) 8.66 113 1278111 31.23 ug/L -0.17 Spiked Amount 30.000 Range 80 - 120 Recovery = 104.10% 26) 1,2-dichloroethane-d4 (S) 9.43 102 284347 31.68 ug/L -0.17 Spiked Amount 30.000 Range 80 - 120 Recovery = 105.60% 36) toluene-d8 (S)12.5698411301330.75 ug/L-0.17Spiked Amount30.000Range80 - 120Recovery=102.50%53) 4-bromofluorobenzene (BFB)17.3895246207928.30 ug/L-0.17 Spiked Amount 30.000 Range 80 - 120 Recovery = 94.33% Target Compounds 14) acetone Qvalue 14) acetone5.245888287360.01 ug/L7917) methylene chloride6.14843041213.81 ug/L #10041) tetrachloroethene13.83166578552084.47 ug/L #7642) dibromochloromethane13.83129403154767.64 ug/L #61

10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES Thomas GC/MS Ins +dichlorobenzene-d4, I C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 A. σ 4-bromofluorobenzene (BFB), S Multiplr: Operator: Vial: TIC: TS62407.D Inst chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62407.D M,T, 9M6/119/00/03/09/138 S ((S) 8b-eneulos 2011 fuorobenzene, { 27 16:32:48 Calibration md 1,2-dichloroethane-d4 (S), S 00.6 Params: events.e 10:43 C,(C) ensitiencrouitomordib 1 10:19 19111 8.00 7.00 1.0-1 29 Jul 2011 Wed Jul Initial 6.00 M,T ,ebitoldo enslyrtem T48 NZ VOA 5.00 M,T ,enotece Quant Time: Aug MS Integration 4.00 Response via ••• Last Update 3.00 Data File Sample Acq On Method Title Abundance 800000 Misc 750000 100000 650000 550000 450000 400000 350000 300000 250000 200000 150000 100000 0 600000 500000 50000 Time--> 118

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GCMS 2

Fri Feb 24 10:31:01 2012

TS62407.D T6072011.M

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62408.D Vial: 10 Acq On : 29 Jul 2011 11:16 pm Operator: A. Thomas Sample : Misc : : T48 NZ 1.0-2 Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:19 19111 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9496348643815.00 ug/l-0.1744) chlorobenzene-d515.20117379561215.00 ug/L-0.1856) 1,4-dichlorobenzene-d419.58152229466615.00 ug/L-0.18 System Monitoring Compounds 21) dibromofluoromethane (S) 8.66 113 1285529 31.32 ug/L -0.17 Spiked Amount 30.000 Range 80 - 120 Recovery = 104.40% 26) 1,2-dichloroethane-d4 (S) 9.43 102 295954 32.88 ug/L -0.17

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 109.60%

 36) toluene-d8
 (S)
 12.56
 98
 4068714
 30.33
 ug/L
 -0.17

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 101.10%

 53)
 4-bromofluorobenzene
 (BFB)
 17.38
 95
 2497660
 29.02
 ug/L
 -0.18

 Spiked Amount 30.000 Range 80 - 120 Recovery = 96.73%

 Target Compounds
 Qvalue

 14) acetone
 5.24
 58
 888148
 60.19 ug/L
 85

 17) methylene chloride
 6.14
 84
 305896
 3.82 ug/L #
 100

 41) tetrachloroethene
 13.83
 166
 5727635
 83.38 ug/L #
 100

 42) dibromochloromethane
 13.83
 129
 4034232
 67.49 ug/L #
 61

10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES GC/MS Ins A. Thomas +++-qiculoropeuseue-q++ C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Multiplr: 1.00 10 4-bromofluorobenzene (BFB), S Operator: Vial: ••• GCMS2 TIC: TS62408.D Inst chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62408.D M,T,eMisTitemaritidrauke Feb 24 10:31:04 2012 S ((S) 8b-eneulof 27 16:32:48 2011 I, eneznedoroult Calibration 11:16 pm S ((S) 4b-ensiteoroldoib-S,f 9.00 MS Integration Params: events.e Quant Time: Aug 1 10:19 19111 dibromofluoromethane (S), S 8.00 ਮ ਮ ਸਿ 7.00 1.0-2 29 Jul 2011 T48 NZ 1.0-2 Wed Jul Initial 6.00 methylene chloride, T,M TS62408.D T6072011.M VOA 5.00 M,T ,enotecs Quant Time: Aug 4.00 Response via • • Last Update 3.00 Data File Acq On Sample Method Title Abundance Misc 800000 750000 700000 650000 600000 550000 500000 450000 400000 350000 300000 250000 200000 150000 50000 100000 0 Time-> 120

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62409.D Vial: 11 Acq On : 29 Jul 2011 11:49 pm Operator: A. Thomas : T48 NZ 1.0-3 Sample : Misc : Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:19 19111 Quant Results File: T6072011.RES Ouant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene9.9496344105015.00 ug/l-0.1744) chlorobenzene-d515.20117373036215.00 ug/L-0.1856) 1,4-dichlorobenzene-d419.58152227183415.00 ug/L-0.18 System Monitoring Compounds 21) dibromofluoromethane (S) 8.65 113 1265893 31.25 ug/L -0.18

 21) dibromofluoromethane (S)
 8.65
 113
 1265893
 31.25
 ug/L
 -0.18

 Spiked Amount
 30.000
 Range
 80
 - 120
 Recovery
 =
 104.17%

 26) 1,2-dichloroethane-d4
 (S)
 9.43
 102
 265667
 29.90
 ug/L
 -0.17

 Spiked Amount
 30.000
 Range
 80
 - 120
 Recovery
 =
 99.67%

 36) toluene-d8
 (S)
 12.56
 98
 4099319
 30.96
 ug/L
 -0.18

 Spiked Amount
 30.000
 Range
 80
 - 120
 Recovery
 =
 103.20%

 53) 4-bromofluorobenzene
 (BFB)
 17.37
 95
 2408163
 28.47
 ug/L
 -0.18

 Spiked Amount 30.000 Range 80 - 120 Recovery = 94.90% Target Compounds Qvalue 14) acetone5.245888534460.79 ug/L7617) methylene chloride6.13843356684.25 ug/L #10041) tetrachloroethene13.83166543048580.09 ug/L #10042) dibromochloromethane13.83129380380164.47 ug/L #61

Page 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES A. Thomas GC/MS Ins 1,4b-enesnedoroldolb-4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 1 4-bromofluorobenzene (BFB), S D Vial: Operator: Multiplr: GCMS2 TIC: TS62409.D Inst l ,cbiorobenzene-d5, l C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62409. M,T ,9MgTitemetisdealer Fri Feb 24 10:31:08 2012 S ((S) 8b-aneulot 2011 I, energensene 27 16:32:48 Calibration S ,(S) 4b-ensitearolidaib-S, f 11:49 pm 9.00 Params: events.e 8 (8) enerthemorouflomordib 8.00 7.00 1.0-3 29 Jul 2011 T48 NZ 1.0-3 Wed Jul Initial 6.00 methylene chloride, T,M T6072011.M VOA 5.00 M,T ,enotece Quant Time: Aug MS Integration 4.00 Response via Last Update • • 3.00 Data File TS62409.D Acq On Sample Method Title Abundance 750000 Misc 700000 00005 122 400000 650000 600000 550000 450000 350000 300000 250000 200000 150000 100000 50000 0 Time-->

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62410.D Vial: 12 Acq On : 30 Jul 2011 12:23 am Operator: A. Thomas : T48 NZ 2.0-1 Sample Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:20 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9396342606215.00 ug/l-0.1844) chlorobenzene-d515.20117373540515.00 ug/L-0.1856) 1,4-dichlorobenzene-d419.57152224871215.00 ug/L-0.18 System Monitoring Compounds 21) dibromofluoromethane (S) 8.66 113 1277558 31.68 ug/L -0.18 Spiked Amount 30.000 Range 80 - 120 Recovery = 105.60% 26) 1,2-dichloroethane-d4 (S) 9.43 102 261098 29.52 ug/L -0.17

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 98.40%

 36) toluene-d8 (S)
 12.56
 98
 4035857
 30.62 ug/L
 -0.18

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 102.07%

 53) 4-bromofluorobenzene (BFB) 17.38 95 2411369 28.47 ug/L -0.18 Spiked Amount 30.000 Range 80 - 120 Recovery = 94.90%

 Target Compounds
 Qvalue

 14) acetone
 5.24
 58
 859805
 59.29 ug/L
 85

 17) methylene chloride
 6.13
 84
 330365
 4.20 ug/L
 #
 100

 41) tetrachloroethene
 13.83
 166
 4254101
 63.02 ug/L
 #
 100

 42) dibromochloromethane
 13.83
 129
 3034399
 51.66 ug/L
 #
 61

10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES A. Thomas GC/MS Ins 1,4-dichlorobenzene-d4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 12 Multiplr: C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62410.D Vial: 30 Jul 2011 12:23 am Operator: GCMS2 TIC: TS62410.D Inst Chiorobenzene-d5, I MpAternatusdaalintaardii 24 10:31:12 2012 S ((S) 8b-eneulot 2011 27 16:32:48 1, ensznedorouft Calibration 2,(2) 4b-ensiteotolicib-2, f 9.00 Feb Params: events.e 8 (8) ensitemorouflomordib 1 10:20 19111 8.00 ЪТЧ 7.00 2.0-1 Wed Jul Initial 6.00 M,T, ebholdo enelydfen T6072011.M T48 NZ VOA 5.00 M,T, enotece Quant Time: Aug MS Integration 4.00 Response via Last Update ••• 3.00 Data File TS62410.D Sample Acq On Method Title Abundance Misc 600000 550000 500000 450000 400000 350000 300000 250000 200000 150000 100000 50000 0 Tjme-> 124

 \sim Page

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62411.D Vial: 13 Acq On : 30 Jul 2011 12:56 am Operator: A. Thomas : T48 NZ 2.0-2 Sample Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:20 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9396334568815.00 ug/l-0.1844) chlorobenzene-d515.20117366727015.00 ug/L-0.1856) 1,4-dichlorobenzene-d419.57152217418615.00 ug/L-0.18 System Monitoring Compounds 21) dibromofluoromethane (S) 8.65 113 1233549 31.32 ug/L -0.18 Spiked Amount 30.000 Range 80 - 120 Recovery = 104.40%

 26) 1,2-dichloroethane-d4 (S)
 9.42
 102
 261072
 30.22
 ug/L
 -0.18

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 100.73%

 36) toluene-d8 (S)
 12.56
 98
 3928216
 30.52
 ug/L
 -0.18

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 101.73%

 53) 4-bromofluorobenzene (BFB) 17.37 95 2330516 28.03 ug/L -0.18 Spiked Amount 30.000 Range 80 - 120 Recovery = 93.43%

 Target Compounds
 Qvalue

 14) acetone
 5.24
 58
 763853
 53.94 ug/L
 80

 17) methylene chloride
 6.13
 84
 310337
 4.04 ug/L #
 100

 41) tetrachloroethene
 13.83
 166
 4643556
 70.44 ug/L #
 76

 42) dibromochloromethane
 13.83
 129
 3254077
 56.73 ug/L #
 61

< \ Page 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES A. Thomas GC/MS Ins I,4b-ensznedoroldsib-4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 13 4-bromofluorobenzene (BFB), S Multiplr: Vial: Operator: ... GCMS 2 TIC: TS62411.D Inst ('gp-euszuago.ou Ω. C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62411 M,T, shishtemetisid 24 10:31:15 2012 S ((S) 8b-ensulo? 2011 t, eneznedorouft 27 16:32:48 Calibration 12:56 am 2 ,(2) 4b-ensdfeoroidaib-2, f Feb 9.00 Params: events.e 8 ((8) ensitemoroutiomordib 8.00 БĽі 7.00 2.0-2 30 Jul 2011 Wed Jul Initial 6.00 M,T,ebinolitha enelyntem TS62411.D T6072011.M T48 NZ VOA 5.00 M,T ,enotece Quant Time: Aug MS Integration 4.00 • • Response via Last Update •• 3.00 Data File Acq On Sample Method Title Abundance Misc 650000 500000 400000 600000 550000 350000 300000 250000 200000 150000 100000 50000 0 450000 Time-> 126

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62412.D Vial: 14 Data File : C. (Incontration) Acq On : 30 Jul 2011 1:29 am Operator: A. Thomas Sample : T48 NZ 2.0-3 Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:20 19111 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9396344451715.00 ug/l-0.1844) chlorobenzene-d515.19117378126315.00 ug/L-0.1856) 1,4-dichlorobenzene-d419.57152228797715.00 ug/L-0.19 System Monitoring Compounds 21) dibromofluoromethane (S) 8.65 113 1259951 31.07 ug/L -0.18 Spiked Amount 30.000 Range 80 - 120 Recovery = 103.57% 26) 1,2-dichloroethane-d4 (S) 9.42 102 255991 28.78 ug/L -0.18 Spiked Amount30.000Range80 - 120Recovery=95.93%36) toluene-d8 (S)12.5598402457130.37 ug/L-0.18Spiked Amount30.000Range80 - 120Recovery=101.23% 36) toluene-d8 (S) 53) 4-bromofluorobenzene (BFB) 17.37 95 2361831 27.55 ug/L -0.19 Spiked Amount 30.000 Range 80 - 120 Recovery = 91.83%

 Target Compounds
 Qvalue

 14) acetone
 5.24
 58
 784638
 53.82 ug/L
 88

 17) methylene chloride
 6.13
 84
 296837
 3.75 ug/L #
 100

 41) tetrachloroethene
 13.82
 166
 4648794
 68.50 ug/L #
 76

 42) dibromochloromethane
 13.82
 129
 3172546
 53.72 ug/L #
 61

10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES A. Thomas GC/MS Ins 1,4b-enesnedoroldold-4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 14 4-bromofluorobenzene (BFB), 5 Vial: Multiplr: Operator: GCMS 2 **FIC: TS62412.D** Inst chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62412.D M,T,eMisTterarticide 24 10:31:19 2012 S ((S) 8b-ensulo: 2011 27 16:32:48 fluorobenzene, I Calibration am S ((S) 4b-ensiteoroldoib-2,1 Feb 9.00 events.e 1:29 Params: events. 1 10:20 19111 dibromofluoromethane (S), S 8.00 Fri-7.00 2.0-3 30 Jul 2011 Wed Jul Initial 6.00 methylene chloride, T,M T6072011.M T48 NZ VOA M,T,enotece 4.00 5.00 Quant Time: Aug MS Integration Response via • • Last Update 3.00 Data File TS62412.D Acq On Sample Method Title Abundance 650000 Misc 600000 550000 500000 450000 400000 350000 300000 250000 200000 150000 50000 100000 0 Time-> 128

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IV-1 Method Tunes

IV-2 Method Blanks

IV-3 Daily Calibration

IV-4 Laboratory Control Samples
Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TBF62401.D Vial: 1 : 29 Jul 2011 Operator: A. Thomas Acq On 5:10 pm : 50ng bfb 624/5ml 7/29/11 : GC/MS Ins Sample Inst Misc Multiplr: 1.00 . MS Integration Params: events.e Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) : VOA Title



AutoFind: Scans 887, 888, 889; Background Corrected with Scan 880

 	Target Mass	 	Rel. to Mass	 	Lower Limit%	 	Upper Limit%	 1	Rel. Abn%	 [Raw Abn	 	Result Pass/Fail	
	50		95		15		40		31.8		17405		PASS	
	75		95		30		70		60.0		32824		PASS	
	95		95		100		100	[100.0		54739	ļ	PASS	
	96		95		5		9		7.2		3923		PASS	
	173		174		0.00		2	1	0.0		0		PASS	
	174		95		50		100		78.5		42944		PASS	
	175		174		5		9	1	7.3		3145		PASS	
	176		174		95		101		97.7		41936	ļ	PASS	
	177	I	176		5		9		7.1		2988		PASS	1

Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TBF62402.D Vial: 24 : 30 Jul 2011 6:59 am Operator: A. Thomas Acq On Sample : 50ng bfb 624/5ml 7/29/11 : GC/MS Ins Inst Misc Multiplr: 1.00 MS Integration Params: events.e Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA



AutoFind: Scans 884, 885, 886; Background Corrected with Scan 877

	Target Mass		Rel. to Mass		Lower Limit%	 	Upper Limit%	 	Rel. Abn%	 	Raw Abn	 	Result Pass/Fail	
	50	1	95		15		40	1	30.5		13030		PASS	
	75		95		30		70		59.8		25555		PASS	
	95		95	1	100	1	100	1	100.0		42712		PASS	
	96		95		5		9		7.7		3275		PASS	
	173		174		0.00	[2		0.0	1	0		PASS	
	174		95		50		100		81.4		34747		PASS	
	175		174	[5	[9	1	7.9	1	2760		PASS	
	176		174		95		101		100.9		35043		PASS	Ì
I	177		176	1	5	1	9	Ì	6.9		2412	Ì	PASS	Ì

TBF62402.D T6072011.M Fri Feb 24 132:45:25 2012 GCMS2

Quantitation Report (QT Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TBL62401.D Vial: 1 Acq On : 29 Jul 2011 5:44 pm Sample : Blank 624/5ml 7/29/11 Operator: A. Thomas Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:19 19111 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9696398828415.00 ug/l-0.1544) chlorobenzene-d515.23117426911315.00 ug/L-0.1556) 1,4-dichlorobenzene-d419.61152243746415.00 ug/L-0.15 System Monitoring Compounds 21) dibromofluoromethane (S) 8.68 113 1410201 30.04 ug/L -0.15 Spiked Amount 30.000 Range 80 - 120 Recovery = 100.13% 26) 1,2-dichloroethane-d4 (S) 9.45 102 330295 32.08 ug/L -0.15 Spiked Amount 30.000 Range 80 - 120 Recovery = 106.93% 36) toluene-d8 (S)12.5898474727130.94 ug/L-0.15Spiked Amount30.000Range80 - 120Recovery=103.13%53) 4-bromofluorobenzene(BFB)17.4095278666328.79 ug/L-0.15 Spiked Amount 30.000 Range 80 - 120 Recovery = 95.97%

Target Compounds

Qvalue

Quantitation Report

Quant Results File: T6072011.RES Operator: A. Thomas : GC/MS Ins : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Multiplr: 1.00 Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TBL62401.D Vial: 1 Inst : 29 Jul 2011 5:44 pm : Blank 624/5ml 7/29/11 MS Integration Params: events.e Quant Time: Aug 1 10:19 19111 Acq On Sample Method Misc

									00 27.00
									4.00 25.00 26.0
									0 22.00 23.00 2
	i ,b-eneznedo roifieit	} ∳'↓			1 70000 - 201 - 201 12	t and a generated in the set			9.00 20.00 21.00
	S ,(878) enernedoroul	ftomo rd-b -		<u></u>				anti a l'anti anti anti anti anti anti anti anti	17.00 18.00 1
IC: TBL62401.D	orobenzene-dő, l	əltə			na <u></u>				.00 15.00 16.00
.		S '(S) 8p-eue	10 1 —					алан алан алан алан алан алан алан алан	12.00 13.00 14
:48 2011 ion			l, s n	14 (S), S fluorobenzei	o-ensrtieoiol	તગંધ-2,1			00 10.00 11.00
27 16:32 Calibrat					С ,(С) өл б И	ອຫວາວມາ້າວຕາ	dibro		7.00 8.00 9.0
: VOA : Wed Jul : Initial									5.00 6.00
update Dise via				-		o juž Mana and		9723	3.00 4.00
Títlé Last Respc Abundance	450000	350000	00000 25	250000	200000	150000	100000	50000	0

Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TDC62401.D Vial: 1 Acq On : 29 Jul 2011 6:17 pm Sample : 20 ppb cl 1624/5ml 7/29/11 Misc : Operator: A. Thomas Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Multiple Level Calibration Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min Max. RRF Dev : 30% Max. Rel. Area : 200% AvgRF CCRF %Dev Area% Dev(min) Compound 1.000 1.000 0.0 78 -0.16 0.312 0.190 39.1# 47# -0.08 1 I fluorobenzene 3 T,M chloromethane

~	i i onitotonio chano	0.010	0,100	• • • • •	- ' ''	0.00
4	C,T,M vinyl chloride	0.184	0.195	-6.0	88	-0.10
5	T,M bromomethane	0.144	0.057	60.4#	33#	-0.11
6	T,M chloroethane	0.225	0.209	7.1	68	-0.10
7	t 112-Trichloro-122-Trifluoro	0.289	0.214	26.0	53	-0.15
8	t Methyl Acetate	0.047	0.049	-4.3	74	-0.14
9	T,M carbon disulfide	0.586	0.394	32.8#	46#	-0.16
10	T,M MTBE	0.785	0.744	5.2	78	-0.13
11	t 1,4 Dioxane	0.028	0.024	14.3	57	-0.13
12	T,M tert-butyl alcohol	0.054	0.050	7.4	66	-0.13
13	T,M MEK	0.044	0.043	2.3	70	-0.12
14	T,M acetone	0.049	0.187	-281.6#	325	# -0.12
15	T,M trichlorofluoromethane	0.385	0.288	25.2	50	-0.15
16	C,T,M 1,1-dichloroethene	0.514	0.368	28.4	51	-0.14
17	T,M methylene chloride	0.345	0.294	14.8	65	-0.14
18	T,M trans-1,2-dichloroethene	0.525	0.414	21.1	58	-0.15
19	T,M 1,1-dichloroethane	0.651	0.526	19.2	58	-0.15
20	C, T, M chloroform	0.380	0.326	14.2	63	-0.15
21	S dibromofluoromethane (S)	0.177	0.202	-14.1	89	-0.16
22	T,M bromochloromethane	0.149	0.113	24.2	51	-0.15
23	t Cyclohexane	0.417	0.317	24.0	52	-0.16
24	T,M 1,1,1-trichloroethane	0.440	0.400	9.1	64	-0.15
25	T,M carbon tetrachloride	0.326	0.298	8.6	62	-0.15
26	S 1,2-dichloroethane-d4 (S)	0.039	0.044	-12.8	86	-0.15
27	T,M 1,2-dichloroethane	0.545	0.513	5.9	70	-0.15
28	T,M benzene	1.096	0.835	23.8	54	-0.15
29	T,M trichloroethene	0.285	0.232	18.6	55	-0.15
30	t Methyl Cyclohexane	0.479	0.386	19.4	56	-0.15
31	C,T,M 1,2-dichloropropane	0.325	0.271	16.6	61	-0.15
32	T,M MIBK	0.036	0.030	16.7	63	-0.16
33	T,M cis-1,2-dichloroethene	0.532	0.440	17.3	61	-0.15
34	T,M bromodichloromethane	0.353	0.310	12.2	61	-0.15
35	T,M cis-1,3-dichloropropene	0.426	0.358	16.0	58	-0.15
36	S toluene-d8 (S)	0.577	0.618	-7.1	81	-0.15
37	C,T,M toluene	1.119	0.894	20.1	52	-0.16
38	T,M trans-1,3-dichloropropene	0.447	0.323	27.7	52	-0.03
39	T,M 2-hexanone	0.130	0.108	16.9	72	-0.15
40	T,M 1,1,2-trichloroethane	0.210	0.180	14.3	61	-0.15
41	T,M tetrachloroethene	0.296	0.258	12.8	57	-0.15
42	T,M dibromochloromethane	0.218	0.188	13.8	56	-0.15
43	T,M 1,2-dibromoethane	0.253	0.222	12.3	61	-0.15
44	I chlorobenzene-d5	1.0 1030 7	1.000	0.0	71	-0.15
45	M,T chlorobenzene	0.554	0.476	14.1	58	-0.15

46	С,Т,М	1 ethyl benzene	1.066	0.931	12.7	58	-0.15
47	Т,М	m/p-xylene	0.929	0.813	12.5	52	-0.15
48	Т,М	o-xylene	0.874	0.783	10.4	59	-0.15
49	т,М	styrene	0.528	0.447	15.3	56	-0.15
50	Т,М	isopropyl benzene	0.953	0.835	12.4	58	-0.15
51	Т,М	bromoform	0.123	0.093	24.4	53	-0.15
52	т,М	1,1,2,2-tetrachloroethane	0.274	0.247	9.9	64	-0.15
53	S	4-bromofluorobenzene (BFB)	0.340	0.330	2.9	69	-0.15
54	Т,М	1,3-dichlorobenzene	0.404	0.333	17.6	54	-0.15
55	Т,М	1,2-dichlorobenzene	0.383	0.315	17.8	55	-0.16
56	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	64	-0.15
57	т,М	1,4-dichlorobenzene	0.639	0.611	4.4	61	-0.16
58	Т,М	1,2-dibromo-3-chloropropane	0.069	0.060	13.0	74	-0.15
59	т,М	1,2,4-trichlorobenzene	0.387	0.352	9.0	56	-0.16
60	Т,М	Napthalene	0.822	0.729	11.3	62	-0.16
61	т,М	1,2,3-trichlorobenzene	0.343	0.326	5.0	61	-0.16

(#) = Out of Range SPCC's out = 0 CCC's out = 0 BF62401.D T6072011.M Fri Feb 24 11:48:34 2012 GCMS2

Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TDC62402.D Vial: 25

 Acq On
 : 30 Jul 2011
 7:32 am
 Operator: A. Thomas

 Sample
 : 20ppb cal2 624/5ml 7/29/11
 Inst
 : GC/MS Ins

 Sample : Misc : Multiplr: 1.00 MS Integration Params: events.e : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Method Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Multiple Level Calibration Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min Max. RRF Dev : 30% Max. Rel. Area : 200% AvgRF CCRF %Dev Area% Dev(min) Compound
 Avgr
 CCRF
 %Dev Area% Dev (Min)

 1
 I
 fluorobenzene
 1.000
 1.000
 0.0
 61
 -0.20

 3
 T,M
 chloromethane
 0.312
 0.169
 45.8#
 32# -0.11

 4
 C,T,M vinyl chloride
 0.184
 0.180
 2.2
 64
 -0.11

 5
 T,M
 bromomethane
 0.225
 0.211
 6.2
 54
 -0.14

 7
 t
 112-Trichloro-122-Trifluoro
 0.289
 0.253
 12.5
 49# -0.15

 8
 Methyl Acetate
 0.047
 0.050
 -6.4
 59
 -0.17

 9
 T,M
 carbon disulfide
 0.586
 0.431
 26.5
 40# -0.18

 10
 T,M
 MTBE
 0.785
 0.807
 -2.8
 66
 -0.17

 12
 T,M
 tert-butyl alcohol
 0.054
 0.039
 27.8
 40# -0.19

 13
 T,M
 mEK
 0.044
 0.031
 29.5
 39# -0.16

 14
 T,M ace -.19 .19 .19 .19

т,М	bromochloromethane	0.149	0.162	-8.7	57	-0.19
t	Cyclohexane	0.417	0.390	6.5	50	-0.19
Т,М	1,1,1-trichloroethane	0.440	0.517	-17.5	65	-0.19
Т,М	carbon tetrachloride	0.326	0.379	-16.3	62	-0.19
S	1,2-dichloroethane-d4 (S)	0.039	0.044	-12.8	66	-0.18
Т,М	1,2-dichloroethane	0.545	0.635	-16.5	68	-0.19
Т,М	benzene	1.096	1.062	3.1	54	-0.19
Т,М	trichloroethene	0.285	0.305	-7.0	56	-0.19
t	Methyl Cyclohexane	0.479	0.445	7.1	50	-0.19
С,Т,	M 1,2-dichloropropane	0.325	0.336	-3.4	59	-0.19
Т,М	MIBK	0.036	0.024	33.3#	38#	-0.20
Т,М	cis-1,2-dichloroethene	0.532	0.541	-1.7	58	-0.19
Т,М	bromodichloromethane	0.353	0.392	-11.0	60	-0.19
Т,М	cis-1,3-dichloropropene	0.426	0.395	7.3	50	-0.19
S	toluene-d8 (S)	0.577	0.629	-9.0	64	-0.19
С,Т,	M toluene	1.119	1.102	1.5	50	-0.19
Т,М	trans-1,3-dichloropropene	0.447	0.340	23.9	43#	-0.07
Т,М	2-hexanone	0.130	0.087	33.1#	45#	-0.18
Т,М	1,1,2-trichloroethane	0.210	0.219	-4.3	59	-0.19
Т,М	tetrachloroethene	0.296	0.355	-19.9	61	-0.19
Т,М	dibromochloromethane	0.218	0.247	-13.3	57	-0.20
Т,М	1,2-dibromoethane	0.253	0.278	-9.9	60	-0.20
I	chlorobenzene-d5	1.0 39	1.000	0.0	59	-0.20
М,Т	chlorobenzene	0.554	0.571	-3.1	58	-0.20
	T, M T, M T, M T, M T, M T, M T, M T, M	<pre>T,M bromochloromethane t Cyclohexane T,M 1,1,1-trichloroethane T,M carbon tetrachloride S 1,2-dichloroethane-d4 (S) T,M 1,2-dichloroethane T,M benzene T,M trichloroethene t Methyl Cyclohexane C,T,M 1,2-dichloropropane T,M MIBK T,M cis-1,2-dichloroethene T,M bromodichloromethane T,M cis-1,3-dichloropropene S toluene-d8 (S) C,T,M toluene T,M trans-1,3-dichloropropene T,M 2-hexanone T,M 1,1,2-trichloroethane T,M dibromochloromethane T,M 1,2-dibromoethane T,M 1,2-dibromoethane T,M 1,2-dibromoethane I chlorobenzene-d5 M,T chlorobenzene</pre>	T,Mbromochloromethane0.149tCyclohexane0.417T,M1,1,1-trichloroethane0.440T,Mcarbon tetrachloride0.326S1,2-dichloroethane-d4 (S)0.039T,M1,2-dichloroethane0.545T,Mbenzene1.096T,Mtrichloroethene0.285tMethyl Cyclohexane0.479C,T,M1,2-dichloropropane0.325T,MMIBK0.036T,Mcis-1,2-dichloroethene0.532T,Mbromodichloromethane0.353T,Mcis-1,3-dichloropropene0.426Stoluene-d8 (S)0.577C,T,Mtoluene1.119T,Mtrans-1,3-dichloropropene0.447T,M2-hexanone0.130T,M1,1,2-trichloroethane0.216T,Mdibromochloromethane0.218T,M1,2-dibromoethane0.253Ichlorobenzene-d51.009M,Tchlorobenzene0.554	T,Mbromochloromethane0.1490.162tCyclohexane0.4170.390T,M1,1,1-trichloroethane0.4400.517T,Mcarbon tetrachloride0.3260.379S1,2-dichloroethane-d4 (S)0.0390.044T,M1,2-dichloroethane0.5450.635T,Mbenzene1.0961.062T,Mtrichloroethene0.2850.305tMethyl Cyclohexane0.4790.445C,T,M1,2-dichloropropane0.3250.336T,MMIBK0.0360.024T,Mbromodichloromethane0.3530.392T,Mcis-1,2-dichloropropene0.4260.395Stoluene-d8 (S)0.5770.629C,T,Mtoluene1.1191.102T,Mtrans-1,3-dichloropropene0.4470.340T,M2-hexanone0.1300.087T,M1,1,2-trichloroethane0.2100.219T,Mtetrachloroethene0.2100.219T,M1,2-dibromoethane0.2180.247T,M1,2-dibromoethane0.2530.278Ichlorobenzene-d51.0691.000M,Tchlorobenzene0.5540.571	T,Mbromochloromethane0.1490.162-8.7tCyclohexane0.4170.3906.5T,M1,1,1-trichloroethane0.4400.517-17.5T,Mcarbon tetrachloride0.3260.379-16.3S1,2-dichloroethane-d4 (S)0.0390.044-12.8T,M1,2-dichloroethane0.5450.635-16.5T,Mbenzene1.0961.0623.1T,Mtrichloroethene0.2850.305-7.0tMethyl Cyclohexane0.4790.4457.1C,T,M1,2-dichloropropane0.3250.336-3.4T,MmIBK0.0360.02433.3#T,Mcis-1,2-dichloroethene0.3530.392-11.0T,Mbromodichloromethane0.3530.392-11.0T,Mcis-1,3-dichloropropene0.4470.34023.9T,Mtans-1,3-dichloropropene0.4470.34023.9T,Mtans-1,3-dichloropropene0.2100.219-4.3T,Mtarschloroethene0.2260.355-19.9T,Mdibromochloromethane0.2180.247-13.3T,M1,2-dibromoethane0.2180.247-13.3T,M1,2-dibromoethane0.2530.278-9.9Ichlorobenzene-d51.0091.0000.0M,Tchlorobenzene0.5540.571-3.1	T,Mbromochloromethane0.1490.162-8.757tCyclohexane0.4170.3906.550T,M1,1,1-trichloroethane0.4400.517-17.565T,Mcarbon tetrachloride0.3260.379-16.362S1,2-dichloroethane-d4 (S)0.0390.044-12.866T,Mbenzene0.5450.635-16.568T,Mtrichloroethane0.2850.305-7.056tMethyl Cyclohexane0.4790.4457.150C,T,M1,2-dichloropropane0.3250.336-3.459T,MMIBK0.0360.02433.3#38#T,Mcis-1,2-dichloropropene0.4260.3957.350Stoluene-d8 (S)0.5770.629-9.064C,T,Mtoluene1.1191.1021.550T,Mtrans-1,3-dichloropropene0.4470.34023.943#T,Mchaxanne0.2100.219-4.359T,Mtrans-1,3-dichloropropene0.2460.355-19.961T,M1,1,2-trichloroethane0.2100.219-4.359T,Mtetrachloroethane0.2260.355-19.961T,M1,2-dibromoethane0.2180.247-13.357T,M1,2-dibromoethane0.2530.278-9.960Ichlorobenzene-d51.di391.000<

46	С,Т,М	1 ethyl benzene	1.066	1.097	-2.9	57	-0.19
47	Т,М	m/p-xylene	0.929	0.948	-2.0	51	-0.19
48	Т,М	o-xylene	0.874	0.940	-7.6	60	-0.20
49	Т,М	styrene	0.528	0.545	-3.2	57	-0.19
50	Т,М	isopropyl benzene	0.953	1.030	-8.1	60	-0.20
51	Т,М	bromoform	0.123	0.101	17.9	48#	-0.20
52	Т,М	1,1,2,2-tetrachloroethane	0.274	0.254	7.3	56	-0.19
53	S	4-bromofluorobenzene (BFB)	0.340	0.327	3.8	58	-0.20
54	Т,М	1,3-dichlorobenzene	0.404	0.383	5.2	52	-0.20
55	Τ,Μ	1,2-dichlorobenzene	0.383	0.338	11.7	50#	-0.20
56	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	56	-0.20
57	Т,М	1,4-dichlorobenzene	0.639	0.715	-11.9	63	-0.22
59	Т,М	1,2,4-trichlorobenzene	0.387	0.402	-3.9	56	-0.21
60	Т,М	Napthalene	0.822	0.650	20.9	49#	-0.21
61	Τ,Μ	1,2,3-trichlorobenzene	0.343	0.357	-4.1	59	-0.21
	(#) =	= Out of Range S	SPCC's ou	t = 0 C	CCC's out =	0	

SPCC's out = 0 CCC's out = 0(#) = Out of Range SPCC's out = 0 CCC's out = 0 BF62401.D T6072011.M Fri Feb 24 11:50:53 2012 GCMS2

Quantitation Report (QT Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TDC62401.D Vial: 1 Acq On: 29 Jul 20116:17 pmOperator: A. ThomasSample: 20 ppb cl 1624/5ml 7/29/11Inst: GC/MS InsMisco:::: Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Feb 24 11:48 19112 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene9.95963811807m15.00 ug/l-0.1644) chlorobenzene-d515.23117420896515.00 ug/L-0.1556) 1,4-dichlorobenzene-d419.60152254561315.00 ug/L-0.15 System Monitoring Compounds 21) dibromofluoromethane (S) 8.67 113 1536609 34.24 ug/L -0.16 Spiked Amount 30.000 Range 80 - 120 Recovery = 114.13%

 26) 1,2-dichloroethane-d4 (S)
 9.45
 102
 338713
 34.42 ug/L
 -0.15

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 114.13%

 36) toluene-d8 (S)
 12.59
 98
 4711292
 32.12 ug/L
 -0.15

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 107.07%

 53) 4-bromofluorobenzene (BFB) 17.40 95 2782074 29.15 ug/L -0.15 Spiked Amount 30.000 Range 80 - 120 Recovery = 97.17%

 Target Compounds
 Qvalue

 3) chloromethane
 3.50
 50
 965444
 12.16
 ug/L

 4) vinyl chloride
 3.63
 62
 989327
 21.13
 ug/L

 5) bromomethane
 4.24
 96
 289340
 7.92
 ug/L

 6) chloroethane
 4.32
 64
 1062971
 18.62
 ug/L

 7) 112-Trichloro-122-Trifluor
 5.19
 101
 1089774
 14.81
 ug/L

 8) Methyl Acetate
 5.88
 74
 247745
 17.28
 ug/L

 9) carbon disulfide
 6.26
 76
 2004979
 13.47
 ug/L

 10) MTBE
 6.33
 73
 3783110
 18.98
 ug/L

 11) 1,4 Dioxane
 6.17
 88
 124373
 15.55
 ug/l

 12) tert-butyl alcohol
 5.53
 59
 1269677
 93.27
 ug/l

 13) MEK
 7.78
 72
 216638
 19.44
 ug/L

 14) acetone
 5.48
 61
 1870590
 14.31
 ug/L

 15) trichlorofluoromethane
 4.63
 101
 1463824m
 14.97</t Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration TDC62401.D T6072011.M Fri Feb 24 1411:51:52 2012 GCMS2 Page 1

Quantitation Report (QT Reviewed)

```
Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TDC62401.D Vial: 1
Acq On : 29 Jul 2011 6:17 pm
Sample : 20 ppb cl 1624/5ml 7/29/11
                                                    Operator: A. Thomas
                                                    Inst : GC/MS Ins
Misc :
                                                    Multiplr: 1.00
MS Integration Params: events.e
                                    Quant Results File: T6072011.RES
Quant Time: Feb 24 11:48 19112
Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator)
Title : VOA
Last Update : Wed Jul 27 16:32:48 2011
Response via : Initial Calibration
DataAcq Meth : VOC2
```

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
31)	1,2-dichloropropane	10.88	63	1378452	16.69 ug/L	+
32)	MIBK	11.74	100	153558	15.16 ug/L	
33)	cis-1,2-dichloroethene	8.10	61	2234714	16.52 ug/L	#
34)	bromodichloromethane	11.28	83	1575694	15.75 ug/L	#
35)	cis-1,3-dichloropropene	12.15	75	1819112	15.53 ug/L	
37)	toluene	12.72	91	4544097m	15.98 ug/L	
38)	trans-1,3-dichloropropene	12.98	75	1641762	14.45 ug/L	#
39)	2-hexanone	13.22	58	548314m	16.55 ug/L	
40)	1,1,2-trichloroethane	13.27	83	913832	17.09 ug/L	#
41)	tetrachloroethene	13.86	166	1309311	17.43 ug/L	#
42)	dibromochloromethane	14.21	129	956887	14.64 ug/L	#
43)	1,2-dibromoethane	14.56	107	1126099	17.55 ug/L	#
45)	chlorobenzene	15.30	112	2669017	17.17 ug/L	# 85
46)	ethyl benzene	15.36	91	5226542	17.47 ug/L	# 100
47)	m/p-xylene	15.50	91	4563656	17.51 ug/L	# 100
48)	o-xylene	16.29	91	4395974	17.93 ug/L	# 81
49)	styrene	16.36	104	2507399	16.93 ug/L	84
50)	isopropyl benzene	16.93	105	4685092	17.52 ug/L	100
51)	bromoform	17.01	173	523162	11.51 ug/L	99
52)	1,1,2,2-tetrachloroethane	17.24	83	1385904	15.32 ug/L	# 100
54)	1,3-dichlorobenzene	19.47	146	1866455	16.45 ug/L	# 98
55)	1,2-dichlorobenzene	20.37	146	1769649	16.48 ug/L	# 59
57)	1,4-dichlorobenzene	19.66	146	2073301m	19.11 ug/L	
58)	1,2-dibromo-3-chloropropan	21.84	75	204713	11.76 ug/L	76
59)	1,2,4-trichlorobenzene	23.51	180	1193131	18.16 ug/L	97
60)	Napthalene	24.01	128	2473814	17.74 ug/L	100
61)	1,2,3-trichlorobenzene	24.49	180	1107567	19.03 ug/L	96

(#) = qualifier out of range (m) = manual integration TDC62401.D T6072011.M Fri Feb 24 142:51:53 2012 GCMS2 Page 2 Quantitation Report

27.00 26.00 25.00 M,T,eneznedoroldoird-E,S,h 24.00 M,T ,ensishiqsW M,T ,enscnedoroldoith-4,S, P 23.00 22.00 M,T ,9n8qorqorohto-6-omordib-S,f 21.00 File: T6072011.RES M,T, ensansonoldoid, T,M 20.00 M_1.3-dichlorobenzene-14, 1 1,3-dichlorobenzene-14, 1 1,2-dichlorobenzene-14, 1 Thomas GC/MS Ins 19.00 (Chemstation Integrator 1.00 18,00 A 4-bromofluorobenzene (BFB), S 17.00 Multiplr: M,T ,enszned lyqorei Operator: Vial GCMS2 16.00 M,T,eneigregenerets TIC: TDC62401.D Results Inst ا (chordene) (chordene) (chordenzene) (chordenz (chordenzene) (chorden Ω. 15.00 C:\HPCHEM\1\DATA2011\JUL11\LUL29\TDC62401 M,T ,ensitteomordib-S,t 14.00 M,T ,ensitremorolihoomordib 2012 M,T, enertheorold and Quant 13.00 W,T, anstrongenerge (M, ichloroptopenerge) M,T, anstrongenerge (M, ichloroptopenerge) M,T, anstrongenerge (M, ichloroptopenerge) C:\HPCHEM\1\METHODS\T6072011.M S (S) Spellenio 11:51:55 12.00 M,T ,eneqorqoroldoib-£, t-aio MIBK, T,M 11.00 M,T ,ensitiemorolitoibomord 2011 1, 5-dichlorogi presidenti de la constante, t M, 1, J, -dichloropropane, L, 1, M, 1, J, 2, 1, 1, 1, 1, 2, 1, pm 7/29/11 10.00 24 I, eneznedorouft 16:32:48 R (2) Ab on the state of the s Calibration Feb 9.00 M,T ,enscheineleitenetet params: events.e 24 11:48 19112 6:17 1624/5ml 2 (ME) canadritanto accitizationalid M,T,Shenteorolicitate M,T,D,motorolicitate M,T,D,motorolicitate БĽі 8.00 MEK' T,M 27 7.00 M,T, anshroroidalb-1,1 2011 Jul M,T, enerteoroldoib-S, I-enert Params: Initial 5 W'W opion seal put to 6.00 T6072011.M Methyl Acetate, t Jul Wed qdd VOA 5.00 Feb M,T,ensthemorouflorothairt σ 20 MS Integration bremersenteres, F.M. 4.00 \sim via Quant Time: .. Last Update 3.00 File Response TDC62401.D on Sample Method Title Abundance Data Misc 500000 400000 350000 300000 50000 0 250000 200000 100000 450000 150000 Acq ime--> 143

Page 3

Quantitation Report (QT Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TDC62402.D Vial: 25

 Acq On
 : 30 Jul 2011
 7:32 am
 Operator: A. Thomas

 Sample
 : 20ppb cal2 624/5ml 7/29/11
 Inst
 : GC/MS Ins

 Misc
 .
 .
 .

 Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Feb 24 11:50 19112 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.92962981355m15.00 ug/l-0.2044) chlorobenzene-d515.18117352576415.00 ug/L-0.2056) 1,4-dichlorobenzene-d419.56152223502015.00 ug/L-0.20 System Monitoring Compounds 21) dibromofluoromethane (S) 8.64 113 1227592 34.98 ug/L -0.19 21) dibromorruoromethane (5)8.64113122739234.98ug/L-0.19Spiked Amount30.000Range80-120Recovery=116.60%26) 1,2-dichloroethane-d4(S)9.4110225951833.71ug/L-0.18Spiked Amount30.000Range80-120Recovery=112.37%36) toluene-d8(S)12.5498375021832.69ug/L-0.19Spiked Amount30.000Range80-120Recovery=108.97%53) 4-bromofluorobenzene(BFB)17.3695230761028.87ug/L-0.20Spiked Amount20.000Deneme90120Deneme0622%Spiked Amount 30.000 Range 80 - 120 Recovery = 96.23%

 Target Compounds
 Qv

 3) chloromethane
 3.47
 50
 671972m
 10.82
 ug/L

 4) vinyl chloride
 3.62
 62
 714536m
 19.51
 ug/L

 5) bromomethane
 4.19
 96
 292606m
 10.24
 ug/L

 6) chloroethane
 4.28
 64
 838868m
 18.78
 ug/L

 7) 112-Trichloro-122-Trifluor
 5.18
 101
 1006138
 17.49
 ug/l

 9) carbon disulfide
 6.25
 76
 1711609m
 14.70
 ug/L

 10) MTBE
 6.29
 73
 3206740
 20.56
 ug/L

 11) 1,4 Dioxane
 6.13
 88
 145259
 23.22
 ug/l
 #

 12) tert-butyl alcohol
 5.48
 59
 776489m
 72.93
 ug/L
 #

 13) MEK
 7.74
 72
 122033m
 14.00
 ug/L
 #

 14) acetone
 5.22
 58
 650886m
 51.58
 ug/L
 #

 15) trichlorofluoromethane
 4.62
 101
 1474879
 19.29
 ug/L
 #

 16) 1,1-dichlor Target Compounds Ovalue

(#) = qualifier out of range (m) = manual integration TDC62402.D T6072011.M Fri Feb 24 144:51:57 2012 GCMS2 Page 1

```
Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TDC62402.D Vial: 25
Acq On : 30 Jul 2011 7:32 am
                                                Operator: A. Thomas
Sample : 20ppb cal2 624/5ml 7/29/11
                                                Inst : GC/MS Ins
Misc
                                                Multiplr: 1.00
         :
MS Integration Params: events.e
Quant Time: Feb 24 11:50 19112
                                      Quant Results File: T6072011.RES
Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator)
Title : VOA
Last Update : Wed Jul 27 16:32:48 2011
Response via : Initial Calibration
DataAcq Meth : VOC2
```

	Compound	R.T.	QIon	Response	Conc Unit	Qv	alue
31)	1,2-dichloropropane	10.84	 63	1336985	20.70 ug/L	#	
32)	MIBK	11.70	100	94546	11.94 ug/L	.,	
33)	cis-1,2-dichloroethene	8.07	61	2150919	20.33 ug/L		
34)	bromodichloromethane	11.24	83	1558430	19.92 ug/L	#	
35)	cis-1,3-dichloropropene	12.10	75	1571918	17.16 ug/L	#	
37)	toluene	12.68	91	4379658	19.69 ug/L	#	
38)	trans-1,3-dichloropropene	12.94	75	1352672	15.22 ug/L	#	
39)	2-hexanone	13.19	58	346160	13.36 ug/L	#	
40)	1,1,2-trichloroethane	13.22	83	871754	20.85 ug/L	#	
41)	tetrachloroethene	13.81	166	1411989	24.04 ug/L	#	
42)	dibromochloromethane	14.16	129	980136	19.17 ug/L	#	
43)	1,2-dibromoethane	14.52	107	1106597	22.04 ug/L	#	
45)	chlorobenzene	15.25	112	2683576	20.61 ug/L	#	100
46)	ethyl benzene	15.32	91	5154827	20.57 ug/L	#	100
47)	m/p-xylene	15.46	91	4455293	20.41 ug/L	#	100
48)	o-xylene	16.25	91	4417648	21.51 ug/L	#	81
49)	styrene	16.31	104	2561208	20.64 ug/L		89
50)	isopropyl benzene	16.88	105	4840583	21.61 ug/L		99
51)	bromoform	16.96	173	473560	12.44 ug/L	#	78
52)	1,1,2,2-tetrachloroethane	17.19	83	1192729	15.74 ug/L	#	100
54)	1,3-dichlorobenzene	19.42	146	1800477	18.94 ug/L	#	99
55)	1,2-dichlorobenzene	20.32	146	1586977	17.64 ug/L	#	75
57)	1,4-dichlorobenzene	19.60	146	2130230m	22.36 ug/L		
58)	1,2-dibromo-3-chloropropan	21.79	75	129631	8.48 ug/L		85
59)	1,2,4-trichlorobenzene	23.46	180	1197141	20.76 ug/L		98
60)	Napthalene	23.96	128	1936767	15.82 ug/L		100
61)	1,2,3-trichlorobenzene	24.43	180	1062705	20.80 ug/L		99

(#) = qualifier out of range (m) = manual integration TDC62402.D T6072011.M Fri Feb 24 **145**:51:58 2012 GCMS2

Quantitation Report

Acq On : 30 Jul 2011 7:32 am Sample : 20ppb cal2 624/5ml 7/29/11 Aisc :	MS Integration Params: events.e Quant Time: Feb 24 11:50 19112	<pre>Method : C:\HPCHEM\1\METHODS\T607201 Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Resnonse via : Tnitial Calibration</pre>	450000 450000 400000	350000	00000 ₩,1 ,entshtreov ₩,1 ,# ,1 ₩,1 ,# ,1	25 2500000 2500000 2000, 1, M 2005, 1, M 20	20 00000 M,T,J, ened M,T,J, ed M,T, ened M,T,	20000 20000 2-Tricblevens MT Batelloroathane, T Chloroathane,	0000000000000000000000000000000000000	0 3.00 4.00 5.00 6.00 7.00 8.00 9.00 11.00 12
Operator: A. Thomas Operator: A. Thomas Inst : GC/MS Ins Multiplr: 1.00	Quant Results File: T6072011.RES	.M (Chemstation Integrator)	100:- 19,15 B), S I,1 I,1 I,1 I I I I I I I I I I I I I I	e real (คู่ผู้ให้ผู้ให้สู M.T ,ensited M.T ,ensited M.T ,ensited M.T ,ensited M.T.ensite M.T.ens	ارو (کی بر کی او کی او کی بر کی او کی بر کی او کی او کی بر کی او کی بر کی او کی بر کی او کی بر بر بر کی بر کی بر کی بر کی بر کی بر پر بر کی بر بر بر بر بر بر بر بر بر بر بر بر بر	in the second se	recorcoroita tetractioroita M,T,am M,T,am M,T,am M,T,am ethana, T, M	Volucional de la compane, T, Marcinonal de Comercinal de la compane, T, Marcinor de la compane, T, Mar	dibromod 	0 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00
-	· .					М,Т,өл М,Т	eznedorothori r, eneznedoro	υ-Α,Ω, ۴ Μ,Τ, enelerifqı birt⊃tî-€,Ω,Γ	eN	23.00 24.00 25.00 26.00 27.00

C D J J 5.4 2

Page 3

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TLC62401.D Vial: 2 Acq On: 29 Jul 20116:50 pmOperator: A. ThomasSample: 20 ppb lcs1 624/5ml 7/29/11Inst: GC/MS InsMisc:Multiplr: 1.00 Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:19 19111 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene9.9696401234015.00 ug/l-0.1544) chlorobenzene-d515.23117428072815.00 ug/L-0.1556) 1,4-dichlorobenzene-d419.60152249213215.00 ug/L-0.16 System Monitoring Compounds 21) dibromofluoromethane (S) 8.68 113 1539918 32.60 ug/L -0.15 Spiked Amount 30.000 Range 80 - 120 Recovery = 108.67% Spiked AmountS0.000Range80120Recovery=108.07%26) 1,2-dichloroethane-d4 (S)9.4510232310431.19ug/L-0.15Spiked Amount30.000Range80-120Recovery=103.97%36) toluene-d8 (S)12.5898464523530.09ug/L-0.15Spiked Amount30.000Range80-120Recovery=100.30%53) 4-bromofluorobenzene(BFB)17.4095281687529.02ug/L-0.15Spiked Amount30.000Range80-120Recovery=06.73% Spiked Amount 30.000 Range 80 - 120 Recovery = 96.73%

 Target Compounds
 Qvalue

 3) chloromethane
 3.51
 50
 600360
 7.18
 ug/L
 96

 4) vinyl chloride
 3.64
 62
 443000
 8.99
 ug/L
 #
 77

 5) bromomethane
 4.24
 96
 344955
 8.97
 ug/L
 #
 95

 6) chloroethane
 4.32
 64
 720243
 11.98
 ug/L
 #
 90

 7) 112-Trichloro-122-Trifluor
 5.20
 101
 1260978
 16.29
 ug/L
 #
 90

 9) carbon disulfide
 6.28
 76
 1984626
 12.66
 ug/L
 #
 100

 10) MTBE
 6.32
 73
 4667522
 22.24
 ug/L
 #
 100

 12) tert-butyl alcohol
 5.53
 59
 1269495
 88.60
 ug/L
 #
 11

 14) acetone
 5.27
 78
 1048824
 61.76
 ug/L
 #
 10

 15) trichlorofluoromethane
 4.64
 101
 1692433
 16.45
 ug/L
 #
 10

 18) trans-1,2-dichloroethene
 6.58
 Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration TLC62401.D T6072011.M Fri Feb 24 148:52:02 2012 GCMS2 Page 1

Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TLC62401.D Vial: 2 Sample : 20 ppb lcs1 6:50 pm Misc : Operator: A. Thomas Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:19 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2

	Compound	R.T.	QIon	Response	Conc Unit	Ç	value
31)	1,2-dichloropropane	10.89	63	1718409	19.77 ug/I	 : #	86
32)	MIBK	11.75	100	200825	18.84 ug/1	_	73
33)	cis-1,2-dichloroethene	8.10	61	2749633	19.31 ug/1	5 #	63
34)	bromodichloromethane	11.28	83	2003608	19.03 ug/I	. #	100
35)	cis-1,3-dichloropropene	12.14	75	2360887	19.15 ug/1	L #	93
37)	toluene	12.72	91	5384863	17.99 ug/1	L #	75
38)	trans-1,3-dichloropropene	12.98	75	2118985	17.72 ug/1	L #	93
39)	2-hexanone	13.23	58	690705	19.80 ug/1	L #	97
40)	1,1,2-trichloroethane	13.27	83	1151517	20.46 ug/1	L #	45
41)	tetrachloroethene	13.86	166	1677813	21.22 ug/1	L #	99
42)	dibromochloromethane	14.21	129	1243240	18.07 ug/1	5 #	61
43)	1,2-dibromoethane	14.57	107	1427393	21.13 ug/1	5 #	99
45)	chlorobenzene	15.30	112	3336065	21.11 ug/1	L #	\$ 85
46)	ethyl benzene	15.37	91	6480111	21.30 ug/1	L #	100
47)	m/p-xylene	15.50	91	5547381	20.93 ug/1	L #	100
48)	o-xylene	16.29	91	5409034	21.70 ug/1	L	98
49)	styrene	16.35	104	3306157	21.94 ug/1	-	90
50)	isopropyl benzene	16.93	105	5955887	21.90 ug/1	- 	98
51)	bromoform	17.00	173	709458	15.35 ug/1	5 #	78
52)	1,1,2,2-tetrachloroethane	17.24	83	1734171	18.84 ug/1	5 Ħ	100
54)	1,3-dichlorobenzene	19.47	146	2357941	20.43 ug/1	L #	\$ 99
55)	1,2-dichlorobenzene	20.37	146	2071120	18.97 ug/1	L #	\$ 75
58)	1,2-dibromo-3-chloropropan	21.84	75	255585	15.00 ug/1	L	80
59)	1,2,4-trichlorobenzene	23.51	180	1554839	24.18 ug/1	5	99
60)	Napthalene	24.01	128	3229173	23.65 ug/1	L	100
61)	1,2,3-trichlorobenzene	24.48	180	1405338	24.66 ug/1	L	99

Quantitation Report

27.00 26.00 25.00 M,T ,eneznedoroldoid-£,S, f 24.00 M,T ,eneleringeN M,T ,sneznedoroldoitt-4,2,1 23.00 22.00 M,T ,ensqorqoroldo-2,f 21.00 File: T6072011.RES 20.00 M,T, energendenologies, F, Thomas Ins 1,3-dichlorobenzene, T, M, 1, 4-diehlorobenzene-d4, I 19.00 Integrator) GC/MS 1.00 18.00 A. \sim 8 (818) energeneouñomord-b 16.00 17.00 ••• Vial: W,T, enscene, T,M Operator Multiplr GCMS2 M,T ,enelyxm,T ,eneryte TIC: TLC62401.D (Chemstation Quant Results Inst I. Provenski Pro 14.00 15.00 C:\HPCHEM\1\DATA2011\JUL11\LUL29\TLC62401.D M,T, enscheromordib-S, P M,T, ensutemonoldomondib 2012 M,T ,enertheoroliriosttet 13.00 М,Т.,9n9oropropration,T.,**P**. М,Т. Мпба**телен**ала М,Т. Мпба**телен**ала C:\HPCHEM\1\METHODS\T6072011.M M,T,C, aneuio1 11:52:05 12.00 M,T ,enegoroprophala-E, 1-aio MIRK, T,W 11.00 M,T, snathemotolicibomoti 2011 6:50 pm 624/5ml 7/29/11 1,2-dichloroptopane, t 7,1,2,-dichorane, t 10.00 24 I, eneznedorouft M,T,enstheomphilisheeded (S), S M,T,enstheomphilisheeded 27 16:32:48 Calibration Feb 9.00 M,T ,ensiteoroliai#;&rehorever. ms: events.e 10:19 19111 M,T, &red and workers and the M,T ,enertreororations, f.e.is M,T,D, mrotororids Fri 8.00 WEK' 1'W 7.00 M,T, enshoroethane, t, t lcs1 Jul 2011 Jul M,T, enerteoroldolb-2, f-anart Initial M.T. abilious and the state 6.00 Params T6072011.M Methyl Acetate, t Wed qdd 1.corethered at the strate of the strane, the strane, the strane, the strane, the strane, the strane of the strane of the strane of the strane of the strane of the strane of the strane of the strane of the strane of the strane of the strane of the strange of t VOA 5.00 Aug M,T ,ensitemorouflorolitaire 29 MS Integration M,T ,SREABBRANNS1d 4.00 via Quant Time: •• eliterenerie. Last Update 3.00 File Response TLC62401.D ő Sample Method Title Data Abundance Misc 50000 500000 450000 250000 200000 150000 100000 0 400000 350000 300000 Acq lime--> 150

Page 3



1580 Reed Road Suite A1 Pennington, NJ 08534

Tel: (609) 737-3477 Fax: (609) 737-3052 www.njal.com

Laboratory Deliverables

Prepared For PARS Environmental Drum Bench Study

Lab ID Enhanced Reductive Dechlorination (ERD)

Samples Received

27-Jul-11

Reported

7/27/11 to 8/12/11

NJDEP Certified Lab 11005

Precision testing for a cleaner environment.

Study: ERD NZVI

Time point: T=3 days/ 72Hours

	1A VOLATILE ORGANICS ANALYSIS DATA SHEET ame: NJAL Contract: ode: DEP 11005 Case No.: SAS No.: (soil/water) WATER Lab Sample ID (soil/water) WATER Lab Sample ID e wt/vol: 0.5 (g/ml) ML Lab File ID: (low/med) LOW Date Received sture: not dec. Date Analyzed olumn: rt502.2-1 ID: 0.53 (mm) cONCENTRATION UNITS AS NO. COMPOUND (ug/L or ug/Kg) UG/L							EPA SAMPLE NO.			
	\	/OLATIL	E ORGANICS /	ANALYSISD	ATASE	T72					
Lab Name:	NJAL			Contra	act:						
Lab Code:	DEP 11	005	Case No.:	SAS	S No.:	S	DG No.:				
Matrix: (soil/	water)	WATE	R		Lab S	ample ID:	T72 NZ C	-1			
O 1 +/	al.	0.5					TC62404				
Sample w/v	OI:	0.5	(g/mi) ML		Lab Fi	ie ID:	1502401.	U			
Level: (low/	med)	LOW			Date F	Received:	07/27/11				
% Moisture:	not dec.				Date A	Analyzed:	07/30/11				
GC Column	· rt502 '	2_1 ID·	0.53 (mm)		Dilutio	n Factor:	10.0				
							10.0				
Soil Extract	Volume:		(uL)		Soil A	liquot Volu	ime:	···	(uL		
				CONCENT	RATIO	N UNITS:					
CAS N	О.	CO	MPOUND	(ug/L or ug	/Kg)	UG/L		Q			
75 74	0		inhlaradifularam	othono			20				
70-71	-0		loromethane	emane			20	<u> </u>	-		
75-01	-3		nyl chloride				20	<u> </u>			
74-83	<u></u>	bi	omomethane				20	<u> </u>			
75-00)-3	cł	loroethane				20	<u> </u>			
75-15	5-0	C	arbon disulfide				20	Ū	_		
75-65	5-0	te	rt-butyl alcohol				20	Ū			
1634-	-04-4	M	TBE				20	U			
78-93	3-3	M	EK			_	50	U			
67-64	I-1	a	cetone				710	D			
75-69)-4	tri	ichlorofluoromet	hane			20	U			
75-35	5-4	1	1-dichloroethen	e			20	Ū			
75-09)-2	m	ethylene chlorid	е			29	D			
156-6	30-5	tr	ans-1,2-dichloro	ethene			20	U			
75-34	1-3	1,	1-dichloroethan	e			20	U			
67-66	3-3	cl	nloroform				20	U			
	0-1	M					20	U			
74-97	′-5	bi	romochlorometh	ane			20	U			
71-55	<u>5-6</u>	1,	1,1-trichloroetha	ane			20	U	_		
56-23	3-5	Ca	arbon tetrachlori	de			20	<u> </u>			
107-0)6-2	1	2-dichloroethan	e			20	<u> </u>	_		
71-43	3-2	De	enzene				20	<u> </u>	_		
79-01	7.5	tr					20				
76 12	-0		2-dichioropropa	Trifluorooth	200		20	<u> </u>	_		
01_20	<u>)-3</u>	- I	anthalene	- muoroetha			20	<u> </u>			
70_20)_9	IN	lethyl Acetate				50	<u> </u>	\neg		
110_8	32-7		vclohexane				20	<u> </u>			
108-8	37-2	M	ethyl Cyclohexa	ine			20	Ŭ			
156-5	59-4	i	s-1.2-dichloroet	hene			20	Ŭ			
75-27	/-4	b	romodichlorome	thane		-	20	U	_		
1006	1-01-5	Ci	s-1,3-dichloropr	opene			20	U			
108-8	38-3	to	oluene				20	U			
1006	1-02-6	tr	ans-1,3-dichloro	propene			20	U			
591-7	78-6	2	-hexanone				50	U			
79-00)-5	1	1,2-trichloroetha	ane			20	U			
124-4	18-1	d	ibromochlorome	thane			820	D			
127-1	8-4	te	trachloroethene				1000	D			
108-9) 0-7	С	hlorobenzene				20	U			

	EPA SAMPLE NO.			
VOL	ATILE ORGANICS ANALYSIS D	ATA SHEET	T72 NZ C2	
Lab Name: NJAL	Contra	act:		
Lab Code: DEP 11005	Case No.: SA	S No.: S	DG No.:	
Matrix: (soil/water) W	ATER	Lab Sample ID:	T72 NZ C	-2
Sample wt/vol: 0 !	5 (g/ml) MI	l ab File ID	TS62402	D
	(g,) (<u>1</u>		07/07/44	
Level: (low/med)		Date Received:	07/27/11	
% Moisture: not dec.		Date Analyzed:	07/30/11	
GC Column: rt502.2-1	ID: 0.53 (mm)	Dilution Factor:	10.0	
Soil Extract Volume:	(uL)	Soil Aliquot Volu	me:	(uL)
	(02)			(02)
	CONCENT	RATION UNITS:		
CAS NO.	COMPOUND (ug/L or ug	ı/Ka) UG/L		0
				G
75-71-8	Dichlorodifuloromethane		20	U
74-87-3	chloromethane		20	U
75-01-4	vinyl chloride		20	U
74-83-9	bromomethane		20	U
75-00-3	chloroethane		20	U
75-15-0	carbon disulfide		20	U
75-65-0	tert-butyl alcohol		20	U
1634-04-4	MTBE		20	U
78-93-3	MEK		50	U
67-64-1	acetone		770	<u>D</u>
75-69-4	trichlorofluoromethane		20	<u> </u>
75-35-4	1,1-dichloroethene		20	<u> </u>
75-09-2	methylene chloride	<u> </u>	32	
156-60-5	trans-1,2-dichloroethene		20	<u> </u>
75-34-3	1,1-dichloroethane		20	<u> </u>
109 10 1			20	<u> </u>
74.07.5	IVIIDN		20	
74-97-5			20	<u> </u>
56-23-5	carbon tetrachloride	<u></u>	20	<u> </u>
107-06-2	1.2-dichloroethane		20	
71-43-2	benzene		20	<u> </u>
79-01-6	trichloroethene		20	<u> </u>
78-87-5	1.2-dichloropropane		20	U
76-13-1	112-Trichloro-122-Trifluoroeth	ane	20	Ū
91-20-3	Napthalene		20	U
79-20-9	Methyl Acetate		50	U
110-82-7	Cyclohexane		20	U
108-87-2	Methyl Cyclohexane		20	U
156-59-4	cis-1,2-dichloroethene		20	U
75-27-4	bromodichloromethane		20	U
10061-01-5	cis-1,3-dichloropropene		20	U
108-88-3	toluene		20	U
10061-02-6	trans-1,3-dichloropropene		20	U
591-78-6	2-hexanone		50	U
79-00-5	1,1,2-trichloroethane		20	U
124-48-1	dibromochloromethane	1	880	D
127-18-4	tetrachloroethene		1100	<u>D</u>
108-90-7	chlorobenzene		20	U

	,						
	\	VOLATILE ORGAN	ICS ANALYSIS I	DATA SHEET	T72	NZ C3	
Lab Name:	NJAL		Cont	ract:			
Lab Code:	DEP 11	005 Case No.:	SA	S No.:	SDG No.:		
Matrix: (soil/	water)	WATER		Lab Sample ID	: T72 NZ C	-3	
Complexit	alı	0.5 (a/ml)			TC00400	D	
Sample w/v	OI:	0.5 (g/mi)		Lab File ID:	1562403	.D	
Level: (low/r	med)	LOW		Date Received	: 07/27/11		
% Moisture:	not dec.			Date Analyzed	: 07/30/11		
GC Column [.]	rt502.3	2-1 ID: 0.53 (r	nm)	Dilution Factor	10.0	- Hori I I rinn	
		()				
Soil Extract	volume:	(UL)		Soil Aliquot Vo	lume:	(ι	
			001/071				
_			CONCEN	TRATION UNITS	:		
CAS NO	Э.	COMPOUND	(ug/L or u	g/Kg) UG/L		Q	
75 74		Dichlorodiful	oromothono		20	11	
71_87	-0	chloromethou			20	U 11	
74-07	<u>-0</u>	vinvl chloride			20		
74-83		bromometha			20		
75-00	-3	chloroethane	<u>.</u>		20		
75-15	-0	carbon disulf	ide		20	<u> </u>	
75-65	-0	tert-butvl alco	ohol		20	<u> </u>	
1634-	04-4	MTBE			20	U	
78-93	-3	MEK			50	U U	
67-64	-1	acetone			700	D	
75-69	-4	trichlorofluor	omethane		20	U	
75-35	-4	1,1-dichloroe	thene		20	U	
75-09	-2	methylene ch	loride		31	D	
156-6	0-5	trans-1,2-dic	hloroethene		20	U	
75-34	-3	1,1-dichloroe	thane		20	U	
67-66	-3	chloroform			20	U	
108-1	0-1	MIBK			20	U	
74-97	-5	bromochloro	methane		20	<u> </u>	
71-55	-6	1,1,1-trichlor	oethane		20	U	
56-23	-5	carbon tetrac	hloride		20	U	
107-0	6-2	1,2-dichloroe	thane		20	<u> </u>	
71-43	-2	benzene			20	U	
79-01	-0				20	<u> </u>	
76 12	-0	1,2-dichiorop	122 Trifluorooth		20		
91-20	-1	Nanthalana	-122-11110010ett		20		
79-20	-9	Methyl Aceta				<u> </u>	
110-8	2-7	Cyclohexane			20	<u> </u>	
108-8	7-2	Methyl Cyclo	hexane		20	U	
156-5	9-4	cis-1,2-dichlo	proethene		20	U	
75-27	-4	bromodichlor	omethane		20	U	
10061	1-01-5	cis-1,3-dichlo	propropene		20	U	
108-8	8-3	toluene			20	U	
10061	1-02-6	trans-1,3-dic	hloropropene		20	U	
591-7	8-6	2-hexanone			50	U	
79-00	-5	1,1,2-trichlor	oethane		20	U	
124-4	8-1	dibromochlor	omethane		890	D	
127-1	8-4	tetrachloroet	hene		1100	D	
108-9	0-7	chlorobenzer	าย		20	I U	

	EPA SA	EPA SAMPLE NO.		
N N	OLATILE ORGANICS ANA	LYSIS DATA SHEET	T72 N	705-1
Lab Name: NJAL		Contract:		
Lab Code: DEP 11	005 Case No.:	SAS No.:	SDG No.:	
Matrix: (soil/water)	WATER	Lab Sample ID): T72 NZ .5	j-1
Sampla ut/val:	0.5 (a/mi) MI	Lob File (D)	TS62404	D
Sample w/vol:	0.5 (g/mi) ML	Lab File ID:	1502404.	D
Level: (low/med)	LOW	Date Received	1: 07/27/11	
% Moisture: not dec.		Date Analyzed	1: 07/30/11	
GC Column: rt502.3	2-1 ID: 0.53 (mm)	Dilution Factor	r: 10.0	
		Call Allowet Ma		
Soil Extract volume:	(UL)	Soli Aliquot Vo	olume:	(UL
	C(S.	
			5.	~
CAS NO.	COMPOUND (ug	g/L or ug/Kg) UG/L		Q
75-71-8	Dichlorodifulorometha	ne	20	11
74-87-3	chloromethane		20	<u> </u>
75-01-4	vinyl chloride		20	U
74-83-9	bromomethane		20	Ū
75-00-3	chloroethane		20	U
75-15-0	carbon disulfide		20	U
75-65-0	tert-butyl alcohol		20	U
1634-04-4	MTBE		20	U
78-93-3	MEK		50	U
67-64-1	acetone		750	D
75-69-4	trichlorofluoromethane	<u>}</u>	20	U
75-35-4	1,1-dichloroethene		20	U
75-09-2	methylene chloride		30	D
156-60-5	trans-1,2-dichloroethe	ne	20	<u>U</u>
75-34-3	1,1-dichloroethane		20	<u> </u>
67-66-3	chloroform		20	0
108-10-1	MIBK		20	<u> </u>
71 55 6			20	<u> </u>
56.23.5	1, 1, 1-thchloroethane		20	0
107-06-2			20	
71-43-2	benzene		20	U
79-01-6	trichloroethene		20	Ŭ
78-87-5	1,2-dichloropropane		20	U
76-13-1	112-Trichloro-122-Trif	luoroethane	20	U
91-20-3	Napthalene		20	U
79-20-9	Methyl Acetate		50	U
110-82-7	Cyclohexane		20	U
108-87-2	Methyl Cyclohexane		20	U
156-59-4	cis-1,2-dichloroethene	<u>ا</u>	20	U
/5-27-4	bromodichloromethan	e	20	U
10061-01-5	cis-1,3-dichloropropen	ie	20	0
108-88-3	topo 1.2 dichlorocco		20	U 11
501.78.6			<u></u>	
79-00-5	1 1 2-trichloroethane		20	<u> </u>
124-48-1	dibromochloromethan	e	490	D
127-18-4	tetrachloroethene	<u> </u>	600	D
108-90-7	chlorobenzene		20	U

	EPA SA	EPA SAMPLE NO.			
	VOLATILE ORGANICS ANAL 1	ATTLE ORGANICS ANALTSIS DATA STILLT			
Lab Name: NJ/		Contract:			
Lab Code: DE	P 11005 Case No.:	SAS No.:	SDG No.:		
Matrix: (soil/wate) WATER	Lab Sample	e ID: T72 NZ .5	-2	
Sample wt/vol [.]	0.5 (g/ml) ML	Lab File ID	TS62405	D	
	(g,,)				
Level: (low/med)	LOW	Date Recei	ved: 07/27/11		
% Moisture: not c	ec.	Date Analy	zed: 07/30/11		
GC Column: rt	502.2-1 ID: 0.53 (mm)	Dilution Fac	ctor: 10.0		
		Cell Allerer	Mature a		
Soil Extract Volur	ne: (UL)	Soll Aliquot	volume:	(UL	
	CON				
				0	
CAS NO.	COMPOUND (ug/L	or ug/Kg) UG	5/L	Q	
75-71-8	Dichlorodifuloromethane		20		
74-87-3	chloromethane		20	U	
75-01-4	vinyl chloride		20	Ŭ	
74-83-9	bromomethane		20	U	
75-00-3	chloroethane		20	Ŭ	
75-15-0	carbon disulfide	· · · · · · · · · · · · · · · · · · ·	20	Ŭ	
75-65-0	tert-butyl alcohol		20	<u> </u>	
1634-04-4	MTBE		20	<u> </u>	
78-93-3	MFK		50	<u> </u>	
67-64-1	acetone		730	D	
75-69-4	trichlorofluoromethane		20	<u> </u>	
75-35-4	1.1-dichloroethene		20	Ŭ	
75-09-2	methylene chloride		34	 D	
156-60-5	trans-1.2-dichloroethene		20	 U	
75-34-3	1.1-dichloroethane		20	U	
67-66-3	chloroform		20	U	
108-10-1	MIBK		20	U	
74-97-5	bromochloromethane		20	U	
71-55-6	1,1,1-trichloroethane		20	U	
56-23-5	carbon tetrachloride		20	U	
107-06-2	1,2-dichloroethane		20	U	
71-43-2	benzene		20	U	
79-01-6	trichloroethene		20	U	
78-87-5	1,2-dichloropropane		20	U	
76-13-1	112-Trichloro-122-Trifluo	roethane	20	U	
91-20-3	Napthalene		20	U	
79-20-9	Methyl Acetate		50	U	
110-82-7	Cyclohexane	······	20	U	
108-87-2	Methyl Cyclohexane		20	U	
156-59-4	cis-1,2-dichloroethene		20	U	
75-27-4	bromodichloromethane		20	U	
10061-01-	5 cis-1,3-dichloropropene		20	U	
108-88-3	toluene		20	U	
10061-02-	5 trans-1,3-dichloropropenet	e	20	U	
591-78-6	2-hexanone		50	U	
79-00-5	1,1,2-trichloroethane		20	U	
124-48-1	dibromochloromethane		620	D	
127-18-4	tetrachloroethene		780	D	
108-90-7	chlorobenzene		20	U	

			EPA SAMPLE NO.			
	VO	LATILE ORGANICS AN	NALYSIS DATA SHE	ET	T72 N	Z 0.5-3
Lab Name:	NJAL		Contract:			
Lab Code:	DEP 1100	5 Case No.:	SAS No.:	S	OG No.:	
Matrix: (soil/v	water) V	VATER	Lab San	ple ID:	T72 NZ .5	-3
Sampla ut/u	· _ `	5 (a/ml) MI	Lab Filo		TS62406	
Sample w/vo	JI. U			ID.	1302400.1	.
Level: (low/r	ned) L	WO	Date Re	ceived:	07/27/11	
% Moisture:	not dec.		Date An	alyzed:	07/30/11	
GC Column [.]	rt502.2-1	ID [.] 0.53 (mm)	Dilution	Factor	10.0	
	/	()				
Soil Extract V	volume:	(UL)	Soll Aliq	uot Volur	ne:	(UL
			CONCENTRATION	UNITS:		
CAS NO	Э.	COMPOUND	(ug/L or ug/Kg)	UG/L		Q
75 74	0	Diablazadifulazamat			20	
7/ 07	<u>.</u> 0	chloromethana			20	<u> </u>
75-01	-3				20	
74.93	-4	bromomothano			20	
74-03-	-9	chloroethane	<u>_</u>		20	<u> </u>
75-00-	-0	carbon disulfide			20	
75-65	-0	tert-butyl alcohol			20	
1634-0	04-4	MTRE			20	<u> </u>
78-93	-3	MEK			50	
67-64	-1	acetone			640	D
75-69	-4	trichlorofluorometha			20	U
75-35-	-4	1.1-dichloroethene			20	Ū
75-09-	-2	methylene chloride			30	D
156-60	0-5	trans-1,2-dichloroet	hene		20	U
75-34-	-3	1,1-dichloroethane			20	U
67-66-	-3	chloroform			20	U
108-10	0-1	MIBK			20	U
74-97-	-5	bromochloromethar	ne		20	U
71-55-	-6	1,1,1-trichloroethan	е		20	U
56-23-	-5	carbon tetrachloride)		20	U
107-00	6-2	1,2-dichloroethane			20	U
71-43-	-2	benzene			20	U
79-01-	-6	trichloroethene			20	U
78-87-	-5	1,2-dichloropropane	9		20	U
76-13-	-1	112-Trichloro-122-T	rifluoroethane		20	U
91-20-	-3	Napthalene			20	U
79-20	-9	Methyl Acetate			50	<u> </u>
110-82	2-1	Cyclohexane			20	<u> </u>
108-8	1-2	Methyl Cyclohexane	e		20	<u> </u>
750-5	<u>9-4</u>	cis-i,2-aichioroethe			20	<u> </u>
10061	-4	cis 1.3 dichlorometha			20	
10001	<u>-01-0</u> 8.3	tolueno	5115		20	
100-00	-02-6	trans-1 3 dichloroor			20	<u> </u>
501_7	8-6				50	11
79_00	-5	1.1.2-trichloroethan	e		20	
124-4	<u> </u>	dibromochlorometh	<u>~</u>		640	
127-1	<u> </u>	tetrachloroethene			780	D
108-90	<u>-</u>	chlorobenzene			20	Ū
108-90	0-7	chlorobenzene			20	U

							EPA SAMPLE NO.		
VOLATILE ORGANICS ANALYSIS DATA SHEET							T72 NZ 1.0-1		
Lab Name:	NJAL			Contra	ct:				
Lab Code:	DEP 110	005 0	Case No.:	SAS	No.:	S	DG No.:		
Matrix: (soil/	water)	WATER			Lab San	nple ID:	T72 NZ 1	0-1	
C		0.5	·····				TCC0407	<u> </u>	
Sample wt/v	OI:	0.5	(g/ml) ML		Lab File	ID:	1562407.	D	
Level: (low/	med)	LOW			Date Re	ceived:	07/27/11		
% Moisture:	not dec.				Date An	alvzed:	07/30/11		
CC Column	+500 (0.52 (mm)		Dilution	To store	10.0		
GC Column:	1502.2	2-1 10:	0.53 (mm)		Dilution	Factor	10.0		
Soil Extract	Volume:		(uL)		Soil Aliq	uot Volu	ime:		(uL)
				CONCENTI	RATION	UNITS:			
CAS NO	О.	COM	IPOUND	(ug/L or ug/	Kg)	UG/L		Q	
75-71	-8	Dic	hlorodifulorom	lethane			20	U	_
74-87	-3	chie	promethane			1	20	<u> </u>	
75-01	-4	VIN	/I chloride				20	<u> </u>	_
74-83	-9	Dro	momethane				20	<u> </u>	
75-00	-3	chie	oroethane				20	<u> </u>	_
75-15	-0	car	bon disulfide			<u> </u>	20	<u> </u>	
75-65	-0	tert	-butyl alcohol				20	<u> </u>	_
70.02	04-4	MT	BE				20	<u> </u>	
78-93	-3	ME	.K			<u> </u>	50	0	
67-64	-1	ace	stone				680	<u> </u>	
75-09	-4		niorofluoromet	nane			20	<u> </u>	_
75-35	-4	1,1		<u>e</u>			20	0	_
75-09	-2	me	tnylene chiorio			<u> </u>	30		
75.04	0-5		1S-1,2-dichloro				20	U	_
75-34	-3		-dichloroethan	le	• • • • • • • • • • • • • • • • • • • •		20	U	
07-00	-3	Chie					20	<u> </u>	
74.07	0-1	IVITE					20	<u> </u>	_
74-97	-0		mocniorometri				20	<u> </u>	
71-00	-0	1,1	, 1-then totrochlori	ide			20	<u> </u>	_
107.0	-0 6 2		dichloroothon				20	<u> </u>	_
71 42	2	1,2	-dicilioroethan				20	<u> </u>	-
70.01	6	tric	bloroothopo				20	<u> </u>	_
78-87	-0	1 2	-dicbloropropa				20	<u> </u>	\neg
76-07	 L_1	112	-dicilioropropa	2-Trifluoroetha	ne	+	20	<u> </u>	_
91-20	-3	Na	nthalene				20	<u> </u>	
79-20	- <u>0</u>	Me	thyl Acetate			<u> </u>	50	<u> </u>	
110-8	2-7	Cvi	clohexane				20	<u> </u>	
108-8	7-2	Me	thyl Cyclohexa	ane			20	<u> </u>	-
156-5	9-4	cis-	-1.2-dichloroet	hene			20	Ŭ	-
75-27	-4	bro	modichlorome	thane			20	Ŭ	
10061	1-01-5	cis-	-1.3-dichloroor	opene		-	20	<u> </u>	\neg
108-8	8-3	tolu	Jene				20	Ū.	
10061	1-02-6	trar	ns-1.3-dichloro	propene			20	Ū.	-
591-7	8-6	2-h	exanone				50	Ū	\neg
79-00	-5	1.1	,2-trichloroetha	ane		1	20	Ŭ	
124-4	8-1	dib	romochlorome	thane			510	D	
127-1	8-4	tetr	achloroethene)			630	D	
108-9	0-7	chi	orobenzene				20	U	
					····				

	EPA SAMPLE NO.					
	N N	VOLATILE ORGANICS A	NALYSIS DATA SHEET	T72 NZ 1.0-2		
Lab Name:	NJAL		Contract:			
Lab Code:	DEP 11	005 Case No.:	SAS No.:	SDG No.:		
Matrix: (soil/	water)	WATER	Lab Sample ID	: T72 NZ 1.	0-2	
Sampla utlu	, ioli	0.5 (a/ml) M	Lob File ID:	TC62409		
Sample w/v	01.		Lab File ID.	1302400.	D	
Level: (low/	med)	LOW	Date Received	: 07/27/11		
% Moisture:	not dec.		Date Analyzed	: 07/30/11		
GC Column	rt502 (2-1 ID: 0.53 (mm)	Dilution Eactor	. 10.0		
		()				
Soil Extract	volume:	(uL)	Soil Aliquot Vo	lume:	(UL	
	_		CONCENTRATION UNITS):		
CAS N	Ο.	COMPOUND	(ug/L or ug/Kg) UG/L		Q	
75 74	8	Dichlorodifuloroma	thana	20	11	
7/ 97	-0	Dichlorodifulorome	thane	20	<u> </u>	
74-07	-3	vinyl chloride		20	<u> </u>	
74-83	- 	bromomethane		20	<u> </u>	
74-00	1-3	chloroethane		20	<u> </u>	
75-15	5-0	carbon disulfide		20	<u> </u>	
75-65	5-0	tert-butyl alcohol		20	<u> </u>	
1634-	-04-4	MTBE		20	<u> </u>	
78-93	3-3	MEK		50	<u> </u>	
67-64	- <u>-</u> -1	acetone		680	D	
75-69)-4	trichlorofluorometh	ane	20	 U	
75-35	5-4	1.1-dichloroethene		20	U	
75-09	-2	methylene chloride		31	D	
156-6	50-5	trans-1,2-dichloroe	thene	20	U	
75-34	-3	1,1-dichloroethane		20	U	
67-66	j-3	chloroform		20	U	
108-1	0-1	MIBK		20	U	
74-97	'-5	bromochlorometha	ne	20	U	
71-55	i-6	1,1,1-trichloroethar	ne	20	U	
56-23	-5	carbon tetrachlorid	e	20	U	
107-0	6-2	1,2-dichloroethane		20	U	
71-43	J-2	benzene		20	U	
79-01	-6	trichloroethene		20	U	
78-87	-5	1,2-dichloropropan	e	20	U	
76-13	<u>J-1</u>	112-Trichloro-122-	Trifluoroethane	20	U	
91-20	1-3	Napthalene		20	<u> </u>	
/9-20	1-9 10 7	Methyl Acetate		50	U	
110-8	12-1	Cyclonexane Method Cyclote		20	<u> </u>	
108-8	01-Z	ois 1.2 disbloresth		20		
75 27	/_/	bromodichlorometh		20		
1006	+ 1-01-5	cis-1 3-dichloropro	nene	20	<u> </u>	
108-8	8-3	toluene	2010	20	<u> </u>	
10061	1-02-6	trans-1.3-dichloron	ropene	20	U	
591-7	'8-6	2-hexanone		50	Ŭ	
79-00)-5	1.1.2-trichloroethar	าe	20	Ŭ	
124-4	8-1	dibromochlorometh	nane	520	 D	
127-1	8-4	tetrachloroethene		650	D	
108-9	0-7	chlorobenzene		20	U	
108-9	0-7	chlorobenzene		20	U	

					ICCT	EPA SAMPLE NO.		
		VOLATILE ORGAN	ATTLE ORGANICS ANALYSIS DATA SHEET					
Lab Name:	NJAL		Co	ntract:				
Lab Code:	DEP 11	1005 Case No.:		SAS No.:	S	DG No.:		
Matrix: (soil/	water)	WATER		Lab Sa	ample ID:	T72 NZ 1.	0-3	
Sample wt/v	ol:	0.5 (g/ml)	ML	Lab Fi	le ID:	TS62409.	D	
Loval: /low/	mod)			Date 5	Pecoived:	07/27/11		
Level. (IOW/	mea)			Dater	leceived.	07/27/11		
% Moisture:	not dec.			Date A	nalyzed:	07/30/11		
GC Column:	rt502	.2-1 ID: 0.53 (n	nm)	Dilutio	n Factor:	10.0		
Soil Extract	Volume	(ul.)		Soil Al	iquat Valu	ime [,]	(ul	
	volume.	(uc)					(01	
			CONCE					
CASN	0						0	
CASIN	0.	CONFOUND	(ug/L 0	ug/Ng)	00/L		Q	
75-71	-8	Dichlorodifulo	promethane			20	U	
74-87	'-3	chloromethar	1e			20	U	
75-01	-4	vinvl chloride				20	U	
74-83	-9	bromometha	ne			20	U	
75-00)-3	chloroethane				20	Ŭ	
75-15	j-0	carbon disulf	ide			20	<u> </u>	
75-65	5-0	tert-butyl alco	hol			20	<u> </u>	
1634-	-04-4	MTBE	///01			20	<u> </u>	
78-93	<u>1</u>	MEK			-	50	<u> </u>	
67-64		acetone				540		
75-69	-4	trichlorofluor	methane			20		
75-05	<u></u>		thene			20	<u> </u>	
75-00	<u></u>	methylene ch	loride		_ <u>}</u>	28		
156-6	<u></u>	trans_1 2-dick	hloroethene			20		
75-34	10-0		thane			20	<u> </u>	
67-66	-3	chloroform				20	<u> </u>	
108-1	0_1	MIRK				20		
74.07	7 5	bromochlorov	mothono			20		
74-97	-5		oothono			20		
<u>71-00</u>	2.5	carbon tetrac	blorido			20	<u> </u>	
107-0)6.2		thang			20	<u> </u>	
71.43	22	henzene				20	<u> </u>	
79-01	-6	trichloroether				20		
78-87	-0	1.2-dichloron				20	<u> </u>	
76-13	- <u>-</u> 1	112-Trichloro	122-Trifluoro	othano		20	<u> </u>	
91-20	1.3	Nanthalene	122-11110010	ethane		20	<u> </u>	
79-20	1_0	Methyl Aceta	to			50	<u> </u>	
110-8	2-7	Cyclobeyane				20		
108-8	17-2	Methyl Cyclo	hexane			20	U	
156-5	59-4	cis-1 2-dichlo	roethene			20	<u> </u>	
75-27	/	bromodichlor	omethane			20	U U	
1006	1-01-5	cis-1 3-dichlo				20		
108-8	38-3	toluene				20	Ū	
1006	1-02-6	trans-1.3-dicl	hloropropene			20	Ŭ	
591-7	/8-6	2-hexanone				50	Ŭ	
79-00)-5	1.1.2-trichlor	oethane			20	Ŭ	
124-4	8-1	dibromochlor	omethane			440	D	
127-1	8-4	tetrachloroet	hene			560	D	
108-9	10-7	chlorobenzer	<u></u>			20	<u> </u>	
100-3	, <u>, , , , , , , , , , , , , , , , , , </u>	GHIOLOBEITZEI					<u> </u>	

	,					EPA SA	MPLE N	10.
			ATILE ORGANICS ANALYSIS DATA SHEET				T72 NZ 2.0-1	
Lab Name:	NJAL	· · · · · · · · · · · · · · · · · · ·	Contr	act:				
Lab Code:	DEP 11	005 Case No.:	SA	S No.:	S	DG No.:		
Matrix: (soil/	water)	WATER		Lab Sa	ample ID:	T72 NZ 2	.0-1	
Sample wt/vo	ol:	0.5 (g/ml)	ML	Lab Fil	e ID:	TS62410	D	
				Data D		07/07/44		
Level: (low/r	nea)	LOW		Date R	(eceived:	0//2//11		
% Moisture:	not dec.			Date A	nalyzed:	07/30/11		
GC Column:	rt502.	2-1 ID: 0.53 (m	ım)	Dilutio	n Factor:	10.0		
Soil Extract \	Volume	(ul.)		Soil Al	iquot Volu	imo:		(ul
	volume.	(UL)						(uL
			CONCEN	TRATION				
CASNO	C			n/Ka)			0	
CASING	J.	CONFOOND		y/Ny)	00/L		Q	
75-71	-8	Dichlorodifulo	romethane			20	U	
74-87	-3	chloromethan	e			20	U	
75-01	-4	vinyl chloride				20	U	
74-83	-9	bromomethan	e			20	U	
75-00	-3	chloroethane				20	U	
75-15	-0	carbon disulfi	de			20	U	
75-65	-0	tert-butyl alco	hol			20	U	
1634-	04-4	MTBE				20	U	
78-93	-3	MEK		<u> </u>		50	U	
67-64	-1	acetone				640	D	
75-69	-4	trichlorofluoro	methane			20	U	
75-35	-4	1,1-dichloroet	hene			20	U	_
75-09	-2	methylene ch	loride			29	D	_
156-6	0-5	trans-1,2-dich	loroethene			20		_
75-34	-3	1,1-dichloroet	nane			20	0	_
07-00	<u>-3</u>					20		
74.07	5	bromochloron	athana			20		
74-97	-0		ethane			20		
56-23	-0	carbon tetrac	bloride			20		-
107-0	6-2	1 2-dichloroet	hane			20		-
71-43	-2	benzene				20	Ŭ	_
79-01	-6	trichloroethen	е	····		20	U	
78-87	-5	1,2-dichloropr	opane			20	U	
76-13	-1	112-Trichloro	-122-Trifluoroeth	nane		20	U	
91-20	-3	Napthalene				20	U	
79-20	-9	Methyl Acetat	e			50	U	
110-8	2-7	Cyclohexane				20	U	
108-8	7-2	Methyl Cycloł	nexane			20	U	
156-5	9-4	cis-1,2-dichlo	roethene	11.		20	U	
75-27	-4	bromodichlor	omethane			20	U	
10061	-01-5	cis-1,3-dichlo	ropropene			20	U	
108-8	8-3	toluene	1			20	U	_
10061	1-02-6	trans-1,3-dich	loropropene			20	U	
591-7	0-0	2-nexanone	athana			50	<u> </u>	
19-00	-0 9 1	dibromachier	emane			20		-
107 4	8_4	tetrachloroeth				530		
108.0	0-7	chlorobenzen				20		
100-9	<u>v-r</u>	chiorobenzen	<u> </u>			_20	<u> </u>	

							EPA SA	MPLE I	NO.
Lab Name:	NJAL	OLATI	Contract:				T72 I	1	
Lab Code:	DEP 110	05	Case No.:		SAS No.:	S	DG No.:		
Matrix: (soil/	water)	WATE	R		Lab Sa	ample ID:	T72 NZ 2	.0-1	
Sample wt/v	ol:	0.5	(a/ml)	ML	Lab Fi	le ID:	TS62410	.D	
Level: (low/r	med)	LOW			Date F	Received:	07/27/11		
% Moisture:	not dec.				Date A	Analyzed:	07/30/11		
GC Column:	rt502.2	-1 ID:	0.53 (mr	n)	Dilutio	n Factor:	10.0		
Soil Extract	Volume:		(uL)		Soil A	liquot Volu	ime:		(uL)
				CONC					
CAS NO	D.	СО	MPOUND	(ug/L o	or ug/Kg)	UG/L		Q	
108-3	8-3	m	/p-xylene				20	U	
95-47	-6	0-	xylene				20	U	
100-4	2-5	st	yrene	And and a second second second second second second second second second second second second second second se			20	U	
75-25	-2	bi	romoform				20	U	
98-82	-8	is	opropyl benze	ene			20	U	_
79-34	-5	1,	1,2,2-tetrachl	oroethane			20	U	
541-7	3-1	1,	3-dichlorober	nzene			20	U	
95-50	-1	1	2-dichlorober	izene			20	U	
106-4	6-7	1	4-dichlorober	izene			20	U	
120-8	2-1	1,	2,4-trichlorob	enzene			20	U	
87-61	-6	1,	2,3-trichlorob	enzene			20	U	

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

		TENT	ATIVELY IDEN	TIFIED COMP	OUNDS		770 117 0	
Lab Name:	NJAL			Contract:				.0-1
Lab Code:	DEP 11	005	Case No.:	SAS	No.:	S	DG No.:	
Matrix: (soil/v	vater)	WATE	۲	I	Lab Sample I	D:	T72 NZ 2.0-1	
Sample wt/vo	ol:	0.5	(g/ml) ML		Lab File ID:		TS62410.D	
Level: (low/n	ned)	LOW			Date Receive	ed:	07/27/11	
% Moisture: I	not dec.			I	Date Analyze	ed:	07/30/11	
GC Column:	rt502.2	2-1 ID:	0.53 (mm)	I	Dilution Facto	or:	10.0	
Soil Extract \	/olume:		(uL)	:	Soil Aliquot V	/olur	me:	(uL)
Number TICs	s found:	0		CONCENTR (ug/L or ug/K	ATION UNIT	"S: -		
CAS NO.		COMF			RT	ES	T. CONC.	Q

			1A			EPA SA	PA SAMPLE NO.		
	,	VOLAT	ILE ORGANICS A	ANALYSIS DA	TA SHEET	T72	720-2		
Lab Name:	NJAL		Contract:		t:				
Lab Code:	DEP 11	005	Case No.:	SAS	No.:	SDG No.:			
Matrix: (soil/	water)	WATE	 R		ah Sample ID	T72 N7 2	0-2		
	water)						-		
Sample wt/v	ol:	0.5	(g/ml) ML	L	_ab File ID:	TS62411.	TS62411.D		
Level: (low/	(low/med) LOW Date Received: 07/27/11								
% Moisture:	not dec.			Γ	Date Analyzed:	07/31/11	07/31/11		
GC Column	· rt502	2-1 ID	· 0.53 (mm)	г	Dilution Factor	10.0			
	11002.		. 0.00 (1111)			10.0			
Soil Extract	Volume:		(uL)	5	Soil Aliquot Vol	ume:	(u		
				CONCENTR	ATION UNITS	:			
CAS N	О.	C	OMPOUND	(ug/L or ug/K	.g) UG/L		Q		
76.74		r	District and it does not	- 46					
75-71	-8	L	Dichlorodifulorom	ethane		20	<u> </u>		
74-87	-3	(20			
75-01	-4					20	U		
74-83	<u>)-9</u>	[blatasthana			20			
75-00	1-3		chioroethane			20	<u> </u>		
75-15	>-0		arbon disumde			20	<u> </u>		
10-00	04.4					20	<u> </u>		
1634-	-04-4								
78-93	<u>-3</u>								
67-64	<u>}-1</u>	á	acetone			000			
75-69	<u>-4</u>		richlorofluoromeu			20			
75-35	>-4		1,1-alchioroethen	e		20			
15-09	<u>-2</u>		netriylene chionu	e		32			
75.24	<u>0-0</u>		rans-1,2-uichioro			20	U		
67.66	<u></u>		chloroform	<u> </u>		20	<u> </u>		
109.1)-3 IA 1					20			
74.07	7.5		viibn	200		20			
74-97	-0		1 1 1-trichloroeths			20			
56-23	<u>2-0</u>		arbon tetrachlori			20			
107-0)6_2		1 2-dichloroethan	<u>a</u>		20	U		
71-43	3-2		penzene	×		20	Ū		
79-01	-6	· · · · ·	richloroethene			20	Ū		
78-87	7-5		1.2-dichloropropa	ne		20	Ū		
76-13	<u> </u>		112-Trichloro-122	-Trifluoroethan	ie in the second s	20	U		
91-20)-3	1	Vapthalene			20	U		
79-20)-9		Methyl Acetate			50	U		
110-8	32-7	(Cyclohexane			20	U		
108-8	37-2		Methyl Cyclohexa	ine		20	U		
156-5	59-4		cis-1,2-dichloroet	hene		20	U		
75-27	7-4		promodichlorome	thane		20	U		
1006	1-01-5		cis-1,3-dichloropr	opene		20	U		
108-8	38-3	1	oluene			20	U		
1006	1-02-6	1	rans-1,3-dichloro	propene		20	U		
591-7	78-6		2-hexanone			50	U		
79-00)-5		1,1,2-trichloroetha	ane		20	U		
124-4	18-1		dibromochlorome	thane		480	D		
127-1	18-4	1	etrachloroethene			590	Ð		
108-9	90-7		chlorobenzene			20	U		

		EPA SAMPLE NO.		
VO	VOLATILE ORGANICS ANALYSIS DATA SHEET			
Lab Name: NJAL	Contr	ract:		
Lab Code: DEP 1100	5 Case No.: SA	S No.: S	DG No.:	
Matrix: (soil/water) W	ATER	Lab Sample ID:	T72 NZ 2	.0-3
Sample wt/vol: 0	5 (g/ml) MI	Lab File ID:	TS62412 D	
		Lab Pile ID.	1002412.0	
Level: (low/med)	W	Date Received:	07/27/11	
% Moisture: not dec.		Date Analyzed:	07/31/11	
GC Column: rt502.2-1	ID: 0.53 (mm)	Dilution Factor:	10.0	
Soil Extract Volume:	(11)	Soil Aliquet Velu	imo:	·····
Son Extract volume.	(uL)		inne.	(uL)
		TRATION UNITS		
				0
CAS NO.		g/Kg) UG/L	··· — · · · ·	Q
75-71-8	Dichlorodifuloromethane		20	
74-87-3	chloromethane		20	U
75-01-4	vinyl chloride		20	Ŭ
74-83-9	bromomethane		20	U
75-00-3	chloroethane		20	U
75-15-0	carbon disulfide		20	U
75-65-0	tert-butyl alcohol		20	U
1634-04-4	MTBE		20	U
78-93-3	MEK		50	U
67-64-1	acetone		560	D
75-69-4	trichlorofluoromethane		20	U
75-35-4	1,1-dichloroethene		20	U
75-09-2	methylene chloride		29	D
156-60-5	trans-1,2-dichloroethene		20	U
75-34-3	1,1-dichloroethane		20	U
67-66-3	chloroform		20	U
108-10-1	MIBK		20	U
74-97-5	bromochloromethane		20	U
71-55-6	1,1,1-trichloroethane		20	U
56-23-5	carbon tetrachloride		20	<u> </u>
107-06-2	1,2-dichloroethane		20	<u> </u>
71-43-2	benzene		20	<u>U</u>
79-01-0			20	<u> </u>
76 12 1	1,2-dichloropropane		20	<u> </u>
01 20 3	Nontholono	lane	20	<u> </u>
70.20.0	Mothyl Acetato		20	<u> </u>
110-82-7	Cyclobexane		20	
108-87-2	Methyl Cyclobexane		20	
156-59-4	cis-1 2-dichloroethene		20	
75-27-4	bromodichloromethane	·····	20	
10061-01-5	cis-1.3-dichloropropene		20	Ū
108-88-3	toluene		20	Ŭ
10061-02-6	trans-1,3-dichloropropene		20	U
591-78-6	2-hexanone		50	U
79-00-5	1,1,2-trichloroethane		20	U
124-48-1	dibromochloromethane		480	D
127-18-4	tetrachloroethene		610	D
108-90-7	chlorobenzene		20	U

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Data Summaries

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62401.D Vial: 3 Acq On : 30 Jul 2011 6:39 pm Operator: A. Thomas : T72 NZ C-1 Sample Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:21 19111 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9396343963815.00 ug/l-0.1844) chlorobenzene-d515.19117390252415.00 ug/L-0.1856) 1,4-dichlorobenzene-d419.57152236106515.00 ug/L-0.19 System Monitoring Compounds 21) dibromofluoromethane (S) 8.65 113 1329645 32.84 ug/L -0.18 Spiked Amount 30.000 Range 80 - 120 Recovery = 109.47% 26) 1,2-dichloroethane-d4 (S) 9.42 102 279958 31.52 ug/L -0.18 Spiked Amount30.000Range80 - 120Recovery=105.07%36) toluene-d8 (S)12.5598411441431.09ug/L-0.18Spiked Amount30.000Range80 - 120Recovery=103.63% 53) 4-bromofluorobenzene (BFB) 17.37 95 2490320 28.14 ug/L -0.18 Spiked Amount 30.000 Range 80 - 120 Recovery = 93.80% Target Compounds Qvalue 14) acetone5.2458103263170.93ug/L7917) methylene chloride6.13842325282.94ug/L#10041) tetrachloroethene13.831666985844103.08ug/L#10042) dibromochloromethane13.82129486465582.49ug/L#61

 \sim Page 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES Thomas GC/MS Ins 1,4b-9n9znedoroldoib-4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 A. \sim 4-bromofluorobenzene (BFB), 5 Multiplr: Vial: Operator: GCMS2 TIC: TS62401.D Inst chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62401.D MpN terminisia waintaandii 24 10:41:02 2012 2 (C) 8b-eneulo? 2011 fluorobenzene, l 27 16:32:48 Calibration md 8 ,(8) #b-ensiteorolitolb-5,1 9.00 Feb events.e 6:39 dibromofluoromethane (S), S 1 10:21 19111 8.00 Fri 7.00 30 Jul 2011 Params: Wed Jul Initial C-1 6.00 M,T, ebholds energinem T6072011.M T72 NZ VOA 5.00 M,T ,enolece Quant Time: Aug MS Integration 4.00 Response via •• Last Update 3.00 Data File TS62401.D Acq On Sample Method Title Abundance 950000 000006 850000 800000 750000 700000 650000 600000 450000 400000 350000 300000 Misc 1000000 550000 500000 250000 200000 150000 100000 50000 0 Time-> 169

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62402.D Vial: 4 Acq On : 30 Jul 2011 7:12 pm Operator: A. Thomas : T72 NZ C-2 Inst : GC/MS Ins Sample Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:21 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene9.9396328385415.00 ug/l-0.1844) chlorobenzene-d515.19117368503715.00 ug/L-0.1856) 1,4-dichlorobenzene-d419.57152222573915.00 ug/L-0.19 System Monitoring Compounds 21) dibromofluoromethane (S) 8.65 113 1268172 32.81 ug/L -0.18 Spiked Amount 30.000 Range 80 - 120 Recovery = 109.37%

 26)
 1,2-dichloroethane-d4
 (S)
 9.42
 102
 274407
 32.37
 ug/L
 -0.18

 Spiked Amount
 30.000
 Range
 80
 - 120
 Recovery
 =
 107.90%

 36)
 toluene-d8
 (S)
 12.55
 98
 3869517
 30.63
 ug/L
 -0.18

 Spiked Amount
 30.000
 Range
 80
 - 120
 Recovery
 =
 102.10%

 53) 4-bromofluorobenzene (BFB) 17.37 95 2398326 28.70 ug/L -0.18 Spiked Amount 30.000 Range 80 - 120 Recovery = 95.67%

 Target Compounds
 Qvalue

 14) acetone
 5.23
 58
 1069045
 76.92 ug/L
 81

 17) methylene chloride
 6.12
 84
 244186
 3.24 ug/L #
 100

 41) tetrachloroethene
 13.82
 166
 7048075
 108.93 ug/L #
 76

 42) dibromochloromethane
 13.82
 129
 4945275
 87.83 ug/L #
 61

25.00 26.00 27.00 10,00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 Results File: T6072011.RES Thomas GC/MS Ins 1,4-dichlorobenzene-d4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 A 4 4 Aromofluorobenzene (BFB), S Vial: Operator: Multiplr: TIC: TS62402.D Inst chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62402.D M,T, 9MB711,9maritx4d patrick Quant 2 (2) 8b-eneulos 2011 I, energedenceut 27 16:32:48 Calibration 7:12 pm S .(S) 4b-enetheorothoib-S,I 9.00 events.e 8 (8) enertiemoroulitomoralib 1 10:21 19111 8.00 7.00 30 Jul 2011 T72 NZ C-2 MS Integration Params: Wed Jul Initial 6.00 methylene chloride, T,M VOA M,T, enoteos 3.00 4.00 5.00 Quant Time: Aug Response via ... Last Update Data File Acq On Sample Method Title Misc Aburdange 1000000 950000 650000 600000 550000 500000 300000 250000 200000 150000 900006 850000 800000 750000 700000 450000 400000 350000 100000 50000 0 Time--> 171

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GCMS2

Fri Feb 24 10:41:05 2012

TS62402.D T6072011.M

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62403.D Vial: 5 Acq On : 30 Jul 2011 7:45 pm Operator: A. Thomas : T72 NZ C-3 Sample : Misc : Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:21 19111 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene9.9396330592815.00 ug/l-0.1844) chlorobenzene-d515.19117373602415.00 ug/L-0.1856) 1,4-dichlorobenzene-d419.57152216381615.00 ug/L-0.19 System Monitoring Compounds 21) dibromofluoromethane (S) 8.65 113 1271212 32.66 ug/L -0.18 21) dibromotituoromethane (S)8.6511312/121232.66ug/L-0.18Spiked Amount30.000Range80-120Recovery=108.87%26) 1,2-dichloroethane-d4(S)9.4210225628530.03ug/L-0.18Spiked Amount30.000Range80-120Recovery=100.10%36) toluene-d8(S)12.5598393173530.91ug/L-0.18Spiked Amount30.000Range80-120Recovery=103.03%53) 4-bromofluorobenzene(BFB)17.3795234648527.70ug/L-0.18Spiked Amount20.020Recover120Recover22.23%Spiked Amount 30.000 Range 80 - 120 Recovery = 92.33%

 Target Compounds
 Qvalue

 14) acetone
 5.24
 58
 972999
 69.54 ug/L
 79

 17) methylene chloride
 6.13
 84
 238006
 3.13 ug/L #
 100

 41) tetrachloroethene
 13.83
 166
 7188669
 110.36 ug/L #
 100

 42) dibromochloromethane
 13.82
 129
 5064067
 89.34 ug/L #
 61

 \sim Page 23.00 24.00 25.00 26.00 27.00 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 Results File: T6072011.RES Thomas GC/MS Ins 1,4-dichlorobenzene-d4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 Å. ഹ 4-bromofluorobenzene (BFB), S Vial: Operator: Multiplr: GCMS2 TIC: TS62403.D Inst chlorobenzene-d5, l Ω. C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62403. W'L Quant Feb 24 10:41:09 2012 S ((S) 8b-ensulot 2011 fluorobenzene, l 27 16:32:48 Calibration 7:45 pm 8 (8) 4b-ensitieorolicib-S, f 9.00 arams: events.e 1 10:21 19111 dibromofluoromethane (S), S 8.00 Fri 7.00 30 Jul 2011 Params: Wed Jul Initial е-С-С 6.00 M,T, sbirotids enelythem T6072011.M T72 NZ VOA M,T ,enotece 3.00 4.00 5.00 Quant Time: Aug MS Integration Response via .. Last Update Data File TS62403.D Acq On Sample Method Title Abundance 1050000 1000000 950000 900006 850000 800000 700000 650000 600000 550000 500000 150000 400000 350000 300000 250000 200000 150000 750000 100000 50000 0 Misc Time--> 173

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62404.D Vial: 6 Acq On : 30 Jul 2011 8:19 pm Operator: A. Thomas : T72 NZ .5-1 Sample Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:21 19111 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9396324523715.00 ug/l-0.1844) chlorobenzene-d515.19117369591315.00 ug/L-0.1856) 1,4-dichlorobenzene-d419.57152219886915.00 ug/L-0.19 System Monitoring Compounds 21) dibromofluoromethane (S) 8.65 113 1215450 31.82 ug/L -0.18 Spiked Amount 30.000 Range 80 - 120 Recovery = 106.07% 26) 1,2-dichloroethane-d4 (S) 9.41 102 264804 31.60 ug/L -0.18

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 105.33%

 36) toluene-d8 (S)
 12.55
 98
 3883484
 31.10
 ug/L
 -0.18

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 103.67%

 53) 4-bromofluorobenzene (BFB) 17.37 95 2351322 28.06 ug/L -0.19 Spiked Amount 30.000 Range 80 - 120 Recovery = 93.53% Target Compounds Qvalue 14) acetone5.2458102680474.76 ug/L8017) methylene chloride6.13842253473.02 ug/L #10041) tetrachloroethene13.82166381396159.65 ug/L #7642) dibromochloromethane13.82129271861148.86 ug/L #61

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Page 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES Thomas GC/MS Ins 1,4b-eneznedoroidoib-4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 Α. Q 4-bromofluorobenzene (BFB), S Multiplr: Vial: Operator: GCMS2 TIC: TS62404.D Inst chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62404.D M, M, FILE MERINERAL MINISTRE 24 10:41:12 2012 2 (C) 8b-eneulo? 27 16:32:48 2011 fluorobenzene, l Calibration шd 1,2-dichloroethane-d4 (S), S 9.00 Feb Params: events.e 8:19 S ,(S) ensitemoroutiomordib 1 10:21 19111 8.00 Fri-7.00 30 Jul 2011 .5-1 Wed Jul Initial 6.00 M,T, ehirotho enethytem TS62404.D T6072011.M T72 NZ VOA 5.00 M,T, enotece Quant Time: Aug MS Integration 4.00 Response via •• Last Update 3.00 Data File Sample Acq On Method Title Abundance Misc 550000 500000 450000 400000 350000 300000 250000 200000 150000 100000 50000 0 Fime--> 175

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62405.D Vial: 7 Acq On : 30 Jul 2011 8:52 pm Operator: A. Thomas Sample : Misc : : T72 NZ .5-2 Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:21 19111 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9396319547715.00 ug/l-0.1844) chlorobenzene-d515.19117354887415.00 ug/L-0.1956) 1,4-dichlorobenzene-d419.57152216461715.00 ug/L-0.19 System Monitoring Compounds 21) dibromofluoromethane (S) 8.65 113 1210032 32.17 ug/L -0.18 Spiked Amount30.000Range80 - 120Recovery= 107.23%26)1,2-dichloroethane-d4 (S)9.4210225885631.38ug/L-0.18

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 104.60%

 36) toluene-d8 (S)
 12.55
 98
 3725050
 30.30
 ug/L
 -0.19

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 101.00%

 53) 4-bromofluorobenzene
 (BFB)
 17.37
 95
 2320765
 28.84
 ug/L
 -0.19

 Spiked Amount 30.000 Range 80 - 120 Recovery = 96.13%

 Target Compounds
 Qvalue

 14) acetone
 5.24
 58
 988295
 73.07 ug/L
 76

 17) methylene chloride
 6.13
 84
 246911
 3.36 ug/L #
 100

 41) tetrachloroethene
 13.82
 166
 4886804
 77.61 ug/L #
 76

 42) dibromochloromethane
 13.82
 129
 3419307
 62.41 ug/L #
 61

10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES GC/MS Ins Thomas 1,4-dichlorobenzene-d4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 A. \sim 4-bromofluorobenzene (BFB), S Multiplr: Vial: Operator: GCMS2 TIC: TS62405.D Inst chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62405.D M,T ,eMs711ementedvaldessdd Feb 24 10:41:16 2012 2 ((2) 8b-eneulo? 2011 1, ensanedorouft 27 16:32:48 Calibration шd 2 ,(2) 4b-ensiteorolidab-S,t 9.00 irams: events.e 1 10:21 19111 8:52 dibromofluoromethane (S), S 8.00 Fri 7.00 30 Jul 2011 T72 NZ .5-2 Params: Wed Jul Initial 6.00 M,T, ebinolito enelyritem T6072011.M VOA M,T, enotecs 5.00 Quant Time: Aug MS Integration 4.00 Response via .. Last Update 3.00 Data File TS62405.D Acq On Sample Method Title Abundance 750000 Misc 700000 600000 500000 450000 650000 550000 400000 350000 300000 250000 200000 150000 100000 50000 0 Time--> 177

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62406.D Vial: 8 Acq On : 30 Jul 2011 9:25 pm Operator: A. Thomas : T72 NZ .5-3 Sample Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:21 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9296321943415.00 ug/l-0.1944) chlorobenzene-d515.19117356906215.00 ug/L-0.1956) 1,4-dichlorobenzene-d419.56152208839215.00 ug/L-0.20 System Monitoring Compounds 21) dibromofluoromethane (S) 8.65 113 1203683 31.76 ug/L -0.19 Spiked Amount 30.000 Range 80 - 120 Recovery = 105.87% 26) 1,2-dichloroethane-d4 (S)9.4210225760330.99ug/L-0.18Spiked Amount30.000Range80- 120Recovery=103.30%36) toluene-d8 (S)12.5598371049929.96ug/L-0.19Spiked Amount30.000Range80- 120Recovery=99.87% 53) 4-bromofluorobenzene (BFB) 17.36 95 2218939 27.42 ug/L -0.19 Spiked Amount 30.000 Range 80 - 120 Recovery = 91.40%

 Target Compounds
 Qvalue

 14) acetone
 5.23
 58
 869859
 63.84 ug/L
 77

 17) methylene chloride
 6.12
 84
 222131
 3.00 ug/L #
 100

 41) tetrachloroethene
 13.82
 166
 4925937
 77.65 ug/L #
 76

 42) dibromochloromethane
 13.81
 129
 3558135
 64.46 ug/L #
 61

14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES Thomas GC/MS Ins 1,4-dichlorobenzene-d4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 Α. 8 4-bromofluorobenzene (BFB), S Multiplr: C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62406.D Vial: 30 Jul 2011 9:25 pm Operator: GCMS 2 TIC: TS62406.D Inst chlorobenzene-d5, l M, T, eMisTitemartinidanie Fri Feb 24 10:41:20 2012 10.00 11.00 12.00 13.00 S ((S) 8b-eneulo) 27 16:32:48 2011 fluorobenzene, ! Calibration 2 (2) \$b-ensiteorolicib-2,1 9.00 MS Integration Params: events.e 8 ,(8) ensitemoroultomordib 1 10:21 19111 8.00 7.00 30 Jul 2011 T72 NZ .5-3 Wed Jul Initial 6.00 M,T ,ebinolito anelyhem T6072011.M VOA 5.00 M,T ,enotece Quant Time: Aug 4.00 Response via •• Last Update 3.00 Data File TS62406.D Acq On Sample Method Title Abundance 700000 500000 000054 179 650000 600000 550000 400000 350000 300000 250000 150000 50000 Misc 200000 100000 0 Time->

Page 2

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62407.D Vial: 9 Acq On : 30 Jul 2011 9:58 pm Operator: A. Thomas Sample : T72 NZ 1.0-1 Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:21 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene9.9296311685515.00 ug/l-0.1944) chlorobenzene-d515.18117341964915.00 ug/L-0.1956) 1,4-dichlorobenzene-d419.56152211885815.00 ug/L-0.20 System Monitoring Compounds 21) dibromofluoromethane (S) 8.65 113 1142489 31.14 ug/L -0.18 Spiked Amount 30.000 Range 80 - 120 Recovery = 103.80% 26) 1,2-dichloroethane-d4 (S)9.4110224023429.85ug/L-0.19Spiked Amount30.000Range80 - 120Recovery=99.50%36) toluene-d8 (S)12.5598365620730.49ug/L-0.19Spiked Amount30.000Range80 - 120Recovery=101.63% 53) 4-bromofluorobenzene (BFB) 17.36 95 2214946 28.57 ug/L -0.19 Spiked Amount 30.000 Range 80 - 120 Recovery = 95.23%

 Target Compounds
 Qvalue

 14) acetone
 5.23
 58
 892870
 67.68 ug/L
 77

 17) methylene chloride
 6.12
 84
 215745
 3.01 ug/L #
 100

 41) tetrachloroethene
 13.81
 166
 3867764
 62.98 ug/L #
 76

 42) dibromochloromethane
 13.81
 129
 2715878
 50.82 ug/L #
 61

26.00 27.00 9.00 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 Quant Results File: T6072011.RES Thomas GC/MS Ins 1,4b-enexnedotoldsib-4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 A. σ 4-bromofluorobenzene (BFB), S Vial: Multiplr: Operator GCMS 2 TIC: TS62407.D Inst chlorobenzene-d5, l <u>р</u> C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62407 M,T,9M6719mantadaak 24 10:41:23 2012 2 (C) 8b-eneutor 27 16:32:48 2011 fluorobenzene, l Calibration шd 2 ,(2) 4b-ansiteoroldoib-5,1 Feb arams: events.e 1 10:21 19111 9:58 dibromofluoromethane (S), S 8.00 Εri 6.00 7.00 1.0-1 30 Jul 2011 Params: Wed Jul Initial methylene chloride, T,M T6072011.M T72 NZ VOA 4.00 5.00 M,T ,enotece Quant Time: Aug MS Integration Response via ••• Last Update 3.00 Data File TS62407.D Acq On Sample Method Title Abundance 550000 500000 450000 350000 250000 150000 50000 0 Misc 400000 300000 200000 100000 Time-> 181

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62408.D Vial: 10 Acq On : 30 Jul 2011 10:31 pm Operator: A. Thomas : T72 NZ 1.0-2 Sample : Misc : Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:21 19111 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9296323570915.00 ug/l-0.1944) chlorobenzene-d515.18117362298115.00 ug/L-0.2056) 1,4-dichlorobenzene-d419.56152220674115.00 ug/L-0.20 System Monitoring Compounds 21) dibromofluoromethane (S) 8.64 113 1200789 31.52 ug/L -0.19 Spiked Amount 30.000 Range 80 - 120 Recovery = 105.07% 26) 1,2-dichloroethane-d4 (S) 9.41 102 233945 28.00 ug/L -0.19

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 93.33%

 36) toluene-d8 (S)
 12.54
 98
 3814437
 30.64 ug/L
 -0.19

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 102.13%

 53) 4-bromofluorobenzene (BFB)
 17.36
 95
 2264091
 27.56 ug/L
 -0.20

 Spiked Amount 30.000 Range 80 - 120 Recovery = 91.87%

 Target Compounds
 Qvalue

 14) acetone
 5.23
 58
 925629
 67.59 ug/L
 68

 17) methylene chloride
 6.13
 84
 229997
 3.09 ug/L #
 100

 41) tetrachloroethene
 13.81
 166
 4137903
 64.90 ug/L #
 100

 42) dibromochloromethane
 13.81
 129
 2882101
 51.95 ug/L #
 61

20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES A. Thomas GC/MS Ins 1,4-dichlorobenzene-d4,1 9.00 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 10 4-bromofluorobenzene (BFB), S Multiplr: Operator: Vial: .. GCMS 2 TIC: TS62408.D Inst chlorobenzene-d5, l Ω. C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62408. 30 Jul 2011 10:31 pm M,T,9MsTitemericide Feb 24 10:41:27 2012 S ((S) 8b-ensulof 27 16:32:48 2011 I, eneznedorouft Calibration S ((S) 4b-ensiteoroldoib-S,1 events.e dibromofluoromethane (S), S 1 10:21 19111 8.00 ЕТТ 7.00 1.0-2 Params: Wed Jul Initial 6.00 M,T, ebitolido ensityitem T6072011.M T72 NZ VOA M,T,enotecs 4.00 5.00 Quant Time: Aug MS Integration Response via ••• Last Update 3.00 Data File TS62408.D u O Sample Method Title Abundance Misc 550000 500000 450000 400000 350000 300000 250000 200000 150000 100000 50000 0 Acq Time--> 183

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62409.D Vial: 11 Acq On : 30 Jul 2011 11:04 pm Operator: A. Thomas : T72 NZ 1.0-3 Inst : GC/MS Ins Sample Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:21 19111 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9296307089615.00 ug/l-0.1944) chlorobenzene-d515.18117346712515.00 ug/L-0.2056) 1,4-dichlorobenzene-d419.56152209751515.00 ug/L-0.20 System Monitoring Compounds 21) dibromofluoromethane (S) 8.64 113 1154399 31.93 ug/L -0.19 Spiked Amount 30.000 Range 80 - 120 Recovery = 106.43% Spiked AmountS0.000Range80 - 120Recovery= 106.43%26) 1,2-dichloroethane-d4 (S)9.4110223721129.92ug/L-0.19Spiked Amount30.000Range80 - 120Recovery= 99.73%36) toluene-d8 (S)12.5498364259630.83ug/L-0.19Spiked Amount30.000Range80 - 120Recovery= 102.77%53) 4-bromofluorobenzene(BFB)17.3695220737128.08ug/L-0.20Spiked Amount20.000Benere20120Benere2020 Spiked Amount 30.000 Range 80 - 120 Recovery = 93.60%

 Target Compounds
 Qvalue

 14) acetone
 5.22
 58
 708051
 54.48 ug/L
 67

 17) methylene chloride
 6.12
 84
 200521
 2.84 ug/L
 #
 100

 41) tetrachloroethene
 13.81
 166
 3401053
 56.21 ug/L
 #
 99

 42) dibromochloromethane
 13.81
 129
 2340430
 44.45 ug/L
 #
 61

10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES Thomas GC/MS Ins 1,4-dichlorobenzene-d4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 Å. 11 4-bromofluorobenzene (BFB), S Multiplr: C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62409.D Vial: 30 Jul 2011 11:04 pm Operator: GCMS2 TIC: TS62409.D Inst chlorobenzene-d5, l , Ttemerinschadinaerditt 24 10:41:31 2012 C (C) 8b-eneulor 27 16:32:48 2011 I, eneznedorouft Calibration 2 ,(2) 4b-ensiteorolicib-2, f Feb 9.00 Params: events.e dibromofluoromethane (S), S 1 10:21 19111 8.00 Fri 7.00 1.0-3 Wed Jul Initial 6.00 methylene chloride, T,M T6072011.M T72 NZ VOA 5.00 M,T ,enotece Quant Time: Aug MS Integration 4.00 Response via . . Last Update 3.00 Data File TS62409.D Sample Acq On Method Title Abundance 500000 Misc 450000 400000 350000 300000 250000 ò 200000 150000 100000 50000 Time--> 185

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62410.D Vial: 12 Acq On : 30 Jul 2011 11:37 pm Operator: A. Thomas Sample : T72 NZ 2.0-1 Inst : GC/MS Ins Misc Multiplr: 1.00 : MS Integration Params: events.e Quant Time: Aug 1 10:21 19111 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9296315135915.00 ug/l-0.1944) chlorobenzene-d515.18117350092615.00 ug/L-0.2056) 1,4-dichlorobenzene-d419.55152217171615.00 ug/L-0.20 System Monitoring Compounds 21) dibromofluoromethane (S) 8.64 113 1154945 31.13 ug/L -0.19 Spiked Amount 30.000 Range 80 - 120 Recovery = 103.77% 26) 1,2-dichloroethane-d4 (S) 9.41 102 238373 29.30 ug/L -0.19

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery = 97.67%

 36) toluene-d8 (S)
 12.54
 98
 3656311
 30.16 ug/L
 -0.20

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery = 100.53%

 53) 4-bromofluorobenzene (BFB) 17.35 95 2179775 27.46 ug/L -0.20 Spiked Amount 30.000 Range 80 - 120 Recovery = 91.53% Target Compounds 14) acetone Qvalue 14) acetone5.235885002963.73ug/L7317) methylene chloride6.12842120792.93ug/L#10041) tetrachloroethene13.81166328558752.91ug/L#7642) dibromochloromethane13.81129235906043.66ug/L#61

10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES A. Thomas GC/MS Ins 1,4-dichlorobenzene-d4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 12 S (BFB), energeneoution (BFB), S Multiplr: C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62410.D Vial: 30 Jul 2011 11:37 pm Operator: GCMS2 TIC: TS62410.D Inst chlorobenzene-d5, l M,T,eM6719metbldrame Fri Feb 24 10:41:34 2012 S ((S) 8b-eneulof 27 16:32:48 2011 I, enecnedorent Calibration S ((S) \$b-ensiteorolicib-S,f 9.00 MS Integration Params: events.e 2 (2) anarthamorouflomordib 1 10:21 19111 8.00 7.00 2.0-1 Wed Jul Initial 6.00 M,T ,ebitoldo enelvitem T6072011.M T72 NZ VOA M,T ,enotece 5.00 Quant Time: Aug 4.00 Response via •• Last Update 3.00 Data File TS62410.D Acq On Sample Method Title Abundance Misc 450000 400000 300000 150000 350000 250000 200000 100000 50000 0 Time-> 187

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62411.D Vial: 13 Acq On : 31 Jul 2011 12:10 am Operator: A. Thomas : T72 NZ 2.0-2 Sample Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:21 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene9.9296307977015.00 ug/l-0.1944) chlorobenzene-d515.18117342664915.00 ug/L-0.2056) 1,4-dichlorobenzene-d419.55152213990315.00 ug/L-0.20 System Monitoring Compounds 21) dibromofluoromethane (S) 8.64 113 1109360 30.60 ug/L -0.19 Spiked Amount 30.000 Range 80 - 120 Recovery = 102.00% 26) 1,2-dichloroethane-d4 (S) 9.41 102 257575 32.39 ug/L -0.19 Spiked Amount 30.000 Range 80 - 120 Recovery = 107.97% 36) toluene-d8 (S)12.5498370410131.26 ug/L-0.20Spiked Amount30.000Range80 - 120Recovery=104.20%53) 4-bromofluorobenzene(BFB)17.3595218611228.14 ug/L-0.20 Spiked Amount 30.000 Range 80 - 120 Recovery = 93.80%

 Target Compounds
 Qvalue

 14) acetone
 5.23
 58
 892456
 68.47 ug/L
 83

 17) methylene chloride
 6.13
 84
 226915
 3.21 ug/L #
 100

 41) tetrachloroethene
 13.81
 166
 3598634
 59.30 ug/L #
 76

 42) dibromochloromethane
 13.81
 129
 2518553
 47.70 ug/L #
 61

10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62411.D Vial: 13 Operator: A. Thomas GC/MS Ins I,4-dichlorobenzene-d4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Multiplr: 1.00 Promofluorobenzene (BFB), S ••• GCMS2 TIC: TS62411.D Inst L, chiorobenzene-d5, l M,T,eMs71ementoscreamen Fri Feb 24 10:41:38 2012 C ((C) 8b-eneulor 27 16:32:48 2011 f, ensznadorouft Calibration 3, (2) 4b-ensitseoroldoib-5, f 9.00 Params: events.e dibromofluoromethane (S), S 1 10:21 19111 8.00 7.00 31 Jul 2011 T72 NZ 2.0-2 Wed Jul Initial 6.00 M,T ,sbholdo anelydaem TS62411.D T6072011.M VOA 5.00 M,T ,anotece Quant Time: Aug MS Integration 4.00 Response via Abundance • • Last Update 3.00 Data File Acq On Sample Method Title Misc 450000 350000 500000 400000 300000 250000 200000 150000 100000 50000 Ó Time-> 189

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62412.D Vial: 14 Acq On : 31 Jul 2011 12:43 am Operator: A. Thomas : T72 NZ 2.0-3 Sample Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:22 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9196314018015.00 ug/l-0.2044) chlorobenzene-d515.18117359070315.00 ug/L-0.2056) 1,4-dichlorobenzene-d419.55152218912815.00 ug/L-0.21 System Monitoring Compounds 21) dibromofluoromethane (S) 8.64 113 1146137 31.01 ug/L -0.19 Spiked Amount 30.000 Range 80 - 120 Recovery = 103.37% Spiked AmountS0.000Range80 - 120Recovery= 103.37%26) 1,2-dichloroethane-d4 (S)9.4110223663129.19ug/L-0.19Spiked Amount30.000Range80 - 120Recovery= 97.30%36) toluene-d8 (S)12.5498364305730.15ug/L-0.20Spiked Amount30.000Range80 - 120Recovery= 100.50%53) 4-bromofluorobenzene(BFB)17.3595229228128.16ug/L-0.20Spiked Amount20.000Range80120Recovery= 0.200.20 Spiked Amount 30.000 Range 80 - 120 Recovery = 93.87%

 Target Compounds
 Qvalue

 14) acetone
 5.22
 58
 742907
 55.90 ug/L
 67

 17) methylene chloride
 6.12
 84
 207868
 2.88 ug/L #
 100

 41) tetrachloroethene
 13.81
 166
 3760310
 60.77 ug/L #
 76

 42) dibromochloromethane
 13.80
 129
 2605074
 48.39 ug/L #
 61

 \sim Page 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES Thomas GC/MS Ins 1,4b-enexnedotoldbib-4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 A. 14 4-bromofluorobenzene (BFB), S Multiplr: C:\HPCHEM/1\DATA2011\JUL11\LUL30\TS62412.D Vial: 31 Jul 2011 12:43 am Operator: GCMS 2 TIC: TS62412.D Inst cyloropeuzene-d5, l M,T ,enerteororabbasero-dit Fri Feb 24 10:41:42 2012 2 ((2) 8b-eneutor 2011 I, eneznedorouñ 27 16:32:48 Calibration 2 ,(2) Ab-ensiteotoldoib-2,1 9.00 Params: events.e 8 (8) enantemoroutiomordib 1 10:22 19111 8.00 7.00 2.0-3 Wed Jul Initial 6.00 тетһуівпе сһіопde, Т,М T6072011.M T72 NZ VOA 5.00 M,T ,snotece Quant Time: Aug MS Integration 3.00 4.00 Response via Last Update .. Data File TS62412.D Acq On Sample Method Title Misc Abuggggge 500000 450000 350000 300000 150000 50000 o 400000 250000 200000 100000 Time--> 191

III-1 Raw Chromatograms

IV-1 Method Tunes

IV-2 Method Blanks

IV-3 Daily Calibration

IV-4 Laboratory Control Samples

Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TBF62401.D Vial: 1 : 30 Jul 2011 4:26 pm Operator: A. Thomas Acq On : 50ng bfb 624/5ml 7/30/11 Sample Inst : GC/MS Ins Misc Multiplr: 1.00 MS Integration Params: events.e Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) : VOA Title



AutoFind: Scans 885, 886, 887; Background Corrected with Scan 878

50 95 15 40 29.5 13265 PASS	
75 95 30 70 59.2 26672 PASS	
95 95 100 100 100.0 45040 PASS	1
96 95 5 9 6.5 2923 PASS	I
173 174 0.00 2 0.0 0 PASS	1
174 95 50 100 82.0 36949 PASS	1
175 174 5 9 7.3 2696 PASS	1
176 174 95 101 100.7 37211 PASS	1
177 176 5 9 6.7 2491 PASS	

Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TBF62402.D Vial: 21 : 31 Jul 2011 4:34 am Operator: A. Thomas Acq On : 50ng bfb 624/5ml 7/29/11 : GC/MS Ins Sample Inst Misc Multiplr: 1.00 MS Integration Params: events.e Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) : VOA Title



AutoFind: Scans 883, 884, 885; Background Corrected with Scan 877

 	Target Mass	 	Rel. to Mass		Lower Limit%	 	Upper Limit%	 	Rel. Abn%	 	Ra w Abn	 	Result Pass/Fail	
	50		95		15		40		29.4		12630	1	PASS	
	75	Ì	95		30		70		56.9		24501		PASS	
ļ	95		95	ļ	100		100		100.0		43032		PASS	
	96		95		5		9		7.0		3024		PASS	
	173		174		0.00		2		0.0		0		PASS	
	174		95		50		100		79.7		34315		PASS	
	175		174		5		9		7.6		2597		PASS	
	176		174		95		101		97.2		33339		PASS	
	177	I	176	Ì	5		9	I	6.7		2234		PASS	Ì

Quantitation Report (QT Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TBL62401.D Vial: 1 Acq On : 30 Jul 2011 4:59 pm Sample : Blank 624/5ml 7/30/11 Misc : Operator: A. Thomas Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:21 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9296327690715.00 ug/l-0.1944) chlorobenzene-d515.18117365270715.00 ug/L-0.2056) 1,4-dichlorobenzene-d419.56152223907915.00 ug/L-0.20 System Monitoring Compounds 21) dibromofluoromethane (S) 8.63 113 1213316 31.45 ug/L -0.20 Spiked Amount 30.000 Range 80 - 120 Recovery = 104.83% 26) 1,2-dichloroethane-d4 (S)9.4110226125630.88ug/L-0.19Spiked Amount30.000Range80- 120Recovery=102.93%36) toluene-d8 (S)12.5498389201130.87ug/L-0.19Spiked Amount30.000Range80- 120Recovery=102.90% 53) 4-bromofluorobenzene (BFB) 17.36 95 2307132 27.86 ug/L -0.20 Spiked Amount 30.000 Range 80 - 120 Recovery = 92.87%

Target Compounds

Qvalue

10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES Thomas GC/MS Ins I,46-910-000-044,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 Å. Ч 4-bromofluorobenzene (BFB), S C:\HPCHEM\1\DATA2011\JUL11\LUL30\TBL62401.D Vial: Operator: Multiplr: GCMS2 TIC: TBL62401.D Inst chiorobenzene-d5, l 24 12:01:35 2012 S (S) 8b-eneulot 2011 I , eneznedorouft Wed Jul 27 16:32:48 Calibration Feb 30 Jul 2011 4:59 pm Blank 624/5ml 7/30/11 S,(S) 4b-ensiteorolicib-2, f 9.00 Params: events.e S ((S) enantemoroufformordib Εri 8.00 7.00 Initial 6.00 TBL62401.D T6072011.M VOA 4.00 5.00 Quant Time: Aug MS Integration Response via Abundance ••• Last Update 3.00 Data File Acq On Sample Method Title Misc 400000 350000 300000 250000 200000 150000 100000 50000 0 Time-> 199

Page 2

Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TDC62401.D Vial: 1

 Acq On
 : 30 Jul 2011 5:32 pm
 Operator: A. Thomas

 Sample
 : 20 ppb cl 1624/5ml 7/30/11
 Inst : GC/MS Ins

 Misc
 :
 Multiplr: 1.00

 MS Integration Params: events.e : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Method : VOA Title Last Update : Wed Jul 27 16:32:48 2011 Response via : Multiple Level Calibration Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min Max. RRF Dev : 30% Max. Rel. Area : 200%
 Compound
 AvgRF
 CCRF
 % Dev Area% Dev(min)

 1
 I
 fluorobenzene
 1.000
 1.000
 0.0
 69
 -0.19

 3
 T,M
 chloromethane
 0.312
 0.195
 37.5#
 42#
 -0.11

 4
 C,T,M
 vinyl
 chloromethane
 0.144
 0.70
 51.4#
 35#
 -0.14

 7
 t
 112-Trichloro-122-Trifluoro
 0.225
 0.226
 1.49
 53
 -0.17

 8
 Methyl Acetate
 0.047
 0.055
 -17.0
 73
 -0.19

 0
 T,M
 carbon disulfide
 0.586
 0.587
 -0.2
 61
 -0.17

 13
 T,M
 methyl Acetate
 0.044
 0.031
 29.5
 45#
 -0.17

 13
 T,M
 methyl Acetate
 0.044
 0.031
 29.5
 45#
 -0.17

 14
 T,M
 methylacohol
 0.044
 -337.6#
 359#
 -0.16

 15
 T,M
 itchorofluoromethane
 <t AvgRF CCRF %Dev Area% Dev(min) Compound

 44 I
 chlorobenzene-d5
 1.200
 1.000
 0.0
 64
 -0.19

 45 M,T
 chlorobenzene
 0.554
 0.596
 -7.6
 65
 -0.19

46	С,Т,М	1 ethyl benzene	1.066	1.143	-7.2	64	-0.19
47	Т,М	m/p-xylene	0.929	0.977	-5.2	56	-0.19
48	Т,М	o-xylene	0.874	0.956	-9.4	65	-0.19
49	Т,М	styrene	0.528	0.563	-6.6	64	-0.19
50	Т,М	isopropyl benzene	0.953	1.055	-10.7	66	-0.18
51	Т,М	bromoform	0.123	0.105	14.6	54	-0.19
52	Т,М	1,1,2,2-tetrachloroethane	0.274	0.278	-1.5	65	-0.19
53	S	4-bromofluorobenzene (BFB)	0.340	0.324	4.7	61	-0.19
54	Т,М	1,3-dichlorobenzene	0.404	0.433	-7.2	63	-0.19
55	Т,М	1,2-dichlorobenzene	0.383	0.450	-17.5	71	-0.20
56	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	58	-0.19
57	Т,М	1,4-dichlorobenzene	0.639	0.782	-22.4	71	-0.20
58	Т,М	1,2-dibromo-3-chloropropane	0.069	0.059	14.5	65	-0.19
59	Т,М	1,2,4-trichlorobenzene	0.387	0.445	-15.0	64	-0.20
60	Т,М	Napthalene	0.822	0.845	-2.8	65	-0.20
61	Т,М	1,2,3-trichlorobenzene	0.343	0.408	-19.0	69	-0.20

(#) = Out of Range SPCC's out = 0 CCC's out = 0 BF62401.D T6072011.M Fri Feb 24 11:58:33 2012 GCMS2
Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TDC62402.D Vial: 21

 Acq On
 : 31 Jul 2011 5:07 am
 Operator: A. Thomas

 Sample
 : 20ppb cal2 624/5ml 7/29/11
 Inst : GC/MS Ins

 Misc
 :
 Multiplr: 1.00

 MS Integration Params: events.e : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Method : VOA Title Last Update : Wed Jul 27 16:32:48 2011 Response via : Multiple Level Calibration Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min Max. RRF Dev : 30% Max. Rel. Area : 200%
 Compound
 AvgRF
 CCRF
 %Dev Area% Dev(min)

 1 I
 fluorobenzene
 1.000
 1.000
 0.0
 62
 -0.21

 3 T,M
 chloromethane
 0.312
 0.172
 44.9#
 33# -0.12

 4 C,T,M vinyl chloride
 0.184
 0.162
 12.0
 58
 -0.13

 5 T,M
 bromomethane
 0.144
 0.064
 56.6#
 29# -0.15

 6 T,M
 chloroethane
 0.225
 0.185
 17.8
 47# -0.16

 7 t
 112-Trichloro-122-Trifluoro
 0.289
 0.244
 15.6
 48# -0.16

 8 t
 Methyl Acctate
 0.047
 0.043
 8.5
 52
 -0.19

 9 T,M
 carbon disulfide
 0.786
 0.788
 3.4
 63
 -0.17

 11 t
 1,4 Dioxane
 0.024
 0.029
 -3.6
 54
 -0.18

 12 T,M
 meth-bulene chloride
 0.345
 0.333
 8.3
 49# -0.17

 17 M
 methylen chloride
 0.345
 0.343
 0.6
 -0.17
 Compound AvgRF CCRF %Dev Area% Dev(min)

44 Ichlorobenzene-d51.2031.0000.057-0.2145 M,Tchlorobenzene0.5540.587~6.058-0.21

46	С,Т,М	1 ethyl benzene	1.066	1.147	-7.6	58	-0.21
47	Т,М	m/p-xylene	0.929	0.970	-4.4	50	-0.21
48	Т, М	o-xylene	0.874	0.965	-10.4	59	-0.21
49	T,M	styrene	0.528	0.565	-7.0	57	-0.21
50	T,M	isopropyl benzene	0.953	1.062	-11.4	60	-0.21
51	Т,М	bromoform	0.123	0.098	20.3	45#	-0.22
52	Т, М	1,1,2,2-tetrachloroethane	0.274	0.249	9.1	52	-0.21
53	s	4-bromofluorobenzene (BFB)	0.340	0.328	3.5	56	-0.21
54	Т,М	1,3-dichlorobenzene	0.404	0.387	4.2	51	-0.22
55	Т,М	1,2-dichlorobenzene	0.383	0.445	-16.2	63	-0.22
56	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	55	-0.21
57	Т,М	1,4-dichlorobenzene	0.639	0.746	-16.7	64	-0.22
59	Τ, Μ	1,2,4-trichlorobenzene	0.387	0.426	-10.1	58	-0.22
60	Τ, Μ	Napthalene	0.822	0.644	21.7	47#	-0.22
61	т, м	1,2,3-trichlorobenzene	0.343	0.369	-7.6	60	-0.22
	1.11.5		CDCCI			0	
	(井) =	= Out of Kange	SPUC'S OU	U = U = U	LCC's OUT =		
	BF62	2401.D T60/2011.M Fri	Feb 24 12	::00:32 2	ZUIZ GCMSI	4	

Quantitation Report (QT Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TDC62401.D Vial: 1 Acq On: 30 Jul 20115:32 pmOperator: A. ThomasSample: 20 ppb cl 1624/5ml 7/30/11Inst: GC/MS InsMisc:Multiplr: 1.00 Multiplr: 1.00 Misc MS Integration Params: events.e Quant Time: Feb 24 11:58 19112 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9296335488315.00 ug/l-0.1944) chlorobenzene-d515.19117378484115.00 ug/L-0.1956) 1,4-dichlorobenzene-d419.57152229852215.00 ug/L-0.19 System Monitoring Compounds 21) dibromofluoromethane (S) 8.64 113 1348598 34.15 ug/L -0.19 Spiked Amount 30.000 Range 80 - 120 Recovery = 113.83% 26) 1,2-dichloroethane-d4 (S) 9.41 102 259394 29.95 ug/L -0.19 Spiked Amount30.000Range80 - 120Recovery=99.83%36) toluene-d8 (S)12.5598397205230.77ug/L-0.19Spiked Amount30.000Range80 - 120Recovery=102.57% 53) 4-bromofluorobenzene (BFB) 17.36 95 2453872 28.60 ug/L -0.19 Spiked Amount 30.000 Range 80 - 120 Recovery = 95.33%
 Target Compounds
 Qvalue

 3) chloromethane
 3.47
 50
 870465m
 12.46
 ug/L

 4) vinyl chloride
 3.61
 62
 746445m
 18.12
 ug/L

 5) bromomethane
 4.21
 96
 312995m
 9.74
 ug/L

 6) chloroethane
 4.28
 64
 1007084m
 20.04
 ug/L

 7) 112-Trichloro-122-Trifluor
 5.17
 101
 1098628
 16.97
 ug/L

 9) carbon disulfide
 6.23
 76
 2625778m
 20.04
 ug/L

 10) MTBE
 6.29
 73
 3857778
 21.99
 ug/L
 96

 11) 1, 4 Dioxane
 6.13
 88
 133489
 18.96
 ug/L
 100

 12) tert-butyl alcohol
 5.50
 59
 1142123m
 95.33
 ug/L
 14

 13) MEK
 7.72
 72
 140181m
 14.29
 ug/L
 14

 14) acetone
 5.45
 61
 1971459
 17.14
 ug/L #
 100

 15) trichlorofluoromethane Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration TDC62401.D T6072011.M Fri Feb 24 **205**:01:38 2012 GCMS2 Page 1

Quantitation Report (QT Reviewed)

```
Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TDC62401.D Vial: 1
Acq On : 30 Jul 2011 5:32 pm
Sample : 20 ppb cl 1624/5ml 7/30/11
Misc
                                                     Operator: A. Thomas
                                                     Inst : GC/MS Ins
Misc
                                                     Multiplr: 1.00
        :
MS Integration Params: events.e
Quant Time: Feb 24 11:58 19112
                                         Quant Results File: T6072011.RES
Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator)
Title : VOA
Last Update : Wed Jul 27 16:32:48 2011
Response via : Initial Calibration
```

DataAcq Meth : VOC2

	Compound	R.T.	QIon	Response	Conc Unit	Qv	alue
31)	1,2-dichloropropane	10.84	63	1453479	19.99 ug/L	#	86
32)	MIBK	11.72	100	149454	16.77 ug/L		52
33)	cis-1,2-dichloroethene	8.07	61	2370654	19.92 ug/L		96
34)	bromodichloromethane	11.24	83	1751288	19.89 ug/L	#	99
35)	cis-1,3-dichloropropene	12.11	75	1901199	18.44 ug/L	#	93
37)	toluene	12.68	91	4800407	19.18 ug/L	#	75
38)	trans-1,3-dichloropropene	12.95	75	1708350	17.09 ug/L		100
39)	2-hexanone	13.20	58	519036	17.80 ug/L	#	96
40)	1,1,2-trichloroethane	13.23	83	1039924	22.10 ug/L	#	45
41)	tetrachloroethene	13.82	166	1561251	23.62 ug/L	#	99
42)	dibromochloromethane	14.17	129	1072197	18.64 ug/L	#	61
43)	1,2-dibromoethane	14.53	107	1266922	22.43 ug/L	#	98
45)	chlorobenzene	15.26	112	3006571	21.51 ug/L	#	100
46)	ethyl benzene	15.33	91	5767513	21.44 ug/L	#	100
47)	m/p-xylene	15.46	91	4930128	21.04 ug/L	#	100
48)	o-xylene	16.25	91	4823743	21.88 ug/L	#	81
49)	styrene	16.32	104	2843106	21.34 ug/L		86
50)	isopropyl benzene	16.89	105	5324816	22.15 ug/L		99
51)	bromoform	16.97	173	527744	12.91 ug/L		98
52)	1,1,2,2-tetrachloroethane	17.20	83	1404019	17.26 ug/L	#	100
54)	1,3-dichlorobenzene	19.43	146	2187249	21.43 ug/L	#	100
55)	1,2-dichlorobenzene	20.32	146	2268983m	23.50 ug/L		
57)	1,4-dichlorobenzene	19.62	146	2396600m	24.46 ug/L		
58)	1,2-dibromo-3-chloropropan	21.79	75	181080	11.52 ug/L		82
59)	1,2,4-trichlorobenzene	23.47	180	1363082	22.98 ug/L		98
60)	Napthalene	23.97	128	2590154	20.57 ug/L		100
61)	1,2,3-trichlorobenzene	24.44	180	1250664	23.80 ug/L		98

Quantitation Report

			М,Т ,өлөхлөч М,Т ,өлө:	orolnoin-4,2,† Μ,Τ ,ənəlsrifd mədorolnoin-2,2,†	IBN		00 23.00 24.00 25.00 26.00 27.00 Page 3
<pre>CDC62401.D Vial: 1 Operator: A. Thomas Inst : GC/MS Ins Multiplr: 1.00 iant Results File: T6072011.RES (Chemstation Integrator)</pre>	TIC: TDC62401.D	ار بر این بر ا M.T. Jone Jr M.T. Jone S. (BFB), S M.T M.T M.T M.T M.T	M,T, anedro M,T, anedro M,T, anedro M,T, anedro M,T, anedro M,T, anedro M, 2, dichlorobenzena, M, 2, dichlorobenze	Mana - 1, - 1, - 1, - 1, - 1, - 1, - 1, - 1	отосћіоготе сторгорале, Т,	dibra idib-2,1 obomore obomore	3.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22
<pre>e : C:\HPCHEM\1\DATA2011\JUL11\LUL30\T : 30 Jul 2011 5:32 pm : 20 ppb cl 1624/5ml 7/30/11 : iration Params: events.e me: Feb 24 11:58 19112 : . C:\HPCHEM\1\METHODS\T6072011.M</pre>	ate : Woh via : Initial Calibration) , է M,T , M,T , M,T , M,T , M,T , M, ԳՐՅԻՅԻՅԻՅԻՅԻ M,T , ՅԻՅԻՅԻՅԻՅԻՅԻՅԻ M,T , enec	۲,M ۲,M ۲,M ۲,M ۲,M ۲,M ۲,M ۲,M	uoromethane, trichlaco totopictionoeth tringic tringi	branch and the state of the sta	00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 11.00 12.00 13 0 T6072011 M Fri Feb 24 12.01.40
Data Fi Acq On Sample Misc Quant T Method	Title Last Up Respons Abundance	450000 400000 350000	8000 207	250000 200000	150000	100000 50000	Time> 0

Quantitation Report (QT Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TDC62402.D Vial: 21

 Acq On
 : 31 Jul 2011 5:07 am
 Operator: A. Thomas

 Sample
 : 20ppb cal2 624/5ml 7/29/11
 Inst : GC/MS Ins

 Misc
 :
 Multiplr: 1.00

 MS Integration Params: events.e Quant Time: Feb 24 12:00 19112 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene9.9096301478615.00 ug/l-0.2144) chlorobenzene-d515.17117339991915.00 ug/L-0.2156) 1,4-dichlorobenzene-d419.54152218612115.00 ug/L-0.21 System Monitoring Compounds 21) dibromofluoromethane (S) 8.63 113 1187466 33.46 ug/L -0.20 Spiked Amount 30.000 Range 80 - 120 Recovery = 111.53% Spiked Amount30.000Range80 - 120Recovery= 111.53%26) 1,2-dichloroethane-d4 (S)9.4010223657430.39ug/L-0.20Spiked Amount30.000Range80 - 120Recovery= 101.30%36) toluene-d8 (S)12.5398352953530.43ug/L-0.21Spiked Amount30.000Range80 - 120Recovery= 101.43%53) 4-bromofluorobenzene(BFB)17.3495222856028.91ug/L-0.21Spiked Amount30.000Range80 - 120Recovery= 96.37%

 Target Compounds
 Qvalue

 3) chloromethane
 3.47
 50
 693253m
 11.04
 ug/L

 4) vinyl chloride
 3.60
 62
 650865m
 17.58
 ug/L

 5) bromomethane
 4.20
 96
 258591
 8.95
 ug/L
 99

 6) chloroethane
 4.26
 64
 743045m
 16.45
 ug/L
 91

 7) 112-Trichloro-122-Trifluor
 5.17
 101
 981172
 16.86
 ug/L
 97

 8) Methyl Acetate
 5.83
 74
 172876m
 15.25
 ug/L
 97

 10) MTBE
 6.24
 76
 1131032
 9.61
 ug/L
 #
 100

 11) 1, 4 Dioxane
 6.11
 88
 117803
 18.62
 ug/L
 #
 100

 12) tert-butyl alcohol
 5.48
 59
 736515m
 68.41
 ug/L
 97

 13) MEK
 7.69
 72
 102536m
 11.63
 ug/L
 97

 14) acetone
 5.45
 61
 1817486
 17.58
 ug/L
 97

 15) trichlorofluoromethane
 6.11
 84</td Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration TDC62402.D T6072011.M Fri Feb 24208:01:43 2012 GCMS2 Page 1

Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TDC62402.D Vial: 21 Acq On : 31 Jul 2011 5:07 am Operator: A. Thomas Sample : 20ppb cal2 624/5ml 7/29/11 Misc Inst : GC/MS Ins Misc Multiplr: 1.00 : MS Integration Params: events.e Quant Time: Feb 24 12:00 19112 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2

	Compound	R.T.	QIon	Response	Conc Un	it	Qv	alue
31)	1,2-dichloropropane	10.83	63	1300002	19.90	ug/L	 #	86
32)	MIBK	11.69	100	104042m	12.99	ug/L		
33)	cis-1,2-dichloroethene	8.06	61	2109307	19.72	ug/L	#	85
34)	bromodichloromethane	11.22	83	1507510	19.06	ug/L	#	100
35)	cis-1,3-dichloropropene	12.09	75	1564759	16.89	ug/L	#	93
37)	toluene	12.67	91	4261281	18.94	ug/L	#	75
38)	trans-1,3-dichloropropene	12.93	75	1370424m	15.25	ug/L		
39)	2-hexanone	13.17	58	462581m	17.65	ug/L		
40)	1,1,2-trichloroethane	13.21	83	887629	20.99	ug/L	#	45
41)	tetrachloroethene	13.80	166	1434015	24.14	ug/L	#	76
42)	dibromochloromethane	14.15	129	920630	17.81	ug/L	#	61
43)	1,2-dibromoethane	14.51	107	1038895	20.47	ug/L	#	99
45)	chlorobenzene	15.24	112	2661837	21.20	ug/L	#	85
46)	ethyl benzene	15.30	91	5199034	21.51	ug/L	#	100
47)	m/p-xylene	15.44	91	4397469	20.89	ug/L	#	100
48)	o-xylene	16.24	91	4374518	22.09	ug/L		98
49)	styrene	16.30	104	2560302	21.40	ug/L		88
50)	isopropyl benzene	16.87	105	4813492	22.29	ug/L		99
51)	bromoform	16.94	173	443119	12.07	ug/L		98
52)	1,1,2,2-tetrachloroethane	17.17	83	1127098m	15.42	ug/L		
54)	1,3-dichlorobenzene	19.41	146	1753376	19.13	ug/L	#	79
55)	1,2-dichlorobenzene	20.30	146	2017942m	23.27	ug/L		
57)	1,4-dichlorobenzene	19.60	146	2173471m	23.33	ug/L		
58)	1,2-dibromo-3-chloropropan	21.78	75	121079	8.10	ug/L		83
59)	1,2,4-trichlorobenzene	23.44	180	1242871	22.03	ug/L		96
60)	Napthalene	23.95	128	1878486	15.68	ug/L		100
61)	1,2,3-trichlorobenzene	24.42	180	1075710	21.52	ug/L		98

_____ _____ Quantitation Report

25.00 26.00 27.00 24.00 M,T, anexnedoroldoin-E,S, h M,T , analentqsN -M,T, 4-trichlorobenzene, T, A 23.00 22.00 M,T ,ensqorqorolda-&-omordib-&,h 21.00 File: T6072011.RES 8 M,T,eneznedoroldoib-S,h 20. Thomas 4-dichlorobenzene, T, 4-dichlorobenzene, T, 4-dichlorobenzene-GC/MS Ins 19.00 Integrator) 1.00 18.00 A. 21 17.00 4-bromofluorobenzene (BFB), S M,T, anstrationolocitistiat-2,2,1,1 • • Vial: M,T ,enszned ivorgoet Operator Ы GCMS 2 Multipl 16.00 M,T ,enelyx-o- M,T ,eneryte FIC: TDC62402.D (Chemstation Inst Results I 'SP-9 14.00 15.00 Ω. C:\HPCHEM\1\DATA2011\JUL11\LUL30\TDC62402 M,T, enscheomordib-S, f M,T, ensitiemorolihomordib 2012 M,T ,enetheroethere, T,M Quant 13.00 M,T,eneqroporopic,t,enet M,T,enshteoroloity:<u>%</u>,F,enonsxad.S C:\HPCHEM\1\METHODS\T6072011.M M,T,O,eneulo) 12:01:46 12.00 M,T, energonopropene, t-elo M,T,NBIM 11.00 M,T, ensitemorolication di 2011 t engranding to the standard of the the standard of the standa 624/5ml 7/29/11 10.00 24 i, eneznedoroufi 27 16:32:48 Calibration Feb am 9.00 M,T, ensite or outside the biby of arams: events.e 5:07 M,T ;enertsorotabara M,T,2,dichloroethara M,T,2,morotom, C,T,M M,T,9ns&;epank/mmedultomorotabara 노님 8.00 MEK' L'M 7.00 M,T, ansitreoroliholb-1,1 31 Jul 2011 Jul M,T,anetheroethene, Lanst 20ppb cal2 Initial M,T, ebiotitales biotic and with the second se Params 9.00 T6072011.M Methyl Acetate, t Wed t, ensitive stations is the set of the set o VOA 5.00 Feb W,T, ensitemorountoroldoit uo T (SREATS BY COMP.) d 4.00 via MS Integrati Time: Last Update MAT D 1 3.00 File Response TDC62402.D u0 Sample Method Quant Title Abundance Data 350000 150000 100000 50000 400000 300000 250000 200000 C Misc Acq me-> 210

Page 3

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TLC62401.D Vial: 2 Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:21 19111 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) -----1) fluorobenzene9.9396339968015.00 ug/l-0.1844) chlorobenzene-d515.19117380695315.00 ug/L-0.1856) 1,4-dichlorobenzene-d419.57152238221915.00 ug/L-0.19 System Monitoring Compounds 21) dibromofluoromethane (S) 8.65 113 1385427 34.62 ug/L -0.18 Spiked Amount 30.000 Range 80 - 120 Recovery = 115.40% 26) 1,2-dichloroethane-d4 (S) 9.42 102 273105 31.11 ug/L -0.18 Spiked Amount30.000Range80 - 120Recovery=103.70%36) toluene-d8 (S)12.5598400929130.65ug/L-0.18Spiked Amount30.000Range80 - 120Recovery=102.17% 53) 4-bromofluorobenzene (BFB) 17.37 95 2540577 29.43 ug/L -0.19 Spiked Amount 30.000 Range 80 - 120 Recovery = 98.10%

 Target Compounds
 Qvalue

 3) chloromethane
 3.49 50 398067
 5.62 ug/L # 85

 4) vinyl chloride
 3.62 62 361525
 8.66 ug/L # 90

 5) bromomethane
 4.21 96 325161
 9.98 ug/L 95

 6) chloroethane
 4.29 64 565830
 11.11 ug/L # 90

 7) 112-Trichloro-122-Trifluor
 5.16 101 1132170
 17.26 ug/l 99

 8) Methyl Acetate
 5.86 74 214362
 16.77 ug/l 98

 9) carbon disulfide
 6.24 76 1488602
 11.21 ug/L # 100

 10) MTBE
 6.29 73 399868
 22.49 ug/L 95

 11) 1,4 Dioxane
 6.13 88 135876
 19.05 ug/l # 100

 12) tert-butyl alcohol
 5.50 59 884750
 72.87 ug/l 91

 13) MEK
 7.75 72 153122
 15.40 ug/L 82

 14) acetone
 5.45 61 2019666
 17.33 ug/L # 85

 17) methylene chloride
 6.13 84 1544002
 19.77 ug/L # 100

 18) trans-1,2-dichloroethene
 7.16 63 2925881
 19.82 ug/L # 100

 19) 1,1-dichloroethane
 8.31 85 1910298
 22.19 ug/L # 26

 20) chloroform
 8.31 85 1910298
 22.19 ug/L # 100

 20) chloroform
 8.31 85 1910288
 2.19 ug/L # 26

 21) bromochloromethan Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration TLC62401.D T6072011.M Fri Feb 24 212:01:48 2012 GCMS2 Page 1

Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TLC62401.D Vial: 2 Operator: A. Thomas Acq On : 30 Jul 2011 6:05 pm Sample : 20 ppb lcs1 624/5ml 7/30/11 Inst : GC/MS Ins Misc Multiplr: 1.00 : MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:21 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2

	Compound	R.T.	QIon	Response	Conc Unit	Q	value
31)	1,2-dichloropropane	10.85	63	1474399	20.02 ug/I	 ; #	86
32)	MIBK	11.73	100	155480	17.22 ug/I		60
33)	cis-1,2-dichloroethene	8.07	61	2514919	20.85 ug/I		96
34)	bromodichloromethane	11.24	83	1795565	20.13 ug/I	_ #	100
35)	cis-1,3-dichloropropene	12.11	75	1982096	18.97 ug/I		99
37)	toluene	12.69	91	4882952	19.25 ug/I	4	75
38)	trans-1,3-dichloropropene	12.95	75	1789263	17.66 ug/I	_ #	93
39)	2-hexanone	13.20	58	500700	16.94 ug/I	_ #	99
40)	1,1,2-trichloroethane	13.23	83	1044772	21.91 ug/I	_ #	45
41)	tetrachloroethene	13.82	166	1522597	22.73 ug/I	. #	76
42)	dibromochloromethane	14.17	129	1088914	18.68 ug/I		99
43)	1,2-dibromoethane	14.53	107	1275739	22.29 ug/I	_ #	99
45)	chlorobenzene	15.26	112	2971048	21.14 ug/I	_ #	85
46)	ethyl benzene	15.33	91	5897854	21.80 ug/I	_ #	100
47)	m/p-xylene	15.47	91	5035274	21.37 ug/I	_ #	100
48)	o-xylene	16.26	91	4929263	22.23 ug/I	_ #	81
49)	styrene	16.32	104	2912964	21.74 ug/I		86
50)	isopropyl benzene	16.89	105	5406357	22.36 ug/I		97
51)	bromoform	16.97	173	557494	13.56 ug/I	_ #	78
52)	1,1,2,2-tetrachloroethane	17.20	83	1458921	17.83 ug/I	. #	100
54)	1,3-dichlorobenzene	19.43	146	2071932	20.19 ug/I	#	98
55)	1,2-dichlorobenzene	20.33	146	1912119	19.69 ug/I	#	59
58)	1,2-dibromo-3-chloropropan	21.80	75	207521	12.74 ug/1		73
59)	1,2,4-trichlorobenzene	23.47	180	1446109	23.53 ug/1		99
60)	Napthalene	23.98	128	2755587	21.11 ug/1		100
61)	1,2,3-trichlorobenzene	24.45	180	1313933	24.12 ug/I		98

Quantitation Report

25.00 26.00 27.00 M,T, enscredoroldoint-E,2,1 24.00 M,T ,enels/17qsN M,T,eneznedotoldoint-A,S,f 23.00 22.00 M,T,ensqorqoroldo-2.t 21.00 File: T6072011.RES 20.00 M,T ,eneznedoroldoib-S, h Thomas GC/MS Ins 1,9-energenergene, T,M,T,energenergene-d4, I 19.00 Integrator) 1.00 18.00 A . 17.00 8 (B18) ensinedonouñomond-h M.T., anstheorothoratetrachioroethane, T.M. M,T, enezned lyopropyl benzene, Vial Operator Multiplr GCMS2 16.00 M,T ,enelvm,q ,enervie TIC: TLC62401.D (Chemstation Results Inst 15.00 Ω. C:\HPCHEM\1\DATA2011\JUL11\LUL30\TLC62401 M,T, ensiteomordib-2, t 14.00 M,T, ensitiemorohoromordib 2012 M,T,enetheroethene, T,M Quant 13.00 М,Т,элөргоргореле,1,3-dichloropropene, Т, М,Т,эл**М,Т**өсмалаары М,пе, Т,М C:\HPCHEM\1\METHODS\T6072011.M M,T,D, aneulo) 12:01:51 12.00 M,T ,enegorgoroldolb-£,1-sio MIBK, T,M 11.00 M,T, ensitemorolicibomord 2011 624/5ml 7/30/11 10.00 24 fluorobenzane, I M,T ,อกธกระดูทุกผู้สุมรัฐ (, 2, ,2) มายังสัญสุญสุญสุญสานอรูกูอสามอรูกูอสามอรูกูอสามอรูกูอสามอรูกูอสามอรูกูอสามอ 27 16:32:48 Calibration 6:05 pm Feb 9.00 M,T ,ensiteorolitai;titiskeholov@ events.e 19111 ч. Ч 8.00 WEK' 1'W 7.00 M,T, ensitieorolitaib-t,t 10:21 2011 lcs1 Params: Jul M,T ,enertheoroldolb-S, f-ensit Initial 6.00 W-1 - BBHKAR BIASTER U T6072011.M Methyl Acetate, t Jul qdd Wed 118-Tricy នាconស្ព<mark>ា ។ អ្</mark>លាក់ទេលខ្មាំទោល - Tន្លរីស្លស្រួត**ទ័រត្តា**ទេ, t ទោកបរថា នាconស្ព<mark>ា ។ អ្</mark>រាក់ទោលខ្មាំវាតាចខ្ម -VOA 5.00 Aug M,T,ensittemoroultorolidoitt 30 MS Integration 20 M.T. SHELLEBBORHOJd 4.00 via Quant Time: •• Last Update MAT SHORE AND SH 2 3.00 File Response TLC62401.D on Sample Method Title Abyggggge Misc 450000 400000 Data 350000 300000 250000 200000 150000 100000 50000 0 Acq Time-> 214

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Page



1580 Reed Road Suite A1 Pennington, NJ 08534

Tel: (609) 737-3477 Fax: (609) 737-3052 www.njal.com

Laboratory Deliverables

Prepared For PARS Environmental Drum Bench Study

Lab ID Enhanced Reductive Dechlorination (ERD)

Samples Received

27-Jul-11

Reported

7/27/11 to 8/12/11

NJDEP Certified Lab 11005

Precision testing for a cleaner environment.

Study: ERD NZVI

Time point: T=7 days/ 168Hours

Data Summaries

	、			ET	EPA SA	MPLE NO.
l ah Name [,]	ΝΙΔΙ	INCAMEL ONGANICS AN	Contract: PAR		NZ 1	868-C1
Lab Cada				ю ег		
Lab Code:	DEPTI	Case No.: Drum	5A5 NO.:	SL	G NO.: _	
Matrix: (soil/w	/ater)	WATER	Lab San	nple ID:	NZ T168 (C-1
Sample wt/vo	ol:	0.5 (g/ml) ML	Lab File	ID:	S62401.D	
Loud: /lou/m	and)		Doto Po	ooivod:	00/05/11	
	ied)		Date Re	ceived.	J8/U5/11	
% Moisture: n	not dec.		Date An	alyzed:	08/05/11	
GC Column:	rt502.2	2-1 ID: 0.53 (mm)	Dilution	Factor:	10.0	
Soil Extract V	olume.	(ul.)	Soil Alia	uot Volun	ne.	 (ul
	olume.	(uc)	0017119			
		(
	、 、					0
CAS NO	<i>)</i> .	COMPOUND (ug/L or ug/Kg)	UG/L		Q
75-71-	8	Dichlorodifulorometh	ane		20	11
74-87-3	3	chloromethane			20	U
75-01-4	<u> </u>	vinvl chloride			20	Ŭ
74-83-9	9	bromomethane			20	<u> </u>
75-00-	3	chloroethane			20	<u> </u>
75-15-0	0	carbon disulfide			20	<u> </u>
75-65-0	0	tert-butyl alcohol			20	<u> </u>
1634-0	<u>0</u> M_A	MTRE			20	<u> </u>
78-03-1	3	MEK			50	<u> </u>
67-64-	<u>.</u>				50	<u> </u>
75-69-	<u></u>	trichlorofluorometha			20	<u> </u>
75-35-	<u>+</u>				20	<u> </u>
75-00-	+	methylene chloride			20	<u> </u>
156-60	<u> </u>	trans_1.2 dichloroeth			20	<u> </u>
75-34-	3				20	<u> </u>
67-66-	3	chloroform			20	11
108-10	<u> </u>	MIRK			20	
74-07-	5	bromochloromethan			20	U
74-57-	<u> </u>		<u> </u>		20	U
56-23-	5	carbon tetrachloride	· · · · · · · · · · · · · · · · · · ·		20	<u> </u>
107-06	<u> </u>	1.2-dichloroethane			20	
71-43-	2	benzene			20	
79-01-	6	trichloroethene			20	<u> </u>
78-87-	5	1.2-dichloropropage	h,		20	U U
156-59	<u> </u>	cis-1 2-dichloroether			20	
75-27-	<u> </u>	bromodichlorometha			20	
10061-	-01-5	cis-1 3-dichloroprope	ene		20	<u> </u>
108-88	1-3	toluene	5/10		20	<u> </u>
10061-	-02-6	trans-1 3-dichloropro	nene		20	<u> </u>
591-78	3-6	2-hexanone			50	Ŭ
79-00-	5	1.1.2-trichloroethane			20	Ŭ
127-18	3-4	tetrachloroethene	· · · · · · · · · · · · · · · · · · ·	+	440	D
124-48	3-1	dibromochlorometha	ne		20	U
108-90)-7	chlorobenzene			20	U U
108-38	3-3	m/p-xvlene	.		20	Ŭ
95-47-	6	o-xvlene			20	Ŭ
100-42	2-5	styrene		+	20	<u> </u>
98-82-	8	isopronyl henzene	W	<u> </u>	20	
75-25-	2	hromoform			20	
10-20-	۷				20	U

				1A			·	EPA SA	MPLE I	NO.
Lab Name:	V	OLATI		CS ANA	Contrac	t: PAF	RS	NZ 1	868-C1	
Lab Code:	DEP 110	05	Case No.:	Drum	SAS	No.:	S	DG No.:		
Matrix: (soil/v	vater)	WATE	R		I	_ab Sar	nple ID:	NZ T168	C-1	
Sample wt/vo	ol:	0.5	(g/ml)	ML	I	_ab File	ID:	S62401.0)	
Level: (low/n	ned)	LOW				Date Re	eceived:	08/05/11		
% Moisture: I	not dec.				ł	Date Ar	alyzed:	08/05/11		
GC Column:	rt502.2	-1 ID:	0.53 (m	im)	ł	Dilution	Factor:	10.0		
Soil Extract \	/olume:		(uL)		:	Soil Alio	juot Volu	ime:		(uL)
				С	ONCENTR	ATION	UNITS:			
CAS NO) .	СО	MPOUND	(u	Jg/L or ug/⊮	(g)	UG/L		Q	
79-34-	-5	1,	1,2,2-tetraci	nloroeth	ane			20	U	
541-73	3-1	1,	3-dichlorobe	enzene				20	U	
95-50-	-1	1,	2-dichlorobe	enzene				20	U	ĺ
106-46	5-7	1,	4-dichlorobe	enzene				20	U	
120-82	2-1	1,	2,4-trichloro	benzen	e			20	U	
87-61-	-6	1,	2,3-trichloro	benzen	e			10	JD	

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

NZ 1868-C1 Contract: PARS Lab Name: NJAL SAS No.: Lab Code: DEP 11005 Case No.: Drum SDG No.: Matrix: (soil/water) WATER Lab Sample ID: NZ T168 C-1 Sample wt/vol: 0.5 (g/ml) ML Lab File ID: S62401.D Level: (low/med) LOW Date Received: 08/05/11 % Moisture: not dec. Date Analyzed: 08/05/11 GC Column: rt502.2-1 ID: 0.53 (mm) Dilution Factor: 10.0 Soil Aliquot Volume: (uL) Soil Extract Volume: (uL) CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Number TICs found: 0 COMPOUND NAME RT EST. CONC. Q CAS NO.

EPA SAMPLE NO.

			1A				EPA SA	MPLE N	Ю.
Lab Nama		VOLATIL	E ORGANICS	ANALYSIS L			NZ T	168 C2	
Lab Name:	NJAL			Contr		10			
Lab Code:	DEP 11	005	Case No.: Dru	Im SA	S No.:	S	DG No.:		
Matrix: (soil/	water)	WATER	र		Lab Sar	nple ID:	NZ T168 (C-2	
Sample wt/ve	ol:	0.5	(a/mi) ML	_	Lab File	D:	S62402.D		*****
	mod)				Data Pa	coived:	08/05/11		
Level: (IOW/I	nea)	LOW			Date Re	ceiveu.	00/05/11	~.	
% Moisture:	not dec.				Date Ar	alyzed:	08/05/11		
GC Column:	rt502.2	2-1 ID:	0.53 (mm)		Dilution	Factor:	10.0		
Soil Extract V	Volume:		(uL)		Soil Alic	uot Volu	ime:		(uL)
			()						(/
				CONCEN	TRATION	UNITS:			
CAS NO	2	CO		$(u\alpha/l \circ r u\alpha)$	n/Ka)	UG/I		Q	
0/10/11		001		(09/2 0/ 0	9 · · · 9 /	00/2		~	
75-71	-8	Di	chlorodifulorom	nethane			20	U	
74-87	-3	ch	loromethane				20	U	
75-01	-4	vir	nyl chloride				20	U	
74-83	-9	br	omomethane				20	U	
75-00	-3	ch	loroethane				20	U	
75-15	-0	са	rbon disulfide				20	U	
75-65	-0	te	rt-butyl alcohol				20	U	
1634-	04-4	M	TBE				20	U	
78-93	-3	M	EK				50	U	
67-64	-1	ac	etone				50	U	
75-69	-4	trie	chlorofluorome	thane			20	U	
75-35	-4	1,	1-dichloroether	ne			20	U	
75-09	-2	m	ethylene chlorid	de			20	U	
156-6	0-5	tra	ans-1,2-dichloro	pethene			20	U	
75-34	-3	1,	1-dichloroethar	ne			20	U	
67-66	-3	ch	loroform				20	U	
108-1	0-1	M	IBK				20	U	
74-97	-5	br	omochlorometh	nane			20	U	
71-55	-6	1,	1,1-trichloroeth	ane			20	U	
56-23	-5	ca	rbon tetrachlor	ide			20	U	
107-0	6-2	1,:	2-dichloroethar	le			20	U	
71-43	-2	be	enzene				20	U	_
79-01	-6	tri	chloroethene				20	U	
78-87	-5	1,:	2-dichloropropa	ane	~~~~~~~~~		20	U	
156-5	9-4	Cis	s-1,2-dichloroet	thene			20	U	
75-27	-4	br	omodichlorome	ethane			20	U	_
10061	-01-5	Cis	s-1,3-dichloropi	ropene			20	<u> </u>	_
108-8	8-3	to	luene				20	<u> </u>	
10061	1-02-6		ans-1,3-dichlord	opropene			20	U	_
591-7	0-0		nexanone				50	U	_
79-00	-5	1,	1,2-trichloroeth	ane			20		
127-1	0-4	te		<u>+</u>			420	<u> </u>	1000 M 1000
124-4	0-1	di		einane			20	U	
108-9	0-1	cr					20	U 11	
108-3	0-3	m.	p-xylene		and a feed		20		
95-47	-0 2 5	0-	ropo				20		\neg
100-4	2-5	st			v		20		
98-82	-0	ISC	opropyi benzen	e			20		
75-25	-2	Dr	omororm				20	U	

			1A			EPA SA		NO.
Lab Name: N	JAL			Contract: PA		NZ 1	[168 C2	
Lab Code:	DEP 11005	Case No	.: Drum	SAS No.:	S	DG No.:		
Matrix: (soil/wa	iter) W	ATER		Lab Sa	ample ID:	NZ T168	C-2	
Sample wt/vol:	0.5	5 (g/r	ni) ML	Lab Fi	le ID:	S62402.D)	
Level: (low/me	ed) LC	W		Date F	Received:	08/05/11		
% Moisture: no	t dec.			Date A	nalyzed:	08/05/11		
GC Column:	rt502.2-1	ID: 0.53	(mm)	Dilutio	n Factor:	10.0		
Soil Extract Vo	lume:	(ul	_)	Soil Al	iquot Volu	me:		(uL)
			С	ONCENTRATIO	N UNITS:			
CAS NO.		COMPOUN) (u	ig/L or ug/Kg)	UG/L	211 IL 1 11	Q	
79-34-5		1,1,2,2-tetr	achloroeth	ane		20	U	
541-73-1	1	1,3-dichlor	obenzene			20	U	
95-50-1		1,2-dichlor	obenzene			20	U	
106-46-7	7	1,4-dichlor	obenzene			20	U	
120-82-1	1	1,2,4-trichl	orobenzen	e		20	U	
87-61-6		1,2,3-trichl	orobenzen	e		20	U	

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. ____

		TENT	ATIVELY IDENT	TIFIED COMPO	UNDS			
Lab Name:	NJAL			Contract:	PARS	NZ 1168	3 C2	
Lab Code:	DEP 11	005	Case No.: Drur	n SAS No	0.:	SDG No.:		
Matrix: (soil/	water)	WATE	R	La	ib Sample ID	: NZ T168 C-2		
Sample wt/v	ol:	0.5	(g/ml) ML	La	b File ID:	S62402.D		
Level: (low/	med)	LOW		Da	ate Received	: 08/05/11		
% Moisture:	not dec.			Da	ate Analyzed	: 08/05/11		
GC Column:	rt502.	2-1 ID:	0.53 (mm)	Di	lution Factor	: 10.0		
Soil Extract	Volume:		(uL)	Soil Aliquot Volume:				
Number TIC	s found:	0	1	CONCENTRA (ug/L or ug/Kg	TION UNITS) UG/L			
CAS NO.		СОМ	POUND NAME		RT E	EST. CONC.	Q	

				EET	EPA SA	MPLE NO.
		VOLATILE ORGANICS /			NZ 1	68 C3
Lab Name:	NJAL	4005 0 No. D		RS		
Lab Code:	DEP 1	1005 Case No.: Dru	m SAS No.:		DG No.: _	
Matrix: (soi	l/water)	WATER	Lab Sa	mple ID:	NZ T168 (C-3
Sample wt/	vol:	0.5 (g/ml) ML	Lab File	e ID:	S62403.D	
Level: (low	(med)	IOW	Date R	eceived [.]	08/05/11	
					00/05/44	
% Moisture	: not dec.		Date A	nalyzed:	08/05/11	
GC Colum	n: rt502	2.2-1 ID: 0.53 (mm)	Dilution	Factor:	10.0	
Soil Extrac	t Volume:	(uL)	Soil Ali	quot Volu	ime:	(นไ
				-		
			CONCENTRATION	I UNITS:		
CAS	NO.	COMPOUND	(ug/L or ug/Kg)	UG/L		Q
75-7	1-8	Dichlorodifulorom	ethane		20	U
74-8	7-3	chloromethane		<u> </u>	20	<u> </u>
75-0	1-4	vinyl chloride			20	<u> </u>
74-8	3-9	bromomethane			20	U
75-0	0-3	chloroethane		_	20	U
75-1	5-0	carbon disulfide			20	<u> </u>
75-6	<u>5-0</u>	tert-butyl alcohol			20	<u> </u>
1634	1-04-4	MTBE			20	<u> </u>
78-9	3-3	MEK			50	<u> </u>
67-6	4-1	acetone			50	<u> </u>
75-6	9-4	trichlorofluoromet	hane		20	<u> </u>
75-3	5-4	1,1-dichloroethen	e		20	U
/5-0	9-2	methylene chlorid	<u>e</u>		20	<u> </u>
156-	60-5	trans-1,2-dichloro	ethene		20	
75-3	4-3	1,1-dichloroethan	e		20	<u> </u>
67-6	6-3	chloroform			20	<u> </u>
108-	10-1	MIBR			20	
74-9	17-5	bromochlorometh	ane		20	
71-5	15-0		ane	_	20	<u> </u>
50-2	3-5	Carbon tetrachion	de		20	
71 4	200-2	1,2-dichloroethan	e		20	
71-4	1 6	trichleseethene			20	<u> </u>
79-0	7.5		<u>no</u>		20	
156	50_1	cis_1 2-dichloroet			20	
75-2	7_A	bromodichlorome	thane		20	
1006	<u></u> 61_01_5	cis-1 3-dichloropr			20	
108-	88-3	toluene			20	
100	31-02-6	trans-1 3-dichloro	nropene		20	
591-	-78-6	2-hexanone			50	
79-0	0-5	1.1.2-trichloroetha	ane		20	Ū
127-	-18-4	tetrachloroethene			430	D
124-	-48-1	dibromochlorome	thane		20	U
108-	-90-7	chlorobenzene			20	Ū
108-	.38-3	m/p-xvlene			20	U
95-4	7-6	o-xylene			20	U
100-	-42-5	styrene			20	U
98-8	2-8	isopropyl benzene	Э		20	U
75-2	5-2	bromoform			20	U

	,			1A				EPA SA	MPLE	NO.
Lab Name:	NJAL	VOLATI	LE ORGAN		Contract:	PAR	S	NZ	168 C3	
Lab Code:	DEP 11	005	Case No.:	Drum	SAS No	o.:	S	DG No.:		
Matrix: (soil/w	vater)	WATE	R		La	b Sam	ple ID:	NZ T168	C-3	
Sample wt/vo	ol:	0.5	(g/ml)	ML	La	b File	ID:	S62403.E)	
Level: (low/n	ned)	LOW			Da	ate Re	ceived:	08/05/11		
% Moisture:	not dec.				Da	ate Ana	alyzed:	08/05/11		
GC Column:	rt502.2	2-1 ID:	0.53 (n	nm)	Dil	ution I	actor:	10.0		
Soil Extract \	/olume:		(uL)		Sc	il Aliqu	uot Volu	me:		(uL)
					CONCENTRA		JNITS:			
CAS NO).	CO	MPOUND		(ug/L or ug/Kg)) [JG/L		Q	
79-34-	.5	1,	1,2,2-tetrac	hloroe	thane			20	U	
541-73	3-1	1,	3-dichlorob	enzen	e			20	U	
95-50-	.1	1,	2-dichlorob	enzen	e	_		20	U	
106-46	6-7	1,	4-dichlorob	enzen	e			20	U	
120-82	2-1	1,	2,4-trichlor	benze	ene			20	U	
87-61-	-6	1,	2,3-trichlor	benze	ene			20	U	

1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

10

NZ 168 C3 Contract: PARS Lab Name: NJAL SAS No.: DEP 11005 SDG No.: Lab Code: Case No.: Drum Lab Sample ID: NZ T168 C-3 Matrix: (soil/water) WATER Lab File ID: S62403.D Sample wt/vol: 0.5 (g/ml) ML LOW Date Received: 08/05/11 Level: (low/med) Date Analyzed: 08/05/11 % Moisture: not dec. ----GC Column: rt502.2-1 ID: 0.53 (mm) Dilution Factor: 10.0 Soil Aliquot Volume: Soil Extract Volume: (uL) (uL) CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Number TICs found: 0 RT CAS NO. COMPOUND NAME EST. CONC. Q

EPA SAMPLE NO.

	,			-	EPA SA	MPLE NO.
l ah Name [.]	N 141	VOLATILE ORGANICS ANAL	Contract: PARS	.1	NZ 1	68 .5-1
Lab Code:		005 Case No : Drum	SAS No :	<u>,</u> חפ		
Matrix: (soil/	water)	WATER	Lab Samp	ole ID: 1	NZ T168 (0.5-1
Sample wt/v	ol:	0.5 (g/ml) ML	Lab File II	D: §	S62404.D	
Level: (low/	med)	LOW	Date Rec	eived: (08/05/11	
% Moisture:	not dec		Date Ana	vzed (08/05/11	
				y200. 0	10.0	- · - · - · - · -
GC Column:	rt502.	2-1 ID: 0.53 (mm)	Dilution F		10.0	
Soil Extract	Volume:	(uL)	Soil Alique	ot Volum	ne:	(uL
		COI	NCENTRATION U	NITS:		
CAS NO	О.	COMPOUND (ug/	Lorug/Kg) U	G/L		Q
75-71	-8	Dichlorodifuloromethan	e		20	<u> </u>
74-87	-3	chloromethane			20	U
75-01	-4	vinyl chloride			20	U
74-83	-9	bromomethane			20	U
75-00	-3	chloroethane			20	U
75-15	-0	carbon disulfide		<u> </u>	20	U
75-65	i-0	tert-butyl alcohol			20	U
1634-	04-4	MTBE			20	U
78-93	-3	MEK			50	U
67-64	-1	acetone			50	U
75-69	-4	trichlorofluoromethane			20	U
75-35	-4	1,1-dichloroethene			20	U
75-09	-2	methylene chloride			20	U
156-6	0-5	trans-1,2-dichloroethen	e		20	U
75-34	-3	1,1-dichloroethane			20	U
67-66	-3	chloroform			20	U
108-1	0-1	MIBK			20	U
74-97	'- 5	bromochloromethane			20	U
71-55	-6	1,1,1-trichloroethane			20	U
56-23	-5	carbon tetrachloride			20	U
107-0	6-2	1,2-dichloroethane			20	U
71-43	-2	benzene			20	U
79-01	-6	trichloroethene			20	U
78-87	-5	1,2-dichloropropane			20	U
156-5	9-4	cis-1,2-dichloroethene			20	U
75-27	-4	bromodichloromethane			20	U
10061	1-01-5	cis-1,3-dichloropropene)		20	U
108-8	8-3	toluene			20	U
10061	1-02-6	trans-1,3-dichloroprope	ne		20	U
591-7	8-6	2-hexanone			50	U
79-00	-5	1,1,2-trichloroethane			20	U
127-1	8-4	tetrachloroethene			320	D
124-4	8-1	dibromochloromethane			20	U
108-9	0-7	chlorobenzene			20	U
108-3	8-3	m/p-xylene			20	U
95-47	-6	o-xylene			20	U
100-4	2-5	styrene			20	U
98-82	-8	isopropyl benzene			20	U
75-25	-2	bromoform			20	U

			1A			-	EPA SA		ΝΟ.
Lab Name:	NJAL	JLATILE OR	GANICS	ANALYSIS D Contra	act: PAF	RS	NZ 1	68 .5-1	
Lab Code:	DEP 1100	05 Case	No.: Dru	m SAS	S No.:	S	DG No.:		
Matrix: (soil/w	vater) V	VATER			Lab Sar	nple ID:	NZ T168	0.5-1	
Sample wt/vo	ol: C).5 (g/ml) ML		Lab File	ID:	S62404.E)	
Level: (low/n	ned) L	.OW			Date Re	eceived:	08/05/11		
% Moisture: r	not dec.				Date An	alyzed:	08/05/11		
GC Column:	rt502.2-	1 ID: 0.53	(mm)		Dilution	Factor:	10.0		
Soil Extract V	/olume:		(uL)		Soil Alio	juot Volu	me:		(uL)
				CONCENT	RATION	UNITS:			
CAS NC).	COMPOL	JND	(ug/L or ug	/Kg)	UG/L		Q	
79-34-	5	1,1,2,2-	tetrachloro	oethane			20	U	
541-73	3-1	1,3-dich	lorobenze	ene			20	U	
95-50-	1	1,2-dich	lorobenze	ene			20	U	
106-46	6-7	1,4-dich	lorobenze	ene			20	U	
120-82	2-1	1,2,4-tri	chloroben	zene			20	U	
87-61-	6	1,2,3-tri	chloroben	zene			20	U	

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

NZ 168 .5-1 Lab Name: NJAL Contract: PARS Lab Code: DEP 11005 Case No.: Drum SAS No.: SDG No.: Matrix: (soil/water) WATER Lab Sample ID: NZ T168 0.5-1 Sample wt/vol: Lab File ID: 0.5 (g/ml) ML S62404.D Level: (low/med) LOW Date Received: 08/05/11 % Moisture: not dec. Date Analyzed: 08/05/11 GC Column: rt502.2-1 ID: 0.53 (mm) Dilution Factor: 10.0 Soil Aliquot Volume: Soil Extract Volume: (uL) (uL) CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Number TICs found: 0 CAS NO. COMPOUND NAME RT EST. CONC. Q

EPA SAMPLE NO.

									217107		1 0.
		V	OLA1	TILE ORGANICS	S ANALY	SIS DAT	A SHE	=1	NZ T	168 .5-2	2
Lab Na	ame:	NJAL				Contract	PAR	S			
Lab Co	ode:	DEP 110	005	Case No.: Dr	um	SAS N	lo.:	S	DG No.:		
Matrix:	(soil/w	vater)	WAT	ER		La	ab Sam	ple ID:	NZ T168	0.5-2	
Sample	e wt/vc		0.5	(a/ml) M	11	1:	ab File	D	S62405 I	 כ	
			0.0	(9/111)					002400.		
Level:	(low/n	ned)	LOW			D	ate Red	ceived:	08/05/11		
% Mois	sture: r	not dec.				D	ate Ana	alyzed:	08/05/11		
GC Co	lumn:	rt502.2	2-1 IC): 0.53 (mm)	D	ilution F	actor:	10.0		
Soil Ex	dract V	olume:		(11)		S	oil Alia	iot Voli	ime:		(uL)
		olume.		(uL)		0	on / mqc				(42)
					CON	CENTRA		JNITS:			
C	AS NO)	C		(10/1		r)	IG/I		0	
U.	AO NO		U		(ug/L	. Or ug/iti	9/	JU/L		G	
	75-71-	8		Dichlorodifuloro	methane				20	U	
	74-87-	3		chloromethane					20	U	
	75-01-	4		vinyl chloride					20	U	
	74-83-	9		bromomethane					20	U	
	75-00-	3		chloroethane					20	U	
	75-15-	0		carbon disulfide					20	U	
	75-65-	0		tert-butyl alcoho	1				20	U	
	1634-0)4-4		MTBE					20	U	
	78-93-	3		MEK					50	U	
	67-64-	1		acetone					50	U	
	75-69-	4		trichlorofluorom	ethane				20	U	
	75-35-	4		1,1-dichloroethe	ne				20	U	
	75-09-	2		methylene chlor	ide				20	U	
1	156-60)-5		trans-1,2-dichlor	oethene	•			20	U	
	75-34-	3		1,1-dichloroetha	ine				20	U	
	67-66-	3		chloroform					20	U	
	108-10)-1		MIBK					20	U	
	74-97-	5		bromochlorome	thane				20	U	
	71-55-	6		1,1,1-trichloroet	hane				20	U	
	56-23-	5		carbon tetrachlo	ride				20	U	
	107-06	6-2		1,2-dichloroetha	ine				20	U	
	71-43-	2		benzene					20	U	
	79-01-	6		trichloroethene					20	U	
	78-87-	5		1,2-dichloroprop	ane				20	U	
	156-59	9-4		cis-1,2-dichloroe	ethene				20	U	
	75-27-	4		bromodichlorom	ethane				20	U	
	10061	-01-5		cis-1,3-dichlorop	propene				20	U	
	108-88	3-3		toluene					20	U	
	10061	-02-6		trans-1,3-dichlor	roproper	ie	_		20	U	
	591-78	3-6		2-hexanone				L	50	U	
	79-00-	5		1,1,2-trichloroet	hane				20	U	
	127-18	3-4		tetrachloroether	e				320	D	
	124-48	3-1		dibromochlorom	ethane				20	U	
	108-90)-7		chlorobenzene			in nichtich		20	U	
	108-38	3-3		m/p-xylene					20	U	
	95-47-	6		o-xylene					20	U	
	100-42	2-5		styrene					20	U	
	98-82-	8		isopropyl benze	ne				20	U	
	75-25-	2		bromoform					20	<u> </u>	

				1A			EPA SA	MPLE I	NO.
Lab Name:	NJAL		EORGANI		Contract: PAR	= I S	NZT	168 .5-:	2
Lab Code:	DEP 1100	5	Case No.:	Drum	SAS No.:	S	DG No.:		
Matrix: (soil/w	vater) V	VATEF	2		Lab Sam	ple ID:	NZ T168	0.5-2	
Sample wt/vo	l: 0	.5	(g/ml)	ML	Lab File	ID:	S62405.D)	
Level: (low/m	ned) L	WO			Date Red	eived:	08/05/11		
% Moisture: r	not dec.				Date Ana	alyzed:	08/05/11		
GC Column:	rt502.2-1	ID:	0.53 (m	nm)	Dilution F	actor:	10.0		
Soil Extract V	olume:		(uL)		Soil Aliqu	iot Volu	me:		(uL)
				(CONCENTRATION U	JNITS:			
CAS NO).	CON	IPOUND	((ug/L or ug/Kg) l	JG/L		Q	
79-34-	5	1,1	,2,2-tetrac	hloroet	hane		20	U	
541-73	-1	1,3	B-dichlorobe	enzene	;		20	U	
95-50-	1	1,2	2-dichlorob	enzene	;		20	U	
106-46	-7	1,4	-dichlorob	enzene	;		20	U	
120-82	2-1	1,2	2,4-trichloro	benze	ne		20	U	
87-61-	6	1,2	2,3-trichlorc	benze	ne		20	U	

		VOLATII		CS ANA	LYSIS DAT	A SHEET	I	EPA SAMPLE NO.
		TENT	ATIVELY ID	ENTIFIE	ED COMPO	UNDS	Γ	N7 T469 5 3
Lab Name:	NJAL				Contract:	PARS		NZ 1100.9-2
Lab Code:	DEP 11	1005	Case No.:	Drum	SAS N	o.: S	SDG	6 No.:
Matrix: (soil/w	ater)	WATE	R		La	b Sample ID:	N	Z T168 0.5-2
Sample wt/vo	1:	0.5	(g/ml)	ML	La	b File ID:	Se	62405.D
Level: (low/m	ned)	LOW			Da	ate Received:	08	3/05/11
% Moisture: r	not dec.				Da	ate Analyzed:	08	3/05/11

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% Moisture: not dec. GC Column: rt502.2-1 ID: 0.53 (mm) Soil Extract Volume: (uL)

0

Number TICs found:

CONCENTRATION UNITS:

Dilution Factor: 10.0

Soil Aliquot Volume:

UG/L

(ug/L or	ug/Kg)
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CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

(uL)

	,			1A				EPA S		NO.
1 - b b l - c -	V	OLA	ILE ORGANI	CS ANALY	rsis da i		- 1	NZ	. 168 .5-3	
Lab Name:	NJAL				Contract		5		_	
Lab Code:	DEP 110	005	Case No.:	Drum	SAS	No.:	S	DG No.:		
Matrix: (soil/	water)	WAT	ER		L	.ab Sam	ple ID:	NZ T16	8 0.5-3	
Sample wt/v	ol:	0.5	(a/ml)	ML	L	.ab File I	D:	S62406	.D	
	med)					Date Rec	oivod.	08/05/1	1	
	neu)	LUW			L		eiveu.	00/05/1		
% Moisture:	not dec.				0	Date Ana	lyzed:	08/05/1	1	
GC Column:	rt502.2	2-1 IC): 0.53 (m	m)	0	Dilution F	actor:	10.0		
Soil Extract	Volume:		(uL)		S	Soil Aliqu	iot Volu	ime:		(uL)
			(,							()
				CON		ΑΤΙΟΝ Ι	INITS:			
CAS NO	C	C		(uc/		a) I	IG/I		\circ	
	J.	U	OWFOOND	(ug/i		g) <u>c</u>			Q	
75-71	-8		Dichlorodifulo	romethane	_			20	U	
74-87	-3		chloromethan	e				20	U	_
75-01	-4		vinyl chloride					20	U	
74-83	-9		bromomethar	ne				20	U	
75-00	-3		chloroethane				_	20	U	
75-15	-0		carbon disulfi	de				20	U	
75-65	-0		tert-butyl alco	hol			<u> </u>	20	U	
1634-	04-4		MTBE					20	U	
78-93	-3		MEK					50	U	
67-64	-1		acetone					50	U	_
75-69	-4		trichlorofluoro	methane				20	U	
75-35	-4		1,1-dichloroet	thene				20	<u> </u>	
75-09	-2		methylene ch	loride				20	<u> </u>	
156-6	0-5		trans-1,2-dicr	loroethene	9	_				
75-34	-3		1,1-dichloroe	inane	_			20		_
07-00	-3							290		_
74.07	5		bromochloror	nothana				20		
74-97	-5		1 1 1 trichlore	ethane				20		_
56-23	-5		carbon tetrac	hloride				20		
107-0	6-2		1 2-dichloroet	thane				20		
71-43	-2		benzene		· · · · · · · · · · · · · · · · · · ·			20	<u> </u>	
79-01	-6		trichloroether	e				20	U	
78-87	-5		1,2-dichlorop	ropane				20	U	
156-5	9-4		cis-1,2-dichlo	roethene				20	U	
75-27	-4		bromodichlor	omethane				62	D	
10061	-01-5		cis-1,3-dichlo	ropropene				20	U	
108-8	8-3		toluene					20	<u> </u>	
10061	-02-6		trans-1,3-dich	loroproper	ne			20	U	
591-7	8-6		2-hexanone					50	U	
79-00	-5		1,1,2-trichloro	ethane				20	U	
127-1	8-4		tetrachloroeth	iene				310	D	
124-4	<u>8-1</u>		albromochlor	omethane				20	<u> </u>	-
108-9	0-1			e				20	U	
108-3	6							20		
100_4	2-5		styrene					20		
08_82	-8		isonronyl hen	zene				20		
75-25	-2		bromoform	20110				20		
10 20		1	2. 011010111							

						EPA SA	EPA SAMPLE N	
Lab Name:	NJAL	LATILE ORGANI	Contract: PARS				168 .5-3	
Lab Code:	DEP 1100	5 Case No.:	Drum	SAS No.:	S	DG No.:	·	
Matrix: (soil/	water) W	ATER		Lab Sam	ple ID:	NZ T168	0.5-3	
Sample wt/vo	ol: 0.	5 (g/ml)	ML	Lab File	ID:	S62406.[C	
Level: (low/r	ned) L(WC		Date Re	ceived:	08/05/11		
% Moisture:	not dec.			Date Ana	alyzed:	08/05/11	·	
GC Column:	rt502.2-1	ID: 0.53 (n	וm)	Dilution	Factor:	10.0		
Soil Extract	Volume:	(uL)		Soil Aliq	uot Volu	me:		(uL)
			С	ONCENTRATION	UNITS:			
CAS NO	Э.	COMPOUND	(u	g/L or ug/Kg)	UG/L		Q	
79-34	-5	1,1,2,2-tetrac	hloroetha	ane		20	U	
541-7	3-1	1,3-dichlorob	enzene			20	U	
95-50	-1	1,2-dichlorob	enzene			20	U	
106-4	6-7	1,4-dichlorob	enzene			20	U	
120-8	2-1	1,2,4-trichloro	benzene	Э		20	U	
87-61	-6	1,2,3-trichloro	benzene	э		20	U	

1E VOLATILE ORGANICS ANALYSIS DATA SHEET EPA SAMPLE NO.

		IENI	ATIVELY IDENTIF	-IED COMF	POUNDS			
Lab Name:	NJAL			S	NZ 168 .5-3			
Lab Code:	DEP 110	005	Case No.: Drum	SAS	No.:	S	DG No.:	** *****
Matrix: (soil/v	vater)	WATE	R		Lab Sam	nple ID:	NZ T168 0.5	-3
Sample wt/vo	ol:	0.5	(g/ml) ML		Lab File	ID:	S62406.D	
Level: (low/n	ned)	LOW			Date Re	ceived:	08/05/11	
% Moisture: r				Date Analyzed: 08/05/11				
GC Column:	rt502.2	2-1 ID:	0.53 (mm)		Dilution	Factor:	10.0	
Soil Extract V	/olume:		(uL)		Soil Aliq	uot Volu	me:	(uL)
			(CONCENT				
Number TICs	s found:	0	(ug/L or ug/	Kg)	UG/L		
CAS NO.		COMF	POUND NAME		RT	ES	ST. CONC.	Q

VOLATILE ORGANICS ANALTSIS DATA SHEET NZ T168 1 Lab Name: NJAL Lab Code: DEP 11005 Case No.: Drum SAS No.: SDG No.: Matrix: (soil/water) WATER Lab Sample ID: NZ T168 1.0-1 Sample wt/vol: 0.5 (g/ml) ML Lab File ID: S62407.D Level: (low/med) LOW Date Received: 08/05/11 % Moisture: not dec. Date Analyzed: 08/05/11 GC Column: rt502.2-1 ID: 0.53 (mm) Dilution Factor: 10.0 Soil Extract Volume: (uL) Soil Aliquot Volume: CONCENTRATION UNITS: CAS NO. COMPOUND (ug/L or ug/Kg) UG/L Columo 75-71-8 Dichlorodifuloromethane 20 U 74-87-3 chloromethane 20 U 75-01-4 viny chloride 20 U 75-60- carbon disulfide 20 U 75-60-0 carbon disulfide 20 U 75-35-4 1,1-dichloroethene	EPA SAMPLE NO.			
Lab Name: NJAL Contract: PARS Lab Code: DEP 11005 Case No.: Drum SAS No.: SDG No.: Matrix: (soil/water) WATER Lab Sample ID: NZ T168 1.0-1 Sample wt/vol: 0.5 (g/ml) ML Lab File ID: S62407.D Level: (low/med) LOW Date Received: 08/05/11 % Moisture: not dec. Date Analyzed: 08/05/11 GC Column: rt502.2-1 ID: 0.53 (mm) Dilution Factor: 10.0 Soil Extract Volume: (uL) Soil Aliquot Volume: CONCENTRATION UNITS: CAS NO. COMPOUND (ug/L or ug/Kg) UG/L Cu 75-71-8 Dichlorodifuloromethane 20 U 74-87-3 chloromethane 20 U 75-01-4 vinyl chloride 20 U 75-00-3 chloroethane 20 U 75-05-0 cerbon disulfide 20 U 75-65-0 U U 75-65-0 tert-butyl alcohol 20	NZ T168 1.0-1			
Lab Code: DEP 11005 Case No.: Drum SAS No.: SDG No.: Matrix: (soil/water) WATER Lab Sample ID: NZ T168 1.0-1 Sample wt/vol: 0.5 (g/ml) ML Lab File ID: S62407.D Level: (low/med) LOW Date Received: 08/05/11 % Moisture: not dec. Date Analyzed: 08/05/11 GC Column: rt502.2-1 ID: 0.53 (mm) Dilution Factor: 10.0 Soil Extract Volume: (uL) Soil Aliquot Volume: CONCENTRATION UNITS: CAS NO. COMPOUND (ug/L or ug/Kg) UG/L CO 75-71-8 Dichlorodifuloromethane 20 U 74-87-3 chloromethane 20 U 75-01-4 vinyl chloride 20 U 75-00- Q U 75-05-0 carbon disulfide 20 U Q U 75-65-0 tert-butyl alcohol 20 U Q U 75-60-3 delthoroffuroromethane 20 U				
Matrix: (soil/water) WATER Lab Sample ID: NZ T168 1.0-1 Sample wt/vol: 0.5 (g/ml) ML Lab File ID: S62407.D Level: (low/med) LOW Date Received: 08/05/11 % Moisture: not dec. Date Analyzed: 08/05/11 GC Column: rt502.2-1 ID: 0.53 (mm) Dilution Factor: 10.0 Soil Extract Volume: (uL) Soil Aliquot Volume: CONCENTRATION UNITS: CONCENTRATION UNITS: CAS NO. COMPOUND (ug/L or ug/Kg) UG/L Concentration 75-71-8 Dichlorodifuloromethane 20 U 74-87-3 75-01-4 vinyl chloride 20 U 75-10 75-03 chloromethane 20 U 75-10 75-10 carbon disulfide 20 U 10 75-65-0 tert-butyl alcohol 20 U 1634-04-4 MTBE 20 U 1634-04-4 MTBE 20 U 75-69-4				
Sample wt/vol: 0.5 (g/ml) ML Lab File ID: S62407.D Level: (low/med) LOW Date Received: 08/05/11 % Moisture: not dec. Date Analyzed: 08/05/11 OB/05/11 GC Column: rt502.2-1 ID: 0.53 (mm) Dilution Factor: 10.0 Soil Extract Volume: (uL) Soil Aliquot Volume: CONCENTRATION UNITS: CAS NO. COMPOUND (ug/L or ug/Kg) UG/L Concentration 75-71-8 Dichlorodifuloromethane 20 U 74-87-3 chloromethane 20 U 75-01-4 vinyl chloride 20 U 75-00-3 chloroethane 20 U 75-15-0 carbon disulfide 20 U 75-65-0 tert-butyl alcohol 20 U 75-69-4 trichloroethene 20 U 75-35-4 1,1-dichloroethene 20 U 75-69-2 methylene chloride 20 U 75-35-4 1,1-dichloroethene 20 U 75-35-4 <td></td>				
Level: (low/med) LOW Date Received: 08/05/11 % Moisture: not dec. Date Analyzed: 08/05/11 GC Column: rt502.2-1 ID: 0.53 (mm) Dilution Factor: 10.0 Soil Extract Volume: (uL) Soil Aliquot Volume: CONCENTRATION UNITS: CAS NO. COMPOUND (ug/L or ug/Kg) UG/L Concentration Concentration				
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% Moisture: not dec. Date Analyzed: 08/05/11 GC Column: rt502.2-1 ID: 0.53 (mm) Dilution Factor: 10.0 Soil Extract Volume: (uL) Soil Aliquot Volume: CONCENTRATION UNITS: CAS NO. COMPOUND (ug/L or ug/Kg) UG/L CO 75-71-8 Dichlorodifuloromethane 20 U 74-87-3 chloromethane 20 U 75-01-4 vinyl chloride 20 U 75-00-3 chloromethane 20 U 75-65-0 tert-butyl alcohol 20 U 78-93-3 MEK 50 U 67-64-1 acetone 50 U 75-09-2 methylene chloride 20 U 75-35-4 1,1-dichloroethane 20 U 75-34-3 1,1-dichloroethane 20 U 75-34-3 1,1-dichloroethane 20 U 75-34-3 1,1-dichloroethane 20 U 74-97-5				
GC Column: rt502.2-1 ID: 0.53 (mm) Dilution Factor: 10.0 Soil Extract Volume:				
Soil Extract Volume: (uL) Soil Aliquot Volume: CONCENTRATION UNITS: CAS NO. COMPOUND (ug/L or ug/Kg) UG/L Concentration 75-71-8 Dichlorodifuloromethane 20 U 74-87-3 chloromethane 20 U 74-87-3 chloromethane 20 U 74-87-3 chloromethane 20 U 74-87-3 chlorodifuloromethane 20 U 74-87-3 chlorodethane 20 U 74-87-3 chlorodethane 20 U 74-87-3 chloroethane 20 U 74-87-3 chloroethane 20 U 75-00-3 chloroethane 20 U 75-65-0 tert-butyl alcohol 20 U 1634-04-4 MTBE 20 U 78-93-3 MEK 50 U 78-93-3 MEK 20 U 75-69-4 trichloroethane 20 U <td></td>				
CONCENTRATION UNITS: CAS NO. COMPOUND (ug/L or ug/Kg) UG/L CO 75-71-8 Dichlorodifuloromethane 20 U C 74-87-3 chloromethane 20 U C 75-71-8 Dichlorodifuloromethane 20 U C 74-87-3 chloromethane 20 U C 74-87-3 chloromethane 20 U C 74-83-9 bromomethane 20 U C C 75-00-3 chloroethane 20 U C C C 75-65-0 tert-butyl alcohol 20 U C C C 1634-04-4 MTBE 20 U C C C C 78-93-3 MEK 50 U C C C C 75-69-4 trichlorofluoromethane 20 U C C C C 75-09-2 methylene chloride 20 </td <td>(ul</td>	(ul			
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CAS NO. COMPOUND (ug/L or ug/Kg) UG/L Composition 75-71-8 Dichlorodifuloromethane 20 U 74-87-3 chloromethane 20 U 75-01-4 vinyl chloride 20 U 74-83-9 bromomethane 20 U 74-83-9 bromomethane 20 U 75-00-3 chloroethane 20 U 75-50-0 carbon disulfide 20 U 75-65-0 tert-butyl alcohol 20 U 78-93-3 MEK 50 U 75-65-4 trichlorofluoromethane 20 U 75-69-4 trichlorofluoromethane 20 U 75-35-4 1,1-dichloroethene 20 U 75-35-4 1,1-dichloroethene 20 U 75-34-3 1,1-dichloroethane 20 U 75-60-5 trans-1,2-dichloroethane 20 U 74-97-5 bromochloromethane 20 U				
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74-87-3 chloromethane 20 1 75-01-4 vinyl chloride 20 1 74-83-9 bromomethane 20 1 75-00-3 chloroethane 20 1 75-00-3 chloroethane 20 1 75-00-3 chloroethane 20 1 75-00 carbon disulfide 20 1 75-65-0 tert-butyl alcohol 20 1 1634-04-4 MTBE 20 1 76-65-0 tert-butyl alcohol 20 1 76-64-1 acetone 50 1 75-69-4 trichlorofluoromethane 20 1 75-69-4 trichlorofluoromethane 20 1 75-69-2 methylene chloride 20 1 75-60-5 trans-1,2-dichloroethene 20 1 75-60-5 trans-1,2-dichloroethene 20 1 74-87-5 bromochloromethane 20 1 74-97-5 bromochloromethane 20 1 74-97-5 bromochloroethane 2				
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156-59-4cis-1,2-dichloroethene20U75-27-4bromodichloromethane20U				
75-27-4 bromodichloromethane 20 U				
10061-01-5 cis-1,3-dichloropropene 20				
108-88-3 toluene 20 L				
10061-02-6 trans-1,3-dichloropropene 20 U				
<u>591-78-6</u> <u>2-hexanone</u> <u>50</u> L				
79-00-5 1,1,2-trichloroethane 20 U				
127-18-4 tetrachloroethene 180 E				
124-48-1 dibromochloromethane 20 L				
108-90-7 chlorobenzene 20 l				
108-38-3 m/p-xylene 20 U				
95-47-6 o-xylene 20 L				
100-42-5 styrene 20 L				
98-82-8 isopropyl benzene 20 L				
75-25-2 bromoform 20 L				

1A VOLATILE OPCANICS ANALYSIS DATA SHEET						-	EPA SAMPLE NO.			
Lab Name:	NJAL	/OLATI	Contract: PARS				S	NZ T168 1.0-1		
Lab Code:	DEP 11	005	Case No.:	Drum	SAS No	o.:	S	DG No.:		
Matrix: (soil/w	vater)	WATE	R		La	ib Samp	ole ID:	NZ T168	1.0-1	
Sample wt/vo	1:	0.5	(g/ml)	ML	La	b File II	D:	S62407.D)	
Level: (low/m	ned)	LOW			Da	ate Rec	eived:	08/05/11		
% Moisture: r	not dec.				Da	ate Ana	lyzed:	08/05/11		
GC Column:	rt502.2	2-1 ID:	0.53 (n	nm)	Di	lution F	actor:	10.0		
Soil Extract V	olume:		(uL)		Sc	oil Aliqu	ot Volu	me:		(uL)
				СС	ONCENTRA	TION U	NITS:			
CAS NO).	CC	MPOUND	(u	g/L or ug/Kg) <u>U</u>	G/L		Q	
79-34-	5	1	1,2,2-tetrac	hloroetha	ane			20	Ū	
541-73	-1	1	3-dichlorob	enzene				20	U	
95-50-	1	1	2-dichlorob	enzene				20	U	
106-46	-7	1	4-dichlorob	enzene				20	U	
120-82	1	1	2,4-trichloro	benzene	е			20	U	
87-61-	6	1	2,3-trichloro	benzene	e			20	U	

VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

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			ATTVELTIDENT						
Lab Name: NJAL				Contract: PARS					
Lab Code:	DEP 11	005	Case No.: Drum	Case No.: Drum SAS No.:			SDG No.:		
Matrix: (soil/v	vater)	WATE	R		Lab Samp	le ID:	NZ T168 1.0-	1	
Sample wt/vo	ol:	0.5	(g/ml) ML		Lab File ID	D:	S62407.D	an an 100 an 1	
Level: (low/r	ned)	LOW			Date Rece	eived:	08/05/11		
% Moisture: i	not dec.				Date Analy	yzed:	08/05/11		
GC Column:	rt502.2	2-1 ID:	0.53 (mm)		Dilution Fa	actor:	10.0		
Soil Extract \	/olume:		(uL)		Soil Aliquo	ot Volu	ime:	(uL)	
Number TICs		CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L							
CAS NO.		СОМ	POUND NAME		RT	E	ST. CONC.	Q	
			EPA SA	MPLE NO.					
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	VOLATILE ORGANICS ANALY	SIS DATA SHEET	NZ T1	68- 1.0-2					
Lab Name: NJAL	······································	Contract: PARS							
Lab Code: DEP 1	1005 Case No.: Drum	SAS No.: S	DG No.:						
Matrix: (soil/water)	WATER	Lab Sample ID:	NZ T168 1	1.0-2					
Sample wt/vol:	0.5 (g/ml) MI	Lab File ID:	S62408 D						
		Data Bassi a l	00/05/44						
Level: (low/med)	LOW	Date Received:	08/05/11						
% Moisture: not dec.		Date Analyzed:	08/05/11						
GC Column: rt502	2.2-1 ID: 0.53 (mm)	Dilution Factor:	10.0						
Soil Extract Volume	(uL)	Soil Aliquot Volu	ime:	(uL)					
		een ruiquet vere		()					
	CON	ICENTRATION UNITS:							
CAS NO	COMPOUND (ug/L	or ug/Kg) UG/L		0					
				~					
75-71-8	Dichlorodifuloromethane		20	U					
74-87-3	chloromethane		20	U					
75-01-4	vinyl chloride		20	U					
74-83-9	bromomethane		20	U					
75-00-3	chloroethane		20	U					
75-15-0	carbon disulfide		20	U					
75-65-0	tert-butyl alcohol		20	<u>U</u>					
1634-04-4	MTBE		20	<u> </u>					
78-93-3	MEK		50	<u> </u>					
67-64-1	acetone		50	<u>U</u>					
75-69-4	trichlorofluoromethane		20	0					
75-35-4			20						
156 60 5	trans 1.2 disbloresthons		23						
75 34 3		;	20	<u> </u>					
67-66-3	chloroform		20	<u> </u>					
108-10-1	MIBK		20						
74-97-5	bromochloromethane		20	U					
71-55-6	1.1.1-trichloroethane		20	Ŭ					
56-23-5	carbon tetrachloride		20	U					
107-06-2	1,2-dichloroethane		20	U					
71-43-2	benzene		20	U					
79-01-6	trichloroethene		20	U					
78-87-5	1,2-dichloropropane		20	U					
156-59-4	cis-1,2-dichloroethene		20	U					
75-27-4	bromodichloromethane		20	U					
10061-01-5	cis-1,3-dichloropropene		20	U					
108-88-3	toluene		20	U					
10061-02-6	trans-1,3-dichloroproper	le	20	U					
591-78-6	2-nexanone		50	<u> </u>					
/9-00-5			20						
121-10-4	dibromochloromothese	·	210						
108.00.7	chlorobenzeno		20						
108-38-3	m/n-yylene		20	<u> </u>					
95-47-6	o-xylene		20	Ŭ					
100-42-5	styrene		20	ŭ					
98-82-8	isopropyl benzene	<u> </u>	20	U					
75-25-2	bromoform		20	U					

				1A			• FT -	EPA SA	MPLE	NO.
Lab Name:	NJAL		E ORGA	NICS A	Contra	ata She	RS	NZ T1	68- 1.0	-2
Lab Code:	DEP 110	05	Case No.	: Drun	n SAS	S No.:	S	DG No.:		
Matrix: (soil/w	ater)	WATE	۲			Lab Sar	nple ID:	NZ T168	1.0-2	-
Sample wt/vol	l:	0.5	(g/m	i) ML		Lab File	ID:	S62408.E)	
Level: (low/m	ed)	LOW				Date Re	eceived:	08/05/11	19407 ¥ 140	
% Moisture: n	ot dec.					Date An	alyzed:	08/05/11		
GC Column:	rt502.2	-1 ID:	0.53	(mm)		Dilution	Factor:	10.0		
Soil Extract V	olume:		(uL)		Soil Aliq	uot Volu	ime:		(uL)
					CONCENT	RATION	UNITS:			
CAS NO		CO	MPOUND)	(ug/L or ug/	/Kg)	UG/L	an an an an an an an an an an an an an a	Q	
79-34-5	5	1,	1,2,2-tetra	achloro	ethane			20	U	
541-73	-1	1,:	3-dichloro	benzer	ne			20	U	
95-50-1	1	1,2	2-dichloro	benzer	ne			20	U	
106-46	-7	1,4	4-dichloro	benzer	ne			20	U	
120-82	-1	1,:	2,4-trichlo	robenz	ene			20	IJ	
87-61-6	6	1,:	2,3-trichlo	robenz	ene			20	U	

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. _____

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	TENTATIVELTIDENT	
Contract: PARS		Lab Name: NJAL
SAS No.: SDG No.:	005 Case No.: Drun	Lab Code: DEP 11
Lab Sample ID: NZ T168 1.0-2	WATER	Matrix: (soil/water)
Lab File ID: S62408.D	0.5 (g/ml) ML	Sample wt/vol:
Date Received: 08/05/11	LOW	Level: (low/med)
Date Analyzed: 08/05/11		% Moisture: not dec.
Dilution Factor: 10.0	2-1 ID: 0.53 (mm)	GC Column: rt502.
Soil Aliquot Volume: (uL)	(uL)	Soil Extract Volume:
CONCENTRATION UNITS: ug/L or ug/Kg) UG/L	0	Number TICs found:
RT EST. CONC. Q	COMPOUND NAME	CAS NO.
Dilution Factor: 10.0 Soil Aliquot Volume: CONCENTRATION UNITS: ug/L or ug/Kg) UG/L RT EST. CONC.	2-1 ID: 0.53 (mm) (uL) 0	GC Column: rt502. Soil Extract Volume: Number TICs found: CAS NO.

				OUEET	EPA SA	MPLE NO.
Lob Nomo:	NUAL	VOLATILE ORGANICS	SANALYSIS DATA	SHEET	NZ T1	68-1.0-3
Lab Name:					_ L	
Lab Code.	DEP II	Case No Dr)	DG NO	
Matrix: (soil/	water)	WATER	La	b Sample ID:	NZ T168 1	1.0-3
Sample wt/ve	ol:	0.5 (g/ml) N	IL La	b File ID:	S62409.D	
Level: (low/r	med)	LOW	Da	te Received:	08/05/11	
% Moisture	not dec		De	te Analyzed:	08/05/11	
		A ()B () = A ()			00/00/11	· · p.= - a
GC Column:	rt502.	.2-1 ID: 0.53 (mm) Dil	ution Factor:	10.0	and a second second second second
Soil Extract	Volume:	(uL)	So	il Aliquot Volu	ime:	(uL)
			CONCENTRA	TION UNITS:		
CAS NO	Э.	COMPOUND	(ug/L or ug/Kg)) UG/L		Q
75-71	-8	Dichlorodifuloro	nethane		20	<u> </u>
74-87	-3	chloromethane			20	<u> </u>
75-01-	-4	vinyl chloride			20	<u> </u>
74-83	-9	bromomethane			20	0
75-00	-3	chloroethane			20	U
75-15	-0	carbon disulfide			20	U
75-65	-0	tert-butyl alcoho	l		20	U
1634-	0 <u>4-4</u>	MTBE			20	U
78-93	-3	MEK			50	U
67-64	-1	acetone			50	U
75-69	-4	trichlorofluorome	ethane		20	U
75-35	-4	1,1-dichloroethe	ne		20	U
75-09	-2	methylene chlor	ide		20	U
156-6	0- <u>5</u>	trans-1,2-dichlor	oethene		20	U
75-34	-3	1,1-dichloroetha	ne		20	U
67-66	-3	chloroform			20	U
108-1	0-1	MIBK			20	U
74-97	-5	bromochloromet	hane		20	U
71-55	-6	1,1,1-trichloroet	nane		20	U
56-23	-5	carbon tetrachlo	ride		20	U
107-0	6-2	1,2-dichloroetha	ne		20	U
71-43	-2	benzene			20	U
79-01	-6	trichloroethene			20	U
78-87	-5	1,2-dichloroprop	ane		20	U
156-5	9-4	cis-1,2-dichloroe	thene		20	U
75-27	-4	bromodichlorom	ethane		20	U
10061	-01-5	cis-1,3-dichlorop	propene		20	U
108-8	8-3	toluene			20	U
10061	-02-6	trans-1,3-dichlor	opropene		20	U
591-78	8-6	2-hexanone			50	U
79-00-	-5	1,1,2-trichloroet	nane		20	U
127-18	8-4	tetrachloroethen	e		200	D
124-4	8-1	dibromochlorom	ethane		20	U
108-9	0-7	chlorobenzene			20	U
108-3	8-3	m/p-xylene			20	U
95-47	-6	o-xylene			20	U
100-4	2-5	styrene			20	U
98-82-	-8	isopropyl benzel	ne		20	U
75-25-	-2	bromoform			20	U

	1A VOLATILE ORGANICS ANALYSIS DATA SHEET								NO.
Lab Name:	NJAL	VOLATILL	ORGANICS	NZ T1	68-1.0	-3			
Lab Code:	DEP 1	1005 C	ase No.: Dru	m SAS	No.:	S	DG No.:		
Matrix: (soil/	water)	WATER			Lab San	ple ID:	NZ T168	1.0-3	
Sample wt/vo	ol:	0.5	(g/ml) ML	·	Lab File	ID:	S62409.D)	
Level: (low/r	ned)	LOW			Date Re	ceived:	08/05/11		
% Moisture:	not dec.				Date An	alyzed:	08/05/11		
GC Column:	rt502	.2-1 ID: ().53 (mm)		Dilution	Factor:	10.0		
Soil Extract \	Volume:		(uL)		Soil Aliq	uot Volu	me:		(uL)
				CONCENTR	RATION	UNITS:			
CAS NO	D.	COM	POUND	(ug/L or ug/ł	(g)	UG/L		Q	
79-34-	-5	1,1,	2,2-tetrachloro	bethane		_	20	U	
541-73	3-1	1,3-	dichlorobenze	ne			20	U	
95-50-	-1	1,2-	dichlorobenze	ne	-, -		20	U	
106-40	6-7	1,4-	dichlorobenze	ne			20	U	
120-82	2-1	1,2,	4-trichloroben	zene			20	U	
87-61-	-6	1,2,	3-trichloroben	zene			20	U	

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

		TENT	ATIVELY IDENT	IFIED COMPC	UNDS		
Lab Name:	NJAL			Contract:	PARS	NZ T168-1	.0-3
Lab Code:	DEP 110	005	Case No.: Drun	n SAS N	lo.:	SDG No.:	
Matrix: (soil/v	vater)	WATE	R	La	ab Sample II	D: NZ T168 1.0-3	}
Sample wt/vo	ol:	0.5	(g/ml) ML	L:	ab File ID:	S62409.D	
Level: (low/r	ned)	LOW	ana ana ana ana ana ana ana ana ana ana	D	ate Receive	d: 08/05/11	
% Moisture:	not dec.			D	ate Analyze	d: 08/05/11	
GC Column:	rt502.2	2-1 ID:	0.53 (mm)	D	ilution Facto	r: 10.0	
Soil Extract \	/olume:		(uL)	S	oil Aliquot Vo	olume:	(uL)
Number TICs	s found:	0		CONCENTRA (ug/L or ug/Kg	ATION UNIT: 9) UG/L	S:	
CAS NO.		COM	OUND NAME		RT	EST. CONC.	Q

			1A			EPA SA		10.
	\	VOLATILE ORGANI	CS ANALYSIS	5 DATA SHEE	:1	NZ T1	68-2.0-	1
Lab Name:	NJAL		Cor	ntract: PARS	5			
Lab Code:	DEP 11	005 Case No.:	Drum S	SAS No.:	S	DG No.:		
Matrix: (soil/	water)	WATER		Lab Sam	ble ID:	NZ T168 2	2.0-1	
Sample wt/v	ol:	0.5 (g/ml)	MI	Lab File I	D.	S62410 D		
						00/05/44		
Level: (low/r	med)	LOW		Date Rec	elved:	08/05/11		
% Moisture:	not dec.			Date Ana	lyzed:	08/05/11		
GC Column:	rt502.2	2-1 ID: 0.53 (m	ım)	Dilution F	actor:	10.0		
Soil Extract	Volume:	(uL)		Soil Aliqu	ot Volu	me:		(uL)
		_ · _ · _ · _ · _ · _ · /						、 <i>,</i>
			CONCE	NTRATION L	INITS:			
CAS NO	Э.	COMPOUND	(ua/L or	ua/Ka) l	IG/L		Q	
			(-3-2-3-	-33/	<u> </u>		~	
75-71	-8	Dichlorodifulo	romethane			20	U	
74-87	-3	chloromethan	e			20	U	
75-01	-4	vinyl chloride				20	U	
74-83	-9	bromomethan	Ie			20	U	
75-00	-3	chloroethane				20	<u> </u>	_
75-15	-0	carbon disulfi	<u>de</u>			20	<u> </u>	
/5-65	-0	tert-butyl alco	nol			20	<u> </u>	_
79.02	2					20		_
67-64	-3					50	<u> </u>	_
75-69		trichlorofluoro	methane			20	<u> </u>	\neg
75-35	-4	1 1-dichloroet	ihene			20	<u> </u>	\neg
75-09	-2	methylene ch	loride			20	<u> </u>	-
156-6	0-5	trans-1.2-dich	loroethene			20		_
75-34	-3	1,1-dichloroet	thane			20		_
67-66	-3	chloroform				20	U	_
108-1	0-1	MIBK				20	U	
74-97	-5	bromochloron	nethane			20	U	
71-55	-6	1,1,1-trichloro	ethane			20	U	
56-23	-5	carbon tetrac	hloride			20	U	_
107-0	6-2	1,2-dichloroet	hane			20	U	_
71-43	-2	benzene				20	<u> </u>	_
79-01	-6	trichloroethen	e			20	<u> </u>	_
18-87	-5	1,2-dicnioropr	opane			20	<u> </u>	_
150-5	<u>9-4</u>	bromodichlor	<u>oethene</u>			20	<u> </u>	_
10061		cis-1 3-dichlo	ropropene			20		
108-8	<u>-01-0</u> 8-3	toluene	oproperie			20	<u> </u>	
10061	-02-6	trans-1.3-dich	loropropene		·	20	<u> </u>	
591-7	8-6	2-hexanone				50	U	
79-00	-5	1,1,2-trichloro	ethane	_		20	U	
127-1	8-4	tetrachloroeth	iene			48	D	
124-4	8-1	dibromochlor	omethane			20	U	
108-9	0-7	chlorobenzen	e			20	U	
108-3	8-3	m/p-xylene				20	U	
95-47	-6	o-xylene				20	U	_
100-4	2-5	styrene				20	<u> </u>	
98-82	-8	isopropyl ben	zene			20	<u>U</u>	
/ 5-25	-2	promotorm				20	U	

					EPA SA	MPLE I	NO.
Lab Name:	NJAL	ATTLE ORGANICS	NZ T168-		.1		
Lab Code:	DEP 11005	Case No.: Dru	m SAS No	.: S	DG No.:		
Matrix: (soil/v	vater) W	ATER	Lat	Sample ID:	NZ T168	2.0-1	
Sample wt/vo	ol: 0.5	5 (g/ml) ML	Lat	File ID:	S62410.D)	
Level: (low/n	ned) LC	W	Da	te Received:	08/05/11		
% Moisture: r	not dec.		Da	te Analyzed:	08/05/11		
GC Column:	rt502.2-1	ID: 0.53 (mm)	Dile	ution Factor:	10.0		
Soil Extract V	/olume:	(uL)	So	il Aliquot Volu	ıme:		(uL)
			CONCENTRAT	ION UNITS:			
CAS NO) .	COMPOUND	(ug/L or ug/Kg)	UG/L		Q	
79-34-	5	1,1,2,2-tetrachlor	oethane		20	U	
541-73	3-1	1,3-dichlorobenze	ene		20	U	
95-50-	.1	1,2-dichlorobenze	ene		20	U	
106-46	5-7	1,4-dichlorobenze	ene		20	U	
120-82	2-1	1,2,4-trichlorober	zene		20	U	
87-61-	6	1.2.3-trichlorober	zene		20	U	

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VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

		TENTA	IIVELY IDENTI	FIED COM	JOUNDS		N7 T460 0	
Lab Name:	NJAL		na na ana ana ana ana ana ana ana ana a	Contra	et: PARS		NZ 1100-2.	0-1
Lab Code:	DEP 110	005 C	ase No.: Drum	SAS	No.:	S	DG No.:	
Matrix: (soil/w	vater)	WATER	ar a 100		Lab Sample	ID:	NZ T168 2.0-1	
Sample wt/vo	ol:	0.5	(g/ml) ML	er - 100 er 20-	Lab File ID:		S62410.D	
Level: (low/n	ned)	LOW			Date Receive	ed:	08/05/11	_
% Moisture: r	not dec.		Suma proprieta de la constitución de la constitución de la constitución de la constitución de la constitución d		Date Analyze	ed:	08/05/11	_
GC Column:	rt502.2	2-1 ID: ().53 (mm)		Dilution Factor	or:	10.0	
Soil Extract V	/olume:		(uL)		Soil Aliquot V	/olu	me:	(uL)
				CONCENT	RATION UNIT	rs:		
Number TICs	s found:	0		(ug/L or ug/	(Kg) UG/L	-		
CAS NO.		COMPO	UND NAME		RT	ES	ST. CONC.	Q

			1A			EPA SA	MPLE NO.
		VOLATILE O	RGANICS ANAL	YSIS DATA SHE	<u>-</u> I	NZ T1	68-2.0-2
Lab Name:	NJAL		-	Contract: PAR	S		
Lab Code:	DEP 11	005 Cas	e No.: Drum	SAS No.:	S	DG No.:	
Matrix: (soil/	water)	WATER		Lab Sam	ple ID:	NZ T168 2	2.0-2
Sample ut/u	, vol:	0.5	(a/ml) MI	Lob Filo		S62/11 D	
Sample w/v	01.	0.5		Lab File	D.	302411.D	
Level: (low/	med)	LOW		Date Red	eived:	08/05/11	
% Moisture:	not dec.			Date Ana	alyzed:	08/05/11	
GC Column:	rt502	2-1 ID: 05	3 (mm)	Dilution F	actor	10.0	
Call Extra at 1			<u>(</u> ,,,)				(
CAS NO	0.	COMPC	CO)UND (ug	NCENTRATION (/L or ug/Kg)	JNITS: JG/L		Q
75-71	-8	Dichlo	rodifuloromethan			20	
74-87	<u>'-3</u>	chloro	methane	<u> </u>		20	<u> </u>
75-01	-4	vinvlo	hloride			20	U
74-83	-9	bromo	methane			20	<u> </u>
75-00	-3	chloro	ethane			20	<u> </u>
75-15	j-0	carbor	1 disulfide			20	Ū
75-65	-0	tert-bu	tyl alcohol			20	U
1634-	04-4	MTBE				20	U
78-93	-3	MEK				50	U
67-64	-1	acetor	ie			50	U
75-69	1-4	trichlo	rofluoromethane			20	U
75-35	j-4	1,1-dic	hloroethene			20	U
75-09	1-2	methy	ene chloride			20	U
156-6	0-5	trans-1	1,2-dichloroethen	ne		20	U
75-34	<u>,-3</u>	1,1-dic	hloroethane			20	U
67-66	-3	chloro	form			20	U
108-1	0-1	MIBK			<u> </u>	20	U
74-97	-5	bromo	chloromethane			20	U
71-55	-6	1,1,1-t	richloroethane			20	<u> </u>
56-23	-5	carbor	tetrachloride			20	<u> </u>
107-0	6-2	1,2-dic	hloroethane			20	
71-43	<u>-2</u>	benze	<u>ne</u>			20	
79-01	-0		bloropropopo		.	20	
156.5	-5		dichloroothono			20	
75-27	'- <u>4</u>	bromo	dichloromethane			20	<u> </u>
10061	1-01-5		dichloronronen	<u>, </u>		20	<u> </u>
108-8	8-3	toluen	<u>- alonioroproperie</u>	÷		20	<u> </u>
10061	1-02-6	trans-1	- 1.3-dichloroprope	ene		20	U
591-7	8-6	2-hexa	anone	-		50	U
79-00	-5	1,1,2-t	richloroethane			20	U
127-1	8-4	tetrach	loroethene			43	D
124-4	8-1	dibrom	ochloromethane			20	U
108-9	0-7	chloro	benzene			20	U
108-3	8-3	m/p-xy	lene			20	U
95-47	-6	o-xylei	ne			20	U
100-4	2-5	styren	e			20	U
98-82	-8	isopro	oyl benzene			20	U
75-25	-2	bromo	form			20	U

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Lab Name:	NJAL			Contra	ct: PAR	S	NZ T1	68-2.0-	2
Lab Code:	DEP 11005	Case N	lo.: Drun	n SAS	No.:	S	DG No.:		
Matrix: (soil/wa	ater) WA	TER			Lab Sam	ple ID:	NZ T168 2	2.0-2	
Sample wt/vol	: 0.5	(g	/ml) ML		Lab File	D:	S62411.D		
Level: (low/m	ed) LO	W			Date Red	eived:	08/05/11		
% Moisture: n	ot dec.				Date Ana	alyzed:	08/05/11		
GC Column:	rt502.2-1	ID: 0.53	(mm)		Dilution F	actor:	10.0		
Soil Extract Vo	olume:	(1	uL)		Soil Aliqu	iot Volu	ime:		(uL)
				CONCENT	RATION (JNITS:			
CAS NO.		COMPOUN	ND	(ug/L or ug/	Kg) l	JG/L		Q	
79-34-5	5	1,1,2,2-t€	trachloro	ethane			20	U	
541-73-	-1	1,3-dichlo	probenzer	ne			20	U	
95-50-1		1,2-dichlo	probenzer	ne			20	U	
106-46-	-7	1,4-dichlo	probenzer	ne			20	U	
120-82-	-1	1,2,4-tric	hlorobenz	ene			20	U	
87-61-6	6	1,2,3-tricl	hlorobenz	ene			20	U	

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

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		IENI	AIVELTIDENT		-OUNDS			
Lab Name:	NJAL			Contra	ct: PARS		NZ 1168-2	2.0-2
Lab Code:	DEP 11	005	Case No.: Drun	n SAS	No.:	S	DG No.:	
Matrix: (soil/v	vater)	WATE	<u>R</u>		Lab Sample	e ID:	NZ T168 2.0-2	2
Sample wt/vo	ol:	0.5	(g/ml) ML		Lab File ID		S62411.D	
Level: (low/n	ned)	LOW			Date Recei	ved:	08/05/11	men x
% Moisture:	not dec.				Date Analy	zed:	08/05/11	
GC Column:	rt502.2	2-1 ID:	0.53 (mm)		Dilution Fa	ctor:	10.0	
Soil Extract Volume: (uL)			(uL)		Soil Aliquot	Volu	me:	(uL)
Number TICs found: 0				CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L				
CAS NO.		СОМ	POUND NAME		RT	ES	ST. CONC.	Q

			1A			EPA SAMPLE NO.		
	\	OLATILE ORG	SHEET	NZ T1	68 2.0-3			
Lab Name:	NJAL			Contract:	PARS	_		
Lab Code:	DEP 11	005 Case N	lo.: Drum	SAS No.:	S	DG No.:		
Matrix: (soil/	water)	WATER		Lab	Sample ID:	NZ T168 2	2.0-3	
Somplowth	ol:	0.5 (0	(m) M	Lab	- File ID:	S62412 D		
Sample www	01.	0.5 (g	/////)	Lab		502412.D		
Level: (low/	med)	LOW		Date	Received:	08/05/11		
% Moisture:	not dec.		1.000 A	Date	Analyzed:	08/05/11		
GC Column:	rt502.2	2-1 ID: 0.53	(mm)	Dilut	ion Factor:	10.0		
Soil Extract	Volume			Soil	Aliquot Volu	ime.	(ul.)	
	volume.		u _)	0017			(uc)	
			co		ON UNITS:			
CASN	0	COMPOUN					0	
CASIN	J.	CONFOU	ND (Ug	L OF Ug/Rg)	UGIL		Q	
75-71	-8	Dichlorod	lifuloromethar	ne		20	U	
74-87	-3	chlorome	thane			20	U	
75-01	-4	vinyl chlo	ride			20	U	
74-83	-9	bromome	thane			20	U	
75-00	-3	chloroeth	ane			20	U	
75-15	-0	carbon di	sulfide		_	20	U	
75-65	-0	tert-butyl	alcohol			20	U	
1634-	.04-4	MTBE				20	U	
78-93	-3	MEK				50	<u> </u>	
67-64	-1	acetone				50	<u> </u>	
75-69		trichlorof	uoromethane			20	<u> </u>	
75-35	-4	1 1-dichle	proethene			20	<u> </u>	
75-09		methylen	e chloride			12		
156-6	0.5	trans_1.2	-dichloroether			20		
75-34	_3		roethane			20		
67-66	-3	chlorofor	m			20		
108-1	0_1	MIRK				20		
74-97	<u>0-1</u> 25	bromoch	loromethane	·		20		
74-57	<u>-5 </u>	1 1 1_tric	bloroethane			20	<u> </u>	
56-23	-0	carbon te	trachloride	i		20		
107-0	16.2					20		
71-43	L-2	henzene				20	<u> </u>	
70-01	_6	trichloroe	thene			20		
78-87	-0	1.2-dicble				20		
156-5	<u>-0</u>		chloroethene			20	<u> </u>	
75-27	/_/	bromodic	hloromethane			20		
10061	<u></u> 1_01_5	cis_1 3_di	chloropropen	<u>م</u>		20		
108-8	8.3	toluene	enoropropen			20	<u> </u>	
100-0	1-02-6	trans_1 3	dichloroprop			20	<u> </u>	
591-7	/8-6	2-hexanc	ne			50	U	
79-00	1-5	1 1 2-tric	hloroethane			20	<u> </u>	
127_1	8-4	tetrachlo	roethene			42		
124-4	8-1	dibromoc	hloromethane			20	<u> </u>	
108.0	0-7	chlorobe	nzene	•		20	i	
108-3	8-3	m/n-yylei	ne			20	<u> </u>	
05_47	<u>/-6</u>					20	<u> </u>	
100.4	2-5	styrene				20	U U	
08.82	2.0	isopropul	henzene			20	<u> </u>	
75 05		bromofor	m			20		
10-20	-2					20	<u> </u>	

			1A			EPA SA	MPLE I	NO.
Lab Name:		TILE ORGANI		Contract: PAF	RS S	NZ T1	68 2.0-	.3
Lab Code:	DEP 11005	Case No.:	Drum	SAS No.:	S	DG No.:		~ ~
Matrix: (soil/wa	ater) WA	TER		Lab San	nple ID:	NZ T168 2	2.0-3	
Sample wt/vol:	0.5	(g/ml)	ML	Lab File	ID:	S62412.D)	
Level: (low/me	ed) LOV	V		Date Re	ceived:	08/05/11		
% Moisture: no	ot dec.			Date An	alyzed:	08/05/11		
GC Column:	rt502.2-1	D: 0.53 (m	ım)	Dilution	Factor:	10.0		
Soil Extract Vo	olume:	(uL)		Soil Aliq	uot Volu	me:		(uL)
			СС	NCENTRATION	UNITS:			
CAS NO.	(COMPOUND	(ug	/L or ug/Kg)	UG/L		Q	
79-34-5		1,1,2,2-tetrac	hloroetha	ne		20	U	
541-73-	1	1,3-dichlorobe	enzene		-	20	U	
95-50-1		1,2-dichlorobe	enzene			20	U	
106-46-	7	1,4-dichlorobe	enzene			20	U	
120-82-	1	1,2,4-trichloro	benzene	*** <u></u>		20	U	
87-61-6		1,2,3-trichloro	benzene			20	U	

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VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

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		IENI	ATIVELY IDENT	IFIED COMP	OUNDS		NZ TICO	
Lab Name:	NJAL		to all along a second and a second a s	Contrac	ct: PARS		NZ 1168	2.0-3
Lab Code:	DEP 11(005	Case No.: Drun	n SAS	No.:	S	DG No.:	
Matrix: (soil/w	vater)	WATE	R		Lab Sample I	D:	NZ T168 2.0-	3
Sample wt/vo	ol:	0.5	(g/ml) ML		Lab File ID:		S62412.D	
Level: (low/n	ned)	LOW			Date Receive	ed:	08/05/11	
% Moisture: r	not dec.				Date Analyze	ed:	08/05/11	
GC Column:	rt502.2	2-1 ID:	0.53 (mm)		Dilution Facto	or:	10.0	_
Soil Extract Volume: (uL)				Soil Aliquot V	'olui	me:	(uL)	
				CONCENT		S:		
Number TICs	s found:	0		(ug/L or ug/l	Kg) UG/L		,	
CAS NO.		COM			RT	ES	T. CONC.	Q

III-1 Raw Chromatograms

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62401.D Vial: 3 Acq On : 5 Aug 2011 11:53 am Operator: A. Thomas Sample : Misc : : NZ T168 C-1 Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Results File: 62072711.RES Quant Time: Aug 8 12:05 19111 Quant Method : C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 02 17:28:18 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.3596477389015.00 ug/l0.3458) chlorobenzene-d515.62117416103715.00 ug/L0.3584) 1,4-dichlorobenzene-d420.00152231415315.00 ug/L0.36 System Monitoring Compounds 29) dibromofluoromethane (S) 9.07 113 1929068 31.46 ug/L 0.34 Spiked Amount 30.000 Range 80 - 120 Recovery = 104.87% 35) 1,2-dichloroethane-d4 (S) 9.84 102 432220 32.71 ug/L 0.34

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 109.03%

 48) toluene-d8 (S)
 12.98
 98
 5216201
 27.91
 ug/L
 0.35

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 93.03%

 68) 4-bromofluorobenzene
 (BFB)
 17.79
 95
 2429760
 26.88
 ug/L
 0.35

 Spiked Amount 30.000 Range 80 - 120 Recovery = 89.60% Target Compounds Carget CompoundsQvalue3) chloromethane3.74501905611.24 ug/L #1005) bromomethane4.52962816334.01 ug/L988) methyl iodide6.331421804432.15 ug/l #10055) tetrachloroethene14.25166775463650.96 ug/L #6656) dibromochloromethane14.25129540006966.12 ug/L #10069) 1,2,3-trichloropropane17.7975141452820.64 ug/L #10089) naphthalene24.441281887991.45 ug/L10090) 1,2,3-trichlorobenzene24.91180583911.00 ug/L #85 Qvalue

21.00 22.00 23.00 24.00 25.00 26.00 27.00 M,T ,anexnedorokhokh2, f M,T ,enelshinden Quant Results File: 62072711.RES 20.00 1,4-dichlorobenzene-d4,1 Thomas GC/MS Ins 18.00 19.00 C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) 1.00 A. 2 (8 mp) presentation of the second s \sim 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 Multiplr: Vial: Operator: GCMS2 TIC: S62401.D Inst chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62401.D M,T,9MsTitemetitedaeler Fri Feb 24 10:47:01 2012 2 ((2) 8b-eneulot 09 17:18:57 2011 I, eneznedoroult 2 (2) \$b-enshberoldaib-2,1 Calibration am 9.00 dibromofluoromethane (S), S Params: events.e 11:53 8 12:05 19111 8.00 7.00 Aug 2011 T168 C-1 Tue Aug (Initial (M,T, abiboi lydfem 6.00 VOA 62072711.M 5.00 Quant Time: Aug NZ S MS Integration M,T,ensdtemomord 4.00 Response via M,T,ensitemorolido •• Last Update 3.00 Data File Acq On Sample S62401.D Method Title Abundance 1200000 Misc 1000000 000006 800000 700000 400000 300000 200000 100000 1100000 600000 500000 0 Time--> 256

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62402.D Vial: 4 Acq On : 5 Aug 2011 12:28 pm Operator: A. Thomas : NZ T168 C-2 Sample Misc Inst : GC/MS Ins Multiplr: 1.00 : MS Integration Params: events.e Quant Time: Aug 8 12:05 19111 Quant Results File: 62072711.RES Quant Method : C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 02 17:28:18 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.3596502920215.00 ug/l0.3458) chlorobenzene-d515.62117425616915.00 ug/L0.3584) 1,4-dichlorobenzene-d420.00152235708415.00 ug/L0.35 System Monitoring Compounds 29) dibromofluoromethane (S) 9.07 113 1867264 28.91 ug/L 0.34 Spiked Amount 30.000 Range 80 - 120 Recovery = 96.37% 35) 1,2-dichloroethane-d4 (S) 9.84 102 467230 33.57 ug/L 0.35

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 111.90%

 48) toluene-d8 (S)
 12.98
 98
 5275901
 26.80 ug/L
 0.35

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 89.33%

 68) 4-bromofluorobenzene (BFB)
 17.79
 95
 2398006
 25.94 ug/L
 0.35

 Spiked Amount 30.000 Range 80 - 120 Recovery = 86.47% Target CompoundsQvalue5) bromomethane4.52961965002.66 ug/L968) methyl iodide6.351421080311.22 ug/l #10055) tetrachloroethene14.25166778554048.56 ug/L #6656) dibromochloromethane14.25129535934162.29 ug/L #10069) 1,2,3-trichloropropane17.7975144696820.65 ug/L #100

 \sim Page 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: 62072711.RES 1,4b-eneznedoroldbib-4,1 Thomas GC/MS Ins C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) 1.00 A. 2 ((3MD) presuperioralitaint-0.0.1 4 Multiplr: Vial: Operator: GCMS2 TIC: S62402.D Inst chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62402.D M,T,eMsTtermotoidradri Fri Feb 24 10:47:06 2012 2 ((2) 8b-eneutor 09 17:18:57 2011 fluorobenzene, l 2 ,(2) Ab-ensiteoroldaib-S, t Calibration шd 9.00 2 (2) anerthemoroufformorb Params: events.e 12:28 8 12:05 19111 8.00 7.00 Aug 2011 T168 C-2 Tue Aug (Initial (M,T, ebiboi lydfem 6.00 VOA 62072711.M 5.00 Quant Time: Aug 2 ZN MS Integration M,T,ensthemomord 4.00 Response via ••• Last Update 3.00 Data File Sample S62402.D Acq On Method Title Abundance Misc 600000 1000000 000006 800000 700000 500000 400000 300000 200000 0 1100000 100000 lime-> 258

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62403.D Vial: 5 Acq On : 5 Aug 2011 1:03 pm Operator: A. Thomas : NZ T168 C-3 Sample : Misc : Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Results File: 62072711.RES Quant Time: Aug 8 12:05 19111 Quant Method : C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 02 17:28:18 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.3596482679115.00 ug/l0.3558) chlorobenzene-d515.63117423460615.00 ug/L0.3684) 1,4-dichlorobenzene-d420.00152229438115.00 ug/L0.36 System Monitoring Compounds 29) dibromofluoromethane (S) 9.07 113 1885337 30.41 ug/L 0.35 Spiked Amount 30.000 Range 80 - 120 Recovery = 101.37%

 35) 1,2-dichloroethane-d4 (S)
 9.85
 102
 463496
 34.69
 ug/L
 0.35

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 115.63%

 48) toluene-d8 (S)
 12.98
 98
 5315535
 28.13
 ug/L
 0.35

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 93.77%

 68) 4-bromofluorobenzene
 (BFB)
 17.80
 95
 2407528
 26.17
 ug/L
 0.35

 Spiked Amount 30.000 Range 80 - 120 Recovery = 87.23%

 Target Compounds
 Qvalue

 5) bromomethane
 4.53
 96
 164198
 2.31 ug/L
 100

 55) tetrachloroethene
 14.25
 166
 7940223
 51.61 ug/L #
 66

 56) dibromochloromethane
 14.25
 129
 5502087
 66.63 ug/L #
 100

 69) 1,2,3-trichloropropane
 17.80
 75
 1404355
 20.14 ug/L #
 100

 \sim Page 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: 62072711.RES 18.00 19.00 20.00 1,4b-ensznedoroldoib-4,1 Thomas GC/MS Ins C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) 1.00 A. 2 (Smal) seremperatural forda ഹ 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 Multiplr: Vial: Operator: GCMS2 TIC: S62403.D Inst cyjorobenzene-d5, ł Ω C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62403. M,T,9M6719mm1tsida Feb 24 10:47:10 2012 S ((S) 8b-ensulot 09 17:18:57 2011 ('euezuegolony 2,(2) 4b-ensiteoroidalb-2,f Calibration 1:03 pm 9.00 dibromofluoromethane (S), S Params: events.e 8.00 Fri 7.00 Aug 2011 T168 C-3 Tue Aug (Initial (6.00 VOA 62072711.M 5.00 Quant Time: Aug 2 ZN MS Integration M,T, ensitismomord 4.00 Response via .. Last Update 3.00 Data File S62403.D Acq On Sample Method Title **0000** 260 Abundance 1200000 Misc 1100000 1000000 600000 500000 900006 700000 400000 300000 200000 100000 0 Time->

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62404.D Vial: 6 Acq On : 5 Aug 2011 1:39 pm Sample • NZ T168 0.5-1 Operator: A. Thomas : NZ T168 0.5-1 Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 8 12:05 19111 Quant Results File: 62072711.RES Quant Method : C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 02 17:28:18 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.3596490942415.00 ug/l0.3558) chlorobenzene-d515.63117423348115.00 ug/L0.3684) 1,4-dichlorobenzene-d420.00152222689515.00 ug/L0.36 System Monitoring Compounds 29) dibromofluoromethane (S) 9.07 113 1857753 29.46 ug/L 0.35 Spiked Amount 30.000 Range 80 - 120 Recovery = 98.20%

 35) 1,2-dichloroethane-d4 (S)
 9.84
 102
 455540
 33.53
 ug/L
 0.34

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 11.77%

 48) toluene-d8 (S)
 12.98
 98
 5191949
 27.02
 ug/L
 0.35

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 90.07%

 68) 4-bromofluorobenzene
 (BFB)
 17.80
 95
 2405665
 26.16
 ug/L
 0.35

 Spiked Amount 30.000 Range 80 - 120 Recovery = 87.20%

 Target Compounds
 Qvalue

 5) bromomethane
 4.53
 96
 146662
 2.03 ug/L
 95

 55) tetrachloroethene
 14.26
 166
 5895199
 37.67 ug/L #
 66

 56) dibromochloromethane
 14.25
 129
 4057565
 48.31 ug/L #
 100

 69) 1,2,3-trichloropropane
 17.80
 75
 1445891
 20.74 ug/L #
 100

20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: 62072711.RES I,4-dichlorobenzene-d4,1 Thomas GC/MS Ins 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) 1.00 A. 2 (8 mt) anamation of the second 9 Multiplr: Vial: Operator: GCMS 2 **FIC: S62404.D** Inst chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62404.D M,T, 9M6719cmentraide Feb 24 10:47:15 2012 2 ,(2) 8b-eneulof 2011 I, ensznadorouň 1,2-dichloroethane-d4 (S), 5 09 17:18:57 Calibration md 9.00 8 (8) ensitiemoroufformordib R 12:05 19111 1:39 8.00 Fri Aug 2011 T168 0.5-1 7.00 Tue Aug (Initial (Params: 6.00 VOA 62072711.M 5.00 Quant Time: Aug NΖ M,T, ansittemomord ഹ MS Integration 4.00 Response via •• Last Update 3.00 Data File S62404.D Acq On Sample Method Title Abundance 850000 800000 750000 700000 650000 600000 550000 500000 450000 400000 350000 300000 250000 200000 150000 100000 50000 0 Misc Time-> 262

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62405.D Vial: 7 Data File : C:\nronbr\1.2:14 pm Acq On : 5 Aug 2011 2:14 pm Operator: A. Thomas : NZ T168 0.5-2 Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 8 12:05 19111 Quant Results File: 62072711.RES Quant Method : C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 02 17:28:18 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.3596493323915.00 ug/l0.3558) chlorobenzene-d515.63117425567715.00 ug/L0.3684) 1,4-dichlorobenzene-d420.00152232852015.00 ug/L0.36 System Monitoring Compounds 29) dibromofluoromethane (S) 9.07 113 1916951 30.25 ug/L 0.34 Spiked Amount 30.000 Range 80 - 120 Recovery = 100.83% 35) 1,2-dichloroethane-d4 (S) 9.84 102 472824 34.63 ug/L 0.35

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 115.43%

 48)
 toluene-d8 (S)
 12.98
 98
 5453233
 28.24 ug/L
 0.35

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 94.13%

 48) toluene-d8 (S) 68) 4-bromofluorobenzene (BFB) 17.80 95 2413498 26.11 ug/L 0.35 Spiked Amount 30.000 Range 80 - 120 Recovery = 87.03% Target Compounds Ovalue CompoundsQvalue5) bromomethane4.53961084271.49 ug/L9217) acetone5.59581420549.28 ug/L #10020) methylene chloride6.50841231411.22 ug/L #10055) tetrachloroethene14.26166588183737.40 ug/L #6656) dibromochloromethane14.25129416602649.36 ug/L #10069) 1,2,3-trichloropropane17.8075147471321.04 ug/L #100

 \sim Page 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: 62072711.RES (, 4-dichlorobenzene-d4,) Thomas GC/MS Ins C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) 1.00 Å. 2 ((Simply permanentational faint d). 6. \sim Multiplr: Vial: Operator: GCMS 2 **FIC: S62405.D** Inst cyjolopeuseue-q2' | C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62405.D M,T M(TB/Bib) Feb 24 10:47:20 2012 S ((S) 8b-eneuto) 09 17:18:57 2011 I , enexnedorout 1,2-dichloroethane-d4 (S), S Calibration шđ 9.00 2 (2) anantemorouftomordib Params: events.e 2:14 8.00 Fri Aug 2011 T168 0.5-2 7.00 Tue Aug (Initial (M,T ,ebhorldo enelyhtem 6.00 M,T,enoteos VOA 62072711.M 4.00 5.00 Quant Time: Aug ZN ഹ MS Integration M,T ,9ns/19momord Response via ••• Last Update 3.00 Data File S62405.D Sample Acq On Method Title Abundance Misc 850000 800000 750000 700000 650000 600000 550000 500000 450000 400000 350000 300000 250000 200000 150000 100000 50000 0 Time-> 264

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62406.D Vial: 8 Data File : C:\nronsny; C.... Acq On : 5 Aug 2011 2:50 pm Operator: A. Thomas : NZ T168 0.5-3 Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: 62072711.RES Quant Time: Aug 8 12:05 19111 Quant Method : C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 02 17:28:18 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.3596456031715.00 ug/l0.3558) chlorobenzene-d515.63117419003415.00 ug/L0.3684) 1,4-dichlorobenzene-d420.01152225896915.00 ug/L0.36 System Monitoring Compounds 29) dibromofluoromethane (S) 9.07 113 1995756 34.07 ug/L 0.35 Spiked Amount 30.000 Range 80 - 120 Recovery = 113.57% 35) 1,2-dichloroethane-d4 (S) 9.84 102 445699 35.31 ug/L 0.35

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 117.70%

 48) toluene-d8 (S)
 12.98
 98
 5501711
 30.82 ug/L
 0.36

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 102.73%

 68) 4-bromofluorobenzene (BFB) 17.80 95 2425218 26.65 ug/L 0.35 Spiked Amount 30.000 Range 80 - 120 Recovery = 88.83% Target Compounds Qvalue Carget CompoundsQvalue5) bromomethane4.53961261601.88 ug/L9628) chloroform8.7385414582735.99 ug/L #10046) bromodichloromethane11.68839202027.69 ug/L #10055) tetrachloroethene14.26166565950338.93 ug/L #6656) dibromochloromethane14.26129404534151.85 ug/L #10069) 1,2,3-trichloropropane17.8075144847720.99 ug/L #100

 \sim 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: 62072711.RES 1,4-dichlorobenzene-d4,1 GC/MS Ins Thomas C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) 1.00 A. 2 (SM3) an unpertained for the formation of the ω 9.00 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 Multiplr: Vial: Operator: GCMS2 IC: S62406.D Inst (1,cb-ensene-d5, 1 Ω C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62406. ,eMisTitemeritadrasin Feb 24 10:47:25 2012 S ,(S) 8b-eneulo? M,T ,ensthemoroldalbomord 09 17:18:57 2011 I, eneznedorouñ 1,2-dichloroethane-d4 (S), S Calibration шd S ,(S) ensitiemoroultomordib Params: events.e 2:50 M,T,D, motoroldo 8.00 Fri Aug 2011 T168 0.5-3 7.00 Tue Aug (Initial (6.00 VOA 62072711.M 5.00 Quant Time: Aug ß NΖ MS Integration M,T ,ensittemomord 4.00 Response via ••• Last Update 3.00 Data File S62406.D Acq On Sample Method Title Abundance 850000 800000 750000 700000 650000 600000 550000 500000 450000 400000 350000 300000 250000 200000 150000 100000 50000 Misc 0 Time-> 266

Page

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62407.D Vial: 9 Acq On : 5 Aug 2011 3:26 pm Operator: A. Thomas : NZ T168 1.0-1 Sample Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 8 12:05 19111 Quant Results File: 62072711.RES Quant Method : C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 02 17:28:18 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.3596488528915.00 ug/l0.3458) chlorobenzene-d515.63117433257115.00 ug/L0.3684) 1,4-dichlorobenzene-d420.00152227701315.00 ug/L0.36 System Monitoring Compounds 29) dibromofluoromethane (S) 9.07 113 1842234 29.36 ug/L 0.35 Spiked Amount 30.000 Range 80 - 120 Recovery = 97.87% 35) 1,2-dichloroethane-d4 (S) 9.84 102 449102 33.21 ug/L 0.35 Spiked Amount 30.000 Range 80 - 120 Recovery = 110.70% 48) toluene-d8 (S)12.9898552437728.89 ug/L0.35Spiked Amount30.000Range80 - 120Recovery=96.30% 68) 4-bromofluorobenzene (BFB) 17.80 95 2372604 25.21 ug/L 0.35 Spiked Amount 30.000 Range 80 - 120 Recovery = 84.03% Target Compounds Qvalue

5)	bromomethane	4.53	96	101134	1.41 ug/L	88
55)	tetrachloroethene	14.26	166	3381029	21.71 ug/L #	66
56)	dibromochloromethane	14.25	129	2453245	29.35 ug/L #	100
69)	1,2,3-trichloropropane	17.80	75	1457185	20.42 ug/L #	100

Page 9.00 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: 62072711.RES 4-dichlorobenzene-d4,1 Thomas GC/MS Ins C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) 1.00 A. S ((8 mp) concentrational fraint and a σ Multiplr: Vial: Operator: GCMS2 TIC: S62407.D Inst chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62407.D M,T, 9MERIterescrisside Fri Feb 24 10:47:29 2012 S (S) 8b-ensulot 09 17:18:57 2011 I, ensznedorouit S ((S) 4b-ensiteorolicib-S, f Calibration шd dibromofluoromethane (S), S Params: events.e 8 12:05 19111 3:26 8.00 Aug 2011 T168 1.0-1 7.00 Tue Aug Initial 3.00 4.00 5.00 6.00 VOA 62072711.M Quant Time: Aug NΖ MS Integration M,T,enethemomord ഹ z Response via •• Last Update Data File S62407.D Acq On Sample Method Title Abundance 550000 500000 400000 250000 150000 100000 Misc 450000 350000 300000 200000 50000 0 Time--> 268

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62408.D Vial: 10 Operator: A. Thomas : NZ T168 1.0-2 Inst : GC/MS Ins Sample Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: 62072711.RES Quant Time: Aug 8 12:05 19111 Quant Method : C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 02 17:28:18 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene10.3596451645615.00 ug/l0.3458) chlorobenzene-d515.63117429240415.00 ug/L0.3684) 1,4-dichlorobenzene-d420.00152229367015.00 ug/L0.36 System Monitoring Compounds 29) dibromofluoromethane (S) 9.07 113 1854546 31.97 ug/L 0.35 Spiked Amount 30.000 Range 80 - 120 Recovery = 106.57% 35) 1,2-dichloroethane-d4 (S) 9.85 102 453394 36.27 ug/L 0.35 SolutionSolutio 68) 4-bromofluorobenzene (BFB) 17.80 95 2391850 25.65 ug/L 0.35 Spiked Amount 30.000 Range 80 - 120 Recovery = 85.50% Qvalue Target Compounds 20) methylene chloride6.51842623912.84 ug/L #10055) tetrachloroethene14.26166370244625.72 ug/L #6656) dibromochloromethane14.25129257603833.34 ug/L #10069) 1,2,3-trichloropropane17.8075141937320.08 ug/L #100

Page 9.00 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: 62072711.RES 1,4b-ensznedorołdołb-4,1 GC/MS Ins 1.00 A. Thomas C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) 10 2 (8 MER) erremenskruckhrundebaß Vial: Multiplr: Operator: GCMS2 TIC: S62408.D Inst cylorobenzene-d5, l Ω. M,T, eMpTtementaldage C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62408 Fri Feb 24 10:47:34 2012 S ((S) 8b-ensulo: Tue Aug 09 17:18:57 2011 Initial Calibration I, eneznedorouñ 2 ,(2) 4b-ensiteorolitoib-2, f 4:01 pm S ((S) ensitiemorouffomordib Params: events.e 8 12:05 19111 8.00 3.00 4.00 5.00 6.00 7.00 Aug 2011 T168 1.0-2 M,T ,ebinotdo enelydfem W VOA 62072711.M Quant Time: Aug ß MS Integration ΖN Response via •• Last Update Data File Sample S62408.D Acq On Method Title Misc Abundance 550000 350000 300000 250000 200000 150000 500000 450000 400000 100000 50000 0 Time--> 270

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Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62409.D Vial: 11 Acq On : 5 Aug 2011 4:37 pm Operator: A. Thomas : NZ T168 1.0-3 Sample Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: 62072711.RES Quant Time: Aug 8 12:06 19111 Quant Method : C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 02 17:28:18 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene10.3596471169415.00 ug/l0.3458) chlorobenzene-d515.63117427662915.00 ug/L0.3684) 1,4-dichlorobenzene-d420.00152216397415.00 ug/L0.36 System Monitoring Compounds 29) dibromofluoromethane (S) 9.07 113 1829044 30.22 ug/L 0.34 Spiked Amount 30.000 Range 80 - 120 Recovery = 100.73% 35) 1,2-dichloroethane-d4 (S) 9.85 102 455559 34.93 ug/L 0.35 Spiked Amount 30.000 Range 80 - 120 Recovery = 116.43% 48) toluene-d8 (S)12.9898548518029.74 ug/L0.35Spiked Amount30.000Range80 - 120Recovery=99.13% 68) 4-bromofluorobenzene (BFB) 17.79 95 2357543 25.38 ug/L 0.35 Spiked Amount 30.000 Range 80 - 120 Recovery = 84.60% Target Compounds Qvalue 55) tetrachloroethene14.26166361028724.04 ug/L #6656) dibromochloromethane14.25129252809231.36 ug/L #10069) 1,2,3-trichloropropane17.8075142941020.30 ug/L #100

Quantitation Report (Not Reviewed)

10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: 62072711.RES 1,4-dichlorobenzene-d4,1 GC/MS Ins A. Thomas C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) 1.00 ۰----۲----2 (8 mp) permanenterentrandcue. Multiplr: Vial: Operator: GCMS2 TIC: S62409.D Inst chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62409.D M,T,eMsTitemeritsidramie Fri Feb 24 10:47:39 2012 S ,(S) 8b-ensulot 2011 I, anaznadorouñ 09 17:18:57 S ((S) 4b-enertheoroldolb-S, t Calibration 4:37 pm 00.6 dibromofluoromethane (S), S Params: events.e g 8 12:06 19111 8.00 Aug 2011 T168 1.0-3 6.00 7.00 Tue Aug (Initial (VOA 62072711.M 3.00 4.00 5.00 Quant Time: Aug MS Integration ഹ NΖ ••• .. • Response via •• Last Update Data File Acq On Sample S62409.D Method Title Misc Abundance 450000 350000 300000 150000 100000 50000 500000 400000 250000 200000 0 Time-> 272

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62410.D Vial: 12 Acq On : 5 Aug 2011 5:12 pm Operator: A. Thomas Sample : NZ T168 2.0-1 Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 8 12:06 19111 Quant Results File: 62072711.RES Quant Method : C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 02 17:28:18 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.3596474948315.00 ug/l0.3558) chlorobenzene-d515.63117425985415.00 ug/L0.3684) 1,4-dichlorobenzene-d420.00152221591115.00 ug/L0.36 System Monitoring Compounds 29) dibromofluoromethane (S) 9.07 113 1814389 29.74 ug/L 0.34 Spiked Amount 30.000 Range 80 - 120 Recovery = 99.13% 35) 1,2-dichloroethane-d4 (S) 9.84 102 441375 33.58 ug/L 0.34 SolutionSolutio 68) 4-bromofluorobenzene (BFB) 17.80 95 2333555 25.22 ug/L 0.35 Spiked Amount 30.000 Range 80 - 120 Recovery = 84.07% Target Compounds Qvalue arget CompoundsQvalue5) bromomethane4.52961191611.71 ug/L8955) tetrachloroethene14.251668522085.63 ug/L #6656) dibromochloromethane14.251295991697.37 ug/L #10069) 1,2,3-trichloropropane17.8075144026020.53 ug/L #100

9.00 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: 62072711.RES dichlorobenzene-d4, Thomas GC/MS Ins C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) 1.000 A. 12 S (8 mp) to comparison promotion Multiplr: Vial: Operator: GCMS2 TIC: S62410.D Inst I 'cp-euezuegeuege C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62410.D M,T,sMpTtemarkadraadraaditt Fri Feb 24 10:47:43 2012 S ((S) 8b-ensulo? Tue Aug 09 17:18:57 2011 Initial Calibration 1, ensznedorouft S ,(S) 4b-ensiteorolicib-S,f шd 2 ,(2) ensitiemorouflomordib Params: events.e 8 12:06 19111 5:12 8.00 7.00 5 Aug 2011 IZ T168 2.0-1 3.00 4.00 5.00 6.00 VOA 62072711.M Quant Time: Aug ZΝ M,T, ensitiemomord MS Integration Response via •• Last Update Data File Sample Acq On S62410.D Method Title Misc Aby 130006 350000 300000 250000 400000 200000 150000 100000 50000 o Time-> 274

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62411.D Vial: 13 Data File : 0: (nFonEn (1 (2000)) Acq On : 5 Aug 2011 5:48 pm Operator: A. Thomas : NZ T168 2.0-2 Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 8 12:06 19111 Quant Results File: 62072711.RES Quant Method : C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 02 17:28:18 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.3596468512915.00 ug/l0.3458) chlorobenzene-d515.62117411619215.00 ug/L0.3584) 1,4-dichlorobenzene-d420.00152218506015.00 ug/L0.35 System Monitoring Compounds 29) dibromofluoromethane (S) 9.07 113 1738213 28.88 ug/L 0.34 Spiked Amount 30.000 Range 80 - 120 Recovery = 96.27% 35) 1,2-dichloroethane-d4 (S) 9.84 102 419608 32.36 ug/L 0.35 Spiked Amount30.000Range80 - 120Recovery= 107.87%48) toluene-d8 (S)12.9898532202429.02 ug/L0.35Spiked Amount30.000Range80 - 120Recovery= 96.73% 68) 4-bromofluorobenzene (BFB) 17.79 95 2402499 26.87 ug/L 0.35 Spiked Amount 30.000 Range 80 - 120 Recovery = 89.57% Target Compounds Ovalue 20) methylene chloride6.52841084911.13 ug/L #10055) tetrachloroethene14.251667441424.98 ug/L #6656) dibromochloromethane14.251295088646.35 ug/L #10069) 1,2,3-trichloropropane17.8075144314621.29 ug/L #100

9.00 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: 62072711.RES dichlorobenzene-d4, 1 A. Thomas GC/MS Ins C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) 1.00 13 8 ((8M3) emergendarushtairteta Multiplr: Vial: Operator: GCMS2 TIC: S62411.D Inst chlorobenzene-d5, l \Box M,T,9MA\$T19mantadrom/mand83 C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62411 Fri Feb 24 10:47:48 2012 2 ((2) 8b-eneulot 09 17:18:57 2011 fluorobenzene, l S ((S) 4b-ensiteorolidatb-S,f Calibration шd dibromofluoromethane (S), S Params: events.e 5:48 7.00 8.00 Aug 2011 T168 2.0-2 Tue Aug (Initial (methylene chloride, T,M 6.00 VOA 62072711.M 4.00 5.00 Quant Time: Aug ZΝ ഹ MS Integration Response via ••• Last Update 3.00 Data File Sample Acq On Method S62411.D Title Abundance 450000 Misc 400000 300000 350000 250000 200000 150000 100000 50000 0 Time-> 276

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62412.D Vial: 14 Acq On : 5 Aug 2011 6:23 pm Operator: A. Thomas : NZ T168 2.0-3 Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 8 12:06 19111 Quant Results File: 62072711.RES Quant Method : C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 02 17:28:18 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.3596446570315.00 ug/l0.3458) chlorobenzene-d515.62117406052315.00 ug/L0.3584) 1,4-dichlorobenzene-d420.00152214781515.00 ug/L0.35 System Monitoring Compounds 29) dibromofluoromethane (S) 9.07 113 1710735 29.83 ug/L 0.34 Spiked Amount 30.000 Range 80 - 120 Recovery = 99.43% 35) 1,2-dichloroethane-d4 (S) 9.84 102 417413 33.77 ug/L 0.35

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 112.57%

 48) toluene-d8 (S)
 12.98
 98
 5114849
 29.26 ug/L
 0.35

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 97.53%

 68) 4-bromofluorobenzene (BFB) 17.79 95 2322124 26.33 ug/L 0.35 Spiked Amount 30.000 Range 80 - 120 Recovery = 87.77% Carget CompoundsQvalue5) bromomethane4.52961192731.82 ug/L9320) methylene chloride6.52841367661.49 ug/L #10055) tetrachloroethene14.251667093324.98 ug/L #9756) dibromochloromethane14.251295229336.84 ug/L #10069) 1,2,3-trichloropropane17.7975142636721.33 ug/L #100 Target Compounds Qvalue

Quant Results File: 62072711.RES I , Mo-eneznedoroldoit A. Thomas GC/MS Ins C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) 1.00 14 2 (SME) erresepreduruhlioind-648.4 Vial: Multiplr: Operator: TIC: S62412.D Inst I 'cp-euezuego.eue C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62412.D 8 (8) 8b-eneulo 09 17:18:57 2011 Calibration 6:23 pm Params: events.e Aug 2011 T168 2.0-3 Tue Aug Initial VOA Quant Time: Aug NΖ ഗ MS Integration Response via ••• Last Update Data File Acq On Sample Method Title Abundance Misc 400000 350000 278



IV-1 Method Tunes

IV-2 Method Blanks

IV-3 Daily Calibration

IV-4 Laboratory Control Samples

Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\BF62401.D Vial: 1 : 5 Aug 2011 9:33 am Operator: A. Thomas Acq On Sample : 50 ng bfb 624full/5ml 8/4/11 : GC/MS Ins Inst Misc Multiplr: 1.00 MS Integration Params: events.e Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA



Spectrum Information: Average of 17.761 to 17.796 min.

 	Target Mass	 	Rel. to Mass	 	Lower Limit%	 	Upper Limit%	 	Rel. Abn%	 	Raw Abn	 	Result Pass/Fail	
	50		95		15		40		29.0		14024		PASS	
	75		95		30		70		55.9		27013		PASS	
1	95	1	95	1	100		100		100.0		48357		PASS	
	96		95		5		9		7.7		3718		PASS	ł
[173	ł	174	ł	0.00		2		0.0		0		PASS	
	174		95		50		100		86.4		41760		PASS	
	175	ł	174		5		9		7.7		3207		PASS	
	176		174		95		101		97.8		40851		PASS	
I	177	1	176	ł	5		9		6.7		2732		PASS	

BF62401.D T6072011.M Fri Feb 24 28142:07 2012 GCMS2

Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\BF62402.D Vial: 21 : 5 Aug 2011 10:27 pm Acq On Operator: A. Thomas : 50ng bfb2 624/5ml Sample Inst : GC/MS Ins Misc Multiplr: 1.00 MS Integration Params: events.e Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA



Spectrum Information: Average of 17.760 to 17.795 min.

 	Target Mass	 	Rel. to Mass	 	Lower Limit%	 	Upper Limit%	 	Rel. Abn%	 	Raw Abn	 	Result Pass/Fail	
	50		95 95		15		40		32.4		13047		PASS	
	75		95	Ì	30		70		60.5	Ì	24389	Ì	PASS	Ì
	95	ł	95		100		100		100.0		40299		PASS	Ì
	96		95		5		9		7.7		3105		PASS	Ì
	173	ł	174		0.00		2		0.0		0	- I	PASS	Ì
	174		95		50		100		82.8		33371		PASS	1
1	175		174		5		9		7.7		2554		PASS	Ì
	176		174		95		101		99.3		33149	1	PASS	Ι
	177	1	176	ł	5		9		6.8		2239	Ì	PASS	

BF62402.D T6072011.M Fri Feb 24 128242:15 2012 GCMS2

Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\BF62403.D Vial: 35 : 6 Aug 2011 7:05 am Operator: A. Thomas Acq On : 50ng bfb 624/5ml 8/5/11 Sample Inst : GC/MS Ins Misc Multiplr: 1.00 MS Integration Params: events.e Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA



Spectrum Information: Average of 17.742 to 17.777 min.

 	Target Mass	 	Rel. to Mass	 	Lower Limit%	 	Upper Limit%	 	Rel. Abn%	 	Raw Abn	 	Result Pass/Fail	
	50 75 95 96	 	95 95 95 95 95	 	15 30 100 5		40 70 100 9 2		30.9 58.2 100.0 6.9		12229 23026 39552 2726		PASS PASS PASS PASS PASS	
	173 174 175 176 177	 	95 174 174 176		50 50 95 5	 	100 9 101 9	 	83.0 7.2 99.3 6.9		32843 2350 32627 2238	 	PASS PASS PASS PASS PASS	

Quantitation Report (QT Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\BL62401.D Vial: 1 Acq On : 5 Aug 2011 10:07 am Sample : blank 624full/5ml 8/4/11 Operator: A. Thomas Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: 62072711.RES Quant Time: Feb 24 13:05 19112 Quant Method : C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) Títle : VOA Last Update : Tue Aug 02 17:28:18 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) -----1) fluorobenzene10.3396537042115.00 ug/l0.3358) chlorobenzene-d515.61117437932715.00 ug/L0.3484) 1,4-dichlorobenzene-d419.99152246767715.00 ug/L0.34 System Monitoring Compounds 29) dibromofluoromethane (S) 9.05 113 2016675 29.24 ug/L 0.33 Spiked Amount 30.000 Range 80 - 120 Recovery = 97.47% 35) 1,2-dichloroethane-d4 (S)9.8210247885132.22ug/L0.33Spiked Amount30.000Range80 - 120Recovery=107.40%48) toluene-d8 (S)12.9698552316326.27ug/L0.33Spiked Amount30.000Range80 - 120Recovery=87.57% 68) 4-bromofluorobenzene (BFB) 17.78 95 2529381 26.59 ug/L 0.33 Spiked Amount 30.000 Range 80 - 120 Recovery = 88.63%

Target Compounds

Qvalue

27.00 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 Quant Results File: 62072711.RES I,4b-ensznedoreineit Thomas GC/MS Ins C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) 1.00 Ą. S (BFB), S (BFB), S Multiplr: Vial: Operator: GCMS2 TIC: BL62401.D Inst chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\AUG11\AUG04\BL62401.D 24 13:05:42 2012 2 ((2) 8b-ensulot Tue Aug 09 17:18:57 2011 Initial Calibration Il uorobenzene, I blank 624full/5ml 8/4/11 2 (2) 4b-ensitieorolinalb-2, f 5 Aug 2011 10:07 am Feb 9.00 3 (S) enschemoronition (S), S Quant Time: Feb 24 13:05 19112 8.00 Fri 7.00 6.00 62072711.M VOA 5.00 4.00 Response via ••• Last Update 3.00 Data File BL62401.D Sample Acq On Method Title Abundance Misc 450000 400000 350000 300000 250000 200000 150000 100000 50000 0 Time-> 286

Page 2

Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\BL62403.D Vial: 35 Acq On : 6 Aug 2011 7:38 am Sample : Blank 624/5ml 8/5/11 Operator: A. Thomas Inst : GC/MS Ins Misc Multiplr: 1.00 MS Integration Params: events.e Quant Results File: 62072711.RES Quant Time: Aug 8 15:04 19111 Quant Method : C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 02 17:28:18 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.32964487500m15.00 ug/l0.3158) chlorobenzene-d515.59117341127515.00 ug/L0.3284) 1,4-dichlorobenzene-d419.96152193892515.00 ug/L0.32 System Monitoring Compounds 29) dibromofluoromethane (S) 9.04 113 1435740 24.91 ug/L 0.32 Spiked Amount 30.000 Range 80 - 120 Recovery = 83.03% 35) 1,2-dichloroethane-d4 (S) 9.81 102 336066 27.06 ug/L 0.32 Spiked Amount 30.000 Range 80 - 120 Recovery = 90.20% 48) toluene-d8 (S)12.9598431285124.55 ug/L0.32Spiked Amount30.000Range80 - 120Recovery=81.83% 68) 4-bromofluorobenzene (BFB) 17.76 95 1900973 25.66 ug/L 0.31 Spiked Amount 30.000 Range 80 - 120 Recovery = 85.53%

Quantitation Report (QT Reviewed)

Target Compounds

Qvalue

13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: 62072711.RES 1,4b-enscredendenderd4,1 Thomas GC/MS Ins C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) 1.00 A. 35 5 (BFB), energene (BFB), S Multiplr: Vial: Operator: GCMS2 TIC: BL62403.D Inst chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\AUG11\AUG04\BL62403.D 24 12:42:55 2012 2 ((2) 8b-eneulor 10.00 11.00 12.00 09 17:18:57 2011 I , eneznedoroult S ,(S) 4b-ensdfeoroethane-d4 (S), S Calibration 7:38 am 9.00 Feb Blank 624/5ml 8/5/11 C (C) enclosed (C), C Params: events.e 8.00 ЕĽі 7.00 6 Aug 2011 Tue Aug Initial 6.00 62072711.M VOA 4.00 5.00 Quant Time: Aug MS Integration Response via ••• Last Update 3.00 Data File BL62403.D Sample Acq On Method Title Abundance 380000 360000 340000 320000 300000 280000 200000 Misc 260000 240000 220000 160000 140000 100000 80000 60000 Ò 180000 120000 40000 20000 Time-> 288

 \sim Page Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\DTC62402.D Vial: 21 Acq On : 5 Aug 2011 11:02 pm Operator: A. Thomas Sample : 20ppb cal2 624/5ml Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Method : C:\HPCHEM\1\METHODS\T6080311.M (Chemstation Integrator) Title : VOA Last Update : Fri Feb 24 12:59:41 2012 Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	&Dev Ai	cea ⁸	Dev(min)
I	fluorobenzene	1.000	1.000	0.0	94	-0.02
Т,М	Dichlorodifuloromethane	0.241	0.199	17.4	75	-0.03
Т,М	chloromethane	0.265	0.317	-19.6	107	0.00
С,Т,1	M vinyl chloride	0.219	0.209	4.6	84	-0.03
т,М	bromomethane	0.079	0.113	-43.0#	130	-0.03
Т,М	chloroethane	0.161	0.156	3.1	85	-0.02
Т,М	carbon disulfide	0.402	0.394	2.0	83	0.00
Т,М	MTBE	0.627	0.325	48.2#	52	-0.02
t	1,4 Dioxane	0.022	0.018	18.2	70	0.00
т,М	tert-butyl alcohol	0.024	0.028	-16.7	101	-0.02
Т,М	MEK	0.021	0.017	19.0	70	-0.02
Т,М	acetone	0.072	0.023	68.1#	49#	0.00
Т,М	trichlorofluoromethane	0.389	0.289	25.7	67	0.03
С,Т,Г	M 1,1-dichloroethene	0.421	0.453	-7.6	101	0.00
Τ,Μ	methylene chloride	0.305	0.220	27.9	83	0.00
Т,М	trans-1,2-dichloroethene	0.397	0.361	9.1	85	0.00
Т,М	1,1-dichloroethane	0.462	0.427	/.6	87	0.00
С, Т, Г	M chloroform	0.283	0.289	-2.1	94	-0.01
S	dibromofluoromethane (S)	0.168	0.173	-3.0	96	-0.01
Т,М	bromochloromethane	0.101	0.078	22.8	69	0.01
Т,М	1,1,1-trichloroethane	0.341	0.256	24.9	68	-0.02
Т,М	carbon tetrachloride	0.244	0.210	13.9	/6	-0.01
S m M	1,2-dichloroethane-d4 (S)	0.038	0.039	-2.6	100	-0.02
т, м	1,2-dichioroethane	0.435	0.429	1.4	93	-0.02
т, М т м	benzene trichloroothono	0.735	0.723	1.0	91	-0.02
1,M	urichioroethene M 1 2-diablereprepape	0.200	0.207	-3.5	93	-0.02
т м	m 1,2-dichloroptopane	0.221	0.223	-0.9	94	-0.02
т, м	bromodichloromothano	0.370	0.301	4.5	90	-0.01
т, м	cis-1.3-dichloropropono	0.257	0.242	-2.1 43.2#	91 51	-0.02
c I	t_{a}	0.239	0.147	43.2#		-0.02
C TT	toluene do (5)	0.404	0.490	-1.2	94	-0.02
т м	trans-1 3-dichloropropene	0.729	0.710	59.2#	38#	=0.03
т м	1 1 2-trichloroethane	0.220	0.095	JJ.2π 1 Λ	87	-0.02
т. М	tetrachloroethene	0.234	0.331	_41 5#	132	-0.03
т м	dibromochloromethane	0.153	0.141	78	84	-0.02
Т,М	1,2-dibromoethane	0.179	0.175	2.2	89	-0.02
I	chlorobenzene-d5	1.000	1.000	0.0	98	-0.02
М,Т	chlorobenzene	0.580	0.533	8.1	89	-0.02
С,Т,1	M ethyl benzene	1.110	1.043	6.0	90	-0.02
Т,М	m/p-xylene	0.947	1.812	1.3	181	-0.02
Т,М	o-xylene	0.934	0.856	8.4	88	-0.02
Т,М	styrene	0 . 5290	0.486	9.8	84	-0.02
Т,М	isopropyl benzene	1.024	0.953	6.9	89	-0.02
	I TTCTTTTTTTTTTCTTTCSTTTSTTTCTTTSCTTTTT MMTTMMMM MMMTTMMMT MMTTMMMMT MMMTTMMMMT MMMTTMMMMT MMMTTMMMM MMTTMMMM MMTTMMMM MMTTMMMM MMTTMMMM MMTTMMMM MMTTMMMM MMTTMMMM MMTTMMMM MMTTMMMM MMTTMMMM MMTTMMMM MMTTMMMM MMTTMMMM MMTTMMM MMTTMMM MMTTMMM MMTTMMM MMTTMMM MMTTMMM MMTTMM M MTTMM M MTTMM M MTTMM M MTTMM M MTTMM M MTTMM M M MTTM M M M M M M M M M M M M M M M M M M M	<pre>I fluorobenzene T,M Dichlorodifuloromethane T,M chloromethane C,T,M vinyl chloride T,M bromomethane T,M chloroethane T,M carbon disulfide T,M MTBE t 1,4 Dioxane T,M tert-butyl alcohol T,M MEK T,M acetone T,M trichlorofluoromethane C,T,M 1,1-dichloroethene T,M trans-1,2-dichloroethene T,M trans-1,2-dichloroethene T,M trans-1,2-dichloroethene C,T,M chloroform S dibromofluoromethane (S) T,M bromochloromethane T,M carbon tetrachloride S 1,2-dichloroethane T,M carbon tetrachloride S 1,2-dichloroethane T,M cis-1,2-dichloroethane T,M trichloroethane T,M cis-1,2-dichloropropane T,M cis-1,2-dichloropropane T,M cis-1,3-dichloropropene S toluene-d8 (S) C,T,M toluene T,M trans-1,3-dichloropropene T,M tetrachloroethane T,M tetrachloroethane T,M tetrachloroethane T,M dibromochloromethane T,M dibromochloromethane T,M 1,2-dichloropropene T,M tetrachloroethane T,M tetrachloroethane T,M tetrachloroethane T,M tetrachloroethane T,M dibromochloromethane T,M dibromochloromethane T,M 1,2-dibromoethane T,M dibromochloromethane T,M dibromochloromethane T,M dibromochloromethane T,M m, -xylene T,M m/p-xylene T,M styrene T,M styrene T,M isopropyl benzene</pre>	Ifluorobenzene1.000T,MDichlorodifuloromethane0.241T,Mchloromethane0.219T,Mbromomethane0.079T,Mchloroethane0.161T,Mcarbon disulfide0.402T,MMTBE0.627t1,4DioxaneT,Mtert-butyl alcohol0.024T,MmEt0.627T,Mtert-butyl alcohol0.024T,Mtert-butyl alcohol0.024T,Mtert-butyl alcohol0.021T,Macetone0.072T,Mtrichlorofluoromethane0.389C,T,M1,1-dichloroethene0.305T,Mtrans-1,2-dichloroethene0.397T,M1,1-dichloroethane0.101T,M1,1-dichloroethane0.101T,Mtrans-1,2-dichloroethane0.101T,M1,1,1-trichloroethane0.341T,Mcarbon tetrachloride0.234T,Mtrichloroethane0.735T,Mtrichloroethene0.276T,Mtichloropropane0.221T,Mcis-1,2-dichloropropene0.225Stoluene-d8 (S)0.484C,T,Mthras-1,3-dichloropropene0.223T,Mtetrachloroethene0.179Ichlorobenzene-d51.000M,Tchlorobenzene0.580C,T,Mthras-1,3-dichloropropene0.234T,Mdibromochloromethane0.179Ichlorobenzene-d51.	I fluorobenzene 1.000 1.000 T,M Dichlorodifuloromethane 0.241 0.199 T,M Dichlorodifuloromethane 0.265 0.317 C,T,M vinyl chloride 0.219 0.209 T,M bromomethane 0.161 0.156 T,M carbon disulfide 0.402 0.394 T,M mtrichlorofluoromethane 0.022 0.018 T,M tert-butyl alcohol 0.024 0.028 T,M metr-butyl alcohol 0.021 0.017 T,M acetone 0.072 0.223 T,M trichlorofluoromethane 0.389 0.289 C,T,M 1.1-dichloroethene 0.462 0.427 C,T,M trans-1.2-dichloroethene 0.305 0.220 T,M trans-1.2-dichloroethene 0.305 0.220 T,M trans-1.2-dichloroethane 0.462 0.427 C,T,M n.1-1-trichloroethane 0.310 0.78 T,M trans-1.2-dichloroethane	Image Regin Cont Sect in I fluorobenzene 1.000 1.000 0.0 T,M Dichlorodifuloromethane 0.241 0.199 17.4 T,M bionomethane 0.219 0.209 4.6 T,M bionomethane 0.079 0.113 -43.0# T,M bionomethane 0.0161 0.156 3.1 T,M carbon disulfide 0.402 0.394 2.0 T,M carbon disulfide 0.627 0.325 48.2# t 1,4 Dioxane 0.022 0.018 18.2 T,M tert-butyl alcohol 0.024 0.028 -16.7 T,M tert-butyl alcohol 0.021 0.017 19.0 T,M tert-butyl alcohol 0.022 0.023 68.1# T,M trichloroflucromethane 0.389 0.289 -2.1 M trichloroethane 0.397 0.361 9.1 T,M trichloroethane 0	Image: Image: Outer Interface I fluorobenzene 1.000 0.00 0.94 T,M Dichlorodifuloromethane 0.241 0.199 17.4 75 T,M chloromethane 0.219 0.209 4.6 84 T,M bromomethane 0.079 0.113 -43.0 # 130 T,M catbon disulfide 0.402 0.394 2.0 83 T,M catbon disulfide 0.402 0.394 2.0 83 T,M tatbon disulfide 0.402 0.394 2.0 83 T,M mactone 0.022 0.018 18.2 70 T,M tatchoutyl alcohol 0.024 0.028 27.7 101 T,M tatchoroethane 0.389 0.289 27.6 101 T,M trachoroethane 0.317 -6.67 101 1.4 1.6 1.6 1.6 1.6 1.6 1.6 1.7 1.6 1.7 1.6

51 T,M	bromoform	0.110	0.082	25.5	76	-0.02
52 T,M	1,1,2,2-tetrachloroethane	0.269	0.238	11.5	82	-0.02
53 S	4-bromofluorobenzene (BFB)	0.289	0.278	3.8	94	-0.02
54 T,M	1,3-dichlorobenzene	0.450	0.423	6.0	89	-0.02
55 T,M	1,2-dichlorobenzene	0.433	0.403	6.9	89	-0.02
56 I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	97	-0.02
57 T,M	1,4-dichlorobenzene	0.821	0.771	6.1	89	-0.01
58 T,M	1,2-dibromo-3-chloropropane	0.072	0.055	23.6	89	-0.03
59 T,M	1,2,4-trichlorobenzene	0.490	0.456	6.9	87	-0.03
60 T,M	Napthalene	0.947	0.751	20.7	75	-0.03
61 T,M	1,2,3-trichlorobenzene	0.458	0.427	6.8	88	-0.03

(#) = Out of Range SPCC's out = 0 CCC's out = 0 CT62418.D T6080311.M Fri Feb 24 13:00:31 2012 GCMS2 Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\DTC62401.D Vial: 1 Acq On : 5 Aug 2011 10:42 am Operator: A. Thomas Sample : 20ppb cal 624full/5ml 8/4/11 Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Method : C:\HPCHEM\1\METHODS\T6080311.M (Chemstation Integrator) Title : VOA Last Update : Fri Feb 24 12:59:41 2012

Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev Are	≥a ^g	Dev(min)
1	I	fluorobenzene	1.000	1.000	0.0	113	-0.01
3	Т,М	chloromethane	0.265	0.196	26.0	80	-0.01
4	С,Т,1	M vinyl chloride	0.219	0.168	23.3	81	-0.03
5	Т,М	bromomethane	0.079	0.146	-84.8# 2	203#	-0.03
6	Т,М	chloroethane	0.161	0.137	14.9	91	-0.02
8	t	Methyl Acetate	0.031	0.022	29.0	81	-0.02
9	Т,М	carbon disulfide	0.402	0.360	10.4	91	-0.01
10	Т,М	MTBE	0.627	0.273	56.5#	53	-0.01
11	t	1,4 Dioxane	0.022	0.018	18.2	83	0.00
12	Т,М	tert-butyl alcohol	0.024	0.025	-4.2	109	0.00
13	Т,М	MEK	0.021	0.017	19.0	82	0.00
15	Т,М	trichlorofluoromethane	0.389	0.272	30.1#	76	0.00
16	С,Т,1	M 1,1-dichloroethene	0.421	0.352	16.4	95	-0.01
17	Т,М	methylene chloride	0.305	0.200	34.4#	91	-0.02
18	Т,М	trans-1,2-dichloroethene	0.397	0.289	27.2	82	-0.01
19	Т,М	1,1-dichloroethane	0.462	0.354	23.4	87	-0.01
20	С,Т,	M chloroform	0.283	0.230	18.7	90	0.00
21	S	dibromofluoromethane (S)	0.168	0.168	0.0	113	-0.01
22	Т,М	bromochloromethane	0.101	0.074	26.7	79	0.00
24	Т,М	1,1,1-trichloroethane	0.341	0.224	34.3#	72	-0.02
25	Т,М	carbon tetrachloride	0.244	0.179	26.6	78	0.00
26	S	1,2-dichloroethane-d4 (S)	0.038	0.040	-5.3	123	-0.01
27	Т,М	1,2-dichloroethane	0.435	0.323	25.7	84	-0.02
28	Т,М	benzene	0.735	0.559	23.9	85	-0.02
29	Т,М	trichloroethene	0.200	0.162	19.0	88	-0.01
31	С,Т,	M 1,2-dichloropropane	0.221	0.172	22.2#	88	-0.02
33	Т,М	cis-1,2-dichloroethene	0.378	0.324	14.3	98	-0.01
34	Т,М	bromodichloromethane	0.237	0.183	22.8	83	-0.01
35	Т,М	cis-1,3-dichloropropene	0.259	0.138	46.7#	57	-0.01
36	S	toluene-d8 (S)	0.484	0.469	3.1	108	-0.01
37	С,Т,	M toluene	0.729	0.550	24.6#	85	-0.02
38	Т,М	trans-1,3-dichloropropene	0.228	0.090	60.5#	44#	-0.01
40	Т,М	1,1,2-trichloroethane	0.146	0.110	24.7	80	-0.02
41	Т,М	tetrachloroethene	0.234	0.271	-15.8	131	-0.01
42	Т,М	dibromochloromethane	0.153	0.107	30.1#	77	-0.01
43	Т,М	1,2-dibromoethane	0.179	0.138	22.9	85	-0.01
44	I	chlorobenzene-d5	1.000	1.000	0.0	111	-0.01
45	М,Т	chlorobenzene	0.580	0.444	23.4	84	-0.01
46	С,Т,	M ethyl benzene	1.110	0.836	2.7	82	-0.01
47	Т,М	m/p-xylene	0.947	1.441	2.2	163	0.00
48	Т,М	o-xylene	0.934	0.717	23.2	84	0.00
49	Т,М	styrene	0.539	0.399	26.0	78	0.00
50	Т,М	isopropyl benzene	1.0 292	0.774	24.4	82	0.00
51	Т,М	bromoform	0.110	0.076	30.9#	80	0.00

52 T,M	1,1,2,2-tetrachloroethane	0.269	0.202	24.9	78	0.00
53 S	4-bromofluorobenzene (BFB)	0.289	0.289	0.0	111	0.00
54 T,M	1,3-dichlorobenzene	0.450	0.356	20.9	85	0.00
55 T,M	1,2-dichlorobenzene	0.433	0.334	22.9	83	0.00
56 I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	112	0.00
57 T,M	1,4-dichlorobenzene	0.821	0.617	24.8	82	0.00
58 T,M	1,2-dibromo-3-chloropropane	0.072	0.051	29.2	95	-0.01
59 T,M	1,2,4-trichlorobenzene	0.490	0.398	18.8	88	0.00
60 T,M	Napthalene	0.947	0.765	19.2	88	-0.01
61 T,M	1,2,3-trichlorobenzene	0.458	0.374	18.3	89	-0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 3 CT62418.D T6080311.M Fri Feb 24 13:02:00 2012 GCMS2 SPCC's out = 0 CCC's out = 3 Data File : C:\HPCHEM\1\DATA2011\AUG04\DC62403.D Vial: 34 Acq On : 6 Aug 2011 6:31 am Operator: A. Thomas Sample : 20ppb cal3 624/5ml Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Method : C:\HPCHEM\1\METHODS\T6080311.M (Chemstation Integrator) Title : VOA Last Update : Fri Feb 24 12:59:41 2012 Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min Max. RRF Dev : 30% Max. Rel. Area : 200%

_		Compound	AvgRF	CCRF	%Dev Ar	ea%	Dev(min)
1	I	fluorobenzene	1.000	1.000	0.0	85	-0.05
2	Т,М	Dichlorodifuloromethane	0.241	0.213	11.6	73	-0.04
3	Т,М	chloromethane	0.265	0.350	-32.1#	108	-0.03
4	С,Т,1	M vinyl chloride	0.219	0.228	-4.1	83	-0.04
5	Т,М	bromomethane	0.079	0.117	-48.1#	122	-0.04
6	Т,М	chloroethane	0.161	0.168	-4.3	83	-0.03
9	Т,М	carbon disulfide	0.402	0.388	3.5	74	0.00
10	т,М	MTBE	0.627	0.321	48.8#	47#	-0.04
11	t	1,4 Dioxane	0.022	0.020	9.1	70	-0.03
12	Т,М	tert-butyl alcohol	0.024	0.029	-20.8	92	-0.04
13	Т,М	MEK	0.021	0.017	19.0	62	-0.03
15	Т,М	trichlorofluoromethane	0.389	0.300	22.9	63	0.02
16	С,Т,1	M 1,1-dichloroethene	0.421	0.473	-12.4	96	-0.02
17	Т,М	methylene chloride	0.305	0.240	21.3	82	-0.02
18	Т,М	trans-1,2-dichloroethene	0.397	0.354	10.8	76	-0.03
19	Т,М	1,1-dichloroethane	0.462	0.422	8.7	78	-0.03
20	С,Т,1	M chloroform	0.283	0.275	2.8	81	-0.03
21	S	dibromofluoromethane (S)	0.168	0.170	-1.2	86	-0.03
22	Т,М	bromochloromethane	0.101	0.082	18.8	66	-0.02
24	Т,М	1,1,1-trichloroethane	0.341	0.257	24.6	62	-0.03
25	Т,М	carbon tetrachloride	0.244	0.212	13.1	70	-0.03
26	S	1,2-dichloroethane-d4 (S)	0.038	0.039	-2.6	90	-0.04
27	Т,М	1,2-dichloroethane	0.435	0.417	4.1	82	-0.04
28	Т,М	benzene	0.735	0.699	4.9	80	-0.04
29	Т,М	trichloroethene	0.200	0.212	-6.0	86	-0.05
31	С,Т,1	M 1,2-dichloropropane	0.221	0.217	1.8	83	-0.04
32	Т,М	MIBK	0.023	0.017	26.1	63	-0.04
33	Т,М	cis-1,2-dichloroethene	0.378	0.367	2.9	83	-0.03
34	Т,М	bromodichloromethane	0.237	0.236	0.4	80	-0.04
35	Т,М	cis-1,3-dichloropropene	0.259	0.146	43.6#	45#	-0.05
36	S	toluene-d8 (S)	0.484	0.493	-1.9	86	-0.04
37	С,Т,1	M toluene	0.729	0.711	2.5	83	-0.05
38	Т,М	trans-1,3-dichloropropene	0.228	0.088	61.4#	32#	-0.04
39	Т,М	2-hexanone	0.072	0.058	19.4	63	-0.05
40	Т,М	1,1,2-trichloroethane	0.146	0.133	8.9	73	-0.05
41	Т,М	tetrachloroethene	0.234	0.302	-29.1	110	-0.05
42	т,М	dibromochloromethane	0.153	0.131	14.4	71	-0.05
43	т,М	1,2-dibromoethane	0.179	0.163	8.9	76	-0.04
44	I	chlorobenzene-d5	1.000	1.000	0.0	87	-0.04
45	Μ,Τ	chlorobenzene	0.580	0.547	5.7	81	-0.05
46	С,Т,1	M ethyl benzene	1.110	1.063	4.2	82	-0.04
47	Т,М	m/p-xylene	0.947	1.812	1.3	161	-0.04
48	Т,М	o-xylene	0 . 294	0.908	2.8	83	-0.04
49	Т,М	styrene	0.539	0.509	5.6	78	-0.04

50 T,M	isopropyl benzene	1.024	0.996	2.7	83	-0.04
51 T,M	bromoform	0.110	0.086	21.8	71	-0.05
52 T,M	1,1,2,2-tetrachloroethane	0.269	0.243	9.7	74	-0.04
53 S	4-bromofluorobenzene (BFB)	0.289	0.293	-1.4	88	-0.04
54 T,M	1,3-dichlorobenzene	0.450	0.458	-1.8	86	-0.04
55 T,M	1,2-dichlorobenzene	0.433	0.425	1.8	83	-0.05
56 I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	94	-0.05
57 T,M	1,4-dichlorobenzene	0.821	0.757	7.8	84	-0.03
59 T,M	1,2,4-trichlorobenzene	0.490	0.458	6.5	84	-0.06
60 T,M	Napthalene	0.947	0.732	22.7	71	-0.06
61 T,M	1,2,3-trichlorobenzene	0.458	0.419	8.5	84	-0.06

(#) = Out of Range SPCC's out = 0 CCC's out = 0 CT62418.D T6080311.M Fri Feb 24 13:03:34 2012 GCMS2

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\DC62403.D Vial: 34 Acq On: 6 Aug 20116:31 amOperator: A. ThomasSample: 20ppb cal3 624/5mlInst: GC/MS InsMisc:Multiplr: 1.00 MS Integration Params: events.e Quant Time: Feb 24 12:57 19112 Quant Results File: T6080311.RES Quant Method : C:\HPCHEM\1\METHODS\T6080311.M (Chemstation Integrator) Title : VOA Last Update : Fri Feb 24 12:57:02 2012 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.3196447316815.00 ug/l-0.0544) chlorobenzene-d515.59117350625115.00 ug/L-0.0456) 1,4-dichlorobenzene-d419.96152211589215.00 ug/L-0.05 System Monitoring Compounds 21) dibromofluoromethane (S) 9.04 113 1517180 30.21 ug/L -0.03 Spiked Amount 30.000 Range 80 - 120 Recovery = 100.70% 26) 1,2-dichloroethane-d4 (S)9.8110234998630.75ug/L-0.04Spiked Amount30.000Range80-120Recovery=102.50%36) toluene-d8 (S)12.9498440647330.51ug/L-0.04Spiked Amount30.000Range80-120Recovery=101.70% 53) 4-bromofluorobenzene (BFB) 17.76 95 2056429 30.41 ug/L -0.04 Spiked Amount 30.000 Range 80 - 120 Recovery = 101.37%

 Target Compounds
 Qvalue

 2) Dichlorodifuloromethane
 3.39
 85
 1270823
 17.67
 ug/L
 98

 3) chloromethane
 3.80
 50
 2086597
 26.44
 ug/L
 100

 4) vinyl chloride
 3.87
 62
 1359639
 20.77
 ug/L
 100

 5) bromomethane
 4.50
 96
 698762
 21.58
 ug/L
 97

 6) chloroethane
 4.60
 64
 999888
 20.77
 ug/L
 #
 100

 9) carbon disulfide
 6.65
 76
 2313940
 14.78
 ug/L
 #
 100

 10) MTBE
 6.49
 88
 118317
 18.14
 ug/L
 #
 100

 12) tert-butyl alcohol
 5.83
 59
 851837
 23.44
 ug/L
 #
 13

 MEK
 8.12
 72
 99625
 14.16
 ug/L
 #
 100

 13) methylene chloride
 6.50
 84
 1430291
 21.31
 ug/L
 #
 100

 16) 1,1-dichloroethane
 7.55
 63
 2519655
 18.29
 ug/L</ Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration DC62403.D T6080311.M Fri Feb 24 129604:40 2012 GCMS2 Page 1

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Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\DC62403.D Vial: 34
Acq On : 6 Aug 2011 6:31 am
Sample : 20ppb cal3 624/5ml
                                                       Operator: A. Thomas
                                                       Inst : GC/MS Ins
                                                       Multiplr: 1.00
Misc
MS Integration Params: events.e
Quant Time: Feb 24 12:57 19112 Quant Results File: T6080311.RES
Quant Method : C:\HPCHEM\1\METHODS\T6080311.M (Chemstation Integrator)
Title : VOA
Last Update : Fri Feb 24 12:57:02 2012
Response via : Initial Calibration
DataAcq Meth : VOC2
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	Compound	R.T.	QIon	Response	Conc Unit	∙Qv	alue
34)	bromodichloromethane	11.64	83	1410378	16.17 ug/L	#	66
35)	cis-1,3-dichloropropene	12.50	75	868133	9.66 ug/L	#	93
37)	toluene	13.08	91	4242040	19.50 ug/L	#	100
38)	trans-1,3-dichloropropene	13.34	75	527492	6.32 ug/L	#	100
39)	2-hexanone	13.57	58	344240	14.22 ug/L	#	74
40)	1,1,2-trichloroethane	13.62	83	792140	18.20 ug/L	#	100
41)	tetrachloroethene	14.22	166	1800583	25.84 ug/L	#	76
42)	dibromochloromethane	14.57	129	779704	13.57 ug/L	#	100
43)	1,2-dibromoethane	14.93	107	974198	18.27 ug/L	#	98
45)	chlorobenzene	15.66	112	2555638	18.85 ug/L	#	100
46)	ethyl benzene	15.72	91	4969757	19.15 ug/L		100
47)	m/p-xylene	15.86	91	8470791	38.25 ug/L		100
48)	o-xylene	16.65	91	4245054	19.44 ug/L	#	83
49)	styrene	16.71	104	2381097	18.90 ug/L		95
50)	isopropyl benzene	17.28	105	4654684	19.44 ug/L		99
51)	bromoform	17.37	173	401490	11.32 ug/L	#	100
52)	1,1,2,2-tetrachloroethane	17.58	83	1135906	16.92 ug/L	, #	98
54)	1,3-dichlorobenzene	19.83	146	2143075	20.37 ug/L	, #	100
55)	1,2-dichlorobenzene	20.72	146	1987443	19.61 ug/L	#	74
57)	1,4-dichlorobenzene	20.02	146	2134444	18.42 ug/L	#	72
58)	1,2-dibromo-3-chloropropan	22.19	75	133382	11.13 ug/L		97
59)	1,2,4-trichlorobenzene	23.87	180	1291090	18.66 ug/L		98
60)	Napthalene	24.38	128	2064964	15.46 ug/L		100
61)	1,2,3-trichlorobenzene	24.85	180	1181715	18.29 ug/L		99

r Ins 0311.RES		l, Jb-enesznedo	τοίποι ία-4,1 Μ,Τ ; ε Μ	M,T, anarrado nasradoroid: T, enasnadoroid: M,T, enasr M,		16qorqotala-6-om analgrifqsh 1-5,2,1		19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00
UG04\DC62403.D Vial: 34 Operator: A. Th Inst : GC/MS Multiplr: 1.00 Quant Results File: T608 311.M (Chemstation Integrato	TIC: DC62403.D	М,Т , опоlүx фМ, б	5 ۳.۳.۹ ۳.۳.۹ ۳.۳.۹ ۳.۳.۹ ۳.۳.۹ ۳.۳.۹ ۳.۳.۹ ۳.۳.۹ ۳.۳.۹ ۳.۳.۹ ۳.۳.۹ ۳.	, (S) 8b _M q49(S), i M, M, T, enetise M, T, enetise M, P, enetise M, P, enetise M, P, enetise M, e	M, T, enethane, T, M opene, T, M (Tolue Pere, T, M (Tichloroethane, T, hane, T, M T, M T, M T, M T, M	bromodichioi BK, T,M cis-1,3-dichioropro dibromochloromei ,2-dibromoethane, ,2-dibromoethane, ,2-dibromoethane,		0 12.00 13.00 14.00 15.00 16.00 17.00 18.00 1
<pre>a File : C:\HPCHEM\1\DATA2011\AUG11\AU On : 6 Aug 2011 6:31 am ple : 20ppb cal3 624/5m1 c : Integration Params: events.e at Time: Feb 24 12:57 19112 nod : C:\HPCHEM\1\METHODS\T60800</pre>	Le : VOA t Update : Fri Feb 24 12:59:41 2012 ponse via : Initial Calibration ce		д М,Т,Э ,эле	0 М,Т,ә М,Т,а М,Т,а М,Т,а М,Т,а М,Т,2 М, М, С,2 С, М, М, С, С, М, М, М, С, С, М, М, С, С, М, С, С, М, С, С, М, С, С, М, С, С, М, С, С, М, С, С, С, М, С, С, С, М, С, С, С, С, С, С, С, С, С, С, С, С, С,	 Θ M,T, M,T, ansh M,T,T, ansh M,T, , ansh M,T,T, ansh M,T,T, ansh<td>۲۰۰۵ ۲۰۰۹ ۲۰۰۹ ۲۰۰۹ ۲۰۰۹ ۲۰۰۹ ۲۰۰۹ ۲۰۰۹</td><td>Dichion Dichion</td><td>0 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 11.00</td>	۲۰۰۵ ۲۰۰۹ ۲۰۰۹ ۲۰۰۹ ۲۰۰۹ ۲۰۰۹ ۲۰۰۹ ۲۰۰۹	Dichion Dichion	0 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 11.00
Dat Acc San Mis MS Qua MS	Tit La: Re: Abunda 6000	550(5000 4500	8 298	350(2500	1500	200	Time>

Page 3

Quantitation Report (QT Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\DTC62401.D Vial: 1 Acq On: 5 Aug 2011 10:42 amOperator: A. ThomasSample: 20ppb cal 624full/5ml 8/4/11Inst: GC/MS InsMisc::Multiplr: 1.00 Multiplr: 1.00 Misc : MS Integration Params: events.e Quant Time: Feb 24 13:00 19112 Quant Results File: T6080311.RES Quant Method : C:\HPCHEM\1\METHODS\T6080311.M (Chemstation Integrator) Title : VOA Last Update : Fri Feb 24 12:59:41 2012 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.3596595375415.00 ug/l-0.0144) chlorobenzene-d515.62117445375615.00 ug/L-0.0156) 1,4-dichlorobenzene-d420.00152252433415.00 ug/L0.00 System Monitoring Compounds 21) dibromofluoromethane (S) 9.06 113 1996729 29.87 ug/L -0.01 Spiked Amount 30.000 Range 80 - 120 Recovery = 99.57% 26)1,2-dichloroethane-d4(S)9.8410247587631.41ug/L-0.01Spiked Amount30.000Range80 - 120Recovery=104.70%36)toluene-d8(S)12.9798557893529.03ug/L-0.01Spiked Amount30.000Range80 - 120Recovery=96.77% 53) 4-bromofluorobenzene (BFB) 17.79 95 2571044 29.93 ug/L 0.00 Spiked Amount 30.000 Range 80 - 120 Recovery = 99.77% Target CompoundsQvalue2) Dichlorodifuloromethane3.4185125663513.13ug/L973) chloromethane3.8250155443714.80ug/L964) vinyl chloride3.8962132996415.27ug/L975) bromomethane4.5196116050926.93ug/L#6) chloroethane4.6164108538016.94ug/L#10) MtBe6.6576285603813.70ug/L#10) MtBe6.697321672978.70ug/L#11) 1, 4 Dioxane6.528813907616.02ug/L#12) tert-butyl alcohol5.86591005459103.93ug/L#13) MEK8.157213148614.04ug/L7814) acetone5.595820189117.46ug/L#15) trichlorofluoromethane4.97101215790913.99ug/L#10)methylene chloride6.518415832217.73ug/L#10)methylene chloride6.9461229118414.53ug/L#10)nethylene chloride6.9461229118414.68ug/L#11) 1,1-dichloroethane9.3697178212413.15ug/L#10012) br Qvalue Target Compounds

(#) = qualifier out of range (m) = manual integration DTC62401.D T6080311.M Fri Feb 24**299**:04:45 2012 GCMS2 Page 1

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\DTC62401.D Vial: 1 Acq On : 5 Aug 2011 10:42 am Sample : 20ppb cal 624full/5ml 8/4/11 Misc : Operator: A. Thomas Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Time: Feb 24 13:00 19112 Quant Results File: T6080311.RES Quant Method : C:\HPCHEM\1\METHODS\T6080311.M (Chemstation Integrator) Title : VOA Last Update : Fri Feb 24 12:59:41 2012 Response via : Initial Calibration DataAcq Meth : VOC2

	Compound	R.T.	QIon	Response	Conc Unit	Qv	alue
33)	cis-1,2-dichloroethene	8.49	61	2574191	17.16 ug/L	#	100
34)	bromodichloromethane	11.67	83	1454710	12.53 ug/L	#	66
35)	cis-1,3-dichloropropene	12.53	75	1097602	9.18 ug/L	I.	99
37)	toluene	13.11	91	4367159	15.08 ug/L	#	100
38)	trans-1,3-dichloropropene	13.37	75	716994	6.46 ug/L	#	100
39)	2-hexanone	13.61	58	333358	10.34 ug/L	#	75
40)	1,1,2-trichloroethane	13.65	83	872314	15.06 ug/L	#	100
41)	tetrachloroethene	14.25	166	2150740	23.19 ug/L	#	76
42)	dibromochloromethane	14.60	129	848237	11.09 ug/L	#	100
43)	1,2-dibromoethane	14.96	107	1098436	15.48 ug/L	#	92
45)	chlorobenzene	15.69	112	2634734	15.30 ug/L	#	100
46)	ethyl benzene	15.75	91	4966852	15.07 ug/L	J	100
47)	m/p-xylene	15.89	91	8554552	30.41 ug/L	#	82
48)	o-xylene	16.69	91	4256096	15.34 ug/L	J	100
49)	styrene	16.74	104	2366768	14.79 ug/L	J	94
50)	isopropyl benzene	17.31	105	4594257	15.11 ug/L	J	100
51)	bromoform	17.40	173	453134	10.06 ug/L	, #	100
52)	1,1,2,2-tetrachloroethane	17.62	83	1196752	14.04 ug/L	, #	98
54)	1,3-dichlorobenzene	19.86	146	2111897	15.81 ug/L	, #	100
55)	1,2-dichlorobenzene	20.77	146	1982623	15.40 ug/L	I	98
57)	1,4-dichlorobenzene	20.06	146	2076769	15.02 ug/L	, #	91
58)	1,2-dibromo-3-chloropropan	22.23	75	171517	11.99 ug/L	ı	97
59)	1,2,4-trichlorobenzene	23.92	180	1340944	16.25 ug/L	ı	95
60)	Napthalene	24.43	128	2575739	16.16 ug/L	ı	100
61)	1,2,3-trichlorobenzene	24.90	180	1260120	16.35 ug/I	ı	99

(#) = qualifier out of range (m) = manual integration DTC62401.D T6080311.M Fri Feb 24**300**:04:46 2012 GCMS2 Page 2

Quant Results File: T6080311.RES Inst : GC/MS Ins Multiplr: 1.00 A. Thomas : C:\HPCHEM\1\METHODS\T6080311.M (Chemstation Integrator) ----Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\DTC62401.DVial:Acq On: 5 Aug 201110:42 amSample: 20ppb cal 624full/5ml 8/4/11Inst MS Integration Params: events.e Quant Time: Feb 24 13:00 19112 Method Misc

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1	M,T ,enelstigsv	12								
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Page 3

GCMS2

Fri Feb 24 13:04:48 2012

DTC62401.D T6080311.M

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\DTC62402.D Vial: 21

 Acq On
 : 5 Aug 2011 11:02 pm
 Operator: A. Thomas

 Sample
 : 20ppb cal2 624/5ml
 Inst : GC/MS Ins

 Misc
 :
 Multiplr: 1.00

 MS Integration Params: events.e Quant Time: Feb 24 13:00 19112 Quant Results File: T6080311.RES Quant Method : C:\HPCHEM\1\METHODS\T6080311.M (Chemstation Integrator) Title : VOA Last Update : Fri Feb 24 12:59:41 2012 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) -1) fluorobenzene10.3496492190215.00 ug/l-0.0244) chlorobenzene-d515.61117393067915.00 ug/L-0.0256) 1,4-dichlorobenzene-d419.98152218995515.00 ug/L-0.02 System Monitoring Compounds 21) dibromofluoromethane (S) 9.06 113 1698244 30.73 ug/L -0.01 Spiked Amount 30.000 Range 80 - 120 Recovery = 102.43%

 26)
 1,2-dichloroethane-d4 (S)
 9.83
 102
 386781
 30.88
 ug/L
 -0.02

 Spiked Amount
 30.000
 Range
 80
 - 120
 Recovery
 =
 102.93%

 36)
 toluene-d8
 (S)
 12.96
 98
 4819323
 30.33
 ug/L
 -0.02

 Spiked Amount
 30.000
 Range
 80
 - 120
 Recovery
 =
 101.10%

 53) 4-bromofluorobenzene (BFB) 17.78 95 2183478 28.81 ug/L -0.02 Spiked Amount 30.000 Range 80 - 120 Recovery = 96.03%

 Target Compounds
 Qvalue

 2) Dichlorodifuloromethane
 3.40
 85
 1302791
 16.47
 ug/L
 100

 3) chloromethane
 3.83
 50
 2080988
 23.96
 ug/L
 92

 4) vinyl chloride
 3.88
 62
 1373739
 19.07
 ug/L
 98

 5) bromomethane
 4.51
 96
 743213
 20.86
 ug/L
 99

 6) chloroethane
 4.61
 64
 1024636
 19.35
 ug/L
 #
 100

 8) Methyl Acetate
 6.23
 74
 687617
 59.35
 ug/L
 #
 100

 10) MTBE
 6.66
 73
 2132263
 10.36
 ug/L
 #
 100

 11) 1, 4 Dioxane
 6.52
 88
 118247
 16.48
 ug/L
 #
 100

 12) tert-butyl alcohol
 5.85
 59
 929312
 116.20
 ug/L
 #
 100

 13) MEK
 8.14
 72
 112082
 14.48
 ug/L
 #
 100

 14) acetone
 5.06
 18
 14832
 15.53
 ug/L
 # Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration DTC62402.D T6080311.M Fri Feb 24 **302**:04:51 2012 GCMS2 Page 1

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\DTC62402.D Vial: 21 Acq On : 5 Aug 2011 11:02 pm Sample : 20ppb cal2 624/5ml Operator: A. Thomas Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Time: Feb 24 13:00 19112 Quant Results File: T6080311.RES Quant Method : C:\HPCHEM\1\METHODS\T6080311.M (Chemstation Integrator) Title : VOA Last Update : Fri Feb 24 12:59:41 2012 Response via : Initial Calibration DataAcq Meth : VOC2

Compound R.T. QIon Response Conc Unit Qvalue CompoundR.T. QlonResponseConc UnitQvalue34)bromodichloromethane11.6683158931216.56 ug/L #9835)cis-1,3-dichloropropene12.52759667669.78 ug/L #9337)toluene13.1091470086719.64 ug/L #10038)trans-1,3-dichloropropene13.36756122236.67 ug/L #10040)1,1,2-trichloroethane14.24166217399128.35 ug/L #10041)tetrachloroethane14.59107114707719.55 ug/L #10043)1,2-dibromoethane14.95107114707719.55 ug/L #10045)chlorobenzene15.68112279448018.39 ug/L #10046)ethylbenzene15.68112279448018.39 ug/L #8247)m/p-xylene16.6791448497518.32 ug/L #8248)o-xylene16.673104254757318.04 ug/L9650)isopropyl benzene17.30105499358918.60 ug/L9651)bromoform17.3917343129610.84 ug/L10052)1,2,2-tetrachloroethane17.6083124986516.61 ug/L10052)1,2,2-tetrachloroethane17.6083124986516.61 ug/L7258)1,2-dichlorobenzene20.75146211193418.59 ug/L8457)1, •

(#) = qualifier out of range (m) = manual integration DTC62402.D T6080311.M Fri Feb 24 **303**:04:51 2012 GCMS2 Page 2

Thomas

Å. 21

••• .. Vial: Operator

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C:\HPCHEM\1\DATA2011\AUG11\AUG04\DTC62402

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Acq

. .

File

Data

Page 27.00 26.00 25.00 M,T ,enexnedoroldoint-E,S,1 M,T, anelentqsN 24.00 M,T, enscredoroldold-4,2,1 23.00 22.00 M,T, -dibromo-3-chloropropane, 1 8 5 M,T,ensznedoroldbib-S,f T6080311.RES 20.00 M, T, and Chlorobenzene, T, Millorobenzene-d4, 1 GC/MS Ins 19.00 Integrator) 1.00 18.00 M, Т, т.т. 2,2-гейтасhlorоеthane, Т, А-bromofluorobenzene (ВFВ), S File: 16.00 17.00 M,T ,enezned lyqorqoal Я GCMS 2 M,T,ensiyx-o M,T,ensiyae Multipl **TIC: DTC62402.D** (Chemstation chlotenergenerged M. C. T. M Inst Results 15.00 M,T,ensitisomordib-S,f M,T ,ensitemotohlocomethane, T,M 14.00 M,T, enertheoroldositet 2012 Quant M,T, ensitseoroldoint-S, t, t M,T, energeneration of the ment 10.00 11.00 12.00 13.00 S ((S) 80 an en lot Σ 13:04:53 M,T ,3-dichloropropene, T,alo C:\HPCHEM\1\METHODS\T6080311 M,T ,ensithemoroldolbomord M,T,D, , anstropropane, C,T,M 2012 M,T, anertheorolinait l, eneznedorouft 24 M,T, ansitre Poly and the streng of the stre 12:59:41 Calibration щd Feb M,T ,enstheoroldoith-t,t,t-9.00 S (49) annathannanatha **OGEND** Params: events.e L 11:02 624/5ml БĽі 8.00 WEK' 1'W M,T, ensite oroldoib-1,1 24 7.00 M,T, anatheroathene, t-ensu Aug 2011 Чeb M,T , abinuza, casta 20ppb cal2 nitial f, etates A lydfed, t 6.00 T6080311.M M, T/M, Japan Instand (duitbilite) Acetone, T,M н ц VOA 2.5 M,T ,ensitiemorouthorolina the H Feb M.H., P. SALERISS PORTS MS Integration 4.00 via Quant Time: Last Update M,T, ensitemorolutiboroldoid 3.00 DTC62402.D Response Sample Method Title Abundance Misc 600000 150000 0 550000 400000 350000 300000 250000 200000 100000 50000 500000 650000 450000 Time-> 304

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\LC62401.D Vial: 2

 Acq On
 : 5 Aug 2011 11:18 am
 Operator: A. Thomas

 Sample
 : 20ppb lcs 624full/5ml 8/4/11
 Inst : GC/MS Ins

 Misc
 :
 Multiplr: 1.00

 MS Integration Params: events.e Quant Time: Feb 24 12:58 19112 Quant Results File: T6080311.RES Quant Method : C:\HPCHEM\1\METHODS\T6080311.M (Chemstation Integrator) Title : VOA Last Update : Fri Feb 24 12:57:02 2012 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.3596584251415.00 ug/l-0.0144) chlorobenzene-d515.63117450944315.00 ug/L0.0056) 1,4-dichlorobenzene-d420.00152253148515.00 ug/L0.00 System Monitoring Compounds 21) dibromofluoromethane (S) 9.07 113 2067655 31.52 ug/L 0.00 Spiked Amount 30.000 Range 80 - 120 Recovery = 105.07% 26) 1,2-dichloroethane-d4 (S) 9.84 102 464017 31.21 ug/L -0.01

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 104.03%

 36) toluene-d8 (S)
 12.98
 98
 5520124
 29.27 ug/L
 0.00

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 97.57%

 53) 4-bromofluorobenzene (BFB) 17.79 95 2574354 29.60 ug/L 0.00 Spiked Amount 30.000 Range 80 - 120 Recovery = 98.67%Target CompoundsQvalue2) Dichlorodifuloromethane3.4185139608414.87ug/L993) chloromethane3.8150171049416.59ug/L984) vinyl chloride3.8962136177915.93ug/L965) bromomethane4.5296120490428.49ug/L966) chloroethane4.6064110540817.58ug/L#8) Methyl Acetate6.237420596514.98ug/L#9) carbon disulfide6.6576304948814.91ug/L#10) MTBE6.6873288244411.80ug/L#11) 1, 4 Dioxane6.518813583815.95ug/l#12) tert-butyl alcohol5.8659110916623.37ug/L9513) MEK8.157210153611.05ug/L8214) acetone5.605820204117.81ug/L9815) trichlorofluoromethane4.98101233698015.44ug/L9816) 1,1-dichloroethene5.8361282976117.24ug/L#10019) 1,1-dichloroethane7.5663308727517.16ug/L#10020) chloroform8.7385190908617.34ug/L#10021) trichloroethane9.7617159322014.42ug/L#10022) bromochlorometha Qvalue Target Compounds

(#) = qualifier out of range (m) = manual integration LC62401.D T6080311.M Fri Feb 24 **B06**04:56 2012 GCMS2 Page 1

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\LC62401.D Via1: 2 Operator: A. Thomas Acq On : 5 Aug 2011 11:18 am Sample : 20ppb 1cs 624ful1/5ml 8/4/11 Misc : Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Time: Feb 24 12:58 19112 Quant Results File: T6080311.RES Quant Method : C:\HPCHEM\1\METHODS\T6080311.M (Chemstation Integrator) Title : VOA Last Update : Fri Feb 24 12:57:02 2012 Response via : Initial Calibration DataAcq Meth : VOC2

	Compound	R.T.	QIon	Response	Conc Unit	ζ	2value
33)	cis-1,2-dichloroethene	8.48	61	2740912	18.62 ug/1	L ‡	± 100
34)	bromodichloromethane	11.67	83	1677890	14.73 ug/1	L ‡	ŧ 66
35)	cis-1,3-dichloropropene	12.53	75	1334005	11.36 ug/1	L ‡	\$ 93
37)	toluene	13.12	91	4713072	16.59 ug/1	L ‡	ŧ 100
38)	trans-1,3-dichloropropene	13.37	75	984370	9.03 ug/:	L #	\$ 100
39)	2-hexanone	13.61	58	291134	9.20 ug/:	L #	† 76
40)	1,1,2-trichloroethane	13.65	83	950277	16.72 ug/	L #	ŧ 100
41)	tetrachloroethene	14.25	166	1985105	21.81 ug/:	L ŧ	ŧ 100
42)	dibromochloromethane	14.61	129	968933	12.91 ug/	L ŧ	ŧ 100
43)	1,2-dibromoethane	14.97	107	1158217	16.63 ug/	L ŧ	\$ 99
45)	chlorobenzene	15.69	112	2835170	16.26 ug/	Lŧ	ŧ 100
46)	ethyl benzene	15.75	91	5389155	16.14 ug/	L	100
47)	m/p-xylene	15.89	91	9215524	32.35 ug/	Lŧ	\$ 82
48)	o-xylene	16.69	91	4624631	16.46 ug/	Lŧ	\$ 83
49)	styrene	16.74	104	2713744	16.75 ug/	L	100
50)	isopropyl benzene	17.31	105	5092158	16.54 ug/	L	99
51)	bromoform	17.40	173	526372	11.54 ug/	L	\$ 100
52)	1,1,2,2-tetrachloroethane	17.62	83	1342282	15.55 ug/:	L 🕯	\$ 98
54)	1,3-dichlorobenzene	19.86	146	2282201	16.87 ug/:	L	ŧ 68
55)	1,2-dichlorobenzene	20.77	146	2181660	16.74 ug/	L	\$ 59
57)	1,4-dichlorobenzene	20.06	146	2277635	16.43 ug/	Lŧ	\$ 90
58)	1,2-dibromo-3-chloropropan	22.23	75	194983	13.60 ug/	L	97
59)	1,2,4-trichlorobenzene	23.92	180	1484913	17.94 ug/	L	97
60)	Napthalene	24.43	128	2854589	17.86 ug/	L	100
61)	1,2,3-trichlorobenzene	24.90	180	1403765	18.16 ug/	L	97

Page 27.00 26.00 25.00 M,T ,eneznedorołdoint-£,\$,† M,T, anelentqaN 24.00 M,T,eneznedoroldoin-4,2,1 23.00 22.00 M,T,ensqorqoroldo-2-chloropropane, t 21.00 M,T, energeneinoidoidaib-S, f T6080311.RES 20.00 M,T,9norobenzene,1,M,1,4-dichlorobenzene-d4,1 Ins Thomas 19.00 Integrator) /MS 00. 18.00 СU 4-bromofluorobenzene (BFB), S A \sim -M,T,anotomototicstiet-S,S,r,r, File: 14.00 15.00 16.00 17.00 W,T, enezned lyqorgi Vial: Operator Ы M,T, anelyx-o -M,T, analyie Multipl GCMS2 ric: Lc62401.D (Chemstation chigheropersenser. Hip xyleno, T,M Inst Results Ω M,T ,ensiteomordib-S,h dibromochloromethane, T,M C:\HPCHEM\1\DATA2011\AUG11\AUG04\LC62401 M,T ,enstheroethere, T, Quant 2012 13.00 C:\HPCHEM\1\METHODS\T6080311.M M,T, enegoropropane, T, eis 11.00 12.00 13:04:58 WIBK' L'W M,T ,ensitemotolichloromotd 1,2-dichloropropane, C,1,M 8/4/11 2012 W,T,enetheoroldoitt 10.00 I, eneznedorouft 2 (2) Ab-ensities to mothed and the modules 24 12:59:41 Calibration 624full/5ml am M,T,enshloroethane,t,t,t 9.00 Feb 2,(2) Mdrandiamandrage Φ. M,T, enstreethere, T, 2-dichloroethere, T, M,T, C, mioroform, C, M, 11:18 events.6 58 19112 8.00 MEK, T,M ч Ч Ц M,T, ensheorothane, T,h 24 8 :58 M,T,enerterototototab-S,t-enert Aug 2011 ~ Feb M, T, bomuelo na service all the ••• Initial 20ppb lcs 12 Params Methyl Acetate, t 6.00 M,T,O, enertieorom productions intra-treat T6080311.M 24 M,T ,enotece Fri VOA 5.00 M,T, ensitemoroutionoliciti Feb M,T ,emeritamonio in in entrongo in in entropy in a ഹ чo 4.00 Ч. via M,T,D, sbirolida lyniv Quant Time: •• Last Update M,T ,ensitemorolutiboroliciQ Integra 3.00 File Response LC62401.D ő Sample Method Title Abundance Data Misc 650000 550000 400000 150000 600000 350000 300000 250000 200000 50000 0 500000 450000 000001 Acq MS Time-> 308

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\LC62402.D Vial: 35

 Acq On
 : 6 Aug 2011
 8:13 am
 Operator: A. Thomas

 Sample
 : 20ppb lcs2 624/5ml 8/5/11
 Inst
 : GC/MS Ins

 Misc
 :
 Multiplr: 1.00

 Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Feb 24 12:58 19112 Quant Results File: T6080311.RES Quant Method : C:\HPCHEM\1\METHODS\T6080311.M (Chemstation Integrator) Title : VOA Last Update : Fri Feb 24 12:57:02 2012 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.3296463433115.00 ug/l-0.0444) chlorobenzene-d515.59117364291615.00 ug/L-0.0456) 1,4-dichlorobenzene-d419.96152208107815.00 ug/L-0.04 System Monitoring Compounds 21) dibromofluoromethane (S) 9.05 113 1546952 29.73 ug/L -0.03 21) dibromolluoromethane (S)9.05113154695229.73ug/L-0.03Spiked Amount30.000Range80-120Recovery=99.10%26) 1,2-dichloroethane-d4(S)9.8110234312929.09ug/L-0.04Spiked Amount30.000Range80-120Recovery=96.97%36) toluene-d8(S)12.9598450052330.08ug/L-0.04Spiked Amount30.000Range80-120Recovery=100.27%53) 4-bromofluorobenzene(BFB)17.7695212926230.31ug/L-0.04Spiked Amount30.000Range80=120Recovery=101.03% Spiked Amount 30.000 Range 80 - 120 Recovery = 101.03% Target CompoundsQvalue2) Dichlorodifuloromethane3.3985139686818.75ug/L993) chloromethane3.8050227119927.77ug/L984) vinyl chloride3.8862145682621.48ug/L975) bromomethane4.509681528524.30ug/L976) chloroethane4.6064109400221.94ug/L#9) carbon disulfide6.6576276121117.02ug/L#10) MTBE6.667322241211.48ug/L9511) 1, 4 Dioxane6.518819667529.11ug/L#12) tert-butyl alcohol5.845994216725.02ug/L#13) MEK8.117210994415.09ug/L9614) acetone5.58586335070.37ug/L8215) trichlorofluoromethane5.00101200237216.68ug/L9916) 1,1-dichloroethene6.5184206160629.65ug/L#10017) methylene chloride6.5184206160629.65ug/L#10018) trans-1,2-dichloroethane7.5563277819919.47ug/L#9320) chloroform8.7185182415520.88ug/L#10022) bromochloromethane9.7563277819915.71ug/L#93<td Target Compounds Qvalue _____

(#) = qualifier out of range (m) = manual integration LC62402.D T6080311.M Fri Feb 24 1**309**05:01 2012 GCMS2 Page 1

Quantitation Report (Not Reviewed)

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Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\LC62402.D Vial: 35
Acq On : 6 Aug 2011 8:13 am
                                                   Operator: A. Thomas
Acq On : 6 Aug 2011 8:13 am
Sample : 20ppb lcs2 624/5ml 8/5/11
                                                   Inst : GC/MS Ins
Misc :
                                                   Multiplr: 1.00
MS Integration Params: events.e
Quant Time: Feb 24 12:58 19112
                                    Quant Results File: T6080311.RES
Quant Method : C:\HPCHEM\1\METHODS\T6080311.M (Chemstation Integrator)
Title : VOA
Last Update : Fri Feb 24 12:57:02 2012
Response via : Initial Calibration
DataAcq Meth : VOC2
```

	Compound	R.T.	QIon	Response	Conc Unit		Qvalue	
33)	cis-1,2-dichloroethene	8.47	<u>-</u> 61	2354938	20.17	ug/L	 #	100
34)	bromodichloromethane	11.64	83	1530976	16.94	ug/L	#	66
35)	cis-1,3-dichloropropene	12.50	75	1101817	11.83	ug/L	#	93
37)	toluene	13.08	91	4523164	20.07	ug/L	#	100
38)	trans-1,3-dichloropropene	13.34	75	702633	8.13	ug/L	#	100
39)	2-hexanone	13.58	58	339198	13.52	ug/L	#	74
40)	1,1,2-trichloroethane	13.63	83	888743	19.71	ug/L	#	100
41)	tetrachloroethene	14.22	166	1957548	27.11	ug/L	#	99
42)	dibromochloromethane	14.57	129	893043	15.00	ug/L	Ħ	100
43)	1,2-dibromoethane	14.93	107	1079985	19.55	ug/L	#	100
45)	chlorobenzene	15.66	112	2743979	19.48	ug/L	#	100
46)	ethyl benzene	15.72	91	5366142	19.90	ug/L	#	89
47)	m/p-xylene	15.86	91	9148288	39.76	ug/L	#	82
48)	o-xylene	16.65	91	4567290	20.13	ug/L	#	83
49)	styrene	16.71	104	2598448	19.85	ug/L		96
50)	isopropyl benzene	17.28	105	5097895	20.49	ug/L		99
51)	bromoform	17.37	173	440440	11.95	ug/L	#	100
52)	1,1,2,2-tetrachloroethane	17.59	83	1211796	17.38	ug/L	#	98
54)	1,3-dichlorobenzene	19.83	146	2302722	21.07	ug/L	#	100
55)	1,2-dichlorobenzene	20.73	146	2144199	20.37	ug/L	#	59
57)	1,4-dichlorobenzene	20.02	146	2271123	19.93	ug/L	#	72
58)	1,2-dibromo-3-chloropropan	22.20	75	141272	11.98	ug/L		92
59)	1,2,4-trichlorobenzene	23.88	180	1428502	21.00	ug/L		96
60)	Napthalene	24.39	128	2291915	17.44	ug/L		100
61)	1,2,3-trichlorobenzene	24.86	180	1274018	20.05	ug/L		98
Quantitation Report

Data File : C:\MPCHEMNIJUATX2011/AuGIIAAUG11AAUG	δ 0 Οιςηιονοσιίω 1 Νιεκ, τ, Μ 1 Μιθήτη Ασελεία, 1 Νιεκ, τ, Μ 1
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1580 Reed Road Suite A1 Pennington, NJ 08534

Tel: (609) 737-3477 Fax: (609) 737-3052 www.njal.com

Laboratory Deliverables

Prepared For PARS Environmental Drum Bench Study

Lab ID Enhanced Reductive Dechlorination (ERD)

> Samples Received 27-Jul-11

> > Reported

7/27/11 to 8/12/11

NJDEP Certified Lab 11005

Precision testing for a cleaner environment.

Study: ERD NZVI

Time point: T=30 days

Data Summaries

*		1A			EPA SA	MPLE NO.
	VO	LA FILE ORGANICS ANALY	SIS DATA SHEE	=	NZ-T	30 C-1
Lab Name:	NJAL		Contract: Drum			
Lab Code:	DEP 1100	5 Case No.: NZVI	SAS No.:	S	OG No.:	
Matrix: (soil/	water) V	ATER	Lab Sam	ple ID:	NZ-T30da	y C-1 1:2
Sample wt/v	rol 5	0 (a/ml) MI	Lab File I	D.	S62411 D	
	01. 0		Eabilitei		002411.0	
Level: (low/	med) L	OW	Date Rec	eived:	07/12/11	
% Moisture:	not dec.		Date Ana	lyzed:	08/30/11	
GC Column:	rt502.2-1	ID: 0.53 (mm)	Dilution F	actor	2.0	
						/
Soil Extract	Volume:	(uL)	Soll Aliqu	ot volui	ne:	(UL
		CON	ICENTRATION	JNITS:		
CAS NO	0.	COMPOUND (ug/L	.orug/Kg) L	JG/L		Q
75 71	Q	Dichlorodifuloromothane			1	11
73-71	-0	chloromethane			4	<u> </u>
74-07	- <u>5</u> - <u>4</u>	vinyl chloride			4	<u> </u>
74-83	<u></u>	bromomethane			4	<u> </u>
74-00	1-3	chloroethane			4	U U
75-15	<u></u>	carbon disulfide			4	<u> </u>
75-65	5-0	tert-butyl alcohol			4	<u> </u>
1634-	-04-4	MTRE			4	Ŭ
78-93	<u>-3</u>	MFK			10	Ū
67-64	-1	acetone			10	U
75-69	-4	trichlorofluoromethane			4	Ŭ
75-35	4	1.1-dichloroethene			4	U
75-09	9-2	methylene chloride			4	U
156-6	0-5	trans-1.2-dichloroethene	;		4	U
75-34	-3	1,1-dichloroethane			4	U
67-66	3-3	chloroform			4	U
108-1	0-1	MIBK			4	U
74-97	'-5	bromochloromethane			4	U
71-55	5-6	1,1,1-trichloroethane			4	U
56-23	3-5	carbon tetrachloride			4	U
107-0)6-2	1,2-dichloroethane			4	U
71-43	1-2	benzene			4	U
79-01	-6	trichloroethene			4	D
78-87	'-5	1,2-dichloropropane			4	U
156-5	9-4	cis-1,2-dichloroethene			4	U
75-27	-4	bromodichloromethane			4	U
10061	1-01-5	cis-1,3-dichloropropene			4	0
108-8	1026				4	<u> </u>
F04 7	1-02-0	2 hovenono			4	0
70.00	0-0	2-nexanone 1.1.2-trichloroothono			10	
19-00	8_1	tetrachloroethene			640	FD
127-1	18_1	dibromochloromethane			<u>040</u>	
108-0	۰۰۰۰۱ ۱۵-۲	chlorobenzene	****			<u> </u>
108-3	38-3	m/p-xylene			4	
95-47	<u>/-6</u>	0-xvlene			4	Ŭ
100-4	12-5	styrene		<u>`</u>	4	Ū
98-82	2-8	isopropyl benzene			4	Ū
75-25	j-2	bromoform			4	Ū

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7							EPA SA	MPLE I	NO.
Lab Name:	NJAL		GANICS	Contra	act: Dr	um	NZ-	Г30 C-1	
Lab Code:	DEP 1100	5 Case	No.: NZ	VI SAS	S No.:	S	DG No.:		
Matrix: (soil/v	water) V	VATER			Lab Sa	ample ID:	NZ-T30da	ay C-1 1	1:2
Sample wt/vo	ol: 5	.0 (g/ml) Ml	L	Lab Fil	e ID:	S62411.E)	
Level: (low/n	ned) L	.OW			Date R	leceived:	07/12/11		
% Moisture: I	not dec.				Date A	nalyzed:	08/30/11		
GC Column:	rt502.2-	I ID: 0.53	(mm)		Dilutio	n Factor:	2.0		
Soil Extract \	/olume:		(uL)		Soil Ali	iquot Volu	ime:		(uL)
				CONCENT	RATION	UNITS:			
CAS NO	Э.	COMPOU	IND	(ug/L or ug	/Kg)	UG/L		Q	
79-34-	-5	1,1,2,2-t	etrachlor	oethane			4	U	
541-73	3-1	1,3-dich	lorobenz	ene			4	U	
95-50-	-1	1,2-dich	lorobenz	ene			4	U	
106-46	6-7	1,4-dich	lorobenz	ene			4	U	
120-82	2-1	1,2,4-tric	chlorober	nzene			4	U	
87-61-	-6	1,2,3-tric	chlorober	nzene			4	U	

,	,				EPA SAN	MPLE NO.
	\	VOLATILE ORGANICS ANA	LYSIS DATA SHE	EI	NZ-T	30 C-2
Lab Name:	NJAL	n sama aff annan 19 an m Thi adalahan ambahadi 1921ad bi mbiddadhadad dan an ai tam Tarff a' a anna Jadas	Contract: Dru	m	-	
Lab Code:	DEP 11	005 Case No.: NZVI	SAS No.:	S	DG No.:	
Matrix: (soil/v	water)	WATER	Lab Sar	nple ID:	NZ-T30da	y C-2 1:2
Sample wt/vo	ol:	5.0 (a/ml) ML	Lab File	ID:	S62412.D	
	mod)		Data Pa	acivad	07/10/11	A.14
Level: (low/r	nea)		Date Re	ceived:	07/12/11	
% Moisture:	not dec.		Date Ar	alyzed:	08/30/11	
GC Column:	rt502.2	2-1 ID: 0.53 (mm)	Dilution	Factor:	2.0	
Soil Extract \	Volume.	(ul.)	Soil Alic	uot Volu	ime:	(ul
Con Extract	rolanio.		0017410			(01
		C	ONCENTRATION	UNITS:		
CAS NO	C	COMPOUND (u		UG/I		0
	2.		g/L of ug/r(g)	00/2		S.
75-71-	-8	Dichlorodifulorometha	ane		4	U
74-87	-3	chloromethane			4	U
75-01-	-4	vinyl chloride			4	U
74-83-	-9	bromomethane			4	U
75-00-	-3	chloroethane	· · ·		4	U
75-15-	-0	carbon disulfide			4	U
75-65	-0	tert-butyl alcohol			4	U
1634-	04-4	MTBE			4	U
78-93	-3	MEK			10	U
67-64	-1	acetone			10	U
75-69	-4	trichlorofluoromethan	e		4	U
75-35	-4	1.1-dichloroethene	-		4	U
75-09	-2	methylene chloride			4	U
156-6	0-5	trans-1.2-dichloroethe	ene		4	U
75-34	-3	1.1-dichloroethane			4	U
67-66	-3	chloroform			4	D
108-1	0-1	MIBK			4	U
74-97	-5	bromochloromethane			4	U
71-55	-6	1,1,1-trichloroethane			4	U
56-23	-5	carbon tetrachloride			4	U
107-0	6-2	1,2-dichloroethane			4	U
71-43	-2	benzene			4	U
79-01	-6	trichloroethene			5	D
78-87	-5	1,2-dichloropropane	•		4	U
156-5	9-4	cis-1,2-dichloroethene	9		4	U
75-27	-4	bromodichloromethar	ie		4	U
10061	-01-5	cis-1,3-dichloroprope	ne		4	U
108-8	8-3	toluene			4	U
10061	-02-6	trans-1,3-dichloroprop	pene		4	U
591-7	8-6	2-hexanone			10	U
79-00	-5	1,1,2-trichloroethane			4	U
127-1	8-4	tetrachloroethene			580	ED
124-4	8-1	dibromochloromethar	ne		4	U
108-9	0-7	chlorobenzene			4	U
108-3	8-3	m/p-xylene			4	U
95-47	-6	o-xylene			4	U
100-4	2-5	styrene			4	U
98-82	-8	isopropyl benzene			4	U
75-25	-2	bromoform			4	U

r				1A				EPA SA	MPLE	NO.
Lab Name:	NJAL	JLATILE	- ORGANI		Contract	A SHE	El n	NZ-T	30 C-2	2
Lab Code:	DEP 1100)5 C	Case No.:	NZVI	SAS N	lo.:	S	DG No.:		
Matrix: (soil/v	vater) V	VATER			L	.ab Sam	ple ID:	NZ-T30da	iy C-2 ′	1:2
Sample wt/vo	ol: 5	5.0	(g/ml)	ML	L	ab File	ID:	S62412.D)	
Level: (low/n	ned) L	OW			C	Date Re	ceived:	07/12/11		
% Moisture: r	not dec.				C	Date Ana	alyzed:	08/30/11		
GC Column:	rt502.2-	1 ID:	0.53 (n	ım)	C	Dilution I	Factor:	2.0		
Soil Extract V	/olume:		(uL)		S	Soil Aliq	uot Volu	ime:		(uL)
						ATION	JNITS:			
CAS NO) .	CON	IPOUND	1	(ug/L or ug/K	g)	UG/L		Q	
79-34-	.5	1,1	,2,2-tetrac	hloroe	thane			4	U	
541-73	3-1	1,3	-dichlorob	enzene	9			4	U	
95-50-	.1	1,2	-dichlorob	enzene	9			4	U	
106-46	6-7	1,4	-dichlorob	enzene	э			4	U	
120-82	2-1	1,2	,4-trichlord	benze	ene			4	U	
87-61-	6	1,2	,3-trichlorc	benze	пе			4	U	

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r			1A		JEET	EPA SA	MPLE NO.
Lab Nama:	ah Name ^r NJAL		Cont			NZ-T	30 C-3
Lab Codo:					runn S		
Lap Code:	DEP I	1005 Case No.:	NZVI 5/	45 INO.:	S	DG NO.:	
Matrix: (soil/	water)	WATER		Lab S	ample ID:	NZ-T30da	iy C-3 1:2
Sample wt/v	ol:	5.0 (g/ml)	ML	Lab F	ile ID:	S62413.D	
Level: (low/i	med)	LOW		Date I	Received.	07/12/11	
				Duici		01/12/11	
% Moisture:	not dec.	<u>-</u>		Date /	Analyzed:	08/30/11	
GC Column:	rt502	.2-1 ID: 0.53 (m	m)	Dilutio	on Factor:	2.0	
Soil Extract	Volume:	(uL)		Soil A	liauot Volu	ime:	(uL
			CONCEN	ITRATIO	N UNITS:		
CAS N	0.	COMPOUND	(ua/L or u	ia/Ka)	UG/L		Q
			(0.9.2.0.0	3. 37			-
75-71	-8	Dichlorodifulo	romethane			4	U
74-87	-3	chloromethan	е			4	U
75-01	-4	vinyl chloride				4	U
74-83	;-9	bromomethar	е			4	U
75-00	-3	chloroethane				4	<u> </u>
75-15	<u>-0</u>	carbon disulfi	<u>de</u>			4	U
75-65	-0	tert-butyl alco	hol			4	U
1634-	04-4	MIBE				4	0
78-93	-3	MEN				10	0
75.60		trichlorofluoro	mothana			10	0
75-09		1 1 dichloroet	hono			4	0
75-33)-4 1 2	methyleno.ch	lorido	-		4	0
156-6	- <u>-</u> 30-5	trans-1 2-dich	loroethene			ч Л	
75-34	-3	1 1-dichloroet	hane			4	<u> </u>
67-66	j-3	chloroform	huno			6	D
108-1	0-1	MIBK				4	U
74-97	-5	bromochloron	nethane	- ···		4	U
71-55	j-6	1,1,1-trichloro	ethane			4	U
56-23	-5	carbon tetrac	nloride			4	U
107-0	6-2	1,2-dichloroet	hane			4	U
71-43	-2	benzene				4	Ų
79-01	-6	trichloroethen	e			5	D
78-87	-5	1,2-dichlorop	opane			4	U
156-5	9-4	cis-1,2-dichlo	oethene			4	U
75-27	-4	bromodichlore	omethane			4	<u> </u>
10061	1-01-5	cis-1,3-dichio	opropene			4	0
108-8	1006	toluene				4	<u> </u>
501.7	1-02-0		loropropene			4	<u>U</u>
79-00	0-0 1-5	1 1 2-trichloro	ethane			10	<u> </u>
127-1	8-4	tetrachloroeth				620	FD
124-4	8-1	dibromochlor	methane			4	
108-9	0-7	chlorobenzen	e			4	- U
108-3	8-3	m/p-xvlene				4	Ū
95-47	-6	o-xvlene				4	Ū
100-4	2-5	styrene				4	U
98-82	8	isopropyl ben	zene			4	U
75-25	-2	bromoform				4	U

r				1A				EPA SA	MPLE N	10.
Lab Name:	NJAL				Contrac	ta She	⊢। n	NZ-T	'30 C-3	
Lab Code:	DEP 11	005	Case No.	NZVI	SAS	No.:	S	DG No.:		
Matrix: (soil/w	vater)	WATE	R		I	Lab San	nple ID:	NZ-T30da	iy C-3 1	:2
Sample wt/vo	d:	5.0	(g/m) ML	I	Lab File	ID:	S62413.D)	
Level: (low/m	ned)	LOW				Date Re	ceived:	07/12/11		
% Moisture: r	not dec.				I	Date An	alyzed:	08/30/11		
GC Column:	rt502.2	2-1 ID:	0.53 (mm)	I	Dilution	Factor:	2.0		
Soil Extract V	olume:		(uL)	ł	:	Soil Aliq	uot Volu	ime:		(uL)
					CONCENTR	ATION	UNITS:			
CAS NO).	CO	MPOUND		(ug/L or ug/k	(g)	UG/L		Q	
79-34-	5	1	1,2,2-tetra	chloroe	thane			4	U	
541-73	9-1	1	3-dichloro	benzene	e			4	U	
95-50-	1	1	2-dichloro	benzen	e			4	U	
106-46	6-7	1	4-dichloro	benzene	e			4	U	
120-82	2-1	1	2,4-trichlo	robenze	ene			4	U	
87-61-0	6	1,	2,3-trichlo	robenze	ene			4	U	

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r					EPA SA	MPLE NO
Lab Name		LATILE ORGANICS ANAL		=	NZ-T:	30 .5g-1
Lab Codo:				<u>י</u> כו		
Lab Code.	DEP 1100				DG N0	
Matrix: (soil/	water) M	ATER	Lab Sam	ple ID:	NZ-T30da	iy 0.5g-1
Sample wt/v	ol: <u>5</u>	0(g/ml) <u>ML</u>	Lab File	ID:	S62408.D	
Level: (low/i	med) L	WC	Date Rec	eived:	07/12/11	
% Moisture:	not dec.		Date Ana	alvzed:	08/30/11	
GC Column	rt502 2-1	ID: 0.53 (mm)	Dilution F	actor.	10	
Soil Extract	Volume:	(11)	Soil Alia	int Volu	me [.]	 /11
	·					(u
		co	NCENTRATION L	JNITS:		
CAS NO	Э.	COMPOUND (ug	/L or ug/Kg) נ	JG/L		Q
75-71	-8	Dichlorodifuloromethar	1e		2	U
/4-8/	-3	chloromethane			2	
75-01	-4	vinyl chloride			2	<u> </u>
74-83	-9	bromomethane			2	<u> </u>
75-00	-3	chloroethane			2	<u> </u>
75-15	-0				2	U
/5-05	-0	tert-butyl alconol			2	<u> </u>
1034-	04-4	MIBE			2	<u> </u>
78-93	-3				5	<u> </u>
75.60	-1	acelone			5	U
75-09	-4				2	U
75-33	-4	T, 1-dichloroethene			2	U
156.6	-2	trans 1.2 dishloroothor	20		2	<u> </u>
75 34	2		le		2	
67-66	-3	chloroform			2	<u>U</u>
108-1	<u>-5</u> 0_1	MIRK			2	<u> </u>
74-97	-5	bromochloromethane			2	<u> </u>
71-55		1 1 1 trichloroethane			2	<u> </u>
56-23	-5	carbon tetrachloride			2	<u> </u>
107-0	6-2	1 2-dichloroethane			2	U
71-43	-2	benzene			2	Ŭ
79-01	-6	trichloroethene			8	
78-87	-5	1.2-dichloropropane			2	U
156-5	9-4	cis-1,2-dichloroethene			0	J
75-27	-4	bromodichloromethane	9		2	U
10061	-01-5	cis-1,3-dichloropropen	e		2	U
108-8	8-3	toluene			2	U
10061	-02-6	trans-1,3-dichloroprope	ene		2	U
591-7	8-6	2-hexanone			5	U
79-00	-5	1,1,2-trichloroethane			2	U
127-1	8-4	tetrachloroethene			470	E
124-4	8-1	dibromochloromethane	<u> </u>		2	U
108-9	0-7	chlorobenzene			2	U
108-3	8-3	m/p-xylene			2	U
95-47	-6	o-xylene			2	U
100-4	2-5	styrene			2	<u> </u>
98-82	-8	isopropyl benzene			2	U
75-25	-2	bromoform			2	U

•			1A				EPA SA	MPLE	NO.
Lab Name: NJA		LE ORGANI	CS ANA	_ Contract:	Drum		NZ-T	30 .5g-	1
Lab Code: DEI	P 11005	Case No.:	NZVI	SAS No	.:	SD	G No.:		
Matrix: (soil/water) WATE	R		Lab	Sample I	D: I	NZ-T30da	ay 0.5g	-1
Sample wt/vol:	5.0	(g/ml)	ML	Lat	File ID:	:	S62408.C)	
Level: (low/med)	LOW			Dat	te Receive	:d: (07/12/11		
% Moisture: not d	ec.			Dat	te Analyze	d: (08/30/11		
GC Column: rts	502.2-1 ID:	0.53 (m	nm)	Dilu	ution Facto	or:	1.0		
Soil Extract Volur	ne:	(uL)		Soi	l Aliquot V	olun	ne:		(uL)
			СС	ONCENTRAT	ION UNIT	S:			
CAS NO.	CO	MPOUND	(นรุ	g/L or ug/Kg)	UG/L			Q	
79-34-5	1	1,2,2-tetracl	hloroetha	ane			2	U	
541-73-1	1	3-dichlorobe	enzene				2	U	
95-50-1	1	2-dichlorobe	enzene				2	U	
106-46-7	1	4-dichlorobe	enzene				2	U	
120-82-1	1	2,4-trichloro	benzene	Э			2	U	
87-61-6	1	2,3-trichloro	benzene	<u> </u>			2	U	

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,	,	1A AULATILE ORGANICS A	NALYSIS DATA SH	IFFT	EPA SA	MPLE NO.
Lah Name	NIAI		Contract: D		NZ-T	30 .5g-2
Lab Cada				<u>c</u>		
Lab Code:	DEPTI	UUD Case No NZV	5A5 NO.:	3	DG N0	
Matrix: (soil/w	/ater)	WATER	Lab S	ample ID:	NZ-T30da	y 0.5g-2
Sample wt/vo	d:	5.0 (g/ml) ML	Lab F	le ID:	S62409.D	
Level: (low/m	ied)	IOW	Date F	Received:	07/12/11	
			Duto		00/00/44	
% Moisture: n	iot dec.		Date A	Analyzed:	08/30/11	
GC Column:	rt502.2	2-1 ID: 0.53 (mm)	Dilutio	n Factor:	1.0	
Soil Extract V	olume:	(uL)	Soil A	liguot Volu	ime:	(uL
			CONCENTRATIO	N UNITS:		
CAS NO).	COMPOUND	(ug/L or ug/Kg)	UG/L		Q
75-71-8	8	Dichlorodifulorome	thane		2	U
74-87-3	3	chloromethane			2	J
75-01-4	4	vinyl chloride			2	<u> </u>
74-83-9	9	bromomethane			2	U
75-00-3	3	chloroethane			2	<u> </u>
75-15-0	0	carbon disulfide			2	<u> </u>
75-65-0	0	tert-butyl alcohol			2	U
1634-0	4-4	MTBE			2	U
78-93-3	3	MEK			5	U
67-64-1	1	acetone			5	<u> </u>
75-69-4	4	trichlorofluorometh	ane		2	U U
75-35-4	4	1,1-dichloroethene			2	<u> </u>
75-09-2	2	methylene chloride			2	U
156-60	5	trans-1,2-dichloroe	thene		2	U
	3	1,1-dichloroethane			2	U
67-66-3	3	chloroform			4	
108-10	1	MIBK			2	U
74-97-	5	bromochlorometha	ne		2	U
71-55-6	6	1,1,1-trichloroetha	ne		2	U
56-23-5	5	carbon tetrachlorid	e		2	U
107-06	j-2	1,2-dichloroethane			2	U
71-43-2	2	benzene			2	U
79-01-6	6	trichloroethene			7	
78-87-5	5	1,2-dichloropropan	e		2	U
156-59	1-4	cis-1,2-dichloroeth	ene		0	J
75-27-4	4	bromodichlorometh	nane		2	U
10061-	<u>·01-5</u>	cis-1,3-dichloropro	pene		2	U
108-88	<u>)-3</u>	toluene			2	<u> </u>
10061-	02-6	trans-1,3-dichlorop	ropene		2	U
591-78	<u>-6</u>	2-hexanone			5	<u> </u>
79-00-5	5	1,1,2-trichloroetha	ne		2	<u> </u>
127-18	-4	tetrachloroethene			450	<u> </u>
124-48	i-1	dibromochloromet	nane		2	U
108-90	-/	chlorobenzene			2	<u> </u>
108-38	-3	m/p-xylene			2	0
95-47-6	0	o-xylene			2	U
100-42	-5	styrene			2	<u> </u>
98-82-8	8	isopropyl benzene			2	<u> </u>
75-25-2	2	bromoform			2	0

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,			EPA SA	MPLE NO.
Lab Name: NJAL	VOLATILE ORGANICS AN	Contract: Drum	NZ-T	30 .5g-2
Lab Code: DEP	11005 Case No.: NZVI	SAS No.:	SDG No.:	
Matrix: (soil/water)	WATER	Lab Sample IC): NZ-T30da	ay 0.5g-2
Sample wt/vol:	5.0 (g/ml) ML	Lab File ID:	S62409.D)
Level: (low/med)	LOW	Date Received	1: 07/12/11	
% Moisture: not de	ю.	Date Analyzed	1: 08/30/11	
GC Column: rt50	02.2-1 ID: 0.53 (mm)	Dilution Factor	: 1.0	
Soil Extract Volume	e: (uL)	Soil Aliquot Vo	olume:	(uL)
	C		3:	
CAS NO.	COMPOUND (ug/L or ug/Kg) UG/L		Q
79-34-5	1,1,2,2-tetrachloroet	hane	2	U
541-73-1	1,3-dichlorobenzene		2	U
95-50-1	1,2-dichlorobenzene		2	U
106-46-7	1,4-dichlorobenzene		2	U
120-82-1	1,2,4-trichlorobenzer	ne	2	U
87-61-6	1,2,3-trichlorobenzer	ne	2	U

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r	V		1A ICS ANALYSIS		FFT	EPA SA	MPLE NO.
l ah Name		OLATILL ONOAN	Cor	utract: Dr		NZ-T	30 .5g-3
Lab Code:			N7\/I S		<u> </u>		
					V		
Matrix: (soil/w	vater)	WATER		Lab Sa	ample ID:	NZ-130da	y 0.5g-3
Sample wt/vo	ol:	5.0 (g/ml)	ML	Lab Fi	le ID:	S62410.D	
Level: (low/m	ned)	LOW		Date F	Received:	07/12/11	
% Moisture: n	not dec			Date A	nalvzed.	08/30/11	
	1500.0	4 10 0 50 (Dilutia	. Easter	4.0	
GC Column:	п502.2·	-1 ID: 0.53 (r	nm)	Dilutio	n Factor:	1.0	
Soil Extract V	'olume:	(uL)		Soil Al	iquot Volu	ime:	(uL
			CONCE	NTRATIO	N UNITS:		
CAS NO).	COMPOUND	(ug/L or	ug/Kg)	UG/L		Q
75-71-8	8	Dichlorodiful	promethane			2	U
74-87-3	3	chloromethar	าย			2	J
75-01-4	4	vinyl chloride				2	U
74-83-9	9	bromometha	ne			2	U
75-00-3	3	chloroethane	: 			2	U
75-15-0	0	carbon disulf	ide			2	U
75-65-0	0	tert-butyl alco	phol			2	U
1634-0)4-4	MTBE				2	U
78-93-3	3	MEK				5	U
67-64-	1	acetone				5	U
75-69-	4	trichlorofluor	omethane			2	U
75-35-	4	1,1-dichloroe	thene			2	U
75-09-2	2	methylene ch	loride			2	U
156-60)-5	trans-1,2-dic	hloroethene			2	U
75-34-	3	1,1-dichloroe	thane			2	U
67-66-	3	chloroform				3	
108-10)-1	MIBK				2	U
74-97-	5	bromochloro	methane			2	U
71-55-	6	1,1,1-trichlor	oethane			2	U
56-23-	5	carbon tetrac	hloride			2	U
107-06	3-2	1,2-dichloroe	thane			2	U
71-43-2	2	benzene				2	U
79-01-	6	trichloroether	ne			8	
78-87-	5	1,2-dichlorop	ropane			2	U
156-59) -4	cis-1,2-dichlo	proethene			0	J
75-27-4	4	bromodichlor	omethane			2	U
10061-	-01-5	cis-1,3-dichlo	propropene			2	U
108-88	3-3	toluene				2	U
10061-	-02-6	trans-1,3-dic	hloropropene			2	U
591-78	3-6	2-hexanone				5	U
79-00-	5	1,1,2-trichlor	oethane			2	U
127-18	3-4	tetrachloroet	nene			470	E
124-48	3-1	dibromochlor	omethane			2	U
108-90)-7	chlorobenzer	าย			2	U
108-38	3-3	m/p-xylene				2	U
95-47-4	6	o-xylene				2	U
100-42	2-5	styrene	and the second			2	U
98-82-	8	isopropyl ber	izene			2	U
75-25-	2	bromoform				2	U

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۰.	,		CT.	EPA SAMPLE NO.						
Lab Name:	NJAL	OLATI			Contra	ct: Drur	n	NZ-T	30 .5g-	3
Lab Code:	DEP 11	005	Case No.:	NZVI	SAS	No.:	S	DG No.:		
Matrix: (soil/v	vater)	WATE	R			Lab San	nple ID:	NZ-T30da	ay 0.5g-	-3
Sample wt/vo	ol:	5.0	(g/ml)	ML		Lab File	ID:	S62410.E)	
Level: (low/m	ned)	LOW				Date Re	ceived:	07/12/11		
% Moisture:	not dec.					Date An	alyzed:	08/30/11		
GC Column:	rt502.	2-1 ID:	0.53 (n	nm)		Dilution	Factor:	1.0		
Soil Extract \	/olume:		(uL)			Soil Aliq	uot Volu	me:		(uL)
					CONCENT	RATION	UNITS:			
CAS NO) .	CC	MPOUND		(ug/L or ug/	Kg)	UG/L		Q	
79-34-	-5	1	1,2,2-tetrac	hloroe	ethane			2	U	
541-73	3-1	1	3-dichlorob	enzen	e			2	U	
95-50-	-1	1	2-dichlorob	enzen	е			2	U	
106-46	5-7	1	4-dichlorob	enzen	e			2	U	
120-82	2-1	1	2,4-trichlor	obenze	ene			2	U	
87-61-	-6	1	2,3-trichlor	obenze	ene			2	U	

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r				HEET	EPA SAI	MPLE NO.
l oh Nomo	NUA	VOLATILE ORGANICS AI	Contraction D		NZ-T	30 1g-1
Lab Name:	NJAL		Contract: Di	um	_ L	
Lab Code:	DEP 1	1005 Case No.: NZVI	SAS No.:	S	DG No.:	
Matrix: (soil/	water)	WATER	Lab S	ample ID:	NZ-T30da	y 1g-1
Sample wt/v	ol:	5.0 (g/ml) ML	Lab F	ile ID:	S62405.D	
Level: /low/	mod)		Date F	Received.	07/12/11	
	meu)		Dater	veceiveu.		
% Moisture:	not dec.		Date A	Analyzed:	08/30/11	
GC Column:	rt502		Dilutio	n Factor:	1.0	
Soil Extract	Volume:	(uL)	Soil A	liquot Volu	me:	(uL
		·/				(
			CONCENTRATIO	N UNITS:		
CAS N	0.	COMPOUND	(ua/L or ua/Ka)	UG/L		Q
			(-999,			
75-71	-8	Dichlorodifuloromet	hane		2	U
74-87	-3	chloromethane			2	
75-01	-4	vinyl chloride			2	U
74-83	-9	bromomethane			2	U
75-00	1-3	chloroethane			2	U
75-15	-0	carbon disulfide			2	U
75-65	0-0	tert-butyl alcohol			2	0
1634-	04-4	MTBE			2	0
78-93	-3	MEK			5	0
67-64	-1	acetone			5	<u> </u>
75-69	1-4		ane		2	<u> </u>
75-35	<u>-4</u>	T, T-dichioroetherie			2	
156-6	<u>-2</u>	trans_1.2-dicbloroet	hene		2	
75-34	-3				2	
67-66	-3	chloroform			2	<u> </u>
108-1	0-1	MIBK			2	U
74-97	<u> </u>	bromochlorometha	ne		2	Ŭ
71-55	j-6	1.1.1-trichloroethan	e		2	Ū
56-23	9-5	carbon tetrachloride	9		2	U
107-0	6-2	1,2-dichloroethane			2	U
71-43	3-2	benzene			2	U
79-01	-6	trichloroethene			2	U
78-87	-5	1,2-dichloropropane	9		2	U
156-5	9-4	cis-1,2-dichloroethe	ene		2	U
75-27	'-4	bromodichlorometh	ane		2	U
10061	1-01-5	cis-1,3-dichloroprop	pene		2	U
108-8	8-3	toluene			2	<u> </u>
10061	1-02-6	trans-1,3-dichloropi	ropene		2	<u> </u>
591-7	8-0	2-nexanone	~		5	<u> </u>
19-00	1-0 8 A		6		2	0
12/-1	<u>0-4</u> I8_1	dibromochlorometh	200		2	
108.0	-0-1 ¥∩_7	chlorobenzene			2	
108-3	8-3	m/n-xvlene	4		2	
95-47	<u>~</u> 6	o-xvlene	рі і		2	Ŭ
100-4	2-5	styrene			2	Ŭ
98-82	2-8	isopropyl benzene			2	U
75-25	5-2	bromoform			2	U
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			1A			EPA SA	MPLE N	10.
Lab Name:	NJAL	ATILE ORGANI	CS ANALY	Contract: Drun	⊨ I n	NZ-T	30 1g-1	
Lab Code:	DEP 11005	Case No.:	NZVI	SAS No.:	S	DG No.:		
Matrix: (soil/v	vater) W	ATER		Lab Sam	ple ID:	NZ-T30da	ay 1g-1	
Sample wt/vo	ol: 5.0) (g/ml)	ML	Lab File	ID:	S62405.D)	
Level: (low/n	ned) LC	W		Date Red	ceived:	07/12/11		
% Moisture: i	not dec.			Date Ana	alyzed:	08/30/11		
GC Column:	rt502.2-1	ID: 0.53 (m	ım)	Dilution I	=actor:	1.0		
Soil Extract V	/olume:	(uL)		Soil Aliqu	uot Volu	me:		(uL)
			CON		UNITS:			
CAS NO).	COMPOUND	(ug/L	or ug/Kg)	UG/L		Q	
79-34-	5	1,1,2,2-tetrac	hloroethan	e		2	U	
541-73	3-1	1,3-dichlorob	enzene			2	U	
95-50-	1	1,2-dichlorob	enzene			2	U	
106-46	6-7	1,4-dichlorob	enzene			2	U	
120-82	2-1	1,2,4-trichlord	benzene			2	U	
87-61-	6	1,2,3-trichloro	benzene			2	U	

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×	VC				EPA SA	MPLE NO.
Lob Nama: N		JEATILE ORGANICS A	Contract		NZ-T	30 1g-2
			Contract:	Druin		
Lab Code: L	JEP 1100	Case No.: NZV	SAS N	o.: S	DG No.:	
Matrix: (soil/wa	ater) V	VATER	La	ab Sample ID:	NZ-T30da	y 1g-2
Sample wt/vol:	5	5.0 (g/ml) ML	La	ab File ID:	S62406.D	
Level: (low/me	– I (be	0W		ate Received.	07/12/11	
	5u) <u></u>	.000		ale Neceiveu.	07/12/11	
% Moisture: no	ot dec.		D	ate Analyzed:	08/30/11	
GC Column:	rt502.2-1	1 ID: 0.53 (mm)	D	ilution Factor:	1.0	
Soil Extract Vo	olume:	(uL)	S	oil Aliquot Volu	me:	(uL
		()				
			CONCENTRA	TION UNITS:		
CAS NO		COMPOUND	(ug/L or ug/Ko) UG/I		0
			(-333			_
75-71-8		Dichlorodifulorome	thane		2	U
74-87-3		chloromethane			3	
75-01-4		vinyl chloride			2	U
74-83-9		bromomethane			2	U
75-00-3		chloroethane			2	U
75-15-0		carbon disulfide	(<u></u>		2	U
75-65-0		tert-butyl alcohol			2	U
1634-04	-4	MTBE			2	U
78-93-3		MEK			5	U
67-64-1		acetone			5	U
75-69-4		trichlorofluorometh	ane		2	U
75-35-4		1,1-dichloroethene	·		2	0
	-	methylene chloride	<u>}</u>		2	<u> </u>
156-60-	5	trans-1,2-dichloroe	thene		2	0
75-34-3		1,1-dichloroethane	;		2	U
07-00-3	4				2	0
74.07.5	I	MIDN bromochloromothe			2	0
74-97-5					2	
71-33-0 56 22 5	• • • • •	1, 1, 1-thentoroetha			2	
107.06	2	1.2 dichloroothance			2	
71_43_2	<u> </u>	henzene	; 		2	<u> </u>
79-01-6		trichloroethene			2	<u> </u>
78-87-5		1 2-dichloropropar	1e		2	U
156-59-	4	cis-1 2-dichloroeth	ene		2	<u> </u>
75-27-4		bromodichloromet	nane		2	<u> </u>
10061-0)1-5	cis-1.3-dichloropro	pene		2	U
108-88-	3	toluene			0	J
10061-0)2-6	trans-1,3-dichlorop	propene		2	U
591-78-	6	2-hexanone			5	U
79-00-5		1,1,2-trichloroetha	ne		2	U
127-18-	4	tetrachloroethene			7	8
124-48-	1	dibromochloromet	nane		2	U
108-90-	7	chlorobenzene			2	U
108-38-	3	m/p-xylene			2	U
95-47-6		o-xylene			2	U
100-42-	5	styrene			2	U
98-82-8		isopropyl benzene			2	U
75-25-2		bromoform			2	U

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Lab Name:	۱ NJAL	/OLATII	LE ORGANI	CS AN	Contract:	Drum	NZ-TS	30 1g-2	2
Lab Code:	DEP 11	005	Case No.:	NZVI	SAS No.:	S	DG No.:		
Matrix: (soil/v	vater)	WATE	R		Lab	Sample ID:	NZ-T30da	y 1g-2	
Sample wt/vo	ol:	5.0	(g/ml)	ML	Lab	File ID:	S62406.D		
Level: (low/r	ned)	LOW			Date	Received:	07/12/11		
% Moisture:	not dec.				Date	Analyzed:	08/30/11		
GC Column:	rt502.2	2-1 ID:	0.53 (m	nm)	Dilut	ion Factor:	1.0		
Soil Extract \	/olume:		(uL)		Soil	Aliquot Volu	ime:		(uL)
				(CONCENTRATI	ON UNITS:			
CAS NO	D.	CO	MPOUND	((ug/L or ug/Kg)	UG/L		Q	
79-34	-5	1	1,2,2-tetrac	hloroel	thane		2	U	
541-73	3-1	1	3-dichlorob	enzene	Э		2	U	
95-50-	-1	1	2-dichlorob	enzene	Э		2	U	
106-40	6-7	1	4-dichlorob	enzene	Э		2	U	
120-82	2-1	1	,2,4-trichlord	benze	ne		2	U	
87-61	-6	1	2,3-trichloro	benze	ine		2	U	

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*		1A			EPA SA	MPLE NO.
	VOL	ATILE ORGANICS ANALY	SIS DATA SHEE	ΞT	NZ-T	30 1g-3
Lab Name:	NJAL		Contract: Drum			
Lab Code:	DEP 11005	Case No.: NZVI	SAS No.:	S	DG No.:	
Matrix: (soil/v	water) W	ATER	Lab Sam	ple ID:	NZ-T30da	y 1g-3
Sample wt/vo	ol: 5.	0 (g/ml) ML	Lab File I	D:	S62407.D	
level: (low/r	med) I(W/	Date Rec	eived.	07/12/11	
			Data Ana	lunad	00/20/11	
% Moisture:	not dec.		Date Ana	iyzea:	08/30/11	
GC Column:	rt502.2-1	ID: 0.53 (mm)	Dilution F	actor	1.0	
Soil Extract \	Volume:	(uL)	Soil Aliqu	ot Volu	me:	(uL)
		CON	CENTRATION L	JNITS:		
CAS NO	Э.	COMPOUND (ug/L	or ug/Kg) U	JG/L		Q
			1			
75-71-	-8	Dichlorodifuloromethane			2	0
74-87-	-3	chloromethane			2	
75-01-	-4	Vinyl chloride			2	<u> </u>
74-83-	-9	bromometnane			2	
75-00-	-3	chloroethane			2	
75-15-	-0				2	
10-05-	-0				2	0
79.02	2				5	<u> </u>
	-5				5	
75.60	-1	trichlorofluoromethane			2	
75-35	-4	1 1-dichloroethene			2	
75-09-		methylene chloride			2	U
156-60	0-5	trans-1 2-dichloroethene			2	U
75-34	-3	1 1-dichloroethane			2	U
67-66-	-3	chloroform			2	U
108-10	0-1	MIBK			2	U
74-97-	-5	bromochloromethane			2	U
71-55-	-6	1,1,1-trichloroethane			2	U
56-23-	-5	carbon tetrachloride			2	U
107-0	6-2	1,2-dichloroethane			2	U
71-43	-2	benzene			2	U
79-01	-6	trichloroethene			2	U
78-87-	-5	1,2-dichloropropane			2	U
156-59	9-4	cis-1,2-dichloroethene			2	U
75-27-	-4	bromodichloromethane		*****	2	U
10061	-01-5	cis-1,3-dichloropropene			2	<u> </u>
108-8	8-3	toluene			2	U
10061	-02-6	trans-1,3-dichloropropen	e		2	U
591-7	8-6	2-hexanone			5	<u> </u>
/9-00-		1,1,2-tricnioroethane			12	0
127-10	0-4	dibromochlaromothera			i3	11
124-4	0-1	abiomocnioromethane			2	<u> </u>
100-9	<u>v-1</u> 8.3	m/n_vy/opo			2	<u> </u>
05 47	6				2	11
100 4	-0	shrono			2	
09.92	_8	isonronyl benzene			2	
75_25	-0	bromoform			2	<u> </u>
10-20	<u> </u>	bromororm			۷	

•					EPA SA	MPLE N	I O.	
Lab Name:	VOL	ATILE ORGANI	CS ANA	Contract: Dr	um	NZ-T	30 1g-3	\$
Lab Code:	DEP 11005	Case No.:	NZVI	SAS No.:	S	DG No.:		
Matrix: (soil/wa	ater) WA	TER		Lab Sa	mple ID:	NZ-T30da	ay 1g-3	
Sample wt/vol:	5.0	(g/ml)	ML	Lab Fil	e ID:	S62407.D		
Level: (low/me	ed) LO	W		Date R	eceived:	07/12/11		
% Moisture: no	ot dec.			Date A	nalyzed:	08/30/11		
GC Column:	rt502.2-1	ID: 0.53 (m	ım)	Dilution	n Factor:	1.0		
Soil Extract Vo	olume:	(uL)		Soil Ali	quot Volu	me:		(uL)
			C	ONCENTRATION	UNITS:			
CAS NO.		COMPOUND	(u	g/L or ug/Kg)	UG/L		Q	
79-34-5		1,1,2,2-tetrac	hloroeth	ane		2	U	
541-73-	1	1,3-dichlorob	enzene			2	U	
95-50-1	100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100	1,2-dichlorob	enzene			2	U	
106-46-	7	1,4-dichlorob	enzene			2	U	
120-82-	1	1,2,4-trichlord	benzen	e		2	U	
87-61-6		1,2,3-trichlord	benzen	e		2	U	

• .	1A		EPA SA	MPLE NO.
	VOLATILE ORGANICS ANALYS	SIS DATA SHEET	NZ-T	30 2g-1
Lab Name: NJ	AL C	Contract: Drum		
Lab Code: DE	P 11005 Case No.: NZVI	SAS No.:	SDG No.:	
Matrix: (soil/wat		Lab Sample I	D: NZ T304	av 2a-1
Matrix. (Somwate	I) WATER	Lab Sample i	D. 112-1500a	ay 29-1
Sample wt/vol:	5.0 (g/ml) ML	Lab File ID:	S62402.E)
Level: (low/med) LOW	Date Receive	ed: 07/12/11	
% Moisturo: pot		Data Analyze	d: 08/30/11	
% Woisture. not	Jec.	Date Analyze	u. 00/30/11	
GC Column: r	.502.2-1 ID: 0.53 (mm)	Dilution Factor	or: 1.0	
Soil Extract Volu	me: (uL)	Soil Aliquot V	olume:	(uL
	CONC	CENTRATION UNIT	S:	
CAS NO.	COMPOUND (ug/L	or ua/Ka) UG/L	_	Q
	()			
75-71-8	Dichlorodifuloromethane		2	U
74-87-3	chloromethane		2	J
75-01-4	vinyl chloride		2	U
74-83-9	bromomethane		2	U
75-00-3	chloroethane		2	U
75-15-0	carbon disulfide		2	U
75-65-0	tert-butyl alcohol		2	U
1634-04-4	MTBE		2	U
78-93-3	MEK		5	0
67-64-1	acetone		5	0
75-69-4	trichlorofluoromethane		2	0
75-35-4			2	0
15-09-2	metnylene chloride		2	
75 34 3			2	
67-66-3	chloroform	~	2	
108-10-1	MIBK		2	
74-97-5	bromochloromethane		2	U I
71-55-6	1.1.1-trichloroethane		2	Ū
56-23-5	carbon tetrachloride	·····	2	U
107-06-2	1,2-dichloroethane		2	U
71-43-2	benzene		2	U
79-01-6	trichloroethene		2	U
78-87-5	1,2-dichloropropane		2	U
156-59-4	cis-1,2-dichloroethene		2	U
75-27-4	bromodichloromethane		2	U
10061-01	5 cis-1,3-dichloropropene		2	U
108-88-3	toluene		2	U
10061-02	6 trans-1,3-dichloropropene	e	2	
591-78-6	2-hexanone		5	U
19-00-5			2	0
12/-10-4	dibromochloromothono		2	<u> </u>
108-00-7	chlorobenzene		2	
108-38-3	m/n-xylene		2	
95-47-6	o-xvlene		2	Ŭ
100-42-5	styrene		2	Ū
98-82-8	isopropyl benzene		2	Ū
75-25-2	bromoform		2	U

¢				-	EPA SA	MPLE NO.
	\	VOLATILE ORGANICS ANAL	YSIS DATA SHEET		NZ-T	30 2g-2
Lab Name:	NJAL		Contract: Drum			.
Lab Code:	DEP 11	005 Case No.: NZVI	SAS No.:	S	DG No.:	
Matrix: (soil/	water)	WATER	Lab Sampl	e ID:	NZ-T30da	y 2g-2
Sample wt/v	vol:	5.0 (a/ml) ML	Lab File ID):	S62403.D	
Lovel: /low/	(mod)		Data Paca	ivod:	07/12/11	
	meu)		Date Rece	iveu.	07/12/11	
% Moisture:	not dec.		Date Analy	/zed:	08/30/11	
GC Column:	rt502.	2-1 ID: 0.53 (mm)	Dilution Fa	ctor:	1.0	
Soil Extract	Volume:	(uL)	Soil Aliquo	t Volui	me:	(uL
		()				(
		CO	NCENTRATION UN	NITS:		
CAS N	Ο.	COMPOUND (uq	/Lorug/Kg) U(G/L		Q
75-71	-8	Dichlorodifuloromethan	e		2	U
74-87	′-3	chloromethane			2	
75-01	-4	vinyl chloride			2	<u> </u>
74-83	1-9	bromomethane			2	<u> </u>
75-00)-3	chloroethane			2	U
75-15	<u>j-0</u>	carbon disulfide			2	<u> </u>
75-65	<u>-0</u>	tert-butyl alcohol			2	0
1634-	-04-4	MIBE			2	0
78-93	3-3	MEK			5	0
07-04	<u>}-1</u>	acetone			2	
75-09	<u> </u>				2	
75-35)-4)_2				2	
156-6	30-5	trans-1.2-dichloroether			2	<u> </u>
75-34	<u>1-3</u>	1 1-dichloroethane			2	
67-66)-3	chloroform			2	Ū
108-1	0-1	MIBK			2	U
74-97	7-5	bromochloromethane			2	U
71-55	5-6	1,1,1-trichloroethane		_	2	U
56-23	3-5	carbon tetrachloride			2	U
107-0)6-2	1,2-dichloroethane			2	U
71-43	3-2	benzene			2	U
79-01	-6	trichloroethene			2	U
78-87	<u>′-5</u>	1,2-dichloropropane			2	U
156-5	;9-4	cis-1,2-dichloroethene			2	<u> </u>
75-27	<u>'-4</u>	bromodichloromethane)		2	<u> </u>
1006	<u>1-01-5</u>	cis-1,3-dichloropropene	e		2	U
108-8	100.0	toluene			0	J
1006	1-02-0	trans-1,3-dichioroprope	ene		<u> </u>	<u> </u>
70.00	0-0				2	0
127-1	1-5	tetrachloroethene			2	<u> </u>
124-4	18-1	dibromochloromethane	<u> </u>		2	U
108-9	30-7	chlorobenzene			2	Ŭ
108-3	38-3	m/p-xvlene	· · · · · · · · · · · · · · · · · · ·		2	Ū
95-47	7-6	o-xylene			2	Ū
100-4	2-5	styrene			2	U
98-82	2-8	isopropyl benzene			2	U
75-25	5-2	bromoform			2	U

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•			1A THE ORGANICS ANALYSIS DATA SHEET					EPA SAMPLE NO.		
Lab Name:	V NJAL	OLATI	LE ORGANI	CS AN/	ALYSIS DA Contrac	TA SHE :t: Drur	ET n	NZ-T	30 2g-2	2
Lab Code:	DEP 110	005	Case No.:	NZVI	SAS	No.:	S	DG No.:		
Matrix: (soil/v	vater)	WATE	R			Lab Sam	ple ID:	NZ-T30da	ay 2g-2	
Sample wt/vo	ol:	5.0	(g/ml)	ML		Lab File	ID:	S62403.D)	
Level: (low/n	ned)	LOW				Date Re	ceived:	07/12/11		
% Moisture: i	not dec.					Date An	alyzed:	08/30/11		
GC Column:	rt502.2	2-1 ID:	0.53 (n	ım)		Dilution	Factor:	1.0		
Soil Extract \	/olume:		(uL)			Soil Aliq	uot Volu	ime:		(uL)
				C	ONCENTR					
CAS NO) .	CC	MPOUND	(1	ug/L or ug/ŀ	(g)	UG/L		Q	
79-34-	.5	1	1.2.2-tetrac	hloroeth	nane			2	U	
541-73	3-1	1	3-dichlorob	enzene			[2	U	
95-50-	.1	1	2-dichlorob	enzene			1	2	U	
106-46	6-7	1	,4-dichlorob	enzene				2	U	
120-82	2-1	1	,2,4-trichloro	benzer	ne			2	U	
87-61-	6	1	,2,3-trichlord	benzer	ne			2	U	

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•			1A				EPA SA	MPLE NO.
	V	OLATILE OF	RGANICS	ANALYSIS [DATA SHE	ET	NZ-T	30 2q-3
Lab Name:	NJAL			Contr	act: Dru	m		J
Lab Code:	DEP 110	005 Case	No.: NZV	I SA	S No.:	S	DG No.:	
Matrix: (soil/v	water)	WATER			Lab Sar	nple ID:	NZ-T30da	ay 2g-3
Sample wt/vo	ol:	5.0	(a/ml) ML		Lab File	e ID:	S62404.D	
			(3)		Dote D		07/10/11	
Lever: (IOW/r	nea)				Date Re	eceived.	07/12/11	
% Moisture:	not dec.				Date Ar	nalyzed:	08/30/11	
GC Column:	rt502.2	2-1 ID: 0.53	(mm)		Dilution	Factor:	1.0	
Soil Extract \	Volume [,]		(ul.)		Soil Alic	uot Volu	ime:	(ul
	olumo.		(02)		0017410			(01
				CONCEN	TRATION	UNITS:		
CAS NO)	COMPO	IND	(ug/L or u	n/Ka)	UG/I		Q
0/10/110				(ugit of u	9/11/9/	00/2		~
75-71	-8	Dichlor	odifulorom	ethane			2	U
74-87-	-3	chloron	nethane				2	
75-01-	-4	vinyl ch	loride				2	U
74-83-	-9	bromon	nethane				2	U
75-00-	-3	chloroe	thane				2	U
75-15-	-0	carbon	disulfide				2	U
75-65-	-0	tert-but	yl alcohol				2	U
1634-0	04-4	MTBE					2	U
78-93-	-3	MEK					5	U
67-64-	-1	acetone	е — — — — — — — — — — — — — — — — — — —				5	U
75-69-	-4	trichlor	ofluoromet	hane			2	U
75-35-	-4	1,1-dicl	nloroethen	e			2	U
75-09-	-2	methyle	ene chlorid	e			2	U
156-60	0-5	trans-1	2-dichloro	ethene			2	U
75-34-	-3	1,1-dicl	loroethan	e			2	U
67-66-	-3	chlorof	orm				2	U
108-10	0-1	MIBK	6	1			2	U
74-97-	-5	bromoc	hlorometh	ane			2	U
71-55-	-6	1,1,1-tr	ichloroetha	ane			2	U
56-23-	-5	carbon	tetrachlorie	de			2	U
107-0	6-2	1,2-dicl	nloroethan	e			2	U
71-43-	-2	benzen	e				0	J
79-01	-6	trichlor	bethene				2	U
78-87-	-5	1,2-dicl	nloropropa	ne			2	U
156-59	9-4	cis-1,2-	dichloroeth	nene			2	U
75-27-	-4	bromod	lichloromet	thane			2	U
10061	-01-5	cis-1,3-	dichloropro	opene			2	U
108-88	8-3	toluene					0	J
10061	-02-6	trans-1	3-dichloro	propene			2	U
591-78	8-6	2-hexa	none				5	U
79-00-	-5	1,1,2-tr	ichloroetha	ane			2	U
127-18	8-4	tetrach	oroethene				2	U
124-48	8-1	dibrom	ochloromet	thane			2	U
108-90	0-7	chlorob	enzene				2	U
108-38	8-3	m/p-xyl	ene				2	U
95-47-	-6	o-xylen	e				2	U
100-42	2-5	styrene					2	U
98-82-	-8	isoprop	yl benzene	9			2	U
75-25-	-2	bromof	orm	A			2	U

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٠		01.47		1A				EPA S		ΝΟ.
Lab Name:	NJAL	OLATI	LE ORGANI	CS AN	Contra	ct: Dru	n	NZ-	T30 2g-3	5
Lab Code:	DEP 110	05	Case No.:	NZVI	SAS	No.:	S	DG No.:		
Matrix: (soil/\	water)	WATE	R			Lab San	nple ID:	NZ-T30c	lay 2g-3	
Sample wt/vo	ol:	5.0	(g/ml)	ML		Lab File	ID:	S62404.	D	
Level: (low/r	ned)	LOW				Date Re	ceived:	07/12/11		
% Moisture:	not dec.					Date An	alyzed:	08/30/11		
GC Column:	rt502.2	-1 ID:	0.53 (n	m)		Dilution	Factor:	1.0		
Soil Extract \	/olume:		(uL)			Soil Aliq	uot Volu	ime:		(uL)
					CONCENT	RATION	UNITS:			
CAS NO	D.	CO	MPOUND		(ug/L or ug/l	Kg)	UG/L		Q	
79-34	-5	1	1,2,2-tetrac	hloroe	thane			2	U	
541-7	3-1	1	3-dichlorob	enzene	e			2	U	
95-50-	-1	1	2-dichlorob	enzene	е			2	U	
106-4	6-7	1,	4-dichlorob	enzene	e			2	U	
120-8	2-1	1	2,4-trichlord	benze	ene			2	U	
87-61	-6	1	2,3-trichloro	benze	ene			2	U	

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18 ·	•						EPA SA	EPA SAMPLE NO.			
	Lab Name:	NJAL			ICS ANAL	Contract: Drum		NZ-T	NZ-T30 2g-1		
	Lab Code:	DEP 11005		Case No.:	NZVI	SAS No	.:S	DG No.:			
	Matrix: (soil/	(soil/water) V		ATER		Lat	Sample ID:	NZ-T30da	y 2g-1		
	Sample wt/v	ol:	5.0	(g/ml)	ML	Lat	o File ID:	S62402.D			
	Level: (low/i	Level: (low/med)				Dat	te Received:	07/12/11			
	% Moisture:	not dec.				Da	te Analyzed:	08/30/11			
	GC Column:	rt502.	2-1 ID:	0.53 (r	nm)	Dil	ution Factor:	1.0			
	Soil Extract	Volume:		(uL)		Soi	il Aliquot Volu	ume:		(uL)	
	CAS NO.				CO	NCENTRAT	ION UNITS:				
			CC	COMPOUND (ug		/L or ug/Kg) UG/L			Q	Q	
	79-34	79-34-5 541-73-1 95-50-1 106-46-7 120-82-1 87-61-6		,1,2,2-tetrac	chloroethar	ne		2	U		
	541-7			,3-dichlorob	enzene			2	U		
	95-50			2-dichlorob	enzene			2	U		
	106-4			1,4-dichlorobenzene				2	U		
	120-8			1,2,4-trichlorobenzene				2	U		
	87-61			1,2,3-trichlorobenzene				2	U		

III-1 Raw Chromatograms

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG30\S62402.D Vial: 6 Acq On : 30 Aug 2011 4:00 pm Sample : NZ-T30day 2g-1 Misc : Operator: A. Thomas Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 31 15:17 19111 Quant Results File: 62081211.RES Quant Method : C:\HPCHEM\1\METHODS\62081211.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 16 09:36:33 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.0296501818315.00 ug/l-0.2558) chlorobenzene-d515.28117420391715.00 ug/L-0.2684) 1,4-dichlorobenzene-d419.66152249490115.00 ug/L-0.25 System Monitoring Compounds 29) dibromofluoromethane (S) 8.74 113 1605780 28.02 ug/L -0.25 29) dibromorruoromethane (S)6.74113160376028.02ug/L-0.23Spiked Amount30.000Range80-120Recovery=93.40%35) 1,2-dichloroethane-d4(S)9.5110237328828.41ug/L-0.25Spiked Amount30.000Range80-120Recovery=94.70%48) toluene-d8(S)12.6498498788930.21ug/L-0.26Spiked Amount30.000Range80-120Recovery=100.70%68) 4-bromofluorobenzene (BFB) 17.46 95 2370768 29.46 ug/L -0.26 Spiked Amount 30.000 Range 80 - 120 Recovery = 98.20% Iarget CompoundsQvalue3) chloromethane3.72501957981.63ug/L#655) bromomethane4.27961827305.10ug/L998) methyl iodide6.031422340984.88ug/L#3011) MTBE6.37731233650.74ug/L#4713) isopropyl alcohol5.06458709138.49ug/L#3114) acrolein6.315659736075.44ug/L#117) acetone5.30581115858135.06ug/L9620) methylene chloride6.20843040504.48ug/L#8437) benzene9.72781899380.79ug/L#8949) toluene12.78912115660.88ug/L9669) 1,2,3-trichloropropane17.4675133568218.79ug/L#4789) naphthalene24.081282105741.29ug/L100 Target Compounds Qvalue

 \sim Page 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 M,T ,anaisritiden Quant Results File: 62081211.RES Thomas GC/MS Ins I,4b-ensznsdoreitisib-4,1 C:\HPCHEM\1\METHODS\62081211.M (Chemstation Integrator) 1.00 A. Q S ;(878) enstagenegenegenegene (BFB), S Multiplr: Vial: Operator: Quantitation Report GCMS2 TIC: S62402.D Inst M,T ,ensiyx-q\m chierobenzene-d5, l Ω. C:\HPCHEM\1\DATA2011\AUG11\AUG30\S62402 10.00 11.00 12.00 13.00 Mon Sep 19 11:52:33 2011 M,T,D ,eneulor C (C) 8b-ensulo? 2011 I, enexnedoroult 16 09:36:33 M,T ,enstned Calibration S ((S) Ab-ensiteoroldoib-S, I 4:00 pm 9.00 events.e S ((S) ensitiemorouftomordib Params: events. 8.00 NZ-T30day 2g-1 7.00 30 Aug 2011 Tue Aug Initial M, T_Mabi 1013 ang 1011 ang 6.00 VOA 62081211.M sopropyl alcohol, T acetone, T,M 5.00 Quant Time: Aug MS Integration M,T, ensitiemomord 4.00 Response via M,T ,ensitramorolido .. Last Update 3.00 File Acq On Sample S62402.D Method Title Abundance 450000 300000 150000 50000 o Data Misc 350000 250000 200000 400000 100000 Time-->

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\Data Acq On : 30 Aug 2011 4:35 pm Sample : NZ-T30day 2g-2 Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG30\S62403.D Vial: 7 Operator: A. Thomas Inst : GC/MS Ins Multiplr: 1.00 Misc : MS Integration Params: events.e Quant Time: Aug 31 15:17 19111 Quant Results File: 62081211.RES Quant Method : C:\HPCHEM\1\METHODS\62081211.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 16 09:36:33 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene10.0196506983815.00 ug/l-0.2658) chlorobenzene-d515.28117430373715.00 ug/L-0.2684) 1,4-dichlorobenzene-d419.66152254802615.00 ug/L-0.25 System Monitoring Compounds 29) dibromofluoromethane (S) 8.73 113 1590332 27.47 ug/L -0.26 Spiked Amount30.000Range80 - 120Recovery=91.57%35) 1,2-dichloroethane-d4 (S)9.5110239476229.74ug/L-0.25Spiked Amount30.000Range80 - 120Recovery=99.13%48) toluene-d8 (S)12.6498509728330.55ug/L-0.26Spiked Amount30.000Range80 - 120Recovery=101.83% 68) 4-bromofluorobenzene (BFB) 17.46 95 2445548 29.68 ug/L -0.25 Spiked Amount 30.000 Range 80 - 120 Recovery = 98.93% Parget CompoundsQvalue3) chloromethane3.72502618362.16ug/L#835) bromomethane4.27961593484.41ug/L978) methyl iodide6.031421976634.08ug/l#3013) isopropyl alcohol5.06458492738.19ug/L#2914) acrolein6.315671602889.51ug/l#117) acetone5.30581161419139.14ug/L9920) methylene chloride6.20842918114.26ug/L#1837) benzene9.70781661780.68ug/L#8949) toluene12.78911962880.80ug/L#9469) 1,2,3-trichloropropane17.4675133895718.40ug/L#47 Target Compounds Qvalue

iEM/1/DATA2011/A	15:17 19111	PCHEM/1/METHODS	M,T, abityi lediae, T, M, T, abityi lediae, S, (S), S
2011 4:35 pm		Aug 16 09:36:33	dibromofluoronflomortiane (S), S
day 2g-2		ial Calibration	M,T, benaznae (S), S
<pre>\AUG11\AUG30\S62403.D Vial: 7 n</pre>	Quant Results File: 62081211.RES	<pre>DS\62081211.M (Chemstation Integrator) 33 2011 71C:S62403.D</pre>	المتعدمة المعدمة معدمة المعدمة معدمة المعدمة معدمة معدمة معدمة المعدمة معدمة المعدمة معدمة معدمة المعدمة المعدمة معدمة معدمة المعدمة معدمة معدمة معدمة المعدمة معدمة

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG30\S62404.D Vial: 8 Acq On : 30 Aug 2011 5:11 pm Sample : NZ-T30day 2g-3 Operator: A. Thomas Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 31 15:17 19111 Quant Results File: 62081211.RES Quant Method : C:\HPCHEM\1\METHODS\62081211.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 16 09:36:33 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.0296521153315.00 ug/l-0.2558) chlorobenzene-d515.29117426232015.00 ug/L-0.2584) 1,4-dichlorobenzene-d419.67152249998915.00 ug/L-0.24 System Monitoring Compounds 29) dibromofluoromethane (S) 8.74 113 1678833 28.21 ug/L -0.25 Spiked Amount 30.000 Range 80 - 120 Recovery = 94.03% 35) 1,2-dichloroethane-d4 (S) 9.52 102 407505 29.87 ug/L -0.24 Spiked Amount30.000Range80 - 120Recovery=99.57%48) toluene-d8 (S)12.6598499499029.13 ug/L-0.25Spiked Amount30.000Range80 - 120Recovery=97.10% 68) 4-bromofluorobenzene (BFB) 17.47 95 2399121 29.40 ug/L -0.24 Spiked Amount 30.000 Range 80 - 120 Recovery = 98.00% Carget CompoundsQvalue3) chloromethane3.73502968252.38ug/L#655) bromomethane4.27961183373.18ug/L998) methyl iodide6.031421273402.56ug/l#3013) isopropyl alcohol5.06459560748.99ug/L#3314) acrolein6.315654229365.95ug/l#117) acetone5.31581295013150.93ug/L9620) methylene chloride6.21842425193.44ug/L#1837) benzene9.72781514100.61ug/L#8949) toluene12.78911778540.71ug/L#9469) 1,2,3-trichloropropane17.4775135430718.80ug/L#47 Target Compounds Qvalue

 \sim Page 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: 62081211.RES Thomas GC/MS Ins b-eneznedoroldbib-b-C:\HPCHEM\1\METHODS\62081211.M (Chemstation Integrator) 1.00 A. ω Multiplr: Operator: Vial: Quantitation Report GCMS2 TIC: S62404.D Inst (cplorobenzene-d5, l Ω. C:\HPCHEM\1\DATA2011\AUG11\AUG30\S62404 Mon Sep 19 11:52:43 2011 toluene, C,T,M S ((S) 8b-ensulo) 2011 fluorobenzene, i 16 09:36:33 M,T ,enezned Calibration S ,(S) 4b-enstheorodhoib-S, f шd 9.00 MS Integration Params: events.e Quant Time: Aug 31 15:17 19111 dibromofluoromethane (S), S 5:11 8.00 NZ-T30day 2g-3 7.00 30 Aug 2011 Tue Aug Initial M,T,ebingleyspelvnem 6.00 VOA 62081211.M 5.00 M,T ,anoiace T, lodopyl alcohol, T 4.00 M,T,ensitismomord Response via Chloromethane, T,M ... Last Update 3.00 File Acq On Sample Method S62404.D Title Abundance Data Misc 300000 200000 100000 0 450000 400000 350000 250000 150000 50000 Time--> 345

Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG30\S62405.D Vial: 9 Acq On : 30 Aug 2011 5:46 pm Sample : NZ-T30day 1g-1 Operator: A. Thomas Inst : GC/MS Ins Misc Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 31 15:17 19111 Quant Results File: 62081211.RES Quant Method : C:\HPCHEM\1\METHODS\62081211.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 16 09:36:33 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.0396525558715.00 ug/l-0.2458) chlorobenzene-d515.30117442724915.00 ug/L-0.2484) 1,4-dichlorobenzene-d419.68152253044915.00 ug/L-0.24 System Monitoring Compounds 29) dibromofluoromethane (S) 8.75 113 1700115 28.32 ug/L -0.24 Spiked Amount 30.000 Range 80 - 120 Recovery = 94.40% 35) 1,2-dichloroethane-d4 (S) 9.52 102 421622 30.64 ug/L -0.24 Spiked Amount 30.000 Range 80 - 120 Recovery = 102.13% 48) toluene-d8 (S)12.6598529326730.61 ug/L-0.24Spiked Amount30.000Range80 - 120Recovery=102.03% 68) 4-bromofluorobenzene (BFB) 17.47 95 2505354 29.56 ug/L -0.24 Spiked Amount 30.000 Range 80 - 120 Recovery = 98.53% Target Compounds Ovalue 3.73 50 312883 2.49 ug/L # 78 3) chlorometna...5) bromomethane 3) chloromethane 5)bromomethane4.28961019872.72ug/L8511)MTBE6.37731418020.81ug/L#4713)isopropyl alcohol5.08454013633.71ug/L#3214)acrolein6.335623878728.80ug/L#117)acetone5.325869756680.62ug/L8820)methylene chloride6.21842890264.07ug/L#8155)tetrachloroethene13.931667913938.32ug/L#7656)dibromochloromethane13.921295100697.83ug/L#9369)1,2,3-trichloropropane17.4775142532219.04ug/L#47 4.28 96 101987 2.72 ug/L 85

Quantitation Report

 \sim Page 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 File: 62081211.RES Thomas GC/MS Ins l,4b-9neznedoroldoib C:\HPCHEM\1\METHODS\62081211.M (Chemstation Integrator) 1.00 A. σ 2 (Ship) smaganganahhandaka, Multiplr: Operator: Vial: GCMS 2 TIC: \$62405.D Quant Results Inst chlorobenzene-d5, l \Box C:\HPCHEM\1\DATA2011\AUG11\AUG30\S62405. M,I, ORBRADO ROMAND Mon Sep 19 11:52:48 2011 8 ((8) 8b-eneulof 2011 l, ensznsdoroult 16 09:36:33 Calibration 2,(2) 4b-enshteroethere.5, 5 5:46 pm 9.00 Params: events.e dibromofluoromethane (S), S 7.00 8.00 NZ-T30day 1g-1 30 Aug 2011 Tue Aug I Initial (6.00 M,T, ebirolifa chloride, T, M, teiter VOA 5.00 62081211.M T, lonool alcohol, T acetone, T,M Quant Time: Aug MS Integration M,T, ensitiemomord 4.00 Vla M,T, ensitemotolda .. Last Update 3.00 File Response Acq On S62405.D Sample Method Title Abundance Data 400000 350000 300000 250000 150000 100000 0 Misc 450000 200000 50000 Time--> 347

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG30\S62406.D Vial: 10 Acq On : 30 Aug 2011 6:21 pm Sample : NZ-T30day 1g-2 Operator: A. Thomas Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 31 15:18 19111 Quant Results File: 62081211.RES Quant Method : C:\HPCHEM\1\METHODS\62081211.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 16 09:36:33 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.0396514955015.00 ug/l-0.2458) chlorobenzene-d515.30117420604015.00 ug/L-0.2484) 1,4-dichlorobenzene-d419.68152251044515.00 ug/L-0.23 System Monitoring Compounds 29) dibromofluoromethane (S) 8.75 113 1669169 28.38 ug/L -0.24 25) dibionoridoronection and (3)0.75115100510520.50ug/L0.24Spiked Amount30.000Range80-120Recovery=94.60%35) 1,2-dichloroethane-d4(S)9.5210239972829.65ug/L-0.24Spiked Amount30.000Range80-120Recovery=98.83%48) toluene-d8(S)12.6598530793931.32ug/L-0.24Spiked Amount30.000Range80-120Recovery=104.40%68) 4-bromofluorobenzene (BFB) 17.47 95 2481791 30.82 ug/L -0.24 Spiked Amount 30.000 Range 80 - 120 Recovery = 102.73% Display="block">Qvalue3) chloromethane3.73503169012.57ug/L#765) bromomethane4.2996911032.48ug/L968) methyl iodide6.06142949311.93ug/l#3011) MTBE6.39731334460.77ug/L#4713) isopropyl alcohol5.08454124823.89ug/L#3114) acrolein6.315621140326.02ug/l#117) acetone5.325868762881.11ug/L8620) methylene chloride6.21842754893.96ug/L#9449) toluene12.79911304490.53ug/L#9455) tetrachloroethene13.941666813477.31ug/L#9956) dibromochloromethane13.921294931227.73ug/L#9369) 1,2,3-trichloropropane17.4775139521819.62ug/L#47 Target Compounds Ovalue

Quantitation Report

Page 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: 62081211.RES A. Thomas GC/MS Ins 1,4b-sneznsdorelnsib-b 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 C:\HPCHEM\1\METHODS\62081211.M (Chemstation Integrator) 1.00 10 2 (8 MH) serengeratorabilitairokata,1 Vial: Multiplr: Operator: GCMS 2 TIC: S62406.D Inst cylorobenzene-d5, l C:\HPCHEM\1\DATA2011\AUG11\AUG30\S62406.D M,T,9MBRiammridda 2011 M,T,D, eneutor S ((S) 8b-ensulot Mon Sep 19 11:52:53 2011 I, enexnedorouft 16 09:36:33 Calibration S ((S) 4b-ensiteorolicib-S,1 щd 9.00 MS Integration Params: events.e Quant Time: Aug 31 15:18 19111 6:21 dibromofluoromethane (S), S 8.00 30 Aug 2011 NZ-T30day 1g-2 7.00 Tue Aug Initial M,T solide Thoride, T,M M,T solide Chloride, T,M 6.00 VOA 62081211.M T, loriotyl alcohol, T Acetone, T,M 5.00 4.00 M,T, ensitiemomord Response via M,T,ensitismorolita . . Last Update 3.00 File Acq On Sample S62406.D Method Title Misc Abundance 450000 -50000 Data 350000 0 400000 250000 200000 100000 150000 300000 Time-> 349

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Quantitation Report (Not Reviewed) Data_File : C:\HPCHEM\1\DATA2011\AUG11\AUG30\S62407.D Vial: 11 Acq On : 30 Aug 2011 6:57 pm Operator: A. Thomas : NZ-T30day 1g-3 Inst : GC/MS Ins Sample Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 31 15:18 19111 Quant Results File: 62081211.RES Quant Method : C:\HPCHEM\1\METHODS\62081211.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 16 09:36:33 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene10.0396510089215.00 ug/l-0.2458) chlorobenzene-d515.30117425177015.00 ug/L-0.2484) 1,4-dichlorobenzene-d419.67152250896515.00 ug/L-0.24 System Monitoring Compounds 29) dibromofluoromethane (S) 8.75 113 1688598 28.99 ug/L -0.24 23)dibioindificitiondibioindificiti 68) 4-bromofluorobenzene (BFB) 17.47 95 2366536 29.07 ug/L -0.24 Spiked Amount 30.000 Range 80 - 120 Recovery = 96.90% Target Compounds Ovalue Parget CompoundsQvalue3) chloromethane3.74502923302.40ug/L #795) bromomethane4.2896878272.41ug/L9913) isopropyl alcohol5.08453603713.43ug/L #2714) acrolein6.315622428627.87ug/l #117) acetone5.325862953974.96ug/L9020) methylene chloride6.21842149863.12ug/L #9855) tetrachloroethene13.93166124497813.49ug/L #7656) dibromochloromethane13.9312983632413.23ug/L #9369) 1,2,3-trichloropropane17.4775134658318.73ug/L #47

Quantitation Report

Page 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 File: 62081211.RES Thomas GC/MS Ins (,4b-eneznedorenderede,) C:\HPCHEM\1\METHODS\62081211.M (Chemstation Integrator) 1.00 À. 11 2 ((8 mts) concernational fraint-days.) Vial: Operator: Multiplr: GCMS2 TIC: S62407.D Inst Quant Results chlorobenzene-d5, 1 C:\HPCHEM\1\DATA2011\AUG11\AUG30\S62407.D M, TWalique 2011 S (S) 8b-eneulor Mon Sep 19 11:52:58 2011 fluorobenzene, l 16 09:36:33 Calibration шđ S ((S) Ab-ensiteorolitoib-S, f 9.00 MS Integration Params: events.e 6:57 2 ((2) ensitiemorouffomordib 31 15:18 19111 8.00 NZ-T30day 1g-3 7.00 30 Aug 2011 Tue Aug Initial (6.00 M,T, ebinoido emercinger T,M VOA 62081211.M T, lohojki alcohol, T M, T, enotece 5.00 Quant Time: Aug • M,T ,ensitianomord 4.00 Response via M,T ,ensitiemoroldo •• Last Update 3.00 File Sample S62407.D Acg On Method Title Abundance 450000 Data Misc 50000 400000 350000 250000 150000 0 300000 200000 100000 Time--> 351

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG30\S62408.D Vial: 12 Acq On : 30 Aug 2011 7:32 pm Sample : NZ-T30day 0.5g-1 Operator: A. Thomas Inst : GC/MS Ins Misc Multiplr: 1.00 : MS Integration Params: events.e Quant Time: Aug 31 15:18 19111 Quant Results File: 62081211.RES Quant Method : C:\HPCHEM\1\METHODS\62081211.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 16 09:36:33 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.0396483285115.00 ug/l-0.2458) chlorobenzene-d515.30117413828815.00 ug/L-0.2584) 1,4-dichlorobenzene-d419.67152237633715.00 ug/L-0.24 System Monitoring Compounds 29) dibromofluoromethane (S) 8.75 113 1607254 29.12 ug/L -0.24 29) dibionoridoronechane (3)3.73113100723429.12ug/L0.24Spiked Amount30.000Range80-120Recovery=97.07%35) 1,2-dichloroethane-d4 (S)9.5210238206330.20ug/L-0.24Spiked Amount30.000Range80-120Recovery=100.67%48) toluene-d8 (S)12.6698484853830.49ug/L-0.24Spiked Amount30.000Range80-120Recovery=101.63%68) 4-bromofluorobenzene (BFB) 17.47 95 2303067 29.07 ug/L -0.24 Spiked Amount 30.000 Range 80 - 120 Recovery = 96.90% Parget CompoundsQvalue3) chloromethane3.62502569242.22 ug/L # 685) bromomethane4.2896844882.45 ug/L 9813) isopropyl alcohol5.07451801811.81 ug/L # 3017) acetone5.325837574747.22 ug/L 9520) methylene chloride6.22841497662.29 ug/L # 1828) chloroform8.41853260223.60 ug/L # 10038) trichloroethene10.681305377777.97 ug/L # 3345) cis-1,2-dichloroethene8.1861870940.68 ug/L # 6956) dibromochloromethane13.9312927099597452.64 ug/L # 9369) 1,2,3-trichloropropane17.4775133607419.10 ug/L # 47 Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration S62408.D 62081211.M Mon Sep 19 11:53:01 2011 GCMS2 Page 1

 \sim Page 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: 62081211.RES I,4-dichlorobenzene-d4,1 A. Thomas GC/MS Ins C:\HPCHEM\1\METHODS\62081211.M (Chemstation Integrator) 1.00 12 2 ((8 mail seremperatoran) traint data, t Operator: Multiplr: Vial: Quantitation Report GCMS2 TIC: S62408.D Inst ('chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\AUG11\AUG30\S62408.D M,T, SMS016mp104Casing 9.00 10.00 11.00 12.00 13.00 Mon Sep 19 11:53:03 2011 2 (C) 8b-eneutor 2011 M,T, enerteoroldoitt I, ensznedorouñ 16 09:36:33 Calibration 2 ,(2) 4b-ensiteorolicib-S,f шd MS Integration Params: events.e 7:32 dibromofluoromethane (S), S Quant Time: Aug 31 15:18 19111 M,T,9n9thoroethene,T,A Chloroforn, C,T,M 8.00 30 Aug 2011 7: NZ-T30day 0.5g-1 7.00 Tue Aug Initial 6.00 M,T, ethylene chloride, T,M VOA 62081211.M isopropyl alcohol, T M,T ,enotese 5.00 • • 4.00 M,T ,snettemomord Response via ••• M,T ,ensitismorolito Last Update 3.00 File Acq On Sample S62408.D Method Title Abundance 5500000 Misc Data 3000000 2500000 2000000 500000 0 5000000 450000 400000 3500000 150000 100000 Time-> 353

Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG30\S62409.D Vial: 13 Acq On : 30 Aug 2011 8:06 pm Sample : NZ-T30day 0.5g-2 Operator: A. Thomas Inst : GC/MS Ins Multiplr: 1.00 Misc : MS Integration Params: events.e Quant Time: Aug 31 15:18 19111 Quant Results File: 62081211.RES Quant Method : C:\HPCHEM\1\METHODS\62081211.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 16 09:36:33 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.0396475141515.00 ug/l-0.2458) chlorobenzene-d515.30117412822715.00 ug/L-0.2584) 1,4-dichlorobenzene-d419.67152241852915.00 ug/L-0.24 System Monitoring Compounds 29) dibromofluoromethane (S) 8.76 113 1608680 29.64 ug/L -0.23 23) dibionoritoromethane (3)8.76113100808023.040.23Spiked Amount30.000Range80-120Recovery=98.80%35) 1,2-dichloroethane-d4 (S)9.5210234683527.88ug/L-0.24Spiked Amount30.000Range80-120Recovery=92.93%48) toluene-d8 (S)12.6698474053730.32ug/L-0.24Spiked Amount30.000Range80-120Recovery=101.07%68) 4-bromofluorobenzene (BFB) 17.47 95 2307751 29.20 ug/L -0.24 Spiked Amount 30.000 Range 80 - 120 Recovery = 97.33% Carget CompoundsQvalue3) chloromethane3.63502257091.99ug/L#445) bromomethane4.3096606621.79ug/L9113) isopropyl alcohol5.07452044862.09ug/L#2017) acetone5.335836812747.06ug/L8520) methylene chloride6.23841346322.10ug/L#9828) chloroform8.42853263843.66ug/L#10038) trichloroethene10.681304578346.90ug/L#3345) cis-1,2-dichloroethene8.1961748960.59ug/L#6955) tetrachloroethene13.9316638670738449.77ug/L#7656) dibromochloromethane13.9312925887306439.80ug/L#9369) 1,2,3-trichloropropane17.4775132366218.97ug/L#47 Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration S62409.D 62081211.M Mon Sep 19 11:53:06 2011 GCMS2 Page 1

 \sim Page 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: 62081211.RES A. Thomas GC/MS Ins 1,4-dichlorobenzene-d4,1 C:\HPCHEM\1\METHODS\62081211.M (Chemstation Integrator) 1.00 13 2 (8%) anomanaprophatic (8,) Operator: ... Vial: Multiplr Quantitation Report GCMS 2 TIC: S62409.D Inst chlorobenzene-d5,1 Ω C:\HPCHEM\1\DATA2011\AUG11\AUG30\S62409. Mshiemenuidaeine Mon Sep 19 11:53:08 2011 S (S) 8b-ensulot 2011 M,T, enertheoroirtoint fluorobenzene, l 16 09:36:33 Calibration 8:06 pm 2 (S) \$b-ensiteroethane-d4 (S), S 8.00 9.00 MS Integration Params: events.e Quant Time: Aug 31 15:18 19111 dibromofluoromethane (S), S M,T,Ə-dichloroethene, T,Ə-M,T,Ə,imotorofch Chloroform, C,T,M NZ-T30day 0.5g-2 7.00 30 Aug 2011 Tue Aug Initial 6.00 M,T , sbiroldo enslydfem VOA 62081211.M T, lodoto alcohol, T, M, T, enoteo alcohol, T, M, T, enoteo alcohol, T, M 5.00 ... M,T, ensittemomord 4.00 Response via • • Last Update M,T, ensitismoroldo 3.00 File Acq On Sample S62409.D Method Title Misc Abundance Data 5000000 3500000 1000000 500000 0 3000000 4500000 4000000 2500000 2000000 150000 Time--> 355

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG30\S62410.D Vial: 14 Operator: A. Thomas Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 31 15:18 19111 Quant Results File: 62081211.RES Quant Method : C:\HPCHEM\1\METHODS\62081211.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 16 09:36:33 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.0396476749615.00 ug/l-0.2458) chlorobenzene-d515.30117422402115.00 ug/L-0.2584) 1,4-dichlorobenzene-d419.67152248246615.00 ug/L-0.24 System Monitoring Compounds 29) dibromofluoromethane (S) 8.75 113 1576877 28.96 ug/L -0.23 Spiked Amount 30.000 Range 80 - 120 Recovery = 96.53% 35) 1,2-dichloroethane-d4 (S)9.5310235728828.63ug/L-0.23Spiked Amount30.000Range80- 120Recovery=95.43%48) toluene-d8 (S)12.6598487592231.08ug/L-0.24Spiked Amount30.000Range80- 120Recovery=103.60% 68) 4-bromofluorobenzene (BFB) 17.47 95 2368219 29.29 ug/L -0.24 Spiked Amount 30.000 Range 80 - 120 Recovery = 97.63% Parget CompoundsQvalue3) chloromethane3.63502267391.99ug/L #7413) isopropyl alcohol5.08451803091.83ug/L #3514) acrolein6.3256677519.01ug/L #117) acetone5.335842703054.40ug/L #9020) methylene chloride6.24841405172.18ug/L #1828) chloroform8.41852729433.05ug/L #10038) trichloroethene10.681305205477.82ug/L #9745) cis-1,2-dichloroethene8.1761780980.62ug/L #6955) tetrachloroethene13.9316640464672469.05ug/L #7656) dibromochloromethane13.9312926762400453.14ug/L #9369) 1,2,3-trichloropropane17.4775131984618.48ug/L #47 Target Compounds Qvalue

 \sim Page 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: 62081211.RES A. Thomas GC/MS Ins I,4b-enesnedoroldoib-4,1 C:\HPCHEM\1\METHODS\62081211.M (Chemstation Integrator) 1.00 14 2 (SMS) (STANDARD CONTRACTOR (STANDARD) Operator: Multiplr: Vial: •• Quantitation Report GCMS 2 TIC: S62410.D Inst Chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\AUG11\AUG30\S62410.D entrier Detricement (1946 9.00 10.00 11.00 12.00 13.00 Mon Sep 19 11:53:13 2011 S ((S) 8b-eneulor 2011 M,T ,anadtaorothairt l, eneznedorouñ Tue Aug 16 09:36:33 Calibration ---+1. NZ-T30day 0.5g-3 S ((S) 4b-ensiteoroldolb-2, f MS Integration Params: events.e Quant Time: Aug 31 15:18 19111 8 ((8) ensitiemoroultomordib cis-1,2-dichloroethene, T,M chloroform, C,T,M 8.00 7.00 Initial 6.00 M,T ,sbinold, press VOA 62081211.M isopropyl alcohol, T Acetone, T,M 5.00 . 4.00 Response via .. Last Update M,T ,ensitiemorolido 3.00 File Acq On Sample S62410.D Method Title Abyerofore Data Misc 3000000 2000000 o 500000 1500000 5000000 4500000 400000 3500000 2500000 100000 Time-> 357

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG30\S62411.D Vial: 15 Acq On : 30 Aug 2011 9:16 pm Sample : NZ-T30day C-1 1:2dil Operator: A. Thomas Inst : GC/MS Ins Misc Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 31 15:18 19111 Quant Results File: 62081211.RES Quant Method : C:\HPCHEM\1\METHODS\62081211.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 16 09:36:33 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.0496452865115.00 ug/l-0.2358) chlorobenzene-d515.29117401333915.00 ug/L-0.2584) 1,4-dichlorobenzene-d419.67152239837515.00 ug/L-0.24 System Monitoring Compounds 29) dibromofluoromethane (S) 8.76 113 1512805 29.25 ug/L -0.23 Spiked Amount 30.000 Range 80 - 120 Recovery = 97.50% 35) 1,2-dichloroethane-d4 (S)9.5210235396229.85ug/L-0.24Spiked Amount30.000Range80- 120Recovery=99.50%48) toluene-d8 (S)12.6598470154331.55ug/L-0.24Spiked Amount30.000Range80- 120Recovery=105.17% 68) 4-bromofluorobenzene (BFB) 17.47 95 2239141 29.14 ug/L -0.24 Spiked Amount 30.000 Range 80 - 120 Recovery = 97.13% Target Compounds Qvalue Qvalue28) chloroform8.42852122642.50 ug/L #10038) trichloroethene10.671301426442.26 ug/L #3355) tetrachloroethene13.9316626311172321.07 ug/L #10056) dibromochloromethane13.9212917652522314.65 ug/L #9369) 1,2,3-trichloropropane17.4775126733218.68 ug/L #47

 \sim Page 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: 62081211.RES Operator: A. Thomas GC/MS Ins 1,4-dichlorobenzene-d4,1 C:\HPCHEM\1\METHODS\62081211.M (Chemstation Integrator) Multiplr: 1.00 1 1 2 (8M3) sussimution (24) Vial: Quantitation Report GCMS 2 TIC: S62411.D Inst chlorobenzene-d5, ! Ω. C:\HPCHEM\1\DATA2011\AUG11\AUG30\S62411 MI 11. BURNIROADIN COMBINITIE 10.00 11.00 12.00 13.00 Mon Sep 19 11:53:17 2011 2 ((2) 8b-ensulot 2011 W,T, enertheoroldoitt (, enesnedorouñ Tue Aug 16 09:36:33 Calibration 9:16 pm 1:2dil S ((S) Ab-enerteoroldolb-S, f 9.00 MS Integration Params: events.e Quant Time: Aug 31 15:18 19111 dibromofluoromethane (S), S Chlorotorm, C,T,M 8.00 NZ-T30day C-1 7.00 30 Aug 2011 Initial 6.00 VOA 62081211.M 5.00 4,00 Response via • • Last Update 3.00 Data File Acq On Sample Method S62411.D Title Misc Abundance 3400000 3000000 2800000 2000000 1800000 1400000 1200000 1000000 800000 600000 200000 2600000 400000 0 3200000 2400000 2200000 1600000 Time-->

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG30\S62412.D Vial: 16 Acq On : 30 Aug 2011 9:51 pm Sample : NZ-T30day C-2 1:2dil Operator: A. Thomas Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 31 15:18 19111 Quant Results File: 62081211.RES Quant Method : C:\HPCHEM\1\METHODS\62081211.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 16 09:36:33 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.0496487569615.00 ug/l-0.2458) chlorobenzene-d515.30117406542915.00 ug/L-0.2584) 1,4-dichlorobenzene-d419.67152233681615.00 ug/L-0.24 System Monitoring Compounds 29) dibromofluoromethane (S) 8.76 113 1550851 27.85 ug/L -0.23 Spiked Amount 30.000 Range 80 - 120 Recovery = 92.83% 35) 1,2-dichloroethane-d4 (S) 9.53 102 372391 29.17 ug/L -0.23 Spiked Amount30.000Range80 - 120Recovery=97.23%48) toluene-d8 (S)12.6698472032229.42 ug/L-0.24 Spiked Amount 30.000 Range 80 - 120 Recovery = 98.07% 68) 4-bromofluorobenzene (BFB) 17.47 95 2192807 28.17 ug/L -0.24 Spiked Amount 30.000 Range 80 - 120 Recovery = 93.90% Target Compounds Qvalue Qvalue28) chloroform8.41852057402.25 ug/L #10038) trichloroethene10.691301571722.31 ug/L9255) tetrachloroethene13.9316625536588289.44 ug/L #7656) dibromochloromethane13.9312916897731279.76 ug/L #9369) 1,2,3-trichloropropane17.4775127917718.61 ug/L #47

Quant Results File: 62081211.RES Operator: A. Thomas GC/MS Ins C:\HPCHEM\1\METHODS\62081211.M (Chemstation Integrator) Multiplr: 1.00 16 Vial: Quantitation Report TIC: S62412.D Inst Ω. C:\HPCHEM\1\DATA2011\AUG11\AUG30\S62412 weld r'el 2011 Tue Aug 16 09:36:33 Calibration 9:51 pm 1:2dil MS Integration Params: events.e Quant Time: Aug 31 15:18 19111 NZ-T30day C-2 30 Aug 2011 Initial VOA Response via ••• Last Update Data File Sample Acq On Method Title Misc Abundance 3200000 3000000 3400000 2600000 2800000

9.00 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 1,4b-aneznadoroldzib-4,1 2 (GMA) erresuerununtandada GCMS2 I, chlorobenzene-d5, I Mon Sep 19 11:53:22 2011 S ((S) 8b-eneulot W,T, snethene, T,M I, eneznedorouñ 3.(2) Ab-enertheoroldolib-S, h dibromoffuoromethane (S), S 8.00 M,T,O ,motoroldo 7.00 6.00 5.00 4.00 3.00 S62412.D 0 1200000 800000 400000 200000 2400000 2200000 1800000 1600000 1400000 1000000 600000 200000 Time-->

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62081211.M

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 \sim Page 27.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 Quant Results File: 62081211.RES A. Thomas GC/MS Ins 1,4-dichlorobenzene-d4,1 C:\HPCHEM\1\METHODS\62081211.M (Chemstation Integrator) 1.00 17 2 ((8m3) errensperatornalificantet.(8,1 Multiplr: Vial: Operator: • • Quantitation Report GCMS 2 TIC: S62413.D Inst chlorobenzene-d5, l 0 C:\HPCHEM\1\DATA2011\AUG11\AUG30\S62413 M,T,eM671,emeritaking 10.00 11.00 12.00 13.00 Mon Sep 19 11:53:27 2011 S ((S) 8b-ensulo! 2011 M,T, enerthene, T,M I, enexnedorouft 16 09:36:33 Calibration 2,(2) \$b-ensite-ovidab-2,1 30 Aug 2011 10:26 pm NZ-T30day C-3 1:2dil 9.00 MS Integration Params: events.e Quant Time: Aug 31 15:18 19111 dibromofluoromethane (S), S M,T,D, miotoroldo e.00 1.00 Tue Aug Initial (6.00 VOA 62081211.M 5.00 4.00 Response via .. Last Update 3.00 Data File S62413.D Acq On Sample Method Title Abyrodonge 2000000 1600000 1400000 800000 600000 400000 0 Misc 3200000 1800000 1200000 200000 3000000 2800000 2600000 2200000 1000000 2400000 Time-> 362



1580 Reed Road Suite A1 Pennington, NJ 08534

Tel: (609) 737-3477 Fax: (609) 737-3052 www.njal.com

Laboratory Deliverables

Prepared For PARS Environmental Drum Bench Study

Lab ID Chemical Oxidation

Samples Received 27-Jul-11

Reported

7/27/11 to 8/12/11

NJDEP Certified Lab 11005

Precision testing for a cleaner environment.

Study: Chemical Oxidation Permanganate

Time point: T=0 days/Hours T=1 Day/24 Hours Data Summaries

			1A			0	EPA S	AMPLE NO).
	V	OLATILE (ORGANICS /	ANALYS	IS DATA :	SHEET	=0 GV	V Initial Ev	7
Lab Name:	NJAL			C	ontract:	PARS			
Lab Code:	DEP 110	005 Ca	se No.: Dru	m	SAS No.:	5	SDG No.:		
Matrix: (soil/	water)	WATER			Lab	Sample ID:	000031	6 drum scre	
Sample wt/v	, ol:	50	(a/ml) Ml		Lab	File ID [.]	S62409	D	-
		0.0			Eab		002400		
Level: (low/r	med)	LOW			Date	e Received:	07/27/1		
% Moisture:	not dec.				Date	e Analyzed:	07/27/1	1	
GC Column:	rt502.2	2-1 ID: 0.	53 (mm)		Dilu	tion Factor:	1.0		
Soil Extract V	Volume:		(ul)		Soil	Aliquet Vel	ume.		dХ
	volume.		(uL)		501	Aliquot vol		(L	10)
				CONC	ENTRATI	ON UNITS:	•		
CAS NO	2	COMP			r ua/Ka)	UG/I	•	0	
	J.		OUND	(ug/L u	n ug/itg/	00/L		Q	
75-71	-8	Dichl	orodifulorom	ethane			2	U	
74-87	-3	chlor	omethane				2	U	
75-01	-4	vinyl	chloride				2	U	
74-83	-9	brom	omethane				2	U	
75-00	-3	chlor	oethane				2	U	
75-15	-0	carbo	on disulfide				2	U	
75-65	-0	tert-b	utyl alcohol				2	U	
1634-	04-4	MTB	E		_		2	U	
78-93	-3	MEK			_		5	U	
67-64	-1	aceto	one		_		5	<u> </u>	
75-69	-4	trich	orofluoromet	hane			2	<u> </u>	
75-35	-4	1,1-0	lichloroethen	e			2	<u> </u>	
75-09	-2	meth	yiene chioria	e			2	0	
150-0	2-5		-1,2-0ichioro	einene			2		
67-66	-3		oform	e			2		1
108-1	<u>-3</u>	MIRK	(2		1
74-97	-5	brom	ochlorometh	ane			2	<u> </u>	
71-55	-6	111	-trichloroetha	ane			2	<u> </u>	
56-23	-5	carbo	on tetrachlori	de		<u> </u>	2	U U	
107-0	6-2	1.2-0	lichloroethan	<u>e</u>			2	U	
71-43	-2	benz	ene		_		2	U	
79-01	-6	trichl	oroethene				4		
78-87	-5	1,2-d	lichloropropa	ne			2	U	
156-5	9-4	cis-1	,2-dichloroetl	nene	_		2	U	
75-27	-4	brom	odichlorome	thane			2	U	
10061	-01-5	cis-1	,3-dichloropr	opene			2	U	
108-8	8-3	tolue	ne				2	U	
10061	-02-6	trans	-1,3-dichloro	propene			2	U	
591-7	8-6	2-he	kanone				5		
/9-00	-5	1,1,2	-trichloroetha	ane			2	U	
127-1	<u>ö-4</u>	tetra	monblass	thore			380		
124-4	0~1	ables	obenzone	nane			2		
100-9	<u>0-1</u> 8-3	m/n	oberizerie wiene				2		
05_47	<u>0-0</u> _6						2	11	1
100-4	2-5	styre	ne				2		1
98-82	-8	isopr	opyl benzene				2	Ŭ	1
75-25	-2	brom	oform				2	Ŭ	
		2.011		11-11-11-11-1-1-1-1-1-1-1-1-1-1-1-1-1-					1

						EPA SA	MPLE N	10.
Lab Name: N	VOL/	ATTLE ORGANIC	S ANALYSIS	tract: PA	RS	=0 GW	Initial E	Ēv
Lab Code:	DEP 11005	Case No.: [Drum S	AS No.:	S	DG No.:		an 1 a
Matrix: (soil/wa	ater) WA	TER		Lab Sa	mple ID:	0000316	drum sc	re
Sample wt/vol:	5.0	(g/ml)	ML	Lab File	e ID:	S62409.C)	
Level: (low/me	ed) LO	W		Date R	eceived:	07/27/11		
% Moisture: no	ot dec.			Date A	nalyzed:	07/27/11		
GC Column:	rt502.2-1	ID: 0.53 (mr	n)	Dilution	Factor:	1.0		
Soil Extract Vo	lume:	(uL)		Soil Ali	quot Volu	me:		(uL)
			CONCE	NTRATION	UNITS:			
CAS NO.		COMPOUND	(ug/L or u	ug/Kg)	UG/L		Q	
79-34-5		1,1,2,2-tetrach	loroethane			2	U	
541-73-1	1	1,3-dichlorobe	nzene			2	U	
95-50-1		1,2-dichlorobe	nzene			2	U	
106-46-	7	1,4-dichlorobe	nzene			2	U	
120-82-	1	1,2,4-trichlorot	enzene			2	U	_
87-61-6		1,2,3-trichlorot	enzene			2	U	

				1A				EPA SA	MPLE N	10.
		V	OLATILE	ORGANICS	ANALYSIS D	ATA SH	IEET	T-24	PM C-1	
Lab N	lame:	NJAL			Contra	act:				
Lab C	ode:	DEP 110	005 C	ase No.:	SAS	S No.:	S	DG No.:		
Matrix	c: (soil/v	water)	WATER			Lab Sa	ample ID:	T-24 PM	C-1	
Samo	le wt/vo	ol.	0.5	(a/ml) Ml		Lab Fi	le ID:	TS62413	D	
Camp	()			(9,111)		Data		07/07/44		
Level	: (IOW/r	med)	LOW			Date F	(eceived:	07/27/11		
% Mo	isture:	not dec.	·			Date A	Analyzed:	07/30/11		
GC C	olumn:	rt502.2	2-1 ID: (0.53 (mm)		Dilutio	n Factor:	10.0		
Soil F	xtract \	Volume [.]		(ul.)		Soil Al	iquot Volu	ime:		(uL)
CON L	Audot	olumo.		(uz)		00174	iquet rele			()
					CONCENT	RATIO	N UNITS:			
(CAS NO	D.	COM	POUND	(ua/L or ua	/Ka)	UG/L		Q	
					(-33				_	
	75-71	-8	Dic	hlorodifulorom	nethane			20	U	
	74-87	-3	chlo	promethane				20	U	
	75-01	-4	viny	/l chloride				20	U	
	74-83	-9	bro	momethane				20	<u> </u>	
	75-00	-3	chlo	proethane				20	U	
	75-15	-0	carl	bon disulfide				20	U	
	75-65	-0	tert	-butyl alcohol				20	U	
	1634-	04-4	MT	BE				20	U	
	78-93	-3	ME	к				50	U	
	67-64	-1	ace	tone				570	D	
	75-69	-4	trick	nlorofluoromet	thane			20	U	
L	75-35	-4		-dichloroether	ne			20	U	
Ĺ	75-09	-2	me	thylene chloric	de			47	D	
Ļ	156-6	0-5	trar	1s-1,2-dichloro	pethene			20	U	
-	75-34	-3	1,1-	-dichloroethan	ne			20	U	
-	67-66	-3	chic	proform				20	U	
-	108-1	0-1	MIE	3K				20	U	
-	74-97	-5	bro	mochlorometr	nane			20		
-	71-55	-6	1,1	<u>1-trichloroeth</u>	ane			20	<u>U</u>	
-	56-23	-5		bon tetrachior	ide			20		
-	107-0	6-2	1,2	-dichioroethar	ie			20	0	
-	71-43	-2	Der	Izene				20		
-	79-01	-0		diablesensens				20		
	76 12	- <u>⊃</u>	112	-dichloropropa	ane 2 Trifluorooth			20		
-	01 20	3	Nar	-Thene	2-IIInuoloeui			20		
F	70.20	-3	Mo	thul Acetate				50		
L	110-8	-9 2.7		lohevane				20		
-	108-8	7.2	Me	thyl Cyclobex:	ane			20		
-	156-5	9-4	cis-	1 2-dichloroet	thene			20	U	
ŀ	75-27	-4	hro	modichlorome	ethane			20	U U	
-	10061		cis-	-1 3-dichloron	ropene			20	Ŭ	
-	108-8	8-3	tolu	lene				20	Ū	
ŀ	10061	1-02-6	trar	1s-1.3-dichlore	opropene			20	Ū	
Γ	591-7	8-6	2-h	exanone				50	Ū	
F	70.00	-5	1.1	2 trichloroeth	ane			20	U	
-	/9-00	~		, 2-110100000			1		· · · · · · · · · · · · · · · · · · ·	
	124-4	8-1	dibi	romochlorome	ethane			880	D	
-	124-4 127-1	8-1 8-4	dibi	romochlorome	ethane e			880 1100	D D	

					EPA SA	MPLE NO
		VOLATILE ORGANICS A	NALTOIS DATA SP		T-24	PM C-1
	NJAL					
Lab Code:	DEP 1	1005 Case No.:	SAS No.:	S	DG No.:	
Matrix: (soil/	water)	WATER	Lab Sa	ample ID:	T-24 PM (C-1
Sample wt/v	vol:	0.5 (g/ml) ML	Lab Fi	e ID:	TS62414.	D
Lovel: (love)	(med)		Dete D) a a a lu a al u	07/07/44	
Level: (IOW/	mea)		Date F	(eceived:	07/27/11	
% Moisture:	not dec.		Date A	nalyzed:	07/30/11	
GC Column:	: rt502	2.2-1 ID: 0.53 (mm)	Dilutio	n Factor:	10.0	
Soil Extract	Volume	(ul.)	Soil Al	iquat Valu		
	volume.	(UL)	501 AI	iquot voit	me.	(U
			CONCENTRATIO			
	0					~
CAS N	0.	COMPOUND	(ug/L or ug/Kg)	UG/L		Q
75-71	-8	Dichlorodifulorome	thane		20	11
74-87	/-3	chloromethane			20	<u> </u>
75-01	-4	vinyl chloride			20	<u> </u>
74-83	3-9	bromomethane			20	Ū
75-00)-3	chloroethane		_	20	<u> </u>
75-15	5-0	carbon disulfide			20	<u> </u>
75-65	5-0	tert-butyl alcohol		-	20	U U
1634-	-04-4	MTBE			20	- U
78-93	3-3	MFK			50	<u> </u>
67-64	l-1	acetone			480	
75-69)-4	trichlorofluorometh	ane		20	
75-35	j-4	1.1-dichloroethene			20	U
75-09)-2	methylene chloride			47	D
156-6	30-5	trans-1.2-dichloroe	thene		20	U
75-34	-3	1.1-dichloroethane			20	U
67-66	3-3	chloroform			20	U
108-1	0-1	MIBK			20	U
74-97	'-5	bromochlorometha	ne		20	U
71-55	5-6	1,1,1-trichloroethar	ne		20	U
56-23	3-5	carbon tetrachlorid	e		20	U
107-0)6-2	1,2-dichloroethane	· · · · · · · · · · · · · · · · · · ·		20	U
71-43	3-2	benzene			20	U
79-01	-6	trichloroethene			20	U
78-87	'-5	1,2-dichloropropan	e		20	U
76-13	3-1	112-Trichloro-122-	Trifluoroethane		20	U
91-20)-3	Napthalene	74.8.9.4		20	U
79-20	1-9	Methyl Acetate	* - * * * * * * * * * * * * *		50	U
110-8	2-7	Cyclohexane			20	U
108-8	7-2	Methyl Cyclohexan	e		20	U
156-5	59-4	cis-1,2-dichloroethe	ene		20	U
75-27	-4	bromodichlorometh	ane		20	U
10061	1-01-5	cis-1,3-dichloropro	pene		20	U
108-8	8-3	toluene			20	U
10061	1-02-6	trans-1,3-dichlorop	ropene		20	U
591-7	8-6	2-hexanone			50	U
/9-00	1-5	1,1,2-trichloroethar	le		20	<u> </u>
124-4	8-1	aibromochlorometh	ane		880	<u>D</u>
127-1	8-4	tetrachloroethene			1100	
108-9	10-7	chlorobenzene			20	U

				-	EPA SAI	MPLE NO.
	V	VOLATILE ORGANICS	S ANALYSIS DATA SH	EEI	T-24	PM C-1
Lab Name:	NJAL		Contract:			
Lab Code:	DEP 110	005 Case No.:	SAS No.:	S	DG No.:	
Matrix: (soil/	water)	WATER	Lab Sa	mple ID:	T-24 PM (C-1
Sample wt/w	ol [.]	0.5 (a/ml) N	Al Lab Fil	e ID.	TS62415	
	01.	<u>(</u> g/m) <u>w</u>		eid.	1002410.	<u> </u>
Level: (low/r	med)	LOW	Date R	eceived:	07/27/11	
% Moisture:	not dec.		Date A	nalyzed:	07/30/11	
GC Column:	rt502.2	2-1 ID: 0.53 (mm) Dilution	n Factor:	10.0	
Sail Extract	Volumo	(ul.)	Soil Ali	ruot Volu		····· ··· /
Son Extract	volume.	(uL)	5011 Al	quot voiu		(u
	0					0
CASNO	J.	COMPOUND	(ug/L or ug/Kg)	UG/L		Q
75-71	-8	Dichlorodifuloro	methane		20	11
74-87	-3	chloromethane			20	U
75-01	-4	vinyl chloride			20	Ū
74-83	-9	bromomethane			20	U
75-00	-3	chloroethane			20	U U
75-15	-0	carbon disulfide			20	<u> </u>
75-65	-0	tert-butyl alcoho			20	<u> </u>
1634-	04-4	MTBE			20	<u> </u>
78-93	-3	MFK			50	<u> </u>
67-64	1	acetone			490	D
75-69	-4	trichlorofluorom	ethane		20	<u> </u>
75-35	_4	1 1-dichloroethe			20	<u> </u>
75-09	-2	methylene chlor	ride		45	<u> </u>
156-6	0-5	trans-1 2-dichlo	roethene		20	<u> </u>
75-34	-3	1 1-dichloroetha	ane		20	<u> </u>
67-66	-3	chloroform			20	Ū
108-1	0-1	MIBK			20	Ū
74-97	-5	bromochlorome	thane		20	U
71-55	-6	1.1.1-trichloroet	hane	1	20	U
56-23	-5	carbon tetrachic	pride		20	U
107-0	6-2	1.2-dichloroetha	ane		20	U
71-43	-2	benzene			20	U
79-01	-6	trichloroethene			20	U
78-87	-5	1,2-dichloroprog	bane		20	U
76-13	-1	112-Trichloro-12	22-Trifluoroethane		20	U
91-20	-3	Napthalene			20	U
79-20	-9	Methyl Acetate			50	U
110-8	2-7	Cyclohexane			20	U
108-8	7-2	Methyl Cyclohe:	xane		20	U
156-5	9-4	cis-1,2-dichloroe	ethene		20	U
75-27	-4	bromodichlorom	thane		20	U
10061	-01-5	cis-1,3-dichloror	propene		20	U
108-8	8-3	toluene			20	U
10061	-02-6	trans-1,3-dichlo	ropropene		20	U
591-7	8-6	2-hexanone			50	U
79-00	-5	1,1,2-trichloroet	hane		20	U
124-4	8-1	dibromochlorom	nethane		850	D
127-1	8-4	tetrachloroether	1e		1100	D
108-9	0-7	chlorobenzene			20	U

	,		1A				EPA SA		Ю.
	\	VOLATILE	ORGANICS	ANALYSIS D	ATASH	EEI	T-24	PM 0.5-	1
Lab Name:	NJAL			Contra	act:				
Lab Code:	DEP 11	005 C	ase No.:	SAS	5 No.:	S	DG No.:		
Matrix: (soil/	water)	WATER			Lab Sa	mple ID:	T-24 PM	0.5-1	
		0.5	() 				T000440		
Sample wt/v	OI:	0.5	(g/ml) ML	·	Lab File	e ID:	1\$62416	.D	
Level: (low/	med)	LOW			Date R	eceived:	07/27/11		
% Moisture:	not dec.				Date A	nalvzed:	07/30/11		
						F	40.0		
GC Column:	rt502.	2-1 ID: 0	J.53 (mm)		Dilution	Factor	10.0		
Soil Extract	Volume:		(uL)		Soil Ali	quot Volu	ime:		(uL)
				CONCENT	RATION	UNITS:			
CAS NO	О.	COM	POUND	(ug/L or ug	/Kg)	UG/L		Q	
		·····							_,
75-71	-8	Dic	nlorodifulorom	ethane			20	U	
74-87	-3	chlo	promethane			_	20	U	_
75-01	-4	viny	/l chloride				20	<u> </u>	_
74-83	-9	bro	momethane				20	<u> </u>	_
75-00	-3	chic	proethane				20	<u> </u>	
75-15	-0	car	oon disulfide				20		
/5-65	-0	tert	-butyl alconol				20		_
1634-	<u>·04-4</u>	MI							
70-93	-3						460		_
75.60		trick	lorofluoromet	hang			20		
75-35	<u></u>	1 1.	dichloroethen				20		_
75-09	<u></u>	me	thylene chlorid				42		_
156-6	0-5	trar	1s-1 2-dichloro	ethene			20		
75-34	-3	1.1	-dichloroethan	e			20	<u> </u>	
67-66	j-3	chlo	oroform	<u> </u>			20	Ū	-i
108-1	0-1	MIE	3K				20	U	
74-97	'-5	bro	mochlorometh	ane			20	U	
71-55	j-6	1,1	,1-trichloroetha	ane			20	U	
56-23	3-5	car	bon tetrachlori	de			20	U	
107-0	6-2	1,2	-dichloroethan	e			20	U	
71-43	J-2	ber	izene				20	U	
79-01	-6	tric	nloroethene				20	U	
78-87	-5	1,2	-dichloropropa	ne			20	U	
76-13	<u>J-1</u>	112	-Trichloro-122	2-Trifluoroetha	ane		20	U	
91-20	1-3	Na	othalene						_
79-20	1-9	Me	thyl Acetate						
110-8	12-1	Cyc	Nonexane				20	<u> </u>	_
108-8	0 A	nie	1.2 dichloroot	hono			20		
75.27	19-4	bro	modichlorome	thano			20		
1006	1-01-5	cie-	1 3-dichloropr	opene			20		
108-8	8-3	tolu	lene	0,000			20	U U	
1006	1-02-6	trar	1s-1.3-dichloro	propene			20	Ŭ	
591-7	/8-6	2-h	exanone				50	U	
79-00)-5	1.1	2-trichloroetha	ane			20	U	
124-4	8-1	dibi	romochlorome	thane			31	D	
127-1	8-4	tetr	achloroethene	· · · · · · · · · · · · · · · · · · ·			38	D	
108-9	90-7	chlo	orobenzene				20	U	

		1A			EPA SA	MPLE NO.
		VOLATILE ORGANICS A	NALYSIS DATA SHE	EI	T 24 B	MOED
Lab Name:	NJAL		Contract:		1-24 P	W U.5-2
Lab Code:	DEP 11	005 Case No.:	SAS No.:	S	DG No.:	
Matrix: (soil/	water)	WATER	Lab Sar	nple ID:	T-24 PM 0	.5-2
Sample wt/v	ol.	0.5 (a/ml) MI	Lab File	ID.	TS62417 I	n
			Bata Ba		07/07/44	
Level: (low/	med)	LOW	Date Re	eceived:	07/27/11	
% Moisture:	not dec.		Date Ar	alyzed:	07/30/11	
GC Column:	rt502.	.2-1 ID: 0.53 (mm)	Dilution	Factor:	10.0	
Soil Extract	Volume:	(ul.)	Soil Alic	uot Volu	me.	(uL)
	volumo.	(02)	0017110	001 1010		(UL)
			CONCENTRATION	UNITS:		
CAS NO	0.	COMPOUND	(ua/L or ua/Ka)	UG/L		Q
	0.			00/2		u.
75-71	-8	Dichlorodifulorome	thane		20	U
74-87	-3	chloromethane			20	U
75-01	-4	vinyl chloride	·		20	U
74-83	-9	bromomethane			20	U
75-00	-3	chloroethane			20	U
75-15	-0	carbon disulfide		<u> </u>	20	U
75-65	-0	tert-butyl alcohol			20	<u> </u>
	04-4	MTBE			20	<u> </u>
78-93	-3	MEK		_	50	<u> </u>
67-64	-1			_	470	<u> </u>
75-09	-4	tricniorofiuorometh	ane	-	20	<u> </u>
75-30	-4	I, I-dichioroethene			20	
156.6	-2	trans 1.2 diablered	thono		42	
75-34	-3				20	
67-66	-3	chloroform			20	<u> </u>
108-1	0-1	MIBK			20	<u> </u>
74-97	<u>-5</u>	bromochlorometha			20	<u> </u>
71-55	-6	1.1.1-trichloroetha	ne		20	U
56-23	-5	carbon tetrachlorid	e		20	U
107-0	6-2	1,2-dichloroethane			20	U
71-43	-2	benzene			20	U
79-01	-6	trichloroethene			20	U
78-87	-5	1,2-dichloropropar	е		20	U
76-13	-1	112-Trichloro-122-	Trifluoroethane		20	U
91-20	-3	Napthalene			20	U
79-20	-9	Methyl Acetate			50	U
110-8	2-7	Cyclohexane	1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.		20	U
108-8	7-2	Methyl Cyclohexar	le		20	U
156-5	9-4	cis-1,2-dichloroeth	ene		20	<u> </u>
15-21	-4	promodichiorometi			20	<u> </u>
1000	1-01-0	toluono	pene		20	
100-0	1-02-6	trans_1.3 diablaran	000000		20	
501.7	8-6	2-hevanone			50	11
79-00	-5	1.1.2-trichloroetha	ne		20	1
124-4	8-1	dibromochloromet	nane		20	
127-1	8-4	tetrachloroethene			20	U
108-9	0-7	chlorobenzene		-	20	U
			there are a second seco			

	,		1A				EPA SA	MPLE NO.
	,	VOLATILI	= ORGANICS /	ANALYSISD	ATA SHE	EI	T-24 I	PM 0.5-3
Lab Name:	NJAL			Contra	ict:			
Lab Code:	DEP 11	005 (Case No.:	SAS	5 No.:	S	DG No.:	
Matrix: (soil/v	water)	WATER			Lab Sar	nple ID:	T-24 PM (0.5-3
Sample wt/vo	ol:	0.5	(a/ml) MI		Lab File	ID.	TS62418	D
			(9,111)	•			07/07/44	
Level: (low/r	ned)	LOW			Date Re	eceived:	07/27/11	
% Moisture:	not dec.	· · · <u> </u>			Date An	alyzed:	07/30/11	
GC Column:	rt502.	2-1 ID:	0.53 (mm)		Dilution	Factor:	10.0	
Soil Extract \	/olume:		(ul.)		Soil Alia	unt Valu		 /ul
	volume.		(uL)					(u
				CONCENT	RATION			
CASNO	ר	COM			(Ka)			0
	J.	001	FOUND	(ug/L of ug/	rg)	UGIL		Q
75-71-	-8	Dic	hlorodifulorom	ethane			20	U
74-87-	-3	chl	oromethane				20	U
75-01-	-4	vin	yl chloride				20	U
74-83-	-9	bro	momethane				20	U
75-00-	-3	chl	oroethane				20	U
75-15-	-0	car	bon disulfide				20	<u> </u>
75-65-	-0	ter	-butyl alcohol				20	U
1634-0	04-4	MT	BE			-	20	U
78-93-	-3	ME	K				50	U
67-64-	-1	ace	etone	-			550	D
75-69-	-4	tric	hlorofluoromet	hane			20	U
75-35-	-4	1,1	-dichloroethen	e			20	U
75-09-	-2	me	thylene chlorid	e			43	D
156-60	0-5	tra	ns-1,2-dichloro	ethene			20	U
75-34-	-3	1,1	-dichloroethan	e			20	U
67-66-	-3	chl	oroform				20	U
108-10	0-1	MI	3K				20	U
74-97-	-5	bro	mochlorometh	ane			20	U
71-55-	-6	1,1	,1-trichloroetha	ane			20	U
56-23-	-5	car	bon tetrachlori	de			20	U
107-00	6-2	1,2	-dichloroethan	e			20	U
71-43-	-2	ber	nzene				20	U
79-01-	-6	tric	hloroethene				20	U
78-87-	-5	1,2	-dichloropropa	ne			20	U
76-13-	-1	112	2-Trichloro-122	-Trifluoroetha	ine		20	U
91-20-	-3	Na	pthalene				20	U
79-20-	-9	Me	thyl Acetate				50	U
110-82	2-7	Су	clohexane				20	U
108-8	7-2	Me	thyl Cyclohexa	ine			20	U
156-59	9-4	Cis	-1,2-dichloroet	nene			20	U
75-27-	-4	bro	modichlorome	thane			20	U
10061	-01-5	cis	-1,3-dichloropro	opene			20	U
108-88	8-3	tolu	lene				20	U
10061	-02-6	trai	ns-1,3-dichloro	propene		+	20	U
591-78	5-6	<u>2-h</u>	exanone				50	U
79-00-	·5	1,1	,2-trichloroetha	ane	-		20	U
124-48	8-1	dib	romochlorome	thane			20	U
127-18	8-4	tetr	achloroethene				20	U
108-90	J-7	chl	orobenzene				20	U

	1A		EPA SA	MPLE NO.
	VOLATILE ORGANICS ANA	LYSIS DATA SHEET	T-24 F	PM 1.0-1
Lab Name: NJAL		Contract:		
Lab Code: DEP 11	005 Case No.:	SAS No.: S	DG No.:	
Matrix: (soil/water)	WATER	Lab Sample ID:	T-24 PM 1	.0-1
Sample wt/vol:	0.5 (a/ml) MI	Lob File ID:	TS62410	D
	<u>0.0</u> (g/m) <u>ML</u>	Lab rile iD.	1302419.1	<u> </u>
Level: (low/med)	LOW	Date Received:	07/27/11	
% Moisture: not dec.		Date Analyzed:	07/30/11	
GC Column: rt502.	2-1 ID: 0.53 (mm)	Dilution Factor:	10.0	
Soil Extract Volume:	(ul.)	Soil Aliquot Volu	imo.	 /ul
Soli Extract volume.	(UL)			(ut
	C			
		oncentration units.		0
CAS NO.	COMPOUND (U	g/L or ug/Kg) UG/L		Q
75-71-8	Dichlorodifulorometha	ine	20	U
74-87-3	chloromethane		20	Ū
75-01-4	vinyl chloride		20	U
74-83-9	bromomethane		20	U
75-00-3	chloroethane		20	<u> </u>
75-15-0	carbon disulfide		20	<u> </u>
75-65-0	tert-butyl alcohol		20	<u> </u>
1634-04-4	MTBE		20	<u> </u>
78-93-3	MEK		50	<u> </u>
67-64-1	acetone		600	<u> </u>
75-69-4	trichlorofluoromethane	a	20	<u> </u>
75-35-4	1 1-dichloroethene		20	<u> </u>
75-09-2	methylene chloride		52	
156-60-5	trans-1 2-dichloroethe	ne	20	<u> </u>
75-34-3	1.1-dichloroethane		20	<u> </u>
67-66-3	chloroform		20	<u> </u>
108-10-1	MIBK		20	Ū
74-97-5	bromochloromethane		20	<u> </u>
71-55-6	1.1.1-trichloroethane		20	Ū
56-23-5	carbon tetrachloride		20	U
107-06-2	1.2-dichloroethane		20	U
71-43-2	benzene		20	U
79-01-6	trichloroethene		20	U
78-87-5	1,2-dichloropropane		20	U
76-13-1	112-Trichloro-122-Trif	luoroethane	20	U
91-20-3	Napthalene		20	U
79-20-9	Methyl Acetate		50	U
110-82-7	Cyclohexane		20	U
108-87-2	Methyl Cyclohexane		20	U
156-59-4	cis-1,2-dichloroethene	2	20	U
75-27-4	bromodichloromethan	e	20	U
10061-01-5	cis-1,3-dichloroproper	ne	20	U
108-88-3	toluene		20	U
10061-02-6	trans-1,3-dichloroprop	pene	20	U
591-78-6	2-hexanone		50	U
79-00-5	1,1,2-trichloroethane		20	U
124-48-1	dibromochloromethan	e	20	U
127-18-4	tetrachloroethene		20	U
108-90-7	chlorobenzene		20	U

		1A			EPA SA	MPLE I	NO.
	VOL/	ATILE ORGANICS A	ANALYSIS DAT	ASHEET	T-24 I	PM 1.0-	2
Lab Name: N	JAL		Contract:				
Lab Code:	DEP 11005	Case No.:	SAS N	lo.:	SDG No.:		
Matrix: (soil/wa	ater) WA	TER	La	ab Sample ID	: T-24 PM	1.0-2	
Sample wt/vol:	0.5	(c/ml) Ml	1	ah File ID:	TS62420	D	
	0.0	(g/iii) <u>ivi</u>	L		07/07/14		
Level: (low/me	ed) LO	W	D	ate Received	: 07/27/11		
% Moisture: no	ot dec.		D	ate Analyzed	: 07/30/11		
GC Column:	rt502.2-1	ID: 0.53 (mm)	D	ilution Factor:	10.0		
Soil Extract Vo	lumo:	(ul.)	S	oil Aliquet Ve	ume:		(11)
SOIL EXTRACT VO	iume	(uL)	0		ume		(02)
			CONCENTRA	ATION UNITS	:		
		COMPOLIND				0	
CAO NO.						<u>G</u>	
75-71-8		Dichlorodifulorome	ethane		_ 20	U	
74-87-3		chloromethane			20	U	
75-01-4		vinyl chloride			20	U	
74-83-9		bromomethane			20	<u> </u>	
75-00-3		chloroethane			20	U	
75-15-0		carbon disulfide			20	U	
75-65-0		tert-butyl alcohol			20	U	
1634-04	-4	MTBE				<u> </u>	
78-93-3		MEK			50		
67-64-1		acetone			570		
75-69-4		trichlorofluorometi	nane		20	0	
75-35-4		1,1-dichloroethene	8				
15-09-2		trang 1.2 diablero	e		30		
75 34 2	5	1 1 dichloroothan			20		
67-66-3		chloroform	<u> </u>		20		
108-10-	.1	MIRK			20	<u> </u>	
74-97-5	<u> </u>	bromochlorometh	ane		20	<u> </u>	
71-55-6		1.1.1-trichloroetha	ane		20	Ū	
56-23-5		carbon tetrachlori	de		20	Ū	
107-06-	·2	1,2-dichloroethane	e		20	U	
71-43-2	1	benzene			20	U	
79-01-6)	trichloroethene			20	U	
78-87-5		1,2-dichloropropa	ne		20	U	
76-13-1		112-Trichloro-122	-Trifluoroethane	e	20	U	
91-20-3		Napthalene			20	U	
79-20-9		Methyl Acetate			50	<u> U</u>	
110-82-	7	Cyclohexane			20		
108-87-	2	Methyl Cyclohexa	ne		20		
156-59-	4	cis-1,2-dichloroet	thana		20		
10061 0	11 5	cis 1.3 diablarant			20		
10001-0	3	toluene	opene		20		
100-00-	12-6	trans-1 3-dichloro	nropene		20		
591-78-	-6	2-hexanone	Proporto		50		
79-00-5	<u> </u>	1.1.2-trichloroetha	ane		20	Ŭ	
124-48-	.1	dibromochlorome	thane		20	Ŭ	
127-18-	.4	tetrachloroethene			20	U	10
108-90-	.7	chlorobenzene			20	U	

					EPA SA	MPLE N	Ю.
	V	DLATILE ORGANICS AN	IALYSIS DATA SH	EEL	T-24 F	PM 1.0-3	3
Lab Name:	NJAL	and the second second second second second second second second second second second second second second second	Contract:				
Lab Code:	DEP 1100	05 Case No.:	SAS No.:	S	DG No.:		
Matrix: (soil/w	vater)	WATER	Lab Sa	mple ID:	T-24 PM	1.0-3	
Sample wt/vo		0.5 (g/ml) MI	Lah Fil	e ID:	TS62421	D	
	··· ·				1002421.		
Level: (low/m	ned) l	LOW	Date R	eceived:	07/27/11		
% Moisture: n	not dec.		Date A	nalyzed:	07/30/11		
GC Column:	rt502.2-	1 ID: 0.53 (mm)	Dilution	n Factor:	10.0		
Soil Extract V	(olume:	(11)	Soil Ali	auot Volu	mo.		(ut)
		(UL)	SUI AI				(uL)
	N N					0	
CAS NO).	COMPOUND	(ug/L or ug/Kg)	UGIL	A	Q	
75-71-	8	Dichlorodifuloromet	nane		20	U	
74-87-3	3	chloromethane			20	Ŭ	
75-01-	4	vinyl chloride			20	U	
74-83-9	9	bromomethane			20	U	
75-00-3	3	chloroethane			20	U	
75-15-0	0	carbon disulfide			20	U	
75-65-6	0	tert-butyl alcohol			20	U	
1634-0)4-4	MTBE			20	U	
78-93-	3	MEK			50	U	
67-64-	1	acetone			530	D	
75-69-4	4	trichlorofluorometha	ne		20	U	
75-35-4	4	1,1-dichloroethene			20	U	_
75-09-2	2	methylene chloride			49	D	
156-60)-5	trans-1,2-dichloroet	hene		20	U	_
75-34-3	3	1,1-dichloroethane			20	<u> </u>	_
67-66-	3	Chiorotorm			20	<u> </u>	_
108-10	<u></u>	WIBK			20		
74-97-	<u> </u>	Dromochloromethan	ie		20	<u> </u>	-
56.23	5	carbon tetrachloride	e		20	<u> </u>	
107-06	<u>3</u>	1.2-dichloroethane			20	<u> </u>	_
71-43-	2	henzene		_	20	<u> </u>	_
79-01-0	<u>-</u> 6	trichloroethene			20	<u> </u>	
78-87-	5	1.2-dichloropropane			20	<u> </u>	
76-13-	1	112-Trichloro-122-T	rifluoroethane		20	Ŭ	_
91-20-3	3	Napthalene			20	U	
79-20-9	9	Methyl Acetate			50	U	
110-82	2-7	Cyclohexane			20	U	
108-87	'-2	Methyl Cyclohexane)		20	U	
156-59)_4	cis-1,2-dichloroethe	ne		20	U	
75-27-4	4	bromodichlorometha	ane		20	U	
10061-	-01-5	cis-1,3-dichloroprop	ene		20	U	_
108-88	3-3	toluene	6.6.7.5		20	U	
10061-	-02-6	trans-1,3-dichloropr	opene		20	U	
591-78	5-6i	2-hexanone			50	U	
79-00-	5	1,1,2-trichloroethan	<u> </u>		20	U	_
124-48	<u>)- </u>	dibromochlorometha	ane		20	<u> </u>	
127-18)-4	chlorobonzono			20	<u> </u>	
108-90	/~/	chioroperizene			20	U	

	,	1A VOLATILE ORGANICS A		IFFT	EPA SA	MPLE N	0.
Lab Name [.]	N.IAI	VOLATILL ONGANICS A	Contract:	1 - 1 - 1	T-24 P	M 2.0-1	
Lab Code:	DEP 11	005 Case No.:	SAS No.:	S	DG No.:		
Matrix: (soil/	water)	WATER	Lab S	ample ID:	T-24 PM 2	0-1	
					T0004001		
Sample wt/vo	ol:	0.5 (g/ml) <u>ML</u>	Lab F	le ID:	1\$62422.1)	
Level: (low/r	ned)	LOW	Date I	Received:	07/27/11		
% Moisture:	not dec.		Date /	Analyzed:	07/30/11		
GC Column:	rt502	2-1 ID: 0.53 (mm)	Dilutio	n Factor:	10.0		
Soil Extract)	Volumo	()	Soil A	liquet Velu	mo'		/l.`
Soll Extract	volume.	(uL)	501 A				(uL,
			CONCENTRATIO	N UNITS:			
CASNO	C	COMPOUND		UG/I		0	
	<i>J</i> .		(ug/L or ug/rug)	00/2	an an an an an an an an an an an an an a	9	
75-71	-8	Dichlorodifulorome	thane		20	U	
74-87	-3	chloromethane			20	U	
75-01	-4	vinyl chloride			20	U	1
74-83	-9	bromomethane			20	U	-
75-00	-3	chloroethane			20	U	-
75-15	-0	carbon disulfide			20	Ŭ	-
75-65	-0	tert-butyl alcohol			20	Ū	
1634-	04-4	MTRE			20	<u> </u>	
78-03	<u></u>	MEK			50		-
67-64	<u></u>	acetone		_	510		-
75-69		trichlorofluorometh		-	20		-
75-05	-4				20		-
75-00	2	n, 1-dichioloetherie		_	52	— <u> </u>	-
156.6	<u>-2</u>	trans 1.2 dichlorog	thene		20	<u>U</u>	-
75 34	2				20		-
67.66	-3				20		-
109.1	-3				20	<u> </u>	-
74.07	5	hromachlaromatha			20	<u> </u>	-
74-97	-0				20	<u> </u>	-
7 1-55	-0				20	<u> </u>	\neg
107.0	-0		e		20	<u> </u>	\neg
71 42	2	honzono			20		-
71-43	~2	trichlereethone			20	<u> </u>	-
79-01	-0				20	<u> </u>	-
76 12	-0	112 Triphlaro 122	Trifluoroothono		20		-
70-13	-1	Nontholono	Thiluoroethane		20		-
91-20	-3	Napinalene				<u> </u>	
19-20	-9				20		-
110-8	2-1	Mothyl Cyclobeyer			20		-
100-0	0.4				20	U	\neg
100-0	3-4	bromodiablatarrat			20	<u> </u>	\neg
10-21	<u>4</u>				20	<u> </u>	-
1000	C-101-5	toluoro	pene		20		4
108-8	0-3				20		
1006	1-02-0	trans-1,3-dichiorop	ropene		20	U	_
591-7	8-0				50	<u>U</u>	\neg
/9-00	-5	1,1,2-trichloroetha			20	0	_
124-4	0-1	apromochiorometi	lane		20	0	-
127-1	8-4	tetrachioroethene			20	<u> </u>	
108-9	0-7	chlorobenzene			20	U	

						EPA SAMPLE NO. T-24 PM 2.0-2			
VOLATILE ORGANICS ANALYSIS DATA SHEET									1661
Lab Name:	NJAL		Contr	Contract:			_		
Lab Code:	DEP 11	005 Case	No.:	SA	S No.:	S	DG No.:		
Matrix: (soil/	water)	WATER			Lab Sample ID:			2.0-2	
Sample wt/vol: 0.5			(a/ml) ML	_	Lab Fi	le ID:	TS62423	.D	
	mod				Data Received:		07/07/11		
Level: (IOW/I	nea)	LOW			Dater	(eceived:	0//2//11		
% Moisture:	not dec.				Date Analyzed:		07/30/11		
GC Column:	rt502.	2-1 ID: 0.53	0.53 (mm) D		Dilutio	n Factor:	10.0		
Soil Extract V	Volume		(ul.)		Soil Al	liquat Valu	imo'		
	volume.		(uL)		3011 AI		e.	(uL	
				CONCENT	RATIO				
CASNO	0							0	
CASIN	J.	COMPO		(ug/L or u	µng)	UG/L		Q	
75-71	-8	Dichlore	odifulorom	nethane			20	U	
74-87	-3	chlorom	nethane				20	U	
75-01-4		vinyl ch	loride				20	U	
74-83	-9	bromon	nethane				20	U	
75-00-3		chloroe	thane				20	U	
75-15	-0	carbon	disulfide				20	U	
75-65	-0	tert-but	yl alcohol		·		20	U	
1634-	04-4	MTBE					20	U	
78-93	-3	MEK					50	U	
67-64	-1	acetone					530	D	
75-69	-4	trichloro	ofluoromet	thane			20	U	
75-35	-4	1,1-dict	loroethen	ne			20	U	
75-09	-2	methyle	ene chloric	le			52	D	
156-6	0-5	trans-1	2-dichloro	bethene			20	U	
75-34	-3	1,1-dict	loroethan	le			20	U	
67-66-3		chloroform					20	U	
108-10-1		MIBK					20	U	
74-97-5		bromod	bromochloromethane				20	U	
71-55-6		1,1,1-tr	ane			20	U		
56-23-5		carbon	ide			20	U		
107-0	6-2	1,2-dich	nloroethan	e			20	U	
71-43	-2	benzen	e				20	U	
79-01	-6	trichloro	bethene				20	U	
78-87	-5	1,2-dict	loropropa	ane			20	U	
76-13	-1	112-Tri	chloro-122	2-Trifluoroeth	ane		20	U	
91-20	-3	Naptha	lene				20	U	
79-20	-9	Methyl	Acetate				50	U	
110-8	2-7	Cyclohe	exane				20	U	
108-8	7-2	Methyl	Cyclohexa	ane			20	U	
156-5	9-4	cis-1,2-	dichloroet	hene			20	<u> </u>	
75-27	75-27-4 br		bromodichloromethane				20	U	
10061	10061-01-5		dichloropr	opene			20	U	
108-8	8-3	toluene	0.11.1.1				20	U	
10061-02-6		trans-1,3-dichloropro		propene	opene		20	U	
591-7	591-78-6		2-hexanone				50	U	
79-00-5		1,1,2-tr	chloroeth	ane			20	U	
124-4	8-1	dibromo	ochlorome	etnane	· · · · · · · · · · · · · · · · · · ·		20	<u>U</u>	
127-18-4		tetrachl			20	U			
108-9	0-7	chlorob	enzene				20	U	

					EPA SAMPLE NO.		
l ala Manuar		VOLATILE ORGANICS	Contract:				
Lab Name:				: 			
Lab Code.	DEP I	1005 Case No.:	5A5 N		SDG N0.:		
Matrix: (soil/water) WATER				ab Sample ID:	T-24 PM 2.0-3		
Sample wt/vol: 0.5 (g/ml) ML			_ L	ab File ID:	TS62424.D		
Level: (low/				ate Received	07/27/11		
	incu)	LOW		ale Necelveu.	01121111		
% Moisture:	not dec.		D	ate Analyzed:	07/30/11		
GC Column:	rt502		C	ilution Factor:	10.0		
Soil Extract	Volume	(11)	S	oil Aliquot Vol	ime:		(n1.)
	volume.						(uL)
			CONCENTRA				
CASN	0					0	
	0.					Q	
75-71	-8	Dichlorodifulorom	ethane		20	U	
74-87	-3	chloromethane			20	Ū	-
75-01	-4	vinyl chloride			20	U	
74-83	3-9	bromomethane			20	U	
75-00	-3	chloroethane			20	U	
75-15	5-0	carbon disulfide			20	U	
75-65	5-0	tert-butyl alcohol			20	U	
1634-	-04-4	MTBE			20	U	_
78-93	<u>3-3</u>	MEK			50	<u> </u>	_
67-64	<u>-1</u>	acetone			460	D	
75-69	-4		inane		20	<u> </u>	_
75-35	2	1,1-dichioroether			20		_
156-6	SO_5	trans_1.2-dichlore	etheno		20		_
75-34	<u>.</u> 3	1 1-dichloroethar		_	20		-
67-66	<u>-3</u>	chloroform			20	<u> </u>	-
108-1	0-1	MIBK			20	Ŭ	_
74-97	<u> </u>	bromochlorometh	nane		20	<u> </u>	
71-55	5-6	1,1,1-trichloroeth	ane		20	U	
56-23	8-5	carbon tetrachlor	ide		20	U	
107-0	6-2	1,2-dichloroethar	ne		20	U	
71-43-2		benzene			20	U	
79-01	-6	trichloroethene			20	<u> </u>	
78-87	7-5	1,2-dichloropropa	ine		20	U	
76-13	<u>-1</u>	112-Trichloro-122	2-1 rifluoroethane	Э	20	U	_
91-20	-3	Napthalene			20	<u> </u>	-
/9-20	1-9 10 7	Cuelebourge			50	<u> </u>	_
10-8	108-87-2 Methyl Cyclohevana		200		20	U 11	_
156-5	9-4	cis-1 2-dichloroet	hene		20	<u> </u>	_
75-27	75-27-4 bromodichloromethan		thane		20	<u>U</u>	-
10061	10061-01-5 cis-1 3-dichloropror		opene		20	<u> </u>	-
108-8	8-3	toluene			20	Ŭ	-
10061	1-02-6	trans-1,3-dichloro	propene		20	U	
591-7	8-6	2-hexanone	••••••••••••••••••••••••••••••••••••••		50	U	
79-00)-5	1,1,2-trichloroeth	ane		20	U	
124-4	8-1	dibromochlorome	ethane		20	U	
127-1	8-4	tetrachloroethene)		20	U	
108-9	0-7	chlorobenzene			20	U	

III-1 Raw Chromatograms

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62413.D Vial: 15 Acq On : 30 Jul 2011 2:02 am Operator: A. Thomas : T-24 PM C-1 Inst : GC/MS Ins Sample Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:20 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9396326766015.00 ug/l-0.1844) chlorobenzene-d515.19117365894915.00 ug/L-0.1856) 1,4-dichlorobenzene-d419.57152224582715.00 ug/L-0.19 System Monitoring Compounds 21) dibromofluoromethane (S) 8.65 113 1232292 32.04 ug/L -0.18 Spiked Amount 30.000 Range 80 - 120 Recovery = 106.80%

 26) 1,2-dichloroethane-d4 (S)
 9.42
 102
 260321
 30.86 ug/L
 -0.18

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 102.87%

 36) toluene-d8 (S)
 12.55
 98
 3928195
 31.25 ug/L
 -0.18

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 104.17%

53) 4-bromofluorobenzene (BFB) 17.37 95 2314071 27.89 ug/L -0.19 Spiked Amount 30.000 Range 80 - 120 Recovery = 92.97% Target Compounds 14) acetone Ovalue 14) acetone5.245879059357.16 ug/L8917) methylene chloride6.13843512434.68 ug/L #10041) tetrachloroethene13.821667155137111.13 ug/L #10042) dibromochloromethane13.82129491887387.80 ug/L #61

Quantitation Report

10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES A. Thomas GC/MS Ins 1,4-dichlorobenzene-d4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 15 S (GTB) energeneoutromond-Multiplr: Vial: Operator: GCMS 2 TIC: TS62413.D Inst chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62413.D 1011 IDE OLO PORTO DO LO PORTO 24 10:31:23 2012 ? (C) 8b-ensulos 27 16:32:48 2011 I, enexnedorouf Calibration am 2 (S) 4b-ensitieroiditab-5,1 9.00 Feb MS Integration Params: events.e 2:02 S (S) ensitemorouftomordib 1 10:20 19111 8.00 Fr-1 F 7.00 30 Jul 2011 T-24 PM C-1 Wed Jul Initial 6.00 methylene chloride, T,M T6072011.M VOA 5.00 M,T, enotects Quant Time: Aug 4.00 Response via ••• Last Update 3.00 Data File TS62413.D Acq On Sample Method Title Misc Aby Usdange 1000000 950000 900006 850000 800000 750000 700000 650000 600000 550000 500000 450000 400000 350000 300000 250000 200000 50000 100000 50000 0 Time-> 20

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62414.D Vial: 16 Acq On : 30 Jul 2011 2:35 am Operator: A. Thomas : T-24 PM C-1 Sample : Misc : Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:20 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9396325506915.00 ug/l-0.1844) chlorobenzene-d515.19117361019015.00 ug/L-0.1956) 1,4-dichlorobenzene-d419.57152219395715.00 ug/L-0.19 System Monitoring Compounds 21) dibromofluoromethane (S) 8.65 113 1207844 31.52 ug/L -0.18 21) dibromorluoromethane (S)8.65113120784431.52ug/L-0.18Spiked Amount30.000Range80-120Recovery=105.07%26) 1,2-dichloroethane-d4(S)9.4210225785230.68ug/L-0.18Spiked Amount30.000Range80-120Recovery=102.27%36) toluene-d8(S)12.5598385633130.79ug/L-0.18Spiked Amount30.000Range80-120Recovery=102.63%53) 4-bromofluorobenzene(BFB)17.3795226690927.69ug/L-0.19Spiked Amount 30.000 Range 80 - 120 Recovery = 92.30%

 Target Compounds
 Qvalue

 14) acetone
 5.24
 58
 656174
 47.63 ug/L
 67

 17) methylene chloride
 6.13
 84
 353923
 4.73 ug/L #
 100

 41) tetrachloroethene
 13.82
 166
 7046990
 109.87 ug/L #
 76

 42) dibromochloromethane
 13.82
 129
 4895269
 87.71 ug/L #
 61

Page 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 GC/MS Ins 1.00 A. Thomas [,4-dichlorobenzene-d4,] C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 16 & (878) ensanedoroultomord-4 Multiplr: Operator: Vial: GCMS2 TIC: TS62414.D Inst chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62414.D M,T,eMs71.9msrtaidrealrhume Fri Feb 24 10:31:26 2012 S (S) 8b-eneulot 2011 1, eneznedorout 27 16:32:48 Calibration 2:35 am S ,(S) 4b-ensiteoroldoib-S, f 9.00 Params: events.e S ((S) ensitemoroultomordib 1 10:20 19111 8.00 7.00 30 Jul 2011 T-24 PM C-1 Wed Jul Initial 6.00 methylene chloride, T,M TS62414.D T6072011.M VOA 5.00 M,T, enoteca Quant Time: Aug MS Integration 4.00 Response via Abundance 1050000 ••• Last Update 3.00 Data File Acq On Sample Method Title Misc 1000000 950000 000006 700000 650000 850000 800000 750000 600000 550000 500000 450000 400000 350000 250000 200000 150000 100000 300000 50000 0 Time--> 22

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62415.D Vial: 17 Acq On : 30 Jul 2011 3:07 am Operator: A. Thomas : T-24 PM C-1 Sample Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:20 19111 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9396326012815.00 ug/l-0.1844) chlorobenzene-d515.19117357190615.00 ug/L-0.1956) 1,4-dichlorobenzene-d419.57152212458615.00 ug/L-0.19 System Monitoring Compounds 21) dibromofluoromethane (S) 8.65 113 1210973 31.55 ug/L -0.18 Spiked Amount 30.000 Range 80 - 120 Recovery = 105.17% 26) 1,2-dichloroethane-d4 (S) 9.42 102 265392 31.53 ug/L -0.18

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 105.10%

 36) toluene-d8 (S)
 12.55
 98
 3888565
 31.00
 ug/L
 -0.18

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 103.33%

 53) 4-bromofluorobenzene
 (BFB)
 17.36
 95
 2241314
 27.68
 ug/L
 -0.19

 Spiked Amount 30.000 Range 80 - 120 Recovery = 92.27% Target Compounds Qvalue 14) acetone5.245867853749.17 ug/L7717) methylene chloride6.13843392514.53 ug/L #10041) tetrachloroethene13.821666828631106.31 ug/L #7642) dibromochloromethane13.82129475354485.04 ug/L #61

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 \sim Page 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 A. Thomas GC/MS Ins I,4-dichlorobenzene-4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 17 4-bromofluorobenzene (BFB), S Multiplr: Vial: Operator: GCMS 2 TIC: TS62415.D Inst chlorobenzene-d5, 1 C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62415.D MM, Presidence Configuration Idile Feb 24 10:31:30 2012 C (C) 8b-eneulot 27 16:32:48 2011 f, enecnedorouft Calibration am S ,(S) 4b-enshteoroldolb-S, I 9.00 Params: events.e 3:07 S (S) ensitemorouflomordib 1 10:20 19111 8.00 БТİ 7.00 30 Jul 2011 T-24 PM C-1 Wed Jul Initial 6.00 M,T ,ebinoldo enelythem T6072011.M VOA 5.00 M,T ,enotece Quant Time: Aug MS Integration 4.00 Response via Abundance 1000000 •• Last Update 3.00 Data File TS62415.D Acq On Sample Method Title 950000 000006 850000 800000 650000 600000 550000 500000 350000 300000 250000 50000 50000 Misc 750000 700000 450000 400000 200000 100000 0 Time-> 24

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62416.D Vial: 18 Acq On : 30 Jul 2011 3:41 am Operator: A. Thomas Sample : T-24 PM 0.5-1 Misc : Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:20 19111 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9396325016615.00 ug/l-0.1844) chlorobenzene-d515.19117362806515.00 ug/L-0.1956) 1,4-dichlorobenzene-d419.57152212814715.00 ug/L-0.19 System Monitoring Compounds 21) dibromofluoromethane (S) 8.65 113 1205933 31.52 ug/L -0.18 Spiked Amount 30.000 Range 80 - 120 Recovery = 105.07% 26) 1,2-dichloroethane-d4 (S) 9.42 102 254949 30.38 ug/L -0.18 Spiked Amount 30.000 Range 80 - 120 Recovery = 101.27% 36) toluene-d8 (S)12.5598385376530.82 ug/L-0.19Spiked Amount30.000Range80- 120Recovery=102.73% 53) 4-bromofluorobenzene (BFB) 17.37 95 2253485 27.39 ug/L -0.19 Spiked Amount 30.000 Range 80 - 120 Recovery = 91.30% Target Compounds Qvalue 14) acetone5.235863048145.83 ug/L7617) methylene chloride6.13843149264.22 ug/L #10041) tetrachloroethene13.821662428163.79 ug/L #7642) dibromochloromethane13.811291717153.08 ug/L #61

10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES A. Thomas GC/MS Ins -eneznedoroldoib-b, C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 1^{3} 4-bromofluorobenzene (BFB), S Multiplr: Operator: Vial: GCMS2 TIC: TS62416.D Inst chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62416.D M,T,eniMJB(eovernmeno)davibe: Feb 24 10:31:34 2012 S ((S) 8b-ensulot 27 16:32:48 2011 1, aneanedorouft Calibration 3:41 am S ((S) 4b-enshaporold3b-2, f 9.00 events.e dibromofluoromethane (S), S 1 10:20 19111 8.00 Fri 7.00 30 Jul 2011 T-24 PM 0.5-1 Wed Jul Params: Initial 6.00 M,T ,ebitoldo enelyitem T6072011.M VOA 5.00 M,T ,anoteca Quant Time: Aug MS Integration 4.00 Response via .. Last Update 3.00 Data File TS62416.D Acq On Sample Method Title Abundance Misc 400000 380000 360000 240000 340000 320000 280000 260000 220000 200000 120000 80000 40000 20000 300000 180000 160000 140000 100000 60000 0 Time-26

Page 2

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62417.D Vial: 19 Acq On : 30 Jul 2011 4:14 am Sample : T-24 PM 0.5-2 Operator: A. Thomas Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:20 19111 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9296317705215.00 ug/l-0.1944) chlorobenzene-d515.19117355984315.00 ug/L-0.1956) 1,4-dichlorobenzene-d419.56152211432915.00 ug/L-0.19 System Monitoring Compounds 21) dibromofluoromethane (S) 8.65 113 1183924 31.66 ug/L -0.18 Spiked Amount 30.000 Range 80 - 120 Recovery = 105.53% Spiked AmountS0.000Range80 - 120Recovery= 105.53%26) 1,2-dichloroethane-d4(S)9.4210224827130.27ug/L-0.18Spiked Amount30.000Range80 - 120Recovery= 100.90%36) toluene-d8(S)12.5598374430230.63ug/L-0.19Spiked Amount30.000Range80 - 120Recovery= 102.10%53) 4-bromofluorobenzene(BFB)17.3695220189027.28ug/L-0.19Spiked Amount 30.000 Range 80 - 120 Recovery = 90.93%
 Target Compounds
 Qvalue

 14) acetone
 5.23
 58
 633435
 47.11 ug/L
 75

 17) methylene chloride
 6.13
 84
 309696
 4.24 ug/L #
 100

Quant Results File: T6072011.RES Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62417.D Vial: 19 Acq On : 30 Jul 2011 4:14 am Operator: A. Thomas Sample : T-24 PM 0.5-2 Inst : GC/MS Inst Inst : GC/MS Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:20 19111 Acq On Sample Misc

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TS62417.D	T6072011	.M.	Feb 24 10:31:37 2	012 GCMS:	2	Ра	1e 2

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62418.D Vial: 20 Acq On : 30 Jul 2011 4:47 am Sample : T-24 PM 0.5-3 Operator: A. Thomas Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:20 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9296318638715.00 ug/l-0.1944) chlorobenzene-d515.19117341586815.00 ug/L-0.1956) 1,4-dichlorobenzene-d419.57152212791715.00 ug/L-0.19 System Monitoring Compounds 21) dibromofluoromethane (S) 8.65 113 1155604 30.81 ug/L -0.18 Spiked Amount 30.000 Range 80 - 120 Recovery = 102.70% Spiked Amount30.000Range30 - 120Recovery= 102.70%26) 1,2-dichloroethane-d4 (S)9.4210225156730.58ug/L-0.18Spiked Amount30.000Range80 - 120Recovery= 101.93%36) toluene-d8 (S)12.5598370597630.23ug/L-0.19Spiked Amount30.000Range80 - 120Recovery= 100.77%53) 4-bromofluorobenzene(BFB)17.3695220095828.42ug/L-0.19Spiked Amount 30.000 Range 80 - 120 Recovery = 94.73%
 Target Compounds
 Qvalue

 14) acetone
 5.23
 58
 742895
 55.08 ug/L
 77

 17) methylene chloride
 6.13
 84
 314929
 4.30 ug/L #
 100

10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES A. Thomas GC/MS Ins 1,4-dichlorobenzene-d4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 20 4-bromofluorobenzene (BFB), S Multiplr: Vial: Operator: GCMS2 TIC: TS62418.D Inst cplorobenzene-d5, l C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62418.D Feb 24 10:31:41 2012 2 ((2) 8b-eneulor 27 16:32:48 2011 I, eneznedoroult Calibration am 2.(S) \$2-dichloroethane-d4 (S), S 9.00 events.e 4:47 dibromofluoromethane (S), S 1 10:20 19111 8.00 Fгi 7.00 T-24 PM 0.5-3 30 Jul 2011 Wed Jul Params: Initial 6.00 methylene chloride, T,M T6072011.M VOA M,T,enotece 4.00 5.00 Quant Time: Aug MS Integration Response via •• Last Update 3.00 Data File TS62418.D Acg On Sample Method Title Abundance 400000 Misc 380000 360000 340000 320000 300000 280000 260000 240000 220000 200000 40000 20000 180000 160000 140000 120000 100000 80000 60000 0 Time--> 30

Page 2

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62419.D Vial: 21 Acq On : 30 Jul 2011 5:20 am Operator: A. Thomas : T-24 PM 1.0-1 Sample Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:20 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene9.9396319637215.00 ug/l-0.1844) chlorobenzene-d515.19117350048215.00 ug/L-0.1956) 1,4-dichlorobenzene-d419.56152215659615.00 ug/L-0.20 System Monitoring Compounds 21) dibromofluoromethane (S) 8.65 113 1153207 30.65 ug/L -0.18 Spiked Amount 30.000 Range 80 - 120 Recovery = 102.17%

 26) 1,2-dichloroethane-d4 (S)
 9.41
 102
 262994
 31.87
 ug/L
 -0.18

 Spiked Amount
 30.000
 Range
 80
 - 120
 Recovery
 =
 106.23%

 36) toluene-d8 (S)
 12.55
 98
 3730378
 30.33
 ug/L
 -0.19

 Spiked Amount
 30.000
 Range
 80
 - 120
 Recovery
 =
 101.10%

 53) 4-bromofluorobenzene (BFB) 17.36 95 2246188 28.30 ug/L -0.19 Spiked Amount 30.000 Range 80 - 120 Recovery = 94.33%
 Target Compounds
 Qvalue

 14) acetone
 5.23
 58
 814379
 60.20 ug/L
 79

 17) methylene chloride
 6.13
 84
 379070
 5.16 ug/L #
 100

Quant Results File: T6072011.RES Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62419.D Vial: 21 Acq On : 30 Jul 2011 5:20 am Operator: A. Thomas Sample : T-24 PM 1.0-1 I.0-1 I.05 Inst I.6C/MS Inst Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:20 19111 Misc

2:48 20 tion	کیک کاندانادادهای کی کی کی کی کی کی کی کی کی کی کی کی کی
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62419 D	I, (B18) enesnedorouflomord-ł Z, (B18) i mesnedorouflomord-ł I, Ab-enesnedorofriczita-t, t

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62420.D Vial: 22 Data File : C:\nPCnEn(1, 2011) Acq On : 30 Jul 2011 5:53 am Operator: A. Thomas Sample : T-24 PM 1.0-2 Misc : Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:20 19111 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9296316970015.00 ug/l-0.1944) chlorobenzene-d515.18117356688515.00 ug/L-0.1956) 1,4-dichlorobenzene-d419.56152213063215.00 ug/L-0.20 System Monitoring Compounds 21) dibromofluoromethane (S) 8.65 113 1159027 31.06 ug/L -0.19 Spiked Amount 30.000 Range 80 - 120 Recovery = 103.53% 26) 1,2-dichloroethane-d4 (S) 9.42 102 262737 32.10 ug/L -0.18

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery = 107.00%

 36) toluene-d8 (S)
 12.54
 98
 3719836
 30.50 ug/L
 -0.19

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery = 101.67%

 36) toluene-d8 (S) 53) 4-bromofluorobenzene (BFB) 17.36 95 2199765 27.20 ug/L -0.19 Spiked Amount 30.000 Range 80 - 120 Recovery = 90.67%

 Target Compounds
 Qvalue

 14) acetone
 5.23
 58
 760944
 56.72 ug/L
 82

 17) methylene chloride
 6.13
 84
 367727
 5.05 ug/L #
 100

Quant Results File: T6072011.RES A. Thomas GC/MS Ins I, Abenzenedoroldaib-A, C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 22 4-bromofluorobenzene (BFB), S Multiplr: Operator: Vial: TIC: TS62420.D Inst chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62420.D 2011 27 16:32:48 Calibration am Params: events.e 5:53 1 10:20 19111 T-24 PM 1.0-2 30 Jul 2011 Wed Jul Initial VOA Quant Time: Aug MS Integration Response via •• Last Update Data File Acq On Sample Method Title Abundance Misc 400000 380000 360000 340000 320000 300000 280000 34

10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 GCMS 2 24 10:31:48 2012 C ((C) 8b-eneutor fluorobenzene, l 2 ((2) 4b-ensiteorolidaib-2,1 Feb 9.00 dibromofluoromethane (S), S 8.00 Fгi 7.00 6.00 methylene chloride, T,M T6072011.M 5.00 M,T,enotece 4.00 3.00 TS62420.D 260000 240000 220000 200000 180000 60000 140000 120000 100000 80000 60000 40000 20000 0 Time-->

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62421.D Vial: 23 Acq On : 30 Jul 2011 6:26 am Sample : T-24 PM 1.0-3 Operator: A. Thomas Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:20 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene9.9296313746615.00 ug/l-0.1944) chlorobenzene-d515.18117344855915.00 ug/L-0.2056) 1,4-dichlorobenzene-d419.56152209263915.00 ug/L-0.20 System Monitoring Compounds 21) dibromofluoromethane (S) 8.64 113 1167168 31.60 ug/L -0.19 Spiked Amount 30.000 Range 80 - 120 Recovery = 105.33% 26) 1,2-dichloroethane-d4 (S) 9.42 102 239917 29.62 ug/L -0.18 Spiked Amount 30.000 Range 80 - 120 Recovery = 98.73% 36) toluene-d8 (S)12.5498366792930.39 ug/L-0.19Spiked Amount30.000Range80 - 120Recovery=101.30% 53) 4-bromofluorobenzene (BFB) 17.36 95 2185115 27.95 ug/L -0.20 Spiked Amount 30.000 Range 80 - 120 Recovery = 93.17%
 Target Compounds
 Qvalue

 14) acetone
 5.23
 58
 698709
 52.62 ug/L
 69

 17) methylene chloride
 6.12
 84
 351056
 4.87 ug/L #
 100

Page 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES A. Thomas GC/MS Ins I ,4b-eneznedoroirloib A C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 23 4-bromofluorobenzene (BFB), S Multiplr: Vial: Operator: GCMS 2 TIC: TS62421.D Inst chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62421.D Feb 24 10:31:52 2012 S ((S) 8b-eneutor 2011 I, eneznedorouft 27 16:32:48 Calibration S.(S) 4b-enshare-d4 (S), S 6:26 am 9.00 1 10:20 19111 S (S) enablancementane (S), S 8.00 ਦ ਸੁਸ 7.00 T-24 PM 1.0-3 30 Jul 2011 Wed Jul Params: Initial 6.00 methylene chloride, T,M TS62421.D T6072011.M VOA 5.00 M,T ,enotece Quant Time: Aug MS Integration 4.00 Response via .. Last Update 3.00 Data File Acq On Sample Method Title Abundance 400000 380000 360000 340000 320000 300000 280000 260000 240000 220000 200000 180000 160000 140000 120000 100000 80000 60000 40000 20000 0 Misc Time-> 36

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62422.D Vial: 26 Acq On : 30 Jul 2011 8:05 am Operator: A. Thomas : T-24 PM 2.0-1 Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:20 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9296317751315.00 ug/l-0.1944) chlorobenzene-d515.18117346793615.00 ug/L-0.2056) 1,4-dichlorobenzene-d419.56152217399915.00 ug/L-0.20 System Monitoring Compounds 21) dibromofluoromethane (S) 8.64 113 1185327 31.69 ug/L -0.19 Spiked Amount 30.000 Range 80 - 120 Recovery = 105.63% Spiked AmountS0.000Range80 - 120Recovery= 103.63%26) 1,2-dichloroethane-d4 (S)9.4110225154130.66ug/L-0.19Spiked Amount30.000Range80 - 120Recovery= 102.20%36) toluene-d8 (S)12.5498373856430.58ug/L-0.19Spiked Amount30.000Range80 - 120Recovery= 101.93%53) 4-bromofluorobenzene(BFB)17.3695224386228.54ug/L-0.20Spiked Amount 30.000 Range 80 - 120 Recovery = 95.13%
 Target Compounds
 Qvalue

 14) acetone
 5.23
 58
 692090
 51.46 ug/L
 77

 17) methylene chloride
 6.13
 84
 376903
 5.16 ug/L #
 100

10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES A. Thomas GC/MS Ins I ,4b-eneznedoreidet, I C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 26 4-bromofluorobenzene (BFB), S Multiplr: Operator: Vial: GCMS 2 TIC: TS62422.D Inst l ,cblorobenzene-d5, l Ω. C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62422 Feb 24 10:31:55 2012 2 (2) 8b-eneulof 27 16:32:48 2011 f, eneznedorouñ Calibration am S (S) 4b-ensiteoroldoib-2,1 9.00 events.e 8:05 dibromofluoromethane (S), S 1 10:20 19111 8.00 ч г л 7.00 T-24 PM 2.0-1 30 Jul 2011 Params: Wed Jul Initial 6.00 M,T, ebholdo ensivritem T6072011.M VOA 5.00 M,T, anotabe Quant Time: Aug MS Integration 4.00 Response via ••• Last Update 3.00 Data File TS62422.D Sample Acq On Method Title Abundance Misc 400000 380000 340000 280000 360000 320000 300000 260000 240000 220000 160000 120000 40000 20000 200000 180000 140000 100000 80000 60000 0 Time-> 38

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62423.D Vial: 27 Acq On : 30 Jul 2011 8:38 am Sample : T-24 PM 2.0-2 Operator: A. Thomas Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:20 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene9.9296321467615.00 ug/l-0.1944) chlorobenzene-d515.18117352266515.00 ug/L-0.2056) 1,4-dichlorobenzene-d419.56152215943015.00 ug/L-0.20 System Monitoring Compounds 21) dibromofluoromethane (S) 8.64 113 1177021 31.10 ug/L -0.19 Spiked Amount 30.000 Range 80 - 120 Recovery = 103.67%

 26) 1,2-dichloroethane-d4 (S)
 9.41
 102
 233291
 28.11
 ug/L
 -0.19

 Spiked Amount
 30.000
 Range
 80
 - 120
 Recovery
 =
 93.70%

 36) toluene-d8 (S)
 12.54
 98
 3768659
 30.47
 ug/L
 -0.19

 Spiked Amount
 30.000
 Range
 80
 - 120
 Recovery
 =
 101.57%

 53) 4-bromofluorobenzene (BFB) 17.36 95 2180477 27.30 ug/L -0.20 Spiked Amount 30.000 Range 80 - 120 Recovery = 91.00%
 Target Compounds
 Qvalue

 14) acetone
 5.23
 58
 717462
 52.73 ug/L
 78

 17) methylene chloride
 6.12
 84
 384862
 5.21 ug/L
 #
 100

10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES Thomas GC/MS Ins I , 4b-ensznedoreideid C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 A. 27 4-bromofluorobenzene (BFB), S Multiplr: Operator: Vial: GCMS2 TIC: TS62423.D Inst chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62423.D Feb 24 10:31:59 2012 2 (C) 8b-ensulot 27 16:32:48 2011 I, ensansdorouft Calibration am S ((S) 4b-enshteroethe 9.00 MS Integration Params: events.e 8:38 S ((S) ensitiemorouflomordib 1 10:20 19111 8.00 Εri 7.00 T-24 PM 2.0-2 30 Jul 2011 Wed Jul Initial 6.00 methylene chloride, T,M T6072011.M VOA 5.00 M,T ,enotece Quant Time: Aug 4.00 Response via .. Last Update 3.00 Data File TS62423.D Sample Acq On Method Title Abundance 420000 Misc 400000 380000 200000 360000 340000 320000 300000 280000 260000 240000 220000 180000 160000 140000 120000 00000 80000 60000 40000 20000 0 Time-> 40

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62424.D Vial: 28 Acq On : 30 Jul 2011 9:11 am Operator: A. Thomas Sample : T-24 PM 2.0-3 Misc : Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:20 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9296308986415.00 ug/l-0.1944) chlorobenzene-d515.18117352371915.00 ug/L-0.2056) 1,4-dichlorobenzene-d419.56152218313415.00 ug/L-0.20 System Monitoring Compounds 21) dibromofluoromethane (S) 8.64 113 1144422 31.46 ug/L -0.19 Spiked Amount 30.000 Range 80 - 120 Recovery = 104.87% 26)1,2-dichloroethane-d4(S)9.4110224569730.80ug/L-0.19Spiked Amount30.000Range80 - 120Recovery=102.67%36)toluene-d8(S)12.5498371214531.23ug/L-0.19Spiked Amount30.000Range80 - 120Recovery=104.10% 53) 4-bromofluorobenzene (BFB) 17.36 95 2239878 28.04 ug/L -0.20 Spiked Amount 30.000 Range 80 - 120 Recovery = 93.47%
 Target Compounds
 Qvalue

 14) acetone
 5.23
 58
 597480
 45.69 ug/L
 76

 17) methylene chloride
 6.12
 84
 355917
 5.02 ug/L #
 100

Quant Results File: T6072011.RES Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TS62424.D Vial: 28 Acq On : 30 Jul 2011 9:11 am Operator: A. Thomas Sample : T-24 PM 2.0-3 Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:20 19111

Last Update Last Update 1000000 100000 100000 100000 100000 100000 100000 100000 100
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Quantitation Report (QT Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL27\S62409.D Vial: 13 Acq On : 27 Jul 2011 5:22 pm Sample : 0000316 drum screen Operator: A. Thomas Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 2 17:24 19111 Quant Results File: 62072711.RES Quant Method : C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 02 16:45:00 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene10.0196456703415.00 ug/l0.0058) chlorobenzene-d515.28117461507215.00 ug/L0.0084) 1,4-dichlorobenzene-d419.65152253657715.00 ug/L0.00 System Monitoring Compounds 29) dibromofluoromethane (S) 8.73 113 1679765 28.64 ug/L 0.00 Spiked Amount 30.000 Range 80 - 120 Recovery = 95.47% 35) 1,2-dichloroethane-d4 (S) 9.50 102 369860 29.26 ug/L 0.00

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 97.53%

 48) toluene-d8 (S)
 12.64
 98
 5220002
 29.20 ug/L
 0.00

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 97.33%

 68) 4-bromofluorobenzene (BFB) 17.45 95 3002846 29.96 ug/L 0.00 Spiked Amount 30.000 Range 80 - 120 Recovery = 99.87% Target Compounds 11) MTBE Qvalue arget compoundsQvalue11) MTBE6.39733193211.30 ug/L #5738) trichloroethene10.651303479944.22 ug/L #6755) tetrachloroethene13.9116655352961380.21 ug/L #9656) dibromochloromethane13.9112941464726530.71 ug/L #10069) 1,2,3-trichloropropane17.4575177271923.33 ug/L #100

															00 22.00 23.00 24.00 25.00 26.00 27.00
Vial: 13 ator: A. Thomas : GC/MS Ins iplr: 1.00	File: 62072711.RES n Integrator)	0									S '(8	Ni,≯b-ene	entronauti Snedorol	անգն(Ձ,ֆ Ոշլե-ֆ, Ր	00 17.00 18.00 19.00 20.00 21
/\S62409.D Opera Inst Multi	Quant Results M (Chemstation	TIC: S62409.I	MALGONG	Nigero softs	noteen el b							ı'ş	p-evezue S '(S) 81	chiener chioroba	A 13.00 14.00 15.00 16.
IL11\LUL27	62072711.	2011											M,T,en	entecorotin entecorotino	± 00 11.00 12.00
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<pre>Lle : C:\HPCHEM\1 : 27 Jul 2011 : 2000316 drun : gration Params: •</pre>	Fime: Aug 2 17:2 : C:\HPCHE	odate : Tue Aug se via : Initial												M,T ,38T	≊ 3.00 4.00 5.00 6.00 7.
Data Fi Acq On Sample Misc MS Inte	Quant 7 Method Title	Last Up Respons bundance	850000 8000000	750000	700000	650000 6000000	550000	500000	400000	350000	300000	2500000 2000000	1500000	100000	0

IV-1 Method Tunes

IV-2 Method Blanks

IV-3 Daily Calibration

IV-4 Laboratory Control Samples

Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TBF62401.D Vial: 11 : 28 Jul 2011 10:41 pm Operator: A. Thomas Acg On : 50ng bfb 624/5ml 7/28/11 : GC/MS Ins Sample Inst Misc Multiplr: 1.00 MS Integration Params: events.e : C:\HPCHEM\1\METHODS\T8071811.M (Chemstation Integrator) Method Title : VOA



Spectrum Information: Average of 17.377 to 17.411 min.

	Target Mass		Rel. to Mass		Lower Limit%	 	Upper Limit%		Rel. Abn%		Ra w Abn	 	Result Pass/Fail	
1	50		95		15		40		26.4		16618		PASS	
i	75	i	95	-i	30	İ	70	i	49.9	i	31485	i	PASS	i
İ	95	Í	95	ł	100	Ì	100	Ì	100.0	Ì	63040	Ì	PASS	Ì
Ì	96	Ì	95		5	ſ	9	Ι	6.9	1	4364		PASS	Ì
1	173		174	1	0.00	1	2	ł	0.0		0		PASS	
I	174	Ţ	95		50	Ì	100	Ì	76.3	1	48120	1	PASS	ł
I	175	1	174		5	1	9	1	7.8		3738		PASS	
	176		174		95	ł	101	ļ	100.7		48448	1	PASS	1
ł	177		176	ł	5	1	9		7.2	Ì	3477		PASS	

47 TBF62401.D T8071811.M Fri Feb 24 11:14:50 2012 GCMS2

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TBL62401.D Vial: 11 Acq On : 28 Jul 2011 11:14 pm Operator: A. Thomas : Blank 624/5ml 7/28/11 Sample Inst : GC/MS Ins Misc Multiplr: 1.00 MS Integration Params: events.e Quant Time: Feb 24 11:16 19112 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QION Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9596481876315.00 ug/l-0.1644) chlorobenzene-d515.21117502053015.00 ug/L-0.1656) 1,4-dichlorobenzene-d419.59152292873415.00 ug/L-0.17 System Monitoring Compounds 21) dibromofluoromethane (S) 8.68 113 1600981 28.22 ug/L -0.16 Spiked Amount 30.000 Range 80 - 120 Recovery = 94.07% 26) 1,2-dichloroethane-d4 (S) 9.44 102 393502 31.63 ug/L -0.16 Spiked Amount 30.000 Range 80 - 120 Recovery = 105.438 36) toluene-d8 (S)12.5798559585530.18 ug/L-0.16Spiked Amount30.000Range80 - 120Recovery=100.60% 53) 4-bromofluorobenzene (BFB) 17.39 95 3358868 29.51 ug/L -0.16 Spiked Amount 30.000 Range 80 - 120 Recovery = 98.37%

Target Compounds

Qvalue

Page 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES A. Thomas GC/MS Ins dieflorobenzene-d4, l C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 11 -bromofluorobenzene (BFB), S Multiplr: Operator: C:\HPCHEM\1\DATA2011\JUL11\LUL28\TBL62401.D Vial: ... GCMS2 TIC: TBL62401.D Inst 1,00-906206001000 24 11:42:41 2012 S ((S) 8b-ensulor 2011 I, enexnedotoul 27 16:32:48 Calibration Feb 28 Jul 2011 11:14 pm Blank 624/5ml 7/28/11 \$ (S) \$p-eustheoroldolb-2,1 9.00 MS Integration Params: events.e dibromofluoromethane (S), S Quant Time: Feb 24 11:16 19112 Fri 8.00 7.00 Wed Jul Initial 4.00 5.00 6.00 TBL62401.D T6072011.M VOA Response via •• Last Update 3.00 Data File Acq On Sample Method Title Abundance 550000 Misc 450000 50° 500000 400000 300000 250000 200000 150000 100000 50000 0 Time->

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Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TDC62401.D Vial: 12 Acq On : 28 Jul 2011 11:47 pm Operator: A. Thomas Sample : 20ppb cal 624/5ml 7/28/11 Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Multiple Level Calibration

Response via : Multiple bever calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev A	rea%	Dev(min)
1	I	fluorobenzene	1.000	1.000	0.0	99	-0.16
3	Т,М	chloromethane	0.312	0.217	30.4#	68	-0.10
4	С,Т,	M vinyl chloride	0.184	0.155	15.8	89	-0.10
5	т,М	bromomethane	0.144	0.057	60.4#	41#	≢ -0.12
6	т,М	chloroethane	0.225	0.234	-4.0	97	-0.12
7	t	112-Trichloro-122-Trifluoro	0.289	0.216	25.3	68	-0.13
8	t	Methyl Acetate	0.047	0.050	-6.4	96	-0.15
9	Т,М	carbon disulfide	0.586	0.428	27.0	64	-0.16
10	Т,М	MTBE	0.785	0.722	8.0	96	-0.14
11	t	1,4 Dioxane	0.028	0.023	17.9	69	-0.14
12	т,М	tert-buty1 alcohol	0.054	0.045	16.7	76	-0.17
13	т,м	MEK	0.044	0.036	18.2	75	-0.16
14	Т,М	acetone	0.049	0.042	14.3	92	-0.12
15	Т,М	trichlorofluoromethane	0.385	0.275	28.6	61	-0.13
16	С,Т,	M 1,1-dichloroethene	0.514	0.380	26.1	66	-0.15
17	Т,М	methylene chloride	0.345	0.269	22.0	76	-0.15
18	Т,М	trans-1,2-dichloroethene	0.525	0.435	17.1	78	-0.15
19	Т,М	1,1-dichloroethane	0.651	0.562	13.7	79	-0.16
20	С,Т,	M chloroform	0.380	0.339	10.8	83	-0.16
21	S	dibromofluoromethane (S)	0.177	0.183	-3.4	102	-0.15
22	Т,М	bromochloromethane	0.149	0.131	12.1	76	-0.16
23	t	Cyclohexane	0.417	0.333	20.1	70	-0.16
24	Т,М	1,1,1-trichloroethane	0.440	0.398	9.5	81	-0.16
25	T,M	carbon tetrachloride	0.326	0.297	8.9	79	-0.16
26	S	1,2-dichloroethane-d4 (S)	0.039	0.040	-2.6	99	-0.16
27	Т,М	1,2-dichloroethane	0.545	0.495	9.2	86	-0.16
28	Τ, Μ	benzene	1.096	0.936	14.6	77	-0.16
29	Τ, Μ	trichloroethene	0.285	0.266	6.7	79	-0.16
30	ť	Methyl Cyclohexane	0.479	0.405	15.4	74	-0.16
31	С,Т,	M 1,2-dichloropropane	0.325	0.299	8.0	85	-0.15
32	T, M	MIBK	0.036	0.030	16.7	79	-0.14
33	Т.М	cis-1,2-dichloroethene	0.532	0.463	13.0	81	-0.16
34	Т.М	bromodichloromethane	0.353	0.327	7.4	82	-0.16
35	Т,М	cis-1,3-dichloropropene	0.426	0.385	9.6	80	-0.16
36	S	toluene-d8 (S)	0.577	0.587	-1.7	98	-0.16
37	С.Т.	M toluene	1.119	0.955	14.7	71	-0.16
38	Т.М	trans-1,3-dichloropropene	0.447	0.330	26.2	68	-0.04
39	T.M	2-hexanone	0.130	0.109	16.2	92	-0.16
40	T.M	1.1.2-trichloroethane	0.210	0.200	4.8	87	-0.16
41	Т.М	tetrachloroethene	0 296	0.291	1.7	82	-0.16
42	Т.М	dibromochloromethane	0 218	0 210	37	80	-0 16
43	Т,М	1,2-dibromoethane	0.253	0.240	5.1	84	-0.16
44	I	chlorobenzene-d5	1.000	1.000	0.0	87	-0.16
15	MT	chlorohonzono			<u>о</u> г	~ ^	n * =

46	С,Т,М	1 ethyl benzene	1.066	1.044	2.1	80	-0.16
47	Т,М	m/p-xylene	0.929	0.881	5.2	69	-0.16
48	Т,М	o-xylene	0.874	0.871	0.3	81	-0.16
49	Τ,Μ	styrene	0.528	0.513	2.8	79	-0.16
50	Т,М	isopropyl benzene	0.953	0.947	0.6	81	-0.16
51	Т,М	bromoform	0.123	0.118	4.1	82	-0.17
52	Т,М	1,1,2,2-tetrachloroethane	0.274	0.269	1.8	86	-0.16
53	S	4-bromofluorobenzene (BFB)	0.340	0.329	3.2	85	-0.16
54	Τ,Μ	1,3-dichlorobenzene	0.404	0.392	3.0	78	-0.16
55	Т,М	1,2-dichlorobenzene	0.383	0.393	-2.6	85	-0.17
56	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	76	-0.17
57	Τ,Μ	1,4-dichlorobenzene	0.639	0.727	-13.8	86	-0.18
58	Τ,Μ	1,2-dibromo-3-chloropropane	0.069	0.066	4.3	96	-0.16
59	Τ,Μ	1,2,4-trichlorobenzene	0.387	0.425	-9.8	80	-0.17
60	Τ,Μ	Napthalene	0.822	0.820	0.2	83	-0.17
61	Т,М	1,2,3-trichlorobenzene	0.343	0.380	-10.8	85	-0.17

(#) = Out of Range SPCC's out = 0 CCC's out = 0 BF62401.D T6072011.M Fri Feb 24 11:39:45 2012 GCMS2

Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TDC62402.D Vial: 27

 Acq On
 : 29 Jul 2011
 8:04 am
 Operator: A. Thomas

 Sample
 : 20ppb cal2 624/5ml 7/28/11
 Inst
 : GC/MS Ins

 Misc
 :
 Multiplr: 1.00

 MS Integration Params: events.e Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Multiple Level Calibration Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min Max. RRF Dev : 30% Max. Rel. Area : 200%
 Compound
 AvgRF
 CCRF
 %Dev Area% Dev(min

 1 I
 fluorobenzene
 1.000
 1.000
 0.0
 82
 -0.16

 3 T,M
 chloromethane
 0.312
 0.207
 33.7#
 53
 -0.10

 4 C,T,M
 viyi chloride
 0.184
 0.177
 38
 84
 -0.10

 5 T,M
 bromomethane
 0.225
 0.234
 -4.0
 79
 -0.12

 7 t
 112-Trichloro-122-Trifluoro
 0.289
 0.242
 16.3
 63
 -0.15

 8 t
 Methyl Acetate
 0.047
 0.047
 0.0
 76
 -0.15

 9 T,M
 carbon disulfide
 0.586
 0.430
 26.6
 53
 -0.16

 1 T, M
 mExt
 0.044
 0.027
 38.6#
 47#
 -0.16

 1 T,M
 methyl alcohol
 0.544
 0.435
 15.4
 63
 -0.15

 1 T,M
 methyle chloride
 0.345
 0.233
 15.1
 68
 -0.16

 2 T,M
 trichloroethane
 AvgRF CCRF %Dev Area% Dev(min) Compound -

 44 I
 chlorobenzene-d5
 54

 45 M.T
 chlorobenzene
 0.554
 0.000
 0.0
 73
 -0.17
 54

46	С,Т,М	í ethyl benzene	1.066	1.111	-4.2	71	-0.17
47	Т,М	m/p-xylene	0.929	0.963	-3.7	63	-0.17
48	Т,М	o-xylene	0.874	0.927	-6.1	72	-0.17
49	Т,М	styrene	0.528	0.552	-4.5	71	-0.17
50	Т,М	isopropyl benzene	0.953	0.999	-4.8	72	-0.17
51	Т,М	bromoform	0.123	0.117	4.9	68	-0.17
52	Т,М	1,1,2,2-tetrachloroethane	0.274	0.273	0.4	73	-0.17
53	S	4-bromofluorobenzene (BFB)	0.340	0.327	3.8	71	-0.17
54	Т,М	1,3-dichlorobenzene	0.404	0.436	-7.9	73	-0.18
55	Т,М	1,2-dichlorobenzene	0.383	0.414	-8.1	75	-0.19
56	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	66	-0.17
57	Т,М	1,4-dichlorobenzene	0.639	0.714	-11.7	74	-0.18
58	Т,М	1,2-dibromo-3-chloropropane	0.069	0.062	10.1	79	-0.17
59	Т,М	1,2,4-trichlorobenzene	0.387	0.401	-3.6	66	-0.18
60	Т,М	Napthalene	0.822	0.741	9.9	65	-0.18
61	Т,М	1,2,3-trichlorobenzene	0.343	0.372	-8.5	72	-0.18

(#) = Out of Range SPCC's out = 0 CCC's out = 0 BF62401.D T6072011.M Fri Feb 24 11:41:18 2012 GCMS2

Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TDC62401.D Vial: 12 Acq On : 28 Jul 2011 11:47 pm Sample : 20ppb cal 624/5ml 7/28/11 Operator: A. Thomas Inst : GC/MS Ins Misc Multiplr: 1.00 MS Integration Params: events.e Quant Time: Feb 24 11:39 19112 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9596484843815.00 ug/l-0.1644) chlorobenzene-d515.22117516214715.00 ug/L-0.1656) 1,4-dichlorobenzene-d419.59152301841615.00 ug/L-0.17 System Monitoring Compounds 21) dibromofluoromethane (S) 8.68 113 1774608 31.09 ug/L -0.15 21) dibromolluoromethane (S)8.6811317/460851.09ug/L-0.15Spiked Amount30.000Range80-120Recovery=103.63%26) 1,2-dichloroethane-d4(S)9.4410239129131.26ug/L-0.16Spiked Amount30.000Range80-120Recovery=104.20%36) toluene-d8(S)12.5898568932230.50ug/L-0.16Spiked Amount30.000Range80-120Recovery=101.67%53) 4-bromofluorobenzene(BFB)17.3995339695829.02ug/L-0.16Spiked Amount 30.000 Range 80 - 120 Recovery = 96.73%

 Carget Compounds
 Qvalue

 3) chloromethane
 3.48
 50
 1402039m
 13.88
 ug/L

 4) vinyl chloride
 3.63
 62
 1002481m
 16.83
 ug/L
 95

 5) bromomethane
 4.23
 96
 366065
 7.88
 ug/L
 95

 6) chloroethane
 4.30
 64
 1513440m
 20.84
 ug/L
 95

 6) chloroethane
 5.20
 101
 1397619m
 14.94
 ug/L
 91

 7) 112-Trichloro-122-Trifluor
 5.20
 101
 1397619m
 14.62
 ug/L

 8) Methyl Acetate
 5.86
 74
 321782m
 17.65
 ug/L

 9) carbon disulfide
 6.26
 76
 2769129m
 14.62
 ug/L

 10) MTBE
 6.32
 73
 4667780
 18.41
 ug/L
 95

 11) 1,4 Dioxane
 6.15
 88
 148924
 14.64
 ug/L
 100

 12) tert-butyl alcohol
 5.50
 59
 1468551m
 84.81
 ug/L
 140

 13) MEK
 7.74
 72
 232831m
 16.42
 ug/L</td Target Compounds Ovalue 14) acetone5.2758269521m13.13ug/L15) trichlorofluoromethane4.651011778992m14.31ug/L16) 1,1-dichloroethene5.4761245466814.77ug/L#17) methylene chloride6.1584173646715.59ug/L#10018) trans-1,2-dichloroethene6.5761281361716.57ug/L#10019) 1,1-dichloroethane7.1863363248917.25ug/L#10020) chloroform8.3485219143217.85ug/L9822) bromochloromethane8.6112884999617.68ug/L9423) Cyclohexane9.0284215386515.99ug/L#10025) carbon tetrachloride9.39117192247617.00ug/L9927) 1,2-dichloroethane9.5962320312718.18ug/L#8128) benzene9.6578605001417.08ug/L#8929) trichloroethene10.60130172002018.68ug/L#10030) Methyl Cyclohexane10.7183261734716.89ug/L93 _____

(#) = qualifier out of range (m) = manusal integration TDC62401.D T6072011.M Fri Feb 24 11:42:43 2012 GCMS2 Page 1
Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TDC62401.D Vial: 12 Acq On : 28 Jul 2011 11:47 pm Operator: A. Thomas : 20ppb cal 624/5ml 7/28/11 Inst : GC/MS Ins Sample Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Feb 24 11:39 19112 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2

	Compound	R.T.	QIon	Response	Conc Unit	Q	value
31)	1,2-dichloropropane	10.88	63	1930326	18.37 ug/I		95
32)	MIBK	11.75	100	193944	15.06 ug/I		68
33)	cis-1,2-dichloroethene	8.10	61	2994518	17.41 ug/I		98
34)	bromodichloromethane	11.27	83	2114295	16.62 ug/I	; #	99
35)	cis-1,3-dichloropropene	12.14	75	2491733	16.72 ug/I	, #	93
37)	toluene	12.71	91	6173451	17.06 ug/I	, #	75
38)	trans-1,3-dichloropropene	12.97	75	2135854	14.78 ug/I	, #	93
39)	2-hexanone	13.21	58	702621	16.67 ug/I	, #	100
40)	1,1,2-trichloroethane	13.26	83	1291657	18.99 ug/I	, #	45
41)	tetrachloroethene	13.85	166	1882922	19.71 ug/I	, #	100
42)	dibromochloromethane	14.20	129	1357291	16.33 ug/I	J I	100
43)	1,2-dibromoethane	14.55	107	1550245	18.99 ug/I	, #	99
45)	chlorobenzene	15.29	112	3793626	19.90 ug/I	, #	85
46)	ethyl benzene	15.35	91	7188122	19.59 ug/I	」#	100
47)	m/p-xylene	15.49	91	6061188	18.97 ug/I	」 #	100
48)	o-xylene	16.28	91	5994943	19.94 ug/I	. #	81
49)	styrene	16.34	104	3530752	19.43 ug/I		93
50)	isopropyl benzene	16.92	105	6520239	19.88 ug/I		100
51)	bromoform	16.99	173	809228	14.52 ug/I		99
52)	1,1,2,2-tetrachloroethane	17.22	83	1853046	16.70 ug/I	_ #	100
54)	1,3-dichlorobenzene	19.46	146	2701049	19.41 ug/I	, #	99
55)	1,2-dichlorobenzene	20.35	146	2704412m	20.54 ug/I		
57)	1,4-dichlorobenzene	19.64	146	2924326m	22.73 ug/1		
58)	1,2-dibromo-3-chloropropan	21.82	75	267235	12.95 ug/I		83
59)	1,2,4-trichlorobenzene	23.50	180	1710607	21.96 ug/1		97
60)	Napthalene	24.00	128	3301848	19.97 ug/1		100
61)	1,2,3-trichlorobenzene	24.47	180	1531053	22.18 ug/I		100

_____ _____

		M,T ,eneisrifiqaM	24.00 25.00 26.00 27.00 Dage 3
S EE		M,T ,enedoroth3b-S,P M,T ,enedorqoroth3-6-omordib-S,P	0 21.00 22.00 23.00
: 12 A. Thomas GC/MS Ins 1.00 : T6072011.R	cegrator)	S ((878) enesnedoroufformord-* MrT ,enertheorold/serter-S,C,P,P I ,Ab-enesned e,pilijalb,Addoroth/16 }, M.T ,enesnedorold/olb-5, P	00 18.00 19.00 20.0
401.D Vial: Operator: Inst : Multiplr: Results File	mstation Int IC:TDC62401D	M,T,ənarthərmorohlozomordib M,T,ənarthərmorohlozomordi M,T,ənarthərmorohlozomord M,T,ənartyə M,T,ənartyə M,T,ənəryə M,T,ənəryəd reproduce M,T,ənəryəd reproduce M,T,ənəryəd reproduce M,T,ənəryəd reproduce M,T,ənəryəd	.00 15.00 16.00 17.
LUL28\TDC62 Quant	2011.M (Che	bromodichioromathamorinalian (المجاهد المحافية المحافيحية المحافية المحافية المحافية المحاف	00 12.00 13.00 14.
A2011\JULJ1\ :47 pm 5ml 7/28/11 ts.e 112	METHODS\T607 6:32:48 2011 bration	M, T, One bin one the new T, 2-dichlorophile (M, T, 2) M, T, 2, Alichlorophile (M, M, 2) M, T, 2, Alichloroperties (M, M, 2) M, T, 2, Alichloroperties (M, M, 2) M, M, T, 2) M, T, 2, Alichloroperties (M, M, 2) M, M, M, 2) M, M, 2) M, M, 2) M, M, 2) M, M, 2) M, M, 2) M, M, 2) M, M, 2) M, M, 2) M, M, 2) M, M, 2) M, M, 2) M, M, 2) M, M, 2) M, 2) M, 2) M, 2) M, 2) M, 2) M, 2) M, 2) M, 2) M, 2) M, 2) M, 2) M, 2) M, 2) M, 2)	00 9.00 10.00 11
HPCHEM/1/DAT Jul 2011 11 pb cal 624/ Params: even 24 11:39 19	C:\HPCHEM\1\ VOA Wed Jul 27 1 Initial Cali	MEK, T,M MEK, T,M MEK, T,M MEK, T,M MEK, T,M MEK, T,M MEK, T,M MEK, T,M MEK, T,M MEK, T,M MEK, T,M MEK, T,M MEK, T,M MEK, T,M MEK, T,M MEK, T,M M M M M M M M M M M M M M M M M M M	5.00 6.00 7.00 8
File : C:\ Dn : 28 Le : 20pl itegration] Time: Feb	od :	มี 7. วิ. เลยไลการาชุ่นว มันรับ	3.00 4.00 5
Data Acq (Samp: Misc MS Ir Quant	Meth(Titl(Last Respo	600000 550000 550000 350000 150000 100000 100000 20000 100000 2000000	Time>

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Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TDC62402.D Vial: 27 Acq On : 29 Jul 2011 8:04 am Sample : 20ppb cal2 624/5ml 7/28/11 Operator: A. Thomas Inst : GC/MS Ins Misc Multiplr: 1.00 MS Integration Params: events.e Quant Time: Feb 24 11:41 19112 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene9.9596399489815.00 ug/l-0.1644) chlorobenzene-d515.21117432734115.00 ug/L-0.1756) 1,4-dichlorobenzene-d419.58152262409315.00 ug/L-0.17 System Monitoring Compounds 21) dibromofluoromethane (S) 8.67 113 1551412 32.99 ug/L -0.16 21) dibiomorruoromethane (3)8.67113153141252.99ug/L-0.16Spiked Amount30.000Range80-120Recovery=109.97%26) 1,2-dichloroethane-d4(S)9.4410232124131.15ug/L-0.16Spiked Amount30.000Range80-120Recovery=103.83%36) toluene-d8(S)12.5798469493330.55ug/L-0.16Spiked Amount30.000Range80-120Recovery=101.83%53) 4-bromofluorobenzene(BFB)17.3995283190528.86ug/L-0.17Spiked Amount20.000Bange80120Bange8020.000Spiked Amount 30.000 Range 80 - 120 Recovery = 96.20%

 Target Compounds
 Qvalue

 3) chloromethane
 3.48
 50
 1101558m
 13.24
 ug/L

 4) vinyl chloride
 3.63
 62
 940878m
 19.18
 ug/L

 5) bromomethane
 4.23
 96
 343416m
 8.97
 ug/L

 6) chloroethane
 4.30
 64
 1244533m
 20.80
 ug/L

 7) 112-Trichloro-122-Trifluor
 5.19
 101
 1288623
 16.72
 ug/l
 100

 8) Methyl Acetate
 5.86
 74
 252289m
 16.79
 ug/L
 96

 10) MTBE
 6.31
 73
 4126085
 19.75
 ug/L
 96

 11) 1, 4 Dioxane
 6.14
 88
 139962
 16.70
 ug/L
 100

 12) tert-butyl alcohol
 5.52
 59
 1166447m
 81.76
 ug/L
 14

 13) MEK
 7.74
 72
 145306m
 12.44
 ug/L
 100

 14) acetone
 5.26
 58
 204094
 12.07
 ug/L
 56

 15) trichlorofluoromethane
 4.64
 101
 17.79612
 17.37
 ug/L</ Target Compounds Ovalue

(#) = qualifier out of range (m) = manu59 integration TDC62402.D T6072011.M Fri Feb 24 11:42:48 2012 GCMS2 Page 1

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Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TDC62402.D Vial: 27
Acq On : 29 Jul 2011 8:04 am
                                                    Operator: A. Thomas
Acq On : 29 Jul 2011 8:04 am
Sample : 20ppb cal2 624/5ml 7/28/11
                                                    Inst : GC/MS Ins
      :
                                                    Multiplr: 1.00
Misc
Misc :
MS Integration Params: events.e
Quant Results File: T6072011.RES
Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator)
Title : VOA
Last Update : Wed Jul 27 16:32:48 2011
Response via : Initial Calibration
DataAcq Meth : VOC2
```

	Compound	R.T.	QIon	Response	Conc Unit	Qu	value
31)	1,2-dichloropropane	10.87	63	1656366	19.14 ug/L	. #	86
32)	MIBK	11.74	100	172188	16.22 ug/L		81
33)	cis-1,2-dichloroethene	8.10	61	2719128	19.18 ug/L	#	63
34)	bromodichloromethane	11.27	83	1989063	18.97 ug/I	, #	100
35)	cis-1,3-dichloropropene	12.13	75	2007647	16.35 ug/I	, #	93
37)	toluene	12.71	91	5400098	18.12 ug/I	, #	75
38)	trans-1,3-dichloropropene	12.97	75	1769927	14.87 ug/I	, #	93
39)	2-hexanone	13.22	58	526689	15.16 ug/I	, #	95
40)	1,1,2-trichloroethane	13.25	83	1090897	19.47 ug/I	, #	45
41)	tetrachloroethene	13.84	166	1624515	20.64 ug/I	, #	100
42)	dibromochloromethane	14.19	129	1238795	18.09 ug/I		100
43)	1,2-dibromoethane	14.55	107	1386695	20.62 ug/I	」#	97
45)	chlorobenzene	15.28	112	3344337	20.93 ug/I	」#	100
46)	ethyl benzene	15.35	91	6408638	20.84 ug/I	」#	100
47)	m/p-xylene	15.48	91	5556131	20.74 ug/I	」#	100
48)	o-xylene	16.28	91	5350448	21.23 ug/I	-	99
49)	styrene	16.34	104	3182299	20.89 ug/I	-	92
50)	isopropyl benzene	16.91	105	5766281	20.98 ug/I	-	99
51)	bromoform	16.99	173	673206	14.41 ug/I	-	99
52)	1,1,2,2-tetrachloroethane	17.22	83	1576338	16.94 ug/I	」 #	100
54)	1,3-dichlorobenzene	19.45	146	2514869m	21.55 ug/I		
55)	1,2-dichlorobenzene	20.33	146	2388092m	21.63 ug/I	_	
57)	1,4-dichlorobenzene	19.64	146	2498658m	22.34 ug/I		
58)	1,2-dibromo-3-chloropropan	21.81	75	218649	12.19 ug/I	_	79
59)	1,2,4-trichlorobenzene	23.48	180	1402093	20.71 ug/I	_	94
60)	Napthalene	23.99	128	2592617	18.03 ug/I		100
61)	1,2,3-trichlorobenzene	24.46	180	1302524	21.71 ug/I		98

_____________ _____

27

Vial:

C:\HPCHEM\1\DATA2011\JUL11\LUL28\TDC62402.D

• •

File

Data

Page 27.00 25.00 26.00 M,T, enexnedonolribiti-E,S,t 24.00 M,T ,enels/tiqs/ M,T, enernedoroldohrb-A,S,f 22.00 23.00 M,T ,anaqoropropho-£-omordib-2,t 21.00 File: T6072011.RES 20.00 M,T ,eneznedorokholb-S,f Thomas GC/MS Ins M.T. enesnedomotel and the state of the stat 19.00 (Chemstation Integrator) 1.00 18.00 A. 3 (B1B) energeneoundomond-16.00 17.00 Operator: .. M,T, snezned lyqorq Multiplr GCMS2 M,T ,eneliging, energia TIC: TDC62402.D Results Inst I'Spiela and a state of the second state of th 15.00 M,T, snsrtteomordib-S,t 14.00 M,T, ensitemoroldoomordib M,T, energeoroliciantes 11:42:51 2012 Quant 13.00 M,T ,eneqorgorolicib-E,1-anat M,T ,enariste to antipost et a. C:\HPCHEM\1\METHODS\T6072011.M W,T,O, anene-d8 (S) 8 ----11.00 12.00 M,T ,anagorgoroldolb-£,1-alo WIBK' 1'W M,T,enarthemoroldolbomord 2011 M.T.S. engroup of the second state of the seco l 8:04 am 624/5ml 7/28/11 10.00 24 I, enernedorouft M, Prostant and C. (S) MJ abitradistration of the 27 16:32:48 Calibration Feb 9.00 M,T, anartteoroidp/mha/ehoioy3-Params: events.e 24 11:41 19112 8:04 M,T ,en**er(terrensistensood**flomondit M,T, enertheorotheital A. (1, 2, 4) M,T, O, (mtorotorothe) M,T, O, (mtorotorothe) Frì 8.00 MEK' 1'M M,T ,enanteorol/holb-1,1 8 ~ 29 Jul 2011 M,T ,enerteonolitolb-S,1-anart 20ppb cal2 Params: Wed Jul Initial W. W. JUNDING BOUNDARY 6.00 T6072011.M Methyl Acetate, t VOA M,T,D ,enertieoroliticito, to the interverse in the second s scetbig, Trightoro-122-1thuoro ethane, (5.00 Feb M,T ,ensitemoroufforelitait MS Integration M,T ,analisanemand 9.4 via Quant Time: Last Update MAT SHERE IN A SHORE INTA SHORE IN A SHORE INTA SHORE I 3 3.00 TDC62402.D Response u O Sample Method Title Misc Abundance 0 450000 50000 500000 400000 9350000 300000 250000 200000 150000 100000 Acq 1 e E

m

Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TLC62401.D Vial: 13 Acq On : 29 Jul 2011 12:20 am Sample : 20ppb lcs 624/5ml 7/28/11 Operator: A. Thomas Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Time: Feb 24 11:42 19112 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QION Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9696482103715.00 ug/l-0.1644) chlorobenzene-d515.22117503337315.00 ug/L-0.1656) 1,4-dichlorobenzene-d419.59152304735015.00 ug/L-0.16 System Monitoring Compounds 21) dibromofluoromethane (S) 8.67 113 1749764 30.83 ug/L -0.16 21) dibromorruoromethane (S)8.67113174976430.83ug/L-0.16Spiked Amount30.000Range80-120Recovery=102.77%26) 1,2-dichloroethane-d4(S)9.4410239189431.48ug/L-0.16Spiked Amount30.000Range80-120Recovery=104.93%36) toluene-d8(S)12.5898569312330.69ug/L-0.16Spiked Amount30.000Range80-120Recovery=102.30%53) 4-bromofluorobenzene(BFB)17.3995340407129.83ug/L-0.16Spiked Amount 30.000 Range 80 - 120 Recovery = 99.43%

 Target Compounds
 Qvalue

 3) chloromethane
 3.50
 50
 981061m
 9.77
 ug/L

 4) vinyl chloride
 3.63
 62
 1060346m
 17.91
 ug/L

 5) bromomethane
 4.23
 96
 380013
 8.23
 ug/L
 97

 6) chloroethane
 4.31
 64
 867274
 12.01
 ug/L
 # 90

 7) 112-Trichloro-122-Trifluor
 5.20
 101
 1350647
 14.52
 ug/L
 # 90

 9) carbon disulfide
 6.27
 76
 2709286
 14.39
 ug/L
 # 100

 10) MTBE
 6.32
 73
 4594615
 18.22
 ug/L
 # 100

 11) 1, 4 Dioxane
 6.15
 88
 139874
 13.83
 ug/L
 # 100

 12) tert-butyl alcohol
 5.53
 59
 1491423m
 86.62
 ug/L
 11

 13) MEK
 7.78
 72
 225844m
 16.02
 ug/L
 100

 14) acetone
 5.25
 58
 280035m
 13.72
 ug/L
 100

 15) trichlorofluoromethane
 6.16
 84
 17440

Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL28\TLC62401.D Vial: 13 Acq On : 29 Jul 2011 12:20 am Operator: A. Thomas Sample : 20ppb lcs 624/5ml 7/28/11 Inst : GC/MS Ins : Multiplr: 1.00 Misc Misc : MS Integration Params: events.e T' 24 11.42 19112 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2

	Compound	R.T.	QIon	Response	Conc Unit	Ç	value
31)	1,2-dichloropropane	10.88	63	1949883	18.67 ug/1	 : #	86
32)	MIBK	11.75	100	194671	15.20 ug/1		79
33)	cis-1,2-dichloroethene	8.10	61	3138840	18.35 ug/1	L	96
34)	bromodichloromethane	11.27	83	2187982	17.29 ug/1		99
35)	cis-1,3-dichloropropene	12.14	75	2522930	17.03 ug/1	L #	93
37)	toluene	12.71	91	6209621	17.26 ug/1	L #	75
38)	trans-1,3-dichloropropene	12.97	75	2127672	14.81 ug/1	L #	93
39)	2-hexanone	13.23	58	658034	15.70 ug/1	L #	96
40)	1,1,2-trichloroethane	13.26	83	1304471	19.29 ug/1	L #	97
41)	tetrachloroethene	13.85	166	1919843	20.21 ug/1	L #	76
42)	dibromochloromethane	14.20	129	1359661	16.45 ug/1	L #	61
43)	1,2-dibromoethane	14.56	107	1560271	19.22 ug/	L	99
45)	chlorobenzene	15.29	112	3884876	20.90 ug/:	L #	100
46)	ethyl benzene	15.36	91	7255333	20.28 ug/2	L #	ŧ 100
47)	m/p-xylene	15.49	91	6157815	19.76 ug/:	L #	ŧ 100
48)	o-xylene	16.29	91	5963411	20.34 ug/1	L #	ŧ 81
49)	styrene	16.35	104	3680884	20.78 ug/3	L	93
50)	isopropyl benzene	16.92	105	6633936	20.75 ug/3	Ľ	99
51)	bromoform	17.00	173	839572	15.45 ug/:	L	100
52)	1,1,2,2-tetrachloroethane	17.23	83	1884573	17.42 ug/:	L ŧ	ŧ 100
54)	1,3-dichlorobenzene	19.46	146	2785516	20.53 ug/3	L ŧ	ŧ 100
55)	1,2-dichlorobenzene	20.36	146	2509465	19.54 ug/:	L ŧ	ŧ 76
57)	1,4-dichlorobenzene	19.64	146	2989517m	23.02 ug/	L	
58)	1,2-dibromo-3-chloropropan	21.82	75	249852	11.99 ug/	L	84
59)	1,2,4-trichlorobenzene	23.50	180	1795880	22.84 ug/	L	97
60)	Napthalene	24.00	128	3577618	21.43 ug/3	L	100
61)	1,2,3-trichlorobenzene	24.47	180	1642280	23.57 ug/2	L	98

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27.00 26.00 25.00 M,T,eneznedonolnoin-2,2,1 24.00 M,T, enelentgen M,T, enscredoroidoirt-A,S, t 23.00 22.00 M,T ,ensgorgorold>-£-omordib-S,P 21.00 Quant Results File: T6072011.RES 20.00 M,T,enexnedoroldoib-S,F -4.3-dichloroberne, T, M, T, enetregeatgeeteete, I, 4-dichiotoberateete, I Thomas GC/MS Ins 18.00 19.00 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 A. 13 4-bromofluorobenzene (BFB), 5 M,T,ansrteoroiriastet-2,2,1,1 16.00 17.00 Vial: Operator: M,T, enezned lyqorge Multiplr M,T ,ensiyx o M,T ,ensiya TIC: TLC62401.D Inst 15.00 Δ. C:\HPCHEM\1\DATA2011\JULL1\LUL28\TLC62401 M,T,ensitteomordib-S,h 14.00 M,T, ensitiemoroliticomordib 2012 M,T, enertheorolinicartet 13.00 W,T ,ənstrationopropense, T,M M,T ,əharhəlin Mitaroce, taric, T,M st (s) ap-atlanios 24 11:42:56 12.00 M.T.,enegorgoroldoib-£,1-eio MIRK, T,M 11.00 M,T, enerthemonolrhoibomond 2011 0ppb lcs 624/5ml 7/28/11 10.00 I, eneznedorouñ M. La cristing and a short short short ab to star 27 16:32:48 Calibration Feb 12:20 am 9.00 C¢ddhydwynerhane, T,M params: events.e 24 11:42 19112 Fr. 8.00 WEK' 1'W 7.00 M,T,ensitreorolicib-1,1 29 Jul 2011 Params: Wed Jul Initial M,T, enerteoroirioib-S, f-anant W'L 'opiningin Wonger House 6.00 1, etatecA lyrite M t ,enshire oroutin TS2-orothopin Jeffers -M,T,O ,enshire orotholik t, tortoots rynud ries VOA 5.00 Feb M,T, ensitemorouflorolithit MS Integration M.T. SHERIBBRORNEI 4.00 \sim via Quant Time: ... Last Update M.T. J. S. & BRASSASTRUMA 3.00 File Response on Sample Method Title Data Abundance Misc 350000 50000 550000 450000 300000 200000 150000 0 600000 900000 Acq 500000 250000 000001

T6072011.M TLC62401.D

GCMS 2

m Page Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TBF62401.D Vial: 1 Acq On : 29 Jul 2011 5:10 pm Operator: A. Thomas Sample : 50ng bfb 624/5ml 7/29/11 : GC/MS Ins Inst Misc Multiplr: 1.00 MS Integration Params: events.e Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) : VOA Title



AutoFind: Scans 887, 888, 889; Background Corrected with Scan 880

Target Mass		Rel. to Mass	 	Lower Limit%		Upper Limit%		Rel. Abn%		Raw Abn		Result Pass/Fail	
50		95		15		40		31.8		17405		PASS	
75		95	ł	30		70		60.0		32824		PASS	
95	1	95	[100		100		100.0	ł	54739	1	PASS	1
96		95	1	5	1	9		7.2	1	3923	1	PASS	ł
173	ł	174	ł	0.00		2		0.0		0		PASS	
174		95		50	1	100		78.5		42944	1	PASS	
175	ł	174		5		9		7.3		3145	1	PASS	I
176	1	174		95	ł	101		97.7		41936	1	PASS	ł
177	ł	176	Ì	5	ł	9	Ì	7.1	Ì	2988	Ì	PASS	ł
	Target Mass 50 75 95 96 173 174 175 176 177	Target Mass 50 75 95 96 173 174 175 176 177	Target Rel. to Mass Mass 50 95 75 95 95 95 96 95 173 174 174 95 175 174 176 174 177 176	Target Rel. to Mass Mass 50 95 75 95 95 95 96 95 173 174 174 95 175 174 176 174 177 176	Target Rel. to Lower Mass Mass Limit% 50 95 15 75 95 30 95 95 100 96 95 5 173 174 0.00 174 95 50 175 174 5 176 174 95 177 176 5	Target Rel. to Lower Mass Mass Limit% 50 95 15 75 95 30 95 95 100 96 95 5 173 174 0.00 174 95 50 175 174 5 176 174 95 177 176 5	Target Rel. to Lower Upper Mass Mass Limit% Limit% 50 95 15 40 75 95 30 70 95 95 100 100 96 95 5 9 173 174 0.00 2 174 95 50 100 175 174 5 9 176 174 95 101 177 176 5 9	Target Rel. to Lower Upper Mass Mass Limit% Limit% 50 95 15 40 75 95 30 70 95 95 100 100 96 95 5 9 173 174 0.00 2 174 95 50 100 175 174 5 9 176 174 95 101 177 176 5 9	Target Rel. to Lower Upper Rel. Mass Mass Limit% Limit% Abn% 50 95 15 40 31.8 75 95 30 70 60.0 95 95 100 100 100.0 96 95 5 9 7.2 173 174 0.00 2 0.0 174 95 50 100 78.5 175 174 5 9 7.3 176 174 95 101 97.7 177 176 5 9 7.1	Target Rel. to Lower Upper Rel. Abn% Mass Mass Limit% Limit% Abn% Abn% 50 95 15 40 31.8 31.8 75 95 30 70 60.0 95 95 95 100 100 100.0 96 96 95 5 9 7.2 96 173 174 0.00 2 0.0 174 175 174 95 50 100 78.5 175 175 174 95 9 7.3 176 174 95 101 97.7 177 176 5 9 7.1 176 174 175 174	TargetRel. toLowerUpperRel.RawMassMassLimit%Limit%Abn%Abn5095154031.8174057595307060.0328249595100100100.0547399695597.239231731740.0020.00174955010078.542944175174597.331451761749510197.741936177176597.12988	Target Rel. to Lower Upper Rel. Raw Abn Mass Mass Limit% Limit% Abn% Abn Abn 50 95 15 40 31.8 17405 75 95 30 70 60.0 32824 95 95 100 100 100.0 54739 96 95 5 9 7.2 3923 173 174 0.00 2 0.0 0 174 95 50 100 78.5 42944 175 174 5 9 7.3 3145 176 174 95 101 97.7 41936 177 176 5 9 7.1 2988	TargetRel. toLowerUpperRel.RawResultMassMassLimit%Limit%Abn%Abn%AbnPass/Fail5095154031.817405PASS7595307060.032824PASS9595100100100.054739PASS9695597.23923PASS1731740.0020.00PASS174955010078.542944PASS175174597.33145PASS1761749510197.741936PASS177176597.12988PASS

TBF62401.D T6072011.M

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66
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Fri Feb 24 11:45:15 2012 GCMS2



1580 Reed Road Suite A1 Pennington, NJ 08534

Tel: (609) 737-3477 Fax: (609) 737-3052 www.njal.com

Laboratory Deliverables

Prepared For PARS Environmental Drum Bench Study

Lab ID Chemical Oxidation

Samples Received 27-Jul-11

Reported

7/27/11 to 8/12/11

NJDEP Certified Lab 11005

Precision testing for a cleaner environment.

Study: Chemical Oxidation Permanganate

Time point: T=2 days/ 48Hours

Data Summaries

							EPA SAMPLE NO.		
		VOLATILE ORGANICS ANA	LYSIS DATA SHE	:E1	T48 PM C1				
Lab Name:	NJAL		Contract:						
Lab Code:	DEP 11	005 Case No.:	SAS No.:	S	DG No.:				
Matrix: (soil/	water)	WATER	Lab Sar	nple ID:	T-48 PM (C-1			
Sample wt/ve	ol:	0.5 (g/ml) ML	Lab File	D:	TS62413.	D			
	mod)			a constraints	07/07/11				
Level: (low/r	nea)		Date Re	eceived:	0//2//11				
% Moisture:	not dec.		Date Ar	alyzed:	07/31/11				
GC Column:	rt502.	2-1 ID: 0.53 (mm)	Dilution	Factor:	10.0				
Soil Extract	Volume		Soil Alia	unot Volu			<u>с</u> ц.,		
	volume.	(uc)					uL,		
		C							
	h					0			
CASIN	J.		g/L of ug/Rg)	00/L		Q			
75-71	-8	Dichlorodifulorometha	ne		20	U	٦		
74-87	-3	chloromethane			20	U	1		
75-01	-4	vinyl chloride			20	U	7		
74-83	-9	bromomethane			20	U	1		
75-00	-3	chloroethane			20	Ū	1		
75-15	-0	carbon disulfide			20	Ŭ	1		
75-65	-0	tert-butyl alcohol		-	20	<u> </u>	1		
1634-	04-4	MTBE			20	Ŭ	1		
78-93	-3	MEK			50	<u> </u>	1		
67-64	-1	acetone			580		1		
75-69	-4	trichlorofluoromethane	<u>. </u>		20	U	1		
75-35	-4	1.1-dichloroethene			20	<u>_</u>	1		
75-09	-2	methylene chloride			28		-		
156-6	 0-5	trans-1 2-dichloroethe	ne		20	<u> </u>	1		
75-34	-3	1.1-dichloroethane			20	Ū	1		
67-66	-3	chloroform			20	U	1		
108-1	0-1	MIBK			20	U	-		
74-97	-5	bromochloromethane			20	U	-		
71-55	-6	1.1.1-trichloroethane			20	U	1		
56-23	-5	carbon tetrachloride			20	U	Ï		
107-0	6-2	1,2-dichloroethane	to the right		20	U	1		
71-43	-2	benzene		-	20	U	1		
79-01	-6	trichloroethene			20	U			
78-87	-5	1,2-dichloropropane			20	U			
76-13	-1	112-Trichloro-122-Trif	luoroethane		20	U	7		
91-20	-3	Napthalene			20	U	7		
79-20	-9	Methyl Acetate			50	U	7		
110-8	2-7	Cyclohexane			20	U			
108-8	7-2	Methyl Cyclohexane			20	U			
156-5	9-4	cis-1,2-dichloroethene)		20	U			
75-27	-4	bromodichloromethan	e		20	U			
10061	-01-5	cis-1,3-dichloroproper	ne		20	U			
108-8	8-3	toluene			20	U			
10061	-02-6	trans-1,3-dichloroprop	ene		20	U			
591-7	8-6	2-hexanone			50	U]		
79-00	-5	1,1,2-trichloroethane			20	U			
124-4	8-1	dibromochloromethan	e		900	D			
127-1	8-4	tetrachloroethene			1100	D			
108-9	0-7	chlorobenzene			20	U			

		1A		EPA SAMPLE NO.		
Lab Name:		VOLATILE ORGANICS AN	Contract:	=E1	T48	PM C1
Lab Codo:						
Lab Code.	DEFIT		5A5 NU		JG NU	
Matrix: (soil/	water)	WATER	Lab Sa	mple ID:	T-48 PM (2-1
Sample wt/v	ol:	0.5 (g/ml) ML	Lab File	e ID:	TS62414.I	C
Level: (low/	med)	LOW	Date Re	eceived:	07/27/11	
% Moisture:	, not dec		Date Ar	halvzed:	07/31/11	
		0.4 ID: 0.50 (mm)	Dilation	E de la compañía de l	40.0	
GC Column:	п502.	2-1 ID: 0.53 (mm)	Dilution	Factor:	10.0	
Soil Extract	Volume:	(uL)	Soil Alio	quot Volui	ne:	(uL)
		C	ONCENTRATION	UNITS:		
CAS NO	Ο.	COMPOUND (1	ug/L or ug/Kg)	UG/L		Q
75-71	-8	Dichlorodifulorometh	ane		20	<u> </u>
74-87	-3	chloromethane			20	U
75-01		vinyl chloride			20	<u> </u>
74-83	-9	bromomethane			20	U
75-00	1-3	chloroethane			20	<u> </u>
75-15	0-0	carbon disulfide			20	<u> </u>
75-65	0-0	tert-butyl alcohol			20	U
1634-	04-4	MIBE			20	U
78-93	-3	MEK			50	<u> </u>
67-64	⊬-1	acetone			570	D
75-69	-4	trichlorofluoromethar	ie		20	<u> </u>
75-35	-4	1,1-dichloroethene	- <u> </u>	_	20	<u> </u>
75-09	-2	methylene chloride			28	D
156-6	0-5	trans-1,2-dichloroeth	ene		20	U
75-34	-3	1,1-dichloroethane			20	<u> </u>
67-66	-3	chloroform			20	U
108-1	0-1	MIBK	the state of the s		20	U
74-97	′-5	bromochloromethane)		20	U
71-55	-6	1,1,1-trichloroethane			20	<u> </u>
56-23	-5	carbon tetrachloride			20	<u> </u>
	16-2	1,2-dichloroethane	• · · · · · · · · · · · · · · · · · · ·	-	20	U
71-43	5-2	benzene			20	U
79-01	-6	trichloroethene	·		20	U
78-87	-5	1,2-dichloropropane		-	20	U
76-13	5-1	112-Trichloro-122-Tr	ifluoroethane		20	U
91-20	-3	Napthalene			20	U
79-20	-9	Methyl Acetate	6, m. 4,		50	U
110-8	2-7	Cyclohexane			20	<u> </u>
108-8	57-2	Methyl Cyclohexane	••	_	20	<u> </u>
156-5	9-4	cis-1,2-dichloroethen	е		20	U
75-27	-4	bromodichlorometha	ne		20	U
10061	1-01-5	cis-1,3-dichloroprope	ine		20	<u> </u>
108-8	8-3	toluene			20	U
10061	1-02-6	trans-1,3-dichloropro	pene		20	<u> </u>
591-7	8-6	2-hexanone			50	<u> </u>
79-00	1-5	1,1,2-trichloroethane			20	<u>U</u>
124-4	8-1	dibromochlorometha	ne		860	D
127-1	8-4	tetrachloroethene			1100	D
108-9	10-7	chlorobenzene			20	U

					EPA SA	MPLE NO
		VOLATILE ORGANICS	S ANALYSIS DATA	SHEET	T48	PM C1
Lab Name:	NJAL		Contract:			
Lab Code:	DEP 11	1005 Case No.:	SAS No	o.: S	DG No.:	
Matrix: (soil/	water)	WATER		h Sample ID	T-48 PM (2_1
	water)					
Sample wt/v	ol:	0.5 (g/ml) N	/L La	b File ID:	TS62415.I	D
Level: (low/	med)	LOW	Da	ate Received:	07/27/11	
% Moisture	not dec		Da	te Analyzed.	07/31/11	
	not dec.			ate Analyzeu.	07/51/11	
GC Column:	rt502.	2-1 ID: 0.53 (mm	i) Dil	ution Factor:	10.0	
Soil Extract	Volume:	(uL)	So	il Aliquot Volu	ime:	(u
			CONCENTRA	TION UNITS:		
CAS NO	Ο.	COMPOUND	(ug/L or ug/Kg)) UG/L		Q
75-71	-8	Dichlorodifuloro	methane		20	U
74-87	-3	chloromethane			20	U
75-01	-4	vinyl chloride			20	U
74-83	-9	bromomethane			20	
75-00	-3	cnioroetnane			20	<u> </u>
75-15	5-0	tert-butyl alcobe	·		20	U
1634-	-04-4	MTRE	л		20	
78-93	<u>-3</u> -3	MEK			50	<u> </u>
67-64	-1	acetone			530	D
75-69)-4	trichlorofluorom	ethane		20	U
75-35	5-4	1,1-dichloroethe	ene		20	U
75-09	1-2	methylene chlor	ride		27	D
156-6	0-5	trans-1,2-dichlo	roethene		20	U
75-34	-3	1,1-dichloroetha	ane		20	<u> </u>
67-66	-3	chloroform			20	<u> </u>
74.07	0-1	hromoshloromo	thono		20	<u> </u>
74-97	- <u>-</u>	1 1 1 trichloroet	hane		20	<u> </u>
56-23	3-5	carbon tetrachlo	pride		20	Ŭ
107-0	6-2	1.2-dichloroetha	ane		20	U
71-43	3-2	benzene			20	U
79-01	-6	trichloroethene			20	U
78-87	-5	1,2-dichloroprop	bane		20	U
76-13	i-1	112-Trichloro-1	22-Trifluoroethane		20	U
91-20	1-3	Napthalene			20	<u> </u>
/9-20	1-9 12 7	Methyl Acetate			50	<u> </u>
108.8	17.2	Mothyl Cycloba			20	<u> </u>
156-5	i9-4	cis-1 2-dichloro	ethene		20	<u> </u>
75-27	'-4	bromodichlorom	nethane		20	Ŭ
10061	1-01-5	cis-1,3-dichloror	propene		20	U
108-8	8-3	toluene			20	U
10061	1-02-6	trans-1,3-dichlo	ropropene		20	U
591-7	8-6	2-hexanone			50	U
79-00	1-5	1,1,2-trichloroet	hane		20	<u>U</u>
124-4	/8-1	dibromochlorom	nethane		810	D
127-1	0-4	chlorobonzono	le		20	U
108-9	0-7	chlorobenzene			20	U

			1A			EPA SA	MPLE NO.
	\		NCS ANALY	ANALISIS DATA SHEET			M 0.5-1
Lab Name:	NJAL			Contract:		_	
Lab Code:	DEP 11	005 Case No.:		SAS No.:	S	DG No.:	
Matrix: (soil/	water)	WATER		Lab S	ample ID:	T-48 PM 0	.5-1
Complexed/u	al.	0.5 (a/m)) NAI	Lob E		TS62416	<u> </u>
Sample w/v	01.	<u>0.5</u> (g/mi) [VIL	LaD F	lie iD.	1302410.1	J
Level: (low/r	med)	LOW		Date I	Received:	07/27/11	
% Moisture:	not dec.			Date /	Analyzed:	07/31/11	
CC Column	+502	21 10:052 (mm)	Dilutio	n Easter	10.0	
GC Column:	1002.	2-1 ID. 0.55 (mm)	Diulic	in Factor.	10.0	
Soil Extract	Volume:	(uL)		Soil A	liquot Volu	ime:	(uL
			CON	CENTRATIO	N UNITS:		
CAS NO	Э.	COMPOUND	(ug/L	. or ug/Kg)	UG/L		Q
		District Pro-					11
75-71	<u>-8</u>	Dichlorodifu	oromethane			20	<u> </u>
74-87	-3	vipyl chlorid				20	<u> </u>
75-01	-4	bromomothe				20	<u> </u>
74-03	-9	chloroethan				20	
75-00	<u>-5</u>	carbon disu	fide		-	20	
75-65	-0	tert-hutyl alc	ohol			20	
1634-	-04-4	MTRE				20	<u> </u>
78-93	-3	MFK				50	<u> </u>
67-64	-1	acetone				550	D
75-69)-4	trichlorofluo	romethane			20	U
75-35	-4	1,1-dichloro	ethene			20	U
75-09	1-2	methylene o	hloride			31	D
156-6	0-5	trans-1,2-did	chloroethene	•		20	U
75-34	-3	1,1-dichloro	ethane			20	U
67-66	-3	chloroform				20	U
108-1	0-1	MIBK				20	U
74-97	-5	bromochloro	omethane			20	U
71-55	6	1,1,1-trichlo	roethane			20	U
56-23	1-5	carbon tetra	chloride				U
107-0	16-2	1,2-dichloro	ethane			20	<u> </u>
71-43	-2	Denzene				20	<u> </u>
79-01	-0		propopo			20	<u> </u>
76.13	-0 1	112-Trichlor	proparte o-122-Triflux	proethane		20	
91-20	<u>)-1</u>)_3	Nanthalene	0-122-11100	Joethane		20	
79-20	<u></u>	Methyl Acet	ate			50	<u> </u>
110-8	2-7	Cyclohexan	e			20	Ŭ
108-8	37-2	Methyl Cycl	ohexane	1		20	U
156-5	j9-4	cis-1,2-dich	oroethene			20	U
75-27	'-4	bromodichlo	oromethane			20	U
1006	1-01-5	cis-1,3-dich	oropropene			20	U
108-8	8-3	toluene				20	U
1006	1-02-6	trans-1,3-die	chloroproper	ne		20	U
591-7	'8-6	2-hexanone				50	U
79-00	1-5	1,1,2-trichlo	roethane			20	U
124-4	8-1	dibromochlo	promethane			20	<u> </u>
127-1	8-4	tetrachloroe	thene			20	<u> </u>
108-9	10-7	chlorobenze	ene			20	U

			EPA SA	MPLE NO.
	VOLATILE ORGANICS ANALY	YSIS DATA SHEET	T48 P	M 0.5-2
Lab Name: NJAL	_	Contract:		
Lab Code: DEP	11005 Case No.:	SAS No.: S	DG No.:	
Matrix: (soil/water)	WATER	Lab Sample ID:	T-48 PM (1.5-2
Sample wt/vol:	0.5 (g/ml) ML	Lab File ID:	1\$62417.	D
Level: (low/med)	LOW	Date Received:	07/27/11	
% Moisture: not de	c.	Date Analyzed:	07/31/11	
CC Column: d5	02.2.1 ID: 0.52 (mm)	Dilution Easter:	10.0	
	J2.2-1 ID: 0.55 (IIIII)	Dilution Factor.	10.0	
Soil Extract Volum	e: (uL)	Soil Aliquot Volu	ıme:	(uL)
	CON	NCENTRATION UNITS:		
CAS NO.	COMPOUND (ug/l	L or ug/Kg) UG/L		Q
75-71-8	Dichlorodifuloromethane	9	20	<u> </u>
74-87-3			20	<u> </u>
75-01-4			20	<u> </u>
74-83-9	bromometnane		20	<u> </u>
75-00-3	carbon disulfide		20	<u> </u>
75-65-0			20	<u> </u>
1634-04-4	MTRE		20	<u> </u>
78-93-3	MEK		50	
67-64-1	acetone		520	D
75-69-4	trichlorofluoromethane		20	U
75-35-4	1,1-dichloroethene		20	U
75-09-2	methylene chloride		33	D
156-60-5	trans-1,2-dichloroethene	e	20	U
75-34-3	1,1-dichloroethane		20	U
67-66-3	chloroform		20	U
108-10-1	MIBK		20	U
74-97-5	bromochloromethane		20	U
71-55-6	1,1,1-trichloroethane		20	<u> </u>
56-23-5	carbon tetrachloride		20	<u> </u>
71 42 2			20	<u> </u>
70.01.6	trichloroothono		20	<u> </u>
78-87-5			20	
76-13-1	112-Trichloro-122-Triflu	oroethane	20	<u> </u>
91-20-3	Napthalene		20	<u> </u>
79-20-9	Methyl Acetate		50	U
110-82-7	Cyclohexane		20	U
108-87-2	Methyl Cyclohexane	the second second second second second second second second second second second second second second second se	20	U
156-59-4	cis-1,2-dichloroethene		20	U
75-27-4	bromodichloromethane		20	U
10061-01-5	cis-1,3-dichloropropene		20	U
108-88-3	toluene		20	U
10061-02-6	trans-1,3-dichloroproper	ne	20	<u> U </u>
591-78-6	2-hexanone		50	U
/9-00-5	1,1,2-trichloroethane		20	
124-48-1	dipromocnioromethane		20	<u> </u>
127-10-4			20	<u> </u>
100-90-7	chioroperizerie		20	0

		1A		EPA SA	EPA SAMPLE NO.		
		VOLATILE ORGANICS ANAL	YSIS DATA SHEET	T48 P	PM 0.5-3		
Lab Name:	NJAL		Contract:				
Lab Code:	DEP 11	005 Case No.:	SAS No.:	SDG No.:			
Matrix: (soil/	water)	WATER	Lab Sample I	D: T-48 PM (0.5-3		
Complex with			Lob File ID:	TE60449	D		
Sample w/v	OI:	0.5 (g/mi) <u>ML</u>	Lab File ID:	1502418.	<u> </u>		
Level: (low/	med)	LOW	Date Receive	d: 07/27/11			
% Moisture:	not dec.		Date Analyze	d: 07/31/11			
	-+500	2.1 (D): 0.52 (mm)	Dilution Footo		·		
GC Column:	11502.	.2-1 ID: 0.53 (mm)	Dilution Facto	vr. 10.0			
Soil Extract	Volume:	(uL)	Soil Aliquot V	olume:	(uL		
		CO	NCENTRATION UNIT	S:			
CAS NO	Ο.	COMPOUND (ug/	L or ug/Kg) UG/L		Q		
75-71	-8	Dichlorodifuloromethan	<u>e</u>	20	U		
74-87	-3			20	U		
75-01	-4	Vinyi chioride		20			
74-03	-9	chloroothana		20			
75-00	<u>-5</u>	carbon disulfide		20			
75-65	<u>-0</u>	tert-butyl alcohol		20	<u> </u>		
1634-	-04-4	MTRE		20	<u> </u>		
78-93	4-3	MEK		50	<u> </u>		
67-64	-1	acetone		500	D		
75-69)-4	trichlorofluoromethane		20	U		
75-35	j-4	1.1-dichloroethene		20	U		
75-09)-2	methylene chloride		29	D		
156-6	0-5	trans-1,2-dichloroethen	e	20	U		
75-34	-3	1,1-dichloroethane		20	U		
67-66) -3	chloroform		20	U		
108-1	0-1	MIBK		20	U		
74-97	-5	bromochloromethane		20	U		
71-55	-6	1,1,1-trichloroethane		20	U		
56-23	1-5	carbon tetrachloride		20	<u> U </u>		
107-0	16-2	1,2-dichloroethane		20	U		
71-43	3-2	benzene		20	<u> U </u>		
79-01	-6	trichloroethene		20	U		
78-87	-5	1,2-dichloropropane		20	0		
70-13)-	Neptholopo	Joroethane	20			
70.20	1-3	Methyl Acetate					
110_8	20_7			20			
108-8	2-1	Methyl Cyclobexane		20			
156-5	59-4	cis-1.2-dichloroethene		20	Ŭ		
75-27	/-4	bromodichloromethane		20	Ū		
1006	1-01-5	cis-1,3-dichloropropene	3	20	U		
108-8	38-3	toluene		20	U		
1006	1-02-6	trans-1,3-dichloroprope	ene	20	U		
591-7	'8-6	2-hexanone		50	U		
79-00)-5	1,1,2-trichloroethane		20	U		
124-4	8-1	dibromochloromethane		20	U		
127-1	8-4	tetrachloroethene		20	U		
108-9	90-7	chlorobenzene		20	U		

	VO	LATILE ORGA	ALYSIS DATA SHEET			EPA SAMPLE NO		
l ah Name: N				Contrac	t.	- '	T48 F	PM 1.0-1
		5 Casa Na		Contrac	No 1	6		
	JEF 1100	5 Case No	•	545	INU		DG NO	
Matrix: (soil/wa	ater) V	VATER		I	_ab Sarr	ple ID:	T-48 PM	1.0-1
Sample wt/vol:	0	.5 (g/m	I) ML		_ab File	ID:	TS62419	.D
l evel: (low/me	ed) I	OW			Date Re	ceived.	07/27/11	
		<u> </u>					07/04/44	
% Moisture: no	ot dec.			I	Date Ana	alyzed:	07/31/11	
GC Column:	rt502.2-1	ID: 0.53	(mm)	1	Dilution	-actor:	10.0	
Soil Extract Vo	olume:	(uL)	:	Soil Alia	Jot Volu	me:	(u
			,					
			CC	NCENTR	ATION	JNITS:		
CAS NO.		COMPOUND) (uc	1/L or ua/K	(a)	UG/L		Q
			(*2	/: - . .	.37			-
75-71-8		Dichlorodifu	loromethar	ne			20	U
74-87-3		chlorometh	ane				20	U
75-01-4		vinyl chloric	le				20	U
74-83-9		bromometh	ane				20	U
75-00-3		chloroethar	e				20	U
75-15-0		carbon disu	lfide				20	U
75-65-0		tert-butyl al	cohol				20	U
1634-04	-4	MTBE					20	U
78-93-3		MEK					50	<u> U </u>
67-64-1		acetone			146		580	D
75-69-4		trichlorofluc	romethane				20	U
75-35-4		1,1-dichlord	ethene					<u> </u>
75-09-2	<u> </u>	metnylene (chioride				32	
75 24 2	5	trans-1,2-0	chioroether	ne			20	U
67-66-3		chloroform	ethane				20	
108-10-5	.1	MIRK					20	
74-97-5		bromochlor	omethane				20	
71-55-6		1 1 1-trichle	roethane				20	
56-23-5		carbon tetra	achloride		· ··· _		20	U U
107-06-2	2	1.2-dichloro	ethane				20	Ŭ
71-43-2		benzene		. 14 miles - 1			20	U
79-01-6		trichloroeth	ene				20	U
78-87-5		1,2-dichloro	propane				20	U
76-13-1		112-Trichlo	ro-122-Trifl	uoroethan	e		20	U
91-20-3		Napthalene					20	U
79-20-9		Methyl Ace	tate				50	U
110-82-	7	Cyclohexar	e				20	U
108-87-2	2	Methyl Cyc	ohexane				20	U
156-59-	4	cis-1,2-dich	loroethene				20	U
75-27-4		bromodichle	promethane	9			20	U
10061-0	11-5	cis-1,3-dich	loropropen	е			20	U
108-88-	3	toluene					20	
10061-0	6	trans-1,3-di	cnioroprop	ene			20	U
<u>591~/8-</u>	0	2-nexanone	roothana				50	U
19-00-5	1	i, i, 2-tricnic	roeinane				20	U 11
124-48-	<u> </u>	tetrachloroc	there	3			20	
108-00	7	chlorobenz					20	
100-30-		GHIOLODELIZ					20	

			EPA SAN	MPLE NO.
	VOLATILE ORGANICS ANALY	SIS DATA SHEET	T48 P	M 1.0-2
Lab Name: NJAL		Contract:	_	
Lab Code: DEP 1	1005 Case No.:	SAS No.: S	SDG No.:	
Matrix: (soil/water)	WATER	Lab Sample ID:	T-48 PM 1	.0-2
Sample wt/vol:	0.5 (g/ml) ML	Lab File ID:	TS62420.I	C
level: (low/med)		Date Received:	07/27/11	
		Data Apoluradi	07/24/44	
% Moisture: not dec.		Date Analyzed:	07/31/11	
GC Column: rt502	.2-1 ID: 0.53 (mm)	Dilution Factor:	10.0	
Soil Extract Volume:	(uL)	Soil Aliquot Vol	ume:	(uL
	CON	ICENTRATION UNITS:		
CAS NO.	COMPOUND (ug/l	L or ug/Kg) UG/L		Q
75 74 0	Dichloredifuloremethone		20	11
<u>71 97 2</u>		<i>;</i>	20	<u> </u>
75 01 4			20	
75-01-4	hromomothono		20	
74-03-9	biomomethane		20	0
75-00-3	Chioroethane		20	
75-15-0			20	<u> </u>
1624.04.4			20	
70.02.2			20	
78-93-3			50	
75.60.4	trichlorofluoromothono		490	
75-09-4			20	<u> </u>
75-35-4			20	
15-09-2	methylene chloride		22	
150-00-5		3	20	<u> </u>
10-04-0			20	U
07-00-3			20	U
108-10-1	MIBK		20	<u> </u>
74-97-5			20	<u> </u>
71-00-0			20	<u> </u>
			20	<u> </u>
71 42 2	henzono		20	<u> </u>
70.01.6	trichloroethene		20	
78-87-5	1 2-dichloropropape		20	11
76-13-1	112-Trichloro-122-Triflu	oroethane	20	
91-20-3	Nanthalene		20	
79-20-0	Methyl Acetate		50	<u> </u>
110-82-7	Cyclohexane		20	U U
108-87-2	Methyl Cyclohexane		20	U
156-59-4	cis-1,2-dichloroethene		20	U
75-27-4	bromodichloromethane		20	Ū
10061-01-5	cis-1.3-dichloropropene		20	Ū
108-88-3	toluene		20	U
10061-02-6	trans-1.3-dichloroproper	ne	20	U
591-78-6	2-hexanone		50	U
79-00-5	1.1.2-trichloroethane		20	U
124-48-1	dibromochloromethane		20	Ū
127-18-4	tetrachloroethene		20	U
108-90-7	chlorobenzene		20	U

			EPA SAM	MPLE NO.
	VOLATILE ORGANICS ANALY	SIS DATA SHEET	T48 P	M 1.0-3
Lab Name: NJA	L	Contract:		
Lab Code: DEP	11005 Case No.:	SAS No.: S	DG No.:	
Matrix: (soil/water)	WATER	Lab Sample ID:	T-48 PM 1	.0-3
Sample wt/vol	0.5 (g/ml) MI	Lab File ID:	TS62421 [
		Data Data in da	07/07/44	
Level: (low/med)	LOW	Date Received:	07/27/11	
% Moisture: not de	ЭС.	Date Analyzed:	07/31/11	
GC Column: rt5	02.2-1 ID: 0.53 (mm)	Dilution Factor:	10.0	
Cail Extract Value		Soil Aliquet Velu		(ul
Soli Extract volum	e (UL)	Soll Alquot Volt		(uL
	CON			
				0
CAS NO.	COMPOUND (Ug/L	. or ug/kg) UG/L	·	Q
75-71-8	Dichlorodifuloromethane		20	U
74-87-3	chloromethane		20	U
75-01-4	vinyl chloride		20	U
74-83-9	bromomethane		20	U
75-00-3	chloroethane		20	U
75-15-0	carbon disulfide		20	U
75-65-0	tert-butyl alcohol		20	U
1634-04-4	MTBE		20	U
78-93-3	MEK		50	U
67-64-1	acetone		590	D
75-69-4	trichlorofluoromethane		20	<u> </u>
75-35-4	1,1-dichloroethene		20	<u> </u>
75-09-2	methylene chloride		31	D
156-60-5	trans-1,2-dichloroethene	<u>+</u>	20	<u> </u>
75-34-3			20	<u> </u>
07-00-3			20	<u> </u>
74.07.5	bromochloromothano		20	<u> </u>
71-55-6			20	
56-23-5	carbon tetrachloride		20	<u>U</u>
107-06-2	1.2-dichloroethane		20	U
71-43-2	benzene		20	U
79-01-6	trichloroethene		20	U
78-87-5	1,2-dichloropropane		20	U
76-13-1	112-Trichloro-122-Trifluc	proethane	20	U
91-20-3	Napthalene		20	U
79-20-9	Methyl Acetate		50	U
110-82-7	Cyclohexane		20	U
108-87-2	Methyl Cyclohexane		20	U
156-59-4	cis-1,2-dichloroethene	···	20	<u> </u>
/5-27-4	bromodichloromethane		20	<u>U</u>
10061-01-5	cis-1,3-dichloropropene		20	
108-88-3			20	<u> </u>
F01 79 6			50	
70.00 5	1 1 2-trichloroethane		20	
124_18_1	dibromochloromethane		20	
127-18-4	tetrachloroethene		20	<u>U</u>
108-90-7	chlorobenzene		20	U

	,		1A				EPA SA	MPLE NO
	N.	/OLATILE (ORGANICS	ANALYSIS DA	ATA SHEE	- 1	T48 P	PM 2 0-1
Lab Name:	NJAL			Contra	ct:			
Lab Code:	DEP 11	005 Ca	se No.:	SAS	No.:	S	DG No.:	
Matrix: (soil/	water)	WATER			Lah Sam	nle ID.	T-48 PM 2	2 0_1
			 , , , , , ,			-		
Sample wt/vo	ol:	0.5	(g/ml) ML		Lab File I	D:	TS62422.	D
Level: (low/r	med)	LOW			Date Rec	eived:	07/27/11	
% Moisture:	not dec				Date Ana	lvzed.	07/31/11	
							40.0	
GC Column:	rt502.2	2-1 ID: 0.	53 (mm)		Dilution F	actor:	10.0	
Soil Extract	Volume:		(uL)		Soil Aliqu	ot Volu	me:	(u
				CONCENT	RATION L	JNITS:		
CAS NO	Э.	COMP	OUND	(ug/L or ug/l	Kg) L	JG/L		Q
75-71	-8	Dichl	orodifulorom	ethane			20	U
74-87	-3	chlor	omethane				20	U
75-01	-4	vinyl	chloride				20	U
74-83	-9	brom	omethane				20	U
75-00	-3	chlor	oethane				20	U
75-15	-0	carbo	on disulfide				20	U
75-65	-0	tert-b	utyl alcohol				20	U
1634-	04-4	MTB	E				20	U
78-93	-3	MEK					50	U
67-64	-1	aceto	one				480	D
75-69	-4	trichl	orofluoromet	hane			20	U
75-35	-4	1,1-d	ichloroethen	e			20	U
75-09	-2	meth	ylene chlorid	le			36	D
156-6	0-5	trans	-1,2-dichloro	ethene			20	U
75-34	-3	1,1-d	ichloroethan	e			20	U
67-66	-3	chlor	oform				20	U
108-1	0-1	MIBK	<				20	U
74-97	-5	brom	ochlorometh	iane			20	U
71-55	-6	1,1,1	-trichloroetha	ane			20	U
56-23	-5	carbo	on tetrachlori	ide			20	<u> U </u>
107-0	6-2	<u>1,2-d</u>	ichloroethan	e			20	U
71-43	-2	benz	ene				20	U
79-01	-6	trichl	oroethene				20	U
78-87	-5	1,2-d	ichloropropa	ine			20	U
76-13	-1	112-	Irichloro-122	2-Trifluoroetha	ne		20	U
91-20	-3	Napt	halene				20	U
/9-20	-9	Meth	yi Acetate				50	U
110-8	2-1	Cyclo	onexane				20	<u> </u>
108-8	1-2	Meth	yi Cyclonexa	ane			20	U
156-5	9-4	cis-1	2-dicnloroet	nene		11.00	20	<u> </u>
/5-27	-4	brom	odicniorome	inane			20	U
10061	-01-5	cis-1	,3-aichloropr	opene			20	<u>U</u>
108-8	8-3	tolue	ne 4.0 - Kali				20	U
10061	-02-6	trans	-1,3-dichloro	propene			20	<u> </u>
591-7	8-6	2-hex	kanone				50	U
/9-00	-D	1,1,2	-tricnioroetha	ane			20	<u> </u>
124-4	<u>8~1</u>	dibro	mocniorome	thane			20	<u> </u>
127-1	<u>8-4</u>	tetrac	chloroethene				20	<u> </u>
108-9	U-1	chlor	openzene				20	U

					EPA SAI	MPLE NO.
		VOLATILE ORGANICS A	NALYSIS DATA SHE	EI	T48 P	M 2.0-2
Lab Name:	NJAL		Contract:		_	
Lab Code:	DEP 11	1005 Case No.:	SAS No.:	S	DG No.:	
Matrix: (soil/	water)	WATER	Lab Sar	nple ID:	T-48 PM 2	2.0-2
Sample wt/v		0.5 (a/ml) MI	Lab File		TS62423	n
Sample w/v	01.			D.	1302423.1	
Level: (low/	med)	LOW	Date Re	eceived:	07/27/11	
% Moisture:	not dec.		Date Ar	alyzed:	07/31/11	
GC Column	d502	2-1 ID: 0.53 (mm)	Dilution	Factor	10.0	
GC Column.	11002.	. <u>2-1</u> ID. 0. <u>33</u> (IIIIII)	Dilution	racior.	10.0	
Soil Extract	Volume:	(uL)	Soil Alic	luot Volu	ime:	(ul
			CONCENTRATION	UNITS:		
CAS NO	Ο.	COMPOUND	(ug/L or ug/Kg)	UG/L		Q
75.74						
/5-/1	-8	Dichloroditulorome	inane		20	<u> </u>
74-87	-3	chloromethane			20	
75-01	-4	vinyl chloride			20	<u> </u>
74-83	-9	bromomethane			20	<u> </u>
75-00	-3	chloroethane			20	U
75-15	-0	carbon disulfide		<u> </u>	20	<u> </u>
75-65	-0	tert-butyl alcohol			20	<u> </u>
1634-	04-4	MIBE			20	<u> </u>
78-93	<u>-3</u>	MEK			50	0
67-64	1	acetone			550	D
75-69	-4	trichlorofluorometh	ane		20	<u> </u>
75-35	-4	1,1-dichloroethene			20	<u> </u>
75-09	-2	methylene chloride			39	
156-6	0-5	trans-1,2-dichloroe	thene		20	<u> </u>
75-34	-3	1,1-dichloroethane			20	
67-66	-3	chloroform			20	<u> </u>
108-1	0-1	MIBK			20	<u> </u>
74-97	-5	bromochlorometha	ne		20	<u> </u>
71-55	1-0	1,1,1-tricnioroetnar			20	<u> </u>
_ 50-23	-5	Carbon tetrachiorid	e		20	U
71 42	2-2	1,2-dichloroethane			20	
71-43	6	triablereethene			20	
79-01	-0		•		20	
76-07	-0	112 Trichloro 122	E Trifluoroethono		20	<u> </u>
01-20	3	Nonthalana	Thiluoroethane		20	<u> </u>
79-20	-0	Methyl Acetate			50	
110.8	27	Cyclobexape			20	<u> </u>
108-8	7_2	Methyl Cyclobeyan	A		20	
156-5	<u>9_1</u>	cis-1.2-dicbloroeth		-	20	<u> </u>
75_27	· <u>·</u> ·-4	hromodichlorometr			20	
1006	1-01-5	cis-1.3-dichloropro	nene		20	<u> </u>
108-8	8-3	toluene		1	20	
100-0	1-02-6	trans-1.3-dichloron	ropene		20	<u> </u>
501-7	/8-6	2-hexanone			50	<u> </u>
79-00	<u>-5</u>	1 1 2-trichloroethar	1e		20	<u> </u>
124-4	8-1	dibromochloromett	iane		20	<u> </u>
127-1	8-4	tetrachloroethene			20	<u> </u>
108-0	0-7	chlorobenzene			20	<u> </u>
100-9	·• ·	GHIOLOGOHZGHG		. 1	20	0

	,			E	PA SAN	IPLE NO.
	V	OLATILE ORGANICS ANAL	YSIS DATA SHEET	Γ	T48 PI	M 2.0-3
Lab Name:	NJAL		Contract:			
Lab Code:	DEP 110	005 Case No.:	SAS No.:	SDG	No.:	
Matrix: (soil/	water)	WATER	Lab Sample	ID: T-4	48 PM 2	.0-3
Sample ut/u	ol:	0.5 (a/ml) Ml	Lob File ID:	те	60404 F)
Sample w//	01.		Lab File ID.	13	02424.L	J
Level: (low/	med)	LOW	Date Receiv	/ed: 07	/27/11	
% Moisture:	not dec.		Date Analyz	ed: 07	/31/11	
GC Column [.]	rt502.2	2-1 ID: 0.53 (mm)	Dilution Fac	tor 10	0	
						· ·
Soil Extract	volume:	(uL)	Soil Aliquot	Volume	·	(uL
		00		TO		
	_	CO	NCENTRATION UNI	TS:		_
CAS NO	Э.	COMPOUND (ug	/L or ug/Kg) UG	/L		Q
75 74	_8	Dichlorodifuloromother			20	
74-87	-0	chloromethane			20	
75-01	-4	vinvl chloride			20	<u> </u>
74-83	-9	bromomethane			20	<u> </u>
75-00	-3	chloroethane			20	<u> </u>
75-15	-0	carbon disulfide			20	<u> </u>
75-65	-0	tert-butyl alcohol			20	U
1634-	04-4	MTBE			20	U
78-93	-3	MEK			50	U
67-64	-1	acetone			520	D
75-69	-4	trichlorofluoromethane		_	20	U
75-35	-4	1,1-dichloroethene			20	U
75-09	-2	methylene chloride			36	D
156-6	0-5	trans-1,2-dichloroether	ie		20	U
75-34	-3	1,1-dichloroethane			20	U
67-66	-3	chloroform			20	<u> U </u>
108-1	0-1	MIBK			20	
74-97	-5	bromochloromethane			20	U
71-55	-6	1,1,1-trichloroethane			20	<u> </u>
56-23	-5	carbon tetrachloride			20	<u> </u>
107-0	6-2	1,2-dichloroethane			20	<u> </u>
71-43	-2	triablessathana			20	<u> </u>
79-01	-0				20	
76-13	<u>-0</u>	112-Trichloro-122-Trifl	ioroethane		20	
91-20	-1	Nanthalene	Jordethane		20	
79-20	-9	Methyl Acetate		-	50	<u> </u>
110-8	2-7	Cyclohexane			20	U
108-8	7-2	Methyl Cvclohexane			20	Ū
156-5	9-4	cis-1,2-dichloroethene			20	U
75-27	-4	bromodichloromethane)		20	U
10061	-01-5	cis-1,3-dichloropropend	e		20	U
108-8	8-3	toluene			20	U
10061	-02-6	trans-1,3-dichloroprope	ene		20	U
591-7	8-6	2-hexanone			50	U
79-00	-5	1,1,2-trichloroethane			20	U
124-4	8-1	dibromochloromethane			20	U
127-1	8-4	tetrachloroethene			20	U
108-9	0-7	chlorobenzene			20	U

III-1 Raw Chromatograms

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62413.D Vial: 15 Acq On : 31 Jul 2011 1:16 am Operator: A. Thomas : T-48 PM C-1 Inst : GC/MS Ins Sample Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:22 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9196304210315.00 ug/l-0.2044) chlorobenzene-d515.17117335224915.00 ug/L-0.2056) 1,4-dichlorobenzene-d419.55152204861715.00 ug/L-0.21 System Monitoring Compounds 21) dibromofluoromethane (S) 8.64 113 1090956 30.46 ug/L -0.19 Spiked Amount 30.000 Range 80 - 120 Recovery = 101.53% 26)1,2-dichloroethane-d4(S)9.4110224369331.03ug/L-0.19Spiked Amount30.000Range80 - 120Recovery=103.43%36)toluene-d8(S)12.5398355877230.41ug/L-0.20Spiked Amount30.000Range80 - 120Recovery=101.37%53)4-bromofluorobenzene(BFB)17.3595218615828.76ug/L-0.21 Spiked Amount 30.000 Range 80 - 120 Recovery = 95.87% Target Compounds 14) acetone Qvalue 14) acetone5.225874561957.91 ug/L6917) methylene chloride6.12841991042.85 ug/L #10041) tetrachloroethene13.811666801086113.46 ug/L #7642) dibromochloromethane13.80129470043390.12 ug/L #61

10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES A. Thomas GC/MS Ins 1,4b-eneznedoroldoib-4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 5 4-bromofluorobenzene (BFB), S Multiplr: C:\HPCHEM/1\DATA2011\JUL11\LUL30\TS62413.D Vial: 31 Jul 2011 1:16 am Operator: GCMS 2 TIC: TS62413.D Inst chlorobenzene-d5, l MUTT., same three working and 24 10:41:45 2012 2 (2) 8b-eneulot 27 16:32:48 2011 fluorobenzene, l Calibration S -(S) +b-enstheoroichick (S), S Feb 9.00 Params: events.e dibromofluoromethane (S), S 1 10:22 19111 8.00 нц 7.00 31 Jul 2011 T-48 PM C-1 Wed Jul Initial 6.00 M,T, ebitotho ensitytem T6072011.M VOA 5.00 M,T, enotece Quant Time: Aug MS Integration 4.00 Response via ••• Last Update 3.00 Data File TS62413.D Acq On Sample Method Title Abundance 1000000 Misc 950000 000006 850000 800000 750000 700000 650000 600000 550000 500000 450000 400000 350000 300000 250000 200000 150000 100000 50000 0 Time-> 84

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62414.D Vial: 16 Acq On : 31 Jul 2011 1:49 am Operator: A. Thomas : T-48 PM C-1 Inst : GC/MS Ins Sample Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:22 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9196301072915.00 ug/l-0.2044) chlorobenzene-d515.17117340473015.00 ug/L-0.2156) 1,4-dichlorobenzene-d419.55152208921815.00 ug/L-0.21 System Monitoring Compounds 21) dibromofluoromethane (S) 8.64 113 1091754 30.80 ug/L -0.19 Spiked Amount 30.000 Range 80 - 120 Recovery = 102.67% Spiked AmountS0.000Range80= 120Recovery= 102.67%26) 1,2-dichloroethane-d4 (S)9.4010224625931.68ug/L-0.19Spiked Amount30.000Range80- 120Recovery= 105.60%36) toluene-d8 (S)12.5398352625930.44ug/L-0.20Spiked Amount30.000Range80- 120Recovery= 101.47%53) 4-bromofluorobenzene(BFB)17.3595213007927.59ug/L-0.21Spiked Amount 30.000 Range 80 - 120 Recovery = 91.97%

 Target Compounds
 Qvalue

 14) acetone
 5.22
 58
 720925
 56.57 ug/L
 71

 17) methylene chloride
 6.13
 84
 190036
 2.75 ug/L
 #
 100

 41) tetrachloroethene
 13.80
 166
 6375904
 107.48 ug/L
 #
 100

 42) dibromochloromethane
 13.80
 129
 4417341
 85.57 ug/L
 #
 61

Quant Results File: T6072011.RES A. Thomas GC/MS Ins C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 16 Multiplr: Vial: Operator: Inst C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62414.D am Params: events.e 1:49 1 10:22 19111 31 Jul 2011 T-48 PM C-1 Quant Time: Aug MS Integration ••• Data File Sample Acq On Method Misc

 \sim Page 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 1,4-dichlorobenzene-d4,1 4-bromofluorobenzene (BFB), S GCMS2 TIC: TS62414.D chlorobenzene-d5, l M,T,9M671soneritsideeinkeerde Fri Feb 24 10:41:49 2012 S ((S) 8b-ensulo) 27 16:32:48 2011 fluorobenzene, ! Calibration 2 (2) 4b-ensiteorolitoib-2,1 9.00 8 (8) ensitemorouflomoral 8.00 7.00 Wed Jul Initial 6.00 methylene chloride, T,M T6072011.M VOA 5.00 Acetone, T,M 4.00 Response via Last Update 3.00 TS62414.D Title Abundance 900006 850000 800000 750000 700000 650000 600000 550000 500000 450000 400000 350000 300000 250000 200000 150000 50000 100000 0 Time--> 86

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62415.D Vial: 17 Acq On : 31 Jul 2011 2:22 am Operator: A. Thomas : T-48 PM C-1 Inst : GC/MS Ins Sample Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:22 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9196300081915.00 ug/l-0.2044) chlorobenzene-d515.17117338257715.00 ug/L-0.2056) 1,4-dichlorobenzene-d419.55152201999815.00 ug/L-0.21 System Monitoring Compounds 21) dibromofluoromethane (S) 8.63 113 1099124 31.11 ug/L -0.20 Spiked Amount 30.000 Range 80 - 120 Recovery = 103.70%

 26) 1,2-dichloroethane-d4 (S)
 9.41
 102
 239948
 30.97
 ug/L
 -0.19

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 103.23%

 36) toluene-d8 (S)
 12.53
 98
 3512613
 30.42
 ug/L
 -0.20

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 101.40%

 53) 4-bromofluorobenzene
 (BFB)
 17.35
 95
 2156549
 28.12
 ug/L
 -0.21

 Spiked Amount 30.000 Range 80 - 120 Recovery = 93.73%

 Target Compounds
 Qvalue

 14) acetone
 5.22
 58
 675830
 53.21 ug/L
 76

 17) methylene chloride
 6.12
 84
 183063
 2.66 ug/L #
 100

 41) tetrachloroethene
 13.80
 166
 6149920
 104.01 ug/L #
 99

 42) dibromochloromethane
 13.80
 129
 4162490
 80.90 ug/L #
 61

13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES Thomas GC/MS Ins 1,4-dichlorobenzene-d4,1 C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 A. 17 4-bromofluorobenzene (BFB), S Multiplr: C:\HPCHEM/1\DATA2011\JUL11\LUL30\TS62415.D Vial: 31 Jul 2011 2:22 am Operator: GCMS2 TIC: TS62415.D Inst chlorobenzene-d5, l M,T,eMsTtementoldaminaerde Feb 24 10:41:52 2012 2 ,(2) 8b-ensulot 10.00 11.00 12.00 27 16:32:48 2011 fluorobenzene, l Calibration S ((S) 4b-ensiteoroidalb-S, f 9.00 events.e dibromofluoromethane (S), S 1 10:22 19111 8.00 Бri 7.00 31 Jul 2011 T-48 PM C-1 Wed Jul Initial Params: 6.00 methylene chloride, T,M T6072011.M VOA 5.00 M,T ,enotece Quant Time: Aug MS Integration 4.00 Response via .. Last Update 3.00 Data File TS62415.D Acq On Sample Method Title Abundance Misc 850000 800000 200000 650000 600000 550000 500000 450000 400000 300000 200000 150000 50000 750000 350000 250000 100000 0 Time-> 88

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62416.D Vial: 18 Acq On : 31 Jul 2011 2:55 am Operator: A. Thomas Sample : Misc : : T-48 PM 0.5-1 Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:22 19111 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene9.9196304451015.00 ug/l-0.2044) chlorobenzene-d515.17117337508315.00 ug/L-0.2156) 1,4-dichlorobenzene-d419.54152209516815.00 ug/L-0.21 System Monitoring Compounds 21) dibromofluoromethane (S) 8.63 113 1138659 31.77 ug/L -0.20 Spiked Amount 30.000 Range 80 - 120 Recovery = 105.90% Spiked AmountS0.000Range80 - 120Recovery=103.90%26) 1,2-dichloroethane-d4(S)9.4010224739131.47ug/L-0.20Spiked Amount30.000Range80 - 120Recovery=104.90%36) toluene-d8(S)12.5398357720130.54ug/L-0.21Spiked Amount30.000Range80 - 120Recovery=101.80%53) 4-bromofluorobenzene(BFB)17.3595216199128.25ug/L-0.21Spiked Amount 30.000 Range 80 - 120 Recovery = 94.17%
 Target Compounds
 Qvalue

 14) acetone
 5.22
 58
 710379
 55.13 ug/L
 72

 17) methylene chloride
 6.12
 84
 217744
 3.11 ug/L #
 100

Quant Results File: T6072011.RES Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62416.D Vial: 18 Acq On : 31 Jul 2011 2:55 am Operator: A. Thomas Sample : T-48 PM 0.5-1 Inst : GC/MS Inst Inst : GC/MS Ins Multiplr: 1.00 ŀ Ļ 401 N MS Integration Params: events.e Quant Time: Aug 1 10:22 19111 2 ċ Misc Matho

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62417.D Vial: 19 Acq On : 31 Jul 2011 3:28 am Operator: A. Thomas : T-48 PM 0.5-2 Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:22 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9196295846715.00 ug/l-0.2044) chlorobenzene-d515.17117336241115.00 ug/L-0.2156) 1,4-dichlorobenzene-d419.55152206485615.00 ug/L-0.21 System Monitoring Compounds 21) dibromofluoromethane (S) 8.64 113 1097515 31.51 ug/L -0.19 Spiked Amount 30.000 Range 80 - 120 Recovery = 105.03%

 26) 1,2-dichloroethane-d4 (S)
 9.41
 102
 227571
 29.79
 ug/L
 -0.19

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 99.30%

 36) toluene-d8 (S)
 12.53
 98
 3481180
 30.58
 ug/L
 -0.20

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 101.93%

 53) 4-bromofluorobenzene
 (BFB)
 17.34
 95
 2130955
 27.95
 ug/L
 -0.21

 Spiked Amount 30.000 Range 80 - 120 Recovery = 93.17%
 Target Compounds
 Qvalue

 14) acetone
 5.22
 58
 651440
 52.02 ug/L
 71

 17) methylene chloride
 6.12
 84
 222540
 3.28 ug/L #
 100

Quant Results File: T6072011.RES Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62417.D Vial: 19 Acq On : 31 Jul 2011 3:28 am Operator: A. Thomas Sample : T-48 PM 0.5-2 Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:22 19111

Плавоная 2000000	Title Last Update	: VOA : Wed Jul 27 16:32:48 2011		
00000 000000	Response via	a : Initial Calibration		
050 0.00 <td< th=""><th>Abundance</th><th></th><th>TIC: TS62417.D</th><th></th></td<>	Abundance		TIC: TS62417.D	
0000 000 0000 0000 0000 00000 00000 000000 0000000 00000000 000000000000000000000000000000000000	380000			
20 20 20 </th <th>36000</th> <th></th> <th>S '(</th> <th>1 '\$D-0</th>	36000		S '(1 '\$ D- 0
000 000 <th>340000</th> <th></th> <th>42' I</th> <th>ปอรนธ</th>	340000		42' I	ปอรนธ
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	lime> 3.00 ₄	00 5.00 6.00 7.00 8.00 9.00 10.00 11.00 1	00 13.00 14.00 15.00 16.00 17.00 18.00 19	3.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00
Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62418.D Vial: 20 Acq On : 31 Jul 2011 4:01 am Operator: A. Thomas : T-48 PM 0.5-3 Sample Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:22 19111 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9196300524015.00 ug/l-0.2044) chlorobenzene-d515.17117337756615.00 ug/L-0.2156) 1,4-dichlorobenzene-d419.54152211695615.00 ug/L-0.21 System Monitoring Compounds 21) dibromofluoromethane (S) 8.63 113 1097786 31.03 ug/L -0.20 Spiked Amount 30.000 Range 80 - 120 Recovery = 96.50%
 Target Compounds
 Qvalue

 14) acetone
 5.22
 58
 638578
 50.20 ug/L
 71

 17) methylene chloride
 6.12
 84
 203188
 2.94 ug/L
 # 100

Quant Results File: T6072011.RES Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62418.D Vial: 20 Acq On : 31 Jul 2011 4:01 am Operator: A. Thomas Sample : T-48 PM 0.5-3 Inst : GC/MS Inst Multiplr: 1.00 Misc : Multiplr: 1.00 : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) MS Integration Params: events.e Quant Time: Aug 1 10:22 19111 Method Abı

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62419.D Vial: 22 Data File : C. MLCML1, 2 Acq On : 31 Jul 2011 5:39 am Operator: A. Thomas Sample : T-48 PM 1.0-1 Misc : Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:22 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9196291255315.00 ug/l-0.2044) chlorobenzene-d515.17117332265015.00 ug/L-0.2156) 1,4-dichlorobenzene-d419.54152203801515.00 ug/L-0.22 System Monitoring Compounds 21) dibromofluoromethane (S) 8.63 113 1108588 32.33 ug/L -0.20 Spiked Amount 30.000 Range 80 - 120 Recovery = 107.77% 26) 1,2-dichloroethane-d4 (S) 9.40 102 223262 29.69 ug/L -0.20 Spiked Amount 30.000 Range 80 - 120 Recovery = 98.97% 36) toluene-d8 (S)12.5398350750931.30 ug/L-0.21Spiked Amount30.000Range80- 120Recovery=104.33% 36) toluene-d8 (S) 53) 4-bromofluorobenzene (BFB) 17.34 95 2068429 27.46 ug/L -0.21 Spiked Amount 30.000 Range 80 - 120 Recovery = 91.53%
 Target Compounds
 Qvalue

 14) acetone
 5.22
 58
 718082
 58.25 ug/L
 71

 17) methylene chloride
 6.12
 84
 213724
 3.19 ug/L #
 100

10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES Thomas GC/MS Ins | '4-dichlorobenzene-d4, | C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 A. 22 4-bromofluorobenzene (BFB), S Multiplr: C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62419.D Vial: 31 Jul 2011 5:39 am Operator: GCMS 2 TIC: TS62419.D Inst ehlorobenzene-d5, l 24 10:42:07 2012 2 ((2) 8b-ensulo? 27 16:32:48 2011 I, eneznedorouth Calibration S ((S) 4b-enstheroroldolb-S, f 9.00 Feb events.e dibromofluoromethane (S), S 1 10:22 19111 8.00 Fri 7.00 T-48 PM 1.0-1 Params: Wed Jul Initial 6.00 methylene chloride, T,M T6072011.M VOA 5.00 M,T ,enotece Quant Time: Aug MS Integration 4.00 Response via ••• Last Update 3.00 Data File TS62419.D Acg On Sample Method Title Abundance 380000 Misc 360000 340000 320000 300000 280000 260000 240000 220000 200000 160000 140000 80000 180000 120000 000001 60000 40000 20000 0 Time-> .96

Page 2

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62420.D Vial: 23 Acq On : 31 Jul 2011 6:12 am Operator: A. Thomas Sample : T-48 PM 1.0-2 Misc : Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:22 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene9.9196297793515.00 ug/l-0.2044) chlorobenzene-d515.16117343630015.00 ug/L-0.2156) 1,4-dichlorobenzene-d419.54152204990415.00 ug/L-0.22 System Monitoring Compounds 21) dibromofluoromethane (S) 8.63 113 1076879 30.72 ug/L -0.20 Spiked Amount 30.000 Range 80 - 120 Recovery = 102.40% 26) 1,2-dichloroethane-d4 (S) 9.39 102 231761 30.14 ug/L -0.20

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 100.47%

 36)
 toluene-d8 (S)
 12.53
 98
 3565356
 31.12 ug/L
 -0.21

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 103.73%

 36) toluene-d8 (S) 53) 4-bromofluorobenzene (BFB) 17.34 95 2106716 27.04 ug/L -0.21 Spiked Amount 30.000 Range 80 - 120 Recovery = 90.13%
 Target Compounds
 Qvalue

 14) acetone
 5.22
 58
 623457
 49.46 ug/L
 69

 17) methylene chloride
 6.11
 84
 216710
 3.17 ug/L #
 100

TEA72011 RFC Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62420.D Vial: 23 Acq On : 31 Jul 2011 6:12 am Operator: A. Thomas Sample : T-48 PM 1.0-2 Inst : GC/MS Inst Inst : GC/MS Multiplr: 1.00 sulte Filo. 0 č MS Integration Params: events.e Acq On Sample Misc

86 M. M.	000 000 000 000 000 000 000 000 000 00	2000 00 00 00 00 00 00 00 00 00 00 00 00
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Quantitation Report (Not Reviewed) Data File : C:\HECHERY: C.... Acq On : 31 Jul 2011 6:45 am Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62421.D Vial: 24 Operator: A. Thomas Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:22 19111 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9196288909215.00 ug/l-0.2044) chlorobenzene-d515.16117326342415.00 ug/L-0.2156) 1,4-dichlorobenzene-d419.54152201100815.00 ug/L-0.22 System Monitoring Compounds 21) dibromofluoromethane (S) 8.63 113 1020265 30.00 ug/L -0.20 Spiked Amount 30.000 Range 80 - 120 Recovery = 100.00% 26) 1,2-dichloroethane-d4 (S)9.4010224754933.19 ug/L-0.20Spiked Amount30.000Range80 - 120Recovery=110.63%36) toluene-d8 (S)12.5398340958630.67 ug/L-0.21Spiked Amount30.000Range80 - 120Recovery=102.23% 53) 4-bromofluorobenzene (BFB) 17.34 95 2025777 27.38 ug/L -0.21 Spiked Amount 30.000 Range 80 - 120 Recovery = 91.27%

 Target Compounds
 Qvalue

 14) acetone
 5.22
 58
 725097
 59.30 ug/L
 68

 17) methylene chloride
 6.11
 84
 206727
 3.12 ug/L
 #
 100

10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES A. Thomas GC/MS Ins i, po-ensznedoroldeib-A C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 24 4-bromofluorobenzene (BFB), S Multiplr: C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62421.D Vial: 31 Jul 2011 6:45 am Operator: GCMS 2 TIC: TS62421.D Inst chlorobenzene-d5, l 24 10:42:14 2012 S ((S) 8b-ensulo? 27 16:32:48 2011 fluorobenzene, l Calibration 2 (S) \$2-dichloroethane-d4 (S), S 9.00 Fri Feb events.e 2 ,(2) ensitemoroultomordib 1 10:22 19111 8.00 T-48 PM 1.0-3 7.00 Initial Params: Wed Jul 6.03 м,Т ,өbiroldo өnөlүrbөm T6072011.M VOA 5.00 M,T, snotece Quant Time: Aug MS Integration 4.00 Response via .. Last Update 3.00 Data File TS62421.D Acq On Sample Method Title Abundance 380000 Misc 360000 340000 320000 300000 280000 260000 200000 180000 160000 140000 120000 240000 220000 100000 80000 60000 40000 20000 0 Time--> 100

Page 2

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62422.D Vial: 25 Acq On : 31 Jul 2011 7:18 am Sample : T-48 PM 2.0-1 Operator: A. Thomas : T-48 PM 2.0-1 Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:22 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene9.9196289926215.00 ug/l-0.2144) chlorobenzene-d515.17117334226115.00 ug/L-0.2156) 1,4-dichlorobenzene-d419.54152205929815.00 ug/L-0.22 System Monitoring Compounds 21) dibromofluoromethane (S) 8.63 113 1066180 31.24 ug/L -0.20 Spiked Amount 30.000 Range 80 - 120 Recovery = 104.13%

 26) 1,2-dichloroethane-d4 (S)
 9.40
 102
 225776
 30.16 ug/L
 -0.20

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 100.53%

 36) toluene-d8 (S)
 12.53
 98
 3465528
 31.07 ug/L
 -0.21

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 103.57%

 53) 4-bromofluorobenzene (BFB) 17.34 95 2106805 27.80 ug/L -0.21 Spiked Amount 30.000 Range 80 - 120 Recovery = 92.67%
 Target Compounds
 Qvalue

 14) acetone
 5.22
 58
 592040
 48.25 ug/L
 73

 17) methylene chloride
 6.11
 84
 242544
 3.64 ug/L #
 100

Quant Results File: T6072011.RES Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62422.D Vial: 25 Acq On : 31 Jul 2011 7:18 am Operator: A. Thomas Sample : T-48 PM 2.0-1 Inst : GC/MS Inst Multiplr: 1.00 Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:22 19111

III 27 16:32:48 2011 Calibrationoffored (5, 5 (16:101 27 16:32:48 2011 Calibration 1, 4 dishorotenteed (5, 5 (Chemstane-df (5, 5))))))))))))))))))))))))))))))))))

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62423.D Vial: 26 Acq On : 31 Jul 2011 7:51 am Operator: A. Thomas : T-48 PM 2.0-2 Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:22 19111 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9196283804915.00 ug/l-0.2144) chlorobenzene-d515.17117328946715.00 ug/L-0.2156) 1,4-dichlorobenzene-d419.54152207859315.00 ug/L-0.22 System Monitoring Compounds 21) dibromofluoromethane (S) 8.63 113 1072080 32.09 ug/L -0.20 21) dibromorruoromethane (s)8.63113107208032.09ug/L-0.20Spiked Amount30.000Range80-120Recovery=106.97%26) 1,2-dichloroethane-d4 (S)9.4010220181827.54ug/L-0.20Spiked Amount30.000Range80-120Recovery=91.80%36) toluene-d8 (S)12.5398344330231.53ug/L-0.21Spiked Amount30.000Range80-120Recovery=105.10%53) 4-bromofluorobenzene(BFB)17.3495207154527.78ug/L-0.21Spiked Amount20.000Barger80120Barger9260%Spiked Amount 30.000 Range 80 - 120 Recovery = 92.60%
 Target Compounds
 Qvalue

 14) acetone
 5.22
 58
 663775
 55.26 ug/L
 69

 17) methylene chloride
 6.11
 84
 256453
 3.93 ug/L
 # 100

Quant Results File: T6072011.RES Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62423.D Vial: 26 Acq On : 31 Jul 2011 7:51 am Operator: A. Thomas Sample : T-48 PM 2.0-2 Inst : GC/MS Inst Multiplr: 1.00 Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:22 19111

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60000
40000 1900
20000 20000

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62424.D Vial: 27 Acq On : 31 Jul 2011 8:24 am Operator: A. Thomas : T-48 PM 2.0-3 Sample : Misc : Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:22 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.9196298979415.00 ug/l-0.2044) chlorobenzene-d515.17117332165915.00 ug/L-0.2156) 1,4-dichlorobenzene-d419.54152208117215.00 ug/L-0.22 System Monitoring Compounds 21) dibromofluoromethane (S) 8.63 113 1123932 31.93 ug/L -0.20 Spiked Amount 30.000 Range 80 - 120 Recovery = 106.43%

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 - 106.43%

 26)
 1,2-dichloroethane-d4
 (S)
 9.40
 102
 230585
 29.87
 ug/L
 -0.20

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 99.57%

 36)
 toluene-d8
 (S)
 12.53
 98
 3498859
 30.42
 ug/L
 -0.21

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 101.40%

 53)
 4-bromofluorobenzene
 (BFB)
 17.34
 95
 2109969
 28.02
 ug/L
 -0.21

 Spiked Amount 30.000 Range 80 - 120 Recovery = 93.40%
 Target Compounds
 Qvalue

 14) acetone
 5.22
 58
 652699
 51.58 ug/L
 69

 17) methylene chloride
 6.11
 84
 245702
 3.58 ug/L
 #
 100

10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES Thomas GC/MS Ins I, 4b-9neznedorolffoib P C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 A. 27 4-bromofluorobenzene (BFB), S C:\HPCHEM\1\DATA2011\JUL11\LUL30\TS62424.D Vial: Multiplr: GCMS2 TIC: TS62424.D Inst chlorobenzene-d5, 1 Fri Feb 24 10:42:25 2012 2 (C) 8b-eneulot 27 16:32:48 2011 fluorobenzene, l Calibration S ((S) 4b-ensiteoroliaib-2,1 9.00 MS Integration Params: events.e Quant Time: Aug 1 10:22 19111 dibromofluoromethane (S), S 8.00 T-48 PM 2.0-3 7,00 Wed Jul Initial 6.00 methylene chloride, T,M T6072011.M VOA 5.00 M,T, enotece 4.00 Response via .. Last Update 3.00 Data File TS62424.D Sample Acq On Method Title Abundance 400000 Misc 380000 360000 300000 280000 260000 220000 200000 180000 340000 320000 240000 160000 120000 000001 80000 60000 20000 0 140000 40000 Time-> 106

 \sim Page IV-1 Method Tunes

IV-2 Method Blanks

IV-3 Daily Calibration

IV-4 Laboratory Control Samples

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Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TBF62402.D Vial: 24
Acq On
        : 30 Jul 2011
                          6:59 am
                                                     Operator: A. Thomas
          : 50ng bfb 624/5ml 7/29/11
Sample
                                                     Inst
                                                            : GC/MS Ins
Misc
                                                     Multiplr: 1.00
          :
MS Integration Params: events.e
       : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator)
Method
Title
         : VOA
```

BFB



AutoFind: Scans 884, 885, 886; Background Corrected with Scan 877

	Target Mass		Rel. to Mass		Lower Limit%	 	Upper Limit%	 	Rel. Abn%	 	Raw Abn	 	Result Pass/Fail	
	50 75 95 173 174 175 176 177		95 95 95 174 95 174 174 174 176		15 30 100 5 0.00 50 5 95 5		40 70 100 9 2 100 9 101 9		30.5 59.8 100.0 7.7 0.0 81.4 7.9 100.9 6.9		13030 25555 42712 3275 0 34747 2760 35043 2412		PASS PASS PASS PASS PASS PASS PASS PASS	
								10						

TBF62402.D T6072011.M

Fri Feb 24 11:45:25 2012 GCM\$2

Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TBF62401.D Vial: 1 : 30 Jul 2011 4:26 pm Operator: A. Thomas Acq On : 50ng bfb 624/5ml 7/30/11 : GC/MS Ins Inst Sample Misc Multiplr: 1.00 MS Integration Params: events.e : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Method Title : VOA



AutoFind: Scans 885, 886, 887; Background Corrected with Scan 878

 	Target Mass	Rel. to Mass		Lower Limit%	 	Upper Limit%		Rel. Abn%		Raw Abn	 	Result Pass/Fail	
	50 75 95 173 174 175 176 177	95 95 95 174 95 174 174 174		15 30 100 5 0.00 50 5 95 5		40 70 100 9 2 100 9 101 9		29.5 59.2 100.0 6.5 0.0 82.0 7.3 100.7 6.7		13265 26672 45040 2923 0 36949 2696 37211 2491		PASS PASS PASS PASS PASS PASS PASS PASS	

Fri Feb 24 11:56:57 2012 GCMS2

Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TBF62402.D Vial: 21 Operator: A. Thomas Acq On : 31 Jul 2011 4:34 am Sample : 50ng bfb 624/5ml 7/29/11 Inst : GC/MS Ins Misc Multiplr: 1.00 MS Integration Params: events.e : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Method Title : VOA



AutoFind: Scans 883, 884, 885; Background Corrected with Scan 877

Target Mass	Rel. to Mass		Lower Limit%	Upper Limit%	 	Rel. Abn%		Raw Abn	 	Result Pass/Fail	
50 75 95 173 174 175 176 177	95 95 95 174 95 174 174 174		$15 \\ 30 \\ 100 \\ 5 \\ 0.00 \\ 50 \\ 5 \\ 95 \\ 5 \\ 5$	40 70 100 9 2 100 9 101 9		29.4 56.9 100.0 7.0 0.0 79.7 7.6 97.2 6.7		12630 24501 43032 3024 0 34315 2597 33339 2234		PASS PASS PASS PASS PASS PASS PASS PASS	

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 GCMS2

Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TBL62401.D Vial: 1 Acq On : 29 Jul 2011 5:44 pm Operator: A. Thomas : Blank 624/5ml 7/29/11 Inst : GC/MS Ins Sample Multiplr: 1.00 Misc MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Aug 1 10:19 19111 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 R.T. QIon Response Conc Units Dev(Min) Internal Standards _____ 1) fluorobenzene9.9696398828415.00 ug/l-0.1544) chlorobenzene-d515.23117426911315.00 ug/L-0.1556) 1,4-dichlorobenzene-d419.61152243746415.00 ug/L-0.15 System Monitoring Compounds 21) dibromofluoromethane (S) 8.68 113 1410201 30.04 ug/L -0.15 Spiked Amount30.000Range80 - 120Recovery=100.13%26)1,2-dichloroethane-d4(S)9.4510233029532.08ug/L-0.15Spiked Amount30.000Range80 - 120Recovery=106.93% 36) toluene-d8 (S) 12.58 98 4747271 30.94 ug/L -0.15

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 <td Spiked Amount 30.000 Range 80 - 120 Recovery = 95.97%

Target Compounds

Ovalue

 \sim 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES Thomas GC/MS Ins I 'to-euezuego.eiueig C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Multiplr: 1.00 A. ---1 4-bromofluorobenzene (BFB), 5 Operator: Vial: •• GCMS 2 TIC: TBL62401.D Inst C:\HPCHEM\1\DATA2011\JUL11\LUL29\TBL62401.D chlorobenzene-d5,1 Fri Feb 24 11:51:50 2012 2 ((2) 8b-eneulos 2011 I, sneznadorouñ 27 16:32:48 Calibration 5:44 pm 7/29/11 S ((S) Ab-ensitieoroldolb-S,1 9.00 MS Integration Params: events.e Quant Time: Aug 1 10:19 19111 dibromofuoromethane (S), S 7.00 8.00 Blank 624/5ml 29 Jul 2011 Wed Jul : Initial (6.00 TBL62401.D T6072011.M VOA 4.00 5.00 Quant Time: Aug Response via ••• Last Update 3.00 Data File Sample Acq On Method Title Misc Abundance 350000 114 8 200000 50000 450000 400000 250000 150000 100000 0 Lime->

Page

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TBL62401.D Vial: 1 Acq On : 30 Jul 2011 4:59 pm Operator: A. Thomas Sample : Blank 624/5ml 7/30/11 Inst : GC/MS Ins Misc Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:21 19111 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene9.9296327690715.00 ug/l-0.1944) chlorobenzene-d515.18117365270715.00 ug/L-0.2056) 1,4-dichlorobenzene-d419.56152223907915.00 ug/L-0.20 System Monitoring Compounds 21) dibromofluoromethane (S) 8.63 113 1213316 31.45 ug/L -0.20 21) dibionoritation and (3)3.03113121331631.43107L-0.20Spiked Amount30.000Range80-120Recovery=104.83%26) 1,2-dichloroethane-d4(S)9.4110226125630.88ug/L-0.19Spiked Amount30.000Range80-120Recovery=102.93%36) toluene-d8(S)12.5498389201130.87ug/L-0.19Spiked Amount30.000Range80-120Recovery=102.90%53) 4-bromofluorobenzene(BFB)17.3695230713227.86ug/L-0.20Table & Dramet20.002Drame200120Dramet202.67%Spiked Amount 30.000 Range 80 - 120 Recovery = 92.87%

Target Compounds

Ovalue

 \sim Page 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: T6072011.RES A. Thomas GC/MS Ins 1,4b-eneznedoreineite C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) 1.00 Ļ 4-bromofluorobenzene (BFB), S Multiplr: Operator: Vial: GCMS2 TIC: TBL62401.D Inst C:\HPCHEM\1\DATA2011\JUL11\LUL30\TBL62401.D l, cobenzene-d5, l Feb 24 12:01:35 2012 S ((S) 8b-eneulor 27 16:32:48 2011 (' euezuego.iony Calibration 30 Jul 2011 4:59 pm Blank 624/5ml 7/30/11 S ((S) #b-enertheoroldolb-S, f 9.00 MS Integration Params: events.e Ouant Time: Aug 1 10:21 19111 2 (3) ensitemorouflomordib нц 8.00 7.00 30 Jul 2011 Wed Jul Initial 6.00 T6072011.M VOA 3.00 4.00 5.00 Response via •• Last Update Data File TBL62401.D Acq On Sample Method Title **00000** 116 Misc 400000 350000 250000 200000 150000 100000 50000 a Time->

Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TDC62401.D Vial: 1

 Acq On
 : 29 Jul 2011 6:17 pm
 Operator: A. Thomas

 Sample
 : 20 ppb cl 1624/5ml 7/29/11
 Inst : GC/MS Ins

 Misc
 :
 Multiplr: 1.00

 MS Integration Params: events.e Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Multiple Level Calibration Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min Max. RRF Dev : 30% Max. Rel. Area : 200%
 Compound
 AvgRF
 CCRF
 %Dev Area% Dev(min)

 1
 I
 fluorobenzene
 1.000
 1.000
 0.0
 78
 -0.16

 3
 T,M
 chloromethane
 0.312
 0.190
 39.1#
 47# -0.08

 4
 C.T,M
 vinjl<chloride</td>
 0.184
 0.195
 -60.68
 -0.10

 5
 T,M
 bromomethane
 0.225
 0.209
 7.1
 68
 -0.10

 7
 t
 112-Trichloro-122-Trifluoro
 0.289
 0.214
 2.6
 53
 -0.15

 8
 Methyl Acetate
 0.047
 0.049
 -4.3
 74
 -0.14

 9
 T,M
 carbon disulfide
 0.586
 0.394
 32.8#
 46# -0.13

 11
 t
 1,4
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 1.4.3
 57
 -0.12

 17.M
 methyle acohol
 0.054
 0.043
 2.3
 70
 -0.12

 14
 T,M
 acotone
 0.340
 0.284
 4.5
 -0.14
 AvgRF CCRF %Dev Area% Dev(min) Compound · · · 118 5

44	I	chlorobenzene-d5	1.000	1.000	0.0	71	-0.15
45	М,Т	chlorobenzene	0.554	0 476	14 1	5.8	-0 15

46	С,Т,М	1 ethyl benzene	1.066	0.931	12.7	58	-0.15
47	т,М	m/p-xylene	0.929	0.813	12.5	52	-0.15
48	т,М	o-xylene	0.874	0.783	10.4	59	-0.15
49	Т,М	styrene	0.528	0.447	15.3	56	-0.15
50	т,М	isopropyl benzene	0.953	0.835	12.4	58	-0.15
51	т,М	bromoform	0.123	0.093	24.4	53	-0.15
52	Т,М	1,1,2,2-tetrachloroethane	0.274	0.247	9.9	64	-0.15
53	S	4-bromofluorobenzene (BFB)	0.340	0.330	2.9	69	-0.15
54	т,М	1,3-dichlorobenzene	0.404	0.333	17.6	54	-0.15
55	т,М	1,2-dichlorobenzene	0.383	0.315	17.8	55	-0.16
56	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	64	-0.15
57	Т,М	1,4-dichlorobenzene	0.639	0.611	4.4	61	-0.16
58	Т,М	1,2-dibromo-3-chloropropane	0.069	0.060	13.0	74	-0.15
59	Т,М	1,2,4-trichlorobenzene	0.387	0.352	9.0	56	-0.16
60	Т,М	Napthalene	0.822	0.729	11.3	62	-0.16
61	Т,М	1,2,3-trichlorobenzene	0.343	0.326	5.0	61	-0.16

(#) = Out of Range SPCC's out = 0 CCC's out = 0 BF62401.D T6072011.M Fri Feb 24 11:48:34 2012 GCMS2

Data File	:	C:\HPCHEM\1\DATA2011\JUL11\LUL29\7	DC62402.D Via	l: 25
Acq On	:	30 Jul 2011 7:32 am	Operato	r: A. Thomas
Sample	:	20ppb cal2 624/5ml 7/29/11	Inst	: GC/MS Ins
Misc	:		Multipl	r: 1.00
MS Integra	ati	on Params: events.e	-	
Method Title Last Updat Response v	ce /ia	: C:\HPCHEM\1\METHODS\T6072011.M : VOA : Wed Jul 27 16:32:48 2011 : Multiple Level Calibration	(Chemstation I	ntegrator)

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev Are	ea% I	Dev(min)
1	I	fluorobenzene	1.000	1.000	0.0	61	-0.20
3	Т,М	chloromethane	0.312	0.169	45.8#	32#	-0.11
4	С,Т,1	M vinyl chloride	0.184	0.180	2.2	64	-0.11
5	Т,М	bromomethane	0.144	0.074	48.6#	33#	-0.16
6	Т,М	chloroethane	0.225	0.211	6.2	54	-0.14
7	t	112-Trichloro-122-Trifluoro	0.289	0.253	12.5	49#	-0.15
8	t	Methyl Acetate	0.047	0.050	-6.4	59	-0.17
9	Т,М	carbon disulfide	0.586	0.431	26.5	40#	-0.18
10	Т,М	MTBE	0.785	0.807	-2.8	66	-0.16
11	t	1,4 Dioxane	0.028	0.037	-32.1#	67	-0.17
12	Т,М	tert-butyl alcohol	0.054	0.039	27.8	40#	-0.19
13	Т,М	MEK	0.044	0.031	29.5	39#	-0.16
14	Т,М	acetone	0.049	0.164	-234.7#	223	# -0.17
15	Т,М	trichlorofluoromethane	0.385	0.371	3.6	51	-0.15
16	С,Т,І	M 1,1-dichloroethene	0.514	0.458	10.9	49#	-0.17
17	Т,М	methylene chloride	0.345	0.365	-5.8	63	-0.17
18	Т,М	trans-1,2-dichloroethene	0.525	0.504	4.0	55	-0.18
19	т,м	1,1-dichloroethane	0.651	0.629	3.4	55	-0.18
20	C, T, 1	M chloroform	0.380	0.434	-14.2	65	-0.19
21	S	dibromofluoromethane (S)	0.177	0.206	-16.4	71	-0.19
22	т,м	bromochloromethane	0.149	0.162	-8.7	57	-0.19
23	t	Cyclohexane	0.417	0.390	6.5	50	-0.19
24	Т,М	1,1,1-trichloroethane	0.440	0.517	-17.5	65	-0.19
25	т,м	carbon tetrachloride	0.326	0.379	-16.3	62	-0.19
20	S	1,2-dichloroethane-d4 (S)	0.039	0.044	-12.8	66	-0.18
27	т,м	1,2-dichloroethane	0.545	0.635	-16.5	68	-0.19
28	т,м	benzene tri chlanathana	1.096	1.062	3.1	54	-0.19
29	⊥,№	trichioroethene Mathal Carlabanana	0.285	0.305	-7.0	56	-0.19
$\frac{30}{21}$		Metnyi Cyclonexane	0.479	0.445	/.1	50	-0.19
31 22		M 1,2-dichioropropane	0.325	0.336	-3.4	59	-0.19
22	⊥,м тм	MIDA cis-1 2-dichloroothono	0.036	0.024	33.3#	38#	-0.20
37	т,м тм	bromodichlaromathana	0.532	0.541	-1./	58	-0.19
25	т.м	dig-1 3-dichloropropono	0.355	0.392	-11.0	60 50	-0.19
32	г, м с	toluono-d8 (S)	0.420	0.395	7.3	50	-0.19
30	ст и	M toluene	1 110	1 102	-9.0	64 50	-0.19
38	т м	trans-1 3-dichloropropene	1.119	0.340	1.0	30 13#	-0.19
20	т м	2-bevanone	0.447	0.340	23.9	45#	-0.07
4 N	т м	1 1 2-trichloroethane	0.130	0.007	JJ.⊥#	40#	-0.10
<u>4</u> 0	т м	tetrachloroethene	0.210	0.219	-4.5	59 61	-0.19
42	т.м	dibromochloromethane	0.290	0.333	-13.3	57	-0.19
42	т м	1 2-dibromoethane	0.210	0.247	-13.3	57	-0.20
10	- / 11	i, i dibiomocenane	100	0.270	-9.9	00	-0.20
44	I	chlorobenzene-d5	1,000	1.000	0 0	59	-0.20
45	М,Т	chlorobenzene	0.554	0.571	-3 1	58	-0.20
	-						

46	С,Т,М	M ethyl benzene	1.066	1.097	-2.9	57	-0.19
47	т,М	m/p-xylene	0.929	0.948	-2.0	51	-0.19
48	Т,М	o-xylene	0.874	0.940	-7.6	60	-0.20
49	т,М	styrene	0.528	0.545	-3.2	57	-0.19
50	Т,М	isopropyl benzene	0.953	1.030	-8.1	60	-0.20
51	Т,М	bromoform	0.123	0.101	17.9	48#	-0.20
52	Т,М	1,1,2,2-tetrachloroethane	0.274	0.254	7.3	56	-0.19
53	S	4-bromofluorobenzene (BFB)	0.340	0.327	3.8	58	-0.20
54	Т,М	1,3-dichlorobenzene	0.404	0.383	5.2	52	-0.20
55	Т,М	1,2-dichlorobenzene	0.383	0.338	11.7	50#	-0.20
56	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	56	-0.20
57	Т,М	1,4-dichlorobenzene	0.639	0.715	-11.9	63	-0.22
59	Т,М	1,2,4-trichlorobenzene	0.387	0.402	-3.9	56	-0.21
60	Т,М	Napthalene	0.822	0.650	20.9	49#	-0.21
61	Т,М	1,2,3-trichlorobenzene	0.343	0.357	-4.1	59	-0.21

(#) = Out of Range SPCC's out = 0 CCC's out = 0 BF62401.D T6072011.M Fri Feb 24 11:50:53 2012 GCMS2

Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TDC62401.D Vial: 1 Acq On: 30 Jul 20115:32 pmOperator: A. ThomasSample: 20 ppb cl 1624/5ml 7/30/11Inst: GC/MS InsMisc:Multiplr: 1.00 MS Integration Params: events.e Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Multiple Level Calibration Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min Max. RRF Dev : 30% Max. Rel. Area : 200%
 Compound
 AvgRF
 CCRF
 % Dev Area% Dev(min)

 1
 I
 fluorobenzene
 1.000
 1.000
 0.0
 69
 -0.19

 3
 T,M
 chloromethane
 0.112
 0.195
 37.5#
 42#
 -0.11

 4
 C,T,M
 vinyl
 chloromethane
 0.144
 0.70
 51.4#
 35#
 -0.14

 6
 T,M
 chloroethane
 0.225
 0.226
 0.0
 64
 -0.14

 7
 t
 112-Trichloro-122-Trifluoro
 0.289
 0.246
 14.9
 53
 -0.17

 7
 M
 carbon disulfide
 0.566
 0.587
 -0.2
 61
 -0.19

 0
 T,M
 methyl Acetate
 0.044
 0.031
 29.5
 45#
 -0.17

 13
 T,M
 methyl Acetate
 0.044
 0.031
 29.5
 45#
 -0.17

 14
 T,M
 methyl Acetate
 0.044
 -0.31
 29.5
 59#
 -0.16

 15
 T,M
 t AvgRF CCRF %Dev Area% Dev(min) Compound
 44 I
 chlorobenzene-d5
 1.000
 1.000
 0.0
 64
 -0.19

 45 M,T
 chlorobenzene
 0.554
 0.596
 -7.6
 65
 -0.19

46	C,T,M ethyl benzene		1.066	1.143	-7.2	64	-0.19
47	Т,М	m/p-xylene	0.929	0.977	-5.2	56	-0.19
48	Т,М	o-xylene	0.874	0.956	-9.4	65	-0.19
49	Т,М	styrene	0.528	0.563	-6.6	64	-0.19
50	Т,М	isopropyl benzene	0.953	1.055	-10.7	66	-0.18
51	Т,М	bromoform	0.123	0.105	14.6	54	-0.19
52	Т,М	1,1,2,2-tetrachloroethane	0.274	0.278	-1.5	65	-0.19
53	S	4-bromofluorobenzene (BFB)	0.340	0.324	4.7	61	-0.19
54	Т,М	1,3-dichlorobenzene	0.404	0.433	-7.2	63	-0.19
55	Т,М	1,2-dichlorobenzene	0.383	0.450	-17.5	71	-0.20
56	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	58	-0.19
57	Т,М	1,4-dichlorobenzene	0.639	0.782	-22.4	71	-0.20
58	Т,М	1,2-dibromo-3-chloropropane	0.069	0.059	14.5	65	-0.19
59	Т,М	1,2,4-trichlorobenzene	0.387	0.445	-15.0	64	-0.20
60	Т,М	Napthalene	0.822	0.845	-2.8	65	-0.20
61	Т,М	1,2,3-trichlorobenzene	0.343	0.408	-19.0	69	-0.20

(#) = Out of Range SPCC's out = 0 CCC's out = 0 BF62401.D T6072011.M Fri Feb 24 11:58:33 2012 GCMS2

Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TDC62402.D Vial: 21

Sample : 20ppb cal2 624/5ml 7/29/11 Inst : GC/MS Ins MS Integration Params: events.e Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Multiple Level Calibration Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min

Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev Are	ea% Dev(min)
1	I	fluorobenzene	1.000	1.000	0.0	62 -0.21
3	Т,М	chloromethane	0.312	0.172	44.9#	33# -0.12
4	С,Т,1	M vinyl chloride	0.184	0.162	12.0	58 -0.13
5	Т,М	bromomethane	0.144	0.064	55.6#	29# -0.15
6	т,М	chloroethane	0.225	0.185	17.8	47# -0.16
7	t	112-Trichloro-122-Trifluoro	0.289	0.244	15.6	48# -0.16
8	t	Methyl Acetate	0.047	0.043	8.5	52 -0.19
9	Т,М	carbon disulfide	0.586	0.281	52.0#	26# -0.18
10	Т,М	MTBE	0.785	0.758	3.4	63 -0.17
11	t	1,4 Dioxane	0.028	0.029	-3.6	54 -0.18
12	т,М	tert-butyl alcohol	0.054	0.037	31.5#	38# -0.19
13	Т,М	MEK	0.044	0.026	40.9#	33# -0.21
14	Т,М	acetone	0.049	0.248	-406.1#	341# -0.17
15	Т,М	trichlorofluoromethane	0.385	0.353	8.3	49# -0.16
16	С,Т,	M 1,1-dichloroethene	0.514	0.452	12.1	49# -0.17
17	Т,М	methylene chloride	0.345	0.343	0.6	60 -0.18
18	т,М	trans-1,2-dichloroethene	0.525	0.493	6.1	55 -0.19
19	Т,М	1,1-dichloroethane	0.651	0.622	4.5	55 -0.19
20	С,Т,	M chloroform	0.380	0.424	-11.6	65 -0.20
21	S	dibromofluoromethane (S)	0.177	0.197	-11.3	69 -0.20
22	Т,М	bromochloromethane	0.149	0.147	1.3	53 -0.20
23	t	Cyclohexane	0.417	0.368	11.8	48# -0.20
24	т,м	1,1,1-trichloroethane	0.440	0.491	-11.6	62 -0.21
25	т,М	carbon tetrachloride	0.326	0.365	-12.0	60 -0.21
26	S	1,2-dichloroethane-d4 (S)	0.039	0.039	0.0	60 -0.20
27	Т,М	1,2-dichloroethane	0.545	0.624	-14.5	68 -0.20
28	Т,М	benzene	1.096	1.022	6.8	52 -0.20
29	Т,М	trichloroethene	0.285	0.298	-4.6	55 -0.20
30	t	Methyl Cyclohexane	0.479	0.439	8.4	50 -0.20
31	С,Т,	M 1,2-dichloropropane	0.325	0.323	0.6	58 -0.20
32	Т,М	MIBK	0.036	0.026	27.8	42# -0.21
33	Т,М	cis-1,2-dichloroethene	0.532	0.525	1.3	57 -0.20
34	Т,М	bromodichloromethane	0.353	0.375	-6.2	58 -0.20
35	Т,М	cis-1,3-dichloropropene	0.426	0.389	8.7	50 -0.20
36	S	toluene-d8 (S)	0.577	0.585	-1.4	61 -0.21
37	С,Т,	M toluene	1.119	1.060	5.3	49# -0.21
38	Т,М	trans-1,3-dichloropropene	0.447	0.341	23.7	44# -0.08
39	Т,М	2-hexanone	0.130	0.115	11.5	60 -0.20
40	Т,М	1,1,2-trichloroethane	0.210	0.221	-5.2	60 -0.21
41	Τ, Μ	tetrachloroethene	0.296	0.357	-20.6	62 -0.21
42	Т,М	dibromochloromethane	0.218	0.229	-5.0	54 -0.21
43	т,М	1,2-dibromoethane	0.253	0.258	-2.0	56 -0.21
44	I	chlorobenzene-d5	1,000	1.000	0.0	57 -0.21
45	м,Т	chlorobenzene	0.554	0.587	-6 0	58 -0 21

46	С,Т,М	1 ethyl benzene	1.066	1.147	-7.6	58	-0.21
47	Т,М	m/p-xylene	0.929	0.970	-4.4	50	-0.21
48	Т,М	o-xylene	0.874	0.965	-10.4	59	-0.21
49	Т,М	styrene	0.528	0.565	-7.0	57	-0.21
50	Т,М	isopropyl benzene	0.953	1.062	-11.4	60	-0.21
51	Т,М	bromoform	0.123	0.098	20.3	45#	-0.22
52	Т,М	1,1,2,2-tetrachloroethane	0.274	0.249	9.1	52	-0.21
53	S	4-bromofluorobenzene (BFB)	0.340	0.328	3.5	56	-0.21
54	Т,М	1,3-dichlorobenzene	0.404	0.387	4.2	51	-0.22
55	Т,М	1,2-dichlorobenzene	0.383	0.445	-16.2	63	-0.22
56	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	55	-0.21
57	Т,М	1,4-dichlorobenzene	0.639	0.746	-16.7	64	-0.22
59	Т, М	1,2,4-trichlorobenzene	0.387	0.426	-10.1	58	-0.22
60	Т,М	Napthalene	0.822	0.644	21.7	47#	-0.22
61	Т,М	1,2,3-trichlorobenzene	0.343	0.369	-7.6	60	-0.22

(#) = Out of Range SPCC's out = 0 CCC's out = 0 BF62401.D T6072011.M Fri Feb 24 12:00:32 2012 GCMS2

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Quantitation Report (QT Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TDC62401.D Vial: 1 Acq On : 29 Jul 2011 6:17 pm Sample : 20 ppb cl 1624/5ml 7/29/11 Operator: A. Thomas Inst : GC/MS Ins Misc Multiplr: 1.00 MS Integration Params: events.e Quant Time: Feb 24 11:48 19112 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.95963811807m15.00 ug/l-0.1644) chlorobenzene-d515.23117420896515.00 ug/L-0.1556) 1,4-dichlorobenzene-d419.60152254561315.00 ug/L-0.15 System Monitoring Compounds 21) dibromofluoromethane (S) 8.67 113 1536609 34.24 ug/L -0.16 21) dibromorluoromethane (S)8.67113153660934.24 ug/L-0.16Spiked Amount30.000Range80- 120Recovery=114.13%26) 1,2-dichloroethane-d4(S)9.4510233871334.42 ug/L-0.15Spiked Amount30.000Range80- 120Recovery=114.73%36) toluene-d8(S)12.5998471129232.12ug/L-0.15Spiked Amount30.000Range80- 120Recovery=107.07%53) 4-bromofluorobenzene(BFB)17.4095278207429.15ug/L-0.15Calibrid Document20.000Range80- 120Recovery=107.07% Spiked Amount 30.000 Range 80 - 120 Recovery = 97.17% Target CompoundsQt3) chloromethane3.505096544412.16 ug/L4) vinyl chloride3.636298932721.13 ug/L5) bromomethane4.24962893407.92 ug/L6) chloroethane4.3264106297118.62 ug/L7) 112-Trichloro-122-Trifluor5.19101108977414.81 ug/l8) Methyl Acetate5.887424774517.28 ug/l9) carbon disulfide6.2676200497913.47 ug/L10) MTBE6.3373378311018.98 ug/L11) 1,4 Dioxane6.178812437315.55 ug/l12) tert-butyl alcohol5.5359126967793.27 ug/l13) MEK7.787221663819.44 ug/L14) acetone5.275894968358.86 ug/L15) trichlorofluoromethane4.631011463824m14.97 ug/L Target Compounds Ovalue 14)acetone5.275894968358.86ug/L15)trichlorofluoromethane4.631011463824m14.97ug/L16)1,1-dichloroethene5.4861187059014.31ug/L#17)methylenechloroethene6.1684149299617.05ug/L#18)trans-1,2-dichloroethene6.5861210660015.78ug/L#19)1,1-dichloroethane7.1963267187916.14ug/L#20)chloroform8.3485165517217.15ug/L#22)bromochloromethane8.6212857569315.23ug/L#23)Cyclohexane9.0284160954215.20ug/L#24)1,1,1-trichloroethane8.9797203257418.19ug/L#25)carbontetrachloride9.39117151381917.02ug/L27)1,2-dichloroethane9.6062260874218.83ug/L#28)benzene9.6578424503815.24ug/L#30)Methyl Cyclohexane10.61130118068216.31ug/L# _____

(#) = qualifier out of range (m) = manual integration TDC62401.D T6072011.M Fri Feb 24 11:51:52 2012 GCMS2

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Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TDC62401.D Vial: 1
Acq On : 29 Jul 2011 6:17 pm
                                                    Operator: A. Thomas
Sample : 20 ppb cl 1624/5ml 7/29/11
                                                    Inst : GC/MS Ins
Misc
                                                    Multiplr: 1.00
         :
MS Integration Params: events.e
Quant Time: Feb 24 11:48 19112 Quant Results File: T6072011.RES
Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator)
Title : VOA
Last Update : Wed Jul 27 16:32:48 2011
Response via : Initial Calibration
DataAcq Meth : VOC2
```

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
31)	1,2-dichloropropane	10.88	63	1378452	16.69 ug/L	#
32)	MIBK	11.74	100	153558	15.16 ug/L	
33)	cis-1,2-dichloroethene	8.10	61	2234714	16.52 ug/L	#
34)	bromodichloromethane	11.28	83	1575694	15.75 ug/L	#
35)	cis-1,3-dichloropropene	12.15	75	1819112	15.53 ug/L	
37)	toluene	12.72	91	4544097m	15.98 ug/L	
38)	trans-1,3-dichloropropene	12.98	75	1641762	14.45 ug/L	#
39)	2-hexanone	13.22	58	548314m	16.55 ug/L	
40)	1,1,2-trichloroethane	13.27	83	913832	17.09 ug/L	#
41)	tetrachloroethene	13.86	166	1309311	17.43 ug/L	#
42)	dibromochloromethane	14.21	129	956887	14.64 ug/L	#
43)	1,2-dibromoethane	14.56	107	1126099	17.55 ug/L	#
45)	chlorobenzene	15.30	112	2669017	17.17 ug/L	# 85
46)	ethyl benzene	15.36	91	5226542	17.47 ug/L	# 100
47)	m/p-xylene	15.50	91	4563656	17.51 ug/L	# 100
48)	o-xylene	16.29	91	4395974	17.93 ug/L	# 81
49)	styrene	16.36	104	2507399	16.93 ug/L	84
50)	isopropyl benzene	16.93	105	4685092	17.52 ug/L	100
51)	bromoform	17.01	173	523162	11.51 ug/L	99
52)	1,1,2,2-tetrachloroethane	17.24	83	1385904	15.32 ug/L	# 100
54)	1,3-dichlorobenzene	19.47	146	1866455	16.45 ug/L	# 98
55)	1,2-dichlorobenzene	20.37	146	1769649	16.48 ug/L	# 59
57)	1,4-dichlorobenzene	19.66	146	2073301m	19.11 ug/L	
58)	1,2-dibromo-3-chloropropan	21.84	75	204713	11.76 ug/L	76
59)	1,2,4-trichlorobenzene	23.51	180	1193131	18.16 ug/L	97
60)	Napthalene	24.01	128	2473814	17.74 ug/L	100
61)	1,2,3-trichlorobenzene	24.49	180	1107567	19.03 ug/L	96

27.00 26.00 25.00 M,T,sneznedonokhohrt-E,S,h 24.00 M,T, ensishings M M,T, energedorohohohoho, L, L 22.00 23.00 M,T, ensqoroprolid>-£-omordib-\$,t 21.00 Quant Results File: T6072011.RES 20,00 M,T ,eneznedorołdołb-S,ł Thomas GC/MS Ins 1,3-dichlorobenzener M, T ,anezneorobenzener 1,3-dichlorobenzene-d4,1 19.00 Integrator) 1.00 18.00 A. ----1 M,T ,ensitieotolicistiet-S,S,1,1 2 (B1B) enesnedoroufformord-A 15.00 16.00 17.00 Vial: Operator: • • M,T ,enezned lyqorgene, T,M Multiplr GCMS2 TIC: TDC62401.D M,T ,anality Qananyta (Chemstation Inst unb-xxielle, 1, M. 2, M. 1, M. chlorobenzene-d5, I C:\HPCHEM\1\DATA2011\JUL11\LUL29\TDC62401.D M,T, anshreomordib-2,F 14.00 M,T, enerthemorolricomordib 2012 M,T ,enertheorold/safet 13.00 M,T ,enstheoroticibet, 1.3-dictioropropenet M,T ,enstheoroticibet, T,M SH(S) 3p-BUBHBB C:\HPCHEM\1\METHODS\T6072011.M 11:51:55 12.00 M,T ,enegorgorolicib-E,1-alo MIBK, T,M 11.00 M,T, anantemonolichlomond 2011 1, anaxadory D. Bradisoroldort 2011 6:17 pm cl 1624/5ml 7/29/11 10.00 24 (ensanedorout 27 16:32:48 R.T. ensitieo with the set of the Calibration Feb 9.00 M,T , ans dispension bible () Params: events.e 24 11:48 19112 6:17 8 .(E) energenoechtenorel M,T,S-dichloroethene,t.sio M,T,O,motoroido 님 8.00 MEK, T,M 7.00 M,T,ensitseoroldolb-1,1 2011 Jul M,T ,enerteorolicib-S, t-anst Initial W.L. opposite and the 6.00 f , stateck hyrite M T6072011.M Jul Wed qdd atrane, t, and a story of the strane, t, the strange VOA 5.00 Feb M,T, ensitemoroufforolitait 29 tion Mat, anannana 4.00 via Quant Time: • • Last Update M.T. STREET BRASH (13) MS Integra 3.00 File Response TDC62401.D ő Sample Method Title Data Abundance Misc 500000 50000 400000 **1**28 50000 100000 0 250000 200000 300000 Acq 450000 Time->

Page 3
Quantitation Report (QT Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TDC62402.D Vial: 25 Acq On : 30 Jul 2011 7:32 am Sample : 20ppb cal2 624/5ml 7/29/11 Operator: A. Thomas Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Time: Feb 24 11:50 19112 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene9.92962981355m15.00 ug/l-0.2044) chlorobenzene-d515.18117352576415.00 ug/L-0.2056) 1,4-dichlorobenzene-d419.56152223502015.00 ug/L-0.20 System Monitoring Compounds 21) dibromofluoromethane (S) 8.64 113 1227592 34.98 ug/L -0.19 Spiked Amount30.000Range80 - 120Recovery=116.60%26) 1,2-dichloroethane-d4 (S)9.4110225951833.71ug/L-0.18Spiked Amount30.000Range80 - 120Recovery=112.37%36) toluene-d8 (S)12.5498375021832.69ug/L-0.19Spiked Amount30.000Range80 - 120Recovery=108.97%53) 4-bromofluorobonzone(PEP)17.2605200761000.07% 53) 4-bromofluorobenzene (BFB) 17.36 95 2307610 28.87 ug/L -0.20 Spiked Amount 30.000 Range 80 - 120 Recovery = 96.23%

 3) chloromethane
 3.47
 50
 671972m
 10.82 ug/L

 4) vinyl chloride
 3.62
 62
 714536m
 19.51 ug/L

 5) bromomethane
 4.19
 96
 292606m
 10.24 ug/L

 6) chloroethane
 4.28
 64
 838868m
 19.70

 7) 112-Trichloroethane
 4.28
 64
 838868m
 19.70

 Target Compounds Qvalue

 5)
 bromomethane
 4.19
 96
 292606m
 10.24 ug/L

 6)
 chloroethane
 4.28
 64
 838868m
 18.78 ug/L

 7)
 112-Trichloro-122-Trifluor
 5.18
 101
 1006138
 17.49 ug/l

 8)
 Methyl Acetate
 5.85
 74
 197123m
 17.58 ug/l

 9)
 carbon disulfide
 6.25
 76
 1711609m
 14.70 ug/L

 10)
 MTBE
 6.29
 73
 3206740
 20.56 ug/L

 11)
 1,4
 Dioxane
 6.13
 88
 145259
 23.22
 ug/l

 11)
 1,4
 Dioxane
 6.13
 88
 145259
 23.22
 ug/L

 12)
 tert-butyl alcohol
 5.48
 59
 776489m
 72.93 ug/L
 #

 13)
 MEK
 7.74
 72
 122033m
 14.00 ug/L
 #

 14)
 acetone
 5.22
 58
 650886m
 51.58 ug/L
 #

 15)
 trichlorofluoromethane
 4.62
 101
 1474879
 19.29 ug/L
 #

 16)
 1,1-dichloroethane ______

(#) = qualifier out of range (m) = manyad integration TDC62402.D T6072011.M Fri Feb 24 11:51:57 2012 GCMS2 Page 1

Data File	:	C:\HPCHEM\1\DATA2011\JUL11\LUL29	\TDC62	2402.D V	Vial:	25
Acq On	:	30 Jul 2011 7:32 am		Opera	ator:	A. Thomas
Sample	:	20ppb cal2 624/5ml 7/29/11		Inst	:	GC/MS Ins
Misc	:			Mult:	iplr:	1.00
MS Integra	ıti	on Params: events.e				
Quant Time	:	Feb 24 11:50 19112	Quant	Results	File:	T6072011.RES
Quant Meth Title	100	: C:\HPCHEM\1\METHODS\T6072011. : VOA	M (Che	emstation	n Inte	egrator)
Last Updat	e	: Wed Jul 27 16:32:48 2011				
Response v	ria	a : Initial Calibration				

1	DataAcq	Meth	:	VOC2
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	Compound	R.T.	QIon	Response	Conc Unit	Qva	alue
31)	1,2-dichloropropane	10.84	63	1336985	20.70 ug/L	#	
32)	MIBK	11.70	100	94546	11.94 ug/L		
33)	cis-1,2-dichloroethene	8.07	61	2150919	20.33 ug/L		
34)	bromodichloromethane	11.24	83	1558430	19.92 ug/L	#	
35)	cis-1,3-dichloropropene	12.10	75	1571918	17.16 ug/L	#	
37)	toluene	12.68	91	4379658	19.69 ug/L	#	
38)	trans-1,3-dichloropropene	12.94	75	1352672	15.22 ug/L	#	
39)	2-hexanone	13.19	58	346160	13.36 ug/L	#	
40)	1,1,2-trichloroethane	13.22	83	871754	20.85 ug/L	#	
41)	tetrachloroethene	13.81	166	1411989	24.04 ug/L	#	
42)	dibromochloromethane	14.16	129	980136	19.17 ug/L	#	
43)	1,2-dibromoethane	14.52	107	1106597	22.04 ug/L	#	
45)	chlorobenzene	15.25	112	2683576	20.61 ug/L	#	100
46)	ethyl benzene	15.32	91	5154827	20.57 ug/L	#	100
47)	m/p-xylene	15.46	91	4455293	20.41 ug/L	#	100
48)	o-xylene	16.25	91	4417648	21.51 ug/L	#	81
49)	styrene	16.31	104	2561208	20.64 ug/L		89
50)	isopropyl benzene	16.88	105	4840583	21.61 ug/L		99
51)	bromoform	16.96	173	473560	12.44 ug/L	#	78
52)	1,1,2,2-tetrachloroethane	17.19	83	1192729	15.74 ug/L	#	100
54)	1,3-dichlorobenzene	19.42	146	1800477	18.94 ug/L	#	99
55)	1,2-dichlorobenzene	20.32	146	1586977	17.64 ug/L	#	75
57)	1,4-dichlorobenzene	19.60	146	2130230m	22.36 ug/L		
58)	1,2-dibromo-3-chloropropan	21.79	75	129631	8.48 ug/L		85
59)	1,2,4-trichlorobenzene	23.46	180	1197141	20.76 ug/L		98
60)	Napthalene	23.96	128	1936767	15.82 ug/L		100
61)	1,2,3-trichlorobenzene	24.43	180	1062705	20.80 ug/L		99

N ~ 	M,T, anagorgoropha-2-chiorophopeane, T,M, M,T, analentiane, T,M, M,T, analentiane, T,M, M,T, analentiane, T,M, M,T, analentiane, T,M, 23.00 24.00 25.00 25.00 25.00 27.00 25.00 27.00 25.0	Page
D Vial: 25 perator: A. Thomas nst : GC/MS Ins ultiplr: 1.00 lts File: T6072011.RES tion Integrator)	000000000000000000000000000000000000	GCMS2
ATA2011\JUL11\LUL29\TDC62402.1 7:32 am 4/5ml 7/29/11 Dr h ents.e 19112 Quant Resu 1\METHODS\T6072011.M (Chemstat 16:32:48 2011	 MEK, T,M MEK, T,M MEK, T,M MEK, T,M Cishorotomi, C,T,W Cishorotomi, C,T,W Cishorotomi, C,T,W Cishorotomi, C,T,W Cishorotomi, C,T,M Cishorotomi, C,T,M Cishorotomi, C,T,M Cishorotomi, C,T,M Cishorotomi, C,T,M Mit Amandation (Cishorotomi, Cishorotomi, Cisho	Fri Feb 24 11:52:00 2012
ata File : C:\HPCHEM\1\D. cq On : 30 Jul 2011 ample : 20ppb cal2 62 isc : 5 Integration Params: ev ant Time: Feb 24 11:50 ethod : C:\HPCHEM\ itle : VOA	000000000000000000000000000000000000	62402.D T6072011.M

Page 3

Quantitation Report (QT Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TDC62401.D Vial: 1 Acq On: 30 Jul 20115:32 pmOperator: A. ThomasSample: 20 ppb cl 1624/5ml 7/30/11Inst: GC/MS InsMicc... Multiplr: 1.00 Misc MS Integration Params: events.e Quant Time: Feb 24 11:58 19112 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev (Min) 1) fluorobenzene9.9296335488315.00 ug/l-0.1944) chlorobenzene-d515.19117378484115.00 ug/L-0.1956) 1,4-dichlorobenzene-d419.57152229852215.00 ug/L-0.19 System Monitoring Compounds 21) dibromofluoromethane (S) 8.64 113 1348598 34.15 ug/L -0.19 21) dibiomorrationethane (3)8.64113134839834.1510/L-0.19Spiked Amount30.000Range80-120Recovery=113.83%26) 1,2-dichloroethane-d4(S)9.4110225939429.95ug/L-0.19Spiked Amount30.000Range80-120Recovery=99.83%36) toluene-d8(S)12.5598397205230.77ug/L-0.19Spiked Amount30.000Range80-120Recovery=102.57%53) 4-bromofluorobenzene(BFB)17.3695245387228.60ug/L-0.19Spiked Amount20.000Bange80120Bange8022%Spiked Amount 30.000 Range 80 - 120 Recovery = 95.33%

 Target Compounds
 Qvalue

 3) chloromethane
 3.47
 50
 870465m
 12.46 ug/L

 4) vinyl chloride
 3.61
 62
 746445m
 18.12 ug/L

 5) bromomethane
 4.21
 96
 312995m
 9.74 ug/L

 6) chloroethane
 4.28
 64
 1007084m
 20.04 ug/L

 7) 112-Trichloro-122-Trifluor
 5.17
 101
 1098628
 16.97
 ug/L

 9) carbon disulfide
 6.23
 76
 2625778m
 20.04 ug/L
 96

 10) MTBE
 6.23
 76
 2625778m
 20.04 ug/L
 96

 11) 1, 4 Dioxane
 6.13
 88
 133489
 18.96 ug/L
 96

 11) 1, 4 Dioxane
 6.13
 88
 133489
 18.96 ug/L
 91

 12) tert-butyl alcohol
 5.50
 59
 1142123m
 95.33 ug/L
 100

 12) tert-butyl alcohol
 5.50
 59
 1142123m
 95.33 ug/L
 90

 14) acetone
 5.23
 58
 1048746
 73.86 ug/L
 70

 15) trichlorofluoromethane
 4.61
 101
 1595180
 18.54 ug/L
 < Target Compounds Ovalue

(#) = qualifier out of range (m) = manual integration TDC62401.D T6072011.M Fri Feb 24 T2:01:38 2012 GCMS2

Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TDC62401.D Vial: 1 Operator: A. Thomas Acq On : 30 Jul 2011 5:32 pm Sample : 20 ppb cl 1624/5ml 7/30/11 Misc : Inst : GC/MS Ins Misc Multiplr: 1.00 : MS Integration Params: events.e Quant Results File: T6072011.RES Quant Time: Feb 24 11:58 19112 Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2

	Compound	R.T.	QIon	Response	Conc Unit	Qv	alue
31)	1,2-dichloropropane	10.84	63	1453479	19.99 ug/L	 #	86
32)	MIBK	11.72	100	149454	16.77 ug/L	,.	52
33)	cis-1,2-dichloroethene	8.07	61	2370654	19.92 ug/L		96
34)	bromodichloromethane	11.24	83	1751288	19.89 ug/L	#	99
35)	cis-1,3-dichloropropene	12.11	75	1901199	18.44 ug/L	#	93
37)	toluene	12.68	91	4800407	19.18 ug/L	#	75
38)	trans-1,3-dichloropropene	12.95	75	1708350	17.09 ug/L		100
39)	2-hexanone	13.20	58	519036	17.80 ug/L	#	96
40)	1,1,2-trichloroethane	13.23	83	1039924	22.10 ug/L	#	45
41)	tetrachloroethene	13.82	166	1561251	23.62 ug/L	#	99
42)	dibromochloromethane	14.17	129	1072197	18.64 ug/L	#	61
43)	1,2-dibromoethane	14.53	107	1266922	22.43 ug/L	#	98
45)	chlorobenzene	15.26	112	3006571	21.51 ug/L	#	100
46)	ethyl benzene	15.33	91	5767513	21.44 ug/L	#	100
47)	m/p-xylene	15.46	91	4930128	21.04 ug/L	#	100
48)	o-xylene	16.25	91	4823743	21.88 ug/L	#	81
49)	styrene	16.32	104	2843106	21.34 ug/L		86
50)	isopropyl benzene	16.89	105	5324816	22.15 ug/L		99
51)	bromoform	16.97	173	527744	12.91 ug/L		98
52)	1,1,2,2-tetrachloroethane	17.20	83	1404019	17.26 ug/L	#	100
54)	1,3-dichlorobenzene	19.43	146	2187249	21.43 ug/L	#	100
55)	1,2-dichlorobenzene	20.32	146	2268983m	23.50 ug/L		
57)	1,4-dichlorobenzene	19.62	146	2396600m	24.46 ug/L		
58)	1,2-dibromo-3-chloropropan	21.79	75	181080	11.52 ug/L		82
59)	1,2,4-trichlorobenzene	23.47	180	1363082	22.98 ug/L		98
60)	Napthalene	23.97	128	2590154	20.57 ug/L		100
61)	1,2,3-trichlorobenzene	24.44	T80	1250664	23.80 ug/L		98

			М,Т ,еп М,Т	4-йсЛюорепzвие, Т,М КПогорепzвие,	M,T ,ensqorq 2, f enslartigaN Tu-£,2, f	t)-2-cmordib-Σ,t	00 22.00 23.00 24.00 25.00 26.00 27.00	Page
<pre>\TDC62401.D Vial: 1 Operator: A. Thomas Inst : GC/MS Ins Multiplr: 1.00 Quant Results File: T6072011.RES M (Chemstation Integrator)</pre>	TIC: TDC62401.D	i , ²⁵ , المح <u>بة (۲</u> ۵۰۱) M,T ,eneity M,T ,eneit R, I ,eneity S ,(B+B) , S C ,(B+B) , S	м, Т, S, (8, (8, 18), C, T, M м, T, M M, T, M	10) negrocoropagne 19-9-00-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-	(-2 -2 -2 M,T, ensthemoroid.co M,T, enstheor M,T, Anenteor M,T, M,T,	rondíb Kondíb-S, † motomore	13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 2	0 2012 GCMS2
<pre>File : C:\HPCHEM\1\DATA2011\JUL11\LUL30 n</pre>	Update : Wed Jul 2/ 16:32:48 2011 nse via : Initial Calibration		M.T. (9(9)/ M.T. (9)(9)/ 1. (9)(9)/ M.T	۲, ۵۲۱۵۵۱۰ (۲ ۲, ۳, ۳, ۳, ۳, ۳, ۳, ۳, ۳, ۳, ۳, ۳, ۳, ۳,	Comethane, T.M 2-Tricblocodificno, T.M 2-Tricblocodificno, T.M Carbog United Schlight Carbog Unite	Mity Britistics, J.M. between issues, it.M. between issues, it. with a control between issues, it. Methyl Acenter, i it. Mitk, T.M. B B B Mitk, T.M. B B B Mitk, T.M. B B B Mitk, T.M. B B B Mitk, T.M. B B B Mitk, T.M. B B B Mitk, T.M. B B B Mitk, T.M. B B B Mitk, T.M. B B B B Mitk, T.M. B B B Mitk, T.M. B B B B Mitk, T.M. B B B B B B B B B B B B B B B B B B	3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 11.00 12.00	1.D T6072011.M Fri Feb 24 12:01:40
Data Acq O Sampl Misc MS In Quant Title	Last Respo Abundance	450000	0000000000000000000000000000000000000	250000	200000	100000	0 Tim o >	TDC6240

Page 3

Quantitation Report (QT Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TDC62402.D Vial: 21 Acq On : 31 Jul 2011 5:07 am Sample : 20ppb cal2 624/5ml 7/29/11 Operator: A. Thomas Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Time: Feb 24 12:00 19112 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene9.9096301478615.00 ug/l-0.2144) chlorobenzene-d515.17117339991915.00 ug/L-0.2156) 1,4-dichlorobenzene-d419.54152218612115.00 ug/L-0.21 System Monitoring Compounds 21) dibromofluoromethane (S) 8.63 113 1187466 33.46 ug/L -0.20 Spiked Amount 30.000 Range 80 - 120 Recovery = 111.53%26) 1,2-dichloroethane-d4 (S) 9.40 102 236574 30.39 ug/L -0.20 Spiked Amount 30.000 Range 80 - 120 Recovery = 101.30%36) toluene-d8 (S) 12.53 98 3529535 30.43 ug/L -0.21 Spiked Amount 30.000 Range 80 - 120 Recovery = 101.43%53) 4-bromofluorobenzene (BFB) 17.34 95 2228560 28.91 ug/L -0.21 Spiked Amount 30.000 Range 80 - 120 Recovery = 06.27%Spiked Amount 30.000 Range 80 - 120 Recovery = 96.37% Target CompoundsQvalue3) chloromethane3.4750693253m11.04ug/L4) vinyl chloride3.6062650865m17.58ug/L5) bromomethane4.20962585918.95ug/L996) chloroethane4.2664743045m16.45ug/L977) 112-Trichloro-122-Trifluor5.1710198117216.86ug/L978) Methyl Acetate5.8374172876m15.25ug/L979) carbon disulfide6.247611310329.61ug/L9711) 1, 4 Dioxane6.118811780318.62ug/L9712) tert-butyl alcohol5.4859736515m68.41ug/L9713) MEK7.6972102536m11.63ug/L9714) acetone5.23589724278.15ug/L9715) trichlorofluoromethane4.62101141867318.35ug/L9716) 1,1-dichloroethene5.4561181748617.58ug/L4916) 1,1-dichloroethane7.1563250111819.10ug/L41101001141867318.35ug/L4220) chloroform8.3085170542922.34ug/L4221) methylene chloride</ Target Compounds Qvalue

(#) = qualifier out of range (m) = manuas integration TDC62402.D T6072011.M Fri Feb 24 12:01:43 2012 GCMS2 Page 1

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Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TDC62402.D Vial: 21
Acq On : 31 Jul 2011 5:07 am
Sample : 20ppb cal2 624/5ml 7/29/11
Misc :
                                                      Operator: A. Thomas
                                                      Inst : GC/MS Ins
                                                      Multiplr: 1.00
Misc :
MS Integration Params: events.e
Quant Results File: T6072011.RES
Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator)
Title : VOA
Last Update : Wed Jul 27 16:32:48 2011
Response via : Initial Calibration
DataAcq Meth : VOC2
```

	Compound	R.T.	QIon	Response	Conc Un	Qvalue		
31)	1,2-dichloropropane	10.83	63	1300002	19.90	ug/L	#	86
32)	MIBK	11.69	100	104042m	12.99	ug/L		
33)	cis-1,2-dichloroethene	8.06	61	2109307	19.72	ug/L	#	85
34)	bromodichloromethane	11.22	83	1507510	19.06	ug/L	#	100
35)	cis-1,3-dichloropropene	12.09	75	1564759	16.89	ug/L	#	93
37)	toluene	12.67	91	4261281	18.94	ug/L	#	75
38)	trans-1,3-dichloropropene	12.93	75	1370424m	15.25	ug/L		
39)	2-hexanone	13.17	58	462581m	17.65	ug/L		
40)	1,1,2-trichloroethane	13.21	83	887629	20.99	ug/L	#	45
41)	tetrachloroethene	13.80	166	1434015	24.14	ug/L	#	76
42)	dibromochloromethane	14.15	129	920630	17.81	ug/L	#	61
43)	1,2-dibromoethane	14.51	107	1038895	20.47	ug/L	#	99
45)	chlorobenzene	15.24	112	2661837	21.20	ug/L	#	85
46)	ethyl benzene	15.30	91	5199034	21.51	ug/L	#	100
47)	m/p-xylene	15.44	91	4397469	20.89	ug/L	#	100
48)	o-xylene	16.24	91	4374518	22.09	ug/L		98
49)	styrene	16.30	104	2560302	21.40	ug/L		88
50)	isopropyl benzene	16.87	105	4813492	22.29	ug/L		99
51)	bromoform	16.94	173	443119	12.07	ug/L		98
52)	1,1,2,2-tetrachloroethane	17.17	83	1127098m	15.42	ug/L		
54)	1,3-dichlorobenzene	19.41	146	1753376	19.13	ug/L	#	79
55)	1,2-dichlorobenzene	20.30	146	2017942m	23.27	ug/L		
57)	1,4-dichlorobenzene	19.60	146	2173471m	23.33	ug/L		
58)	1,2-dibromo-3-chloropropan	21.78	75	121079	8.10	ug/L		83
59)	1,2,4-trichlorobenzene	23.44	180	1242871	22.03	ug/L		96
60)	Napthalene	23.95	128	1878486	15.68	ug/L		100
61)	1,2,3-trichlorobenzene	24.42	180	1075710	21.52	ug/L		98

27.00 25.00 26.00 M,T ,eneznedoroldoht-E,S,F -24.00 ------M,T, enels/figs/ --M,T ,sneznedoroldoint-A,S,F 23.00 22.00 M,T ,ensqorqoroldo-6-omordib-5,1 21.00 T6072011.RES 20.00 M,T,ensznedoroldzib-S,h Thomas GC/MS Ins 19.00 Integrator) 1.00 18.00 A. 21 File: 4-bromofluorobenzene (BFB), 5 17.00 M,T ,ensiteoroidositet-S,S,F,F Operator: Vial: M,T,molomoid Multiplr M,T ,enerned typoproe 16.00 M,T,ensiyx-o-M,T,ensiyis-TIC: TDC62402.D (Chemstation Inst Results 14.00 15.00 Ω. C:\HPCHEM\1\DATA2011\JUL11\LUL30\TDC62402 M,T, enanteomord/b-S, h M,T ,ensittemoroldoomordib 12:01:46 2012 M,T ,enerteorolribertet Quant 13.00 M,T ,eneqorqorolicid-C,F-snet M,T ,enetteorolicit-SM,T ,enonexed-S C:\HPCHEM\1\METHODS\T6072011.M M,T,D, aneulos 10.00 11.00 12.00 M,T (aneqoroproficib-E, I-alo MIBK, T,M M,T, ensitemorolicibomord 2011 1, and a construction that a construction that a construction of the construction of t 624/5ml 7/29/11 24 I, anexnedorouft M,T,enetheogophathashad 16:32:48 Calibration ШR Feb 9.00 M,T ,ensiteo puter to the second second events.e 5:07 M,T,enserencestationand 24 12:00 19112 Fri M,T ,enertheorethere, f-arc M,T,O , motorothe 8.00 MEK, T,M 27 7.00 M,T, ensite orothold-1,1 31 Jul 2011 Wed Jul Initial Params: M,T ,enertieorotribib-S, I-anisit 20ppb cal2 0.00 M,T abbolt and big the TM Methyl Acetate, 1 toritorial ald the second seco VOA 5.00 Feb M,T, ensitemoroutiorolitoit MS Integration •• Mat isnerheoromend 4.00 via Quant Time: .. Last Update WTD % SHITSHARD 3 3.00 File Response ő Sample Method Title Data Abundance **00000** 137 Misc 100000 0 150000 50000 350000 250000 200000 400000 Acq Time->

T6072011.M TDC62402.D

GCMS 2

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TLC62401.D Vial: 2 Acq On : 29 Jul 2011 6:50 pm Sample : 20 ppb lcs1 624/5ml 7/29/11 Misc Operator: A. Thomas Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:19 19111 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene9.9696401234015.00 ug/l-0.1544) chlorobenzene-d515.23117428072815.00 ug/L-0.1556) 1,4-dichlorobenzene-d419.60152249213215.00 ug/L-0.16 System Monitoring Compounds 21) dibromofluoromethane (S) 8.68 113 1539918 32.60 ug/L -0.15 Spiked Amount 30.000 Range 80 - 120 Recovery = 108.67% 26) 1,2-dichloroethane-d4 (S)9.4510232310431.19ug/L-0.15Spiked Amount30.000Range80 - 120Recovery=103.97%36) toluene-d8 (S)12.5898464523530.09ug/L-0.15Spiked Amount30.000Range80 - 120Recovery=100.30%53) 4-bromofluorobenzene(BFB)17.4095281687529.02ug/L-0.15Spiked Amount 30.000 Range 80 - 120 Recovery = 96.73% Target CompoundsQvalue3) chloromethane3.51506003607.18ug/L964) vinyl chloride3.64624430008.99ug/L#775) bromomethane4.24963449558.97ug/L956) chloroethane4.326472024311.98ug/L907) 112-Trichloro-122-Trifluor5.20101126097816.29ug/L908) Methyl Acetate5.887427724218.37ug/L959) carbon disulfide6.2876198462612.66ug/L#10010) MTBE6.3273466752222.24ug/L#10012) tert-butyl alcohol5.5359126949588.60ug/L#10013) MEK7.787219951017.01ug/L9114) acetone5.2758104802461.76ug/L9815) trichlorofluoromethane4.64101169243316.45ug/L9816) 1,1-dichloroethane7.1963333594519.14ug/L#10) thylene chloride6.1684185850220.17ug/L#10) 19) 1,1-dichloroethane8.6212874695818.77ug/L#20) chloroform8.3485Target Compounds Qvalue

(#) = qualifier out of range (m) = manuag integration TLC62401.D T6072011.M Fri Feb 24 11:52:02 2012 GCMS2 Page 1

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Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL29\TLC62401.D Vial: 2
Acq On : 29 Jul 2011 6:50 pm
                                                Operator: A. Thomas
Sample : 20 ppb lcs1 624/5ml 7/29/11
                                                 Inst : GC/MS Ins
                                                 Multiplr: 1.00
Misc
        :
MS Integration Params: events.e
                              Quant Results File: T6072011.RES
Quant Time: Aug 1 10:19 19111
Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator)
Title : VOA
Last Update : Wed Jul 27 16:32:48 2011
Response via : Initial Calibration
DataAcq Meth : VOC2
```

	Compound	R.T.	QIon Response		Conc Unit	Qv	Qvalue		
31)	1,2-dichloropropane	10.89	63	1718409	19.77 ug/L	 #	86		
32)	MIBK	11.75	100	200825	18.84 ug/L		73		
33)	cis-1,2-dichloroethene	8.10	61	2749633	19.31 ug/L	#	63		
34)	bromodichloromethane	11.28	83	2003608	19.03 ug/L	#	100		
35)	cis-1,3-dichloropropene	12.14	75	2360887	19.15 ug/L	#	93		
37)	toluene	12.72	91	5384863	17.99 ug/L	#	75		
38)	trans-1,3-dichloropropene	12.98	75	2118985	17.72 ug/L	#	93		
39)	2-hexanone	13.23	58	690705	19.80 ug/L	#	97		
40)	1,1,2-trichloroethane	13.27	83	1151517	20.46 ug/L	#	45		
41)	tetrachloroethene	13.86	166	1677813	21.22 ug/L	#	99		
42)	dibromochloromethane	14.21	129	1243240	18.07 ug/L	#	61		
43)	1,2-dibromoethane	14.57	107	1427393	21.13 ug/L	#	99		
45)	chlorobenzene	15.30	112	3336065	21.11 ug/L	#	85		
46)	ethyl benzene	15.37	91	6480111	21.30 ug/L	#	100		
47)	m/p-xylene	15.50	91	5547381	20.93 ug/L	#	100		
48)	o-xylene	16.29	91	5409034	21.70 ug/L		98		
49)	styrene	16.35	104	3306157	21.94 ug/L		90		
50)	isopropyl benzene	16.93	105	5955887	21.90 ug/L		98		
51)	bromoform	17.00	173	709458	15.35 ug/L	#	78		
52)	1,1,2,2-tetrachloroethane	17.24	83	1734171	18.84 ug/L	#	100		
54)	1,3-dichlorobenzene	19.47	146	2357941	20.43 ug/L	#	99		
55)	1,2-dichlorobenzene	20.37	146	2071120	18.97 ug/L	, #	75		
58)	1,2-dibromo-3-chloropropan	21.84	75	255585	15.00 ug/L	i i	80		
59)	1,2,4-trichlorobenzene	23.51	180	1554839	24.18 ug/L		99		
60)	Napthalene	24.01	128	3229173	23.65 ug/L	•	100		
61)	1,2,3-trichlorobenzene	24.48	180	1405338	24.66 ug/L		99		

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Vial:

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27.00 26.00 25.00 M,T,enecnedorokhord-E,S,P 24.00 M,T ,enelshtqsN M,T ,9neznedoroldoitr-4,2,1 23.00 22.00 M,T .ensqorqoroldo-£-omordib-\$,t 21.00 Quant Results File: T6072011.RES 20.00 M,T ,anexnedonoirloib-S, h Thomas GC/MS Ins 1,3-dichlorobanzene, T, M, T, aneznedonoldib, L, 1, 16.00 17.00 18.00 19.00 (Chemstation Integrator) 1.00 A. S ((BTB) energenedonoufformond-A M,T, anstherechloroethane, L, h, Operator: M,T, enecned lyonge Multiplr M,T ,enelyxm,T ,eneryte-TIC: TLC62401.D Inst 15.00 C:\HPCHEM\1\DATA2011\JUL11\LUL29\TLC62401.D M,T, ensite omordib-S, I 14.00 M,T, ensitiemorolitoomordib M,T, enerteorolidositet 13.00 M,T MrEutoropropensity S.t.+. C:\HPCHEM\1\METHODS\T6072011.M M,T,C, aneulof 11.00 12.00 M,T ,enegropropropene, f.ela MIBK, T,M M,T , ensittemonolitolbomond 2011 1,2-dichloroetherne, TUVclohexane, t 624/5ml 7/29/11 10.00 I, ensanedorouft M,T, ensitieomoticale (S) to M.E. Motor and a pode 27 16:32:48 Calibration 6:50 pm 9.00 M,T ,enerteoroldoly, &dakedolovoe. M,T , Tigdjeensmilliner09mbmordib 1 10:19 19111 events. M,T ,enertheorolichick,t-sic M,T,C ,motorolichick 8.00 MEK, T,M 7.00 M,T,ensriteorolrib-1,1 lcs1 Jul 2011 M,T,enerteorolifoib-S,1-enart Params: Wed Jul Initial M.T. Surfreet and there 6.00 A ethyl Acetate, t qdd terreury acchol; #,#ichioroethene, C,T,M VOA 5.00 Quant Time: Aug M,T, ensittemoroultorolitaits 29 MS Integration Mit enertisoromsid 4.00 via ATT - SUCCESSION STOLLA Last Update 3.00 Response Acq On Sample Method Title Data Misc Abundance 50000 0 250000 200000 150000 100000 500000 450000 400000 000055 141 300000 ime->

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GCMS2

11:52:05 2012

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T6072011.M

TLC62401.D

Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TLC62401.D Vial: 2 Acq On : 30 Jul 2011 6:05 pm Sample : 20 ppb lcs1 624/5ml 7/30/11 Misc Operator: A. Thomas Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 1 10:21 19111 Quant Results File: T6072011.RES Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA Last Update : Wed Jul 27 16:32:48 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene9.9396339968015.00 ug/l-0.1844) chlorobenzene-d515.19117380695315.00 ug/L-0.1856) 1,4-dichlorobenzene-d419.57152238221915.00 ug/L-0.19 System Monitoring Compounds 21) dibromofluoromethane (S) 8.65 113 1385427 34.62 ug/L -0.18

 21, dibiomorratoromethane (5)
 8.65
 113
 1385427
 34.62 ug/L
 -0.18

 Spiked Amount
 30.000
 Range
 80
 - 120
 Recovery
 =
 115.40%

 26)
 1,2-dichloroethane-d4
 (S)
 9.42
 102
 273105
 31.11
 ug/L
 -0.18

 Spiked Amount
 30.000
 Range
 80
 - 120
 Recovery
 =
 103.70%

 36)
 toluene-d8
 (S)
 12.55
 98
 4009291
 30.65
 ug/L
 -0.18

 Spiked Amount
 30.000
 Range
 80
 - 120
 Recovery
 =
 102.17%

 53)
 4-bromofluorobenzene
 (BFB)
 17.37
 95
 2540577
 29.43
 ug/L
 -0.19

 Spiked Amount
 30
 000
 Range
 80
 - 120
 Recovery
 =
 0.217%

 Spiked Amount 30.000 Range 80 - 120 Recovery = 98.10% Target CompoundsQvalue3) chloromethane3.49503980675.62ug/L#854) vinyl chloride3.62623615258.66ug/L#905) bromomethane4.21963251619.98ug/L956) chloroethane4.296456580311.11ug/L#907) 112-Trichloro-122-Trifluor5.16101113217017.26ug/L998) Methyl Acetate5.867421436216.77ug/L#10010) MTBE6.2973399868222.49ug/L#10011) 1, 4 Dioxane6.138813587619.05ug/L#10012) tert-butyl alcohol5.505988475072.87ug/L#1013) MEK7.757215312215.40ug/L2214)acetone5.2458136036594.54ug/L8214) acetone5.4561201966617.33ug/L#10015) trichlorofluoromethane4.61101156238117.92ug/L#10016) 1,1-dichloroethane<math>7.1663292588119.82ug/L#2620) chloroform8.3185191029822.19ug/L#2621) bromochloromethaneTarget Compounds Qvalue

(#) = qualifier out of range (m) = manu**42** integration TLC62401.D T6072011.M Fri Feb 24 12:01:48 2012 GCMS2 Page 1

```
Data File : C:\HPCHEM\1\DATA2011\JUL11\LUL30\TLC62401.D Vial: 2
Acq On : 30 Jul 2011 6:05 pm
                                                 Operator: A. Thomas
Sample : 20 ppb lcs1 624/5ml 7/30/11
                                                  Inst : GC/MS Ins
Misc
                                                 Multiplr: 1.00
        :
Misc .
MS Integration Params: events.e
Quant Results File: T6072011.RES
Quant Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator)
Title : VOA
Last Update : Wed Jul 27 16:32:48 2011
Response via : Initial Calibration
DataAcq Meth : VOC2
```

	Compound	R.T.	QION	Response	Conc Unit	Qv	alue
31)	1,2-dichloropropane	10.85	63	1474399	20.02 ug/L	 #	86
32)	MIBK	11.73	100	155480	17.22 ug/L		60
33)	cis-1,2-dichloroethene	8.07	61	2514919	20.85 ug/L		96
34)	bromodichloromethane	11.24	83	1795565	20.13 ug/L	#	100
35)	cis-1,3-dichloropropene	12.11	75	1982096	18.97 ug/L		99
37)	toluene	12.69	91	4882952	19.25 ug/L	#	75
38)	trans-1,3-dichloropropene	12.95	75	1789263	17.66 ug/L	#	93
39)	2-hexanone	13.20	58	500700	16.94 ug/L	#	99
40)	1,1,2-trichloroethane	13.23	83	1044772	21.91 ug/L	#	45
41)	tetrachloroethene	13.82	166	1522597	22.73 ug/L	#	76
42)	dibromochloromethane	14.17	129	1088914	18.68 ug/L		99
43)	1,2-dibromoethane	14.53	107	1275739	22.29 ug/L	#	99
45)	chlorobenzene	15.26	112	2971048	21.14 ug/L	#	85
46)	ethyl benzene	15.33	91	5897854	21.80 ug/L	#	100
47)	m/p-xylene	15.47	91	5035274	21.37 ug/L	#	100
48)	o-xylene	16.26	91	4929263	22.23 ug/L	#	81
49)	styrene	16.32	104	2912964	21.74 ug/L		86
50)	isopropyl benzene	16.89	105	5406357	22.36 ug/L		97
51)	bromoform	16.97	173	557494	13.56 ug/L	#	78
52)	1,1,2,2-tetrachloroethane	17.20	83	1458921	17.83 ug/L	#	100
54)	1,3-dichlorobenzene	19.43	146	2071932	20.19 ug/L	#	98
55)	1,2-dichlorobenzene	20.33	146	1912119	19.69 ug/L	#	59
58)	1,2-dibromo-3-chloropropan	21.80	75	207521	12.74 ug/L		73
59)	1,2,4-trichlorobenzene	23.47	180	1446109	23.53 ug/L		99
60)	Napthalene	23.98	128	2755587	21.11 ug/L		100
61)	1,2,3-trichlorobenzene	24.45	180	1313933	24.12 ug/L		98

27.00 26.00 25.00 M,T ,enesnedorold shit-£,S, h 24.00 M,T ,anelertiqeN M,T,anexnedoroldohth-A,S,F 23.00 22.00 M,T ,ensqorgorold>-&-omordib-S,f 21.00 File: T6072011.RES 20.00 M,T, Anexnedoroldidib-S, h Thomas GC/MS Ins I,95-eneznedorofnete, T, M, T, eneznedorolnalb-5, f 18.00 19.00 Integrator 1.00 Å. \sim 17.00 4-bromofluorobenzene (BFB), 5 M,T, anartieoroid/suet-5,2,1,1 Operator: Vial: Multiplr M,T ,enezned lyqorqoal GCMS 2 16.00 M,T ,enelym,g ,energie TIC: TLC62401.D (Chemstation Inst Results wib-xhigher and a state of the 15.00 Ω. C:\HPCHEM\1\DATA2011\JUL11\LUL30\TLC62401 M,T, ensiteomordib-S, h 14.00 M,T, ensitemorolidoomordib 2012 M,T, enerteoroldostteb-Quant 11.00 12.00 13.00 M,T ,eneqoropointicid-E, f-anst M,T ,en**Mit**Somentrus I, f, f---C:\HPCHEM\1\METHODS\T6072011.M M,T,D, enello 24 12:01:51 M,T ,9negoropropholo-E,1-aio WIBK' L'W M,T,ensittemorolichibomord 2011 t enexonoropropene, the standard t 624/5ml_7/30/11 - and 10.00 I, ensznedonouñ M,T, ansritan pigato (3), 2, (3) by Maragian and points (100 ms 16:32:48 Calibration Feb 6:05 pm 9.00 M,T ,ensitteoroiriai,this konoisy0 rams: events.e 1 10:21 19111 БĽГ 8.00 WEK' L'M 27 7.00 M,T, ensiteonolicib-1,1 2011 lcsl Wed Jul M,T ,enerteorolifoib-S,1-enst Initial Params W-1 BRISCHER C 6.00 T6072011.M I tetrity Acetate, t Jul qdd Terrebutyt alcondul filmhioroethene, C,T,M VOA 5.00 Aug M,T, ensitiemorouthorolitaire 30 20 MS Integration M.T. STRATHOUSSING d 4.00 via Quant Time: ••• Last Update MAT SUBSTRATION 2 3.00 File TLC62401.D Response on Sample Method Title Data 10499996 144 00000 400000 350000 200000 Misc 450000 250000 50000 50000 0 100000 Acq **J**

 \mathcal{O} Page



1580 Reed Road Suite A1 Pennington, NJ 08534

Tel: (609) 737-3477 Fax: (609) 737-3052 www.njal.com

Laboratory Deliverables

Prepared For PARS Environmental Drum Bench Study

Lab ID Chemical Oxidation

Samples Received 27-Jul-11

Reported

7/27/11 to 8/12/11

NJDEP Certified Lab 11005

Precision testing for a cleaner environment.

Study: Chemical Oxidation Permanganate

Time point: T=7 days/ 168Hours

Data Summaries

			1	1A		<u></u>	E	PA SA	MPLE N	О.
	N	VOLAT	ILE ORGANIC	S ANALY	SIS DATA	SHEET	Γ	РМТ	168- C1	
Lab Name:	NJAL		· · · · · · · · · · · · · · · · · · ·	(Contract:	PARS				
Lab Code:	DEP 11	005	Case No.: D	rum	SAS No	.:	SDG	No.:		
Matrix: (soil/	water)	WAT	ER		Lat	Sample ID	: PN	/ T168	C-1	
Sample wt/w		0.5	(g/ml)		Lak		56	2/12 F)	
Sample w/w	01.	0.5	(g/m) <u>r</u>		Lat	File ID.	30	2413.0	,	
Level: (low/	med)	LOW			Dat	te Received	: 08	/05/11		
% Moisture:	not dec.				Dat	te Analyzed	: 08	/05/11		
GC Column:	rt502.	2-1 ID	. 0.53 (mm	n)	Dilu	ution Factor	: 10	.0		
Soil Extract	Volumo		(ul.)	,	Soi		lumo			(
SOIL EXTRACT	volume.		(uL)		50	Aliquot vo	ume			(uL)
				CON						
	<u> </u>			CON	CENTRAT				0	
CASING	Э.	C	JMPOUND	(ug/L	or ug/Kg)	UG/L			Q	
75-71	-8		Dichlorodifuloro	methane				20		٦
74-87	-3		chloromethane	monane				20	<u> </u>	-
75-01	-4		vinyl chloride					20	Ū	-1
74-83	-9		promomethane	1	·			20	U	
75-00	-3		chloroethane					20	U	
75-15	-0		carbon disulfide	е				20	U	7
75-65	-0	1	ert-butyl alcoho	ol				20	U	7
1634-	04-4		MTBE					20	U	
78-93	-3		MEK					50	U	
67-64	-1		acetone	_				50	U	
_ 75-69	-4		richlorofluorom	nethane				20	U	
75-35	-4		1,1-dichloroeth	ene				20	U	_
75-09	-2	1	methylene chlo	ride				12	JD	
156-6	0-5	1	rans-1,2-dichlo	proethene				20	U	_
75-34	-3		1,1-dichloroeth	ane				20	U	_
67-66	-3		chloroform					20	<u> </u>	_
108-1	<u>0-1</u>		MIBK					20	<u> </u>	_
74-97	-5		oromochlorome	ethane			_	20	<u> </u>	_
71-55	-0		1,1,1-trichioroe	tnane				20		_
107.0	-0		<u>arbon tetrachi</u>					20		_
71-43	<u>0~2</u>							20		
79-01	-6		richloroethene					20		-
78-87	-0 /-5		1 2-dichloropro	nane	/·····			20	U U	
156-5	9-4		cis-1.2-dichloro	ethene				20	U	-
75-27	-4		promodichloror	nethane				20	Ū	
10061	1-01-5		cis-1,3-dichloro	propene				20	U	
108-8	8-3	1	oluene					20	U	
10061	1-02-6		rans-1,3-dichlc	propropen	e			20	U	
591-7	'8-6		2-hexanone	_				50	U	
79-00	-5		1,1,2-trichloroe	thane				20	U	
127-1	8-4	1	etrachloroethe	ne				390	D	
124-4	8-1		dibromochloron	nethane				20	U	_
108-9	0-7		chlorobenzene					20	U	
108-3	8-3		n/p-xylene					20	U	
95-47	-6		o-xylene					20	U	_
100-4	2-5		styrene					20		_
98-82	ð		sopropyl benze	ene				20		
/ 0-25	-2		motorm					20	U	1

			EPA SAN	IPLE I	NO.		
Lab Name: NJAL	ame: NJAL Contract: PARS						
Lab Code: DEP 110	05 Case No.: Drum	SAS No.:	SDG No.:				
Matrix: (soil/water)	WATER	Lab Sample ID	: PM T168 C	-1			
Sample wt/vol:	0.5 (g/ml) ML	Lab File ID:	S62413.D				
Level: (low/med)	LOW	Date Received	: 08/05/11				
% Moisture: not dec.		Date Analyzed	: 08/05/11				
GC Column: rt502.2-	-1 ID: 0.53 (mm)	Dilution Factor:	10.0				
Soil Extract Volume:	(uL)	Soil Aliquot Vol	lume:		(uL)		
		CONCENTRATION UNITS	:				
CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L		Q			
79-34-5	1,1,2,2-tetrachloroe	thane	20	U			
541-73-1	1,3-dichlorobenzene	3	20	U			
95-50-1	1,2-dichlorobenzene	3	20	U			
106-46-7	1,4-dichlorobenzene	3	20	U			
120-82-1	1,2,4-trichlorobenze	ne	20	U			
87-61-6	1,2,3-trichlorobenze	ne	20	U			

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. PM T168- C1 Contract: PARS Lab Name: NJAL SAS No.: SDG No.: Lab Code: DEP 11005 Case No.: Drum WATER Lab Sample ID: PM T168 C-1 Matrix: (soil/water) Sample wt/vol: 0.5 (g/ml) ML Lab File ID: S62413.D Date Received: 08/05/11 Level: (low/med) LOW Date Analyzed: 08/05/11 % Moisture: not dec. Dilution Factor: 10.0 GC Column: rt502.2-1 ID: 0.53 (mm) Soil Extract Volume: (uL) Soil Aliquot Volume: (uL) CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Number TICs found: 0 RT Q CAS NO. COMPOUND NAME EST. CONC.

			EPA SA	MPLE NO.
V 	OLATILE ORGANICS ANALY	YSIS DATA SHEET	PM T	168-C2
Lab Name: NJAL		Contract: PARS		
Lab Code: DEP 110	005 Case No.: Drum	SAS No.: S	DG No.:	
Matrix: (soil/water)	WATER	Lab Sample ID:	PM T168	C-2
Sample wt/vol:	0.5 (g/ml) ML	Lab File ID:	S62414.D	
evel: (low/med)	LOW	Date Received:	08/05/11	
% Moisturo: not doo		Date Applyzed:	08/05/11	
		Date Analyzeu.	10.0	
GC Column: rt502.2	2-1 ID: 0.53 (mm)	Dilution Factor:	10.0	
Soil Extract Volume:	(uL)	Soil Aliquot Volu	ime:	(uL)
	CON	NCENTRATION UNITS:		
CAS NO.	COMPOUND (ug/	L or ug/Kg) UG/L		Q
75 71 0	Disblaradifularamethan		20	
74 97 2	Dichlorodifuloromethane	8	20	0
74-07-3	chioromethane		20	0
75-01-4	bromomothano		20	0
74-03-9	biomomethane		20	0
75-00-3			20	0
75-15-0			20	0
1634 04 4			20	0
79 02 2			50	
67 64 1			50	0
75.69.4	trichlorofluoromothano		20	
75.35.4		·	20	
75-35-4			20	
156 60 5	trans 1.2 dichloroothon	<u> </u>	20	
75-34-3		<u> </u>	20	
67-66-3	chloroform		20	
108-10-1	MIRK		20	
74.07.5	bromochloromethane		20	<u> </u>
71-55-6			20	
56-23-5	carbon tetrachloride		20	<u> </u>
107-06-2	1 2-dichloroethane		20	U
71-43-2	henzene		20	Ŭ
79-01-6	trichloroethene		20	U
78-87-5	1.2-dichloropropane		20	U
156-59-4	cis-1.2-dichloroethene		20	Ū
75-27-4	bromodichloromethane		20	U
10061-01-5	cis-1.3-dichloropropene		20	U
108-88-3	toluene		20	U
10061-02-6	trans-1,3-dichloroprope	ne	20	U
591-78-6	2-hexanone		50	U
79-00-5	1,1,2-trichloroethane		20	U
127-18-4	tetrachloroethene		380	D
124-48-1	dibromochloromethane		20	U
108-90-7	chlorobenzene		20	U
108-38-3	m/p-xylene		20	U
95-47-6	o-xylene		20	U
100-42-5	styrene		20	U
98-82-8	isopropyl benzene		20	U
75-25-2	bromoform		20	U

			5 0 D 0 A N	1A				EPA SA	MPLE I	NO.
Lab Name:	V NJAL	OLATIL	E ORGAN	Contract: PARS					PM T168-C2	
Lab Code:	DEP 110	005	Case No.:	Drum	SAS	No.:	S	DG No.:		
Matrix: (soil/w	ater)	WATE	3			Lab Sa	mple ID:	PM T168	C-2	
Sample wt/vol	:	0.5	(g/ml)	ML		Lab File	e ID:	S62414.C)	
Level: (low/m	ed)	LOW			ntale alman half a s	Date R	eceived:	08/05/11		
% Moisture: n	ot dec.					Date A	nalyzed:	08/05/11		
GC Column:	rt502.2	-1 ID:	0.53 (n	าm)		Dilution	Factor:	10.0		
Soil Extract Ve	olume:		(uL)			Soil Ali	quot Volu	me:		(uL)
				(CONCENTI	RATION	UNITS:			
CAS NO		CO	MPOUND	((ug/L or ug/	Kg)	UG/L		Q	
79-34-5	5	1,	1,2,2-tetrac	hloroet	thane			20	U	
541-73	-1	1,	3-dichlorob	enzene)			20	U	
95-50-1		1,	2-dichlorob	enzene	Э			20	U	
106-46	-7	1,	4-dichlorob	enzene	э	_		20	U	
120-82	-1	1,	2,4-trichlor	benze	ne		_	20	U	
87-61-6	6	1,	2,3-trichlor	obenze	ne			20	U	

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

		TEN	ATIVELY IDENT	IFIED COMPO	UNDS			
Lab Name:	NJAL	*: #P#P		Contract:	PARS		PM T168	-C2
Lab Code:	DEP 11	005	Case No.: Drun	n SAS No	o.:	S	DG No.:	an parto antina statutatos
Matrix: (soil/	water)	WATE	R	La	b Sample	ID:	PM T168 C-2	
Sample wt/ve	ol:	0.5	(g/ml) ML	La	b File ID:		S62414.D	
Level: (low/r	med)	LOW		Da	ate Receive	ed:	08/05/11	
% Moisture:	not dec.			Da	ate Analyze	ed:	08/05/11	
GC Column:	rt502.	2-1 ID:	0.53 (mm)	Di	lution Facto	or:	10.0	
Soil Extract	Volume:		(uL)	So	oil Aliquot V	/olui	me:	(uL)
CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L								
CAS NO.		сом	POUND NAME		RT	ES	T. CONC.	Q

	1A		EPA SAM	MPLE NO.
	VOLATILE ORGANICS ANALY	YSIS DATA SHEET	РМТ	168 C3
Lab Name: NJAL		Contract: PARS	_ L	
Lab Code: DEP 1	1005 Case No.: Drum	SAS No.: S	DG No.:	
Matrix: (soil/water)	WATER	Lab Sample ID:	PM T168 (C-3
Sample wt/vol:	0.5 (o/ml) MI	Lab File ID	S62415 D	
Sample wovol.			302413.D	
Level: (low/med)	LOW	Date Received:	08/05/11	
% Moisture: not dec		Date Analyzed:	08/05/11	
GC Column: rt502	2.2-1 ID: 0.53 (mm)	Dilution Factor:	10.0	li alla mala
Call Extract Values				(
Soli Extract volume:	(UL)	Soll Aliquot Volu	ime:	(uL)
	201			
	CON	ICENTRATION UNITS:		
CAS NO.	COMPOUND (ug/l	L or ug/Kg) UG/L		Q
/5-/1-8	Dichlorodifuloromethane		20	<u> </u>
74-87-3	chloromethane		20	
75-01-4	Vinyi chioride		20	<u> </u>
74-83-9				<u> </u>
75-00-3	chloroethane		20	<u> </u>
/5-15-0	carbon disulfide		20	
/5-65-0	tert-butyl alcohol		20	
1634-04-4	MIBE		20	
78-93-3	MEK		50	
67-64-1	acetone		50	<u> </u>
75-69-4	trichlorofluoromethane		20	U
75-35-4	1,1-dichloroethene		20	
75-09-2	methylene chloride		20	<u> </u>
156-60-5	trans-1,2-dichloroethene	e	20	0
/5-34-3	1,1-dichloroethane		20	<u> </u>
67-66-3	chloroform		20	<u> </u>
108-10-1	MIBK		20	<u> </u>
74-97-5	bromochloromethane		20	<u> </u>
/1-55-6	1,1,1-trichloroethane		20	
56-23-5	carbon tetrachloride		20	
107-00-2	1,2-dichloroethane		20	
71-43-2	Denzene		20	
79-01-0			20	<u> </u>
156 50 4			20	<u> </u>
75.07.4	cis-1,2-dichloroethene		20	
10061.01.5			20	
108.88-3	toluono	<u></u>	20	
100-00-5	trans-1 3-dichloroproper		20	<u> </u>
591-78-6	2-bexanone		50	
79-00-5	1 1 2-trichloroethane		20	
127-18-4	tetrachloroethene		370	
124-48-1	dibromochloromethane		20	
108-90-7	chlorobenzene		20	
108-38-3	m/p-xvlene		20	— <u> </u>
95-47-6	o-xylene		20	
100-42-5	styrene		20	
98-82-8	isopronyl benzene		20	ŭ
75-25-2	bromoform		20	-ŭ
			20	J

			EPA SA	EPA SAMPLE NO.						
Lab Name:	NJAL	VOLATI	Contract: PARS					РМ Т	168 C3	3
Lab Code:	DEP 11	005	Case No	.: Drum	SAS	6 No.:	S	DG No.:		
Matrix: (soil/w	vater)	WATE	R			Lab Sar	mple ID:	PM T168	C-3	
Sample wt/vo	ol:	0.5	(g/n	nl) ML		Lab File	D:	S62415.D	1	
Level: (low/m	ned)	LOW				Date Re	eceived:	08/05/11		
% Moisture: r	not dec.		and a second second second second second second second second second second second second second second second			Date Ar	nalyzed:	08/05/11		
GC Column:	rt502.	2-1 ID:	0.53	(mm)		Dilution	Factor:	10.0		
Soil Extract V	olume:		(ul	_)		Soil Alic	quot Volu	me:		(uL)
					CONCENT	RATION	UNITS:			
CAS NC).	CC	MPOUN	C	(ug/L or ug	/Kg)	UG/L		Q	
79-34-	5	1	1,2,2-tetr	achloroe	ethane			20	U	
541-73	8-1	1	3-dichlor	obenzen	le			20	U	
95-50-	1	1	,2-dichlor	obenzen	e			20	U	
106-46	5-7	1	,4-dichlor	obenzen	e			20	U	
120-82	2-1	1	,2,4-trichl	orobenz	ene			20	U	
87-61-	6	1	,2,3-trichl	orobenz	ene			20	U	

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

		IENI	ATTVELTIDENT	IFIED COMP	JOUNDS			
Lab Name:	NJAL			Contra	ct: PARS		PM 1168	1 C3
Lab Code:	DEP 110	005	Case No.: Drun	n SAS	No.:	S	DG No.:	•, •
Matrix: (soil/v	vater)	WATE	R		Lab Sample	ID:	PM T168 C-3	· · · · · · · · · · · · · · · · · · ·
Sample wt/vo	ol:	0.5	(g/ml) ML	· AND ANY MARK AND A	Lab File ID:		S62415.D	
Level: (low/n	ned)	LOW			Date Receiv	ed:	08/05/11	
% Moisture: r	not dec.				Date Analyz	ed:	08/05/11	
GC Column:	rt502.2	2-1 ID:	0.53 (mm)		Dilution Fact	tor:	10.0	o forma
Soil Extract V	/olume:		(uL)		Soil Aliquot	Volu	me:	(uL)
Number TICs	s found:	0		CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L				
CAS NO.		СОМ	POUND NAME		RT	ES	T. CONC.	Q

	,		1A				EPA SA	MPLE NO).
l ab Name [.]	NJAI	VOLATILE	: ORGANICS	Cor	tract: PAR		РМ Т	168 .5-1	
Lab Code		005 0	àse No : Dri	im S	AS No :				
		005 0		<u> </u>	A3 N0		DG N0		an all?
Matrix: (soil/	water)	WATER			Lab San	nple ID:	PM T168	0.5-1	
Sample wt/v	ol:	0.5	(g/ml) Ml	-	Lab File	ID:	S62416.D)	
Level: (low/	med)	LOW			Date Re	ceived:	08/05/11		
							00/05/44		
% Moisture:	not dec.				Date An	alyzed:	08/05/11		
GC Column:	rt502.	2-1 ID:	0.53 (mm)		Dilution	Factor:	10.0		
Soil Extract	Volume:		(uL)		Soil Aliq	uot Volu	ime:	(1	uL)
					,			• •	,
				CONCE	NTRATION	UNITS:			
CAS N	0	COM		(uall or	ua/Ka)	LIG/I		0	
	0.	0011	1 OOND	(ug/L of	ug/((g)	00.2		9	
75-71	-8	Dic	hlorodifulorom	nethane	_		20	U]
74-87	-3	chlo	promethane				20	U	
75-01	-4	viny	/l chloride				20	U	
74-83	-9	bro	momethane				20	U]
75-00	-3	chlo	proethane				20	U	
75-15	j-0	car	bon disulfide				20	U]
75-65	j-0	tert	-butyl alcohol				20	U]
1634-	-04-4	MT	BE				20	U]
78-93	-3	ME	K				50	U]
67-64	-1	ace	tone				50	U]
75-69	-4	tric	nlorofluorome	thane			20	U	
75-35	j-4	1,1	-dichloroether	ne			20	U]
75-09	-2	me	hylene chlorid	de			20	U]
156-6	0-5	trar	s-1,2-dichlord	bethene			20	U]
75-34	-3	1,1-	-dichloroethar	le			20	U	
67-66	i-3	chlo	proform				20	D	
108-1	0-1	MIE	3K				20	U	
74-97	′-5	bro	mochlorometh	nane			20	U	
71-55	-6	1,1	,1-trichloroeth	ane			20	U	
56-23	-5	car	oon tetrachlor	ide			20	U	4
107-0	6-2	1,2	-dichloroethar	ne			20	U	4
71-43	-2	ber	izene				20	U	4
79-01	-6	tric	hloroethene				20	<u> </u>	-
78-87	-5	1,2	-dichloropropa	ane			20	<u> </u>	4
	9-4	CIS-	1,2-dichloroet	thene		-	20		-
/5-2/	-4	bro	modichlorome	ethane			20		-
1006	1-01-5	CIS-	1,3-dichloropr	ropene		+	20	<u> </u>	-
108-8	1026		ene a 1.2 diabler				20	<u> </u>	-
501 7	1-02-0	liai 2 h	IS-1,3-CICHIOR	ppropene			<u> </u>		-
70.00	0~0	2-11	2 trichlorooth	200			20		1
19-00	8_/	totr	2-unomoroethor			<u> </u>	20		-
12/-1	8-1	dib	omochlorome	thane			20	11	-
108.0	-0-1 10-7		onocnoron				20	<u> </u>	-
108-3	8-3	Unit			·		20	<u> </u>	-
95_47	<u> </u>	0-21	vlene				20	<u> </u>	1
100-4	2-5	stvr	'ene				20	<u> </u>	1
98-82	<u></u>	isor	propyl benzen	e			20	<u> </u>	1
75-25	-2	bro	moform		and the second data		20	Ū	1
	-	~.0				- le ser		-	1

								EPA SAMPLE NO.		
Lab Name:	NJAL	VOLATI		CS AN	Contrac	t: PAF	RS	PM T	1	
Lab Code:	DEP 11	005	Case No.:	Drum	SAS	No.:	S	DG No.:		
Matrix: (soil/	water)	WATE	R			Lab Sar	nple ID:	PM T168	0.5-1	
Sample wt/v	ol:	0.5	(g/ml)	ML		Lab File	ID:	S62416.D)	
Level: (low/	med)	LOW	_			Date Re	eceived:	08/05/11		
% Moisture:	not dec.					Date Ar	alyzed:	08/05/11		
GC Column:	rt502.	2-1 ID:	0.53 (n	าm)		Dilution	Factor:	10.0		
Soil Extract	Volume:		(uL)			Soil Alic	juot Volu	ime:		(uL)
				(CONCENT	RATION	UNITS:			
CAS N	Ο.	СС	MPOUND	((ug/L or ug/l	<g)< td=""><td>UG/L</td><td></td><td>Q</td><td></td></g)<>	UG/L		Q	
79-34	-5	1	,1,2,2-tetrac	hloroet	hane			20	U	
541-7	'3-1	1	3-dichlorob	enzene	;			20	U	
95-50)-1	1	2-dichlorob	enzene)			20	U	
106-4	6-7	1	4-dichlorob	enzene				20	U	
120-8	2-1	1	,2,4-trichlord	benze	ne			20	U	
87-61	-6	1	2.3-trichlor	benze	ne			20	U	

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. _____ Γ

Lab Name:	NJAL			Contract:	PARS	PM T168	.5-1
Lab Code:	DEP 11	1005	Case No.: Drun	n SAS No	o.: S	DG No.:	
Matrix: (soil/v	vater)	WATE	R	La	b Sample ID:	PM T168 0.5-	1
Sample wt/vo	ol:	0.5	(g/ml) ML	La	b File ID:	S62416.D	_
Level: (low/n	ned)	LOW		Da	ate Received:	08/05/11	and a data in a dis
% Moisture:	not dec.	-		Da	Date Analyzed: 08/05/11		
GC Column:	rt502	.2-1 ID:	0.53 (mm)	Dil	ution Factor:	10.0	
Soil Extract \	/olume:		(uL)	So	il Aliquot Volu	ume:	(uL)
Number TICs	s found:	0) 	CONCENTRA (ug/L or ug/Kg)	TION UNITS:) UG/L		
CAS NO.		СОМ	POUND NAME		RT E	ST. CONC.	Q

Lah Namo:		OLATILE ORGANICS AI	Contract: DATA SHEE		PM t1	68 .5-2		
Lab Name.				<u> </u>		_		
Lab Code.	DEP III	UUD Case No Drum	5A5 NO	30	G NO			
Matrix: (soil/v	water)	WATER	Lab Samp	e ID:	PM T168 (0.5-2		
Sample wt/vo	ol:	0.5 (g/ml) ML	Lab File ID): 3	S62417.D			
Level: (low/n	ned)	LOW	Date Rece	ived: (08/05/11			
			Date Arch		00/05/11			
% Moisture: I	not dec.		Date Analy	zed: (08/05/11			
GC Column:	rt502.2	2-1 ID: 0.53 (mm)	1 ID: 0.53 (mm) Dilution Factor:					
Soil Extract \	Volume:	(uL)	Soil Alique	t Volun	ne:	(u		
	-			NII 5. 2/I		0		
CASING	J.	COMPOUND	(ug/L or ug/Kg)	L/د		Q		
75-71-	-8	Dichlorodifuloromet	hane		20			
74-87-	-3	chloromethane			20	<u> </u>		
75-01-	-4	vinyl chloride			20	U		
74-83-	-9	bromomethane			20	U		
75-00-	-3	chloroethane			20	U		
75-15-	-0	carbon disulfide			20	U		
75-65-	-0	tert-butyl alcohol			20	U		
1634-0	04-4	MTBE			20	U		
78-93-	-3	MEK			50	U		
67-64-	-1	acetone			50	U		
75-69-	-4	trichlorofluorometha	ane		20	U		
75-35-	-4	1,1-dichloroethene			20	U		
75-09-	-2	methylene chloride			20	U		
156-60	0-5	trans-1,2-dichloroe	thene		20	U		
75-34-	-3	1,1-dichloroethane			20	U		
67-66-	-3	chloroform			20	U		
108-10	0-1	MIBK			20	U		
74-97-	-5	bromochlorometha	ne		20	U		
71-55-	-6	1,1,1-trichloroethan	e		_20	U		
56-23-	-5	carbon tetrachloride	<u> </u>		20	U		
107-00	6-2	1,2-dichloroethane			20	U		
71-43-	-2	benzene			20	U		
79-01-	-6	trichloroethene			20	<u> </u>		
78-87-	-5	1,2-dichloropropan	9		20	<u> </u>		
156-59	9-4	cis-1,2-dichloroethe	ene		20	<u> </u>		
75-27-	-4	bromodicniorometh	ane		20	0		
10061	-01-5	cis-1,3-dichioroprop	bene		20	0		
100-00	026	tropp 1.2 diphlorop			20	<u> </u>		
501 7	9.6	2 box20000	opene		50			
70.00	-5	1.1.2-trichloroothor			20	<u> </u>		
19-00-	8-4	tetrachloroethene			20	<u> </u>		
124-49	8-1	dibromochlorometh	ane		20	<u> </u>		
108-00	0-7	chlorohenzene			20			
108-3	8-3	m/n-xylene			20	<u> </u>		
95-47	-6	o-xvlene			20	U		
100-42	2-5	styrene			20	Ū		
98-82	-8	isopropyl benzene			20	Ū		
75-25	-2	bromoform			20			

									EPA SAMPLE NO.			
Lab Name:	NJAL	VOLAT	ILE OF	KGANI		Contra	ict: PA		PM t	168 .5-2	2	
Lab Code:	DEP	11005	Case	e No.:	Drum	SAS	No.:	S	DG No.:			
Matrix: (soil/	water)	WATE	ER				Lab Sa	ample ID:	PM T168	0.5-2	·	
Sample wt/vol: 0.5		0.5		(g/ml)	ML		Lab Fi	le ID:	S62417.0	C		
Level: (low/med) LOW						Date Received:			08/05/11			
% Moisture: not dec.							Date A	nalyzed:	08/05/11			
GC Column:	rt50	2.2-1 ID	: 0.53	3 (n	nm)		Dilutio	n Factor:	10.0			
Soil Extract Volume:			(uL)			Soil Al	iquot Volu	me:		(uL)		
					C	ONCENT	RATIO	N UNITS:				
CAS NO	Э.	C	OMPO	UND	(u	g/L or ug/	/Kg)	UG/L		Q		
79-34	-5		1,1,2,2	-tetrac	hloroeth	ane			20	U		
541-7	541-73-1 1,3-di			ichlorobenzene				20	U			
95-50	95-50-1 1.2-di			lichlorobenzene				20	U			
106-4	6-7		1,4-dic	hlorob	enzene				20	U		
120-8	2-1		1,2,4-tr	ichloro	benzen	е			20	Ų		
87-61-6			1,2,3-trichlorobenzene					20	Ų			

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

		IEN					c o		
Lab Name:	NJAL			Contract: PARS	PW 1168	PM (168.5-2			
Lab Code:	DEP 11	005	Case No.: Drum	SAS No.:	S No.: SD				
Matrix: (soil/v	water)	WATE	R	Lab Sam	ple ID:	PM T168 0.5-	-2		
Sample wt/vo	ol:	0.5	(g/ml) ML	Lab File I	D:	S62417.D			
Level: (low/r	ned)	LOW		Date Rec	eived:	08/05/11			
% Moisture:	not dec.			Date Analyzed: 08/05/11					
GC Column:	rt502.2	2-1 ID:	0.53 (mm)	Dilution F	actor:	10.0			
Soil Extract Volume:			(uL)	Soil Aliqu	ot Volu	ime:	(uL)		
Number TIC:	s found:	C) (CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L					
CAS NO.		СОМ	POUND NAME	RT	E	ST. CONC.	Q		

		1A		EPA SAMPLE NO.				
		VOLATILE ORGANICS ANALY	SIS DATA SHEET	PM t1	68 .5-3			
Lab Name:	NJAL	Contract: PARS						
Lab Code:	DEP 11	1005 Case No.: Drum	SAS No.: S	DG No.:				
Matrix: (soil/	water)	WATER	Lab Sample ID:	PM T168 (0.5-3			
				000440.0				
Sample wt/v	ol:	0.5 (g/ml) ML	Lab File ID:	S62418.D				
Level: (low/	med)	Date Received:	08/05/11					
% Moisture:	not dec.		Date Analyzed:	08/05/11				
		Dilution Eastern	10.0	- 40				
GC Column:	11502	.2-1 ID: 0.53 (mm)	Dilution Factor:	10.0				
Soil Extract	Volume:	(uL)	Soil Aliquot Volu	ime:	(uL			
		CON	ICENTRATION UNITS:					
CAS NO	Ο.	COMPOUND (ug/l	L or ug/Kg) UG/L		Q			
75-71	-8	Dichlorodifuloromethane	<u>)</u>	20	<u> </u>			
74-87	-3	chloromethane		20	<u> </u>			
75-01	-4	vinyl chloride		20	<u> </u>			
74-83	-9	bromomethane		20	<u> </u>			
75-00	-3	chloroethane		20	<u>U</u>			
75-15	-0	carbon disulfide		20	<u> </u>			
10-00	04.4			20				
79.02	04-4			<u> </u>	<u> </u>			
67.64	1			50				
75.60		trichlorofluoromethane		20	<u> </u>			
75-35	<u></u>			20	<u> </u>			
75-09	1- 4 1-2	methylene chloride		20	<u> </u>			
156-6	<u></u>	trans-1 2-dichloroethene	<u> </u>	20	<u> </u>			
75-34	-3	1 1-dichloroethane		20	U			
67-66	<u>)</u> -3	chloroform		20	<u>U</u>			
108-1	0-1	MIBK		20	U			
74-97	<u>-5</u>	bromochloromethane		20	U			
71-55	j-6	1,1,1-trichloroethane		20	U			
56-23	J-5	carbon tetrachloride		20	U			
107-0	6-2	1,2-dichloroethane		20	U			
71-43	3-2	benzene		20	U			
79-01	-6	trichloroethene		20	U			
78-87	-5	1,2-dichloropropane		20	U			
156-5	9-4	cis-1,2-dichloroethene		20	U			
75-27	'-4	bromodichloromethane		20	U			
1006	1-01-5	cis-1,3-dichloropropene		20	U			
108-8	8-3	toluene		20	<u> </u>			
1006	1-02-6	trans-1,3-dichloroproper	ne	20	<u> </u>			
591-7	8-6	2-hexanone		50	<u> </u>			
/9-00	1-5			20	<u> </u>			
127-1	0-4	dibromochloromothono		20				
124-4	0-1 0_7	chlorobenzene		20				
108-2	<u>10-1</u> 38_3	m/n-vylene		20				
05_17	7_6			20				
100-47	12-5	styrene		20	<u> </u>			
08-82	2-8	isopronvl benzene		20	U U			
75-25	-2	bromoform		20	U			

									EPA SAMPLE NO.		
Lab Name:	NJAL	VOLATI	Contract: PARS						PM t168 .5-3		
Lab Code:	DEP 11	005	Case N	o.: Dru	m	SAS No.:	S	DG No.:			
Matrix: (soil/	water)	WATE	R			Lab Sa	ample ID:	PM T168	0.5-3		
Sample wt/ve	ol:	0.5	(g/	ml) ML		Lab Fi	le ID:	S62418.E)		
Level: (low/r	ned)	LOW				Date F	Received:	08/05/11			
% Moisture:	not dec.		and the second			Date A	nalyzed:	08/05/11			
GC Column:	rt502	2-1 ID:	0.53	(mm)		Dilutio	n Factor:	10.0	ananan men munici a ki adi 1 ana af		
Soil Extract Volume:			(u	L)		Soil Al	iquot Volu	me:		(uL)	
					CONC	ENTRATIO	N UNITS:				
CAS NO	Э.	CC	MPOUN	D	(ug/L d	or ug/Kg)	UG/L		Q		
79-34-	-5	1	,1,2,2-tet	rachlor	oethane			20	U		
541-73	3-1	1	,3-dichlo	robenze	ene			20	U		
95-50	-1	1	,2-dichlo	robenze	ene			20	U		
106-4	6-7	1	,4-dichlo	robenze	ene			20	U		
120-8	2-1	1	,2,4-trich	loroben	zene			20	U		
87-61-6 1,2			,2,3-trich	,3-trichlorobenzene				20	Ū		
1E											

VOLATILE ORGANICS ANALYSIS DATA SHEET											
TENTATIVELY IDENTIFIED COMPOUNDS											

EPA SAMPLE NO.

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		TENTATIVELT IDENTIFIED COMPOUNDS					DM +169 5 3		
Lab Name:	NJAL			Contra	ct: PARS		PM (168.5	-3	
Lab Code:	DEP 110	005	Case No.: Drun	n SAS	No.:	S	DG No.:		
Matrix: (soil/v	vater)	WATER	2		Lab Sample	ID:	PM T168 0.5-3		
Sample wt/vo	ol:	0.5	(g/ml) ML		Lab File ID:		S62418.D	-	
Level: (low/n	ned)	LOW			Date Receiv	ed:	08/05/11	-	
% Moisture: i	not dec.				Date Analyzed: 08/05/11				
GC Column:	rt502.2	2-1 ID:	0.53 (mm)		Dilution Factor: 10.0				
Soil Extract V	/olume:		(uL)		Soil Aliquot	me:	(uL)		
				CONCENT	RATION UNI	TS:			
Number TICs	s found:	0		(ug/L or ug/Kg) UG/L					
CAS NO.		COMF	OUND NAME		RT	ES	ST. CONC.	Q	

•			EPA SA	MPLE NO.
Lab Name: NJAL	me: NJAL Contract: PARS			
Lab Code: DEP 11	1005 Case No.: Drum	SAS No.: S	BDG No.:	-
Matrix: (soil/water)	WATER		DM T168	101
	WATER	Lab Sample ID.		1.0-1
Sample wt/vol:	0.5 (g/ml) ML	Lab File ID:	S62419.D	
Level: (low/med)	LOW	Date Received:	08/05/11	1
% Moisture: not dec.		Date Analyzed:	08/05/11	
GC Column: rt502	2-1 ID: 0.53 (mm)	Dilution Factor:	10.0	
			10.0	
Soli Extract volume:	(UL)	Soil Aliquot Volu	Ime:	(ui
	CON	CENTRATION UNITS		
				0
040 110.				Q
75-71-8	Dichlorodifuloromethane)	20	U
74-87-3	chloromethane		20	U
75-01-4	vinyl chloride		20	U
74-83-9	bromomethane		20	U
75-00-3	chloroethane		20	<u> </u>
75-15-0	carbon disulfide		20	U
75-65-0	tert-butyl alcohol		20	<u> </u>
1634-04-4			20	<u> </u>
67.64.1			50	
75-69-4	trichlorofluoromethane		20	<u> </u>
75-35-4	1 1-dichloroethene		20	<u> </u>
75-09-2	methylene chloride		20	<u>u</u>
156-60-5	trans-1.2-dichloroethene		20	Ŭ
75-34-3	1,1-dichloroethane		20	U
67-66-3	chloroform		20	U
108-10-1	MIBK		20	U
74-97-5	bromochloromethane		20	U
71-55-6	1,1,1-trichloroethane		20	U
56-23-5	carbon_tetrachloride		20	U
107-06-2	1,2-dichloroethane		20	0
71-43-2	benzene		20	0
79-01-0			20	
156-59-4	cis-1.2-dichloroethene		20	<u> </u>
75-27-4	bromodichloromethane		20	<u> </u>
10061-01-5	cis-1.3-dichloropropene		20	Ū
108-88-3	toluene		20	U
10061-02-6	trans-1,3-dichloropropen	10	20	U
591-78-6	2-hexanone		50	U
79-00-5	1,1,2-trichloroethane		20	U
127-18-4	tetrachloroethene		20	U
124-48-1	dibromochloromethane		20	<u> </u>
108-90-7	chlorobenzene		20	<u> </u>
108-38-3			20	<u> </u>
90-47-0 100-42-5			20	0
98-82-8	isopropyl benzene		20	<u> </u>
75-25-2	bromoform		20	U U

1A VOLATILE ORGANICS ANALYSIS DATA SHEET								EPA SAMPLE NO.			
Lab Name:	NJAL	/OLATI	LE ORGANI	Contract: PARS					PM t168 1.0-1		
Lab Code:	DEP 11	005	Case No.:	Drum	SAS	No.:	S	DG No.:			
Matrix: (soil/w	vater)	WATE	R			Lab Sar	mple ID:	PM T168	1.0-1		
Sample wt/vo	1:	0.5	(g/ml)	ML		Lab File	D:	S62419.E)		
Level: (low/m	ned)	LOW				Date Re	eceived:	08/05/11			
% Moisture: r	ot dec.					Date Ar	alyzed:	08/05/11			
GC Column:	rt502.	2-1 ID:	0.53 (m	າm)		Dilution	Factor:	10.0			
Soil Extract V	olume:		(uL)			Soil Alic	uot Volu	me:		(uL)	
				(CONCENT	RATION	UNITS:				
CAS NO).	CO	MPOUND	(ug/L or ug/l	≺g)	UG/L		Q		
79-34-	5	1	1,2,2-tetrac	hloroet	hane			20	U		
541-73	-1	1	3-dichlorob	enzene				20	U		
95-50-	95-50-1 1,2-dichlorobenz			enzene				20	U		
106-46	-7	1	4-dichlorob	chlorobenzene				20	U		
120-82	2-1	1	2,4-trichloro	benzei	ne			20	U		
87-61-	6	1	2,3-trichloro	benzei	ne			20	U		

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

		IENIAIIVELY IL	ENTIFIE	-D COMPOU	UNDS			
Lab Name:	NJAL			Contract:	PARS		PM t168 1	.0-1
Lab Code:	DEP 110	005 Case No.:	Drum	SAS No	o.:	SD	G No.:	
Matrix: (soil/v	vater)	WATER		La	b Sample I	D: I	PM T168 1.0-1	1
Sample wt/vo	ol:	0.5 (g/ml)	ML	La	b File ID:		S62419.D	
Level: (low/n	ned)	LOW		Da	ate Receive	d: (08/05/11	
% Moisture: I	not dec.		Da	Date Analyzed: 08/05/11				
GC Column:	rt502.2	2-1 ID: 0.53 (m	ım)	Dilution Factor: 10.0				
Soil Extract V	/olume:	(uL)		So	il Aliquot V	olun	ne:	(uL)
Number TICs	s found:	0	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L					
CAS NO.	T	COMPOUND NAI			RT	EST		0
					10 P 11 P 12			

			1A			EPA SA	MPLE N	0.
	\	/OLA I	ILE ORGANICS ANAL	YSIS DATA SH	EEI	PM T168 1.0-2		
Lab Name:	NJAL			Contract: PA	RS			
Lab Code:	DEP 11	005	Case No.: Drum	SAS No.:	S	DG No.:		_
Matrix: (soil/	water)	WAT	ER	Lab Sa	mple ID:	PM T168	1.0-2	
Sample wt/w	vol:	05	(a/ml) MI	Lab Fil	e ID.	S62420 D		_
Sample www	01.	0.5	(g/iii) <u>WL</u>		e iD.	002420.D	0.000	
Level: (low/r	med)	LOW		Date R	eceived:	08/05/11		
% Moisture:	not dec.			Date A	nalyzed:	08/06/11		
GC Column:	rt502.2	2-1 ID	: 0.53 (mm)	Dilutior	h Factor:	10.0		
Soil Extract '	Volume:		(uL)	Soil Ali	quot Volu	me:		(ul
					•			`
			CO	NCENTRATION	UNITS:			
CAS NO	0.	C	OMPOUND (ua)	L or ua/Ka)	UG/L		Q	
0/10/11	0.		(-3	_ 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.		··· · · · · · · ·	_	
75-71	-8		Dichlorodifuloromethan	e		20	U	
74-87	'-3		chloromethane			20	U	
75-01	-4		inyl chloride			20	U	
74-83	-9		promomethane			20	U	
75-00)-3		chloroethane			20	U	
75-15	j-0		carbon disulfide			20	U	
75-65	j-0	1	ert-butyl alcohol			20	U	
1634-	-04-4		MTBE			20	U	
78-93	3-3		MEK			50	<u>U</u>	
67-64	-1		acetone			50	<u> </u>	
75-69)-4	(j. 1	richlorofluoromethane			20	U	
75-35	j-4		1,1-dichloroethene			20	U	
75-09)-2		methylene chloride			20	<u> </u>	
156-6	60- <u>5</u>	1	rans-1,2-dichloroethen	e		20	U	
75-34	-3		1,1-dichloroethane			20	U	
67-66	5-3		chloroform			20	<u> </u>	_
108-1	0-1		MIBK			20	U	_
74-97	'-5		promochloromethane			20	U	_
71-55	5-6		1,1,1-trichloroethane			20	U	_
_ 56-23	3-5		carbon tetrachloride		1	20	U	
107-0)6-2		1,2-dichloroethane			20	U	_
71-43	3-2		benzene			20	0	_
79-01	-6		richloroethene			20	<u> </u>	_
78-87	<u>'-5</u>		1,2-dichloropropane			20	0	4
156-5	9-4		cis-1,2-dichloroethene			20	<u> </u>	
/5-27	-4		promodichloromethane			20		_
10061	1-01-5		cis-1,3-aichioropropene)		20	0	\neg
108-8	100.0					20	0	\neg
1006	1-02-0		rans-1,3-dichioroprope	ne		20		\neg
591-7	0-0		2-nexanone			00	U U	\neg
/9-00	1-0 19 1		i, i,∠-trichloroethane			20	U U	-
127-1	10-4		dibromochloromothono			20	0	
124-4	0~1 0_7		chlorobenzene			20	<u> </u>	_
100-9	10-1		m/n-vylene			20	<u> </u>	
05 47	7.6					20	<u></u> П	\neg
100 4	12.5					20	U U	\neg
08.92	12-0 2.8		sonronyl henzene			20		\neg
75.05	5.2		bromoform			20	<u> </u>	
10-20	J-Z					20	0	

	,						EPA SAMPLE NO.		
Lab Name:	NJAL	OLATI	LE ORGANICS	Contr	act: P/	ARS	PM T1	168 1.0-	-2
Lab Code:	DEP 11	005	Case No.: Dru	m SA	S No.:	S	DG No.:		
Matrix: (soil/	water)	WATE	R		Lab Sa	ample ID:	PM T168	1.0-2	
Sample wt/vo	ol:	0.5	(g/ml) ML		Lab Fi	le ID:	S62420.D)	
Level: (low/r	med)	LOW			Date F	Received:	08/05/11		
% Moisture:	not dec.				Date A	Analyzed:	08/06/11		
GC Column:	rt502.2	2-1 ID:	0.53 (mm)		Dilutio	n Factor:	10.0		
Soil Extract V	Volume:		(uL)		Soil A	liquot Volu	me:		(uL)
				CONCEN	FRATIO	N UNITS:			
CAS NO	D.	CC	MPOUND	(ug/L or ug	g/Kg)	UG/L		Q	
79-34-5		1	,1,2,2-tetrachlor	oethane			20	U	
541-7	3-1	1	,3-dichlorobenze	ene			20	U	
95-50	-1	1	,2-dichlorobenze	ene			20	U	
106-4	6-7	1	,4-dichlorobenze	ene			20	U	
120-8	2-1	1	,2,4-trichlorober	zene			20	U	
87-61	-6	1	,2,3-trichlorober	izene			20	U	

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. _____

		TENT							
Lab Name:	NJAL		APIcad Hadaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa	Contract:	PARS	PM T168 1.	0-2		
Lab Code:	DEP 11	005	Case No.: Drun	n SAS No.:	S	DG No.:			
Matrix: (soil/w	vater)	WATE	R	Lab	Sample ID:	PM T168 1.0-2			
Sample wt/vo	ol:	0.5	(g/ml) ML	Lab	File ID:	S62420.D			
Level: (low/n	ned)	LOW	anna, ar angar a	Date	Received:	08/05/11			
% Moisture: r	not dec.			Date	Date Analyzed: 08/06/11				
GC Column:	rt502.2	2-1 ID:	0.53 (mm)	Dilut	ion Factor:	10.0	1.600		
Soil Extract V	/olume:		(uL)	Soil	Aliquot Volu	Ime:	(uL)		
Number TICs	s found:	0		CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L					
CAS NO.		COMF	POUND NAME		RT E	ST. CONC.	Q		

	,		1		EPA SAMPLE NO.			
	\	/OLATIL	E ORGANIC	SANALYS	SIS DATA SF		РМ Т	168 1.0-3
Lab Name:	NJAL			(contract: PA	ARS		
Lab Code:	DEP 11	005	Case No.: D	rum	SAS No.:	S	DG No.:	
Matrix: (soil/	water)	WATE	र		Lab Sa	ample ID:	PM T168	1.0-3
Sample wt/v	ol:	0.5	(a/ml)	.//	l ah Fi	In ID:	S62421 F)
Sample wow	01.	0.5	(9/11)	·	Labri		302421.L	·
Level: (low/i	med)	LOW			Date F	Received:	08/05/11	
% Moisture:	not dec.				Date A	analyzed:	08/06/11	
GC Column:	rt502.2	2-1 ID:	0.53 (mm	1)	Dilutio	n Factor:	10.0	
Soil Extract			\ (ul.)	,	Soil Al	iquet Velu	mo	· (
Soli Extract	volume.		(uL)		5011 AI	iquot voit	ine.	(uL
				CON		U UNITO		
0.4.0 M	•	~~~		CONC		NUNITS:		
CAS NO	Э.	CO	MPOUND	(ug/L	or ug/Kg)	UG/L		Q
75-71	_8		chlorodifuloro	methane			20	
74-87	-3	Ch	loromethane	methane	·		20	<u> </u>
75-01	-4	vir	vl chloride				20	Ŭ
74-83	-9	br	omomethane				20	U
75-00	-3	ch	loroethane				20	Ŭ
75-15	-0	ca	rbon disulfide)			20	Ū
75-65	-0	ter	rt-butyl alcoho	ol			20	U
1634-	04-4	M	TBE				20	U
78-93	-3	M	EK				50	U
67-64	-1	ac	etone	_			50	U
75-69	-4	trie	chlorofluorom	ethane			<u>2</u> 0	U
75-35	-4	1,	1-dichloroethe	ene			20	U
75-09	-2	m	ethylene chlo	ride			20	U
156-6	0-5	tra	ins-1,2-dichlo	roethene			20	U
75-34	-3	1,	1-dichloroetha	ane			20	U
67-66	-3	ch	loroform			_	20	U
108-1	0-1	M	BK				20	U
74-97	-5	br	omochlorome	thane			20	U
/1-55	-6	1,	1,1-trichloroe	thane			20	U
56-23	-5	Ca	rbon tetrachie	pride			20	U
71.43	0-2	I,,		ane			20	
71-43	-6	tria	chloroethene	·····			20	
78-87	-0	1 1	2-dichloropro				20	
156-5	9-4	cis	s-1 2-dichloro	ethene			20	
75-27	-4	br	omodichloron	hethane			20	<u> </u>
10061	-01-5	Cis	s-1.3-dichloro	propene			20	Ŭ
108-8	8-3	tol	uene				20	U
10061	-02-6	tra	ns-1,3-dichlo	ropropene)		20	U
591-7	8-6	2-	hexanone	•••••			50	U
79-00	-5	1,	1,2-trichloroet	hane			20	U
127-1	8-4	tet	rachloroethe	ne			20	U
124-4	8-1	dil	promochloron	nethane			20	U
108-9	0-7	ch	lorobenzene				20	U
108-3	8-3	m/	p-xylene				20	U
95-47	-6	0-2	xylene				20	U
100-4	2-5	sty	rene				20	U
98-82	-8	ISC	propyl benze	ene			20	U
/5-25	-2	br	omotorm				20	U

Lab Name:	VOLATI	LE ORGANI	CS ANA	Contract: PA	RS	РМТ	168 1.0-	-3	
Lab Code:	DEP 11	005	Case No.:	Drum	SAS No.:	S	DG No.:		
Matrix: (soil/v	vater)	WATE	R		Lab Sa	ample ID:	PM T168	1.0-3	
Sample wt/vo	ol:	0.5	(g/ml)	ML	Lab Fi	e ID:	S62421.[C	
Level: (low/n	ned)	LOW			Date F	Received:	08/05/11		
% Moisture:	not dec.				Date A	nalyzed:	08/06/11		
GC Column:	rt502.	2-1 ID:	0.53 (n	nm)	Dilutio	n Factor:	10.0		
Soil Extract \	/olume:		(uL)		Soil Al	iquot Volu	me:		(uL)
				СС	ONCENTRATIO	NUNITS:			
CAS NO).	CO	MPOUND	(u	g/L or ug/Kg)	UG/L	· ***	Q	
79-34-	-5	1	1,2,2-tetrac	hloroetha	ane		20	U	
541-73	3-1	1	3-dichlorob	enzene			20	U	
95-50-	95-50-1 1,2-dichlorobenz			enzene			20	U	
106-46	6-7	1	4-dichlorob	enzene			20	U	
120-82	2-1	1	2,4-trichloro	benzene	e		20	U	
87-61-	-6	1	2,3-trichloro	benzene	9		20	U	

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

		I CIN I		ED COMPOUNDS		
Lab Name:	NJAL			Contract: PARS	PM 1168 1	1.0-3
Lab Code:	DEP 11	005	Case No.: Drum	SAS No.:	SDG No.:	
Matrix: (soil/v	water)	WATE	R	Lab Sample ID	: PM T168 1.0-	3
Sample wt/vo	ol:	0.5	(g/ml) ML	Lab File ID:	S62421.D	eneme na
Level: (low/r	med)	LOW		Date Received	: 08/05/11	
% Moisture:	not dec.		m. 1997 1 - 1944	Date Analyzed:	08/06/11	7 me
GC Column:	rt502.	2-1 ID:	0.53 (mm)	Dilution Factor:	10.0	
Soil Extract V	/olume:		(uL)	Soil Aliquot Vol	ume:	(uL)
Number TIC:	s found:	0	CC (uį	DNCENTRATION UNITS g/L or ug/Kg) UG/L		
CAS NO.	•••••• (4) m	COM	POUND NAME	RT E	ST. CONC.	Q

	,		1A				EPA SA	MPLE N	10.
	V	/OLATILE	E ORGANICS A	ANALYSIS D	ATA SHE	ET	PM T 1	68 2.0-	1
Lab Name:	NJAL			Contra	act: PAF	RS			
Lab Code:	DEP 110	005 (Case No.: Drur	n SAS	S No.:	S	DG No.:		
Matrix: (soil/	water)	WATER			Lab Sar	mple ID:	PM T168	2.0-1	
Sample wt/v	ol:	0.5	(g/ml) ML		Lab File	D:	S62422 D)	
			(9/111)				00/05/14		
Level: (low/f	mea)	LOW			Date Re	eceived:	08/05/11		
% Moisture:	not dec.				Date Ar	alyzed:	08/06/11		
GC Column:	rt502.2	2-1 ID:	0.53 (mm)		Dilution	Factor:	10.0		
Soil Extract	Volume:		(uL)		Soil Alio	uot Volu	me:		(uL)
	, ordinior		(~=)		0017110	1401 1010			(
				CONCENT	RATION	UNITS:			
CAS NO	0.	CON	IPOUND	(ua/L or ua	/Ka)	UG/L		Q	
				(
75-71	-8	Dic	hlorodifulorom	ethane			20	U	
74-87	-3	chl	oromethane				20	U	
75-01	-4	vin	yl chloride				20	U	
74-83	-9	bro	momethane				20	<u> </u>	
75-00	-3	chl	oroethane				20	U	_
75-15	-0	car	bon disulfide				20	<u> </u>	_
75-65	-0	ter	t-butyl alcohol				20	0	
1634-	04-4	MI	<u>BF</u>				20	<u> </u>	_
78-93	-3	ME	:K				50	<u> </u>	
67-64	-1	ace	etone				50		
75-09	-4		niorofluorometi				20		
75-33	-4	1,1	-dichioroethene	e					
156.6	-2	tro	nyiene chiono	e			20		
75-34	-3	ua	-dichloroethan				20	<u> </u>	-
67-66	-3		oroform				20		-
108-1	<u>0-1</u>	MI	RK				20	- ŭ	
74-97	<u>-5</u>	bro	mochlorometh	ane	· · · · ·		20	U U	
71-55	<u> </u>	1.1	1-trichloroetha	ine			20	Ŭ	_
56-23	-5	ca	bon tetrachlori	de			20	U	
107-0	6-2	1.2	-dichloroethane	e			20	U	
71-43	-2	be	nzene				20	U	
79-01	-6	tric	hloroethene				20	U	
78-87	'-5	1,2	-dichloropropa	ne			20	U	
156-5	i9-4	cis	-1,2-dichloroeth	nene			20	U	
75-27	_4	bro	modichloromet	hane			20	U	
10061	1-01-5	cis	-1,3-dichloropro	opene			20	<u>U</u>	
108-8	8-3	tol	lene				20	U	
10061	1-02-6	tra	ns-1,3-dichloro	propene			20	U	
591-7	8-6	2-1	exanone		#		50	U	
79-00	-5	1,1	,2-trichloroetha	ine			20	U	_
127-1	8-4	tet	rachloroethene				20	U	
124-4	<u>/ð-1</u>	dib	romochloromet	nane			20	U	
108-9	10-7	chl	orobenzene				20	0	_
108-3	0-3	m/	p-xyiene				20		_
95-47	-0	0->	yiene				20		
100-4	-∠-⊃	sty	rene				20		
90-82	-0	ISO	propyr benzene	;			20	0	
10-20	-2	DIC					20		i

			1A			EPA SAI		NO.
Lab Name:	NJAL		SANICS AN	Contract:	PARS	P M T1	68 2.0-	1
Lab Code:	DEP 11005	5 Case M	lo.: Drum	SAS No.	:S	DG No.:		
Matrix: (soil/w	ater) W	ATER		Lab	Sample ID:	PM T168	2.0-1	
Sample wt/vol	l: 0.	5 (g	/ml) ML	Lab	File ID:	S62422.D		
Level: (low/m	ied) L(WC		Dat	e Received:	08/05/11	_	
% Moisture: n	ot dec.			Dat	e Analyzed:	08/06/11		
GC Column:	rt502.2-1	ID: 0.53	(mm)	Dilu	ition Factor:	10.0		
Soil Extract V	olume:	(uL)	Soi	l Aliquot Volu	ime:		(uL)
				CONCENTRAT	ION UNITS:			
CAS NO		COMPOU	ND	(ug/L or ug/Kg)	UG/L		Q	
79-34-	5	1,1,2,2-te	trachloroe	thane		20	U	
541-73	-1	1,3-dichle	orobenzene	9		20	U	
95-50-1	1	1,2-dichle	orobenzene	Э		20	U	
106-46	-7	1,4-dichle	orobenzene	<u>e</u>		20	U	
120-82	-1	1,2,4-tric	hlorobenze	ne		20	U	
87-61-6	6	1,2,3-tric	hlorobenze	ne		20	U	

IE III
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

4 -

PM T168 2.0-1 Contract: PARS Lab Name: NJAL SAS No.: SDG No.: Lab Code: DEP 11005 Case No.: Drum Lab Sample ID: PM T168 2.0-1 Matrix: (soil/water) WATER Lab File ID: Sample wt/vol: 0.5 (g/ml) ML S62422.D LOW Date Received: 08/05/11 Level: (low/med) % Moisture: not dec. Date Analyzed: 08/06/11 Dilution Factor: 10.0 GC Column: rt502.2-1 ID: 0.53 (mm) Soil Aliquot Volume: (uL) Soil Extract Volume: (uL) CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Number TICs found: 0 CAS NO. COMPOUND NAME RT EST. CONC. Q

EPA SAMPLE NO.

III-1 Raw Chromatograms

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62413.D Vial: 15 Acq On : 5 Aug 2011 6:59 pm Operator: A. Thomas : PM T168 C-1 Sample Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: 62072711.RES Quant Time: Aug 8 12:06 19111 Quant Method : C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 02 17:28:18 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.3596436909515.00 ug/l0.3458) chlorobenzene-d515.62117390801715.00 ug/L0.3584) 1,4-dichlorobenzene-d420.00152215463315.00 ug/L0.35 System Monitoring Compounds 29) dibromofluoromethane (S) 9.07 113 1694003 30.19 ug/L 0.34 Spiked Amount 30.000 Range 80 - 120 Recovery = 100.63% 35) 1,2-dichloroethane-d4 (S)9.8410241263234.12 ug/L0.34Spiked Amount30.000Range80 - 120Recovery=113.73%48) toluene-d8 (S)12.9898500285629.25 ug/L0.35Spiked Amount30.000Range80 - 120Recovery=97.50% 68) 4-bromofluorobenzene (BFB) 17.79 95 2301164 27.11 ug/L 0.35 Spiked Amount 30.000 Range 80 - 120 Recovery = 90.37% 'arget CompoundsQvalue5) bromomethane4.53961178231.83ug/L10020) methylene chloride6.53841245181.39ug/L #10055) tetrachloroethene14.25166635559145.63ug/L #6656) dibromochloromethane14.25129446413059.73ug/L #10069) 1,2,3-trichloropropane17.7975137129621.31ug/L #100 Target Compounds Qvalue

+	J
j,	ł
C)
C	2,
0	J
α	4
ç	2
C)
· ,-	ł
+	J
π	3
+	J
•,-	ł.
+	J
2	1
π	3
1	3
C	X
~	

 \sim Page 27.00 9.00 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 23.00 24.00 25.00 26.00 Quant Results File: 62072711.RES 1,4-dichlorobenzene-d4,1 A. Thomas GC/MS Ins C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) 1.00 15 Multiplr: Vial: Operator: GCMS 2 **FIC: S62413.D** Inst cylorobenzene-d5, l C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62413.D M,T,eMisTiemeriteide 24 10:47:57 2012 2 ,(2) 8b-eneulo? 09 17:18:57 2011 fluorobenzene, ! S .(S) Ab-enertheoroldaib-S, h Calibration щd Feb C ((C) enerthamorouffomordib events.e 6:59 8 12:06 19111 8.00 Fri 7.00 Aug 2011 T168 C-1 Tue Aug Initial Params: M,T, ebinotido enelyritem 6.00 VOA 62072711.M 5.00 Quant Time: Aug ഗ M,T,enshiemomord РМ MS Integration 3.00 4.00 Response via Abundance •• Last Update Data File S62413.D Acq On Sample Method Title 950000 Misc 000006 850000 800000 750000 700000 650000 600000 550000 500000 450000 400000 350000 300000 250000 200000 150000 100000 50000 0 -amil 180

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62414.D Vial: 16 Acq On : 5 Aug 2011 7:34 pm Operator: A. Thomas : PM T168 C-2 Inst : GC/MS Ins Sample Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: 62072711.RES Quant Time: Aug 8 12:06 19111 Quant Method : C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 02 17:28:18 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.3596422512615.00 ug/l0.3458) chlorobenzene-d515.62117389283215.00 ug/L0.3584) 1,4-dichlorobenzene-d419.99152210128215.00 ug/L0.35 System Monitoring Compounds 29) dibromofluoromethane (S) 9.07 113 1677469 30.91 ug/L 0.35 Spiked Amount 30.000 Range 80 - 120 Recovery = 103.03%

 35) 1,2-dichloroethane-d4 (S)
 9.84
 102
 386466
 33.05
 ug/L
 0.35

 Spiked Amount
 30.000
 Range
 80
 - 120
 Recovery
 =
 110.17%

 48) toluene-d8 (S)
 12.98
 98
 4890720
 29.57
 ug/L
 0.35

 Spiked Amount
 30.000
 Range
 80
 - 120
 Recovery
 =
 98.57%

68) 4-bromofluorobenzene (BFB) 17.79 95 2239472 26.49 ug/L 0.35 Spiked Amount 30.000 Range 80 - 120 Recovery = 88.30% Target Compounds Qvalue 20) methylene chloride6.5384927081.07 ug/L #10055) tetrachloroethene14.25166633768347.06 ug/L #6656) dibromochloromethane14.25129439482060.80 ug/L #10069) 1,2,3-trichloropropane17.7975139565521.77 ug/L #100

 \sim Page 25.00 26.00 27.00 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 Quant Results File: 62072711.RES 1,4-dichlorobenzene-d4,1 A. Thomas GC/MS Ins C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) 1.00 16 2 (8 MER) sarangaraparahihai Multiplr: Vial: Operator: GCMS2 TIC: S62414.D Inst chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62414.D M,T,9M671,9meritalda Feb 24 10:48:02 2012 C (C) 8b-eneulor 09 17:18:57 2011 I, enscredorouft S ((S) \$b-snshteoroldoib-S, f Calibration шd 9.00 S ((S) ensitiemorouffomordib Params: events.e 7:34 8 12:06 19111 8.00 Fri 7.00 Aug 2011 T168 C-2 Tue Aug (Initial (M,T ,ebholdo eneitytem 6.00 VOA 62072711.M 5.00 Quant Time: Aug PM S MS Integration 4.00 Response via ••• Last Update 3.00 Data File Acq On Sample S62414.D Method Title Abundance Misc 950000 000006 850000 800000 750000 700000 650000 600000 550000 500000 450000 400000 250000 200000 350000 300000 150000 100000 50000 0 Time-> 182

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62415.D Vial: 17 Acq On : 5 Aug 2011 8:09 pm Operator: A. Thomas : PM T168 C-3 Inst : GC/MS Ins Sample Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: 62072711.RES Quant Time: Aug 8 12:06 19111 Quant Method : C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 02 17:28:18 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.3596418263215.00 ug/l0.3458) chlorobenzene-d515.62117385057415.00 ug/L0.3584) 1,4-dichlorobenzene-d419.99152205930315.00 ug/L0.35 System Monitoring Compounds 29) dibromofluoromethane (S) 9.07 113 1643483 30.59 ug/L 0.35 Spiked Amount 30.000 Range 80 - 120 Recovery = 101.97% 35) 1,2-dichloroethane-d4 (S) 9.84 102 384083 33.18 ug/L 0.35 Spiked Amount 30.000 Range 80 - 120 Recovery = 110.60% 48) toluene-d8 (S)12.9898485264529.64 ug/L0.35Spiked Amount30.000Range80 - 120Recovery=98.80% 68) 4-bromofluorobenzene (BFB) 17.79 95 2157745 25.80 ug/L 0.34 Spiked Amount 30.000 Range 80 - 120 Recovery = 86.00% Target Compounds Ovalue

		L						
2	20)	methylene chloride	6.53	84	103763	1.21	ug/L #	100
1	55)	tetrachloroethene	14.25	166	5979071	44.84	ug/L #	66
c v	56)	dibromochloromethane	14.25	129	4197088	58.66	ug/L #	100
6	69)	1,2,3-trichloropropane	17.79	75	1345518	21.22	ug/L #	100

 \sim Page 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: 62072711.RES I,4-dichlorobenzene-d4,1 Thomas GC/MS Ins C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) 1.00 A. 17 2 (SME) presentational frainkaly Multiplr: Vial: Operator: GCMS2 TIC: S62415.D Inst chlorobenzene-d5, i C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62415.D M,T,ellişfitemertelda Fri Feb 24 10:48:07 2012 2 ((2) 8b-ensulot 09 17:18:57 2011 I, ensznsdorouft 2 ,(2) 4b-ensiteotolicib-5,1 Calibration 8:09 pm 9.00 dibromofluoromethane (S), S Params: events.e 8 12:06 19111 7.00 8.00 Aug 2011 T168 C-3 Tue Aug (Initial (M,T ,ebitotido eneltytem 6.00 VOA 62072711.M 5.00 Quant Time: Aug n Ma MS Integration 4.00 Response via ••• Last Update 3.00 Data File Sample Acq On S62415.D Method Title Abundance Misc 850000 800000 750000 650000 550000 700000 600000 500000 450000 400000 350000 300000 250000 200000 o 150000 100000 50000 Time--> 184

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62416.D Vial: 18 Acq On : 5 Aug 2011 8:44 pm Sample : PM T168 0.5-1 Operator: A. Thomas Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 8 12:06 19111 Quant Results File: 62072711.RES Quant Method : C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 02 17:28:18 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) -------1) fluorobenzene10.3596413185515.00 ug/l0.3458) chlorobenzene-d515.62117371258515.00 ug/L0.3584) 1,4-dichlorobenzene-d419.99152209087815.00 ug/L0.35 System Monitoring Compounds 29) dibromofluoromethane (S) 9.07 113 1586983 29.90 ug/L 0.35 Spiked Amount 30.000 Range 80 - 120 Recovery = 99.67% 35) 1,2-dichloroethane-d4 (S) 9.84 102 373616 32.67 ug/L 0.35 Spiked Amount30.000Range80 - 120Recovery=108.90%48) toluene-d8 (S)12.9898480152129.69ug/L0.35Spiked Amount30.000Range80 - 120Recovery=98.97% 68) 4-bromofluorobenzene (BFB) 17.79 95 2174124 26.96 ug/L 0.34 Spiked Amount 30.000 Range 80 - 120 Recovery = 89.87%Target CompoundsQvalue28) chloroform8.74852595052.49 ug/L # 10069) 1,2,3-trichloropropane17.7975133819021.89 ug/L # 100

Quant Results File: 62072711.RES Operator: A. Thomas Inst : GC/MS Ins Multiplr: 1.00 : C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62416.D Vial: 18 Acq On : 5 Aug 2011 8:44 pm Sample : PM T168 0.5-1 Inst : GC/ MS Integration Params: events.e Quant Time: Aug 8 12:06 19111 Method Misc

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62417.D Vial: 19 Acq On : 5 Aug 2011 9:19 pm Operator: A. Thomas Sample : PM T168 0.5-2 Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 8 12:06 19111 Quant Results File: 62072711.RES Quant Method : C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 02 17:28:18 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene10.3596401775115.00 ug/l0.3458) chlorobenzene-d515.61117379081415.00 ug/L0.3484) 1,4-dichlorobenzene-d419.99152206989915.00 ug/L0.34 System Monitoring Compounds 29) dibromofluoromethane (S) 9.07 113 1561683 30.26 ug/L 0.34 Spiked Amount 30.000 Range 80 - 120 Recovery = 100.87% 35) 1,2-dichloroethane-d4 (S) 9.84 102 379188 34.10 ug/L 0.35

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 113.67%

 48) toluene-d8 (S)
 12.97
 98
 4790970
 30.46 ug/L
 0.34

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 101.53%

68) 4-bromofluorobenzene (BFB) 17.78 95 2136336 25.95 ug/L 0.34 Spiked Amount 30.000 Range 80 - 120 Recovery = 86.50% Target Compounds Ovalue 20) methylene chloride6.54842411272.93 ug/L #10069) 1,2,3-trichloropropane17.7875129007120.67 ug/L #100

9.00 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: 62072711.RES 1,4b-eneznedoreineib-A. Thomas GC/MS Ins C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) 1.00 19 2 ((3 mta) sereseperatorostrointeta,6,4 Multiplr: Vial: Operator: GCMS 2 TIC: S62417.D Inst l ,cb-enscrede-d5, l C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62417.D Fri Feb 24 10:48:16 2012 S ((S) 8b-anaulet 09 17:18:57 2011 I, eneznedoroult S ,(S) Ab-ensiteorolicito-S, f Calibration 9:19 pm dibromofluoromethane (S), S events.e 8 12:06 19111 8.00 Aug 2011 T168 0.5-2 7.00 Tue Aug (Initial (Params: M,T, ebinolito enelvitism 6.00 VOA 62072711.M 4.00 5.00 Quant Time: Aug ഹ Μd MS Integration Response via •• Last Update 3.00 Data File S62417.D Acq On Sample Method Title Abundance Misc 380000 360000 340000 320000 300000 280000 260000 240000 220000 180000 160000 140000 80000 40000 20000 200000 120000 100000 60000 0 Time-> 188

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62418.D Vial: 20 Acq On : 5 Aug 2011 9:54 pm Operator: A. Thomas Sample : PM T168 0.5-3 Misc : Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 8 12:06 19111 Quant Results File: 62072711.RES Quant Method : C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 02 17:28:18 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.3596397795315.00 ug/l0.3458) chlorobenzene-d515.61117372259715.00 ug/L0.3484) 1,4-dichlorobenzene-d419.99152201670415.00 ug/L0.34 System Monitoring Compounds 29) dibromofluoromethane (S) 9.07 113 1502173 29.40 ug/L 0.35 Spiked Amount 30.000 Range 80 - 120 Recovery = 98.00% 35) 1,2-dichloroethane-d4 (S) 9.84 102 362436 32.92 ug/L 0.34

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery = 109.73%

 48) toluene-d8 (S)
 12.97
 98
 4674133
 30.02 ug/L
 0.34

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery = 100.07%

48) toluene-d8 (S) 68) 4-bromofluorobenzene (BFB) 17.78 95 2047454 25.32 ug/L 0.34 Spiked Amount 30.000 Range 80 - 120 Recovery = 84.40% Target Compounds Qvalue 69) 1,2,3-trichloropropane 17.78 75 1206371 19.68 ug/L # 100

10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: 62072711.RES diohiorobenzene-d4, I A. Thomas GC/MS Ins C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) 1.00 20 S (SMB) manipultumpton Multiplr: Operator: Vial: TIC: S62418.D Inst | 'gp-auazueqo.oiua Ω. C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62418. S (S) 8b-eneulof Tue Aug 09 17:18:57 2011 Initial Calibration i, aneznedorouft 2,(2) 4b-enshare-d4 (5), 5 9:54 pm 9.00 S ((S) ensitemoroutiomoralib Params: events.e 8.00 Aug 2011 T168 0.5-3 6.00 7.00 VOA 3.00 4.00 5.00 Quant Time: Aug ഹ РМ MS Integration Response via •• Last Update Data File Sample Acq On Method Title Misc Abundance 340000 220000 80000 60000 20000 0 320000 300000 280000 260000 240000 200000 180000 160000 140000 120000 100000 40000 360000 Time-> 190

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Page

GCMS2

Fri Feb 24 10:48:21 2012

62072711.M

S62418.D

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62419.D Vial: 22 Acq On : 5 Aug 2011 11:37 pm Operator: A. Thomas : PM T168 1.0-1 Inst : GC/MS Ins Sample Multiplr: 1.00 Misc MS Integration Params: events.e Quant Time: Aug 8 12:06 19111 Quant Results File: 62072711.RES Quant Method : C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 02 17:28:18 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.3496429387015.00 ug/l0.3358) chlorobenzene-d515.60117360270515.00 ug/L0.3384) 1,4-dichlorobenzene-d419.98152203561115.00 ug/L0.33 System Monitoring Compounds 29) dibromofluoromethane (S) 9.06 113 1580440 28.66 ug/L 0.33 Spiked Amount 30.000 Range 80 - 120 Recovery = 95.53% 35) 1,2-dichloroethane-d4 (S) 9.83 102 378261 31.83 ug/L 0.34 Spiked Amount 30.000 Range 80 - 120 Recovery = 106.10% 48) toluene-d8 (S)12.9698468145427.85 ug/L0.33Spiked Amount30.000Range80 - 120Recovery=92.83%68) 4-bromofluorobenzene (BFB)17.7895201670825.77 ug/L0.33 Spiked Amount 30.000 Range 80 - 120 Recovery = 85.90% Target CompoundsQvalue5) bromomethane4.52961502192.38 ug/L9869) 1,2,3-trichloropropane17.7775122417820.63 ug/L #100

18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: 62072711.RES I , PD-9R6209602606046-A. Thomas GC/MS Ins C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) 1.00 22 2 (anti errenproprentari 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 Multiplr: Vial: Operator: GCMS2 TIC: S62419.D Inst chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62419.D Fri Feb 24 10:48:25 2012 2 ((2) 8b-eneulot 09 17:18:57 2011 I, enexnedorouft S ((S) \$b-ensiteorolicib-S, f Calibration 11:37 pm 9.00 2 (2) anartamorouftomordib Params: events.e 8 12:06 19111 8.00 7.00 Aug 2011 1 T168 1.0-1 Tue Aug (Initial (6.00 VOA 62072711.M 5.00 Quant Time: Aug ΡM ഹ MS Integration M,T ,ensittemomord 4.00 Response via ••• Last Update 3.00 Data File S62419.D Sample Acq On Method Title Abundance 380000 Misc 360000 340000 320000 300000 280000 260000 240000 180000 140000 120000 80000 60000 40000 20000 220000 200000 160000 100000 0 Time-> 192

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62420.D Vial: 23 Acq On : 6 Aug 2011 12:11 am Operator: A. Thomas : PM T168 1.0-2 Sample Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 8 12:07 19111 Quant Results File: 62072711.RES Quant Method : C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 02 17:28:18 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene10.3496430744715.00 ug/l0.3358) chlorobenzene-d515.61117357215615.00 ug/L0.3484) 1,4-dichlorobenzene-d419.97152198502715.00 ug/L0.33 System Monitoring Compounds 29) dibromofluoromethane (S) 9.06 113 1544818 27.92 ug/L 0.34 Spiked Amount 30.000 Range 80 - 120 Recovery = 93.07% 35) 1,2-dichloroethane-d4 (S) 9.83 102 371393 31.15 ug/L 0.34

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 103.83%

 18)
 toluene-d8 (S)
 12.96
 98
 4648738
 27.57 ug/L
 0.33

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 91.90%

48) toluene-d8 (S) 68) 4-bromofluorobenzene (BFB) 17.77 95 2010473 25.91 ug/L 0.33 Spiked Amount 30.000 Range 80 - 120 Recovery = 86.37% Target Compounds Qvalue 69) 1,2,3-trichloropropane 17.77 75 1198967 20.38 ug/L # 100

3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: 62072711.RES I 'top-euezuego.eueige A. Thomas GC/MS Ins C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) 1.00 23 2 ((SMER) correspondence) (SMER), S Multiplr: Operator: Vial: GCMS2 TIC: S62420.D Inst chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62420.D Fri Feb 24 10:48:30 2012 S ((S) 8b-ensulot 09 17:18:57 2011 I, aneznedoroul S ,(S) 4b-enerteoroldoib-S, f Calibration 12:11 am 8 (8) anofluoromethane (5), 5 Params: events.e Aug 2011 1 T168 1.0-2 Tue Aug (Initial (N----VOA -----62072711.M Quant Time: Aug 6 ЫM MS Integration Response via •• Last Update Data File S62420.D Sample Acq On Method Title Abundance 0 Misc 380000 360000 340000 320000 300000 280000 260000 240000 220000 200000 180000 160000 140000 120000 100000 80000 60000 40000 20000 Time-> 194

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62421.D Vial: 24 Acq On : 6 Aug 2011 12:46 am Operator: A. Thomas : PM T168 1.0-3 Sample Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Results File: 62072711.RES Quant Time: Aug 8 12:07 19111 Quant Method : C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 02 17:28:18 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.3396433654515.00 ug/l0.3358) chlorobenzene-d515.60117352488715.00 ug/L0.3384) 1,4-dichlorobenzene-d419.98152202192215.00 ug/L0.33 System Monitoring Compounds 29) dibromofluoromethane (S) 9.06 113 1533028 27.52 ug/L 0.33 Spiked Amount 30.000 Range 80 - 120 Recovery = 91.73% 35) 1,2-dichloroethane-d4 (S) 9.82 102 359384 29.94 ug/L 0.33 Spiked Amount 30.000 Range 80 - 120 Recovery = 99.80% 48) toluene-d8 (S)12.9698465525127.42 ug/L0.33Spiked Amount30.000Range80 - 120Recovery=91.40% 68) 4-bromofluorobenzene (BFB) 17.77 95 1941829 25.36 ug/L 0.32 Spiked Amount 30.000 Range 80 - 120 Recovery = 84.53% Target Compounds Qvalue 69) 1,2,3-trichloropropane 17.77 75 1177617 20.29 ug/L # 100

20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: 62072711.RES i, 4b-eneznedo volnoib-14, i A. Thomas GC/MS Ins 18.00 19.00 C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) 1.00 24 -Drom promotion of the second states of the second states and the second states of the second 9.00 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 Multiplr: Operator: Vial: GCMS 2 TIC: S62421.D Inst ('cp-euezuegoloilea C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62421.D Feb 24 10:48:35 2012 2 ,(2) 8b-eneulot Tue Aug 09 17:18:57 2011 Initial Calibration I , eneznedorouñ S ((S) 4b-enerteoroldoib-5,1 6 Aug 2011 12:46 am M T168 1.0-3 dibromofluoromethane (S), S Params: events.e 7.00 8.00 Ъг. Г 3.00 4.00 5.00 6.00 VOA 62072711.M Quant Time: Aug ЫМ MS Integration Response via •• Last Update Data File S62421.D Acq On Sample Method Title Abundance 380000 100000 0 Misc 360000 340000 320000 300000 280000 260000 240000 220000 200000 180000 160000 140000 120000 80000 60000 40000 20000 Time--> 196

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Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62422.D Vial: 25 Acq On : 6 Aug 2011 1:20 am Operator: A. Thomas Sample : PM T168 2.0-1 Misc : Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 8 12:07 19111 Quant Results File: 62072711.RES Quant Method : C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 02 17:28:18 2011 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.3396441356315.00 ug/l0.3258) chlorobenzene-d515.60117346113815.00 ug/L0.3384) 1,4-dichlorobenzene-d419.97152191657115.00 ug/L0.33 System Monitoring Compounds 29) dibromofluoromethane (S) 9.06 113 1493047 26.34 ug/L 0.33 Spiked Amount 30.000 Range 80 - 120 Recovery = 87.80% 35) 1,2-dichloroethane-d4 (S) 9.83 102 372353 30.48 ug/L 0.33

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 101.60%

 48)
 toluene-d8 (S)
 12.95
 98
 4642337
 26.87 ug/L
 0.33

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 89.57%

48) toluene-d8 (S) 68) 4-bromofluorobenzene (BFB) 17.77 95 1993881 26.52 ug/L 0.32 Spiked Amount 30.000 Range 80 - 120 Recovery = 88.40% Target Compounds Ovalue 20) methylene chloride6.54841288401.42 ug/L #10069) 1,2,3-trichloropropane17.7775117165820.56 ug/L #100

18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: 62072711.RES I PD-906Z09G030000 A. Thomas GC/MS Ins C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) 1.00 25 S ,(SME) servergeraturabilizinteta,8,1 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 Multiplr: Operator: Vial: GCMS 2 TIC: S62422.D Inst ehłorobenzene-d5, l C:\HPCHEM\1\DATA2011\AUG11\AUG04\S62422.D Fri Feb 24 10:48:39 2012 S ((S) 8b-eneulo# Tue Aug 09 17:18:57 2011 Initial Calibration I, enernedorout S ((S) 4b-enertheoroldoib-S, f 1:20 am 9.00 S ((S) ansitiamoroultomordib events.e 8 12:07 19111 8.00 6.00 7.00 6 Aug 2011 M T168 2.0-1 Params: M,T ,ebinolitic enelyittem VOA 62072711.M 5.00 Quant Time: Aug РM MS Integration 4.00 Response via •• Last Update 3.00 Data File S62422.D Sample Acq On Method Title Abundance Misc 360000 340000 320000 300000 280000 260000 240000 220000 200000 180000 160000 140000 120000 100000 80000 60000 40000 20000 0 Time--> 198

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IV-1 Method Tunes

IV-2 Method Blanks

IV-3 Daily Calibration

IV-4 Laboratory Control Samples
Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\BF62401.D Vial: 1 9:33 am Operator: A. Thomas : 5 Aug 2011 Acq On : 50 ng bfb 624full/5ml 8/4/11 : GC/MS Ins Sample Inst Misc Multiplr: 1.00 MS Integration Params: events.e : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Method Title : VOA



Spectrum Information: Average of 17.761 to 17.796 min.

 	Target Mass		Rel. to Mass	 	Lower Limit%	 	Upper Limit%		Rel. Abn%	 	Raw Abn		Result Pass/Fail	
	50 75 95 96 173 174 175		95 95 95 174 95 174	 	15 30 100 5 0.00 50 50	 	40 70 100 9 2 100 9		29.0 55.9 100.0 7.7 0.0 86.4 7.7		14024 27013 48357 3718 0 41760 3207		PASS PASS PASS PASS PASS PASS PASS	
 	176 177	 	174 176	 	95 5	 	101 9	 	97.8 6.7		40851 2732	 	PASS PASS	

BF62401.D T6072011.M Fri Feb 24 12:42:07 2012 GCMS2

Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\BF62402.D Vial: 21 Acq On : 5 Aug 2011 10:27 pm Operator: A. Thomas Sample : 50ng bfb2 624/5ml Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Method : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Title : VOA



Spectrum Information: Average of 17.760 to 17.795 min.

	Target Mass	 	Rel. to Mass		Lower Limit%		Upper Limit%	 	Rel. Abn%		Raw Abn		Result Pass/Fail	
	50		95		15		40		32.4		13047		PASS	
Ì	75	i	95	1	30	Ì	70		60.5	Ì	24389		PASS	Ì
	95	1	95	ł	100	ł	100	ł	100.0		40299		PASS	1
1	96		95		5	ł	9	ł	7.7	ł	3105		PASS	
1	173		174	1	0.00		2	1	0.0		0	1	PASS	
	174		95		50		100	ł	82.8	1	33371	ł	PASS	
	175		174		5		9		7.7		2554		PASS	
ł	176		174		95	1	101		99.3	1	33149	ł	PASS	
ł	177	ł	176		5	ł	9		6.8		2239	I	PASS	۱

BF62402.D T6072011.M

202 Fri Feb 24 12:42:15 2012

12 GCMS2

Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\BF62403.D Vial: 35 Acq On : 6 Aug 2011 7:05 am Operator: A. Thomas : 50ng bfb 624/5ml 8/5/11 : GC/MS Ins Sample Inst Multiplr: 1.00 Misc : MS Integration Params: events.e : C:\HPCHEM\1\METHODS\T6072011.M (Chemstation Integrator) Method Title : VOA



Spectrum Information: Average of 17.742 to 17.777 min.

Target Mass	 	Rel. to Mass		Lower Limit%	 	Upper Limit%		Rel. Abn%	 	Raw Abn	 	Result Pass/Fail	
50		95		15		40		30.9		12229	1	PASS	
75		95		30		70		58.2		23026		PASS	
95	1	95		100		100	ļ	100.0		39552		PASS	1
96		95	1	5	1	9	1	6.9		2726	1	PASS	
173		174		0.00		2		0.0		0	1	PASS	
174		95	1	50	1	100		83.0		32843	1	PASS	
175		174	1	5	1	9	ł	7.2		2350		PASS	
176	1	174		95		101		99.3		32627	1	PASS	ļ
177	ł	176	1	5	1	9	Ì	6.9		2238		PASS	
	Target Mass 50 75 95 96 173 174 175 176 177	Target Mass 50 75 95 96 173 174 175 176 177	Target Rel. to Mass Mass 50 95 75 95 95 95 96 95 173 174 174 95 175 174 176 174 177 176	Target Rel. to Mass Mass 50 95 75 95 95 95 96 95 173 174 174 95 175 174 176 174 177 176	Target Rel. to Lower Mass Mass Limit% 50 95 15 75 95 30 95 95 100 96 95 5 173 174 0.00 174 95 50 175 174 5 176 174 95 177 176 5	Target Rel. to Lower Mass Mass Limit% 50 95 15 75 95 30 95 95 100 96 95 5 173 174 0.00 174 95 50 175 174 5 176 174 95 177 176 5	Target Rel. to Lower Upper Mass Mass Limit% Limit%50 95 15 4075 95 30 7095 95 100 10096 95 5 9173 174 0.00 2174 95 50 100175 174 5 9176 174 95 101177 176 5 9	TargetRel. toLowerUpperUpperMassMassLimit%Limit%509515407595307095951001009695591731740.0021749550100175174591761745917717659	TargetRel. toLowerUpperRel.MassMassLimit%Limit%Abn%5095154030.97595307058.29595100100100.09695596.91731740.0020.0174955010083.0175174597.21761749510199.3177176596.9	TargetRel. toLowerUpperRel.Rel.MassMassLimit%Limit%Abn%5095154030.97595307058.29595100100100.09695596.91731740.0020.0174955010083.0175174597.21761749510199.3177176596.9	TargetRel. toLowerUpperRel.RawMassMassLimit%Limit%Abn%Abn5095154030.9122297595307058.2230269595100100100.0395529695596.927261731740.0020.00174955010083.032843175174597.223501761749510199.332627177176596.92238	TargetRel. toLowerUpperRel.RawAbnMassMassLimit%Limit%Abn%Abn5095154030.9122297595307058.2230269595100100100.0395529695596.927261731740.0020.00174955010083.032843175174597.223501761749510199.332627177176596.92238	TargetRel. toLowerUpperRel.RawResultMassMassLimit%Limit%Abn%Abn%AbnPass/Fail5095154030.912229PASS7595307058.223026PASS9595100100100.039552PASS9695596.92726PASS1731740.0020.00PASS174955010083.032843PASS175174597.22350PASS1761749510199.332627PASS177176596.92238PASS

BF62403.D T6072011.M Fri Feb 24 12:42:21 2012 GCMS2

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\BL62401.D Vial: 1 Acq On : 5 Aug 2011 10:07 am Sample : blank 624full/5ml 8/4/11 Operator: A. Thomas Inst : GC/MS Ins Multiplr: 1.00 Misc : MS Integration Params: events.e Quant Time: Feb 24 13:05 19112 Quant Results File: 62072711.RES Quant Method : C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 02 17:28:18 2011 Response via : Initial Calibration DataAcq Meth : VOC2 R.T. QIon Response Conc Units Dev(Min) Internal Standards _____ 1) fluorobenzene10.3396537042115.00 ug/l0.3358) chlorobenzene-d515.61117437932715.00 ug/L0.3484) 1,4-dichlorobenzene-d419.99152246767715.00 ug/L0.34 System Monitoring Compounds 29) dibromofluoromethane (S) 9.05 113 2016675 29.24 ug/L 0.33 Spiked Amount 30.000 Range 80 - 120 Recovery = 97.47% 35) 1,2-dichloroethane-d4 (S) 9.82 102 478851 32.22 ug/L 0.33

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 107.40%

 48) toluene-d8 (S)
 12.96
 98
 5523163
 26.27 ug/L
 0.33

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 87.57%

 68) 4-bromofluorobenzene (BFB) 17.78 95 2529381 26.59 ug/L 0.33 Spiked Amount 30.000 Range 80 - 120 Recovery = 88.63%

Target Compounds

Qvalue

10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: 62072711.RES 1,4b-eneznedoreidelb-Thomas GC/MS Ins C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) 1.00 À. S ((BTB) snaznadorouitomord--Multiplr: Operator: Vial: GCMS 2 TIC: BL62401.D Inst chlorobenzene-d5, l Ω. C:\HPCHEM\1\DATA2011\AUG11\AUG04\BL62401 Fri Feb 24 13:05:42 2012 8 (C) 8b-eneulor 2011 I, enexnedorouft 5 Aug 2011 10:07 am blank 624full/5ml 8/4/11 2 (2) M-ensitemotical-S, f 09 17:18:57 Calibration 7.00 8.00 9.00 S ((S) ensitiemonountomondib MS Integration Params: events.e Quant Time: Feb 24 13:05 19112 Tue Aug Initial 6.00 62072711.M VOA 3.00 4.00 5.00 Response via ... Last Update Data File BL62401.D Acq On Sample Method Title Abundance 450000 Misc 206 400000 350000 250000 200000 150000 100000 50000 0 Time-

Page 2

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Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\BL62403.D Vial: 35 Acq On : 6 Aug 2011 7:38 am Operator: A. Thomas : Blank 624/5ml 8/5/11 Sample Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Aug 8 15:04 19111 Quant Results File: 62072711.RES Quant Method : C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) Title : VOA Last Update : Tue Aug 02 17:28:18 2011 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.32964487500m15.00 ug/l0.3158) chlorobenzene-d515.59117341127515.00 ug/L0.3284) 1,4-dichlorobenzene-d419.96152193892515.00 ug/L0.32 System Monitoring Compounds 29) dibromofluoromethane (S) 9.04 113 1435740 24.91 ug/L 0.32 Spiked Amount 30.000 Range 80 - 120 Recovery = 83.038

 35) 1,2-dichloroethane-d4 (S)
 9.81
 102
 336066
 27.06 ug/L
 0.32

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 90.20%

 48) toluene-d8 (S)
 12.95
 98
 4312851
 24.55 ug/L
 0.32

 Spiked Amount
 30.000
 Range
 80 - 120
 Recovery
 =
 81.83%

 68) 4-bromofluorobenzene (BFB) 17.76 95 1900973 25.66 ug/L 0.31 Spiked Amount 30.000 Range 80 - 120 Recovery = 85.53%

Target Compounds

Qvalue

Page 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 Quant Results File: 62072711.RES 1,4b-enscredenoideib-A. Thomas GC/MS Ins C:\HPCHEM\1\METHODS\62072711.M (Chemstation Integrator) 1.00 32 32 S ((818) anesnadorouñomord- Operator: Multiplr: Vial: GCMS2 TIC: BL62403.D Inst chlorobenzene-d5, l C:\HPCHEM\1\DATA2011\AUG11\AUG04\BL62403.D Fri Feb 24 12:42:55 2012 S ((S) 8b-ensulot 2011 I, ensansdorout 09 17:18:57 8 ((8) #b-ensitteorolitioib-2,1 Calibration 7:38 am 9.00 8/5/11 dibromofluoromethane (S), S MS Integration Params: events.e Ouant Time: Aug 8 15:04 19111 8.00 Blank 624/5ml 7.00 6 Aug 2011 Tue Aug Initial 6.00 62072711.M VOA 3.00 4.00 5.00 Response via •• Last Update Data File BL62403.D Acq On Sample Method Title Abundance 380000 208 2000 208 360000 Misc 340000 320000 280000 200000 140000 300000 220000 180000 160000 120000 100000 80000 60000 40000 20000 0 Lime-

 \sim

Data File : C Acq On : Sample : 2 Misc : MS Integratic	:\HPCHEM\1\DATA2011\AUG11\AUG04\DTC6 5 Aug 2011 11:02 pm 00ppb cal2 624/5ml on Params: events.e	52402.D Vial: 21 Operator: A. Thomas Inst : GC/MS Ins Multiplr: 1.00
Method Title Last Update Response via	: C:\HPCHEM\1\METHODS\T6080311.M (Ch : VOA : Fri Feb 24 12:59:41 2012 : Multiple Level Calibration	nemstation Integrator)

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev Ar	ea%	Dev(min)
1	I	fluorobenzene	1.000	1.000	0.0	94	-0.02
2	Т,М	Dichlorodifuloromethane	0.241	0.199	17.4	75	-0.03
3	Т,М	chloromethane	0.265	0.317	-19.6	107	0.00
4	C, T, N	1 vinyl chloride	0.219	0.209	4.6	84	-0.03
5	Т,М	bromomethane	0.079	0.113	-43.0#	130	-0.03
6	Т,М	chloroethane	0.161	0.156	3.1	85	-0.02
9	Т,М	carbon disulfide	0.402	0.394	2.0	83	0.00
10	Т,М	MTBE	0.627	0.325	48.2#	52	-0.02
11	t	1,4 Dioxane	0.022	0.018	18.2	70	0.00
12	Т,М	tert-butyl alcohol	0.024	0.028	-16.7	101	-0.02
13	Т,М	MEK	0.021	0.017	19.0	70	-0.02
14	т,М	acetone	0.072	0.023	68.1#	49#	0.00
15	т,м	trichlorofluoromethane	0.389	0.289	25.7	67	0.03
16	С,Т,1	1 1,1-dichloroethene	0.421	0.453	-7.6	101	0.00
17	т,м	methylene chloride	0.305	0.220	27.9	83	0.00
18	Т,М	trans-1,2-dichloroethene	0.397	0.361	9.1	85	0.00
19	Т,М	1,1-dichloroethane	0.462	0.427	7.6	87	0.00
20	С,Т,1	1 chloroform	0.283	0.289	-2.1	94	-0.01
21	S	dibromofluoromethane (S)	0.168	0.173	-3.0	96	-0.01
22	Т,М	bromochloromethane	0.101	0.078	22.8	69	0.01
24	Т,М	1,1,1-trichloroethane	0.341	0.256	24.9	68	-0.02
25	Т,М	carbon tetrachloride	0.244	0.210	13.9	/6	-0.01
26	S	1,2-dichloroethane-d4 (S)	0.038	0.039	-2.6	100	-0.02
27	т,м	1,2-dichloroethane	0.435	0.429	1.4	93	-0.02
28	т,м	benzene trichloroothoro	0.735	0.723	1.0	91	-0.02
29	1,M	trichioroethene	0.200	0.207	-3.5	93	-0.02
J 1 2 2 2 2 2 2 2 2 2 2 2 2 2		M 1,2-dichloropropane	0.221	0.223		94	-0.02
22	1, M	bromedichleremethane	0.370	0.301	4.0	90	-0.01
34	т, м тм	sis-1 3-dichloropropono	0.257	0.242	-∠.⊥ 13 2#	91 51	-0.02
35	1,M	toluono-de (S)	0.259	0.147	43.2# _1 2	01	-0.02
30	ст і	toluene (5)	0.404	0.490	1 8	99	-0.02
38	т м	trans-1 3-dichloropropene	0.729	0.093	59 2#	38#	-0.02
40	т м	1 1 2-trichloroethane	0.220	0.144	1 4	87	-0.03
40	т, м	tetrachloroethene	0 234	0 331	-41 5#	132	-0.03
42	т м	dibromochloromethane	0.153	0 141	7 8	84	-0.02
43	т. м	1.2-dibromoethane	0.179	0 175	2 2	89	-0.02
10	- /	172 divioneendne	0.1,5	0.170	2.2	0 5	0.02
44	I	chlorobenzene-d5	1.000	1.000	0.0	98	-0.02
45	М,Т	chlorobenzene	0.580	0.533	8.1	89	-0.02
46	С,Т,1	M ethyl benzene	1.110	1.043	6.0	90	-0.02
47	Т,М	m/p-xylene	0.947	1.812	1.3	181	-0.02
48	Т,М	o-xylene	0.334	0.856	8.4	88	-0.02
49	Т,М	styrene	0.539	0.486	9.8	84	-0.02
50	Т,М	isopropyl benzene	1.024	0.953	6.9	89	-0 02

51	Т,М	bromoform	0.110	0.082	25.5	76	-0.02
52	Т,М	1,1,2,2-tetrachloroethane	0.269	0.238	11.5	82	-0.02
53	S	4-bromofluorobenzene (BFB)	0.289	0.278	3.8	94	-0.02
54	Т,М	1,3-dichlorobenzene	0.450	0.423	6.0	89	-0.02
55	Т,М	1,2-dichlorobenzene	0.433	0.403	6.9	89	-0.02
56	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	97	-0.02
57	Т,М	1,4-dichlorobenzene	0.821	0.771	6.1	89	-0.01
58	Т,М	1,2-dibromo-3-chloropropane	0.072	0.055	23.6	89	-0.03
59	Т,М	1,2,4-trichlorobenzene	0.490	0.456	6.9	87	-0.03
60	Т,М	Napthalene	0.947	0.751	20.7	75	-0.03
61	Τ,Μ	1,2,3-trichlorobenzene	0.458	0.427	6.8	88	-0.03

(#) = Out of Range SPCC's out = 0 CCC's out = 0 CT62418.D T6080311.M Fri Feb 24 13:00:31 2012 GCMS2

Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\DTC62401.D Vial: 1 Acq On : 5 Aug 2011 10:42 am Operator: A. Thomas Sample : 20ppb cal 624full/5ml 8/4/11 Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Method : C:\HPCHEM\1\METHODS\T6080311.M (Chemstation Integrator) Title : VOA Last Update : Fri Feb 24 12:59:41 2012 Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev Are	ea∛	Dev(min)
1	I	fluorobenzene	1.000	1.000	0.0	L13	-0.01
3	Т,М	chloromethane	0.265	0.196	26.0	80	-0.01
4	С,Т,1	M vinyl chloride	0.219	0.168	23.3	81	-0.03
5	Т,М	bromomethane	0.079	0.146	-84.8# 2	203#	-0.03
6	Т,М	chloroethane	0.161	0.137	14.9	91	-0.02
8	t	Methyl Acetate	0.031	0.022	29.0	81	-0.02
9	Т,М	carbon disulfide	0.402	0.360	10.4	91	-0.01
10	Т,М	MTBE	0.627	0.273	56.5#	53	-0.01
11	t	1,4 Dioxane	0.022	0.018	18.2	83	0.00
12	Т,М	tert-butyl alcohol	0.024	0.025	-4.2	109	0.00
13	Т,М	MEK	0.021	0.017	19.0	82	0.00
15	Т,М	trichlorofluoromethane	0.389	0.272	30.1#	76	0.00
16	С,Т,	M 1,1-dichloroethene	0.421	0.352	16.4	95	-0.01
17	Т,М	methylene chloride	0.305	0.200	34.4#	91	-0.02
18	Т,М	trans-1,2-dichloroethene	0.397	0.289	27.2	82	-0.01
19	Т,М	1,1-dichloroethane	0.462	0.354	23.4	87	-0.01
20	С,Т,	M chloroform	0.283	0.230	18.7	90	0.00
21	S	dibromofluoromethane (S)	0.168	0.168	0.0	113	-0.01
22	Τ,Μ	bromochloromethane	0.101	0.074	26.7	79	0.00
24	Т,М	1,1,1-trichloroethane	0.341	0.224	34.3#	72	-0.02
25	Т,М	carbon tetrachloride	0.244	0.179	26.6	78	0.00
26	S	1,2-dichloroethane-d4 (S)	0.038	0.040	-5.3	123	-0.01
27	Т,М	1,2-dichloroethane	0.435	0.323	25.7	84	-0.02
28	Т,М	benzene	0.735	0.559	23.9	85	-0.02
29	Т,М	trichloroethene	0.200	0.162	19.0	88	-0.01
31	С,Т,	M 1,2-dichloropropane	0.221	0.172	22.2#	88	-0.02
33	Т,М	cis-1,2-dichloroethene	0.378	0.324	14.3	98	-0.01
34	Т,М	bromodichloromethane	0.237	0.183	22.8	83	-0.01
35	Т,М	cis-1,3-dichloropropene	0.259	0.138	46.7#	57	-0.01
36	S	toluene-d8 (S)	0.484	0.469	3.1	108	-0.01
37	С,Т,	M toluene	0.729	0.550	24.6#	85	-0.02
38	Т,М	trans-1,3-dichloropropene	0.228	0.090	60.5#	44#	=-0.01
40	Т,М	1,1,2-trichloroethane	0.146	0.110	24.7	80	-0.02
41	Т,М	tetrachloroethene	0.234	0.271	-15.8	131	-0.01
42	Т,М	dibromochloromethane	0.153	0.107	30.1#	77	-0.01
43	Т,М	1,2-dibromoethane	0.179	0.138	22.9	85	-0.01
44	I	chlorobenzene-d5	1.000	1.000	0.0	111	-0.01
45	М,Т	chlorobenzene	0.580	0.444	23.4	84	-0.01
46	С,Т,	M ethyl benzene	1.110	0.836	2.7	82	-0.01
47	Т,М	m/p-xylene	0.947	1.441	2.2	163	0.00
48	Т,М	o-xylene	0.934	0.717	23.2	84	0.00
49	Т,М	styrene	0.539	0.399	26.0	78	0.00
50	Т,М	ísopropyl benzene	1.624	0.774	24.4	82	0.00
51	Т,М	bromoform	0,110	0.076	30.9#	80	0.00

52	Т,М	1,1,2,2-tetrachloroethane	0.269	0.202	24.9	78	0.00
55	5	4-bromolluorobenzene (BEB)	0.289	0.289	0.0		0.00
54	т,М	1,3-dichlorobenzene	0.450	0.356	20.9	85	0.00
55	т,М	1,2-dichlorobenzene	0.433	0.334	22.9	83	0.00
56	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	112	0.00
57	Т,М	1,4-dichlorobenzene	0.821	0.617	24.8	82	0.00
58	Т,М	1,2-dibromo-3-chloropropane	0.072	0.051	29.2	95	-0.01
59	Т,М	1,2,4-trichlorobenzene	0.490	0.398	18.8	88	0.00
60	Т,М	Napthalene	0.947	0.765	19.2	88	-0.01
61	т,М	1,2,3-trichlorobenzene	0.458	0.374	18.3	89	-0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 3 CT62418.D T6080311.M Fri Feb 24 13:02:00 2012 GCMS2

Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\DC62403.D Vial: 34 Acq On : 6 Aug 2011 6:31 am Operator: A. Thomas Sample : 20ppb cal3 624/5ml Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Method : C:\HPCHEM\1\METHODS\T6080311.M (Chemstation Integrator) Title : VOA Last Update : Fri Feb 24 12:59:41 2012 Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev Area	३१ ।	Dev(min)
1	I	fluorobenzene	1.000	1.000	0.0	35	-0.05
2	Т,М	Dichlorodifuloromethane	0.241	0.213	11.6	73	-0.04
3	Т, М	chloromethane	0.265	0.350	-32.1# 10	38C	-0.03
4	С, Т, М	4 vinyl chloride	0.219	0.228	-4.1	83	-0.04
5	Т.М	bromomethane	0.079	0.117	-48.1# 12	22	-0.04
6	Т.М	chloroethane	0.161	0.168	-4.3	83	-0.03
9	т. М	carbon disulfide	0.402	0.388	3 5	74	0 00
10	т. М	MTBE	0.627	0.321	48 8#	47#	-0.04
11	t,	1.4 Dioxane	0 022	0.020	9 1	70	-0.03
12	тм	tert-butyl alcohol	0.022	0.020	-20.8	a2	-0.04
13	т, м	MER CELC DUCAT AICOUOT	0.024	0.029	10.0	52 60	-0.03
15	т, м т м	trichlorofluoromothano	0.021	0.300	19.0	62	-0.03
16		(1 1-diablereethere	0.309	0.300	22.9	05	0.02
17	С, I, I т м	mathylana ablarida	0.421	0.473	-12.4	90	-0.02
10	Γ, Μ Π . Μ	methylene chloride	0.305	0.240	21.3	32	-0.02
10	1,M	trans-1,2-dichloroethene	0.397	0.354	10.8	/6	-0.03
19	1,M	1,1-dlChloroethane	0.462	0.422	8.7	/8	-0.03
20	С, Т, Г	A CULOLOLOLUM	0.283	0.275	2.8	9 T C	-0.03
21	S	dibromofluoromethane (S)	0.168	0.170	-1.2	86	-0.03
22	Т,М	bromochloromethane	0.101	0.082	18.8	66	-0.02
24	Τ,Μ	1,1,1-trichloroethane	0.341	0.257	24.6	62	-0.03
25	т,м	carbon tetrachloride	0.244	0.212	13.1	70	-0.03
26	S	1,2-dichloroethane-d4 (S)	0.038	0.039	-2.6	90	-0.04
27	т,М	1,2-dichloroethane	0.435	0.417	4.1	82	-0.04
28	Т,М	benzene	0.735	0.699	4.9	80	-0.04
29	т,М	trichloroethene	0.200	0.212	-6.0	86	-0.05
31	С,Т,М	M 1,2-dichloropropane	0.221	0.217	1.8	83	-0.04
32	Т,М	MIBK	0.023	0.017	26.1	63	-0.04
33	Т,М	cis-1,2-dichloroethene	0.378	0.367	2.9	83	-0.03
34	Т,М	bromodichloromethane	0.237	0.236	0.4	80	-0.04
35	Τ,Μ	cis-1,3-dichloropropene	0.259	0.146	43.6#	45#	-0.05
36	S	toluene-d8 (S)	0.484	0.493	-1.9	86	-0.04
37	С,Т,М	1 toluene	0.729	0.711	2.5	83	-0.05
38	Т,М	trans-1,3-dichloropropene	0.228	0.088	61.4#	32#	-0.04
39	т,М	2-hexanone	0.072	0.058	19.4	63	-0.05
40	т,М	1,1,2-trichloroethane	0.146	0.133	8.9	73	-0.05
41	Т,М	tetrachloroethene	0.234	0.302	-29.1 1	10	-0.05
42	Т,М	díbromochloromethane	0.153	0.131	14.4	71	-0.05
43	Т,М	1,2-dibromoethane	0.179	0.163	8.9	76	-0.04
44	I	chlorobenzene-d5	1.000	1.000	0.0	87	-0.04
45	М,Т	chlorobenzene	0.580	0.547	5.7	81	-0.05
46	С,Т,М	1 ethyl benzene	1.110	1.063	4.2	82	-0.04
47	Т,М	m/p-xylene	0.947	1.812	1.3 1	61	-0.04
48	Т,М	o-xylene	0.934	0.908	2.8	83	-0.04
49	Т,М	styrene	0.539	0.509	5.6	78	-0.04

50 T,M	isopropyl benzene	1.024	0.996	2.7	83	-0.04
51 T,M	bromoform	0.110	0.086	21.8	71	-0.05
52 T,M	1,1,2,2-tetrachloroethane	0.269	0.243	9.7	74	-0.04
53 S	4-bromofluorobenzene (BFB)	0.289	0.293	-1.4	88	-0.04
54 T,M	1,3-dichlorobenzene	0.450	0.458	-1.8	86	-0.04
55 T,M	1,2-dichlorobenzene	0.433	0.425	1.8	83	-0.05
56 I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	94	-0.05
57 T,M	1,4-dichlorobenzene	0.821	0.757	7.8	84	-0.03
59 T,M	1,2,4-trichlorobenzene	0.490	0.458	6.5	84	-0.06
60 T,M	Napthalene	0.947	0.732	22.7	71	-0.06
61 T,M	1,2,3-trichlorobenzene	0.458	0.419	8.5	84	-0.06

(#) = Out of Range		SPCC's	out = 0	CCC's	out = 0
CT62418.D T6080311.M	Fri	Feb 24	13:03:34	2012	GCM\$2

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\DC62403.D Vial: 34 Data File : C:\nrcnEn\1\2011 6:31 am Acq On : 6 Aug 2011 6:31 am Sample : 20ppb cal3 624/5ml Operator: A. Thomas Inst : GC/MS Ins Misc Multiplr: 1.00 MS Integration Params: events.e Quant Time: Feb 24 12:57 19112 Quant Results File: T6080311.RES Quant Method : C:\HPCHEM\1\METHODS\T6080311.M (Chemstation Integrator) Title : VOA Last Update : Fri Feb 24 12:57:02 2012 Response via : Initial Calibration DataAcg Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.3196447316815.00 ug/l-0.0544) chlorobenzene-d515.59117350625115.00 ug/L-0.0456) 1,4-dichlorobenzene-d419.96152211589215.00 ug/L-0.05 System Monitoring Compounds 21) dibromofluoromethane (S) 9.04 113 1517180 30.21 ug/L -0.03 21) dibiomorration and the (3)3.04113151/18030.21ug/L-0.03Spiked Amount30.000Range80-120Recovery=100.70%26) 1,2-dichloroethane-d4(S)9.8110234998630.75ug/L-0.04Spiked Amount30.000Range80-120Recovery=102.50%36) toluene-d8(S)12.9498440647330.51ug/L-0.04Spiked Amount30.000Range80-120Recovery=101.70%53) 4-bromofluorobenzene(BFB)17.7695205642930.41ug/L-0.04Spiked Amount 30.000 Range 80 - 120 Recovery = 101.37%
 Dichlorodifuloromethane
 3.39
 85
 1270823
 17.67
 ug/L
 98

 3) chloromethane
 3.80
 50
 2086597
 26.44
 ug/L
 100

 4) vinyl chloride
 3.87
 62
 1359639
 20.77
 ug/L
 100

 5) bromomethane
 4.50
 96
 698762
 21.58
 ug/L
 97

 6) chloroethane
 4.60
 64
 999888
 20.77
 ug/L
 #
 100

 9) carbon disulfide
 6.65
 76
 2313940
 14.78
 ug/L
 #
 100

 10) MTBE
 6.65
 73
 1914204
 10.23
 ug/L
 #
 100

 12) tert-butyl alcohol
 5.83
 59
 851837
 23.44
 ug/L
 #
 100

 12) tert-butyl alcohol
 5.83
 59
 851837
 23.44
 ug/L
 #
 100

 13) MEK
 8.12
 72
 9625
 14.16
 ug/L
 #
 100

 14) acetone
 5.82
 61< Target Compounds Qvalue _____

Quantitation Report (Not Reviewed)

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Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\DC62403.D Vial: 34
Acq On : 6 Aug 2011 6:31 am
Sample : 20ppb cal3 624/5ml
Misc :
                                                      Operator: A. Thomas
                                                      Inst : GC/MS Ins
                                                      Multiplr: 1.00
MS Integration Params: events.e
Quant Time: Feb 24 12:57 19112
                                           Quant Results File: T6080311.RES
Quant Method : C:\HPCHEM\1\METHODS\T6080311.M (Chemstation Integrator)
Title : VOA
Last Update : Fri Feb 24 12:57:02 2012
Response via : Initial Calibration
DataAcq Meth : VOC2
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	Compound	R.T.	QION	Response	Conc Un	it	Qv	alue
34)	bromodichloromethane	11.64	83	1410378	16.17	ug/L	 #	66
35)	cis-1,3-dichloropropene	12.50	75	868133	9.66	ug/L	#	93
37)	toluene	13.08	91	4242040	19.50	ug/L	#	100
38)	trans-1,3-dichloropropene	13.34	75	527492	6.32	ug/L	#	100
39)	2-hexanone	13.57	58	344240	14.22	ug/L	#	74
40)	1,1,2-trichloroethane	13.62	83	792140	18.20	ug/L	#	100
41)	tetrachloroethene	14.22	166	1800583	25.84	ug/L	#	76
42)	dibromochloromethane	14.57	129	779704	13.57	ug/L	#	100
43)	1,2-dibromoethane	14.93	107	974198	18.27	ug/L	#	98
45)	chlorobenzene	15.66	112	2555638	18.85	ug/L	#	100
46)	ethyl benzene	15.72	91	4969757	19.15	ug/L		100
47)	m/p-xylene	15.86	91	8470791	38.25	ug/L		100
48)	o-xylene	16.65	91	4245054	19.44	ug/L	#	83
49)	styrene	16.71	104	2381097	18.90	ug/L		95
50)	isopropyl benzene	17.28	105	4654684	19.44	ug/L		99
51)	bromoform	17.37	173	401490	11.32	ug/L	#	100
52)	1,1,2,2-tetrachloroethane	17.58	83	1135906	16.92	ug/L	#	98
54)	1,3-dichlorobenzene	19.83	146	2143075	20.37	ug/L	#	100
55)	1,2-dichlorobenzene	20.72	146	1987443	19.61	ug/L	#	74
57)	1,4-dichlorobenzene	20.02	146	2134444	18.42	ug/L	#	72
58)	1,2-dibromo-3-chloropropan	22.19	75	133382	11.13	ug/L		97
59)	1,2,4-trichlorobenzene	23.87	180	1291090	18.66	ug/L		98
60)	Napthalene	24.38	128	2064964	15.46	ug/L		100
61)	1,2,3-trichlorobenzene	24.85	180	1181715	18.29	ug/L		99

(#) = qualifier out of range (m) = manual integration DC62403.D T6080311.M Fri Feb 24 f3:04:41 2012 GCMS2

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Fri Feb 24 13:04:43 2012

Quantitation Report (QT Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\DTC62401.D Vial: 1 Acq On: 5 Aug 2011 10:42 amOperator: A. ThomasSample: 20ppb cal 624full/5ml 8/4/11Inst: GC/MS InsMicco:::Micco::: Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Feb 24 13:00 19112 Quant Results File: T6080311.RES Quant Method : C:\HPCHEM\1\METHODS\T6080311.M (Chemstation Integrator) Title : VOA Last Update : Fri Feb 24 12:59:41 2012 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.3596595375415.00 ug/l-0.0144) chlorobenzene-d515.62117445375615.00 ug/L-0.0156) 1,4-dichlorobenzene-d420.00152252433415.00 ug/L0.00 System Monitoring Compounds 21) dibromofluoromethane (S) 9.06 113 1996729 29.87 ug/L -0.01 21) dibionoridoronechane (3)9.06113199672929.87ug/L-0.01Spiked Amount30.000Range80- 120Recovery=99.57%26) 1,2-dichloroethane-d4 (S)9.8410247587631.41ug/L-0.01Spiked Amount30.000Range80- 120Recovery=104.70%36) toluene-d8 (S)12.9798557893529.03ug/L-0.01Spiked Amount30.000Range80- 120Recovery=96.77%53) 4-bromofluorobenzene (BFB)17.7995257104429.93ug/L0.00 Spiked Amount 30.000 Range 80 - 120 Recovery = 99.77% Target CompoundsQvalue2) Dichlorodifuloromethane3.4185125663513.13ug/L973) chloromethane3.8250155443714.80ug/L964) vinyl chloride3.8962132996415.27ug/L975) bromomethane4.5196116050926.93ug/L976) chloroethane4.6164108538016.94ug/L#8) Methyl Acetate6.237417305212.35ug/L#10) MTBE6.6576285603813.70ug/L#10011) 1, 4 Dioxane6.528813907616.02ug/L#10012) tert-butyl alcohol5.86591005459103.93ug/L#813) MEK8.157213148614.04ug/L7814) acetone5.595820189117.46ug/L9215) trichlorofluoromethane4.97101215790913.99ug/L#10017) methylene chloride6.518415838217.73ug/L#10010) 11, 1-dichloroethane7.5663281093215.33ug/L#10020) chloroform8.7385182675416.28ug/L#10021) trichloroethane9.069.78117141707312.58ug/L#10022) bromochloromethane9.7663250622914.81<t Target Compounds Qvalue

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\DTC62401.D Vial: 1 Acq On : 5 Aug 2011 10:42 am Operator: A. Thomas Sample : 20ppb cal 624full/5ml 8/4/11 Inst : GC/MS Ins Misc Multiplr: 1.00 MS Integration Params: events.e Quant Time: Feb 24 13:00 19112 Quant Results File: T6080311.RES Quant Method : C:\HPCHEM\1\METHODS\T6080311.M (Chemstation Integrator) Title : VOA Last Update : Fri Feb 24 12:59:41 2012 Response via : Initial Calibration

DataAcq Meth : VOC2

	Compound	R.T.	QION	Response	Conc Unit	Qv	alue
33)	cis-1,2-dichloroethene	8.49	 61	2574191	17.16 ug/L	#	100
34)	bromodichloromethane	11.67	83	1454710	12.53 ug/L	#	66
35)	cis-1,3-dichloropropene	12.53	75	1097602	9.18 ug/L		99
37)	toluene	13.11	91	4367159	15.08 ug/L	Ħ	100
38)	trans-1,3-dichloropropene	13.37	75	716994	6.46 ug/L	#	100
39)	2-hexanone	13.61	58	333358	10.34 ug/L	#	75
40)	1,1,2-trichloroethane	13.65	83	872314	15.06 ug/L	#	100
41)	tetrachloroethene	14.25	166	2150740	23.19 ug/L	#	76
42)	dibromochloromethane	14.60	129	848237	11.09 ug/L	#	100
43)	1,2-dibromoethane	14.96	107	1098436	15.48 ug/L	#	92
45)	chlorobenzene	15.69	112	2634734	15.30 ug/L	#	100
46)	ethyl benzene	15.75	91	4966852	15.07 ug/L		100
47)	m/p-xylene	15.89	91	8554552	30.41 ug/L	#	82
48)	o-xylene	16.69	91	4256096	15.34 ug/L		100
49)	styrene	16.74	104	2366768	14.79 ug/L		94
50)	isopropyl benzene	17.31	105	4594257	15.11 ug/L		100
51)	bromoform	17.40	173	453134	10.06 ug/L	#	100
52)	1,1,2,2-tetrachloroethane	17.62	83	1196752	14.04 ug/L	#	98
54)	1,3-dichlorobenzene	19.86	146	2111897	15.81 ug/L	#	100
55)	1,2-dichlorobenzene	20.77	146	1982623	15.40 ug/L		98
57)	1,4-dichlorobenzene	20.06	146	2076769	15.02 ug/L	Ħ	91
58)	1,2-dibromo-3-chloropropan	22.23	75	171517	11.99 ug/L		97
59)	1,2,4-trichlorobenzene	23.92	180	1340944	16.25 ug/L		95
60)	Napthalene	24.43	128	2575739	16.16 ug/L		100
61)	1,2,3-trichlorobenzene	24.90	180	1260120	16.35 ug/L		99

Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\DTC62401.D Vial: 1

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Rest 25 25 25 20 2	Last Update : Fri Feb 24 12:59:41 2012 Response via : Initial Calibration TIC: DTC62401.D 600000 550000 550000	Last Update : Fri Feb 24 12:59:41 2012 Response via : Initial Calibration		MS Integration Params: events.e Quant Time: Feb 24 13:00 19112 Quant Results File: T6080311.RES	<pre>Sample : 20ppb cal 624full/5ml 8/4/11 Inst : GC/MS Ins Misc : Multiplr: 1.00 MS Integration Params: events.e Quant Time: Feb 24 13:00 19112 Quant Results File: T6080311.RES</pre>
	Method: C:\HPCHEM\1\METHODS\T6080311.M (Chemstation Integrator)Title: VOALast Update: Fri Feb 24 12:59:41 2012Response via: Initial CalibrationAbundanceTIC:DTC62401.D6000055000	<pre>Method : C:\HPCHEM\1\METHODS\T6080311.M (Chemstation Integrator) Title : VOA Last Update : Fri Feb 24 12:59:41 2012 Response via : Initial Calibration According </pre>	Method : C:\HPCHEM\1\METHODS\T6080311.M (Chemstation Integrator)		Sample : 20ppb cal 624full/5ml 8/4/11 Inst : GC/MS Ins Misc : Multiplr: 1.00

Page 3

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\DTC62402.D Vial: 21 Acq On: 5 Aug 2011 11:02 pmOperator: A. ThomasSample: 20ppb cal2 624/5mlInst: GC/MS InstMisc:: 00: 00 Misc Multiplr: 1.00 MS Integration Params: events.e Quant Time: Feb 24 13:00 19112 Quant Results File: T6080311.RES Quant Method : C:\HPCHEM\1\METHODS\T6080311.M (Chemstation Integrator) Title : VOA Last Update : Fri Feb 24 12:59:41 2012 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.3496492190215.00 ug/l-0.0244) chlorobenzene-d515.61117393067915.00 ug/L-0.0256) 1,4-dichlorobenzene-d419.98152218995515.00 ug/L-0.02 System Monitoring Compounds 21) dibromofluoromethane (S) 9.06 113 1698244 30.73 ug/L -0.01 21) dibiomorration and the (3)3.000Range 80 - 120Recovery = 102.43%26) 1,2-dichloroethane-d4 (S)9.8310238678130.88ug/L26) 1,2-dichloroethane-d4 (S)9.8310238678130.88ug/L-0.02Spiked Amount30.000Range 80 - 120Recovery = 102.93%36) toluene-d8 (S)12.9698481932330.33ug/L-0.02Spiked Amount30.000Range 80 - 120Recovery = 101.10%53) 4-bromofluorobenzene (BFB)17.7895218347828.81ug/L-0.02Spiked Amount 30.000 Range 80 - 120 Recovery = 96.03% Target CompoundsQvalue2) Dichlorodifuloromethane3.4085130279116.47ug/L1003) chloromethane3.8350208098823.96ug/L924) vinyl chloride3.8862137373919.07ug/L985) bromomethane4.519674321320.86ug/L996) chloroethane4.6164102463619.35ug/L#1008) Methyl Acetate6.237468761759.35ug/L#10010) MTBE6.6673213226310.36ug/L9511) 1, 4 Dioxane6.528811824716.48ug/L9113) MEK8.147211208214.48ug/L9914) acetone5.605814839215.53ug/L8215) trichlorofluoromethane5.00101189698014.88ug/L4916) 1,1-dichloroethene6.528414233419.53ug/L4217) methylene chloride6.528414233419.53ug/L4218) trans-1, 2-dichloroethene7.5763280535818.51ug/L4920) chloroform8.7385189350120.41ug/L410021) trichloroethane9.3697167740414.97ug/L</ Qvalue Target Compounds _____

(#) = qualifier out of range (m) = manual integration DTC62402.D T6080311.M Fri Feb 24 13:04:51 2012 GCMS2 Page 1

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Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\DTC62402.D Vial: 21
Acq On : 5 Aug 2011 11:02 pm
                                                  Operator: A. Thomas
Sample : 20ppb cal2 624/5ml
Misc
                                                  Inst : GC/MS Ins
Misc
                                                  Multiplr: 1.00
         :
MS Integration Params: events.e
Quant Time: Feb 24 13:00 19112
                                      Quant Results File: T6080311.RES
Quant Method : C:\HPCHEM\1\METHODS\T6080311.M (Chemstation Integrator)
Title : VOA
Last Update : Fri Feb 24 12:59:41 2012
Response via : Initial Calibration
DataAcg Meth : VOC2
```

	Compound		R.T. QIon Response		Conc Ur	Qvalue		
34)	bromodichloromethane	11.66	83	1589312	16.56	ug/L	 #	 98
35)	cis-1,3-dichloropropene	12.52	75	966766	9.78	ug/L	#	93
37)	toluene	13.10	91	4700867	19.64	ug/L	#	100
38)	trans-1,3-dichloropropene	13.36	75	612223	6.67	ug/L	#	100
40)	1,1,2-trichloroethane	13.65	83	942184	19.68	ug/L	#	100
41)	tetrachloroethene	14.24	166	2173991	28.35	ug/L	#	99
42)	dibromochloromethane	14.59	129	927029	14.66	ug/L	#	100
43)	1,2-dibromoethane	14.95	107	1147077	19.55	ug/L	#	100
45)	chlorobenzene	15.68	112	2794480	18.39	ug/L	#	100
46)	ethyl benzene	15.74	91	5464715	18.78	ug/L	#	89
47)	m/p-xylene	15.88	91	9496706	38.25	ug/L	#	82
48)	o-xylene	16.67	91	4484975	18.32	ug/L	#	83
49)	styrene	16.73	104	2547573	18.04	ug/L		96
50)	isopropyl benzene	17.30	105	4993589	18.60	ug/L		99
51)	bromoform	17.39	173	431296	10.84	ug/L	#	100
52)	1,1,2,2-tetrachloroethane	17.60	83	1249865	16.61	ug/L	#	100
54)	1,3-dichlorobenzene	19.85	146	2216133	18.79	ug/L	#	68
55)	1,2-dichlorobenzene	20.75	146	2111934	18.59	ug/L	#	84
57)	1,4-dichlorobenzene	20.04	146	2252380	18.78	ug/L	#	72
58)	1,2-dibromo-3-chloropropan	22.22	75	160655	12.95	ug/L		95
59)	1,2,4-trichlorobenzene	23.90	180	1331658	18.60	ug/L		97
60)	Napthalene	24.41	128	2192434	15.86	ug/L		100
61)	1,2,3-trichlorobenzene	24.88	180	1247697	18.66	uq/L		99

21

Vial:

C:\HPCHEM\1\DATA2011\AUG11\AUG04\DTC62402.D

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File

Data

27.00 26.00 25.00 M,T ,enexnedonoldoird-E,S,F M,T,enelerbqsN 24.00 M,T ,eneznedonolricht-A,S,t 23.00 22.00 M,T ,enagoroprotro-6-omord/b-S,t 21.00 Quant Results File: T6080311.RES M,T, enstredoroldsib-S, f 20.00 M, T, angranedoroling (M, T, angranedoroling) L, 1, 2-dichloroberzene-d4, I Thomas GC/MS Ins 19.00 (Chemstation Integrator) 1.00 18.00 A. M,T, motomord M,T, Andrew M,T, Andrew M,T, Andrew M,T, Andrew M,T, Andrew M, T, An 16.00 17.00 Operator: Multiplr GCMS2 M,T,eneitx-o M,F,eneitya TIC: DTC62402.D chloggenerging dån M.T.D. J.M.P.Xylene, T.M. Inst 15.00 M,T ,anedteomordib-S,f M,T ,ensitiemorohioomoidib 14.00 M,T, enertherotoldoartet 24 13:04:53 2012 10.00 11.00 12.00 13.00 S ((S) 8b-ageniot C:\HPCHEM\1\METHODS\T6080311.M M,T ,anagoropropene, t-alo M,T ,enarthemonoldolbomond M,T,O, ensoropropriol/5/b-S, f 2012 M,T, enertheorolicity I, eneznedorouft M,T, ensiting to long the damage of the normal with the second states of the second seco 24 12:59:41 Calibration Feb шd M,T .ensitsoroldoid-f,f,f 9.00 S (AS) HOURD arams: events.e 24 13:00 19112 1 11:02 624/5ml M,T ,9-rethenered thene, T , the childrene, T , the childrenered of the childrenered o 느그 8.00 MEK, T,M M,T ,ensiteorolitoib-1,1 7.00 M,T, enertherothorotholds, 1-enert 5 Aug 2011 Feb M,T (ebinuse), source in 20ppb_cal2 Params: Initial Methryl Acetate, 1 6.00 T6080311.M M, T /A, John Hander (1040-1998 Fri M,T ,anoteca VOA 5.00 M,T, enartemorouflorolitate Feb MS Integration 4.00 via M,T,OMebinendan Quant Time: Last Update M,T ,ensittemorolutiboroidoiQ 3.00 Response DTC62402.D Sample Acq On Method Title Abundance Misc 650000 600000 550000 500000 224 400000 350000 250000 200000 50000 100000 300000 50000 0 1mer

Page 3

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\LC62401.D Vial: 2 Acq On: 5 Aug 2011 11:18 amOperator: A. ThomasSample: 20ppb lcs 624full/5ml 8/4/11Inst: GC/MS InsMisc::Multiplr: 1.00 Multiplr: 1.00 Misc MS Integration Params: events.e Quant Time: Feb 24 12:58 19112 Quant Results File: T6080311.RES Quant Method : C:\HPCHEM\1\METHODS\T6080311.M (Chemstation Integrator) Title : VOA Last Update : Fri Feb 24 12:57:02 2012 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) _____ 1) fluorobenzene10.3596584251415.00 ug/l-0.0144) chlorobenzene-d515.63117450944315.00 ug/L0.0056) 1,4-dichlorobenzene-d420.00152253148515.00 ug/L0.00 System Monitoring Compounds 21) dibromofluoromethane (S) 9.07 113 2067655 31.52 ug/L 0.00

 21, distributione thane (5)
 9.07
 113
 2067655
 31.52
 ug/L
 0.00

 Spiked Amount
 30.000
 Range
 80
 - 120
 Recovery
 =
 105.07%

 26) 1,2-dichloroethane-d4
 (S)
 9.84
 102
 464017
 31.21
 ug/L
 -0.01

 Spiked Amount
 30.000
 Range
 80
 - 120
 Recovery
 =
 104.03%

 36) toluene-d8
 (S)
 12.98
 98
 5520124
 29.27
 ug/L
 0.00

 Spiked Amount
 30.000
 Range
 80
 - 120
 Recovery
 =
 97.57%

 53) 4-bromofluorobenzene
 (BFB)
 17.79
 95
 2574354
 29.60
 ug/L
 0.00

 Spiked Amount
 30.000
 Pange
 90
 120
 Pange
 20.00
 20.00

 Spiked Amount 30.000 Range 80 - 120 Recovery = 98.67% Parget CompoundsQvalue2) Dichlorodifuloromethane3.4185139608414.87ug/L993) chloromethane3.8150171049416.59ug/L984) vinyl chloride3.8962136177915.93ug/L985) bromomethane4.5296120490428.49ug/L966) chloroethane4.6664110540817.58ug/L#9) carbon disulfide6.6576304948814.91ug/L#10) MTBE6.6873288244411.80ug/L9711) 1, 4 Dioxane6.518813583815.95ug/l#12) tert-butyl alcohol5.8659110916623.37ug/L9913) MEK8.157210153611.05ug/L8214) acetone5.605820204117.81ug/L9515) trichlorofluoromethane4.9810123369015.44ug/L9816) 1,1-dichloroethene6.518416804619.21ug/L#10017) methylene chloride6.518416804619.21ug/L#10019) 1,1-dichloroethane9.069720391715.07ug/L#10020) chloroform8.7385190908617.34ug/L#10021) trichloroethane9.9962280806416.56ug/L#3222) br Target Compounds Qvalue

```
Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\LC62401.D Vial: 2
Acq On : 5 Aug 2011 11:18 am
                                                    Operator: A. Thomas
Sample : 20ppb lcs 624full/5ml 8/4/11
                                                    Inst : GC/MS Ins
Misc
                                                    Multiplr: 1.00
         •
MS Integration Params: events.e
Quant Time: Feb 24 12:58 19112 Quant Results File: T6080311.RES
Quant Method : C:\HPCHEM\1\METHODS\T6080311.M (Chemstation Integrator)
Title : VOA
Last Update : Fri Feb 24 12:57:02 2012
Response via : Initial Calibration
DataAcq Meth : VOC2
```

	Compound		R.T. Qlon Resp		Conc Un	it	Qvalue		
33)	cis-1,2-dichloroethene	8.48	 61	2740912	18.62	ug/L	 #	100	
34)	bromodichloromethane	11.67	83	1677890	14.73	ug/L	#	66	
35)	cis-1,3-dichloropropene	12.53	75	1334005	11.36	ug/L	#	93	
37)	toluene	13.12	91	4713072	16.59	ug/L	#	100	
38)	trans-1,3-dichloropropene	13.37	75	984370	9.03	ug/L	#	100	
39)	2-hexanone	13.61	58	291134	9.20	ug/L	#	76	
40)	1,1,2-trichloroethane	13.65	83	950277	16.72	ug/L	#	100	
41)	tetrachloroethene	14.25	166	1985105	21.81	ug/L	#	100	
42)	dibromochloromethane	14.61	129	968933	12.91	ug/L	#	100	
43)	1,2-dibromoethane	14.97	107	1158217	16.63	ug/L	#	99	
45)	chlorobenzene	15.69	112	2835170	16.26	ug/L	#	100	
46)	ethyl benzene	15.75	91	5389155	16.14	ug/L		100	
47)	m/p-xylene	15.89	91	9215524	32.35	ug/L	#	82	
48)	o-xylene	16.69	91	4624631	16.46	ug/L	#	83	
49)	styrene	16.74	104	2713744	16.75	ug/L		100	
50)	isopropyl benzene	17.31	105	5092158	16.54	ug/L		. 99	
51)	bromoform	17.40	173	526372	11.54	ug/L	#	100	
52)	1,1,2,2-tetrachloroethane	17.62	83	1342282	15.55	ug/L	#	98	
54)	1,3-dichlorobenzene	19.86	146	2282201	16.87	ug/L	Ħ	68	
55)	1,2-dichlorobenzene	20.77	146	2181660	16.74	ug/L	#	59	
57)	1,4-dichlorobenzene	20.06	146	2277635	16.43	ug/L	#	90	
58)	1,2-dibromo-3-chloropropan	22.23	75	194983	13.60	ug/L		97	
59)	1,2,4-trichlorobenzene	23.92	180	1484913	17.94	ug/L		97	
60)	Napthalene	24.43	128	2854589	17.86	ug/L		100	
61)	1,2,3-trichlorobenzene	24.90	180	1403765	18.16	ug/L		97	

		M,T,enesnedorolrhołru-4,S,t	23.00 24.00 25.00 26.00 27.00 Page
01.D Vial: 2 Operator: A. Thomas Inst : GC/MS Ins Multiplr: 1.00 Results File: T6080311.RES mstation Integrator)	TIC: LC62401.D	W,T, enschleoronichoromotile M,T, enschleoronichoromotile M,T, anschleoronichoromotile M,T, anschleoronichostite M,T, anschleoronich M,T, anschleoronich M,T, anschleoronich	.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 GCMS2
HEM/1\DATA2011\AUG11\AUG14\LC624(2011 11:18 am lcs 624ful1/5ml 8/4/11 ams: events.e 12:58 19112 Quant H PCHEM\1\METHODS\T6080311.M (Cher Feb 24 12:59:41 2012		MEK, T,M MEK, T,M MEK, T,M MEK, T,M MEK, T,M MEK, T,M MEK, T,M MEK, T,M MEK, T,M MEK, T,M MEK, T,M MEK, T,M MIBY, T,M M	6.00 7.00 8.00 9.00 10.00 11.00 12.00 13.00 14. M Fri Feb 24 13:04:58 2012
Data File : C:\HPCH Acq On : 5 Aug Sample : 20ppb 1 Misc : 20ppb 1 Misc : 20ppb 2 MS Integration Para Quant Time: Feb 24 Method : C:\H Title : VOA Last Update : Fri	Abundance	0 0	Time-> 3.00 4.00 5.00 1 LC62401.D T6080311.M

Page 3

Quantitation Report (Not Reviewed) Data File : C:\HPCHEM\1\DATA2011\AUG11\AUG04\LC62402.D Vial: 35 Acq On : 6 Aug 2011 8:13 am Sample : 20ppb lcs2 624/5ml 8/5/11 Misc : Operator: A. Thomas Inst : GC/MS Ins Multiplr: 1.00 MS Integration Params: events.e Quant Time: Feb 24 12:58 19112 Quant Results File: T6080311.RES Quant Method : C:\HPCHEM\1\METHODS\T6080311.M (Chemstation Integrator) Title : VOA Last Update : Fri Feb 24 12:57:02 2012 Response via : Initial Calibration DataAcq Meth : VOC2 Internal Standards R.T. QIon Response Conc Units Dev(Min) 1) fluorobenzene10.3296463433115.00 ug/l-0.0444) chlorobenzene-d515.59117364291615.00 ug/L-0.0456) 1,4-dichlorobenzene-d419.96152208107815.00 ug/L-0.04 System Monitoring Compounds 21) dibromofluoromethane (S) 9.05 113 1546952 29.73 ug/L -0.03 Spiked Amount30.000Range80 - 120Recovery=99.10%26) 1,2-dichloroethane-d4(S)9.8110234312929.09ug/L-0.04Spiked Amount30.000Range80 - 120Recovery=96.97%36) toluene-d8(S)12.9598450052330.08ug/L-0.04Spiked Amount30.000Range80 - 120Recovery=100.27%52) 4 bremedbarren(BER)12.7621.0262620.21(C.14) 53) 4-bromofluorobenzene (BFB) 17.76 95 2129262 30.31 ug/L -0.04 Spiked Amount 30.000 Range 80 - 120 Recovery = 101.03%

 Target Compounds
 Qvalue

 2) Dichlorodifuloromethane
 3.39
 85
 1396868
 18.75
 ug/L
 99

 3) chloromethane
 3.80
 50
 2271199
 27.77
 ug/L
 98

 4) vinyl chloride
 3.88
 62
 1456826
 21.48
 ug/L
 97

 5) bromomethane
 4.50
 96
 815285
 24.30
 ug/L
 97

 6) chloroethane
 4.60
 64
 1094002
 21.94
 ug/L
 #
 100

 8) Methyl Acetate
 6.22
 74
 67689
 6.20
 ug/L
 #
 100

 10) MTBE
 6.66
 73
 222412
 11.48
 ug/L
 95

 11) 1, 4 Dioxane
 6.51
 88
 196675
 29.11
 ug/L
 #
 100

 12) tert-butyl alcohol
 5.64
 59
 942167
 25.02
 ug/L
 86

 13) MEK
 8.11
 72
 109944
 15.09
 ug/L
 82

 14) acetone
 5.58
 58
 633350
 70.37
 ug/L
 82

 15) trichloroethene</t Target Compounds

(#) = qualifier out of range (m) = manual integration LC62402.D T6080311.M Fri Feb 24 13:05:01 2012 GCMS2 Page 1

Data File	: C	:\HPCHEM\1	DATA201	1\AU	G11\AUG04	\LC624	02.D	Vial:	35	
Acq On	: (6 Aug 2011	8:13	am			Ope	rator:	A. Th	omas
Sample	: 20	Oppb lcs2	624/5ml	8/5/	11		Ins	t :	GC/MS	Ins
Misc	:						Mul	tiplr:	1.00	
MS Integra	tion	n Params:	events.e					-		
Quant Time	e: Fe	eb 24 12:5	8 19112			Quant	Result	s File:	: T608	0311.RES
Quant Meth	nod	: C:\HPCHE	M\1\METH	ODS \	T6080311.	M (Che	emstati	on Inte	egrato)
Title		: VOA								
Last Updat	e	: Fri Feb	24 12:57	:02	2012					
Response v	ria	: Initial	Calibrat	ion						
DataAcq Me	eth	: VOC2								

	Compound	R.T. QIon Response Conc Un		it Qvalu		alue		
33)	cis-1,2-dichloroethene	8.47	61	2354938	20.17	ug/L	 #	100
34)	bromodichloromethane	11.64	83	1530976	16.94	ug/L	#	66
35)	cis-1,3-dichloropropene	12.50	75	1101817	11.83	ug/L	#	93
37)	toluene	13.08	91	4523164	20.07	ug/L	#	100
38)	trans-1,3-dichloropropene	13.34	75	702633	8.13	ug/L	#	100
39)	2-hexanone	13.58	58	339198	13.52	ug/L	#	74
40)	1,1,2-trichloroethane	13.63	83	888743	19.71	ug/L	#	100
41)	tetrachloroethene	14.22	166	1957548	27.11	ug/L	#	99
42)	dibromochloromethane	14.57	129	893043	15.00	ug/L	#	100
43)	1,2-dibromoethane	14.93	107	1079985	19.55	ug/L	#	100
45)	chlorobenzene	15.66	112	2743979	19.48	ug/L	#	100
46)	ethyl benzene	15.72	91	5366142	19.90	ug/L	#	89
47)	m/p-xylene	15.86	91	9148288	39.76	ug/L	#	82
48)	o-xylene	16.65	91	4567290	20.13	ug/L	#	83
49)	styrene	16.71	104	2598448	19.85	ug/L		96
50)	isopropyl benzene	17.28	105	5097895	20.49	ug/L		99
51)	bromoform	17.37	173	440440	11.95	ug/L	#	100
52)	1,1,2,2-tetrachloroethane	17.59	83	1211796	17.38	ug/L	#	98
54)	1,3-dichlorobenzene	19.83	146	2302722	21.07	ug/L	#	100
55)	1,2-dichlorobenzene	20.73	146	2144199	20.37	ug/L	#	59
57)	1,4-dichlorobenzene	20.02	146	2271123	19.93	ug/L	#	72
58)	1,2-dibromo-3-chloropropan	22.20	75	141272	11.98	ug/L		92
59)	1,2,4-trichlorobenzene	23.88	180	1428502	21.00	ug/L		96
60)	Napthalene	24.39	128	2291915	17.44	ug/L		100
61)	1,2,3-trichlorobenzene	24.86	180	1274018	20.05	ug/L		98

35

C:\HPCHEM\1\DATA2011\AUG11\AUG04\LC62402

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File

Data

 \sim Page 27.00 26.00 25.00 M,T ,eneznedorol/hoin-E,S,t M,T, eneisritgsN 24.00 M,T, enscredoroldoird-A,S, F 23.00 22.00 M,T ,anstoroproprio-S-ormondib-S,F 21.00 Results File: T6080311.RES M,T,ensznedorołdołb-S,F 20.00 M, T, anarono and the standard standard in the standard in the standard sta Thomas GC/MS Ins 19.00 (Chemstation Integrator) 1.00 18.00 A. 10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00 .D Vial: Operator: Multiplr M,T ,eneryx-qm,T ,enerys GCMS2 TIC: LC62402.D спіосореоходоції у Симерие, С.Т.<mark>М</mark>,р-хуюле, Т.М Inst M,T ,ensitteomordib-S,t M,T, onschoromotolabourd M,T ,enertheoroldbartet Quant M,T (anathoroproped) M,T (anathoroproped) M,T (anathoroproped) 24 13:05:04 2012 2 ((2) 85-eqeulor M, 1, J, ansulor C:\HPCHEM\1\METHODS\T6080311.M M,T ,anaqoropropena, T,M MIBK, T,M M,T, enerthemonolichibomond M,T,O ,ensqorqoroldolb-S,P 2012 M,T, anerheoroldoirt 624/5ml 8/5/11 1, enexnedorouft R. T. BIBING OF STREET OF ST 12:59:41 Calibration am M,T ,ensiteeroidsht-t,t,t 9.00 Feb S (S) HTE MONTHAN prostance in the second events.e 8:13 M,T, enertheoroid 2 - S, f-elo M,T, J, mioroid 2 - M, T, J, mioroid 2 24 12:58 19112 8.00 Fri NEK' L'M M,T ,ens/teoroldbib-f,f 24 7.00 M,T ,enerteoroidolb-S,I-anart 6 Aug 2011 Fri Feb Initial M.T. SHRIENDROUGH Params: 20ppb lcs2 ----6.00 Methyl Acetate, t M,T, M, Đực được từ đại bực thết the second secon T6080311.M VOA 5.00 M,T ,ensithemoroutionolitains Гер M. M. POBRIDHING MS Integration 4.00 via vinyi chloride, C,T,M Quant Time: Last Update M,T ,ensittemorolutiborolinid 3.00 Response LC62402.D Acq On Sample Method Title **231** Misc bundance 650000 600000 400000 0 550000 500000 300000 250000 150000 000001 200000 50000 350000