



February 11, 2015

Mr. Craig Rankine
Site Manager
Department of Ecology
2108 Grand Blvd, MS: S-70
Vancouver, Washington 98661-4622

Re: Semi-Annual Groundwater Monitoring Report
July through December 2015
NuStar Vancouver Facility
Vancouver, Washington
1126-17

Dear Mr. Rankine:

Enclosed, please find the *Semi-Annual Groundwater Monitoring Report for July through December 2015*. The report was prepared on behalf of NuStar Terminals Services, Inc. (NuStar) by Apex Companies, LLC (Apex) and presents data collected from July through December 2015.

If you have any questions or would like to discuss this further, please contact me at (503) 924-4704 ext. 1925.

Sincerely,

A handwritten signature in blue ink that reads 'Stephanie Bosze Salisbury'.

Stephanie Bosze Salisbury, L.G.
Associate Geologist

ENCLOSURE

Semi-Annual Groundwater Monitoring Report, January through June 2015 (2 hard copies)

cc: Ms. Renee Robinson, NuStar Energy, L.P. (electronic deliverable)
Mr. Joe Aldridge, NuStar Energy L.P. (electronic deliverable)
Ms. Patty Boyden, Port of Vancouver (1 digital [CD-ROM] copy)
Mr. Richard Roché, Parametrix (1 digital [CD-ROM] copy)
Mr. Stephan Rosen, NuStar Energy L.P. (1 digital [CD-ROM] copy)
Mr. Aaron Flett, NuStar Energy L.P. (1 digital [CD-ROM] copy)



*Semi-Annual Groundwater
Monitoring Report
July through December 2015
NuStar Vancouver Facility
Vancouver, Washington*

Prepared for:
NuStar Terminals Services, Inc.

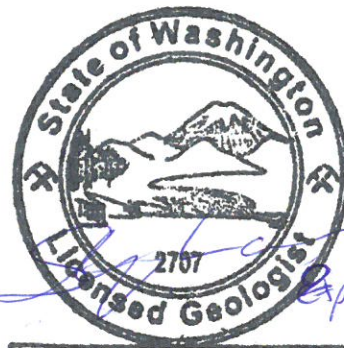
February 11, 2016
1126-17



**Semi-Annual Groundwater Monitoring Report
July through December 2015
NuStar Vancouver Facility
Vancouver, Washington**

Prepared for:
NuStar Terminals Services, Inc.

February 11, 2016
1126-17



STEPHANIE L. BOSZE

Stephanie Bosze Salisbury, L.G.
Associate Geologist

A large, stylized handwritten signature in blue ink, likely belonging to Amanda Spencer.

Amanda Spencer
Principal Hydrogeologist

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1.0 Introduction

This semi-annual groundwater monitoring report was prepared by Apex Companies, LLC (Apex) on behalf of NuStar Terminals Services, Inc. (NuStar) for the NuStar Vancouver Facility (Facility) in Vancouver, Washington (Figure 1). This report presents the results of the groundwater monitoring activities completed at the Facility during the third and fourth quarters of 2015. Additionally, the report includes a summary and evaluation of interim action monitoring data for the reporting period.

The Facility is located at the Port of Vancouver (POV) Terminal No. 2 in Vancouver, Washington (Figure 1). The Facility Site Plan is shown on Figure 2. The property is roughly rectangular with nominal dimensions of 600 by 1,300 feet, and a total area of about 19 acres, and is on the north shore of the Columbia River. Industrial properties owned by the POV border the remaining sides of the Facility.

2.0 Groundwater Monitoring Field Activities

The groundwater monitoring was performed in accordance with the *Groundwater Monitoring Plan* (GWMP; Ash Creek, 2008), which was approved by the Washington State Department of Ecology (Ecology) in a letter to NuStar dated July 30, 2009. The monitoring program for July through December 2015 is summarized in Table 1.

Two monitoring events were conducted during this period: the third quarter 2015 groundwater monitoring event was conducted from September 17 through 25, 2015 and the fourth quarter 2015 event was conducted from December 7 through 9, 2015.

2.1 Water Level Measurements

Third quarter 2015 groundwater levels were measured on September 17, 2015 and fourth quarter 2015 groundwater levels were measured on December 9, 2015. Monitoring well locations are shown on the Facility Site Plan (Figure 2). The wells are screened in three different groundwater zones: Shallow, Intermediate, and Deep. The depth to groundwater was measured at Facility monitoring wells, multi-level groundwater monitoring (MGMS) wells (fourth quarter only), and selected off-site wells (MW-14, MW-17, MW-23i, MW-25i, MW-26, MW-30i, MW-31i, MW-32s, MW-32i, MW-E, MW-F, MW-G, S-1 and S-2). Wells MW-14, MW-20i, and MW-16 were not gauged during the fourth quarter gauging event as the monuments were located under standing water from a rain event. Additionally, well MW-30i was unable to be located. Field observations indicated that recent soil grading activities in the vicinity of well MW-30i likely buried the well monument. A metal detector may be needed to locate the well during the next monitoring event

2.2 Monitoring Well Sampling and Analysis

The sampling and analysis program for third and fourth quarter 2015 is summarized in Table 1. Groundwater monitoring data sheets for the sampling events are included in Appendix A. In addition to the monitoring program samples, field blanks, trip blanks, equipment blanks, and duplicate samples were collected from wells MGMS-40, MW-12, and MW-7 during the third quarter and from wells MW-5, MW-9, and MW-19 during the fourth quarter, for quality assurance/quality control (QA/QC) purposes. As previously discussed, wells MW-14, MW-16, and MW-20i were located under standing water during the sampling event and could not be accessed. Additionally, during the fourth quarter 2015 sampling event, well MGMS2-60 was not sampled because the dedicated bladder in the well was not functioning properly.

For both sampling events, the samples were uniquely labeled, stored in an insulated cooler with ice, and transported under chain-of-custody protocol to Pace Analytical Laboratory (Pace) in Davis, California for laboratory analysis. Samples were analyzed for selected volatile organic compounds (VOCs) by U.S. Environmental Protection Agency (EPA) Method 8260B (EPA Method 8021 list). Groundwater analytical results for both events are shown in Table 3. Historical data are tabulated in Appendix B.

3.0 Groundwater Elevations

Depth-to-groundwater measurements made during the third and fourth quarter 2015 monitoring events are listed in Table 2. Groundwater elevations and estimated elevation contours for the Shallow and Intermediate Zone wells for the third quarter 2015 are shown on Figures 3 and 4, respectively. Groundwater elevations and estimated elevation contours for the Shallow and Intermediate Zone wells for the fourth quarter 2015 are shown on Figures 5 and 6, respectively.

3.1 Third Quarter 2015

Shallow Zone. On September 17, 2015, depth-to-groundwater measurements were made at Shallow Zone monitoring wells in accordance with the groundwater monitoring plan provided in Table 1. The observed depths to groundwater in these wells ranged from 26.30 to 34.01 feet below the ground surface (bgs), and the corresponding groundwater elevations in these wells ranged from 3.93 to 5.61 feet above mean sea level (MSL; Figure 3).

During the third quarter 2015 monitoring event, gauging of the Shallow Zone wells was completed between 8:15 am and 10:16 a.m. During the time interval in which Shallow Zone monitoring wells were gauged, the water level in the adjacent Columbia River decreased by 0.34 feet. River stage data were obtained from the nearest National Oceanographic and Atmospheric Administration (NOAA) tide station (Columbia River – Vancouver), which is located approximately 0.5 mile upstream of the Facility.

During the third quarter 2015 gauging event, there was a groundwater divide located along the northern terminal boundary, trending along wells MW-10, MW-8, MW-16 and MW-15. From the divide, the gradient was approximately 0.002 ft/ft towards the river and approximately 0.003 ft/ft towards the northeast.

Intermediate Zone. On September 17, 2015, depth-to-groundwater measurements were made at Intermediate Zone monitoring wells in accordance with the groundwater monitoring plan provided in Table 1. Groundwater levels in Intermediate Zone wells were measured collectively during a predicted tidal inflection to minimize the magnitude of tidal influence on water levels during the gauging event. Water levels were collected from Intermediate Zone wells within 85 minutes (between 8:52 a.m. and 10:17 a.m.). During the time interval in which Intermediate Zone wells were gauged, water levels in the adjacent Columbia River decreased by 0.56 foot.

The observed depths to groundwater in the Intermediate Zone wells ranged from 24.96 to 29.55 feet bgs, and groundwater elevations in these wells ranged from 5.11 to 4.57 feet above MSL (Figure 4). During the September 17, 2015 gauging event there was a groundwater divide in the Intermediate Zone trending from MW-23i at the western boundary of the Facility to MW-19i at the eastern boundary of the Facility. From the divide, groundwater flow was towards the river with a gradient of approximately 0.003 ft/ft and towards the north/northeast at a gradient of approximately 0.002 ft/ft.

Deep Zone. Depth to groundwater was measured in well MW-24d, which is screened from 210 to 230 feet bgs, within the Troutdale Formation. Depth to water in well MW-24d was 29.25 feet bgs, corresponding to an elevation of 4.66 feet above MSL. A groundwater potentiometric map was not prepared for Deep Zone groundwater.

3.2 Fourth Quarter 2015

Shallow Zone. On December 7, 2015, depth-to-groundwater measurements were made at Shallow Zone monitoring wells in accordance with the groundwater monitoring plan provided in Table 1. The observed depths to groundwater in these wells ranged from 19.45 to 32.38 feet bgs, and groundwater elevations in these wells ranged from 6.30 to 11.95 feet above MSL (Figure 5).

During the fourth quarter 2015 monitoring event gauging of the Shallow Zone wells was completed between 8:48 a.m. and 11:57 a.m. During the gauging activities, the water level in the adjacent Columbia River increased by 0.867 feet. The December 2015 gauging event was conducted during an atypically large rainfall event in the Vancouver, Washington area. As a result, groundwater elevation and flow patterns in the Shallow Zone were inconsistent with historical gauging events. During the December 7, 2015 gauging event, there was a groundwater trough trending between well MW-10 and well MW-15. The groundwater gradient from the river to the trough was 0.019 ft/ft and from the northeast to the trough was 0.005 ft/ft. The flow regime during the December 2015 monitoring event is not considered representative of typical flow in the Shallow Zone.

Intermediate Zone. On December 7, 2015, depth-to-groundwater measurements were made at Intermediate Zone monitoring wells in accordance with the groundwater monitoring plan provided in Table 1. Water levels were collected from Intermediate Zone wells within 84 minutes (between 10:10 a.m. and 11:34 a.m.). During the Intermediate Zone gauging event, water levels in the adjacent Columbia River decreased by 0.09 foot. The observed depths to groundwater in these wells ranged from 20.23 to 26.56 feet bgs, and groundwater elevations in these wells ranged from 10.57 to 11.37 feet above MSL (Figure 6). The groundwater elevation in well MW-24i was 6.91 feet and was likely the result of a gauging error as the groundwater level was approximately four feet lower than in the other Intermediate zone wells. Therefore, well MW-24i was not used for development of the potentiometric map for the Facility. During the December gauging event the groundwater flow was to the north/northeast with a gradient of 0.001 ft/ft.

Deep Zone. Depth to water in Deep Zone well MW-24d was 22.55 feet bgs, corresponding to an elevation of 11.36 feet above MSL.

4.0 Groundwater Sample Analytical Results

Complete copies of the laboratory reports for the third and fourth quarter 2015 groundwater monitoring events, including the quality assurance evaluation report and chain-of-custody documentation, are included in Appendix C.

4.1 Third Quarter 2015

The September 2015 monitoring program included the collection of groundwater samples from the wells listed in the first column of Table 1. The sample results for third quarter 2015 are summarized in Table 3 and select VOCs are shown on Figure 7.

4.2 Fourth Quarter 2015

The December 2015 monitoring program included the collection of groundwater samples from the wells listed in the second column of Table 1. The sample results for fourth quarter 2015 are summarized in Table 3 and select VOCs are shown on Figure 8.

4.3 Evaluation of Results

VOC concentration trend plots for each monitoring well are provided in Appendix D. Monitoring results demonstrate decreasing VOC concentration trends in Shallow and Intermediate Zone groundwater in 32 of 33 monitoring wells, the exception being well MGMS3-132, which exhibited a flat concentration trend. Monitoring wells in the source area exhibit concentration decreases of over 99% for tetrachloroethene (PCE) and trichloroethene (TCE) since initiating interim actions in 2008 and 2011. VOCs in monitoring wells on the periphery or outside of the source area also reflect historical decreasing trends.

5.0 Interim Action Measure Activities

An interim action was implemented at the Facility during the spring/summer of 2008 and included bioremediation injections for remediation of Facility groundwater and the installation of a soil vapor extraction (SVE) system for the remediation of VOCs in vadose-zone soils. These activities are herein referred to as the 2008 interim action. The interim action was expanded during the summer of 2011; the expansion is herein referred to as the 2011 interim action. The expansion included 17 additional SVE well locations (shallow and deeper SVE well pairs at each location; total of 34 wells), additional bioremediation injections in the 2008 interim action area, and bioremediation injections in an expanded interim action area. Details of the 2008 and 2011 interim actions are provided in the *Interim Action Installation Report* (Ash Creek, 2009b) and the *2011 Interim Action Evaluation Report* (Ash Creek, 2012), respectively, and are also summarized in the *First Semi-Annual 2013 Groundwater Monitoring Report* (Apex, 2013).

5.1 Summary of 2008 Interim Action

The 2008 interim action consisted of SVE in the vadose zone and enhanced anaerobic bioremediation of the Shallow Zone groundwater. The 2008 enhanced bioremediation locations and the SVE system layout are provided in Appendix E. The 2008 SVE system removed approximately 3,150 pounds of VOCs between startup in September 2008 and the expansion in 2011. The mass removal rate at startup in 2008 was 58.8 pounds per day (lbs/day), and had decreased to an average of 1.7 lbs/day during the third quarter of 2011. Historical monitoring tables and a mass removal chart are provided in Appendix E.

5.2 Summary of 2011 Interim Action

A soil and groundwater investigation in 2010 indicated that the 2008 interim action had reduced VOCs in vadose-zone soils by 90 percent for PCE and 98 percent for TCE, and had reduced total molar ethene concentrations in source area groundwater by 77 percent (Ash Creek, 2011). The investigation results were summarized in an appendix to the *2011 Interim Action Work Plan* (Work Plan; Ash Creek, 2011) that was submitted to Ecology on March 25, 2011. The Work Plan included a proposal for the expansion of the SVE system to include 17 additional SVE well locations, additional bioremediation injections in the 2008 interim action area, and bioremediation injections in an expanded interim action area. On May 23, 2011, Ecology approved the Work Plan. The bioinjection activities were conducted from July 21 through August 31, 2011, and the SVE installation activities were conducted from August 2 through 5, 2011 and August 29 through October 3, 2011. The 2011 bioremediation injection locations are shown on Figure 9 and the 2011 SVE expansion layout is shown on Figure 10.

The original Facility SVE system, herein referred to as the 2008 SVE system, was comprised of 17 wells, divided among five branches, which were connected by a network of underground piping as shown on drawings provided in Appendix E. As part of the 2011 SVE system expansion, Branches 4 and 5 were disconnected from the other System branches and were connected to a new blower unit located

approximately 150 feet to the northeast of the railroad tracks (Figure 10). The wells and piping associated with Branches 4 and 5 and the associated blower unit are herein referred to as the “North System”.

From August 2 through 5, 2011, 17 additional SVE well pairs (for a total of 34 additional SVE wells) were installed within and to the south of Warehouse No. 13 (a.k.a. the Butler building), in general accordance with the *2011 Interim Action Work Plan* (Ash Creek, 2011). For each well pair, one well is screened in vadose-zone soils from 10 to 15 feet bgs and the second well is screened in vadose-zone soils from 15 to 25 feet bgs. These 17 well pairs, along with the Branch 1 through 3 wells from the 2008 SVE system, are piped underground to a blower unit located outside of the southeast corner of Warehouse No. 13. These SVE wells, associated underground piping, and the blower unit are herein referred to as the “South System”. Effluent from the South System is treated with a series of two carbon vessels prior to discharge.

5.3 Interim Action Monitoring and Evaluation

5.3.1 Enhanced Bioremediation Injections

In conjunction with the third and fourth quarter 2015 monitoring events, additional groundwater samples were collected from wells MW-7, MW-12, MW-24i, MGMS2-40, EX, and MP-1 for total organic carbon (TOC; by EPA Method 5310 D); and ethene by (EPA Method RSK-175M) analysis, to evaluate the performance of the bioremediation injections. The samples collected from these wells were analyzed by Pace Analytical.

In addition to the laboratory analysis of groundwater samples, field measurements of oxidation-reduction potential (ORP) and dissolved oxygen (DO) were collected from the monitoring wells during the third and fourth quarter 2015 monitoring events. Table 4 shows the results of interim action groundwater monitoring from the February 2007 baseline event through the fourth quarter 2015 monitoring event. Wells MW-24i and MGMS2-40 were not located within the 2008 interim action injection area but are located within the 2011 interim action injection area; therefore, interim action monitoring data for these wells are only presented from the second quarter 2011 baseline event through fourth quarter 2015. Well MW-12 is located downgradient and outside of the 2011 interim action area and was not affected by the 2008 interim action. It is currently being used to monitor the effectiveness of the 2011 injections in areas downgradient and outside of the injection areas. Therefore, data for this well are also only presented from after the 2011 baseline event through fourth quarter 2015.

A discussion of reductive dechlorination of VOCs in groundwater from prior to the 2008 interim action through fourth quarter 2015 is provided below.

VOC Concentrations Evaluation. Concentration trend plots for PCE, TCE, total dichloroethenes (DCE), and vinyl chloride (VC) in interim action area wells MW-7, EX, MP-1, and MGMS2-40 are provided in Appendix F. VOC data are included from the baseline event prior to the 2008 interim action (first quarter 2007; second quarter 2007 for well MGMS2-40) through December 2015.

The concentration of PCE has decreased in each well, with observed reductions through December 2015 ranging from 81 percent in well MP-1 to over 97 percent in wells MW-7, EX, and MGMS2-40. Likewise, the concentration of TCE also decreased in the interim action monitoring wells with reductions through December 2015 of about 85 percent in well MP-1 and over 96 percent in wells MW-7, EX, and MGMS2-40. The concentrations of successive degradation products of PCE (sequentially TCE, cis-1,2-dichloroethene [cDCE], and VC) are often variable because these concentrations reflect the net conditions of these products being generated by the breakdown of the higher-order chloroethene and being subsequently reduced to further degradation products. As a result, it is not unusual to see temporary increases in concentrations of degradation products while the reductive dechlorination process is ongoing. Overall, the concentrations of PCE and TCE have shown a decreasing concentration trend since implementation of the interim action, while total DCE and VC have shown variable concentrations with less distinctive trends. After implementation of the 2011 interim action in August 2011, a marked increase in total DCE and, to a lesser extent, VC, was observed in the interim action area monitoring wells, indicating an increase in reductive dechlorination was occurring in response to the interim action. In interim action wells MGMS2-40, MW-7, and EX, the rapid increase in DCE concentration in response to the interim action injections has been followed by a decreasing trend for DCE.

Ethene is an end product of the reductive dechlorination process; the detection of ethene confirms the completion of the reductive dechlorination pathway and ultimate destruction of the target VOCs at the Facility. Ethene was detected in well MGMS2-40 during the December 2015 groundwater monitoring event at a concentration of 0.02281 milligrams per liter (mg/L). Ethene was not detected in the other interim action evaluation wells during the September and December monitoring events. As ethene is the end product of the reductive dechlorination process, the lack of ethene during the recent monitoring events may only be temporary and indicate limited mass from the preceding stage in the reductive dechlorination process (i.e. degradation of vinyl chloride). Furthermore, ethene is a short-lived stage in the process and can be difficult to "capture". However, the lack of ethene may indicate that the 2011 injection substrate has been utilized and that the bioremediation process at the Facility is no longer enhanced from the 2011 injections. Additional monitoring is needed to better evaluate whether conditions for reductive dechlorination are still favorable in Shallow Zone groundwater at the Facility.

Another indicator of effective reduction of chlorinated ethenes is a decrease in the total molar chloroethene concentration (the combined molar concentration of PCE, TCE, DCE, and VC combined). The use of total molar concentrations allows an assessment of changes in the total number of related contaminant molecules as the reductive dechlorination process transitions from the relatively heavy PCE to the progressively lighter TCE, DCE, and VC. Molar concentration trend plots for wells MW-7, EX, MP-1, and MGMS2-40 are provided in Appendix F. Between the February 2007 baseline event and the December 2015 monitoring event, the decrease in total molar concentration in the interim action monitoring wells MP-1, MW-7, EX and MGMS2-40 ranged from 76 percent to over 100 percent (in well MW-7).

Total Organic Carbon Evaluation. The presence of elevated TOC indicates that the bioremediation injections have increased the electron donor carbon source needed to reductively dechlorinate the VOCs present in groundwater at the Facility. TOC concentrations in interim action area wells (MW-7, MP-1, EX, MW-12, MGMS2-40 and MW-24i) were analyzed prior to the 2011 bioinjections (second quarter 2011) and have been measured quarterly since then to allow an ongoing comparison and evaluation of whether TOC has been depleted. In all six wells, TOC increased significantly after the 2011 injections, with increases ranging from one to two orders of magnitude by September 2012. TOC concentrations still remain elevated above pre-2011 bioinjection concentrations in the interim action monitoring wells; however, the concentration of TOC has been steadily decreasing and was only slightly elevated above the pre-2011 injection concentration during the December 2015 monitoring event. The noted decrease in TOC in interim action wells suggest that the injection substrate may be depleted or near-depletion in the 2011 interim action area. Other indicators of reductive dechlorination (DO, ORP, etc.) were also evaluated for this monitoring event, as described in the sections below.

Oxidation-Reduction Potential and Dissolved Oxygen Evaluation. Negative ORP and low DO concentrations are strong indicators of the anaerobic conditions suitable for reductive dechlorination. Of the Shallow Zone wells located in the 2011 interim action area (MW-7, MP-1, EX and MGMS2-40), ORP decreased from positive to negative between the 2011 interim action baseline sampling event in June 2011 and the event following injection of the substrate in December 2011. ORP values during the fourth quarter 2015 monitoring event were negative in only one of the six wells used to evaluate the interim action (MGMS2-40). These data suggest that while anaerobic dechlorinating of VOCs is still ongoing, it is no longer occurring at the enhanced rate provided by the 2011 injections.

While there has been some variability in DO concentrations since implementation of the interim action, DO concentrations were above 1.0 mg/L during the third and fourth quarters of 2015, with the exception of wells MW-7 (third quarter only), EX and MW-12. The DO concentrations in well MGMS2-40 were greater than one, but were below DO concentrations present prior to the 2011 bioinjections.

Summary of Enhanced Bioremediation Results. The 2011 groundwater interim action was implemented in July and August 2011 and included over 155 bioremediation injections across the primary source area and surrounding vicinity. Since implementation, groundwater in the 2011 interim action area has been monitored quarterly for indicators of reductive dechlorination. The results from the third and fourth quarter 2015 events indicated that enhanced reductive dechlorination is continuing to treat source area groundwater as evidenced by the following.

- PCE and TCE concentrations are consistently decreasing (greater than 96% reduction in three of four interim action area wells).
- Observed trends in breakdown product concentrations are consistent with reductive dechlorination, although accelerated reduction (from the 2011 injections) is limited at the Facility.

Ethene (the final breakdown product of reductive dechlorination) was not present in any of the interim action wells during the September 2015 monitoring event, and was only present in one interim action monitoring wells during the December 2015 groundwater monitoring event. TOC has decreased to at or below pre-2011 injection concentrations in four out of six interim action evaluation wells. While VOC concentrations continue to decrease at the Facility, ethene and TOC data indicate these reductions are no longer occurring at the enhanced rate provided by the 2011 injection material. Continued quarterly monitoring will be used to evaluate the effectiveness of the bioinjection. Additional groundwater bioinjections have recently been proposed to Ecology in the *2015 Interim Action Work Plan* (Apex, 2015). The additional injection of oil substrate will support continued accelerated degradation of VOCs.

5.3.2 SVE Monitoring Evaluation

The following paragraphs summarize the monitoring and analytical results as well as the total VOC mass removal for the North and South SVE Systems at the Facility. Field vapor measurements were collected with a photoionization detector (PID) and effluent vapor samples from the SVE systems were collected into Summa™ canisters and submitted to TestAmerica Laboratories (Test America) in Los Angeles, California, for analysis of VOCs by method TO-15.

Monthly SVE monitoring events occurred on July 29, August 31, September 28, October 28, November 30, and December 28 during this reporting period. North SVE System operating data and analytical data are provided in Tables 5 and 6, respectively. South SVE System operating data and analytical data are provided in Tables 7 and 8, respectively.

SVE System Mass Removal. The approximate VOC mass removed by the North and South SVE Systems through December 2015 is presented in Tables 9 and 10 and on Figures 11 and 12, respectively. The North and South Systems have removed approximately 210 and 2,220 pounds of VOCs since startup in October 2011, respectively. Including the mass removed from the 2008 SVE System, the total mass removal by SVE at the Facility to date is approximately 5,580 pounds.

6.0 Future Activities

Quarterly groundwater monitoring for the first and second quarters of 2016 will be conducted in March and June 2016, respectively. The proposed sampling will be completed in accordance with the GWMP (Ash Creek, 2008). SVE operations and maintenance will occur on a monthly basis in accordance with the schedule proposed in the *2011 Interim Action Evaluation Report* (Ash Creek, 2012). A joint Draft NuStar – Port of Vancouver Feasibility Study (FS) was submitted to Ecology in January 2015. Ecology issued additional comments on the FS in November 2015, partially in response to comments posed to Ecology during the public comment period. In February 2016, Ecology provided further additional comments on the

Draft FS. Upon addressing those comments and Ecology approval of the Feasibility Study, a Draft Cleanup Action Plan will be prepared by NuStar and the Port of Vancouver and submitted to Ecology.

Due to potential delays in groundwater treatment that may occur while the FS is pending approval, NuStar proposed to implement the NuStar source area remedial action proposed in the FS (additional bioremediation injections along the southern portion of the property) as an interim cleanup action. An *Interim Action Work Plan* was submitted to Ecology on November 24, 2015. Per Ecology's request, the interim action will also include baseline sediment and surface water sampling in the Columbia River. Ecology submitted the work plan to the Confederated Tribes and Bands of the Yakama Nation for review and comment in December 2015. Upon Ecology approval of the Draft Interim Action Work Plan, the work plan will be posted for a 30 day public comment period.

7.0 References

Apex, 2013. *First Semi-Annual Groundwater Monitoring Report, January through June 2013. NuStar Vancouver Facility Vancouver, Washington.* August 14, 2013.

Apex Companies, LLC (Apex), 2015. *2015 Interim Action Work Plan. NuStar Vancouver Facility Vancouver, Washington.* September 15, 2015.

Ash Creek Associates, Inc. (Ash Creek), 2007. *Release Area Interim Action Design, Support Terminals Services Vancouver Facility.* May 8, 2007.

Ash Creek, 2008. *Groundwater Monitoring Plan, NuStar Vancouver Facility, Vancouver, Washington.* May 1, 2008.

Ash Creek, 2009a. *Revised Remedial Investigation Report, NuStar Terminals Services, Inc. Vancouver Main Terminal.* October 1, 2009.

Ash Creek, 2009b. *Interim Action Installation Report. NuStar Terminals Services, Inc., Vancouver Washington.* May 5, 2009.

Ash Creek, 2010. (DRAFT) *Feasibility Study NuStar Terminals Services, Inc. Vancouver Main Terminal Vancouver, Washington.* January 14, 2010.

Ash Creek, 2011. *2011 Interim Action Work Plan NuStar Vancouver Facility, Vancouver, Washington.* March 25, 2011.

Ash Creek, 2012. *2011 Interim Action Evaluation Report. NuStar Vancouver Facility, Vancouver, Washington.* March 29, 2012.

Table 1
 Groundwater Monitoring Plan: Third and Fourth Quarters 2015
 NuStar Vancouver Facility
 Vancouver, Washington

Monitoring Program	Well ID	Groundwater Zone	Included Monitoring Wells	
			Third Quarter	Fourth Quarter
Groundwater monitoring includes depth-to-water measurement.	MW-1	Shallow	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	MW-2	Shallow	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	MW-3	Shallow	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	MW-5	Shallow	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	MW-6	Shallow	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	MW-7	Shallow	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	MW-8	Shallow	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	MW-9	Shallow	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	MW-10	Shallow	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	MW-12	Shallow	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	MW-13	Shallow	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	MW-14	Shallow	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	MW-15	Shallow	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	MW-16	Shallow	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	MW-17	Shallow	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	MW-18i	Intermediate	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	MW-19	Shallow	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	MW-19i	Intermediate	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	MW-20i	Intermediate	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	MW-21i-40	Intermediate	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	MW-21i-105	Intermediate	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	MW-22i	Intermediate	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	MW-23i	Intermediate	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	MW-24i	Intermediate	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	MW-24d	Deep	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	MW-25i	Intermediate	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	MW-26	Shallow	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	MW-30i	Intermediate	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	MW-31i	Intermediate	<input type="checkbox"/>	<input type="checkbox"/>
	MW-32s	Shallow	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	MW-32i	Intermediate	<input type="checkbox"/>	<input type="checkbox"/>
	MGMS1-3(43)	Shallow	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	MGMS1-2 (60)	Intermediate	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	MGMS1-1(110)	Lower Intermediate	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	MGMS2-4(40)	Shallow	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	MGMS2-3 (60)	Intermediate	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	MGMS2-2(110)	Lower Intermediate	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	MGMS2-1(132)	Lower Intermediate	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	MGMS3-4(40)	Shallow	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Please refer to notes at end of table.

Table 1
 Groundwater Monitoring Plan: Third and Fourth Quarters 2015
 NuStar Vancouver Facility
 Vancouver, Washington

Monitoring Program	Well ID	Groundwater Zone	Included Monitoring Wells	
			Third Quarter	Fourth Quarter
Groundwater monitoring includes depth-to-water measurement.	MGMS3-3(60)	Intermediate	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	MGMS3-2(101)	Lower Intermediate	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	MGMS3-1(132)	Lower Intermediate	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	MW-E	Shallow	<input type="checkbox"/>	<input type="checkbox"/>
	MW-F	Shallow	<input type="checkbox"/>	<input type="checkbox"/>
	MW-G	Shallow	<input type="checkbox"/>	<input type="checkbox"/>
	EW-1	Shallow	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	EX	Shallow	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	MP-1	Shallow	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	MP-2	Shallow	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	MP-3	Shallow	<input type="checkbox"/>	<input type="checkbox"/>
	MP-4	Shallow	<input type="checkbox"/>	<input type="checkbox"/>
	S-1	Intermediate	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	S-2	Shallow	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Notes:

- = Included in sampling program represented in this report.
- = Not included in sampling program represented in this report: water level measurement only.
- Wells MW-E, MW-G, MW-30i, MW-31i, and MW-32i are sampled by the Port of Vancouver.

Table 2
 Groundwater Elevation Data: 2015
 NuStar Vancouver Facility
 Vancouver, Washington

Well Number/ (TOC Elevation)	Date of Measurement	Depth to Water (feet BTOC)	Groundwater Elevation (feet)
<i>Groundwater Monitoring Wells</i>			
MW-1 (32.60)	03/17/15	25.30	7.30
	06/15/15	26.71	5.89
	09/17/15	27.80	4.80
	12/09/15	21.81	10.79
MW-2 (34.04)	03/17/15	28.64	5.40
	06/15/15	28.04	6.00
	09/17/15	29.16	4.88
	12/09/15	24.13	9.91
MW-3 (34.41)	03/17/15	27.21	7.20
	06/15/15	27.93	6.48
	09/17/15	29.80	4.61
	12/09/15	26.92	7.49
MW-5 (33.86)	03/17/15	26.43	7.43
	06/15/15	27.67	6.19
	09/17/15	29.16	4.70
	12/09/15	26.42	7.44
MW-6 (32.83)	03/17/15	25.06	7.77
	06/15/15	26.53	6.30
	09/17/15	28.00	4.83
	12/09/15	23.22	9.61
MW-7 (33.74)	03/17/15	26.23	7.51
	06/15/15	27.38	6.36
	09/17/15	28.85	4.89
	12/09/15	26.99	6.75
MW-8 (33.97)	03/17/15	25.90	8.07
	06/15/15	27.10	6.87
	09/17/15	28.47	5.50
	12/09/15	25.71	8.26
MW-9 (33.86)	03/17/15	26.26	7.60
	06/15/15	27.59	6.27
	09/17/15	29.03	4.83
	12/09/15	26.91	6.95
MW-10 (34.83)	03/17/15	25.70	9.13
	06/15/15	27.12	7.71
	09/17/15	29.22	5.61
	12/09/15	27.20	7.63

Please refer to notes at end of table.

Table 2
 Groundwater Elevation Data: 2015
 NuStar Vancouver Facility
 Vancouver, Washington

Well Number/ (TOC Elevation)	Date of Measurement	Depth to Water (feet BTOC)	Groundwater Elevation (feet)
MW-12 (31.43)	03/17/15	24.02	7.41
	06/15/15	25.38	6.05
	09/17/15	26.59	4.84
	12/09/15	20.15	11.28
MW-13 (33.15)	03/17/15	25.80	7.35
	06/15/15	27.05	6.10
	09/17/15	28.40	4.75
	12/09/15	23.74	9.41
MW-14 (33.81)	03/17/15	26.33	7.48
	06/15/15	27.57	6.24
	09/17/15	28.97	4.84
	12/09/15	Not gauged; monument under water.	
MW-15 (39.13)	03/17/15	31.60	7.53
	06/15/15	32.74	6.39
	09/17/15	34.01	5.12
	12/09/15	32.38	6.75
MW-16 (33.05)	03/17/15	25.70	7.35
	06/15/15	26.89	6.16
	09/17/15	28.08	4.97
	12/09/15	Not gauged; monument under water.	
MW-17 (32.65)	03/17/15	25.32	7.33
	06/15/15	26.52	6.13
	09/17/15	27.80	4.85
	12/09/15	23.95	8.70
MW-18i (33.40)	03/17/15	26.30	7.10
	06/15/15	28.42	4.98
	09/17/15	28.44	4.96
	12/09/05	22.58	10.82
MW-19 (33.59)	03/17/15	26.26	7.33
	06/15/15	27.48	6.11
	09/17/15	28.86	4.73
	12/09/15	25.72	7.87
MW-19i (33.62)	03/17/15	26.55	7.07
	06/15/15	28.79	4.83
	09/17/15	28.67	4.95
	12/09/15	22.73	10.89

Please refer to notes at end of table.

Table 2
 Groundwater Elevation Data: 2015
 NuStar Vancouver Facility
 Vancouver, Washington

Well Number/ (TOC Elevation)	Date of Measurement	Depth to Water (feet BTOC)	Groundwater Elevation (feet)
MW-20i (33.14)	03/17/15	26.10	7.04
	06/15/15	28.27	4.87
	09/17/15	28.22	4.92
	12/09/15	Not gauged; monument under water.	
MW21i-40 (34.10)	03/17/15	27.02	7.08
	06/15/15	29.14	4.96
	09/17/15	29.01	5.09
	12/09/15	23.33	10.77
MW-21i-105 (33.99)	03/17/15	26.91	7.08
	06/15/15	28.95	5.04
	09/17/15	29.12	4.87
	12/07/15	23.45	10.54
MW-22i (34.39)	03/17/15	27.31	7.08
	06/15/15	29.42	4.97
	09/17/15	29.46	4.93
	12/07/15	23.67	10.72
MW-23i (33.80)	03/17/15	26.72	7.08
	06/15/15	28.82	4.98
	09/17/15	28.69	5.11
	12/09/15	22.85	10.95
MW-24i (33.47)	03/17/15	26.31	7.16
	06/15/15	28.77	4.70
	09/17/15	28.42	5.05
	12/09/15	26.56	6.91
MW-25i (33.58)	03/17/15	26.53	7.05
	06/15/15	28.64	4.94
	09/17/15	28.59	4.99
	12/09/15	22.79	10.79
MW-26 (33.73)	03/17/15	26.15	7.58
	06/15/15	27.45	6.28
	09/17/15	28.90	4.83
	12/07/15	27.43	6.30
MW-24d (33.91)	03/17/15	26.65	7.26
	06/15/15	28.51	5.40
	09/17/15	29.25	4.66
	12/07/15	22.55	11.36

Please refer to notes at end of table.

Table 2
 Groundwater Elevation Data: 2015
 NuStar Vancouver Facility
 Vancouver, Washington

Well Number/ (TOC Elevation)	Date of Measurement	Depth to Water (feet BTOC)	Groundwater Elevation (feet)
EW-1 (31.40)	03/17/15	24.07	7.33
	06/15/15	25.40	6.00
	09/17/15	26.60	4.80
	12/09/15	19.45	11.95
<i>Secor Interim Action Pilot Study Wells</i>			
S-1 (33.24)	03/17/15	26.11	7.13
	06/15/15	28.28	4.96
	09/17/15	28.20	5.04
	12/09/15	22.30	10.94
S-2 (33.15)	03/17/15	26.15	7.00
	06/15/15	27.22	5.93
	09/17/15	28.20	4.95
	12/09/15	22.40	10.75
<i>Multi-Level Monitoring Wells</i>			
MGMS1-3 (43)* (32.86)	03/17/15	NM	NM
	06/16/15	26.82	6.04
	09/17/15	28.38	4.48
	12/09/15	21.70	11.16
MGMS1-2(60)* (32.86)	03/17/15	NM	NM
	06/16/15	27.70	5.16
	09/17/15	28.15	4.71
	12/09/15	22.92	9.94
MGMS1-1(110)* (32.86)	03/17/15	NM	NM
	06/16/15	NM	NM
	09/17/15	28.14	NM
	12/09/15	23.70	9.16
MGMS2-4(40)* (32.59)	03/17/15	NM	NM
	06/16/15	26.83	5.76
	09/17/15	28.05	4.54
	12/09/15	21.38	11.21
MGMS2-3(60)* (32.59)	03/17/15	NM	NM
	06/16/15	27.77	4.82
	09/17/15	28.02	4.57
	12/09/15	21.41	11.18
MGMS2-2(110)* (32.59)	03/17/15	NM	NM
	06/16/15	NM	NM
	09/17/15	28.12	4.47
	12/09/15	21.38	11.21

Please refer to notes at end of table.

Table 2
 Groundwater Elevation Data: 2015
 NuStar Vancouver Facility
 Vancouver, Washington

Well Number/ (TOC Elevation)	Date of Measurement	Depth to Water (feet BTOC)	Groundwater Elevation (feet)
MGMS2-1(132)* (32.59)	03/17/15	NM	NM
	06/16/15	NM	NM
	09/17/15	28.14	4.45
	12/09/15	24.51	8.08
MGMS3-4(40)* (31.65)	03/17/15	NM	NM
	06/16/15	26.10	5.55
	09/17/15	26.86	4.79
	12/09/15	20.28	11.37
MGMS3-3(60)* (31.65)	03/17/15	NM	NM
	06/16/15	26.61	5.04
	09/17/15	26.80	4.85
	12/09/15	20.23	11.42
MGMS3-2(101)* (31.65)	03/17/15	NM	NM
	06/16/15	NM	NM
	09/17/15	26.85	4.80
	12/09/15	20.18	11.47
MGMS3-1(132)* (31.65)	03/17/15	NM	NM
	06/16/15	NM	NM
	09/17/15	26.87	4.78
	12/09/15	20.17	11.48
<i>Port of Vancouver Wells</i>			
MW-30i* (29.77)	03/17/15	22.76	7.01
	06/15/15	24.85	4.92
	09/17/15	24.96	4.81
	12/09/15	Unable to locate; under new gravel.	
MW-31i* (31.33)	03/17/15	24.40	6.93
	06/15/15	26.46	4.87
	09/17/15	26.60	4.73
	12/9/2015	20.76	10.57
MW-32s (34.34)	03/17/15	27.35	6.99
	06/15/15	28.45	5.89
	09/17/15	29.85	4.49
	12/09/15	26.22	8.12
MW-32i* (34.41)	03/17/15	27.40	7.01
	06/15/15	29.48	4.93
	09/17/15	29.55	4.86
	12/09/15	23.74	10.67

Please refer to notes at end of table.

Table 2
 Groundwater Elevation Data: 2015
 NuStar Vancouver Facility
 Vancouver, Washington

Well Number/ (TOC Elevation)	Date of Measurement	Depth to Water (feet BTOC)	Groundwater Elevation (feet)
MW-E (30.64)	03/17/15	24.12	6.52
	06/15/15	25.46	5.18
	09/17/15	26.30	4.34
	102/9/15	20.57	10.07
MW-F (33.48)	03/17/15	27.09	6.39
	06/15/15	28.28	5.20
	09/17/15	Dry	NA
	12/09/15	23.45	10.03
MW-G* (31.50)	03/17/15	25.11	6.39
	06/15/15	26.64	4.86
	09/17/15	27.57	3.93
	12/09/15	21.70	9.80

Notes:

1. TOC = Top of casing; BTOC = Below top of casing.
2. Utilizes new survey information from June 2010. NGVD29 datum (ft MSL).
3. * Water levels measurement points are located at the top of the plastic fittings mounted on the well covers.
5. NM = Not measured.
6. NA = not applicable. Well was dry.
7. Deep zone MGMS ports were inadvertently not gauged during the March and June 2015 monitoring event.

Table 3
Groundwater Analytical Results: 2015
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride	
		Concentrations in mg/L (ppm)															
MW-1	3/19/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0062	< 0.00050	< 0.00050	0.0474	0.00067	< 0.00050	0.0011	< 0.00050	< 0.00050	0.0019	< 0.0050	
	6/17/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0095	< 0.00050	< 0.00050	0.0750	0.00080	< 0.00050	0.0043	< 0.00050	< 0.00050	0.0046	0.0049	
	9/24/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0084	< 0.00050	< 0.00050	0.0391	0.00065	< 0.00050	0.0028	< 0.00050	< 0.00050	0.0024	0.0327	
	12/8/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0014	< 0.00050	< 0.00050	0.0252	< 0.00050	< 0.00050	0.0180	< 0.00050	< 0.00050	0.0089	< 0.00050	
MW-2	9/30/2014	< 0.00050	0.0023	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	
	3/19/2015	< 0.00050	0.00096	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	
	9/23/2015	< 0.00050	0.0027	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	
MW-3	12/11/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	
	3/19/2015	< 0.00050	< 0.00050	0.00086	< 0.00050	0.0011	< 0.00050	< 0.00050	0.049	0.0020	0.00088	0.16	0.0028	< 0.00050	0.044	< 0.00050	
	6/15/2015	< 0.00050	< 0.00050	0.00085	< 0.00050	0.0082	0.00056	< 0.00050	0.106	0.0021	0.0015	0.169	0.0021	< 0.00050	0.0402	< 0.00050	
	12/9/2015	< 0.00050	< 0.00050	0.00066	< 0.00050	0.0049	< 0.00050	< 0.00050	0.072	0.0018	0.0011	0.145	0.0018	< 0.00050	0.0336	< 0.00050	
MW-5	3/19/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.027	< 0.00050	< 0.00050	0.0084	< 0.00050	< 0.00050	0.0058	0.0056	
	6/17/2015	< 0.00050	0.0022	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0032	< 0.00050	< 0.00050	0.00063	< 0.00050	< 0.00050	0.00064	< 0.00050	
	9/24/2015	< 0.00050	0.0246	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0040	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0013	
	12/8/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00073	0.1990	< 0.00050	< 0.00050	0.0295	< 0.00050	< 0.00050	0.0432	0.0323
	12/8/2015 DUP	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00068	0.1750	< 0.00050	< 0.00050	0.0271	< 0.00050	< 0.00050	0.0385	0.0284
MW-6	10/2/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	
	3/19/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	
	9/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	
MW-7	3/20/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0010	< 0.00050	< 0.00050	0.0084	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0011	0.0010	
	3/20/15 DUP	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0010	< 0.00050	< 0.00050	0.0077	< 0.00050	< 0.00050	0.00053	< 0.00050	< 0.00050	0.0010	0.0104	
	6/17/2015	< 0.00050	0.00072	< 0.00050	< 0.00050	0.0026	< 0.00050	< 0.00050	0.012	< 0.00050	< 0.00050	0.0012	< 0.00050	< 0.00050	0.0010	0.0126	
	6/17/2015 DUP	< 0.00050	0.00071	< 0.00050	< 0.00050	0.0026	< 0.00050	< 0.00050	0.0122	< 0.00050	< 0.00050	0.00096	< 0.00050	< 0.00050	0.0010	0.0123	
	9/24/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0017	< 0.00050	< 0.00050	0.0124	< 0.00050	< 0.00050	0.0045	< 0.00050	< 0.00050	0.0042	0.0046	
	9/24/2015 DUP	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0018	< 0.00050	< 0.00050	0.0127	< 0.00050	< 0.00050	0.0045	< 0.00050	< 0.00050	0.0042	0.0048	
	12/8/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0041	< 0.00050	< 0.00050	0.0094	< 0.00050	< 0.00050	0.0017	0.0019	
MW-8	3/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0013	< 0.00050	< 0.00050	0.0076	< 0.00050	< 0.00050	< 0.00050	< 0.00050	
	6/17/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0059	< 0.00050	< 0.00050	< 0.00050	< 0.00050	
	9/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0020	< 0.00050	< 0.00050	0.0063	< 0.00050	< 0.00050	< 0.00050	< 0.00050	
	12/7/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0020	< 0.00050	< 0.00050	0.0011	< 0.00050	< 0.00050	< 0.00050	< 0.00050	
MW-9	3/19/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00077	< 0.00050	< 0.00050	0.019	0.00060	< 0.00050	0.155	0.0020	< 0.00050	0.0595	< 0.00050	
	6/17/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00093	< 0.00050	< 0.00050	0.013	0.00078	< 0.00050	0.16	0.0019	< 0.00050	0.0618	0.0016	
	9/17/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0024	< 0.00050	< 0.00050	0.0743	0.0022	< 0.00050	0.0316	< 0.00050	
	12/8/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00350	< 0.00050	0.00085	0.1450	0.00420	< 0.00050	0.1990	0.0024	< 0.00050	0.1130	0.0020	
	12/8/2015 DUP	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00370	< 0.00050	0.00093	0.1530	0.00440	< 0.00050	0.1980	0.0025	< 0.00050	0.1180	0.0021	

Please refer to notes at end of table.

Table 3
Groundwater Analytical Results: 2015
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
		Concentrations in mg/L (ppm)														
MW-10	9/26/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0020	< 0.00050	< 0.00050	0.0020	< 0.00050
	3/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0017	< 0.00050	< 0.00050	0.0018	< 0.00050
	9/21/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0024	< 0.00050	< 0.00050	0.0016	< 0.00050
MW-12	3/20/2015	<0.0050	<0.0050	<0.0050	<0.0050	0.102	<0.0050	0.0254	2.11	0.0294	<0.0050	0.584	0.0178	<0.0050	0.344	0.0368
	3/20/15 DUP	<0.0125	<0.0125	<0.0125	<0.0125	0.143	<0.0125	0.0258	2.49	0.0288	<0.0125	0.495	0.0217	<0.0125	0.340	0.0290
	6/19/2015	<0.010	<0.010	<0.010	<0.010	0.151	<0.010	0.0282	2.57	0.025	<0.010	0.514	0.0236	<0.010	0.356	0.0311
	6/19/2015 DUP	<0.010	<0.010	<0.010	<0.010	0.157	<0.010	0.0310	2.68	0.030	<0.010	0.516	0.0234	<0.010	0.362	0.0332
	9/22/2015	<0.0083	<0.0083	<0.0083	<0.0083	0.120	<0.0083	0.0169	2.25	0.0234	<0.0083	0.343	0.0157	<0.0083	0.239	0.0225
	9/22/2015 DUP	<0.0083	<0.0083	<0.0083	<0.0083	0.134	<0.0083	0.0214	2.49	0.0257	<0.0083	0.425	0.0201	<0.0083	0.282	0.0265
12/8/2015	<0.0050	<0.0050	<0.0050	<0.0050	0.008	<0.0050	<0.0050	0.0401	0.0007	<0.0050	0.045	0.0005	<0.0050	0.022	<0.0050	
MW-13	3/18/2015	<0.0016	<0.0016	<0.0016	<0.0016	0.019	<0.0016	0.0031	0.515	0.0074	<0.0016	0.551	0.0024	<0.0016	0.609	<0.0016
	6/18/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.0339	<0.00050	0.0159	0.615	0.0153	<0.00050	1.96	0.0104	<0.00050	1.39	0.0020
	9/22/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.0339	<0.00050	0.0210	0.754	0.0156	<0.00050	2.37	0.0104	<0.00050	1.74	0.0024
	12/8/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.00089	<0.00050	0.00064	0.305	0.00088	<0.00050	0.185	0.0007	<0.00050	0.121	<0.00050
MW-14	3/18/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.0154	<0.00050	0.0059	0.128	0.0022	<0.00050	0.31	0.0059	<0.00050	0.91	<0.00050
	6/16/2015	<0.0031	<0.0031	<0.0031	<0.0031	0.0147	<0.0031	0.0049	0.117	<0.0031	<0.0031	0.25	0.0044	<0.0031	0.79	<0.0031
	9/21/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0152	< 0.00050	0.0056	0.116	0.0021	< 0.00050	0.201	0.0047	< 0.00050	0.654	< 0.00050
	12/8/2015	Not sampled; well monument under water.														
MW-15	9/30/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00087	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	3/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	9/23/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00062	< 0.00050	< 0.00050	< 0.00050	< 0.00050
MW-16	3/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00070	< 0.00050	< 0.00050	0.0060	< 0.00050	< 0.00050	0.157	0.00094	< 0.00050	0.031	< 0.00050
	6/17/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.00061	<0.00050	<0.00050	0.0105	<0.00050	<0.00050	0.179	0.0010	<0.00050	0.0416	<0.00050
	9/23/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.00056	<0.00050	0.00065	0.0104	<0.00050	<0.00050	0.173	0.0012	<0.00050	0.0435	<0.00050
	12/7/2015	Not sampled; well monument under water.														
MW-17	9/24/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0015	< 0.00050	< 0.00050	0.0032	< 0.00050	< 0.00050	0.0068	< 0.00050
	3/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00071	< 0.00050	< 0.00050	0.0024	< 0.00050	< 0.00050	0.0039	< 0.00050	< 0.00050	0.0126	< 0.00050
	9/17/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00053	< 0.00050	< 0.00050	0.0025	< 0.00050	< 0.00050	0.0042	< 0.00050
MW-18i	3/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0023	< 0.00050	< 0.00050	0.0020	< 0.00050	< 0.00050	0.0011	< 0.00050
	6/17/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0013	<0.00050	<0.00050	0.0020	<0.00050	<0.00050	0.0011	<0.00050
	9/23/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0035	<0.00050	<0.00050	0.0034	<0.00050	<0.00050	0.0018	<0.00050
	12/7/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0065	<0.00050	<0.00050	0.0040	<0.00050	<0.00050	0.0026	<0.00050

Please refer to notes at end of table.

Table 3
Groundwater Analytical Results: 2015
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
		Concentrations in mg/L (ppm)														
MW-19	3/18/2015	<0.0042	<0.0042	<0.0042	<0.0042	0.073	<0.0042	0.048	1.46	0.018	<0.0042	5.92	0.057	<0.0042	3.97	0.0537
	3/18/2015 DUP	<0.0042	<0.0042	<0.0042	<0.0042	0.083	<0.0042	0.0479	1.41	0.018	<0.0042	4.93	0.056	<0.0042	3.50	0.0466
	6/18/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.022	<0.0005	0.0485	0.628	0.0066	<0.00050	8.08	0.094	<0.00050	2.20	0.0280
	6/18/2015 DUP	<0.00050	<0.00050	<0.00050	<0.00050	0.023	<0.00050	0.0488	0.614	0.0075	<0.00050	7.99	0.095	<0.00050	2.09	0.0307
	9/22/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.0049	<0.00050	0.0317	0.185	0.0020	<0.00050	7.20	0.0748	<0.00050	0.791	0.0068
	12/8/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.150	<0.0005	0.0335	1.640	0.0164	<0.00050	2.90	0.036	<0.00050	1.55	0.0873
	12/8/15 DUP	<0.00050	<0.00050	<0.00050	<0.00050	0.1550	<0.00050	0.0351	1.680	0.0172	<0.00050	3.02	0.0371	<0.00050	1.60	0.0898
MW-19i	3/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0040	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	6/16/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0063	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	9/23/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.00075	<0.00050	<0.00050	0.0110	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	12/7/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0030	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
MW-20i	3/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0103	< 0.00050	< 0.00050	0.0030	< 0.00050	< 0.00050	0.0017	< 0.00050
	6/17/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0108	<0.00050	<0.00050	0.0037	<0.00050	<0.00050	0.0022	<0.00050
	9/23/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.00069	<0.00050	<0.00050	0.0138	<0.00050	<0.00050	0.0041	<0.00050	<0.00050	0.0021	<0.00050
	12/7/2015								Not sampled; well monument under water.							
MW-21i-105	3/17/2015	<0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0133	< 0.00050	< 0.00050	0.0066	< 0.00050	< 0.00050	0.0054	< 0.00050
	6/17/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0208	<0.00050	<0.00050	0.0035	<0.00050	<0.00050	0.0040	<0.00050
	9/23/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.00091	<0.00050	<0.00050	0.0414	<0.00050	<0.00050	0.0034	<0.00050	<0.00050	0.0054	<0.00050
	12/7/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.00079	<0.00050	<0.00050	0.0285	<0.00050	<0.00050	0.0049	<0.00050	<0.00050	0.0081	<0.00050
MW-21i-40	3/17/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0038	<0.00050	0.0015	0.102	0.00051	<0.00050	0.0436	<0.00050	<0.00050	0.0372	<0.00050
	6/19/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.0027	<0.00050	0.00076	0.0616	<0.00050	<0.00050	0.0247	<0.00050	<0.00050	0.0218	<0.00050
	9/23/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.0033	<0.00050	0.00095	0.0842	<0.00050	<0.00050	0.0263	<0.00050	<0.00050	0.0266	<0.00050
	12/7/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.0028	<0.00050	0.00070	0.0636	<0.00050	<0.00050	0.0247	<0.00050	<0.00050	0.0211	<0.00050
MW-22i	3/17/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0082	< 0.00050	< 0.00050	0.0018	< 0.00050	< 0.00050	0.0087	< 0.00050
	6/16/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0086	<0.00050	<0.00050	0.0016	<0.00050	<0.00050	0.0090	<0.00050
	9/23/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	<0.00050	<0.00050	0.010	<0.00050	<0.00050	0.0021	<0.00050	<0.00050	0.0115	<0.00050
	12/7/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.008	<0.00050	<0.00050	0.0021	<0.00050	<0.00050	0.0110	<0.00050
MW-23i	3/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00078	< 0.00050
	6/16/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	9/17/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	12/7/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
MW-24i	3/20/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00058	< 0.00050	< 0.00050	0.0059	< 0.00050	< 0.00050	0.0061	< 0.00050	< 0.00050	0.0031	< 0.00050
	6/18/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0034	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	9/22/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.0019	<0.00050	<0.00050	0.0047	<0.00050	<0.00050	0.0022	<0.00050	<0.00050	0.0008	<0.00050
	12/8/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.0007	<0.00050	<0.00050	0.018	<0.00050	<0.00050	0.1890	<0.00050	<0.00050	0.0364	<0.00050

Please refer to notes at end of table.

Table 3
Groundwater Analytical Results: 2015
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
		Concentrations in mg/L (ppm)														
MW-24d	3/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0038	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	6/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0038	< 0.00050	< 0.00050	0.0038	< 0.00050	< 0.00050	0.0017	< 0.00050
	9/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0021	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	12/9/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
MW-25i	3/17/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	6/16/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	9/21/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00075	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	12/7/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
MW-26	3/17/2015	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.0058	< 0.0010	0.0017	0.0757	0.0018	< 0.0010	0.265	0.0037	< 0.0010	0.458	< 0.0010
	6/16/2015	< 0.0017	< 0.0017	< 0.0017	< 0.0017	0.0050	< 0.0017	< 0.0017	0.0779	< 0.0017	< 0.0017	0.205	0.0028	< 0.0017	0.385	< 0.0017
	9/21/2015	< 0.0017	< 0.0017	< 0.0017	< 0.0017	0.0043	< 0.0017	< 0.0017	0.0724	0.0017	< 0.0017	0.176	0.0027	< 0.0017	0.326	< 0.0017
	12/7/2015	< 0.0012	< 0.0012	< 0.0012	< 0.0012	0.0085	< 0.0012	0.0017	0.0750	0.0016	< 0.0012	0.179	0.0035	< 0.0012	0.393	< 0.0012
MW-32s	12/11/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	3/19/2015	< 0.00050	< 0.00050	0.00077	< 0.00050	0.0015	< 0.00050	< 0.00050	0.074	0.0025	< 0.00050	< 0.00050	0.0035	< 0.00050	0.052	< 0.00050
	6/17/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	12/7/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
EW-1	3/20/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0013	< 0.00050	< 0.00050	0.032	0.0016	< 0.00050	0.012	< 0.00050
	9/27/2014	Insufficient water for sampling during monitoring event.														
	9/21/2015	< 0.00050	< 0.00050	0.0020	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0039	< 0.00050	< 0.00050	0.0453	0.00056	< 0.00050	0.0125
S-1	3/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00073	< 0.00050	< 0.00050	0.0014	< 0.00050
	6/16/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0018	< 0.00050
	9/21/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0012	< 0.00050	< 0.00050	0.0016	< 0.00050	< 0.00050	0.0051	< 0.00050
	12/8/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0006	< 0.00050
S-2	12/9/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0039	< 0.00050	< 0.00050	0.0046	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	3/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0045	< 0.00050	< 0.00050	0.0055	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	6/16/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0041	< 0.00050	< 0.00050	0.0038	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	12/8/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0030	< 0.00050	< 0.00050	0.0032	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
MGMS1-3(43)	3/19/2015	< 0.0125	< 0.0125	< 0.0125	< 0.0125	0.131	< 0.0125	< 0.0125	2.45	0.017	< 0.0125	0.03	< 0.0125	< 0.0125	0.13	0.25
	6/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0027	< 0.00050	< 0.00050	0.0591	< 0.00050	< 0.00050	0.00084	< 0.00050	< 0.00050	0.0028	0.0031
	9/21/2015	< 0.0100	< 0.0100	< 0.0100	< 0.0100	0.124	< 0.0100	0.0141	2.81	0.0248	< 0.0100	0.0535	< 0.0100	< 0.0100	0.171	0.129
	12/8/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.092	< 0.00050	< 0.00050	1.58	0.0115	< 0.00050	0.0262	< 0.00050	< 0.00050	0.088	0.23
MGMS1-2(60)	3/19/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0011	< 0.00050	< 0.00050	0.026	< 0.00050	< 0.00050	0.023	< 0.00050	< 0.00050	0.016	< 0.00050
	6/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0010	< 0.00050	< 0.00050	0.018	< 0.00050	< 0.00050	0.0091	< 0.00050
	9/21/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0023	< 0.00050	< 0.00050	0.0016	< 0.00050
	12/8/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0188	< 0.00050	< 0.00050	0.0138	< 0.00050	< 0.00050	0.0124	< 0.00050

Please refer to notes at end of table.

Table 3
Groundwater Analytical Results: 2015
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
		Concentrations in mg/L (ppm)														
MGMS1-1(110)	9/24/2014	Not sampled: 60 foot port accidentally sampled twice.														
	3/19/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0027	< 0.00050	0.00069	0.126	< 0.00050	< 0.00050	0.0237	< 0.00050	< 0.00050	0.0415	0.00082
	9/21/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0011	< 0.00050	< 0.00050	0.0490	< 0.00050	< 0.00050	0.0194	< 0.00050	< 0.00050	0.0204	< 0.00050
MGMS2-4(40)	3/20/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0043	< 0.00050	0.0039	0.047	< 0.00050	< 0.00050	0.0306	< 0.00050	< 0.00050	0.0221	0.0173
	6/19/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0138	< 0.00050	0.0013	0.054	< 0.00050	< 0.00050	0.0184	< 0.00050	< 0.00050	0.0128	0.0483
	9/25/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0123	< 0.00050	0.0042	0.105	0.00061	< 0.00050	0.0674	0.00092	< 0.00050	0.0459	0.0578
	12/8/2015	< 0.00050	0.0038	< 0.00050	< 0.00050	0.0135	< 0.00050	< 0.00050	0.007	< 0.00050	< 0.00050	0.0040	< 0.00050	< 0.00050	0.0028	0.0033
MGMS2-3(60)	3/20/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0016	< 0.00050	< 0.00050	0.0294	< 0.00050	< 0.00050	0.0414	< 0.00050	< 0.00050	0.0243	0.0052
	6/19/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0020	< 0.00050	0.00056	0.0381	< 0.00050	< 0.00050	0.0351	< 0.00050	< 0.00050	0.0235	0.0079
	9/25/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0025	< 0.00050	0.00050	0.0516	< 0.00050	< 0.00050	0.0184	< 0.00050	< 0.00050	0.0158	0.0097
	12/8/2015	Well Damaged, Unable to Sample														
MGMS2-2(110)	9/23/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.025	< 0.00050	< 0.00050	0.012	< 0.00050	< 0.00050	0.0073	0.0049
	3/19/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0183	< 0.00050	< 0.00050	0.0079	< 0.00050	< 0.00050	0.0048	0.0046
	9/25/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0153	< 0.00050	< 0.00050	0.0094	< 0.00050	< 0.00050	0.0059	0.0041
MGMS2-1(132)	9/23/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.032	< 0.00050	< 0.00050	0.0098	< 0.00050	< 0.00050	0.0060	0.0055
	3/19/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0105	< 0.00050	< 0.00050	0.0094	< 0.00050	< 0.00050	0.0044	0.00075
	9/25/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0205	< 0.00050	< 0.00050	0.0067	< 0.00050	< 0.00050	0.0052	0.0046
MGMS3-4(40)	3/18/2015	< 0.0016	< 0.0016	< 0.0016	< 0.0016	0.02	< 0.0016	0.0032	0.896	0.0073	< 0.0016	0.249	< 0.0016	< 0.0016	0.159	0.022
	3/18/2015 DUP	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.017	< 0.00050	0.0024	0.713	0.0055	< 0.00050	0.194	< 0.00050	< 0.00050	0.124	0.017
	6/19/2015	< 0.00084	< 0.00084	< 0.00084	< 0.00084	0.0072	< 0.00084	< 0.00084	0.339	0.0032	< 0.00084	0.0344	< 0.00084	< 0.00084	0.0328	0.073
	9/22/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0028	< 0.00050	< 0.00050	0.164	< 0.00050	< 0.00050	0.0025	< 0.00050	< 0.00050	0.0086	0.0619
	9/22/2015 DUP	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0025	< 0.00050	< 0.00050	0.151	0.0012	< 0.00050	0.0023	< 0.00050	< 0.00050	0.0078	0.0519
	12/7/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0091	< 0.00050	0.002	0.370	0.0031	< 0.00050	0.1090	< 0.00050	< 0.00050	0.0948	0.0040
MGMS3-3(60)	3/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.012	< 0.00050	< 0.00050	0.0060	< 0.00050	< 0.00050	0.0037	< 0.00050
	6/19/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0060	< 0.00050	< 0.00050	0.0035	< 0.00050	< 0.00050	0.0016	< 0.00050
	9/22/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0077	< 0.00050	< 0.00050	0.0039	< 0.00050	< 0.00050	0.0020	0.00060
	12/7/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00075	< 0.00050	< 0.00050	0.0139	< 0.00050	< 0.00050	0.0042	< 0.00050	< 0.00050	0.0025	0.0167
MGMS3-2(101)	9/23/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0037	< 0.00050	< 0.00050	0.0030	< 0.00050	< 0.00050	0.0015	< 0.00050
	3/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0051	< 0.00050	< 0.00050	0.0044	< 0.00050	< 0.00050	0.0028	< 0.00050
	9/22/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0053	< 0.00050	< 0.00050	0.0038	< 0.00050	< 0.00050	0.0026	0.0012
MGMS3-1(132)	9/23/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00054	< 0.00050	< 0.00050	0.0089	< 0.00050	< 0.00050	0.0090	< 0.00050	< 0.00050	0.0079	< 0.00050
	3/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00053	< 0.00050	< 0.00050	0.0093	< 0.00050	< 0.00050	0.0063	< 0.00050	< 0.00050	0.0060	0.00056
	9/22/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00074	< 0.00050	< 0.00050	0.0133	< 0.00050	< 0.00050	0.0081	< 0.00050	< 0.00050	0.0082	0.0012
EX-1	3/19/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0035	< 0.00050	0.0021	0.688	0.0019	< 0.00050	0.168	0.0025	< 0.00050	0.0558	0.0028
	6/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0026	< 0.00050	0.0026	0.420	0.0016	< 0.00050	0.186	0.00088	< 0.00050	0.042	0.0032
	9/22/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0029	< 0.00050	0.0037	0.543	0.0026	< 0.00050	0.302	0.00065	< 0.00050	0.0619	0.0244
	12/8/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.427	< 0.00050	< 0.00050	0.094	< 0.00050	< 0.00050	0.0213	0.0021

Please refer to notes at end of table.

Table 3
 Groundwater Analytical Results: 2015
 NuStar Vancouver Facility
 Vancouver, Washington

Well Number	Sample Date	Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
		Concentrations in mg/L (ppm)														
MP-1	3/20/2015	<0.0010	<0.0010	<0.0010	<0.0010	0.0036	<0.0010	0.0015	0.188	0.0015	<0.0010	0.565	0.0010	<0.0010	0.0956	0.025
	6/18/2015	<0.00084	<0.00084	<0.00084	<0.00084	0.0029	<0.00084	0.0015	0.091	0.00087	<0.00084	0.376	<0.00084	<0.00084	0.0808	<0.00084
	9/22/2015	<0.0012	<0.0012	<0.0012	<0.0012	0.0018	<0.0012	0.0014	0.0383	<0.0012	<0.0012	0.343	<0.0012	<0.0012	0.0683	<0.0012
	12/8/2015	<0.0012	<0.0012	<0.0012	<0.0012	0.0018	<0.0012	0.0015	0.0509	<0.0012	<0.0012	0.308	<0.0012	<0.0012	0.0626	<0.0012

Notes:

1. HVOCs = Halogenated volatile organic compounds analysis by U.S. Environmental Protection Agency (EPA) Method 8260B.
2. mg/L (ppm) = Milligrams per liter (parts per million).
3. **Bold** values represents detected concentration of listed analyte.
4. < = Not detected at or above the specified laboratory method reporting limit (MRL).
5. E = Chloroform was detected in the equipment blank during the September 2014 sampling event. Chloroform was flagged with a "E" in samples where the concentration was five times or less than the maximum detection in the equipment blank.

Table 4
Interim Action: Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number:	MW-7																													
Sample Date:	2/6/2007	12/16/2008	3/23/2009	6/18/2009	9/18/2009	12/18/2009	3/16/2010	6/17/2010	9/23/2010	12/10/2010	3/11/2011	6/7/2011	9/19/2011	12/9/2011	3/12/2012	06/22/2012	9/14/2012	12/14/2012	3/15/2013	6/14/2013	9/20/2013	12/16/2013	3/24/2014	6/25/2014	9/30/2014	12/15/2014	3/20/2015	6/17/2015	9/23/2015	12/8/2015
Analyte	Concentrations in mg/L (ppm)																													
Volatile Organic Compounds																														
Tetrachloroethene	31.5	15	3.3	0.890	2.600	1.600	0.550	0.200	0.75	0.22	0.42	0.43	0.41	0.20	0.041	0.025	0.028	0.011	0.0016	0.0016	<0.00050	0.00051	0.0098	<0.00050	<0.00050	0.00061	<0.00050	0.0012	0.0045	0.00094
Trichloroethene	0.352	0.450	0.270	0.350	0.250	0.160	0.056	0.072	0.11	0.036	0.082	0.11	0.08	0.032	0.0086	0.0052	0.0052	0.0068	0.00078	<0.00050	<0.00050	<0.00050	0.0026	<0.00050	<0.00050	0.00150	0.0011	0.0010	0.0042	0.0017
cis-1,2-Dichloroethene	<0.100	0.130	0.420	0.520	0.930	0.330	0.180	0.360	0.69	0.094	0.15	1.4	1.3	3.4	1.6	0.5	0.18	0.13	0.11	0.058	0.056	0.0069	0.013	0.00062	0.0045	0.016	0.0084	0.012	0.0127	0.0041
trans-1,2-Dichloroethene	<0.100	<0.050	<0.015	<0.0030	<0.0030	<0.0050	<0.0020	<0.0015	<0.0030	<0.00090	0.00091	0.0033	<0.0050	0.0068	<0.0050	<0.0020	0.0007	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Vinyl chloride	<0.100	<0.050	<0.015	<0.0030	<0.0030	<0.0050	<0.0020	<0.0015	0.0048	0.0017	0.0093	0.0079	0.0780	0.11	0.60	0.29	0.08	0.018	0.011	0.016	0.01	0.0091	0.008	0.0014	0.0098	0.0210	0.0010	0.013	0.0048	0.0019
Ethene	N/A	N/A	N/A	N/A	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00119	0.00776	<0.0010	N/A	0.0387	0.071	0.13	0.047	0.0195	0.0133	0.00586	0.0186	0.005	0.22	0.0219	<0.0010	<0.0010	<0.0062	<0.010	<0.010	<0.010
1,1-Dichloroethene	<0.100	<0.050	<0.015	<0.0030	0.0055	<0.0050	<0.0020	<0.0015	<0.0030	<0.00090	0.0016	0.0034	<0.0050	0.0069	<0.0050	<0.0020	0.00054	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
1,1-Dichloroethane	<0.100	<0.050	<0.015	0.0037	0.0098	0.0067	<0.0020	<0.0015	0.0033	0.0018	0.0066	0.0048	<0.0050	0.0080	0.0092	0.0090	0.0038	0.0019	0.00069	0.00051	0.0015	0.0029	0.00160	0.00019	0.0027	0.0045	0.0010	0.0026	0.0018	<0.00050
1,2-Dichloroethane	<0.100	<0.050	<0.00050	<0.0030	<0.0030	<0.0050	<0.0020	<0.0015	<0.0030	<0.00090	<0.00090	<0.0025	<0.0050	<0.0050	<0.0050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
1,1,1-Trichloroethane	<0.100	<0.050	<0.015	0.0052	0.0100	0.0067	0.0020	0.0027	0.0035	0.0016	0.0051	0.004	<0.0050	<0.0050	<0.0050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Attenuation Chemistry																														
Total Organic Carbon	<1.00	2.40	6.7	N/A	4.10	2.50	2.6	2.8	8.2	0.84	1.10	4.7	3,400	1,600	1,000	790	790	550	250	220	270	250	77	120	160	28.5	23.5	46	40.6	9.8
Field Parameters																														
Dissolved Oxygen	1.20	0.72	0.69	6.97	0.59	1.23	1.37	1.86	0.64	6.29	6.65	0.45	4.53	1.19	2.97	6.28	2.29	0.34	1.02	0.29	0.45	0.44	0.43	0.6	1.93	1.61	1.19	0.81	0.87	1.98
Oxidation Reduction Pot	245.7	-103.2	-614.5	-16.4	121.7	162.1	147.7	240.0	-483.4	111.6	132.3	108.6	695.8	-117.5	96.8	-137.9	93.3	24.1	53.3	47.9	-189.3	-66.1	76.9	-90.5	-112.0	-34.0	-76.8	-4.9	-30.5	84.1

Please refer to notes at end of table.

Table 4
Interim Action: Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number:	MP-1																													
Sample Date:	2/6/2007	12/16/2008	3/23/2009	6/18/2009	9/18/2009	12/18/2009	3/16/2010	6/17/2010	9/23/2010	12/10/2010	3/14/2011	6/7/2011	9/19/2011	12/9/2011	3/9/2012	6/22/2012	9/14/2012	12/14/2012	3/15/2013	6/14/2013	9/20/2013	12/16/2013	3/24/2014	6/23/2014	9/30/2014	12/15/2014	3/20/2015	6/18/2015	9/22/2015	12/8/2015
Analyte	Concentrations in mg/L (ppm)																													
Volatile Organic Compounds																														
Tetrachloroethene	1.61	1.60	1.20	1.50	1.1	1.0	1.5	0.800	0.73	1.0	1.200	0.64	0.03	0.64	0.49	0.69	0.34	0.23	0.23	0.33	0.26	0.29	0.36	1.2	0.36	0.32	0.57	0.376	0.343	0.308
Trichloroethene	0.421	0.230	0.180	0.180	0.31	0.180	0.400	0.140	0.12	0.15	0.180	0.13	0.072	0.12	0.14	0.12	0.083	0.048	0.069	0.070	0.066	0.070	0.054	0.130	0.063	0.059	0.096	0.0808	0.0683	0.0626
cis-1,2-Dichloroethene	0.347	0.070	0.089	0.043	0.24	0.058	0.410	0.120	0.041	0.027	0.150	0.075	0.004	0.049	0.44	0.53	0.17	0.17	0.14	0.19	0.077	0.067	0.24	0.29	0.11	0.058	0.19	0.091	0.0383	0.0509
trans-1,2-Dichloroethene	0.0085	<0.0050	<0.0040	<0.0040	0.0089	<0.0040	0.013	<0.0030	<0.0030	<0.0030	<0.0030	<0.0025	<0.0015	0.0031	0.0063	0.0029	0.0022	0.0017	0.0025	0.0016	0.0015	0.00092	<0.0015	0.0017	<0.0020	<0.0015	0.0015	0.00087	<0.0012	<0.0012
Vinyl chloride	0.0236	<0.0050	<0.0040	<0.0040	0.0073	<0.0040	0.010	<0.0030	<0.0030	<0.0030	0.0059	<0.0025	0.0016	<0.0025	0.021	0.048	0.0045	0.0018	0.0018	0.0018	<0.00090	<0.00090	<0.0015	0.0050	0.0160	<0.0015	0.025	<0.00084	<0.0012	<0.0012
Ethene	N/A	N/A	N/A	N/A	<0.001	<0.001	0.00247	<0.0010	<0.0010	<0.0010	<0.0000010	<0.0010	NA	0.003280	0.0159	0.0666	0.016	0.0211	0.00586	0.00296	0.00317	<0.0010	0.033	0.0196	<0.0010	<0.0010	<0.0062	<0.010	<0.0010	<0.0010
1,1-Dichloroethene	<0.0050	<0.0050	<0.0040	<0.0040	<0.00040	<0.0040	0.0047	<0.0030	<0.0030	<0.0030	<0.0030	<0.0025	<0.0015	<0.0025	0.0028	0.0028	<0.0015	<0.00090	0.00094	0.00140	<0.00090	0.0011	<0.0015	0.0023	<0.0020	<0.0015	0.0015	0.0015	0.0014	0.0015
1,1-Dichloroethane	0.0184	<0.005	0.006	0.0043	0.014	<0.0040	0.022	0.0032	<0.0030	<0.0030	0.0071	0.0049	0.0024	0.0026	0.0094	0.0056	0.004	0.0020	0.0051	0.0045	0.0029	0.0017	0.0022	0.0049	0.0028	0.0017	0.0036	0.0029	0.0018	0.0018
1,2-Dichloroethane	<0.0050	<0.0050	<0.0040	<0.0040	<0.0040	<0.0040	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0025	<0.0015	<0.0025	<0.0015	<0.0025	<0.0015	<0.00090	<0.00090	<0.00090	<0.00090	<0.0015	<0.0015	<0.0020	<0.0015	<0.0010	<0.00084	<0.0012	<0.0012	
1,1,1-Trichloroethane	0.0112	0.010	0.010	0.012	0.008	0.007	0.0086	0.0054	0.004	0.0045	0.0064	0.0033	0.0019	0.0031	0.0035	0.012	0.002	0.0010	0.0010	0.0014	0.00095	0.0012	0.00180	0.0095	<0.0020	<0.0015	0.0010	<0.00084	<0.0012	<0.0012
Attenuation Chemistry																														
Total Organic Carbon	<1.00	1.80	2.0	N/A	1.50	1.60	2.4	2.4	2.0	1.0	0.96	1.6	3.7	8.3	16	26	23	18	35	28	35	26	38	34	29	2.4	7.8	6.0	2.2	9.9
Field Parameters																														
Dissolved Oxygen	0.39	1.37	1.05	3.65	0.48	0.78	0.89	3.22	0.53	0.52	1.35	0.52	0.69	0.83	0.23	0.83	0.43	0.28	0.44	0.34	0.44	1.10	0.69	3.00	4.09	0.88	1.04	1.75	1.66	1.20
Oxidation Reduction Potential (mV)	208.9	-78.5	127.3	-43.7	99.7	155.3	83.2	228.3	-464.0	-4.6	159.6	48.9	913.5	-51.7	77.7	-51.7	98.2	-15.2	60.4	187.2	1.2	10.3	-18.7	-14.0	42.3	-28.6	29.8	-148.5	105.5	82.8

Please refer to notes at end of table.

Table 4
Interim Action: Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number:	EX																													
	Sample Date:																													
Analyte	2/6/2007	12/16/2008	3/23/2009	6/18/2009	9/18/2009	12/18/2009	3/16/2010	6/17/2010	9/23/2010	12/21/2010	3/31/2011	6/7/2011	9/19/2011	12/9/2011	3/9/2012	6/22/2012	9/14/2012	12/14/2012	3/15/2013	6/14/2013	9/20/2013	12/16/2013	3/24/2014	6/23/2014	9/30/2014	12/15/2014	3/19/2015	6/18/2015	9/22/2015	12/8/2015
	Concentrations in mg/L (ppm)																													
Volatile Organic Compounds																														
Tetrachloroethene	2.81	4.50	1.40	0.02	2.10	0.70	0.150	0.150	2.4	0.9	6.8	1.4	4.1	<0.050	0.033	0.0030	0.003	0.00087	0.0012	0.00079	0.0041	0.002	0.020	0.029	NS	0.022	0.17	0.186	0.302	0.094
Trichloroethene	0.564	0.830	0.420	0.011	0.380	0.056	0.033	0.039	0.22	0.099	0.91	0.17	0.46	<0.050	0.010	0.0011	< 0.0015	<0.00050	<0.00050	<0.00050	0.0026	0.0014	0.0075	0.0150	NS	0.0027	0.056	0.042	0.0619	0.0213
cis-1,2-Dichloroethene	0.0682	0.490	0.050	0.004	0.120	0.006	0.020	0.092	0.09	0.03	0.24	0.140	0.29	12	1.4	0.17	0.32	0.026	<0.00050	0.0016	0.071	0.034	0.030	0.160	NS	0.010	0.69	0.42	0.543	0.427
trans-1,2-Dichloroethene	< 0.010	<0.015	<0.0050	<0.00050	0.00076	<0.0025	<0.00050	<0.00050	0.00053	<0.00050	<0.0040	<0.0040	<0.0050	0.0093	0.0086	0.0013	< 0.0015	<0.00050	<0.00050	<0.00050	0.00068	<0.00050	<0.00050	0.00097	NS	<0.00050	0.0019	0.0016	0.0026	<0.00050
Vinyl chloride	< 0.010	<0.015	<0.0050	<0.00050	0.0011	<0.0025	<0.00050	0.0022	0.0018	0.00071	0.0051	<0.0040	0.014	0.14	0.29	0.12	0.042	0.012	0.0044	<0.00050	0.03	0.028	0.011	0.038	NS	<0.00050	0.0028	0.0032	0.0244	0.0021
Ethene	N/A	N/A	N/A	N/A	<0.001	0.0556	<0.00050	<0.0010	<0.0010	<0.0010	0.00191	<0.0010	N/A	0.0114	0.0242	0.15	0.0472	0.00592	<0.0010	<0.0010	0.0354	0.0453	0.0911	0.0815	NS	<0.0010	<0.0062	<0.010	<0.0010	<0.0010
1,1-Dichloroethene	< 0.010	<0.015	<0.0050	<0.00050	0.0033	<0.0025	<0.00050	<0.00050	0.0016	0.00059	0.0081	<0.0040	0.011	0.019	<0.0040	0.00068	< 0.0015	<0.00050	<0.00050	<0.00050	0.00054	<0.00050	<0.00050	0.0011	NS	<0.00050	0.0021	0.0026	0.0037	<0.00050
1,1-Dichloroethane	< 0.010	0.054	<0.0050	<0.00050	0.0041	<0.0025	<0.00050	0.00097	0.0015	0.00083	0.0082	<0.0040	0.0079	0.016	0.0050	0.0034	0.0015	<0.00050	<0.00050	<0.00050	0.0019	0.0038	0.00080	0.00290	NS	<0.00050	0.0035	0.0026	0.0029	<0.00050
1,2-Dichloroethane	< 0.010	<0.015	<0.0050	<0.00050	<0.00050	<0.0025	<0.00050	<0.00050	<0.00050	<0.00050	<0.0040	<0.0040	<0.0050	<0.0050	<0.0040	< 0.00050	< 0.0015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	NS	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
1,1,1-Trichloroethane	0.04	0.071	0.043	0.001	0.038	0.004	0.0032	0.0023	0.02	0.0067	0.11	0.015	0.073	0.017	<0.0040	0.00059	< 0.0015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	NS	<0.00050	0.0025	0.00088	0.00065	<0.00050
Attenuation Chemistry																														
Total Organic Carbon	1.45	3.30	3.0	N/A	4.9	1.8	2.4	3.3	3.6	<0.50	1.9	3.5	560	320	89	110	77	59	64	12	42	46	35	34	NS	158	<5.0	7.5	22.6	7.5
Field Parameters																														
Dissolved Oxygen	0.24	0.74	0.47	0.37	0.60	2.13	0.88	0.84	0.93	0.91	--	0.70	0.63	1.23	0.14	1.23	0.15	0.25	0.37	0.54	0.43	1.66	0.51	0.41	NS	2.41	1.05	2.29	0.90	--
Oxidation Reduction Potential (mV)	164.8	-174.5	68.8	-9.3	109.0	170.1	102.6	239.5	-521.6	131.7	--	115.2	907.9	-68.3	-33.6	-68.3	-29.5	3.3	67.0	158.8	-175.4	11.9	158.7	-50	NS	-52.2	18.2	-35.2	23.7	--

Please refer to notes at end of table.

Table 4
Interim Action: Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number:	MW-12																		
Sample Date:	6/7/2011	9/19/2011	12/7/2011	3/12/2012	6/22/2012	9/14/2012	12/13/2012	3/15/2013	6/13/2013	9/20/2013	12/16/2014	3/24/2014	6/24/2014	9/30/2014	12/11/2014	3/20/2015	6/19/2015	9/22/2015	12/8/2015
Analyte	Concentrations in mg/L (ppm)																		
Volatile Organic Compounds																			
Tetrachloroethene	0.053	0.86	0.52	0.77	0.27	1.1	0.038	0.76	0.61	0.51	0.15	0.18	0.042	0.68	0.025	0.58	0.514	0.343	0.045
Trichloroethene	0.025	0.69	0.38	0.54	0.2	0.73	0.023	0.54	0.50	0.4	0.11	0.17	0.034	0.48	0.015	0.34	0.356	0.239	0.022
cis-1,2-Dichloroethene	0.059	4.7	2.9	3.8	1.7	5.4	0.062	4.3	4.8	3.4	0.8	1.9	0.31	3.50	0.034	2.1	2.57	2.25	0.0401
trans-1,2-Dichloroethene	0.001	0.055	0.033	0.045	0.039	0.073	0.00097	0.056	0.053	0.049	0.01	0.025	0.0023	0.045	0.00064	0.029	0.025	0.0234	0.00072
Vinyl chloride	<0.00050	0.063	0.04	0.046	0.022	0.084	<0.00050	0.054	0.059	0.05	0.0098	0.047	<0.0015	0.042	<0.00050	0.037	0.0311	0.0225	<0.00050
Ethene	<0.0010	NA	0.00615	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0062	<0.010	<0.0010	<0.0100
1,1-Dichloroethene	<0.00050	0.045	0.028	0.044	0.016	0.058	<0.00050	0.040	0.039	0.037	0.0076	0.018	0.0019	0.039	<0.00050	0.025	0.0282	0.0169	<0.00050
1,1-Dichloroethane	0.0018	0.24	0.13	0.21	0.1	0.27	0.0010	0.20	0.24	0.17	0.036	0.11	0.014	0.19	0.00073	0.10	0.151	0.120	0.00084
1,2-Dichloroethane	<0.00050	0.0025	0.0013	<0.015	<0.0050	<0.015	<0.00050	0.0018	<0.015	0.0016	<0.0025	0.00077	<0.0015	<0.015	<0.00050	<0.0050	<0.010	<0.0083	<0.00050
1,1,1-Trichloroethane	0.0007	0.065	0.034	0.048	0.013	0.076	0.00053	0.053	0.046	0.037	0.0058	0.0086	0.0016	0.036	<0.00050	0.018	0.0236	0.0157	0.00052
Attenuation Chemistry																			
Total Organic Carbon	0.94	8.3	59	65	56	100	4.9	95	62	110	23	41	13	93	1.9	4	4.8	4.4	16.5
Field Parameters																			
Dissolved Oxygen	3.16	0.84	1.00	1	0.66	0.43	1.07	0.62	0.39	0.59	1.22	1.94	3.68	6.09	0.65	0.89	0.71	1.06	0.99
Oxidation Reduction Potential (mV)	110.4	906.3	109.0	45.3	117.1	140.7	128.6	117.3	205.2	-10.7	40.4	29.1	1.5	47.1	-110.0	75.7	10.2	65.3	28.1

Please refer to notes at end of table.

Table 4
Interim Action: Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number:	MW-24i																		
Sample Date:	6/7/2011	9/16/2011	12/7/2011	3/12/2012	6/22/2012	9/14/2012	12/14/2012	3/15/2013	6/14/2013	9/20/2013	12/16/2013	3/24/2014	6/23/2014	9/30/2014	12/15/2014	3/20/2015	6/18/2015	9/22/2015	12/8/2015
Analyte	Concentrations in mg/L (ppm)																		
Volatile Organic Compounds																			
Tetrachloroethene	0.0066	0.027	0.019	0.030	0.00085	0.031	0.0021	0.023	0.0062	0.015	0.0067	0.010	0.0013	0.020	0.0024	0.0061	<0.00050	0.0022	0.1890
Trichloroethene	0.0014	0.024	0.014	0.011	<0.00050	0.02	0.00065	0.015	0.0036	0.0059	0.0034	0.0055	0.0052	0.010	0.0011	0.0031	<0.00050	0.00080	0.03640
cis-1,2-Dichloroethene	0.002	0.27	0.10	0.079	0.014	0.058	0.051	0.048	0.028	0.015	0.008	0.016	0.013	0.021	0.012	0.0059	0.0034	0.0047	0.018
trans-1,2-Dichloroethene	<0.00050	0.0017	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Vinyl chloride	<0.00050	0.019	0.0075	0.0045	0.0026	<0.00050	<0.00050	<0.00050	<0.00080	<0.00080	<0.00050	<0.00080	0.00210	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Ethene	<0.0010	NA	0.00229	0.00203	0.00152	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0291	<0.0010	<0.0010	<0.0062	<0.010	<0.0010	<0.0010
1,1-Dichloroethene	<0.00050	0.0025	0.00084	<0.00050	<0.00050	0.00087	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
1,1-Dichloroethane	<0.00050	0.013	0.005	0.0059	0.0018	0.0044	<0.00050	0.0028	0.0027	0.0010	0.0013	0.0013	0.0012	0.0018	0.00060	0.00058	<0.00050	0.0019	0.0007
1,2-Dichloroethane	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
1,1,1-Trichloroethane	<0.00050	0.0056	0.0029	0.0023	<0.00050	0.00079	<0.00050	0.00057	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Attenuation Chemistry																			
Total Organic Carbon	1.2	7.0	290	33	44	15	16	9.5	11	11	7.9	9.4	8.4	12.0	<1.0	<1.0	1.6	2.3	3.5
Field Parameters																			
Dissolved Oxygen	6.40	0.61	3.50	2.11	3.50	0.40	2.11	0.79	0.39	1.92	3.08	3.16	4.70	2.01	6.27	10.28	1.08	1.85	1.36
Oxidation Reduction Potential (mV)	59.0	646.9	-147.5	-1.2	-147.5	-54.0	6.3	13.1	130.2	-31.2	16.9	-55.4	-49.7	129.7	-13.9	38.6	-158.7	99.4	99.2

Please refer to notes at end of table.

Table 4
Interim Action: Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number:	MGMS2-40																		
Sample Date:	6/7/2011	9/12/2011	12/7/2011	3/8/2012	6/19/2012	9/12/2012	12/11/2012	3/15/2013	6/11/2013	9/17/2013	12/16/2013	3/24/2014	6/26/2014	9/23/2014	12/12/2014	3/20/2015	6/19/2015	9/25/2015	12/8/2015
Analyte	Concentrations in mg/L (ppm)																		
Volatile Organic Compounds																			
Tetrachloroethene	4.4	0.79	0.061	0.0099	0.0072	0.089	0.010	0.0056	0.00094	0.016	0.0024	0.0026	0.021	0.170	0.0034	0.031	0.018	0.0674	0.0040
Trichloroethene	1.4	0.38	0.039	0.0054	0.0025	0.08	0.0034	0.0022	<0.00050	0.017	0.0014	0.0018	0.0220	0.110	0.0023	0.022	0.013	0.0459	0.0028
cis-1,2-Dichloroethene	1.6	7.4	5.3	0.47	0.02	0.31	0.033	0.30	0.0079	0.29	0.0084	0.084	0.088	0.590	0.010	0.047	0.054	0.105	0.007
trans-1,2-Dichloroethene	0.017	0.020	<0.015	0.0028	0.0013	0.0032	0.0013	0.0020	<0.00050	0.0014	<0.00050	<0.00050	0.00084	0.0024	<0.00050	<0.00050	<0.00050	0.00061	<0.00050
Vinyl chloride	0.048	0.058	0.46	0.26	0.063	0.44	0.0040	0.27	0.0048	0.33	0.0034	0.27	0.09	0.80	0.018	0.017	0.048	0.0578	0.0033
Ethene	<0.001	NA	0.0145	0.368	0.566	0.264	0.11	0.121	0.0556	0.143	0.0333	0.930	0.2070	0.0121	0.0340	0.0081	0.0337	<0.010	0.0228
1,1-Dichloroethene	0.030	0.028	<0.015	0.0023	<0.00050	0.0028	<0.00050	0.0019	<0.00050	0.0048	<0.00050	0.0029	0.0100	0.030	<0.00050	0.0039	0.0013	0.0042	<0.00050
1,1-Dichloroethane	0.065	0.044	0.035	0.038	0.053	0.039	0.0048	0.028	0.0083	0.028	0.0097	0.0450	0.0310	0.030	0.035	0.0043	0.0138	0.0123	<0.00050
1,2-Dichloroethane	<0.015	<0.015	<0.015	<0.0020	<0.00050	<0.0015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0135
1,1,1-Trichloroethane	0.057	0.048	<0.015	0.0052	<0.00050	0.005	<0.00050	0.0025	<0.00050	0.0016	<0.00050	<0.00050	<0.00050	0.0032	<0.00050	<0.00050	<0.00050	0.00092	<0.00050
Attenuation Chemistry																			
Total Organic Carbon	2.2	110	300	290	500	140	280	81	110	98	110	120	120	94	7.9	8	11	10.9	7.9
Field Parameters																			
Dissolved Oxygen	0.86	2.63	6.28	1.22	6.28	1.16	0.55	0.33	0.42	0.27	1.19	1.06	2.22	1.31	1.41	20.02	13.5	9.67	6.14
Oxidation Reduction Potential (mV)	49.5	338.9	-137.9	-73.6	-137.9	-40.1	-82.3	-24.3	-116.7	-209.9	-41.9	-126.1	-23.7	-119.0	-162.1	-83.7	-117.5	-145.1	-96.9

Notes:

1. mg/L (ppm) = Milligrams per liter (parts per million).
2. NA = Not analyzed.
3. Ethene is analyzed by EPA Method RSK-175M. All other VOCs were analyzed by EPA Method 8260.
4. **Boldface** value represents detected concentration of listed analyte.

Table 5
 North SVE System – Operation Monitoring
 NuStar Vancouver Facility
 Vancouver, Washington

Date	Branch 4		Branch 5		Post Blower		Notes
	PID	Pressure	PID	Pressure	PID	Pressure	
10/12/2011	0.0	-13.0	0.0	-12.0	7.2	0.1	--
11/2/2011	--*	-25.0	6.7	-25.0	--	--	--
11/17/2011	0.8	-16.0	6.9	-16.0	7.0	0.1	PID complications; Routinely reported error code. Potential moisture issues.
12/5/2011	--	--	--	--	--	--	System off on arrival and would not restart. Contractor identified electrical issues. Blower removed for replacement.
12/14/2011	--	--	--	--	--	--	System not operating, pending blower replacement. Blower reinstalled January 10, 2012
1/23/2012	--	-15.0	6.5	-15.0	3.9	0.1	Water in sample port of Branch 4, could not get PID reading
2/17/2012	0.1	-11.0	0.9	-11.0	2.9	1.0	--
3/22/2012	6.8	-12.0	5.4	-12.0	1.3	0.05	--
4/26/2012	1.3	-4.2	6.4	-4.0	1.0	0.05	--
5/23/2012	0.1	-3.4	3.2	-3.4	0.4	--	--
6/20/2012	0.0	-2.8	0.0	-2.7	0.1	0.2	--
7/24/2012	3.2	-3.2	9.2	-3.2	0.2	0.4	Used Rental PID.
8/22/2012	0.4	-2.4	1.0	-2.4	0.0	0.2	--
9/25/2012	0.1	-1.7	0.5	-1.7	0.0	0.2	Used ACA PID #3.
10/29/2012	--	--	--	--	--	--	System not operating.
11/26/2012	8.4	-4.0	9.2	-4.0	3.0	0.05	Used ACA PID #3.
12/21/2012	0.1	-0.63	0.0	-0.62	0.0	0.1	Used ACA PID #3.
1/24/2013	10.4	-0.45	0.0	-0.15	0.5	0.1	Used ACA PID #3.
2/28/2013	37.1	-0.22	2.1	-0.15	1.3	0.1	Used ACA PID #3.
3/25/2013	--	--	--	--	--	--	System not operating.
4/29/2013	--	--	--	--	--	--	System not operating.
5/24/2013	0.4	-23.0	0.1	-23.0	7.9	0.1	Used APEX PID #3.
6/25/2013	--	-20.0	--	-20.0	--	0.1	--
7/25/2013	6.6	-20.0	13.3	-20.0	6.1	0.1	Used APEX PID #3.
8/27/2013	1.9	-18.0	16.9	-18.0	6.8	0.1	Used APEX PID #3.
9/30/2013	0.0	-20.0	0.0	-20.0	2.1	0.1	Used APEX PID #3.
10/24/2013	1.3	-20.0	1.2	-20.0	2.3	0.1	Used APEX PID #3.
11/25/2013	0.3	-23.0	0.2	-23.0	1.1	0.1	Used APEX PID #3.
12/27/2013	1.0	-21.0	0.6	-21.0	2.6	0.1	Used APEX PID #1

Please refer to notes at end of table.

Table 5
 North SVE System – Operation Monitoring
 NuStar Vancouver Facility
 Vancouver, Washington

Date	Branch 4		Branch 5		Post Blower		Notes
	PID	Pressure	PID	Pressure	PID	Pressure	
1/29/2014	0.2	-20.0	0.1	-20.0	0.0	3.0	--
2/24/2014	2.4	-20.0	2.6	-20.0	2.6	9.0	Used APEX PID #3.
3/31/2014	0.3	-20.0	1.0	-20.0	0.2	1.0	Used APEX PID #4
4/29/2014	2.0	-20.0	1.4	-20.0	0.0	2.0	--
5/27/2014	2.0	-20.0	1.3	-20.0	0.9	2.0	--
7/3/2014	0.5	-20.0	0.3	-18.0	0.4	4.0	--
7/28/2014	4.0	-20.0	2.6	-19.0	0.1	3.0	Used APEX PID #3.
8/25/2014	--	-20.0	--	-19.0	3.7	3.5	Used APEX PID #3.
9/30/2014	2.1	-17.0	0.6	-17.0	1.7	--	--
10/27/2014	0.4	-26.0	1.4	-26.0	2.3	2.0	Used APEX PID #3.
11/25/2014	0.3	-21.0	1.5	-20.0	0.5	--	Used APEX PID #3.
12/29/2014	20.2	-25.0	32.1	-25.0	--	2.0	Used APEX PID #3.
1/26/2015	2.0	-25.0	3.2	-25.0	0.7	3.0	Used APEX PID #3. Knockout drum emptied.
2/26/2015	0.0	-22.0	0.0	-25.0	0.0	0.1	--
3/30/2015	0.0	-23.0	0.2	-27.0	0.0	0.4	Used APEX PID #3.
4/24/2015	0.0	-23.0	0.2	-27.0	0.0	0.4	--
5/28/2015	5.5	-26.0	4.8	-26.0	5.5	0.05	--
7/29/2015	7.5	-17.0	0.3	-17.0	0.5	0.10	Used APEX PID #3.
8/31/2015	0.0	-11.0	0.0	-10.0	0.9	0.05	Used APEX PID #3.
9/28/2015	0.6	-12.0	2.4	-12.0	1.8	0.00	Used APEX PID #3.
10/29/2015	0.5	-12.0	0.3	-13.0	2.9	1.00	Used APEX PID #3.
11/30/2015	0.0	-13.0	0.2	-13.0	0.0	2.00	Used APEX PID #3.
12/28/2015	0.0	-17.0	9.0	-18.0	0.0	0.10	Used APEX PID #3.

Notes:

1. PID readings in parts per million (ppm), calibrated to 100 ppm isobutylene.
2. Pressure readings in inches of water, measured with magnahelic gauge.
3. NM = Not measured.
4. -- = Not available; branch not in use or no measurement collected during the site visit.
5. NA = Not available; photoionization detector (PID) malfunction.
6. * = During the 11/2/2011 monitoring event, PID malfunctioned while monitoring Branch 4. Instrument readings would not stabilize.

Table 6
North SVE System – Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Sampling Location	Sample ID	Date	1,1,1-Trichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Methylene Chloride	Tetrachloroethene	Toluene	Trichloroethene	Vinyl Chloride
			Concentrations in µg/m ³								
System Effluent	North_EFF-20111012	10/12/2011	69	<16	160	<16	<14	9,500	16	700	<10
System Effluent	Post Blower_North_012312	1/23/2012	<170	<120	<120	<120	<110	16,000	<120	530	<79
System Effluent	North_Effluent_0121712	2/17/2012	<140	<100	<100	<100	<91	11,000	<99	300	<67
System Effluent	North Effluent-032212	3/22/2012	<28	<54	<27	<27	<23	6,600	<25	140	<8.6
System Effluent	North_Effluent_062012	6/20/2012	<1.6	<3.2	<1.6	<1.6	5.3	250	<1.5	15	<0.51
System Effluent	North_Effluent_082212	8/22/2012	<1.6	<3.2	<1.6	<1.6	<1.4	140	<1.5	11	<0.51
System Effluent	North_Effluent_112612	11/26/2012	39	<14	52	<7.1	<6.2	22,000	<6.8	510	<4.6
System Effluent	North_Effluent_122112	12/21/2012	<31	<59	<30	<30	<26	3,500	<28	61	<19
System Effluent	North_Effluent_022813	2/28/2013	<36	<70	<35	<35	<31	4,400	<33	160	<22
System Effluent	SVE North	5/24/2013	<240	<170	280	<170	<380	23,000	<160	1,100	<110
System Effluent	SVE North	6/25/2013	76	<51	88	<51	<110	13,000	<49	730	<33
System Effluent	SVE North	8/27/2013	<150	<110	<110	<110	<230	17,000	<100	800	<69
System Effluent	SVE North Effluent	10/24/2013	<82	<60	<60	<60	<130	10,000	<57	570	<39
System Effluent	SVE North Effluent	12/27/2013	<44	<32	<32	<32	<69	7,000	<30	470	<20
System Effluent	SVE North Effluent	1/29/2014	<10	<40	22	<40	<87	1,300	<38	110	<26
System Effluent	SVE_North_Post Carbon	2/24/2014	55	<83	68	<41	<36	8,700	<39	760	<27
System Effluent	SVE North Post Carbon	3/5/2014	25	<39	29	<20	<17	4,600	<19	300	<13
System Effluent	VCP_North_Effluent	3/31/2014	19	<13	18	<13	<28	3,500	<12	200	<8.2
System Effluent	North_SVE_Effluent_042914	4/29/2014	22	<15	17	<15	<33	3,500	<14	220	<9.8
System Effluent	North_SVE_Effluent_052714	5/27/2014	<31	<23	<23	<23	<50	4,100	<22	280	<15
System Effluent	North_VCP_Effluent	7/3/2014	<23	<17	20	<17	<37	4,500	<16	290	<11
System Effluent	SVE North	7/28/2014	<120	<88	<88	<88	<190	7,200	<84	460	<22
System Effluent	North SVE	9/30/2014	<48	<35	48	<35	<76	7,300	<33	480	<22
System Effluent	SVE North Effluent	10/27/2014	<110	<80	<80	<80	<180	15,000	<76	410	<52
System Effluent	SVE North 11.25.14	11/25/2014	<39	<28	<28	<28	<62	7,100	<27	390	<18
System Effluent	SVENorth122914	12/29/2014	<140	<99	<99	<99	<220	15,000	<94	290	<64
System Effluent	SVE North	1/26/2015	16	<31	<16	<16	<14	1,500	<15	130	<10
System Effluent	SVE North	2/26/2015	<1.6	<3.2	<1.6	<1.6	<1.5	32	<1.5	<2.1	<1.0
System Effluent	SVE North	3/30/2015	15	<9.6	9.5	<4.8	<4.2	1,700	<4.6	130	<3.1
System Effluent	SVE N	4/24/2015	<8.5	<16	<8.2	<8.2	<7.2	550	<7.8	50	<5.3
System Effluent	SVE North	5/14/2015	<1.6	<3.2	<1.6	<1.6	<1.4	<2.7	<1.5	<2.1	<1.0
System Effluent	SVE North	5/28/2015	<3.8	<7.3	<3.6	<3.6	<3.2	360	3.6	8.0	<2.4
System Effluent	SVE North	7/29/2015	19	<33	21	<16	<14	2,000	<16	210	<11
System Effluent	SVE North	8/31/2015	65	<65	62	<33	<28	7,100	<31	600	<21
System Effluent	SVE North	9/28/2015	21	<22	<11	<11	<9.7	1,400	<11	190	<7.1
System Effluent	SVE North	10/29/2015	<56	<110	59	<55	<48	6,300	<52	550	<35
System Effluent	SVE_North_Effluent_113015	11/30/2015	<54	<140	<72	<72	<72	2,300	<72	86	<72
System Effluent	SVE_North_Effluent_122815	12/28/2015	<32	<62	<31	<31	<27	5,600	<30	110	<20

Notes:

1. µg/m³ = Micrograms per cubic meter.
2. Samples analyzed by Modified EPA Method TO-15.
3. Only analytes detected in at least one sample are presented in this table.
4. **Bold** values represents detected concentration of listed analyte.

Table 7
 South SVE System – Operation Monitoring
 NuStar Vancouver Facility
 Vancouver, Washington

Date	Pre-Blower		Post Blower (Pre-Carbon)		Post Carbon 1		Post Carbon 2		Notes
	PID	Pressure	PID	Pressure	PID	Pressure	PID	Pressure	
10/12/2011	--	-14.0	17.1	24.0	0	12.0	0.2	4.0	--
10/18/2011	--	-14.0	15.5	--	15.5	14.0	0.5	3.0	Pre-carbon, post blower tap is now covered by noise suppression panels.
11/2/2011	--	-15.0	18.2	26.0	0.0	26.0	2.0	7.0	--
11/17/2011	--	-18.0	8.9	27.0	--*	15.0	--*	6.8	--
12/5/2011	8.3	-18.0	10.7	39.0	0.0	19.0	2.2	6.1	System switch off upon arrival. System restarted. Monitoring event conducted approximately 3 hours after restart.
12/14/2011	11.8	-19.0	21.0	28.0	0.0	18.0	0.7	6.2	--
1/9/2012	7.3	-17.0	8.3	29.0	0.0	18.0	0.0	6.2	--
1/23/2012	7.0	-17.0	8.9	29.0	0.0	17.0	0.0	6.9	--
2/17/2012	6.0	-18.0	11.2	29.0	0.0	18.0	0.0	6.0	--
3/22/2012	13.3	-16.0	10.7	27.0	0.0	15.0	0.0	6.5	--
4/26/2012	10.3	-17.0	11.6	27.0	0.0	16.0	0.0	6.4	--
5/23/2012	10.4	-20.0	10.6	31.0	0.0	19.0	0.0	6.6	--
6/20/2012	7.3	-21.0	7.5	33.0	0.5	20.0	0.0	6.3	--
7/24/2012	19.8	-20.0	41.5	32.0	226.3	20.0	98.8	6.2	Used rental PID.
8/22/2012	8.0	-48.0	10.1	29.0	5.5	18.0	1.1	4.6	--
9/25/2012	10.0	-46.0	13.7	29.0	9.5	15.0	12.8	4.3	Used ACA PID #3.
10/29/2012	8.4	-34.0	18.6	47.0	0.3	28.0	12.9	4.3	Used ACA PID #3: Carbon change-out on 10/29/2012
11/26/2012	13.7	<-100	1.6	18.0	0.1	6.6	3.1	0.66	Used ACA PID #3.
12/21/2012	0.5	-107	0.5	17.0	0.0	6.1	0.0	0.49	Used ACA PID #3.
1/24/2013	5.1	-105	0.5	10.0	0.0	6.5	0.0	0.61	Used ACA PID #3.
2/28/2013	2.8	-105	0.1	18.0	0.0	7.0	0.0	0.60	Used ACA PID #3.
3/25/2013	8.4	-102	0.9	16.0	0.1	7.0	0.0	0.58	Used Apex PID #3
4/29/2013	0.2	-98	0.4	15.0	0.0	6.3	0.1	0.49	Used Apex PID #3
5/24/2013	41.0	-18	49.7	47.0	0.2	26	0.7	5.0	Used Apex PID #3
6/25/2013	--	-15	--	51.0	--	31	--	5.1	--
7/25/2013	12.3	-16	13.9	50.0	0.7	32	0.5	6.0	Used Apex PID #3
8/27/2013	13.2	-16	12.1	52.0	3.8	31	1.2	5.2	Used Apex PID #3
9/30/2013	5.2	-15	15.4	45.0	27.4	30	0.4	5.2	Used Apex PID #3
10/24/2013	3.1	-14	13.2	50.0	6.8	32	1.5	5.2	Used Apex PID #3
11/25/2013	1.4	-19	19.3	51.0	12.4	35	2.8	5.3	Used Apex PID #3
12/27/2013	0.3	-19	7.7	55.0	3.1	32	0.0	5.4	Used Apex PID #1

Please refer to notes at end of table.

Table 7
 South SVE System – Operation Monitoring
 NuStar Vancouver Facility
 Vancouver, Washington

Date	Pre-Blower		Post Blower (Pre-Carbon)		Post Carbon 1		Post Carbon 2		Notes
	PID	Pressure	PID	Pressure	PID	Pressure	PID	Pressure	
1/29/2014	2.4	-19	6.7	50.0	5.7	30	0.2	10.0	--
2/24/2014	7.7	-19	19.7	50.0	2.4	30	1.4	10.0	Used Apex PID #3
3/31/2014	2.6	-15	4.6	46.0	5.4	30	0.0	8.0	Used APEX PID #4
4/29/2014	2.0	-14	3.4	48.8	9.7	30	0.0	8.0	--
5/27/2014	3.5	-14	5.0	49.0	10.2	28	0.1	7.0	--
7/3/2014	1.6	-18	2.4	50.0	1.4	30	0.1	10.0	--
7/28/2014	8.5	-19	9.0	50.0	11.0	30	8.7	8.0	Used Apex PID #3
8/25/2014	4.6	-17	7.5	49.0	15.8	26	11.0	7.0	Used Apex PID #3
9/30/2014	0.5	-14	5.2	40.0	4.0	28	2.7	5.0	--
10/27/2014	--	--	--	--	--	--	--	--	System off upon arrival. Unable to turn back on.
11/3/2014	5.0	-20	23.0	50.0	13.1	20	14.6	8.0	Used Apex PID #3
11/25/2014	--	--	--	--	--	--	--	--	System off for drum replacement.
12/29/2014	--	--	--	--	--	--	--	--	System off.
1/26/2015	27.1	-25	34.6	20.0	1.0	17	0.0	10.0	Used Apex PID #3
2/26/2015	0.8	-20	12.9	30.0	0.2	19	0.1	8.0	--
3/30/2015	0.4	-20	14.2	29.0	0.1	20	0.1	8.0	Used Apex PID #3
4/24/2015	0.4	-20	14.2	29.0	0.1	20	0.1	8.0	--
5/28/2015	1.0	-20	57.5	28.0	63.6	17	33.0	7.0	--
7/29/2015	0.0	-16	14.1	25.0	9.6	14	1.2	5.0	Used Apex PID #3
8/31/2015	0.0	-20	1.2	26.0	6.9	14	1.8	6.0	Used Apex PID #3
9/28/2015	3.0	-20	7.4	26.0	3.8	16	1.1	6.0	Used Apex PID #3
10/29/2015	9.0	-22	11.2	27.0	7.6	16	0.2	8.0	Used Apex PID #3
11/30/2015	--	-18	7.0	30.0	33.6	18	0.4	6.0	Used Apex PID #3
12/28/2015	--	-18	12.5	29.0	1.3	18	0.4	8.0	Used Apex PID #3

Notes:

1. PID readings in parts per million (ppm), calibrated to 100 ppm isobutylene.
2. Pressure readings in inches of water, measured with magnahelic gauge.
3. NM = Not measured.
4. -- = Not available or not applicable.
5. * = PID was malfunctioning. No data were collected.

Table 8
 South SVE System – Analytical Results
 NuStar Vancouver Facility
 Vancouver, Washington

Sampling Location	Sample ID	Date	1,1-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Methylene Chloride	Tetrachloroethene	Toluene	1,1,1-Trichloroethane	Trichloroethene	Vinyl chloride	Total Xylenes
			Concentrations in µg/m ³										
Pre Carbon	INF 1006	10/6/2011	<330	<320	470	<320	<280	40,000	<300	520	5,100	<210	<350
Post Carbon	EFF 1006	10/6/2011	<16	<16	390	<16	<14	<27	<15	140	50	<10	<17
Pre Carbon	Post Blower 110211	11/2/2011	<290	<280	430	<280	<250	26,000	<270	<390	2,100	<180	<310
Pre Carbon	SOUTHSVE_PRECARBON_121411	12/14/2011	<580	<570	620	<570	<500	54,000	<540	<780	2,800	<360	<620
Post Carbon	SOUTHSVE_POSTCARBON_121411	12/14/2011	<16	35	23	<16	17	1,600	<15	78	1,300	12	<17
Post Carbon	POST CARBON_SOUTH_012312	1/23/2012	<16	<16	<16	<16	<14	<27	<15	<22	<21	<10	<17
Pre Carbon	South_PreCarbon_021712	2/17/2012	<300	<300	460	<300	<260	28,000	<280	<410	1,200	<190	<330
Post Carbon	South_PostCarbon_021712	2/17/2102	<16	<16	<16	<16	<14	<27	<15	<22	<21	<17	<10
Pre Carbon	South Influent - 032212	3/22/2012	<190	<190	310	<95	<84	30,000	<91	99	960	<31	<100
Post Carbon	South Effluent - 032212	3/22/2012	<1.2	<3.2	<1.6	<1.6	4	<2.7	<1.5	<1.6	<2.1	6.4	<3.5
Pre Carbon	South_SVE_PRECARBON	4/26/2012	<210	<560	<280	<280	<240	32,000 S	<270	<290	640 S	<90	<610
Post Carbon	South_SVE_POSTCARBON	4/26/2012	<1.2	<3.2	<1.6	<1.6	4	<2.7	<1.5	<1.6	<2.1	2.4	<3.5
Pre Carbon	SOUTH_SVE_PRECARBON	5/23/2012	<100	<260	200	<130	<120	19,000	<130	<140	780	<43	<290
Post Carbon	South_SVE_PRECARBON	5/23/2012	<1.2	<3.2	<1.6	<1.6	3	<2.7	<1.5	<1.6	<2.1	3.7	<3.5
Pre Carbon	South_PreCarbon_062012	6/20/2012	<240	<630	360	<320	<280	35,000	<300	<330	1,400	<100	<1040
Post Carbon	South_PostCarbon_062012	6/20/2012	<0.30	<0.80	<0.40	<0.40	1.0	<0.40	<0.40	<0.30	<0.40	1.2	<1.2
Pre Carbon	South_PreCarbon_072412	7/24/2012	<150	<390	240	<200	<170	33,000	<190	<200	1,100	<63	<640
Post Carbon	South_PostCarbon_072412	7/24/2012	<1.2	11	<1.6	<1.6	3.0	<2.7	2.2	<1.6	<2.1	3.9	<5.2
Pre Carbon	South_PreCarbon_082212	8/22/2012	<250	<660	760	<330	<290	47,000	<310	<340	2,000	<110	1,080
Post Carbon	South_PostCarbon_082212	8/22/2012	<21	<55	<27	<27	<24	<47	<26	<28	<37	<8.8	<90
Pre Carbon	South_PreCarbon_092512	9/25/2012	<270	<700	500	<400	<310	50,000	<330	<360	1,900	<230	<770
Post Carbon	South_PostCarbon_092512	9/25/2012	13	18	1,200	11	5.7	<2.7	<1.5	<1.6	<2.1	6.2	<3.5
Pre Carbon	South_PreCarbon_102912	10/29/2012	<320	<850	440	<480	<370	60,000	<400	<440	2,200	<270	<930
Post Carbon	South_PostCarbon_102912	10/29/2012	<5.3	<14	<7	<7	<7	<7	<7	<7	<7	<7	<14
Pre Carbon	South_PreCarbon_112612	11/26/2012	<95	<250	<120	<120	<110	10,000	<120	<130	530	<80	<410
Post Carbon	South_PostCarbon_112612	11/26/2012	<2.7	<7.2	<3.6	<3.6	<3.6	<3.6	<3.6	<2.7	<3.6	<3.6	<10.8
Pre Carbon	South_PreCarbon_122112	12/21/2012	<71	<190	110	<93	<82	14,000	<89	<96	600	<60	<300
Post Carbon	South_PostCarbon_122112	12/21/2012	<1.2	<3.2	<1.6	<1.6	1.6	<2.7	<1.5	<1.6	<2.1	3.0	<5.2
Pre Carbon	South_PreCarbon_012413	1/24/2013	<9.2	<24	14	<12	<11	1,700	<11	<12	100	<7.8	<39
Post Carbon	South_PostCarbon_012413	1/24/2013	<1.2	<3.2	<1.6	<1.6	3.3	<2.7	<1.5	<1.6	<2.1	3.7	<5.2
Pre Carbon	South_PreCarbon_022813	2/28/2013	<5.9	<15	8.5	<7.7	<6.7	940	<7.3	<7.9	84	<5.0	<25.4
Post Carbon	South_PostCarbon_022813	2/28/2013	<1.2	<3.2	<1.6	<1.6	8.1	<2.7	<1.5	<1.6	<2.1	<1.0	<5.2
Pre Carbon	South_PreCarbon_032513	3/25/2013	<29	<75	<38	<38	<33	3,700	<36	<39	160	<24	<123
Post Carbon	South_PostCarbon_032513	3/25/2013	<1.2	<3.2	<1.6	<1.6	2.0	<2.7	<1.5	<1.6	<2.1	2.0	<5.2

Please refer to notes at end of table.

Table 8
 South SVE System – Analytical Results
 NuStar Vancouver Facility
 Vancouver, Washington

Sampling Location	Sample ID	Date	1,1-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Methylene Chloride	Tetrachloroethene	Toluene	1,1,1-Trichloroethane	Trichloroethene	Vinyl chloride	Total Xylenes
			Concentrations in $\mu\text{g}/\text{m}^3$										
Pre Carbon	SVE South Pre Carbon	4/29/2013	<6.3	<16	10	<8.2	<7.2	950	<7.8	<8.4	48	<5.3	<26.9
Post Carbon	SVE South Post Carbon	4/29/2013	<0.30	<0.80	<0.40	<0.40	<0.40	<0.40	<0.40	<0.30	<0.40	0.93	<1.2
Pre Carbon	SVE South Pre Carbon	5/24/2013	<1,100	<1,100	2,400	<1,100	<2,400	240,000	<1,100	<1,500	8,400	<720	<4,300
Post Carbon	SVE South Post Carbon	5/24/2013	<0.81	<0.79	<0.79	<0.79	<1.7	<1.4	<0.75	<1.1	<1.1	<0.51	<3.1
Pre Carbon	SVE South Pre Carbon	6/25/2013	<150	<150	630	<150	<330	39,000	<140	<210	1,800	<97	<570
Post Carbon	SVE South Post Carbon	6/25/2013	<0.81	8.1	3.8	<0.79	5.6	<1.4	<0.75	<1.1	<1.1	3.1	<3.1
Pre Carbon	SVE South Pre Carbon	7/25/2013	<120	<120	380	<120	<260	22,000	<110	<160	1,200	<77	<460
Post Carbon	SVE South Post Carbon	7/25/2013	<0.81	17	65	2.1	3.4	<1.4	1.2	<1.1	<1.1	2.6	1.4
Pre Carbon	SVE South Pre Carbon	8/27/2013	<150	<150	520	<150	<330	28,000	<140	<210	1,500	<97	<580
Post Carbon	SVE South Post Carbon	8/27/2013	3.3	13	270	7.0	4.7	<2.7	<1.5	<2.2	<2.1	3.7	<6.0
Pre Carbon	SVE South Precarbon	9/30/2013	<110	<110	450	<110	<240	26,000	<110	<150	1,400	<72	<420
Pre Carbon	SVE South Pre Carbon	10/24/2013	<140	<140	430	<140	<310	27,000	<130	<190	1,100	<90	<530
Post Carbon	SVE South Post Carbon	10/24/2013	3.8	4.9	390	3.3	<5.2	4.3	<2.3	5.4	<3.2	2.6	<5.1
Pre Carbon	SVE South Pre Carbon	11/25/2013	<100	<98	250	<98	<220	21,000	<93	<140	840	<63	<380
Post Carbon	SVE South Post Carbon	11/25/2013	<2.8	4.1	250	<2.8	7.3	<4.8	<2.6	17	56	<1.8	<10.6
Pre Carbon	SVE South Pre Carbon	12/27/2013	<110	<110	270	<110	<240	20,000	<100	<150	900	<70	<420
Post Carbon	SVE South Post Carbon	12/27/2013	2.5	4.5	220	2.4	3.8	3.5	<1.1	6.8	62	<0.77	<4.6
Pre Carbon	SVE South Pre-Carbon	1/29/2014	<80	<79	260	<79	<170	20,000	<75	<110	800	<51	<306
Post Carbon	SVE South Post-Carbon	1/29/2014	4.5	7.2	330	4.8	<8.7	7.9	<3.8	13	98	3.1	<15.3
Pre Carbon	SVE_South_Pre_Carbon	2/24/2014	<190	<490	430	<240	240.0	34,000	600	<250	1,500	<160	<800
Post Carbon	SVE_South_Effluent	2/24/2014	<1.2	<3.2	41	<1.6	<1.4	<2.7	<1.5	<1.6	<2.1	<1.0	<5.2
Pre Carbon	SVE South Pre Carbon	3/5/2014	<110	<280	270	<140	<120	16,000	660	<140	660	<90	1,090
Post Carbon	SVE South Effluent	3/5/2014	3.7	<8.3	310	4.2	4.4	<7.1	<4.0	<4.3	21	<2.7	<13.7
Pre Carbon	VCP_South_Post_Blower	3/31/2014	<83	<82	260	<82	<180	20,000	<78	<110	630	<53	<309
Post Carbon	VCP_South_Effluent	3/31/2014	3.3	4.9	290	4.2	<4.3	<3.4	<1.9	3.3	21	1.4	<7.6
Pre Carbon	South_SVE_Postblower_042914	4/29/2014	<47	<46	180	<46	<100	13,000	<44	<63	550	<30	<180
Post Carbon	South_SVE_Effluent_042914	4/29/2014	5.1	5.0	540	<4.8	<11	<8.2	<4.6	<6.6	37	<3.1	<18.3
Pre Carbon	South_SVE_Postblower_052714	5/27/2014	<57	<55	160	<55	<120	12,000	<53	<76	490	<36	<201
Post Carbon	South_SVE_PostCarbon_052714	5/27/2014	5.0	<4.8	530	<4.8	<11	<8.2	<4.6	14	8.1	<3.1	<18.3
Pre Carbon	South_VCP_Post Blower	7/3/2014	<18	<18	56	<18	<45	2,800	<18	<18	150	<18	<63
Post Carbon	South_VCP_Post Carbon	7/3/2014	<16	<16	760	<16	<35	55	<15	430	3,200	<10	<60
Pre Carbon	SVE Pre Carbon	7/28/2014	<69	<67	200	<67	<150	15,000	<64	<93	750	<43	<254
Post Carbon	SVE Post Carbon	7/28/2014	<68	<67	270	<67	<150	13,000	<63	530	12,000	<43	<253

Please refer to notes at end of table.

Table 8
 South SVE System – Analytical Results
 NuStar Vancouver Facility
 Vancouver, Washington

Sampling Location	Sample ID	Date	1,1-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Methylene Chloride	Tetrachloroethene	Toluene	1,1,1-Trichloroethane	Trichloroethene	Vinyl chloride	Total Xylenes
			Concentrations in $\mu\text{g}/\text{m}^3$										
Pre Carbon	South SVE Pre Carbon	8/25/2014	<140	<130	340	<130	<290	20,000	<130	<180	1,100	<86	<520
Post Carbon	South SVE Post Carbon	8/25/2014	<140	<130	270	<130	<290	9,600	<130	<180	2,700	<86	<520
Pre Carbon	South SVE_Pre Carbon	9/30/2014	<110	<110	250	<110	<230	17,000	<100	<150	930	<69	<410
Post Carbon	South SVE_Post Carbon	9/30/2014	<130	<120	280	<120	<270	23,000	<120	<170	620	<80	<480
Pre Carbon	SVE South Post Blower	11/3/2014	<130	<130	320	<130	<280	24,000	<120	<170	1,100	<81	<490
Post Carbon	SVE South Post Carbon	11/3/2014	<81	<81	130	<81	<180	12,000	<77	<110	290	<52	<309
Pre Carbon	SVE South Pre Carbon	1/26/2015	<190	<500	420	<250	<220	21,000	240	<260	860	<160	<820
Post Carbon	SVE South Post Carbon	1/26/2015	<78	<200	<100	<100	<90	<170	190	<110	<140	<66	<330
Pre Carbon	SVE South Pre Carbon	2/26/2015	<150	<390	260	<200	<170	18,000	280	<200	660	<130	<650
Post Carbon	SVE South Post Carbon	2/26/2015	<1.2	<3.2	<1.6	<1.6	3.2	<2.7	<1.5	<1.6	<2.1	2.5	<5.2
Pre Carbon	SVE South Pre Carbon	3/30/2015	<61	<160	200	<79	160	17,000	180	<82	570	<51	<257
Post Carbon	SVE South Post Carbon	3/30/2015	<1.2	<3.2	<1.6	<1.6	2.8	<2.7	2.7	<1.6	51	2.5	<5.2
Pre Carbon	SVE S Pre Carbon	4/24/2015	<37	<97	170	<49	<43	5,400	<46	<50	410	<31	<163
Post Carbon	SVE S Post Carbon	4/24/2015	<6.2	<16	<8.1	<8.1	<7.1	660	<7.7	<8.3	19	<5.2	18
Pre Carbon	SVE South Pre Carbon	5/28/2015	<60	<160	140	<79	92	8,000	240	<81	460	<51	<256
Post Carbon	SVE South Post Carbon	5/28/2015	<4.9	<13	<6.3	<6.3	<5.6	650	<6.0	<6.5	16	<4.1	22.1
Pre Carbon	SVE South Pre Carbon	7/29/2015	<65	<170	190	<85	<75	12,000	<81	<88	790	<55	<183
Post Carbon	SVE South Post Carbon	7/29/2015	10	<27	960	16	<12	440	<13	<14	<18	<8.7	<45
Pre Carbon	SVE South Pre Carbon	8/31/2015	<64	<170	160	<83	<73	12,000	<79	<86	780	<54	<171
Post Carbon	SVE South Post Carbon	8/31/2015	<21	<55	530	<27	<24	3,400	<26	<28	94	<18	<90
Pre Carbon	SVE South Pre Carbon	9/28/2015	<83	<220	170	<110	<94	9,900	<100	<110	660	<70	<360
Post Carbon	SVE South Post Carbon	9/28/2015	3.4	<6.0	340	3.6	<2.6	300	<2.8	39	59	<1.9	<9.8
Pre Carbon	SVE South Pre Carbon	10/29/2015	<130	<350	230	<170	<150	18,000	<170	<180	790	<110	<570
Post Carbon	SVE South Post Carbon	10/29/2015	4.2	5.2	340	4.5	2.6	26	<1.5	67	310	1.7	<5.2
Pre Carbon	SVE_South_Precarbon_113015	11/30/2015	<29	<77	54	<38	<38	3,000	<38	<29	300	<38	<77
Post Carbon	SVE_South_Postcarbon_113015	11/30/2015	<0.80	<0.80	27	0.60	<0.40	<0.40	<0.40	5.9	11	<0.40	<0.80
Pre Carbon	SVE_SOUTH_PRE CARBON_12/28/15	12/28/2015	<120	<320	180	<160	<140	35,000	<150	<170	1,200	<100	<530
Post Carbon	SVE_SOUTH_POST CARBON_12/28/15	12/28/2015	<1.2	<3.2	28	<1.6	<1.4	<2.7	1.5	2.4	6.5	<1.0	<4.2

Notes:

1. $\mu\text{g}/\text{m}^3$ = Micrograms per cubic meter.
2. Samples analyzed by Modified EPA Method TO-15.
3. Only analytes detected in at least one sample are presented in this table.
4. S= Surrogate recoveries were above acceptable recovery limits. Results may be biased high.
5. **Bold** values represents detected concentration of listed analyte.

Table 9
 North SVE System – VOC Mass Removal
 NuStar Vancouver Facility
 Vancouver, Washington

Sample Date	Post-Blower Pressure (in H ₂ O)	Air Flow Rate ⁽¹⁾ (cfm)	Total VOCs (mg/m ³)	VOC Removal (lb/day)
10/12/2011	0.1	250	10.5	0.2
1/23/2012	0.1	361	16.5	0.5
2/17/2012	0.05	215	11.3	0.2
3/22/2012	--	210	6.7	0.1
6/20/2012	0.2	217.8	0.3	0.005
8/22/2012	0.2	216	0.2	0.003
11/26/2012	0.05	215	22.6	0.436
12/21/2012	0.1	215	3.6	0.069
2/28/2013	0.1	215	4.6	0.088
5/24/2013	0.1	215	24.4	0.471
6/25/2013	0.1	215	13.8	0.267
8/27/2013	0.1	215	17.8	0.344
10/24/2013	0.1	215	10.6	0.204
12/27/2013	0.1	215	7.5	0.144
1/29/2014	3.0	215	1.4	0.028
2/24/2014	9.0	215	9.5	0.184
3/31/2014	1.0	215	3.7	0.072
4/29/2014	2.0	215	3.7	0.072
5/27/2014	2.0	215	4.4	0.085
7/3/2014	4.0	215	4.8	0.093
7/28/2014	3.0	215	7.7	0.148
9/30/2014	--	215	7.8	0.151
10/27/2014	2.0	215	15.4	0.298
11/25/2014	--	215	7.5	0.145
12/29/2014	2.0	215	15.3	0.296
1/26/2015	3.0	215	1.6	0.032
2/26/2015	0.1	215	0.0	0.001
3/30/2015	0.4	215	1.8	0.036
4/24/2015	0.4	215	0.6	0.012
5/14/2015	--	215	0.0	0.000
5/28/2015	0.05	215	0.4	0.007
7/29/2015	0.10	215	2.2	0.043
8/31/2015	0.05	215	7.8	0.150
9/28/2015	0.00	215	1.6	0.031
10/29/2015	1.00	215	6.9	0.134
11/30/2015	2.00	215	2.4	0.046
12/28/2015	0.10	215	5.7	0.110

Please refer to notes at end of table.

Table 9
 North SVE System – VOC Mass Removal
 NuStar Vancouver Facility
 Vancouver, Washington

Date	Activity	VOC Removal Rate (lb/day)	Days of Operation	Approximate VOCs Removed (lbs)	Approximate Cumulative VOCs Removed (lbs)
10/10/2011	Startup	--	--	--	--
10/12/2011	Sample	0.2	37	9	9
1/23/2012	Sample	0.5	31	17	26
2/17/2012	Sample	0.2	25	6	32
3/22/2012	Sample	0.1	34	5	37
6/20/2012	Sample	0.005	90	1	38
8/22/2012	Sample	0.003	63	1	39
11/26/2012	Sample	0.436	66	29	68
12/21/2012	Sample	0.069	25	2	70
2/28/2013	Sample	0.088	69	7	77
5/24/2013	Sample	0.471	--	--	77
6/25/2013	Sample	0.267	32	9	86
8/27/2013	Sample	0.344	63	22	108
10/24/2013	Sample	0.204	58	12	120
12/27/2013	Sample	0.144	64	10	130
1/29/2014	Sample	0.028	33	1	131
2/24/2014	Sample	0.184	--	--	131
3/31/2014	Sample	0.072	35	3	134
4/29/2014	Sample	0.072	29	3	137
5/27/2014	Sample	0.085	28	3	140
7/3/2014	Sample	0.093	37	4	144
7/28/2014	Sample	0.148	25	4	148
9/30/2014	Sample	0.151	64	10	158
10/27/2014	Sample	0.298	27	9	167
11/25/2014	Sample	0.145	29	5	172
12/29/2014	Sample	0.296	34	11	183
1/26/2015	Sample	0.032	28	1	184
2/26/2015	Sample	0.001	31	1	185
3/30/2015	Sample	0.036	32	2	187
4/24/2015	Sample	0.012	25	1	188
5/14/2015	Sample	0.000	20	0	188
5/28/2015	Sample	0.007	14	1	189
6/30/2015	Estimate	0.007	33	1	190
6/30/2015	Estimate	0.000	0	0	190
7/29/2015	Sample	0.043	29	2	192
8/31/2015	Sample	0.150	33	5	197
9/28/2015	Sample	0.031	28	1	198
10/29/2015	Sample	0.134	31	5	203
11/30/2015	Sample	0.046	32	2	205
12/28/2015	Sample	0.110	28	4	209

Notes:

1. Air flow rate read from system gauge.
2. cfm = Cubic feet per minute.
3. mg/m³ = Milligrams per cubic meter.
4. lb/day = Pounds per day.
5. lbs = Pounds.

Table 10
 South SVE System – VOC Mass Removal
 NuStar Vancouver Facility
 Vancouver, Washington

Sample Date	Post-Blower Pressure (in H ₂ O)	Air Flow Rate ⁽¹⁾ (cfm)	Total VOCs (mg/m ³)	VOC Removal (lb/day)
10/6/2011	33.0	590	46	2.4
11/2/2011	27.0	590	29	1.5
12/14/2011	27.0	590	57	3.0
2/17/2012	29.0	-- ⁶	30	1.6
3/22/2012	27.0	658	31	1.9
4/26/2012	27.0	--	38	2.3
5/23/2012	31.0	--	20	1.2
6/20/2012	33.0	--	37	2.2
7/24/2012	32.0	--	34	2.0
8/22/2012	29.0	--	51	3.0
9/25/2012	29.0	--	52	3.1
10/29/2012	47.0	--	63	3.7
11/26/2012	18.0	--	11	0.6
12/21/2012	17.0	--	15	0.9
1/24/2013	10.0	--	2	0.1
2/28/2013	18.0	--	1	0.1
3/25/2013	16.0	--	4	0.2
4/29/2013	15.0	--	1	0.1
5/24/2013	47.0	--	251	14.8
6/25/2013	51.0	--	41	2.5
7/25/2013	50.0	--	24	1.4
8/27/2013	52.0	--	30	1.8
9/30/2013	45.0	--	28	1.6
10/24/2013	50.0	--	29	1.7
11/25/2013	51.0	--	22	1.3
12/27/2013	55.0	--	21	1.3
1/29/2014	50.0	--	21	1.2
2/24/2014	50.0	--	37	2.2
3/31/2014	46.0	--	21	1.2
4/29/2014	48.8	--	14	0.8
5/27/2014	49.0	--	13	0.7
7/3/2014	50.0	--	3	0.2
7/28/2014	50.0	--	16	0.9
8/25/2014	49.0	--	21	1.2
9/30/2014	40.0	--	18	1.1
11/3/2014	50.0	--	25	1.5
1/26/2015	20.0	--	23	1.3
2/26/2015	30.0	--	19	1.1
3/30/2015	29.0	--	18	1.1
4/24/2015	29.0	--	6	0.4
5/28/2015	28.0	--	9	0.5
7/29/2015	25.0	--	13	0.8
8/31/2015	26.0	--	13	0.8
9/28/2015	26.0	--	11	0.6
10/29/2015	27.0	--	19	1.1
11/30/2015	30.0	--	3	0.2
12/28/2015	29.0	--	36	2.2

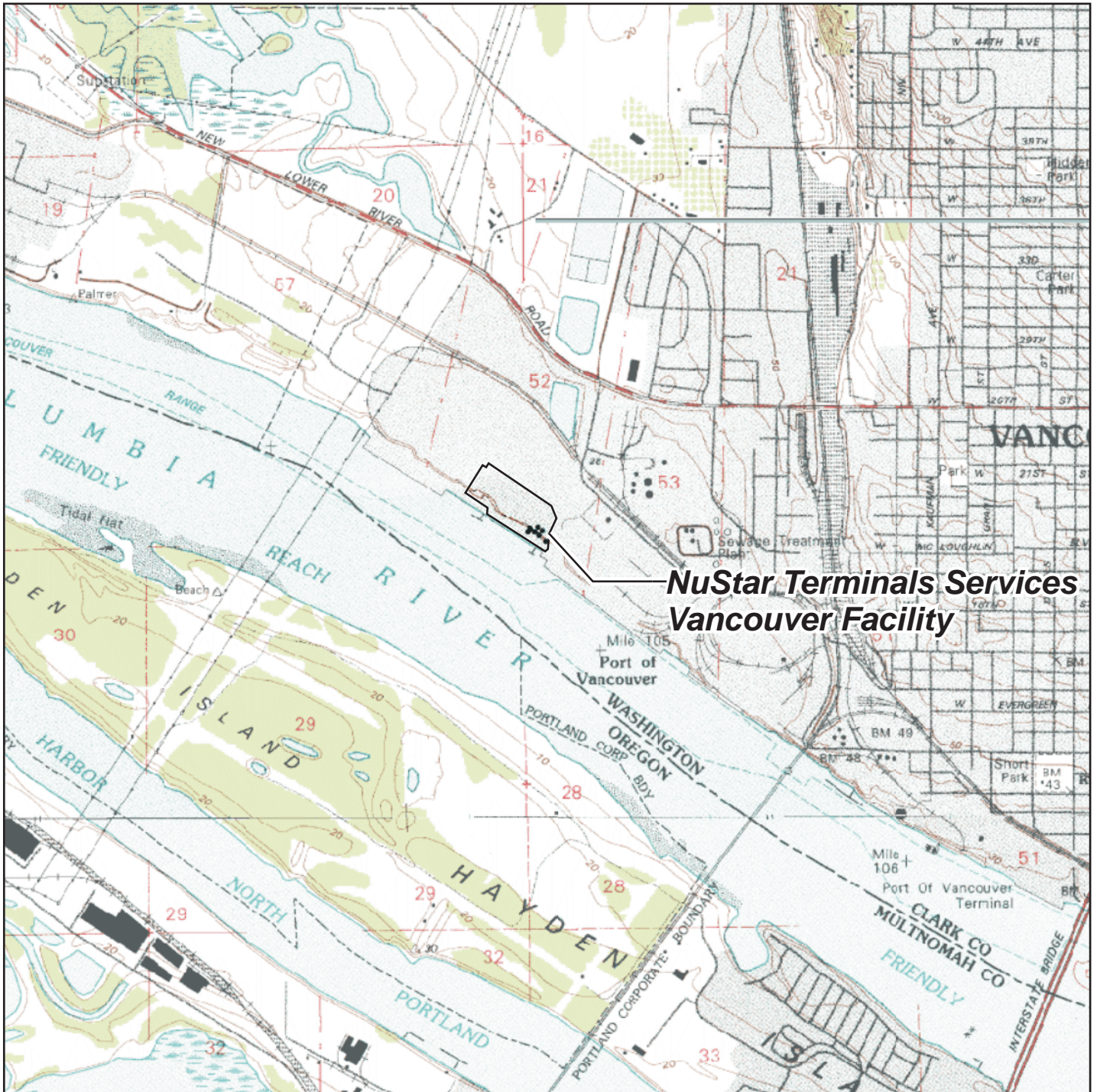
Please refer to notes at end of table.

Table 10
 South SVE System – VOC Mass Removal
 NuStar Vancouver Facility
 Vancouver, Washington

Date	Activity	VOC Removal Rate (lb/day)	Days of Operation	Approximate VOCs Removed (lbs)	Approximate Cumulative VOCs Removed (lbs)
10/6/2011	Startup	2.4	0.5	2	2
11/2/2011	Sample	1.5	27	41	43
12/14/2011	Sample	3.0	42	96	139
2/17/2012	Sample	1.6	65	151	290
3/22/2012	Sample	1.9	34	59	349
4/26/2012	Sample	2.3	35	73	422
5/23/2012	Sample	1.2	29	51	473
6/20/2012	Sample	2.2	28	47	520
7/24/2012	Sample	2.0	34	72	592
8/22/2012	Sample	3.0	29	74	666
9/25/2012	Sample	3.1	34	104	770
10/29/2012	Sample	3.7	34	116	886
11/26/2012	Sample	0.6	28	61	947
12/21/2012	Sample	0.9	25	19	966
1/24/2013	Sample	0.1	34	17	983
2/28/2013	Sample	0.1	35	3	986
3/25/2013	Sample	0.2	25	4	990
4/29/2013	Sample	0.1	35	6	996
5/24/2013	Sample	14.8	--	--	996
6/25/2013	Sample	2.5	32	277	1273
7/25/2013	Sample	1.4	30	58	1331
8/27/2013	Sample	1.8	33	53	1384
9/30/2013	Sample	1.6	34	59	1443
10/24/2013	Sample	1.7	24	41	1484
11/25/2013	Sample	1.3	32	48	1532
12/27/2013	Sample	1.2	32	41	1573
1/29/2014	Sample	1.2	33	41	1614
2/24/2014	Sample	2.2	--	--	1614
3/31/2014	Sample	1.2	35	60	1674
4/29/2014	Sample	0.8	29	30	1704
5/27/2014	Sample	0.7	28	22	1726
7/3/2014	Sample	0.2	37	18	1744
7/28/2014	Sample	0.9	25	15	1759
8/25/2014	Sample	1.2	28	31	1790
9/30/2014	Sample	1.1	36	42	1832
11/3/2014	Sample	1.5	30	39	1871
12/31/2014	Estimated	1.5	22	33	1904
1/26/2015	Sample	1.3	26	37	1941
2/26/2015	Sample	1.1	31	39	1980
3/30/2015	Sample	1.1	32	36	2016
4/24/2015	Sample	0.4	25	18	2034
5/28/2015	Sample	0.5	34	15	2049
7/29/2015	Sample	0.8	62	41	2090
8/31/2015	Sample	0.8	33	26	2116
9/28/2015	Sample	0.6	28	20	2136
10/29/2015	Sample	1.1	31	28	2164
11/30/2015	Sample	0.2	32	22	2186
12/28/2015	Sample	2.2	28	33	2219

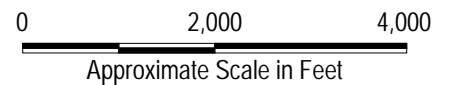
Notes:

- Air flow rate read from system gauge.
- cfm = cubic feet per minute.
- mg/m³ = Milligrams per cubic meter.
- lb/day = Pounds per day.
- lbs = Pounds.
- Flow rate was not measured on dates with dashes. For calculations, rate is assumed to be the same as measured the date before.
- System was down during the October 27, 2014 monitoring event and was restarted on October 29, 2014. It is assumed that the system was down for a total of four days, although the exact duration of shutdown is unknown.



**NuStar Terminals Services
Vancouver Facility**

Base map prepared from USGS 7.5-minute quadrangles as provided by Topozone.



Vancouver



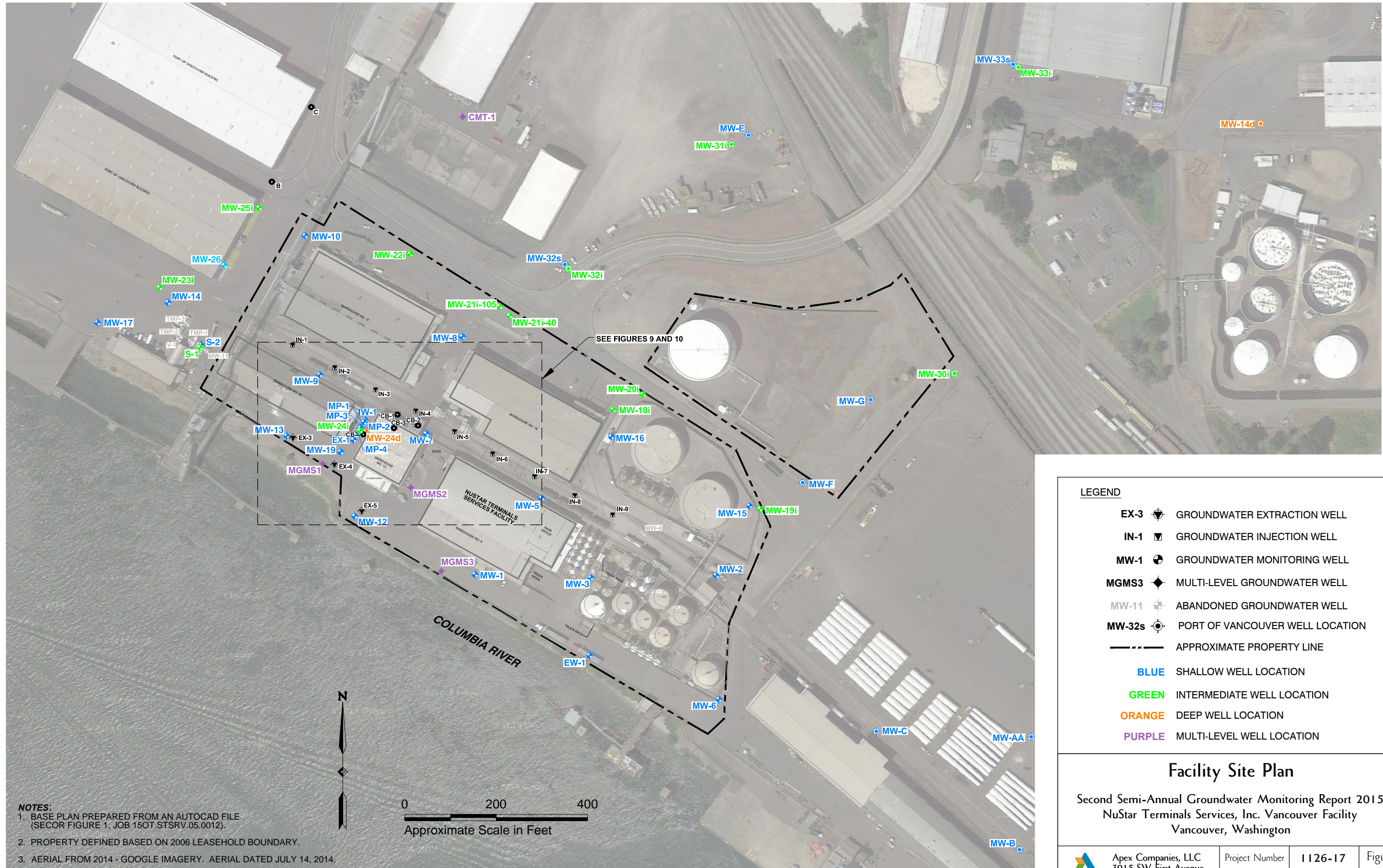
Facility Location Map

Second Semi-Annual Groundwater Monitoring Report 2015
NuStar Terminals Services, Inc. Vancouver Facility
Vancouver, Washington

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number 1126-17
January 2016

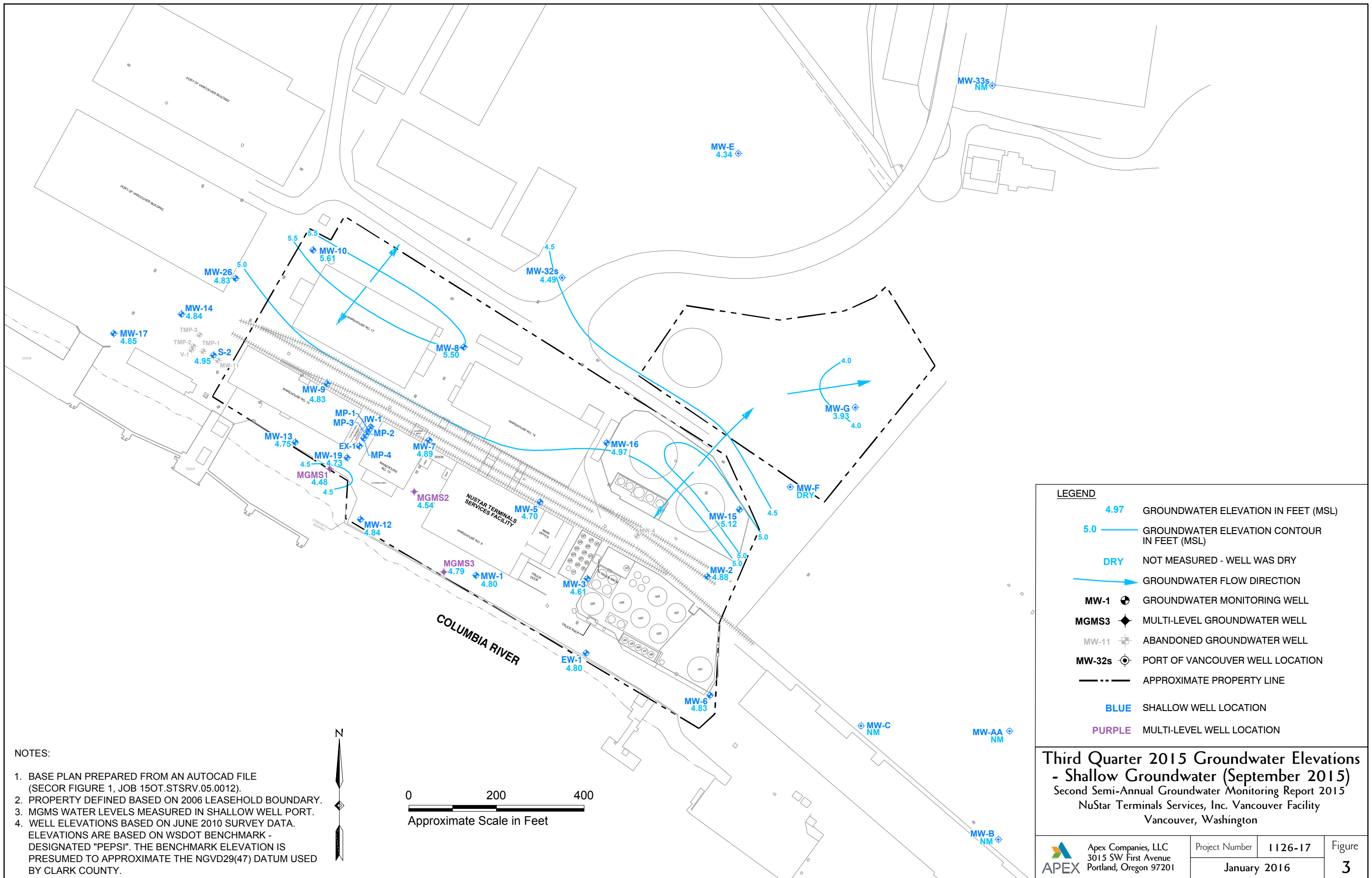
Figure 1



NOTES:
 1. BASE PLAN PREPARED FROM AN AUTOCAD FILE (SECOR FIGURE 1, JOB 15OT.STSRV.05.0012).
 2. PROPERTY DEFINED BASED ON 2006 LEASEHOLD BOUNDARY.
 3. AERIAL FROM 2014 - GOOGLE IMAGERY. AERIAL DATED JULY 14, 2014.

LEGEND	
EX-3	GROUNDWATER EXTRACTION WELL
IN-1	GROUNDWATER INJECTION WELL
MW-1	GROUNDWATER MONITORING WELL
MGMS3	MULTI-LEVEL GROUNDWATER WELL
MW-11	ABANDONED GROUNDWATER WELL
MW-32s	PORT OF VANCOUVER WELL LOCATION
---	APPROXIMATE PROPERTY LINE
BLUE	SHALLOW WELL LOCATION
GREEN	INTERMEDIATE WELL LOCATION
ORANGE	DEEP WELL LOCATION
PURPLE	MULTI-LEVEL WELL LOCATION

Facility Site Plan
 Second Semi-Annual Groundwater Monitoring Report 2015
 NuStar Terminals Services, Inc. Vancouver Facility
 Vancouver, Washington

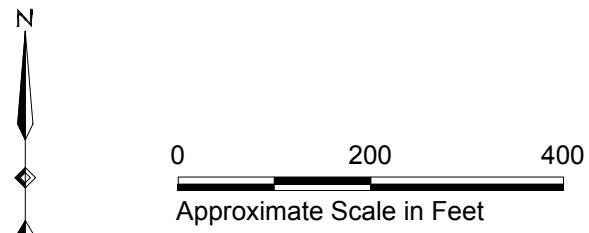


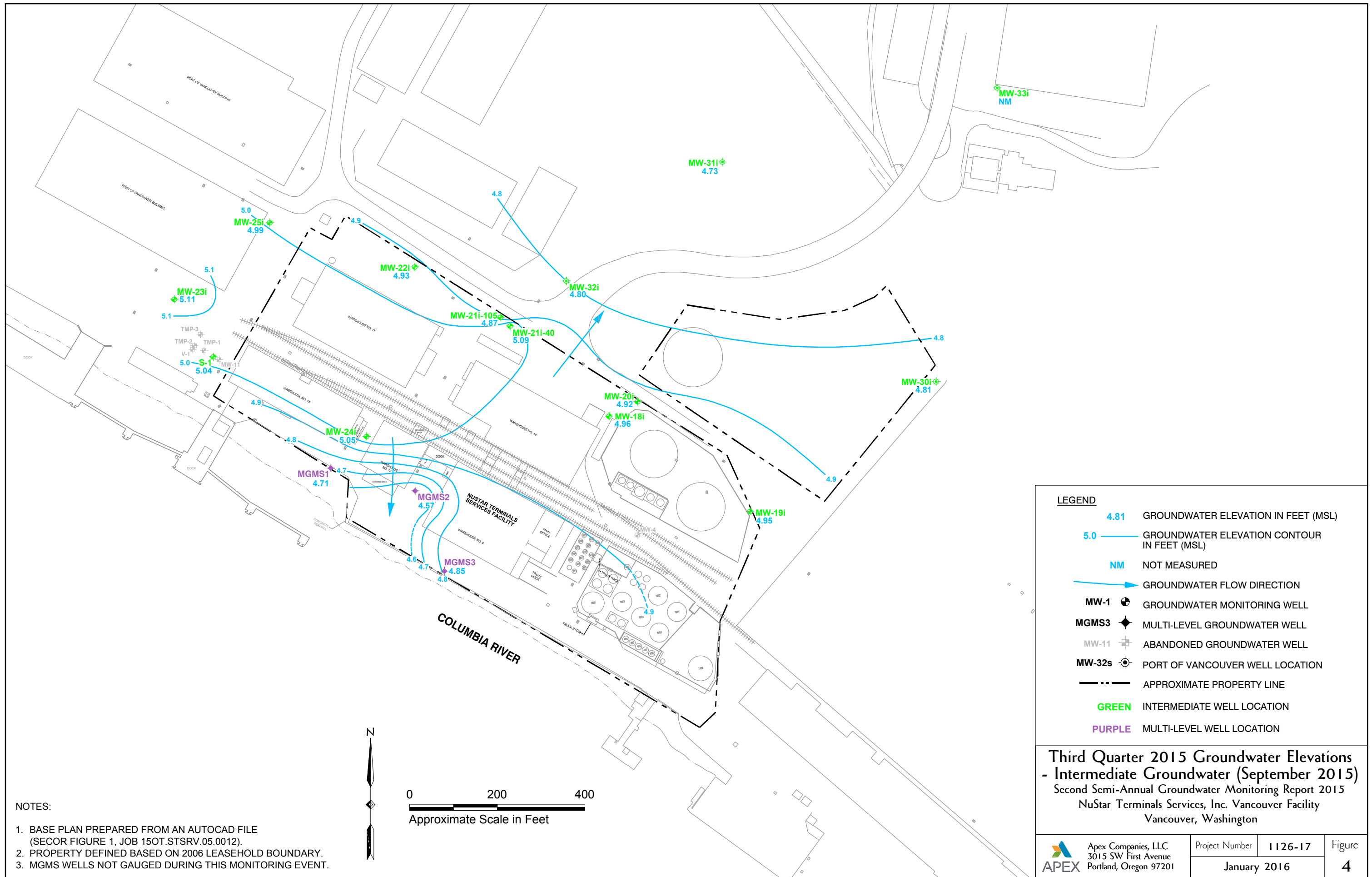
LEGEND

- 4.97 GROUNDWATER ELEVATION IN FEET (MSL)
- 5.0 GROUNDWATER ELEVATION CONTOUR IN FEET (MSL)
- DRY NOT MEASURED - WELL WAS DRY
- GROUNDWATER FLOW DIRECTION
- MW-1 GROUNDWATER MONITORING WELL
- MGMS3 MULTI-LEVEL GROUNDWATER WELL
- MW-11 ABANDONED GROUNDWATER WELL
- MW-32s PORT OF VANCOUVER WELL LOCATION
- APPROXIMATE PROPERTY LINE
- BLUE SHALLOW WELL LOCATION
- PURPLE MULTI-LEVEL WELL LOCATION

Third Quarter 2015 Groundwater Elevations - Shallow Groundwater (September 2015)
 Second Semi-Annual Groundwater Monitoring Report 2015
 NuStar Terminals Services, Inc. Vancouver Facility
 Vancouver, Washington

- NOTES:**
1. BASE PLAN PREPARED FROM AN AUTOCAD FILE (SECOR FIGURE 1, JOB 15OT.STSRV.05.0012).
 2. PROPERTY DEFINED BASED ON 2006 LEASEHOLD BOUNDARY.
 3. MGMS WATER LEVELS MEASURED IN SHALLOW WELL PORT.
 4. WELL ELEVATIONS BASED ON JUNE 2010 SURVEY DATA. ELEVATIONS ARE BASED ON WSDOT BENCHMARK - DESIGNATED "PEPSI". THE BENCHMARK ELEVATION IS PRESUMED TO APPROXIMATE THE NGVD29(47) DATUM USED BY CLARK COUNTY.



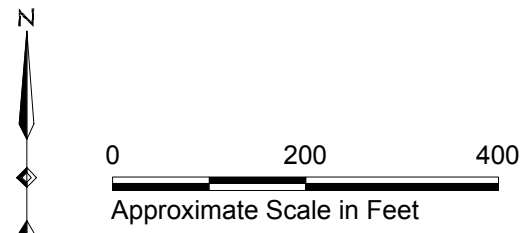


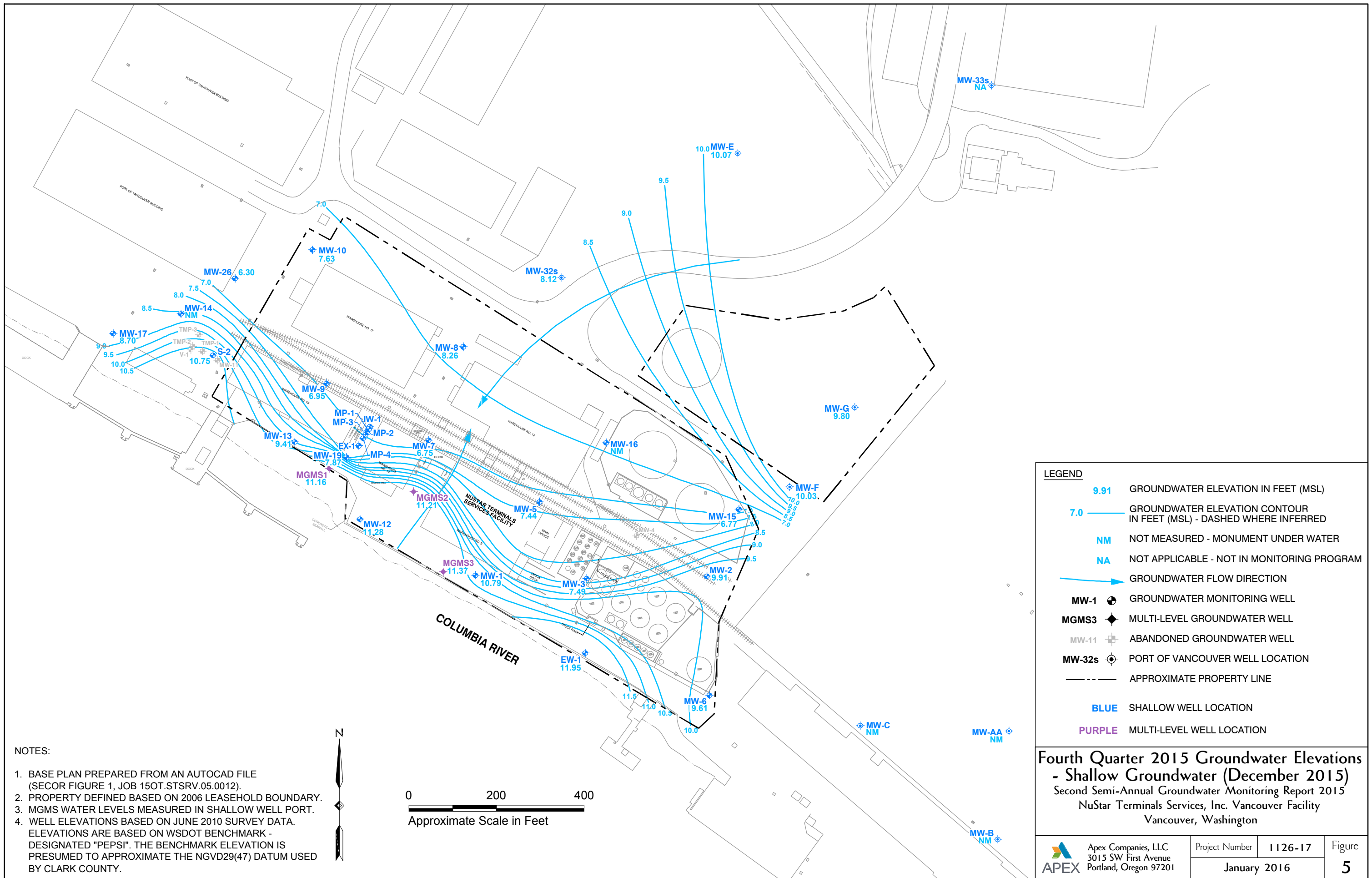
LEGEND

- 4.81 GROUNDWATER ELEVATION IN FEET (MSL)
- 5.0 GROUNDWATER ELEVATION CONTOUR IN FEET (MSL)
- NM NOT MEASURED
- GROUNDWATER FLOW DIRECTION
- MW-1 GROUNDWATER MONITORING WELL
- MGMS3 MULTI-LEVEL GROUNDWATER WELL
- MW-11 ABANDONED GROUNDWATER WELL
- MW-32s PORT OF VANCOUVER WELL LOCATION
- - - APPROXIMATE PROPERTY LINE
- GREEN INTERMEDIATE WELL LOCATION
- PURPLE MULTI-LEVEL WELL LOCATION

Third Quarter 2015 Groundwater Elevations - Intermediate Groundwater (September 2015)
 Second Semi-Annual Groundwater Monitoring Report 2015
 NuStar Terminals Services, Inc. Vancouver Facility
 Vancouver, Washington

- NOTES:
1. BASE PLAN PREPARED FROM AN AUTOCAD FILE (SECOR FIGURE 1, JOB 15OT.STSRV.05.0012).
 2. PROPERTY DEFINED BASED ON 2006 LEASEHOLD BOUNDARY.
 3. MGMS WELLS NOT GAUGED DURING THIS MONITORING EVENT.



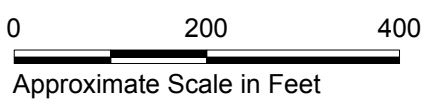


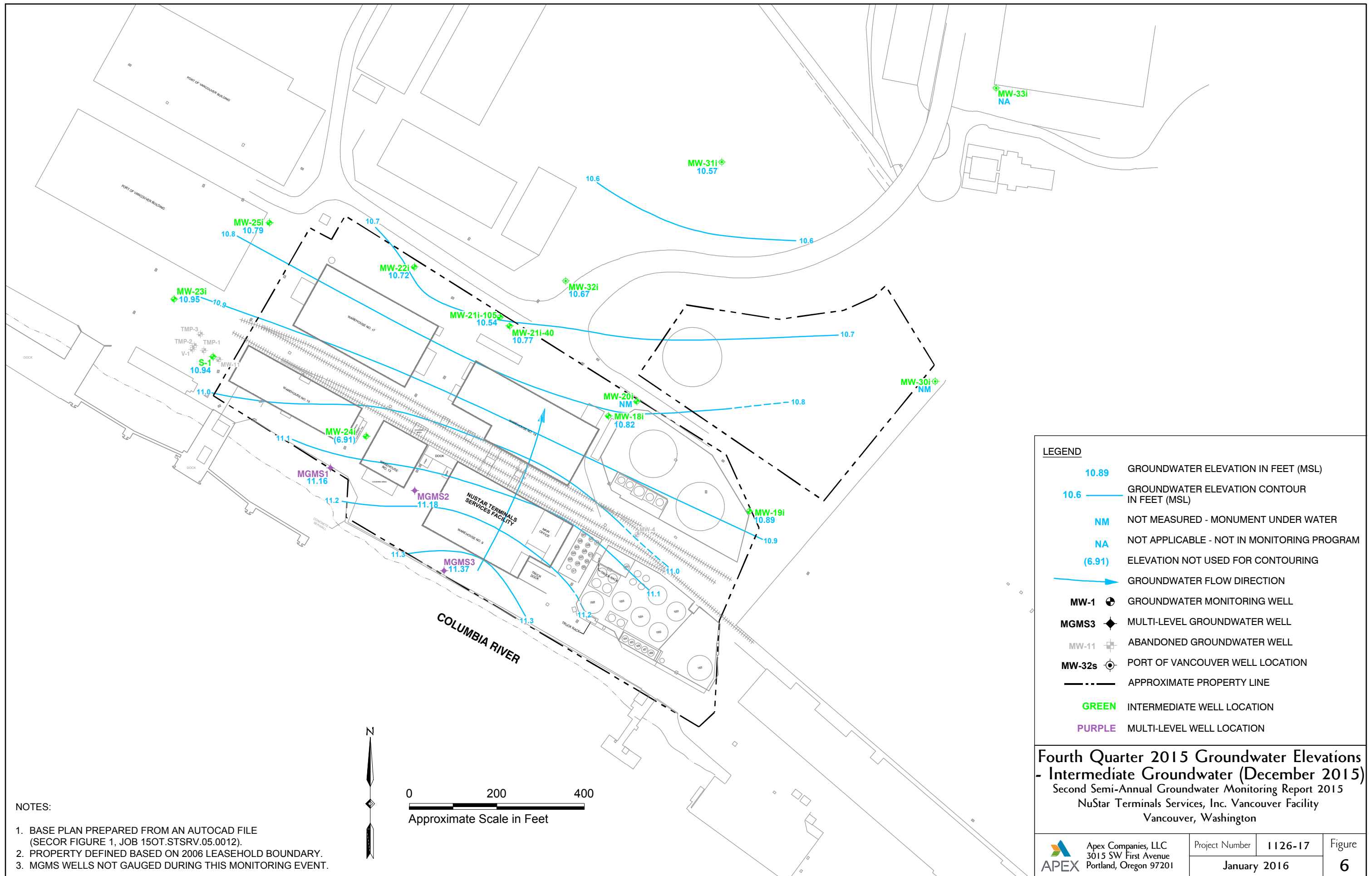
LEGEND

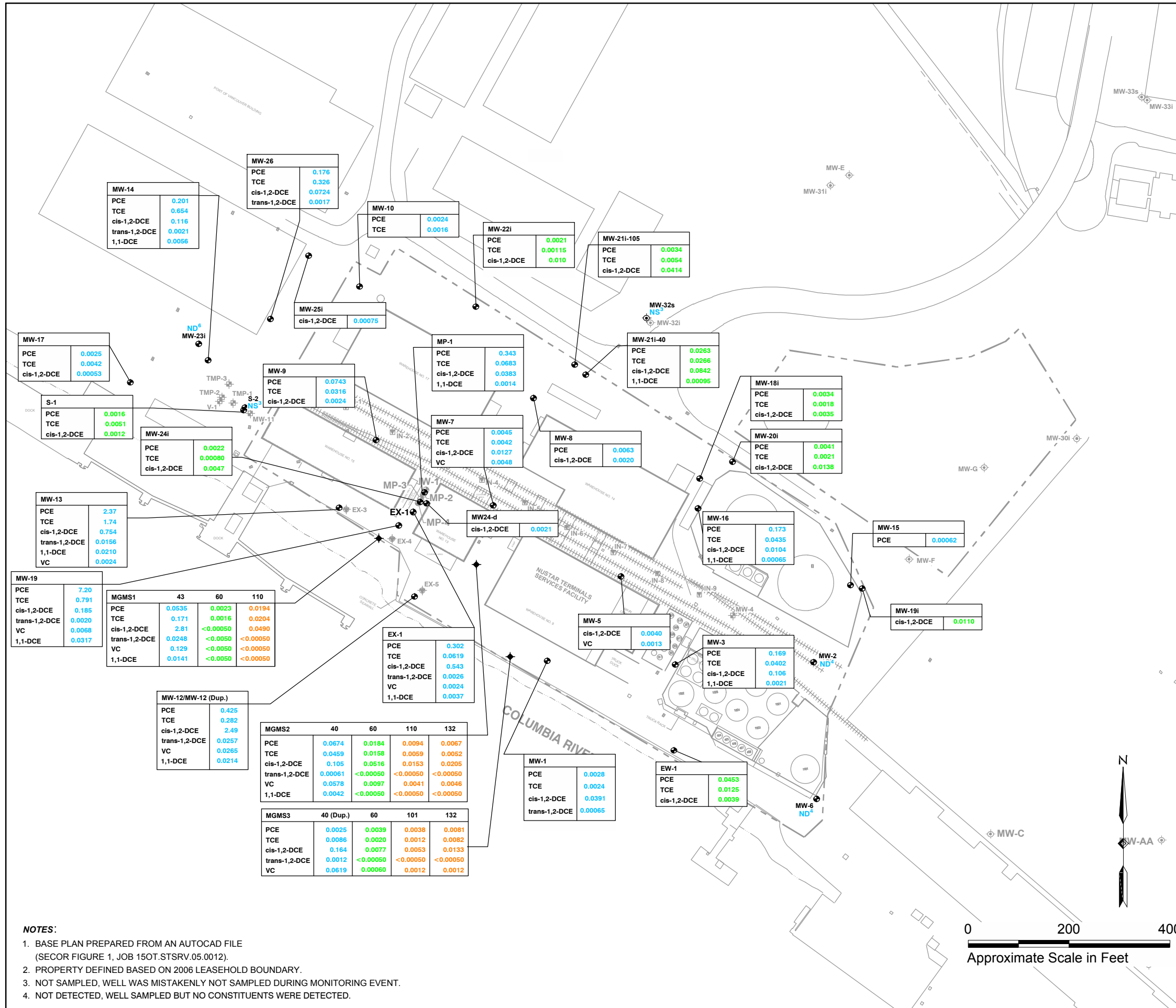
- 9.91 GROUNDWATER ELEVATION IN FEET (MSL)
- 7.0 GROUNDWATER ELEVATION CONTOUR IN FEET (MSL) - DASHED WHERE INFERRED
- NM NOT MEASURED - MONUMENT UNDER WATER
- NA NOT APPLICABLE - NOT IN MONITORING PROGRAM
- GROUNDWATER FLOW DIRECTION
- MW-1 GROUNDWATER MONITORING WELL
- MGMS3 MULTI-LEVEL GROUNDWATER WELL
- MW-11 ABANDONED GROUNDWATER WELL
- MW-32s PORT OF VANCOUVER WELL LOCATION
- APPROXIMATE PROPERTY LINE
- BLUE SHALLOW WELL LOCATION
- PURPLE MULTI-LEVEL WELL LOCATION

Fourth Quarter 2015 Groundwater Elevations - Shallow Groundwater (December 2015)
 Second Semi-Annual Groundwater Monitoring Report 2015
 NuStar Terminals Services, Inc. Vancouver Facility
 Vancouver, Washington

- NOTES:**
1. BASE PLAN PREPARED FROM AN AUTOCAD FILE (SECOR FIGURE 1, JOB 150T.STSRV.05.0012).
 2. PROPERTY DEFINED BASED ON 2006 LEASEHOLD BOUNDARY.
 3. MGMS WATER LEVELS MEASURED IN SHALLOW WELL PORT.
 4. WELL ELEVATIONS BASED ON JUNE 2010 SURVEY DATA. ELEVATIONS ARE BASED ON WSDOT BENCHMARK - DESIGNATED "PEPSI". THE BENCHMARK ELEVATION IS PRESUMED TO APPROXIMATE THE NGVD29(47) DATUM USED BY CLARK COUNTY.







LEGEND

WELL IDENTIFICATION

DEPTH OF PORT SAMPLED (IF NOT SPECIFIED - SINGLE PORT WELL)

CHEMICAL CONCENTRATION IN mg/L (ONLY DETECTED COMPOUNDS ARE SHOWN)

MGMS1	60
PCE	0.0023
TCE	0.0016
cis-1,2-DCE	<0.00050
trans-1,2-DCE	<0.00050
VC	<0.00050
1,1-DCE	<0.00050

ANALYTE SAMPLED

- EX-3** GROUNDWATER EXTRACTION WELL
- IN-1** GROUNDWATER INJECTION WELL
- MW-1** GROUNDWATER MONITORING WELL
- MGMS3** MULTI-LEVEL GROUNDWATER WELL
- MW-11** ABANDONED GROUNDWATER WELL
- MW-32s** PORT OF VANCOUVER WELL LOCATION
- APPROXIMATE PROPERTY LINE
- BLUE** SHALLOW ZONE CONCENTRATION DATA (DEPTHS OF 0 TO 45 FEET)
- GREEN** INTERMEDIATE ZONE CONCENTRATION DATA (DEPTHS OF 45 TO 100 FEET)
- ORANGE** DEEP ZONE CONCENTRATION DATA (DEPTHS OVER 100 FEET)

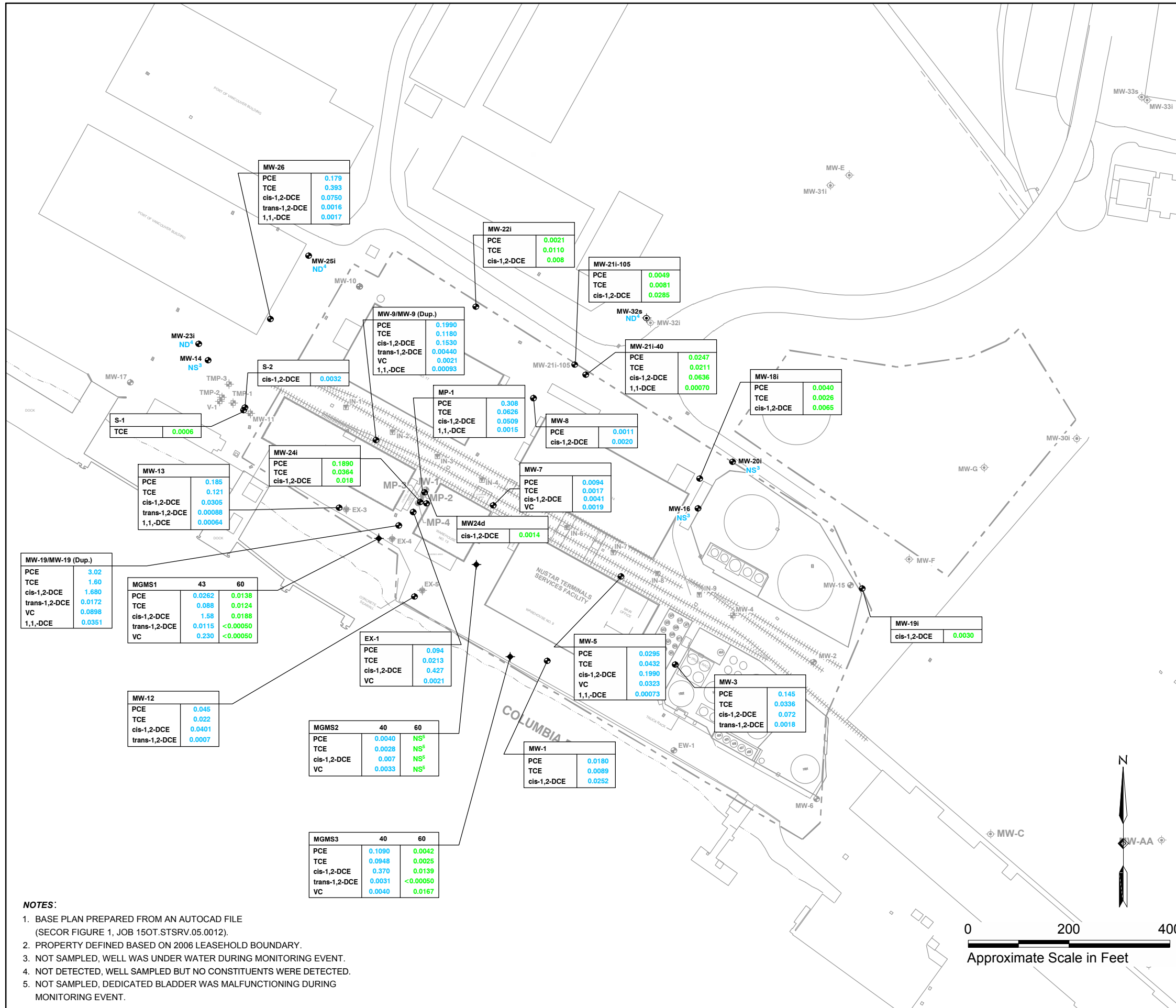
ABBREVIATIONS

PCE	TETRACHLOROETHENE
TCE	TRICHLOROETHENE
cis-1,2-DCE	CIS-1,2-DICHLOROETHENE
trans-1,2-DCE	TRANS-1,2-DICHLOROETHENE
VC	VINYL CHLORIDE
1,1-DCE	1,1-DICHLOROETHENE

- NOTES:**
1. BASE PLAN PREPARED FROM AN AUTOCAD FILE (SECOR FIGURE 1, JOB 150T.STSRV.05.0012).
 2. PROPERTY DEFINED BASED ON 2006 LEASEHOLD BOUNDARY.
 3. NOT SAMPLED, WELL WAS MISTAKENLY NOT SAMPLED DURING MONITORING EVENT.
 4. NOT DETECTED, WELL SAMPLED BUT NO CONSTITUENTS WERE DETECTED.

**Third Quarter 2015
Groundwater Concentrations**
Second Semi-Annual Groundwater Monitoring Report 2015
NuStar Terminals Services, Inc. Vancouver Facility
Vancouver, Washington

Apex Companies, LLC 3015 SW First Avenue Portland, Oregon 97201	Project Number	1126-17	Figure	7
	January 2016			



LEGEND

WELL IDENTIFICATION

DEPTH OF PORT SAMPLED (IF NOT SPECIFIED - SINGLE PORT WELL)

CHEMICAL CONCENTRATION IN mg/L (ONLY DETECTED COMPOUNDS ARE SHOWN)

MGMS1	60
PCE	0.0138
TCE	0.0124
cis-1,2-DCE	0.0188
trans-1,2-DCE	<0.00050
VC	<0.00050

ANALYTE SAMPLED

- EX-3** GROUNDWATER EXTRACTION WELL
- IN-1** GROUNDWATER INJECTION WELL
- MW-1** GROUNDWATER MONITORING WELL
- MGMS3** MULTI-LEVEL GROUNDWATER WELL
- MW-11** ABANDONED GROUNDWATER WELL
- MW-32s** PORT OF VANCOUVER WELL LOCATION

- BLUE** SHALLOW ZONE CONCENTRATION DATA (DEPTHS OF 0 TO 45 FEET)
- GREEN** INTERMEDIATE ZONE CONCENTRATION DATA (DEPTHS OF 45 TO 100 FEET)

ABBREVIATIONS

PCE	TETRACHLOROETHENE
TCE	TRICHLOROETHENE
cis-1,2-DCE	CIS-1,2-DICHLOROETHENE
trans-1,2-DCE	TRANS-1,2-DICHLOROETHENE
VC	VINYL CHLORIDE
1,1-DCE	1,1-DICHLOROETHENE

- NOTES:**
1. BASE PLAN PREPARED FROM AN AUTOCAD FILE (SECOR FIGURE 1, JOB 150T.STSRV.05.0012).
 2. PROPERTY DEFINED BASED ON 2006 LEASEHOLD BOUNDARY.
 3. NOT SAMPLED, WELL WAS UNDER WATER DURING MONITORING EVENT.
 4. NOT DETECTED, WELL SAMPLED BUT NO CONSTITUENTS WERE DETECTED.
 5. NOT SAMPLED, DEDICATED BLADDER WAS MALFUNCTIONING DURING MONITORING EVENT.

**Fourth Quarter 2015
Groundwater Concentrations**
Second Semi-Annual Groundwater Monitoring Report 2015
NuStar Terminals Services, Inc. Vancouver Facility
Vancouver, Washington

Apex Companies, LLC 3015 SW First Avenue Portland, Oregon 97201	Project Number	1126-17	Figure	8
	January 2016			

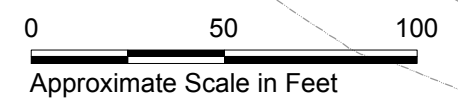


LEGEND:

- 2011 SOURCE AREA INJECTION POINT
- 2011 STANDARD OIL SUBSTRATE INJECTION POINT
- 2011 ANGLED INJECTION POINT
- 2008 INTERIM ACTION INJECTION POINT
- EX-3 EARLY 2000s INTERIM ACTION GROUNDWATER EXTRACTION WELL
- IN-1 EARLY 2000s INTERIM ACTION GROUNDWATER INJECTION WELL AND VAPOR EXTRACTION WELL
- MW-1 GROUNDWATER MONITORING WELL
- MGMS3 MULTI-LEVEL GROUNDWATER WELL
- CATCH BASIN
- BUILDING
- FENCE
- ELECTRICAL
- SYSTEM ELECTRICAL
- STORM SEWER
- WATER
- MANHOLE
- RAILROAD TRACKS

NOTES:

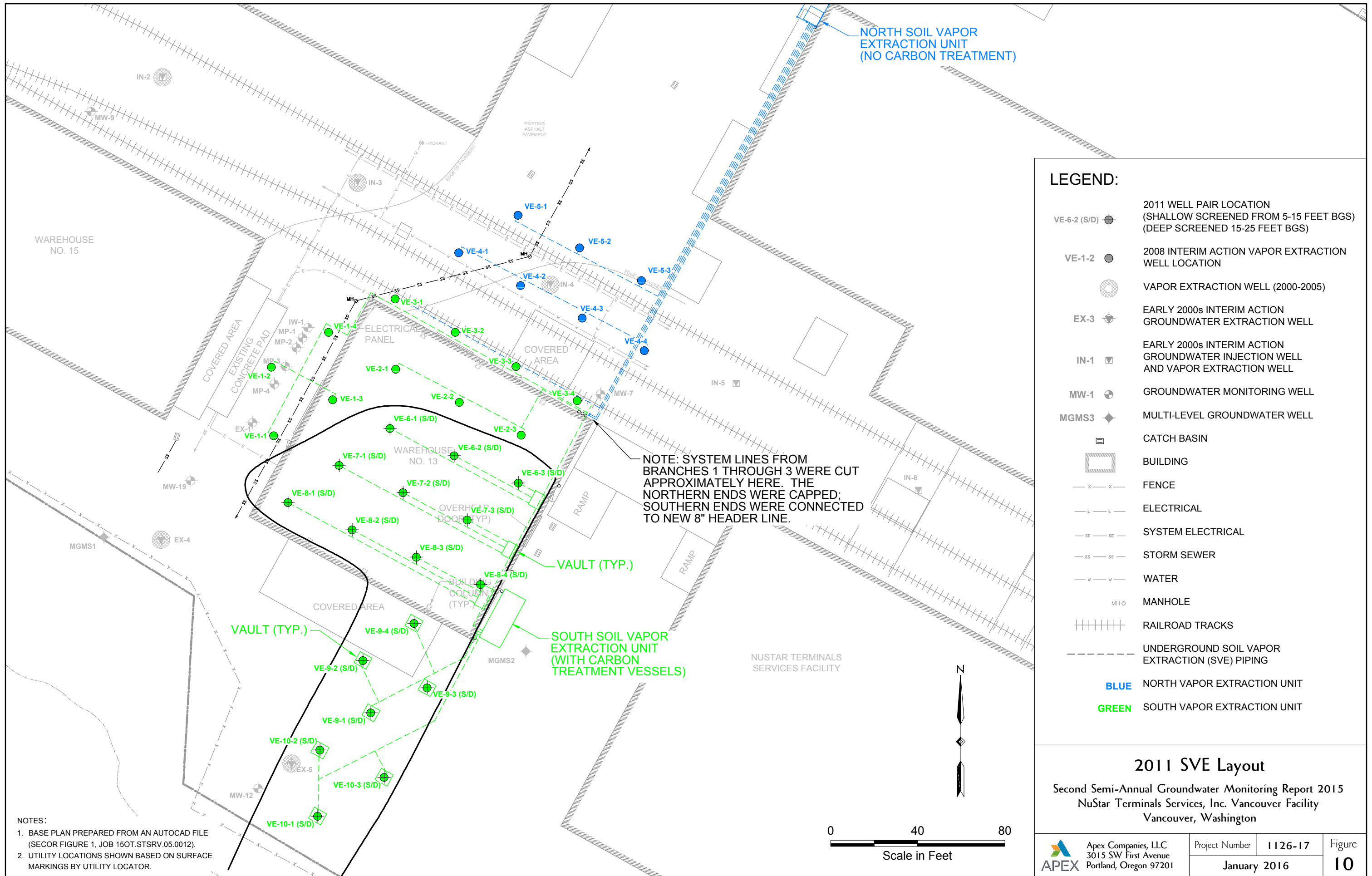
1. BASE PLAN PREPARED FROM AN AUTOCAD FILE (SECOR FIGURE 1, JOB 150T.STSRV.05.0012).
2. UTILITY LOCATIONS SHOWN BASED ON SURFACE MARKINGS BY UTILITY LOCATOR.
3. INJECTION LOCATIONS BASED ON FIELD MEASUREMENTS TO EXISTING SITE STRUCTURES.



Bioremediation Injection Locations

Second Semi-Annual Groundwater Monitoring Report 2015
NuStar Terminals Services, Inc. Vancouver Facility
Vancouver, Washington

Apex Companies, LLC 3015 SW First Avenue Portland, Oregon 97201	Project Number	1126-17	Figure
	January 2016		9



LEGEND:

- VE-6-2 (S/D) 2011 WELL PAIR LOCATION (SHALLOW SCREENED FROM 5-15 FEET BGS) (DEEP SCREENED 15-25 FEET BGS)
- VE-1-2 2008 INTERIM ACTION VAPOR EXTRACTION WELL LOCATION
- VAPOR EXTRACTION WELL (2000-2005)
- EX-3 EARLY 2000s INTERIM ACTION GROUNDWATER EXTRACTION WELL
- IN-1 EARLY 2000s INTERIM ACTION GROUNDWATER INJECTION WELL AND VAPOR EXTRACTION WELL
- MW-1 GROUNDWATER MONITORING WELL
- MGMS3 MULTI-LEVEL GROUNDWATER WELL
- CATCH BASIN
- BUILDING
- x - x - FENCE
- E - E - ELECTRICAL
- SE - SE - SYSTEM ELECTRICAL
- SS - SS - STORM SEWER
- V - V - WATER
- MHO MANHOLE
- RAILROAD TRACKS
- - - - UNDERGROUND SOIL VAPOR EXTRACTION (SVE) PIPING
- BLUE NORTH VAPOR EXTRACTION UNIT
- GREEN SOUTH VAPOR EXTRACTION UNIT

NOTE: SYSTEM LINES FROM BRANCHES 1 THROUGH 3 WERE CUT APPROXIMATELY HERE. THE NORTHERN ENDS WERE CAPPED; SOUTHERN ENDS WERE CONNECTED TO NEW 8" HEADER LINE.

NOTES:
 1. BASE PLAN PREPARED FROM AN AUTOCAD FILE (SECOR FIGURE 1, JOB 150T.STSRV.05.0012).
 2. UTILITY LOCATIONS SHOWN BASED ON SURFACE MARKINGS BY UTILITY LOCATOR.

N

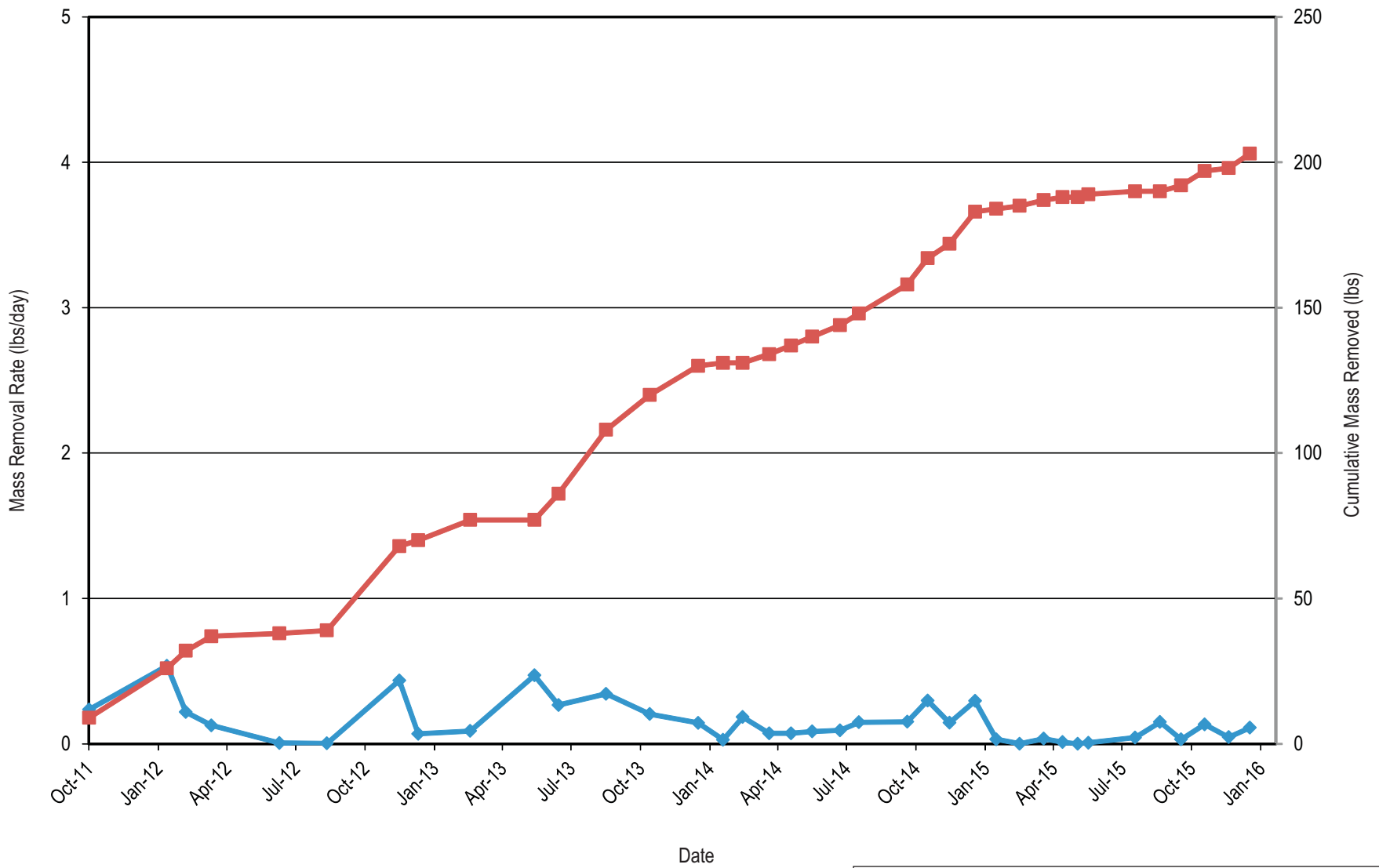
0 40 80

Scale in Feet

2011 SVE Layout

Second Semi-Annual Groundwater Monitoring Report 2015
 NuStar Terminals Services, Inc. Vancouver Facility
 Vancouver, Washington

Apex Companies, LLC 3015 SW First Avenue Portland, Oregon 97201	Project Number	1126-17	Figure
	January 2016	10	



Legend:

- ◆ Volatile Organic Compound (VOC) Removal Rate (lbs/day)
- Approximate Cumulative VOCs Removed (lbs/day)

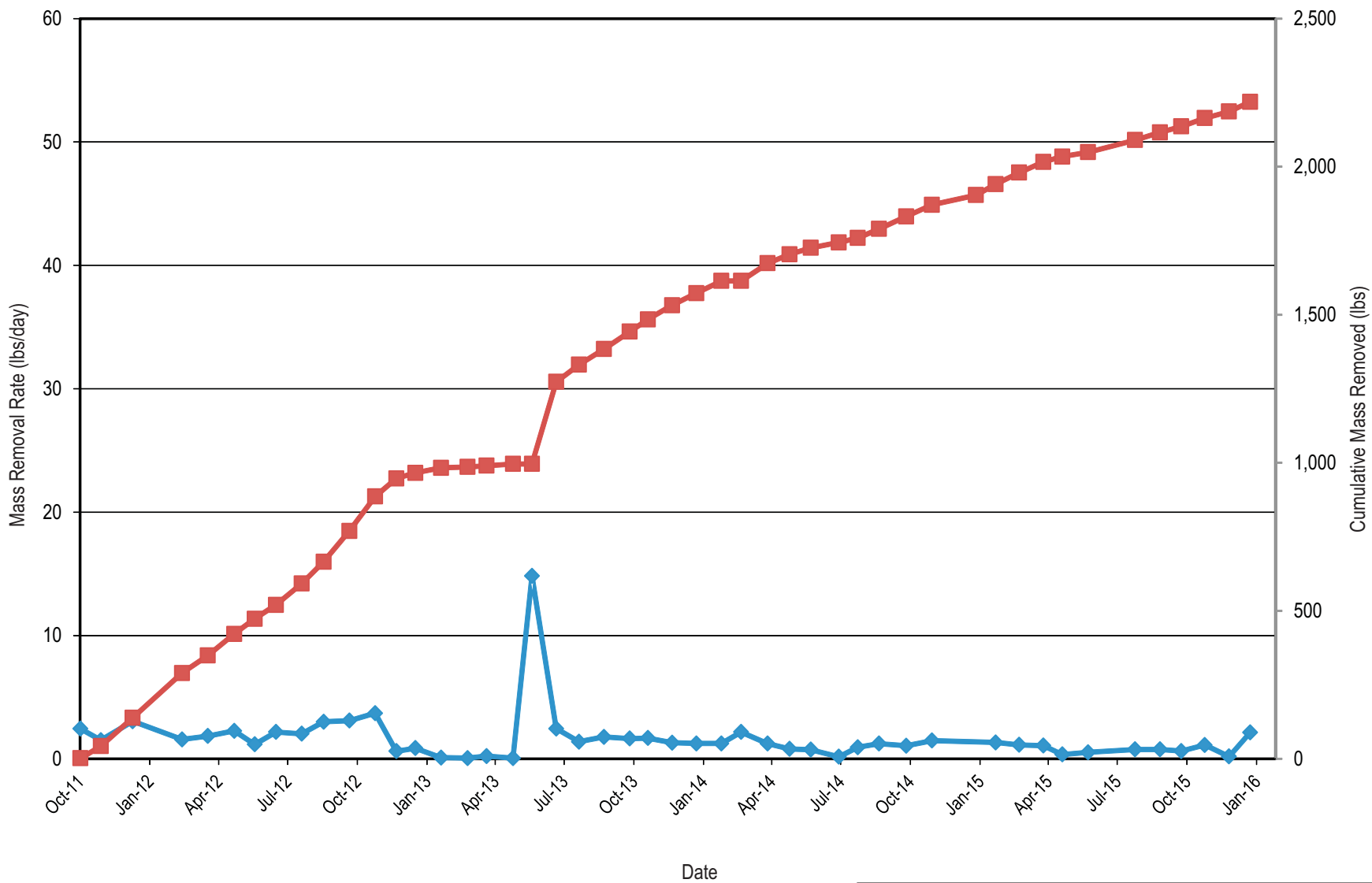
North SVE System - VOC Mass Removal

Second Semi-Annual Groundwater Monitoring Report 2015
 NuStar Terminals Services, Inc. Vancouver Facility
 Vancouver, Washington

 Apex Companies, LLC
 3015 SW First Avenue
 Portland, Oregon 97201

Project Number	1126-17
January 2016	

Figure
11



Legend:

- ◆ Volatile Organic Compound (VOC) Removal Rate (lbs/day)
- Approximate Cumulative VOCs Removed (lbs/day)

South SVE System – VOC Mass Removal

Second Semi-Annual Groundwater Monitoring Report 2015
 NuStar Terminals Services, Inc. Vancouver Facility
 Vancouver, Washington

 Apex Companies, LLC
 3015 SW First Avenue
 Portland, Oregon 97201

Project Number	1126-17	Figure 12
January 2016		

Appendix A

Field Sampling Data Sheets

WELL GAGING DATA SHEET




Client:	Muster	Job Number:	
Project:	Vancouver 3G	Date:	9/17/15
Weather:		Sampler:	BS/CB
		Time In/Out:	0750

WATER LEVEL DATA

Well I.D.	Time	Depth to Free Product (feet)	Depth to Water (feet)	Depth to Well Bottom (feet)	Product Thickness (feet)	Water Column Height (feet)	Notes/Other Remarks
MP-1	815		29.15				
MP-2	815		29.23				
MW-24d	816		29.25				
MP-3	816		29.02				
MW-24i	817		28.42				
MP-4	818		29.00				
EX-1	819		28.90				
MW-19	820		28.86				
MW-9	830		29.03				
MW-7	835		28.85				
MW-5	838		29.16				
MW-13	845		28.40				
S-1	847		28.20				
S-2	848		28.20				
MW-14	850		28.97				
MW-23i	852		28.69				
MW-17	853		27.80				
MW-26	854		28.90				
MW-25i	855		28.59				
MW-10	857		29.22				
MW-22i	900		29.46				
MW-8	902		28.47				
MW-21i-105	904		29.12				
MW-21i-40	906		29.01				
MW-32i	908		29.55				
MW-325	909		29.85				
MW-31i	910		26.60				
MW-E	915		26.30				
MW-18i	920		28.44				
MW-20i	923		28.22				
MW-19i	926		28.67				
MW-15	929		34.01				

WELL MONITORING DATA SHEET

	Well I.D.	MW-17	Job Number:	1126-17
	Client:	Water	Date:	9/17/15
	Project:	Vaccover	Sampler:	CB/BS
	Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:	4 in	Water Height	
Depth to Water:	27.83	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:	—	x Casing Volumes	
Purge Volume:		Free Product Thickness:	—	= Purge Volume	
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters

PURGING DATA

Purge Method:				BP		Pump Intake Depth:				Dead leg		Comments	
Sampling Method:				LF		Tubing Type:				SB			
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color	Other Remarks	
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria		
1241			28.03		6.13	22.47	683	11.19	207.2	—	clear		
1244			28.03		5.84	20.87	498	6.71	212.1	—			
1247			28.03		5.71	20.42	349	5.85	215.9	—			
1250			28.03		5.68	20.36	274	5.39	215.3	—			
1253			28.03		5.66	20.49	243	4.99	216.6	—			
1256			28.03		5.65	20.72	209	4.79	217.2	—			
1259			28.03		5.68	21.29	207	5.11	215.6	—			
1302	1.5 gal		28.03		5.67	21.18	199	5.22	215.1	—			

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-17	Sampling Flow Rate		Analytical Laboratory:	Pace		
Sample Time:	1303	Final Depth to Water:	28.03	Did Well Dewater?	No		
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID	
4x UDA	HCl	HNOC	yes <input type="radio"/> no <input checked="" type="radio"/>	—	—	—	
			yes <input type="radio"/> no <input type="radio"/>				
			yes <input type="radio"/> no <input type="radio"/>				
			yes <input type="radio"/> no <input type="radio"/>				
			yes <input type="radio"/> no <input type="radio"/>				

COMMENTS

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WELL MONITORING DATA SHEET



Well I.D.	MW-23i	Job Number:	1126-12
Client:	NSTA	Date:	9/17/15
Project:	Vancouver	Sampler:	CB/BS
Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:	24	Water Height	
Depth to Water:	29.35	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:	—	x Casing Volumes	
Purge Volume:		Free Product Thickness:	—	= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	EP				Pump Intake Depth:	Ded + 5.0				Comments	
Sampling Method:					Tubing Type:	SP					
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<- Stabilization Criteria
1154			29.30		7.31	19.92	168	11.01	164.1	—	Clear
1157			29.36		7.13	18.12	153	7.39	169.3	—	
1200			29.36		7.01	17.05	147	6.60	175.5	—	
1203			29.36		6.86	16.77	146	6.20	183.8	—	
1206			29.36		6.88	16.84	145	6.00	183.5	—	
1209			29.36		6.94	16.82	146	5.77	180.1	—	
1212		1 gal	29.36		6.98	16.97	147	5.52	178.1	—	↓

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-23i	Sampling Flow Rate		Analytical Laboratory:	Pace	
Sample Time:	1213	Final Depth to Water:	29.36	Did Well Dewater?	No	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4x VOA	HCC	HVOC	yes <input type="radio"/> no <input checked="" type="radio"/>			
			yes <input type="radio"/> no <input type="radio"/>			
			yes <input type="radio"/> no <input type="radio"/>			
			yes <input type="radio"/> no <input type="radio"/>			
			yes <input type="radio"/> no <input type="radio"/>			

COMMENTS

WELL MONITORING DATA SHEET



Well I.D.	MW-9	Job Number:	U26-17
Client:	MUSTO	Date:	9/17/15
Project:	Vancouver	Sampler:	CB/BS
Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:	4"	Water Height	
Depth to Water:	29.02	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:	—	x Casing Volumes	
Purge Volume:		Free Product Thickness:	—	= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	BP	Pump Intake Depth:	dob. tubing	Comments	
Sampling Method:	LF	Tubing Type:	SB		

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<- Stabilization Criteria
1118			29.02		6.40	18.05	821	9.55	176.5	—	clear
1121			29.02		6.32	17.19	767	8.84	182.4	—	
1124			29.02		6.33	15.84	729	9.55	186.5	—	
1127			29.02		6.35	16.32	734	9.51	188.8	—	
1130	3/4 gal		29.02		6.30	16.05	728	9.43	191.5	—	↓


Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-9	Sampling Flow Rate		Analytical Laboratory:	Pace
Sample Time:	1131	Final Depth to Water:	29.02	Did Well Dewater?	No
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
4x VOA	HCl	HVOL	yes <input checked="" type="checkbox"/> no	—	
			yes no		
			yes no		
			yes no		
			yes no		
			yes no		

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.	MW-6	Job Number:	1126-17
	Client:	Wstr	Date:	9/18/15
	Project:	Uncover 36	Sampler:	CB
	Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:	2"	Water Height	
Depth to Water:	28.18	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:		x Casing Volumes	
Purge Volume:		Free Product Thickness:		= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	BP	Pump Intake Depth:	28.18	Comments	
Sampling Method:	LF	Tubing Type:	CB		

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria
1025			28.18		6.47	15.65	938	3.21	-53.1	—	slightly cloudy
1028			28.18		6.47	15.38	900	2.09	-55.4	—	↓
1031			28.18		6.47	14.88	782	1.84	-55.6	—	clear
1034			28.18		6.47	14.75	708	1.56	-53.9	—	↓
1037			28.18		6.47	14.71	689	1.50	-52.8	—	↓
1040			28.18		6.47	14.68	677	1.47	-51.7	—	↓

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear


SAMPLING DATA

Sample ID:	MW-6	Sampling Flow Rate		Analytical Laboratory:	RCCP
Sample Time:	1041	Final Depth to Water:	28.18	Did Well Dewater?	No
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
4x VOA	HCC	H-VOC	yes (no)		
			yes no		
			yes no		
			yes no		
			yes no		
			yes no		

COMMENTS

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WELL MONITORING DATA SHEET

	Well I.D.	MW-3	Job Number:	1126-17
	Client:	Wstr	Date:	9/18/15
	Project:	Vancouver 30	Sampler:	CB
	Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:	2"	Water Height	
Depth to Water:	29.58	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:		x Casing Volumes	
Purge Volume:		Free Product Thickness:		= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:				BP				Pump Intake Depth:				dead tubing				Comments			
Sampling Method:				LF				Tubing Type:				SB							
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color	Other Remarks							
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria								
0955			30.03		6.38	15.25	668	3.75	124.3	-	clear								
0958			30.36		6.34	14.50	652	2.15	130.9	-									
1001			30.69		6.30	14.25	640	2.16	137.1	-									
1004		3/4 gal	30.99		6.29	14.21	646	2.01	140.0	-	↓								

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear


SAMPLING DATA

Sample ID:	MW-3	Sampling Flow Rate		Analytical Laboratory:	Rice		
Sample Time:	1005	Final Depth to Water:	31.22	Did Well Dewater?	No		
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID	
4x VOA	HCl	HUOC	yes (no)				
			yes				
			yes				
			yes				
			yes				
			yes				

COMMENTS

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WELL MONITORING DATA SHEET

	Well I.D.:	MW-8	Job Number:	1126-17
	Client:	WJST	Date:	9/18/15
	Project:	Vacuum 3 Q	Sampler:	CA
	Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:	4"	Water Height
Depth to Water:	28.41	Screened Interval:		x Multiplier
Water Column Length:		Depth to Free Product:		x Casing Volumes
Purge Volume:		Free Product Thickness:		= Purge Volume
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters

PURGING DATA

Purge Method:				BP		Pump Intake Depth:				ded. 1.5m		Comments	
Sampling Method:				LF		Tubing Type:				SB			
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks		
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria		
0918			28.60		6.77	16.93	1000	6.82	67.3	-	clear		
0921			28.70		6.45	15.70	992	2.27	83.1	-			
0924			28.80		6.39	15.32	971	1.33	90.5	-			
0927			28.88		6.38	15.21	959	1.15	94.9	-			
0930		1 gal	28.92		6.39	15.17	961	1.12	97.8	-			

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear


SAMPLING DATA

Sample ID:	MW-8	Sampling Flow Rate		Analytical Laboratory:	Peele
Sample Time:	0931	Final Depth to Water:	28.98	Did Well Dewater?	NO
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
CFR VDA	HCl	HVOC	yes <input checked="" type="checkbox"/>		
			yes no		
			yes no		
			yes no		
			yes no		

COMMENTS

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WELL MONITORING DATA SHEET

	Well I.D.	MW-24d	Job Number:	1126-17
	Client:	NWstr.	Date:	9/18/15
	Project:	Vancouver 3Q	Sampler:	CB
	Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:	2"	Water Height	
Depth to Water:	29.87	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:	—	x Casing Volumes	
Purge Volume:		Free Product Thickness:	—	= Purge Volume	
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters

PURGING DATA

Purge Method:				BP				Pump Intake Depth:				dled 25m				Comments			
Sampling Method:				CF				Tubing Type:				SB							
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color	Other Remarks							
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria								
0822			30.10		7.70	15.63	315	8.20	-22.1	—	clear								
0825			30.10		7.58	15.22	314	3.53	-53.2	=	↓								
0828			30.10		7.65	15.15	314	3.27	-70.0	—									
0831			30.10		7.73	15.44	319	2.29	-85.0	—									
0834			30.10		7.81	15.15	318	1.71	-95.7	—									
0837			30.10		7.93	14.86	319	1.18	-111.6	—									
0840			30.10		8.00	14.79	320	1.01	-121.7	—									
0843			30.10		8.04	14.76	320	0.94	-124.0	—									
0846	1.5gal		30.10		8.06	14.74	320	0.90	-127.3	—									

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-24d	Sampling Flow Rate		Analytical Laboratory:	Pace	
Sample Time:	0847	Final Depth to Water:	30.10	Did Well Dewater?	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4x WA	HCl	HVU	yes <input checked="" type="checkbox"/> no			
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET



Well I.D.	EW-1	Job Number:	1126-17
Client:	WATER	Date:	9/21/15
Project:	Vancouver 36	Sampler:	B
Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:	2"	Water Height:	
Depth to Water:	below top of BP	Screened Interval:		x Multiplier:	
Water Column Length:		Depth to Free Product:		x Casing Volumes:	
Purge Volume:		Free Product Thickness:		= Purge Volume:	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	BP				Pump Intake Depth:	ded. 1.5'				Comments	
Sampling Method:	LF				Tubing Type:	SB					
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<- Stabilization Criteria
1420			—		6.69	19.65	285	6.28	116.2	—	clear
1423			—		6.63	18.28	260	4.13	121.6	—	
1426			—		6.60	17.46	247	2.92	124.2	—	
1429			—		6.58	17.32	245	2.66	125.8	—	
1432		1 gal	—		6.59	17.10	241	2.43	125.9	—	


Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	EW-1	Sampling Flow Rate:		Analytical Laboratory:	Pace	
Sample Time:	1433	Final Depth to Water:	—	Did Well Dewater?:	No	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4x VOA	HCl	HVOC	yes (no)			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.	MGM51-110	Job Number:	1126-17
	Client:	MWStar	Date:	9/21/15
	Project:	Vancouver 30	Sampler:	OB
	Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:	
Depth to Water:	29.30	Screened Interval:	
Water Column Length:		Depth to Free Product:	
Purge Volume:		Free Product Thickness:	
Water Height Multipliers (gal)		1-inch = 0.041	
		2-inch = 0.162	
		4-inch = 0.653	
		1 gallon = 3.785 liters	

PURGING DATA

Purge Method:				ME BP				Pump Intake Depth:				Int. BP				Comments	
Sampling Method:				LF				Tubing Type:				LOPE					
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color	Other Remarks					
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria						
1325			29.30		6.90	21.24	212	4.92	87.8	-	clear						
1328			29.30		7.00	20.53	201	2.04	82.2	-							
1331			29.30		7.16	19.94	192	1.19	76.7	-							
1334			29.30		7.29	19.50	188	0.92	73.0	-							
1337			29.30		7.34	19.27	186	0.95	72.9	-							
1340		1 gal	29.30		7.36	19.17	185	0.98	73.3	-							

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MGM51-110	Sampling Flow Rate		Analytical Laboratory:	Pace	
Sample Time:	1341	Final Depth to Water:	29.30	Did Well Dewater?	No	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4x UOA	HCl	HVOC	yes (no)			
			yes	no		
			yes	no		
			yes	no		
			yes	no		
			yes	no		

COMMENTS

WELL MONITORING DATA SHEET



Well I.D.	MGMS1-60	Job Number:	1126-17
Client:	Wstr	Date:	9/21/15
Project:	Vacuum 3Q	Sampler:	CB
Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:		Water Height:	
Depth to Water:	29.40	Screened Interval:		x Multiplier:	
Water Column Length:		Depth to Free Product:		x Casing Volumes:	
Purge Volume:		Free Product Thickness:		= Purge Volume:	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:				Pump Intake Depth:				Comments			
nt Yelder				nt Yelder pump							
Sampling Method:				Tubing Type:							
LF				LDPE							
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<- Stabilization Criteria
1249			29.40		7.04	19.61	200	2.02	32.9	-	clear
1252			29.40		7.01	19.64	191	0.76	40.7	-	
1255			29.40		7.02	19.70	177	0.52	46.4	-	
1258			29.40		7.02	19.69	172	0.47	49.5	-	
1301		3/4 gal	29.40		7.03	19.65	169	0.46	52.1	-	


Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MGMS1-60	Sampling Flow Rate:		Analytical Laboratory:	Pace	
Sample Time:	1302	Final Depth to Water:	29.40	Did Well Dewater?	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4x VOA	HCl	HVOC	yes <input checked="" type="checkbox"/>			
			yes <input type="checkbox"/>			
			yes <input type="checkbox"/>			
			yes <input type="checkbox"/>			
			yes <input type="checkbox"/>			

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.	MGMS1-43	Job Number:	1126-17
	Client:	WST	Date:	9/21/15
	Project:	Wester 3Q	Sampler:	CB
	Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:		Water Height	
Depth to Water:	28.90	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:		x Casing Volumes	
Purge Volume:		Free Product Thickness:		= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	mt bladder	Pump Intake Depth:	mt bladder pump	Comments
Sampling Method:	LF	Tubing Type:	LPPE	

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5 °C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria
1229			29.20		7.36	17.78	2257	9.40	-31.0	-	clear
1232			29.20		7.35	16.74	2275	8.58	-48.4	-	
1235			29.20		7.32	16.72	2313	8.09	-51.4	-	
1238	3/4 gal		29.20		7.33	16.11	2355	8.34	-52.5	-	↓

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MGMS1-43	Sampling Flow Rate		Analytical Laboratory:	Free	
Sample Time:	1239	Final Depth to Water:	29.20	Did Well Dewater?	No	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4x UOA	HCl	HVCK	yes (no)			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

air coming through tubing w/ water - DO high

WELL MONITORING DATA SHEET



Well I.D.	MW-10	Job Number:	11260-17
Client:	Water	Date:	9/21/15
Project:	Victory 2Q	Sampler:	CB
Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:	4"	Water Height	
Depth to Water:	29.24	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:	—	x Casing Volumes	
Purge Volume:		Free Product Thickness:	—	= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	BP			Pump Intake Depth:	clean hole			Comments			
Sampling Method:	LF			Tubing Type:	SB						
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1176			29.53		5.84	18.13	2527	7.21	167.8	—	clear
1179			29.75		5.76	16.45	2537	1.54	171.9	—	↓
1142			29.95		5.75	16.15	2544	1.15	173.0	—	
1145			30.07		5.76	16.14	2547	1.06	173.6	—	
1148		1 gal	30.18		5.75	16.15	2549	1.02	175.6	—	

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-10	Sampling Flow Rate		Analytical Laboratory:	Rice	
Sample Time:	1149	Final Depth to Water:	30.33	Did Well Dewater?	No	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4x JDA	HCl	HVOIC	yes <input checked="" type="checkbox"/> no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET



Well I.D.	MW-251	Job Number:	1120-17
Client:	Wstr	Date:	9/21/05
Project:	Vancouver	Sampler:	CB
Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:	2"	Water Height:	
Depth to Water:	30.27	Screened Interval:		x Multiplier:	
Water Column Length:		Depth to Free Product:	—	x Casing Volumes:	
Purge Volume:		Free Product Thickness:	—	= Purge Volume:	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	BP	Pump Intake Depth:	clean + 15 in	Comments:	
Sampling Method:	LF	Tubing Type:	SB		

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1052			30.27		7.70	19.56	258	12.08	102.2	—	cloudy
1055			30.27		6.91	15.99	242	6.25	117.5	—	↓
1058			30.27		6.81	15.57	240	2.77	120.3	—	clear
1101			30.27		6.81	15.47	238	2.22	120.2	—	↓
1104			30.27		6.79	15.33	237	2.01	120.6	—	↓
1107		1.25 gal	30.27		6.79	15.28	238	1.91	119.5	—	↓

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-251	Sampling Flow Rate:		Analytical Laboratory:	Pass
Sample Time:	1108	Final Depth to Water:	30.27	Did Well Dewater?	No
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
4 to VOA	HCl	HVOC	yes no	—	
			yes no		
			yes no		
			yes no		
			yes no		
			yes no		

COMMENTS

WELL MONITORING DATA SHEET



Well I.D.	MW-26	Job Number:	1126-17
Client:	WSTR	Date:	9/21/15
Project:	Vancouver 30	Sampler:	OB
Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:	2"	Water Height	
Depth to Water:	28.97	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:	—	x Casing Volumes	
Purge Volume:		Free Product Thickness:	—	= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	BP		Pump Intake Depth:	dred. 1.5m		Comments					
Sampling Method:	LF		Tubing Type:	SB							
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	-- Stabilization Criteria
0955			28.97		6.07	16.46	4912	6.20	146.7	—	Slightly cloudy
0958			28.97		6.04	16.06	5087	2.55	148.2	—	↓
1001			28.97		6.05	15.95	5039	1.52	148.2	—	clear
1004			28.97		6.04	15.78	4890	1.38	148.1	—	↓
1007			28.97		6.06	15.83	4689	1.55	148.4	—	↓
1010		1gal	28.97		6.04	15.77	4658	1.70	148.6	—	↓

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-26	Sampling Flow Rate:		Analytical Laboratory:	Peak
Sample Time:	1011	Final Depth to Water:	28.97	Did Well Dewater?	No
# Containers/Type	4x VOA	Preservative	HCC	Analysis/Method	HVOC
		Field Filtered	yes	Filter Size	no
			yes		no
			yes		no
			yes		no
			yes		no
			yes		no

COMMENTS

WELL MONITORING DATA SHEET



Well I.D.	S-1	Job Number:	1126-17
Client:	NWST	Date:	9/21/15
Project:	Vancouver 3Q	Sampler:	CS
Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:	24	Water Height	
Depth to Water:	30.34	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:		x Casing Volumes	
Purge Volume:		Free Product Thickness:		= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	BP	Pump Intake Depth:	ded. 150'	Comments	
Sampling Method:	LF	Tubing Type:	SB		

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
0920			30.34		7.24	16.78	273	4.82	126.0	-	cloudy
0923			30.34		7.27	16.08	212	6.19	92.5	-	
0926			30.34		7.24	15.72	193	3.17	65.1	-	
0929			30.34		7.20	15.57	187	1.30	49.1	-	
0932			30.34		7.19	15.54	185	1.05	47.9	-	
0935	1 gal		30.34		7.19	15.54	183	0.87	44.8	-	

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	S-1	Sampling Flow Rate		Analytical Laboratory:	Pass
Sample Time:	0936	Final Depth to Water:	30.34	Did Well Dewater?	NO
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
4x UDA	HCl	FWOC	yes <u>no</u>		
			yes no		
			yes no		
			yes no		
			yes no		
			yes no		

COMMENTS

WELL MONITORING DATA SHEET



Well I.D.	MW-14	Job Number:	1126-17
Client:	Nutr	Date:	9/21/15
Project:	Vancouver 3Q	Sampler:	ES
Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:	4"	Water Height:	
Depth to Water:	29.08	Screened Interval:		x Multiplier:	
Water Column Length:		Depth to Free Product:	 	x Casing Volumes:	
Purge Volume:		Free Product Thickness:	 	= Purge Volume:	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	BP	Pump Intake Depth:	ched. 1.5m	Comments:	
Sampling Method:	CF	Tubing Type:	SS		

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<- Stabilization Criteria
0840			29.12		6.54	15.66	4340	4.44	186.7	-	clear
0843			29.12		6.52	15.08	4293	2.73	186.7	-	
0846			29.12		6.51	14.94	4277	1.94	183.0	-	
0849			29.12		6.51	14.87	4258	1.51	176.0	-	
0852			29.12		6.52	14.86	4237	1.27	169.0	-	
0855		1gal	29.12		6.51	14.84	4197	1.15	164.3	-	


Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-14	Sampling Flow Rate:		Analytical Laboratory:	Pice
Sample Time:	0856	Final Depth to Water:	29.12	Did Well Dewater?	no
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
4x VOA	HCl	HVOC	yes <u>no</u>		
			yes no		
			yes no		
			yes no		
			yes no		
			yes no		

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.	M6MS3-132	Job Number:	1126-17
	Client:	Wstr	Date:	9/22/15
	Project:	Vancouver 36	Sampler:	OB
	Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:		Water Height	
Depth to Water:	28.25	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:		x Casing Volumes	
Purge Volume:		Free Product Thickness:		= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:				Pump Intake Depth:				Comments			
int BP				int BP							
Sampling Method:				Tubing Type:							
LF				LOPE							
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1355			28.25		7.11	19.89	243	2.32	23.1	-	clear
1358			28.25		7.20	19.79	243	0.95	20.3	-	
1401			28.25		7.23	19.85	243	6.74	-27.5	-	
1404	3/4 gal		28.25		7.29	19.73	244	0.59	-36.9	-	

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	M6MS3-132	Sampling Flow Rate:		Analytical Laboratory:	VCCP	
Sample Time:	1405	Final Depth to Water:	28.25	Did Well Dewater?	No	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4x VOA	HCC	HVOL	yes no			
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET



Well I.D.	MGMS3-101	Job Number:	1126-17
Client:	WSTr	Date:	9/22/15
Project:	Vancouver 36	Sampler:	OB
Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:		Water Height	
Depth to Water:	28.05	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:		x Casing Volumes	
Purge Volume:		Free Product Thickness:		= Purge Volume	
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters

PURGING DATA

Purge Method:		int BDP			Pump Intake Depth:		int BDP			Comments	
Sampling Method:		CF			Tubing Type:		LDPE				
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria
1336			28.05		7.00	19.98	182	2.98	37.9	—	clear
1339			28.05		7.22	19.45	182	2.10	42.0	—	
1342			28.05		7.23	19.37	181	2.22	45.0	—	
1345		34 gal	28.05		7.27	19.30	181	2.15	46.2	—	↓

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MGMS3-101	Sampling Flow Rate:		Analytical Laboratory:	Page No	
Sample Time:	1346	Final Depth to Water:	28.05	Did Well Dewater?	No	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4x UVA	HCl	HVOC	yes (no)			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET



Well I.D.:	MCM53-60	Job Number:	1126-17
Client:	Wistar	Date:	9/22/15
Project:	Vancouver BC	Sampler:	CS
Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:		Water Height	
Depth to Water:	28.08	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:		x Casing Volumes	
Purge Volume:		Free Product Thickness:		= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	int BP	Pump Intake Depth:	int BP	Comments	
Sampling Method:	LF	Tubing Type:	LDPE		

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	-- Stabilization Criteria
1319			28.08		7.08	20.98	171	5.08	80.7	-	clear
1322			28.08		7.11	20.42	160	3.80	75.8	-	↓
1325			28.08		7.17	20.17	155	3.44	75.1	-	
1328	3/4 gal		28.08		7.21	20.01	153	3.31	74.9	-	


Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MCM53-60	Sampling Flow Rate:		Analytical Laboratory:	RCC
Sample Time:	1329	Final Depth to Water:	28.08	Did Well Dewater?	No
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
4x VOA	HCl	HVOC	yes no		
			yes no		
			yes no		
			yes no		
			yes no		
			yes no		

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.:	MGM53-40	Job Number:	11200-17
	Client:	WSTW	Date:	9/22/15
	Project:	Vancouver 30	Sampler:	
	Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:		Water Height:	
Depth to Water:	28.30	Screened Interval:		x Multiplier:	
Water Column Length:		Depth to Free Product:		x Casing Volumes:	
Purge Volume:		Free Product Thickness:		= Purge Volume:	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	int BP	Pump Intake Depth:	int BP	Comments:	
Sampling Method:	CF	Tubing Type:	LDPE		

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5°C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria
1249			28.30		7.24	18.94	439	9.99	-40.6	—	Clear
1252			28.30		7.22	17.51	402	9.20	-44.1	—	
1255			28.30		7.22	17.28	400	9.16	-49.7	—	
1258	1 gal		28.30		7.22	17.05	396	9.14	-50.8	—	↓

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear


SAMPLING DATA

Sample ID:	MGM53-40	Sampling Flow Rate:		Analytical Laboratory:	Pace	
Sample Time:	1259	Final Depth to Water:	28.30	Did Well Dewater?	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4x JCA	HCl	HVOC	yes no			MGM53-40
1x 250ml PI	None	NO3/NO2	yes no			
2x 1L Amber	H2SO4	Ammonia	yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

air coming up w/ water - high DO

WELL MONITORING DATA SHEET

	Well I.D.	MW-13	Job Number:	1126-17
	Client:	WJF	Date:	9/22/15
	Project:	Vancouver 30	Sampler:	CR
	Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:	4"	Water Height	
Depth to Water:	28.66	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:		x Casing Volumes	
Purge Volume:		Free Product Thickness:		= Purge Volume	
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters

PURGING DATA

Purge Method:				BP				Pump Intake Depth:				20.75				Comments	
Sampling Method:				C				Tubing Type:				SB					
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color	Other Remarks					
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria						
1209			28.66		7.09	18.98	1724	5.82	151.5	—	clear						
1212			28.66		7.03	17.61	1682	1.47	150.5	—							
1215			28.66		7.03	17.38	1669	0.90	148.9	—							
1218			28.66		7.03	17.36	1671	0.85	148.1	—							
1221		1 gal	28.66		7.03	17.33	1665	0.81	147.4	—	↓						

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-13	Sampling Flow Rate:		Analytical Laboratory:	VUE	
Sample Time:	1222	Final Depth to Water:	28.66	Did Well Dewater?	No	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2x UDA	HCl	UIC	yes (no)			
1x 250-1 PI	None	NO3/SO4	yes (no)			
2x 1L Amber	H2SO4	Ammonia	yes (no)			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET



Well I.D.	MW-19	Job Number:	1126-17
Client:	WSTW	Date:	9/22/15
Project:	Vancouver 30	Sampler:	CR
Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:	21	Water Height	
Depth to Water:	29.08	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:		x Casing Volumes	
Purge Volume:		Free Product Thickness:		= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	BP	Pump Intake Depth:	clean log	Comments	
Sampling Method:	LF	Tubing Type:	SB		

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	-- Stabilization Criteria
1131			29.08		6.04	16.75	1787	6.66	167.8	—	Clear
1134			29.08		6.84	16.20	1724	4.39	126.3	—	↓
1137			29.08		7.09	15.79	1677	2.60	107.5	—	
1141			29.08		7.12	16.02	1659	2.32	101.0	—	
1144	3/4 s/d		29.08		7.19	16.12	1638	2.17	99.2	—	

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-19	Sampling Flow Rate:		Analytical Laboratory:	Pece	
Sample Time:	1145	Final Depth to Water:	29.08	Did Well Dewater?	No	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4x UJA	HCC	HVOC	yes no			
2x 250ml PI	None	NO3/SO4	yes no			
2x 1L can	H2SO4	Ammonia	yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET



Well I.D.	EX-1	Job Number:	1126-17
Client:	WStar	Date:	9/22/05
Project:	Uncover 30	Sampler:	CR
Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:	4"	Water Height	
Depth to Water:	29.05	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:		x Casing Volumes	
Purge Volume:		Free Product Thickness:		= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	BP				Pump Intake Depth:	heel-tubing				Comments	
Sampling Method:	LF				Tubing Type:	SD					
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria
1054			29.05		7.87	14.99	1000	4.87	98.2	-	cloudy
1057			29.05		7.85	15.15	952	2.02	73.1	-	slightly cloudy
1100			29.05		7.82	15.10	921	1.18	40.3	-	
1103			29.05		7.81	15.02	927	0.96	32.1	-	
1106		3/4 gal	29.05		7.81	15.00	930	0.90	23.7	-	↓


Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	EX-1	Sampling Flow Rate:		Analytical Laboratory:	Rice	
Sample Time:	1107	Final Depth to Water:	29.05	Did Well Dewater?	No	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4x VOA	HCl	HVOIC	yes (no)			
3x VOA	None	25K175	yes (no)			
1x S2001 PI	H2SO4	TOC	yes (no)			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.: <u>MW-24f</u>	Job Number: <u>1126-17</u>
	Client: <u>Wotr</u>	Date: <u>9/22/15</u>
	Project: <u>Vancouver 30</u>	Sampler: <u>CB</u>
	Weather:	Time In/Out:

WELL DATA

Well Depth:		Well Diameter: <u>2"</u>	Water Height
Depth to Water: <u>30.71</u>	Screened Interval:	x Multiplier	
Water Column Length:	Depth to Free Product:	x Casing Volumes	
Purge Volume:	Free Product Thickness:	= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653
			1 gallon = 3.785 liters

PURGING DATA

Purge Method: <u>RP</u>	Pump Intake Depth: <u>clean 13"</u>	Comments
Sampling Method: <u>LF</u>	Tubing Type: <u>SB</u>	

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria
1020			30.71		7.51	15.47	169	5.80	98.7	—	clear
1023			30.71		7.25	14.97	163	4.52	101.3	—	↓
1026			30.71		7.09	14.64	154	2.22	101.4	—	
1029			30.71		7.07	14.58	152	2.00	100.8	—	
1032		3/4 gal	30.71		7.06	14.56	151	1.85	99.4	—	

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID: <u>MW-24f</u>	Sampling Flow Rate:	Analytical Laboratory: <u>PEC</u>				
Sample Time: <u>1033</u>	Final Depth to Water: <u>30.71</u>	Did Well Dewater? <u>No</u>				
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4x VOA	HCl	HVOC	yes <input type="radio"/> no <input checked="" type="radio"/>			
3x VOA	NaOH	RSK 175	yes <input type="radio"/> no <input checked="" type="radio"/>			
1x SW-1 P1	H2SO4	DOC	yes <input type="radio"/> no <input checked="" type="radio"/>			
			yes <input type="radio"/> no <input type="radio"/>			
			yes <input type="radio"/> no <input type="radio"/>			
			yes <input type="radio"/> no <input type="radio"/>			

COMMENTS

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WELL MONITORING DATA SHEET



Well I.D.	MP-1	Job Number:	1126-17
Client:	WSTW	Date:	9/22/05
Project:	Uncovered 3Q	Sampler:	OB
Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:	2"	Water Height	
Depth to Water:	29.30	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:		x Casing Volumes	
Purge Volume:		Free Product Thickness:		= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	BP			Pump Intake Depth:	ded. 1.50			Comments			
Sampling Method:	LF			Tubing Type:	SB						
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<- Stabilization Criteria
0949			29.30		6.90	15.42	756	5.21	102.2	=	clear
0952			29.30		6.81	14.73	728	1.68	103.1	=	↓
0955			29.30		6.77	14.69	710	1.66	104.8	=	
0958		3/4 gal	29.30		6.75	14.66	704	1.66	105.5	=	

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MP-1	Sampling Flow Rate		Analytical Laboratory:	Free		
Sample Time:	0959	Final Depth to Water:	29.30	Did Well Dewater?	No		
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID	
4x VOA	HCl	HVOC	yes (no)				
3x VOA	None	RSK-175	yes (no)				
1x 800-101	H ₂ SO ₄	TOC	yes (no)				
			yes no				
			yes no				
			yes no				

COMMENTS

WELL MONITORING DATA SHEET



Well I.D.	MW-12	Job Number:	1126-17
Client:	NUSHR	Date:	9/22/15
Project:	Vaccines 3Q	Sampler:	OB
Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:	4"	Water Height:	
Depth to Water:	27.65	Screened Interval:		x Multiplier:	
Water Column Length:		Depth to Free Product:		x Casing Volumes:	
Purge Volume:		Free Product Thickness:		= Purge Volume:	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	BP	Pump Intake Depth:	ded 15m	Comments:	
Sampling Method:	LE	Tubing Type:	SB		

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
0856			27.85		7.06	15.52	2150	5.55	-5.8	-	cloudy
0859			27.85		7.02	14.93	2209	2.60	18.7	-	↓
0902			27.85		7.00	14.89	2210	1.77	39.9	-	clear
0905			27.85		7.00	14.90	2175	1.29	51.9	-	↓
0908			27.85		7.02	14.98	2016	1.09	61.9	-	↓
0911	1.5gal		27.85		7.02	14.99	2100	1.06	65.3	-	↓

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-12	Sampling Flow Rate:		Analytical Laboratory:	Pace	
Sample Time:	0912	Final Depth to Water:	27.85	Did Well Dewater?	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
3x VOA	HCl	HNO2	yes (no)			MW-12 DUP
3x VOA	None	RSK-175	yes (no)			MW-12 DUP
1x 250ml PI	None	NO3/SO4	yes (no)			
1x 500ml PI	H2SO4	TOC	yes (no)			MW-12 DUP
2x 1L	H2SO4	Ammonia	yes (no)			
			yes	no		

COMMENTS

WELL MONITORING DATA SHEET



Well I.D.	MW-201	Job Number:	1126-17
Client:	USF	Date:	9/23/15
Project:	Jac.	Sampler:	CB
Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:	2"	Water Height	
Depth to Water:	29.67	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:		x Casing Volumes	
Purge Volume:		Free Product Thickness:		= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	BP				Pump Intake Depth:	ded. tubing				Comments	
Sampling Method:	LF				Tubing Type:	50					
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria
1340			29.67		7.47	19.51	180	8.13	110.5	-	clear
1343			29.67		7.06	15.44	171	3.45	121.0	-	
1346			29.67		6.96	14.76	170	2.46	121.7	-	
1349			29.67		6.95	14.63	170	2.23	114.2	-	
1352			29.67		6.94	14.48	169	2.16	101.6	-	
1355	1.5gal		29.67		6.93	14.40	168	2.11	97.5	-	↓

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-201	Sampling Flow Rate:		Analytical Laboratory:	Per	
Sample Time:	1356	Final Depth to Water:	29.67	Did Well Dewater?	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4x VOA	HCl	HVOCs	yes <input type="radio"/> no <input checked="" type="radio"/>			
			yes <input type="radio"/> no <input type="radio"/>			
			yes <input type="radio"/> no <input type="radio"/>			
			yes <input type="radio"/> no <input type="radio"/>			
			yes <input type="radio"/> no <input type="radio"/>			

COMMENTS

WELL MONITORING DATA SHEET



Well I.D.	MW-18i	Job Number:	1126-17
Client:	WSTW	Date:	9/23/15
Project:	Waste 3Q	Sampler:	CR
Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:	2"	Water Height	
Depth to Water:	30.20	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:		x Casing Volumes	
Purge Volume:		Free Product Thickness:		= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	BP			Pump Intake Depth:	ded. Log			Comments			
Sampling Method:	LF			Tubing Type:	SB						
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<- Stabilization Criteria
1250			30.20		7.80	19.08	148	11.05	90.7	-	clear
1253			30.20		7.48	16.57	140	10.15	103.2	-	
1256			30.20		7.22	15.61	137	7.29	111.2	-	
1259			30.20		7.17	15.43	135	6.14	112.7	-	
1302			30.20		7.17	15.29	135	5.85	112.3	-	
1305		1.25 gal	30.70		7.17	15.24	135	5.77	112.6	-	


Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-18i	Sampling Flow Rate		Analytical Laboratory:	Pace	
Sample Time:	1306	Final Depth to Water:	30.20	Did Well Dewater?	No	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4x VOA	HCl	HVOC	yes <input checked="" type="checkbox"/>			
			yes <input type="checkbox"/>			
			yes <input type="checkbox"/>			
			yes <input type="checkbox"/>			
			yes <input type="checkbox"/>			

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.	MW-16	Job Number:	1126-17
	Client:	Wstr	Date:	9/23/15
	Project:	Uncon	Sampler:	JD
	Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:	4"	Water Height	
Depth to Water:	29.64	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:		x Casing Volumes	
Purge Volume:		Free Product Thickness:		= Purge Volume	
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters

PURGING DATA

Purge Method:				BP				Pump Intake Depth:				ded. tubing				Comments			
Sampling Method:				CF				Tubing Type:				SB							
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color	Other Remarks							
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria								
1205			29.64		6.75	15.95	418	3.04	69.5	-	SC								
1208			29.64		6.59	14.76	404	1.97	80.2	-	↓								
1211			29.64		6.55	14.47	399	1.34	85.8	-	clear								
1214			29.64		6.55	14.44	397	1.39	90.4	-	↓								
1217			29.64		6.57	14.45	403	1.70	93.8	-	↓								

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-16	Sampling Flow Rate		Analytical Laboratory:	Pace		
Sample Time:	1218	Final Depth to Water:	29.64	Did Well Dewater?	No		
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID	
4x VOA	HCl	HVOC	yes no				
			yes no				
			yes no				
			yes no				
			yes no				

COMMENTS

WELL MONITORING DATA SHEET



Well I.D.	MW-2	Job Number:	1126-17
Client:	WStar	Date:	9/23/15
Project:	Uncover 36	Sampler:	CB
Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:	2"	Water Height	
Depth to Water:	30.75	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:		x Casing Volumes	
Purge Volume:		Free Product Thickness:		= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	BP	Pump Intake Depth:	Chd. tubing	Comments	
Sampling Method:	CF	Tubing Type:	SB		

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria
1116			30.75		6.78	17.50	774	4.31	-83.3	-	clear
1119			30.75		6.62	15.24	778	1.92	-93.0	-	
1122			30.75		6.72	14.81	777	1.35	-97.8	-	
1125			30.75		6.70	14.76	775	1.37	-95.3	-	
1128	1 gal		30.75		6.70	14.80	776	1.34	-96.5	-	↓

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-2	Sampling Flow Rate:		Analytical Laboratory:	Free
Sample Time:	1129	Final Depth to Water:	30.75	Did Well Dewater?	No
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
26x UOA	HCC	AVOC	yes <input checked="" type="checkbox"/> no		
			yes no		
			yes no		
			yes no		
			yes no		

COMMENTS

WELL MONITORING DATA SHEET



Well I.D.	MW-19i	Job Number:	1126-17
Client:	Nuster	Date:	9/23/15
Project:	Uncover3Q	Sampler:	CS
Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:	2"	Water Height	
Depth to Water:	30.63	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:		x Casing Volumes	
Purge Volume:		Free Product Thickness:		= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	BP			Pump Intake Depth:	dredging			Comments			
Sampling Method:	CF			Tubing Type:	SB						
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria
1038			30.63		7.91	19.83	240	9.51	129.6	↔	SC
1041			30.63		7.45	19.01	251	7.35	28.8	—	↓
1044			30.63		7.14	17.54	254	4.20	6.3	—	↓
1047			30.63		7.05	16.24	252	1.32	-20.9	—	Clear
1050			30.63		7.04	16.01	252	1.12	-21.3	—	
1053			30.63		7.04	15.95	251	0.95	-23.0	—	


Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-19i	Sampling Flow Rate:		Analytical Laboratory:	ACE	
Sample Time:	1054	Final Depth to Water:	30.63	Did Well Dewater?	no	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4x UOA	HCC	HWOX	yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.: MW-15	Job Number: 1120-17
	Client: WSA	Date: 9/23/15
	Project: Vancouver 3Q	Sampler: JD
	Weather:	Time In/Out:

WELL DATA

Well Depth:		Well Diameter: 4"	Water Height:	
Depth to Water: 34.00	Screened Interval:	x Multiplier:		
Water Column Length:	Depth to Free Product:	x Casing Volumes:		
Purge Volume:	Free Product Thickness:	= Purge Volume:		
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162	4-inch = 0.653
1 gallon = 3.785 liters				

PURGING DATA

Purge Method: BP				Pump Intake Depth: ded. 1.5m				Comments:			
Sampling Method: LF				Tubing Type: LDPE							
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria
1006			34.00		6.60	16.50	672	6.06	92.1	-	SC
1009			34.00		6.50	16.28	668	2.93	102.5	-	↓
1012			34.00		6.47	15.65	662	1.80	106.5	-	clear
1015			34.00		6.46	15.28	655	1.74	111.2	-	↓
1018		1 gal	34.00		6.45	15.20	650	1.67	115.1	-	↓

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID: MW-15	Sampling Flow Rate:	Analytical Laboratory: WCC				
Sample Time: 1019	Final Depth to Water: 34.00	Did Well Dewater? No				
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2x 50A	HCl	FLUOR	yes <input checked="" type="checkbox"/>			
			yes <input type="checkbox"/>			
			yes <input type="checkbox"/>			
			yes <input type="checkbox"/>			
			yes <input type="checkbox"/>			

COMMENTS

WELL MONITORING DATA SHEET



Well I.D.:	MW-21i-40	Job Number:	1126-17
Client:	NuStar	Date:	9/23/15
Project:	Uncover 30	Sampler:	03
Weather:		Time In/Out:	

WELL DATA

Well Depth:	Well Diameter:	2"	Water Height
Depth to Water:	Screened Interval:		x Multiplier
Water Column Length:	Depth to Free Product:		x Casing Volumes
Purge Volume:	Free Product Thickness:		= Purge Volume
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162
		4-inch = 0.653	1 gallon = 3.785 liters

PURGING DATA

Purge Method:				Peri LF				Pump Intake Depth:			~2' off bottom		Comments	
Sampling Method:				LF				Tubing Type:			LDPE			
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color	Other Remarks		
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<- Stabilization Criteria			
0938			—		6.94	16.58	281	5.85	12.3	—	clear			
0941			—		6.90	16.14	280	5.48	21.6	—	↓			
0944			—		6.87	15.83	278	5.27	36.2	—				
0947			—		6.86	15.74	277	5.21	43.7	—				
0950		3/4 gal	—		6.86	15.69	276	5.16	47.2	—				

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear


SAMPLING DATA

Sample ID:	MW-21i-40	Sampling Flow Rate		Analytical Laboratory:	K&E
Sample Time:	0951	Final Depth to Water:		Did Well Dewater?	no
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD
4x JDA	HCC	HVOC	yes no		Duplicate ID
			yes no		
			yes no		
			yes no		
			yes no		

COMMENTS

used peri pump - cap stuck on well so could not fit bladder pump in, at gauge well w/ tubing in it

WELL MONITORING DATA SHEET

	Well I.D.: MW-211-105	Job Number: 1126-17
	Client: Water	Date: 9/27/15
	Project: Water Treatment	Sampler: JS
	Weather:	Time In/Out:

WELL DATA

Well Depth:	Well Diameter:	Water Height
Depth to Water: 30.82	Screened Interval:	x Multiplier
Water Column Length:	Depth to Free Product:	x Casing Volumes
Purge Volume:	Free Product Thickness:	= Purge Volume
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162
		4-inch = 0.653
		1 gallon = 3.785 liters

PURGING DATA

Purge Method: BP	Pump Intake Depth: 26.5	Comments
Sampling Method: CF	Tubing Type: SB	

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
0906			30.82		6.97	16.01	134	3.28	73.5		Clear
0909			30.82		6.99	15.70	189	4.16	75.3		
0912			30.82		6.99	15.26	195	4.28	62.1		
0915	3/4 gal		30.82		7.07	15.08	198	4.53	55.5		

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear


SAMPLING DATA

Sample ID: MW-211-105	Sampling Flow Rate:	Analytical Laboratory: Pcep
Sample Time: 0916	Final Depth to Water: 30.82	Did Well Dewater? No
# Containers/Type: 4x VOA	Preservative: HCl	Analysis/Method: HWO
		Field Filtered
		Filter Size
		MS/MSD
		Duplicate ID
		yes no
		yes no
		yes no
		yes no
		yes no
		yes no

COMMENTS

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WELL MONITORING DATA SHEET

	Well I.D.	MW-221	Job Number:	1126-17
	Client:	Mista	Date:	9/23/15
	Project:	Vancouver 30	Sampler:	OB
	Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:	2"	Water Height	
Depth to Water:	31.16	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:		x Casing Volumes	
Purge Volume:		Free Product Thickness:		= Purge Volume	
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters

PURGING DATA

Purge Method:				BP				Pump Intake Depth:			deletion		Comments	
Sampling Method:				LF				Tubing Type:			5/5			
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color	Other Remarks		
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria			
0822			31.16		6.98	14.25	395	8.20	-20.5	-	clear			
0825			31.16		6.89	13.91	401	7.51	-30.4	-				
0828			31.16		6.79	14.10	401	4.42	-24.9	-				
0831			31.16		6.74	14.19	402	4.20	-26.6	-				
0834		1 gal	31.16		6.70	14.15	401	4.02	-27.2	-	↓			


Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-221	Sampling Flow Rate		Analytical Laboratory:	Pee	
Sample Time:	0835	Final Depth to Water:	31.16	Did Well Dewater?	No	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4x JWA	HCl	HNOC	yes <input checked="" type="checkbox"/>			
			yes <input type="checkbox"/>			
			yes <input type="checkbox"/>			
			yes <input type="checkbox"/>			
			yes <input type="checkbox"/>			

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.	MW-1	Job Number:	1126-17
	Client:	WVH	Date:	9/24/15
	Project:	Vincennes	Sampler:	CB
	Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:	2"	Water Height	
Depth to Water:	28.54	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:		x Casing Volumes	
Purge Volume:		Free Product Thickness:		= Purge Volume	
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters

PURGING DATA

Purge Method:				BP				Pump Intake Depth:			deed. Log		Comments	
Sampling Method:				LF				Tubing Type:			SB			
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color	Other Remarks		
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria			
1003			28.68		7.01	17.08	433	8.88	-102.0	-	clear			
1006			28.68		7.04	15.78	421	1.31	-126.6	-	↓			
1009			28.68		6.99	15.49	408	0.95	-122.2	-	↓			
1012			28.68		6.96	15.38	405	0.97	-118.2	-	↓			
1015		1.25 gal	28.68		6.98	15.31	400	0.99	-117.1	-	↓			


Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-1	Sampling Flow Rate		Analytical Laboratory:	Pace	
Sample Time:	1046	Final Depth to Water:	25.68	Did Well Dewater?	No	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
400 VOA	HCl	MVOC	yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.	MW-5	Job Number:	1126-17
	Client:	Mster	Date:	9/24/15
	Project:	Vacuum 3Q	Sampler:	CB
	Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:	2"	Water Height	
Depth to Water:	29.42	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:		x Casing Volumes	
Purge Volume:		Free Product Thickness:		= Purge Volume	
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters

PURGING DATA

Purge Method:				BP				Pump Intake Depth:			ded. tubing		Comments	
Sampling Method:				CF				Tubing Type:			SB			
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color	Other Remarks		
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria			
0928			29.49		6.69	16.74	1072	7.26	-74.5	-	clear			
0931			29.54		6.65	16.32	1092	1.95	-91.0	-				
0934			29.54		6.67	16.11	1097	1.51	-97.6	-				
0937			29.54		6.68	16.03	1094	1.44	-97.2	-				
0940	1.25 gal		29.54		6.68	15.99	1090	1.58	-94.5	-				

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear


SAMPLING DATA

Sample ID:	MW-5	Sampling Flow Rate		Analytical Laboratory:	Pace		
Sample Time:	0941	Final Depth to Water:	29.54	Did Well Dewater?	NO		
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID	
4x VOA	HCC	HVOC	yes <input type="radio"/> no <input checked="" type="radio"/>				
			yes <input type="radio"/> no <input type="radio"/>				
			yes <input type="radio"/> no <input type="radio"/>				
			yes <input type="radio"/> no <input type="radio"/>				
			yes <input type="radio"/> no <input type="radio"/>				

COMMENTS

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WELL MONITORING DATA SHEET

	Well I.D.	MW-7	Job Number:	1126-17
	Client:	WSTW	Date:	9/24/15
	Project:	Wastewater	Sampler:	CS
	Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:	4"	Water Height	
Depth to Water:	29.96	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:		x Casing Volumes	
Purge Volume:		Free Product Thickness:		= Purge Volume	
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters

PURGING DATA

Purge Method:		BP		Pump Intake Depth:		cld. plug		Comments			
Sampling Method:		LF		Tubing Type:		SB					
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
0834			29.26		6.75	17.06	747	3.68	-16.3	-	clear
0837			29.75		6.72	16.44	745	1.61	-26.8	-	↓
0840			30.10		6.72	16.40	744	1.25	-29.9	-	
0843			30.49		6.73	16.48	742	1.01	-30.6	-	
0846		1.25 gal	30.87		6.73	16.58	741	0.87	-30.5	-	

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear


SAMPLING DATA

Sample ID:	MW-7	Sampling Flow Rate:		Analytical Laboratory:	Pace	
Sample Time:	0847	Final Depth to Water:	31.90	Did Well Dewater?	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4x VOA	HCl	HVOC	yes (no)	—————	—————	MW-7 DUP
1x 500ml PI	H2SO4	TOC	yes (no)	—————	—————	↓
3x VOA	None	RSK 175	yes (no)	—————	—————	
			yes no			
			yes no			
			yes no			

COMMENTS

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WELL MONITORING DATA SHEET

	Well I.D.	MGM52-132	Job Number:	1126-17
	Client:	Mustr	Date:	9/25/15
	Project:	None	Sampler:	OR
	Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:		Water Height	
Depth to Water:	28.65	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:		x Casing Volumes	
Purge Volume:		Free Product Thickness:		= Purge Volume	
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters

PURGING DATA

Purge Method:				Pump Intake Depth:				Comments			
Sampling Method:				Tubing Type:							
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5 °C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1023			28.65	6.48	16.92	221	1.39	68.3	-	-	clear
1026			28.65	6.75	16.75	220	0.67	52.6	-	-	
1029			28.65	6.98	16.64	218	0.55	35.1	-	-	
1032			28.65	7.03	16.55	217	0.49	25.8	-	-	
1035	1 gal		28.65	7.08	16.49	216	0.44	15.9	-	-	

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MGM52-132	Sampling Flow Rate		Analytical Laboratory:	RCC
Sample Time:	1036	Final Depth to Water:	28.65	Did Well Dewater?	no
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD
4x VOA	HCl	MUOC	yes <input checked="" type="radio"/> no		
			yes no		
			yes no		
			yes no		
			yes no		

COMMENTS

WELL MONITORING DATA SHEET



Well I.D.	MGMS2-110	Job Number:	1126-07
Client:	WStu	Date:	9/25/15
Project:	Unseal	Sampler:	B
Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:		Water Height:	
Depth to Water:	28.63	Screened Interval:		x Multiplier:	
Water Column Length:		Depth to Free Product:		x Casing Volumes:	
Purge Volume:		Free Product Thickness:		= Purge Volume:	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	int BP CG				Pump Intake Depth:	int BP CDP				Comments	
Sampling Method:					Tubing Type:						
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<- Stabilization Criteria
1002			28.63		6.47	17.01	200	2.48	62.4	-	Clear
1005			28.63		6.71	16.89	150	3.47	62.7	-	
1008			28.63		6.98	16.87	168	3.66	58.7	-	
1011			28.63		7.03	16.79	165	3.81	54.4	✓	
1014		1gal	28.63		7.08	16.76	162	3.86	51.5	-	


Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MGMS2-110	Sampling Flow Rate:		Analytical Laboratory:	Pace	
Sample Time:	1015	Final Depth to Water:	28.63	Did Well Dewater?	No	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4x Vials	HCl	MVOC	yes <input checked="" type="checkbox"/>			
			yes <input type="checkbox"/>			
			yes <input type="checkbox"/>			
			yes <input type="checkbox"/>			
			yes <input type="checkbox"/>			

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.	M6MS2-60	Job Number:	126-17
	Client:	WST	Date:	9/28/08
	Project:	Therapy	Sampler:	CS
	Weather:		Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:		Water Height	
Depth to Water:	28.62	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:		x Casing Volumes	
Purge Volume:		Free Product Thickness:		= Purge Volume	
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters

PURGING DATA

Purge Method:				w/ BP				Pump Intake Depth:			w/ BSP		Comments	
Sampling Method:				LF				Tubing Type:			LDPE			
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color	Other Remarks		
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria			
0945			28.62		6.86	17.15	265	2.20	11.4	-	Clear			
0948			↓		6.87	16.13	258	0.98	4.0	-	↓			
0951			↓		6.89	16.86	255	0.92	-3.3	-	↓			
0954		3/4 gal	↓		6.90	16.75	253	0.88	-6.3	-	↓			


Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	M6MS2-60	Sampling Flow Rate		Analytical Laboratory:	Ree	
Sample Time:	0958	Final Depth to Water:	28.62	Did Well Dewater?	no	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4x JON	HCl	H-VUE	yes <input type="radio"/> no <input checked="" type="radio"/>			
			yes <input type="radio"/> no <input type="radio"/>			
			yes <input type="radio"/> no <input type="radio"/>			
			yes <input type="radio"/> no <input type="radio"/>			
			yes <input type="radio"/> no <input type="radio"/>			

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.:	MGMS2-40	Job Number:	1126-17
	Client:	WSh	Date:	9/25/15
	Project:	Vacuum	Sampler:	CB
	Weather:		Time In/Out:	

WELL DATA

Well Depth:	Well Diameter:	Water Height:
Depth to Water: 28.60 28.60	Screened Interval:	x Multiplier:
Water Column Length:	Depth to Free Product:	x Casing Volumes:
Purge Volume:	Free Product Thickness:	= Purge Volume:
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162
		4-inch = 0.653
		1 gallon = 3.785 liters

PURGING DATA

Purge Method:		Pump Intake Depth:			Comments						
Sampling Method:		Tubing Type:									
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<- Stabilization Criteria
0844			28.60		7.31	17.95	2217	7.07	-115.3	-	clear
0852			28.60		7.25	17.64	2201	6.99	-99.9	-	↓
0853			28.60		7.59	17.19	2164	9.47	-143.8	-	
0858					7.64	17.10	2162	9.58	-145.1	-	
0901					7.65	17.01	2154	9.67	-145.1	-	
0902		1.51									

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MGMS2-40	Sampling Flow Rate:	Analytical Laboratory:	Vael		
Sample Time:	0902	Final Depth to Water:	Did Well Dewater?	No		
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4x VOA	HCl	HVOC	yes no			
3x VOA	None	PSC 175	yes no			
1x 500ml PI	H2SO4	TDC	yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

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WELL GAGING DATA SHEET



Tidal inflection @ 11 am

Client:	Muster Van	Job Number:	
Project:	Gwm	Date:	12/9/15
Weather:	Rain	Sampler:	Jm/Jm
		Time In/Out:	0900

WATER LEVEL DATA

Well I.D.	Time	Depth to Free Product (feet)	Depth to Water (feet)	Depth to Well Bottom (feet)	Product Thickness (feet)	Water Column Height (feet)	Notes/Other Remarks
MW-24d	0845	-	22.55				-
MP-1	0848	-	26.90				
Fx-1	0850	-	26.28				
MW-19	0855	-	25.72				
MW-9	0900	-	26.91				
MW-10	0910	-	27.20				
MW-14	-	-	-	-	-	-	Under H ₂ O
MW-26	0915	-	27.43				
MW-17	0920	-	23.95				
S-2	0925	-	22.40				
MW-13	0927	-	23.74				
MW-12	0935	-	20.15				
MW-1	0945	-	21.81				
MW-3	0950	-	26.92				
EW-1	0951	-	19.45				
MW-6	0952	-	23.22				
MW-2	0958	-	24.13				
MW-19i	1010	-	22.73				
MW-15	1012	-	32.38				
MW-30i	1017	-	-	-	-	-	unable to locate (under new gravel)
MW-20i	-	-	-	-	-	-	under H ₂ O
MW-16	-	-	-	-	-	-	under H ₂ O
MW-31i	1020	-	20.76				
MW-E	1022	-	20.57				
MW-18i	1030	-	22.58				
MW-21i-40	1040	-	23.33				
MW-21i-105	1042	-	23.45				-Broken Cap -
MW-32i	1050	-	23.74				
MW-32s	1052	-	26.22				
MW-22i	1055	-	23.67				
MW-25i	1058	-	22.79				
MW-23i	1100	-	22.85				

WELL MONITORING DATA SHEET



Well I.D.	MW-240	Job Number:	1126-16
Client:	MUSTAR	Date:	12-9-15
Project:	GWM	Sampler:	Jm/Jm
Weather:	cloudy	Time In/Out:	750

WELL DATA

Well Depth:	-	Well Diameter:	2"	Water Height	-
Depth to Water:	22.30	Screened Interval:	-	x Multiplier	-
Water Column Length:	-	Depth to Free Product:	-	x Casing Volumes	-
Purge Volume:	-	Free Product Thickness:	-	= Purge Volume	-
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	-

PURGING DATA

Purge Method:	BP (Dangler)	Pump Intake Depth:	MS	Comments
Sampling Method:	LF	Tubing Type:	HDPPE	

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<- Stabilization Criteria
0755	0	0	22.30	.20	7.64	14.67	527	1.81	131.5	-	C
0758	.6	.6	22.80	.20	7.68	14.79	524	1.23	108.8	-	C
0801	.6	1.2	22.80	.20	7.74	14.96	522	1.81	85.0	-	C
0804	.6	1.8	22.83	.20	7.82	15.03	522	.66	79.3	-	C
0807	.6	2.4	22.84	.20	7.93	15.20	523	.52	61.5	-	C
0810	.6	3.0	22.83	.20	8.03	15.23	523	.43	31.6	-	C
0813	.6	3.6	22.83	.20	8.05	15.28	523	.42	-1.4	-	C
0816	.6		22.85	.20	8.06	15.34	524	.41	-1	-	C
0819	.6		22.85	.20	8.08	15.33	524	.41	-8.1	-	C
0821	.6		22.85	.20	8.08	15.33	524	.41	-8.0	-	C

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-240	Sampling Flow Rate:	.20	Analytical Laboratory:	KIPP	
Sample Time:	0830	Final Depth to Water:	22.86	Did Well Dewater?	No	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4x40ml	Hcl	H30C	yes <input checked="" type="radio"/> no	-	-	-
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS



WELL MONITORING DATA SHEET

Well I.D.:	HW-3 MW-3	Job Number:	
Client:	Nustel Van.	Date:	12/19/15
Project:	GWM	Sampler:	Jim/JM
Weather:	Rain	Time In/Out:	0700

WELL DATA

Well Depth:	-	Well Diameter:	2"
Depth to Water:	26.92	Screened Interval:	-
Water Column Length:	-	Depth to Free Product:	-
Purge Volume:	-	Free Product Thickness:	-
Water Height Multipliers (gal)		1-inch = 0.041	
		2-inch = 0.162	
		4-inch = 0.653	
		1 gallon = 3.785 liters	

PURGING DATA

Purge Method:				BP				Pump Intake Depth:				MS			
Sampling Method:				LF				Tubing Type:				Ded.			
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color	Other Remarks			
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%		← Stabilization Criteria			
0705	0	0	26.92	.20	6.34	13.55	922	3.52	219.6	-	C				
0708	.6	.6	26.93	.20	6.17	13.22	1228	1.72	221.0	-	C				
0711	.6	1.2	26.95	.20	6.17	13.22	1248	1.61	218.1	-	C				
0714	.6	1.8	26.95	.20	6.18	13.21	1251	1.61	215.2	-	C				
0717												Sample			

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-3	Sampling Flow Rate:	.20
Sample Time:	0717	Final Depth to Water:	26.93
# Containers/Type	Preservative	Analysis/Method	Field Filtered
4x40mL	HCL	HVOC	yes <input checked="" type="checkbox"/>
			yes <input type="checkbox"/>
			yes <input type="checkbox"/>
			yes <input type="checkbox"/>
			yes <input type="checkbox"/>
			yes <input type="checkbox"/>

COMMENTS



3015 SW First Avenue
 Portland, Oregon 97201-4707
 (503) 924-4704 Phone
 (503) 943-6357 Fax

PROJECT NUMBER 1126-16
 FIELD REPORT NUMBER _____
 PAGE 1 OF 1
 DATE 12/8/15

PROJECT Nuster Vancouver Gwm ARRIVAL TIME ~ 0630
 LOCATION Nuster Van. DEPARTURE TIME 1540
 CLIENT Nuster WEATHER RAIN
 PURPOSE OF OBSERVATIONS OWM
 APEX REPRESENTATIVE Jim/Sm APEX PROJECT MANAGER S. Salisbury
 CONTRACTOR _____ PERMIT NO. 245805
 CONTRACTOR REP. _____ H&S REVIEW Yes

Our firm's professionals are represented on site solely to observe operations of the contractor identified, to form opinions about the adequacy of those operations, and to report those opinions to our client. The presence and activities of our field representative do not relieve any contractor from its obligation to meet contractual requirements. The contractor retains sole responsibility for site safety and the methods, operations, and sequence of construction. Unless signed by the Ash Creek Associates Project Manager, this report is preliminary. A preliminary report is provided solely as evidence that field observation was performed. Observations and/or conclusions and/or recommendations conveyed in the final report may vary from and shall take precedence over those included in a preliminary report.

0630 - onsite
 0645 - get permit / H&S review
 0700 - Begin Sampling (see field sheets)
 * Unable to sample below wells due to large puddles of H₂O
 - MW-14
 - MW-16
 - MW-20i
 - Gauge wells tomorrow / finish sampling
 1540 - OCC site

BY [Signature]
 APEX REPRESENTATIVE

REVIEWED BY _____
 APEX PROJECT MANAGER

WELL MONITORING DATA SHEET



Well I.D.	5-1	Job Number:	
Client:	Nustar Van	Date:	12/8/15
Project:	GWM	Sampler:	Jm/Jm
Weather:	Rain	Time In/Out:	1505

WELL DATA

Well Depth:	-	Well Diameter:	2"	Water Height	-
Depth to Water:	25.30	Screened Interval:	-	x Multiplier	-
Water Column Length:	-	Depth to Free Product:	-	x Casing Volumes	-
Purge Volume:	-	Free Product Thickness:	-	= Purge Volume	-
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters

PURGING DATA

Purge Method:				BP				Pump Intake Depth:				MS				Comments	
Sampling Method:				LF				Tubing Type:				Ded.					
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color	Other Remarks					
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria						
1510	-	-	25.30	0.30	7.90	15.17	227	3.83	67.9	-	C						
1513	-	-	25.32		7.90	15.20	229	3.82	67.8	-	C						
1516	-	-	25.36		7.91	15.19	228	3.82	67.9	-	C						
1519	-	-	25.39	↓	7.91	15.17	227	3.81	67.8	-	C						

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	# 5-1	Sampling Flow Rate	0.30	Analytical Laboratory:	Kipp/Pace
Sample Time:	1520	Final Depth to Water:	25.40	Did Well Dewater?	NO
# Containers/Type	4x40ml	Preservative	HCl	Analysis/Method	HVOC
				Field Filtered	yes <input checked="" type="radio"/> no
				Filter Size	-
				MS/MSD	-
				Duplicate ID	-

COMMENTS



WELL MONITORING DATA SHEET

Well I.D.:	S-2	Job Number:	
Client:	Nustar Van.	Date:	12/8/15
Project:	GWM	Sampler:	Jm/Jm
Weather:	Rain	Time In/Out:	1440

WELL DATA

Well Depth:	—	Well Diameter:	2"
Depth to Water:	24.87	Screened Interval:	—
Water Column Length:	—	Depth to Free Product:	—
Purge Volume:	—	Free Product Thickness:	—
Water Height Multipliers (gal)		1-inch = 0.041	
		2-inch = 0.162	
		4-inch = 0.653	
		1 gallon = 3.785 liters	

PURGING DATA

Purge Method:				BP				Pump Intake Depth:				MS			
Sampling Method:				LF				Tubing Type:				Ocd			
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color	Other Remarks			
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%		← Stabilization Criteria			
1440	—	—	24.87	0.30	6.80	15.79	2726	4.23	106.9	—	cloudy				
1443	—	—	24.89	↓	6.80	15.80	2726	4.28	106.3	—	cloudy				
1446	—	—	24.89	↓	6.81	15.80	2726	4.24	106.0	—	cloudy				
1449	—	—	24.88	↓	6.81	15.80	2726	4.10	105.0	—	cloudy				
1452	—	—	24.89	↓	6.81	15.20	2676	1.00	102.5	—	cloudy				
1455	—	—	24.87	↓	6.81	15.10	2674	0.96	101.9	—	cloudy				
1458	—	—	24.90	↓	6.81	15.00	2670	0.97	100.0	—	cloudy				

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	S-2	Sampling Flow Rate:	0.30
Sample Time:	1455 1500	Final Depth to Water:	24.87
# Containers/Type	Preservative	Analysis/Method	Field Filtered
4 x 40 ml	HCl	140c	yes <input checked="" type="radio"/> no
			yes no
			yes no
			yes no
			yes no

COMMENTS



WELL MONITORING DATA SHEET

Well I.D.:	MW-13	Job Number:	—
Client:	Nustar Jan.	Date:	12/8/15
Project:	Gwan	Sampler:	JM/Jm
Weather:	Rain	Time In/Out:	1415

WELL DATA

Well Depth:	—	Well Diameter:	4"
Depth to Water:	24.96	Screened Interval:	—
Water Column Length:	—	Depth to Free Product:	—
Purge Volume:	—	Free Product Thickness:	—
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162
		4-inch = 0.653	1 gallon = 3.785 liters

PURGING DATA

Purge Method:		Sampling Method:		Pump Intake Depth:							Comments		
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	Tubing Type:							Turbidity (NTUs)	Clarity/Color Other Remarks
					pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)				
1418	—	—	24.96	0.25	+/-0.1	+/-0.5°C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria		
1421	—	—	24.97	↓	6.52	14.38	1275	2.69	110.6	—	C		
1424	—	—	24.97	↓	6.51	14.39	1273	2.83	111.7	—	C		
1427	—	—	24.97	↓	6.52	14.39	1269	2.88	112.0	—	C		
1430	—	—	24.97	↓	6.44	14.40	1274	2.88	111.8	—	C		
					6.46	14.41	1268	2.87	111.9	—	C		
					Jm								

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-13	Sampling Flow Rate	0.25	Analytical Laboratory:	Kiff/pace
Sample Time:	1435	Final Depth to Water:	24.96	Did Well Dewater?	No
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD
4x46 ml	HCl	HUOC	yes <input type="radio"/> no <input checked="" type="radio"/>	—	—
			yes no		
			yes no		
			yes no		
			yes no		

COMMENTS



WELL MONITORING DATA SHEET

Well I.D.	MW-5	Job Number:	1126-16
Client:	MUSTAR	Date:	12-8-15
Project:	BWM	Sampler:	JM
Weather:	Rainy	Time In/Out:	1315

WELL DATA

Well Depth:	—	Well Diameter:	2"	Water Height	—
Depth to Water:	26.10	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	—

PURGING DATA

Purge Method:	BP	Pump Intake Depth:	M5	Comments
Sampling Method:	LF	Tubing Type:	Dev	

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
1318	—	—	26.11	0.30	+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria
1321	—	—	26.10	↓	6.82	16.00	438	1.01	46.7	—	C
1324	—	—	26.12	↓	6.82	16.02	434	0.93	46.8	—	C
1327	—	—	26.12	↓	6.83	16.02	436	0.91	46.7	—	C
1330	—	—	26.12	↓	6.82	16.01	434	0.94	47.0	—	C
					6.82	16.00	435	0.95	50.0	—	C

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-5	Sampling Flow Rate	0.30	Analytical Laboratory:	KIEFF / Pace
Sample Time:	1333	Final Depth to Water:	26.10	Did Well Dewater?	No
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
4x 40ml	HCl	17VOC	yes <input type="radio"/> no <input checked="" type="radio"/>	—	—
4x 40ml	↓	↓	yes <input type="radio"/> no <input checked="" type="radio"/>	—	—
			yes <input type="radio"/> no <input type="radio"/>		✗
			yes <input type="radio"/> no <input type="radio"/>		
			yes <input type="radio"/> no <input type="radio"/>		

COMMENTS

* MW-5 DUP * Same time as sample

WELL MONITORING DATA SHEET



Well I.D.:	MW-7	Job Number:	—
Client:	Nuster Van Gwm	Date:	12/8/15
Project:	Gwm	Sampler:	Jan / Jan
Weather:	Rain	Time In/Out:	1240

WELL DATA

Well Depth:	—	Well Diameter:	4"
Depth to Water:	26.01	Screened Interval:	—
Water Column Length:	—	Depth to Free Product:	—
Purge Volume:	—	Free Product Thickness:	—
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162
		4-inch = 0.653	1 gallon = 3.785 liters

PURGING DATA

Purge Method:		BP		Pump Intake Depth:		MS		Comments			
Sampling Method:		LF		Tubing Type:		Dec.					
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5 °C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria
1245	—	—	26.01	0.23	7.49	15.20	612	3.01	84.0	—	C
1248	—	—	26.00	↓	7.50	15.21	613	2.10	84.1	—	C
1251	—	—	26.01	↓	7.50	15.20	613	1.96	84.0	—	C
1254	—	—	26.01	↓	7.49	15.21	613	1.98	84.1	—	C
* No Pup collected											
Monument filling w/ H ₂ O too fast *											

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-7	Sampling Flow Rate	0.23	Analytical Laboratory:	KIFF/Pace
Sample Time:	1300	Final Depth to Water:	26.00	Did Well Dewater?	No
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
6 x 40 ml	HCl	ITVOC/mwt	yes <input type="checkbox"/> no <input checked="" type="checkbox"/>	—	—
1 x 500 ml	H ₂ SO ₄	MNA	yes <input type="checkbox"/> no <input checked="" type="checkbox"/>	—	—
			yes <input type="checkbox"/> no <input type="checkbox"/>	—	—
			yes <input type="checkbox"/> no <input type="checkbox"/>	—	—
			yes <input type="checkbox"/> no <input type="checkbox"/>	—	—
			yes <input type="checkbox"/> no <input type="checkbox"/>	—	—

COMMENTS



WELL MONITORING DATA SHEET

Well I.D.	MW-9	Job Number:	1126-16
Client:	Mu star	Date:	12-8-15
Project:	GWM	Sampler:	JM/JM
Weather:	RAIN	Time In/Out:	1215

WELL DATA

Well Depth:	—	Well Diameter:	— 4"	Water Height	—
Depth to Water:	26.58	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters

PURGING DATA

Purge Method:				BP		Pump Intake Depth:				MS		Comments
Sampling Method:				LP		Tubing Type:				Ded.		
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks	
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<- Stabilization Criteria	
1220			26.58	.20	6.93	13.64	2135	20.7	99.0	-	C	
1223			26.58	.20	6.79	13.61	2187	1.34	100.3	-	C	
1225			26.58	.20	6.77	13.59	2221	1.10	100.6	-	C	
1228			26.57	.20	6.70	13.51	2260	.93	100.3	-	C	

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-9	Sampling Flow Rate:	0.20	Analytical Laboratory:	Pace/Bill	
Sample Time:	1230	Final Depth to Water:	26.54	Did Well Dewater?	No	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4x 40ml	HCl	HVOC	yes <input type="radio"/> no <input checked="" type="radio"/>	—	—	—
4x 40ml	↓	↓	yes <input type="radio"/> no <input checked="" type="radio"/>	—	—	—
			yes <input type="radio"/> no <input type="radio"/>			X
			yes <input type="radio"/> no <input type="radio"/>			
			yes <input type="radio"/> no <input type="radio"/>			
			yes <input type="radio"/> no <input type="radio"/>			

COMMENTS

* MW-9 DUP * Same time as sample



WELL MONITORING DATA SHEET

Well I.D.:	MP-1	Job Number:	-
Client:	Nustar Van	Date:	12/8/15
Project:	Gwm	Sampler:	Jm/Jm
Weather:	Rain	Time In/Out:	1150

WELL DATA

Well Depth:	-	Well Diameter:	2"
Depth to Water:	26.32	Screened Interval:	-
Water Column Length:	-	Depth to Free Product:	-
Purge Volume:	-	Free Product Thickness:	-
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162
		4-inch = 0.653	1 gallon = 3.785 liters

PURGING DATA

Purge Method:				BP				Pump Intake Depth:				MS			
Sampling Method:				LF				Tubing Type:				Ded.			
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color	Other Remarks			
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%		← Stabilization Criteria			
1150	-	-	26.32	0.20	7.34	14.56	1523	2.00	82.1	-	C				
1153	-	-	26.31		7.31	14.53	1503	1.85	82.0	-	C				
1156	-	-	26.35		7.29	14.51	1483	1.49	82.1	-	C				
1159	-	-	26.36	∇	7.26	14.49	1465	1.35	82.1	-	C				
1202	-	-	26.36	∇	7.26	14.49	1445	1.20	82.8	-	C				

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MP-1	Sampling Flow Rate:	0.20
Sample Time:	1205	Final Depth to Water:	26.40
# Containers/Type	Preservative	Analysis/Method	Field Filtered
6 x 40ml	HCl	HVOC/MNA	yes <input checked="" type="radio"/> no
1 x 500 ml	H ₂ SO ₄	MNA	yes <input checked="" type="radio"/> no
			yes no
			yes no
			yes no
			yes no

COMMENTS



WELL MONITORING DATA SHEET

Well I.D.:	MW-24i	Job Number:	1126-16
Client:	MUSTAR	Date:	12-8-15
Project:	GWM	Sampler:	JM/JM
Weather:	Rainy	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	2"
Depth to Water:	25.50	Screened Interval:	—
Water Column Length:	—	Depth to Free Product:	—
Purge Volume:	—	Free Product Thickness:	—
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653
			1 gallon = 3.785 liters

PURGING DATA

Purge Method:		Sampling Method:		Pump Intake Depth:		Tubing Type:		Comments			
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5°C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1115	0	0	25.50	.20	7.65	14.90	235A	7.11	89.0	—	C
1118	.6	.6	25.58	.20	7.22	14.84	3065	2.35	99.7	—	C
1121	.6	1.2	25.62	.20	7.14	14.81	3178	1.76	100.3	—	C
1124	.6	1.8	25.62	.20	7.10	14.79	3251	1.48	99.9	—	C
1127	.6	2.4	25.62	.20	7.06	14.79	3252	1.36	99.2	—	C
1130	.6	3.0								—	C
											SAMPLE

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-24i	Sampling Flow Rate:	0.20
Sample Time:	1135	Final Depth to Water:	26.00
# Containers/Type	Preservative	Analysis/Method	Field Filtered
6 x 40ml	HCl	HVOC/MNA	yes <input type="checkbox"/> no <input checked="" type="checkbox"/>
1 x 500ml	H ₂ SO ₄	MNA	yes <input type="checkbox"/> no <input checked="" type="checkbox"/>
			yes <input type="checkbox"/> no <input type="checkbox"/>
			yes <input type="checkbox"/> no <input type="checkbox"/>
			yes <input type="checkbox"/> no <input type="checkbox"/>
			yes <input type="checkbox"/> no <input type="checkbox"/>

COMMENTS



WELL MONITORING DATA SHEET

Well I.D.	EX-1	Job Number:	-
Client:	Nustar Van.	Date:	12/8/15
Project:	Gwm	Sampler:	Jm/Jm
Weather:	Rain	Time In/Out:	1000

WELL DATA

Well Depth:	~ 28'	Well Diameter:	4"	Water Height	-
Depth to Water:	27.01	Screened Interval:	-	x Multiplier	-
Water Column Length:	-	Depth to Free Product:	-	x Casing Volumes	-
Purge Volume:	-	Free Product Thickness:	-	= Purge Volume	-
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters

PURGING DATA

Purge Method:		BP			Pump Intake Depth:		ms			Comments	
Sampling Method:		LP			Tubing Type:		ded				
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
1003					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<- Stabilization Criteria
											Well DC - waters wait for recharge to sample
											* well bottom full of mud *

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	EX-1	Sampling Flow Rate	0.20	Analytical Laboratory:	Pace/Kiff
Sample Time:	1646	Final Depth to Water:	27.01	Did Well Dewater?	Yes
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
6 x 40 ml	HCl	H VOC/mw	yes <input type="radio"/> no <input checked="" type="radio"/>	-	-
1 x 800 ml	H ₂ SO ₄	MNA	yes <input type="radio"/> no <input checked="" type="radio"/>	-	-
			yes <input type="radio"/> no <input type="radio"/>		
			yes <input type="radio"/> no <input type="radio"/>		
			yes <input type="radio"/> no <input type="radio"/>		

COMMENTS



WELL MONITORING DATA SHEET

Well I.D.	MW-19	Job Number:	1126-16
Client:	MUSTAR	Date:	12-8-16
Project:	GUM	Sampler:	TN/JM
Weather:	Rainy	Time In/Out:	0930

WELL DATA

Well Depth:	—	Well Diameter:	2"	Water Height	—
Depth to Water:	25.84	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters

PURGING DATA

Purge Method:	BP	Pump Intake Depth:	MS	Comments
Sampling Method:	LF	Tubing Type:	Ded.	

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
0933	—	—	25.83	0.20	7.16	15.17	3292	4.00	74.7	—	← Stabilization Criteria
0936	—	—	25.84	↓	7.14	15.00	3419	.84	74.3	—	C
0939	—	—	25.86	↓	7.14	14.97	3428	.72	74.0	—	C
0942	—	—	25.87	↓	7.13	14.96	3430	.69	73.9	—	C

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-19	Sampling Flow Rate:	0.20	Analytical Laboratory:	Paci	
Sample Time:	0945	Final Depth to Water:	25.90	Did Well Dewater?	No	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4x40 ml	HCl	HVOC	yes <input type="radio"/> no <input checked="" type="radio"/>	—	—	—
4x40 ml	↓	↓	yes <input type="radio"/> no <input checked="" type="radio"/>	—	—	—
			yes <input type="radio"/> no <input type="radio"/>			X
			yes <input type="radio"/> no <input type="radio"/>			
			yes <input type="radio"/> no <input type="radio"/>			

COMMENTS

* MW-19 Dup * (same time as sample)



WELL MONITORING DATA SHEET

Well I.D.	MW-12	Job Number:	—
Client:	Nuster Van	Date:	12/8/15
Project:	GWM	Sampler:	JM/JM
Weather:	Rain	Time In/Out:	0906

WELL DATA

Well Depth:	—	Well Diameter:	4"
Depth to Water:	22.87	Screened Interval:	—
Water Column Length:	—	Depth to Free Product:	—
Purge Volume:	—	Free Product Thickness:	—
Water Height Multipliers (gal)		2-inch = 0.162	4-inch = 0.653
1-inch = 0.041		1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	BP	Pump Intake Depth:	MS
Sampling Method:	LF	Tubing Type:	Ded.

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
0906	—	—	22.87	0.20	+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria
0909	—	—	22.88	↓	7.32	15.52	2381	2.07	21.8	—	C
0912	—	—	22.87	↓	7.31	15.51	2380	1.00	27.0	—	C
0915	—	—	22.87	↓	7.03	15.41	2441	1.28	26.9	—	C
0918	—	—	22.87	↓	7.01	15.41	2440	1.20	27.1	—	C
					7.00	15.40	2441	0.99	28.1	—	C

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-12	Sampling Flow Rate	0.20	Analytical Laboratory:	Pace
Sample Time:	0920	Final Depth to Water:	22.89	Did Well Dewater?	No
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
6 x 40 ml	HCl	HVOC/MNIS	yes <input type="radio"/> no <input checked="" type="radio"/>	—	—
1 x 500 ml	H ₂ SO ₄	MNA	yes <input type="radio"/> no <input checked="" type="radio"/>	—	—
			yes <input type="radio"/> no <input type="radio"/>		
			yes <input type="radio"/> no <input type="radio"/>		
			yes <input type="radio"/> no <input type="radio"/>		

COMMENTS



WELL MONITORING DATA SHEET

Well I.D.:	MGMS 1-60	Job Number:	
Client:	Nuster Van	Date:	12/8/15
Project:	GWMM	Sampler:	Jim/Jam
Weather:	Rain	Time In/Out:	0834

WELL DATA

Well Depth:	—	Well Diameter:	—
Depth to Water:	24.87	Screened Interval:	—
Water Column Length:	—	Depth to Free Product:	—
Purge Volume:	—	Free Product Thickness:	—
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162
		4-inch = 0.653	1 gallon = 3.785 liters

PURGING DATA

Purge Method:				BP				Pump Intake Depth:				MS			
Sampling Method:				LF				Tubing Type:				Dad,			
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color	Other Remarks			
					+/-0.1	+/-0.5°C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria				
0835	—	—	24.87	0.20	7.93	14.70	1480	3.73	-89.8	—	C				
0838	—	—	24.88	↓	7.94	14.71	1481	3.72	-75.1	—	C				
0841	—	—	24.89	↓	7.92	14.71	900	3.60	-76.0	—	C				
0844	—	—	24.87	↓	7.93	14.71	907	3.61	-75.1	—	C				
0847	—	—	24.89	↓	7.93	14.70	904	3.60	-74.2	—	C				

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MGMS 1-60	Sampling Flow Rate:	0.20
Sample Time:	0845	Final Depth to Water:	24.89
# Containers/Type	Preservative	Analysis/Method	Field Filtered
4 x 40 ml	HCl	HVOC	yes (no)
			yes no
			yes no
			yes no
			yes no
			yes no

COMMENTS

WELL MONITORING DATA SHEET



Well I.D.:	MGMS 2-60	Job Number:	
Client:	Nuster Van	Date:	12/8/15
Project:	GWM	Sampler:	Jm/Jm
Weather:	Rain	Time In/Out:	0720

WELL DATA

Well Depth:	-	Well Diameter:	-	Water Height:	-
Depth to Water:	24.70	Screened Interval:	-	x Multiplier:	-
Water Column Length:	-	Depth to Free Product:	-	x Casing Volumes:	-
Purge Volume:	-	Free Product Thickness:	-	= Purge Volume:	-
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	-

PURGING DATA

Purge Method:		BP			Pump Intake Depth:		-			Comments		
Sampling Method:		CP			Tubing Type:		ded.					
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks	
0720	-	-	24.70		+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<- Stabilization Criteria	
0723	-	-										
0726	-	-										
0729	-	-										
No Sample = well not functional -												

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MGMS2-60	Sampling Flow Rate:		Analytical Laboratory:	
Sample Time:		Final Depth to Water:		Did Well Dewater?	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
			yes no		
			yes no		
			yes no		
			yes no		
			yes no		

COMMENTS



WELL MONITORING DATA SHEET

Well I.D.:	MGMS2-40	Job Number:	
Client:	Nuster Var	Date:	12/8/15
Project:	Cowman	Sampler:	Jm
Weather:	Pair	Time In/Out:	0715

WELL DATA

Well Depth:	—	Well Diameter:	—
Depth to Water:	24.50	Screened Interval:	—
Water Column Length:	—	Depth to Free Product:	—
Purge Volume:	—	Free Product Thickness:	—
Water Height Multipliers (gal)		1-gallon = 3.785 liters	
1-inch = 0.041		2-inch = 0.162	
		4-inch = 0.653	

PURGING DATA

Purge Method:	RP	Pump Intake Depth:	MS	Comments
Sampling Method:	LF	Tubing Type:	Ded.	

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
0715	—	—	24.51	.20	7.46	15.67	3457	5.98	-39.9	—	C
0718	—	—	24.52	.20	7.48	15.64	3473	6.14	-83.9	—	C
0721	—	—	24.52	.20	7.48	15.63	3502	6.11	-95.6	—	C
0724	—	—	24.52	.20	7.48	15.62	3502	6.14	-96.9	—	C
0727	—	—	24.51	—	—	—	—	—	—	—	Sample

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MGMS2-40	Sampling Flow Rate:	0.20	Analytical Laboratory:	Pace
Sample Time:	0730	Final Depth to Water:	24.51	Did Well Dewater?	No
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
6 x 40 ml	HCl	KVOC/MNA	yes <input type="radio"/> no <input checked="" type="radio"/>	—	—
1 x 500 ml	H ₂ SO ₄	MNA	yes <input type="radio"/> no <input checked="" type="radio"/>	—	—
			yes <input type="radio"/> no <input type="radio"/>		
			yes <input type="radio"/> no <input type="radio"/>		
			yes <input type="radio"/> no <input type="radio"/>		

COMMENTS



3015 SW First Avenue
 Portland, Oregon 97201-4707
 (503) 924-4704 Phone
 (503) 943-6357 Fax

PROJECT NUMBER _____
 FIELD REPORT NUMBER _____
 PAGE 1 OF 1
 DATE 12/7/15

PROJECT Nustar Van GWM ARRIVAL TIME 0800
 LOCATION Nustar Van. DEPARTURE TIME 1520
 CLIENT Nustar WEATHER Rain
 PURPOSE OF OBSERVATIONS GWM
 APEX REPRESENTATIVE Jim/Jim APEX PROJECT MANAGER S. Salisbury
 CONTRACTOR - PERMIT NO. ~~245804~~ 245804
 CONTRACTOR REP. - H&S REVIEW yes

Our firm's professionals are represented on site solely to observe operations of the contractor identified, to form opinions about the adequacy of those operations, and to report those opinions to our client. The presence and activities of our field representative do not relieve any contractor from its obligation to meet contractual requirements. The contractor retains sole responsibility for site safety and the methods, operations, and sequence of construction. Unless signed by the Ash Creek Associates Project Manager, this report is preliminary. A preliminary report is provided solely as evidence that field observation was performed. Observations and/or conclusions and/or recommendations conveyed in the final report may vary from and shall take precedence over those included in a preliminary report.

0630 - Load up
 0800 - onsite
 0830 - Begin sampling (see field sheets)
 1530 - offsite

BY [Signature]
 APEX REPRESENTATIVE

REVIEWED BY _____
 APEX PROJECT MANAGER

WELL MONITORING DATA SHEET



Well I.D.:	MGMS3-60	Job Number:	
Client:	Nuster Van.	Date:	12/7/15
Project:	Gwm	Sampler:	Jim/Jim
Weather:	Rain	Time In/Out:	1455

WELL DATA

Well Depth:	-	Well Diameter:	-	Water Height	-
Depth to Water:	23.65	Screened Interval:	-	x Multiplier	-
Water Column Length:	-	Depth to Free Product:	-	x Casing Volumes	-
Purge Volume:	-	Free Product Thickness:	-	= Purge Volume	-
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters

PURGING DATA

Purge Method:				BP				Pump Intake Depth:			MS		Comments
Sampling Method:				LF				Tubing Type:			Ded.		
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks		
												+/-0.1	+/-0.5° C
1455	-	-	23.65	0.20	6.99	15.58	733	2.16	-38.3	-	C		
1458	-	-	23.66	↓	7.01	15.57	733	2.37	-39.3	-	C		
1501	-	-	23.64	↓	7.00	15.55	726	2.36	-40.0	-	C		
1504	-	-	23.62	↓	7.01	15.54	721	2.33	-40.1	-	C		

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MGMS3-60	Sampling Flow Rate:	0.20	Analytical Laboratory:	Pac	
Sample Time:	1510	Final Depth to Water:	23.64	Did Well Dewater?	No	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	
			yes	no	Duplicate ID	
			yes	no	-	-
			yes	no		
			yes	no		

COMMENTS

WELL MONITORING DATA SHEET



Well I.D.:	MGM53-40	Job Number:	1126-16
Client:	MU Star	Date:	12-7-15
Project:	GW	Sampler:	EM/JM
Weather:	Rainy	Time In/Out:	1415

WELL DATA

Well Depth:	-	Well Diameter:	2"	Water Height	-
Depth to Water:	24.0'	Screened Interval:	-	x Multiplier	-
Water Column Length:	-	Depth to Free Product:	-	x Casing Volumes	-
Purge Volume:	-	Free Product Thickness:	-	= Purge Volume	-
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	-

PURGING DATA

Purge Method:	BP	Pump Intake Depth:	40'	Comments
Sampling Method:	LF	Tubing Type:	MGM5	

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<- Stabilization Criteria
1430	0	0	24.00	.2	7.11	15.32	706	3.11	-24.0	-	C
1433	.6	.6	23.96	.2	7.04	15.46	734	1.78	-26.0	-	C
1436	.6	1.2	23.96	.2	7.02	15.52	739	1.55	-27.1	-	C
1439	.6	-	23.97	.20	7.02	15.54	737	1.40	-27.0	-	C
1442	.6	-	23.97	.20	7.01	15.57	740	1.25	-27.6	-	C
1445	.6	-									Sample

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MGM53-40	Sampling Flow Rate:	0.20	Analytical Laboratory:	Pace	
Sample Time:	1450	Final Depth to Water:	24.01	Did Well Dewater?	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4x40 ml	Hcl	HVOC	yes (no)	-	-	-
			yes	no		
			yes	no		
			yes	no		
			yes	no		
			yes	no		

COMMENTS



WELL MONITORING DATA SHEET

Well I.D.: <i>MW-19i</i>	Job Number: <i>1126-16</i>
Client: <i>MUSTAR</i>	Date: <i>12-7-15</i>
Project: <i>GLM</i>	Sampler: <i>gym</i>
Weather: <i>Rainy</i>	Time In/Out: <i>1354</i>

WELL DATA

Well Depth: <i>—</i>	Well Diameter: <i>2"</i>	Water Height	<i>—</i>
Depth to Water: <i>25.46</i>	Screened Interval: <i>—</i>	x Multiplier	<i>—</i>
Water Column Length: <i>—</i>	Depth to Free Product: <i>—</i>	x Casing Volumes	<i>—</i>
Purge Volume: <i>—</i>	Free Product Thickness: <i>—</i>	= Purge Volume	<i>—</i>
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653
			1 gallon = 3.785 liters

PURGING DATA

Purge Method: <i>BP</i>	Pump Intake Depth: <i>MS</i>	Comments
Sampling Method: <i>LF</i>	Tubing Type: <i>HDPPE</i>	

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color	Other Remarks
<i>1400</i>	<i>0</i>	<i>0</i>	<i>25.86</i>	<i>.20</i>	<i>7.93</i>	<i>14.88</i>	<i>354</i>	<i>6.92</i>	<i>56.0</i>	<i>+</i>	<i>C</i>	
<i>1404</i>	<i>.8</i>	<i>.8</i>	<i>25.86</i>	<i>.20</i>	<i>7.66</i>	<i>13.41</i>	<i>351</i>	<i>2.53</i>	<i>57.5</i>	<i>-</i>	<i>C</i>	
<i>1408</i>	<i>.8</i>	<i>1.6</i>	<i>25.86</i>	<i>.20</i>	<i>7.61</i>	<i>13.71</i>	<i>350</i>	<i>2.00</i>	<i>55.3</i>	<i>-</i>	<i>C</i>	
<i>1412</i>	<i>.8</i>	<i>2.2</i>	<i>25.84</i>	<i>.20</i>	<i>7.54</i>	<i>13.60</i>	<i>349</i>	<i>1.50</i>	<i>53.1</i>	<i>-</i>	<i>C</i>	
<i>1415</i>	<i>.6</i>	<i>2.8</i>	<i>25.83</i>	<i>.20</i>	<i>7.43</i>	<i>13.46</i>	<i>348</i>	<i>0.94</i>	<i>47.8</i>	<i>-</i>	<i>C</i>	
<i>1418</i>	<i>.6</i>	<i>3.4</i>	<i>25.83</i>	<i>.20</i>	<i>7.31</i>	<i>13.40</i>	<i>347</i>	<i>.76</i>	<i>40.0</i>	<i>-</i>	<i>C</i>	
<i>1421</i>	<i>.6</i>	<i>4.0</i>	<i>25.83</i>	<i>.20</i>	<i>7.26</i>	<i>13.38</i>	<i>347</i>	<i>.50</i>	<i>38.1</i>	<i>-</i>	<i>C</i>	
<i>1424</i>												

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID: <i>MW-19i</i>	Sampling Flow Rate: <i>0.20</i>	Analytical Laboratory: <i>Pace</i>
Sample Time: <i>1430</i>	Final Depth to Water: <i>25.84</i>	Did Well Dewater?: <i>No</i>
# Containers/Type: <i>4 x 40ml</i>	Analysis/Method: <i>HVOC</i>	Filter Size: <i>—</i>
Preservative: <i>HCl</i>	Field Filtered: <i>no</i>	MS/MSD: <i>—</i>
	yes <i>no</i>	Duplicate ID: <i>—</i>
	yes <i>no</i>	
	yes <i>no</i>	
	yes <i>no</i>	
	yes <i>no</i>	

COMMENTS



WELL MONITORING DATA SHEET

Well I.D.	MW-181	Job Number:	1126-16
Client:	Mustar	Date:	12-7-15
Project:	GWM	Sampler:	2m/1cm
Weather:	Rainy	Time In/Out:	1323

WELL DATA

Well Depth:	—	Well Diameter:	2"	Water Height	—
Depth to Water:	25.86	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters

PURGING DATA

Purge Method:	RF	Pump Intake Depth:	MS	Comments
Sampling Method:	LF	Tubing Type:	HDPE	

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
1330	.80	0	25.76	0.20	7.65	14.50	245	5.48	48.3	—	← Stabilization Criteria
1334	.80	.80	25.76	0.20	7.64	14.43	242	5.21	49.0	—	C
1338	.80	1.6	25.77	0.20	7.57	14.31	238	4.97	50.70	—	C
1341	.60	2.2	25.78	0.20	7.55	14.30	231	4.51	50.90	—	C
1344	.60	3.8	25.78	.20	7.54	14.30	229	4.28	51.1	—	C
1347	.60	4.40	25.78	.20	7.52	14.27	224	3.90	53.0	—	C

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-181	Sampling Flow Rate:	.20	Analytical Laboratory:	Pace
Sample Time:	1355	Final Depth to Water:	25.72	Did Well Dewater?	No
# Containers/Type	4 x 40m	Preservative	HCl	Analysis/Method	4voc
				Field Filtered	yes (no)
				Filter Size	MS/MSD Duplicate ID
				yes	no
				yes	no
				yes	no
				yes	no
				yes	no

COMMENTS



WELL MONITORING DATA SHEET

Well I.D.	MW-8	Job Number:	426-16
Client:	NV STAR	Date:	12-7-15
Project:	GWM	Sampler:	JM/JM
Weather:	Rain	Time In/Out:	12:45

WELL DATA

Well Depth:	—	Well Diameter:	4.0" em	Water Height	—
Depth to Water:	27.15	Screened Interval:	—	x Multiplier	—
Water Column Length:	—	Depth to Free Product:	—	x Casing Volumes	—
Purge Volume:	—	Free Product Thickness:	—	= Purge Volume	—
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters

PURGING DATA

Purge Method:	BP	Pump Intake Depth:	M/S	Comments
Sampling Method:	LF	Tubing Type:	H/DPE	

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria
1250			27.10	0.20	6.61	14.81	1628	2.00	67.7	—	C
1253			27.10		6.60	14.82	1638	1.97	67.4	—	C
1258			27.10		6.59	14.85	1660	2.52	67.6	—	C
1301			27.10		6.57	14.86	1661	2.80	67.2	—	C
1304			27.10	↓	6.57	14.86	1661	2.90	67.2	—	C

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	mw-8	Sampling Flow Rate	0.20	Analytical Laboratory:	Pacu
Sample Time:	1310	Final Depth to Water:	27.10	Did Well Dewater?	NO
# Containers/Type	4x40ml	Preservative	HCl	Analysis/Method	HVOc
				Field Filtered	yes (no)
				Filter Size	—
				MS/MSD	—
				Duplicate ID	—
				yes	no
				yes	no
				yes	no
				yes	no
				yes	no

COMMENTS



WELL MONITORING DATA SHEET

Well I.D.:	MW 32 #5	Job Number:	1126-16
Client:	Nuslar Jan	Date:	12/7/15
Project:	Gwin	Sampler:	Jim Jan
Weather:	Rain	Time In/Out:	1215

WELL DATA

Well Depth:	-	Well Diameter:	2"
Depth to Water:	28.30	Screened Interval:	-
Water Column Length:	-	Depth to Free Product:	-
Purge Volume:	-	Free Product Thickness:	-
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653
			1 gallon = 3.785 liters

PURGING DATA

Purge Method:	BP	Pump Intake Depth:	MS
Sampling Method:	LF	Tubing Type:	Ded.

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color	Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%		<- Stabilization Criteria
1215	-	-	28.30	0.30	6.94	15.10	624	4.00	47.7	-	C	
1218	-	-	28.30		6.92	15.04	637	2.58	52.7	-	C	
1221	-	-	28.40		6.82	15.00	647	1.91	51.2	-	C	
1224 VAM	-	-	28.52		6.76	14.97	660	1.61	52.6	-	C	
1227	-	-	28.60		6.74	14.96	663	1.51	52.8	-	C	
1230	-	-	28.62		6.72	14.96	666	1.50	51.5	-	C	

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-32s	Sampling Flow Rate:	0.30	Analytical Laboratory:	Pace
Sample Time:	1240	Final Depth to Water:	28.70	Did Well Dewater?	No
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD
4 x 40 ml	HCl	Hvoc	yes no	-	-
			yes no		
			yes no		
			yes no		
			yes no		

COMMENTS

WELL MONITORING DATA SHEET



Well I.D. MW 21i-105	Job Number: -
Client: Nuster Jan	Date: 12/7/15
Project: GWM	Sampler: Jim/Jm
Weather: Rain	Time In/Out: 1100

WELL DATA

Well Depth: -	Well Diameter: 2"	Water Height: -
Depth to Water: 27.13	Screened Interval: -	x Multiplier: -
Water Column Length: -	Depth to Free Product: -	x Casing Volumes: -
Purge Volume: -	Free Product Thickness: -	= Purge Volume: -
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162
	4-inch = 0.653	1 gallon = 3.785 liters

PURGING DATA

Purge Method: RP				Pump Intake Depth: MS				Comments			
Sampling Method: LF				Tubing Type: Ded.							
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<- Stabilization Criteria
1100	-	-	27.13	0.23	8.04	11.91	120	5.12	-26.9	-	SC
1103	-	-	27.14	↓	8.39	11.98	111	5.13	-42.9	-	SC
1106	-	27.15	8.37		11.97	98	5.00	-44.2	-	SC	
1109	-	27.15	8.27		12.00	100	4.95	-43.1	-	SC	

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear


SAMPLING DATA

Sample ID: MW-21i-105	Sampling Flow Rate: 0.27	Analytical Laboratory: Pace				
Sample Time: 1115	Final Depth to Water: 27.14	Did Well Dewater?: No				
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4x40ml	Hcl	Hvoc	yes (no)	-	-	-
			yes	no		
			yes	no		
			yes	no		
			yes	no		

COMMENTS

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WELL MONITORING DATA SHEET

	Well I.D.: <u>MW-22i</u>	Job Number:	
	Client: <u>Nustar Vann.</u>	Date: <u>12/7/15</u>	
	Project: <u>OWM</u>	Sampler: <u>JM/JM</u>	
	Weather: <u>Rain</u>	Time In/Out: <u>1030</u>	

WELL DATA

Well Depth: <u>—</u>	Well Diameter: <u>2"</u>	Water Height: <u>—</u>	
Depth to Water: <u>27.72</u>	Screened Interval: <u>—</u>	x Multiplier: <u>—</u>	
Water Column Length: <u>—</u>	Depth to Free Product: <u>—</u>	x Casing Volumes: <u>—</u>	
Purge Volume: <u>—</u>	Free Product Thickness: <u>—</u>	= Purge Volume: <u>—</u>	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653
		1 gallon = 3.785 liters	

PURGING DATA

Purge Method: <u>BP</u>				Pump Intake Depth: <u>MS</u>				Comments			
Sampling Method: <u>LF</u>				Tubing Type: <u>Ded.</u>							
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<- Stabilization Criteria
1030	—	—	27.72	0.20	7.75	12.15	650	3.90	54.7	—	C
1033	—	—	27.71	↓	7.67	12.47	604	2.45	43.8	—	C
1036	—	—	27.70	↓	7.61	12.52	596	1.99	39.0	—	C
1039	—	—	27.73	↓	7.60	12.56	592	0.99	26.3	—	C
1042	—	—	27.73	↓	7.46	12.58	590	0.72	25.5	—	C
1045	—	—	27.74	↓	7.38	12.57	591	0.69	25.4	—	C
1048	—	—	27.73	↓	7.39	12.57	590	0.70	25.9	—	C

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID: <u>MW-22i</u>	Sampling Flow Rate: <u>0.20</u>	Analytical Laboratory: <u>Pace</u>	
Sample Time: <u>1050</u>	Final Depth to Water: <u>27.71</u>	Did Well Dewater? <u>NO</u>	
# Containers/Type	Preservative	Analysis/Method	Field Filtered
<u>4x40ml</u>	<u>HCl</u>	<u>4VOC</u>	yes <u>(no)</u>
			yes no
			yes no
			yes no
			yes no
			yes no

COMMENTS

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WELL MONITORING DATA SHEET



Well I.D.	MW-21i-40	Job Number:	-
Client:	Nuster Van	Date:	12/7/15
Project:	GWMI	Sampler:	Jim/Jon
Weather:	Rain	Time In/Out:	1145

WELL DATA

Well Depth:	-	Well Diameter:	2"	Water Height	-
Depth to Water:	27.00	Screened Interval:	-	x Multiplier	-
Water Column Length:	-	Depth to Free Product:	-	x Casing Volumes	-
Purge Volume:	-	Free Product Thickness:	-	= Purge Volume	-
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	-

PURGING DATA

Purge Method:				BP				Pump Intake Depth:			MS		Comments
Sampling Method:				LF				Tubing Type:			Ded.		
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks		
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria		
1145	-	-	27.01	0.23	7.63	14.49	388	4.60	22.2	-	C		
1148	-	-	27.04		7.45	14.44	399	3.35	26.0	-	C		
1151	-	-	27.05		7.42	14.42	397	3.32	26.4	-	C		
1154	-	-	27.04	↓	7.42	14.41	398	3.33	27.0	-	C		

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-21i-40	Sampling Flow Rate:	0.23	Analytical Laboratory:	Pace	
Sample Time:	1700	Final Depth to Water:	27.05	Did Well Dewater?	No	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4x10ml	HCl	HVOC	yes <input type="radio"/> no <input checked="" type="radio"/>	-	-	-
			yes	no		
			yes	no		
			yes	no		
			yes	no		
			yes	no		

COMMENTS

Well cap is broken - 2" cap

WELL MONITORING DATA SHEET



Well I.D.	MW-26	Job Number:	-
Client:	Nuster Van.	Date:	12/7/15
Project:	Gwm	Sampler:	Jm/Jm
Weather:	Rain	Time In/Out:	0950

WELL DATA

Well Depth:	-	Well Diameter:	2"	Water Height	-
Depth to Water:	27.80	Screened Interval:	-	x Multiplier	-
Water Column Length:	-	Depth to Free Product:	-	x Casing Volumes	-
Purge Volume:	-	Free Product Thickness:	-	= Purge Volume	-
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	-

PURGING DATA

Purge Method:				BP		Pump Intake Depth:				MS		Comments
Sampling Method:				LR		Tubing Type:				ded		
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks	
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria	
0950	-	-	27.80	0.23	6.04	12.44	7414	4.45	161.2	-	C	
0956	-	-	27.80	↓	6.10	12.77	7813	2.43	157.1	-	C	
0959	-	-	27.80	↓	6.17	12.82	7702	1.54	150.9	-	C	
1002	-	-	27.80	↓	6.18	12.81	7577	1.55	149.1	-	C	
1005	-	-	27.80		6.19	12.86	7560	1.60	147.5	-	C	
1008	-	-	27.80		6.20	12.88	7544	1.60	147.0	-	C	

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-26	Sampling Flow Rate	0.23	Analytical Laboratory:	Pace	
Sample Time:	1015	Final Depth to Water:	27.80	Did Well Dewater?	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4 x 40 ml	Hcl	#VOC	yes <input checked="" type="radio"/> no	-	-	-
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET



Well I.D.	MW-25i	Job Number:	-
Client:	Nuster Jan.	Date:	12/7/15
Project:	Cwm	Sampler:	Jm
Weather:	Rain	Time In/Out:	0915

WELL DATA

Well Depth:	-	Well Diameter:	2"
Depth to Water:	26.99	Screened Interval:	-
Water Column Length:	-	Depth to Free Product:	-
Purge Volume:	-	Free Product Thickness:	-
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162
		4-inch = 0.653	1 gallon = 3.785 liters

PURGING DATA

Purge Method:				BP				Pump Intake Depth:				ms				Comments	
Sampling Method:				LF				Tubing Type:				Ded.					
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color	Other Remarks					
					+/-0.1	+/-0.5 °C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria						
0920	-	-	26.99	0.23	7.33	12.12	307	4.00	113.4	-	C						
0923	-	-	26.97	↓	7.20	12.13	316	21.60	111.8	-	C						
0926	-	-	26.97	↓	7.14	12.14	317	18.3	110.7	-	C						
0929	-	-	26.97	↓	7.11	12.12	317	17.1	110.8	-	C						
932			26.98	↓	7.10	12.13	316	16.8	110.5	-	C						
935			26.98	↓	7.08	12.13	316	16.7	110.5	-	C						
940											SAMPLER						

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-25i	Sampling Flow Rate:	0.23	Analytical Laboratory:	Pace
Sample Time:	0940	Final Depth to Water:	26.99	Did Well Dewater?	No
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD
4x40ml	HCl	HVOC	yes <u>no</u>	-	-
			yes no		
			yes no		
			yes no		
			yes no		

COMMENTS



WELL MONITORING DATA SHEET

Well I.D.:	MW-23i	Job Number:	
Client:	Nuslar Vancouver	Date:	12/7/15
Project:	Cowm	Sampler:	Jm/Jm
Weather:	Rain	Time In/Out:	0835-

WELL DATA

Well Depth:	-	Well Diameter:	2"
Depth to Water:	27.11	Screened Interval:	-
Water Column Length:	-	Depth to Free Product:	-
Purge Volume:	-	Free Product Thickness:	-
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162
		4-inch = 0.653	1 gallon = 3.785 liters

PURGING DATA

Purge Method:	BP	Pump Intake Depth:	MS	
Sampling Method:	LF	Tubing Type:	Ded.	Comments

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria
0840	-	-	27.11	0.20	8.07	14.46	20	8.06	109.0	-	C
0843	-	-	27.20	↓	8.03	12.85	228	8.14	92.0	-	C
0846	-	-	27.10	↓	7.94	13.55	226	7.62	90.2	-	C
0849	-	-	27.11	↓	7.80	13.54	225	6.87	93.7	-	C
0852	-	-	27.10	↓	7.72	13.51	228	6.67	95.2	-	C
0853	-	-	27.11	↓	7.70	13.53	232	6.52	97.1	-	C

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-23i	Sampling Flow Rate	0.20	Analytical Laboratory:	Pac
Sample Time:	0900	Final Depth to Water:	27.10	Did Well Dewater?	No
# Containers/Type	Preservative HCl	Analysis/Method 14 VOCs	Field Filtered	Filter Size	MS/MSD
			yes	no	
			yes	no	
			yes	no	
			yes	no	
			yes	no	

COMMENTS



NuStar Vancouver SVE System Monitoring

320001126-16.003

Date: 7/29/15
Arrival Time: 1400
Departure Time: 1615

APEX Representative: B Strellis
Weather: Sunny
APEX PID: 3

Table with 4 columns: NORTH SVE SYSTEM, Pressure (inches H2O) blower on, PID (blower on), PID (blower off). Rows include Branch 4, Branch 5, and Pre Blower (system effluent).

Knockout Drum Emptied = Yes / No
Volume in Knockout Drum =
Knockout drum visually inspected for holes or material deteriorations = Yes / No
Notes:

Table with 4 columns: SOUTH SVE SYSTEM, Pressure (inches H2O) blower on, PID (blower on), PID (blower off). Rows include Pre Blower, Post Blower - Pre Carbon, Post Carbon 1 (mid carbon), and Post Carbon 2.

Knockout Drum Emptied = Yes / No
Volume in Knockout Drum =
Knockout drum visually inspected for holes or material deteriorations = Yes / No
Notes:

Sampling Information

Table with 6 columns: Sample ID, Sample Location, Canister #, Initial Vacuum, Time (Start, Finish), Final Vacuum. Rows include SVE North, SVE South Precarbon, and SVE South Postcarbon.

Other Notes / Comments:
[Blank lines for notes]



NuStar Vancouver SVE System Monitoring

320001126-16.003

Date: 8/31/15
Arrival Time: 1040
Departure Time: 1200

APEX Representative: B. Strellis
Weather: Overcast
APEX PID: 3

NORTH SVE SYSTEM	Pressure (inches H2O) blower on	PID (blower on)	PID (blower off)
Branch 4	-11	-	0.0
Branch 5	-10	-	0.0
Pre Blower (system effluent)	0.0*	0.9	-

Knockout Drum Emptied = Yes / No
Volume in Knockout Drum = —

Knockout drum visually inspected for holes or material deteriorations = Yes / No

Notes: *did not register on gauge, but needle moved

SOUTH SVE SYSTEM	Pressure (inches H2O) blower on	PID (blower on)	PID (blower off)
Pre Blower	-20	-	0.0
Post Blower - Pre Carbon	26	1.2	-
Post Carbon 1 (mid carbon)	14	6.9	-
Post Carbon 2	6	1.8	-

Knockout Drum Emptied = Yes / No
Volume in Knockout Drum = —

Knockout drum visually inspected for holes or material deteriorations = Yes / No

Notes: Pre carbon low?

Sampling Information

Postblower
PC2
Effluent

Sample ID	Sample Location	Canister #	Initial Vacuum	Time		Final Vacuum
				Start	Finish	
SVE South Precarbon	-	7908	-30	1105	1106	-7
SVE South Postcarbon	-	34000393	-30	1110	1111	-3
SVE North	-	34000894	-30	1134	1135	-2

Other Notes / Comments:

TestAmerica Sacramento
880 Riverside Parkway

Canister Samples Chain of Custody Record



West Sacramento, CA 95605
phone 916.374.4378 fax 916.372.1059

TestAmerica Laboratories, Inc. assumes no liability with respect to the collection and shipment of these samples.

TestAmerica Laboratories, Inc.

Client Contact Information		Project Manager: S. Salisbury		Samples Collected By: B Strellis		COC No:																																	
Company Name: Apex Companies		Phone: 503-807-3835				_____ of _____ COCs																																	
Address: 3015 SW 1st Ave		Email: ssalisbury@apexcos.com				For Lab Use Only:																																	
City/State/Zip: Portland OR 97201		Site Contact: -				Walk-in Client: _____																																	
Phone: 503-924-4704		TA Contact: -				Lab Sampling: _____																																	
FAX: -		Project Name: NuStar Vancouver O&M		Analysis Turnaround Time		Job / SDG No.:																																	
Site/Location: NuStar Vancouver		Standard (Specific): X				(See below for Add'l Items)																																	
P O # -		Rush (Specify):																																					
Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, 'Hg (Start)'	Canister Vacuum in Field, 'Hg (Stop)'	Flow Controller ID	Canister ID	TO-15 (Med / Std / Low / SIM)	MA-APH	EPA 3C	EPA 25C / 25.3	ASTM D-1946 / 1945 / 3688	EPA 15/16	TO-3	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)	Sample Specific Notes:																	
SVE North	8/31/15	1134	1135	-30	-2	34000894		X														X SVE gas																	
SVE South Precarbon	8/31/15	1105	1106	-30	-7	7908		X														X SVE gas																	
SVE South Postcarbon	8/31/15	1110	1111	-30	-3	34000393		X														X SVE gas																	
<table border="1"> <tr> <th colspan="3">Temperature (Fahrenheit)</th> </tr> <tr> <td>Start</td> <td>Interior</td> <td>Ambient</td> </tr> <tr> <td>Stop</td> <td></td> <td></td> </tr> <tr> <th colspan="3">Temperature (Fahrenheit)</th> </tr> <tr> <td>Start</td> <td>Interior</td> <td>Ambient</td> </tr> <tr> <td>Stop</td> <td></td> <td></td> </tr> </table>																						Temperature (Fahrenheit)			Start	Interior	Ambient	Stop			Temperature (Fahrenheit)			Start	Interior	Ambient	Stop		
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Start	Interior	Ambient																																					
Stop																																							
Temperature (Fahrenheit)																																							
Start	Interior	Ambient																																					
Stop																																							
Special Instructions/QC Requirements & Comments: Email results to ssalisbury@apexcos.com																																							
Samples Shipped by: B Strellis		Date / Time: 8/31/15 1300		Samples Received by:																																			
Samples Relinquished by: B Strellis		Date / Time: 8/31/15 1300		Received by:																																			
Relinquished by:		Date / Time:		Received by:																																			
Lab Use Only: Shipper Name:		Opened by:		Condition:																																			



NuStar Vancouver SVE System Monitoring

320001126-16.003

Date: 9/28/15
Arrival Time: 0820
Departure Time: 1000

APEX Representative: BS
Weather: Clear
APEX PID: 3 (calib @ 99 ppm)

NORTH SVE SYSTEM	Pressure (inches H2O) blower on	PID (blower on)	PID (blower off)
Branch 4	-12	-	0.6
Branch 5	-12	-	2.4
Pre Blower (system effluent)	0.0	1.8	-

Knockout Drum Emptied = Yes / No Knockout drum visually inspected for holes or material deteriorations = Yes / No
Volume in Knockout Drum = _____ Notes: System off on arrival

SOUTH SVE SYSTEM	Pressure (inches H2O) blower on	PID (blower on)	PID (blower off)
Pre Blower	-20	-	3.0
Post Blower - Pre Carbon	+26	7.4	-
Post Carbon 1 (mid carbon)	+16	3.8	-
Post Carbon 2	+6	1.1	-

Knockout Drum Emptied = Yes / No Knockout drum visually inspected for holes or material deteriorations = Yes / No
Volume in Knockout Drum = _____ Notes: _____

Sampling Information

	Sample ID	Sample Location	Canister #	Initial Vacuum	Time		Final Vacuum
					Start	Finish	
Postblower	SVE South Precarbon	-	34000474	-27	0900	0900	-4
PC2	SVE South Postcarbon	-	34000352	-28	0920	0920	-2
Effluent	SVE North	-	34000421	-28	0940	0940	-5

Other Notes / Comments:

TestAmerica Sacramento
880 Riverside Parkway

Canister Samples Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

West Sacramento, CA 95605
phone 916.374.4378 fax 916.372.1059

TestAmerica Laboratories, Inc. assumes no liability with respect to the collection and shipment of these samples.

TestAmerica Laboratories, Inc.

Client Contact Information			Project Manager: S. Salisbury				Samples Collected By: B Strellis													COC No: _____ of _____ COCs																																							
Company Name: Apex Companies			Phone: 503-807-3835																	For Lab Use Only:																																							
Address: 3015 SW 1st Ave			Email: ssalisbury@apexcos.com																	Walk-in Client: _____																																							
City/State/Zip: Portland OR 97201			Site Contact: -																	Lab Sampling: _____																																							
Phone: 503-924-4704			TA Contact: -																	Job / SDG No.: _____																																							
FAX: -			Project Name: Nustar Vancouver O+M																	(See below for Add'l Items)																																							
			Analysis Turnaround Time																	Standard (Specific): X																																							
Site/Location: Nustar Vancouver			Rush (Specify): _____																	Sample Specific Notes:																																							
P O #																																																											
Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, 'Hg (Start)	Canister Vacuum in Field, 'Hg (Stop)	Flow Controller ID	Canister ID	TO-15 (Med / Std / Low / SIM)	MA-APH	EPA 3C	EPA 25C / 25.3	ASTM D-1946 / 1946 / 3588	EPA 15/16	TO-3	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)																																						
SVE North	9/28/15	0940	0940	-28	-4	34000421		X														X		SVE gas																																			
SVE South Precarbon	9/28/15	0900	0900	-27	-2	34000474		X														X		SVE gas																																			
SVE South Postcarbon	9/28/15	0920	0920	-28	-5	34000352		X														X		SVE gas																																			
<table border="1"> <tr> <th colspan="3">Temperature (Fahrenheit)</th> <th colspan="3"></th> </tr> <tr> <td>Start</td> <td>Interior</td> <td>Ambient</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Stop</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <th colspan="3">Temperature (Fahrenheit)</th> <th colspan="3"></th> </tr> <tr> <td>Start</td> <td>Interior</td> <td>Ambient</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Stop</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>																								Temperature (Fahrenheit)						Start	Interior	Ambient				Stop						Temperature (Fahrenheit)						Start	Interior	Ambient				Stop					
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Special Instructions/QC Requirements & Comments: Email results to ssalisbury@apexcos.com																																																											
Samples Shipped by:				Date / Time:				Samples Received by:																																																			
Samples Relinquished by:				Date / Time:				Received by:																																																			
Relinquished by:				Date / Time:				Received by:																																																			
Lab Use Only:		Shipper Name			Opened by			Condition:																																																			



NuStar Vancouver SVE System Monitoring

320001126-16.003

Date: 10/29/15
Arrival Time: 1350
Departure Time:

APEX Representative: JM
Weather: clear
APEX PID: 3

Table with 4 columns: NORTH SVE SYSTEM, Pressure (inches H2O) blower on, PID (blower on), PID (blower off). Rows include Branch 4, Branch 5, and Pre Blower (system effluent).

Knockout Drum Emptied = Yes / No
Volume in Knockout Drum = 8 gal
Knockout drum visually inspected for holes or material deteriorations = Yes / No
Notes: No H2O in knock out

Table with 4 columns: SOUTH SVE SYSTEM, Pressure (inches H2O) blower on, PID (blower on), PID (blower off). Rows include Pre Blower, Post Blower - Pre Carbon, Post Carbon 1 (mid carbon), and Post Carbon 2.

Knockout Drum Emptied = Yes / No
Volume in Knockout Drum = 8 gal
Knockout drum visually inspected for holes or material deteriorations = Yes / No
Notes: No H2O in knock out

Sampling Information

Table with 7 columns: Sample ID, Sample Location, Canister #, Initial Vacuum, Time (Start, Finish), Final Vacuum. Contains 3 rows of sampling data.

Other Notes / Comments:



NuStar Vancouver SVE System Monitoring

320001126-16.003

Date: 11/30/15
Arrival Time: 1000
Departure Time:

APEX Representative: Jim/Gun
Weather: Cloudy
APEX PID: 3

Table with 4 columns: NORTH SVE SYSTEM, Pressure (inches H2O) blower on, PID (blower on), PID (blower off). Rows include Branch 4, Branch 5, and Pre Blower (system effluent).

Knockout Drum Emptied = Yes / No
Volume in Knockout Drum =
Knockout drum visually inspected for holes or material deteriorations = Yes / No
Notes:

Table with 4 columns: SOUTH SVE SYSTEM, Pressure (inches H2O) blower on, PID (blower on), PID (blower off). Rows include Pre Blower, Post Blower - Pre Carbon, Post Carbon 1 (mid carbon), and Post Carbon 2.

Knockout Drum Emptied = Yes / No
Volume in Knockout Drum = H2O
Knockout drum visually inspected for holes or material deteriorations = Yes / No
Notes:

Sampling Information

Table with 7 columns: Sample ID, Sample Location, Canister #, Initial Vacuum, Time (Start, Finish), Final Vacuum. Rows include SVE - South - Post Carbon, SVE - South - Pre Carbon, and SVE - North - Effluent.

Other Notes / Comments:

TestAmerica Sacramento
880 Riverside Parkway

Canister Samples Chain of Custody Record



West Sacramento, CA 95605
phone 916.374.4378 fax 916.372.1059

TestAmerica Laboratories, Inc. assumes no liability with respect to the collection and shipment of these samples.

TestAmerica Laboratories, Inc.

Client Contact Information		Project Manager: <i>Stephanie Salisbury</i>		Samples Collected By: <i>Joel Mattechuck</i>		COC No: <i>1</i>																												
Company Name: <i>Apex Companies</i>		Phone: <i>503 924 4704 x 1925</i>				<i>1</i> of <i>1</i> COCs																												
Address: <i>2015 SW 1st Ave</i>		Email: <i>SSalisbury@apexcos.com</i>																																
City/State/Zip: <i>Portland, OR, 97201</i>		Site Contact:																																
Phone: <i>503 924 4704</i>		TA Contact:																																
FAX:		Analysis Turnaround Time																																
Project Name: <i>Nustar Vancouver R.E.M.</i>		Standard (Specific): <i>X</i>																																
Site/Location: <i>Nustar Vancouver</i>		Rush (Specify):																																
P O # <i>1126-17</i>																																		
Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, 'Hg (Start)'	Canister Vacuum in Field, 'Hg (Stop)'	Flow Controller ID	Canister ID	TO-15 (Med / Std / Low / SIM)	MA-APH	EPA 3C	EPA 25C / 25.3	ASTM D-1946 / 1945 / 3688	EPA 15/16	TO-3	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)	For Lab Use Only:												
																						Walk-in Client:												
																						Lab Sampling:												
																						Job / SDG No.:												
																						(See below for Add'l Items)												
																						Sample Specific Notes:												
<table border="1"> <tr> <th colspan="4">Temperature (Fahrenheit)</th> </tr> <tr> <td>Start</td> <td>Interior</td> <td colspan="2">Ambient</td> </tr> <tr> <td>Stop</td> <td></td> <td colspan="2"></td> </tr> </table>																						Temperature (Fahrenheit)				Start	Interior	Ambient		Stop				
Temperature (Fahrenheit)																																		
Start	Interior	Ambient																																
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Temperature (Fahrenheit)																																		
Start	Interior	Ambient																																
Stop																																		
Special Instructions/QC Requirements & Comments:																																		
<i>Email Results to : SSalisbury@apexcos.com</i>																																		
Samples Shipped by:				Date / Time:				Samples Received by:																										
Samples Relinquished by: <i>Joel Mattechuck</i>				Date / Time: <i>11/30/15 1255</i>				Received by: <i>[Signature]</i>																										
Relinquished by:				Date / Time:				Received by: <i>[Signature]</i>																										
Lab Use Only:		Shipper Name:		Opened by:		Condition:																												



NuStar Vancouver SVE System Monitoring

320001126-16.003

Date: 12/28/15
Arrival Time: 0830
Departure Time: 1021

APEX Representative: Jake Munsey
Weather: overcast
APEX PID: 3

NORTH SVE SYSTEM	Pressure (inches H2O) blower on	PID (blower on)	PID (blower off)
Branch 4	-17.0	-	0.0
Branch 5	-18.0	-	9.0
Pre Blower (system effluent)	0.1	0.0	-

Knockout Drum Emptied = Yes / No

Knockout drum visually inspected for holes or material deteriorations = Yes / No

Volume in Knockout Drum = 0 gal

Notes: _____

SOUTH SVE SYSTEM	Pressure (inches H2O) blower on	PID (blower on)	PID (blower off)
Pre Blower	-18.0	-	-
Post Blower - Pre Carbon	29.0	12.5	-
Post Carbon 1 (mid carbon)	18.0	1.3	-
Post Carbon 2	8.0	0.4	-

Knockout Drum Emptied = Yes / No

Knockout drum visually inspected for holes or material deteriorations = Yes / No

Volume in Knockout Drum = 0 gal

Notes: _____

Sampling Information

Sample ID	Sample Location	Canister #	Initial Vacuum	Time		Final Vacuum
				Start	Finish	
SVE-South-POST carbon-122815	8435	-30	914	915	-5	
SVE-South-Pre carbon-122815	12840	-30	920	921	-2	
SVE-NORTH-Effluent-122815	34001573	-30	950	951	-4	

Other Notes / Comments: _____

TestAmerica Sacramento

880 Riverside Parkway

West Sacramento, CA 95605
phone 916.373.5600 fax

Canister Samples Chain of Custody Record

TestAmerica Laboratories, Inc. assumes no liability with respect to the collection and shipment of these samples.



THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact Information Company Name: <i>Apex Companies</i> Address: <i>3015 SW 1st Ave</i> City/State/Zip: <i>PORTLAND, OR 97201</i> Phone: <i>503 924 4204</i> FAX: _____ Project Name: <i>MUSTAR Vancouver, REN</i> Site/Location: <i>MUSTAR Vancouver</i> P O #: <i>1126-17</i>		Project Manager: <i>Stephanie Salisbury</i> Phone: <i>503 924 4704 x1925</i> Email: <i>SSalisbury@APEXCO.SI.COM</i>		Samples Collected By: <i>Jake Munsey</i>		COC No.: <i>1</i> _____ of _____ COCs																	
Site Contact: _____ TA Contact: _____ Analysis Turnaround Time Standard (Specific): <i>X</i> Rush (Specify): _____		TO-15 (Med / Std / Low / SIM) MA-APH EPA 3C EPA 25C / 25.3 ASTM D-1946 / 1946 / 3688 EPA 15/16 TO-3 Other (Please specify in notes section)		Sample Type Indoor Air Ambient Air Soil Gas Landfill Gas Other (Please specify in notes section)		For Lab Use Only: Walk-in Client: _____ Lab Sampling: _____ Job / SDG No.: _____ (See below for Add'l Items)																	
Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, 'Hg (Start)'	Canister Vacuum in Field, 'Hg (Stop)'	Flow Controller ID	Canister ID	TO-15 (Med / Std / Low / SIM)	MA-APH	EPA 3C	EPA 25C / 25.3	ASTM D-1946 / 1946 / 3688	EPA 15/16	TO-3	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)	Sample Specific Notes:	
<i>SVE-South-POST carbon-122815</i>	<i>12/28/15</i>	<i>914</i>	<i>915</i>	<i>-30</i>	<i>-5</i>	<i>-</i>	<i>8435</i>	<i>X</i>															
<i>SVE-South-Pre carbon-122815</i>	<i>12/28/15</i>	<i>920</i>	<i>921</i>	<i>-30</i>	<i>-2</i>	<i>-</i>	<i>12840</i>	<i>X</i>															
<i>SVE-North-Effluent-122815</i>	<i>12/28/15</i>	<i>950</i>	<i>951</i>	<i>-30</i>	<i>-9</i>	<i>-</i>	<i>34001573</i>	<i>X</i>															
<i>NFE Jake Munsey</i>																							
Temperature (Fahrenheit) Start Interior Ambient Stop _____																							
Temperature (Fahrenheit) Start Interior Ambient Stop _____																							
Special Instructions/QC Requirements & Comments: <i>Email RESULTS TO: SSalisbury@APEXCO.SI.COM</i>																							
Samples Shipped by: _____		Date / Time: _____		Samples Received by: _____																			
Samples Relinquished by: <i>Jake Munsey</i>		Date / Time: <i>12/31/15 (1255)</i>		Received by: _____																			
Relinquished by: _____		Date / Time: _____		Received by: _____																			
Lab Use Only: Shipper Name: _____		Opened by: _____		Condition: _____																			

Appendix B

Historical Groundwater Analytical Data

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-1	11/17/93	--	0.5	--	--	<0.250	<0.250	--	14.0	--	--	0.75	<0.250	--	1.40	<0.500
	09/01/95	<0.250	<0.500	<0.250	<0.250	<0.250	<0.250	<0.250	13.0	<0.250	<0.250	0.62	<0.250	--	0.89	0.61
	09/24/96	<0.0050	<0.0200	<0.0020	<0.0020	0.054	<0.0020	0.0084	11.0	0.083	0.017	2.60	0.068	--	1.80	0.42
	12/02/96	0.0008	<0.00050	<0.00050	<0.00020	0.0067	<0.00050	0.0003	1.50	0.0044	<0.00020	1.20	0.0073	--	0.31	0.0016
	11/12/97	<0.125	<0.250	<0.125	<0.125	<0.125	<0.125	<0.125	11.6	<0.125	<0.125	6.33	<0.125	--	2.88	<0.250
	08/11/99	<0.0500	<0.250	<0.0250	<0.250	0.0431	<0.0250	<0.0250	8.59	0.086	<0.0250	2.52	0.0525	--	1.21	0.408
	11/16/99	<0.0500	<0.125	<0.0250	<0.0500	0.038	<0.0250	<0.0250	6.25	0.0475	<0.0250	2.40	0.028	--	0.829	0.148
	02/29/00	<0.100	<0.500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	6.72	0.0609	<0.0500	1.37	<0.100	--	0.59	0.438
	06/27/00	<0.100	<0.500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	6.48	0.0651	<0.0500	1.78	<0.100	--	0.795	0.284
	08/31/00	<0.100	<0.500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	5.16	<0.0500	<0.0500	1.96	<0.100	--	0.72	<0.0500
	11/30/00	<0.0200	<0.100	<0.0100	<0.0100	0.015	<0.0100	<0.0100	1.55	0.0127	<0.0100	0.66	<0.0200	--	0.234	<0.0100
	02/27/01	<0.100	<0.100	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	4.99	<0.0500	<0.0500	1.14	<0.100	--	0.44	0.19
	05/29/01	<0.0500	<0.250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	4.05	<0.0250	<0.0250	1.04	<0.0500	--	0.407	0.091
	09/25/01	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	5.00	<0.0500	<0.0500	0.89	<0.0500	--	0.44	0.24
	12/17/01	<0.0020	<0.0100	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.109	0.00126	<0.0010	0.164	<0.0020	--	0.0429	<0.0010
	03/19/02	<0.0500	<0.0250	<0.0250	<0.0500	0.035	<0.0250	<0.0250	4.12	0.035	<0.0250	0.71	<0.0250	--	0.349	0.17
	05/30/02	<0.0100	<0.0050	<0.0050	<0.0100	0.0108	<0.0050	<0.0050	1.14	0.0066	<0.0050	0.307	<0.0050	--	0.101	0.0223
	11/08/02	<0.0200	<0.0100	<0.0100	<0.0200	0.0228	<0.0100	<0.0100	1.98	0.0202	<0.0100	0.367	<0.0100	--	0.174	0.0144
	05/30/03	<0.0200	<0.0100	<0.0100	<0.0200	0.0212	<0.0100	<0.0100	2.18	<0.0100	<0.0100	1.20	0.0142	--	0.34	0.0226
	11/02/04	<0.0200	<0.0100	<0.0100	<0.0200	0.0224	<0.0100	<0.0100	2.13	0.0236	<0.0100	0.335	<0.0100	--	0.169	0.0228
	11/16/04	<0.0120	<0.0120	<0.0120	<0.0120	0.015	<0.0120	<0.0120	1.30	<0.0120	<0.0120	0.31	<0.0120	--	0.13	<0.0120
	05/18/05	<0.0050	<0.0025	<0.0025	<0.0050	0.012	<0.0025	<0.0025	0.773	0.0141	<0.0025	0.193	<0.0025	--	0.0876	0.0038
	05/23/07	<0.0100	<0.0100	<0.0100	<0.0100	0.0155	<0.0100	<0.0100	1.11	<0.0100	<0.0100	0.0585	<0.0100	--	0.0454	0.0117
	09/11/07	<0.0500	<0.0250	<0.0250	<0.0500	<0.0250	<0.0250	<0.0250	0.916	<0.0250	<0.0250	0.034	<0.0250	--	0.034	0.0625
	12/13/07	<0.0100	<0.00500	<0.00500	<0.0100	0.0097	<0.00500	<0.00500	0.526	0.005	<0.00500	0.0819	<0.00500	--	0.0454	0.0088
	03/05/08	<0.00100	<0.000500	<0.000500	<0.00100	0.0161	<0.000500	0.00166	0.826	0.00918	0.00	0.0497	0.001	<0.000500	0.0456	0.0588
	09/19/08	<0.0200	<0.0100	<0.0100	<0.0200	0.0204	<0.0100	<0.0100	0.633	<0.0100	<0.0100	0.108	<0.0100	<0.0100	0.0748	<0.0100
	12/10/08	<0.0025	<0.0025	<0.0025	<0.0025	0.015	<0.0025	<0.0025	0.57	0.0062	<0.0025	0.028	<0.0025	<0.0025	0.025	0.048

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-1 (continued)	03/27/09	<0.0025	<0.0025	<0.0025	<0.0025	0.017	<0.00050	<0.0025	0.58	0.0057	<0.0025	0.039	<0.0025	<0.0025	0.042	0.0044
	06/17/09	<0.00090	<0.00090	<0.00090	<0.00090	0.0063	<0.00090	<0.00090	0.31	0.0036	0.00099	0.021	<0.00090	<0.00090	0.014	0.0097
	09/18/09	<0.00080	<0.00080	<0.00080	<0.00080	0.019	<0.00080	<0.00080	0.59	0.0042	0.0019	0.029	<0.00080	<0.00080	0.027	0.0081
	12/17/09	<0.00050	<0.00050	<0.00050	<0.00050	0.0048	<0.00050	<0.00050	0.17	0.00072	0.00067	0.053	0.00053	<0.00050	0.026	<0.00050
	03/19/10	<0.00050	<0.00050	<0.00050	<0.00050	0.0093	<0.00050	0.00061	0.30	0.0036	0.0014	0.022	<0.00050	<0.00050	0.021	0.026
	06/15/10	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0096	<0.00050	<0.00050	0.022	<0.00050	<0.00050	0.0066	<0.00050
	09/23/10	<0.00090	<0.00090	<0.00090	<0.00090	0.012	<0.00090	<0.00090	0.380	0.0034	0.0016	0.025	<0.00090	<0.00090	0.027	0.0071
	12/09/10	<0.0015	<0.0015	<0.0015	<0.0015	0.007	0.0015	<0.0015	0.250	0.0022	<0.0015	0.025	<0.0015	<0.0015	0.017	0.0080
	03/10/11	<0.0015	<0.0015	<0.0015	<0.0015	0.0075	<0.0015	<0.0015	0.250	0.003	<0.0015	0.016	<0.0015	<0.0015	0.016	0.018
	06/09/11	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0044	<0.0005	<0.0005	0.011	<0.0005	<0.0005	0.0034	<0.0005
	09/19/11	<0.0015	<0.0015	<0.0015	<0.0015	0.012	<0.0015	<0.0015	0.3	0.0032	<0.0015	0.0052	<0.0015	<0.0015	0.013	0.03
	12/09/11	<0.0015	<0.0015	<0.0015	<0.0015	0.011	<0.0015	<0.0015	0.26	0.0029	<0.0015	0.0062	<0.0015	<0.0015	0.0084	0.04
	03/09/12	<0.00050	<0.00050	<0.00050	<0.00050	0.008	<0.00050	<0.00050	0.20	0.0024	0.0010	0.0031	<0.00050	<0.00050	0.0095	0.02
	06/22/12	<0.0005	<0.0005	<0.0005	<0.0005	0.005	<0.0005	<0.0005	0.14	0.0017	0.0005	0.0170	<0.0005	<0.0005	0.0130	0.01
	09/13/12	<0.0015	<0.0015	<0.0015	<0.0015	0.010	<0.0015	<0.0015	0.26	0.0024	<0.0015	<0.0015	<0.0015	<0.0015	0.0070	0.03
	12/13/12	<0.00050	<0.00050	<0.00050	<0.00050	0.0014	<0.00050	<0.00050	0.047	0.00064	<0.00050	0.026	<0.00050	<0.00050	0.014	<0.00050
	03/15/13	<0.00050	<0.00050	<0.00050	<0.00050	0.0058	<0.00050	<0.00050	0.14	0.0016	0.00080	0.00083	<0.00050	<0.00050	0.0060	0.00098
	06/13/13	<0.00050	<0.00050	<0.00050	<0.00050	0.0072	<0.00050	<0.00050	0.13	0.0019	0.00063	0.0011	<0.00050	<0.00050	0.0024	0.028
	09/19/13	<0.00050	<0.00050	<0.00050	<0.00050	0.011	<0.00050	<0.00050	0.18	0.0016	0.0010	0.0032	<0.00050	<0.00050	0.0056	0.00092
	12/16/13	<0.00050	<0.00050	<0.00050	<0.00050	0.0078	<0.00050	<0.00050	0.11	0.0018	<0.00050	0.0085	<0.00050	<0.00050	0.0059	0.013
3/21/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0091	<0.00050	<0.00050	0.010	<0.00050	<0.00050	0.0043	<0.00050	
6/25/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0056	0.0450	0.0010	<0.00050	<0.00050	<0.00050	<0.00050	0.00065	0.0059	
9/30/2014	<0.00050	<0.00050	<0.00050	<0.00050	0.011	<0.00050	<0.00050	0.17	0.0013	0.00083	0.012	<0.00050	<0.00050	0.0097	0.0033	
12/11/2014	<0.00050	<0.00050	<0.00050	<0.00050	0.0015	<0.00050	<0.00050	0.030	<0.00050	<0.00050	0.017	<0.00050	<0.00050	0.0094	<0.00050	
3/19/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.0062	<0.00050	<0.00050	0.047	0.00067	<0.00050	0.0011	<0.00050	<0.00050	0.0019	<0.00050	
6/17/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.0095	<0.00050	<0.00050	0.075	0.00080	<0.00050	0.0043	<0.00050	<0.00050	0.0046	0.0049	
9/24/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.0084	<0.00050	<0.00050	0.039	0.00065	<0.00050	0.0028	<0.00050	<0.00050	0.0024	0.0327	
12/8/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.0014	<0.00050	<0.00050	0.025	<0.00050	<0.00050	0.0180	<0.00050	<0.00050	0.0089	<0.00050	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-2	11/17/93	--	0.051	--	--	0.012	<0.00050	--	0.01	--	--	<0.00050	<0.00050	--	<0.00050	<0.00010
	09/01/95	<0.00050	0.016	<0.00050	<0.00020	0.0082	<0.00050	<0.00050	0.0025	<0.00050	<0.00050	<0.00050	<0.00050	--	<0.00050	0.0022
	09/24/96	<0.00050	0.019	<0.00020	<0.00020	0.0096	0.0005	<0.00020	0.0094	<0.00020	<0.00020	<0.00020	<0.00050	--	0.0003	0.0051
	12/02/96	<0.00050	0.0088	<0.00050	<0.00020	0.0069	0.0006	<0.00020	0.011	<0.0010	<0.00020	<0.00050	<0.0010	--	<0.00030	0.0072
	11/13/97	<0.00050	<0.0010	<0.00050	<0.00050	0.00532	0.000571	<0.00050	0.0079	<0.00050	<0.00050	<0.00050	<0.00050	--	<0.00050	<0.0010
	08/11/99	<0.0010	0.0183	<0.00050	<0.00050	0.00638	<0.00050	<0.00050	0.02	<0.00050	<0.00050	<0.00050	<0.0010	--	0.0104	0.00164
	02/29/00	<0.0010	0.016	<0.00050	<0.00050	0.00568	<0.00050	<0.00050	0.0235	<0.00050	<0.00050	<0.00050	<0.0010	--	0.00452	0.00121
	06/27/00	<0.0010	0.0183	<0.00050	<0.00050	0.00534	<0.00050	0.00127	0.0234	<0.00050	<0.00050	0.0128	<0.0010	--	0.0166	<0.00050
	05/30/01	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0010	--	<0.00050	<0.00050
	05/30/02	<0.0010	0.00168	<0.00050	<0.0010	0.00265	<0.00050	<0.00050	0.00051	<0.00050	<0.00050	0.00061	<0.00050	--	<0.00050	<0.00050
	11/08/02	<0.0010	0.0104	<0.00050	<0.0010	0.00313	<0.00050	<0.00050	0.00184	<0.00050	<0.00050	0.00105	<0.00050	--	0.00098	<0.00050
	05/30/03	<0.0010	0.00364	<0.00050	<0.0010	0.00195	<0.00050	<0.00050	0.00059	<0.00050	<0.00050	0.0066	<0.00050	--	0.00113	<0.00050
	09/12/07	<0.00100	0.0059	<0.00050	<0.00100	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	--	<0.00050	<0.00050
	03/07/08	<0.00100	0.00786	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	0.001	<0.000500	<0.000500	<0.000500	<0.000500
	09/18/08	<0.00100	0.00593	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
	03/24/09	<0.00050	0.0048	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	09/16/09	<0.00050	0.0051	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.001	<0.00050	<0.00050	0.00085	<0.00050
	03/19/10	<0.00050	0.0057	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	09/23/10	<0.0005	0.0038	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	03/09/11	<0.00050	0.0048	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	09/16/11	<0.00050	0.0043	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	03/09/12	<0.00050	0.0043	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	09/13/12	<0.00050	0.0034	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	03/14/13	<0.00050	0.0031	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	09/19/13	<0.00050	0.0029	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	3/21/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	9/30/2014	<0.00050	0.0023	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	3/19/2015	<0.00050	0.00096	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	9/23/2015	<0.00050	0.00270	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-3	11/17/93	--	0.21	--	--	0.027	0.004	--	0.24	--	--	0.19	0.02	--	0.097	0.13
	09/01/95	<0.0500	<0.100	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	2.70	<0.0500	<0.0500	1.30	<0.0500	--	0.14	0.73
	09/24/96	<0.0050	<0.0200	0.0079	<0.0020	0.012	<0.0020	<0.0020	1.10	0.0095	0.004	1.80	0.021	--	0.33	0.082
	12/02/96	<0.0500	<0.0500	<0.0500	<0.0200	<0.0300	<0.0500	<0.0200	0.65	<0.100	<0.0200	2.10	<0.100	--	0.47	<0.0500
	11/12/97	<0.0250	<0.0500	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	0.46	<0.0250	<0.0250	2.00	<0.0250	--	0.241	<0.0500
	08/11/99	<0.0200	<0.100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.50	<0.0100	<0.0100	1.76	0.0254	--	0.247	<0.0100
	11/16/99	<0.0200	<0.0500	<0.0100	<0.0200	0.014	<0.0100	<0.0100	0.628	0.0152	<0.0100	0.70	<0.0100	--	0.132	<0.0100
	02/29/00	<0.0200	<0.100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.473	<0.0100	<0.0100	1.89	0.0254	--	0.356	<0.0100
	06/27/00	<0.0200	<0.100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.41	<0.0100	0.0102	1.46	<0.0200	--	0.241	<0.0100
	08/31/00	<0.0200	<0.100	<0.0100	<0.0100	0.0522	<0.0100	<0.0100	2.58	0.0255	<0.0100	0.399	<0.0200	--	0.1	0.171
	11/30/00	<0.0050	<0.0250	<0.0025	<0.0025	0.0133	<0.0025	<0.0025	0.374	0.00373	<0.0025	0.366	<0.0050	--	0.0803	0.0031
	02/27/01	<0.0050	<0.0250	0.00364	<0.0025	0.00578	<0.0025	<0.0025	0.153	<0.0025	0.0025	0.358	<0.0050	--	0.0761	<0.0025
	05/29/01	<0.0050	<0.0250	0.0028	<0.0025	<0.0025	<0.0025	<0.0025	0.112	<0.0025	<0.0025	0.647	0.00512	--	0.0933	<0.0025
	09/25/01	<0.0013	0.0031	0.0024	<0.0013	0.01	0.002	<0.0013	0.21	0.003	0.0017	0.55	0.0072	--	0.09	0.0049
	12/17/01	<0.0100	<0.0500	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.164	<0.0050	<0.0050	0.826	0.0169	--	0.155	<0.0050
	03/19/02	<0.0050	<0.0025	0.00275	<0.0050	<0.0025	<0.0025	<0.0025	0.138	0.0041	<0.0025	0.758	0.0096	--	0.107	<0.0025
	05/30/02	<0.0100	0.0078	<0.0050	<0.0100	0.0278	<0.0050	<0.0050	1.38	0.0426	0.006	0.302	0.0115	--	0.0551	0.0967
	11/08/02	<0.0050	0.015	<0.0025	<0.0050	0.0294	0.00355	<0.0025	0.399	0.00905	0.0057	0.359	0.0058	--	0.0671	0.0194
	05/30/03	<0.0050	<0.0025	0.00645	<0.0050	<0.0025	<0.0025	<0.0025	0.0501	0.00365	<0.0025	0.706	0.00495	--	0.0726	<0.0025
	11/16/04	<0.0100	<0.0050	<0.0050	<0.0100	0.015	<0.0050	<0.0050	0.44	0.0059	<0.0050	0.27	<0.0050	--	0.072	<0.0050
	03/23/05	<0.0020	0.00226	0.00416 B	<0.0020	0.00892	<0.0010	<0.0010	0.246	0.0084	0.00286	0.329	0.00504	--	0.0719	0.00384
	05/18/05	<0.0020	<0.0010	0.00386	<0.0020	0.00574	<0.0010	<0.0010	0.188	0.00472	0.00302	0.304	0.00506	--	0.0885	<0.0010
	05/23/07	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	0.11	0.0063	<0.00200	0.349	0.00454	--	0.0706	<0.00200
	09/11/07	<0.00500	0.00995	0.0144	<0.00500	0.043	0.0061	<0.00250	0.95	0.0282	0.012	0.601	0.031	--	0.223	0.0061
	12/12/07	<0.0100	<0.00500	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500	0.0957	<0.00500	<0.00500	0.254	<0.00500	--	0.0632	<0.00500
	03/06/08	<0.00100	<0.000500	0.00210 J	<0.00100	0.00132	<0.000500	<0.000500	0.127	0.00849	0.00237	0.144	0.00566	<0.000500	0.0947	<0.000500
	09/19/08	<0.00500	0.0037	0.00265 J	<0.00500	0.0106	<0.00250	<0.00250	0.187	0.00585	0.00295	0.283	0.0066	<0.00250	0.075	<0.00250
	12/10/08	<0.00090	0.0015	0.0019	<0.00090	0.0053	0.0012	<0.00090	0.12	0.0043	0.0015	0.20	0.0038	<0.00090	0.054	<0.00090
	03/26/09	<0.00050	<0.00050	0.0014	<0.00050	0.0016	<0.00050	<0.00050	0.083	0.0043	0.0012	0.18	0.0036	<0.00050	0.046	<0.00050
	06/17/09	<0.00050	<0.00050	0.0011	<0.00050	0.00089	<0.00050	<0.00050	0.076	0.0047	0.00071	0.19	0.0034	<0.00050	0.049	<0.00050
	09/18/09	<0.00050	<0.00050	0.0033	<0.00050	0.01	<0.00050	<0.00050	0.18	0.0062	0.0022	0.27	0.0073	<0.00050	0.062	0.0012

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-3 (continued)	12/17/09	<0.00090	<0.00090	0.00096	<0.00090	<0.00090	<0.00090	<0.00090	0.05	0.0032	<0.00090	0.18	0.0032	<0.00090	0.047	<0.00090
	03/19/10	<0.00090	<0.00090	0.001 BE	<0.00090	<0.00090	<0.00090	<0.00090	0.077	0.0054	<0.00090	0.28	0.0041	<0.00090	0.049	<0.00090
	06/16/10	<0.00050	<0.00050	0.0023	<0.00050	0.0016	0.0009	<0.00050	0.042	0.0017	<0.00050	0.18	0.0019	<0.00050	0.03	<0.00050
	09/23/10	<0.0005	<0.0005	0.0028 BE	<0.0005	0.00056	<0.0005	<0.0005	0.075	0.0044	0.00051	0.220	0.003	<0.0005	0.039	<0.0005
	12/09/10	<0.0005	<0.0005	0.0027	<0.0005	<0.0005	<0.0005	<0.0005	0.039	0.0034	<0.0005	0.210	0.003	<0.0005	0.035	<0.0005
	03/10/11	<0.00050	<0.00050	0.0054	<0.00050	<0.00050	<0.00050	<0.00050	0.0089	0.0011	<0.00050	0.110	0.0016	<0.00050	0.015	<0.00050
	06/10/11	<0.0005	<0.0005	0.0016	<0.0005	0.0022	0.00076	<0.0005	0.036	0.0011	0.00054	0.099	0.0016	<0.0005	0.03	<0.0005
	09/16/11	<0.00050	<0.00050	0.002	<0.00050	0.003	0.00059	<0.00050	0.07	0.0017	0.00091	0.13	0.0024	<0.00050	0.031	<0.00050
	12/09/11	<0.00050	<0.00050	0.0022	<0.00050	0.0029	0.00054	<0.00050	0.062	0.0016	0.00083	0.19	0.0026	<0.00050	0.045	<0.00050
	03/12/12	<0.00050	<0.00050	0.0024	<0.00050	0.001	<0.00050	<0.00050	0.05	0.0028	0.0010	0.1400	0.0031	<0.00050	0.0450	<0.00050
	06/21/12	<0.0005	<0.0005	0.0023	<0.0005	0.001	<0.0005	<0.0005	0.05	0.0027	0.0006	0.1700	0.0027	<0.0005	0.0370	<0.0005
	09/13/12	<0.00050	<0.00050	0.0017	<0.00050	0.004	<0.00050	<0.00050	0.10	0.0021	0.0014	0.1400	0.0033	<0.00050	0.0450	<0.00050
	12/13/12	<0.00050	<0.00050	0.0013	<0.00050	0.00078	<0.00050	<0.00050	0.027	0.0016	<0.00050	0.17	0.0020	<0.00050	0.036	<0.00050
	03/14/13	<0.00050	<0.00050	0.0018	<0.00050	0.0010	<0.00050	<0.00050	0.064	0.0025	0.0014	0.16	0.0032	<0.00050	0.053	<0.00050
	06/14/13	<0.00090	<0.00090	0.0014	<0.00090	0.0011	<0.00090	<0.00090	0.068	0.0031	0.0013	0.21	0.0033	<0.00090	0.048	<0.00090
	09/19/13	<0.00050	<0.00050	0.0011	<0.00050	0.0011	<0.00050	<0.00050	0.099	0.0015	0.0014	0.086	0.0017	<0.00050	0.03	<0.00050
	12/16/13	<0.00050	<0.00050	0.0014	<0.00050	0.0013	<0.00050	<0.00050	0.047	0.0021	0.00081	0.17	0.0024	<0.00050	0.038	<0.00050
	3/21/2014	<0.00050	<0.00050	0.0013	<0.00050	0.00064	<0.00050	<0.00050	0.0270	0.0016	<0.00050	0.150	0.0020	<0.00050	0.030	<0.00050
	6/24/2014	<0.00050	0.00086	0.00086	<0.00050	0.00140	<0.00050	<0.00050	0.0650	0.0032	0.00130	0.180	0.0032	<0.00050	0.044	<0.00050
	9/30/2014	<0.00050	<0.00050	0.001	<0.00050	0.0067	0.00070	<0.00050	0.11	0.0021	0.0013	0.18	0.0028	<0.00050	0.047	<0.00050
	12/11/2014	<0.00050	<0.00050	0.0012	<0.00050	0.00080	<0.00050	<0.00050	0.028	0.0017	<0.00050	0.15	0.0022	<0.00050	0.037	<0.00050
	3/19/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	6/15/2015	<0.00050	<0.00050	0.00086	<0.00050	0.0011	<0.00050	<0.00050	0.049	0.0020	0.00088	0.16	0.0028	<0.00050	0.044	<0.00050
	12/9/2015	<0.00050	<0.00050	0.00066	<0.00050	0.0049	<0.00050	<0.00050	0.072	0.0018	0.00110	0.15	0.0018	<0.00050	0.034	<0.00050

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-4	11/17/93	--	0.85	--	--	0.012	<0.0500	--	0.02	--	--	0.04	<0.0500	--	0.0054	<0.0100
	09/01/95	<0.0050	0.34	<0.0050	<0.0050	0.0052	<0.0500	<0.0050	0.014	<0.0050	<0.0050	<0.0500	<0.0500	--	<0.0500	0.030
	09/24/96	<0.00050	0.3	<0.00020	<0.00020	0.0071	0.0014	<0.00020	0.0032	<0.00020	0.001	0.0005	<0.00050	--	0.0008	0.0047
	12/02/96	<0.00050	0.31	<0.00050	0.0003	0.0038	0.001	<0.00020	0.019	<0.0010	0.0003	<0.00050	<0.0010	--	<0.00030	0.039
	11/13/97	<0.00050	0.252	<0.00050	<0.00050	0.00422	0.00123	<0.00050	0.00691	<0.00050	0.000688	<0.00050	<0.00050	--	<0.00050	<0.0010
	08/11/99	<0.0020	0.144	<0.0010	<0.0010	0.00121	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0036	<0.0020	--	<0.0010	<0.0010
	11/16/99	<0.0010	0.0263	<0.00050	<0.0010	0.0023	<0.00050	<0.00050	0.00418	<0.00050	<0.00050	0.0012	<0.00050	--	0.00088	0.00207
	02/29/00	<0.0020	0.119	<0.0010	<0.0010	0.00284	<0.0010	<0.0010	0.0041	<0.0010	<0.0010	<0.0010	<0.0020	--	<0.0010	0.00572
	06/28/00	<0.0050	0.0594	<0.0025	<0.0025	0.00389	<0.0025	<0.0025	0.0025	<0.0025	<0.0025	<0.0025	<0.0050	--	<0.0025	<0.0025
	07/05/00	Well Abandoned														
MW-5	11/17/93	--	1.90	--	--	<0.0250	<0.0250	--	0.10	--	--	1.20	<0.0250	--	0.052	<0.0500
	09/01/95	<0.001	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	1.3	<0.001	<0.001	60.0	<0.001	--	<0.001	<0.002
	09/24/96	<0.0050	0.14	<0.0020	<0.0020	0.035	<0.0020	0.0075	2.6	0.08	0.0053	16.0	0.064	--	0.67	0.37
	12/02/96	0.071	<0.0500	<0.0500	0.027	<0.0300	<0.0500	<0.0200	5.6	<0.100	<0.0200	27.0	0.11	--	1.70	0.34
	11/12/97	<0.500	<0.001	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	28.0	<0.500	--	1.25	<0.001
	08/11/99	<0.200	<0.001	<0.100	<0.100	<0.100	<0.100	<0.100	1.75	<0.100	<0.100	25.1	<0.200	--	0.862	0.238
	02/29/00	<0.100	<0.500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	0.126	<0.0500	<0.0500	5.25	<0.100	--	0.135	<0.0500
	08/31/00	<0.0500	<0.250	<0.0250	<0.0250	0.0414	<0.0250	<0.0250	1.86	<0.0250	<0.0250	5.66	<0.0500	--	0.347	0.28
	11/30/00	<0.0500	<0.250	<0.0250	<0.0250	0.0273	<0.0250	<0.0250	3.85	0.0268	<0.0250	6.15	<0.0500	--	0.511	0.189
	02/27/01	<0.0500	<0.250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	1.37	<0.0250	<0.0250	7.35	<0.0500	--	0.445	0.127
	05/30/01	<0.0500	<0.250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	2.41	<0.0250	<0.0250	5.56	<0.0500	--	0.439	0.129
	09/25/01	<0.0250	0.2	<0.0250	<0.0250	0.034	<0.0250	<0.0250	1.80	<0.0250	<0.0250	2.20	<0.0250	--	0.18	0.18
	12/17/01	<0.100	<0.500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	1.48	<0.0500	<0.0500	10.1	<0.100	--	0.646	<0.0500
	03/19/02	<0.0500	<0.0250	<0.0250	<0.0500	<0.0250	<0.0250	<0.0250	0.36	<0.0250	<0.0250	4.64	<0.0250	--	0.221	0.114
	05/29/02	<0.0500	0.046	<0.0250	<0.0500	<0.0250	<0.0250	<0.0250	0.916	<0.0250	<0.0250	4.33	<0.0250	--	0.238	0.0395
	08/29/02	<0.0500	<0.0250	<0.0250	<0.0500	<0.0250	<0.0250	<0.0250	1.16	<0.0250	<0.0250	4.09	<0.0250	--	0.288	0.31
	11/08/02	<0.0050	0.178	<0.0025	<0.0050	0.0083	<0.0025	<0.0025	0.385	0.00325	<0.0025	0.603	<0.0025	--	0.0634	0.066
01/23/03	<0.0500	<0.0250	<0.0250	<0.0500	<0.0250	<0.0250	<0.0250	0.582	<0.0250	<0.0250	4.09	<0.0250	--	0.349	<0.0250	
05/30/03	<0.0100	0.0141	<0.0050	<0.0100	<0.0050	<0.0050	<0.0050	0.382	<0.0050	<0.0050	1.45	0.0079	--	0.14	0.067	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-5 (continued)	11/10/03	<0.0010	0.0842	<0.0010	<0.0010	0.00106	<0.0010	<0.0010	0.0907	<0.0010	<0.0010	0.161	<0.0010	--	0.0308	0.00942
	01/26/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	05/04/04	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	0.432	<0.0200	<0.0200	2.44	<0.0200	--	0.178	0.188
	08/17/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11/02/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11/16/04	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	6.30	<0.0500	<0.0500	1.80	<0.0500	--	0.37	0.99
	03/23/05	<0.0200	<0.0100	<0.0100	<0.0200	0.0262	<0.0100	<0.0100	2.35	0.0276	<0.0100	0.511	<0.0100	--	0.147	0.604
	05/18/05	<0.0050	<0.0025	<0.0025	<0.0050	0.00925	<0.0025	0.00645	0.817	0.0102	<0.0025	0.611	<0.0025	--	0.156	0.329
	08/18/05	<0.00500	0.00515	<0.00250	<0.00500	0.0144	<0.00250	<0.00250	0.397	0.0047	<0.00250	0.169 B	<0.00250	--	0.0818	0.278
	11/15/05	<0.0200	<0.0100	<0.0100	<0.0200	0.0362	<0.0100	<0.0100	2.79	0.014	<0.0100	0.408	<0.0100	--	0.177	0.615
	02/21/06	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	0.0727	0.00106	<0.000500	0.184	0.001	--	0.0315	0.00505
	06/05/06	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	2.80	<0.0200	<0.0200	0.157	<0.0200	--	0.075	0.199
	09/06/06	<0.00200	0.0106	<0.00100	<0.00200	0.0083	<0.00100	<0.00100	0.377	0.00366	<0.00100	0.104	<0.00100	--	0.045	0.0299
	12/06/06	<0.00200	<0.00100	<0.00100	<0.00200	0.00132	<0.00100	0.00134	0.113	0.00128	0.00152	0.24	0.0016	--	0.058	0.0433
	02/07/07	<0.0100	<0.00500	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500	1.22	0.018	<0.00500	0.124	<0.00500	--	0.0269	0.6
	05/22/07	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.634	0.00845	<0.00500	0.102	<0.00500	--	0.0408	0.0594
	09/12/07	<0.00100	0.0675	<0.00050	<0.00100	<0.00050	<0.00050	<0.00050	0.0162	<0.00050	<0.00050	0.00089	<0.00050	--	0.00138	0.00186
	12/13/07	<0.00100	<0.00050	<0.00050	<0.00100	0.0071	<0.00050	0.00467	2.42	0.00922	0.00114	0.18	<0.00050	--	0.179	0.416
	03/07/08	<0.00100	<0.000500	<0.000500	<0.00100	0.00218	<0.000500	0.00133	0.411	0.00321	<0.000500	0.0864	<0.000500	<0.000500	0.0261	0.105
	09/18/08	<0.00100	0.101	<0.000500	<0.00100	0.00079	<0.000500	<0.000500	0.0112	<0.000500	<0.000500	0.00114	<0.000500	<0.000500	0.00127	0.00174
	12/10/08	<0.0020	<0.0020	<0.0020	<0.0020	0.0037	<0.0020	<0.0020	0.36	0.0023	<0.0020	0.049	<0.0020	<0.0020	0.053	0.15
	03/27/09	<0.00050	0.0042	<0.00050	<0.00050	0.004	<0.00050	<0.00050	0.17	0.001	<0.00050	0.00059	<0.00050	<0.00050	<0.00050	0.064
	06/17/09	<0.00050	<0.00050	<0.00050	<0.00050	0.0041	<0.00050	0.0006	0.16	0.0025	<0.00050	0.011	<0.00050	<0.00050	0.012	0.011
	09/18/09	<0.00050	0.065 BE	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0036	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0005	0.0012
	12/17/09	<0.00050	<0.00080	<0.00050	<0.00050	0.0021	<0.00050	0.0014	0.34	0.002	<0.00050	0.019	<0.00050	<0.00050	0.037	0.093
	03/19/10	<0.00050	0.0014	<0.00050	<0.00050	0.0044	<0.00050	<0.00050	0.072	<0.00050	<0.00050	0.024	<0.00050	<0.00050	0.014	0.021
	06/16/10	<0.00050	<0.00050	<0.00050	<0.00050	0.0036	<0.00050	0.00083	0.094	0.001	0.00054	0.0041	<0.00050	<0.00050	0.01	0.023
	09/23/10	<0.0005	0.059	<0.0005	<0.0005	0.00084	<0.0005	<0.0005	0.0097	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00097	0.0013
	12/09/10	<0.0005	<0.0005	<0.0005	<0.0005	0.00084	<0.0005	<0.0005	0.14	0.00073	<0.0005	0.0056	<0.0005	<0.0005	0.0088	0.015
	03/11/11	<0.00050	<0.00050	<0.00050	<0.00050	0.00096	<0.00050	<0.00050	0.034	<0.00050	<0.00050	0.0084	<0.00050	<0.00050	0.0076	0.0047
	06/10/11	<0.0005	<0.0005	<0.0005	<0.0005	0.005	<0.0005	<0.0005	0.04	<0.0005	0.00063	0.0022	<0.0005	<0.0005	0.0038	0.026
	09/19/11	<0.00050	0.0023	<0.00050	<0.00050	0.0028	<0.00050	<0.00050	0.097	<0.00050	<0.00050	0.0013	<0.00050	<0.00050	0.011	0.0063
	12/09/11	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.047	<0.00050	<0.00050	0.0027	<0.00050	<0.00050	0.0077	0.0028

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)															
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride	
MW-5 (continued)	03/12/12	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0034	
	06/22/12	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.01	< 0.0005	< 0.0005	0.0005	< 0.0005	< 0.0005	0.0029	0.003	
	09/14/12	< 0.00050	0.0200	< 0.00050	< 0.00050	0.001	< 0.00050	< 0.00050	0.03	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.003	
	12/13/12	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00072	< 0.00050	< 0.00050	0.067	0.00065	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0017	0.0066	
	03/15/13	< 0.00050	0.0074	< 0.00050	< 0.00050	0.0015	< 0.00050	< 0.00050	0.048	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0011	0.0066	
	06/13/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0085	< 0.00050	< 0.00050	0.0072	< 0.00050	< 0.00050	0.0072	0.0017	
	09/19/13	< 0.00050	0.023	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0046	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0012	0.00061	
	12/16/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00088	< 0.00050	< 0.00050	0.18	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0008	0.071	
	3/21/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0013	< 0.00050	< 0.00050	0.039	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0034	0.010	
	6/25/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.014	< 0.00050	< 0.00050	0.00130	< 0.00050	< 0.00050	0.008	0.002	
	9/30/2014	< 0.00050	0.028	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.020	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0036	
	12/16/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.033	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0022	0.0019	
	3/19/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.027	< 0.00050	< 0.00050	0.0084	< 0.00050	< 0.00050	0.0058	0.0056	
	6/17/2015	< 0.00050	0.0022	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0032	< 0.00050	< 0.00050	0.00063	< 0.00050	< 0.00050	0.00064	< 0.00050	
	9/24/2015	< 0.00050	0.0246	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0040	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00130	
	12/8/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00073	0.1990	< 0.00050	< 0.00050	0.02950	< 0.00050	< 0.00050	0.04320	0.03230
	12/8/2015 DUP	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00068	0.1750	< 0.00050	< 0.00050	0.02710	< 0.00050	< 0.00050	0.03850	0.02840
MW-6	11/17/93	--	< 0.0010	--	--	< 0.00050	< 0.00050	--	0.0012	--	--	0.0021	< 0.00050	--	0.00054	< 0.0010	
	09/01/95	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	--	< 0.00050	< 0.0010	
	09/24/96	< 0.00050	< 0.0020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	0.0003	< 0.00020	< 0.00020	< 0.00020	< 0.00050	--	< 0.00020	< 0.0010	
	12/02/96	< 0.00050	< 0.00050	< 0.00050	< 0.00020	< 0.00020	< 0.00050	< 0.00020	< 0.00020	< 0.0010	< 0.00020	< 0.00050	< 0.0010	--	< 0.00020	< 0.00020	
	11/12/97	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00103	< 0.00050	--	< 0.00050	< 0.0010	
	08/11/99	< 0.0010	< 0.0050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.0010	--	0.00137	< 0.00050	
	11/16/99	< 0.0010	< 0.0025	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00050	0.00051	< 0.00050	< 0.00050	< 0.00050	< 0.00050	--	< 0.00050	< 0.00050	
	02/29/00	< 0.0010	< 0.0050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.000654	< 0.0010	--	< 0.00050	< 0.00050	
	06/27/00	< 0.0010	< 0.0050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.0010	--	< 0.00050	< 0.00050	
	08/30/00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	11/30/00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	02/27/01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	05/29/01	< 0.0010	< 0.0050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.0010	--	< 0.00050	< 0.00050	
	09/25/01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	12/17/01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	03/18/02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	05/30/02	< 0.0010	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00050	0.00151	< 0.00050	< 0.00050	0.00131	< 0.00050	--	< 0.00050	< 0.00050	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-6 (continued)	08/28/02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11/08/02	<0.0010	<0.00050	<0.00050	<0.0010	0.00051	<0.00050	<0.00050	0.00255	<0.00050	<0.00050	0.00097	<0.00050	--	0.00055	0.00052
	01/23/03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	05/30/03	<0.00050	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	0.0015	<0.00050	<0.00050	0.00373	<0.00050	--	0.00099	<0.00050
	11/10/03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	01/26/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	05/04/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	08/17/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11/02/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11/17/04	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	0.00088	<0.00050	<0.00050	<0.00050	<0.00050	--	<0.00050	<0.00050
	03/23/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	05/17/05	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	--	<0.00050	<0.00050
	09/12/07	<0.00100	<0.00050	<0.00050	<0.00100	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	--	<0.00050	<0.00050
	03/06/08	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	0.00116	<0.000500	<0.000500	<0.000500	<0.000500
	09/19/08	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
	03/24/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	09/16/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	03/19/10	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	09/23/10	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	03/09/11	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
09/15/11	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
03/05/12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
09/13/12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
03/14/13	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
09/19/13	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
3/21/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
10/2/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
3/19/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
9/18/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
MW-7	12/02/96	0.081	<0.0500	<0.0500	0.039	<0.0300	<0.0500	0.11	0.11	<0.100	<0.0200	73.0	1.90	--	7.60	<0.0500
	11/12/97	<0.500	<0.001	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	36.4	<0.500	--	7.67	<0.001
	08/11/99	<0.001	<0.005	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	49.0	1.21	--	4.65	<0.500
	11/16/99	<0.100	<0.250	<0.0500	<0.100	<0.0500	<0.0500	0.092	0.353	<0.0500	<0.0500	54.8	0.914	--	5.32	<0.0500
	02/28/00	<0.001	<0.005	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	52.4	<0.001	--	4.06	<0.500
	06/28/00	<0.001	<0.005	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	54.3	<0.001	--	3.39	<0.500

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-7 (continued)	08/31/00	<0.500	<0.002	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	50.9	0.824	--	3.96	<0.250
	11/30/00	<0.500	<0.002	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	33.5	0.52	--	3.56	<0.250
	02/27/01	<0.500	<0.002	<0.250	<0.250	<0.250	<0.250	<0.250	0.386	<0.250	<0.250	26.7	<0.500	--	3.29	<0.250
	05/30/01	<0.200	<1	<0.100	<0.100	<0.100	<0.100	<0.100	0.374	<0.100	<0.100	20.4	0.214	--	2.82	<0.100
	09/25/01	<0.0250	<0.0250	<0.0250	<0.0250	0.028	<0.0250	0.035	0.35	<0.0250	<0.0250	19.0	0.26	--	2.50	<0.0250
	12/17/01	<0.100	<0.0500	<0.0500	<0.0500	0.0846	<0.0500	<0.0500	0.506	<0.0500	<0.0500	10.1	0.2	--	1.96	<0.0500
	03/18/02	<0.0500	<0.0250	<0.0250	<0.0500	<0.0250	<0.0250	<0.0250	0.206	<0.0250	<0.0250	7.25	0.071	--	1.02	<0.0250
	05/31/02	<0.0500	<0.0250	<0.0250	<0.0500	<0.0250	<0.0250	<0.0250	0.0425	<0.0250	<0.0250	5.50	<0.0250	--	0.311	<0.0250
	08/29/02	<0.0500	<0.0250	<0.0250	<0.0500	<0.0250	<0.0250	0.0505	0.093	<0.0250	<0.0250	4.94	0.0445	--	0.634	<0.0250
	11/07/02	<0.0500	<0.0250	<0.0250	<0.0500	<0.0250	<0.0250	<0.0250	0.123	<0.0250	<0.0250	5.81	0.043	--	0.758	<0.0250
	01/23/03	<0.0200	<0.0100	<0.0100	<0.0200	<0.0100	<0.0100	<0.0100	0.0598	<0.0100	<0.0100	2.01	0.014	--	0.282	<0.0100
	05/28/03	<0.0100	<0.0050	<0.0050	<0.0050	0.0063	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	1.08	0.0109	--	0.0679	<0.0050
	11/11/03	<0.0200	<0.0200	<0.0200	<0.0200	0.0402	<0.0200	<0.0200	0.246	<0.0200	<0.0200	2.46	0.062	--	0.599	<0.0200
	01/27/04	<0.0200	<0.0100	<0.0100	<0.0200	0.017	<0.0100	<0.0100	0.105	<0.0100	<0.0100	3.51	0.033	--	0.38	<0.0100
	05/04/04	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	0.0724	<0.0200	<0.0200	3.94	0.022	--	0.323	<0.0200
	11/16/04	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	0.099	<0.0500	<0.0500	8.00	<0.0500	--	0.52	<0.0500
	03/24/05	<0.0500	<0.0250	<0.0250	<0.0500	<0.0250	<0.0250	<0.0250	0.0985	<0.0250	<0.0250	3.93	0.026	--	0.404	<0.0250
	05/18/05	<0.0100	<0.0050	<0.0050	<0.0100	<0.0050	<0.0050	<0.0050	0.0727	<0.0050	<0.0050	1.31	0.0124	--	0.18	<0.0050
	05/18/05 DUP	<0.0100	<0.0050	<0.0050	<0.0100	<0.0050	<0.0050	<0.0050	0.0694	<0.0050	<0.0050	1.25	0.0124	--	0.179	<0.0050
	08/18/05	<0.0200	<0.0100	<0.0100	<0.0200	<0.0100	<0.0100	<0.0100	0.0548	<0.0100	<0.0100	1.80	<0.0100	--	0.237	<0.0100
	11/15/05	<0.0200	<0.0100	<0.0100	<0.0200	0.0152	<0.0100	<0.0100	0.107	<0.0100	<0.0100	1.96	0.0296	--	0.333	<0.0100
	02/21/06	<0.0200	<0.0100	<0.0100	<0.0200	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	2.64	<0.0100	--	0.139	<0.0100
	06/05/06	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	26.1	<0.200	--	0.568	<0.200
	09/06/06	<0.100	<0.0500	<0.0500	<0.100	<0.0500	<0.0500	<0.0500	0.056	<0.0500	<0.0500	12.8	<0.0500	--	0.422	<0.0500
	12/06/06	<0.200	<0.100	<0.100	<0.200	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	24.6	<0.100	--	0.408	<0.100
	02/07/07	<0.200	<0.100	<0.100	<0.200	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	31.5	<0.100	--	0.352	<0.100
	05/22/07	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	29.1	<0.200	--	0.45	<0.200
	09/12/07	<0.200	<0.100	<0.100	<0.200	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	21.3	<0.100	--	0.366	<0.100
	12/13/07	<0.500	<0.250	<0.250	<0.500	<0.250	<0.250	<0.250	0.345	<0.250	<0.250	18.7	<0.250	--	1.04	0.28
	03/06/08 ⁷	<0.00100	<0.000500	<0.000500	<0.00100	0.00506	0.00257	0.00399	0.0423	0.0029	<0.000500	26.3	0.0387	<0.000500	0.43	<0.000500
	06/10/08	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	27.0	<0.500	<0.500	0.575	<0.500
	09/18/08	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	23.2	<0.500	<0.500	0.53	<0.500
	12/11/08	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.13	<0.050	<0.050	15.0	<0.050	<0.050	0.45	<0.050
12/11/08 DUP	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.12	<0.050	<0.050	14.0	<0.050	<0.050	0.43	<0.050	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-7 (continued)	03/23/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.42	<0.00050	<0.00050	3.33	<0.00050	<0.00050	0.27	<0.00050
	06/18/09	<0.0030	<0.0030	<0.0030	<0.0030	0.0037	<0.0030	<0.0030	0.52	<0.0030	<0.0030	0.89	0.0052	<0.0030	0.35	<0.0030
	06/18/09 DUP	<0.0025	<0.0025	<0.0025	<0.0025	0.0038	<0.0025	<0.0025	0.52	<0.0025	<0.0025	0.91	0.0056	<0.0025	0.36	<0.0025
	09/18/09	<0.0030	<0.0030	<0.0030	<0.0030	0.0098	<0.0030	0.0055	0.93	<0.0030	<0.0030	2.6	0.01	<0.0030	0.25	<0.0030
	09/18/09 DUP	<0.0030	<0.0030	<0.0030	<0.0030	0.0087	<0.0030	0.0048	0.85	<0.0030	<0.0030	2.6	0.0093	<0.0030	0.24	<0.0030
	12/18/09	<0.0050	<0.0050	<0.0050	<0.0050	0.0067	<0.0050	<0.0050	0.33	<0.0050	<0.0050	1.6	0.0067	<0.0050	0.16	<0.0050
	12/18/09 DUP	<0.0050	<0.0050	<0.0050	<0.0050	0.0066	<0.0050	<0.0050	0.32	<0.0050	<0.0050	1.5	0.0066	<0.0050	0.16	<0.0050
	03/16/10	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	0.18	<0.0025	<0.0025	0.5	<0.0025	<0.0025	0.052	<0.0025
	03/16/10 DUP	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.18	<0.0020	<0.0020	0.6	<0.0020	<0.0020	0.055	<0.0020
	06/17/10	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	0.36	<0.0015	<0.0015	0.2	0.0027	<0.0015	0.072	<0.0015
	06/17/10 DUP	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	0.36	<0.0015	<0.0015	0.2	0.0028	<0.0015	0.072	<0.0015
	09/23/10	<0.003	<0.003	<0.003	<0.003	0.0033	<0.003	<0.003	0.690	<0.003	<0.003	0.750	0.0035	<0.003	0.110	0.0048
	09/23/10 DUP	<0.003	<0.003	<0.003	<0.003	0.0031	<0.003	<0.003	0.700	<0.003	<0.003	0.740	0.0038	<0.003	0.100	0.0041
	12/10/10	<0.0009	<0.0009	<0.0009	<0.0009	0.0018	<0.0009	<0.0009	0.094	<0.0009	<0.0009	0.220	0.0016	<0.0009	0.036	0.0017
	12/10/10 DUP	<0.0009	<0.0009	<0.0009	<0.0009	0.0017	<0.0009	<0.0009	0.098	<0.0009	<0.0009	0.230	0.0017	<0.0009	0.036	0.0018
	03/11/11	<0.00090	<0.00090	<0.00090	<0.00090	0.0066	<0.00090	0.0016	0.150	0.00091	<0.00090	0.420	0.0051	<0.00090	0.082	0.0093
	03/11/11 DUP	<0.00090	<0.00090	<0.00090	<0.00090	0.0065	<0.00090	0.0019	0.150	0.0011	<0.00090	0.400	0.0052	<0.00090	0.080	0.0097
	06/07/11	<0.0025	<0.0025	<0.0025	<0.0025	0.0048	<0.0025	0.0034	1.4	0.0033	<0.0025	0.43	0.004	<0.0025	0.11	0.0079
	06/07/11 DUP	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	1.4	<0.006	<0.006	0.4	<0.006	<0.006	0.11	0.0078
	09/19/11	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	1.3	< 0.0050	< 0.0050	0.41	< 0.0050	< 0.0050	0.084	0.078
	09/19/11 DUP	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	1.3	< 0.0070	< 0.0070	0.42	< 0.0070	< 0.0070	0.087	0.081
	12/07/11	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.0080	< 0.0050	0.0069	3.4	0.0068	< 0.0050	0.2	< 0.0050	< 0.0050	0.032	0.11
	12/07/11 DUP	< 0.0060	< 0.0060	< 0.0060	< 0.0060	0.0076	< 0.0060	0.0078	3.4	0.0068	< 0.0060	0.21	< 0.0060	< 0.0060	0.032	0.11
	03/12/12	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.009	< 0.0050	< 0.0050	1.60	< 0.0050	< 0.0050	0.0410	< 0.0050	< 0.0050	0.0086	0.60
	03/12/12 DUP	< 0.0070	< 0.0070	< 0.0070	< 0.0070	0.010	< 0.0070	< 0.0070	1.60	< 0.0070	< 0.0070	0.0420	< 0.0070	< 0.0070	0.0089	0.66
	06/22/2012	< 0.002	0.0092	< 0.002	< 0.002	0.010	< 0.002	< 0.002	0.54	< 0.002	< 0.002	0.0240	< 0.002	< 0.002	0.0051	0.30
	06/22/12 DUP	< 0.002	0.0081	< 0.002	< 0.002	0.009	< 0.002	< 0.002	0.50	< 0.002	< 0.002	0.0250	< 0.002	< 0.002	0.0052	0.29
	09/14/12	< 0.00050	0.0063	< 0.00050	< 0.00050	0.004	< 0.00050	0.0005	0.18	0.0007	< 0.00050	0.0280	< 0.00050	0.0005	0.0052	0.08
	09/14/12 DUP	< 0.00050	0.0057	< 0.00050	< 0.00050	0.004	< 0.00050	< 0.00050	0.18	0.0008	< 0.00050	0.0280	< 0.00050	< 0.00050	0.0053	0.08
	12/14/12	< 0.00050	0.0063	< 0.00050	< 0.00050	0.0019	< 0.00050	< 0.00050	0.13	< 0.00050	< 0.00050	0.0082	< 0.00050	< 0.00050	0.0053	0.016
12/14/12 DUP	< 0.00050	0.0056	< 0.00050	< 0.00050	0.0018	< 0.00050	< 0.00050	0.13	< 0.00050	< 0.00050	0.011	< 0.00050	< 0.00050	0.0068	0.018	
03/15/13	< 0.00050	0.0052	< 0.00050	< 0.00050	0.00068	< 0.00050	< 0.00050	0.11	< 0.00050	< 0.00050	0.0015	< 0.00050	< 0.00050	0.00075	0.011	
03/15/13 DUP	< 0.00050	0.0054	< 0.00050	< 0.00050	0.00069	< 0.00050	< 0.00050	0.11	< 0.00050	< 0.00050	0.0016	< 0.00050	< 0.00050	0.00078	0.011	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-7 (continued)	06/14/13	< 0.00050	0.0020	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.057	< 0.00050	< 0.00050	0.0016	< 0.00050	< 0.00050	< 0.00050	0.015
	06/14/13 DUP	< 0.00050	0.0020	< 0.00050	< 0.00050	0.00051	< 0.00050	< 0.00050	0.058	< 0.00050	< 0.00050	0.0015	< 0.00050	< 0.00050	< 0.00050	0.016
	09/20/13	< 0.00050	0.0030	< 0.00050	< 0.00050	0.0015	< 0.00050	< 0.00050	0.056	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.01
	09/20/13 DUP	< 0.00050	0.0030	< 0.00050	< 0.00050	0.0015	< 0.00050	< 0.00050	0.056	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.01
	12/16/13	< 0.00050	0.0024	< 0.00050	< 0.00050	0.0029	< 0.00050	< 0.00050	0.0069	< 0.00050	< 0.00050	0.00051	< 0.00050	< 0.00050	< 0.00050	0.0091
	12/16/13 DUP	< 0.00050	0.0024	< 0.00050	< 0.00050	0.0024	< 0.00050	< 0.00050	0.0063	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0089
	3/24/2014	< 0.00050	0.00097	< 0.00050	< 0.00050	0.0016	< 0.00050	< 0.00050	0.013	< 0.00050	< 0.00050	0.0098	< 0.00050	< 0.00050	0.0026	0.0076
	3/24/2014 DUP	< 0.00050	0.0010	< 0.00050	< 0.00050	0.0016	< 0.00050	< 0.00050	0.013	< 0.00050	< 0.00050	0.0094	< 0.00050	< 0.00050	0.0025	0.0077
	6/25/2014	< 0.00050	0.0013	< 0.00050	< 0.00050	0.0017	< 0.00050	< 0.00050	0.00059	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0013
	6/25/14 DUP	< 0.00050	0.00015	< 0.00050	< 0.00050	0.00019	< 0.00050	< 0.00050	0.00062	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0014
	9/30/2014	< 0.00050	0.0019	< 0.00050	< 0.00050	0.0027	< 0.00050	< 0.00050	0.0045	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0098
	9/30/2014 DUP	< 0.00050	0.0017	< 0.00050	< 0.00050	0.0026	< 0.00050	< 0.00050	0.0043	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0088
	12/15/2014	< 0.00050	0.0012	< 0.00050	< 0.00050	0.0034	< 0.00050	< 0.00050	0.012	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0010	0.015
	12/15/2014 DUP	< 0.00050	0.0016	< 0.00050	< 0.00050	0.0045	< 0.00050	< 0.00050	0.016	< 0.00050	< 0.00050	0.00061	< 0.00050	< 0.00050	0.0015	0.021
	3/20/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0010	< 0.00050	< 0.00050	0.0084	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0011	0.0010
	3/20/15 DUP	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0010	< 0.00050	< 0.00050	0.0077	< 0.00050	< 0.00050	0.00053	< 0.00050	< 0.00050	0.0010	0.010
	6/17/2015	< 0.00050	0.00072	< 0.00050	< 0.00050	0.0026	< 0.00050	< 0.00050	0.012	< 0.00050	< 0.00050	0.0012	< 0.00050	< 0.00050	0.0010	0.013
	6/17/2015 DUP	< 0.00050	0.00071	< 0.00050	< 0.00050	0.0026	< 0.00050	< 0.00050	0.012	< 0.00050	< 0.00050	0.00096	< 0.00050	< 0.00050	0.0010	0.012
	9/24/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0017	< 0.00050	< 0.00050	0.012	< 0.00050	< 0.00050	0.00450	< 0.00050	< 0.00050	0.0042	0.005
	9/24/2015 DUP	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0018	< 0.00050	< 0.00050	0.013	< 0.00050	< 0.00050	0.00450	< 0.00050	< 0.00050	0.0042	0.005
12/8/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.004	< 0.00050	< 0.00050	0.00940	< 0.00050	< 0.00050	0.0017	0.002	
MW-8	12/02/96	< 0.00050	< 0.00050	< 0.00050	< 0.00020	0.001	< 0.00050	0.0002	0.0065	< 0.0010	< 0.00020	0.0023	< 0.0010	--	0.012	< 0.00050
	11/13/97	< 0.0010	< 0.0020	< 0.0010	< 0.0010	0.00172	< 0.0010	0.00244	0.00932	< 0.0010	< 0.0010	0.0524	0.004	--	0.0386	< 0.0020
	08/11/99	< 0.0010	< 0.0050	< 0.00050	< 0.00050	0.00075	< 0.00050	< 0.00050	0.00182	< 0.00050	< 0.00050	0.0462	0.00479	--	0.0243	< 0.00050
	11/16/99	< 0.0010	< 0.0025	< 0.00050	< 0.0010	0.00122	< 0.00050	< 0.00050	0.00211	< 0.00050	< 0.00050	0.0398	0.00155	--	0.0155	< 0.00050
	02/28/00	< 0.0010	< 0.0050	< 0.00050	< 0.00050	0.000929	< 0.00050	0.000721	0.00238	< 0.00050	< 0.00050	0.0418	0.0037	--	0.0205	< 0.00050
	06/27/00	< 0.0010	< 0.0050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00146	< 0.00050	< 0.00050	0.0337	0.00288	--	0.0175	< 0.00050
	05/30/01	< 0.100	< 0.0050	< 0.00050	< 0.00050	0.000611	< 0.00050	< 0.00050	0.000601	< 0.00050	< 0.00050	0.0118	< 0.0010	--	0.00546	< 0.00050
	05/30/02	< 0.0010	< 0.00050	< 0.00050	< 0.0010	0.00109	< 0.00050	< 0.00050	0.00202	< 0.00050	< 0.00050	0.0121	< 0.00050	--	0.00447	< 0.00050
	05/28/03	< 0.0010	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00050	0.00084	< 0.00050	< 0.00050	0.0404	0.00155	--	0.0112	< 0.00050
	11/02/04	< 0.0010	< 0.00050	< 0.00050	< 0.0010	0.00102	< 0.00050	< 0.00050	0.00199	< 0.00050	< 0.00050	0.00888	< 0.00050	--	0.0024	< 0.00050
	11/16/04	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0009	< 0.00050	< 0.00050	0.0016	< 0.00050	< 0.00050	0.0006	< 0.00050	--	0.0031	< 0.00050
	03/23/05	< 0.0010	< 0.00050	< 0.00050	< 0.0010	0.00078	< 0.00050	< 0.00050	0.00182	< 0.00050	< 0.00050	0.0135	0.00053	--	0.00241	< 0.00050

Please refer to notes at end of table.

Appendix B
 Historical Groundwater Analytical Results
 NuStar Vancouver Facility
 Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-8	05/17/05	<0.0010	<0.00050	<0.00050	<0.0010	0.0011	<0.00050	<0.00050	0.00645	<0.00050	<0.00050	0.0132	<0.00050	--	0.00692	<0.00050
(continued)	05/17/05 DUP	<0.0010	<0.00050	<0.00050	<0.0010	0.00119	<0.00050	<0.00050	0.00697	<0.00050	<0.00050	0.0114	<0.00050	--	0.00639	<0.00050
	11/16/05	<0.00100	<0.000500	<0.000500	<0.00100	0.00078	<0.000500	<0.000500	0.00419	<0.000500	<0.000500	0.0148	0.00065	--	0.00299	<0.000500
	06/05/06	<0.00100	<0.00100	<0.00100	<0.00100	0.00126	<0.00100	<0.00100	0.0198	<0.00100	<0.00100	0.0207	<0.00100	--	0.0114	<0.00100
	12/06/06	<0.00100	<0.00050	<0.00050	<0.00100	0.00111	<0.00050	<0.00050	0.0142	<0.00050	<0.00050	0.0183	<0.00050	--	0.00508	<0.00050
	05/23/07	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.0228	<0.00100	--	0.00232	<0.00100
	09/12/07	<0.00100	<0.00050	<0.00050	<0.00100	<0.00050	<0.00050	<0.00050	0.00052	<0.00050	<0.00050	0.0124	0.0006	--	0.00065	<0.00050
	12/12/07	<0.00100	<0.00050	<0.00050	<0.00100	0.00103	<0.00050	<0.00050	0.0137	<0.00050	<0.00050	0.00827	<0.00050	--	0.00271	<0.00050
	03/06/08	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	0.00164	<0.000500	<0.000500	0.0191 J	<0.000500	<0.000500	0.0014	<0.000500
	6/10/08 ⁷	<0.00100	<0.00100	<0.00100	<0.00100	0.00107	<0.00100	<0.00100	0.0105	<0.00100	<0.00100	0.0108	<0.00100	<0.00100	0.00387	<0.00100
	09/18/08	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	0.00158	<0.000500	<0.000500	0.0132	0.0005	<0.000500	0.00121	<0.000500
	12/09/08	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0016	<0.00050	<0.00050	0.0091	<0.00050	<0.00050	0.00057	<0.00050
	12/09/08 DUP	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0015	<0.00050	<0.00050	0.0097	<0.00050	<0.00050	0.00059	<0.00050
	03/26/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.002	<0.00050	<0.00050	0.008	<0.00050	<0.00050	0.00056	<0.00050
	06/17/09	<0.00050	<0.00050	<0.00050	<0.00050	0.00077	<0.00050	<0.00050	0.012	<0.00050	<0.00050	0.0048	<0.00050	<0.00050	0.0014	<0.00050
	09/16/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0011	<0.00050	<0.00050	0.011	<0.00050	<0.00050	<0.00050	<0.00050
	12/16/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0032	<0.00050	<0.00050	0.0084	<0.00050	<0.00050	0.00051	<0.00050
	03/18/10	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0020	<0.00050	<0.00050	0.0110	<0.00050	<0.00050	<0.00050	<0.00050
	06/14/10	<0.00050	<0.00050	<0.00050	<0.00050	0.0011	<0.00050	<0.00050	0.0200	0.00052	<0.00050	0.0042	<0.00050	<0.00050	0.0011	<0.00050
	09/22/10	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0017	<0.0005	<0.0005	0.0081	<0.0005	<0.0005	<0.0005	<0.0005
	12/08/10	<0.0005	<0.0005	<0.0005	<0.0005	0.0014	<0.0005	<0.0005	0.0200	0.0011	<0.0005	0.0025	<0.0005	<0.0005	0.0006	<0.0005
	03/11/11	<0.00050	<0.00050	<0.00050	<0.00050	0.00093	<0.00050	<0.00050	0.020	0.00058	<0.00050	0.0079	<0.00050	<0.00050	0.00095	<0.00050
	06/08/11	<0.0005	<0.0005	<0.0005	<0.0005	0.0015	<0.0005	<0.0005	0.04	0.00082	<0.0005	0.004	<0.0005	<0.0005	0.0011	<0.0005
	09/15/11	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0013	<0.00050	<0.00050	0.01	<0.00050	<0.00050	0.00054	<0.00050
	12/08/11	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00054	<0.00050	<0.00050	0.01	<0.00050	<0.00050	<0.00050	<0.00050
	03/06/12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.01	<0.00050	<0.00050	0.0068	<0.00050	<0.00050	0.0006	<0.00050
	06/20/12	<0.0005	<0.0005	<0.0005	<0.0005	0.001	<0.0005	<0.0005	0.02	<0.0005	<0.0005	0.0061	<0.0005	<0.0005	0.0014	<0.0005
	09/12/12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0014	<0.00050	<0.00050	0.0070	<0.00050	<0.00050	<0.00050	<0.00050
	12/12/12	<0.00050	<0.00050	<0.00050	<0.00050	0.0013	<0.00050	<0.00050	0.036	0.0010	<0.00050	0.0048	<0.00050	<0.00050	0.0010	<0.00080
	03/13/13	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00094	<0.00050	<0.00050	0.0072	<0.00050	<0.00050	<0.00050	<0.00050

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-8 (continued)	06/13/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00084	< 0.00050	< 0.00050	0.018	0.00064	< 0.00050	0.0062	< 0.00050	< 0.00050	0.00076	< 0.00050
	09/19/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0066	< 0.00050	< 0.00050	0.0048	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	12/12/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0055	0.00054	< 0.00050	0.0040	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	3/19/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0011	< 0.00050	< 0.00050	0.021	0.0011	< 0.00050	0.0023	< 0.00050	< 0.00050	0.00085	< 0.00050
	6/24/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0031	< 0.00050	< 0.00050	0.0056	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	9/26/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0038	< 0.00050	< 0.00050	0.0061	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	12/10/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0011	< 0.00050	< 0.00050	0.013	0.00086	< 0.00050	0.0023	< 0.00050	< 0.00050	0.00062	< 0.00050
	3/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0013	< 0.00050	< 0.00050	0.0076	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	6/17/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0059	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	9/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.002	< 0.00050	< 0.00050	0.0063	< 0.00050	< 0.00050	< 0.00050	< 0.00050
12/7/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.002	< 0.00050	< 0.00050	0.0011	< 0.00050	< 0.00050	< 0.00050	< 0.00050	
MW-9	12/02/96	< 0.0500	< 0.0500	< 0.0500	< 0.0200	< 0.0300	< 0.0500	< 0.0200	< 0.0200	< 0.100	< 0.0200	5	0.2	--	1.6	< 0.0500
	11/13/97	< 0.0500	< 0.100	< 0.0500	< 0.0500	< 0.0500	< 0.0500	< 0.0500	0.487	< 0.0500	< 0.0500	2.89	< 0.0500	--	1.84	< 0.100
	08/11/99	< 0.0200	< 0.100	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100	0.054	< 0.0100	< 0.0100	1.49	0.0432	--	0.52	< 0.0100
	11/16/99	< 0.0200	< 0.0500	< 0.0100	< 0.0200	< 0.0100	< 0.0100	< 0.0100	0.103	< 0.0100	< 0.0100	1.73	0.032	--	0.31	< 0.0100
	02/28/00	< 0.0200	< 0.100	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100	< 0.0100	2.04	0.0364	--	0.32	< 0.0100
	06/27/00	< 0.0500	< 0.250	< 0.0250	< 0.0250	< 0.0250	< 0.0250	< 0.0250	< 0.0250	< 0.0250	< 0.0250	1.30	< 0.0500	--	0.30	< 0.0250
	08/31/00	< 0.0100	< 0.0500	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	1.56	0.0313	--	0.23	< 0.0050
	11/30/00	< 0.0100	< 0.0500	< 0.0050	< 0.0050	0.0217	< 0.0050	0.0105	1.33	0.0117	< 0.0050	0.823	0.0266	--	0.528	0.00815
	09/25/01	< 0.0025	< 0.0025	< 0.0025	< 0.0025	0.0038	< 0.0025	< 0.0025	0.0091	< 0.0025	< 0.0025	0.68	0.016	--	0.14	< 0.0025
	12/17/01	< 0.0050	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	0.306	< 0.0050	--	0.0742	< 0.0025
	03/18/02	< 0.0010	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.113	< 0.00050	--	0.0191	< 0.00050
	05/31/02	< 0.0020	< 0.0010	< 0.0010	< 0.0020	< 0.0010	< 0.0010	< 0.0010	0.00122	< 0.0010	< 0.0010	0.296	0.00144	--	0.044	< 0.0010
	08/29/02	< 0.0020	< 0.0010	< 0.0010	< 0.0020	< 0.0010	< 0.0010	< 0.0010	0.00188	< 0.0010	< 0.0010	0.294	0.00212	--	0.0674	< 0.0010
	11/07/02	< 0.0050	< 0.0025	< 0.0025	< 0.0050	< 0.0025	< 0.0025	< 0.0025	0.0172	< 0.0025	< 0.0025	0.453	0.004	--	0.145	< 0.0025
	01/23/03	< 0.0020	< 0.0010	< 0.0010	< 0.0020	< 0.0010	< 0.0010	< 0.0010	0.00166	< 0.0010	< 0.0010	0.205	0.00274	--	0.0595	< 0.0010
	05/28/03	< 0.0010	< 0.00050	< 0.00050	< 0.0010	0.00181	< 0.00050	< 0.00050	0.00097	< 0.00050	< 0.00050	0.141	0.00285	--	0.0274	< 0.00050
	11/11/03	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.0237	< 0.0050	< 0.0050	0.401	0.00625	--	0.0914	< 0.0050
01/27/04	< 0.0020	< 0.0010	< 0.0010	< 0.0020	< 0.0010	< 0.0010	< 0.0010	0.00258	< 0.0010	< 0.0010	0.179	0.00254	--	0.0581	< 0.0010	
05/04/04	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.00109	< 0.0010	< 0.0010	0.178	0.00256	--	0.0519	< 0.0010	
11/15/04	< 0.0250	< 0.0250	< 0.0250	< 0.0250	0.028	< 0.0250	< 0.0250	1.20	0.027	< 0.0250	1.80	< 0.0250	--	1.00	< 0.0250	
03/24/05	< 0.0050	< 0.0025	< 0.0025	< 0.0050	0.00	< 0.0025	< 0.0025	0.0542	< 0.0025	< 0.0025	0.675	0.008	--	0.239	< 0.0025	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-9 (continued)	05/18/05	<0.0020	<0.0010	<0.0010	<0.0020	<0.0010	<0.0010	<0.0010	0.00268	<0.0010	<0.0010	0.00241	0.00208	--	0.0624	<0.0010
	08/18/05	<0.00500	<0.00250	<0.00250	<0.00500	<0.00250	<0.00250	<0.00250	0.0205 B	<0.00250	<0.00250	0.551	0.0076	--	0.209	<0.00250
	11/15/05	<0.0100	<0.00500	<0.00500	<0.0100	0.0271	<0.00500	0.0068	1.02	0.0186	<0.00500	1.04	0.0141	--	0.633	0.0212
	02/21/06	<0.0100	<0.00500	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500	0.0167	<0.00500	<0.00500	0.534	<0.00500	--	0.165	<0.00500
	06/05/06	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.00147	<0.00100	<0.00100	0.151	0.0026	--	0.0573	<0.00100
	09/05/06	<0.00500	<0.00250	<0.00250	<0.00500	0.0055	<0.00250	<0.00250	0.117	0.00315	<0.00250	0.698	0.0068	--	0.314	<0.00250
	12/06/06	<0.00500	<0.00250	<0.00250	<0.00500	0.00295	<0.00250	<0.00250	0.059	<0.00250	<0.00250	0.578	0.00555	--	0.237	<0.00250
	02/07/07	<0.00500	<0.00250	<0.00250	<0.00500	0.00315	<0.00250	<0.00250	0.0726	<0.00250	<0.00250	0.591	0.0061	--	0.239	0.00265
	05/23/07	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	0.00632	<0.00200	<0.00200	0.21	0.003	--	0.0904	<0.00200
	09/12/07	<0.00200	<0.00100	<0.00100	<0.00200	0.00234	<0.00100	<0.00100	0.0471	0.00144	<0.00100	0.282	0.00512	--	0.184	<0.00100
	12/13/07	<0.00500	<0.00250	<0.00250	<0.00500	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	0.253	0.00445	--	0.0784	<0.00250
	03/06/08	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	0.00192	<0.000500	<0.000500	0.138	0.00377	<0.000500	0.0615	<0.000500
	06/10/08	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.00273	<0.00100	<0.00100	0.297	0.00516	<0.00100	0.0877	<0.00100
	09/18/08	<0.00500	<0.00250	<0.00250	<0.00500	0.00705	<0.00250	<0.00250	0.172	0.0038	<0.0005000	0.524	0.00535	<0.000500	0.315	0.00415
	12/09/08	<0.00090	<0.00090	<0.00090	<0.00090	0.0038	<0.00090	0.0013	0.13	0.0025	<0.00090	0.27	0.0051	<0.00090	0.14	0.0023
	03/26/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0054	<0.00050	<0.00050	0.17	0.004	<0.00050	0.056	<0.00050
	06/17/09	<0.00050	<0.00050	<0.00050	<0.00050	0.0027	<0.00050	0.0011	0.072	0.0028	<0.00050	0.42	0.0049	<0.00050	0.18	0.0018
	09/17/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0031	<0.00050	<0.00050	0.17	0.0044	<0.00050	0.06	<0.00050
	12/17/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00057	<0.00050	<0.00050	0.12	0.0025	<0.00050	0.04	<0.00050
	03/19/10	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00080	<0.00050	<0.00050	0.16	0.003	<0.00050	0.05	<0.00050
	06/16/10	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.10	0.0014	<0.00050	0.04	<0.00050
	09/21/10	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0017	<0.0005	<0.0005	0.140	0.0029	<0.0005	0.050	<0.0005
	12/10/10	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.100	0.0013	<0.0005	0.330	<0.0005
	03/11/11	<0.00050	<0.00050	<0.00050	<0.00050	0.00066	<0.00050	<0.00050	0.017	0.00082	<0.00050	0.190	0.0027	<0.00050	0.081	0.00052
	03/11/11 DUP	<0.00050	<0.00050	<0.00050	<0.00050	0.00067	<0.00050	<0.00050	0.017	0.00085	<0.00050	0.200	0.0028	<0.00050	0.084	0.00051
	06/10/11	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0013	<0.0005	<0.0005	0.053	0.0019	<0.0005	0.031	<0.0005
	09/19/11	<0.00050	<0.00050	<0.00050	<0.00050	0.0021	<0.00050	<0.00050	0.072	0.0023	<0.00050	0.23	0.0031	<0.00050	0.12	0.00078
	12/09/11	<0.00090	<0.00090	<0.00090	<0.00090	0.053	<0.00090	0.011	1.8	0.04	<0.00090	0.6	0.01	<0.00090	0.59	0.026
	03/12/12	<0.00050	<0.00050	<0.00050	<0.00050	0.001	<0.00050	<0.00050	0.02	0.0006	<0.00050	0.1400	0.0020	<0.00050	0.0560	<0.00050
	06/22/12	<0.0005	<0.0005	<0.0005	<0.0005	0.003	<0.0005	0.0011	0.14	0.0043	<0.0005	0.2200	0.0033	<0.0005	0.1800	0.00

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-9 (continued)	09/14/12	< 0.00090	< 0.00090	< 0.00090	< 0.00090	< 0.00090	< 0.00090	< 0.00090	0.02	< 0.00090	< 0.00090	0.2100	0.0024	< 0.00090	0.0780	< 0.00090
	12/13/12	<0.00050	<0.00050	<0.00050	<0.00050	0.00070	<0.00050	<0.00050	0.029	0.00096	<0.00050	0.11	0.0011	<0.00050	0.049	<0.00050
	03/15/13	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0050	<0.00050	<0.00050	0.086	0.0018	<0.00050	0.034	<0.00050
	06/13/13	<0.00050	<0.00050	<0.00050	<0.00050	0.0024	<0.00050	0.0010	0.10	0.0037	<0.00050	0.24	0.0031	<0.00050	0.15	0.0022
	09/20/13	<0.00050	<0.00050	<0.00050	<0.00050	0.0020	<0.00050	0.00051	0.074	0.0022	<0.00050	0.16	0.0020	<0.00050	0.087	0.00082
	12/16/13	<0.00050	<0.00050	<0.00050	<0.00050	0.0065	<0.00050	0.0014	0.230	0.0064	<0.00050	0.210	0.0035	<0.00050	0.180	0.0028
	3/21/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.039	0.00057	<0.00050	0.019	<0.00050
	6/25/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00068	0.041	0.00160	<0.00050	0.190	0.0023	<0.00050	0.091	0.0011
	9/30/2014	<0.00090	<0.00090	<0.00090	<0.00090	0.0023	<0.00090	<0.00090	0.077	0.0023	<0.00090	0.23	0.0029	<0.00090	0.11	0.0013
	12/15/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.035	0.00064	<0.00050	0.018	<0.00050
	3/19/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.00077	<0.00050	<0.00050	0.019	0.00060	<0.00050	0.16	0.0020	<0.00050	0.060	<0.00050
	6/17/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.00093	<0.00050	0.00054	0.013	0.00078	<0.00050	0.16	0.0019	<0.00050	0.062	0.0016
	9/17/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.002	<0.00050	<0.00050	0.07	0.0022	<0.00050	0.032	<0.00050
	12/8/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.00350	<0.00050	0.00085	0.145	0.00420	<0.00050	0.20	0.0024	<0.00050	0.113	0.0020
	12/8/2015 DUP	<0.00050	<0.00050	<0.00050	<0.00050	0.00370	<0.00050	0.00093	0.153	0.00440	<0.00050	0.20	0.0025	<0.00050	0.118	0.0021
MW-10	12/02/96	<0.00050	<0.00050	<0.00050	<0.00020	<0.00030	<0.00050	<0.00020	<0.00020	<0.0010	<0.00020	0.0027	<0.0010	--	0.0004	<0.00050
	11/13/97	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00153	<0.00050	--	0.00365	<0.0010
	08/11/99	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00202	<0.0010	--	0.00124	<0.00050
	11/16/99	<0.0010	<0.0025	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0696	0.00189	--	0.0103	<0.00050
	02/28/00	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00163	<0.0010	--	0.00116	<0.00050
	06/27/00	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00172	<0.0010	--	0.00374	<0.00050
	05/30/01	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00125	<0.0010	--	0.00252	<0.00050
	05/30/02	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00405	<0.00050	--	0.00143	<0.00050
	05/28/03	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	0.00086	<0.00050	<0.00050	0.00221	<0.00050	--	0.00128	<0.00050
	11/02/04	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00093	<0.00050	--	0.00098	<0.00050
	11/16/04	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0041	<0.00050	--	0.0034	<0.00050
	03/23/05	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00102	<0.00050	--	0.00121	<0.00050
	05/17/05	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00126	<0.00050	--	0.00119	<0.00050
	09/12/07	<0.00100	<0.00050	<0.00050	<0.00100	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00059 J	<0.00050	--	0.00083	<0.00050
	03/05/08	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	0.00166	<0.000500	<0.000500	0.00167	<0.000500
09/18/08	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	0.00113	<0.000500	<0.000500	0.0014	<0.000500	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)															
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride	
MW-10 (continued)	03/25/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0015	<0.00050	<0.00050	0.0016	<0.00050	
	09/16/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0014	<0.00050	<0.00050	0.0020	<0.00050	
	03/18/10	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0013	<0.00050	<0.00050	0.0016	<0.00050	
	09/22/10	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0012	<0.0005	<0.0005	0.0014	<0.0005	
	03/09/11	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0014	<0.00050	<0.00050	0.0008	<0.00050	
	09/14/11	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.001	<0.00050	<0.00050	0.0021	<0.00050	
	03/06/12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0012	<0.00050	<0.00050	0.0020	<0.00050	
	09/12/12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0010	<0.00050	<0.00050	0.0014	<0.00050	
	03/13/13	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0026	<0.00050	<0.00050	0.0031	<0.00050	
	09/18/13	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0013	<0.00050	<0.00050	0.0014	<0.00050	
	3/19/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0012	<0.00050	<0.00050	0.0088	<0.00050	<0.00050	0.016	<0.00050
	9/26/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0020	<0.00050	<0.00050	0.0020	<0.00050	
	3/18/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0017	<0.00050	<0.00050	0.0018	<0.00050	
	9/21/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0024	<0.00050	<0.00050	0.0016	<0.00050	
MW-11	12/02/96	<0.0500	<0.0500	<0.0500	<0.0200	<0.0300	<0.0500	0.052	0.14	<0.100	<0.0200	2.20	0.55	--	5.90	<0.0500	
	11/13/97	<0.0500	<0.100	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	0.686	0.0903	--	2.72	<0.100	
	08/10/99	<0.0050	<0.0250	<0.0025	<0.0025	0.0137	<0.0025	0.0228	0.0144	<0.0025	<0.0025	0.259	0.112	--	1.30	<0.0025	
	11/16/99	<0.0200	<0.0500	<0.0100	<0.0200	0.012	<0.0100	0.0168	0.0188	<0.0100	<0.0100	0.478	0.0948	--	1.50	<0.0100	
	02/28/00	<0.0050	<0.0250	<0.0025	<0.0025	0.00271	<0.0025	0.0079	0.00505	<0.0025	<0.0025	0.247	0.0302	--	0.473	<0.0025	
	06/27/00	<0.0100	<0.0500	<0.0050	<0.0050	0.0121	<0.0050	0.0289	0.0148	<0.0050	<0.0050	0.337	0.108	--	1.39	<0.0050	
	08/31/00	<0.0200	<0.100	<0.0100	<0.0100	0.0154	<0.0100	0.028	0.0248	<0.0100	<0.0100	0.646	0.159	--	1.69	<0.0100	
	11/30/00	<0.0200	<0.100	<0.0100	<0.0100	0.0122	<0.0100	0.0264	0.0193	<0.0100	<0.0100	0.342	0.125	--	1.55	<0.0100	
	02/27/01	<0.005	<0.0250	<0.0025	<0.0025	0.00365	<0.0025	0.00782	0.0071	<0.0025	<0.0025	0.198	0.0351	--	0.468	<0.0025	
	05/30/01	<0.0100	<0.0500	<0.0050	<0.0050	0.0052	<0.0050	0.0136	0.00909	<0.0050	<0.0050	0.256	0.0488	--	0.858	<0.0050	
	09/25/01	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	0.26	0.057	--	0.82	<0.013	
	12/17/01	<0.0100	<0.0500	<0.0050	<0.0050	<0.0050	<0.0050	0.0154	0.0259	<0.0050	<0.0050	0.983	0.0409	--	1.39	<0.0050	
	03/18/02	<0.0100	<0.0050	<0.0050	<0.0100	0.0119	<0.0050	0.0194	0.0171	<0.0050	<0.0050	0.433	0.0798	--	1.37	<0.0050	
	05/30/02	<0.0100	<0.0050	<0.0050	<0.0100	0.0059	<0.0050	0.0109	0.0156	<0.0050	<0.0050	0.571	0.0456	--	0.965	<0.0050	
	11/07/02	<0.0100	<0.0050	<0.0050	<0.0100	0.015	<0.0050	0.0193	0.0189	<0.0050	<0.0050	0.347	0.112	--	1.64	<0.0050	
01/23/03	<0.0050	<0.0025	<0.0025	<0.0050	0.00335	<0.0025	0.0043	0.00535	<0.0025	<0.0025	0.265	0.0241	--	0.534	<0.0025		
05/28/03	<0.0100	<0.0050	<0.0050	<0.0100	0.0133	<0.0050	0.0179	0.0176	<0.0050	<0.0050	0.305	0.105	--	1.58	<0.0050		

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-11 (continued)	11/11/03	<0.0050	<0.0050	<0.0050	<0.0050	0.005	<0.0050	0.00515	0.00915	<0.0050	<0.0050	0.191	0.0388	--	0.504	<0.0050
	01/26/04	<0.0100	<0.0050	<0.0050	<0.0100	0.0096	<0.0050	0.0115	0.0135	<0.0050	<0.0050	0.369	0.0733	--	1.07	<0.0050
	03/22/04	Well Abandoned														
MW-12	12/02/96	<0.0500	<0.0500	<0.0500	<0.0200	<0.0300	<0.0500	<0.0200	0.029	<0.100	<0.0200	2.50	<0.100	--	0.95	<0.0500
	11/12/97	<0.250	<0.500	<0.250	<0.250	<0.250	<0.250	<0.250	2.71	<0.250	<0.250	12.9	0.645	--	5.40	<0.500
	08/11/99	<0.200	<0.001	<0.100	<0.100	0.12	<0.100	<0.100	2.68	<0.100	<0.100	11.3	0.758	--	3.52	<0.100
	11/16/99	<0.200	<0.500	<0.100	<0.200	<0.100	<0.100	<0.100	0.16	<0.100	<0.100	18.2	0.922	--	4.63	<0.100
	02/28/00	<0.200	<0.001	<0.100	<0.100	<0.100	<0.100	<0.100	0.908	<0.100	<0.100	3.78	<0.200	--	1.21	<0.100
	06/27/00	<0.100	<0.500	<0.0500	<0.0500	0.161	<0.0500	<0.0500	2.88	<0.0500	<0.0500	12.0	0.712	--	3.18	<0.0500
	05/30/01	<0.0500	<0.250	<0.0250	<0.0250	0.0648	<0.0250	0.054	1.65	<0.0250	<0.0250	4.99	0.298	--	1.81	<0.0250
	05/30/02	<0.0050	<0.0025	<0.0025	<0.0050	0.00425	<0.0025	<0.0025	0.101	<0.0025	<0.0025	0.344	0.0066	--	0.0816	<0.0025
	05/29/03	<0.0050	<0.0025	<0.0025	<0.0050	0.0284	<0.0025	0.008	0.601	0.0057	<0.0025	0.362	0.0182	--	0.199	<0.0025
	11/16/04	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	0.059	<0.0025	<0.0025	0.41	0.0035	--	0.096	<0.0025
	03/23/05	<0.0200	<0.0100	<0.0100	<0.0200	0.247	<0.0100	0.053	3.64	0.0402	<0.0100	1.08	0.0498	--	0.639	0.0142
	05/18/05	<0.0010	<0.00050	<0.00050	<0.0010	0.001	<0.00050	0.001	0.0301	0.00057	<0.00050	0.0511	0.00092	--	0.0214	<0.00050
	05/22/07	<0.00500	<0.00500	<0.00500	<0.00500	0.0356	<0.00500	0.00745	0.785	0.0111	<0.00500	0.233	0.0078	--	0.139	<0.00500
	09/11/07	<0.100	<0.0500	<0.0500	<0.100	0.316	<0.0500	0.057	6.70	0.053	<0.0500	0.431	<0.0500	--	0.516	<0.0500
	12/12/07	<0.00200	<0.00100	<0.00100	<0.00200	0.0011	<0.00100	<0.00100	0.0438	<0.00100	<0.00100	0.106	0.00316	--	0.0396	<0.00100
	03/05/08	<0.00100	0.00497	<0.000500	<0.00100	0.156	0.00201	0.0462	3.17	0.0418	<0.000500	0.44	0.0212	<0.000500	0.329	0.0185
	09/19/08	<0.0500	<0.0250	<0.0250	<0.0500	0.394	<0.0250	0.066	7.65	0.069	<0.0250	0.968	0.045	<0.0250	0.924	0.058
	12/10/08	<0.0040	<0.0040	<0.0040	<0.0040	0.033	<0.0040	0.0066	0.67	0.0087	<0.0040	0.099	0.005	<0.0040	0.08	<0.0040
	03/27/09	<0.0040	0.0048	<0.0040	<0.0040	0.23	<0.0040	0.039	4.80	0.046	<0.0040	0.54	0.028	<0.0040	0.44	0.031
	03/27/09 DUP	<0.0040	0.005	<0.0040	<0.0040	0.25	<0.0040	0.044	4.70	0.051	<0.0040	0.60	0.032	<0.0040	0.49	0.035
06/18/09	<0.015	<0.015	<0.015	<0.015	0.17	<0.015	0.032	3.50	0.036	<0.015	0.27	<0.015	<0.015	0.23	0.026	
06/18/09 DUP	<0.015	<0.015	<0.015	<0.015	0.17	<0.015	0.032	3.60	0.037	<0.015	0.31	<0.015	<0.015	0.25	0.025	
09/18/09	<0.015	<0.015	<0.015	<0.015	0.24	<0.015	0.046	4.2	0.05	<0.015	0.54	0.0260	<0.015	0.44	0.051	
09/18/09 DUP	<0.015	<0.015	<0.015	<0.015	0.26	<0.015	0.049	4.6	0.052	<0.015	0.59	0.0280	<0.015	0.47	0.056	
12/18/09	<0.00050	<0.00050	<0.00050	<0.00050	0.002	<0.00050	<0.00050	0.1	0.0011	0.0013	0.17	0.0022	<0.00050	0.065	<0.00050	
12/18/09 DUP	<0.00050	<0.00050	<0.00050	<0.00050	0.002	<0.00050	<0.00050	0.096	0.0011	0.0013	0.16	0.0021	<0.00050	0.062	<0.00050	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-12	03/19/10	<0.00050	0.0041	<0.00050	<0.00050	0.220	0.0026	0.048	4.4	0.053	<0.00050	0.48	0.0280	0.0007	0.380	0.037
(continued)	03/19/10 DUP	<0.015	<0.015	<0.015	<0.015	0.270	<0.015	0.044	4.9	0.054	<0.015	0.60	0.0290	<0.015	0.460	0.039
	06/16/10	<0.00050	<0.00050	<0.00050	<0.00050	0.001	<0.00050	<0.00050	0.019	<0.00050	<0.00050	0.038	<0.00050	<0.00050	0.017	<0.00050
	06/16/10 DUP	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.018	0.00054	<0.00050	0.0370	<0.00050	<0.00050	0.016	<0.00050
	09/23/10	<0.015	<0.015	<0.015	<0.015	0.260	<0.015	0.047	4.8	0.056	<0.015	0.780	0.038	<0.015	0.560	0.068
	9/23/10 DUP	<0.015	<0.015	<0.015	<0.015	0.260	<0.015	0.049	4.8	0.057	<0.015	0.800	0.041	<0.015	0.580	0.065
	12/09/10	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.004	<0.0005	<0.0005	0.005	<0.0005	<0.0005	0.0021	<0.0005
	12/09/10 DUP	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.004	<0.0005	<0.0005	0.0058	<0.0005	<0.0005	0.002	<0.0005
	03/10/11	<0.00050	0.00067	<0.00050	<0.00050	0.094	0.00096	0.017	1.9	0.019	0.00055	0.340	0.012	<0.00050	0.220	0.011
	03/10/11 DUP	<0.00050	0.00087	<0.00050	<0.00050	0.093	0.001	0.017	1.6	0.019	0.00055	0.260	0.013	<0.00050	0.180	0.011
	06/07/11	<0.0005	<0.0005	<0.0005	<0.0005	0.0018	<0.0005	<0.0005	0.059	0.0010	<0.0005	0.053	0.0007	<0.0005	0.025	<0.0005
	06/07/11 DUP	<0.0005	<0.0005	<0.0005	<0.0005	0.0018	<0.0005	<0.0005	0.06	0.001	<0.0005	0.058	0.00069	<0.0005	0.027	<0.0005
	09/19/11	<0.00050	0.003	<0.00050	<0.00050	0.24	0.0025	0.045	4.7	0.055	<0.00050	0.86	0.065	0.00094	0.69	0.063
	09/19/11 DUP	<0.02	<0.02	<0.02	<0.02	0.24	<0.02	0.053	4.7	0.06	<0.02	0.86	0.06	<0.02	0.68	0.068
	12/07/11	<0.00050	<0.00050	<0.00050	<0.00050	0.13	0.0013	0.028	2.9	0.033	<0.00050	0.52	0.034	0.00054	0.38	0.04
	12/07/11 DUP	<0.00050	<0.015	<0.00050	<0.00050	0.14	0.0013	0.029	2.9	0.033	<0.00050	0.58	0.034	0.00055	0.4	0.041
	03/12/12	<0.015	<0.015	<0.015	<0.015	0.210	<0.015	0.0440	3.80	0.0450	<0.015	0.7700	0.0480	<0.015	0.5400	0.05
	03/12/12 DUP	<0.020	<0.020	<0.020	<0.020	0.220	<0.020	0.0440	4.00	0.0470	<0.020	0.7400	0.0500	<0.020	0.5400	0.05
	06/22/2012	<0.005	<0.005	<0.005	<0.005	0.100	<0.005	0.0160	1.70	0.0390	<0.005	0.2700	0.0130	<0.005	0.2000	0.02
	06/22/12 DUP	<0.005	<0.005	<0.005	<0.005	0.100	<0.005	0.0160	1.70	0.0390	<0.005	0.2700	0.0130	<0.005	0.1900	0.02
	09/14/12	<0.0050	<0.0050	<0.0050	<0.0050	0.220	<0.0050	0.0450	4.70	0.0560	<0.0050	0.8900	0.0610	<0.0050	0.5900	0.06
	09/14/12 DUP	<0.015	<0.015	<0.015	<0.015	0.270	<0.015	0.0580	5.40	0.0730	<0.015	1.1000	0.0760	<0.015	0.7300	0.08
	12/13/12	<0.00050	<0.00050	<0.00050	<0.00050	0.0010	<0.00050	<0.00050	0.062	0.00097	<0.00050	0.038	0.00052	<0.00050	0.022	<0.00050
	12/13/12 DUP	<0.00050	<0.00050	<0.00050	<0.00050	0.0010	<0.00050	<0.00050	0.062	0.00092	<0.00050	0.038	0.00053	<0.00050	0.023	<0.00050
	03/15/13	<0.00050	0.0010	<0.00050	<0.00050	0.20	0.0017	0.040	4.3	0.055	<0.00050	0.76	0.053	0.00071	0.54	0.053
	03/15/13 DUP	<0.00050	0.0010	<0.00050	<0.00050	0.20	0.0018	0.040	4.2	0.056	<0.00050	0.75	0.052	0.00066	0.52	0.054
	06/13/13	<0.015	<0.015	<0.015	<0.015	0.23	<0.015	0.038	4.7	0.053	<0.015	0.59	0.044	<0.015	0.48	0.055
	06/13/13 DUP	<0.015	<0.015	<0.015	<0.015	0.24	<0.015	0.039	4.8	0.053	<0.015	0.61	0.046	<0.015	0.50	0.059
	09/20/13	<0.00050	<0.00050	<0.00050	<0.00050	0.17	0.0016	0.037	3.4	0.049	<0.00050	0.51	0.037	0.00066	0.4	0.05

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-12 (continued)	09/20/13 DUP	<0.00050	<0.00050	<0.00050	<0.00050	0.18	0.0017	0.036	3.4	0.048	<0.00050	0.52	0.037	0.00063	0.4	0.049
	12/16/13	<0.0025	<0.0025	<0.0025	<0.0025	0.036	<0.0025	0.0075	0.80	0.010	<0.0025	0.15	0.0057	<0.0025	0.11	0.0096
	12/16/13 DUP	<0.0025	<0.0025	<0.0025	<0.0025	0.035	<0.0025	0.0076	0.77	0.0096	<0.0025	0.14	0.0058	<0.0025	0.11	0.0098
	3/24/2014	<0.00050	<0.00050	<0.00050	<0.00050	0.11	0.00077	0.018	1.9	0.025	<0.00050	0.18	0.0086	<0.00050	0.17	0.047
	3/24/2014 DUP	<0.0070	<0.0070	<0.0070	<0.0070	0.097	<0.0070	0.016	1.9	0.022	<0.0070	0.17	0.0075	<0.0070	0.14	0.035
	6/24/2014	<0.0015	<0.0015	<0.0015	<0.0015	0.014	<0.0015	0.0017	0.3	0.0021	<0.0015	0.042	<0.0015	<0.0015	0.03	<0.0015
	6/24/2014 DUP	<0.0015	<0.0015	<0.0015	<0.0015	0.014	<0.0015	0.0019	0.31	0.0023	<0.0015	0.042	0.0016	<0.0015	0.034	<0.0015
	9/30/2014	<0.015	<0.015	<0.015	<0.015	0.190	<0.015	0.039	3.50	0.045	<0.015	0.67	0.036	<0.015	0.48	0.042
	9/30/2014 DUP	<0.015	<0.015	<0.015	<0.015	0.180	<0.015	0.039	3.50	0.045	<0.015	0.68	0.035	<0.015	0.46	0.042
	12/11/2014	<0.00050	<0.00050	<0.00050	<0.00050	0.00072	<0.00050	<0.00050	0.034	0.00064	<0.00050	0.025	<0.00050	<0.00050	0.015	<0.00050
	12/11/2014 DUP	<0.00050	<0.00050	<0.00050	<0.00050	0.00073	<0.00050	<0.00050	0.032	0.00060	<0.00050	0.024	<0.00050	<0.00050	0.014	<0.00050
	3/20/2015	<0.0050	<0.0050	<0.0050	<0.0050	0.102	<0.0050	0.025	2.11	0.029	<0.0050	0.58	0.018	<0.0050	0.34	0.037
	3/20/15 DUP	<0.0125	<0.0125	<0.0125	<0.0125	0.143	<0.0125	0.026	2.49	0.029	<0.0125	0.50	0.022	<0.0125	0.34	0.029
	6/19/2015	<0.010	<0.010	<0.010	<0.010	0.15	<0.010	0.028	2.57	0.025	<0.010	0.51	0.024	<0.010	0.36	0.031
	6/19/2015 DUP	<0.010	<0.010	<0.010	<0.010	0.16	<0.010	0.031	2.68	0.030	<0.010	0.52	0.023	<0.010	0.36	0.033
	9/22/2015	<0.0083	<0.0083	<0.0083	<0.0083	0.12	<0.0083	0.017	2.25	0.023	<0.0083	0.34	0.016	<0.0083	0.24	0.023
9/22/2015 DUP	<0.0083	<0.0083	<0.0083	<0.0083	0.13	<0.0083	0.021	2.49	0.026	<0.0083	0.43	0.020	<0.0083	0.28	0.027	
12/8/2015	<0.0050	<0.0050	<0.0050	<0.0050	0.01	<0.0050	<0.0050	0.04	0.001	<0.0050	0.05	0.001	<0.0050	0.02	<0.0050	
MW-13	12/02/96	0.0007	<0.00050	<0.00050	<0.00020	<0.00030	<0.00050	0.0003	0.0091	<0.0010	<0.00020	0.75	0.0066	--	0.082	<0.00050
	11/12/97	<0.250	<0.500	<0.250	<0.250	0.291	<0.250	<0.250	5.05	<0.250	<0.250	18.1	<0.250	--	9.05	<0.500
	08/11/99	<0.200	<0.001	<0.100	<0.100	<0.100	<0.100	<0.100	2.28	<0.100	<0.100	9.59	<0.200	--	3.92	<0.100
	11/16/99	<0.0500	<0.125	<0.0250	<0.0500	0.108	<0.0250	0.051	2.62	<0.0250	<0.0250	7.21	0.0675	--	3.05	--
	02/28/00	<0.200	<0.001	<0.100	<0.100	<0.100	<0.100	<0.100	0.562	<0.100	<0.100	1.34	<0.200	--	0.602	<0.100
	06/28/00	<0.100	<0.500	<0.0500	<0.0500	0.132	<0.0500	0.142	4.21	<0.0500	<0.0500	14.7	0.155	--	6.36	<0.0500
	05/30/01	<0.200	<1	<0.100	<0.100	<0.100	<0.100	<0.100	2.46	<0.100	<0.100	10.3	<0.200	--	4.62	<0.100
	05/30/02	<0.0020	<0.0010	<0.0010	<0.0020	0.00144	<0.0010	0.00128	0.0604	<0.0010	<0.0010	0.241	0.00168	--	0.0864	<0.0010
	05/28/03	<0.0010	<0.00050	<0.00050	<0.0010	0.00171	<0.00050	0.00175	0.0796	0.00126	<0.00050	0.121	0.00158	--	0.13	<0.00050
	11/16/04	<0.0120	<0.0120	<0.0120	<0.0120	<0.0120	<0.0120	<0.0120	<0.0120	<0.0120	<0.0120	1.20	<0.0120	--	0.23	<0.0120
	05/18/05	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	0.00314	<0.00050	<0.00050	0.0712	<0.00050	--	0.0103	<0.00050
	09/12/07	<0.0500	<0.0250	<0.0250	<0.0500	0.055	<0.0250	0.028	1.29	<0.0250	<0.0250	2.73	0.0295	--	2.02	<0.0250
	12/12/07	<0.00100	<0.00050	<0.00050	<0.00100	<0.00050	<0.00050	<0.00050	0.00336	<0.00050	<0.00050	0.0513	0.0006	--	0.0195	<0.00050
	03/05/08	<0.00100	<0.000500	<0.000500	<0.00100	0.00832	<0.000500	0.00446	0.174	0.00452	<0.000500	0.383	0.00421	<0.000500	0.337	0.001

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-13 (continued)	06/25/08	<0.00500	<0.00500	<0.00500	<0.00500	0.0152	<0.00500	<0.00500	0.32	0.0104	<0.00500	0.132	<0.00500	--	0.16	<0.00500
	09/19/08	<0.00500	<0.00250	<0.00250	<0.00500	0.0056	<0.00250	<0.00250	0.116	0.00265	<0.00250	0.266	<0.00250	<0.00250	0.187	<0.00250
	12/10/08	<0.00050	<0.00050	<0.00050	<0.00050	0.0015	<0.00050	0.00062	0.032	0.00069	<0.00050	0.025	0.0006	<0.00050	0.039	<0.00050
	03/27/09	<0.00050	<0.00050	<0.00050	<0.00050	0.0007	<0.00050	<0.00050	0.015	<0.00050	<0.00050	0.025	<0.00050	<0.00050	0.017	<0.00050
	03/27/09 DUP	<0.00050	<0.00050	<0.00050	<0.00050	0.00079	<0.00050	<0.00050	0.015	<0.00050	<0.00050	0.025	<0.00050	<0.00050	0.017	<0.00050
	06/18/09	<0.00050	<0.00050	<0.00050	<0.00050	0.0024	<0.00050	0.0008	0.058	0.0018	<0.00050	0.016	<0.00050	<0.00050	0.042	<0.00050
	09/17/09	<0.00050	<0.00050	<0.00050	<0.00050	0.0058	<0.00050	0.0033	0.13	0.0029	<0.00050	0.43	0.004	<0.00050	0.27	0.001
	12/18/09	<0.00050	<0.00050	<0.00050	<0.00050	0.0062	<0.00050	<0.00050	0.016	<0.00050	<0.00050	0.066	0.00061	<0.00050	0.045	<0.00050
	03/19/10	<0.00050	<0.00050	<0.00050	<0.00050	0.0027	<0.00050	0.0014	0.064	0.0012	<0.00050	0.13	0.0013	<0.00050	0.11	<0.00050
	06/16/10	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0021	<0.00050	<0.00050	0.014	<0.00050	<0.00050	0.0076	<0.00050
	09/23/10	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0027	<0.0005	<0.0005	0.045	<0.0005	<0.0005	0.012	<0.0005
	12/21/10	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	03/11/11	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0015	<0.00050	<0.00050	0.00065	<0.00050
	06/09/11	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0018	<0.0005	<0.0005	0.0061	<0.0005	<0.0005	0.0042	<0.0005
	09/19/11	< 0.00050	0.00054	< 0.00050	< 0.00050	0.035	< 0.00050	0.017	0.7	0.02	< 0.00050	2.2	0.017	0.00063	1.3	0.0036
	12/09/11	< 0.0090	< 0.0090	< 0.0090	< 0.0090	0.023	< 0.0090	0.011	0.53	0.018	< 0.0090	2.8	0.012	< 0.0090	1.4	< 0.0090
	03/12/12	<0.0090	< 0.0090	< 0.0090	< 0.0090	0.024	< 0.0090	0.0140	0.60	0.0140	< 0.0090	1.8000	0.0110	< 0.0090	1.2000	< 0.0090
	06/22/12	< 0.004	< 0.004	< 0.004	< 0.004	0.040	< 0.004	0.0130	0.94	0.0300	< 0.004	1.3000	0.0086	< 0.004	1.0000	0.00
	09/14/12	< 0.0040	< 0.0040	< 0.0040	< 0.0040	0.038	< 0.0040	0.0210	0.90	0.0220	< 0.0040	3.1000	0.0160	< 0.0040	1.8000	< 0.0040
	12/13/12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.013	0.00062	<0.00050	0.088	<0.00050	<0.00050	0.051	<0.00050

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-13 (continued)	03/15/13	<0.00050	<0.00050	<0.00050	<0.00050	0.034	<0.00050	0.021	0.89	0.020	<0.00050	2.4	0.014	0.00068	1.7	0.0032
	06/14/13	<0.0040	<0.0040	<0.0040	<0.0040	0.019	<0.0040	0.0094	0.52	0.015	<0.0040	1.1	0.0060	<0.0040	0.92	<0.0040
	09/20/13	<0.00050	<0.00050	<0.00050	<0.00050	0.04	<0.00050	0.02	0.77	0.019	<0.00050	2.6	0.013	0.00074	1.7	0.0034
	12/13/13	<0.0040	<0.0040	<0.0040	<0.0040	0.011	<0.0040	0.0066	0.28	0.0058	<0.0040	1.3	0.005	<0.0040	0.72	<0.0040
	3/21/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.014	<0.00050	<0.00050	0.1	<0.00050	<0.00050	0.054	<0.00050
	6/24/2014	<0.00050	<0.00050	<0.00050	<0.00050	0.012	<0.00050	<0.00050	0.88	0.033	<0.00050	1.5	0.0120	0.00067	1.3	0.0032
	09/30/14	<0.0040	<0.0040	<0.0040	<0.0040	0.038	<0.0040	0.020	0.890	0.019	<0.0040	3.1	0.013	<0.0040	2.0	<0.0040
	12/11/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.018	0.00066	<0.00050	0.091	<0.00050	<0.00050	0.065	<0.00050
	3/18/2015	<0.0016	<0.0016	<0.0016	<0.0016	0.019	<0.0016	0.0031	0.52	0.0074	<0.0016	0.55	0.0024	<0.0016	0.61	<0.0016
	6/18/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.034	<0.00050	0.016	0.62	0.015	<0.00050	2.0	0.010	<0.00050	1.4	0.0020
	9/22/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.034	<0.00050	0.021	0.75	0.016	<0.00050	2.4	0.010	<0.00050	1.7	0.0024
12/8/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.001	<0.00050	0.001	0.03	0.001	<0.00050	0.2	0.001	<0.00050	0.1	<0.00050	
MW-14	11/12/97	<0.0050	<0.0100	<0.0050	<0.0050	0.00501	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0426	<0.0050	--	0.394	<0.0100
	08/10/99	<0.0200	<0.100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0151	<0.0100	<0.0100	0.121	0.0356	--	0.853	<0.0100
	11/16/99	<0.0020	<0.0050	<0.0010	<0.0020	0.00248	<0.0010	0.00248	0.0042	<0.0010	<0.0010	0.186	0.0108	--	0.313	<0.0010
	02/28/00	<0.100	<0.500	<0.0500	<0.0500	<0.0500	<0.0500	0.0832	0.0851	<0.0500	<0.0500	0.711	0.19	--	5.30	<0.0500
	06/27/00	<0.0100	<0.0500	<0.0050	<0.0050	0.0101	<0.0050	0.0189	0.219	<0.0050	<0.0050	0.207	0.0462	--	1.15	<0.0050
	11/30/00	<0.0020	<0.0100	<0.0010	<0.0010	0.00108	<0.0010	0.00188	0.00227	<0.0010	<0.0010	0.0213	0.00554	--	0.157	<0.0010
	05/30/01	<0.0010	<0.0050	<0.0050	<0.0050	0.00616	<0.0050	0.0138	0.0304	<0.0050	<0.0050	0.268	0.0282	--	1.28	<0.0050
	05/30/02	<0.0100	<0.0050	<0.0050	<0.0100	<0.0050	<0.0050	<0.0050	0.0084	<0.0050	<0.0050	0.0783	0.0119	--	0.303	<0.0050
	05/28/03	<0.0010	<0.00050	<0.00050	<0.0010	0.0009	<0.00050	0.00147	0.00415	<0.00050	<0.00050	0.0806	0.00499	--	0.188	<0.00050
	11/15/04	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	0.096	<0.0250	<0.0250	0.48	<0.0250	--	1.20	<0.0250
	05/17/05	<0.0020	<0.0010	<0.0010	<0.0020	0.00464	<0.0010	0.0023	0.0411	<0.0010	<0.0010	0.127	0.00928	--	0.367	<0.0010
	09/12/07	<0.0200	<0.0100	<0.0100	<0.0200	0.0216	<0.0100	<0.0100	0.162	<0.0100	<0.0100	0.18	0.0222	--	0.963	<0.0100
	03/05/08	<0.00100	<0.000500	0.000850 J	<0.00100	0.0243	<0.000500	0.0139	0.217	0.00386	<0.000500	0.549	0.0272	<0.000500	1.77	<0.000500
	06/25/08	<0.00500	<0.00500	<0.00500	<0.00500	0.0152	<0.00500	0.0102	0.113	<0.00500	<0.00500	0.36	0.0182	--	1.29	<0.00500
	09/19/08	<0.00500	<0.00250	<0.00250	<0.00500	0.0191	<0.00250	0.0086	0.173	<0.00250	<0.00250	0.425	0.0166	<0.00250	1.32	<0.00250
	12/10/08	<0.0050	<0.0050	<0.0050	<0.0050	0.017	<0.0050	0.0096	0.16	<0.0050	<0.0050	0.33	0.017	<0.0050	1.20	<0.0050
	03/27/09	<0.0025	<0.0025	<0.0025	<0.0025	0.016	<0.0025	0.0067	0.16	0.0025	<0.0025	0.32	0.014	<0.0025	0.98	<0.0025
06/17/09	<0.0025	<0.0025	<0.0025	<0.0025	0.021	<0.0025	0.012	0.15	<0.0025	<0.0025	0.40	0.021	<0.0025	1.40	<0.0025	
09/18/09	<0.00050	<0.00050	0.00074	<0.00050	0.019	<0.00050	0.0088	0.15	0.002	<0.00050	0.44	0.017	<0.00050	1.30	<0.00050	
12/15/09	<0.0025	<0.0025	<0.0025	<0.0025	0.011	<0.0025	0.0047	0.12	<0.0025	<0.0025	0.41	0.0076	<0.0025	0.82	<0.0025	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-14 (continued)	03/17/10	<0.0025	<0.0025	<0.0025	<0.0025	0.022	<0.0025	0.0095	0.14	<0.0025	<0.0025	0.32	0.015	<0.0025	1.3	<0.0025
	07/02/10	<0.0025	<0.0025	<0.0025	<0.0025	0.0070	<0.0025	0.0048	0.052	<0.0025	<0.0025	0.22	0.0059	<0.0025	0.61	<0.0025
	09/22/10	<0.003	<0.003	<0.003	<0.003	0.016	<0.003	0.0065	0.140	<0.003	<0.003	0.230	0.01	<0.003	0.800	<0.003
	12/08/10	<0.0005	<0.0005	<0.0005	<0.0005	0.001	<0.0005	0.0007	0.011	<0.0005	<0.0005	0.082	0.0015	<0.0005	0.150	<0.0005
	03/09/11	<0.0030	<0.0030	<0.0030	<0.0030	0.0068	<0.0030	0.0038	0.055	<0.0030	<0.0030	0.200	0.005	<0.0030	0.540	<0.0030
	06/08/11	<0.0005	<0.0005	<0.0005	<0.0005	0.00064	<0.0005	<0.0005	0.0018	<0.0005	<0.0005	0.027	0.0011	<0.0005	0.066	<0.0005
	09/14/11	< 0.0025	< 0.0025	< 0.0025	< 0.0025	0.012	< 0.0025	0.0057	0.12	< 0.0025	< 0.0025	0.3	0.008	< 0.0025	0.85	< 0.0025
	12/06/11	< 0.0025	< 0.0025	< 0.0025	< 0.0025	0.0084	< 0.0025	0.0039	0.088	< 0.0025	< 0.0025	0.32	0.0057	< 0.0025	0.74	< 0.0025
	03/07/12	< 0.0025	< 0.0025	< 0.0025	< 0.0025	0.009	< 0.0025	0.0046	0.09	< 0.0025	< 0.0025	0.2700	0.0061	< 0.0025	0.7600	< 0.0025
	06/19/12	< 0.0025	< 0.0025	< 0.0025	< 0.0025	0.011	< 0.0025	0.0056	0.07	< 0.0025	< 0.0025	0.2000	0.0074	< 0.0025	0.7300	< 0.0025
	09/11/12	< 0.0025	< 0.0025	< 0.0025	< 0.0025	0.011	< 0.0025	0.0051	0.11	< 0.0025	< 0.0025	0.2800	0.0066	< 0.0025	0.7300	< 0.0025
	12/12/12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00051	<0.00050	<0.00050	0.016	<0.00050	<0.00050	0.027	<0.00050
	03/12/13	<0.00050	<0.00050	0.00056	<0.00050	0.012	<0.00050	0.0044	0.10	0.0017	<0.00050	0.23	0.0072	<0.00050	0.67	<0.00050
	06/12/13	<0.0030	<0.0030	<0.0030	<0.0030	0.011	<0.0030	0.0050	0.084	<0.0030	<0.0030	0.26	0.0066	<0.0030	0.77	<0.0030
	09/18/13	<0.00050	<0.00050	<0.00050	<0.00050	0.013	<0.00050	0.0046	0.13	0.0020	<0.00050	0.24	0.0059	<0.00050	0.64	<0.00050
	12/11/13	<0.0015	<0.0015	<0.0015	<0.0015	0.0084	<0.0015	0.0028	0.083	<0.0015	<0.0015	0.18	0.0037	<0.0015	0.46	<0.0015
	3/18/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.011	<0.00050	<0.00050	0.02	<0.00050
	6/24/2014	<0.00050	<0.00050	<0.00050	<0.00050	0.017	<0.00050	0.0070	0.12	0.0018	<0.00050	0.21	0.00087	<0.00050	0.67	<0.00050
	9/24/2014	<0.0025	<0.0025	<0.0025	<0.0025	0.010	<0.0025	0.0040	0.120	<0.0025	<0.0025	0.24	0.004	<0.0025	0.64	<0.0025
	12/9/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0047	<0.00050	<0.00050	0.029	0.00061	<0.00050	0.063	<0.00050
3/18/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.015	<0.00050	0.0059	0.13	0.0022	<0.00050	0.31	0.0059	<0.00050	0.91	<0.00050	
6/16/2015	<0.0031	<0.0031	<0.0031	<0.0031	0.015	<0.0031	0.0049	0.12	<0.0031	<0.0031	0.25	0.0044	<0.0031	0.79	<0.0031	
9/21/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.015	< 0.00050	0.0056	0.12	0.0021	< 0.00050	0.20	0.0047	< 0.00050	0.65	< 0.00050	
12/8/2015	Not sampled; well monument under water.															
MW-15	11/13/97	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	0.0011	<0.00050	0.00678	<0.00050	<0.00050	0.00238	0.00168	--	0.00181	<0.0010
	11/16/99	<0.0010	<0.0025	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.967	0.0137	--	0.0634	<0.00050
	02/28/00	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0179	0.00155	--	0.00101	<0.00050
	06/27/00	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00544	0.00103	--	0.000565	<0.00050
	05/30/01	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00232	<0.0010	--	<0.00050	<0.00050
	05/31/02	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00259	0.00063	--	<0.00050	<0.00050
	05/29/03	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	0.00053	<0.00050	<0.00050	0.00442	<0.00050	--	0.0013	<0.00050
	11/02/04	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0019	<0.00050	--	<0.00050	<0.00050

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-15 (continued)	11/16/04	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00073	<0.00050	<0.00050	0.012	<0.00050	--	0.0031	<0.00050
	03/24/05	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.001	<0.00050	--	0.00149	<0.00050
	05/17/05	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00	<0.00050	--	0.001	<0.00050
	09/13/07	<0.00100	<0.00050	<0.00050	<0.00100	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00054 J	<0.00050	--	<0.00050	<0.00050
	03/07/08	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	0.00263 J	<0.000500	<0.000500	<0.000500	<0.000500
	09/18/08	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	0.001	<0.000500	<0.000500	<0.000500	<0.000500
	03/25/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.001	<0.00050	<0.00050	<0.00050	<0.00050
	09/17/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00	<0.00050	<0.00050	<0.00050	<0.00050
	03/18/10	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00	<0.00050	<0.00050	<0.00050	<0.00050
	09/23/10	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00076	<0.0005	<0.0005	<0.0005	<0.0005
	03/09/11	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	09/16/11	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00064	<0.00050	<0.00050	<0.00050	<0.00050
	03/09/12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0007	<0.00050	<0.00050	<0.00050	<0.00050
	09/10/12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0005	<0.00050	<0.00050	<0.00050	<0.00050
	03/14/13	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00058	<0.00050	<0.00050	<0.00050	<0.00050
	09/19/13	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00056	<0.00050	<0.00050	<0.00050	<0.00050
	3/21/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	9/30/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00087	<0.00050	<0.00050	<0.00050	<0.00050
3/18/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
9/23/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00062	<0.00050	<0.00050	<0.00050	<0.00050	
MW-16	11/12/97	<0.0050	<0.0100	<0.0050	<0.0050	0.0198	<0.0050	0.0278	0.0236	<0.0050	<0.0050	0.328	0.0575	--	0.142	<0.0100
	08/11/99	<0.0050	<0.0250	<0.0025	<0.0025	0.0152	<0.0025	<0.0025	0.0072	<0.0025	<0.0025	0.205	0.0556	--	0.0856	<0.0025
	02/28/00	<0.0020	<0.0100	<0.0010	<0.0010	0.0104	<0.0010	0.012	0.0074	<0.0010	<0.0010	0.523	0.0545	--	0.112	<0.0010
	06/27/00	<0.0100	<0.0500	<0.0050	<0.0050	0.0124	<0.0050	0.0139	0.00839	<0.0050	<0.0050	0.236	0.045	--	0.0938	<0.0050
	05/30/01	<0.0100	<0.0500	<0.0050	<0.0050	0.00928	<0.0050	0.012	0.00895	<0.0050	<0.0050	0.302	0.0301	--	0.11	<0.0050
	05/30/02	<0.0050	<0.0025	<0.0025	<0.0050	0.0135	<0.0025	0.0106	0.00865	<0.0025	<0.0025	0.467	0.024	--	0.119	<0.0025
	05/29/03	<0.0050	<0.0025	<0.0025	<0.0050	0.0036	<0.0025	0.00335	0.00285	<0.0025	<0.0025	0.412	0.0134	--	0.076	<0.0025
	11/02/04	<0.0020	<0.0100	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00166	<0.0010	<0.0010	0.26	0.0069	--	0.0254	<0.0010
	11/16/04	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	0.30	0.0078	--	0.026	<0.0025
	03/24/05	<0.0020	<0.0010	<0.0010	<0.0020	0.0018	<0.0010	0.00134	0.00196	<0.0010	<0.0010	0.373	0.0118	--	0.0494	<0.0010
05/17/05	<0.0010	<0.00050	<0.00050	<0.0010	0.00439	<0.00050	0.00314	0.00925	<0.00050	<0.00050	0.12	0.00909	--	0.0415	<0.00050	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-16 (continued)	11/15/05	<0.00100	<0.000500	<0.000500	<0.00100	0.00275	<0.000500	0.00186	0.0025	<0.000500	<0.000500	0.152	0.00894	--	0.0334	<0.000500
	06/06/06	<0.00200	<0.00200	<0.00200	<0.00200	0.0122	<0.00200	0.00338	0.21	<0.00200	<0.00200	0.0846	0.00256	--	0.0252	0.00564
	12/06/06	<0.00200	<0.00100	<0.00100	<0.00200	0.0042	<0.00100	0.00212	0.0167	<0.00100	<0.00100	0.176	0.00588	--	0.0456	<0.00100
	05/23/07	<0.00100	<0.00100	<0.00100	<0.00100	0.00257	<0.00100	<0.00100	0.014	<0.00100	<0.00100	0.0988	0.00335	--	0.0238	<0.00100
	09/13/07	<0.00100	<0.00050	<0.00050	<0.00100	0.00315	<0.00050	0.00108	0.0066	<0.00050	<0.00050	0.163	0.00587	--	0.0492	<0.00050
	12/12/07	<0.00200	<0.00100	<0.00100	<0.00100	0.00232	<0.00100	0.00144	0.0059	<0.00100	<0.00100	0.11	0.00592	--	0.0282	<0.00100
	03/07/08	<0.00100	<0.000500	<0.000500	<0.00100	0.003	<0.000500	0.00186	0.00593	<0.000500	<0.000500	0.28	0.00612	<0.000500	0.0733	<0.000500
	09/18/08	<0.00500	<0.00250	<0.00250	<0.00500	0.0027	<0.00250	<0.00250	0.00515	<0.00250	<0.00250	0.30	0.0062	<0.00250	0.0652	<0.00250
	12/09/08	<0.0010	<0.0010	<0.0010	<0.0010	0.0026	<0.0010	0.0018	0.0055	<0.0010	<0.0010	0.30	0.0057	<0.0010	0.067	<0.0010
	03/26/09	<0.00050	<0.00050	<0.00050	<0.00050	0.0014	<0.00050	0.00082	0.0032	<0.00050	<0.00050	0.15	0.0052	<0.00050	0.028	<0.00050
	06/17/09	<0.00050	<0.00050	<0.00050	<0.00050	0.005	<0.00050	0.00095	0.029	<0.00050	<0.00050	0.054	0.0018	<0.00050	0.016	0.00068
	09/17/09	<0.00050	<0.00050	<0.00050	<0.00050	0.0015	<0.00050	0.0011	0.002	<0.00050	<0.00050	0.22	0.0048	<0.00050	0.033	<0.00050
	12/17/09	<0.00050	<0.00050	<0.00050	<0.00050	0.0009	<0.00050	0.0006	0.0014	<0.00050	<0.00050	0.1	0.0032	<0.00050	0.019	<0.00050
	03/19/10	<0.00050	<0.00050	<0.00050	<0.00050	0.0012	<0.00050	0.0010	0.002	<0.00050	<0.00050	0.11	0.0045	<0.00050	0.036	<0.00050
	06/16/10	<0.00050	<0.00050	<0.00050	<0.00050	0.0049	<0.00050	0.0009	0.037	<0.00050	<0.00050	0.039	0.00094	<0.00050	0.0099	0.0016
	09/23/10	<0.0005	<0.0005	<0.0005	<0.0005	0.0014	<0.0005	0.00094	0.0028	<0.0005	<0.0005	0.240	0.0042	<0.0005	0.043	<0.0005
	12/10/10	<0.0005	<0.0005	<0.0005	<0.0005	0.0009	<0.0005	0.00054	0.0016	<0.0005	<0.0005	0.094	0.0024	<0.0005	0.018	<0.0005
	03/10/11	<0.00050	<0.00050	<0.00050	<0.00050	0.0018	<0.00050	0.0005	0.0062	<0.00050	<0.00050	0.110	0.0019	<0.00050	0.021	<0.00050
	06/09/11	<0.0005	<0.0005	<0.0005	<0.0005	0.0049	<0.0005	0.0012	0.063	<0.0005	<0.0005	0.028	<0.0005	<0.0005	0.0071	0.0022
	09/19/11	<0.00050	<0.00050	<0.00050	<0.00050	0.0012	<0.00050	<0.00050	0.0051	<0.00050	<0.00050	0.16	0.0027	<0.00050	0.013	<0.00050
	12/08/11	<0.00050	<0.00050	<0.00050	<0.00050	0.00092	<0.00050	0.00061	0.0022	<0.00050	<0.00050	0.21	0.0029	<0.00050	0.038	<0.00050
	06/20/12	<0.0005	<0.0005	<0.0005	<0.0005	0.004	<0.0005	0.0006	0.02	<0.0005	<0.0005	0.0600	0.0010	<0.0005	0.0140	0.00
	09/13/12	<0.00050	<0.00050	<0.00050	<0.00050	0.002	<0.00050	0.0006	0.01	<0.00050	<0.00050	0.1900	0.0024	<0.00050	0.0350	<0.00050
	12/13/12	<0.00050	<0.00050	<0.00050	<0.00050	0.0015	<0.00050	0.00068	0.0057	<0.00050	<0.00050	0.11	0.0011	<0.00050	0.024	<0.00050
	03/14/13	<0.00050	<0.00050	<0.00050	<0.00050	0.00098	<0.00050	0.00070	0.0047	<0.00050	<0.00050	0.20	0.0020	<0.00050	0.050	<0.00050
	06/14/13	<0.00050	<0.00050	<0.00050	<0.00050	0.0013	<0.00050	<0.00050	0.0060	<0.00050	<0.00050	0.084	0.00096	<0.00050	0.018	<0.00050
	09/19/13	<0.00050	<0.00050	<0.00050	<0.00050	0.00092	<0.00050	0.00075	0.0071	<0.00050	<0.00050	0.18	0.0014	<0.00050	0.057	<0.00050
	12/13/13	<0.00050	<0.00050	<0.00050	<0.00050	0.00080	<0.00050	0.00068	0.0059	<0.00050	<0.00050	0.16	0.0014	<0.00050	0.052	<0.00050
	3/20/2014	<0.00050	<0.00050	<0.00050	<0.00050	0.0027	<0.00050	0.00089	0.019	<0.00050	<0.00050	0.052	<0.00050	<0.00050	0.013	0.00055
	6/24/2014	<0.00050	<0.00050	<0.00050	<0.00050	0.0020	<0.00050	<0.00050	0.010	<0.00050	<0.00050	0.070	0.00070	<0.00050	0.012	<0.00050
	9/27/2014	<0.00050	<0.00050	<0.00050	<0.00050	0.00077	<0.00050	0.00066	0.0088	<0.00050	<0.00050	0.20	0.0014	<0.00050	0.047	<0.00050

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)															
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride	
MW-16 (continued)	12/11/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00064	< 0.00050	< 0.00050	0.0040	< 0.00050	< 0.00050	0.076	0.00096	< 0.00050	0.017	< 0.00050	
	3/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00070	< 0.00050	< 0.00050	0.0060	< 0.00050	< 0.00050	0.16	0.00094	< 0.00050	0.031	< 0.00050	
	6/17/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00061	< 0.00050	< 0.00050	0.011	< 0.00050	< 0.00050	0.18	0.0010	< 0.00050	0.042	< 0.00050	
	9/23/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00056	< 0.00050	0.00065	0.010	< 0.00050	< 0.00050	0.17	0.0012	< 0.00050	0.044	< 0.00050	
	12/7/2015	Not sampled; well monument under water.															
MW-17	11/13/97	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0019	< 0.00050	--	< 0.00050	< 0.0010	
	11/16/99	< 0.0010	< 0.0025	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.127	0.0015	--	0.00954	< 0.00050	
	02/28/00	< 0.0010	< 0.0050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00185	< 0.0010	--	0.00251	< 0.00050	
	06/27/00	< 0.0010	< 0.0050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00227	< 0.0010	--	< 0.00050	< 0.00050	
	05/30/01	< 0.0010	< 0.0050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.0010	--	< 0.00050	< 0.00050	
	05/30/02	< 0.0010	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00082	< 0.00050	--	< 0.00050	< 0.00050	
	05/28/03	< 0.0010	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00175	< 0.00050	--	0.00092	< 0.00050	
	11/15/04	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0025	< 0.00050	--	< 0.00050	< 0.00050	
	05/17/05	< 0.0010	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00806	< 0.00050	--	0.00668	< 0.00050	
	05/23/07	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	0.00882	< 0.00100	< 0.00100	0.0378	< 0.00100	--	0.0282	< 0.00100	
	09/11/07	< 0.00100	< 0.00050	< 0.00050	< 0.00100	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00050 J	< 0.00050	--	< 0.00050	< 0.00050	
	03/05/08	< 0.00100	< 0.000500	< 0.000500	< 0.00100	0.0009	< 0.000500	< 0.000500	0.00096	< 0.000500	< 0.000500	0.00105	< 0.000500	< 0.000500	0.00362	< 0.000500	
	09/19/08	< 0.00100	< 0.000500	< 0.000500	< 0.00100	< 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500	0.0008	< 0.000500	
	03/25/09	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00057	< 0.00050	< 0.00050	0.001	< 0.00050	< 0.00050	0.00069	< 0.00050	< 0.00050	0.003	< 0.00050	
	09/16/09	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.001	< 0.00050	< 0.00050	0.00072	< 0.00050	< 0.00050	0.0032	< 0.00050	
	03/23/10	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0012	< 0.00050	< 0.00050	0.004	< 0.00050	< 0.00050	0.00320	0.00058	< 0.00050	0.0180	< 0.00050	
	09/20/10	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.00069	< 0.0005	< 0.0005	0.0007	< 0.0005	< 0.0005	0.0030	< 0.0005	
	03/09/11	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00065	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0025	< 0.00050	< 0.00050	0.0082	< 0.00050	
	09/13/11	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00096	< 0.00050	< 0.00050	0.00071	< 0.00050	< 0.00050	0.0031	< 0.00050	
	03/07/12	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.002	< 0.00050	< 0.00050	< 0.00050	0.01	< 0.00050	< 0.00050	0.0068	0.0006	< 0.00050	0.0250	< 0.00050
	09/11/12	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00073	< 0.00050	< 0.00050	0.00066	< 0.00050	< 0.00050	0.0025	< 0.00050	
	03/12/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0019	< 0.00050	< 0.00050	0.0041	< 0.00050	< 0.00050	0.011	< 0.00050	
	09/17/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0016	< 0.00050	< 0.00050	0.0042	< 0.00050	< 0.00050	0.0089	< 0.00050	
3/18/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050		
9/24/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0015	< 0.00050	< 0.00050	0.0032	< 0.00050	< 0.00050	0.0068	< 0.00050		
3/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00071	< 0.00050	< 0.00050	0.0024	< 0.00050	< 0.00050	0.0039	< 0.00050	< 0.00050	0.0126	< 0.00050		
9/17/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0005	< 0.00050	< 0.00050	0.0025	< 0.00050	< 0.00050	0.0042	< 0.00050		

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-18i	09/29/00	ND	ND	0.000694	ND	0.000843	ND	ND	0.0165	ND	ND	0.0117	ND	--	0.00832	ND
	11/30/00	<0.0010	<0.0050	<0.00050	<0.00050	0.000907	<0.00050	<0.00050	0.0116	<0.00050	<0.00050	0.0124	<0.0010	--	0.0176	<0.00050
	02/27/01	<0.0050	<0.0250	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	0.102	<0.0025	<0.0025	0.0152	<0.0050	--	0.01	<0.0025
	05/30/01	<0.0050	<0.0250	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	0.00647	<0.0025	<0.0025	0.0295	<0.0050	--	0.00806	<0.0025
	09/25/01	<0.0010	<0.0010	<0.0010	<0.0010	0.0018	<0.0010	<0.0010	0.023	<0.0010	<0.0010	0.062	0.0023	--	0.039	<0.0010
	03/29/02	<0.0010	<0.00050	<0.00050	<0.0010	0.0012	<0.00050	<0.00050	0.0173	<0.00050	<0.00050	0.0711	0.00122	--	0.031	<0.00050
	05/30/02	<0.0010	<0.00050	<0.00050	<0.0010	0.00118	<0.00050	<0.00050	0.0186	<0.00050	<0.00050	0.0532	0.00114	--	0.0193	<0.00050
	08/29/02	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	0.00691	<0.00050	<0.00050	0.0182	<0.00050	--	0.00734	<0.00050
	11/07/02	<0.0010	<0.00050	<0.00050	<0.0010	0.00056	<0.00050	<0.00050	0.0101	<0.00050	<0.00050	0.0233	<0.00050	--	0.0097	<0.00050
	01/23/03	<0.0010	<0.00050	<0.00050	<0.0010	0.00068	<0.00050	<0.00050	0.0123	<0.00050	<0.00050	0.0276	0.0005	--	0.0125	<0.00050
	05/29/03	<0.0010	<0.00050	<0.00050	<0.0010	<0.00059	<0.00050	<0.00050	0.0104	<0.00050	<0.00050	0.0239	0.0005	--	0.0108	<0.00050
	11/11/03	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0161	<0.0010	<0.0010	0.0315	<0.0010	--	0.0163	<0.0010
	01/27/04	<0.0010	<0.00050	<0.00050	<0.0010	0.001	<0.00050	<0.00050	0.0142	<0.00050	<0.00050	0.0697	0.001	--	0.0	<0.00050
	05/04/04	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0156	<0.0010	<0.0010	0.112	<0.0010	--	0.0121	<0.0010
	08/17/04	<0.0010	<0.00050	0.00376	<0.00050	0.00081	0.00186	<0.00050	0.0226	0.00078	<0.00050	0.0438	0.00096	--	0.024	<0.0010
	11/02/04	<0.00050	<0.00050	<0.00050	<0.00050	0.00109	<0.00050	<0.00050	0.0218	<0.00050	<0.00050	0.0322	0.0006	--	0.0178	<0.00050
	11/16/04	<0.00050	<0.00050	<0.00050	<0.00050	0.001	<0.00050	<0.00050	0.024	<0.00050	<0.00050	0.042	0.00069	--	0.021	<0.00050
	02/01/05	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	0.00892	<0.00050	<0.00050	0.013	<0.00050	--	0.00601	<0.00050
	05/18/05	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	0.011	<0.00050	<0.00050	0.00969	<0.00050	--	0.01	<0.00050
	08/18/05	<0.00100	<0.000500	<0.000500	<0.00100	0.00117	<0.000500	<0.000500	0.0180 B	<0.000500	<0.000500	0.0214 B	0.00058	--	0.0163 B	<0.000500
	08/18/05 DUP	<0.00100	<0.000500	<0.000500	<0.00100	0.00117	<0.000500	<0.000500	0.0185 B	<0.000500	<0.000500	0.0218 B	0.00057	--	0.0162 B	<0.000500
	11/15/05	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	0.00731	<0.000500	<0.000500	0.0114	<0.000500	--	0.00631	<0.000500
	02/21/06	<0.00100	<0.000500	<0.000500	<0.00100	0.00093	<0.000500	<0.000500	0.0148	<0.000500	<0.000500	0.0243	0.00052	--	0.0152	<0.000500
	06/06/06	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.00588	<0.00100	<0.00100	0.00846	<0.00100	--	0.00447	<0.00100
	09/06/06	<0.00100	<0.00050	<0.00050	<0.00100	<0.00050	<0.00050	<0.00050	0.00579	<0.00050	<0.00050	0.00789	<0.00050	--	0.00423	<0.00050
	12/06/06	<0.00100	<0.00050	<0.00050	<0.00100	0.00056	<0.00050	<0.00050	0.0116	<0.00050	<0.00050	0.0112	<0.00050	--	0.00691	<0.00050
	02/07/07	<0.00100	<0.00050	<0.00050	<0.00100	0.00068	<0.00050	<0.00050	0.012	<0.00050	<0.00050	0.015	<0.00050	--	0.00932	<0.00050
	05/23/07	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.0146	<0.00100	<0.00100	0.0172	<0.00100	--	0.0113	<0.00100
	09/11/07	<0.00100	<0.00050	<0.00050	<0.00100	<0.00050	<0.00050	<0.00050	0.00487	<0.00050	<0.00050	0.00113	<0.00050	--	0.00146	<0.00050
	12/13/07	<0.00100	<0.00050	<0.00050	<0.00100	<0.00050	<0.00050	<0.00050	0.00299	<0.00050	<0.00050	0.00557	<0.00050	--	0.00332	<0.00050

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														Vinyl Chloride
		Bromo-form	Chloro-ethane	Chloro-form	Dibromo-chloro-methane	1,1-Dichloro-ethane	1,2-Dichloro-ethane	1,1-Dichloro-ethene	cis-1,2-Dichloro-ethene	trans-1,2-Dichloro-ethene	1,2-Dichloro-propane	Tetra-chloro-ethene	1,1,1-Trichloro-ethane	1,1,2-Trichloro-ethane	Trichloro-ethene	
MW-18i (continued)	03/06/08	<0.00100	<0.000500	<0.000500	<0.00100	0.001	<0.000500	<0.000500	0.0132	<0.000500	<0.000500	0.0132	<0.000500	<0.000500	0.00978	<0.000500
	06/10/08	<0.00100	0.001	0.001	<0.00100	<0.00100	<0.00100	<0.00100	0.00417	<0.00100	<0.00100	0.00431	<0.00100	--	0.00218	<0.00100
	09/17/08	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	0.00395	<0.000500	<0.000500	0.0031	<0.000500	<0.000500	0.00255	<0.000500
	12/09/08	<0.00050	<0.00050	<0.00050	<0.00050	0.0007	<0.00050	<0.00050	0.012	<0.00050	<0.00050	0.0085	<0.00050	<0.00050	0.0074	<0.00050
	03/26/09	<0.00050	<0.00050	<0.00050	<0.00050	0.00051	<0.00050	<0.00050	0.008	<0.00050	<0.00050	0.0048	<0.00050	<0.00050	0.0047	<0.00050
	06/16/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0033	<0.00050	<0.00050	0.0025	<0.00050	<0.00050	0.0017	<0.00050
	09/16/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0082	<0.00050	<0.00050	0.0059	<0.00050	<0.00050	0.0045	<0.00050
	12/15/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0016	<0.00050	<0.00050	0.0025	<0.00050	<0.00050	0.0016	<0.00050
	03/18/10	<0.00050	<0.00050	<0.00050	<0.00050	0.00	<0.00050	<0.00050	0.0110	<0.00050	<0.00050	0.0097	<0.00050	<0.00050	0.0060	<0.00050
	06/15/10	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0030	<0.00050	<0.00050	0.0036	<0.00050	<0.00050	0.0018	<0.00050
	09/22/10	<0.0005	<0.0005	<0.0005	<0.0005	0.00071	<0.0005	0.0005	0.015	<0.0005	<0.0005	0.0098	<0.0005	<0.0005	0.0074	<0.0005
	12/09/10	<0.0005	<0.0005	<0.0005	<0.0005	0.00066	<0.0005	0.0005	0.015	<0.0005	<0.0005	0.0120	<0.0005	<0.0005	0.0080	<0.0005
	03/10/11	<0.00050	<0.00050	<0.00050	<0.00050	0.0005	<0.00050	<0.00050	0.012	<0.00050	<0.00050	0.0094	<0.00050	<0.00050	0.0052	<0.00050
	06/09/11	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.002	<0.0005	<0.0005	0.0021	<0.0005	<0.0005	0.001	<0.0005
	09/15/11	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0033	<0.00050	<0.00050	0.0029	<0.00050	<0.00050	0.0019	<0.00050
	12/08/11	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0098	<0.00050	<0.00050	0.0085	<0.00050	<0.00050	0.0048	<0.00050
	03/07/12	<0.00050	<0.00050	<0.00050	<0.00050	0.001	<0.00050	<0.00050	0.02	<0.00050	<0.00050	0.0120	<0.00050	<0.00050	0.0064	<0.00050
	06/21/12	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00	<0.0005	<0.0005	0.0015	<0.0005	<0.0005	0.0010	<0.0005
	09/13/12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0022	<0.00050	<0.00050	0.0017	<0.00050	<0.00050	0.001	<0.00050
	12/13/12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0063	<0.00050	<0.00050	0.0039	<0.00050	<0.00050	0.0021	<0.00050
	03/13/13	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0052	<0.00050	<0.00050	0.0038	<0.00050	<0.00050	0.0021	<0.00050
	06/13/13	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0039	<0.00050	<0.00050	0.0024	<0.00050	<0.00050	0.0013	<0.00050
	09/19/13	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0031	<0.00050	<0.00050	0.0022	<0.00050	<0.00050	0.0013	<0.00050
12/13/13	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.011	<0.00050	<0.00050	0.0053	<0.00050	<0.00050	0.0036	<0.00050	
3/20/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0018	<0.00050	<0.00050	0.0010	<0.00050	<0.00050	0.00070	<0.00050	
6/26/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00063	<0.00050	<0.00050	0.00019	<0.00050	<0.00050	0.001	<0.00050	
9/26/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00051	<0.00050	<0.00050	0.0015	<0.00050	<0.00050	0.00093	<0.00050	
12/10/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0029	<0.00050	<0.00050	0.0020	<0.00050	<0.00050	0.0013	<0.00050	
3/18/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0023	<0.00050	<0.00050	0.0020	<0.00050	<0.00050	0.0011	<0.00050	
6/17/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0013	<0.00050	<0.00050	0.0020	<0.00050	<0.00050	0.0011	<0.00050	
9/23/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0035	<0.00050	<0.00050	0.0034	<0.00050	<0.00050	0.0018	<0.00050	
12/7/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0065	<0.00050	<0.00050	0.0040	<0.00050	<0.00050	0.0026	<0.00050	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-19	11/07/02	<0.0200	<0.0100	<0.0100	<0.0200	0.252	<0.0100	0.0662	2.45	0.023	<0.0100	3.10	0.139	--	1.81	0.0792
	05/30/03	<0.0500	<0.0250	<0.0250	<0.0500	0.109	<0.0250	0.036	1.30	<0.0250	<0.0250	7.16	0.104	--	2.07	0.0355
	11/16/04	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	0.065	<0.0500	0.49	<0.0500	<0.0500	7.30	0.13	--	1.40	<0.0500
	05/18/05	<0.0100	<0.0050	<0.0050	<0.0100	0.0193	<0.0050	<0.0050	0.161	<0.0050	<0.0050	1.50	0.0338	--	0.205	0.0246
	11/15/05	<0.0200	<0.0100	<0.0100	<0.0200	0.027	<0.0100	0.0188	0.23	<0.0100	<0.0100	3.08	0.0672	--	0.785	0.0146
	11/15/05 DUP	<0.0200	<0.0100	<0.0100	<0.0200	0.025	<0.0100	0.0202	0.221	<0.0100	<0.0100	2.86	0.0644	--	0.762	0.0152
	06/05/06	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0809	<0.0100	<0.0100	1.28	0.0131	--	0.237	<0.0100
	12/06/06	<0.0200	<0.0100	<0.0100	<0.0200	<0.0100	<0.0100	<0.0100	0.0762	<0.0100	<0.0100	2.06	0.0172	--	0.304	<0.0100
	05/22/07	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	0.114	<0.0200	<0.0200	2.72	0.0514	--	0.504	<0.0200
	09/11/07	<0.0500	<0.0250	<0.0250	<0.0500	<0.0250	<0.0250	<0.0250	0.0855	<0.0250	<0.0250	3.37	0.0625	--	0.608	<0.0250
	12/12/07	<0.0500	<0.0250	<0.0250	<0.0500	<0.0250	<0.0250	<0.0250	0.08	<0.0250	<0.0250	2.07	0.0385	--	0.326	<0.0250
	03/05/08 ⁷	<0.00100	<0.000500	<0.000500	<0.00100	0.0125	<0.000500	0.0205	0.149	0.00453	<0.000500	4.06	0.066	<0.000500	1.03	0.00641
	06/25/08	<0.0200	<0.0200	<0.0200	<0.0200	0.0458	<0.0200	0.0296	0.435	<0.0200	<0.0200	2.79	0.0466	--	1.41	<0.0200
	09/19/08	<0.0500	<0.0250	<0.0250	<0.0500	0.062	<0.0250	0.0375	0.715	<0.0250	<0.0250	4.99	0.0565	<0.0250	2.87	0.0395
	12/10/08	<0.025	<0.025	<0.025	<0.025	0.051	<0.025	<0.025	0.50	<0.025	<0.025	6.60	0.11	<0.025	1.10	<0.025
	03/27/09	<0.015	<0.015	<0.015	<0.015	0.053	<0.015	0.039	0.65	<0.015	<0.015	4.50	0.12	<0.015	1.90	0.025
	03/27/09 DUP	<0.015	<0.015	<0.015	<0.015	0.056	<0.015	0.039	0.67	<0.015	<0.015	4.80	0.13	<0.015	1.90	0.025
	06/18/09	<0.0025	<0.0025	<0.0025	<0.0025	0.0054	<0.0025	0.0053	0.082	<0.0025	<0.0025	0.68	0.0086	<0.0025	0.24	<0.0025
	06/18/09 DUP	<0.0025	<0.0025	<0.0025	<0.0025	0.0051	<0.0025	0.0054	0.08	<0.0025	<0.0025	0.66	0.0084	<0.0025	0.24	<0.0025
	09/18/09	<0.0025	<0.0025	<0.0025	<0.0025	0.012	<0.0025	0.036	0.17	0.0046	<0.0025	9.4	0.14	<0.0025	2	0.011
	09/18/09 DUP	<0.0025	<0.0025	<0.0025	<0.0025	0.012	<0.0025	0.036	0.17	0.0044	<0.0025	9.7	0.14	<0.0025	2	0.012
	12/18/09	<0.010	<0.010	<0.010	<0.010	0.087	<0.010	0.029	0.78	0.013	<0.010	3.2	0.057	<0.010	1.2	0.035
	12/18/09 DUP	<0.010	<0.010	<0.010	<0.010	0.084	<0.010	0.027	0.74	0.012	<0.010	3.1	0.053	<0.010	1.2	0.032
	03/19/10	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0083	0.045	<0.005	<0.005	1.9	0.019	<0.005	0.38	<0.005
	03/19/10 DUP	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	0.0083	0.044	<0.007	<0.007	1.8	0.018	<0.007	0.36	<0.007
	06/17/10	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0067	<0.00050	<0.00050	0.067	<0.00050	<0.00050	0.025	<0.00050
	06/17/10 DUP	<0.00050	<0.00050	<0.00050	<0.00050	0.00053	<0.00050	<0.00050	0.0069	<0.00050	<0.00050	0.065	0.00052	<0.00050	0.024	<0.00050
	09/23/10	<0.0025	<0.0025	<0.0025	<0.0025	0.0087	<0.0025	0.021	0.110	0.0036	<0.0025	3.4	0.050	<0.0025	0.9200	0.012
	09/23/10 DUP	<0.0025	<0.0025	<0.0025	<0.0025	0.0085	<0.0025	0.021	0.110	0.0034	<0.0025	3.7	0.049	<0.00025	0.89	0.013
	12/09/10	<0.015	<0.015	<0.015	<0.015	0.0590	<0.015	0.038	0.590	<0.015	<0.015	6.2	0.068	<0.015	1.50	0.0480

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-19 (continued)	12/09/10 DUP	<0.0015	<0.0015	<0.0015	<0.0015	0.0580	<0.0015	0.037	0.590	<0.0015	<0.0015	6.0	0.067	<0.0015	1.5000	0.0480
	03/08/11	<0.0050	<0.0050	<0.0050	<0.0050	0.023	<0.0050	0.012	0.280	<0.0050	<0.0050	1.5	0.018	<0.0050	0.590	0.013
	06/10/11	<0.0009	<0.0009	<0.0009	<0.0009	0.022	<0.0009	0.0027	0.16	0.0014	<0.0009	0.24	0.0036	<0.0009	0.13	0.0056
	06/10/11 DUP	<0.0009	<0.0009	<0.0009	<0.0009	0.019	<0.0009	0.0023	0.14	0.0013	<0.0009	0.22	0.0033	<0.0009	0.12	0.005
	09/19/11	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	0.053	<0.0015	<0.0015	0.4	0.003	<0.0015	0.078	<0.0015
	09/19/11 DUP	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.053	<0.0020	<0.0020	0.41	0.0032	<0.0020	0.08	<0.0020
	12/09/11	<0.0015	<0.0015	<0.0015	<0.0015	0.0050	<0.0015	0.0043	0.11	<0.0015	<0.0015	0.73	0.01	<0.0015	0.22	0.0039
	12/09/2011 DUP	<0.0020	<0.0020	<0.0020	<0.0020	0.0054	<0.0020	0.0047	0.12	<0.0020	<0.0020	0.77	0.01	<0.0020	0.23	0.0039
	03/09/12	<0.0025	<0.0025	<0.0025	<0.0025	0.046	<0.0025	0.0260	0.82	0.0010	<0.0025	2.4	0.0500	<0.0025	1.2	0.07
	03/09/12 DUP	<0.0040	<0.0040	<0.0040	<0.0040	0.043	<0.0040	0.0240	0.77	0.0088	<0.0040	2.4	0.0460	<0.0040	1.2	0.06
	06/22/2012	<0.005	<0.005	<0.005	<0.005	0.074	<0.005	0.0170	1.00	0.0140	<0.005	1.3	0.0210	<0.005	1.0	0.06
	06/22/12 DUP	<0.005	<0.005	<0.005	<0.005	0.074	<0.005	0.0180	1.00	0.0130	<0.005	1.3	0.0220	<0.005	1.0	0.06
	09/14/12	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0057	0.3	<0.0050	<0.0050	2.2	0.031	<0.0050	0.34	0.008
	09/14/12 DUP	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0059	0.3	<0.0050	<0.0050	2.3	0.031	<0.0050	0.34	<0.0050
	12/14/12	<0.0015	0.0098	<0.0015	<0.0015	0.021	<0.0015	0.0018	0.33	0.0036	<0.0015	0.29	0.0032	<0.0015	0.14	0.0031
	12/14/12 DUP	<0.0010	0.0093	<0.0010	<0.0010	0.021	<0.0010	0.0017	0.34	0.0037	<0.0010	0.30	0.0031	<0.0010	0.14	0.0030
	03/15/13	<0.0015	0.0047	<0.0015	<0.0015	0.029	<0.0015	0.021	0.87	0.0055	<0.0015	3.2	0.067	<0.0015	1.6	0.0090
	03/15/13 DUP	<0.0015	0.0047	<0.0015	<0.0015	0.030	<0.0015	0.020	0.82	0.0061	<0.0015	3.2	0.068	<0.0015	1.5	0.0092
	06/14/13	<0.0090	<0.0090	<0.0090	<0.0090	0.025	<0.0090	0.013	0.73	<0.0090	<0.0090	2.5	0.029	<0.0090	1.0	<0.0090
	06/14/13 DUP	<0.0090	<0.0090	<0.0090	<0.0090	0.025	<0.0090	0.011	0.72	<0.0090	<0.0090	2.4	0.026	<0.0090	1.0	<0.0090
	09/20/13	<0.00050	0.0012	<0.00050	<0.00050	0.014	<0.00050	0.025	0.52	0.0045	<0.00050	3	0.061	<0.00050	1.1	0.01
	09/20/13 DUP	<0.0010	0.0011	<0.0010	<0.0010	0.012	<0.0010	0.021	0.49	0.0038	<0.0010	3.2	0.052	<0.0010	1.2	0.0090
	12/16/13	<0.015	<0.015	<0.015	<0.015	0.037	<0.015	0.022	0.68	<0.015	<0.015	3.0	0.036	<0.015	1.1	<0.015
	12/16/13 DUP	<0.015	<0.015	<0.015	<0.015	0.036	<0.015	0.022	0.66	<0.015	<0.015	2.9	0.037	<0.015	1.1	<0.015
	3/21/2014	<0.00050	0.0014	<0.00050	<0.00050	0.0048	<0.00050	0.0024	0.13	0.0012	<0.00050	0.18	0.0016	<0.00050	0.051	0.0043
	3/21/2014 DUP	<0.00050	0.0014	<0.00050	<0.00050	0.0048	<0.00050	0.0022	0.13	0.0011	<0.00050	0.18	0.0016	<0.00050	0.051	0.0043
	6/26/2014	<0.0050	0.00089	<0.00050	<0.00050	0.00054	0.11	0.038	2	0.021	<0.00050	1.9	0.036	0.0008	1.5	0.0062
	6/26/14 DUP	<0.0050	0.0011	<0.00050	<0.00050	0.11	<0.00050	0.038	1.9	0.021	<0.00050	1.9	0.036	0.0007	1.6	0.0061
	9/30/2014	<0.015	<0.015	<0.015	<0.015	0.018	<0.015	0.038	0.52	<0.015	<0.015	4.4	0.061	<0.015	1.7	0.032
	9/30/2014 DUP	<0.015	<0.015	<0.015	<0.015	0.018	<0.015	0.037	0.51	<0.015	<0.015	4.4	0.060	<0.015	1.7	0.030

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-19 (continued)	12/12/2014	<0.0050	<0.0050	<0.0050	<0.0050	0.096	<0.0050	0.020	1.5	0.012	<0.0050	1.4	0.019	<0.0050	0.79	0.060
	12/12/2014 DUP	<0.0050	<0.0050	<0.0050	<0.0050	0.11	<0.0050	0.021	1.5	0.014	<0.0050	1.5	0.021	<0.0050	0.89	0.068
	3/18/2015	<0.0042	<0.0042	<0.0042	<0.0042	0.073	<0.0042	0.048	1.46	0.018	<0.0042	5.9	0.057	<0.0042	4.0	0.054
	3/18/2015 DUP	<0.0042	<0.0042	<0.0042	<0.0042	0.083	<0.0042	0.048	1.41	0.018	<0.0042	4.9	0.056	<0.0042	3.5	0.047
	6/18/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.022	<0.0005	0.049	0.63	0.0066	<0.00050	8.1	0.094	<0.00050	2.2	0.028
	6/18/2015 DUP	<0.00050	<0.00050	<0.00050	<0.00050	0.023	<0.00050	0.049	0.61	0.0075	<0.00050	8.0	0.99	<0.00050	2.1	0.031
	9/22/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.005	<0.0005	0.032	0.19	0.0020	<0.00050	7.2	0.07	<0.00050	0.8	0.007
	12/8/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.150	<0.0005	0.034	1.64	0.0164	<0.00050	2.9	0.04	<0.00050	1.6	0.087
12/8/15 DUP	<0.00050	<0.00050	<0.00050	<0.00050	0.155	<0.00050	0.035	1.68	0.0172	<0.00050	3.0	0.04	<0.00050	1.6	0.090	
MW-19i	06/10/08	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.00846	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.00128	<0.00100
	09/17/08	<0.00100	<0.000500	<0.000500	<0.00100	0.00193	0.00053	<0.000500	0.0271	<0.000500	<0.000500	0.00172	<0.000500	<0.000500	0.00577	<0.000500
	12/10/08	<0.00050	<0.00050	<0.00050	<0.00050	0.0018	<0.00050	<0.00050	0.028	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0056	<0.00050
	03/26/09	<0.00050	<0.00050	<0.00050	<0.00050	0.0017	<0.00050	<0.00050	0.025	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0033	<0.00050
	06/17/09	<0.00050	<0.00050	<0.00050	<0.00050	0.0009	<0.00050	<0.00050	0.01	<0.00050	<0.00050	0.00067	<0.00050	<0.00050	0.0015	<0.00050
	09/16/09	<0.00050	<0.00050	<0.00050	<0.00050	0.0017	0.00064	<0.00050	0.028	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0018	0.00079
	12/15/09	<0.00050	<0.00050	<0.00050	<0.00050	0.0009	<0.00050	<0.00050	0.01	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0007	<0.00050
	03/18/10	<0.00050	<0.00050	<0.00050	<0.00050	0.0011	0.00053	<0.00050	0.015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0019	<0.00050
	06/15/10	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0047	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	09/22/10	<0.0005	<0.0005	<0.0005	<0.0005	0.0012	0.00058	<0.0005	0.020	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0024	<0.0005
	12/09/10	<0.0005	<0.0005	<0.0005	<0.0005	0.0010	<0.0005	<0.0005	0.014	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0010	<0.0005
	03/09/11	<0.00050	<0.00050	<0.00050	<0.00050	0.00094	<0.00050	<0.00050	0.014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0014	<0.00050
	06/09/11	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00088	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	09/15/11	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0041	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00073	<0.00050
	12/09/11	<0.00050	<0.00050	<0.00050	<0.00050	0.00072	<0.00050	<0.00050	0.0088	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0010	<0.00050
	03/12/12	<0.00050	<0.00050	<0.00050	<0.00050	0.001	<0.00050	<0.00050	0.01	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0014	<0.00050
06/21/12	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
09/13/12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0042	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00065	<0.00050	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-19i (continued)	12/12/12	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0023	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	03/14/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00065	< 0.00050	< 0.00050	0.0095	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0011	< 0.00050
	06/12/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0022	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	09/19/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0068	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	12/13/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00060	< 0.00050	< 0.00050	0.0066	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	3/20/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0011	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	6/24/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0051	< 0.00050	< 0.00050	0.00083	< 0.00050	< 0.00050	0.0016	< 0.00050
	9/27/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00056	< 0.00050	< 0.00050	0.0064	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	12/10/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0027	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	3/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0040	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	6/16/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0063	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	9/23/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00075	< 0.00050	< 0.00050	0.011	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	12/7/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.003	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	MW-20i	06/10/08	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	0.018	< 0.00100	< 0.00100	0.00577	< 0.00100	< 0.00100	0.0032
09/17/08		< 0.00100	< 0.000500	< 0.000500	< 0.00100	0.00212	< 0.000500	< 0.000500	0.0423	< 0.000500	< 0.000500	0.0128	< 0.000500	< 0.000500	0.011	< 0.000500
12/11/08		< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0021	< 0.00050	< 0.00050	0.047	< 0.00050	< 0.00050	0.011	< 0.00050	< 0.00050	0.0093	< 0.00050
03/25/09		< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0018	< 0.00050	< 0.00050	0.036	< 0.00050	< 0.00050	0.0084	< 0.00050	< 0.00050	0.0064	< 0.00050
06/16/09		< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0016	< 0.00050	< 0.00050	0.03	< 0.00050	< 0.00050	0.0063	< 0.00050	< 0.00050	0.0051	< 0.00050
09/17/09		< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0016	< 0.00050	< 0.00050	0.034	< 0.00050	< 0.00050	0.0074	< 0.00050	< 0.00050	0.005	< 0.00050
12/16/09		< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0093	< 0.00050	< 0.00050	0.0011	< 0.00050	< 0.00050	0.001	< 0.00050
03/18/10		< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0021	< 0.00050	< 0.00050	0.047	< 0.00050	< 0.00050	0.011	< 0.00050	< 0.00050	0.007	< 0.00050
06/15/10		< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00051	< 0.00050	< 0.00050	0.013	< 0.00050	< 0.00050	0.0043	< 0.00050	< 0.00050	0.002	< 0.00050
09/22/10		< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0018	< 0.0005	< 0.0005	0.043	< 0.0005	< 0.0005	0.0170	< 0.0005	< 0.0005	0.0100	< 0.0005
12/09/10		< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.013	< 0.0005	< 0.0005	0.0037	< 0.0005	< 0.0005	0.0020	< 0.0005
03/11/11		< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0096	< 0.00050	< 0.00050	0.0024	< 0.00050	< 0.00050	0.0023	< 0.00050
06/08/11		< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0029	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
09/15/11		< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00096	< 0.00050	< 0.00050	0.021	< 0.00050	< 0.00050	0.0076	< 0.00050	< 0.00050	0.0045	< 0.00050
12/08/11		< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0012	< 0.00050	< 0.00050	0.026	< 0.00050	< 0.00050	0.0064	< 0.00050	< 0.00050	0.0042	< 0.00050
03/07/12		< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.001	< 0.00050	< 0.00050	0.03	< 0.00050	< 0.00050	0.0110	< 0.00050	< 0.00050	0.0059	< 0.00050
06/21/12		< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.01	< 0.0005	< 0.0005	0.0026	< 0.0005	< 0.0005	0.0015	< 0.0005
09/13/12		< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00083	< 0.00050	< 0.00050	0.018	< 0.00050	< 0.00050	0.0061	< 0.00050	< 0.00050	0.0038	< 0.00050
12/13/12		< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0069	< 0.00050	< 0.00050	0.0014	< 0.00050	< 0.00050	0.00084	< 0.00050

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-20i (continued)	03/14/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0011	< 0.00050	< 0.00050	0.028	< 0.00050	< 0.00050	0.0092	< 0.00050	< 0.00050	0.0060	< 0.00050
	06/13/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00072	< 0.00050	< 0.00050	0.014	< 0.00050	< 0.00050	0.0073	< 0.00050	< 0.00050	0.0037	< 0.00050
	09/19/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00064	< 0.00050	< 0.00050	0.011	< 0.00050	< 0.00050	0.0039	< 0.00050	< 0.00050	0.0024	< 0.00050
	12/13/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00090	< 0.00050	< 0.00050	0.016	< 0.00050	< 0.00050	0.0024	< 0.00050	< 0.00050	0.0019	< 0.00050
	3/20/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0034	< 0.00050	< 0.00050	0.00056	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	6/30/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.004	< 0.00050	< 0.00050	0.0011	< 0.00050	< 0.00050	0.00058	< 0.00050
	9/27/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00068	< 0.00050	< 0.00050	0.012	< 0.00050	< 0.00050	0.0043	< 0.00050	< 0.00050	0.0026	< 0.00050
	12/12/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0051	< 0.00050	< 0.00050	0.00068	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	3/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.010	< 0.00050	< 0.00050	0.0030	< 0.00050	< 0.00050	0.0017	< 0.00050
	6/17/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.011	< 0.00050	< 0.00050	0.0037	< 0.00050	< 0.00050	0.0022	< 0.00050
	9/23/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00069	< 0.00050	< 0.00050	0.014	< 0.00050	< 0.00050	0.0041	< 0.00050	< 0.00050	0.0021	< 0.00050
	12/7/2015	Not sampled; well monument under water.														
MW-21i-105	06/10/08	< 0.00200	< 0.00200	< 0.00200	< 0.00200	0.002	< 0.00200	< 0.00200	0.0158	< 0.00200	< 0.00200	0.0532	< 0.00200	< 0.00050	0.0251	< 0.00200
	09/18/08	< 0.00100	< 0.000500	< 0.000500	< 0.00100	0.00078	< 0.000500	< 0.000500	0.00542	< 0.000500	< 0.000500	0.00297	< 0.000500	< 0.00050	0.00177	< 0.000500
	12/11/08	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0022	< 0.00050	0.00088	0.061	< 0.00050	< 0.00050	0.033	0.00087	< 0.00050	0.017	< 0.00050
	03/26/09	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0014	< 0.00050	< 0.00050	0.061	< 0.00050	< 0.00050	0.00076	< 0.00050	< 0.00050	0.0007	< 0.00050
	06/17/09	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0018	< 0.00050	< 0.00050	0.076	< 0.00050	< 0.00050	0.0043	0.0006	< 0.00050	0.0034	< 0.00050
	09/17/09	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0016	< 0.00050	< 0.00050	0.073	< 0.00050	< 0.00050	0.011	0.00059	< 0.00050	0.0067	< 0.00050
	12/16/09	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0015	< 0.00050	< 0.00050	0.06	< 0.00050	< 0.00050	0.014	0.00065	< 0.00050	0.0093	< 0.00050
	03/18/10	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0017	< 0.00050	< 0.00050	0.06	< 0.00050	< 0.00050	0.006	0.00058	< 0.00050	0.0076	< 0.00050
	06/15/10	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0017	< 0.00050	0.00063	0.06	< 0.00050	< 0.00080	0.029	0.00084	< 0.00050	0.0220	< 0.00050
	09/22/10	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0017	< 0.0005	< 0.0005	0.075	< 0.0005	< 0.0005	0.0052	0.0006	< 0.00050	0.0051	< 0.0005
	12/08/10	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0020	< 0.0005	0.00052	0.072	< 0.0005	< 0.0005	0.0270	0.0009	< 0.00050	0.014	< 0.00050
	03/09/11	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0019	< 0.00050	0.00069	0.061	< 0.00050	< 0.00050	0.032	0.0011	< 0.00050	0.017	< 0.00050
	06/09/11	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0016	< 0.0005	0.00061	0.063	< 0.0005	< 0.0005	0.029	0.0007	< 0.0005	0.017	< 0.0005
	09/15/11	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0019	< 0.00050	< 0.00050	0.088	< 0.00050	< 0.00050	0.012	0.00059	< 0.00050	0.012	< 0.00050
	12/08/11	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0016	< 0.00050	< 0.00050	0.073	< 0.00050	< 0.00050	0.015	0.00058	< 0.00050	0.0093	< 0.00050
	03/07/12	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.001	< 0.00050	< 0.00050	0.04	< 0.00050	< 0.00050	0.0056	< 0.00050	< 0.00050	0.0057	< 0.00050
	06/20/12	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.001	< 0.0005	< 0.0005	0.05	< 0.0005	< 0.0005	0.0014	< 0.0005	< 0.0005	0.0030	< 0.0005
	09/12/12	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00082	< 0.00050	< 0.00050	0.034	< 0.00050	< 0.00050	0.005	< 0.00050	< 0.00050	0.0063	< 0.00050
	12/12/12	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0014	< 0.00050	< 0.00050	0.060	0.0010	< 0.00050	0.013	< 0.00050	< 0.00050	0.015	< 0.00050
03/13/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00090	< 0.00050	< 0.00050	0.042	< 0.00050	< 0.00050	0.0024	< 0.00050	< 0.00050	0.0037	< 0.00050	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo-form	Chloro-ethane	Chloro-form	Dibromo-chloro-methane	1,1-Dichloro-ethane	1,2-Dichloro-ethane	1,1-Dichloro-ethene	cis-1,2-Dichloro-ethene	trans-1,2-Dichloro-ethene	1,2-Dichloro-propane	Tetra-chloro-ethene	1,1,1-Trichloro-ethane	1,1,2-Trichloro-ethane	Trichloro-ethene	Vinyl Chloride
MW-21i-105 (continued)	06/13/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00120	< 0.00050	< 0.00050	0.048	< 0.00050	< 0.00050	0.0012	< 0.00050	< 0.00050	0.0099	< 0.00050
	09/18/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0011	< 0.00050	< 0.00050	0.051	< 0.00050	< 0.00050	0.0028	< 0.00050	< 0.00050	0.0042	< 0.00050
	12/12/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0014	< 0.00050	< 0.00050	0.061	0.0016	< 0.00050	0.004	< 0.00050	< 0.00050	0.0054	< 0.00050
	3/20/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0012	< 0.00050	< 0.00050	0.052	< 0.00050	< 0.00050	0.0044	< 0.00050	< 0.00050	0.0068	< 0.00050
	6/25/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	9/26/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0058	< 0.00050	< 0.00050	0.0054	< 0.00050	< 0.00050	0.0033	< 0.00050
	12/10/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00094	< 0.00050	< 0.00050	0.037	< 0.00050	< 0.00050	0.0054	< 0.00050	< 0.00050	0.0096	< 0.00050
	3/17/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.013	< 0.00050	< 0.00050	0.0066	< 0.00050	< 0.00050	0.0054	< 0.00050
	6/17/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.021	< 0.00050	< 0.00050	0.0035	< 0.00050	< 0.00050	0.0040	< 0.00050
	9/23/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00091	< 0.00050	< 0.00050	0.041	< 0.00050	< 0.00050	0.0034	< 0.00050	< 0.00050	0.0054	< 0.00050
12/7/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00079	< 0.00050	< 0.00050	0.029	< 0.00050	< 0.00050	0.0049	< 0.00050	< 0.00050	0.0081	< 0.00050	
MW-21i-40	09/18/08	< 0.00100	< 0.000500	< 0.000500	< 0.00100	0.00748	< 0.000500	0.00438	0.124	0.00077	< 0.000500	0.107	0.00201	< 0.000500	0.133	< 0.000500
	12/11/08	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0066	< 0.00050	0.0036	0.13	0.00084	< 0.00050	0.10	0.0016	< 0.00050	0.11	< 0.00050
	03/26/09	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0062	< 0.00050	0.0036	0.13	0.00063	< 0.00050	0.077	0.0013	< 0.00050	0.088	< 0.00050
	06/17/09	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0066	< 0.00050	0.0031	0.12	0.00079	< 0.00050	0.071	0.0015	< 0.00050	0.088	< 0.00050
	09/18/09	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0059	< 0.00050	0.0032	0.12	0.001	< 0.00050	0.075	0.0013	< 0.00050	0.092	0.00055
	12/16/09	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0057	< 0.00050	0.0026	0.12	0.001	< 0.00050	0.09	0.0012	< 0.00050	0.089	< 0.00050
	03/18/10	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0055	< 0.00050	0.0028	0.12	0.001	< 0.00050	0.084	0.0011	< 0.00050	0.091	< 0.00050
	06/15/10	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0054	< 0.00050	0.0024	0.12	0.001	< 0.00050	0.062	0.0012	< 0.00050	0.064	< 0.00050
	09/22/10	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0049	< 0.0005	0.0022	0.110	0.00073	< 0.0005	0.0680	0.001	< 0.0005	0.0750	< 0.0005
	12/08/10	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0051	< 0.0005	0.0023	0.110	0.00077	< 0.0005	0.0720	0.001	< 0.0005	0.0690	< 0.0005
	03/10/11	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0046	< 0.00050	0.0019	0.100	0.00064	< 0.00050	0.053	0.001	< 0.00050	0.057	< 0.00050
	06/09/11	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0047	< 0.0005	0.0021	0.11	0.0007	< 0.0005	0.05	0.00096	< 0.0005	0.055	< 0.0005
	09/15/11	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.005	< 0.00050	0.0019	0.11	0.00065	< 0.00050	0.054	0.0011	< 0.00050	0.057	< 0.00050
	12/08/11	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0048	< 0.00050	0.0021	0.11	0.00066	< 0.00050	0.061	0.00096	< 0.00050	0.06	< 0.00050
	03/07/12	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.005	< 0.00050	0.0021	0.11	0.0008	< 0.00050	0.0740	0.0015	< 0.00050	0.0580	< 0.00050
	06/20/12	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.005	< 0.0005	0.0020	0.16	0.0008	< 0.0005	0.0190	0.0008	< 0.0005	0.0230	< 0.0005
	09/12/12	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.005	< 0.00050	0.0018	0.11	0.00063	< 0.00050	0.05	0.0011	< 0.00050	0.048	< 0.00050
12/12/12	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0053	< 0.00050	0.0020	0.12	0.00069	< 0.00050	0.074	0.0011	< 0.00050	0.053	< 0.00050	
03/13/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0046	< 0.00050	0.0018	0.12	0.00060	< 0.00050	0.043	0.00083	< 0.00050	0.042	< 0.00050	
06/13/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0012	< 0.00050	< 0.00050	0.048	< 0.00050	< 0.00050	0.012	< 0.00050	< 0.00050	0.0099	< 0.00050	
09/18/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0047	< 0.00050	0.0014	0.1	0.00053	< 0.00050	0.038	0.00068	< 0.00050	0.033	< 0.00050	
12/12/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0046	< 0.00050	0.0013	0.1	0.0010	< 0.00050	0.041	0.00073	< 0.00050	0.037	< 0.00050	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-21i-40 (continued)	3/20/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0045	< 0.00050	0.0015	0.100	0.00061	< 0.00050	0.040	0.00076	< 0.00050	0.034	< 0.00050
	6/25/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0043	< 0.00050	0.0013	0.100	0.00051	< 0.00050	0.033	0.00065	< 0.00050	0.029	< 0.00050
	9/26/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0040	< 0.00050	0.0014	0.100	0.086	< 0.00050	0.031	0.00051	< 0.00050	0.032	< 0.00050
	12/10/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0042	< 0.00050	0.0014	0.100	0.00060	< 0.00050	0.030	0.00051	< 0.00050	0.032	< 0.00050
	3/17/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0038	< 0.00050	0.0015	0.102	0.00051	< 0.00050	0.044	< 0.00050	< 0.00050	0.037	< 0.00050
	6/19/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0027	< 0.00050	0.00076	0.062	< 0.00050	< 0.00050	0.025	< 0.00050	< 0.00050	0.022	< 0.00050
	9/23/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0033	< 0.00050	0.00095	0.084	< 0.00050	< 0.00050	0.026	< 0.00050	< 0.00050	0.027	< 0.00050
	12/7/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0028	< 0.00050	0.0007	0.064	< 0.00050	< 0.00050	0.025	< 0.00050	< 0.00050	0.021	< 0.00050
MW-22i	06/10/08	< 0.00100	< 0.00100	< 0.00100	< 0.00100	0.00102	< 0.00100	< 0.00100	0.03	< 0.00100	< 0.00100	0.0103	< 0.00100	< 0.00100	0.03	< 0.00100
	09/17/08	< 0.00100	< 0.000500	< 0.000500	< 0.00100	0.00748	< 0.000500	0.00438	0.124	0.00077	< 0.000500	0.107	0.00201	< 0.000500	0.133	< 0.000500
	12/11/08	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0012	< 0.00050	0.00073	0.063	< 0.00050	< 0.00050	0.011	< 0.00050	< 0.00050	0.0068	< 0.00050
	03/25/09	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0011	< 0.00050	0.00064	0.05	< 0.00050	< 0.00050	0.0025	< 0.00050	< 0.00050	0.014	< 0.00050
	06/16/09	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0012	< 0.00050	0.00052	0.039	< 0.00050	< 0.00050	0.0085	< 0.00050	< 0.00050	0.024	< 0.00050
	09/17/09	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.001	< 0.00050	0.00057	0.04	< 0.00050	< 0.00050	0.0033	< 0.00050	< 0.00050	0.021	< 0.00050
	12/15/09	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0008	< 0.00050	< 0.00050	0.028	< 0.00050	< 0.00050	0.0038	< 0.00050	< 0.00050	0.02	< 0.00050
	03/18/10	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0009	< 0.00050	< 0.00050	0.034	< 0.00050	< 0.00050	0.0026	< 0.00050	< 0.00050	0.016	< 0.00050
	06/14/10	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0006	< 0.00050	< 0.00050	0.017	< 0.00050	< 0.00050	0.004	< 0.00050	< 0.00050	0.018	< 0.00050
	09/22/10	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.00075	< 0.0005	< 0.0005	0.024	< 0.0005	< 0.0005	0.0036	< 0.0005	< 0.0005	0.0180	< 0.0005
	12/08/10	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.00073	< 0.0005	< 0.0005	0.021	< 0.0005	< 0.0005	0.0035	< 0.0005	< 0.0005	0.0180	< 0.0005
	03/11/11	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00067	< 0.00050	< 0.00050	0.017	< 0.00050	< 0.00050	0.0036	< 0.00050	< 0.00050	0.017	< 0.00050
	06/08/11	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0006	< 0.0005	< 0.0005	0.018	< 0.0005	< 0.0005	0.0018	< 0.0005	< 0.0005	0.012	< 0.0005
	09/14/11	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00055	< 0.00050	< 0.00050	0.018	< 0.00050	< 0.00050	0.0013	< 0.00050	< 0.00050	0.011	< 0.00050
	12/08/11	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00058	< 0.00050	< 0.00050	0.017	< 0.00050	< 0.00050	0.0025	< 0.00050	< 0.00050	0.014	< 0.00050
	03/06/12	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.001	< 0.00050	< 0.00050	0.01	< 0.00050	< 0.00050	0.0024	< 0.00050	< 0.00050	0.0130	< 0.00050
	06/20/12	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.001	< 0.0005	< 0.0005	0.01	< 0.0005	< 0.0005	0.0019	< 0.0005	< 0.0005	0.0110	< 0.0005
	09/12/12	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00052	< 0.00050	< 0.00050	0.016	< 0.00050	< 0.00050	0.0015	< 0.00050	< 0.00050	0.01	< 0.00050
	12/13/12	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.013	< 0.00050	< 0.00050	0.0018	< 0.00050	< 0.00050	0.011	< 0.00050
	03/13/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.012	< 0.00050	< 0.00050	0.0022	< 0.00050	< 0.00050	0.011	< 0.00050
06/12/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.014	< 0.00050	< 0.00050	0.0011	< 0.00050	< 0.00050	0.0096	< 0.00050	
09/18/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.01	< 0.00050	< 0.00050	0.0021	< 0.00050	< 0.00050	0.011	< 0.00050	
12/12/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0093	< 0.00050	< 0.00050	0.0014	< 0.00050	< 0.00050	0.0082	< 0.00050	
3/19/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.010	< 0.00050	< 0.00050	0.0013	< 0.00050	< 0.00050	0.0096	< 0.00050	
6/25/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.009	< 0.00050	< 0.00050	0.0011	< 0.00050	< 0.00050	0.0057	< 0.00050	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-23i (continued)	9/24/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	12/9/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	3/18/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00078	<0.00050
	6/16/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	9/17/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	12/7/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
MW-24i	10/01/10	<0.00050	<0.00050	<0.00050	<0.00050	0.0033	<0.00050	0.00094	0.052	<0.00050	<0.00050	0.052	0.0019	<0.00050	0.029	<0.00050
	12/10/10	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0035	<0.00050	<0.00050	0.00630	<0.00050	<0.00050	0.00200	<0.00050
	03/14/11	<0.00050	<0.00050	<0.00050	<0.00050	0.00088	<0.00050	<0.00050	0.015	<0.00050	<0.00050	0.023	0.001	<0.00050	0.0074	<0.00050
	06/07/11	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.002	<0.00050	<0.00050	0.0066	<0.00050	<0.00050	0.0014	<0.00050
	09/16/11	<0.00050	<0.00050	<0.00050	<0.00050	0.013	<0.00050	0.0025	0.27	0.0017	<0.00050	0.027	0.0056	<0.00050	0.024	0.019
	12/07/11	<0.00050	<0.00050	<0.00050	<0.00050	0.0050	<0.00050	0.00084	0.1	<0.00050	<0.00050	0.019	0.0029	<0.00050	0.014	0.0075
	03/12/12	<0.00050	<0.00050	<0.00050	<0.00050	0.006	<0.00050	<0.00050	0.08	<0.00050	<0.00050	0.0300	0.0023	<0.00050	0.0110	0.00
	06/22/12	<0.00050	<0.00050	<0.00050	<0.00050	0.002	<0.00050	<0.00050	0.01	<0.00050	<0.00050	0.0009	<0.00050	<0.00050	<0.00050	0.00
	09/14/12	<0.00050	<0.00050	<0.00050	<0.00050	0.0044	<0.00050	0.00087	0.058	<0.00050	<0.00050	0.031	0.00079	<0.00050	0.02	<0.00050
	12/14/12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0051	<0.00050	<0.00050	0.0021	<0.00050	<0.00050	0.00065	<0.00050
	03/15/13	<0.00050	<0.00050	<0.00050	<0.00050	0.0028	<0.00050	<0.00050	0.048	<0.00050	<0.00050	0.023	0.00057	<0.00050	0.015	<0.00050
	06/14/13	<0.00050	<0.00050	<0.00050	<0.00050	0.0027	<0.00050	<0.00050	0.028	<0.00050	<0.00050	0.0062	<0.00050	<0.00050	0.0036	<0.00080
	09/20/13	<0.00050	<0.00050	<0.00050	<0.00050	0.0010	<0.00050	<0.00050	0.015	<0.00050	<0.00050	0.015	<0.00050	<0.00050	0.0059	<0.00080
	12/16/13	<0.00050	<0.00050	<0.00050	<0.00050	0.0013	<0.00050	<0.00050	0.0084	<0.00050	<0.00050	0.0067	<0.00050	<0.00050	0.0034	<0.00050
	3/24/2014	<0.00050	<0.00050	<0.00050	<0.00050	0.0013	<0.00050	<0.00050	0.016	<0.00050	<0.00050	0.010	<0.00050	<0.00050	0.0055	<0.00080
	6/23/2014	<0.00050	<0.00050	<0.00050	<0.00050	0.0012	<0.00050	<0.00050	0.013	<0.00050	<0.00050	0.0013	<0.00050	<0.00050	0.0052	0.00210
	9/30/2014	<0.00050	<0.00050	<0.00050	<0.00050	0.0018	<0.00050	<0.00050	0.021	<0.00050	<0.00050	0.020	<0.00050	<0.00050	0.010	<0.00050
	12/15/2014	<0.00050	<0.00050	<0.00050	<0.00050	0.0060	<0.00050	<0.00050	0.012	<0.00050	<0.00050	0.0024	<0.00050	<0.00050	0.0011	<0.00050
	3/20/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.00058	<0.00050	<0.00050	0.0059	<0.00050	<0.00050	0.0061	<0.00050	<0.00050	0.0031	<0.00050
	6/18/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0034	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
9/22/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.00190	<0.00050	<0.00050	0.0047	<0.00050	<0.00050	0.0022	<0.00050	<0.00050	0.0008	<0.00050	
12/8/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.00070	<0.00050	<0.00050	0.018	<0.00050	<0.00050	0.1890	<0.00050	<0.00050	0.0364	<0.00050	
MW-24d	09/14/11	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	12/09/11	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	03/08/12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	06/21/12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	09/14/12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
12/14/12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-26	09/16/11	< 0.0020	< 0.0020	< 0.0020	< 0.0020	0.007	< 0.0020	0.0022	0.12	0.0026	< 0.0020	0.25	0.0057	< 0.0020	0.49	< 0.0020
	12/08/11	< 0.0020	< 0.0020	< 0.0020	< 0.0020	0.0071	< 0.0020	0.0025	0.11	0.0022	< 0.0020	0.3	0.0058	< 0.0020	0.5	< 0.0020
	03/06/12	< 0.0020	< 0.0020	< 0.0020	< 0.0020	0.008	< 0.0020	0.0022	0.10	< 0.0020	< 0.0020	0.2100	0.0046	< 0.0020	0.4500	< 0.0020
	06/19/12	< 0.002	< 0.002	< 0.002	< 0.002	0.014	< 0.002	0.0030	0.09	< 0.002	< 0.002	0.1600	0.0052	< 0.002	0.4600	< 0.002
	09/11/12	< 0.0020	< 0.0020	< 0.0020	< 0.0020	0.0063	< 0.0020	0.0023	0.11	0.003	< 0.0020	0.28	0.0043	< 0.0020	0.46	< 0.0020
	12/12/12	< 0.0020	< 0.0020	< 0.0020	< 0.0020	0.0056	< 0.0020	< 0.0020	0.12	0.0037	< 0.0020	0.30	0.0038	< 0.0020	0.47	< 0.0020
	03/13/13	< 0.0020	< 0.0020	< 0.0020	< 0.0020	0.0049	< 0.0020	< 0.0020	0.083	< 0.0020	< 0.0020	0.21	0.0029	< 0.0020	0.39	< 0.0020
	06/12/13	< 0.0020	< 0.0020	< 0.0020	< 0.0020	0.0082	< 0.0020	< 0.0020	0.080	< 0.0020	< 0.0020	0.17	0.0045	< 0.0020	0.36	< 0.0020
	09/18/13	< 0.0020	< 0.0020	< 0.0020	< 0.0020	0.0057	< 0.0020	< 0.0020	0.096	0.0024	< 0.0020	0.21	0.0032	< 0.0020	0.41	< 0.0020
	12/11/13	< 0.0020	< 0.0020	< 0.0020	< 0.0020	0.0078	< 0.0020	< 0.0020	0.075	< 0.0020	< 0.0020	0.15	0.0039	< 0.0020	0.37	< 0.0020
	3/19/2014	< 0.0020	< 0.0020	< 0.0020	< 0.0020	0.0049	< 0.0020	< 0.0020	0.095	0.0021	< 0.0020	0.22	0.0029	< 0.0020	0.35	< 0.0020
	6/24/2014	<0.00050	<0.00050	<0.00050	<0.00050	0.0027	<0.00050	0.0064	0.049	0.00086	<0.00050	0.15	0.0021	<0.00050	0.2	<0.00050
	9/24/2014	< 0.0020	< 0.0020	< 0.0020	< 0.0020	0.0039	< 0.0020	< 0.0020	0.068	< 0.0020	< 0.0020	0.22	0.0031	< 0.0020	0.34	< 0.0020
	12/9/2014	<0.00090	<0.00090	<0.00090	<0.00090	0.0038	<0.00090	0.00096	0.055	0.0013	<0.00090	0.16	0.0028	<0.00090	0.28	<0.00090
	3/17/2015	<0.0010	<0.0010	<0.0010	<0.0010	0.0058	<0.0010	0.0017	0.076	0.0018	<0.0010	0.27	0.0037	<0.0010	0.46	<0.0010
	6/16/2015	<0.0017	<0.0017	<0.0017	<0.0017	0.0050	<0.0017	<0.0017	0.078	<0.0017	<0.0017	0.21	0.0028	<0.0017	0.39	<0.0017
	9/21/2015	<0.0017	<0.0017	<0.0017	<0.0017	0.0043	<0.0017	<0.0017	0.072	0.0017	<0.0017	0.18	0.0027	<0.0017	0.33	<0.0017
12/7/2015	<0.0012	<0.0012	<0.0012	<0.0012	0.0085	<0.0012	0.0017	0.075	0.0016	<0.0012	0.18	0.0035	<0.0012	0.39	<0.0012	
MW-32s	03/24/05	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00579	<0.00050	--	<0.00050	<0.00050
	08/18/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11/14/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	03/06/08	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
	09/17/08	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
	12/09/08	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	06/16/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	12/15/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	07/02/10	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	09/22/10	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
12/07/10	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-32s (continued)	06/09/11	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0014	<0.0005	<0.0005	0.00094	<0.0005	<0.0005	0.0011	<0.0005
	09/15/11	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	12/08/11	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	06/21/12	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	09/13/12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	12/11/12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	03/14/13	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	06/11/13	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	09/20/13	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	12/16/13	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	3/24/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	6/25/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	6/25/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	12/11/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	3/19/2015	<0.00050	<0.00050	0.00077	<0.00050	0.0015	<0.00050	<0.00050	0.074	0.0025	<0.00050	<0.00050	0.0035	<0.00050	0.052	<0.00050
	6/17/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
12/7/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
MW-F	06/14/95	--	<0.010	<0.0050	<0.0050	<0.0050	0.005	<0.0050	0.015	<0.0050	--	<0.0050	<0.0050	--	<0.0050	<0.010
	02/27/01	<0.0010	<0.0050	<0.00050	<0.00050	0.000754	<0.00050	<0.00050	0.00599	<0.00050	<0.00050	0.000506	<0.0010	--	0.00118	<0.00050
	05/29/01	<0.0010	<0.0050	<0.00050	<0.00050	0.00058	<0.00050	<0.00050	0.00647	<0.00050	<0.00050	<0.00050	<0.0010	--	0.000585	<0.00050
	09/24/01	<0.00050	<0.00050	<0.00050	<0.00050	0.0012	<0.00050	<0.00050	0.0065	<0.00050	<0.00050	<0.00050	<0.00050	--	<0.00050	<0.00050
	12/18/01	<0.0010	<0.0050	<0.00050	<0.00050	0.00144	<0.00050	<0.00050	0.0179	<0.00050	<0.00050	<0.00050	<0.0010	--	0.000709	<0.00050
	03/18/02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	05/31/02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	08/28/02	<0.0010	<0.00050	<0.00050	<0.0010	0.00112	0.00065	<0.00050	0.00954	<0.00050	<0.00050	<0.00050	<0.00050	--	0.00069	<0.00050
	11/08/02	<0.0010	<0.00050	<0.00050	<0.0010	0.00115	0.00081	<0.00050	0.00986	<0.00050	<0.00050	<0.00050	<0.00050	--	0.00065	<0.00050
	01/23/03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	05/29/03	<0.0010	<0.00050	<0.00050	<0.0010	0.00111	0.00083	<0.00050	0.0106	<0.00050	<0.00050	<0.00050	<0.00050	--	0.00062	<0.00050
	11/10/03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	01/26/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	05/04/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	08/17/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MW-F (continued)	11/02/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11/15/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	03/24/05	<0.0010	<0.00050	<0.00050	<0.0010	0.00087	0.00064	<0.00050	0.00831	<0.00050	<0.00050	0.00052	<0.00050	--	0.00074	<0.00050
	05/17/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	08/18/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11/14/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	12/13/07	<0.00100	<0.00050	<0.00050	<0.00100	0.0005	0.00052	<0.00050	0.00593	<0.00050	<0.00050	<0.00050	<0.00050	--	<0.00050	<0.00050
	09/18/08	<0.00100	<0.000500	<0.000500	<0.00100	0.001	0.001	<0.000500	0.00857	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	0.00057	<0.000500
EW-1	04/25/91	--	<0.0020	--	--	0.035	0.02	--	0.75	--	--	9.1	0.28	--	0.44	0.0093
	11/17/93	--	<0.200	---	---	<0.100	<0.100	--	1.70	--	--	8.6	<0.100	--	0.48	<0.200
	09/01/95	<0.0250	<0.0500	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	0.14	<0.0250	<0.0250	2.4	0.074	--	0.34	<0.0500
	09/24/96	<0.0010	<0.0040	0.003	<0.0004	0.0085	0.0021	<0.00040	0.26	0.0062	<0.00040	0.049	0.034	--	0.029	0.089
	12/02/96	0.0007	<0.00050	0.0019	<0.00020	0.0057	0.005	0.001	0.53	0.0033	<0.00020	0.31	0.086	--	0.098	0.01
	11/12/97	<0.0025	<0.0050	<0.0025	<0.0025	0.00505	0.00338	<0.0025	0.0685	0.00491	<0.0025	0.111	0.0051	--	0.0474	0.0092
	08/11/99	<0.0100	<0.0500	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0145	<0.0050	<0.0050	0.369	<0.0100	--	0.0399	<0.0050
	11/16/99	<0.0050	<0.0125	<0.0025	<0.0050	<0.0025	0.00315	<0.0025	0.0417	0.003	<0.0025	0.314	0.0069	--	0.0355	0.0051
	02/29/00	<0.0020	<0.0100	<0.0010	<0.0010	<0.0010	0.00642	<0.0010	0.0137	<0.0010	<0.0010	0.0973	0.00348	--	0.0208	<0.0010
	06/27/00	<0.0020	<0.0100	0.00212	<0.0010	<0.0010	0.00642	<0.0010	0.0175	<0.0010	<0.0010	0.293	0.00537	--	0.0351	<0.0010
	08/31/00	<0.0050	<0.0250	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	0.0319	<0.0025	<0.0025	0.325	<0.0050	--	0.0384	<0.0025
	01/30/00	<0.0050	<0.0250	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	0.0456	<0.0025	<0.0025	0.38	0.00586	--	0.0539	<0.0025
	02/27/01	<0.0020	<0.0100	0.00142	<0.0010	0.00251	0.00283	<0.0010	0.035	<0.0010	<0.0010	0.24	0.00798	--	0.0475	0.00243
	05/29/01	<0.0100	<0.0500	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0224	<0.0050	<0.0050	0.338	<0.0100	--	0.0611	<0.0050
	09/25/01	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.014	<0.0050	<0.0050	0.32	0.0095	--	0.061	<0.0050
	12/17/01	<0.0020	<0.0100	<0.0010	<0.0010	0.00119	<0.0010	<0.0010	0.0258	<0.0010	<0.0010	0.217	0.0128	--	0.0471	<0.0010
	03/19/02	<0.0020	<0.0010	<0.0010	<0.0020	0.00104	<0.0010	<0.0010	0.0175	<0.0010	<0.0010	0.323	0.00566	--	0.0461	<0.0010
	05/30/02	<0.0020	<0.0010	0.00138	<0.0020	0.001	0.00168	<0.0010	0.0235	<0.0010	<0.0010	0.319	0.00646	--	0.0399	<0.0010
	08/29/02	<0.0020	<0.0010	0.00136	<0.0020	0.00244	0.00124	<0.0010	0.0204	<0.0010	<0.0010	0.307	0.00338	--	0.0378	<0.0010
	11/08/02	<0.0020	<0.0010	0.00146	<0.0020	0.00302	0.00396	<0.0010	0.0284	<0.0010	<0.0010	0.274	0.00554	--	0.0502	<0.0010
01/23/03	<0.0020	<0.0010	0.00136	<0.0020	0.00234	<0.0010	<0.0010	0.017	<0.0010	<0.0010	0.252	0.00506	--	0.0519	<0.0010	
05/30/03	<0.0020	<0.0010	0.00522	<0.0020	<0.0010	<0.0010	<0.0010	0.00612	<0.0010	<0.0010	0.255	0.00506	--	0.0411	<0.0010	
11/10/03	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.009	<0.0050	<0.0050	0.0858	<0.0050	--	0.0162	<0.0050	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo-form	Chloro-ethane	Chloro-form	Dibromo-chloro-methane	1,1-Dichloro-ethane	1,2-Dichloro-ethane	1,1-Dichloro-ethene	cis-1,2-Dichloro-ethene	trans-1,2-Dichloro-ethene	1,2-Dichloro-propane	Tetra-chloro-ethene	1,1,1-Trichloro-ethane	1,1,2-Trichloro-ethane	Trichloro-ethene	Vinyl Chloride
EW-1 (continued)	01/27/04	<0.0010	<0.00050	0.00207	<0.0010	0.00087	0.00078	<0.00050	0.0052	<0.00050	<0.00050	0.151	0.00426	--	0.0376	<0.00050
	05/04/04	<0.0010	<0.0010	0.00473	<0.0010	<0.0010	0.00125	<0.0010	0.00436	<0.0010	<0.0010	0.168	0.00309	--	0.0308	<0.0010
	08/17/04	<0.0010	<0.00050	0.00376	<0.00050	0.00081	0.00186	<0.00050	0.00683	<0.00050	<0.00050	0.144	0.00173	--	0.0232	<0.00050
	11/17/04	<0.0025	<0.0025	0.004	<0.0025	<0.0025	<0.0025	<0.0025	0.0096	<0.0025	<0.0025	0.18	0.0036	--	0.033	<0.0025
	05/18/05	<0.0020	<0.0010	<0.0010	<0.0020	<0.0010	<0.0010	<0.0010	0.00828	<0.0010	<0.0010	0.207	<0.0010	--	0.0232	0.0023
	11/14/05	<0.00200	<0.00100	0.00106	<0.00200	0.00136	0.0027	<0.00100	0.0111	<0.00100	<0.00100	0.187	<0.00100	--	0.0261	<0.00100
	06/05/06	<0.00100	<0.00100	0.00240	<0.00100	<0.00100	<0.00100	<0.00100	0.00618	<0.00100	<0.00100	0.102	0.00355	--	0.0191	<0.00100
	12/06/06	<0.00100	<0.00050	0.00207	<0.00100	0.00113	<0.00050	<0.00050	0.00898	<0.00050	<0.00050	0.133	0.0021	--	0.0283	<0.00050
	09/12/07	<0.00100	<0.00050	0.00266	<0.00100	0.00051	0.00114	<0.00050	0.00628	<0.00050	<0.00050	0.0769	0.00147	--	0.0183	<0.00050
	03/06/08	<0.00100	<0.000500	0.00171 J	<0.00100	0.00064	0.00104	<0.000500	0.00575	<0.000500	<0.000500	0.0809	0.00145	<0.000500	0.0199	<0.000500
	09/19/08	<0.00500	<0.00250	<0.00250	<0.00500	<0.00250	<0.00250	<0.00250	0.0146	<0.00250	<0.00250	0.0861	<0.00250	<0.00250	0.0208	<0.00250
	03/26/09	<0.00050	<0.00050	0.0036	<0.00050	<0.00050	0.00076	<0.00050	0.0038	<0.00050	<0.00050	0.081	0.001	<0.00050	0.014	<0.00050
	09/17/09	<0.00050	<0.00050	0.0034	<0.00050	0.00063	<0.00050	<0.00050	0.0083	<0.00050	<0.00050	0.1	0.00074	<0.00050	0.017	<0.00050
	03/19/10	<0.00050	<0.00050	0.0035 BE	<0.00050	<0.00050	<0.00050	0.00052	0.0041	<0.00050	<0.00050	0.089	0.00150	<0.00050	0.022	<0.00050
	09/23/10	<0.00050	<0.00050	0.0017 BE	<0.00050	0.00086	0.00094	<0.00050	0.010	<0.00050	<0.00050	0.087	0.00064	<0.00050	0.017	<0.00050
	03/10/11	<0.00050	<0.00050	0.0052	<0.00050	<0.00050	<0.00050	<0.00050	0.003	<0.00050	<0.00050	0.067	0.00089	<0.00050	0.013	<0.00050
	09/16/11	<0.00050	<0.00050	0.0027	<0.00050	<0.00050	<0.00050	<0.00050	0.0021	<0.00050	<0.00050	0.075	0.00069	<0.00050	0.0099	<0.00050
	03/12/12	<0.00050	<0.00050	0.0044	<0.00050	<0.00050	<0.00050	<0.00050	0.00	<0.00050	<0.00050	0.0520	0.0007	<0.00050	0.0130	<0.00050
	09/13/12	<0.00050	<0.00050	0.0017	<0.00050	<0.00050	<0.00050	<0.00050	0.0021	<0.00050	<0.00050	0.06	0.00058	<0.00050	0.0086	<0.00050
	03/15/12	<0.00050	<0.00050	0.0024	<0.00050	<0.00050	<0.00050	<0.00050	0.0031	<0.00050	<0.00050	0.078	0.00063	<0.00050	0.012	<0.00050
09/19/13	<0.00050	<0.00050	0.0022	<0.00050	<0.00050	<0.00050	<0.00050	0.0053	<0.00050	<0.00050	0.063	0.00057	<0.00050	0.014	<0.00050	
3/20/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0013	<0.00050	<0.00050	0.032	0.0016	<0.00050	0.012	<0.00050	
9/27/2014	Insufficient water for sampling during monitoring event.															
9/21/2015	<0.00050	<0.00050	0.002	<0.00050	<0.00050	<0.00050	<0.00050	0.0039	<0.00050	<0.00050	0.0453	0.00056	<0.00050	0.0125	<0.00050	
S-1	08/10/99	<0.0010	<0.0050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	0.00263	<0.00050	<0.00050	0.00781	0.0013	--	0.0206	<0.00050
	02/29/00	<0.0010	<0.0050	<0.00050	<0.00050	0.000761	<0.00050	<0.00050	0.00221	<0.00050	<0.00050	0.0606	0.00298	--	0.0244	<0.00050
	06/28/00	<0.0050	<0.0250	<0.0025	<0.0025	<0.0025	<0.0025	0.0027	0.0582	<0.0025	<0.0025	0.749	0.0145	--	0.232	<0.0025
	08/31/00	<0.0050	<0.0250	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	0.00498	<0.0025	<0.0025	0.313	0.00514	--	0.0604	<0.0025
	11/30/00	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00161	<0.00050	<0.00050	0.00978	0.00195	--	0.0298	<0.00050
	02/27/01	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	0.000551	0.00166	<0.00050	<0.00050	0.0135	0.00226	--	0.0452	<0.00050
	05/30/01	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.000974	<0.00050	<0.00050	0.00738	<0.0010	--	0.0126	<0.00050
	09/25/01	<0.0025	<0.0025	<0.0025	<0.0025	0.0026	<0.0025	0.004	0.0027	<0.0025	<0.0025	0.039	0.018	--	0.21	<0.0025

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)															
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride	
S-1 (continued)	03/19/02	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00421	<0.00050	--	0.00373	<0.00050	
	05/30/02	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00845	<0.00050	--	0.0104	<0.00050	
	11/07/02	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	0.00234	<0.00050	<0.00050	0.00871	0.00102	--	0.0197	<0.00050
	01/23/03	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	0.00078	<0.00050	<0.00050	0.00615	0.00056	--	0.013	<0.00050	
	05/28/03	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0022	<0.000500	--	0.00867	<0.00050	
	11/11/03	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00185	<0.0010	<0.0010	0.00422	<0.0010	--	0.0132	<0.0010	
	01/26/04	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00657	0.001	--	0.0155	<0.00050	
	05/04/04	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00117	<0.0010	<0.0010	0.00407	<0.0010	--	0.0106	<0.0010	
	11/15/04	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	0.0028	<0.00050	<0.00050	0.0084	0.00082	--	0.018	<0.00050	
	02/01/05	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	0.00075	<0.00050	<0.00050	0.00189	<0.00050	--	0.00287	<0.00050	
	05/18/05	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	0.00224	<0.00050	<0.00050	0.00373	<0.00050	--	0.00839	<0.00050	
	05/23/07	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.00363	<0.00100	<0.00100	0.00402	<0.00100	--	0.00685	<0.00100	
	12/13/07	<0.00100	<0.00050	<0.00050	<0.00100	<0.00050	<0.00050	<0.00050	0.00461	<0.00050	<0.00050	0.00487	<0.00050	--	0.00844	<0.00050	
	03/05/08	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	0.00515	<0.000500	<0.000500	<0.000500	0.00414	<0.000500	<0.000500	<0.000500	
	06/25/08	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.00167	<0.00100	<0.00100	<0.00100	0.00137	<0.00100	<0.00100	<0.00100	
	09/17/08	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	0.00555	<0.000500	<0.000500	0.00281	<0.000500	<0.000500	0.00607	<0.000500	
	12/09/08	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.001	<0.00050	<0.00050	0.00062	<0.00050	<0.00050	0.0014	<0.00050	
	03/25/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0023	<0.00050	<0.00050	0.0014	<0.00050	<0.00050	0.0027	<0.00050	
	06/16/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00091	<0.00050	<0.00050	0.00081	<0.00050	<0.00050	0.0018	<0.00050	
	09/16/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0024	<0.00050	<0.00050	0.0017	<0.00050	<0.00050	0.005	<0.00050	
	12/16/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0024	<0.00050	<0.00050	0.0017	<0.00050	<0.00050	0.0061	<0.00050	
	03/17/10	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0012	<0.00050	<0.00050	0.001	<0.00050	
	07/02/10	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
09/22/10	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00066	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0015	<0.0005		
12/08/10	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0012	<0.0005	<0.0005	0.0008	<0.0005	<0.0005	0.0030	<0.0005		
03/09/11	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0012	<0.00050		
06/08/11	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00066	<0.0005		
09/14/11	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0018	<0.00050	<0.00050	0.0014	<0.00050	<0.00050	0.004	<0.00050		
12/06/11	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0011	<0.00050	<0.00050	0.0013	<0.00050	<0.00050	0.0031	<0.00050		

Please refer to notes at end of table.

Appendix B
 Historical Groundwater Analytical Results
 NuStar Vancouver Facility
 Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo-form	Chloro-ethane	Chloro-form	Dibromo-chloro-methane	1,1-Dichloro-ethane	1,2-Dichloro-ethane	1,1-Dichloro-ethene	cis-1,2-Dichloro-ethene	trans-1,2-Dichloro-ethene	1,2-Dichloro-propane	Tetra-chloro-ethene	1,1,1-Trichloro-ethane	1,1,2-Trichloro-ethane	Trichloro-ethene	Vinyl Chloride
S-1 (continued)	03/12/12	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00	< 0.00050	< 0.00050	0.0007	< 0.00050	< 0.00050	0.0018	< 0.00050
	06/21/12	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.00	< 0.0005	< 0.0005	0.0009	< 0.0005	< 0.0005	0.0035	< 0.0005
	09/14/12	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00088	< 0.00050	< 0.00050	0.00088	< 0.00050	< 0.00050	0.0026	< 0.00050
	12/12/12	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0018	< 0.00050	< 0.00050	0.00096	< 0.00050	< 0.00050	0.0038	< 0.00050
	03/13/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00078	< 0.00050	< 0.00050	0.0015	< 0.00050
	06/12/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00074	< 0.00050	< 0.00050	0.0022	< 0.00050
	09/20/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0018	< 0.00050	< 0.00050	0.0018	< 0.00050	< 0.00050	0.0054	< 0.00050
	12/12/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0010	< 0.00050	< 0.00050	0.0012	< 0.00050	< 0.00050	0.0051	< 0.00050
	3/20/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0010	< 0.00050
	6/24/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00082	< 0.00050	< 0.00050	0.0021	< 0.00050
	9/27/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0012	< 0.00050	< 0.00050	0.0013	< 0.00050	< 0.00050	0.0043	< 0.00050
	12/9/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0014	< 0.00050	< 0.00050	0.0013	< 0.00050	< 0.00050	0.0049	< 0.00050
	3/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00073	< 0.00050	< 0.00050	0.0014	< 0.00050
	6/16/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0018	< 0.00050
	9/21/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00120	< 0.00050	< 0.00050	0.00160	< 0.00050	< 0.00050	0.0051	< 0.00050
12/8/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0006	< 0.00050	
S-2	08/11/99	< 0.0010	< 0.0050	< 0.00050	< 0.00050	0.00237	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0017	< 0.0010	--	0.000843	< 0.00050
	11/15/04	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00052	< 0.00050	< 0.00050	0.0044	< 0.00050	--	0.0016	< 0.00050
	12/12/12	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0027	< 0.00050	< 0.00050	< 0.00050	0.0017	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	03/13/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0034	< 0.00050	< 0.00050	0.0020	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	06/12/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0023	< 0.00050	< 0.00050	0.0014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	09/20/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0037	< 0.00050	< 0.00050	0.0033	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	12/12/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.003	< 0.00050	< 0.00050	0.0025	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	3/20/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0019	< 0.00050	< 0.00050	0.0022	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	6/24/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0031	< 0.00050	< 0.00050	0.0034	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	9/27/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0045	< 0.00050	< 0.00050	0.0047	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	12/9/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0039	< 0.00050	< 0.00050	0.0046	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
	3/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0045	< 0.00050	< 0.00050	0.0055	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050
6/16/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0041	< 0.00050	< 0.00050	0.0038	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	
12/8/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0030	< 0.00050	< 0.00050	0.0032	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	
MGMS1-3(43)	06/28/00	< 0.0500	< 0.250	< 0.0250	< 0.0250	0.278	< 0.0250	0.0559	4.27	< 0.0250	< 0.0250	0.734	< 0.0500	--	1.84	< 0.0250
	08/30/00	< 0.200	< 0.001	< 0.100	< 0.100	0.42	< 0.100	0.116	8.85	< 0.100	< 0.100	5.94	< 0.200	--	3.04	< 0.100
	11/29/00	< 0.100	< 0.500	< 0.0500	< 0.0500	0.249	< 0.0500	0.0762	4.56	< 0.0500	< 0.0500	1.21	< 0.100	--	1.14	< 0.0500

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MGMS1-3(43) (continued)	02/27/01	<0.100	<0.500	<0.0500	<0.0500	0.697	<0.0500	0.164	14.0	<0.0500	<0.0500	0.148	<0.100	--	1.39	0.133
	05/31/01	<0.100	<0.500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	5.87	<0.0500	<0.0500	0.13	<0.100	--	0.599	<0.0500
	09/24/01	<0.013	<0.013	<0.013	<0.013	0.15	<0.013	0.032	4.70	<0.013	<0.013	0.31	<0.013	--	0.45	0.025
	12/18/01	<0.0500	<0.250	<0.0250	<0.0250	0.153	<0.0250	0.0333	3.60	<0.0250	<0.0250	0.276	<0.0500	--	0.568	<0.0250
	03/19/02	<0.100	<0.0500	<0.0500	<0.100	0.31	<0.0500	0.103	6.70	<0.0500	<0.0500	2.09	<0.0500	--	1.72	0.086
	05/29/02	<0.0500	<0.0250	<0.0250	<0.0500	0.188	<0.0250	0.039	4.70	<0.0250	<0.0250	0.47	<0.0250	--	0.624	0.0375
	08/29/02	<0.0010	<0.00050	<0.00050	<0.0010	0.00372	<0.00050	0.00084	0.0947	0.00054	<0.00050	0.0349	0.00075	--	0.0357	0.00146
	11/11/02	<0.100	<0.0500	<0.0500	<0.100	0.183	<0.0500	<0.0500	4.81	<0.0500	<0.0500	0.757	<0.0500	--	0.831	0.051
	01/23/03	<0.100	<0.0500	<0.0500	<0.100	0.378	<0.0500	0.076	10.5	<0.0500	<0.0500	0.782	<0.0500	--	1.29	0.109
	05/28/03	<0.100	<0.0500	<0.0500	<0.100	0.402	<0.0500	0.072	9.51	<0.0500	<0.0500	0.27	<0.0500	--	0.841	0.114
	11/11/03	<0.0500	<0.0500	<0.0500	<0.0500	0.252	<0.0500	<0.0500	9.71	<0.0500	<0.0500	0.516	<0.0500	--	1.02	0.058
	01/27/04	<0.0500	<0.0250	<0.0250	<0.0500	0.29	<0.0250	0.0545	8.16	0.0535	<0.0250	0.393	<0.0250	--	0.808	0.095
	05/03/04	<0.100	<0.100	<0.100	<0.100	0.37	<0.100	<0.100	12.3	<0.100	<0.100	0.83	<0.100	--	1.52	0.111
	08/17/04	<0.100	<0.0500	<0.0500	<0.100	0.401	<0.0500	0.114	12.7	0.109	<0.0500	1.54	<0.0500	--	2.34	0.151
	11/15/04	<0.120	<0.120	<0.120	<0.120	0.27	<0.120	<0.120	9.60	<0.120	<0.120	1.40	<0.120	--	1.60	<0.120
	03/24/05	<0.100	<0.0500	<0.0500	<0.100	0.481	<0.0500	0.148	15.6	0.135	<0.0500	1.39	<0.0500	--	2.09	0.266
	05/16/05	<0.0500	<0.0250	<0.0250	<0.0500	0.327	<0.0250	0.089	9.7	0.083	<0.0250	0.802	<0.0250	--	1.41	0.157
	05/17/05	<0.100	<0.0500	<0.0500	<0.100	0.353	<0.0500	0.086	10.6	0.094	<0.0500	0.92	<0.0500	--	1.66	0.173
	11/17/05	<0.100	<0.0500	<0.0500	<0.100	0.392	<0.0500	0.121	13.4	0.133	<0.0500	1.31	<0.0500	--	2.28	0.186
	06/06/06	<0.100	<0.100	<0.100	<0.100	0.385	<0.100	<0.100	11.8	0.115	<0.100	0.628	<0.100	--	1.37	0.192
	12/06/06	<0.100	<0.0500	<0.0500	<0.100	0.256	<0.0500	0.072	10.0	0.092	<0.0500	0.843	<0.0500	--	1.26	0.155
	05/22/07	<0.100	<0.100	<0.100	<0.100	0.439	<0.100	0.119	14.2	0.152	<0.100	0.91	<0.100	--	1.92	0.245
	09/11/07	<0.100	<0.050	<0.050	<0.100	0.303	<0.0500	0.109	11.7	0.128	<0.050	1.10	<0.050	--	2.06	0.189
12/12/07	<0.100	<0.0500	<0.0500	<0.100	0.27	<0.0500	0.075	8.74	0.093	<0.0500	1.01	<0.0500	--	1.54	0.167	
03/05/08	<0.0500	<0.0250	<0.0250	<0.0500	0.37	<0.0250	0.128	6.74	0.22	<0.0250	1.48	0.036	<0.0250	2.35	0.234	
09/16/08	<0.100	<0.0500	<0.0500	<0.100	0.302	<0.0500	0.112	10.4	0.139	<0.0500	2.70	<0.0500	<0.0500	2.50	0.171	
12/08/08	<0.0040	<0.0040	<0.0040	<0.0040	0.19	<0.0040	0.063	6.00	0.078	<0.0040	1.30	0.019	<0.0040	1.20	0.10	
03/25/09	<0.015	<0.015	<0.015	<0.015	0.11	<0.015	0.066	3.50	0.034	<0.015	3.60	0.049	<0.015	2.10	0.049	
09/15/09	<0.015	<0.015	<0.015	<0.015	0.14	<0.015	0.074	4.2	0.045	<0.015	4.3	0.044	<0.015	2.3	0.084	
12/14/09	<0.015	<0.015	<0.015	<0.015	0.14	<0.015	0.046	4	0.055	<0.015	1.5	0.015	<0.015	1.1	0.067	
03/17/10	<0.015	<0.015	<0.015	<0.015	0.16	<0.015	0.063	4.6	0.044	<0.015	2.8	0.032	<0.015	1.9	0.078	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MGMS1-3(43) (continued)	06/14/10	<0.025	<0.025	<0.025	<0.025	0.22	<0.025	0.046	5.4	0.069	<0.025	0.79	<0.025	<0.025	0.9	0.085
	09/21/10	<0.015	<0.015	<0.015	<0.015	0.130	<0.015	0.055	3.8	0.043	<0.015	2.9	0.037	<0.015	1.9	0.068
	12/07/10	<0.015	<0.015	<0.015	<0.015	0.190	<0.015	0.063	5.500	0.069	<0.015	2.5	0.023	<0.015	1.8	0.096
	03/08/11	<0.020	<0.020	<0.020	<0.020	0.170	<0.020	0.052	4.6	0.056	<0.020	1.4	<0.020	<0.020	1.3	0.086
	06/06/11	<0.015	<0.015	<0.015	<0.015	0.19	<0.015	0.036	4.7	0.071	<0.015	0.61	<0.015	<0.015	0.79	0.097
	09/13/11	< 0.02	< 0.02	< 0.02	< 0.02	0.29	< 0.02	0.078	8	0.16	< 0.02	0.9	< 0.02	< 0.02	1.8	0.16
	03/08/12	<0.0040	<0.040	<0.040	<0.040	0.340	<0.040	0.0620	9.50	0.1500	<0.040	0.2400	<0.040	<0.040	0.6900	0.89
	06/21/12	< 0.020	< 0.020	< 0.020	< 0.020	0.220	< 0.020	0.0250	4.40	0.0760	< 0.020	0.0740	< 0.020	< 0.020	0.2600	1.10
	09/12/12	< 0.02	< 0.02	< 0.02	< 0.02	0.28	< 0.02	0.072	8.8	0.18	< 0.02	0.36	< 0.02	< 0.02	0.97	0.89
	12/11/12	< 0.02	< 0.02	< 0.02	< 0.02	0.22	< 0.02	0.040	6.1	0.11	< 0.02	0.16	< 0.02	< 0.02	0.43	0.68
	03/12/13	<0.02	<0.02	<0.02	<0.02	0.22	<0.02	0.021	4.7	0.074	<0.02	0.11	<0.02	<0.02	0.34	1.6
	06/11/13	<0.02	<0.02	<0.02	<0.02	0.19	<0.02	<0.02	3.9	0.056	<0.02	0.078	<0.02	<0.02	0.26	1.1
	09/17/13	<0.015	<0.015	<0.015	<0.015	0.19	<0.015	0.021	4.6	0.066	<0.015	0.1	<0.015	<0.015	0.35	1.1
	12/10/13	<0.015	<0.015	<0.015	<0.015	0.21	<0.015	0.018	3.6	0.054	<0.015	0.095	<0.015	<0.015	0.27	1.8
	3/18/2014	<0.020	<0.020	<0.020	<0.020	0.15	<0.020	<0.020	3.6	0.040	<0.020	0.093	<0.020	<0.020	0.26	0.44
	6/26/2014	<0.007	<0.007	<0.007	<0.007	0.12	<0.007	0.014	2	0.014	<0.007	0.021	<0.007	<0.007	0.057	0.48
	9/23/2014	<0.015	<0.015	<0.015	<0.015	0.19	<0.015	0.035	4.7	0.069	<0.015	0.12	<0.015	<0.015	0.42	0.55
12/12/2014	<0.007	<0.007	<0.007	<0.007	0.20	<0.007	0.023	4.0	0.052	<0.0070	0.10	<0.007	<0.007	0.35	0.81	
3/19/2015	<0.0125	<0.0125	<0.0125	<0.0125	0.13	<0.0125	<0.0125	2.5	0.017	<0.0125	0.03	<0.0125	<0.0125	0.13	0.25	
6/18/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.0027	<0.00050	<0.00050	0.059	<0.00050	<0.00050	0.00084	<0.00050	<0.00050	0.0028	0.0031	
9/21/2015	<0.0100	<0.0100	<0.0100	<0.0100	0.1240	<0.0100	0.014	2.810	0.025	<0.0100	0.05350	<0.0100	<0.0100	0.171	0.129	
12/8/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.0920	<0.00050	<0.00050	1.580	0.012	<0.00050	0.02620	<0.00050	<0.00050	0.088	0.23	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MGMS1-2(60)	06/28/00	<0.0100	<0.0500	<0.0050	<0.0050	0.0536	<0.0050	<0.0050	0.369	<0.0050	<0.0050	0.658	0.0197	--	0.24	<0.0050
	08/30/00	<0.0200	<0.100	<0.0100	<0.0100	0.0217	<0.0100	0.0131	0.267	<0.0100	<0.0100	2.59	0.108	--	0.586	<0.0100
	11/29/00	<0.0020	<0.0100	<0.0010	<0.0010	0.00158	<0.0010	0.00109	0.0577	<0.0010	<0.0010	0.121	0.00458	--	0.0403	<0.0010
	02/27/01	<0.0010	<0.0050	<0.0005	<0.0005	0.000838	<0.0005	0.000686	0.0329	<0.0005	<0.0005	0.0546	0.00206	--	0.0247	<0.0005
	05/31/01	<0.0010	<0.0050	<0.00050	<0.00050	0.000662	<0.00050	0.000581	0.039	<0.00050	<0.00050	0.0694	<0.0010	--	0.0278	0.00052
	09/24/01	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	0.089	<0.013	<0.013	0.83	0.014	--	0.15	<0.013
	12/18/01	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0204	<0.00050	<0.00050	0.0128	<0.0010	--	0.0157	<0.00050
	03/19/02	<0.0010	<0.00050	<0.00050	<0.0010	0.00252	<0.00050	0.00099	0.068	<0.00050	<0.00050	0.0629	0.0012	--	0.034	0.00348
	05/29/02	<0.0010	<0.00050	<0.00050	<0.0010	0.00078	<0.00050	<0.00050	0.0228	<0.00050	<0.00050	0.0234	<0.00050	--	0.0142	0.0006
	08/29/02	<0.0100	<0.0050	<0.0050	<0.0100	0.0306	<0.0050	0.0051	0.661	<0.0050	<0.0050	0.138	<0.0050	--	0.116	<0.0050
	11/11/02	<0.0010	<0.00050	<0.00050	<0.0010	0.00299	<0.00050	0.00083	0.086	<0.00050	<0.00050	0.0382	0.00116	--	0.0389	<0.00050
	01/23/03	<0.0010	<0.00050	<0.00050	<0.0010	0.00153	<0.00050	0.00074	0.0426	<0.00050	<0.00050	0.0428	0.00078	--	0.0342	0.00104
	05/28/03	<0.0010	<0.00050	<0.00050	<0.0010	0.00287	<0.00050	0.00121	0.072	<0.00050	<0.00050	0.0511	0.00118	--	0.0476	0.00063
	11/11/03	<0.0010	<0.0010	<0.0010	<0.0010	0.00184	<0.0010	<0.0010	0.0488	<0.0010	<0.0010	0.0459	<0.0010	--	0.036	<0.0010
	01/27/04	<0.0010	<0.00050	<0.00050	<0.0010	0.00206	<0.00050	0.00106	0.0723	0.00069	<0.00050	0.0409	0.00066	--	0.0431	0.00063
	05/03/04	<0.0010	<0.0010	<0.0010	<0.0010	0.00407	<0.0010	0.00122	0.0707	<0.0010	<0.0010	0.0548	0.00136	--	0.0435	0.00253
	08/17/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11/02/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11/15/04	<0.00050	<0.00050	<0.00050	<0.00050	0.0012	<0.00050	0.00068	0.039	<0.00050	<0.00050	0.031	<0.00050	--	0.028	0.00067
	02/01/05	<0.0010	<0.00050	<0.00050	<0.0010	0.00131	<0.00050	<0.00050	0.0375	0.00056	<0.00050	0.0332	<0.00050	--	0.0217	0.0013
	05/16/05	<0.0010	<0.00050	<0.00050	<0.0010	0.001	<0.00050	<0.00050	0.0406	<0.00050	<0.00050	0.0217	<0.00050	--	0.0198	<0.00050
	05/16/05 DUP	<0.0010	<0.00050	<0.00050	<0.0010	0.00102	<0.00050	<0.00050	0.0421	<0.00050	<0.00050	0.0214	<0.00050	--	0.0205	<0.00050
	08/18/05	<0.00100	<0.000500	<0.000500	<0.00100	0.00728	<0.000500	0.00241	0.145	0.0012	<0.000500	0.0765 B	0.00146	--	0.0656	0.00516 B
	11/17/05	<0.00100	<0.000500	<0.000500	<0.00100	0.00253	<0.000500	0.00099	0.087	0.00059	<0.000500	0.0348	<0.000500	--	0.0264	0.00093
	02/20/06	<0.00100	<0.000500	<0.000500	<0.00100	0.00617	<0.000500	0.00193	0.136	0.0011	<0.000500	0.0619	0.00093	--	0.0455	0.00417
	06/06/06	<0.00100	<0.00100	<0.00100	<0.00100	0.00102	<0.00100	<0.00100	0.0337	<0.00100	<0.00100	0.0234	<0.00100	--	0.0187	<0.00100
	09/05/06	<0.00100	<0.00050	<0.00050	<0.00100	0.00537	<0.00050	0.00175	0.115	0.00084	<0.00050	0.0559	0.0008	--	0.0375	0.00479
	12/06/06	<0.00100	<0.00050	<0.00050	<0.00100	0.00339	<0.00050	0.00112	0.0909	0.00062	<0.00050	0.0395	<0.00050	--	0.0283	0.00215
	02/07/07	<0.00100	<0.00050	<0.00050	<0.00100	0.00437	<0.00050	0.00137	0.116	0.00093	<0.00050	0.0559	0.00058	--	0.0407	0.003
	05/22/07	<0.00100	<0.00100	<0.00100	<0.00100	0.00118	<0.00100	<0.00100	0.0385	<0.00100	<0.00100	0.0316	<0.00100	--	0.0252	<0.00100
	09/11/07	<0.00500	<0.00250	<0.00250	<0.00500	0.0266	<0.00250	0.00875	0.711	0.0072	<0.00250	0.0814	0.00295	--	0.216	0.0119

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo-form	Chloro-ethane	Chloro-form	Dibromo-chloro-methane	1,1-Dichloro-ethane	1,2-Dichloro-ethane	1,1-Dichloro-ethene	cis-1,2-Dichloro-ethene	trans-1,2-Dichloro-ethene	1,2-Dichloro-propane	Tetra-chloro-ethene	1,1,1-Trichloro-ethane	1,1,2-Trichloro-ethane	Trichloro-ethene	Vinyl Chloride
MGMS1-2(60) (continued)	12/12/07	<0.00100	<0.00050	<0.00050	<0.00100	0.00183	<0.00050	0.00079	0.0649	0.00065	<0.00050	0.0281	<0.00050	--	0.0249	0.00067
	03/04/08	<0.00100	<0.000500	<0.000500	<0.00100	0.00665	<0.000500	0.00	0.166	0.00292	<0.000500	0.0754	0.00081	<0.000500	0.0605	0.00279
	09/16/08	<0.00500	<0.00250	<0.00250	<0.00250	0.0055	<0.00250	<0.00250	0.16	<0.00250	<0.00250	0.0388	<0.00250	<0.00250	0.0655	<0.00250
	12/08/08	<0.00050	<0.00050	<0.00050	<0.00050	0.0041	<0.00050	0.0012	0.088	0.0011	<0.00050	0.04	0.00051	<0.00050	0.038	0.0013
	12/08/08 DUP	<0.00050	<0.00050	<0.00050	<0.00050	0.0039	<0.00050	0.0012	0.084	0.0011	<0.00050	0.042	0.00052	<0.00050	0.038	0.0013
	03/25/09	<0.00050	<0.00050	<0.00050	<0.00050	0.0031	<0.00050	0.0013	0.071	0.00075	<0.00050	0.04	0.00065	<0.00050	0.037	0.00054
	06/15/09	<0.00050	<0.00050	<0.00050	<0.00050	0.001	<0.00050	0.0008	0.047	0.0009	<0.00050	0.026	<0.00050	<0.00050	0.03	0.00055
	09/15/09	<0.00050	<0.00050	<0.00050	<0.00050	0.002	<0.00050	0.00082	0.044	0.00058	<0.00050	0.042	<0.00050	<0.00050	0.03	0.00082
	12/14/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.017	<0.00050	<0.00050	0.018	<0.00050	<0.00050	0.016	<0.00050
	03/17/10	<0.00050	<0.00050	<0.00050	<0.00050	0.0024	<0.00050	0.00096	0.061	0.00068	<0.00050	0.04	0.00051	<0.00050	0.038	<0.00050
	06/14/10	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.02	<0.00050	<0.00050	0.017	<0.00050	<0.00050	0.015	<0.00050
	09/21/10	<0.0005	<0.0005	<0.0005	<0.0005	0.0021	<0.0005	0.00057	0.046	<0.0005	<0.0005	0.042	<0.0005	<0.0005	0.032	0.0008
	12/07/10	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.016	<0.0005	<0.0005	0.019	<0.0005	<0.0005	0.015	<0.0005
	03/08/11	<0.00050	<0.00050	<0.00050	<0.00050	0.00054	<0.00050	<0.00050	0.019	<0.00050	<0.00050	0.027	<0.00050	<0.00050	0.016	<0.00050
	06/06/11	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0083	<0.0005	<0.0005	0.016	<0.0005	<0.0005	0.011	<0.0005
	09/13/11	<0.00050	<0.00050	<0.00050	<0.00050	0.0025	<0.00050	0.00073	0.042	0.0005	<0.00050	0.042	0.00089	<0.00050	0.03	0.00074
	12/06/11	<0.00050	<0.00050	<0.00050	<0.00050	0.0010	<0.00050	<0.00050	0.03	<0.00050	<0.00050	0.033	<0.00050	<0.00050	0.022	0.00060
	03/08/12	<0.00050	<0.00050	<0.00050	<0.00050	0.002	<0.00050	<0.00050	0.03	<0.00050	<0.00050	0.0360	<0.00050	<0.00050	0.0210	<0.00050
	06/19/12	<0.0005	<0.0005	<0.0005	<0.0005	0.001	<0.0005	<0.0005	0.03	<0.0005	<0.0005	0.0220	<0.0005	<0.0005	0.0160	<0.0005
	09/12/12	<0.00050	<0.00050	<0.00050	<0.00050	0.0025	<0.00050	0.00066	0.036	<0.00050	<0.00050	0.033	<0.00050	<0.00050	0.02	0.0011
	12/11/12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.020	<0.00050	<0.00050	0.019	<0.00050	<0.00050	0.011	<0.00050
	03/12/13	<0.00050	<0.00050	<0.00050	<0.00050	0.0018	<0.00050	0.00056	0.038	<0.00050	<0.00050	0.035	<0.00050	<0.00050	0.020	0.00066
	06/11/13	<0.00050	<0.00050	<0.00050	<0.00050	0.00066	<0.00050	<0.00050	0.029	<0.00050	<0.00050	0.027	<0.00050	<0.00050	0.018	<0.00050
	09/17/13	<0.00050	<0.00050	<0.00050	<0.00050	0.00089	<0.00050	<0.00050	0.02	<0.00050	<0.00050	0.032	<0.00050	<0.00050	0.016	0.00054
	12/10/13	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.016	<0.00050	<0.00050	0.017	<0.00050	<0.00050	0.011	<0.00050
	3/18/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0085	<0.00050	<0.00050	0.010	<0.00050	<0.00050	0.0058	<0.00050
	6/26/2014	<0.00050	<0.00050	<0.00050	<0.00050	0.00100	<0.00050	<0.00050	0.0330	<0.00050	<0.00050	0.021	<0.00050	<0.00050	0.02	<0.00050
9/23/2014	<0.00050	<0.00050	<0.00050	<0.00050	0.0023	<0.00050	<0.00050	0.026	<0.00050	<0.00050	0.034	<0.00050	<0.00050	0.020	0.012	
12/12/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.022	<0.00050	<0.00050	0.020	<0.00050	<0.00050	0.014	<0.00050	
3/19/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.0011	<0.00050	<0.00050	0.026	<0.00050	<0.00050	0.023	<0.00050	<0.00050	0.016	<0.00050	
6/18/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0010	<0.00050	<0.00050	0.018	<0.00050	<0.00050	0.0091	<0.00050	
9/21/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.002	<0.00050	<0.00050	0.0016	<0.00050	
12/8/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0188	<0.00050	<0.00050	0.014	<0.00050	<0.00050	0.0124	<0.00050	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MGMS1-1(110)	06/28/00	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00378	<0.00050	<0.00050	0.0039	<0.0010	--	0.00335	<0.00050
	08/30/00	<0.0050	<0.0250	<0.0025	<0.0025	0.0037	<0.0025	0.00332	0.055	<0.0025	<0.0025	0.51	0.024	--	0.13	<0.0025
	11/29/00	<0.0050	<0.0250	<0.0025	<0.0025	0.00421	<0.0025	0.00459	0.051	<0.0025	<0.0025	0.583	0.0232	--	0.166	<0.0025
	02/27/01	<0.0050	<0.0250	<0.0025	<0.0025	0.00521	<0.0025	0.00339	0.0475	<0.0025	<0.0025	0.385	0.0165	--	0.105	<0.0025
	05/31/01	<0.0100	<0.0500	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0558	<0.0050	<0.0050	0.639	0.0138	--	0.141	<0.0050
	09/24/01	<0.0013	<0.0013	<0.0013	<0.0013	0.0061	<0.0013	0.0029	0.057	<0.0013	<0.0013	0.58	0.02	--	0.12	<0.0013
	12/18/01	<0.0050	<0.0250	<0.0025	<0.0025	0.00504	<0.0025	0.00268	0.0548	<0.0025	<0.0025	0.527	0.0202	--	0.131	<0.0025
	03/19/02	<0.0050	<0.0025	<0.0025	<0.0050	0.00525	<0.0025	<0.0025	0.054	<0.0025	<0.0025	0.454	0.0108	--	0.098	<0.0025
	05/29/02	<0.0050	<0.0025	<0.0025	<0.0050	0.0049	<0.0025	<0.0025	0.0623	<0.0025	<0.0025	0.299	0.0097	--	0.0651	<0.0025
	08/29/02	<0.0010	<0.00050	<0.00050	<0.0010	0.00543	<0.00050	0.00132	0.11	0.0008	<0.00050	0.0602	0.00362	--	0.0478	<0.00050
	11/11/02	<0.0020	<0.0010	<0.0010	<0.0020	0.00474	<0.0010	0.0012	0.0461	<0.0010	<0.0010	0.208	0.00784	--	0.0661	<0.0010
	01/23/03	<0.0020	<0.0010	<0.0010	<0.0020	0.00444	<0.0010	0.00124	0.0653	<0.0010	<0.0010	0.21	0.00654	--	0.0741	<0.0010
	05/28/03	<0.0020	<0.0010	<0.0010	<0.0020	0.00396	<0.0010	<0.0010	0.0692	<0.0010	<0.0010	0.109	0.00248	--	0.0575	<0.0010
	11/11/03	<0.0020	<0.0020	<0.0020	<0.0020	0.00414	<0.0020	<0.0020	0.0448	<0.0020	<0.0020	0.256	0.0036	--	0.0602	<0.0020
	01/27/04	<0.0020	<0.0010	<0.0010	<0.0020	0.00422	<0.0010	0.0011	0.0671	<0.0010	<0.0010	0.167	0.00416	--	0.0697	<0.0010
	05/03/04	<0.0010	<0.0010	<0.0010	<0.0010	0.00366	<0.0010	<0.0010	0.0472	<0.0010	<0.0010	0.19	0.00218	--	0.0559	<0.0010
	11/15/04	<0.0025	<0.0025	<0.0025	<0.0025	0.0037	<0.0025	<0.0025	0.095	<0.0025	<0.0025	0.076	<0.0025	--	0.064	<0.0025
	06/20/05	<0.0020	<0.0010	<0.0010	<0.0020	0.00922	<0.0010	0.00258	0.283	0.0018	<0.0010	0.0236	0.00162	--	0.07	0.00124
	11/17/05	<0.00100	<0.000500	<0.000500	<0.00100	0.00293	<0.000500	<0.000500	0.0513	<0.000500	<0.000500	0.102	0.00195	--	0.0761	<0.000500
	06/06/06	<0.00100	<0.00100	<0.00100	<0.00100	0.00215	<0.00100	<0.00100	0.044	<0.00100	<0.00100	0.0944	0.00136	--	0.0668	<0.00100
	12/06/06	<0.00100	<0.00050	<0.00050	<0.00100	0.00581	<0.00050	0.0006	0.142	<0.00050	<0.00050	0.0538	0.00088	--	0.0746	0.00057
	09/11/07	<0.00200	<0.00100	<0.00100	<0.00200	0.00378	<0.00100	0.0012	0.189	<0.00100	<0.00100	0.0316	<0.00100	--	0.0611	<0.00100
	03/04/08	<0.00100	<0.000500	<0.000500	<0.00100	0.00373	<0.000500	0.00091	0.242	0.00237	<0.000500	0.0327	0.00064	<0.000500	0.0444	<0.000500
	03/25/09	<0.00050	<0.00050	<0.00050	<0.00050	0.0026	<0.00050	0.00087	0.16	0.0009	<0.00050	0.025	<0.00050	<0.00050	0.039	<0.00050
	06/15/09	<0.00050	<0.00050	<0.00050	<0.00050	0.0023	<0.00050	0.00074	0.13	0.001	<0.00050	0.024	<0.00050	<0.00050	0.039	<0.00050
	09/15/09	<0.0025	<0.0025	<0.0025	<0.0025	0.02	<0.0025	0.0027	0.62	0.004	<0.0025	0.024	<0.0025	<0.0025	0.075	<0.0025
	03/17/10	<0.0025	<0.0025	<0.0025	<0.0025	0.02	<0.0025	0.0043	0.72	0.004	<0.0025	0.02	<0.0025	<0.0025	0.079	<0.0025
	09/21/10	<0.0005	<0.0005	<0.0005	<0.0005	0.0025	<0.0005	0.0011	0.1500	0.001	<0.0005	0.028	<0.0005	<0.0005	0.053	<0.0005
	03/10/11	<0.00050	<0.00050	<0.00050	<0.00050	0.0014	<0.00050	0.00057	0.083	0.00052	<0.00050	0.026	<0.00050	<0.00050	0.031	<0.00050
	09/13/11	<0.00050	<0.00050	<0.00050	<0.00050	0.0019	<0.00050	0.0012	0.11	0.00096	<0.00050	0.03	<0.00050	<0.00050	0.059	<0.00050

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MGMS1-1(110) (continued)	03/08/12	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.001	< 0.00050	< 0.00050	0.06	< 0.00050	< 0.00050	0.0220	< 0.00050	< 0.00050	0.0210	< 0.00050
	09/12/12	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00093	< 0.00050	0.00053	0.06	< 0.00050	< 0.00050	0.022	< 0.00050	< 0.00050	0.025	< 0.00050
	03/12/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00095	< 0.00050	< 0.00050	0.065	< 0.00050	< 0.00050	0.023	< 0.00050	< 0.00050	0.024	< 0.00050
	09/17/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0011	< 0.00050	0.00056	0.068	< 0.00050	< 0.00050	0.026	< 0.00050	< 0.00050	0.032	< 0.00050
	3/18/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0012	< 0.00050	< 0.00050	0.063	< 0.00050	< 0.00050	0.023	< 0.00050	< 0.00050	0.027	0.00065
	9/24/2014	Not sampled; 60 foot port accidentally sampled twice.														
	3/19/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0027	< 0.00050	0.00069	0.13	< 0.00050	< 0.00050	0.024	< 0.00050	< 0.00050	0.0415	0.00082
	9/21/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0011	< 0.00050	< 0.00050	0.05	< 0.00050	< 0.00050	0.019	< 0.00050	< 0.00050	0.0204	< 0.00050
MGMS2-4(40)	06/28/00	<0.0500	<0.250	<0.0250	<0.0250	0.0449	<0.0250	<0.0250	1.21	<0.0250	<0.0250	5.03	0.215	--	3.09	<0.0250
	08/30/00	<0.0100	<0.0500	<0.0050	<0.0050	0.0234	<0.0050	0.0313	0.644	0.00728	<0.0050	2.98	0.152	--	1.85	<0.0050
	11/29/00	<0.100	<0.500	<0.0500	<0.0500	0.0513	<0.0500	0.094	1.42	<0.0500	<0.0500	8.74	0.424	--	3.98	<0.0500
	02/27/01	<0.0500	<0.250	<0.0250	<0.0250	0.0356	<0.0250	0.0662	0.753	<0.0250	<0.0250	7.36	0.28	--	3.36	<0.0250
	05/31/01	<0.0500	<0.250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	0.604	<0.0250	<0.0250	3.61	0.0944	--	2.05	<0.0250
	09/24/01	<0.0050	<0.0050	<0.0050	<0.0050	0.028	<0.0050	0.026	0.78	0.013	<0.0050	2.60	0.17	--	1.70	<0.0050
	12/18/01	<0.0500	<0.250	<0.0250	<0.0250	0.175	<0.0250	0.077	1.35	<0.0250	<0.0250	5.59	0.374	--	3.22	<0.0250
	03/19/02	<0.0500	<0.0250	<0.0250	<0.0500	0.036	<0.0250	0.036	0.868	<0.0250	<0.0250	6.24	0.18	--	3.04	<0.0250
	05/29/02	<0.0500	<0.0250	<0.0250	<0.0500	0.076	<0.0250	0.053	1.33	<0.0250	<0.0250	6.58	0.23	--	2.53	<0.0250
	11/11/02	<0.0200	<0.0100	<0.0100	<0.0200	0.0198	<0.0100	0.0136	0.639	<0.0100	<0.0100	3.08	0.0894	--	1.82	<0.0100
	01/23/03	<0.0200	<0.0100	<0.0100	<0.0200	0.0134	<0.0100	<0.0100	0.353	<0.0100	<0.0100	2.29	0.0526	--	1.48	<0.0100
	05/28/03	<0.0100	<0.0050	<0.0050	<0.0100	0.0054	<0.0050	<0.0050	0.11	<0.0050	<0.0050	1.19	0.0191	--	0.474	<0.0050
	11/11/03	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0541	<0.0100	<0.0100	1.82	0.014	--	0.398	<0.0100
	01/27/04	<0.0200	<0.0100	<0.0100	<0.0200	0.0452	<0.0100	0.01	0.397	<0.0100	<0.0100	1.74	0.0558	--	0.688	<0.0100
	05/03/04	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0412	<0.0100	<0.0100	0.599	<0.0100	--	0.20	<0.0100
	08/17/04	<0.0100	<0.0050	<0.0050	<0.0100	0.0097	<0.0050	0.0061	0.158	<0.0050	<0.0050	1.53	0.0307	--	0.705	<0.0050
	11/15/04	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	0.31	<0.0250	<0.0250	2.90	<0.0250	--	1.30	<0.0250
	03/24/05	<0.0200	<0.0100	<0.0100	<0.0200	0.0108	<0.0100	<0.0100	0.159	<0.0100	<0.0100	1.90	0.0258	--	0.834	<0.0100
	05/16/05	<0.0200	<0.0100	<0.0100	<0.0200	0.0342	<0.0100	0.0282	0.489	<0.0100	<0.0100	2.54	0.0522	--	1.15	<0.0100
	11/16/05	<0.0500	<0.0250	<0.0250	<0.0500	0.0435	<0.0250	<0.0250	0.396	<0.0250	<0.0250	4.24	0.0825	--	1.75	<0.0250
06/06/06	<0.0500	<0.0500	<0.0500	<0.0500	0.062	<0.0500	<0.0500	0.917	<0.0500	<0.0500	4.82	0.055	--	1.77	<0.0500	
12/05/06	<0.0500	<0.0250	<0.0250	<0.0500	<0.0250	<0.0250	<0.0250	0.37	<0.0250	<0.0250	3.09	0.0315	--	1.20	<0.0250	
05/21/07	<0.0200	<0.0200	<0.0200	<0.0200	0.0274	<0.0200	<0.0200	0.359	<0.0200	<0.0200	2.88	0.0382	--	1.08	<0.0200	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MGMS2-4(40) (continued)	09/10/07	<0.0500	<0.0250	<0.0250	<0.0500	<0.0250	<0.0250	<0.0250	0.402	<0.0250	<0.0250	2.01	0.0525	--	1.60	<0.0250
	12/12/07	<0.0500	<0.0250	<0.0250	<0.0500	0.026	<0.0250	<0.0250	0.33	<0.0250	<0.0250	2.08	0.0355	--	0.914	<0.0250
	03/04/08 ²	<0.00100	<0.000500	<0.000500	<0.00100	0.0204	<0.000500	0.0161	0.181	0.00771	<0.000500	1.81	0.0537	0.001	0.95	0.00468
	09/16/08	<0.0500	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	0.208	<0.0250	<0.0250	2.33	0.032	<0.0250	1.13	<0.0250
	12/08/08	Not sampled. Air leak in sampling point prohibited the collection of the sample.														
	03/24/09	<0.0020	<0.0020	<0.0020	<0.0020	0.0084	<0.0020	0.0036	0.10	0.002	<0.0020	0.99	0.014	<0.0020	0.43	<0.0020
	09/15/09	<0.0015	<0.0015	<0.0015	<0.0015	0.0031	<0.0015	<0.0015	0.052	<0.0015	<0.0015	0.44	0.0041	<0.0015	0.2	<0.0015
	12/14/09	<0.0015	<0.0015	<0.0015	<0.0015	0.054	<0.0015	0.016	0.36	0.0069	<0.0015	2.4	0.062	<0.0015	1	0.0026
	03/16/10	<0.007	<0.007	<0.007	<0.007	0.016	<0.007	<0.007	0.14	<0.007	<0.007	1.8	0.019	<0.007	0.81	<0.007
	06/14/10	<0.025	<0.025	<0.025	<0.025	0.072	<0.025	0.041	1.4	<0.025	<0.025	6.4	0.068	<0.025	1.5	0.043
	09/21/10	<0.0025	<0.0025	<0.0025	<0.0025	0.035	<0.0025	0.017	0.480	0.009	<0.0025	3.5	0.048	<0.0025	1.5	0.0054
	12/07/10	<0.015	<0.015	<0.015	<0.015	0.069	<0.015	0.026	0.700	<0.015	<0.015	4.1	0.083	<0.015	1.6	<0.015
	03/07/11	<0.015	<0.015	<0.015	<0.015	0.088	<0.015	0.030	0.930	<0.015	<0.015	3.7	0.091	<0.015	1.6	<0.015
	06/07/11	<0.015	<0.015	<0.015	<0.015	0.065	<0.015	0.03	1.6	0.017	<0.015	4.4	0.057	<0.015	1.4	0.048
	09/12/11	< 0.015	< 0.015	< 0.015	< 0.015	0.044	< 0.015	0.028	7.4	0.02	< 0.015	0.79	0.048	< 0.015	0.38	0.058
	12/07/11	< 0.015	< 0.015	< 0.015	< 0.015	0.035	< 0.015	< 0.015	5.3	< 0.015	< 0.015	0.061	< 0.015	< 0.015	0.039	0.46
	03/08/12	<0.0020	<0.0020	<0.0020	<0.0020	0.038	<0.0020	0.0023	0.47	0.0028	<0.0020	0.0099	0.0052	<0.0020	0.0054	0.26
	06/19/12	< 0.0005	0.0039	< 0.0005	< 0.0005	0.053	< 0.0005	< 0.0005	0.02	0.0013	< 0.0005	0.0072	< 0.0005	< 0.0005	0.0025	0.06
	09/13/12	< 0.0015	0.0018	< 0.0015	< 0.0015	0.039	< 0.0015	0.0028	0.31	0.0032	< 0.0015	0.089	0.005	< 0.0015	0.08	0.44
	12/11/12	<0.00050	0.030	<0.00050	<0.00050	0.0048	<0.00050	<0.00050	0.033	0.0013	<0.00050	0.010	<0.00050	<0.00050	0.0034	0.0040
	03/12/13	<0.00050	0.0082	<0.00050	<0.00050	0.028	<0.00050	0.0019	0.30	0.0020	<0.00050	0.0056	0.0025	<0.00050	0.0022	0.27
	06/11/13	<0.00050	0.015	<0.00050	<0.00050	0.0083	<0.00050	<0.00050	0.0079	<0.00050	<0.00050	0.00094	<0.00050	<0.00050	<0.00050	0.0048
	09/17/13	<0.00050	0.0094	<0.00050	<0.00050	0.028	<0.00050	0.0048	0.29	0.0014	<0.00050	0.016	0.0016	<0.00050	0.017	0.33
	12/16/13	<0.00050	0.0069	<0.00050	<0.00050	0.0097	<0.00050	<0.00050	0.0084	<0.00050	<0.00050	0.0024	<0.00050	<0.00050	0.0014	0.0034
	3/24/2014	<0.00050	0.0024	<0.00050	<0.00050	0.045	<0.00050	0.0029	0.084	<0.00050	<0.00050	0.0026	<0.00050	<0.00050	0.0018	0.27
	6/26/2014	<0.00050	0.0061	<0.00050	<0.00050	0.031	<0.00050	0.01	0.088	0.00084	<0.00050	0.021	<0.00050	<0.00050	0.0220	0.09
	9/23/2014	<0.00050	0.0025	<0.00050	<0.00050	0.030	<0.00050	0.030	0.590	0.0024	<0.00050	0.17	0.0032	<0.00050	0.11	0.80
12/12/2014	<0.00050	0.012	<0.00050	<0.00050	0.035	<0.00050	<0.00050	0.010	<0.00050	<0.00050	0.0034	<0.00050	<0.00050	0.0023	0.018	
3/20/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.0043	<0.00050	0.0039	0.047	<0.00050	<0.00050	0.031	<0.00050	<0.00050	0.022	0.017	
6/19/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.014	<0.00050	0.0013	0.054	<0.00050	<0.00050	0.018	<0.00050	<0.00050	0.013	0.048	
9/25/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.012	<0.00050	0.0042	0.105	0.0006	<0.00050	0.067	0.0009	<0.00050	0.046	0.058	
12/8/2015	<0.00050	0.0038	<0.00050	<0.00050	0.014	<0.00050	<0.00050	0.007	<0.00050	<0.00050	0.004	<0.00050	<0.00050	0.003	0.003	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MGMS2-3(60)	06/28/00	<0.0050	<0.0250	<0.0025	<0.0025	0.0356	<0.0025	0.0083	0.433	<0.0025	<0.0025	0.11	0.0223	--	0.198	<0.0025
	08/30/00	<0.0100	<0.0500	<0.0050	<0.0050	0.036	<0.0050	0.013	1.12	<0.0050	<0.0050	0.164	0.032	--	0.136	<0.0050
	11/29/00	<0.0050	<0.0250	<0.0025	<0.0025	0.00508	<0.0025	0.00388	0.279	<0.0025	<0.0025	0.0268	<0.0050	--	0.038	<0.0025
	02/27/01	<0.002	<0.0100	<0.0010	<0.0010	0.0402	<0.0010	0.00265	0.0466	<0.0010	<0.0010	0.0207	0.0124	--	0.027	0.173
	05/31/01	<0.0010	<0.0050	<0.00050	<0.00050	0.00247	<0.00050	0.0023	0.0391	<0.00050	<0.00050	0.113	0.00344	--	0.0756	0.00506
	09/24/01	<0.0025	<0.0025	<0.0025	<0.0025	0.014	<0.0025	0.011	0.18	0.0036	<0.0025	0.34	0.011	--	0.22	0.048
	12/18/01	<0.0010	<0.0050	<0.00050	<0.00050	0.000607	<0.00050	0.00101	0.015	<0.00050	<0.00050	0.0644	0.00206	--	0.0477	<0.00050
	03/19/02	<0.0010	<0.00050	<0.00050	<0.0010	0.0054	<0.00050	0.00296	0.0629	0.00081	<0.00050	0.0919	0.00578	--	0.0801	0.0152
	05/29/02	<0.0010	<0.00050	<0.00050	<0.0010	0.00255	<0.00050	0.00202	0.0597	0.00082	<0.00050	0.119	0.0048	--	0.0676	0.00106
	01/23/03	<0.0010	<0.00050	<0.00050	<0.0010	0.0101	<0.00050	0.0027	0.114	0.00112	<0.00050	0.111	0.00606	--	0.096	0.0228
	05/28/03	<0.0020	<0.0010	<0.0010	<0.0020	0.015	<0.0010	0.00328	0.178	0.00148	<0.0010	0.131	0.0093	--	0.126	0.0156
	11/11/03	<0.0020	<0.0020	<0.0020	<0.0020	0.0213	<0.0020	0.00456	0.208	<0.0020	<0.0020	0.223	0.00906	--	0.139	0.0206
	01/27/04	<0.0010	<0.00050	<0.00050	<0.0010	0.0172	<0.00050	0.00283	0.117	0.00157	<0.00050	0.0963	0.00538	--	0.0922	0.0177
	05/03/04	<0.0010	<0.0010	<0.0010	<0.0010	0.00479	<0.0010	0.00196	0.0864	<0.0010	<0.0010	0.121	0.00331	--	0.084	<0.0010
	11/15/04	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	0.013	0.0044	0.22	0.0028	<0.0025	0.17	0.0064	--	0.14	0.011
	02/01/05	<0.0010	<0.00050	<0.00050	<0.0010	0.00249	<0.00050	0.00147	0.092	0.00246	<0.00050	0.0977	0.00241	--	0.0739	0.001
	05/16/05	<0.0010	<0.00050	<0.00050	<0.0010	0.00149	<0.00050	0.00151	0.0452	0.00059	<0.00050	0.0741	0.00161	--	0.0415	<0.00050
	08/18/05	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	0.0276 B	<0.000500	<0.000500	0.0235 B	<0.000500	--	0.0130 B	<0.000500
	11/16/05	<0.00100	<0.000500	<0.000500	<0.00100	0.0075	<0.000500	0.00205	0.0909	0.00116	<0.000500	0.107	0.0031	--	0.0783	0.00268
	02/20/06	<0.00100	<0.000500	<0.000500	<0.00100	0.00335	<0.000500	0.0016	0.065	0.00082	<0.000500	0.0995	0.00155	--	0.0623	0.00127
	06/06/06	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.055	<0.00100	<0.00100	0.0763	0.00101	--	0.0362	<0.00100
	09/05/06	<0.00100	<0.00050	<0.00050	<0.00100	0.00285	<0.00050	0.00113	0.0751	0.00073	<0.00050	0.073	0.00111	--	0.0456	0.00083
	12/05/06	<0.00100	<0.00050	<0.00050	<0.00100	0.00258	<0.00050	0.00144	0.077	0.00075	<0.00050	0.0987	0.00127	--	0.0612	0.00079
	02/07/07	<0.00100	<0.00050	<0.00050	<0.00100	0.00336	<0.00050	0.0013	0.0965	0.00079	<0.00050	0.0763	0.00164	--	0.055	0.00151
	05/21/07	<0.00100	<0.00100	<0.00100	<0.00100	0.00245	<0.00100	0.00133	0.0737	<0.00100	<0.00100	0.0991	0.00151	--	0.0545	<0.00100
	09/10/07	<0.0100	<0.00500	<0.00500	<0.0100	0.0312	<0.0050	0.0082	0.559	<0.00500	<0.00500	0.221	0.0108	--	0.192	0.0267
	12/12/07	<0.00100	<0.00050	<0.00050	<0.00100	0.00149	<0.00050	0.00088	0.0786	0.00056	<0.00050	0.0661	0.00098	--	0.0368	0.00175
	03/04/08	<0.00100	<0.000500	<0.000500	<0.00100	0.00446	<0.000500	0.00219	0.164	0.00137	<0.000500	0.0897	0.00232	<0.000500	0.0722	0.00688
	09/16/08	<0.00500	<0.00250	<0.00250	<0.00500	0.0104	<0.00250	0.00365	0.166	<0.00250	<0.00250	0.111	0.00385	<0.00250	0.0964	0.00715
	12/08/08	<0.00080	<0.00080	<0.00080	<0.00080	0.011	<0.00080	0.003	0.16	0.0017	<0.00080	0.11	0.0032	<0.00080	0.08	0.01

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MGMS2-3(60) (continued)	03/24/09	<0.00050	<0.00050	<0.00050	<0.00050	0.0058	<0.00050	0.0016	0.11	0.001	<0.00050	0.084	0.0022	<0.00050	0.053	0.0037
	09/15/09	<0.00050	<0.00050	<0.00050	<0.00050	0.0064	<0.00050	0.0023	0.091	0.0012	<0.00050	0.11	0.0024	<0.00050	0.072	0.0042
	12/14/09	<0.00050	<0.00050	<0.00050	<0.00050	0.0021	<0.00050	0.0011	0.061	0.0008	<0.00050	0.084	0.0011	<0.00050	0.054	0.00096
	03/16/10	<0.00050	<0.00050	<0.00050	<0.00050	0.015	<0.00050	0.0036	0.14	0.0016	<0.00050	0.16	0.0082	<0.00050	0.11	0.012
	06/14/10	<0.00050	<0.00050	<0.00050	<0.00050	0.0012	<0.00050	0.00075	0.046	0.0006	<0.00050	0.073	0.00086	<0.00050	0.038	0.00088
	09/21/10	<0.0005	<0.0005	<0.0005	<0.0005	0.011	<0.0005	0.003	0.130	0.0015	<0.0005	0.150	0.0058	<0.0005	0.1	0.0068
	12/07/10	<0.0005	<0.0005	<0.0005	<0.0005	0.0041	<0.0005	0.0018	0.086	0.0012	<0.0005	0.120	0.0017	<0.0005	0.077	0.0016
	03/07/11	<0.00050	<0.00050	<0.00050	<0.00050	0.0015	<0.00050	0.00086	0.073	0.00062	<0.00050	0.061	0.0012	<0.00050	0.034	0.0014
	06/06/11	<0.0005	<0.0005	<0.0005	<0.0005	0.00064	<0.0005	<0.0005	0.022	<0.0005	<0.0005	0.064	0.00054	<0.0005	0.027	<0.0005
	09/12/11	<0.00050	<0.00050	<0.00050	<0.00050	0.01	<0.00050	0.0032	0.11	0.0014	<0.00050	0.17	0.006	<0.00050	0.1	0.002
	12/05/11	<0.00050	<0.00050	<0.00050	<0.00050	0.0026	<0.00050	0.00095	0.051	0.00054	<0.00050	0.084	0.0010	<0.00050	0.041	<0.00050
	03/08/12	<0.00050	<0.00050	<0.00050	<0.00050	0.010	<0.00050	0.0029	0.30	0.0019	<0.00050	0.0710	0.0015	<0.00050	0.0450	0.04
	06/19/12	<0.0005	<0.0005	<0.0005	<0.0005	0.002	<0.0005	0.0010	0.08	0.0009	<0.0005	0.0780	0.0008	<0.0005	0.0450	0.01
	09/12/12	<0.00050	<0.00050	<0.00050	<0.00050	0.0015	<0.00050	0.00056	0.048	<0.00050	<0.00050	0.044	<0.00050	<0.00050	0.02	0.0027
	12/11/12	<0.00050	<0.00050	<0.00050	<0.00050	0.0026	<0.00050	0.0025	0.059	0.0015	<0.00050	0.057	0.00062	<0.00050	0.036	0.016
	03/12/13	<0.00050	<0.00050	<0.00050	<0.00050	0.00074	<0.00050	<0.00050	0.022	<0.00050	<0.00050	0.016	<0.00050	<0.00050	0.0090	<0.00050
	06/11/13	<0.00050	<0.00050	<0.00050	<0.00050	0.0024	<0.00050	0.0015	0.053	0.00058	<0.00050	0.029	0.00055	<0.00050	0.021	0.012
	09/17/13	<0.00050	<0.00050	<0.00050	<0.00050	0.0054	<0.00050	0.00098	0.073	0.00066	<0.00050	0.024	0.00060	<0.00050	0.013	0.029
	12/10/13	<0.00050	<0.00050	<0.00050	<0.00050	0.003	<0.00050	0.001	0.088	0.00088	<0.00050	0.023	0.00060	<0.00050	0.018	0.013
	3/18/2014	<0.00050	<0.00050	<0.00050	<0.00050	0.00096	<0.00050	<0.00050	0.028	<0.00050	<0.00050	0.033	<0.00050	<0.00050	0.013	0.0017
	9/23/2014	Insufficient air pressure to inflate dedicated bladder; no sample collected.														
	12/12/2014	Insufficient air pressure to inflate dedicated bladder; no sample collected.														
	3/20/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.0016	<0.00050	<0.00050	0.029	<0.00050	<0.00050	0.041	<0.00050	<0.00050	0.024	0.0052
6/19/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.0020	<0.00050	0.00056	0.038	<0.00050	<0.00050	0.035	<0.00050	<0.00050	0.024	0.0079	
9/25/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.0025	<0.00050	0.00050	0.052	<0.00050	<0.00050	0.018	<0.00050	<0.00050	0.016	0.0097	
12/8/2015	Well Damaged, Unable to Sample															

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)															
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride	
MGMS2-2(110)	06/28/00	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0122	<0.00050	<0.00050	0.00604	<0.0010	--	0.0171	<0.00050	
	08/30/00	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00441	<0.00050	<0.00050	0.0164	<0.0010	--	0.0147	<0.00050	
	11/29/00	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.000717	0.00823	<0.00050	<0.00050	0.013	<0.0010	--	0.0193	<0.00050
	02/27/01	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.000756	0.00731	<0.00050	<0.00050	0.0152	<0.0010	--	0.0216	<0.00050
	05/31/01	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.000938	0.0107	<0.00050	<0.00050	0.0244	0.00114	--	0.0291	<0.00050
	09/24/01	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0006	0.0068	<0.00050	<0.00050	0.037	0.0011	--	0.034	<0.00050
	12/18/01	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00062	0.00491	<0.00050	<0.00050	0.0351	<0.0010	--	0.0275	<0.00050
	03/19/02	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	0.00061	0.00997	<0.00050	<0.00050	0.0356	0.00123	--	0.0246	<0.00050
	05/29/02	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	0.00121	0.0319	<0.00050	<0.00050	0.114	0.00239	--	0.051	0.00061
	01/23/03	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	0.00101	0.0571	<0.00050	<0.00050	0.0478	0.00279	--	0.0441	0.00298
	05/28/03	<0.0010	<0.00050	<0.00050	<0.0010	0.00061	<0.00050	0.00073	0.0639	<0.00050	<0.00050	0.0546	0.00198	--	0.0431	0.00113	
	11/11/03	<0.0010	<0.0010	<0.0010	<0.0010	0.00114	<0.0010	<0.0010	0.0767	0.00107	<0.0010	0.0324	0.00219	--	0.0308	0.00203	
	01/27/04	<0.0010	<0.00050	<0.00050	<0.0010	0.001	<0.00050	<0.00050	0.049	<0.00050	<0.00050	0.0679	0.00117	--	0.03	0.001	
	05/03/04	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.014	<0.0010	<0.0010	0.028	<0.0010	--	0.0136	<0.0010	
	11/15/04	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0007	0.00062	0.06	<0.00050	<0.00050	0.05	0.0016	--	0.03	<0.00050	
	05/16/05	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	0.0279	<0.00050	<0.00050	0.0215	0.00052	--	0.0109	<0.00050	
	11/16/05	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	0.0151	<0.000500	<0.000500	0.018	<0.000500	--	0.00842	<0.000500	
	06/06/06	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.0309	<0.00100	<0.00100	0.0139	<0.00100	--	0.00659	<0.00100	
	12/05/06	<0.00100	<0.00050	<0.00050	<0.00100	<0.00050	<0.00050	<0.00050	0.0362	<0.00050	<0.00050	0.0179	<0.00050	--	0.00827	<0.00050	
	09/10/07	<0.00500	<0.00250	<0.00250	<0.00500	<0.00250	<0.00250	0.0032	0.512	<0.00250	<0.00250	0.146	0.00565	--	0.0944	0.0149	
	03/04/08	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	0.0595	<0.000500	<0.000500	0.0334	0.00075	<0.000500	0.0167	0.00282	
	09/16/08	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	0.00071	0.077	<0.000500	<0.000500	0.044	0.00118	<0.000500	0.0238	0.00345	
	03/24/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.04	<0.00050	<0.00050	0.027	<0.00050	<0.00050	0.011	0.0025	
	06/15/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.031	<0.00050	<0.00050	0.02	0.00057	<0.00050	0.0089	0.0023	
	09/15/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.026	<0.00050	<0.00050	0.016	<0.00050		0.0067	0.0018	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MGMS2-2(110) (continued)	03/15/10	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.028	<0.00050	<0.00050	0.021	<0.00050	<0.00050	0.0081	0.0016
	09/21/10	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.033	<0.0005	<0.0005	0.034	0.0006	<0.0005	0.014	0.0013
	03/07/11	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.024	<0.00050	<0.00050	0.026	<0.00050	<0.00050	0.0086	0.001
	09/12/11	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.015	<0.00050	<0.00050	0.022	<0.00050	<0.00050	0.0083	<0.00050
	03/08/12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.03	<0.00050	<0.00050	0.0230	<0.00050	<0.00050	0.0093	0.00
	09/12/12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.018	<0.00050	<0.00050	0.02	<0.00050	<0.00050	0.0083	0.0014
	03/12/13	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.034	<0.00050	<0.00050	0.023	0.00052	<0.00050	0.010	0.0027
	09/17/13	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.03	<0.00050	<0.00050	0.018	<0.00050	<0.00050	0.0087	0.0022
	3/18/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.021	<0.00050	<0.00050	0.013	<0.00050	<0.00050	0.0062	0.0025
	9/23/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.025	<0.00050	<0.00050	0.012	<0.00050	<0.00050	0.0073	0.0049
	3/19/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.018	<0.00050	<0.00050	0.0079	<0.00050	<0.00050	0.0048	0.0046
9/25/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.015	<0.00050	<0.00050	0.0094	<0.00050	<0.00050	0.0059	0.0041	
MGMS2-1(132)	06/28/00	<0.0010	<0.0050	<0.00050	<0.00050	0.00125	<0.00050	0.00177	0.0276	<0.00050	<0.00050	0.0275	0.00206	--	0.0543	<0.00050
	08/30/00	<0.0010	<0.0050	<0.00050	<0.00050	0.000903	<0.00050	<0.00050	0.023	<0.00050	<0.00050	0.0778	0.00247	--	0.0529	<0.00050
	11/29/00	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	0.000569	0.0124	<0.00050	<0.00050	0.0253	<0.0010	--	0.0278	<0.00050
	02/27/01	<0.0010	<0.0050	<0.00050	<0.00050	0.000537	<0.00050	0.000605	0.0114	<0.00050	<0.00050	0.0252	<0.001	--	0.0244	0.0026
	05/31/01	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00886	<0.00050	<0.00050	0.0255	<0.0010	--	0.0244	<0.00050
	09/24/01	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00076	0.0076	<0.00050	<0.00050	0.029	0.0011	--	0.03	<0.00050
	12/18/01	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	0.000773	0.00681	<0.00050	<0.00050	0.0268	0.00136	--	0.0238	<0.00050
	03/19/02	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	0.00053	0.00862	<0.00050	<0.00050	0.0335	0.00077	--	0.0242	<0.00050
	05/29/02	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	0.00129	0.0354	0.00052	<0.00050	0.117	0.0025	--	0.0536	0.00062
	01/23/03	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	0.00096	0.0574	<0.00050	<0.00050	0.0499	0.00235	--	0.0462	0.00319
	05/28/03	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	0.00053	0.0272	<0.00050	<0.00050	0.0293	0.00098	--	0.024	0.00107
	11/11/03	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0463	<0.0010	<0.0010	0.0288	0.00156	--	0.0297	0.00149
	01/27/04	<0.0010	<0.00050	<0.00050	<0.0010	0.001	<0.00050	0.00056	0.0376	<0.00050	<0.00050	0.028	0.001	--	0.0222	0.00151
	05/04/04	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0382	<0.0010	<0.0010	0.00755	<0.0010	--	0.00522	<0.0010
	11/15/04	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00058	0.062	<0.00050	<0.00050	0.038	0.0011	--	0.026	0.00085
	05/16/05	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	0.0295	<0.00050	<0.00050	0.0237	0.001	--	0.0152	0.00086
	11/16/05	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	0.00885	<0.000500	<0.000500	0.013	<0.000500	--	0.00606	<0.000500
	06/06/06	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.0231	<0.00100	<0.00100	0.0148	<0.00100	--	0.00671	<0.00100
12/05/06	<0.00100	<0.00050	<0.00050	<0.00100	<0.00050	<0.00050	<0.00050	0.0276	<0.00050	<0.00050	0.0149	<0.00050	--	0.00789	<0.00050	
09/10/07	<0.00500	<0.00250	<0.00250	<0.00500	0.00455	<0.00250	0.003	0.615	<0.00250	<0.00250	0.0932	0.01	--	0.061	0.0215	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														Vinyl Chloride
		Bromo-form	Chloro-ethane	Chloro-form	Dibromo-chloro-methane	1,1-Dichloro-ethane	1,2-Dichloro-ethane	1,1-Dichloro-ethene	cis-1,2-Dichloro-ethene	trans-1,2-Dichloro-ethene	1,2-Dichloro-propane	Tetra-chloro-ethene	1,1,1-Trichloro-ethane	1,1,2-Trichloro-ethane	Trichloro-ethene	
MGMS2-1(132) (continued)	03/04/08	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	0.0373 J	<0.000500	<0.000500	0.0226 J	0.001	<0.000500	0.0129 J	0.0024
	09/16/08	<0.00100	<0.000500	<0.000500	<0.00100	0.00053	<0.000500	0.001	0.101	0.00056	<0.000500	0.0383	0.00137	<0.000500	0.0261	0.00611
	03/24/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.032	<0.00050	<0.00050	0.024	0.00057	<0.00050	0.011	0.0015
	06/15/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.032	<0.00050	<0.00050	0.024	<0.00050	<0.00050	0.012	0.0016
	09/15/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.026	<0.00050	<0.00050	0.018	<0.00050		0.008	0.0015
	03/15/10	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.028	<0.00050	<0.00050	0.023	<0.00050	<0.00050	0.010	0.0016
	09/21/10	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.028	<0.0005	<0.0005	0.031	<0.0005	<0.0005	0.012	0.0011
	03/07/11	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.030	<0.00050	<0.00050	0.041	0.00056	<0.00050	0.013	0.00097
	03/08/12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.03	<0.00050	<0.00050	0.0240	<0.00050	<0.00050	0.0094	0.00
	09/12/12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.022	<0.00050	<0.00050	0.022	<0.00050	<0.00050	0.009	0.002
	03/12/13	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.024	<0.00050	<0.00050	0.019	<0.00050	<0.00050	0.0083	0.0019
	09/17/13	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.035	<0.00050	<0.00050	0.015	<0.00050	<0.00050	0.0081	0.0027
	3/18/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.022	<0.00050	<0.00050	0.012	<0.00050	<0.00050	0.0054	0.0026
	9/23/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.032	<0.00050	<0.00050	0.0098	<0.00050	<0.00050	0.0060	0.0055
	3/19/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.011	<0.00050	<0.00050	0.0094	<0.00050	<0.00050	0.0044	0.00075
MGMS3-4(40)	08/30/00	<0.0100	<0.0500	<0.0050	<0.0050	0.0132	<0.0050	0.00501	0.858	0.0141	<0.0050	0.58	0.0108	--	0.205	0.00665
	11/29/00	<0.0200	<0.100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.82	0.0106	<0.0100	2.81	<0.0200	--	0.395	<0.0100
	02/27/01	<0.0500	<0.250	<0.0250	<0.0250	0.0394	<0.0250	0.0292	4.57	<0.0250	<0.0250	2.97	<0.0500	--	0.756	0.0793
	05/31/01	<0.0500	<0.250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	2.92	0.0385	<0.0250	3.96	<0.0500	--	0.716	<0.0250
	09/24/01	<0.0025	<0.0025	<0.0025	<0.0025	0.0058	<0.0025	<0.0025	0.73	0.0054	<0.0025	1.40	0.0092	--	0.23	0.0035
	12/18/01	<0.0500	<0.250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	2.55	<0.0250	<0.0250	3.31	<0.0500	--	0.631	0.031
	03/19/02	<0.0200	<0.0100	<0.0100	<0.0200	0.0346	<0.0100	0.0154	3.37	0.0302	<0.0100	3.56	0.0238	--	0.707	0.057
	05/29/02	<0.0500	<0.0250	<0.0250	<0.0500	0.0715	<0.0250	0.026	5.18	0.0385	<0.0250	2.47	0.0335	--	0.728	0.086
	11/11/02	<0.0500	<0.0250	<0.0250	<0.0500	<0.0250	<0.0250	<0.0250	1.52	<0.0250	<0.0250	2.75	<0.0250	--	0.309	<0.0250
	01/23/03	<0.0200	<0.0100	<0.0100	<0.0200	0.137	<0.0100	0.0384	3.53	0.0326	<0.0100	2.38	0.118	--	1.40	0.0836
	05/28/03	<0.0500	<0.0250	<0.0250	<0.0500	0.056	<0.0250	0.0285	1.72	<0.0250	<0.0250	3.56	<0.0250	--	1.47	<0.0250
	11/11/03	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.672	<0.0100	<0.0100	0.0583	<0.0100	--	0.0324	<0.0100
	01/27/04	<0.0200	<0.0100	<0.0100	<0.0200	0.02	<0.0100	<0.0100	1.90	0.0194	<0.0100	1.35	0.0	--	0.246	0.02
	05/03/04	<0.0200	<0.0200	<0.0200	<0.0200	0.05	<0.0200	<0.0200	1.42	<0.0200	<0.0200	2.70	0.0342	--	0.913	0.0248
	08/17/04	<0.0200	<0.0100	<0.0100	<0.0200	0.0716	<0.0100	0.017	3.30	0.031	<0.0100	1.36	0.0292	--	0.569	0.0452
11/15/04	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	1.40	<0.0250	<0.0250	1.60	<0.0250	--	0.29	<0.0250	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MGMS3-4(40) (continued)	03/24/05	<0.0200	<0.0100	<0.0100	<0.0200	0.0794	<0.0100	0.03	3.44	0.0342	<0.0100	2.33	0.0438	--	1.08	0.0602
	03/24/05 DUP	<0.0200	<0.0100	<0.0100	<0.0200	0.0832	<0.0100	0.0292	3.45	0.034	<0.0100	2.15	0.0	--	1.04	0.0586
	05/16/05	<0.0100	<0.0050	<0.0050	<0.0100	0.007	<0.0050	<0.0050	0.657	0.0113	<0.0050	1.13	0.01	--	0.224	<0.0050
	11/16/05	<0.0100	<0.00500	<0.00500	<0.0100	0.0058	<0.00500	<0.00500	0.794	0.0084	<0.00500	1.18	0.01	--	0.21	<0.00500
	03/14/06	<0.0500	<0.0500	<0.0500	<0.0500	0.051	<0.0500	<0.0500	4.13	<0.0500	<0.0500	1.41	<0.0500	--	0.484	<0.0500
	06/06/06	<0.0200	<0.0200	<0.0200	<0.0200	0.0204	<0.0200	<0.0200	2.29	0.0322	<0.0200	1.41	<0.0200	--	0.401	0.0236
	12/05/06	<0.0200	<0.0100	<0.0100	<0.0200	0.0298	<0.0100	<0.0100	3.57	0.029	<0.0100	1.02	<0.0100	--	0.36	0.0954
	05/22/07	<0.0200	<0.0200	<0.0200	<0.0200	0.0208	<0.0200	<0.0200	2.64	0.0202	<0.0200	0.952	<0.0200	--	0.349	0.0226
	09/10/07	<0.0500	<0.0250	<0.0250	<0.0500	<0.0250	<0.0250	<0.0250	2.34	<0.0250	<0.0250	0.499	<0.0250	--	0.215	0.0255
	12/12/07	<0.050	<0.0250	<0.0250	<0.0500	<0.0250	<0.0250	<0.0250	0.723	<0.0250	<0.0250	0.536	<0.0250	--	0.133	<0.0250
	03/04/08	<0.00100	<0.000500	<0.000500	<0.00100	0.0324	0.00308	0.022	2.28	0.0254	0.00386	1.58	0.0275	<0.000500	0.972	0.0851
	09/16/08	<0.0500	<0.0250	<0.0250	<0.0500	0.0645	<0.0250	<0.0250	2.70	<0.0250	<0.0250	0.714	<0.0250	<0.0250	0.462	0.047
	12/08/08	<0.0090	<0.0090	<0.0090	<0.0090	0.024	<0.0090	<0.0090	1.80	0.020	<0.0090	0.35	<0.0090	<0.0090	0.16	0.09
	03/24/09	<0.0070	<0.0070	<0.0070	<0.0070	0.036	<0.0070	0.0079	1.60	0.012	<0.0070	0.6	0.011	<0.0070	0.28	0.033
	09/15/09	<0.0050	<0.0050	<0.0050	<0.0050	0.015	<0.0050	<0.0050	1.5	0.013	<0.0050	0.55	<0.0050	<0.0050	0.18	0.0082
	09/15/09 DUP	<0.0050	<0.0050	<0.0050	<0.0050	0.015	<0.0050	<0.0050	1.4	0.013	<0.0050	0.54	<0.0050	<0.0050	0.17	0.0098
	12/14/09	<0.0025	<0.0025	<0.0025	<0.0025	0.0081	<0.0025	<0.0025	0.75	0.0053	<0.0025	0.18	<0.0025	<0.0025	0.074	0.019
	03/17/10	<0.0025	<0.0025	<0.0025	<0.0025	0.052	<0.0025	0.014	1.8	0.018	0.0029	0.81	0.016	<0.0025	0.49	0.041
	03/17/10 DUP	<0.0050	<0.0050	<0.0050	<0.0050	0.051	<0.0050	0.014	1.6	0.018	<0.0050	0.78	0.016	<0.0050	0.47	0.039
	06/14/10	<0.00090	<0.00090	<0.00090	<0.00090	0.0024	<0.00090	<0.00090	0.23	0.0023	<0.00090	0.3	0.0022	<0.00090	0.088	0.0015
	09/20/10	<0.007	<0.007	<0.007	<0.007	0.032	<0.007	0.0086	1.800	0.016	<0.007	0.530	0.0079	<0.007	0.230	0.031
	09/20/10 DUP	<0.006	<0.006	<0.006	<0.006	0.031	<0.006	0.0074	1.700	0.015	<0.006	0.510	0.0074	<0.006	0.220	0.029
	12/07/10	<0.002	<0.002	<0.002	<0.002	0.005	<0.002	<0.002	0.460	0.004	<0.002	0.330	0.0022	<0.002	0.095	0.003
	03/07/11	<0.0020	<0.0020	<0.0020	<0.0020	0.020	<0.0020	0.0047	1.3	0.010	<0.0020	0.330	0.0040	<0.0020	0.140	0.053
	03/07/11 DUP	<0.0040	<0.0040	<0.0040	<0.0040	0.019	<0.0040	0.0049	1.2	0.010	<0.0040	0.320	<0.0040	<0.0040	0.140	0.046
	06/06/11	<0.003	<0.003	<0.003	<0.003	0.0065	<0.003	0.0041	0.78	0.007	<0.003	0.37	0.0054	<0.003	0.15	0.0085
	09/13/11	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.045	< 0.0050	0.013	1.8	0.019	< 0.0050	0.56	0.015	< 0.0050	0.38	0.029
09/13/11 DUP	< 0.0070	< 0.0070	< 0.0070	< 0.0070	0.04	< 0.0070	0.012	1.7	0.016	< 0.0070	0.57	0.012	< 0.0070	0.33	0.023	
12/06/11	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.014	< 0.0050	< 0.0050	1	0.0093	< 0.0050	0.14	< 0.0050	< 0.0050	0.064	0.044	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MGMS3-4(40) (continued)	03/08/12	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.033	< 0.0050	0.0130	1	0.0140	< 0.0050	0.93	0.0170	< 0.0050	0.450	0.028
	03/08/12 DUP	<0.0060	<0.0060	<0.0060	<0.0060	0.035	<0.0060	0.0140	1.40	0.0140	<0.0060	0.9900	0.0180	<0.0060	0.4800	0.03
	06/21/2012	< 0.005	< 0.005	< 0.005	< 0.005	0.022	< 0.005	0.0056	1.30	0.0110	< 0.005	0.2200	< 0.005	< 0.005	0.1400	0.04
	09/12/12	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.023	< 0.0050	0.0062	1.4	0.013	< 0.0050	0.22	< 0.0050	< 0.0050	0.12	0.085
	09/12/12 DUP	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.023	< 0.0050	0.0053	1.4	0.013	< 0.0050	0.23	< 0.0050	< 0.0050	0.12	0.086
	12/11/12	<0.0020	<0.0020	<0.0020	<0.0020	0.0071	<0.0020	<0.0020	0.51	0.0065	<0.0020	0.18	<0.0020	<0.0020	0.072	0.0065
	03/12/13	<0.0020	<0.0020	<0.0020	<0.0020	0.030	<0.0020	0.0084	1.4	0.012	<0.0020	0.51	0.0087	<0.0020	0.26	0.035
	03/12/13 DUP	<0.0020	<0.0020	<0.0020	<0.0020	0.029	<0.0020	0.0088	1.3	0.012	<0.0020	0.47	0.0084	<0.0020	0.25	0.035
	06/11/13	<0.0025	<0.0025	<0.0025	<0.0025	0.011	<0.0025	<0.0025	0.74	0.0071	<0.0025	0.11	<0.0025	<0.0025	0.058	0.034
	09/16/13	<0.0020	<0.0020	<0.0020	<0.0020	0.0077	<0.0020	<0.0020	0.36	0.0046	<0.0020	0.1	<0.0020	<0.0020	0.048	0.024
	09/16/13 DUP	<0.0020	<0.0020	<0.0020	<0.0020	0.0085	<0.0020	<0.0020	0.38	0.0051	<0.0020	0.1	<0.0020	<0.0020	0.049	0.025
	12/10/13	<0.00090	<0.00090	<0.00090	<0.00090	0.0047	<0.00090	<0.00090	0.23	0.0028	<0.00090	0.060	<0.00090	<0.00090	0.029	0.002
	12/10/13 DUP	<0.00090	<0.00090	<0.00090	<0.00090	0.0046	<0.00090	<0.00090	0.23	0.0027	<0.00090	0.061	<0.00090	<0.00090	0.029	0.0019
	3/18/2014	<0.00090	<0.00090	<0.00090	<0.00090	0.0027	<0.00090	0.00098	0.28	0.0018	0.00091	0.084	<0.00090	<0.00090	0.038	<0.00090
	3/18/2014 DUP	<0.00090	<0.00090	<0.00090	<0.00090	0.0026	<0.00090	<0.00090	0.28	0.0019	0.00093	0.086	<0.00090	<0.00090	0.039	<0.00090
	6/26/2014	<0.00090	<0.00090	<0.00090	<0.00090	0.012	<0.00090	0.0035	0.69	0.0057	<0.00090	0.180	0.0013	<0.00090	0.100	0.02
	6/26/14 DUP	<0.00090	<0.00090	<0.00090	<0.00090	0.011	<0.00090	0.0028	0.49	0.005	<0.00090	0.160	0.0011	<0.00090	0.93	0.0140
	9/23/2014	<0.00090	<0.00090	<0.00090	<0.00090	0.010	<0.00090	0.0017	0.41	0.0058	<0.00090	0.072	<0.00090	<0.00090	0.055	0.074
	9/23/2014 DUP	<0.00020	<0.00020	<0.00020	<0.00020	0.011	<0.00020	<0.00020	0.43	0.0055	<0.00020	0.070	<0.00020	<0.00020	0.053	0.075
	12/12/2014	<0.0020	<0.0020	<0.0020	<0.0020	0.0079	<0.0020	<0.0020	0.49	0.0042	<0.0020	0.036	<0.0020	<0.0020	0.028	0.020
3/18/2015	<0.0016	<0.0016	<0.0016	<0.0016	0.02	<0.0016	0.0032	0.90	0.0073	<0.0016	0.25	<0.0016	<0.0016	0.16	0.022	
3/18/2015 DUP	<0.00050	<0.00050	<0.00050	<0.00050	0.017	<0.00050	0.0024	0.71	0.0055	<0.00050	0.19	<0.00050	<0.00050	0.12	0.017	
6/19/2015	<0.00084	<0.00084	<0.00084	<0.00084	0.0072	<0.00084	<0.00084	0.34	0.0032	<0.00084	0.034	<0.00084	<0.00084	0.033	0.073	
9/22/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.0028	<0.00050	<0.00050	0.16	<0.00050	<0.00050	0.003	<0.00050	<0.00050	0.009	0.062	
9/22/2015 DUP	<0.00050	<0.00050	<0.00050	<0.00050	0.0025	<0.00050	<0.00050	0.15	0.0012	<0.00050	0.002	<0.00050	<0.00050	0.008	0.052	
12/7/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.0091	<0.00050	0.0020	0.37	0.0031	<0.00050	0.109	<0.00050	<0.00050	0.095	0.004	
MGMS3-3(60)	08/30/00	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0077	<0.00050	<0.00050	0.00703	<0.0010	--	0.00331	<0.00050
	11/29/00	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00311	<0.00050	<0.00050	0.0028	<0.0010	--	0.00128	<0.00050
	02/27/01	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0215	<0.00050	<0.00050	0.0149	<0.0010	--	0.00732	<0.00050
	05/31/01	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0101	<0.00050	<0.00050	0.00984	<0.0010	--	0.00476	<0.00050
	09/24/01	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0071	<0.00050	<0.00050	0.0097	<0.00050	--	0.0037	<0.00050
	12/18/01	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00326	<0.00050	<0.00050	0.017	<0.0010	--	0.00384	<0.00050
03/19/02	<0.0010	<0.00050	<0.00050	<0.0010	0.00068	<0.00050	<0.00050	0.0176	<0.00050	<0.00050	0.0323	0.0005	--	0.014	<0.00050	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MGMS3-3(60) (continued)	05/29/02	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	0.0405	<0.00050	<0.00050	0.0208	<0.00050	--	0.00792	<0.00050
	01/23/03	<0.0010	<0.00050	<0.00050	<0.0010	0.0005	<0.00050	<0.00050	0.0339	<0.00050	<0.00050	0.0203	<0.00050	--	0.0127	<0.00050
	05/28/03	<0.0010	<0.00050	<0.00050	<0.0010	0.00058	<0.00050	<0.00050	0.0883	0.00053	<0.00050	0.0169	<0.00050	--	0.0119	0.0007
	11/11/03	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.298	<0.0020	<0.0020	0.0361	<0.0020	--	0.023	<0.0020
	01/27/04	<0.0020	<0.0010	<0.0010	<0.0020	0.0012	<0.0010	<0.0010	0.274	0.00124	<0.0010	0.0252	<0.0010	--	0.0234	0.00128
	05/03/04	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.274	<0.0020	<0.0020	0.0466	<0.0020	--	0.027	<0.0020
	11/15/04	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.043	<0.00050	<0.00050	0.0088	<0.00050	--	0.0034	<0.00050
	02/01/05	<0.0020	<0.0010	<0.0010	<0.0020	<0.0010	<0.0010	<0.0010	0.179	0.00172	<0.0010	0.0156	<0.0010	--	0.01	<0.0010
	05/16/05	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	0.0338	<0.00050	<0.00050	0.0057	<0.00050	--	0.00239	<0.00050
	08/18/05	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	0.0479	<0.000500	<0.000500	0.00439 B	<0.000500	--	0.00196 B	0.00066 B
	11/16/05	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	0.00839	<0.000500	<0.000500	0.00259	<0.000500	--	0.00083	<0.000500
	02/21/06	<0.00500	<0.00250	<0.00250	<0.00500	0.00265	<0.00250	<0.00250	0.558	<0.00250	<0.00250	0.025	<0.00250	--	0.0144	0.0216
	03/14/06	<0.00100	<0.00100	<0.00100	<0.00100	0.00292	<0.00100	0.00137	0.0971	<0.00100	<0.00100	0.0506	<0.00100	--	0.0392	<0.00100
	06/06/06	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.00797	<0.00100	<0.00100	0.00284	<0.00100	--	0.00104	<0.00100
	09/05/06	<0.00100	<0.00050	<0.00050	<0.00100	0.00275	<0.00050	0.00117	0.108	0.00078	<0.00050	0.0473	0.00093	--	0.0342	0.00065
	12/05/06	<0.00100	<0.00050	<0.00050	<0.00100	<0.00050	<0.00050	<0.00050	0.0198	<0.00050	<0.00050	0.0105	<0.00050	--	0.00557	<0.00050
	02/07/07	<0.00100	<0.00050	<0.00050	<0.00100	0.00108	<0.00050	<0.00050	0.0443	<0.00050	<0.00050	0.0215	<0.00050	--	0.0154	<0.00050
	05/22/07	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.0325	<0.00100	<0.00100	0.0452	<0.00100	--	0.0182	<0.00100
	09/10/07	<0.00200	<0.00100	<0.00100	<0.00200	0.00298	<0.00100	<0.00100	0.148	<0.00100	<0.00100	0.0288	<0.00100	--	0.0316	0.00167
	12/12/07	<0.00200	<0.00100	<0.00100	<0.00200	<0.00100	<0.00100	<0.00100	0.0115	<0.00100	<0.00100	0.00422	<0.00100	--	0.0019	0.00118
	03/04/08	<0.00100	<0.000500	<0.000500	<0.00100	0.00158	<0.000500	0.00068	0.0721	0.0006	<0.000500	0.0272	0.0005	<0.000500	0.0227	0.00233
	12/08/08	<0.00050	<0.00050	<0.00050	<0.00050	0.00073	<0.00050	<0.00050	0.044	<0.00050	<0.00050	0.012	<0.00050	<0.00050	0.0092	0.0013
	03/24/09	<0.00050	<0.00050	<0.00050	<0.00050	0.001	<0.00050	<0.00050	0.042	<0.00050	<0.00050	0.021	<0.00050	<0.00050	0.014	0.00091
	09/15/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.015	<0.00050	<0.00050	0.0085	<0.00050	<0.00050	0.0043	0.00084
	12/14/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0038	<0.00050	<0.00050	0.002	<0.00050	<0.00050	0.00085	<0.00050
	03/17/10	<0.00050	<0.00050	<0.00050	<0.00050	0.00069	<0.00050	<0.00050	0.025	<0.00050	<0.00050	0.017	<0.00050	<0.00050	0.01	0.00057
	06/14/10	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0048	<0.00050	<0.00050	0.002	<0.00050	<0.00050	0.0011	0.00069
	09/20/10	<0.0005	<0.0005	<0.0005	<0.0005	0.00081	<0.0005	<0.0005	0.028	<0.0005	<0.0005	0.018	<0.0005	<0.0005	0.011	0.00052
	12/07/10	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.009	<0.0005	<0.0005	0.003	<0.0005	<0.0005	0.002	0.00094
	03/07/11	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.017	<0.00050	<0.00050	0.010	<0.00050	<0.00050	0.0046	0.00067
06/06/11	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0039	<0.0005	<0.0005	0.002	<0.0005	<0.0005	0.00073	<0.0005	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MGMS3-3(60) (continued)	09/13/11	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00094	< 0.00050	< 0.00050	0.034	< 0.00050	< 0.00050	0.017	< 0.00050	< 0.00050	0.012	< 0.00050
	12/05/11	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.014	< 0.00050	< 0.00050	0.014	< 0.00050	< 0.00050	0.0073	< 0.00050
	03/08/12	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.001	< 0.00050	< 0.00050	0.02	< 0.00050	< 0.00050	0.0150	< 0.00050	< 0.00050	0.0090	< 0.00050
	06/21/12	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.00	< 0.0005	< 0.0005	0.0030	< 0.0005	< 0.0005	0.0012	< 0.0005
	09/12/12	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.001	< 0.00050	< 0.00050	0.039	< 0.00050	< 0.00050	0.018	< 0.00050	< 0.00050	0.012	< 0.00050
	12/11/12	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0031	< 0.00050	< 0.00050	0.0023	< 0.00050	< 0.00050	0.00090	< 0.00050
	03/12/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00074	< 0.00050	< 0.00050	0.022	< 0.00050	< 0.00050	0.016	< 0.00050	< 0.00050	0.0090	< 0.00050
	06/11/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.016	< 0.00050	< 0.00050	0.011	< 0.00050	< 0.00050	0.0054	< 0.00050
	09/16/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.011	< 0.00050	< 0.00050	0.0068	< 0.00050	< 0.00050	0.0033	< 0.00050
	12/10/13	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0051	< 0.00050	< 0.00050	0.0036	< 0.00050	< 0.00050	0.0015	< 0.00050
	3/18/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0040	< 0.00050	< 0.00050	0.0025	< 0.00050	< 0.00050	0.00089	< 0.00050
	6/26/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0045	< 0.00050	< 0.00050	0.0034	< 0.00050	< 0.00050	0.0014	< 0.00050
	9/23/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00071	< 0.00050	< 0.00050	0.0020	< 0.00050	< 0.00050	0.0088	< 0.00050	< 0.00050	0.0047	< 0.00050
	12/12/2014	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0019	< 0.00050	< 0.00050	0.0022	< 0.00050	< 0.00050	0.00072	< 0.00050
	3/18/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.012	< 0.00050	< 0.00050	0.0060	< 0.00050	< 0.00050	0.0037	< 0.00050
	6/19/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0060	< 0.00050	< 0.00050	0.0035	< 0.00050	< 0.00050	0.0016	< 0.00050
	9/22/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0077	< 0.00050	< 0.00050	0.0039	< 0.00050	< 0.00050	0.002	0.00060
12/7/2015	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00075	< 0.00050	< 0.00050	0.0139	< 0.00050	< 0.00050	0.0042	< 0.00050	< 0.00050	0.0025	0.01670	
MGMS3-2(101)	08/30/00	< 0.0100	< 0.0500	< 0.0050	< 0.0050	0.00728	< 0.0050	< 0.0050	0.12	< 0.0050	< 0.0050	0.154	0.0121	--	0.0982	< 0.0050
	11/29/00	< 0.0050	< 0.0250	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	0.0114	< 0.0025	< 0.0025	0.0115	< 0.0050	--	0.013	< 0.0025
	02/27/01	< 0.0020	< 0.0100	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.0024	< 0.0010	< 0.0010	0.00336	< 0.0020	--	0.00198	< 0.0010
	05/31/01	< 0.0010	< 0.0050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00424	< 0.00050	< 0.00050	0.00307	< 0.0010	--	0.00185	< 0.00050
	09/24/01	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0036	< 0.00050	< 0.00050	0.0053	< 0.00050	--	0.0024	< 0.00050
	12/18/01	< 0.0010	< 0.0050	< 0.00050	< 0.00050	0.000864	< 0.00050	0.000913	0.0103	< 0.00050	< 0.00050	0.0509	0.00298	--	0.0239	< 0.00050
	03/19/02	< 0.0010	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00050	0.00402	< 0.00050	< 0.00050	0.00688	< 0.00050	--	0.00254	< 0.00050
	05/29/02	< 0.0010	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00050	0.00819	< 0.00050	< 0.00050	0.0115	< 0.00050	--	0.0039	< 0.00050
	01/23/03	< 0.0010	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00050	0.0212	< 0.00050	< 0.00050	0.0172	< 0.00050	--	0.00838	< 0.00050
	05/28/03	< 0.0010	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00050	0.0286	< 0.00050	< 0.00050	0.0184	< 0.00050	--	0.00876	< 0.00050
	11/11/03	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.0537	< 0.0010	< 0.0010	0.0183	< 0.0010	--	0.0093	< 0.0010
	01/27/04	< 0.0010	< 0.00050	< 0.00050	< 0.0010	0.001	< 0.00050	< 0.00050	0.114	0.001	< 0.00050	0.024	< 0.00050	--	0.0151	< 0.00050
	05/03/04	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.0221	< 0.0010	< 0.0010	0.00674	< 0.0010	--	0.00421	< 0.0010
	11/15/04	< 0.0010	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.047	< 0.00050	< 0.00050	0.0063	< 0.00050	--	0.0029	< 0.00050
	05/16/05	< 0.0010	< 0.00050	< 0.00050	< 0.0010	< 0.00050	< 0.00050	< 0.00050	0.0665	< 0.00050	< 0.00050	0.00359	< 0.00050	--	0.00148	0.00077

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MGMS3-2(101) (continued)	11/16/05	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	0.0253	<0.000500	<0.000500	0.00493	<0.000500	--	0.00166	0.00066
	03/14/06	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.0231	<0.00100	<0.00100	0.00291	<0.00100	--	0.00114	0.00106
	06/06/06	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.0159	<0.00100	<0.00100	0.00356	<0.00100	--	0.00188	0.00106
	12/05/06	<0.00100	<0.00050	<0.00050	<0.00100	<0.00050	<0.00050	<0.00050	0.0326	<0.00050	<0.00050	0.00284	<0.00050	--	0.00117	0.00285
	09/10/07	<0.00100	<0.00050	<0.00050	<0.00100	<0.00050	<0.00050	<0.00050	0.0404	<0.00050	<0.00050	0.00632	<0.00050	--	0.0037	0.0132
	03/04/08	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	0.0181	<0.000500	<0.000500	0.0034	<0.000500	<0.000500	0.00147	0.00564
	09/16/08	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	0.0204	<0.000500	<0.000500	0.00634	<0.000500	<0.000500	0.0035	0.00424
	03/24/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.015	<0.00050	<0.00050	0.003	<0.00050	<0.00050	0.0015	0.0023
	06/15/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0058	<0.00050	<0.00050	0.0024	<0.00050	<0.00050	0.0012	0.0022
	09/15/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.014	<0.00050	<0.00050	0.0038	<0.00050	<0.00050	0.0021	0.0032
	03/17/10	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.007	<0.00050	<0.00050	0.0031	<0.00050	<0.00050	0.0018	0.0012
	09/20/10	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0055	<0.0005	<0.0005	0.003	<0.0005	<0.0005	0.0014	0.0012
	03/07/11	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0058	<0.00050	<0.00050	0.0037	<0.00050	<0.00050	0.0022	0.00086
	03/08/12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.01	<0.00050	<0.00050	0.0059	<0.00050	<0.00050	0.0045	<0.00050
	09/12/12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0041	<0.00050	<0.00050	0.0027	<0.00050	<0.00050	0.0013	<0.00050
	03/12/13	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0069	<0.00050	<0.00050	0.0056	<0.00050	<0.00050	0.0044	0.00059
	09/16/13	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0039	<0.00050	<0.00050	0.0036	<0.00050	<0.00050	0.0021	<0.00050
	3/18/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0068	<0.00050	<0.00050	0.0091	<0.00050	<0.00050	0.0065	<0.00050
	9/23/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0037	<0.00050	<0.00050	0.0030	<0.00050	<0.00050	0.0015	<0.00050
	3/18/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0051	<0.00050	<0.00050	0.0044	<0.00050	<0.00050	0.0028	<0.00050
9/22/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0053	<0.00050	<0.00050	0.0038	<0.00050	<0.00050	0.0026	0.00120	
MGMS3-1(132)	08/30/00	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00053	<0.00050	<0.00050	0.00558	<0.0010	--	0.000746	<0.00050
	11/29/00	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00204	<0.00050	<0.00050	0.000754	<0.0010	--	<0.00050	<0.00050
	02/27/01	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00108	<0.00050	<0.00050	0.00262	<0.0010	--	0.000722	<0.00050
	05/31/01	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00667	<0.00050	<0.00050	0.00313	<0.0010	--	0.00144	<0.00050
	09/24/01	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0038	<0.00050	<0.00050	0.0061	<0.00050	--	0.0019	<0.00050
	12/18/01	<0.0010	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00411	<0.00050	<0.00050	0.00875	<0.0010	--	0.00224	<0.00050
	03/19/02	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	0.00488	<0.00050	<0.00050	0.00963	<0.00050	--	0.00302	<0.00050
	05/29/02	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	0.0118	<0.00050	<0.00050	0.0146	<0.00050	--	0.00428	<0.00050
	01/23/03	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	0.0168	<0.00050	<0.00050	0.0114	<0.00050	--	0.00604	<0.00050
	05/28/03	<0.0010	<0.00050	<0.00050	<0.0010	0.00059	<0.00050	<0.00050	0.0933	0.00076	<0.00050	0.0163	<0.00050	--	0.0101	0.00083
	11/11/03	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0724	<0.0010	<0.0010	0.0122	<0.0010	--	0.008	<0.0010

Please refer to notes at end of table.

Appendix B
 Historical Groundwater Analytical Results
 NuStar Vancouver Facility
 Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MGMS3-1(132) (continued)	01/27/04	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	0.0349	0.001	<0.00050	0.0127	<0.00050	--	0.00947	<0.00050
	05/03/04	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0119	<0.0010	<0.0010	<0.0010	<0.0010	--	0.0142	<0.0010
	11/15/04	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	0.20	<0.0025	<0.0025	0.0062	<0.0025	--	0.0034	<0.0025
	05/16/05	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	0.0426	0.00079	<0.00050	0.00442	<0.00050	--	0.00223	<0.00050
	11/16/05	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	0.0199	<0.000500	<0.000500	0.00241	<0.000500	--	0.0008	<0.000500
	03/14/06	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.0203	<0.00100	<0.00100	0.00213	<0.00100	--	<0.00100	<0.00100
	06/06/06	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.0186	<0.00100	<0.00100	0.00157	<0.00100	--	<0.00100	0.00136
	12/05/06	<0.00100	<0.00050	<0.00050	<0.00100	<0.00050	<0.00050	<0.00050	0.0241	<0.00050	<0.00050	0.00305	<0.00050	--	0.00108	0.00468
	09/10/07	<0.00100	<0.00050	<0.00050	<0.00100	<0.00050	<0.00050	<0.00050	0.0365	<0.00050	<0.00050	0.00469	<0.00050	--	0.00317	0.0168
	03/04/08	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	0.0218	<0.000500	<0.000500	0.00337	<0.000500	<0.000500	0.00164	0.00683
	09/16/08	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	0.026	<0.000500	<0.000500	0.00486	<0.000500	<0.000500	0.00352	0.00496
	03/24/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0063	<0.00050	<0.00050	0.0018	<0.00050	<0.00050	0.00079	0.0024
	03/24/09 DUP	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0058	<0.00050	<0.00050	0.0016	<0.00050	<0.00050	0.00078	0.0023
	06/15/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.012	<0.00050	<0.00050	0.0043	<0.00050	<0.00050	0.0019	0.0016
	09/15/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0077	<0.00050	<0.00050	0.0021	<0.00050	<0.00050	0.0012	0.002
	03/17/10	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0072	<0.00050	<0.00050	0.0026	<0.00050	<0.00050	0.0019	0.00092
	09/20/10	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0065	<0.0005	<0.0005	0.0029	<0.0005	<0.0005	0.0023	0.0013
	03/07/11	<0.00050	<0.00050	<0.00050	<0.00050	0.00064	<0.00050	<0.00050	0.018	<0.00050	<0.00050	0.004	<0.00050	<0.00050	0.0038	0.0043
	09/13/11	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0056	<0.00050	<0.00050	0.0038	<0.00050	<0.00050	0.0034	0.00055
	03/08/12	<0.00050	<0.00050	<0.00050	<0.00050	0.001	<0.00050	<0.00050	0.01	<0.00050	<0.00050	0.0070	<0.00050	<0.00050	0.0069	0.00
	09/12/12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.006	<0.00050	<0.00050	0.0049	<0.00050	<0.00050	0.004	<0.00050
	03/12/13	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0094	<0.00050	<0.00050	0.0081	<0.00050	<0.00050	0.0072	0.00098
	09/16/13	<0.00050	<0.00050	<0.00050	<0.00050	0.00058	<0.00050	<0.00050	0.0098	<0.00050	<0.00050	0.0079	<0.00050	<0.00050	0.0081	0.00084
3/18/2014	<0.00050	<0.00050	<0.00050	<0.00050	0.00062	<0.00050	0.00051	0.011	<0.00050	<0.00050	0.013	<0.00050	<0.00050	0.011	0.00076	
9/23/2014	<0.00050	<0.00050	<0.00050	<0.00050	0.00054	<0.00050	<0.00050	0.0089	<0.00050	<0.00050	0.0090	<0.00050	<0.00050	0.0079	<0.00050	
3/18/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.00053	<0.00050	<0.00050	0.0093	<0.00050	<0.00050	0.0063	<0.00050	<0.00050	0.0060	0.00056	
9/22/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.00074	<0.00050	<0.00050	0.0133	<0.00050	<0.00050	0.0081	<0.00050	<0.00050	0.0082	0.00120	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
CMT1-1	11/11/03	<0.0010	<0.0010	0.00287	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	--	<0.0010	<0.0010
	01/26/04	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	--	<0.00050	<0.00050
	05/03/04	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	--	<0.0010	<0.0010
	08/19/04	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	--	<0.00050	<0.00050
	11/17/04	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	<0.0050	<0.0050
	03/23/05	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	--	<0.00050	<0.00050
	05/17/05	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	--	<0.00050	<0.00050
	11/17/05	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	--	<0.000500	<0.000500
	05/26/06	Well Abandoned														
CMT1-2	11/11/03	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	--	<0.0010	<0.0010
	01/26/04	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00075	<0.00050	--	0.00103	<0.00050
	05/03/04	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	--	<0.0010	<0.0010
	08/19/04	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	--	<0.00050	<0.00050
	11/17/04	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0007	<0.00050	--	0.00088	<0.00050
	02/01/05	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00137	<0.00050	--	0.00099	<0.00050
	05/16/05	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00077	<0.00050	--	0.00069	<0.00050
	11/17/05	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	0.0006	<0.000500	--	<0.000500	<0.000500
	05/26/06	Well Abandoned														
CMT1-3	11/11/03	<0.0020	<0.0020	0.00356	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	--	<0.0020	<0.0020
	01/26/04	<0.0010	<0.00050	0.0011	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	--	<0.00050	<0.00050
	05/03/04	<0.0010	<0.0010	0.00297	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	--	<0.0010	<0.0010
	08/19/04	<0.0010	<0.00050	0.00216	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	--	<0.00050	<0.00050
	11/17/04	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	--	<0.0250	<0.0250
	05/16/05	<0.0010	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0006	<0.00050	--	<0.00050	<0.00050
	11/17/05	<0.00100	<0.000500	<0.000500	<0.00100	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	--	<0.000500	<0.000500
	05/26/06	Well Abandoned														

Please refer to notes at end of table.

Appendix B
 Historical Groundwater Analytical Results
 NuStar Vancouver Facility
 Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)															
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride	
EX	03/23/09	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.05	<0.0050	<0.0050	1.4	0.043	<0.0050	0.42	<0.0050	
	06/18/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0042	<0.00050	<0.00050	0.024	0.0011	<0.00050	0.011	<0.00050	
	09/18/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0041	<0.00050	0.0033	0.12	0.00076	<0.00050	2.1	0.038	<0.00050	0.38	0.0011
	12/18/09	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	0.0056	<0.0025	<0.0025	0.7	0.0037	<0.0025	0.056	<0.0025
	03/16/10	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.02	<0.00050	<0.00050	0.15	0.0032	<0.00050	0.033	<0.00050
	06/17/10	<0.00050	<0.00050	<0.00050	<0.00050	0.00097	<0.00050	<0.00050	0.092	<0.00050	<0.00050	0.15	0.0023	<0.00050	0.039	0.0022	0.0022
	09/23/10	<0.0005	<0.0005	<0.0005	<0.0005	0.0015	<0.0005	0.0016	0.090	0.00053	<0.0005	2.4	0.0200	<0.0005	0.220	0.0018	0.0018
	12/21/10	<0.0005	<0.0005	<0.0005	<0.0005	0.0008	<0.0005	0.0006	0.030	<0.00050	<0.0005	0.9	0.0067	<0.0005	0.099	0.00071	0.00071
	03/31/11	<0.004	<0.004	<0.004	<0.004	0.0082	<0.004	0.0081	0.240	<0.004	<0.004	6.8	0.1100	<0.004	0.910	0.0051	0.0051
	06/07/11	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.140	<0.004	<0.004	1.4	0.0150	<0.004	0.170	<0.004	<0.004
	09/19/11	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.0079	< 0.0050	0.011	0.29	< 0.0050	< 0.0050	4.1	0.073	< 0.0050	0.46	0.014	0.014
	12/07/11	<0.0050	<0.0050	<0.0050	<0.0050	0.016	<0.0050	0.019	12	0.0093	<0.0050	<0.050	0.017	<0.0050	<0.050	0.14	0.14
	03/09/12	<0.0040	<0.0040	<0.0040	<0.0040	0.005	<0.0040	<0.0040	1.40	0.0086	<0.0040	0.0330	<0.0040	<0.0040	0.0100	0.29	0.29
	06/22/12	< 0.0005	0.0055	< 0.0005	< 0.0005	0.003	< 0.0005	0.0007	0.17	0.0013	< 0.0005	0.0030	0.0006	< 0.0005	0.0011	0.12	0.12
	09/14/12	< 0.0015	0.0027	< 0.0015	< 0.0015	0.0015	< 0.0015	< 0.0015	0.32	< 0.0015	< 0.0015	0.003	< 0.0015	< 0.0015	< 0.0015	0.042	0.042
	12/14/12	<0.00050	0.0014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.026	<0.00050	<0.00050	0.00087	<0.00050	<0.00050	<0.00050	0.012	0.012
	03/15/13	<0.00050	0.0028	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0095	<0.00050	<0.00050	0.0012	<0.00050	<0.00050	<0.00050	0.0044	0.0044
	06/14/13	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0016	<0.00050	<0.00050	0.00079	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	09/20/13	<0.00050	0.0019	<0.00050	<0.00050	0.0019	<0.00050	0.00054	0.071	0.00068	<0.00050	0.0041	<0.00050	<0.00050	0.0026	0.03	0.03
	12/16/13	<0.00050	0.0014	<0.00050	<0.00050	0.0038	<0.00050	<0.00050	0.034	<0.00050	<0.00050	0.002	<0.00050	<0.00050	0.0014	0.028	0.028
	3/24/2014	<0.00050	<0.00050	<0.00050	<0.00050	0.00080	<0.00050	<0.00050	0.030	<0.00050	<0.00050	0.020	<0.00050	<0.00050	0.0075	0.011	0.011
	6/23/2014	<0.00050	<0.00050	<0.00050	<0.00050	0.00290	<0.00050	0.0011	0.160	0.00097	<0.00050	0.029	<0.00050	<0.00050	0.0150	0.038	0.038
	9/30/2014	Insufficient water for sampling.															
	12/15/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.010	<0.00050	<0.00050	0.022	<0.00050	<0.00050	0.0027	<0.00050	<0.00050
	3/19/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.0035	<0.00050	0.0021	0.69	0.0019	<0.00050	0.17	0.0025	<0.00050	0.056	0.0028	0.0028
	6/18/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.0026	<0.00050	0.0026	0.42	0.0016	<0.00050	0.19	0.00088	<0.00050	0.042	0.0032	0.0032
	9/22/2015	<0.00050	<0.00050	<0.00050	<0.00050	0.0029	<0.00050	0.0037	0.54	0.0026	<0.00050	0.30	0.00065	<0.00050	0.062	0.0244	0.0244
12/8/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.43	<0.00050	<0.00050	0.09	<0.00050	<0.00050	0.021	0.0021	0.0021	

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MP-1	03/23/09	<0.0040	<0.0040	<0.0040	<0.0040	0.006	<0.0040	<0.0040	0.089	<0.0040	<0.0040	1.2	0.01	<0.0040	0.18	<0.0040
	06/18/09	<0.0040	<0.0040	<0.0040	<0.0040	0.0043	<0.0040	<0.0040	0.043	<0.0040	<0.0040	1.5	0.012	<0.0040	0.18	<0.0040
	09/18/09	<0.0040	<0.0040	<0.0040	<0.0040	0.014	<0.0040	<0.0040	0.24	0.0089	<0.0040	1.1	0.0082	<0.0040	0.31	0.0073
	12/18/09	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	0.058	<0.0040	<0.0040	1	0.0071	<0.0040	0.18	<0.0040
	03/16/10	<0.0030	<0.0030	<0.0030	<0.0030	0.022	<0.0030	0.0047	0.41	0.013	<0.0030	1.5	0.0086	<0.0030	0.4	0.01
	06/17/10	<0.0030	<0.0030	<0.0030	<0.0030	0.0032	<0.0030	<0.0030	0.12	<0.0030	<0.0030	0.8	0.0054	<0.0030	0.14	<0.0030
	09/23/10	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.041	<0.003	<0.003	0.730	0.004	<0.003	0.12	<0.003
	12/10/10	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.027	<0.003	<0.003	1.0	0.005	<0.003	0.15	<0.003
	03/14/11	<0.0030	<0.0030	<0.0030	<0.0030	0.0071	<0.0030	<0.0030	0.150	<0.0030	<0.0030	1.2	0.0064	<0.0030	0.180	0.0059
	06/07/11	<0.0025	<0.0025	<0.0025	<0.0025	0.0049	<0.0025	<0.0025	0.075	<0.0025	<0.0025	0.64	0.0033	<0.0025	0.13	<0.0025
	09/19/11	< 0.0015	< 0.0015	< 0.0015	< 0.0015	0.0024	< 0.0015	< 0.0015	0.041	< 0.0015	< 0.0015	0.3	0.0019	< 0.0015	0.072	0.0016
	12/07/11	< 0.0025	< 0.0025	< 0.0025	< 0.0025	0.0026	< 0.0025	< 0.0025	0.049	0.0031	< 0.0025	0.64	0.0031	< 0.0025	0.12	< 0.0025
	03/09/12	< 0.0015	< 0.0015	< 0.0015	< 0.0015	0.009	< 0.0015	0.0028	0.44	0.0063	< 0.0015	0.4900	0.0035	< 0.0015	0.1400	0.02
	06/22/12	< 0.0025	< 0.0025	< 0.0025	< 0.0025	0.006	< 0.0025	0.0028	0.53	0.0029	< 0.0025	0.6900	0.0120	< 0.0025	0.1200	0.05
	09/14/12	< 0.0015	< 0.0015	< 0.0015	< 0.0015	0.004	< 0.0015	< 0.0015	0.17	0.0022	< 0.0015	0.34	0.002	< 0.0015	0.083	0.0045
	12/14/12	<0.00090	<0.00090	<0.00090	<0.00090	0.0020	<0.00090	<0.00090	0.17	0.0017	<0.00090	0.23	0.0010	<0.00090	0.048	0.0018
	03/15/13	<0.00090	<0.00090	<0.00090	<0.00090	0.0051	<0.00090	0.00094	0.14	0.0025	<0.00090	0.23	0.0010	<0.00090	0.069	0.0018
	06/14/13	<0.00090	<0.00090	<0.00090	<0.00090	0.0045	<0.00090	0.0014	0.19	0.0016	<0.00090	0.33	0.0014	<0.00090	0.070	0.0018
	09/20/13	<0.00090	<0.00090	<0.00090	<0.00090	0.0029	<0.00090	<0.00090	0.077	0.0015	<0.00090	0.26	0.00095	<0.00090	0.066	<0.00090
	12/16/13	<0.00090	<0.00090	<0.00090	<0.00090	0.0017	<0.00090	0.0011	0.067	0.00092	<0.00090	0.29	0.0012	<0.00090	0.070	<0.00090
	3/24/2014	<0.0015	<0.0015	<0.0015	<0.0015	0.0022	<0.0015	<0.0015	0.24	<0.0015	<0.0015	0.36	0.0018	<0.0015	0.054	<0.0015
	6/23/2014	<0.0015	<0.0015	<0.0015	<0.0015	0.0049	<0.0015	0.0023	0.29	0.0017	<0.0015	1.2	0.0095	<0.0015	0.130	0.0050
	9/30/2014	<0.0020	<0.0020	<0.0020	<0.0020	0.0028	<0.0020	<0.0020	0.11	<0.0020	<0.0020	0.36	<0.0020	<0.0020	0.063	0.016
	12/15/2014	<0.0015	<0.0015	<0.0015	<0.0015	0.0017	<0.0015	<0.0015	0.058	<0.0015	<0.0015	0.32	<0.0015	<0.0015	0.059	<0.0015

Please refer to notes at end of table.

Appendix B
Historical Groundwater Analytical Results
NuStar Vancouver Facility
Vancouver, Washington

Well Number	Sample Date	Concentrations in mg/L (ppm)														
		Bromo- form	Chloro- ethane	Chloro- form	Dibromo- chloro- methane	1,1- Dichloro- ethane	1,2- Dichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	1,2- Dichloro- propane	Tetra- chloro- ethene	1,1,1- Trichloro- ethane	1,1,2- Trichloro- ethane	Trichloro- ethene	Vinyl Chloride
MP-1 (continued)	3/20/2015	<0.0010	<0.0010	<0.0010	<0.0010	0.0036	<0.0010	0.0015	0.19	0.0015	<0.0010	0.57	0.0010	<0.0010	0.096	0.025
	6/18/2015	<0.00084	<0.00084	<0.00084	<0.00084	0.0029	<0.00084	0.0015	0.091	0.00087	<0.00084	0.38	<0.00084	<0.00084	0.081	<0.00084
	9/22/2015	<0.0012	<0.0012	<0.0012	<0.0012	0.0018	<0.0012	0.0014	0.038	<0.0012	<0.0012	0.34	<0.0012	<0.0012	0.068	<0.0012
	12/8/2015	<0.0012	<0.0012	<0.0012	<0.0012	0.0018	<0.0012	0.0015	0.0509	<0.0012	<0.0012	0.308	<0.0012	<0.0012	0.0626	<0.0012

Notes:

- HVOCs = Halogenated volatile organic compounds analysis by U.S. Environmental Protection Agency (EPA) Method 8260B; results reported in micrograms per liter ($\mu\text{g/L}$).
- TPH = Total petroleum hydrocarbons in the diesel and heavy oil range analysis by Washington Department of Ecology (WDOE) Method TPH-418.1 Results reported in milligrams per liter (mg/L).
- = Not sampled or not analyzed.
- < = Not detected at or above the specified laboratory method reporting limit (MRL).
- B = Estimated concentration based on data quality review - similar detection in associated equipment blank (less than 5x difference).
- J = Estimated concentration based on data quality review - similar detection in field blank (less than 5x difference).
- n-Propylbenzene, 1,1,1,2-Tetrachloro-ethane, and 1,1,2-Trichloroethane were detected during the first semi-annual 2008 monitoring event. Refer to Table 3 of the *First Semi-Annual 2008 Groundwater Monitoring Report* for detection concentrations.
- ND=Not detected and no reporting limit specified.
- B = Chloroform was detected in one or more field blank during the March 2009 and September 2009 sampling events. Chloroform was flagged with a "B" in samples where the concentration was five times or less than the maximum detection in the field blank.
- E = Chloroform was detected in the equipment blank during the March 2009 and September 2009 sampling events. Chloroform was flagged with an "E" in samples where the concentration was five times or less than the maximum detection in the equipment blank.

Appendix C

**Laboratory Analytical Reports and Data Quality Review
(on CD-ROM)**

Appendix C – Laboratory Analytical Reports and Data Quality Review

This appendix documents the results of a quality assurance/quality control (QA/QC) review of the analytical data for groundwater samples collected during the March and June 2015 groundwater sampling events and air samples collected during the January, February, March, April, and May 2015 soil vapor extraction (SVE) effluent sampling events for the NuStar Terminals Services, Inc. (NuStar) Vancouver Facility (Facility) in Vancouver, Washington. TestAmerica Laboratories in Los Angeles, California and Pace Analytical (Pace) in Davis, California performed the analyses. A copy of each analytical laboratory report is included in this appendix.

The QA review included examination and validation of the laboratory summary report, including:

- Analytical methods;
- Detection limits;
- Sample holding times;
- Custody records;
- Surrogates, spikes, and blanks; and
- Duplicates.

The QA review did not include a review of raw data.

Analytical Methods

Chemical analyses on collected water samples consisted of volatile organic compounds (VOCs) by U.S. Environmental Protection Agency (EPA) Method 8260B. Select groundwater samples were also analyzed for TOC by EPA Method 5310D and ethene by EPA Method RSK-175M. SVE effluent vapor samples were analyzed for VOCs using EPA Method TO15.

Quality Assurance Objectives and Review

The general QA objectives for this project were to develop and implement procedures for obtaining, evaluating, and confirming the usability of data of a specified quality for monitoring groundwater quality trends and SVE monitoring data at the Facility. To collect such information, analytical data must have an appropriate degree of accuracy and reproducibility, samples collected must be representative of actual field conditions, and samples must be collected and analyzed using unbroken chain-of-custody procedures.

Appendix C – Laboratory Analytical Reports and Data Quality Review

Reporting limits and analytical results were compared to action levels for each parameter in the media of concern. Precision, accuracy, representativeness, completeness, and comparability parameters used to indicate data quality are defined below.

Reporting Limits. Detection limits are set by the laboratory and are based on instrumentation abilities, sample matrix, and suggested detection limits by the EPA or the Washington State Department of Ecology (Ecology). In some cases, the detection limits may be raised due to high concentrations of analytes in the samples or matrix interferences. Detection limits were generally consistent with industry standards and below promulgated regulatory standards when possible (if not raised, as previously discussed). Reporting limits were reviewed and are generally acceptable for this project. Reporting limits for individual samples are varied based on the magnitude of the chemical impact. It is not expected that any of the raised detection limits compromise the usability of the data.

Holding Times. Samples were analyzed within the holding times specified for the VOC analyses, with the exception of the following:

- TCE in sample MW-19
- PCE and TCE in sample MW-19 DUP
- cis-1,2-Dichloroethene in sample MGMS3-40
- PCE and TCE in MW-14

For these samples analytes results were initially above the instrument calibration range. A larger calibration range was established and the samples were reanalyzed. By the time the samples were reanalyzed, the recommended EPA Method 8260B hold time was exceeded by one day. The laboratory was confident that the results of the analysis would not be affected by the extra hold time; therefore, no data are flagged.

Method Blanks. A method, or laboratory, blank is a sample prepared in the laboratory along with the actual samples and analyzed for the same parameters at the same time. It is used to assess if detected contaminants may have been the result of contamination of the samples in the laboratory. No analytes were detected in the laboratory method blanks for the groundwater or air analyses.

Laboratory Control Samples and Laboratory Control Sample Duplicate. Laboratory Control Samples (LCS) were also analyzed by the laboratories to assess the accuracy of the analytical equipment. LCS are prepared from an analyte-free matrix that is then spiked with known levels of the constituents of interest (COI; i.e., a standard). The concentrations are measured and the results compared to the known spiked levels. This comparison is expressed as percent recovery. The LCS percent recovery was within control limits for the water samples and for the SVE air samples, with one exception. The LCS results associated the first quarter 2015 groundwater samples for the analyte bromomethane was above control limits,

Appendix C – Laboratory Analytical Reports and Data Quality Review

indicating a possible high bias for this analyte. Since bromomethane was not detected above the method reporting limit in the associated samples, no data are flagged.

In addition, a second laboratory control sample (the Laboratory Control Sample Duplicate [LCSD]) is prepared as above and analyzed. This is compared to the initial laboratory control sample to assess the precision of the analytical method (RPD). The percent recovery and RPD were within acceptable control limits for both the groundwater and air samples.

Matrix Spike Analyses. Matrix Spike (MS) analyses are performed on samples submitted to the laboratory that are of the same matrix as the actual sample. The MS is spiked with known levels of the COI. These analyses are used to assess the potential for matrix interference with recovery or detection of the COI and the accuracy of the determination. The spiked sample results are compared to the expected result (i.e., sample concentration plus spike amount) and reported as percent recovery.

Several MS and MS duplicates (MSD) were analyzed during the batch analyses for both groundwater monitoring events. During the first quarter 2015 monitoring event, recoveries for some Matrix Spike/ Matrix Spike Duplicate analytes were outside control limits. This may indicate a bias for the samples that were spiked. Since the LCS recoveries were within control limits, no data were flagged.

During the second quarter groundwater 2015 monitoring event, several MS/MSD results associated with samples were outside of control limits. This may indicate a bias for the sample that was spiked. Since the LCS recoveries were within control limits, no data were flagged. MS/MSD results for the analyte bromomethane were above control limits, indicating a possible high bias for this analyte. Since bromomethane was not detected above the method reporting limit in the associated samples, no data are flagged.

The MS/MSD RPD for chloroethene and methylene chloride associated with two of the project samples, was outside of control limits. Because the analytes were not detected in the associated project samples, no data were flagged.

No MS or MSD samples were analyzed as part of the air sample QC batch.

Laboratory Duplicate. A laboratory duplicate is a second analysis of the QA/QC sample, which serves as an internal check on laboratory quality as well as potential variability of the sample matrix. The laboratory duplicate is analyzed and compared to the primary sample analysis to assess the precision of the analytical method. This comparison can be expressed by the RPD between the original and duplicate samples. There was no lab duplicate analyzed; however, MSD and LCSD samples were analyzed for the MS and LCS samples, respectively. Results were within control limits.

Appendix C – Laboratory Analytical Reports and Data Quality Review

Surrogate Recovery. Surrogates are organic compounds that are similar in chemical composition to the COI and spiked into environmental and batch quality control samples prior to sample preparation and analysis. Surrogate recoveries for environmental samples are used to evaluate matrix interference on a sample-specific basis. Surrogate recoveries were within control limits for both the groundwater and air samples.

Field Duplicate. A field duplicate is a second field sample collected from a selected monitoring well. Field duplicate samples serve as a check on laboratory quality as well as potential variability of the sample matrix. The field duplicate is analyzed and compared with the first sample to assess the precision of the analytical method. This comparison can be expressed by the RPD between the original and duplicate samples. In groundwater samples from both monitoring events, the analytes were below the RPD limit of +/-30 percent. Field duplicates were not collected for air samples.

Field Blank. A field blank is a sample of analyte-free water poured into a clean sample container in the field, preserved, and shipped to the laboratory with field samples. Field blanks assess the potential for contamination from field conditions during sampling. No analytes were identified in the field blanks collected during the first and second quarter 2015 monitoring event

Equipment Blank. An equipment blank is a sample of analyte-free water poured over or through decontaminated field sampling equipment during a sampling event. Equipment blanks assess the potential for contamination from the total sampling, sample preparation, and measurement process when decontaminated sampling equipment is used to collect samples. No analytes were identified in the equipment blanks collected during the first and second quarter 2015 monitoring events.

Trip Blank. A trip blank is a clean sample of a matrix that is taken from the laboratory to the sampling site and transported back to the laboratory without having been exposed to sampling procedures. Trip blanks assess contamination introduced during shipping and field-handling activities. Trip blanks were not analyzed during this reporting period.

Conclusion. In conclusion, the overall QA objectives have been met, and the data are of adequate quality for use in this project.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Sacramento
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Tel: (916)373-5600

TestAmerica Job ID: 320-14219-1
Client Project/Site: NuStar Vapor Testing

For:
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3015 SW 1st Avenue
Portland, Oregon 97201

Attn: Stephanie Salisbury



Authorized for release by:
8/17/2015 1:08:45 PM

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14219-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14219-1

Job ID: 320-14219-1

Laboratory: TestAmerica Sacramento

Narrative

**Job Narrative
320-14219-1**

Air - GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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Detection Summary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14219-1

Client Sample ID: SVE NORTH

Lab Sample ID: 320-14219-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	5.4		4.1		ppb v/v	10.3		TO-15	Total/NA
Tetrachloroethene	300		4.1		ppb v/v	10.3		TO-15	Total/NA
1,1,1-Trichloroethane	3.4		3.1		ppb v/v	10.3		TO-15	Total/NA
Trichloroethene	38		4.1		ppb v/v	10.3		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	21		16		ug/m3 Air	10.3		TO-15	Total/NA
Tetrachloroethene	2000		28		ug/m3 Air	10.3		TO-15	Total/NA
1,1,1-Trichloroethane	19		17		ug/m3 Air	10.3		TO-15	Total/NA
Trichloroethene	210		22		ug/m3 Air	10.3		TO-15	Total/NA

Client Sample ID: SVE SOUTH PRECARBON

Lab Sample ID: 320-14219-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	48		22		ppb v/v	53.8		TO-15	Total/NA
Tetrachloroethene	1700		22		ppb v/v	53.8		TO-15	Total/NA
Trichloroethene	150		22		ppb v/v	53.8		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	190		85		ug/m3 Air	53.8		TO-15	Total/NA
Tetrachloroethene	12000		150		ug/m3 Air	53.8		TO-15	Total/NA
Trichloroethene	790		120		ug/m3 Air	53.8		TO-15	Total/NA

Client Sample ID: SVE SOUTH POSTCARBON

Lab Sample ID: 320-14219-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	2.6		2.6		ppb v/v	8.5		TO-15	Total/NA
cis-1,2-Dichloroethene	240		3.4		ppb v/v	8.5		TO-15	Total/NA
trans-1,2-Dichloroethene	4.1		3.4		ppb v/v	8.5		TO-15	Total/NA
Tetrachloroethene	65		3.4		ppb v/v	8.5		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	10		10		ug/m3 Air	8.5		TO-15	Total/NA
cis-1,2-Dichloroethene	960		13		ug/m3 Air	8.5		TO-15	Total/NA
trans-1,2-Dichloroethene	16		13		ug/m3 Air	8.5		TO-15	Total/NA
Tetrachloroethene	440		23		ug/m3 Air	8.5		TO-15	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14219-1

Client Sample ID: SVE NORTH

Lab Sample ID: 320-14219-1

Date Collected: 07/29/15 15:20

Matrix: Air

Date Received: 08/03/15 09:00

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		52		ppb v/v			08/06/15 02:12	10.3
Benzene	ND		4.1		ppb v/v			08/06/15 02:12	10.3
Benzyl chloride	ND		8.2		ppb v/v			08/06/15 02:12	10.3
Bromodichloromethane	ND		3.1		ppb v/v			08/06/15 02:12	10.3
Bromoform	ND		4.1		ppb v/v			08/06/15 02:12	10.3
Bromomethane	ND		8.2		ppb v/v			08/06/15 02:12	10.3
2-Butanone (MEK)	ND		8.2		ppb v/v			08/06/15 02:12	10.3
Carbon disulfide	ND		8.2		ppb v/v			08/06/15 02:12	10.3
Carbon tetrachloride	ND		8.2		ppb v/v			08/06/15 02:12	10.3
Chlorobenzene	ND		3.1		ppb v/v			08/06/15 02:12	10.3
Dibromochloromethane	ND		4.1		ppb v/v			08/06/15 02:12	10.3
Chloroethane	ND		8.2		ppb v/v			08/06/15 02:12	10.3
Chloroform	ND		3.1		ppb v/v			08/06/15 02:12	10.3
Chloromethane	ND		8.2		ppb v/v			08/06/15 02:12	10.3
1,2-Dibromoethane (EDB)	ND		8.2		ppb v/v			08/06/15 02:12	10.3
1,2-Dichlorobenzene	ND		4.1		ppb v/v			08/06/15 02:12	10.3
1,3-Dichlorobenzene	ND		4.1		ppb v/v			08/06/15 02:12	10.3
1,4-Dichlorobenzene	ND		4.1		ppb v/v			08/06/15 02:12	10.3
Dichlorodifluoromethane	ND		4.1		ppb v/v			08/06/15 02:12	10.3
1,1-Dichloroethane	ND		3.1		ppb v/v			08/06/15 02:12	10.3
1,2-Dichloroethane	ND		8.2		ppb v/v			08/06/15 02:12	10.3
1,1-Dichloroethene	ND		8.2		ppb v/v			08/06/15 02:12	10.3
cis-1,2-Dichloroethene	5.4		4.1		ppb v/v			08/06/15 02:12	10.3
trans-1,2-Dichloroethene	ND		4.1		ppb v/v			08/06/15 02:12	10.3
1,2-Dichloropropane	ND		4.1		ppb v/v			08/06/15 02:12	10.3
cis-1,3-Dichloropropene	ND		4.1		ppb v/v			08/06/15 02:12	10.3
trans-1,3-Dichloropropene	ND		4.1		ppb v/v			08/06/15 02:12	10.3
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		4.1		ppb v/v			08/06/15 02:12	10.3
Ethylbenzene	ND		4.1		ppb v/v			08/06/15 02:12	10.3
4-Ethyltoluene	ND		4.1		ppb v/v			08/06/15 02:12	10.3
Hexachlorobutadiene	ND		21		ppb v/v			08/06/15 02:12	10.3
2-Hexanone	ND		4.1		ppb v/v			08/06/15 02:12	10.3
Methylene Chloride	ND		4.1		ppb v/v			08/06/15 02:12	10.3
4-Methyl-2-pentanone (MIBK)	ND		4.1		ppb v/v			08/06/15 02:12	10.3
Styrene	ND		4.1		ppb v/v			08/06/15 02:12	10.3
1,1,2,2-Tetrachloroethane	ND		4.1		ppb v/v			08/06/15 02:12	10.3
Tetrachloroethene	300		4.1		ppb v/v			08/06/15 02:12	10.3
Toluene	ND		4.1		ppb v/v			08/06/15 02:12	10.3
1,2,4-Trichlorobenzene	ND		21		ppb v/v			08/06/15 02:12	10.3
1,1,1-Trichloroethane	3.4		3.1		ppb v/v			08/06/15 02:12	10.3
1,1,2-Trichloroethane	ND		4.1		ppb v/v			08/06/15 02:12	10.3
Trichloroethene	38		4.1		ppb v/v			08/06/15 02:12	10.3
Trichlorofluoromethane	ND		4.1		ppb v/v			08/06/15 02:12	10.3
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		4.1		ppb v/v			08/06/15 02:12	10.3
1,2,4-Trimethylbenzene	ND		8.2		ppb v/v			08/06/15 02:12	10.3
1,3,5-Trimethylbenzene	ND		4.1		ppb v/v			08/06/15 02:12	10.3
Vinyl acetate	ND		8.2		ppb v/v			08/06/15 02:12	10.3
Vinyl chloride	ND		4.1		ppb v/v			08/06/15 02:12	10.3

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14219-1

Client Sample ID: SVE NORTH

Lab Sample ID: 320-14219-1

Date Collected: 07/29/15 15:20

Matrix: Air

Date Received: 08/03/15 09:00

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m,p-Xylene	ND		8.2		ppb v/v			08/06/15 02:12	10.3
o-Xylene	ND		4.1		ppb v/v			08/06/15 02:12	10.3
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		120		ug/m3 Air			08/06/15 02:12	10.3
Benzene	ND		13		ug/m3 Air			08/06/15 02:12	10.3
Benzyl chloride	ND		43		ug/m3 Air			08/06/15 02:12	10.3
Bromodichloromethane	ND		21		ug/m3 Air			08/06/15 02:12	10.3
Bromoform	ND		43		ug/m3 Air			08/06/15 02:12	10.3
Bromomethane	ND		32		ug/m3 Air			08/06/15 02:12	10.3
2-Butanone (MEK)	ND		24		ug/m3 Air			08/06/15 02:12	10.3
Carbon disulfide	ND		26		ug/m3 Air			08/06/15 02:12	10.3
Carbon tetrachloride	ND		52		ug/m3 Air			08/06/15 02:12	10.3
Chlorobenzene	ND		14		ug/m3 Air			08/06/15 02:12	10.3
Dibromochloromethane	ND		35		ug/m3 Air			08/06/15 02:12	10.3
Chloroethane	ND		22		ug/m3 Air			08/06/15 02:12	10.3
Chloroform	ND		15		ug/m3 Air			08/06/15 02:12	10.3
Chloromethane	ND		17		ug/m3 Air			08/06/15 02:12	10.3
1,2-Dibromoethane (EDB)	ND		63		ug/m3 Air			08/06/15 02:12	10.3
1,2-Dichlorobenzene	ND		25		ug/m3 Air			08/06/15 02:12	10.3
1,3-Dichlorobenzene	ND		25		ug/m3 Air			08/06/15 02:12	10.3
1,4-Dichlorobenzene	ND		25		ug/m3 Air			08/06/15 02:12	10.3
Dichlorodifluoromethane	ND		20		ug/m3 Air			08/06/15 02:12	10.3
1,1-Dichloroethane	ND		13		ug/m3 Air			08/06/15 02:12	10.3
1,2-Dichloroethane	ND		33		ug/m3 Air			08/06/15 02:12	10.3
1,1-Dichloroethene	ND		33		ug/m3 Air			08/06/15 02:12	10.3
cis-1,2-Dichloroethene	21		16		ug/m3 Air			08/06/15 02:12	10.3
trans-1,2-Dichloroethene	ND		16		ug/m3 Air			08/06/15 02:12	10.3
1,2-Dichloropropane	ND		19		ug/m3 Air			08/06/15 02:12	10.3
cis-1,3-Dichloropropene	ND		19		ug/m3 Air			08/06/15 02:12	10.3
trans-1,3-Dichloropropene	ND		19		ug/m3 Air			08/06/15 02:12	10.3
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		29		ug/m3 Air			08/06/15 02:12	10.3
Ethylbenzene	ND		18		ug/m3 Air			08/06/15 02:12	10.3
4-Ethyltoluene	ND		20		ug/m3 Air			08/06/15 02:12	10.3
Hexachlorobutadiene	ND		220		ug/m3 Air			08/06/15 02:12	10.3
2-Hexanone	ND		17		ug/m3 Air			08/06/15 02:12	10.3
Methylene Chloride	ND		14		ug/m3 Air			08/06/15 02:12	10.3
4-Methyl-2-pentanone (MIBK)	ND		17		ug/m3 Air			08/06/15 02:12	10.3
Styrene	ND		18		ug/m3 Air			08/06/15 02:12	10.3
1,1,2,2-Tetrachloroethane	ND		28		ug/m3 Air			08/06/15 02:12	10.3
Tetrachloroethene	2000		28		ug/m3 Air			08/06/15 02:12	10.3
Toluene	ND		16		ug/m3 Air			08/06/15 02:12	10.3
1,2,4-Trichlorobenzene	ND		150		ug/m3 Air			08/06/15 02:12	10.3
1,1,1-Trichloroethane	19		17		ug/m3 Air			08/06/15 02:12	10.3
1,1,2-Trichloroethane	ND		22		ug/m3 Air			08/06/15 02:12	10.3
Trichloroethene	210		22		ug/m3 Air			08/06/15 02:12	10.3
Trichlorofluoromethane	ND		23		ug/m3 Air			08/06/15 02:12	10.3
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		32		ug/m3 Air			08/06/15 02:12	10.3
1,2,4-Trimethylbenzene	ND		41		ug/m3 Air			08/06/15 02:12	10.3

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14219-1

Client Sample ID: SVE NORTH

Date Collected: 07/29/15 15:20

Date Received: 08/03/15 09:00

Sample Container: Summa Canister 6L

Lab Sample ID: 320-14219-1

Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	ND		20		ug/m3 Air			08/06/15 02:12	10.3
Vinyl acetate	ND		29		ug/m3 Air			08/06/15 02:12	10.3
Vinyl chloride	ND		11		ug/m3 Air			08/06/15 02:12	10.3
m,p-Xylene	ND		36		ug/m3 Air			08/06/15 02:12	10.3
o-Xylene	ND		18		ug/m3 Air			08/06/15 02:12	10.3
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		70 - 130					08/06/15 02:12	10.3
1,2-Dichloroethane-d4 (Surr)	104		70 - 130					08/06/15 02:12	10.3
Toluene-d8 (Surr)	97		70 - 130					08/06/15 02:12	10.3

Client Sample ID: SVE SOUTH PRECARBON

Date Collected: 07/29/15 15:38

Date Received: 08/03/15 09:00

Sample Container: Summa Canister 6L

Lab Sample ID: 320-14219-2

Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		270		ppb v/v			08/06/15 02:54	53.8
Benzene	ND		22		ppb v/v			08/06/15 02:54	53.8
Benzyl chloride	ND		43		ppb v/v			08/06/15 02:54	53.8
Bromodichloromethane	ND		16		ppb v/v			08/06/15 02:54	53.8
Bromoform	ND		22		ppb v/v			08/06/15 02:54	53.8
Bromomethane	ND		43		ppb v/v			08/06/15 02:54	53.8
2-Butanone (MEK)	ND		43		ppb v/v			08/06/15 02:54	53.8
Carbon disulfide	ND		43		ppb v/v			08/06/15 02:54	53.8
Carbon tetrachloride	ND		43		ppb v/v			08/06/15 02:54	53.8
Chlorobenzene	ND		16		ppb v/v			08/06/15 02:54	53.8
Dibromochloromethane	ND		22		ppb v/v			08/06/15 02:54	53.8
Chloroethane	ND		43		ppb v/v			08/06/15 02:54	53.8
Chloroform	ND		16		ppb v/v			08/06/15 02:54	53.8
Chloromethane	ND		43		ppb v/v			08/06/15 02:54	53.8
1,2-Dibromoethane (EDB)	ND		43		ppb v/v			08/06/15 02:54	53.8
1,2-Dichlorobenzene	ND		22		ppb v/v			08/06/15 02:54	53.8
1,3-Dichlorobenzene	ND		22		ppb v/v			08/06/15 02:54	53.8
1,4-Dichlorobenzene	ND		22		ppb v/v			08/06/15 02:54	53.8
Dichlorodifluoromethane	ND		22		ppb v/v			08/06/15 02:54	53.8
1,1-Dichloroethane	ND		16		ppb v/v			08/06/15 02:54	53.8
1,2-Dichloroethane	ND		43		ppb v/v			08/06/15 02:54	53.8
1,1-Dichloroethene	ND		43		ppb v/v			08/06/15 02:54	53.8
cis-1,2-Dichloroethene	48		22		ppb v/v			08/06/15 02:54	53.8
trans-1,2-Dichloroethene	ND		22		ppb v/v			08/06/15 02:54	53.8
1,2-Dichloropropane	ND		22		ppb v/v			08/06/15 02:54	53.8
cis-1,3-Dichloropropene	ND		22		ppb v/v			08/06/15 02:54	53.8
trans-1,3-Dichloropropene	ND		22		ppb v/v			08/06/15 02:54	53.8
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		22		ppb v/v			08/06/15 02:54	53.8
Ethylbenzene	ND		22		ppb v/v			08/06/15 02:54	53.8
4-Ethyltoluene	ND		22		ppb v/v			08/06/15 02:54	53.8
Hexachlorobutadiene	ND		110		ppb v/v			08/06/15 02:54	53.8

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14219-1

Client Sample ID: SVE SOUTH PRECARBON

Lab Sample ID: 320-14219-2

Date Collected: 07/29/15 15:38

Matrix: Air

Date Received: 08/03/15 09:00

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Hexanone	ND		22		ppb v/v			08/06/15 02:54	53.8
Methylene Chloride	ND		22		ppb v/v			08/06/15 02:54	53.8
4-Methyl-2-pentanone (MIBK)	ND		22		ppb v/v			08/06/15 02:54	53.8
Styrene	ND		22		ppb v/v			08/06/15 02:54	53.8
1,1,2,2-Tetrachloroethane	ND		22		ppb v/v			08/06/15 02:54	53.8
Tetrachloroethene	1700		22		ppb v/v			08/06/15 02:54	53.8
Toluene	ND		22		ppb v/v			08/06/15 02:54	53.8
1,2,4-Trichlorobenzene	ND		110		ppb v/v			08/06/15 02:54	53.8
1,1,1-Trichloroethane	ND		16		ppb v/v			08/06/15 02:54	53.8
1,1,2-Trichloroethane	ND		22		ppb v/v			08/06/15 02:54	53.8
Trichloroethene	150		22		ppb v/v			08/06/15 02:54	53.8
Trichlorofluoromethane	ND		22		ppb v/v			08/06/15 02:54	53.8
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		22		ppb v/v			08/06/15 02:54	53.8
1,2,4-Trimethylbenzene	ND		43		ppb v/v			08/06/15 02:54	53.8
1,3,5-Trimethylbenzene	ND		22		ppb v/v			08/06/15 02:54	53.8
Vinyl acetate	ND		43		ppb v/v			08/06/15 02:54	53.8
Vinyl chloride	ND		22		ppb v/v			08/06/15 02:54	53.8
m,p-Xylene	ND		43		ppb v/v			08/06/15 02:54	53.8
o-Xylene	ND		22		ppb v/v			08/06/15 02:54	53.8
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		640		ug/m3 Air			08/06/15 02:54	53.8
Benzene	ND		69		ug/m3 Air			08/06/15 02:54	53.8
Benzyl chloride	ND		220		ug/m3 Air			08/06/15 02:54	53.8
Bromodichloromethane	ND		110		ug/m3 Air			08/06/15 02:54	53.8
Bromoform	ND		220		ug/m3 Air			08/06/15 02:54	53.8
Bromomethane	ND		170		ug/m3 Air			08/06/15 02:54	53.8
2-Butanone (MEK)	ND		130		ug/m3 Air			08/06/15 02:54	53.8
Carbon disulfide	ND		130		ug/m3 Air			08/06/15 02:54	53.8
Carbon tetrachloride	ND		270		ug/m3 Air			08/06/15 02:54	53.8
Chlorobenzene	ND		74		ug/m3 Air			08/06/15 02:54	53.8
Dibromochloromethane	ND		180		ug/m3 Air			08/06/15 02:54	53.8
Chloroethane	ND		110		ug/m3 Air			08/06/15 02:54	53.8
Chloroform	ND		79		ug/m3 Air			08/06/15 02:54	53.8
Chloromethane	ND		89		ug/m3 Air			08/06/15 02:54	53.8
1,2-Dibromoethane (EDB)	ND		330		ug/m3 Air			08/06/15 02:54	53.8
1,2-Dichlorobenzene	ND		130		ug/m3 Air			08/06/15 02:54	53.8
1,3-Dichlorobenzene	ND		130		ug/m3 Air			08/06/15 02:54	53.8
1,4-Dichlorobenzene	ND		130		ug/m3 Air			08/06/15 02:54	53.8
Dichlorodifluoromethane	ND		110		ug/m3 Air			08/06/15 02:54	53.8
1,1-Dichloroethane	ND		65		ug/m3 Air			08/06/15 02:54	53.8
1,2-Dichloroethane	ND		170		ug/m3 Air			08/06/15 02:54	53.8
1,1-Dichloroethene	ND		170		ug/m3 Air			08/06/15 02:54	53.8
cis-1,2-Dichloroethene	190		85		ug/m3 Air			08/06/15 02:54	53.8
trans-1,2-Dichloroethene	ND		85		ug/m3 Air			08/06/15 02:54	53.8
1,2-Dichloropropane	ND		99		ug/m3 Air			08/06/15 02:54	53.8
cis-1,3-Dichloropropene	ND		98		ug/m3 Air			08/06/15 02:54	53.8
trans-1,3-Dichloropropene	ND		98		ug/m3 Air			08/06/15 02:54	53.8
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		150		ug/m3 Air			08/06/15 02:54	53.8

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14219-1

Client Sample ID: SVE SOUTH PRECARBON

Lab Sample ID: 320-14219-2

Date Collected: 07/29/15 15:38

Matrix: Air

Date Received: 08/03/15 09:00

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		93		ug/m3 Air			08/06/15 02:54	53.8
4-Ethyltoluene	ND		110		ug/m3 Air			08/06/15 02:54	53.8
Hexachlorobutadiene	ND		1100		ug/m3 Air			08/06/15 02:54	53.8
2-Hexanone	ND		88		ug/m3 Air			08/06/15 02:54	53.8
Methylene Chloride	ND		75		ug/m3 Air			08/06/15 02:54	53.8
4-Methyl-2-pentanone (MIBK)	ND		88		ug/m3 Air			08/06/15 02:54	53.8
Styrene	ND		92		ug/m3 Air			08/06/15 02:54	53.8
1,1,2,2-Tetrachloroethane	ND		150		ug/m3 Air			08/06/15 02:54	53.8
Tetrachloroethene	12000		150		ug/m3 Air			08/06/15 02:54	53.8
Toluene	ND		81		ug/m3 Air			08/06/15 02:54	53.8
1,2,4-Trichlorobenzene	ND		800		ug/m3 Air			08/06/15 02:54	53.8
1,1,1-Trichloroethane	ND		88		ug/m3 Air			08/06/15 02:54	53.8
1,1,2-Trichloroethane	ND		120		ug/m3 Air			08/06/15 02:54	53.8
Trichloroethene	790		120		ug/m3 Air			08/06/15 02:54	53.8
Trichlorofluoromethane	ND		120		ug/m3 Air			08/06/15 02:54	53.8
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		160		ug/m3 Air			08/06/15 02:54	53.8
1,2,4-Trimethylbenzene	ND		210		ug/m3 Air			08/06/15 02:54	53.8
1,3,5-Trimethylbenzene	ND		110		ug/m3 Air			08/06/15 02:54	53.8
Vinyl acetate	ND		150		ug/m3 Air			08/06/15 02:54	53.8
Vinyl chloride	ND		55		ug/m3 Air			08/06/15 02:54	53.8
m,p-Xylene	ND		190		ug/m3 Air			08/06/15 02:54	53.8
o-Xylene	ND		93		ug/m3 Air			08/06/15 02:54	53.8
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		70 - 130					08/06/15 02:54	53.8
1,2-Dichloroethane-d4 (Surr)	111		70 - 130					08/06/15 02:54	53.8
Toluene-d8 (Surr)	94		70 - 130					08/06/15 02:54	53.8

Client Sample ID: SVE SOUTH POSTCARBON

Lab Sample ID: 320-14219-3

Date Collected: 07/29/15 15:47

Matrix: Air

Date Received: 08/03/15 09:00

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		43		ppb v/v			08/06/15 03:36	8.5
Benzene	ND		3.4		ppb v/v			08/06/15 03:36	8.5
Benzyl chloride	ND		6.8		ppb v/v			08/06/15 03:36	8.5
Bromodichloromethane	ND		2.6		ppb v/v			08/06/15 03:36	8.5
Bromoform	ND		3.4		ppb v/v			08/06/15 03:36	8.5
Bromomethane	ND		6.8		ppb v/v			08/06/15 03:36	8.5
2-Butanone (MEK)	ND		6.8		ppb v/v			08/06/15 03:36	8.5
Carbon disulfide	ND		6.8		ppb v/v			08/06/15 03:36	8.5
Carbon tetrachloride	ND		6.8		ppb v/v			08/06/15 03:36	8.5
Chlorobenzene	ND		2.6		ppb v/v			08/06/15 03:36	8.5
Dibromochloromethane	ND		3.4		ppb v/v			08/06/15 03:36	8.5
Chloroethane	ND		6.8		ppb v/v			08/06/15 03:36	8.5
Chloroform	ND		2.6		ppb v/v			08/06/15 03:36	8.5
Chloromethane	ND		6.8		ppb v/v			08/06/15 03:36	8.5

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14219-1

Client Sample ID: SVE SOUTH POSTCARBON

Lab Sample ID: 320-14219-3

Date Collected: 07/29/15 15:47

Matrix: Air

Date Received: 08/03/15 09:00

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		6.8		ppb v/v			08/06/15 03:36	8.5
1,2-Dichlorobenzene	ND		3.4		ppb v/v			08/06/15 03:36	8.5
1,3-Dichlorobenzene	ND		3.4		ppb v/v			08/06/15 03:36	8.5
1,4-Dichlorobenzene	ND		3.4		ppb v/v			08/06/15 03:36	8.5
Dichlorodifluoromethane	ND		3.4		ppb v/v			08/06/15 03:36	8.5
1,1-Dichloroethane	2.6		2.6		ppb v/v			08/06/15 03:36	8.5
1,2-Dichloroethane	ND		6.8		ppb v/v			08/06/15 03:36	8.5
1,1-Dichloroethene	ND		6.8		ppb v/v			08/06/15 03:36	8.5
cis-1,2-Dichloroethene	240		3.4		ppb v/v			08/06/15 03:36	8.5
trans-1,2-Dichloroethene	4.1		3.4		ppb v/v			08/06/15 03:36	8.5
1,2-Dichloropropane	ND		3.4		ppb v/v			08/06/15 03:36	8.5
cis-1,3-Dichloropropene	ND		3.4		ppb v/v			08/06/15 03:36	8.5
trans-1,3-Dichloropropene	ND		3.4		ppb v/v			08/06/15 03:36	8.5
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		3.4		ppb v/v			08/06/15 03:36	8.5
Ethylbenzene	ND		3.4		ppb v/v			08/06/15 03:36	8.5
4-Ethyltoluene	ND		3.4		ppb v/v			08/06/15 03:36	8.5
Hexachlorobutadiene	ND		17		ppb v/v			08/06/15 03:36	8.5
2-Hexanone	ND		3.4		ppb v/v			08/06/15 03:36	8.5
Methylene Chloride	ND		3.4		ppb v/v			08/06/15 03:36	8.5
4-Methyl-2-pentanone (MIBK)	ND		3.4		ppb v/v			08/06/15 03:36	8.5
Styrene	ND		3.4		ppb v/v			08/06/15 03:36	8.5
1,1,2,2-Tetrachloroethane	ND		3.4		ppb v/v			08/06/15 03:36	8.5
Tetrachloroethene	65		3.4		ppb v/v			08/06/15 03:36	8.5
Toluene	ND		3.4		ppb v/v			08/06/15 03:36	8.5
1,2,4-Trichlorobenzene	ND		17		ppb v/v			08/06/15 03:36	8.5
1,1,1-Trichloroethane	ND		2.6		ppb v/v			08/06/15 03:36	8.5
1,1,2-Trichloroethane	ND		3.4		ppb v/v			08/06/15 03:36	8.5
Trichloroethene	ND		3.4		ppb v/v			08/06/15 03:36	8.5
Trichlorofluoromethane	ND		3.4		ppb v/v			08/06/15 03:36	8.5
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.4		ppb v/v			08/06/15 03:36	8.5
1,2,4-Trimethylbenzene	ND		6.8		ppb v/v			08/06/15 03:36	8.5
1,3,5-Trimethylbenzene	ND		3.4		ppb v/v			08/06/15 03:36	8.5
Vinyl acetate	ND		6.8		ppb v/v			08/06/15 03:36	8.5
Vinyl chloride	ND		3.4		ppb v/v			08/06/15 03:36	8.5
m,p-Xylene	ND		6.8		ppb v/v			08/06/15 03:36	8.5
o-Xylene	ND		3.4		ppb v/v			08/06/15 03:36	8.5
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		100		ug/m3 Air			08/06/15 03:36	8.5
Benzene	ND		11		ug/m3 Air			08/06/15 03:36	8.5
Benzyl chloride	ND		35		ug/m3 Air			08/06/15 03:36	8.5
Bromodichloromethane	ND		17		ug/m3 Air			08/06/15 03:36	8.5
Bromoform	ND		35		ug/m3 Air			08/06/15 03:36	8.5
Bromomethane	ND		26		ug/m3 Air			08/06/15 03:36	8.5
2-Butanone (MEK)	ND		20		ug/m3 Air			08/06/15 03:36	8.5
Carbon disulfide	ND		21		ug/m3 Air			08/06/15 03:36	8.5
Carbon tetrachloride	ND		43		ug/m3 Air			08/06/15 03:36	8.5
Chlorobenzene	ND		12		ug/m3 Air			08/06/15 03:36	8.5
Dibromochloromethane	ND		29		ug/m3 Air			08/06/15 03:36	8.5

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14219-1

Client Sample ID: SVE SOUTH POSTCARBON

Lab Sample ID: 320-14219-3

Date Collected: 07/29/15 15:47

Matrix: Air

Date Received: 08/03/15 09:00

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroethane	ND		18		ug/m3 Air			08/06/15 03:36	8.5
Chloroform	ND		12		ug/m3 Air			08/06/15 03:36	8.5
Chloromethane	ND		14		ug/m3 Air			08/06/15 03:36	8.5
1,2-Dibromoethane (EDB)	ND		52		ug/m3 Air			08/06/15 03:36	8.5
1,2-Dichlorobenzene	ND		20		ug/m3 Air			08/06/15 03:36	8.5
1,3-Dichlorobenzene	ND		20		ug/m3 Air			08/06/15 03:36	8.5
1,4-Dichlorobenzene	ND		20		ug/m3 Air			08/06/15 03:36	8.5
Dichlorodifluoromethane	ND		17		ug/m3 Air			08/06/15 03:36	8.5
1,1-Dichloroethane	10		10		ug/m3 Air			08/06/15 03:36	8.5
1,2-Dichloroethane	ND		28		ug/m3 Air			08/06/15 03:36	8.5
1,1-Dichloroethene	ND		27		ug/m3 Air			08/06/15 03:36	8.5
cis-1,2-Dichloroethene	960		13		ug/m3 Air			08/06/15 03:36	8.5
trans-1,2-Dichloroethene	16		13		ug/m3 Air			08/06/15 03:36	8.5
1,2-Dichloropropane	ND		16		ug/m3 Air			08/06/15 03:36	8.5
cis-1,3-Dichloropropene	ND		15		ug/m3 Air			08/06/15 03:36	8.5
trans-1,3-Dichloropropene	ND		15		ug/m3 Air			08/06/15 03:36	8.5
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		24		ug/m3 Air			08/06/15 03:36	8.5
Ethylbenzene	ND		15		ug/m3 Air			08/06/15 03:36	8.5
4-Ethyltoluene	ND		17		ug/m3 Air			08/06/15 03:36	8.5
Hexachlorobutadiene	ND		180		ug/m3 Air			08/06/15 03:36	8.5
2-Hexanone	ND		14		ug/m3 Air			08/06/15 03:36	8.5
Methylene Chloride	ND		12		ug/m3 Air			08/06/15 03:36	8.5
4-Methyl-2-pentanone (MIBK)	ND		14		ug/m3 Air			08/06/15 03:36	8.5
Styrene	ND		14		ug/m3 Air			08/06/15 03:36	8.5
1,1,2,2-Tetrachloroethane	ND		23		ug/m3 Air			08/06/15 03:36	8.5
Tetrachloroethene	440		23		ug/m3 Air			08/06/15 03:36	8.5
Toluene	ND		13		ug/m3 Air			08/06/15 03:36	8.5
1,2,4-Trichlorobenzene	ND		130		ug/m3 Air			08/06/15 03:36	8.5
1,1,1-Trichloroethane	ND		14		ug/m3 Air			08/06/15 03:36	8.5
1,1,2-Trichloroethane	ND		19		ug/m3 Air			08/06/15 03:36	8.5
Trichloroethene	ND		18		ug/m3 Air			08/06/15 03:36	8.5
Trichlorofluoromethane	ND		19		ug/m3 Air			08/06/15 03:36	8.5
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		26		ug/m3 Air			08/06/15 03:36	8.5
1,2,4-Trimethylbenzene	ND		33		ug/m3 Air			08/06/15 03:36	8.5
1,3,5-Trimethylbenzene	ND		17		ug/m3 Air			08/06/15 03:36	8.5
Vinyl acetate	ND		24		ug/m3 Air			08/06/15 03:36	8.5
Vinyl chloride	ND		8.7		ug/m3 Air			08/06/15 03:36	8.5
m,p-Xylene	ND		30		ug/m3 Air			08/06/15 03:36	8.5
o-Xylene	ND		15		ug/m3 Air			08/06/15 03:36	8.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		70 - 130		08/06/15 03:36	8.5
1,2-Dichloroethane-d4 (Surr)	111		70 - 130		08/06/15 03:36	8.5
Toluene-d8 (Surr)	94		70 - 130		08/06/15 03:36	8.5

TestAmerica Sacramento

Surrogate Summary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14219-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Matrix: Air

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (70-130)	12DCE (70-130)	TOL (70-130)
320-14219-1	SVE NORTH	98	104	97
320-14219-2	SVE SOUTH PRECARBON	94	111	94
320-14219-3	SVE SOUTH POSTCARBON	100	111	94
LCS 320-81852/3	Lab Control Sample	106	113	102
MB 320-81852/7	Method Blank	94	107	96

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

12DCE = 1,2-Dichloroethane-d4 (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14219-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Lab Sample ID: MB 320-81852/7

Matrix: Air

Analysis Batch: 81852

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		5.0		ppb v/v			08/05/15 21:15	1
Benzene	ND		0.40		ppb v/v			08/05/15 21:15	1
Benzyl chloride	ND		0.80		ppb v/v			08/05/15 21:15	1
Bromodichloromethane	ND		0.30		ppb v/v			08/05/15 21:15	1
Bromoform	ND		0.40		ppb v/v			08/05/15 21:15	1
Bromomethane	ND		0.80		ppb v/v			08/05/15 21:15	1
2-Butanone (MEK)	ND		0.80		ppb v/v			08/05/15 21:15	1
Carbon disulfide	ND		0.80		ppb v/v			08/05/15 21:15	1
Carbon tetrachloride	ND		0.80		ppb v/v			08/05/15 21:15	1
Chlorobenzene	ND		0.30		ppb v/v			08/05/15 21:15	1
Dibromochloromethane	ND		0.40		ppb v/v			08/05/15 21:15	1
Chloroethane	ND		0.80		ppb v/v			08/05/15 21:15	1
Chloroform	ND		0.30		ppb v/v			08/05/15 21:15	1
Chloromethane	ND		0.80		ppb v/v			08/05/15 21:15	1
1,2-Dibromoethane (EDB)	ND		0.80		ppb v/v			08/05/15 21:15	1
1,2-Dichlorobenzene	ND		0.40		ppb v/v			08/05/15 21:15	1
1,3-Dichlorobenzene	ND		0.40		ppb v/v			08/05/15 21:15	1
1,4-Dichlorobenzene	ND		0.40		ppb v/v			08/05/15 21:15	1
Dichlorodifluoromethane	ND		0.40		ppb v/v			08/05/15 21:15	1
1,1-Dichloroethane	ND		0.30		ppb v/v			08/05/15 21:15	1
1,2-Dichloroethane	ND		0.80		ppb v/v			08/05/15 21:15	1
1,1-Dichloroethene	ND		0.80		ppb v/v			08/05/15 21:15	1
cis-1,2-Dichloroethene	ND		0.40		ppb v/v			08/05/15 21:15	1
trans-1,2-Dichloroethene	ND		0.40		ppb v/v			08/05/15 21:15	1
1,2-Dichloropropane	ND		0.40		ppb v/v			08/05/15 21:15	1
cis-1,3-Dichloropropene	ND		0.40		ppb v/v			08/05/15 21:15	1
trans-1,3-Dichloropropene	ND		0.40		ppb v/v			08/05/15 21:15	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40		ppb v/v			08/05/15 21:15	1
Ethylbenzene	ND		0.40		ppb v/v			08/05/15 21:15	1
4-Ethyltoluene	ND		0.40		ppb v/v			08/05/15 21:15	1
Hexachlorobutadiene	ND		2.0		ppb v/v			08/05/15 21:15	1
2-Hexanone	ND		0.40		ppb v/v			08/05/15 21:15	1
Methylene Chloride	ND		0.40		ppb v/v			08/05/15 21:15	1
4-Methyl-2-pentanone (MIBK)	ND		0.40		ppb v/v			08/05/15 21:15	1
Styrene	ND		0.40		ppb v/v			08/05/15 21:15	1
1,1,2,2-Tetrachloroethane	ND		0.40		ppb v/v			08/05/15 21:15	1
Tetrachloroethene	ND		0.40		ppb v/v			08/05/15 21:15	1
Toluene	ND		0.40		ppb v/v			08/05/15 21:15	1
1,2,4-Trichlorobenzene	ND		2.0		ppb v/v			08/05/15 21:15	1
1,1,1-Trichloroethane	ND		0.30		ppb v/v			08/05/15 21:15	1
1,1,2-Trichloroethane	ND		0.40		ppb v/v			08/05/15 21:15	1
Trichloroethene	ND		0.40		ppb v/v			08/05/15 21:15	1
Trichlorofluoromethane	ND		0.40		ppb v/v			08/05/15 21:15	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40		ppb v/v			08/05/15 21:15	1
1,2,4-Trimethylbenzene	ND		0.80		ppb v/v			08/05/15 21:15	1
1,3,5-Trimethylbenzene	ND		0.40		ppb v/v			08/05/15 21:15	1
Vinyl acetate	ND		0.80		ppb v/v			08/05/15 21:15	1
Vinyl chloride	ND		0.40		ppb v/v			08/05/15 21:15	1

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14219-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-81852/7
Matrix: Air
Analysis Batch: 81852

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
m,p-Xylene	ND		0.80		ppb v/v			08/05/15 21:15	1
o-Xylene	ND		0.40		ppb v/v			08/05/15 21:15	1
Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Acetone	ND		12		ug/m3 Air			08/05/15 21:15	1
Benzene	ND		1.3		ug/m3 Air			08/05/15 21:15	1
Benzyl chloride	ND		4.1		ug/m3 Air			08/05/15 21:15	1
Bromodichloromethane	ND		2.0		ug/m3 Air			08/05/15 21:15	1
Bromoform	ND		4.1		ug/m3 Air			08/05/15 21:15	1
Bromomethane	ND		3.1		ug/m3 Air			08/05/15 21:15	1
2-Butanone (MEK)	ND		2.4		ug/m3 Air			08/05/15 21:15	1
Carbon disulfide	ND		2.5		ug/m3 Air			08/05/15 21:15	1
Carbon tetrachloride	ND		5.0		ug/m3 Air			08/05/15 21:15	1
Chlorobenzene	ND		1.4		ug/m3 Air			08/05/15 21:15	1
Dibromochloromethane	ND		3.4		ug/m3 Air			08/05/15 21:15	1
Chloroethane	ND		2.1		ug/m3 Air			08/05/15 21:15	1
Chloroform	ND		1.5		ug/m3 Air			08/05/15 21:15	1
Chloromethane	ND		1.7		ug/m3 Air			08/05/15 21:15	1
1,2-Dibromoethane (EDB)	ND		6.1		ug/m3 Air			08/05/15 21:15	1
1,2-Dichlorobenzene	ND		2.4		ug/m3 Air			08/05/15 21:15	1
1,3-Dichlorobenzene	ND		2.4		ug/m3 Air			08/05/15 21:15	1
1,4-Dichlorobenzene	ND		2.4		ug/m3 Air			08/05/15 21:15	1
Dichlorodifluoromethane	ND		2.0		ug/m3 Air			08/05/15 21:15	1
1,1-Dichloroethane	ND		1.2		ug/m3 Air			08/05/15 21:15	1
1,2-Dichloroethane	ND		3.2		ug/m3 Air			08/05/15 21:15	1
1,1-Dichloroethene	ND		3.2		ug/m3 Air			08/05/15 21:15	1
cis-1,2-Dichloroethene	ND		1.6		ug/m3 Air			08/05/15 21:15	1
trans-1,2-Dichloroethene	ND		1.6		ug/m3 Air			08/05/15 21:15	1
1,2-Dichloropropane	ND		1.8		ug/m3 Air			08/05/15 21:15	1
cis-1,3-Dichloropropene	ND		1.8		ug/m3 Air			08/05/15 21:15	1
trans-1,3-Dichloropropene	ND		1.8		ug/m3 Air			08/05/15 21:15	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.8		ug/m3 Air			08/05/15 21:15	1
Ethylbenzene	ND		1.7		ug/m3 Air			08/05/15 21:15	1
4-Ethyltoluene	ND		2.0		ug/m3 Air			08/05/15 21:15	1
Hexachlorobutadiene	ND		21		ug/m3 Air			08/05/15 21:15	1
2-Hexanone	ND		1.6		ug/m3 Air			08/05/15 21:15	1
Methylene Chloride	ND		1.4		ug/m3 Air			08/05/15 21:15	1
4-Methyl-2-pentanone (MIBK)	ND		1.6		ug/m3 Air			08/05/15 21:15	1
Styrene	ND		1.7		ug/m3 Air			08/05/15 21:15	1
1,1,2,2-Tetrachloroethane	ND		2.7		ug/m3 Air			08/05/15 21:15	1
Tetrachloroethene	ND		2.7		ug/m3 Air			08/05/15 21:15	1
Toluene	ND		1.5		ug/m3 Air			08/05/15 21:15	1
1,2,4-Trichlorobenzene	ND		15		ug/m3 Air			08/05/15 21:15	1
1,1,1-Trichloroethane	ND		1.6		ug/m3 Air			08/05/15 21:15	1
1,1,2-Trichloroethane	ND		2.2		ug/m3 Air			08/05/15 21:15	1
Trichloroethene	ND		2.1		ug/m3 Air			08/05/15 21:15	1
Trichlorofluoromethane	ND		2.2		ug/m3 Air			08/05/15 21:15	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.1		ug/m3 Air			08/05/15 21:15	1

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14219-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-81852/7
Matrix: Air
Analysis Batch: 81852

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	ND		3.9		ug/m3 Air			08/05/15 21:15	1
1,3,5-Trimethylbenzene	ND		2.0		ug/m3 Air			08/05/15 21:15	1
Vinyl acetate	ND		2.8		ug/m3 Air			08/05/15 21:15	1
Vinyl chloride	ND		1.0		ug/m3 Air			08/05/15 21:15	1
m,p-Xylene	ND		3.5		ug/m3 Air			08/05/15 21:15	1
o-Xylene	ND		1.7		ug/m3 Air			08/05/15 21:15	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		70 - 130		08/05/15 21:15	1
1,2-Dichloroethane-d4 (Surr)	107		70 - 130		08/05/15 21:15	1
Toluene-d8 (Surr)	96		70 - 130		08/05/15 21:15	1

Lab Sample ID: LCS 320-81852/3
Matrix: Air
Analysis Batch: 81852

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	20.8		ppb v/v		104	71 - 131
Benzene	20.0	19.4		ppb v/v		97	68 - 128
Benzyl chloride	20.0	18.5		ppb v/v		92	58 - 120
Bromodichloromethane	20.0	22.4		ppb v/v		112	65 - 130
Bromoform	20.0	21.0		ppb v/v		105	64 - 144
Bromomethane	20.0	21.1		ppb v/v		105	70 - 131
2-Butanone (MEK)	20.0	18.0		ppb v/v		90	71 - 131
Carbon disulfide	20.0	16.7		ppb v/v		83	63 - 123
Carbon tetrachloride	20.0	20.2		ppb v/v		101	67 - 127
Chlorobenzene	20.0	20.9		ppb v/v		105	70 - 132
Dibromochloromethane	20.0	21.1		ppb v/v		105	68 - 128
Chloroethane	20.0	19.9		ppb v/v		100	70 - 131
Chloroform	20.0	20.6		ppb v/v		103	69 - 129
Chloromethane	20.0	19.6		ppb v/v		98	67 - 127
1,2-Dibromoethane (EDB)	20.0	21.1		ppb v/v		106	68 - 131
1,2-Dichlorobenzene	20.0	23.1		ppb v/v		116	73 - 143
1,3-Dichlorobenzene	20.0	23.4		ppb v/v		117	77 - 136
1,4-Dichlorobenzene	20.0	23.4		ppb v/v		117	73 - 143
Dichlorodifluoromethane	20.0	21.8		ppb v/v		109	69 - 129
1,1-Dichloroethane	20.0	18.9		ppb v/v		95	65 - 125
1,2-Dichloroethane	20.0	24.6		ppb v/v		123	71 - 131
1,1-Dichloroethene	20.0	17.3		ppb v/v		87	53 - 128
cis-1,2-Dichloroethene	20.0	19.6		ppb v/v		98	68 - 128
trans-1,2-Dichloroethene	20.0	19.5		ppb v/v		98	70 - 130
1,2-Dichloropropane	20.0	24.3		ppb v/v		121	74 - 128
cis-1,3-Dichloropropene	20.0	23.0		ppb v/v		115	78 - 132
trans-1,3-Dichloropropene	20.0	20.0		ppb v/v		100	56 - 136
1,2-Dichloro-1,1,2,2-tetrafluoroethane	20.0	17.8		ppb v/v		89	64 - 124
Ethylbenzene	20.0	21.4		ppb v/v		107	76 - 136
4-Ethyltoluene	20.0	22.2		ppb v/v		111	62 - 136

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14219-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-81852/3

Matrix: Air

Analysis Batch: 81852

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hexachlorobutadiene	20.0	21.5		ppb v/v		107	42 - 150
2-Hexanone	20.0	19.8		ppb v/v		99	70 - 128
Methylene Chloride	20.0	17.6		ppb v/v		88	65 - 125
4-Methyl-2-pentanone (MIBK)	20.0	20.0		ppb v/v		100	73 - 133
Styrene	20.0	22.7		ppb v/v		114	76 - 144
1,1,2,2-Tetrachloroethane	20.0	20.2		ppb v/v		101	75 - 135
Tetrachloroethene	20.0	21.3		ppb v/v		107	56 - 138
Toluene	20.0	21.1		ppb v/v		105	71 - 132
1,2,4-Trichlorobenzene	20.0	22.2		ppb v/v		111	59 - 150
1,1,1-Trichloroethane	20.0	21.8		ppb v/v		109	65 - 124
1,1,2-Trichloroethane	20.0	20.1		ppb v/v		100	71 - 131
Trichloroethene	20.0	20.7		ppb v/v		104	64 - 127
Trichlorofluoromethane	20.0	21.6		ppb v/v		108	68 - 128
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	17.6		ppb v/v		88	50 - 132
1,2,4-Trimethylbenzene	20.0	24.8		ppb v/v		124	61 - 145
1,3,5-Trimethylbenzene	20.0	21.5		ppb v/v		108	65 - 136
Vinyl acetate	20.0	18.1		ppb v/v		90	77 - 134
Vinyl chloride	20.0	19.4		ppb v/v		97	69 - 129
m,p-Xylene	40.0	44.7		ppb v/v		112	75 - 138
o-Xylene	20.0	22.1		ppb v/v		110	77 - 132
Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	48	49.3		ug/m3 Air		104	71 - 131
Benzene	64	62.1		ug/m3 Air		97	68 - 128
Benzyl chloride	100	95.6		ug/m3 Air		92	58 - 120
Bromodichloromethane	130	150		ug/m3 Air		112	65 - 130
Bromoform	210	217		ug/m3 Air		105	64 - 144
Bromomethane	78	81.8		ug/m3 Air		105	70 - 131
2-Butanone (MEK)	59	53.1		ug/m3 Air		90	71 - 131
Carbon disulfide	62	52.0		ug/m3 Air		83	63 - 123
Carbon tetrachloride	130	127		ug/m3 Air		101	67 - 127
Chlorobenzene	92	96.3		ug/m3 Air		105	70 - 132
Dibromochloromethane	170	179		ug/m3 Air		105	68 - 128
Chloroethane	53	52.5		ug/m3 Air		100	70 - 131
Chloroform	98	101		ug/m3 Air		103	69 - 129
Chloromethane	41	40.4		ug/m3 Air		98	67 - 127
1,2-Dibromoethane (EDB)	150	162		ug/m3 Air		106	68 - 131
1,2-Dichlorobenzene	120	139		ug/m3 Air		116	73 - 143
1,3-Dichlorobenzene	120	140		ug/m3 Air		117	77 - 136
1,4-Dichlorobenzene	120	141		ug/m3 Air		117	73 - 143
Dichlorodifluoromethane	99	108		ug/m3 Air		109	69 - 129
1,1-Dichloroethane	81	76.6		ug/m3 Air		95	65 - 125
1,2-Dichloroethane	81	99.6		ug/m3 Air		123	71 - 131
1,1-Dichloroethene	79	68.6		ug/m3 Air		87	53 - 128
cis-1,2-Dichloroethene	79	77.6		ug/m3 Air		98	68 - 128
trans-1,2-Dichloroethene	79	77.4		ug/m3 Air		98	70 - 130
1,2-Dichloropropane	92	112		ug/m3 Air		121	74 - 128

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14219-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-81852/3

Matrix: Air

Analysis Batch: 81852

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,3-Dichloropropene	91	104		ug/m3 Air		115	78 - 132
trans-1,3-Dichloropropene	91	91.0		ug/m3 Air		100	56 - 136
1,2-Dichloro-1,1,2,2-tetrafluoroethane	140	125		ug/m3 Air		89	64 - 124
Ethylbenzene	87	92.9		ug/m3 Air		107	76 - 136
4-Ethyltoluene	98	109		ug/m3 Air		111	62 - 136
Hexachlorobutadiene	210	229		ug/m3 Air		107	42 - 150
2-Hexanone	82	81.0		ug/m3 Air		99	70 - 128
Methylene Chloride	69	61.2		ug/m3 Air		88	65 - 125
4-Methyl-2-pentanone (MIBK)	82	81.8		ug/m3 Air		100	73 - 133
Styrene	85	96.9		ug/m3 Air		114	76 - 144
1,1,2,2-Tetrachloroethane	140	139		ug/m3 Air		101	75 - 135
Tetrachloroethene	140	145		ug/m3 Air		107	56 - 138
Toluene	75	79.5		ug/m3 Air		105	71 - 132
1,2,4-Trichlorobenzene	150	165		ug/m3 Air		111	59 - 150
1,1,1-Trichloroethane	110	119		ug/m3 Air		109	65 - 124
1,1,2-Trichloroethane	110	110		ug/m3 Air		100	71 - 131
Trichloroethene	110	111		ug/m3 Air		104	64 - 127
Trichlorofluoromethane	110	121		ug/m3 Air		108	68 - 128
1,1,2-Trichloro-1,2,2-trifluoroethane	150	135		ug/m3 Air		88	50 - 132
1,2,4-Trimethylbenzene	98	122		ug/m3 Air		124	61 - 145
1,3,5-Trimethylbenzene	98	106		ug/m3 Air		108	65 - 136
Vinyl acetate	70	63.6		ug/m3 Air		90	77 - 134
Vinyl chloride	51	49.5		ug/m3 Air		97	69 - 129
m,p-Xylene	170	194		ug/m3 Air		112	75 - 138
o-Xylene	87	95.8		ug/m3 Air		110	77 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	106		70 - 130
1,2-Dichloroethane-d4 (Surr)	113		70 - 130
Toluene-d8 (Surr)	102		70 - 130

TestAmerica Sacramento

QC Association Summary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14219-1

Air - GC/MS VOA

Analysis Batch: 81852

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-14219-1	SVE NORTH	Total/NA	Air	TO-15	
320-14219-2	SVE SOUTH PRECARBON	Total/NA	Air	TO-15	
320-14219-3	SVE SOUTH POSTCARBON	Total/NA	Air	TO-15	
LCS 320-81852/3	Lab Control Sample	Total/NA	Air	TO-15	
MB 320-81852/7	Method Blank	Total/NA	Air	TO-15	

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Lab Chronicle

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14219-1

Client Sample ID: SVE NORTH

Date Collected: 07/29/15 15:20

Date Received: 08/03/15 09:00

Lab Sample ID: 320-14219-1

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		10.3	60 mL	250 mL	81852	08/06/15 02:12	SRS	TAL SAC

Client Sample ID: SVE SOUTH PRECARBON

Date Collected: 07/29/15 15:38

Date Received: 08/03/15 09:00

Lab Sample ID: 320-14219-2

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		53.8	10 mL	250 mL	81852	08/06/15 02:54	SRS	TAL SAC

Client Sample ID: SVE SOUTH POSTCARBON

Date Collected: 07/29/15 15:47

Date Received: 08/03/15 09:00

Lab Sample ID: 320-14219-3

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		8.5	63 mL	250 mL	81852	08/06/15 03:36	SRS	TAL SAC

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Certification Summary

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14219-1

Laboratory: TestAmerica Sacramento

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	01-31-16
Alaska (UST)	State Program	10	UST-055	12-18-15
Arizona	State Program	9	AZ0708	08-11-16
Arkansas DEQ	State Program	6	88-0691	06-17-16
California	State Program	9	2897	01-31-16
Colorado	State Program	8	N/A	08-31-16
Florida	NELAP	4	E87570	06-30-16
Hawaii	State Program	9	N/A	01-29-16
Illinois	NELAP	5	200060	03-17-16
Kansas	NELAP	7	E-10375	10-31-15
Louisiana	NELAP	6	30612	06-30-16
Michigan	State Program	5	9947	01-31-16
Nevada	State Program	9	CA44	07-31-16
New Jersey	NELAP	2	CA005	09-30-15
New York	NELAP	2	11666	04-01-16
Oregon	NELAP	10	CA200005	01-29-16
Pennsylvania	NELAP	3	9947	03-31-16
Texas	NELAP	6	T104704399-08-TX	05-31-16
US Fish & Wildlife	Federal		LE148388-0	02-28-16
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-16
Utah	NELAP	8	QUAN1	02-28-16
Virginia	NELAP Secondary AB	3	460278	03-14-16
Washington	State Program	10	C581	05-04-16
West Virginia (DW)	State Program	3	9930C	12-31-15
Wyoming	State Program	8	8TMS-Q	01-29-16

Laboratory: TestAmerica Portland

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-012	12-26-15
California	State Program	9	2597	09-30-15
Oregon	NELAP	10	OR100021	01-09-16
USDA	Federal		P330-11-00092	04-17-17

Method Summary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14219-1

Method	Method Description	Protocol	Laboratory
TO-15	Volatile Organic Compounds in Ambient Air	EPA	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

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Sample Summary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14219-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-14219-1	SVE NORTH	Air	07/29/15 15:20	08/03/15 09:00
320-14219-2	SVE SOUTH PRECARBON	Air	07/29/15 15:38	08/03/15 09:00
320-14219-3	SVE SOUTH POSTCARBON	Air	07/29/15 15:47	08/03/15 09:00

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TestAmerica Sacramento
880 Riverside Parkway

West Sacramento, CA 95605
phone 916 374-4378 fax 916-372 1059

Canister Samples Chain of Custody Record

TestAmerica Laboratories, Inc. assumes no liability with respect to the collection and shipment of these samples



TestAmerica Laboratories, Inc.

Client Contact Information Company Name: Apex Companies Address: 3015 9th St Ave City/State/Zip: Portland OR 97201 Phone: 503-924-4704 FAX: -		Project Manager: S. Salisbury Phone: 503-807-3835 Email: ssalisbury@apexcos.com		Samples Collected By: B Strellis		COC No _____ of _____ COCs																					
Project Name: Nustar Vancouver OIM Site/Location: Nustar Vancouver P.O.# _____		Standard (Specific): X Rush (Specify): _____		For Lab Use Only: Walk-in Client _____ Lab Sampling _____		Job / SDG No _____ (See below for Add'l Items)																					
Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum Field, 'Hg (Start)	Canister Field, 'Hg (Stop)	Flow Controller ID	Canister ID	Sample Specific Notes: SVE North SVE South Precarbon SVE South Postcarbon																			
	7/29/15	1520	1620	-30	-14		8154																				
	7/29/15	1538	1538	-30	-10	3400064	3400064																				
	7/29/15	1547	1547	-30	-9	3400064	3400064																				
Other (Please specify in notes section)		TO-15 (Med / Std / Low / SIM)		EPA 3C		EPA 26C / 26.3		ASTM D-1946 / 1945 / 3588		EPA 15/16		TO-3		Other (Please specify in notes section)		Sample Type		Indoor Air		Ambient Air		Soil Gas		Landfill Gas		Other (Please specify in notes section)	
Special Instructions/QC Requirements & Comments: Email results to ssalisbury@apexcos.com		Temperature (Fahrenheit) Start Interior _____ Stop _____		Temperature (Fahrenheit) Start Interior _____ Stop _____		Temperature (Fahrenheit) Start Interior _____ Stop _____		Temperature (Fahrenheit) Start Interior _____ Stop _____		Date / Time: 7/30/15		Date / Time: 7/31/15 1700		Date / Time: 7/31/15 1400		Date / Time: 8/3/15 900		Samples Shipped by: B Strellis		Samples Relinquished by: [Signature]		Relinquished by: [Signature]		320-14219 Chain of Custody			
Barcode		320-14219 Chain of Custody		Samples Received by: [Signature]		Received by: [Signature]		Received by: [Signature]		Received by: [Signature]		Condition		Operator		Shipper Name		Signature		Signature		Signature		Signature			



JOB # **320-14219**
Sample # **1**

Client/Project:	VFR ID:	
Canister Serial #: 8154	Duration:	<input type="checkbox"/> Hrs <input type="checkbox"/> Min
Cleaning Job:	Flow:	mL/min
Client ID:	Initials:	
Site Location:		

FIELD				
READING	TIME	PRESS.	DATE	INITIALS
INITIAL FIELD VACUUM				
FINAL FIELD READING				

LABORATORY				
READING	PRESS.	DATE	INITIALS	
INITIAL VACUUM CHECK (INCHES Hg)			JMT	
<input type="checkbox"/> Helium Pre-dilution - Final Pressure (INCHES Hg)				
INITIAL PRESSURE (PSIA)	7.47	08/05/15	KY	
FINAL PRESSURE (PSIA)	18.51	08/05/15	KY	
Pressurization Gas: <input type="checkbox"/> N2 <input type="checkbox"/> He	SCREENED <input type="checkbox"/>	SCRN DIL. VS 250mLs:		
Initial Canister Dilution Factor =	2.48			

CANISTER REPRESSURIZATION					
Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
			2.48		#DIV/0!
			#DIV/0!		#DIV/0!
			#DIV/0!		#DIV/0!

Analytical Dilution Factors						
	Date	Instr.	File #			
Canister DF = 2.48	8/5/2015	ATMS	2	X	Load DF = 4.1666667	X
					LVf (mLs) 250	
					LVi (mLs) 60	
					Bag DF = 1	=
					BVf (mLs)	10.32463186
					Bvi (mLs)	
Canister DF = 2.48				X	Load DF = #DIV/0!	X
					LVf (mLs)	
					LVi (mLs)	
					Bag DF = 1	=
					BVf (mLs)	#DIV/0!
					Bvi (mLs)	
Canister DF = 2.48				X	Load DF = #DIV/0!	X
					LVf (mLs)	
					LVi (mLs)	
					Bag DF = 1	=
					BVf (mLs)	#DIV/0!
					Bvi (mLs)	



JOB # 320-14219
 Sample # 2

Client/Project:	VFR ID:		
Canister Serial #: 34000064	Duration:	<input type="checkbox"/> Hrs	<input type="checkbox"/> Min
Cleaning Job:	Flow:	mL/min	
Client ID:	Initials:		
Site Location:			

FIELD				
READING	TIME	PRESS.	DATE	INITIALS
INITIAL FIELD VACUUM				
FINAL FIELD READING				

LABORATORY				
READING	PRESS.	DATE	INITIALS	
INITIAL VACUUM CHECK (INCHES Hg)			JMT	
<input type="checkbox"/> Helium Pre-dilution - Final Pressure (INCHES Hg)				
INITIAL PRESSURE (PSIA)	9.19	08/05/15	KY	
FINAL PRESSURE (PSIA)	19.76	08/05/15	KY	
Pressurization Gas: <input type="checkbox"/> N2 <input type="checkbox"/> He	SCREENED <input type="checkbox"/>	SCRN DIL. VS 250mLs:		
Initial Canister Dilution Factor =	2.15			

CANISTER REPRESSURIZATION					
Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
			2.15		#DIV/0!
			#DIV/0!		#DIV/0!
			#DIV/0!		#DIV/0!

Analytical Dilution Factors						
	Date	Instr.	File #			
Canister DF = 2.15	8/5/2015	ATMS				
X				FINAL DF		
Load DF = 12.5				=	53.75408052	
LVf (mLs) 250				Bag DF = 2		
LVi (mLs) 20				BVf (mLs) 2		
				Bvi (mLs) 1		
Canister DF = 2.15						
X				FINAL DF		
Load DF = #DIV/0!				=	#DIV/0!	
LVf (mLs)				Bag DF = 1		
LVi (mLs)				BVf (mLs)		
				Bvi (mLs)		
Canister DF = 2.15						
X				FINAL DF		
Load DF = #DIV/0!				=	#DIV/0!	
LVf (mLs)				Bag DF = 1		
LVi (mLs)				BVf (mLs)		
				Bvi (mLs)		



JOB # **320-14219**
 Sample # **3**

Client/Project:		VFR ID:	
Canister Serial #:	34000694	Duration:	<input type="checkbox"/> Hrs <input type="checkbox"/> Min
Cleaning Job:		Flow:	mL/min
Client ID:		Initials:	
Site Location:			

FIELD				
READING	TIME	PRESS.	DATE	INITIALS
INITIAL FIELD VACUUM				
FINAL FIELD READING				

LABORATORY				
READING	PRESS.	DATE	INITIALS	
INITIAL VACUUM CHECK (INCHES Hg)			JMT	
<input type="checkbox"/> Helium Pre-dilution - Final Pressure (INCHES Hg)				
INITIAL PRESSURE (PSIA)	9.78	08/05/15	KY	
FINAL PRESSURE (PSIA)	20.95	08/05/15	KY	
Pressurization Gas: <input type="checkbox"/> N2 <input type="checkbox"/> He	SCREENED <input type="checkbox"/>	SCRN DIL. VS 250mLs:		
Initial Canister Dilution Factor =	2.14			

CANISTER REPRESSURIZATION					
Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
			2.14		#DIV/0!
			#DIV/0!		#DIV/0!
			#DIV/0!		#DIV/0!

Analytical Dilution Factors						
	Date	Instr.	File #			
Canister DF =	2.14	X	Load DF = 3.968254	X	Bag DF = 1	= FINAL DF 8.500503132
			LVf (mLs) 250		BVf (mLs)	
			LVi (mLs) 63		Bvi (mLs)	
Canister DF =	2.14	X	Load DF = #DIV/0!	X	Bag DF = 1	= FINAL DF #DIV/0!
			LVf (mLs)		BVf (mLs)	
			LVi (mLs)		Bvi (mLs)	
Canister DF =	2.14	X	Load DF = #DIV/0!	X	Bag DF = 1	= FINAL DF #DIV/0!
			LVf (mLs)		BVf (mLs)	
			LVi (mLs)		Bvi (mLs)	



Login Sample Receipt Checklist

Client: Apex Companies LLC

Job Number: 320-14219-1

Login Number: 14219

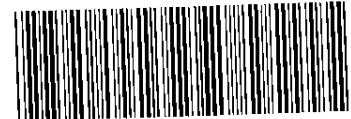
List Source: TestAmerica Sacramento

List Number: 1

Creator: Paguyo, Joyce A

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





Canister QC Certification

Certification Type: TD-15 SCAN

Date Cleaned/Batch ID 5/13/15 320-13008

Date of QC 5/27/15

Data File Number MS7052712

CANISTER ID NUMBERS

<u>34000823</u>	<u>34000064</u>	_____
<u>1270</u>	<u>0916</u>	_____
<u>0508</u>	<u>0184 *</u>	_____
<u>0572</u>	<u>8154</u>	_____
<u>1062</u>	_____	_____
<u>1513</u>	_____	_____
<u>1211</u>	_____	_____
<u>2073</u>	_____	_____

The above canisters were cleaned as a batch. This certifies this batch contains no target analyte concentration greater than or equal to the method criteria for the "Certification Type" indicated above.

* INDICATES THE CAN OR CANS WHICH WERE SCREENED.

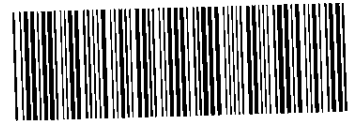
[Signature]
 1st level Reviewed By:

6/03/15
 Date:

[Signature]
 2nd level Reviewed By:

6/3/15
 Date:





Canister QC Certification

Certification Type: TO-15 SCAN

Date Cleaned/Batch ID 5/14/15 320-13072

Date of QC 5/20/15

Data File Number M57052015

CANISTER ID NUMBERS

<u>34000164</u>	<u>8445</u>	_____
<u>0102</u>	<u>8449</u>	_____
<u>0383 *</u>	_____	_____
<u>0023</u>	_____	_____
<u>0305</u>	_____	_____
<u>0452</u>	_____	_____
<u>0782</u>	_____	_____
<u>0694</u>	_____	_____

The above canisters were cleaned as a batch. This certifies this batch contains no target analyte concentration greater than or equal to the method criteria for the "Certification Type" indicated above.

* INDICATES THE CAN OR CANS WHICH WERE SCREENED.

[Signature]
 1st level Reviewed By:

5/21/15
 Date:

[Signature]
 2nd level Reviewed By:

5/21/15
 Date:



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-13008-1</u>
SDG No.: <u>6L SCAN Batch</u>	
Client Sample ID: <u>34000184</u>	Lab Sample ID: <u>320-13008-11</u>
Matrix: <u>Air</u>	Lab File ID: <u>MS7052712.d</u>
Analysis Method: <u>TO-15</u>	Date Collected: <u>05/13/2015 00:00</u>
Sample wt/vol: <u>500 (mL)</u>	Date Analyzed: <u>05/27/2015 23:46</u>
Soil Aliquot Vol: _____	Dilution Factor: <u>1</u>
Soil Extract Vol.: _____	GC Column: <u>RTX-Volatiles</u> ID: <u>0.32 (mm)</u>
% Moisture: _____	Level: (low/med) <u>Low</u>
Analysis Batch No.: <u>74999</u>	Units: <u>ppb v/v</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
67-64-1	Acetone	ND		5.0	0.18
107-02-8	Acrolein	ND		2.0	0.22
107-13-1	Acrylonitrile	ND		2.0	0.19
107-05-1	Allyl chloride	ND		0.80	0.11
71-43-2	Benzene	ND		0.40	0.079
100-44-7	Benzyl chloride	ND		0.80	0.16
75-27-4	Bromodichloromethane	ND		0.30	0.066
75-25-2	Bromoform	ND		0.40	0.070
74-83-9	Bromomethane	ND		0.80	0.34
106-99-0	1,3-Butadiene	ND		0.80	0.15
106-97-8	n-Butane	ND		0.40	0.15
78-93-3	2-Butanone (MEK)	ND		0.80	0.20
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0	0.11
104-51-8	n-Butylbenzene	ND		0.40	0.18
135-98-8	sec-Butylbenzene	ND		0.40	0.070
98-06-6	tert-Butylbenzene	ND		0.80	0.068
75-15-0	Carbon disulfide	0.10	J	0.80	0.078
56-23-5	Carbon tetrachloride	ND		0.80	0.064
108-90-7	Chlorobenzene	ND		0.30	0.064
75-45-6	Chlorodifluoromethane	ND		0.80	0.11
75-00-3	Chloroethane	ND		0.80	0.31
67-66-3	Chloroform	ND		0.30	0.095
74-87-3	Chloromethane	ND		0.80	0.20
95-49-8	2-Chlorotoluene	ND		0.40	0.080
110-82-7	Cyclohexane	ND		0.40	0.084
124-48-1	Dibromochloromethane	ND		0.40	0.079
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80	0.075
74-95-3	Dibromomethane	ND		0.40	0.057
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40	0.16
95-50-1	1,2-Dichlorobenzene	ND		0.40	0.13
541-73-1	1,3-Dichlorobenzene	ND		0.40	0.11
106-46-7	1,4-Dichlorobenzene	ND		0.40	0.15
75-71-8	Dichlorodifluoromethane	ND		0.40	0.15
75-34-3	1,1-Dichloroethane	ND		0.30	0.072
107-06-2	1,2-Dichloroethane	ND		0.80	0.088

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-13008-1</u>
SDG No.: <u>6L SCAN Batch</u>	
Client Sample ID: <u>34000184</u>	Lab Sample ID: <u>320-13008-11</u>
Matrix: <u>Air</u>	Lab File ID: <u>MS7052712.d</u>
Analysis Method: <u>TO-15</u>	Date Collected: <u>05/13/2015 00:00</u>
Sample wt/vol: <u>500 (mL)</u>	Date Analyzed: <u>05/27/2015 23:46</u>
Soil Aliquot Vol: _____	Dilution Factor: <u>1</u>
Soil Extract Vol.: _____	GC Column: <u>RTX-Volatiles</u> ID: <u>0.32 (mm)</u>
% Moisture: _____	Level: (low/med) <u>Low</u>
Analysis Batch No.: <u>74999</u>	Units: <u>ppb v/v</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	ND		0.80	0.13
156-59-2	cis-1,2-Dichloroethene	ND		0.40	0.089
156-60-5	trans-1,2-Dichloroethene	ND		0.40	0.10
78-87-5	1,2-Dichloropropane	ND		0.40	0.24
10061-01-5	cis-1,3-Dichloropropene	ND		0.40	0.10
10061-02-6	trans-1,3-Dichloropropene	ND		0.40	0.088
123-91-1	1,4-Dioxane	ND		0.80	0.10
141-78-6	Ethyl acetate	ND		0.30	0.18
100-41-4	Ethylbenzene	ND		0.40	0.063
622-96-8	4-Ethyltoluene	ND		0.40	0.19
142-82-5	n-Heptane	ND		0.80	0.063
87-68-3	Hexachlorobutadiene	ND		2.0	0.43
110-54-3	n-Hexane	ND		0.80	0.075
591-78-6	2-Hexanone	ND		0.40	0.087
98-82-8	Isopropylbenzene	ND		0.80	0.10
99-87-6	4-Isopropyltoluene	ND		0.80	0.12
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80	0.050
80-62-6	Methyl methacrylate	ND		0.80	0.16
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40	0.14
75-09-2	Methylene Chloride	ND		0.40	0.072
98-83-9	alpha-Methylstyrene	ND		0.40	0.065
91-20-3	Naphthalene	ND		0.80	0.56
111-65-9	n-Octane	ND		0.40	0.055
109-66-0	n-Pentane	ND		0.80	0.26
115-07-1	Propylene	ND		0.40	0.099
103-65-1	N-Propylbenzene	ND		0.40	0.059
100-42-5	Styrene	ND		0.40	0.059
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40	0.069
127-18-4	Tetrachloroethene	ND		0.40	0.051
109-99-9	Tetrahydrofuran	ND		0.80	0.079
108-88-3	Toluene	ND		0.40	0.051
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.16
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.43
71-55-6	1,1,1-Trichloroethane	ND		0.30	0.065
79-00-5	1,1,2-Trichloroethane	ND		0.40	0.067

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-13008-1
 SDG No.: 6L SCAN Batch
 Client Sample ID: 34000184 Lab Sample ID: 320-13008-11
 Matrix: Air Lab File ID: MS7052712.d
 Analysis Method: TO-15 Date Collected: 05/13/2015 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 05/27/2015 23:46
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-Volatiles ID: 0.32 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 74999 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.40	0.11
75-69-4	Trichlorofluoromethane	ND		0.40	0.20
96-18-4	1,2,3-Trichloropropane	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	ND		0.80	0.16
108-67-8	1,3,5-Trimethylbenzene	ND		0.40	0.13
540-84-1	2,2,4-Trimethylpentane	ND		0.40	0.071
108-05-4	Vinyl acetate	ND		0.80	0.15
593-60-2	Vinyl bromide	ND		0.80	0.26
75-01-4	Vinyl chloride	ND		0.40	0.12
179601-23-1	m,p-Xylene	ND		0.80	0.10
95-47-6	o-Xylene	ND		0.40	0.054

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	94		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	96		70-130
2037-26-5	Toluene-d8 (Surr)	97		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\SACCHROM\ChromData\ATMS7\20150527-22088.b\MS7052712.d
 Lims ID: 320-13008-A-11 Lab Sample ID: 320-13008-11
 Client ID: 34000184
 Sample Type: Client
 Inject. Date: 27-May-2015 23:46:30 ALS Bottle#: 8 Worklist Smp#: 12
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 320-13008-A-11
 Misc. Info.: 500 mL CAN CERT (Re-clean)
 Operator ID: LHS Instrument ID: ATMS7
 Method: \\SACCHROM\ChromData\ATMS7\20150527-22088.b\TO15_ATMS7N.m
 Limit Group: MSA - TO15 - ICAL
 Last Update: 28-May-2015 11:27:11 Calib Date: 14-May-2015 08:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\SACCHROM\ChromData\ATMS7\20150513-21789.b\MS7051324.d
 Column 1 : RTX Volatiles (0.32 mm) Det: MS SCAN
 Process Host: XAWRK025

First Level Reviewer: ortizam

Date: 28-May-2015 12:04:50

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	12.390	12.421	-0.031	97	19912	4.00	
* 2 1,4-Difluorobenzene	114	14.544	14.568	-0.024	96	96533	4.00	
* 3 Chlorobenzene-d5 (IS)	117	21.230	21.248	-0.018	90	95993	4.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	13.589	13.619	-0.030	98	35849	3.85	
\$ 5 Toluene-d8 (Surr)	100	17.957	17.975	-0.018	97	65338	3.89	
\$ 6 4-Bromofluorobenzene (Surr	95	23.772	23.791	-0.019	89	64272	3.77	
32 Acetone	43	7.468	7.432	0.036	95	2451	0.1627	
40 Carbon disulfide	76	8.849	8.874	-0.025	19	1819	0.1026	

Reagents:

VASUISIM_00169 Amount Added: 50.00 Units: mL Run Reagent

Data File: \\SACCHROM\ChromData\ATMS7\20150527-22088.b\MS7052712.d

Injection Date: 27-May-2015 23:46:30

Instrument ID: ATMS7

Operator ID: LHS

Lims ID: 320-13008-A-11

Lab Sample ID: 320-13008-11

Worklist Smp#: 12

Client ID: 34000184

Purge Vol: 5.000 mL

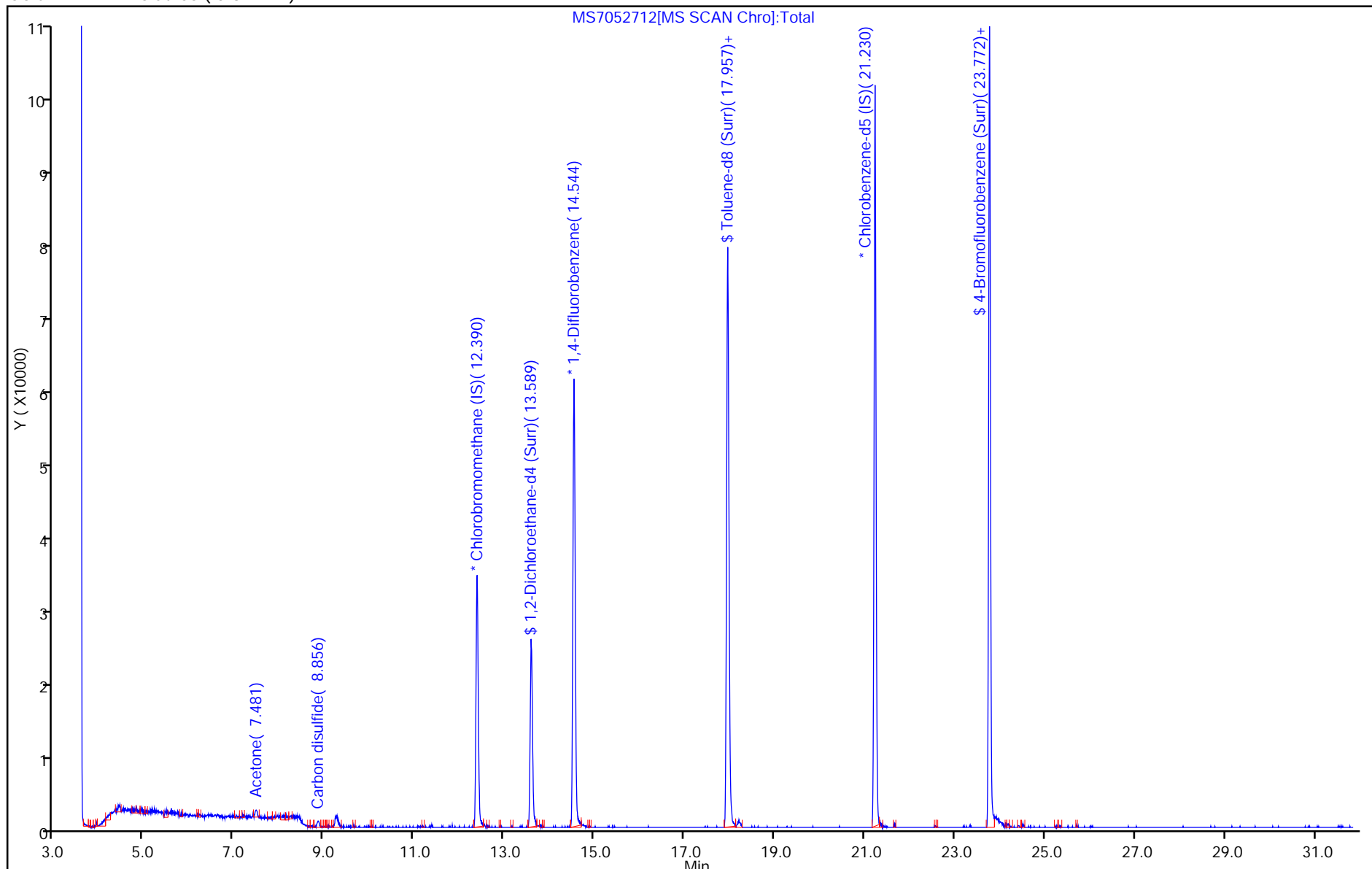
Dil. Factor: 1.0000

ALS Bottle#: 8

Method: TO15_ATMS7N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)



TestAmerica Sacramento

Data File: \\SACCHROM\ChromData\ATMS7\20150527-22088.b\MS7052712.d

Injection Date: 27-May-2015 23:46:30

Instrument ID: ATMS7

Lims ID: 320-13008-A-11

Lab Sample ID: 320-13008-11

Client ID: 34000184

Operator ID: LHS

ALS Bottle#: 8 Worklist Smp#: 12

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

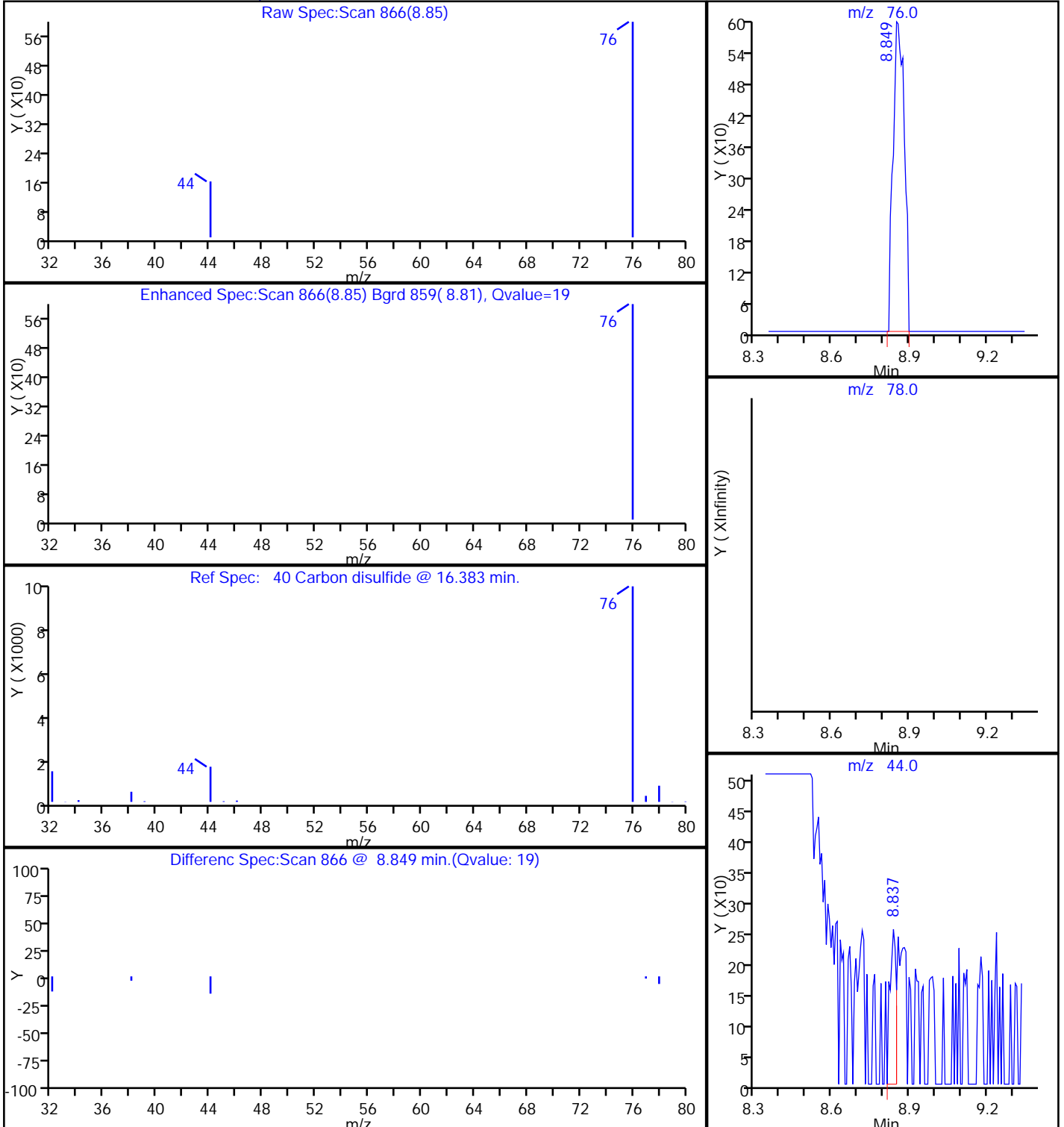
Method: TO15_ATMS7N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Detector: MS SCAN

40 Carbon disulfide, CAS: 75-15-0



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-13072-1</u>
SDG No.: <u>6L SCAN Batch</u>	
Client Sample ID: <u>34000383</u>	Lab Sample ID: <u>320-13072-3</u>
Matrix: <u>Air</u>	Lab File ID: <u>MS7052015.d</u>
Analysis Method: <u>TO-15</u>	Date Collected: <u>05/14/2015 00:00</u>
Sample wt/vol: <u>250 (mL)</u>	Date Analyzed: <u>05/21/2015 02:02</u>
Soil Aliquot Vol: _____	Dilution Factor: <u>1</u>
Soil Extract Vol.: _____	GC Column: <u>RTX-Volatiles</u> ID: <u>0.32 (mm)</u>
% Moisture: _____	Level: (low/med) <u>Low</u>
Analysis Batch No.: <u>74434</u>	Units: <u>ppb v/v</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
67-64-1	Acetone	0.24	J	5.0	0.18
107-02-8	Acrolein	ND		2.0	0.22
107-13-1	Acrylonitrile	ND		2.0	0.19
107-05-1	Allyl chloride	ND		0.80	0.11
71-43-2	Benzene	ND		0.40	0.079
100-44-7	Benzyl chloride	ND		0.80	0.16
75-27-4	Bromodichloromethane	ND		0.30	0.066
75-25-2	Bromoform	ND		0.40	0.070
74-83-9	Bromomethane	ND		0.80	0.34
106-99-0	1,3-Butadiene	ND		0.80	0.15
106-97-8	n-Butane	ND		0.40	0.15
78-93-3	2-Butanone (MEK)	ND		0.80	0.20
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0	0.11
104-51-8	n-Butylbenzene	ND		0.40	0.18
135-98-8	sec-Butylbenzene	ND		0.40	0.070
98-06-6	tert-Butylbenzene	ND		0.80	0.068
75-15-0	Carbon disulfide	ND		0.80	0.078
56-23-5	Carbon tetrachloride	ND		0.80	0.064
108-90-7	Chlorobenzene	ND		0.30	0.064
75-45-6	Chlorodifluoromethane	ND		0.80	0.11
75-00-3	Chloroethane	ND		0.80	0.31
67-66-3	Chloroform	ND		0.30	0.095
74-87-3	Chloromethane	ND		0.80	0.20
95-49-8	2-Chlorotoluene	ND		0.40	0.080
110-82-7	Cyclohexane	ND		0.40	0.084
124-48-1	Dibromochloromethane	ND		0.40	0.079
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80	0.075
74-95-3	Dibromomethane	ND		0.40	0.057
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40	0.16
95-50-1	1,2-Dichlorobenzene	ND		0.40	0.13
541-73-1	1,3-Dichlorobenzene	ND		0.40	0.11
106-46-7	1,4-Dichlorobenzene	ND		0.40	0.15
75-71-8	Dichlorodifluoromethane	ND		0.40	0.15
75-34-3	1,1-Dichloroethane	ND		0.30	0.072
107-06-2	1,2-Dichloroethane	ND		0.80	0.088

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-13072-1</u>
SDG No.: <u>6L SCAN Batch</u>	
Client Sample ID: <u>34000383</u>	Lab Sample ID: <u>320-13072-3</u>
Matrix: <u>Air</u>	Lab File ID: <u>MS7052015.d</u>
Analysis Method: <u>TO-15</u>	Date Collected: <u>05/14/2015 00:00</u>
Sample wt/vol: <u>250 (mL)</u>	Date Analyzed: <u>05/21/2015 02:02</u>
Soil Aliquot Vol: _____	Dilution Factor: <u>1</u>
Soil Extract Vol.: _____	GC Column: <u>RTX-Volatiles</u> ID: <u>0.32 (mm)</u>
% Moisture: _____	Level: (low/med) <u>Low</u>
Analysis Batch No.: <u>74434</u>	Units: <u>ppb v/v</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	ND		0.80	0.13
156-59-2	cis-1,2-Dichloroethene	ND		0.40	0.089
156-60-5	trans-1,2-Dichloroethene	ND		0.40	0.10
78-87-5	1,2-Dichloropropane	ND		0.40	0.24
10061-01-5	cis-1,3-Dichloropropene	ND		0.40	0.10
10061-02-6	trans-1,3-Dichloropropene	ND		0.40	0.088
123-91-1	1,4-Dioxane	0.21	J	0.80	0.10
141-78-6	Ethyl acetate	ND		0.30	0.18
100-41-4	Ethylbenzene	ND		0.40	0.063
622-96-8	4-Ethyltoluene	ND		0.40	0.19
142-82-5	n-Heptane	ND		0.80	0.063
87-68-3	Hexachlorobutadiene	ND		2.0	0.43
110-54-3	n-Hexane	ND		0.80	0.075
591-78-6	2-Hexanone	ND		0.40	0.087
98-82-8	Isopropylbenzene	ND		0.80	0.10
99-87-6	4-Isopropyltoluene	ND		0.80	0.12
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80	0.050
80-62-6	Methyl methacrylate	ND		0.80	0.16
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40	0.14
75-09-2	Methylene Chloride	ND		0.40	0.072
98-83-9	alpha-Methylstyrene	ND		0.40	0.065
91-20-3	Naphthalene	ND		0.80	0.56
111-65-9	n-Octane	ND		0.40	0.055
109-66-0	n-Pentane	ND		0.80	0.26
115-07-1	Propylene	ND		0.40	0.099
103-65-1	N-Propylbenzene	ND		0.40	0.059
100-42-5	Styrene	ND		0.40	0.059
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40	0.069
127-18-4	Tetrachloroethene	ND		0.40	0.051
109-99-9	Tetrahydrofuran	ND		0.80	0.079
108-88-3	Toluene	ND		0.40	0.051
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.16
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.43
71-55-6	1,1,1-Trichloroethane	ND		0.30	0.065
79-00-5	1,1,2-Trichloroethane	ND		0.40	0.067

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-13072-1
 SDG No.: 6L SCAN Batch
 Client Sample ID: 34000383 Lab Sample ID: 320-13072-3
 Matrix: Air Lab File ID: MS7052015.d
 Analysis Method: TO-15 Date Collected: 05/14/2015 00:00
 Sample wt/vol: 250 (mL) Date Analyzed: 05/21/2015 02:02
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-Volatiles ID: 0.32 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 74434 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.40	0.11
75-69-4	Trichlorofluoromethane	ND		0.40	0.20
96-18-4	1,2,3-Trichloropropane	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	ND		0.80	0.16
108-67-8	1,3,5-Trimethylbenzene	ND		0.40	0.13
540-84-1	2,2,4-Trimethylpentane	ND		0.40	0.071
108-05-4	Vinyl acetate	ND		0.80	0.15
593-60-2	Vinyl bromide	ND		0.80	0.26
75-01-4	Vinyl chloride	ND		0.40	0.12
179601-23-1	m,p-Xylene	ND		0.80	0.10
95-47-6	o-Xylene	ND		0.40	0.054

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	93		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	95		70-130
2037-26-5	Toluene-d8 (Surr)	102		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\SACCHROM\ChromData\ATMS7\20150520-21939.b\MS7052015.d
 Lims ID: 320-13072-A-3 Lab Sample ID: 320-13072-3
 Client ID: 34000383
 Sample Type: Client
 Inject. Date: 21-May-2015 02:02:30 ALS Bottle#: 11 Worklist Smp#: 15
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 320-13072-A-3
 Misc. Info.: 500 mL CAN CERT
 Operator ID: LHS Instrument ID: ATMS7
 Method: \\SACCHROM\ChromData\ATMS7\20150520-21939.b\TO15_ATMS7N.m
 Limit Group: MSA - TO15 - ICAL
 Last Update: 21-May-2015 09:54:09 Calib Date: 14-May-2015 08:59:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\SACCHROM\ChromData\ATMS7\20150513-21789.b\MS7051324.d
 Column 1 : RTX Volatiles (0.32 mm) Det: MS SCAN
 Process Host: XAWRK022

First Level Reviewer: ortizam

Date: 21-May-2015 09:57:33

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	12.414	12.451	-0.037	96	21546	4.00	
* 2 1,4-Difluorobenzene	114	14.568	14.593	-0.025	96	98069	4.00	
* 3 Chlorobenzene-d5 (IS)	117	21.254	21.272	-0.018	90	101762	4.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	13.619	13.650	-0.031	97	35982	3.81	
\$ 5 Toluene-d8 (Surr)	100	17.981	18.005	-0.024	98	69627	4.08	
\$ 6 4-Bromofluorobenzene (Surr	95	23.797	23.815	-0.018	89	67022	3.71	
32 Acetone	43	7.493	7.457	0.036	46	3868	0.2373	
69 1,4-Dioxane	88	16.144	16.138	0.006	8	1395	0.2116	
80 Tetrachloroethene	166	19.672	19.691	-0.019	1	472	0.0243	

Reagents:

VASUISIM_00169 Amount Added: 50.00 Units: mL Run Reagent

Data File: \\SACCHROM\ChromData\ATMS7\20150520-21939.b\MS7052015.d

Injection Date: 21-May-2015 02:02:30

Instrument ID: ATMS7

Operator ID: LHS

Lims ID: 320-13072-A-3

Lab Sample ID: 320-13072-3

Worklist Smp#: 15

Client ID: 34000383

Purge Vol: 5.000 mL

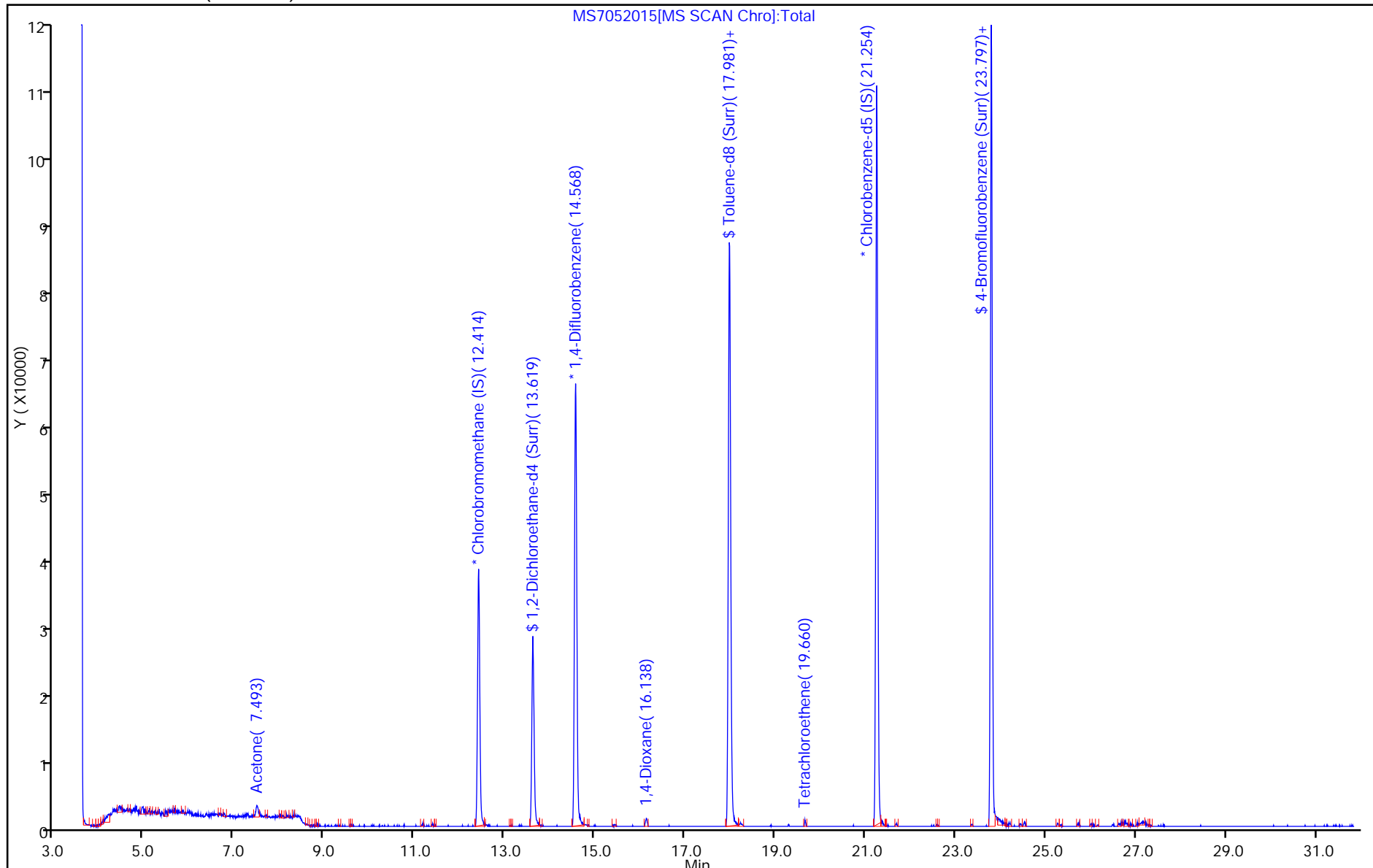
Dil. Factor: 1.0000

ALS Bottle#: 11

Method: TO15_ATMS7N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)



TestAmerica Sacramento

Data File: \\SACCHROM\ChromData\ATMS7\20150520-21939.b\MS7052015.d

Injection Date: 21-May-2015 02:02:30

Instrument ID: ATMS7

Lims ID: 320-13072-A-3

Lab Sample ID: 320-13072-3

Client ID: 34000383

Operator ID: LHS

ALS Bottle#: 11 Worklist Smp#: 15

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

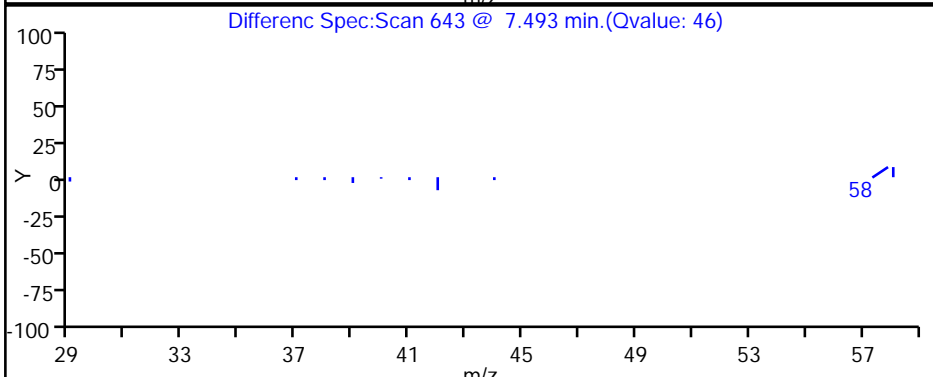
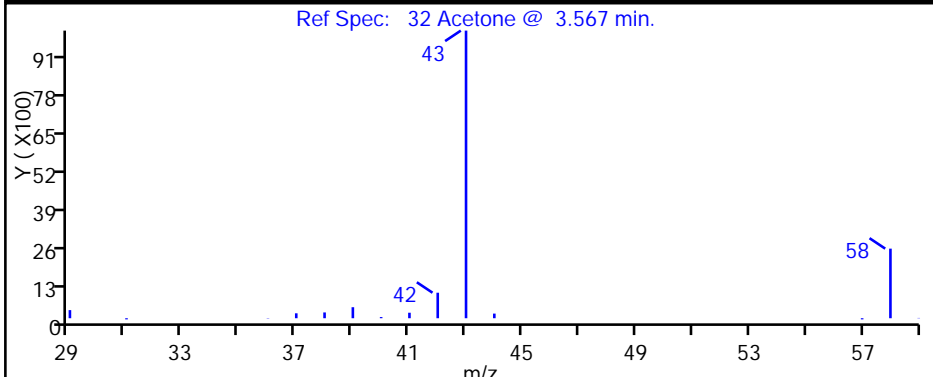
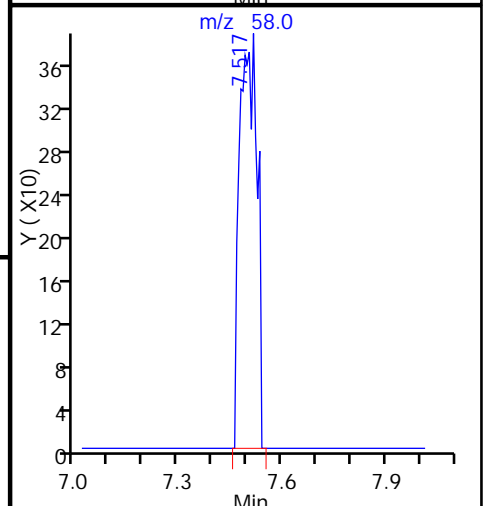
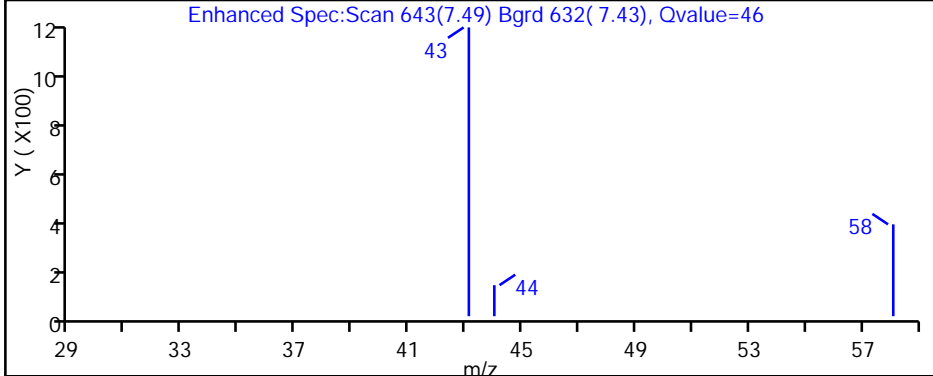
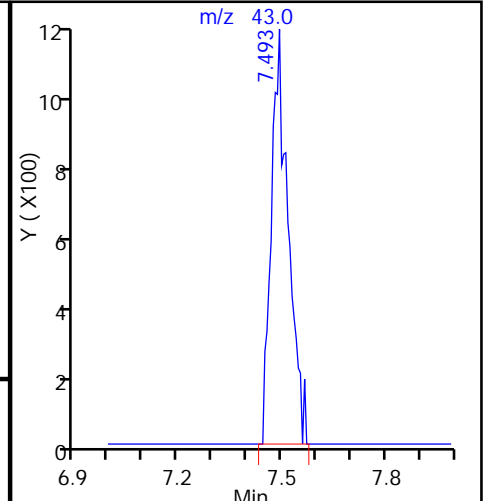
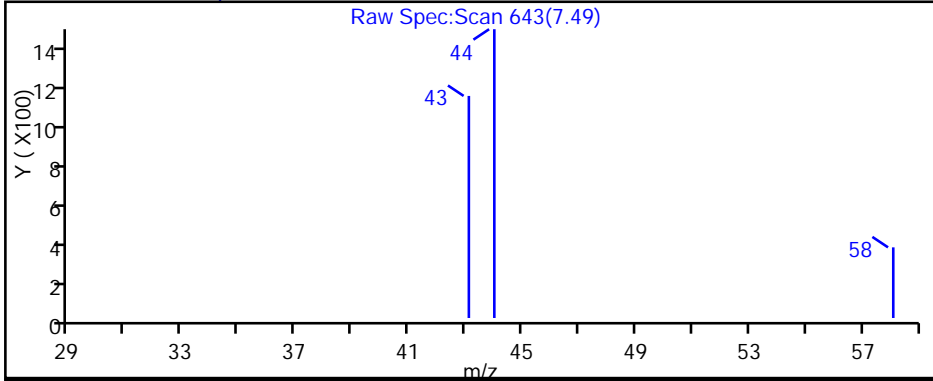
Method: TO15_ATMS7N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Detector: MS SCAN

32 Acetone, CAS: 67-64-1



TestAmerica Sacramento

Data File: \\SACCHROM\ChromData\ATMS7\20150520-21939.b\MS7052015.d

Injection Date: 21-May-2015 02:02:30

Instrument ID: ATMS7

Lims ID: 320-13072-A-3

Lab Sample ID: 320-13072-3

Client ID: 34000383

Operator ID: LHS

ALS Bottle#: 11 Worklist Smp#: 15

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

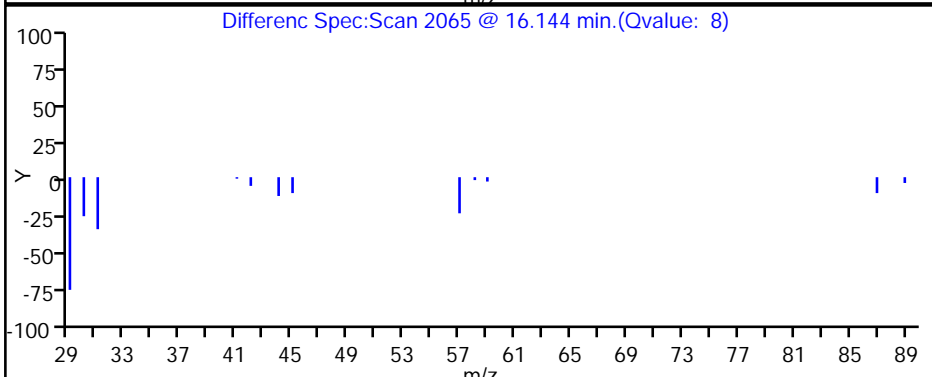
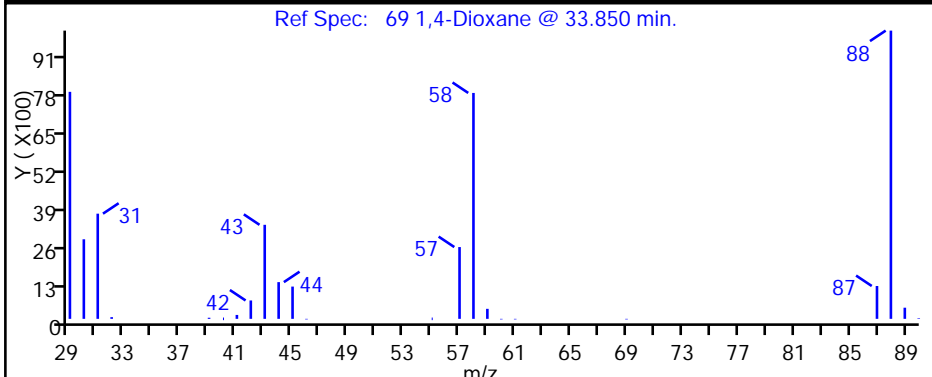
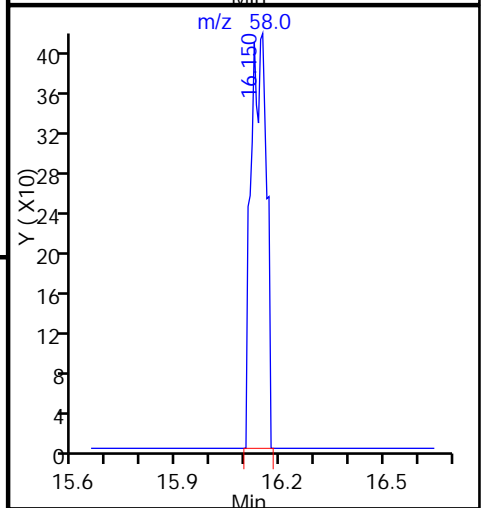
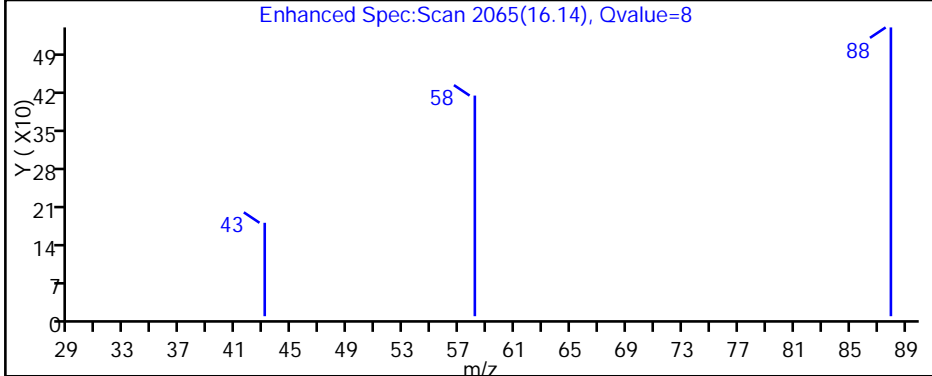
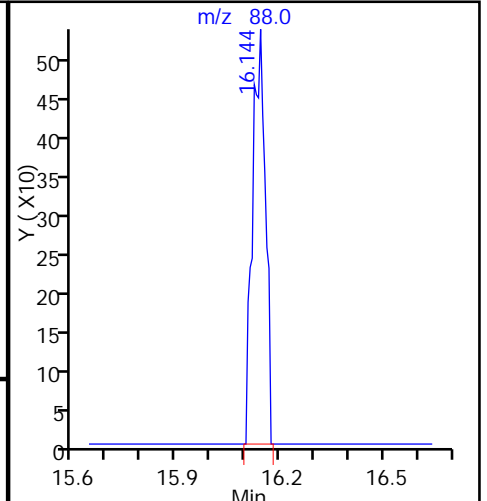
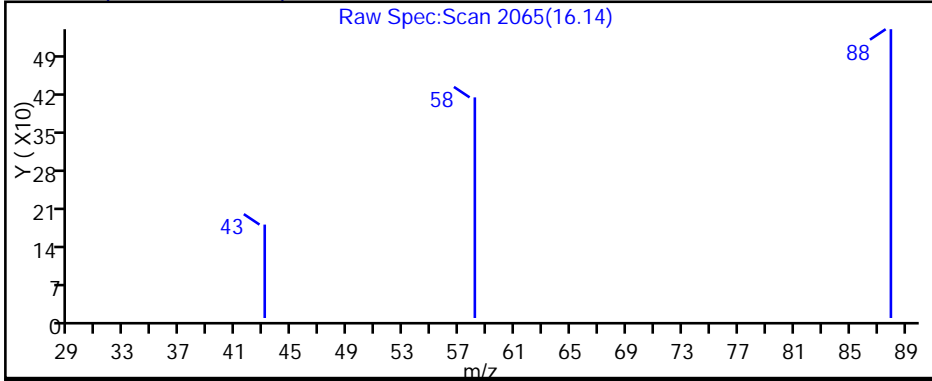
Method: TO15_ATMS7N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Detector: MS SCAN

69 1,4-Dioxane, CAS: 123-91-1



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-14716-1
Client Project/Site: NuStar Vapor Testing

For:
Apex Companies LLC
3015 SW 1st Avenue
Portland, Oregon 97201

Attn: Stephanie Salisbury



Authorized for release by:
9/16/2015 4:10:57 PM

Sarah Murphy, Project Manager I
(253)922-2310
sarah.murphy@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14716-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14716-1

Job ID: 320-14716-1

Laboratory: TestAmerica Sacramento

Narrative

**Job Narrative
320-14716-1**

Receipt

The samples were received on 9/2/2015 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice.

Air - GC/MS VOA

Method(s) TO-15: The continuing calibration verification (CCV) associated with batch 86076 recovered above the upper control limit for 1,2,4-Trichlorobenzene, 1,4-Dichlorobenzene and Benzyl chloride. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: SVE North (320-14716-1), SVE South Precarbon (320-14716-2), SVE South Postcarbon (320-14716-3), (CCVIS 320-86076/2), (LCS 320-86076/3), (LCSD 320-86076/24) and (MB 320-86076/6).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



Detection Summary

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14716-1

Client Sample ID: SVE North

Lab Sample ID: 320-14716-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	16		8.2		ppb v/v	20.5		TO-15	Total/NA
Tetrachloroethene	1000		8.2		ppb v/v	20.5		TO-15	Total/NA
1,1,1-Trichloroethane	12		6.2		ppb v/v	20.5		TO-15	Total/NA
Trichloroethene	110		8.2		ppb v/v	20.5		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	62		33		ug/m3 Air	20.5		TO-15	Total/NA
Tetrachloroethene	7100		56		ug/m3 Air	20.5		TO-15	Total/NA
1,1,1-Trichloroethane	65		34		ug/m3 Air	20.5		TO-15	Total/NA
Trichloroethene	600		44		ug/m3 Air	20.5		TO-15	Total/NA

Client Sample ID: SVE South Precarbon

Lab Sample ID: 320-14716-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	40		21		ppb v/v	52.4		TO-15	Total/NA
Tetrachloroethene	1700		21		ppb v/v	52.4		TO-15	Total/NA
Trichloroethene	140		21		ppb v/v	52.4		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	160		83		ug/m3 Air	52.4		TO-15	Total/NA
Tetrachloroethene	12000		140		ug/m3 Air	52.4		TO-15	Total/NA
Trichloroethene	780		110		ug/m3 Air	52.4		TO-15	Total/NA

Client Sample ID: SVE South Postcarbon

Lab Sample ID: 320-14716-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	130		6.9		ppb v/v	17.3		TO-15	Total/NA
Tetrachloroethene	510		6.9		ppb v/v	17.3		TO-15	Total/NA
Trichloroethene	17		6.9		ppb v/v	17.3		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	530		27		ug/m3 Air	17.3		TO-15	Total/NA
Tetrachloroethene	3400		47		ug/m3 Air	17.3		TO-15	Total/NA
Trichloroethene	94		37		ug/m3 Air	17.3		TO-15	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14716-1

Client Sample ID: SVE North

Lab Sample ID: 320-14716-1

Date Collected: 08/31/15 11:35

Matrix: Air

Date Received: 09/02/15 09:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		100		ppb v/v			09/16/15 02:49	20.5
Benzene	ND		8.2		ppb v/v			09/16/15 02:49	20.5
Benzyl chloride	ND		16		ppb v/v			09/16/15 02:49	20.5
Bromodichloromethane	ND		6.2		ppb v/v			09/16/15 02:49	20.5
Bromoform	ND		8.2		ppb v/v			09/16/15 02:49	20.5
Bromomethane	ND		16		ppb v/v			09/16/15 02:49	20.5
2-Butanone (MEK)	ND		16		ppb v/v			09/16/15 02:49	20.5
Carbon disulfide	ND		16		ppb v/v			09/16/15 02:49	20.5
Carbon tetrachloride	ND		16		ppb v/v			09/16/15 02:49	20.5
Chlorobenzene	ND		6.2		ppb v/v			09/16/15 02:49	20.5
Dibromochloromethane	ND		8.2		ppb v/v			09/16/15 02:49	20.5
Chloroethane	ND		16		ppb v/v			09/16/15 02:49	20.5
Chloroform	ND		6.2		ppb v/v			09/16/15 02:49	20.5
Chloromethane	ND		16		ppb v/v			09/16/15 02:49	20.5
1,2-Dibromoethane (EDB)	ND		16		ppb v/v			09/16/15 02:49	20.5
1,2-Dichlorobenzene	ND		8.2		ppb v/v			09/16/15 02:49	20.5
1,3-Dichlorobenzene	ND		8.2		ppb v/v			09/16/15 02:49	20.5
1,4-Dichlorobenzene	ND		8.2		ppb v/v			09/16/15 02:49	20.5
Dichlorodifluoromethane	ND		8.2		ppb v/v			09/16/15 02:49	20.5
1,1-Dichloroethane	ND		6.2		ppb v/v			09/16/15 02:49	20.5
1,2-Dichloroethane	ND		16		ppb v/v			09/16/15 02:49	20.5
1,1-Dichloroethene	ND		16		ppb v/v			09/16/15 02:49	20.5
cis-1,2-Dichloroethene	16		8.2		ppb v/v			09/16/15 02:49	20.5
trans-1,2-Dichloroethene	ND		8.2		ppb v/v			09/16/15 02:49	20.5
1,2-Dichloropropane	ND		8.2		ppb v/v			09/16/15 02:49	20.5
cis-1,3-Dichloropropene	ND		8.2		ppb v/v			09/16/15 02:49	20.5
trans-1,3-Dichloropropene	ND		8.2		ppb v/v			09/16/15 02:49	20.5
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		8.2		ppb v/v			09/16/15 02:49	20.5
Ethylbenzene	ND		8.2		ppb v/v			09/16/15 02:49	20.5
4-Ethyltoluene	ND		8.2		ppb v/v			09/16/15 02:49	20.5
Hexachlorobutadiene	ND		41		ppb v/v			09/16/15 02:49	20.5
2-Hexanone	ND		8.2		ppb v/v			09/16/15 02:49	20.5
Methylene Chloride	ND		8.2		ppb v/v			09/16/15 02:49	20.5
4-Methyl-2-pentanone (MIBK)	ND		8.2		ppb v/v			09/16/15 02:49	20.5
Styrene	ND		8.2		ppb v/v			09/16/15 02:49	20.5
1,1,2,2-Tetrachloroethane	ND		8.2		ppb v/v			09/16/15 02:49	20.5
Tetrachloroethene	1000		8.2		ppb v/v			09/16/15 02:49	20.5
Toluene	ND		8.2		ppb v/v			09/16/15 02:49	20.5
1,2,4-Trichlorobenzene	ND		41		ppb v/v			09/16/15 02:49	20.5
1,1,1-Trichloroethane	12		6.2		ppb v/v			09/16/15 02:49	20.5
1,1,2-Trichloroethane	ND		8.2		ppb v/v			09/16/15 02:49	20.5
Trichloroethene	110		8.2		ppb v/v			09/16/15 02:49	20.5
Trichlorofluoromethane	ND		8.2		ppb v/v			09/16/15 02:49	20.5
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		8.2		ppb v/v			09/16/15 02:49	20.5
1,2,4-Trimethylbenzene	ND		16		ppb v/v			09/16/15 02:49	20.5
1,3,5-Trimethylbenzene	ND		8.2		ppb v/v			09/16/15 02:49	20.5
Vinyl acetate	ND		16		ppb v/v			09/16/15 02:49	20.5
Vinyl chloride	ND		8.2		ppb v/v			09/16/15 02:49	20.5

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14716-1

Client Sample ID: SVE North

Lab Sample ID: 320-14716-1

Date Collected: 08/31/15 11:35

Matrix: Air

Date Received: 09/02/15 09:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m,p-Xylene	ND		16		ppb v/v			09/16/15 02:49	20.5
o-Xylene	ND		8.2		ppb v/v			09/16/15 02:49	20.5
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		240		ug/m3 Air			09/16/15 02:49	20.5
Benzene	ND		26		ug/m3 Air			09/16/15 02:49	20.5
Benzyl chloride	ND		85		ug/m3 Air			09/16/15 02:49	20.5
Bromodichloromethane	ND		41		ug/m3 Air			09/16/15 02:49	20.5
Bromoform	ND		85		ug/m3 Air			09/16/15 02:49	20.5
Bromomethane	ND		64		ug/m3 Air			09/16/15 02:49	20.5
2-Butanone (MEK)	ND		48		ug/m3 Air			09/16/15 02:49	20.5
Carbon disulfide	ND		51		ug/m3 Air			09/16/15 02:49	20.5
Carbon tetrachloride	ND		100		ug/m3 Air			09/16/15 02:49	20.5
Chlorobenzene	ND		28		ug/m3 Air			09/16/15 02:49	20.5
Dibromochloromethane	ND		70		ug/m3 Air			09/16/15 02:49	20.5
Chloroethane	ND		43		ug/m3 Air			09/16/15 02:49	20.5
Chloroform	ND		30		ug/m3 Air			09/16/15 02:49	20.5
Chloromethane	ND		34		ug/m3 Air			09/16/15 02:49	20.5
1,2-Dibromoethane (EDB)	ND		130		ug/m3 Air			09/16/15 02:49	20.5
1,2-Dichlorobenzene	ND		49		ug/m3 Air			09/16/15 02:49	20.5
1,3-Dichlorobenzene	ND		49		ug/m3 Air			09/16/15 02:49	20.5
1,4-Dichlorobenzene	ND		49		ug/m3 Air			09/16/15 02:49	20.5
Dichlorodifluoromethane	ND		41		ug/m3 Air			09/16/15 02:49	20.5
1,1-Dichloroethane	ND		25		ug/m3 Air			09/16/15 02:49	20.5
1,2-Dichloroethane	ND		66		ug/m3 Air			09/16/15 02:49	20.5
1,1-Dichloroethene	ND		65		ug/m3 Air			09/16/15 02:49	20.5
cis-1,2-Dichloroethene	62		33		ug/m3 Air			09/16/15 02:49	20.5
trans-1,2-Dichloroethene	ND		33		ug/m3 Air			09/16/15 02:49	20.5
1,2-Dichloropropane	ND		38		ug/m3 Air			09/16/15 02:49	20.5
cis-1,3-Dichloropropene	ND		37		ug/m3 Air			09/16/15 02:49	20.5
trans-1,3-Dichloropropene	ND		37		ug/m3 Air			09/16/15 02:49	20.5
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		57		ug/m3 Air			09/16/15 02:49	20.5
Ethylbenzene	ND		36		ug/m3 Air			09/16/15 02:49	20.5
4-Ethyltoluene	ND		40		ug/m3 Air			09/16/15 02:49	20.5
Hexachlorobutadiene	ND		440		ug/m3 Air			09/16/15 02:49	20.5
2-Hexanone	ND		34		ug/m3 Air			09/16/15 02:49	20.5
Methylene Chloride	ND		28		ug/m3 Air			09/16/15 02:49	20.5
4-Methyl-2-pentanone (MIBK)	ND		34		ug/m3 Air			09/16/15 02:49	20.5
Styrene	ND		35		ug/m3 Air			09/16/15 02:49	20.5
1,1,2,2-Tetrachloroethane	ND		56		ug/m3 Air			09/16/15 02:49	20.5
Tetrachloroethene	7100		56		ug/m3 Air			09/16/15 02:49	20.5
Toluene	ND		31		ug/m3 Air			09/16/15 02:49	20.5
1,2,4-Trichlorobenzene	ND		300		ug/m3 Air			09/16/15 02:49	20.5
1,1,1-Trichloroethane	65		34		ug/m3 Air			09/16/15 02:49	20.5
1,1,2-Trichloroethane	ND		45		ug/m3 Air			09/16/15 02:49	20.5
Trichloroethene	600		44		ug/m3 Air			09/16/15 02:49	20.5
Trichlorofluoromethane	ND		46		ug/m3 Air			09/16/15 02:49	20.5
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		63		ug/m3 Air			09/16/15 02:49	20.5
1,2,4-Trimethylbenzene	ND		81		ug/m3 Air			09/16/15 02:49	20.5

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14716-1

Client Sample ID: SVE North

Lab Sample ID: 320-14716-1

Date Collected: 08/31/15 11:35

Matrix: Air

Date Received: 09/02/15 09:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	ND		40		ug/m3 Air			09/16/15 02:49	20.5
Vinyl acetate	ND		58		ug/m3 Air			09/16/15 02:49	20.5
Vinyl chloride	ND		21		ug/m3 Air			09/16/15 02:49	20.5
m,p-Xylene	ND		71		ug/m3 Air			09/16/15 02:49	20.5
o-Xylene	ND		36		ug/m3 Air			09/16/15 02:49	20.5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		70 - 130					09/16/15 02:49	20.5
1,2-Dichloroethane-d4 (Surr)	118		70 - 130					09/16/15 02:49	20.5
Toluene-d8 (Surr)	99		70 - 130					09/16/15 02:49	20.5

Client Sample ID: SVE South Precarbon

Lab Sample ID: 320-14716-2

Date Collected: 08/31/15 11:06

Matrix: Air

Date Received: 09/02/15 09:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		260		ppb v/v			09/16/15 03:46	52.4
Benzene	ND		21		ppb v/v			09/16/15 03:46	52.4
Benzyl chloride	ND		42		ppb v/v			09/16/15 03:46	52.4
Bromodichloromethane	ND		16		ppb v/v			09/16/15 03:46	52.4
Bromoform	ND		21		ppb v/v			09/16/15 03:46	52.4
Bromomethane	ND		42		ppb v/v			09/16/15 03:46	52.4
2-Butanone (MEK)	ND		42		ppb v/v			09/16/15 03:46	52.4
Carbon disulfide	ND		42		ppb v/v			09/16/15 03:46	52.4
Carbon tetrachloride	ND		42		ppb v/v			09/16/15 03:46	52.4
Chlorobenzene	ND		16		ppb v/v			09/16/15 03:46	52.4
Dibromochloromethane	ND		21		ppb v/v			09/16/15 03:46	52.4
Chloroethane	ND		42		ppb v/v			09/16/15 03:46	52.4
Chloroform	ND		16		ppb v/v			09/16/15 03:46	52.4
Chloromethane	ND		42		ppb v/v			09/16/15 03:46	52.4
1,2-Dibromoethane (EDB)	ND		42		ppb v/v			09/16/15 03:46	52.4
1,2-Dichlorobenzene	ND		21		ppb v/v			09/16/15 03:46	52.4
1,3-Dichlorobenzene	ND		21		ppb v/v			09/16/15 03:46	52.4
1,4-Dichlorobenzene	ND		21		ppb v/v			09/16/15 03:46	52.4
Dichlorodifluoromethane	ND		21		ppb v/v			09/16/15 03:46	52.4
1,1-Dichloroethane	ND		16		ppb v/v			09/16/15 03:46	52.4
1,2-Dichloroethane	ND		42		ppb v/v			09/16/15 03:46	52.4
1,1-Dichloroethene	ND		42		ppb v/v			09/16/15 03:46	52.4
cis-1,2-Dichloroethene	40		21		ppb v/v			09/16/15 03:46	52.4
trans-1,2-Dichloroethene	ND		21		ppb v/v			09/16/15 03:46	52.4
1,2-Dichloropropane	ND		21		ppb v/v			09/16/15 03:46	52.4
cis-1,3-Dichloropropene	ND		21		ppb v/v			09/16/15 03:46	52.4
trans-1,3-Dichloropropene	ND		21		ppb v/v			09/16/15 03:46	52.4
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		21		ppb v/v			09/16/15 03:46	52.4
Ethylbenzene	ND		21		ppb v/v			09/16/15 03:46	52.4
4-Ethyltoluene	ND		21		ppb v/v			09/16/15 03:46	52.4
Hexachlorobutadiene	ND		100		ppb v/v			09/16/15 03:46	52.4

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14716-1

Client Sample ID: SVE South Precarbon

Lab Sample ID: 320-14716-2

Date Collected: 08/31/15 11:06

Matrix: Air

Date Received: 09/02/15 09:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Hexanone	ND		21		ppb v/v			09/16/15 03:46	52.4
Methylene Chloride	ND		21		ppb v/v			09/16/15 03:46	52.4
4-Methyl-2-pentanone (MIBK)	ND		21		ppb v/v			09/16/15 03:46	52.4
Styrene	ND		21		ppb v/v			09/16/15 03:46	52.4
1,1,2,2-Tetrachloroethane	ND		21		ppb v/v			09/16/15 03:46	52.4
Tetrachloroethene	1700		21		ppb v/v			09/16/15 03:46	52.4
Toluene	ND		21		ppb v/v			09/16/15 03:46	52.4
1,2,4-Trichlorobenzene	ND		100		ppb v/v			09/16/15 03:46	52.4
1,1,1-Trichloroethane	ND		16		ppb v/v			09/16/15 03:46	52.4
1,1,2-Trichloroethane	ND		21		ppb v/v			09/16/15 03:46	52.4
Trichloroethene	140		21		ppb v/v			09/16/15 03:46	52.4
Trichlorofluoromethane	ND		21		ppb v/v			09/16/15 03:46	52.4
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		21		ppb v/v			09/16/15 03:46	52.4
1,2,4-Trimethylbenzene	ND		42		ppb v/v			09/16/15 03:46	52.4
1,3,5-Trimethylbenzene	ND		21		ppb v/v			09/16/15 03:46	52.4
Vinyl acetate	ND		42		ppb v/v			09/16/15 03:46	52.4
Vinyl chloride	ND		21		ppb v/v			09/16/15 03:46	52.4
m,p-Xylene	ND		42		ppb v/v			09/16/15 03:46	52.4
o-Xylene	ND		21		ppb v/v			09/16/15 03:46	52.4
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		620		ug/m3 Air			09/16/15 03:46	52.4
Benzene	ND		67		ug/m3 Air			09/16/15 03:46	52.4
Benzyl chloride	ND		220		ug/m3 Air			09/16/15 03:46	52.4
Bromodichloromethane	ND		110		ug/m3 Air			09/16/15 03:46	52.4
Bromoform	ND		220		ug/m3 Air			09/16/15 03:46	52.4
Bromomethane	ND		160		ug/m3 Air			09/16/15 03:46	52.4
2-Butanone (MEK)	ND		120		ug/m3 Air			09/16/15 03:46	52.4
Carbon disulfide	ND		130		ug/m3 Air			09/16/15 03:46	52.4
Carbon tetrachloride	ND		260		ug/m3 Air			09/16/15 03:46	52.4
Chlorobenzene	ND		72		ug/m3 Air			09/16/15 03:46	52.4
Dibromochloromethane	ND		180		ug/m3 Air			09/16/15 03:46	52.4
Chloroethane	ND		110		ug/m3 Air			09/16/15 03:46	52.4
Chloroform	ND		77		ug/m3 Air			09/16/15 03:46	52.4
Chloromethane	ND		87		ug/m3 Air			09/16/15 03:46	52.4
1,2-Dibromoethane (EDB)	ND		320		ug/m3 Air			09/16/15 03:46	52.4
1,2-Dichlorobenzene	ND		130		ug/m3 Air			09/16/15 03:46	52.4
1,3-Dichlorobenzene	ND		130		ug/m3 Air			09/16/15 03:46	52.4
1,4-Dichlorobenzene	ND		130		ug/m3 Air			09/16/15 03:46	52.4
Dichlorodifluoromethane	ND		100		ug/m3 Air			09/16/15 03:46	52.4
1,1-Dichloroethane	ND		64		ug/m3 Air			09/16/15 03:46	52.4
1,2-Dichloroethane	ND		170		ug/m3 Air			09/16/15 03:46	52.4
1,1-Dichloroethene	ND		170		ug/m3 Air			09/16/15 03:46	52.4
cis-1,2-Dichloroethene	160		83		ug/m3 Air			09/16/15 03:46	52.4
trans-1,2-Dichloroethene	ND		83		ug/m3 Air			09/16/15 03:46	52.4
1,2-Dichloropropane	ND		97		ug/m3 Air			09/16/15 03:46	52.4
cis-1,3-Dichloropropene	ND		95		ug/m3 Air			09/16/15 03:46	52.4
trans-1,3-Dichloropropene	ND		95		ug/m3 Air			09/16/15 03:46	52.4
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		150		ug/m3 Air			09/16/15 03:46	52.4

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14716-1

Client Sample ID: SVE South Precarbon

Lab Sample ID: 320-14716-2

Date Collected: 08/31/15 11:06

Matrix: Air

Date Received: 09/02/15 09:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		91		ug/m3 Air			09/16/15 03:46	52.4
4-Ethyltoluene	ND		100		ug/m3 Air			09/16/15 03:46	52.4
Hexachlorobutadiene	ND		1100		ug/m3 Air			09/16/15 03:46	52.4
2-Hexanone	ND		86		ug/m3 Air			09/16/15 03:46	52.4
Methylene Chloride	ND		73		ug/m3 Air			09/16/15 03:46	52.4
4-Methyl-2-pentanone (MIBK)	ND		86		ug/m3 Air			09/16/15 03:46	52.4
Styrene	ND		89		ug/m3 Air			09/16/15 03:46	52.4
1,1,2,2-Tetrachloroethane	ND		140		ug/m3 Air			09/16/15 03:46	52.4
Tetrachloroethene	12000		140		ug/m3 Air			09/16/15 03:46	52.4
Toluene	ND		79		ug/m3 Air			09/16/15 03:46	52.4
1,2,4-Trichlorobenzene	ND		780		ug/m3 Air			09/16/15 03:46	52.4
1,1,1-Trichloroethane	ND		86		ug/m3 Air			09/16/15 03:46	52.4
1,1,2-Trichloroethane	ND		110		ug/m3 Air			09/16/15 03:46	52.4
Trichloroethene	780		110		ug/m3 Air			09/16/15 03:46	52.4
Trichlorofluoromethane	ND		120		ug/m3 Air			09/16/15 03:46	52.4
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		160		ug/m3 Air			09/16/15 03:46	52.4
1,2,4-Trimethylbenzene	ND		210		ug/m3 Air			09/16/15 03:46	52.4
1,3,5-Trimethylbenzene	ND		100		ug/m3 Air			09/16/15 03:46	52.4
Vinyl acetate	ND		150		ug/m3 Air			09/16/15 03:46	52.4
Vinyl chloride	ND		54		ug/m3 Air			09/16/15 03:46	52.4
m,p-Xylene	ND		180		ug/m3 Air			09/16/15 03:46	52.4
o-Xylene	ND		91		ug/m3 Air			09/16/15 03:46	52.4
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85		70 - 130					09/16/15 03:46	52.4
1,2-Dichloroethane-d4 (Surr)	119		70 - 130					09/16/15 03:46	52.4
Toluene-d8 (Surr)	103		70 - 130					09/16/15 03:46	52.4

Client Sample ID: SVE South Postcarbon

Lab Sample ID: 320-14716-3

Date Collected: 08/31/15 11:11

Matrix: Air

Date Received: 09/02/15 09:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		87		ppb v/v			09/16/15 08:43	17.3
Benzene	ND		6.9		ppb v/v			09/16/15 08:43	17.3
Benzyl chloride	ND		14		ppb v/v			09/16/15 08:43	17.3
Bromodichloromethane	ND		5.2		ppb v/v			09/16/15 08:43	17.3
Bromoform	ND		6.9		ppb v/v			09/16/15 08:43	17.3
Bromomethane	ND		14		ppb v/v			09/16/15 08:43	17.3
2-Butanone (MEK)	ND		14		ppb v/v			09/16/15 08:43	17.3
Carbon disulfide	ND		14		ppb v/v			09/16/15 08:43	17.3
Carbon tetrachloride	ND		14		ppb v/v			09/16/15 08:43	17.3
Chlorobenzene	ND		5.2		ppb v/v			09/16/15 08:43	17.3
Dibromochloromethane	ND		6.9		ppb v/v			09/16/15 08:43	17.3
Chloroethane	ND		14		ppb v/v			09/16/15 08:43	17.3
Chloroform	ND		5.2		ppb v/v			09/16/15 08:43	17.3
Chloromethane	ND		14		ppb v/v			09/16/15 08:43	17.3

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14716-1

Client Sample ID: SVE South Postcarbon

Lab Sample ID: 320-14716-3

Date Collected: 08/31/15 11:11

Matrix: Air

Date Received: 09/02/15 09:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		14		ppb v/v			09/16/15 08:43	17.3
1,2-Dichlorobenzene	ND		6.9		ppb v/v			09/16/15 08:43	17.3
1,3-Dichlorobenzene	ND		6.9		ppb v/v			09/16/15 08:43	17.3
1,4-Dichlorobenzene	ND		6.9		ppb v/v			09/16/15 08:43	17.3
Dichlorodifluoromethane	ND		6.9		ppb v/v			09/16/15 08:43	17.3
1,1-Dichloroethane	ND		5.2		ppb v/v			09/16/15 08:43	17.3
1,2-Dichloroethane	ND		14		ppb v/v			09/16/15 08:43	17.3
1,1-Dichloroethene	ND		14		ppb v/v			09/16/15 08:43	17.3
cis-1,2-Dichloroethene	130		6.9		ppb v/v			09/16/15 08:43	17.3
trans-1,2-Dichloroethene	ND		6.9		ppb v/v			09/16/15 08:43	17.3
1,2-Dichloropropane	ND		6.9		ppb v/v			09/16/15 08:43	17.3
cis-1,3-Dichloropropene	ND		6.9		ppb v/v			09/16/15 08:43	17.3
trans-1,3-Dichloropropene	ND		6.9		ppb v/v			09/16/15 08:43	17.3
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		6.9		ppb v/v			09/16/15 08:43	17.3
Ethylbenzene	ND		6.9		ppb v/v			09/16/15 08:43	17.3
4-Ethyltoluene	ND		6.9		ppb v/v			09/16/15 08:43	17.3
Hexachlorobutadiene	ND		35		ppb v/v			09/16/15 08:43	17.3
2-Hexanone	ND		6.9		ppb v/v			09/16/15 08:43	17.3
Methylene Chloride	ND		6.9		ppb v/v			09/16/15 08:43	17.3
4-Methyl-2-pentanone (MIBK)	ND		6.9		ppb v/v			09/16/15 08:43	17.3
Styrene	ND		6.9		ppb v/v			09/16/15 08:43	17.3
1,1,2,2-Tetrachloroethane	ND		6.9		ppb v/v			09/16/15 08:43	17.3
Tetrachloroethene	510		6.9		ppb v/v			09/16/15 08:43	17.3
Toluene	ND		6.9		ppb v/v			09/16/15 08:43	17.3
1,2,4-Trichlorobenzene	ND		35		ppb v/v			09/16/15 08:43	17.3
1,1,1-Trichloroethane	ND		5.2		ppb v/v			09/16/15 08:43	17.3
1,1,2-Trichloroethane	ND		6.9		ppb v/v			09/16/15 08:43	17.3
Trichloroethene	17		6.9		ppb v/v			09/16/15 08:43	17.3
Trichlorofluoromethane	ND		6.9		ppb v/v			09/16/15 08:43	17.3
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		6.9		ppb v/v			09/16/15 08:43	17.3
1,2,4-Trimethylbenzene	ND		14		ppb v/v			09/16/15 08:43	17.3
1,3,5-Trimethylbenzene	ND		6.9		ppb v/v			09/16/15 08:43	17.3
Vinyl acetate	ND		14		ppb v/v			09/16/15 08:43	17.3
Vinyl chloride	ND		6.9		ppb v/v			09/16/15 08:43	17.3
m,p-Xylene	ND		14		ppb v/v			09/16/15 08:43	17.3
o-Xylene	ND		6.9		ppb v/v			09/16/15 08:43	17.3
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		210		ug/m3 Air			09/16/15 08:43	17.3
Benzene	ND		22		ug/m3 Air			09/16/15 08:43	17.3
Benzyl chloride	ND		72		ug/m3 Air			09/16/15 08:43	17.3
Bromodichloromethane	ND		35		ug/m3 Air			09/16/15 08:43	17.3
Bromoform	ND		72		ug/m3 Air			09/16/15 08:43	17.3
Bromomethane	ND		54		ug/m3 Air			09/16/15 08:43	17.3
2-Butanone (MEK)	ND		41		ug/m3 Air			09/16/15 08:43	17.3
Carbon disulfide	ND		43		ug/m3 Air			09/16/15 08:43	17.3
Carbon tetrachloride	ND		87		ug/m3 Air			09/16/15 08:43	17.3
Chlorobenzene	ND		24		ug/m3 Air			09/16/15 08:43	17.3
Dibromochloromethane	ND		59		ug/m3 Air			09/16/15 08:43	17.3

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14716-1

Client Sample ID: SVE South Postcarbon

Lab Sample ID: 320-14716-3

Date Collected: 08/31/15 11:11

Matrix: Air

Date Received: 09/02/15 09:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroethane	ND		37		ug/m3 Air			09/16/15 08:43	17.3
Chloroform	ND		25		ug/m3 Air			09/16/15 08:43	17.3
Chloromethane	ND		29		ug/m3 Air			09/16/15 08:43	17.3
1,2-Dibromoethane (EDB)	ND		110		ug/m3 Air			09/16/15 08:43	17.3
1,2-Dichlorobenzene	ND		42		ug/m3 Air			09/16/15 08:43	17.3
1,3-Dichlorobenzene	ND		42		ug/m3 Air			09/16/15 08:43	17.3
1,4-Dichlorobenzene	ND		42		ug/m3 Air			09/16/15 08:43	17.3
Dichlorodifluoromethane	ND		34		ug/m3 Air			09/16/15 08:43	17.3
1,1-Dichloroethane	ND		21		ug/m3 Air			09/16/15 08:43	17.3
1,2-Dichloroethane	ND		56		ug/m3 Air			09/16/15 08:43	17.3
1,1-Dichloroethene	ND		55		ug/m3 Air			09/16/15 08:43	17.3
cis-1,2-Dichloroethene	530		27		ug/m3 Air			09/16/15 08:43	17.3
trans-1,2-Dichloroethene	ND		27		ug/m3 Air			09/16/15 08:43	17.3
1,2-Dichloropropane	ND		32		ug/m3 Air			09/16/15 08:43	17.3
cis-1,3-Dichloropropene	ND		31		ug/m3 Air			09/16/15 08:43	17.3
trans-1,3-Dichloropropene	ND		31		ug/m3 Air			09/16/15 08:43	17.3
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		48		ug/m3 Air			09/16/15 08:43	17.3
Ethylbenzene	ND		30		ug/m3 Air			09/16/15 08:43	17.3
4-Ethyltoluene	ND		34		ug/m3 Air			09/16/15 08:43	17.3
Hexachlorobutadiene	ND		370		ug/m3 Air			09/16/15 08:43	17.3
2-Hexanone	ND		28		ug/m3 Air			09/16/15 08:43	17.3
Methylene Chloride	ND		24		ug/m3 Air			09/16/15 08:43	17.3
4-Methyl-2-pentanone (MIBK)	ND		28		ug/m3 Air			09/16/15 08:43	17.3
Styrene	ND		29		ug/m3 Air			09/16/15 08:43	17.3
1,1,2,2-Tetrachloroethane	ND		48		ug/m3 Air			09/16/15 08:43	17.3
Tetrachloroethene	3400		47		ug/m3 Air			09/16/15 08:43	17.3
Toluene	ND		26		ug/m3 Air			09/16/15 08:43	17.3
1,2,4-Trichlorobenzene	ND		260		ug/m3 Air			09/16/15 08:43	17.3
1,1,1-Trichloroethane	ND		28		ug/m3 Air			09/16/15 08:43	17.3
1,1,2-Trichloroethane	ND		38		ug/m3 Air			09/16/15 08:43	17.3
Trichloroethene	94		37		ug/m3 Air			09/16/15 08:43	17.3
Trichlorofluoromethane	ND		39		ug/m3 Air			09/16/15 08:43	17.3
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		53		ug/m3 Air			09/16/15 08:43	17.3
1,2,4-Trimethylbenzene	ND		68		ug/m3 Air			09/16/15 08:43	17.3
1,3,5-Trimethylbenzene	ND		34		ug/m3 Air			09/16/15 08:43	17.3
Vinyl acetate	ND		49		ug/m3 Air			09/16/15 08:43	17.3
Vinyl chloride	ND		18		ug/m3 Air			09/16/15 08:43	17.3
m,p-Xylene	ND		60		ug/m3 Air			09/16/15 08:43	17.3
o-Xylene	ND		30		ug/m3 Air			09/16/15 08:43	17.3

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		70 - 130		09/16/15 08:43	17.3
1,2-Dichloroethane-d4 (Surr)	115		70 - 130		09/16/15 08:43	17.3
Toluene-d8 (Surr)	97		70 - 130		09/16/15 08:43	17.3

TestAmerica Sacramento

Surrogate Summary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14716-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Matrix: Air

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (70-130)	12DCE (70-130)	TOL (70-130)
320-14716-1	SVE North	88	118	99
320-14716-2	SVE South Precarbon	85	119	103
320-14716-3	SVE South Postcarbon	91	115	97
LCS 320-86076/3	Lab Control Sample	113	113	100
LCSD 320-86076/24	Lab Control Sample Dup	122	125	104
MB 320-86076/6	Method Blank	79	100	99

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

12DCE = 1,2-Dichloroethane-d4 (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14716-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Lab Sample ID: MB 320-86076/6
Matrix: Air
Analysis Batch: 86076

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		5.0		ppb v/v			09/15/15 17:45	1
Benzene	ND		0.40		ppb v/v			09/15/15 17:45	1
Benzyl chloride	ND		0.80		ppb v/v			09/15/15 17:45	1
Bromodichloromethane	ND		0.30		ppb v/v			09/15/15 17:45	1
Bromoform	ND		0.40		ppb v/v			09/15/15 17:45	1
Bromomethane	ND		0.80		ppb v/v			09/15/15 17:45	1
2-Butanone (MEK)	ND		0.80		ppb v/v			09/15/15 17:45	1
Carbon disulfide	ND		0.80		ppb v/v			09/15/15 17:45	1
Carbon tetrachloride	ND		0.80		ppb v/v			09/15/15 17:45	1
Chlorobenzene	ND		0.30		ppb v/v			09/15/15 17:45	1
Dibromochloromethane	ND		0.40		ppb v/v			09/15/15 17:45	1
Chloroethane	ND		0.80		ppb v/v			09/15/15 17:45	1
Chloroform	ND		0.30		ppb v/v			09/15/15 17:45	1
Chloromethane	ND		0.80		ppb v/v			09/15/15 17:45	1
1,2-Dibromoethane (EDB)	ND		0.80		ppb v/v			09/15/15 17:45	1
1,2-Dichlorobenzene	ND		0.40		ppb v/v			09/15/15 17:45	1
1,3-Dichlorobenzene	ND		0.40		ppb v/v			09/15/15 17:45	1
1,4-Dichlorobenzene	ND		0.40		ppb v/v			09/15/15 17:45	1
Dichlorodifluoromethane	ND		0.40		ppb v/v			09/15/15 17:45	1
1,1-Dichloroethane	ND		0.30		ppb v/v			09/15/15 17:45	1
1,2-Dichloroethane	ND		0.80		ppb v/v			09/15/15 17:45	1
1,1-Dichloroethene	ND		0.80		ppb v/v			09/15/15 17:45	1
cis-1,2-Dichloroethene	ND		0.40		ppb v/v			09/15/15 17:45	1
trans-1,2-Dichloroethene	ND		0.40		ppb v/v			09/15/15 17:45	1
1,2-Dichloropropane	ND		0.40		ppb v/v			09/15/15 17:45	1
cis-1,3-Dichloropropene	ND		0.40		ppb v/v			09/15/15 17:45	1
trans-1,3-Dichloropropene	ND		0.40		ppb v/v			09/15/15 17:45	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40		ppb v/v			09/15/15 17:45	1
Ethylbenzene	ND		0.40		ppb v/v			09/15/15 17:45	1
4-Ethyltoluene	ND		0.40		ppb v/v			09/15/15 17:45	1
Hexachlorobutadiene	ND		2.0		ppb v/v			09/15/15 17:45	1
2-Hexanone	ND		0.40		ppb v/v			09/15/15 17:45	1
Methylene Chloride	ND		0.40		ppb v/v			09/15/15 17:45	1
4-Methyl-2-pentanone (MIBK)	ND		0.40		ppb v/v			09/15/15 17:45	1
Styrene	ND		0.40		ppb v/v			09/15/15 17:45	1
1,1,2,2-Tetrachloroethane	ND		0.40		ppb v/v			09/15/15 17:45	1
Tetrachloroethene	ND		0.40		ppb v/v			09/15/15 17:45	1
Toluene	ND		0.40		ppb v/v			09/15/15 17:45	1
1,2,4-Trichlorobenzene	ND		2.0		ppb v/v			09/15/15 17:45	1
1,1,1-Trichloroethane	ND		0.30		ppb v/v			09/15/15 17:45	1
1,1,2-Trichloroethane	ND		0.40		ppb v/v			09/15/15 17:45	1
Trichloroethene	ND		0.40		ppb v/v			09/15/15 17:45	1
Trichlorofluoromethane	ND		0.40		ppb v/v			09/15/15 17:45	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40		ppb v/v			09/15/15 17:45	1
1,2,4-Trimethylbenzene	ND		0.80		ppb v/v			09/15/15 17:45	1
1,3,5-Trimethylbenzene	ND		0.40		ppb v/v			09/15/15 17:45	1
Vinyl acetate	ND		0.80		ppb v/v			09/15/15 17:45	1
Vinyl chloride	ND		0.40		ppb v/v			09/15/15 17:45	1

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14716-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-86076/6
Matrix: Air
Analysis Batch: 86076

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
m,p-Xylene	ND		0.80		ppb v/v			09/15/15 17:45	1
o-Xylene	ND		0.40		ppb v/v			09/15/15 17:45	1
Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Acetone	ND		12		ug/m3 Air			09/15/15 17:45	1
Benzene	ND		1.3		ug/m3 Air			09/15/15 17:45	1
Benzyl chloride	ND		4.1		ug/m3 Air			09/15/15 17:45	1
Bromodichloromethane	ND		2.0		ug/m3 Air			09/15/15 17:45	1
Bromoform	ND		4.1		ug/m3 Air			09/15/15 17:45	1
Bromomethane	ND		3.1		ug/m3 Air			09/15/15 17:45	1
2-Butanone (MEK)	ND		2.4		ug/m3 Air			09/15/15 17:45	1
Carbon disulfide	ND		2.5		ug/m3 Air			09/15/15 17:45	1
Carbon tetrachloride	ND		5.0		ug/m3 Air			09/15/15 17:45	1
Chlorobenzene	ND		1.4		ug/m3 Air			09/15/15 17:45	1
Dibromochloromethane	ND		3.4		ug/m3 Air			09/15/15 17:45	1
Chloroethane	ND		2.1		ug/m3 Air			09/15/15 17:45	1
Chloroform	ND		1.5		ug/m3 Air			09/15/15 17:45	1
Chloromethane	ND		1.7		ug/m3 Air			09/15/15 17:45	1
1,2-Dibromoethane (EDB)	ND		6.1		ug/m3 Air			09/15/15 17:45	1
1,2-Dichlorobenzene	ND		2.4		ug/m3 Air			09/15/15 17:45	1
1,3-Dichlorobenzene	ND		2.4		ug/m3 Air			09/15/15 17:45	1
1,4-Dichlorobenzene	ND		2.4		ug/m3 Air			09/15/15 17:45	1
Dichlorodifluoromethane	ND		2.0		ug/m3 Air			09/15/15 17:45	1
1,1-Dichloroethane	ND		1.2		ug/m3 Air			09/15/15 17:45	1
1,2-Dichloroethane	ND		3.2		ug/m3 Air			09/15/15 17:45	1
1,1-Dichloroethene	ND		3.2		ug/m3 Air			09/15/15 17:45	1
cis-1,2-Dichloroethene	ND		1.6		ug/m3 Air			09/15/15 17:45	1
trans-1,2-Dichloroethene	ND		1.6		ug/m3 Air			09/15/15 17:45	1
1,2-Dichloropropane	ND		1.8		ug/m3 Air			09/15/15 17:45	1
cis-1,3-Dichloropropene	ND		1.8		ug/m3 Air			09/15/15 17:45	1
trans-1,3-Dichloropropene	ND		1.8		ug/m3 Air			09/15/15 17:45	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.8		ug/m3 Air			09/15/15 17:45	1
Ethylbenzene	ND		1.7		ug/m3 Air			09/15/15 17:45	1
4-Ethyltoluene	ND		2.0		ug/m3 Air			09/15/15 17:45	1
Hexachlorobutadiene	ND		21		ug/m3 Air			09/15/15 17:45	1
2-Hexanone	ND		1.6		ug/m3 Air			09/15/15 17:45	1
Methylene Chloride	ND		1.4		ug/m3 Air			09/15/15 17:45	1
4-Methyl-2-pentanone (MIBK)	ND		1.6		ug/m3 Air			09/15/15 17:45	1
Styrene	ND		1.7		ug/m3 Air			09/15/15 17:45	1
1,1,2,2-Tetrachloroethane	ND		2.7		ug/m3 Air			09/15/15 17:45	1
Tetrachloroethene	ND		2.7		ug/m3 Air			09/15/15 17:45	1
Toluene	ND		1.5		ug/m3 Air			09/15/15 17:45	1
1,2,4-Trichlorobenzene	ND		15		ug/m3 Air			09/15/15 17:45	1
1,1,1-Trichloroethane	ND		1.6		ug/m3 Air			09/15/15 17:45	1
1,1,2-Trichloroethane	ND		2.2		ug/m3 Air			09/15/15 17:45	1
Trichloroethene	ND		2.1		ug/m3 Air			09/15/15 17:45	1
Trichlorofluoromethane	ND		2.2		ug/m3 Air			09/15/15 17:45	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.1		ug/m3 Air			09/15/15 17:45	1

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14716-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-86076/6
Matrix: Air
Analysis Batch: 86076

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	ND		3.9		ug/m3 Air			09/15/15 17:45	1
1,3,5-Trimethylbenzene	ND		2.0		ug/m3 Air			09/15/15 17:45	1
Vinyl acetate	ND		2.8		ug/m3 Air			09/15/15 17:45	1
Vinyl chloride	ND		1.0		ug/m3 Air			09/15/15 17:45	1
m,p-Xylene	ND		3.5		ug/m3 Air			09/15/15 17:45	1
o-Xylene	ND		1.7		ug/m3 Air			09/15/15 17:45	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	79		70 - 130					09/15/15 17:45	1
1,2-Dichloroethane-d4 (Surr)	100		70 - 130					09/15/15 17:45	1
Toluene-d8 (Surr)	99		70 - 130					09/15/15 17:45	1

Lab Sample ID: LCS 320-86076/3
Matrix: Air
Analysis Batch: 86076

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	18.2		ppb v/v		91	71 - 131
Benzene	20.0	16.2		ppb v/v		81	68 - 128
Benzyl chloride	20.0	22.5		ppb v/v		113	58 - 120
Bromodichloromethane	20.0	17.9		ppb v/v		89	65 - 130
Bromoform	20.0	19.9		ppb v/v		100	64 - 144
Bromomethane	20.0	22.2		ppb v/v		111	70 - 131
2-Butanone (MEK)	20.0	16.5		ppb v/v		82	71 - 131
Carbon disulfide	20.0	17.0		ppb v/v		85	63 - 123
Carbon tetrachloride	20.0	18.1		ppb v/v		90	67 - 127
Chlorobenzene	20.0	19.2		ppb v/v		96	70 - 132
Dibromochloromethane	20.0	17.6		ppb v/v		88	68 - 128
Chloroethane	20.0	18.8		ppb v/v		94	70 - 131
Chloroform	20.0	18.1		ppb v/v		91	69 - 129
Chloromethane	20.0	20.6		ppb v/v		103	67 - 127
1,2-Dibromoethane (EDB)	20.0	17.8		ppb v/v		89	68 - 131
1,2-Dichlorobenzene	20.0	24.5		ppb v/v		123	73 - 143
1,3-Dichlorobenzene	20.0	24.6		ppb v/v		123	77 - 136
1,4-Dichlorobenzene	20.0	28.1		ppb v/v		140	73 - 143
Dichlorodifluoromethane	20.0	23.3		ppb v/v		116	69 - 129
1,1-Dichloroethane	20.0	17.3		ppb v/v		87	65 - 125
1,2-Dichloroethane	20.0	19.2		ppb v/v		96	71 - 131
1,1-Dichloroethene	20.0	17.7		ppb v/v		88	53 - 128
cis-1,2-Dichloroethene	20.0	16.9		ppb v/v		85	68 - 128
trans-1,2-Dichloroethene	20.0	17.7		ppb v/v		89	70 - 130
1,2-Dichloropropane	20.0	19.6		ppb v/v		98	74 - 128
cis-1,3-Dichloropropene	20.0	19.0		ppb v/v		95	78 - 132
trans-1,3-Dichloropropene	20.0	15.8		ppb v/v		79	56 - 136
1,2-Dichloro-1,1,2,2-tetrafluoroethane	20.0	22.8		ppb v/v		114	64 - 124
Ethylbenzene	20.0	20.1		ppb v/v		101	76 - 136
4-Ethyltoluene	20.0	22.0		ppb v/v		110	62 - 136

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14716-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-86076/3

Matrix: Air

Analysis Batch: 86076

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hexachlorobutadiene	20.0	20.4		ppb v/v		102	42 - 150
2-Hexanone	20.0	17.9		ppb v/v		89	70 - 128
Methylene Chloride	20.0	17.6		ppb v/v		88	65 - 125
4-Methyl-2-pentanone (MIBK)	20.0	18.3		ppb v/v		91	73 - 133
Styrene	20.0	23.3		ppb v/v		116	76 - 144
1,1,2,2-Tetrachloroethane	20.0	19.6		ppb v/v		98	75 - 135
Tetrachloroethene	20.0	17.7		ppb v/v		89	56 - 138
Toluene	20.0	17.7		ppb v/v		88	71 - 132
1,2,4-Trichlorobenzene	20.0	28.0		ppb v/v		140	59 - 150
1,1,1-Trichloroethane	20.0	18.9		ppb v/v		95	65 - 124
1,1,2-Trichloroethane	20.0	16.7		ppb v/v		83	71 - 131
Trichloroethene	20.0	17.7		ppb v/v		88	64 - 127
Trichlorofluoromethane	20.0	21.2		ppb v/v		106	68 - 128
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	16.4		ppb v/v		82	50 - 132
1,2,4-Trimethylbenzene	20.0	23.4		ppb v/v		117	61 - 145
1,3,5-Trimethylbenzene	20.0	22.2		ppb v/v		111	65 - 136
Vinyl acetate	20.0	17.5		ppb v/v		88	77 - 134
Vinyl chloride	20.0	23.2		ppb v/v		116	69 - 129
m,p-Xylene	40.0	43.5		ppb v/v		109	75 - 138
o-Xylene	20.0	22.6		ppb v/v		113	77 - 132

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	48	43.2		ug/m3 Air		91	71 - 131
Benzene	64	51.9		ug/m3 Air		81	68 - 128
Benzyl chloride	100	117		ug/m3 Air		113	58 - 120
Bromodichloromethane	130	120		ug/m3 Air		89	65 - 130
Bromoform	210	206		ug/m3 Air		100	64 - 144
Bromomethane	78	86.1		ug/m3 Air		111	70 - 131
2-Butanone (MEK)	59	48.6		ug/m3 Air		82	71 - 131
Carbon disulfide	62	52.9		ug/m3 Air		85	63 - 123
Carbon tetrachloride	130	114		ug/m3 Air		90	67 - 127
Chlorobenzene	92	88.4		ug/m3 Air		96	70 - 132
Dibromochloromethane	170	150		ug/m3 Air		88	68 - 128
Chloroethane	53	49.7		ug/m3 Air		94	70 - 131
Chloroform	98	88.4		ug/m3 Air		91	69 - 129
Chloromethane	41	42.5		ug/m3 Air		103	67 - 127
1,2-Dibromoethane (EDB)	150	137		ug/m3 Air		89	68 - 131
1,2-Dichlorobenzene	120	148		ug/m3 Air		123	73 - 143
1,3-Dichlorobenzene	120	148		ug/m3 Air		123	77 - 136
1,4-Dichlorobenzene	120	169		ug/m3 Air		140	73 - 143
Dichlorodifluoromethane	99	115		ug/m3 Air		116	69 - 129
1,1-Dichloroethane	81	70.1		ug/m3 Air		87	65 - 125
1,2-Dichloroethane	81	77.8		ug/m3 Air		96	71 - 131
1,1-Dichloroethene	79	70.1		ug/m3 Air		88	53 - 128
cis-1,2-Dichloroethene	79	67.2		ug/m3 Air		85	68 - 128
trans-1,2-Dichloroethene	79	70.2		ug/m3 Air		89	70 - 130
1,2-Dichloropropane	92	90.4		ug/m3 Air		98	74 - 128

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14716-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-86076/3

Matrix: Air

Analysis Batch: 86076

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,3-Dichloropropene	91	86.4		ug/m3 Air		95	78 - 132
trans-1,3-Dichloropropene	91	71.6		ug/m3 Air		79	56 - 136
1,2-Dichloro-1,1,2,2-tetrafluoroethane	140	159		ug/m3 Air		114	64 - 124
Ethylbenzene	87	87.5		ug/m3 Air		101	76 - 136
4-Ethyltoluene	98	108		ug/m3 Air		110	62 - 136
Hexachlorobutadiene	210	217		ug/m3 Air		102	42 - 150
2-Hexanone	82	73.2		ug/m3 Air		89	70 - 128
Methylene Chloride	69	61.1		ug/m3 Air		88	65 - 125
4-Methyl-2-pentanone (MIBK)	82	74.9		ug/m3 Air		91	73 - 133
Styrene	85	99.2		ug/m3 Air		116	76 - 144
1,1,2,2-Tetrachloroethane	140	134		ug/m3 Air		98	75 - 135
Tetrachloroethene	140	120		ug/m3 Air		89	56 - 138
Toluene	75	66.7		ug/m3 Air		88	71 - 132
1,2,4-Trichlorobenzene	150	208		ug/m3 Air		140	59 - 150
1,1,1-Trichloroethane	110	103		ug/m3 Air		95	65 - 124
1,1,2-Trichloroethane	110	90.9		ug/m3 Air		83	71 - 131
Trichloroethene	110	95.0		ug/m3 Air		88	64 - 127
Trichlorofluoromethane	110	119		ug/m3 Air		106	68 - 128
1,1,2-Trichloro-1,2,2-trifluoroethane	150	126		ug/m3 Air		82	50 - 132
1,2,4-Trimethylbenzene	98	115		ug/m3 Air		117	61 - 145
1,3,5-Trimethylbenzene	98	109		ug/m3 Air		111	65 - 136
Vinyl acetate	70	61.7		ug/m3 Air		88	77 - 134
Vinyl chloride	51	59.2		ug/m3 Air		116	69 - 129
m,p-Xylene	170	189		ug/m3 Air		109	75 - 138
o-Xylene	87	98.1		ug/m3 Air		113	77 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	113		70 - 130
1,2-Dichloroethane-d4 (Surr)	113		70 - 130
Toluene-d8 (Surr)	100		70 - 130

Lab Sample ID: LCSD 320-86076/24

Matrix: Air

Analysis Batch: 86076

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	20.0	18.8		ppb v/v		94	71 - 131	3	25
Benzene	20.0	16.3		ppb v/v		82	68 - 128	1	25
Benzyl chloride	20.0	22.6		ppb v/v		113	58 - 120	1	25
Bromodichloromethane	20.0	18.6		ppb v/v		93	65 - 130	4	25
Bromoform	20.0	19.9		ppb v/v		100	64 - 144	0	25
Bromomethane	20.0	23.4		ppb v/v		117	70 - 131	5	25
2-Butanone (MEK)	20.0	15.9		ppb v/v		79	71 - 131	4	25
Carbon disulfide	20.0	16.3		ppb v/v		81	63 - 123	4	25
Carbon tetrachloride	20.0	19.1		ppb v/v		96	67 - 127	6	25
Chlorobenzene	20.0	18.8		ppb v/v		94	70 - 132	2	25

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14716-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-86076/24

Matrix: Air

Analysis Batch: 86076

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dibromochloromethane	20.0	17.7		ppb v/v		88	68 - 128	0	25
Chloroethane	20.0	19.5		ppb v/v		97	70 - 131	3	25
Chloroform	20.0	17.6		ppb v/v		88	69 - 129	3	25
Chloromethane	20.0	21.8		ppb v/v		109	67 - 127	6	25
1,2-Dibromoethane (EDB)	20.0	17.2		ppb v/v		86	68 - 131	4	25
1,2-Dichlorobenzene	20.0	24.7		ppb v/v		124	73 - 143	1	25
1,3-Dichlorobenzene	20.0	24.5		ppb v/v		123	77 - 136	0	25
1,4-Dichlorobenzene	20.0	27.6		ppb v/v		138	73 - 143	2	25
Dichlorodifluoromethane	20.0	24.5		ppb v/v		122	69 - 129	5	25
1,1-Dichloroethane	20.0	16.8		ppb v/v		84	65 - 125	3	25
1,2-Dichloroethane	20.0	20.4		ppb v/v		102	71 - 131	6	25
1,1-Dichloroethene	20.0	17.5		ppb v/v		87	53 - 128	1	25
cis-1,2-Dichloroethene	20.0	16.4		ppb v/v		82	68 - 128	3	25
trans-1,2-Dichloroethene	20.0	17.2		ppb v/v		86	70 - 130	3	25
1,2-Dichloropropane	20.0	20.4		ppb v/v		102	74 - 128	4	25
cis-1,3-Dichloropropene	20.0	19.3		ppb v/v		97	78 - 132	1	25
trans-1,3-Dichloropropene	20.0	15.8		ppb v/v		79	56 - 136	0	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	20.0	23.4		ppb v/v		117	64 - 124	2	25
Ethylbenzene	20.0	20.0		ppb v/v		100	76 - 136	1	25
4-Ethyltoluene	20.0	22.3		ppb v/v		112	62 - 136	1	25
Hexachlorobutadiene	20.0	20.7		ppb v/v		104	42 - 150	2	25
2-Hexanone	20.0	17.3		ppb v/v		87	70 - 128	3	25
Methylene Chloride	20.0	17.0		ppb v/v		85	65 - 125	4	25
4-Methyl-2-pentanone (MIBK)	20.0	18.5		ppb v/v		93	73 - 133	1	25
Styrene	20.0	23.3		ppb v/v		116	76 - 144	0	25
1,1,1,2-Tetrachloroethane	20.0	19.0		ppb v/v		95	75 - 135	3	25
Tetrachloroethene	20.0	17.4		ppb v/v		87	56 - 138	2	25
Toluene	20.0	18.1		ppb v/v		90	71 - 132	2	25
1,2,4-Trichlorobenzene	20.0	28.0		ppb v/v		140	59 - 150	0	25
1,1,1-Trichloroethane	20.0	18.9		ppb v/v		95	65 - 124	0	25
1,1,2-Trichloroethane	20.0	16.4		ppb v/v		82	71 - 131	2	25
Trichloroethene	20.0	17.5		ppb v/v		87	64 - 127	1	25
Trichlorofluoromethane	20.0	22.3		ppb v/v		112	68 - 128	5	25
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	16.2		ppb v/v		81	50 - 132	1	25
1,2,4-Trimethylbenzene	20.0	23.7		ppb v/v		119	61 - 145	2	25
1,3,5-Trimethylbenzene	20.0	22.4		ppb v/v		112	65 - 136	1	25
Vinyl acetate	20.0	16.8		ppb v/v		84	77 - 134	4	25
Vinyl chloride	20.0	24.8		ppb v/v		124	69 - 129	7	25
m,p-Xylene	40.0	43.8		ppb v/v		110	75 - 138	1	25
o-Xylene	20.0	22.5		ppb v/v		112	77 - 132	0	25
Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	48	44.6		ug/m3 Air		94	71 - 131	3	25
Benzene	64	52.2		ug/m3 Air		82	68 - 128	1	25
Benzyl chloride	100	117		ug/m3 Air		113	58 - 120	1	25
Bromodichloromethane	130	125		ug/m3 Air		93	65 - 130	4	25
Bromoform	210	206		ug/m3 Air		100	64 - 144	0	25

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14716-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-86076/24

Matrix: Air

Analysis Batch: 86076

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromomethane	78	90.9		ug/m3 Air		117	70 - 131	5	25
2-Butanone (MEK)	59	46.8		ug/m3 Air		79	71 - 131	4	25
Carbon disulfide	62	50.7		ug/m3 Air		81	63 - 123	4	25
Carbon tetrachloride	130	120		ug/m3 Air		96	67 - 127	6	25
Chlorobenzene	92	86.6		ug/m3 Air		94	70 - 132	2	25
Dibromochloromethane	170	150		ug/m3 Air		88	68 - 128	0	25
Chloroethane	53	51.4		ug/m3 Air		97	70 - 131	3	25
Chloroform	98	86.1		ug/m3 Air		88	69 - 129	3	25
Chloromethane	41	45.1		ug/m3 Air		109	67 - 127	6	25
1,2-Dibromoethane (EDB)	150	132		ug/m3 Air		86	68 - 131	4	25
1,2-Dichlorobenzene	120	149		ug/m3 Air		124	73 - 143	1	25
1,3-Dichlorobenzene	120	147		ug/m3 Air		123	77 - 136	0	25
1,4-Dichlorobenzene	120	166		ug/m3 Air		138	73 - 143	2	25
Dichlorodifluoromethane	99	121		ug/m3 Air		122	69 - 129	5	25
1,1-Dichloroethane	81	68.2		ug/m3 Air		84	65 - 125	3	25
1,2-Dichloroethane	81	82.6		ug/m3 Air		102	71 - 131	6	25
1,1-Dichloroethene	79	69.3		ug/m3 Air		87	53 - 128	1	25
cis-1,2-Dichloroethene	79	65.0		ug/m3 Air		82	68 - 128	3	25
trans-1,2-Dichloroethene	79	68.4		ug/m3 Air		86	70 - 130	3	25
1,2-Dichloropropane	92	94.3		ug/m3 Air		102	74 - 128	4	25
cis-1,3-Dichloropropene	91	87.7		ug/m3 Air		97	78 - 132	1	25
trans-1,3-Dichloropropene	91	71.8		ug/m3 Air		79	56 - 136	0	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	140	163		ug/m3 Air		117	64 - 124	2	25
Ethylbenzene	87	86.9		ug/m3 Air		100	76 - 136	1	25
4-Ethyltoluene	98	110		ug/m3 Air		112	62 - 136	1	25
Hexachlorobutadiene	210	221		ug/m3 Air		104	42 - 150	2	25
2-Hexanone	82	70.9		ug/m3 Air		87	70 - 128	3	25
Methylene Chloride	69	59.0		ug/m3 Air		85	65 - 125	4	25
4-Methyl-2-pentanone (MIBK)	82	76.0		ug/m3 Air		93	73 - 133	1	25
Styrene	85	99.2		ug/m3 Air		116	76 - 144	0	25
1,1,2,2-Tetrachloroethane	140	130		ug/m3 Air		95	75 - 135	3	25
Tetrachloroethene	140	118		ug/m3 Air		87	56 - 138	2	25
Toluene	75	68.1		ug/m3 Air		90	71 - 132	2	25
1,2,4-Trichlorobenzene	150	208		ug/m3 Air		140	59 - 150	0	25
1,1,1-Trichloroethane	110	103		ug/m3 Air		95	65 - 124	0	25
1,1,2-Trichloroethane	110	89.5		ug/m3 Air		82	71 - 131	2	25
Trichloroethene	110	93.9		ug/m3 Air		87	64 - 127	1	25
Trichlorofluoromethane	110	125		ug/m3 Air		112	68 - 128	5	25
1,1,2-Trichloro-1,2,2-trifluoroethane	150	124		ug/m3 Air		81	50 - 132	1	25
1,2,4-Trimethylbenzene	98	117		ug/m3 Air		119	61 - 145	2	25
1,3,5-Trimethylbenzene	98	110		ug/m3 Air		112	65 - 136	1	25
Vinyl acetate	70	59.0		ug/m3 Air		84	77 - 134	4	25
Vinyl chloride	51	63.5		ug/m3 Air		124	69 - 129	7	25
m,p-Xylene	170	190		ug/m3 Air		110	75 - 138	1	25
o-Xylene	87	97.7		ug/m3 Air		112	77 - 132	0	25

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14716-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-86076/24

Matrix: Air

Analysis Batch: 86076

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	122		70 - 130
1,2-Dichloroethane-d4 (Surr)	125		70 - 130
Toluene-d8 (Surr)	104		70 - 130

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QC Association Summary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14716-1

Air - GC/MS VOA

Analysis Batch: 86076

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-14716-1	SVE North	Total/NA	Air	TO-15	
320-14716-2	SVE South Precarbon	Total/NA	Air	TO-15	
320-14716-3	SVE South Postcarbon	Total/NA	Air	TO-15	
LCS 320-86076/3	Lab Control Sample	Total/NA	Air	TO-15	
LCSD 320-86076/24	Lab Control Sample Dup	Total/NA	Air	TO-15	
MB 320-86076/6	Method Blank	Total/NA	Air	TO-15	

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Lab Chronicle

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14716-1

Client Sample ID: SVE North

Date Collected: 08/31/15 11:35

Date Received: 09/02/15 09:30

Lab Sample ID: 320-14716-1

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		20.5	20 mL	250 mL	86076	09/16/15 02:49	AP1	TAL SAC

Client Sample ID: SVE South Precarbon

Date Collected: 08/31/15 11:06

Date Received: 09/02/15 09:30

Lab Sample ID: 320-14716-2

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		52.4	10 mL	250 mL	86076	09/16/15 03:46	AP1	TAL SAC

Client Sample ID: SVE South Postcarbon

Date Collected: 08/31/15 11:11

Date Received: 09/02/15 09:30

Lab Sample ID: 320-14716-3

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		17.3	25 mL	250 mL	86076	09/16/15 08:43	AP1	TAL SAC

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Certification Summary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14716-1

Laboratory: TestAmerica Sacramento

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	01-31-16
Alaska (UST)	State Program	10	UST-055	12-18-15
Arizona	State Program	9	AZ0708	08-11-16
Arkansas DEQ	State Program	6	88-0691	06-17-16
California	State Program	9	2897	01-31-16
Colorado	State Program	8	N/A	08-31-16
Connecticut	State Program	1	PH-0691	06-30-17
Florida	NELAP	4	E87570	06-30-16
Hawaii	State Program	9	N/A	01-29-16
Illinois	NELAP	5	200060	03-17-16
Kansas	NELAP	7	E-10375	10-31-15
Louisiana	NELAP	6	30612	06-30-16
Michigan	State Program	5	9947	01-31-16
Nevada	State Program	9	CA44	07-31-16
New Jersey	NELAP	2	CA005	09-30-15
New York	NELAP	2	11666	04-01-16
Oregon	NELAP	10	CA200005	01-29-16
Pennsylvania	NELAP	3	9947	03-31-16
Texas	NELAP	6	T104704399-15-9	05-31-16
US Fish & Wildlife	Federal		LE148388-0	02-28-16
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-16
Utah	NELAP	8	QUAN1	02-28-16
Virginia	NELAP Secondary AB	3	460278	03-14-16
Washington	State Program	10	C581	05-04-16
West Virginia (DW)	State Program	3	9930C	12-31-15
Wyoming	State Program	8	8TMS-Q	01-29-16

Laboratory: TestAmerica Portland

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-012	12-26-15
California	State Program	9	2597	09-30-15
Oregon	NELAP	10	OR100021	01-09-16
USDA	Federal		P330-11-00092	04-17-17

Method Summary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14716-1

Method	Method Description	Protocol	Laboratory
TO-15	Volatile Organic Compounds in Ambient Air	EPA	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

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Sample Summary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-14716-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-14716-1	SVE North	Air	08/31/15 11:35	09/02/15 09:30
320-14716-2	SVE South Precarbon	Air	08/31/15 11:06	09/02/15 09:30
320-14716-3	SVE South Postcarbon	Air	08/31/15 11:11	09/02/15 09:30

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TestAmerica Sacramento
880 Riverside Parkway

West Sacramento, CA 95605
phone 916.374.4378 fax 916.372.1058

Canister Samples Chain of Custody Record

TestAmerica Laboratories, Inc. assumes no liability with respect to the collection and shipment of these samples

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact Information		Project Manager: S. Salisbury		Samples Collected By: B. Strellis		COC No. _____ of _____ COCs																									
Company Name: Apex Companies		Phone: 509-307-3835		For Lab Use Only: Walk-in Client Lab Sampling		Job / SDG No. _____ (See below for Add'l Items)																									
Address: 3015 SW 1st Ave		Email: ssalisbury@apexcos.com		Other (Please specify in notes section)		Sample Specific Notes:																									
City/State/Zip: Portland OR 97201		Site Contact: _____		Landfill Gas		X SVE gas																									
Phone: 503-924-4704		TA Contact: _____		Soil Gas		X SVE gas																									
Project Name: Nustar Vancouver OTH		Analysis Turnaround Time		Ambient Air		X SVE gas																									
Site/Location: Nustar Vancouver		Standard (Specify) X		Indoor Air																											
P O # _____		Rush (Specify) _____		Other (Please specify in notes section)																											
Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, 'Hg (Start)'	Canister Vacuum in Field, 'Hg (Stop)'	Flow/Canister ID	Canister ID																								
	8/31/15	1134	1135	-30	-2	3400894																									
	8/31/15	1105	1106	-30	-7	7908																									
	8/31/15	1110	1111	-30	-3	3400393																									
<table border="1"> <tr> <td colspan="4">Temperature (Fahrenheit)</td> <td colspan="4">Temperature (Fahrenheit)</td> </tr> <tr> <td>Start</td> <td>Interior</td> <td>Stop</td> <td>Ambient</td> <td>Start</td> <td>Interior</td> <td>Stop</td> <td>Ambient</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>								Temperature (Fahrenheit)				Temperature (Fahrenheit)				Start	Interior	Stop	Ambient	Start	Interior	Stop	Ambient								
Temperature (Fahrenheit)				Temperature (Fahrenheit)																											
Start	Interior	Stop	Ambient	Start	Interior	Stop	Ambient																								



Special Instructions/QC Requirements & Comments:

Email results to ssalisbury@apexcos.com

Samples Shipped by: B Strellis	Date / Time: 8/31/15 1300	Samples Received by: Michelle Mc Apr	Date / Time: 9/1/15 0906
Samples Relinquished by: B Strellis	Date / Time: 8/31/15 1300	Received by:	
Relinquished by: Jessica Apr	Date / Time: 8/31/15 1120	Received by: M. L.	Date / Time: 9/1/15 @ 1120

Released: **M. L.** 9/1/15 @ 1700
J. Sella 9/2/15 9:30

Form No. CA-C-WI-003, Rev. 1, dated 05/10/2013



JOB # **320-14716**
 Sample # **1**

Client/Project:		VFR ID:	
Canister Serial #:	34000894	Duration:	<input type="checkbox"/> Hrs <input type="checkbox"/> Min
Cleaning Job:		Flow:	mL/min
Client ID:		Initials:	
Site Location:			

FIELD				
READING	TIME	PRESS.	DATE	INITIALS
INITIAL FIELD VACUUM				
FINAL FIELD READING				

LABORATORY				
READING	PRESS.	DATE	INITIALS	
INITIAL VACUUM CHECK (INCHES Hg)			JMT	
<input type="checkbox"/> Helium Pre-dilution - Final Pressure (INCHES Hg)				
INITIAL PRESSURE (PSIA)	13.85	09/08/15	srs	
FINAL PRESSURE (PSIA)	22.70	09/08/15	srs	
Pressurization Gas: <input type="checkbox"/> N2 <input type="checkbox"/> He	SCREENED <input type="checkbox"/>	SCRN DIL. VS 250mLs:		
Initial Canister Dilution Factor =	1.64			

CANISTER REPRESSURIZATION					
Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
			1.64		#DIV/0!
			#DIV/0!		#DIV/0!
			#DIV/0!		#DIV/0!

Analytical Dilution Factors						
	Date	Instr.	File #			
Canister DF = 1.64 X	9/11/2015	MS7		=	FINAL DF	20.48736462
	Load DF = 12.5 X					
	LVf (mLs) 250					
	LVi (mLs) 20					
Canister DF = 1.64 X	9/15/2015	MS7		=	FINAL DF	20.48736462
	Load DF = 12.5 X					
	LVf (mLs) 250					
	LVi (mLs) 20					
Canister DF = 1.64 X				=	FINAL DF	#DIV/0!
	Load DF = #DIV/0! X					
	LVf (mLs)					
	LVi (mLs)					



JOB # **320-14716**
 Sample # **2**

Client/Project:		VFR ID:	
Canister Serial #:	7908	Duration:	<input type="checkbox"/> Hrs <input type="checkbox"/> Min
Cleaning Job:		Flow:	mL/min
Client ID:		Initials:	
Site Location:			

FIELD				
READING	TIME	PRESS.	DATE	INITIALS
INITIAL FIELD VACUUM				
FINAL FIELD READING				

LABORATORY				
READING	PRESS.	DATE	INITIALS	
INITIAL VACUUM CHECK (INCHES Hg)			JMT	
<input type="checkbox"/> Helium Pre-dilution - Final Pressure (INCHES Hg)				
INITIAL PRESSURE (PSIA)	10.82	09/08/15	srs	
FINAL PRESSURE (PSIA)	22.70	09/08/15	srs	
Pressurization Gas: <input type="checkbox"/> N2 <input type="checkbox"/> He	SCREENED <input type="checkbox"/>	SCRN DIL. VS 250mLs:		
Initial Canister Dilution Factor =	2.10			

CANISTER REPRESSURIZATION					
Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
			2.10		#DIV/0!
			#DIV/0!		#DIV/0!
			#DIV/0!		#DIV/0!

Analytical Dilution Factors							
	Date	Instr.	File #				
Canister DF = 2.10 X	9/11/2015	MS7		=	FINAL DF	52.44916821	
	Load DF = 8.3333333 X				Bag DF = 3		
	LVf (mLs) 250				BVf (mLs) 3		
	LVi (mLs) 30				Bvi (mLs) 1		
Canister DF = 2.10 X	9/15/2015	MS7		=	FINAL DF	52.44916821	
	Load DF = 8.3333333 X				Bag DF = 3		
	LVf (mLs) 250				BVf (mLs) 3		
	LVi (mLs) 30				Bvi (mLs) 1		
Canister DF = 2.10 X				=	FINAL DF	#DIV/0!	
	Load DF = #DIV/0! X				Bag DF = 1		
	LVf (mLs)				BVf (mLs)		
	LVi (mLs)				Bvi (mLs)		



JOB # **320-14716**
 Sample # **3**

Client/Project:		VFR ID:	
Canister Serial #:	34000393	Duration:	<input type="checkbox"/> Hrs <input type="checkbox"/> Min
Cleaning Job:		Flow:	mL/min
Client ID:		Initials:	
Site Location:			

FIELD				
READING	TIME	PRESS.	DATE	INITIALS
INITIAL FIELD VACUUM				
FINAL FIELD READING				

LABORATORY				
READING	PRESS.	DATE	INITIALS	
INITIAL VACUUM CHECK (INCHES Hg)			JMT	
<input type="checkbox"/> Helium Pre-dilution - Final Pressure (INCHES Hg)				
INITIAL PRESSURE (PSIA)	13.14	09/08/15	srs	
FINAL PRESSURE (PSIA)	22.70	09/08/15	srs	
Pressurization Gas: <input type="checkbox"/> N2 <input type="checkbox"/> He	SCREENED <input type="checkbox"/>	SCRN DIL. VS 250mLs:		
Initial Canister Dilution Factor =	1.73			

CANISTER REPRESSURIZATION					
Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
			1.73		#DIV/0!
			#DIV/0!		#DIV/0!
			#DIV/0!		#DIV/0!

Analytical Dilution Factors						
	Date	Instr.	File #			
Canister DF = 1.73 X	9/11/2015	MS7		=	FINAL DF	17.27549467
	Load DF = 10 X					
	LVf (mLs) 250					
	LVi (mLs) 25					
Canister DF = 1.73 X	9/15/2015	MS7		=	FINAL DF	17.27549467
	Load DF = 10 X					
	LVf (mLs) 250					
	LVi (mLs) 25					
Canister DF = 1.73 X	9/16/2015	MS7		=	FINAL DF	17.27549467
	Load DF = 10 X					
	LVf (mLs) 250					
	LVi (mLs) 25					



Login Sample Receipt Checklist

Client: Apex Companies LLC

Job Number: 320-14716-1

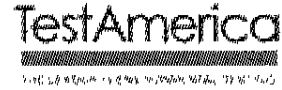
Login Number: 14716
List Number: 1
Creator: Nelson, Kym D

List Source: TestAmerica Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	N/A	
Cooler Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



CANISTER QC CERTIFICATION

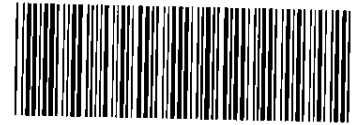


Certification Type: TO-15 SCAN (GL)

Date Cleaned/Batch ID D072015 320-14181

Date of QC 7/31/15

Data File Number 15073117



320-14181 Chain of Custody

CANISTER ID NUMBERS

* <u>34001082</u>	<u>34000187</u>	_____
<u>1332</u>	<u>0425</u>	_____
<u>0406</u>	<u>0015</u>	_____
<u>0614</u>	<u>8011</u>	_____
<u>1326</u>	_____	_____
<u>1309</u>	_____	_____
<u>0393</u>	_____	_____
<u>1424</u>	_____	_____

The above canisters were cleaned as a batch. This certifies this batch contains no target analyte concentration greater than or equal to the method criteria for the "Certification Type" indicated above.

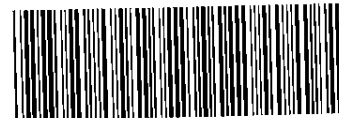
"*" INDICATES THE CAN OR CANS WHICH WERE SCREENED.

[Signature]
1st level Reviewed By:

8/3/15
Date:

[Signature]
2nd level Reviewed By:

8/3/15
Date:



320-14356 Chain of Custody

CANISTER QC CERTIFICATION

testAmerica

3001 S. 17th St. Suite 100, Lincoln, NE 68502

Certification Type: TO-15 SCAN

Date Cleaned/Batch ID 8/7/15 320-14356

Date of QC 08/17/15

Data File Number 15 081722

CANISTER ID NUMBERS

<u>34000482</u>	<u>8296 *</u>	_____
<u>0491</u>	<u>7960</u>	_____
<u>0894</u>	<u>7908</u>	_____
<u>1557</u>	<u>7755</u>	_____
<u>0291</u>	_____	_____
<u>0310</u>	_____	_____
<u>1249</u>	_____	_____
<u>1258</u>	_____	_____

The above canisters were cleaned as a batch. This certifies this batch contains no target analyte concentration greater than or equal to the method criteria for the "Certification Type" indicated above.

"*" INDICATES THE CAN OR CANS WHICH WERE SCREENED.

[Signature]
1st level Reviewed By:

8/18/15
Date:

[Signature]
2nd level Reviewed By:

8/19/15
Date:



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-14181-1
 SDG No.: _____
 Client Sample ID: 34001082 Lab Sample ID: 320-14181-1
 Matrix: Air Lab File ID: 15073117.D
 Analysis Method: TO-15 Date Collected: 07/20/2015 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 07/31/2015 22:42
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-Volatiles ID: 0.32 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 81452 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
67-64-1	Acetone	0.35	J	5.0	0.18
107-02-8	Acrolein	ND		2.0	0.22
107-13-1	Acrylonitrile	ND		2.0	0.19
107-05-1	Allyl chloride	ND		0.80	0.11
71-43-2	Benzene	ND		0.40	0.079
100-44-7	Benzyl chloride	ND		0.80	0.16
75-27-4	Bromodichloromethane	ND		0.30	0.066
75-25-2	Bromoform	ND		0.40	0.070
74-83-9	Bromomethane	ND		0.80	0.34
106-99-0	1,3-Butadiene	ND		0.80	0.15
106-97-8	n-Butane	ND		0.40	0.15
78-93-3	2-Butanone (MEK)	ND		0.80	0.20
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0	0.11
104-51-8	n-Butylbenzene	ND		0.40	0.18
135-98-8	sec-Butylbenzene	ND		0.40	0.070
98-06-6	tert-Butylbenzene	ND		0.80	0.068
75-15-0	Carbon disulfide	ND		0.80	0.078
56-23-5	Carbon tetrachloride	ND		0.80	0.064
108-90-7	Chlorobenzene	ND		0.30	0.064
75-45-6	Chlorodifluoromethane	ND		0.80	0.11
75-00-3	Chloroethane	ND		0.80	0.31
67-66-3	Chloroform	ND		0.30	0.095
74-87-3	Chloromethane	ND		0.80	0.20
95-49-8	2-Chlorotoluene	ND		0.40	0.080
110-82-7	Cyclohexane	ND		0.40	0.084
124-48-1	Dibromochloromethane	ND		0.40	0.079
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80	0.075
74-95-3	Dibromomethane	ND		0.40	0.057
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40	0.16
95-50-1	1,2-Dichlorobenzene	ND		0.40	0.13
541-73-1	1,3-Dichlorobenzene	ND		0.40	0.11
106-46-7	1,4-Dichlorobenzene	ND		0.40	0.15
75-71-8	Dichlorodifluoromethane	ND		0.40	0.15
75-34-3	1,1-Dichloroethane	ND		0.30	0.072
107-06-2	1,2-Dichloroethane	ND		0.80	0.088

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-14181-1
 SDG No.: _____
 Client Sample ID: 34001082 Lab Sample ID: 320-14181-1
 Matrix: Air Lab File ID: 15073117.D
 Analysis Method: TO-15 Date Collected: 07/20/2015 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 07/31/2015 22:42
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-Volatiles ID: 0.32 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 81452 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	ND		0.80	0.13
156-59-2	cis-1,2-Dichloroethene	ND		0.40	0.089
156-60-5	trans-1,2-Dichloroethene	ND		0.40	0.10
78-87-5	1,2-Dichloropropane	ND		0.40	0.24
10061-01-5	cis-1,3-Dichloropropene	ND		0.40	0.10
10061-02-6	trans-1,3-Dichloropropene	ND		0.40	0.088
123-91-1	1,4-Dioxane	ND		0.80	0.10
141-78-6	Ethyl acetate	ND		0.30	0.18
100-41-4	Ethylbenzene	ND		0.40	0.063
622-96-8	4-Ethyltoluene	ND		0.40	0.19
142-82-5	n-Heptane	ND		0.80	0.063
87-68-3	Hexachlorobutadiene	ND		2.0	0.43
110-54-3	n-Hexane	ND		0.80	0.075
591-78-6	2-Hexanone	ND		0.40	0.087
98-82-8	Isopropylbenzene	ND		0.80	0.10
99-87-6	4-Isopropyltoluene	ND		0.80	0.12
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80	0.050
80-62-6	Methyl methacrylate	ND		0.80	0.16
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40	0.14
75-09-2	Methylene Chloride	ND		0.40	0.072
98-83-9	alpha-Methylstyrene	ND		0.40	0.065
91-20-3	Naphthalene	ND		0.80	0.56
111-65-9	n-Octane	ND		0.40	0.055
109-66-0	n-Pentane	ND		0.80	0.26
115-07-1	Propylene	0.13	J B	0.40	0.099
103-65-1	N-Propylbenzene	ND		0.40	0.059
100-42-5	Styrene	ND		0.40	0.059
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40	0.069
127-18-4	Tetrachloroethene	ND		0.40	0.051
109-99-9	Tetrahydrofuran	ND		0.80	0.079
108-88-3	Toluene	ND		0.40	0.051
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.16
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.43
71-55-6	1,1,1-Trichloroethane	ND		0.30	0.065
79-00-5	1,1,2-Trichloroethane	ND		0.40	0.067

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-14181-1
 SDG No.: _____
 Client Sample ID: 34001082 Lab Sample ID: 320-14181-1
 Matrix: Air Lab File ID: 15073117.D
 Analysis Method: TO-15 Date Collected: 07/20/2015 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 07/31/2015 22:42
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-Volatiles ID: 0.32 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 81452 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.40	0.11
75-69-4	Trichlorofluoromethane	ND		0.40	0.20
96-18-4	1,2,3-Trichloropropane	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	ND		0.80	0.16
108-67-8	1,3,5-Trimethylbenzene	ND		0.40	0.13
540-84-1	2,2,4-Trimethylpentane	ND		0.40	0.071
108-05-4	Vinyl acetate	ND		0.80	0.15
593-60-2	Vinyl bromide	ND		0.80	0.26
75-01-4	Vinyl chloride	ND		0.40	0.12
179601-23-1	m,p-Xylene	ND		0.80	0.10
95-47-6	o-Xylene	ND		0.40	0.054

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	96		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	108		70-130
2037-26-5	Toluene-d8 (Surr)	94		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS2\20150731-23856.b\15073117.D
 Lims ID: 320-14181-A-1 Lab Sample ID: 320-14181-1
 Client ID: 34001082
 Sample Type: Client
 Inject. Date: 31-Jul-2015 22:42:30 ALS Bottle#: 8 Worklist Smp#: 25
 Purge Vol: 250.000 mL Dil. Factor: 1.0000
 Sample Info: 320-14181-A-1
 Misc. Info.: 500mL
 Operator ID: SRS Instrument ID: ATMS2
 Method: \\ChromNA\Sacramento\ChromData\ATMS2\20150731-23856.b\TO15_ATMS2N.m
 Limit Group: MSA - TO15 - ICAL
 Last Update: 03-Aug-2015 14:05:10 Calib Date: 11-Jun-2015 07:16:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS2\20150610-22452.b\15061026.D
 Column 1 : RTX Volatiles (0.32 mm) Det: MS SCAN
 Process Host: XAWRK008

First Level Reviewer: ortizam Date: 03-Aug-2015 14:05:10

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	10.236	10.236	0.000	93	50296	4.00	
* 2 1,4-Difluorobenzene	114	11.581	11.587	-0.006	95	199472	4.00	
* 3 Chlorobenzene-d5 (IS)	117	15.888	15.888	0.000	88	166885	4.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	10.997	10.997	0.000	95	75473	4.31	
\$ 5 Toluene-d8 (Surr)	100	13.759	13.759	0.000	98	110383	3.76	
\$ 6 4-Bromofluorobenzene (Surr	174	17.640	17.640	0.000	93	100361	3.84	
14 Propene	41	4.116	4.122	-0.006	26	1610	0.1318	
31 Acetone	43	6.951	6.903	0.048	85	6406	0.3548	

Reagents:

VASUISIM_00195 Amount Added: 50.00 Units: mL Run Reagent

Data File: \\ChromNA\Sacramento\ChromData\ATMS2\20150731-23856.b\15073117.D

Injection Date: 31-Jul-2015 22:42:30

Instrument ID: ATMS2

Operator ID: SRS

Lims ID: 320-14181-A-1

Lab Sample ID: 320-14181-1

Worklist Smp#: 25

Client ID: 34001082

Purge Vol: 250.000 mL

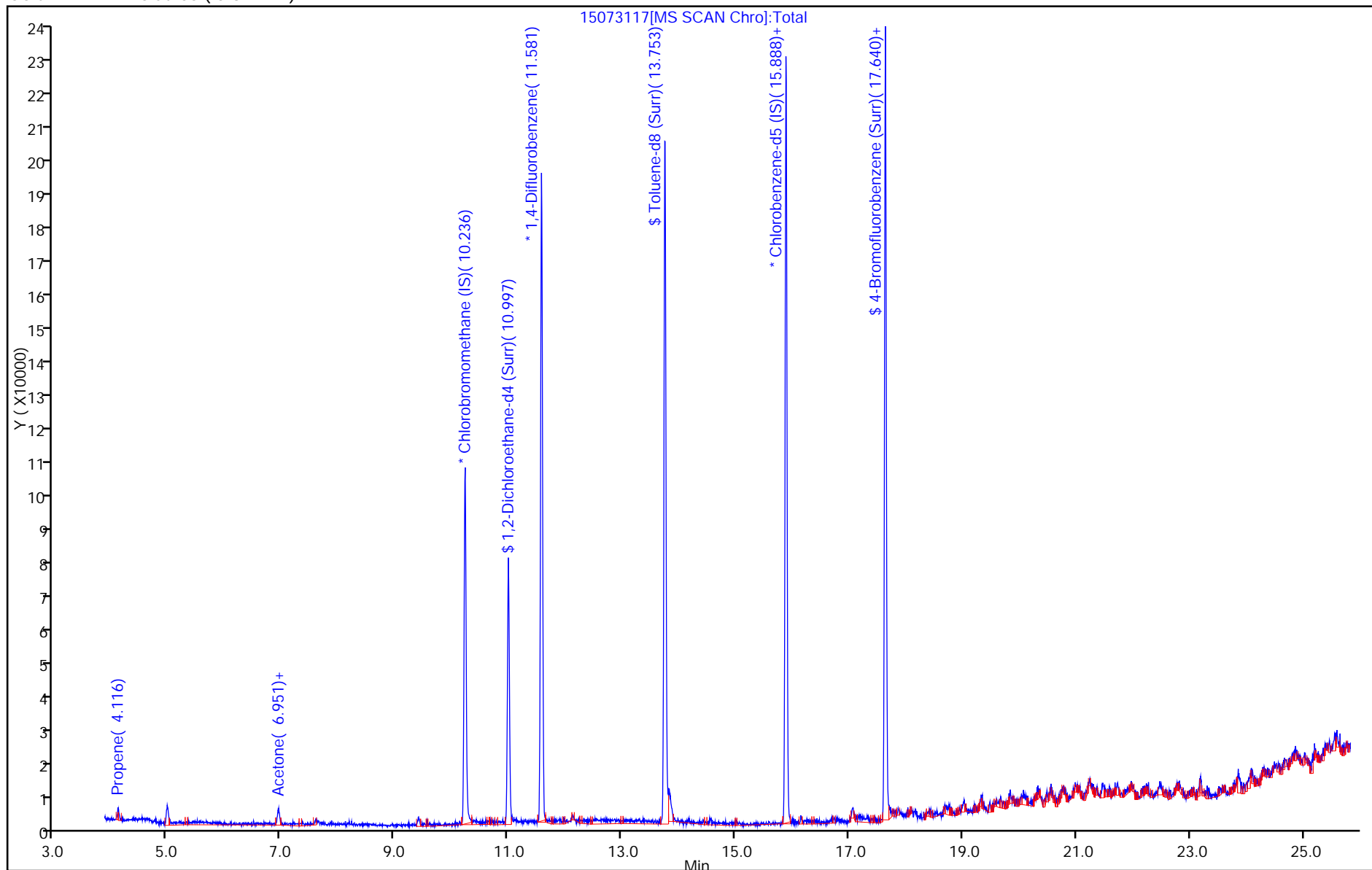
Dil. Factor: 1.0000

ALS Bottle#: 8

Method: TO15_ATMS2N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS2\20150731-23856.b\15073117.D

Injection Date: 31-Jul-2015 22:42:30

Instrument ID: ATMS2

Lims ID: 320-14181-A-1

Lab Sample ID: 320-14181-1

Client ID: 34001082

Operator ID: SRS

ALS Bottle#: 8 Worklist Smp#: 25

Purge Vol: 250.000 mL

Dil. Factor: 1.0000

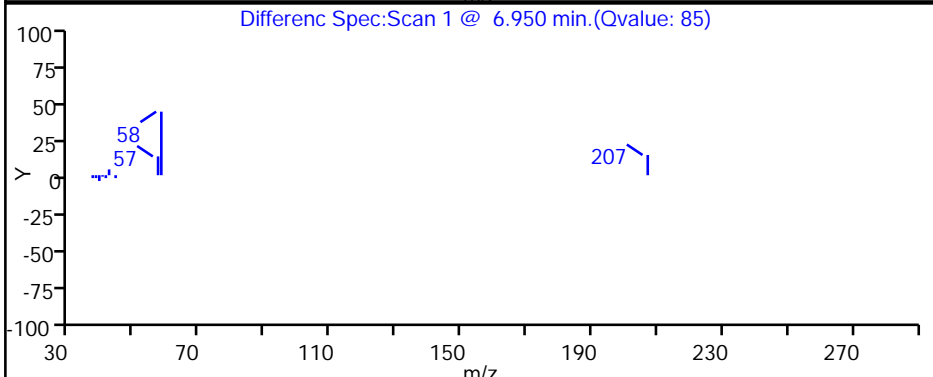
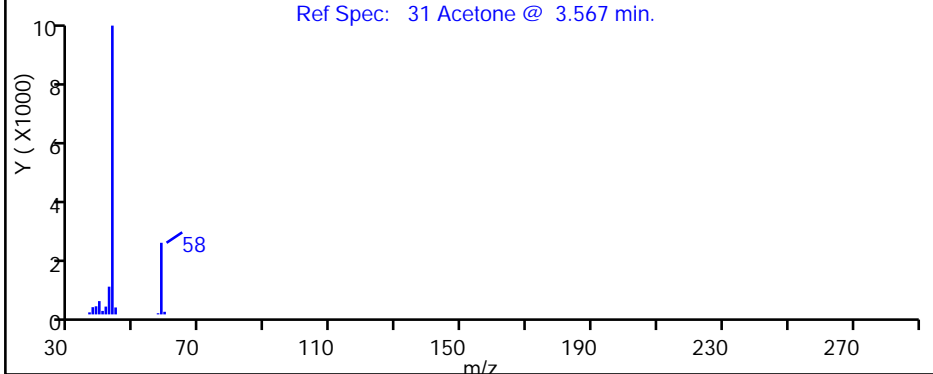
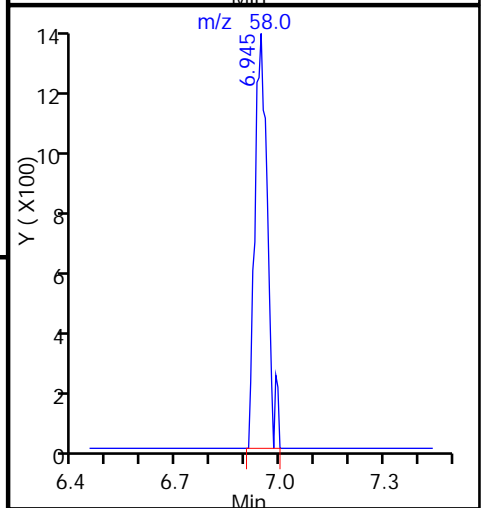
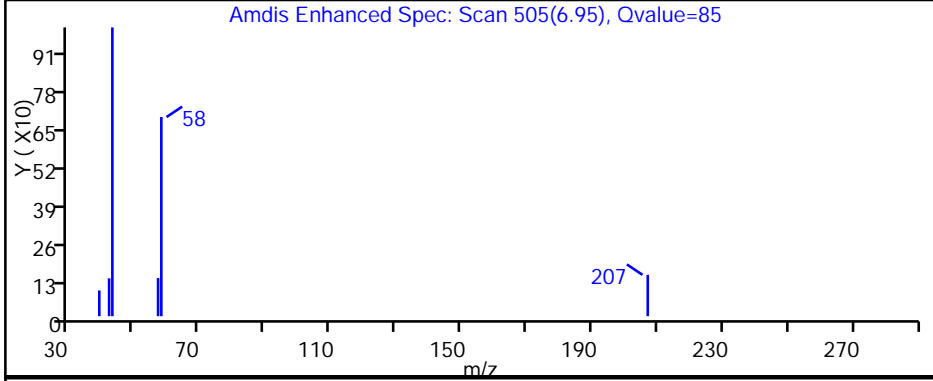
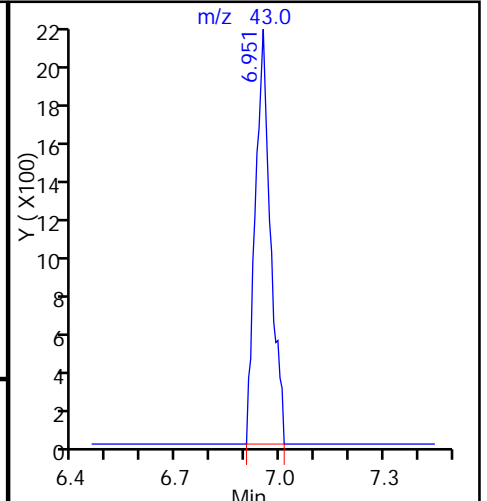
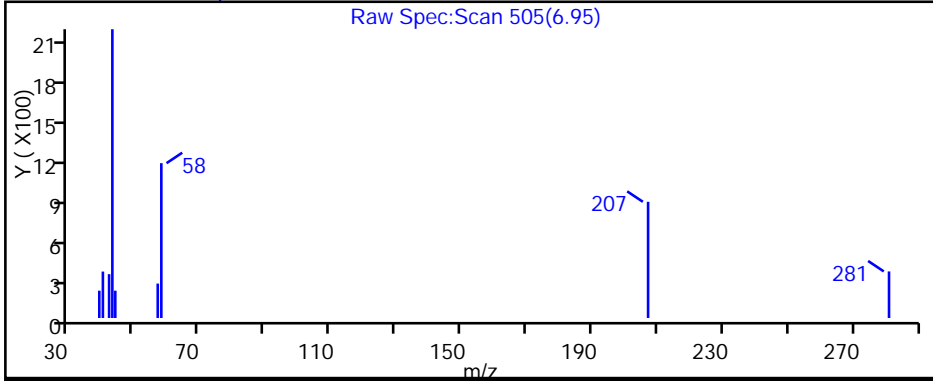
Method: TO15_ATMS2N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Detector: MS SCAN

31 Acetone, CAS: 67-64-1



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS2\20150731-23856.b\15073117.D

Injection Date: 31-Jul-2015 22:42:30

Instrument ID: ATMS2

Lims ID: 320-14181-A-1

Lab Sample ID: 320-14181-1

Client ID: 34001082

Operator ID: SRS

ALS Bottle#: 8 Worklist Smp#: 25

Purge Vol: 250.000 mL

Dil. Factor: 1.0000

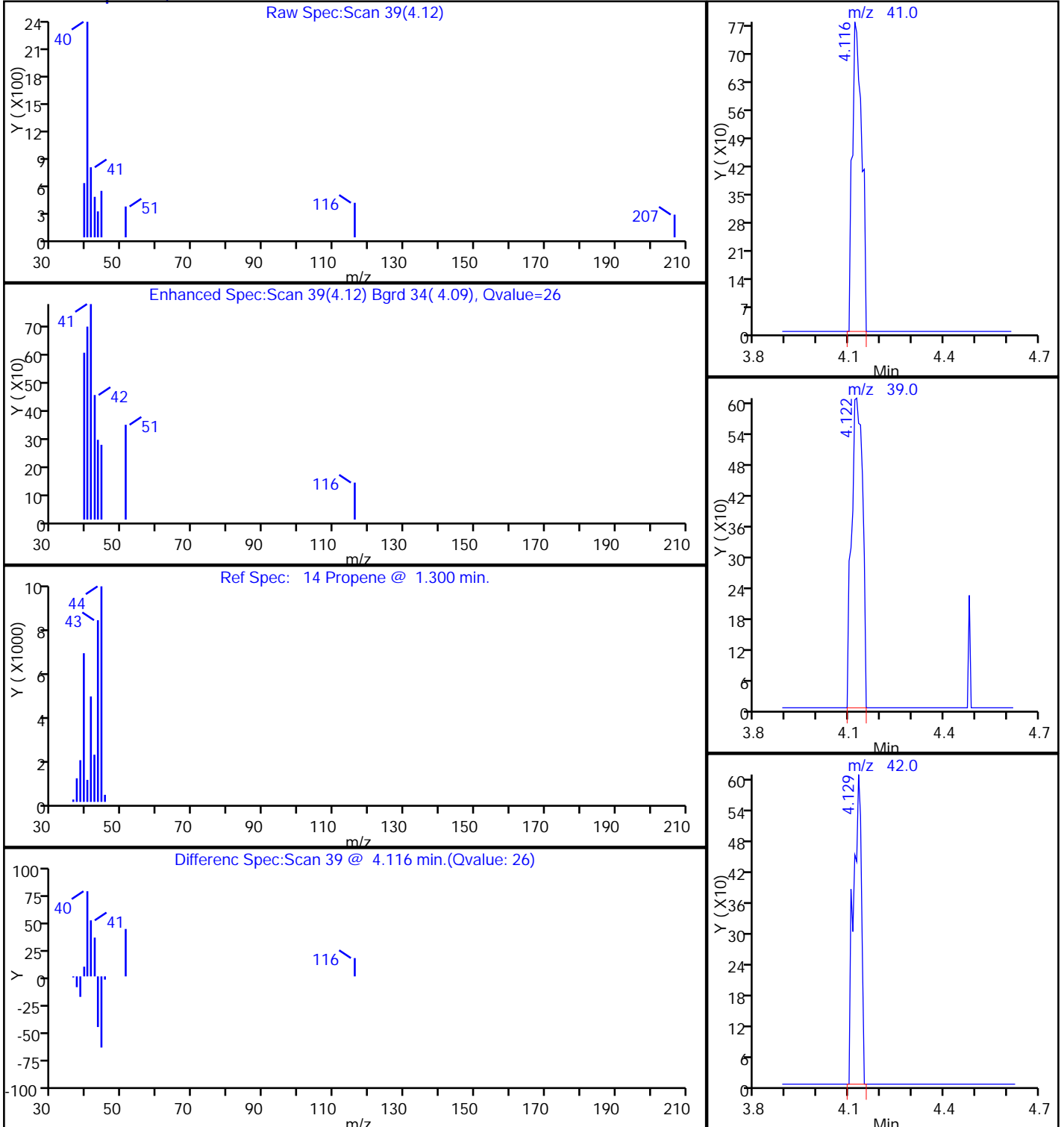
Method: TO15_ATMS2N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Detector: MS SCAN

14 Propene, CAS: 115-07-1



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-14356-1</u>
SDG No.: <u>6L SCAN Batch</u>	
Client Sample ID: <u>8296</u>	Lab Sample ID: <u>320-14356-9</u>
Matrix: <u>Air</u>	Lab File ID: <u>15081722.D</u>
Analysis Method: <u>TO-15</u>	Date Collected: <u>08/07/2015 00:00</u>
Sample wt/vol: <u>500 (mL)</u>	Date Analyzed: <u>08/18/2015 03:30</u>
Soil Aliquot Vol: _____	Dilution Factor: <u>1</u>
Soil Extract Vol.: _____	GC Column: <u>RTX-Volatiles</u> ID: <u>0.32 (mm)</u>
% Moisture: _____	Level: (low/med) <u>Low</u>
Analysis Batch No.: <u>83047</u>	Units: <u>ppb v/v</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
67-64-1	Acetone	0.45	J	5.0	0.18
107-02-8	Acrolein	ND		2.0	0.22
107-13-1	Acrylonitrile	ND		2.0	0.19
107-05-1	Allyl chloride	ND		0.80	0.11
71-43-2	Benzene	ND		0.40	0.079
100-44-7	Benzyl chloride	ND		0.80	0.16
75-27-4	Bromodichloromethane	ND		0.30	0.066
75-25-2	Bromoform	ND		0.40	0.070
74-83-9	Bromomethane	ND		0.80	0.34
106-99-0	1,3-Butadiene	ND		0.80	0.15
106-97-8	n-Butane	ND		0.40	0.15
78-93-3	2-Butanone (MEK)	ND		0.80	0.20
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0	0.11
104-51-8	n-Butylbenzene	ND		0.40	0.18
135-98-8	sec-Butylbenzene	ND		0.40	0.070
98-06-6	tert-Butylbenzene	ND		0.80	0.068
75-15-0	Carbon disulfide	ND		0.80	0.078
56-23-5	Carbon tetrachloride	ND		0.80	0.064
108-90-7	Chlorobenzene	ND		0.30	0.064
75-45-6	Chlorodifluoromethane	ND		0.80	0.11
75-00-3	Chloroethane	ND		0.80	0.31
67-66-3	Chloroform	ND		0.30	0.095
74-87-3	Chloromethane	ND		0.80	0.20
95-49-8	2-Chlorotoluene	ND		0.40	0.080
110-82-7	Cyclohexane	ND		0.40	0.084
124-48-1	Dibromochloromethane	ND		0.40	0.079
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80	0.075
74-95-3	Dibromomethane	ND		0.40	0.057
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40	0.16
95-50-1	1,2-Dichlorobenzene	ND		0.40	0.13
541-73-1	1,3-Dichlorobenzene	ND		0.40	0.11
106-46-7	1,4-Dichlorobenzene	ND		0.40	0.15
75-71-8	Dichlorodifluoromethane	ND		0.40	0.15
75-34-3	1,1-Dichloroethane	ND		0.30	0.072
107-06-2	1,2-Dichloroethane	ND		0.80	0.088

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-14356-1</u>
SDG No.: <u>6L SCAN Batch</u>	
Client Sample ID: <u>8296</u>	Lab Sample ID: <u>320-14356-9</u>
Matrix: <u>Air</u>	Lab File ID: <u>15081722.D</u>
Analysis Method: <u>TO-15</u>	Date Collected: <u>08/07/2015 00:00</u>
Sample wt/vol: <u>500 (mL)</u>	Date Analyzed: <u>08/18/2015 03:30</u>
Soil Aliquot Vol: _____	Dilution Factor: <u>1</u>
Soil Extract Vol.: _____	GC Column: <u>RTX-Volatiles</u> ID: <u>0.32 (mm)</u>
% Moisture: _____	Level: (low/med) <u>Low</u>
Analysis Batch No.: <u>83047</u>	Units: <u>ppb v/v</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	ND		0.80	0.13
156-59-2	cis-1,2-Dichloroethene	ND		0.40	0.089
156-60-5	trans-1,2-Dichloroethene	ND		0.40	0.10
78-87-5	1,2-Dichloropropane	ND		0.40	0.24
10061-01-5	cis-1,3-Dichloropropene	ND		0.40	0.10
10061-02-6	trans-1,3-Dichloropropene	ND		0.40	0.088
123-91-1	1,4-Dioxane	ND		0.80	0.10
141-78-6	Ethyl acetate	ND		0.30	0.18
100-41-4	Ethylbenzene	ND		0.40	0.063
622-96-8	4-Ethyltoluene	ND		0.40	0.19
142-82-5	n-Heptane	ND		0.80	0.063
87-68-3	Hexachlorobutadiene	ND		2.0	0.43
110-54-3	n-Hexane	ND		0.80	0.075
591-78-6	2-Hexanone	ND		0.40	0.087
98-82-8	Isopropylbenzene	ND		0.80	0.10
99-87-6	4-Isopropyltoluene	ND		0.80	0.12
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80	0.050
80-62-6	Methyl methacrylate	ND		0.80	0.16
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40	0.14
75-09-2	Methylene Chloride	ND		0.40	0.072
98-83-9	alpha-Methylstyrene	ND		0.40	0.065
91-20-3	Naphthalene	ND		0.80	0.56
111-65-9	n-Octane	ND		0.40	0.055
109-66-0	n-Pentane	ND		0.80	0.26
115-07-1	Propylene	ND		0.40	0.099
103-65-1	N-Propylbenzene	ND		0.40	0.059
100-42-5	Styrene	ND		0.40	0.059
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40	0.069
127-18-4	Tetrachloroethene	ND		0.40	0.051
109-99-9	Tetrahydrofuran	ND		0.80	0.079
108-88-3	Toluene	ND		0.40	0.051
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.16
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.43
71-55-6	1,1,1-Trichloroethane	ND		0.30	0.065
79-00-5	1,1,2-Trichloroethane	ND		0.40	0.067

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-14356-1
 SDG No.: 6L SCAN Batch
 Client Sample ID: 8296 Lab Sample ID: 320-14356-9
 Matrix: Air Lab File ID: 15081722.D
 Analysis Method: TO-15 Date Collected: 08/07/2015 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 08/18/2015 03:30
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-Volatiles ID: 0.32 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 83047 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.40	0.11
75-69-4	Trichlorofluoromethane	ND		0.40	0.20
96-18-4	1,2,3-Trichloropropane	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	ND		0.80	0.16
108-67-8	1,3,5-Trimethylbenzene	ND		0.40	0.13
540-84-1	2,2,4-Trimethylpentane	ND		0.40	0.071
108-05-4	Vinyl acetate	ND		0.80	0.15
593-60-2	Vinyl bromide	ND		0.80	0.26
75-01-4	Vinyl chloride	ND		0.40	0.12
179601-23-1	m,p-Xylene	ND		0.80	0.10
95-47-6	o-Xylene	ND		0.40	0.054

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	96		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	107		70-130
2037-26-5	Toluene-d8 (Surr)	96		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS2\20150817-24270.b\15081722.D
 Lims ID: 320-14356-A-9 Lab Sample ID: 320-14356-9
 Client ID: 8296
 Sample Type: Client
 Inject. Date: 18-Aug-2015 03:30:30 ALS Bottle#: 2 Worklist Smp#: 22
 Purge Vol: 250.000 mL Dil. Factor: 1.0000
 Sample Info: 320-14344-A-3
 Misc. Info.: 50 mL
 Operator ID: LHS Instrument ID: ATMS2
 Method: \\ChromNA\Sacramento\ChromData\ATMS2\20150817-24270.b\TO15_ATMS2N.m
 Limit Group: MSA - TO15 - ICAL
 Last Update: 18-Aug-2015 14:27:11 Calib Date: 12-Aug-2015 00:29:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS2\20150811-24141.b\15081111.D
 Column 1 : RTX Volatiles (0.32 mm) Det: MS SCAN
 Process Host: XAWRK018

First Level Reviewer: ortizam Date: 18-Aug-2015 14:27:11

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	10.224	10.224	0.000	98	57619	4.00	
* 2 1,4-Difluorobenzene	114	11.575	11.574	0.001	95	239589	4.00	
* 3 Chlorobenzene-d5 (IS)	117	15.882	15.882	0.000	87	193977	4.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	10.991	10.990	0.001	99	79620	4.26	
\$ 5 Toluene-d8 (Surr)	100	13.747	13.746	0.001	97	137826	3.85	
\$ 6 4-Bromofluorobenzene (Surr	174	17.634	17.634	0.000	95	108663	3.82	
31 Acetone	43	6.939	6.896	0.043	94	8797	0.4471	

Reagents:

VASUISIM_00198 Amount Added: 50.00 Units: mL Run Reagent

Data File: \\ChromNA\Sacramento\ChromData\ATMS2\20150817-24270.b\15081722.D

Injection Date: 18-Aug-2015 03:30:30

Instrument ID: ATMS2

Operator ID: LHS

Lims ID: 320-14356-A-9

Lab Sample ID: 320-14356-9

Worklist Smp#: 22

Client ID: 8296

Purge Vol: 250.000 mL

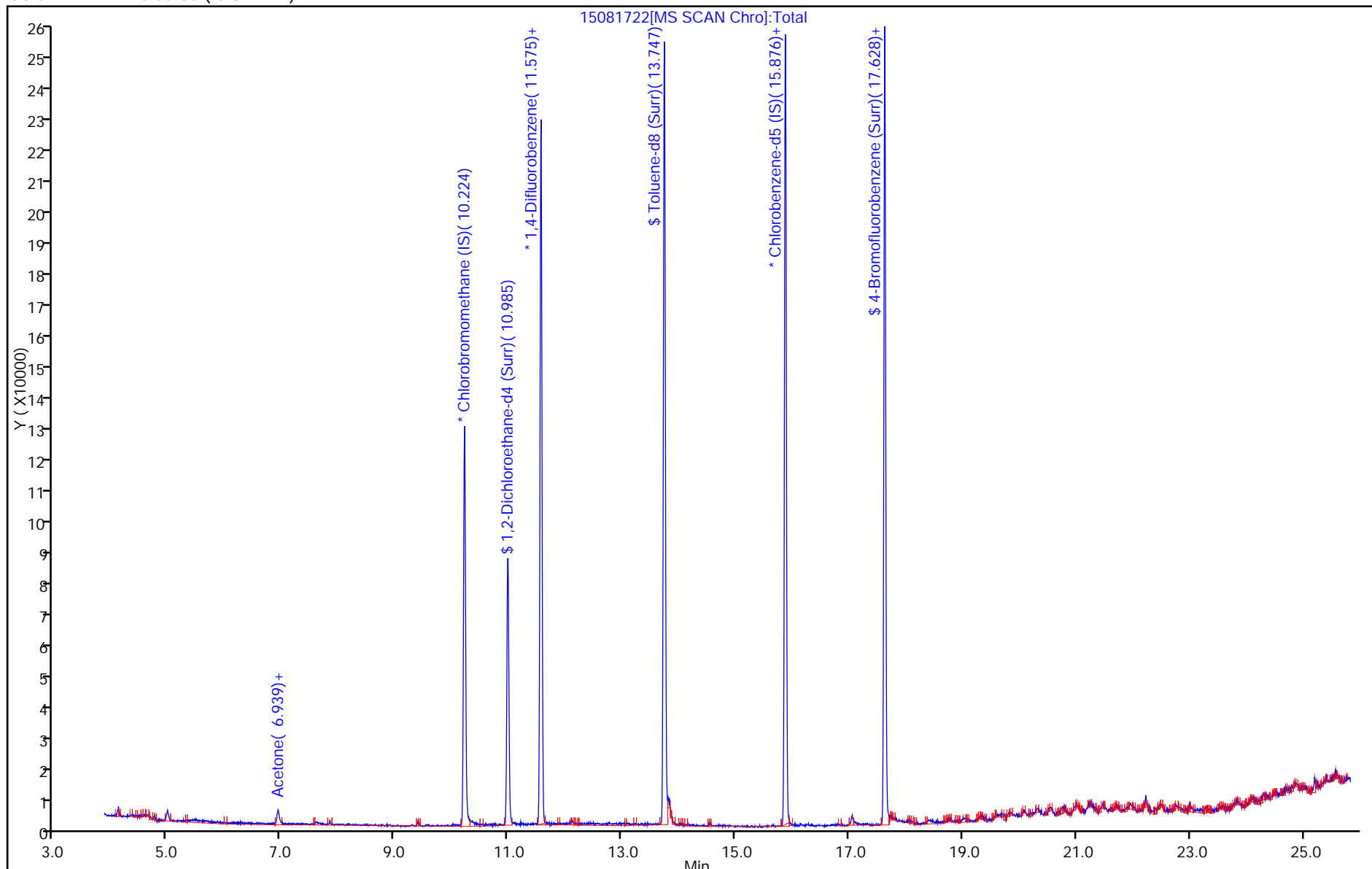
Dil. Factor: 1.0000

ALS Bottle#: 2

Method: TO15_ATMS2N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS2\20150817-24270.b\15081722.D

Injection Date: 18-Aug-2015 03:30:30

Instrument ID: ATMS2

Lims ID: 320-14356-A-9

Lab Sample ID: 320-14356-9

Client ID: 8296

Operator ID: LHS

ALS Bottle#: 2 Worklist Smp#: 22

Purge Vol: 250.000 mL

Dil. Factor: 1.0000

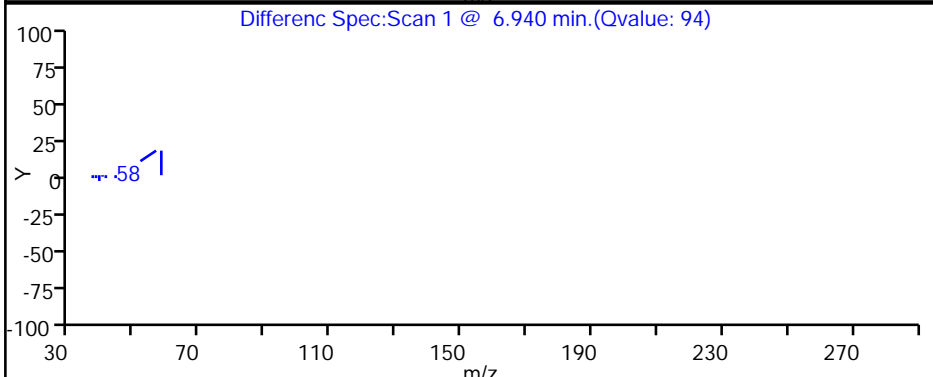
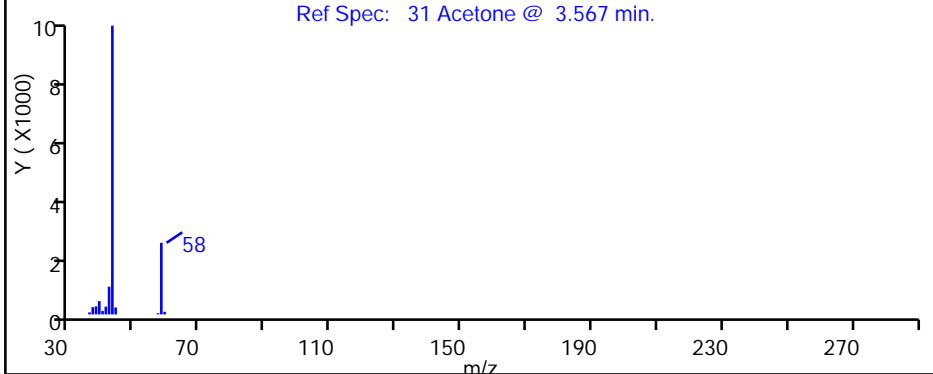
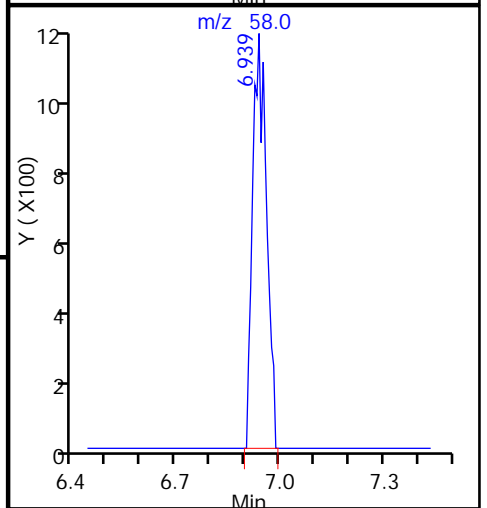
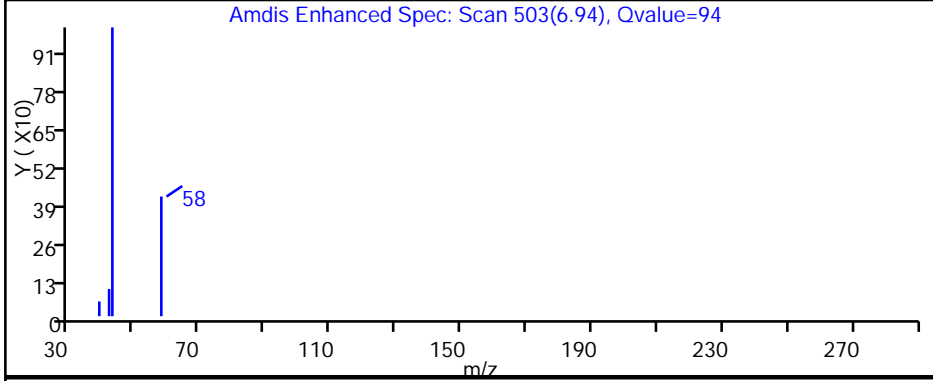
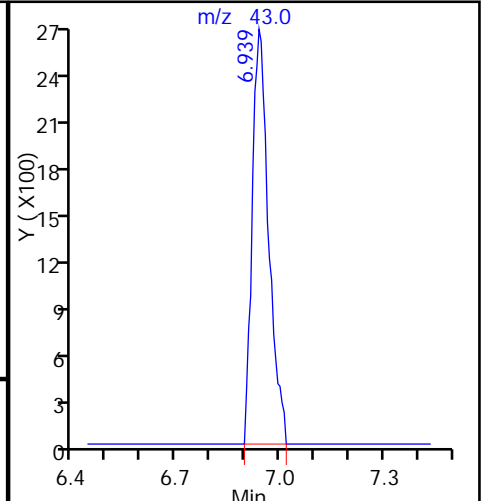
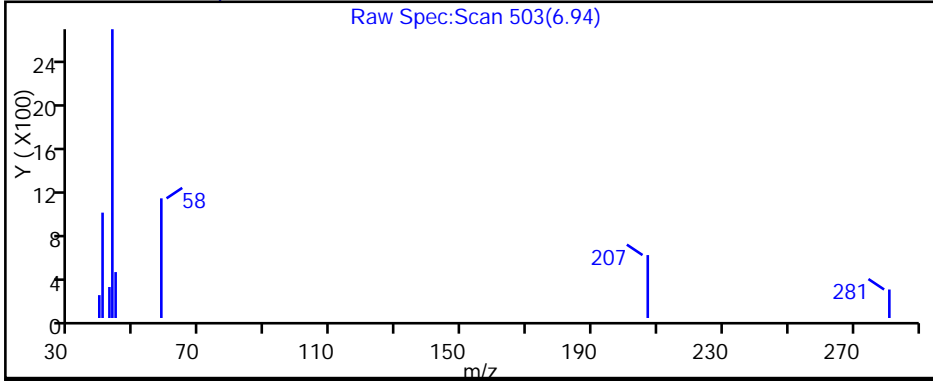
Method: TO15_ATMS2N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Detector: MS SCAN

31 Acetone, CAS: 67-64-1



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-15189-1
Client Project/Site: NuStar Vapor Testing

For:
Apex Companies LLC
3015 SW 1st Avenue
Portland, Oregon 97201

Attn: Stephanie Salisbury



Authorized for release by:
10/13/2015 4:38:39 PM

Sarah Murphy, Project Manager I
(253)922-2310
sarah.murphy@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15189-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15189-1

Job ID: 320-15189-1

Laboratory: TestAmerica Sacramento

Narrative

**Job Narrative
320-15189-1**

Comments

No additional comments.

Receipt

The samples were received on 9/29/2015 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice.

Air - GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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Detection Summary

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15189-1

Client Sample ID: SVE NORTH

Lab Sample ID: 320-15189-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	210		2.8		ppb v/v	6.97		TO-15	Total/NA
1,1,1-Trichloroethane	3.8		2.1		ppb v/v	6.97		TO-15	Total/NA
Trichloroethene	35		2.8		ppb v/v	6.97		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	1400		19		ug/m3 Air	6.97		TO-15	Total/NA
1,1,1-Trichloroethane	21		11		ug/m3 Air	6.97		TO-15	Total/NA
Trichloroethene	190		15		ug/m3 Air	6.97		TO-15	Total/NA

Client Sample ID: SVE SOUTH PRECARBON

Lab Sample ID: 320-15189-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	42		27		ppb v/v	68		TO-15	Total/NA
Tetrachloroethene	1500		27		ppb v/v	68		TO-15	Total/NA
Trichloroethene	120		27		ppb v/v	68		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	170		110		ug/m3 Air	68		TO-15	Total/NA
Tetrachloroethene	9900		180		ug/m3 Air	68		TO-15	Total/NA
Trichloroethene	660		150		ug/m3 Air	68		TO-15	Total/NA

Client Sample ID: SVE SOUTH POSTCARBON

Lab Sample ID: 320-15189-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon tetrachloride	7.1		1.5		ppb v/v	1.878		TO-15	Total/NA
1,1-Dichloroethane	0.84		0.56		ppb v/v	1.878		TO-15	Total/NA
cis-1,2-Dichloroethene	86		0.75		ppb v/v	1.878		TO-15	Total/NA
trans-1,2-Dichloroethene	0.92		0.75		ppb v/v	1.878		TO-15	Total/NA
Tetrachloroethene	44		0.75		ppb v/v	1.878		TO-15	Total/NA
1,1,1-Trichloroethane	7.1		0.56		ppb v/v	1.878		TO-15	Total/NA
Trichloroethene	11		0.75		ppb v/v	1.878		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon tetrachloride	45		9.5		ug/m3 Air	1.878		TO-15	Total/NA
1,1-Dichloroethane	3.4		2.3		ug/m3 Air	1.878		TO-15	Total/NA
cis-1,2-Dichloroethene	340		3.0		ug/m3 Air	1.878		TO-15	Total/NA
trans-1,2-Dichloroethene	3.6		3.0		ug/m3 Air	1.878		TO-15	Total/NA
Tetrachloroethene	300		5.1		ug/m3 Air	1.878		TO-15	Total/NA
1,1,1-Trichloroethane	39		3.1		ug/m3 Air	1.878		TO-15	Total/NA
Trichloroethene	59		4.0		ug/m3 Air	1.878		TO-15	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15189-1

Client Sample ID: SVE NORTH

Lab Sample ID: 320-15189-1

Date Collected: 09/28/15 09:40

Matrix: Air

Date Received: 09/29/15 09:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		35		ppb v/v			10/12/15 23:54	6.97
Benzene	ND		2.8		ppb v/v			10/12/15 23:54	6.97
Benzyl chloride	ND		5.6		ppb v/v			10/12/15 23:54	6.97
Bromodichloromethane	ND		2.1		ppb v/v			10/12/15 23:54	6.97
Bromoform	ND		2.8		ppb v/v			10/12/15 23:54	6.97
Bromomethane	ND		5.6		ppb v/v			10/12/15 23:54	6.97
2-Butanone (MEK)	ND		5.6		ppb v/v			10/12/15 23:54	6.97
Carbon disulfide	ND		5.6		ppb v/v			10/12/15 23:54	6.97
Carbon tetrachloride	ND		5.6		ppb v/v			10/12/15 23:54	6.97
Chlorobenzene	ND		2.1		ppb v/v			10/12/15 23:54	6.97
Dibromochloromethane	ND		2.8		ppb v/v			10/12/15 23:54	6.97
Chloroethane	ND		5.6		ppb v/v			10/12/15 23:54	6.97
Chloroform	ND		2.1		ppb v/v			10/12/15 23:54	6.97
Chloromethane	ND		5.6		ppb v/v			10/12/15 23:54	6.97
1,2-Dibromoethane (EDB)	ND		5.6		ppb v/v			10/12/15 23:54	6.97
1,2-Dichlorobenzene	ND		2.8		ppb v/v			10/12/15 23:54	6.97
1,3-Dichlorobenzene	ND		2.8		ppb v/v			10/12/15 23:54	6.97
1,4-Dichlorobenzene	ND		2.8		ppb v/v			10/12/15 23:54	6.97
Dichlorodifluoromethane	ND		2.8		ppb v/v			10/12/15 23:54	6.97
1,1-Dichloroethane	ND		2.1		ppb v/v			10/12/15 23:54	6.97
1,2-Dichloroethane	ND		5.6		ppb v/v			10/12/15 23:54	6.97
1,1-Dichloroethene	ND		5.6		ppb v/v			10/12/15 23:54	6.97
cis-1,2-Dichloroethene	ND		2.8		ppb v/v			10/12/15 23:54	6.97
trans-1,2-Dichloroethene	ND		2.8		ppb v/v			10/12/15 23:54	6.97
1,2-Dichloropropane	ND		2.8		ppb v/v			10/12/15 23:54	6.97
cis-1,3-Dichloropropene	ND		2.8		ppb v/v			10/12/15 23:54	6.97
trans-1,3-Dichloropropene	ND		2.8		ppb v/v			10/12/15 23:54	6.97
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.8		ppb v/v			10/12/15 23:54	6.97
Ethylbenzene	ND		2.8		ppb v/v			10/12/15 23:54	6.97
4-Ethyltoluene	ND		2.8		ppb v/v			10/12/15 23:54	6.97
Hexachlorobutadiene	ND		14		ppb v/v			10/12/15 23:54	6.97
2-Hexanone	ND		2.8		ppb v/v			10/12/15 23:54	6.97
Methylene Chloride	ND		2.8		ppb v/v			10/12/15 23:54	6.97
4-Methyl-2-pentanone (MIBK)	ND		2.8		ppb v/v			10/12/15 23:54	6.97
Styrene	ND		2.8		ppb v/v			10/12/15 23:54	6.97
1,1,2,2-Tetrachloroethane	ND		2.8		ppb v/v			10/12/15 23:54	6.97
Tetrachloroethene	210		2.8		ppb v/v			10/12/15 23:54	6.97
Toluene	ND		2.8		ppb v/v			10/12/15 23:54	6.97
1,2,4-Trichlorobenzene	ND		14		ppb v/v			10/12/15 23:54	6.97
1,1,1-Trichloroethane	3.8		2.1		ppb v/v			10/12/15 23:54	6.97
1,1,2-Trichloroethane	ND		2.8		ppb v/v			10/12/15 23:54	6.97
Trichloroethene	35		2.8		ppb v/v			10/12/15 23:54	6.97
Trichlorofluoromethane	ND		2.8		ppb v/v			10/12/15 23:54	6.97
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.8		ppb v/v			10/12/15 23:54	6.97
1,2,4-Trimethylbenzene	ND		5.6		ppb v/v			10/12/15 23:54	6.97
1,3,5-Trimethylbenzene	ND		2.8		ppb v/v			10/12/15 23:54	6.97
Vinyl acetate	ND		5.6		ppb v/v			10/12/15 23:54	6.97
Vinyl chloride	ND		2.8		ppb v/v			10/12/15 23:54	6.97

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15189-1

Client Sample ID: SVE NORTH

Lab Sample ID: 320-15189-1

Date Collected: 09/28/15 09:40

Matrix: Air

Date Received: 09/29/15 09:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m,p-Xylene	ND		5.6		ppb v/v			10/12/15 23:54	6.97
o-Xylene	ND		2.8		ppb v/v			10/12/15 23:54	6.97
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		83		ug/m3 Air			10/12/15 23:54	6.97
Benzene	ND		8.9		ug/m3 Air			10/12/15 23:54	6.97
Benzyl chloride	ND		29		ug/m3 Air			10/12/15 23:54	6.97
Bromodichloromethane	ND		14		ug/m3 Air			10/12/15 23:54	6.97
Bromoform	ND		29		ug/m3 Air			10/12/15 23:54	6.97
Bromomethane	ND		22		ug/m3 Air			10/12/15 23:54	6.97
2-Butanone (MEK)	ND		16		ug/m3 Air			10/12/15 23:54	6.97
Carbon disulfide	ND		17		ug/m3 Air			10/12/15 23:54	6.97
Carbon tetrachloride	ND		35		ug/m3 Air			10/12/15 23:54	6.97
Chlorobenzene	ND		9.6		ug/m3 Air			10/12/15 23:54	6.97
Dibromochloromethane	ND		24		ug/m3 Air			10/12/15 23:54	6.97
Chloroethane	ND		15		ug/m3 Air			10/12/15 23:54	6.97
Chloroform	ND		10		ug/m3 Air			10/12/15 23:54	6.97
Chloromethane	ND		12		ug/m3 Air			10/12/15 23:54	6.97
1,2-Dibromoethane (EDB)	ND		43		ug/m3 Air			10/12/15 23:54	6.97
1,2-Dichlorobenzene	ND		17		ug/m3 Air			10/12/15 23:54	6.97
1,3-Dichlorobenzene	ND		17		ug/m3 Air			10/12/15 23:54	6.97
1,4-Dichlorobenzene	ND		17		ug/m3 Air			10/12/15 23:54	6.97
Dichlorodifluoromethane	ND		14		ug/m3 Air			10/12/15 23:54	6.97
1,1-Dichloroethane	ND		8.5		ug/m3 Air			10/12/15 23:54	6.97
1,2-Dichloroethane	ND		23		ug/m3 Air			10/12/15 23:54	6.97
1,1-Dichloroethene	ND		22		ug/m3 Air			10/12/15 23:54	6.97
cis-1,2-Dichloroethene	ND		11		ug/m3 Air			10/12/15 23:54	6.97
trans-1,2-Dichloroethene	ND		11		ug/m3 Air			10/12/15 23:54	6.97
1,2-Dichloropropane	ND		13		ug/m3 Air			10/12/15 23:54	6.97
cis-1,3-Dichloropropene	ND		13		ug/m3 Air			10/12/15 23:54	6.97
trans-1,3-Dichloropropene	ND		13		ug/m3 Air			10/12/15 23:54	6.97
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		19		ug/m3 Air			10/12/15 23:54	6.97
Ethylbenzene	ND		12		ug/m3 Air			10/12/15 23:54	6.97
4-Ethyltoluene	ND		14		ug/m3 Air			10/12/15 23:54	6.97
Hexachlorobutadiene	ND		150		ug/m3 Air			10/12/15 23:54	6.97
2-Hexanone	ND		11		ug/m3 Air			10/12/15 23:54	6.97
Methylene Chloride	ND		9.7		ug/m3 Air			10/12/15 23:54	6.97
4-Methyl-2-pentanone (MIBK)	ND		11		ug/m3 Air			10/12/15 23:54	6.97
Styrene	ND		12		ug/m3 Air			10/12/15 23:54	6.97
1,1,2,2-Tetrachloroethane	ND		19		ug/m3 Air			10/12/15 23:54	6.97
Tetrachloroethene	1400		19		ug/m3 Air			10/12/15 23:54	6.97
Toluene	ND		11		ug/m3 Air			10/12/15 23:54	6.97
1,2,4-Trichlorobenzene	ND		100		ug/m3 Air			10/12/15 23:54	6.97
1,1,1-Trichloroethane	21		11		ug/m3 Air			10/12/15 23:54	6.97
1,1,2-Trichloroethane	ND		15		ug/m3 Air			10/12/15 23:54	6.97
Trichloroethene	190		15		ug/m3 Air			10/12/15 23:54	6.97
Trichlorofluoromethane	ND		16		ug/m3 Air			10/12/15 23:54	6.97
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		21		ug/m3 Air			10/12/15 23:54	6.97
1,2,4-Trimethylbenzene	ND		27		ug/m3 Air			10/12/15 23:54	6.97

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15189-1

Client Sample ID: SVE NORTH

Lab Sample ID: 320-15189-1

Date Collected: 09/28/15 09:40

Matrix: Air

Date Received: 09/29/15 09:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	ND		14		ug/m3 Air			10/12/15 23:54	6.97
Vinyl acetate	ND		20		ug/m3 Air			10/12/15 23:54	6.97
Vinyl chloride	ND		7.1		ug/m3 Air			10/12/15 23:54	6.97
m,p-Xylene	ND		24		ug/m3 Air			10/12/15 23:54	6.97
o-Xylene	ND		12		ug/m3 Air			10/12/15 23:54	6.97
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		70 - 130					10/12/15 23:54	6.97
1,2-Dichloroethane-d4 (Surr)	97		70 - 130					10/12/15 23:54	6.97
Toluene-d8 (Surr)	98		70 - 130					10/12/15 23:54	6.97

Client Sample ID: SVE SOUTH PRECARBON

Lab Sample ID: 320-15189-2

Date Collected: 09/28/15 09:00

Matrix: Air

Date Received: 09/29/15 09:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		340		ppb v/v			10/13/15 00:35	68
Benzene	ND		27		ppb v/v			10/13/15 00:35	68
Benzyl chloride	ND		54		ppb v/v			10/13/15 00:35	68
Bromodichloromethane	ND		20		ppb v/v			10/13/15 00:35	68
Bromoform	ND		27		ppb v/v			10/13/15 00:35	68
Bromomethane	ND		54		ppb v/v			10/13/15 00:35	68
2-Butanone (MEK)	ND		54		ppb v/v			10/13/15 00:35	68
Carbon disulfide	ND		54		ppb v/v			10/13/15 00:35	68
Carbon tetrachloride	ND		54		ppb v/v			10/13/15 00:35	68
Chlorobenzene	ND		20		ppb v/v			10/13/15 00:35	68
Dibromochloromethane	ND		27		ppb v/v			10/13/15 00:35	68
Chloroethane	ND		54		ppb v/v			10/13/15 00:35	68
Chloroform	ND		20		ppb v/v			10/13/15 00:35	68
Chloromethane	ND		54		ppb v/v			10/13/15 00:35	68
1,2-Dibromoethane (EDB)	ND		54		ppb v/v			10/13/15 00:35	68
1,2-Dichlorobenzene	ND		27		ppb v/v			10/13/15 00:35	68
1,3-Dichlorobenzene	ND		27		ppb v/v			10/13/15 00:35	68
1,4-Dichlorobenzene	ND		27		ppb v/v			10/13/15 00:35	68
Dichlorodifluoromethane	ND		27		ppb v/v			10/13/15 00:35	68
1,1-Dichloroethane	ND		20		ppb v/v			10/13/15 00:35	68
1,2-Dichloroethane	ND		54		ppb v/v			10/13/15 00:35	68
1,1-Dichloroethene	ND		54		ppb v/v			10/13/15 00:35	68
cis-1,2-Dichloroethene	42		27		ppb v/v			10/13/15 00:35	68
trans-1,2-Dichloroethene	ND		27		ppb v/v			10/13/15 00:35	68
1,2-Dichloropropane	ND		27		ppb v/v			10/13/15 00:35	68
cis-1,3-Dichloropropene	ND		27		ppb v/v			10/13/15 00:35	68
trans-1,3-Dichloropropene	ND		27		ppb v/v			10/13/15 00:35	68
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		27		ppb v/v			10/13/15 00:35	68
Ethylbenzene	ND		27		ppb v/v			10/13/15 00:35	68
4-Ethyltoluene	ND		27		ppb v/v			10/13/15 00:35	68
Hexachlorobutadiene	ND		140		ppb v/v			10/13/15 00:35	68

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15189-1

Client Sample ID: SVE SOUTH PRECARBON

Lab Sample ID: 320-15189-2

Date Collected: 09/28/15 09:00

Matrix: Air

Date Received: 09/29/15 09:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Hexanone	ND		27		ppb v/v			10/13/15 00:35	68
Methylene Chloride	ND		27		ppb v/v			10/13/15 00:35	68
4-Methyl-2-pentanone (MIBK)	ND		27		ppb v/v			10/13/15 00:35	68
Styrene	ND		27		ppb v/v			10/13/15 00:35	68
1,1,2,2-Tetrachloroethane	ND		27		ppb v/v			10/13/15 00:35	68
Tetrachloroethene	1500		27		ppb v/v			10/13/15 00:35	68
Toluene	ND		27		ppb v/v			10/13/15 00:35	68
1,2,4-Trichlorobenzene	ND		140		ppb v/v			10/13/15 00:35	68
1,1,1-Trichloroethane	ND		20		ppb v/v			10/13/15 00:35	68
1,1,2-Trichloroethane	ND		27		ppb v/v			10/13/15 00:35	68
Trichloroethene	120		27		ppb v/v			10/13/15 00:35	68
Trichlorofluoromethane	ND		27		ppb v/v			10/13/15 00:35	68
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		27		ppb v/v			10/13/15 00:35	68
1,2,4-Trimethylbenzene	ND		54		ppb v/v			10/13/15 00:35	68
1,3,5-Trimethylbenzene	ND		27		ppb v/v			10/13/15 00:35	68
Vinyl acetate	ND		54		ppb v/v			10/13/15 00:35	68
Vinyl chloride	ND		27		ppb v/v			10/13/15 00:35	68
m,p-Xylene	ND		54		ppb v/v			10/13/15 00:35	68
o-Xylene	ND		27		ppb v/v			10/13/15 00:35	68
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		810		ug/m3 Air			10/13/15 00:35	68
Benzene	ND		87		ug/m3 Air			10/13/15 00:35	68
Benzyl chloride	ND		280		ug/m3 Air			10/13/15 00:35	68
Bromodichloromethane	ND		140		ug/m3 Air			10/13/15 00:35	68
Bromoform	ND		280		ug/m3 Air			10/13/15 00:35	68
Bromomethane	ND		210		ug/m3 Air			10/13/15 00:35	68
2-Butanone (MEK)	ND		160		ug/m3 Air			10/13/15 00:35	68
Carbon disulfide	ND		170		ug/m3 Air			10/13/15 00:35	68
Carbon tetrachloride	ND		340		ug/m3 Air			10/13/15 00:35	68
Chlorobenzene	ND		94		ug/m3 Air			10/13/15 00:35	68
Dibromochloromethane	ND		230		ug/m3 Air			10/13/15 00:35	68
Chloroethane	ND		140		ug/m3 Air			10/13/15 00:35	68
Chloroform	ND		100		ug/m3 Air			10/13/15 00:35	68
Chloromethane	ND		110		ug/m3 Air			10/13/15 00:35	68
1,2-Dibromoethane (EDB)	ND		420		ug/m3 Air			10/13/15 00:35	68
1,2-Dichlorobenzene	ND		160		ug/m3 Air			10/13/15 00:35	68
1,3-Dichlorobenzene	ND		160		ug/m3 Air			10/13/15 00:35	68
1,4-Dichlorobenzene	ND		160		ug/m3 Air			10/13/15 00:35	68
Dichlorodifluoromethane	ND		130		ug/m3 Air			10/13/15 00:35	68
1,1-Dichloroethane	ND		83		ug/m3 Air			10/13/15 00:35	68
1,2-Dichloroethane	ND		220		ug/m3 Air			10/13/15 00:35	68
1,1-Dichloroethene	ND		220		ug/m3 Air			10/13/15 00:35	68
cis-1,2-Dichloroethene	170		110		ug/m3 Air			10/13/15 00:35	68
trans-1,2-Dichloroethene	ND		110		ug/m3 Air			10/13/15 00:35	68
1,2-Dichloropropane	ND		130		ug/m3 Air			10/13/15 00:35	68
cis-1,3-Dichloropropene	ND		120		ug/m3 Air			10/13/15 00:35	68
trans-1,3-Dichloropropene	ND		120		ug/m3 Air			10/13/15 00:35	68
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		190		ug/m3 Air			10/13/15 00:35	68

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15189-1

Client Sample ID: SVE SOUTH PRECARBON

Lab Sample ID: 320-15189-2

Date Collected: 09/28/15 09:00

Matrix: Air

Date Received: 09/29/15 09:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		120		ug/m3 Air			10/13/15 00:35	68
4-Ethyltoluene	ND		130		ug/m3 Air			10/13/15 00:35	68
Hexachlorobutadiene	ND		1500		ug/m3 Air			10/13/15 00:35	68
2-Hexanone	ND		110		ug/m3 Air			10/13/15 00:35	68
Methylene Chloride	ND		94		ug/m3 Air			10/13/15 00:35	68
4-Methyl-2-pentanone (MIBK)	ND		110		ug/m3 Air			10/13/15 00:35	68
Styrene	ND		120		ug/m3 Air			10/13/15 00:35	68
1,1,2,2-Tetrachloroethane	ND		190		ug/m3 Air			10/13/15 00:35	68
Tetrachloroethene	9900		180		ug/m3 Air			10/13/15 00:35	68
Toluene	ND		100		ug/m3 Air			10/13/15 00:35	68
1,2,4-Trichlorobenzene	ND		1000		ug/m3 Air			10/13/15 00:35	68
1,1,1-Trichloroethane	ND		110		ug/m3 Air			10/13/15 00:35	68
1,1,2-Trichloroethane	ND		150		ug/m3 Air			10/13/15 00:35	68
Trichloroethene	660		150		ug/m3 Air			10/13/15 00:35	68
Trichlorofluoromethane	ND		150		ug/m3 Air			10/13/15 00:35	68
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		210		ug/m3 Air			10/13/15 00:35	68
1,2,4-Trimethylbenzene	ND		270		ug/m3 Air			10/13/15 00:35	68
1,3,5-Trimethylbenzene	ND		130		ug/m3 Air			10/13/15 00:35	68
Vinyl acetate	ND		190		ug/m3 Air			10/13/15 00:35	68
Vinyl chloride	ND		70		ug/m3 Air			10/13/15 00:35	68
m,p-Xylene	ND		240		ug/m3 Air			10/13/15 00:35	68
o-Xylene	ND		120		ug/m3 Air			10/13/15 00:35	68
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		70 - 130					10/13/15 00:35	68
1,2-Dichloroethane-d4 (Surr)	93		70 - 130					10/13/15 00:35	68
Toluene-d8 (Surr)	95		70 - 130					10/13/15 00:35	68

Client Sample ID: SVE SOUTH POSTCARBON

Lab Sample ID: 320-15189-3

Date Collected: 09/28/15 09:20

Matrix: Air

Date Received: 09/29/15 09:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		9.4		ppb v/v			10/13/15 01:19	1.878
Benzene	ND		0.75		ppb v/v			10/13/15 01:19	1.878
Benzyl chloride	ND		1.5		ppb v/v			10/13/15 01:19	1.878
Bromodichloromethane	ND		0.56		ppb v/v			10/13/15 01:19	1.878
Bromoform	ND		0.75		ppb v/v			10/13/15 01:19	1.878
Bromomethane	ND		1.5		ppb v/v			10/13/15 01:19	1.878
2-Butanone (MEK)	ND		1.5		ppb v/v			10/13/15 01:19	1.878
Carbon disulfide	ND		1.5		ppb v/v			10/13/15 01:19	1.878
Carbon tetrachloride	7.1		1.5		ppb v/v			10/13/15 01:19	1.878
Chlorobenzene	ND		0.56		ppb v/v			10/13/15 01:19	1.878
Dibromochloromethane	ND		0.75		ppb v/v			10/13/15 01:19	1.878
Chloroethane	ND		1.5		ppb v/v			10/13/15 01:19	1.878
Chloroform	ND		0.56		ppb v/v			10/13/15 01:19	1.878
Chloromethane	ND		1.5		ppb v/v			10/13/15 01:19	1.878

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15189-1

Client Sample ID: SVE SOUTH POSTCARBON

Lab Sample ID: 320-15189-3

Date Collected: 09/28/15 09:20

Matrix: Air

Date Received: 09/29/15 09:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		1.5		ppb v/v			10/13/15 01:19	1.878
1,2-Dichlorobenzene	ND		0.75		ppb v/v			10/13/15 01:19	1.878
1,3-Dichlorobenzene	ND		0.75		ppb v/v			10/13/15 01:19	1.878
1,4-Dichlorobenzene	ND		0.75		ppb v/v			10/13/15 01:19	1.878
Dichlorodifluoromethane	ND		0.75		ppb v/v			10/13/15 01:19	1.878
1,1-Dichloroethane	0.84		0.56		ppb v/v			10/13/15 01:19	1.878
1,2-Dichloroethane	ND		1.5		ppb v/v			10/13/15 01:19	1.878
1,1-Dichloroethene	ND		1.5		ppb v/v			10/13/15 01:19	1.878
cis-1,2-Dichloroethene	86		0.75		ppb v/v			10/13/15 01:19	1.878
trans-1,2-Dichloroethene	0.92		0.75		ppb v/v			10/13/15 01:19	1.878
1,2-Dichloropropane	ND		0.75		ppb v/v			10/13/15 01:19	1.878
cis-1,3-Dichloropropene	ND		0.75		ppb v/v			10/13/15 01:19	1.878
trans-1,3-Dichloropropene	ND		0.75		ppb v/v			10/13/15 01:19	1.878
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.75		ppb v/v			10/13/15 01:19	1.878
Ethylbenzene	ND		0.75		ppb v/v			10/13/15 01:19	1.878
4-Ethyltoluene	ND		0.75		ppb v/v			10/13/15 01:19	1.878
Hexachlorobutadiene	ND		3.8		ppb v/v			10/13/15 01:19	1.878
2-Hexanone	ND		0.75		ppb v/v			10/13/15 01:19	1.878
Methylene Chloride	ND		0.75		ppb v/v			10/13/15 01:19	1.878
4-Methyl-2-pentanone (MIBK)	ND		0.75		ppb v/v			10/13/15 01:19	1.878
Styrene	ND		0.75		ppb v/v			10/13/15 01:19	1.878
1,1,2,2-Tetrachloroethane	ND		0.75		ppb v/v			10/13/15 01:19	1.878
Tetrachloroethene	44		0.75		ppb v/v			10/13/15 01:19	1.878
Toluene	ND		0.75		ppb v/v			10/13/15 01:19	1.878
1,2,4-Trichlorobenzene	ND		3.8		ppb v/v			10/13/15 01:19	1.878
1,1,1-Trichloroethane	7.1		0.56		ppb v/v			10/13/15 01:19	1.878
1,1,2-Trichloroethane	ND		0.75		ppb v/v			10/13/15 01:19	1.878
Trichloroethene	11		0.75		ppb v/v			10/13/15 01:19	1.878
Trichlorofluoromethane	ND		0.75		ppb v/v			10/13/15 01:19	1.878
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.75		ppb v/v			10/13/15 01:19	1.878
1,2,4-Trimethylbenzene	ND		1.5		ppb v/v			10/13/15 01:19	1.878
1,3,5-Trimethylbenzene	ND		0.75		ppb v/v			10/13/15 01:19	1.878
Vinyl acetate	ND		1.5		ppb v/v			10/13/15 01:19	1.878
Vinyl chloride	ND		0.75		ppb v/v			10/13/15 01:19	1.878
m,p-Xylene	ND		1.5		ppb v/v			10/13/15 01:19	1.878
o-Xylene	ND		0.75		ppb v/v			10/13/15 01:19	1.878
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		22		ug/m3 Air			10/13/15 01:19	1.878
Benzene	ND		2.4		ug/m3 Air			10/13/15 01:19	1.878
Benzyl chloride	ND		7.8		ug/m3 Air			10/13/15 01:19	1.878
Bromodichloromethane	ND		3.8		ug/m3 Air			10/13/15 01:19	1.878
Bromoform	ND		7.8		ug/m3 Air			10/13/15 01:19	1.878
Bromomethane	ND		5.8		ug/m3 Air			10/13/15 01:19	1.878
2-Butanone (MEK)	ND		4.4		ug/m3 Air			10/13/15 01:19	1.878
Carbon disulfide	ND		4.7		ug/m3 Air			10/13/15 01:19	1.878
Carbon tetrachloride	45		9.5		ug/m3 Air			10/13/15 01:19	1.878
Chlorobenzene	ND		2.6		ug/m3 Air			10/13/15 01:19	1.878
Dibromochloromethane	ND		6.4		ug/m3 Air			10/13/15 01:19	1.878

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15189-1

Client Sample ID: SVE SOUTH POSTCARBON

Lab Sample ID: 320-15189-3

Date Collected: 09/28/15 09:20

Matrix: Air

Date Received: 09/29/15 09:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroethane	ND		4.0		ug/m3 Air			10/13/15 01:19	1.878
Chloroform	ND		2.8		ug/m3 Air			10/13/15 01:19	1.878
Chloromethane	ND		3.1		ug/m3 Air			10/13/15 01:19	1.878
1,2-Dibromoethane (EDB)	ND		12		ug/m3 Air			10/13/15 01:19	1.878
1,2-Dichlorobenzene	ND		4.5		ug/m3 Air			10/13/15 01:19	1.878
1,3-Dichlorobenzene	ND		4.5		ug/m3 Air			10/13/15 01:19	1.878
1,4-Dichlorobenzene	ND		4.5		ug/m3 Air			10/13/15 01:19	1.878
Dichlorodifluoromethane	ND		3.7		ug/m3 Air			10/13/15 01:19	1.878
1,1-Dichloroethane	3.4		2.3		ug/m3 Air			10/13/15 01:19	1.878
1,2-Dichloroethane	ND		6.1		ug/m3 Air			10/13/15 01:19	1.878
1,1-Dichloroethene	ND		6.0		ug/m3 Air			10/13/15 01:19	1.878
cis-1,2-Dichloroethene	340		3.0		ug/m3 Air			10/13/15 01:19	1.878
trans-1,2-Dichloroethene	3.6		3.0		ug/m3 Air			10/13/15 01:19	1.878
1,2-Dichloropropane	ND		3.5		ug/m3 Air			10/13/15 01:19	1.878
cis-1,3-Dichloropropene	ND		3.4		ug/m3 Air			10/13/15 01:19	1.878
trans-1,3-Dichloropropene	ND		3.4		ug/m3 Air			10/13/15 01:19	1.878
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		5.3		ug/m3 Air			10/13/15 01:19	1.878
Ethylbenzene	ND		3.3		ug/m3 Air			10/13/15 01:19	1.878
4-Ethyltoluene	ND		3.7		ug/m3 Air			10/13/15 01:19	1.878
Hexachlorobutadiene	ND		40		ug/m3 Air			10/13/15 01:19	1.878
2-Hexanone	ND		3.1		ug/m3 Air			10/13/15 01:19	1.878
Methylene Chloride	ND		2.6		ug/m3 Air			10/13/15 01:19	1.878
4-Methyl-2-pentanone (MIBK)	ND		3.1		ug/m3 Air			10/13/15 01:19	1.878
Styrene	ND		3.2		ug/m3 Air			10/13/15 01:19	1.878
1,1,2,2-Tetrachloroethane	ND		5.2		ug/m3 Air			10/13/15 01:19	1.878
Tetrachloroethene	300		5.1		ug/m3 Air			10/13/15 01:19	1.878
Toluene	ND		2.8		ug/m3 Air			10/13/15 01:19	1.878
1,2,4-Trichlorobenzene	ND		28		ug/m3 Air			10/13/15 01:19	1.878
1,1,1-Trichloroethane	39		3.1		ug/m3 Air			10/13/15 01:19	1.878
1,1,2-Trichloroethane	ND		4.1		ug/m3 Air			10/13/15 01:19	1.878
Trichloroethene	59		4.0		ug/m3 Air			10/13/15 01:19	1.878
Trichlorofluoromethane	ND		4.2		ug/m3 Air			10/13/15 01:19	1.878
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.8		ug/m3 Air			10/13/15 01:19	1.878
1,2,4-Trimethylbenzene	ND		7.4		ug/m3 Air			10/13/15 01:19	1.878
1,3,5-Trimethylbenzene	ND		3.7		ug/m3 Air			10/13/15 01:19	1.878
Vinyl acetate	ND		5.3		ug/m3 Air			10/13/15 01:19	1.878
Vinyl chloride	ND		1.9		ug/m3 Air			10/13/15 01:19	1.878
m,p-Xylene	ND		6.5		ug/m3 Air			10/13/15 01:19	1.878
o-Xylene	ND		3.3		ug/m3 Air			10/13/15 01:19	1.878
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		70 - 130					10/13/15 01:19	1.878
1,2-Dichloroethane-d4 (Surr)	96		70 - 130					10/13/15 01:19	1.878
Toluene-d8 (Surr)	97		70 - 130					10/13/15 01:19	1.878

TestAmerica Sacramento

Surrogate Summary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15189-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Matrix: Air

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (70-130)	12DCE (70-130)	TOL (70-130)
320-15189-1	SVE NORTH	102	97	98
320-15189-2	SVE SOUTH PRECARBON	99	93	95
320-15189-3	SVE SOUTH POSTCARBON	101	96	97
LCS 320-88831/36	Lab Control Sample	113	96	103
LCSD 320-88831/5	Lab Control Sample Dup	110	94	102
MB 320-88831/11	Method Blank	100	95	99

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

12DCE = 1,2-Dichloroethane-d4 (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15189-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Lab Sample ID: MB 320-88831/11

Matrix: Air

Analysis Batch: 88831

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		5.0		ppb v/v			10/12/15 16:29	1
Benzene	ND		0.40		ppb v/v			10/12/15 16:29	1
Benzyl chloride	ND		0.80		ppb v/v			10/12/15 16:29	1
Bromodichloromethane	ND		0.30		ppb v/v			10/12/15 16:29	1
Bromoform	ND		0.40		ppb v/v			10/12/15 16:29	1
Bromomethane	ND		0.80		ppb v/v			10/12/15 16:29	1
2-Butanone (MEK)	ND		0.80		ppb v/v			10/12/15 16:29	1
Carbon disulfide	ND		0.80		ppb v/v			10/12/15 16:29	1
Carbon tetrachloride	ND		0.80		ppb v/v			10/12/15 16:29	1
Chlorobenzene	ND		0.30		ppb v/v			10/12/15 16:29	1
Dibromochloromethane	ND		0.40		ppb v/v			10/12/15 16:29	1
Chloroethane	ND		0.80		ppb v/v			10/12/15 16:29	1
Chloroform	ND		0.30		ppb v/v			10/12/15 16:29	1
Chloromethane	ND		0.80		ppb v/v			10/12/15 16:29	1
1,2-Dibromoethane (EDB)	ND		0.80		ppb v/v			10/12/15 16:29	1
1,2-Dichlorobenzene	ND		0.40		ppb v/v			10/12/15 16:29	1
1,3-Dichlorobenzene	ND		0.40		ppb v/v			10/12/15 16:29	1
1,4-Dichlorobenzene	ND		0.40		ppb v/v			10/12/15 16:29	1
Dichlorodifluoromethane	ND		0.40		ppb v/v			10/12/15 16:29	1
1,1-Dichloroethane	ND		0.30		ppb v/v			10/12/15 16:29	1
1,2-Dichloroethane	ND		0.80		ppb v/v			10/12/15 16:29	1
1,1-Dichloroethene	ND		0.80		ppb v/v			10/12/15 16:29	1
cis-1,2-Dichloroethene	ND		0.40		ppb v/v			10/12/15 16:29	1
trans-1,2-Dichloroethene	ND		0.40		ppb v/v			10/12/15 16:29	1
1,2-Dichloropropane	ND		0.40		ppb v/v			10/12/15 16:29	1
cis-1,3-Dichloropropene	ND		0.40		ppb v/v			10/12/15 16:29	1
trans-1,3-Dichloropropene	ND		0.40		ppb v/v			10/12/15 16:29	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40		ppb v/v			10/12/15 16:29	1
Ethylbenzene	ND		0.40		ppb v/v			10/12/15 16:29	1
4-Ethyltoluene	ND		0.40		ppb v/v			10/12/15 16:29	1
Hexachlorobutadiene	ND		2.0		ppb v/v			10/12/15 16:29	1
2-Hexanone	ND		0.40		ppb v/v			10/12/15 16:29	1
Methylene Chloride	ND		0.40		ppb v/v			10/12/15 16:29	1
4-Methyl-2-pentanone (MIBK)	ND		0.40		ppb v/v			10/12/15 16:29	1
Styrene	ND		0.40		ppb v/v			10/12/15 16:29	1
1,1,2,2-Tetrachloroethane	ND		0.40		ppb v/v			10/12/15 16:29	1
Tetrachloroethene	ND		0.40		ppb v/v			10/12/15 16:29	1
Toluene	ND		0.40		ppb v/v			10/12/15 16:29	1
1,2,4-Trichlorobenzene	ND		2.0		ppb v/v			10/12/15 16:29	1
1,1,1-Trichloroethane	ND		0.30		ppb v/v			10/12/15 16:29	1
1,1,2-Trichloroethane	ND		0.40		ppb v/v			10/12/15 16:29	1
Trichloroethene	ND		0.40		ppb v/v			10/12/15 16:29	1
Trichlorofluoromethane	ND		0.40		ppb v/v			10/12/15 16:29	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40		ppb v/v			10/12/15 16:29	1
1,2,4-Trimethylbenzene	ND		0.80		ppb v/v			10/12/15 16:29	1
1,3,5-Trimethylbenzene	ND		0.40		ppb v/v			10/12/15 16:29	1
Vinyl acetate	ND		0.80		ppb v/v			10/12/15 16:29	1
Vinyl chloride	ND		0.40		ppb v/v			10/12/15 16:29	1

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15189-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-88831/11
Matrix: Air
Analysis Batch: 88831

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
m,p-Xylene	ND		0.80		ppb v/v			10/12/15 16:29	1
o-Xylene	ND		0.40		ppb v/v			10/12/15 16:29	1
Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Acetone	ND		12		ug/m3 Air			10/12/15 16:29	1
Benzene	ND		1.3		ug/m3 Air			10/12/15 16:29	1
Benzyl chloride	ND		4.1		ug/m3 Air			10/12/15 16:29	1
Bromodichloromethane	ND		2.0		ug/m3 Air			10/12/15 16:29	1
Bromoform	ND		4.1		ug/m3 Air			10/12/15 16:29	1
Bromomethane	ND		3.1		ug/m3 Air			10/12/15 16:29	1
2-Butanone (MEK)	ND		2.4		ug/m3 Air			10/12/15 16:29	1
Carbon disulfide	ND		2.5		ug/m3 Air			10/12/15 16:29	1
Carbon tetrachloride	ND		5.0		ug/m3 Air			10/12/15 16:29	1
Chlorobenzene	ND		1.4		ug/m3 Air			10/12/15 16:29	1
Dibromochloromethane	ND		3.4		ug/m3 Air			10/12/15 16:29	1
Chloroethane	ND		2.1		ug/m3 Air			10/12/15 16:29	1
Chloroform	ND		1.5		ug/m3 Air			10/12/15 16:29	1
Chloromethane	ND		1.7		ug/m3 Air			10/12/15 16:29	1
1,2-Dibromoethane (EDB)	ND		6.1		ug/m3 Air			10/12/15 16:29	1
1,2-Dichlorobenzene	ND		2.4		ug/m3 Air			10/12/15 16:29	1
1,3-Dichlorobenzene	ND		2.4		ug/m3 Air			10/12/15 16:29	1
1,4-Dichlorobenzene	ND		2.4		ug/m3 Air			10/12/15 16:29	1
Dichlorodifluoromethane	ND		2.0		ug/m3 Air			10/12/15 16:29	1
1,1-Dichloroethane	ND		1.2		ug/m3 Air			10/12/15 16:29	1
1,2-Dichloroethane	ND		3.2		ug/m3 Air			10/12/15 16:29	1
1,1-Dichloroethene	ND		3.2		ug/m3 Air			10/12/15 16:29	1
cis-1,2-Dichloroethene	ND		1.6		ug/m3 Air			10/12/15 16:29	1
trans-1,2-Dichloroethene	ND		1.6		ug/m3 Air			10/12/15 16:29	1
1,2-Dichloropropane	ND		1.8		ug/m3 Air			10/12/15 16:29	1
cis-1,3-Dichloropropene	ND		1.8		ug/m3 Air			10/12/15 16:29	1
trans-1,3-Dichloropropene	ND		1.8		ug/m3 Air			10/12/15 16:29	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.8		ug/m3 Air			10/12/15 16:29	1
Ethylbenzene	ND		1.7		ug/m3 Air			10/12/15 16:29	1
4-Ethyltoluene	ND		2.0		ug/m3 Air			10/12/15 16:29	1
Hexachlorobutadiene	ND		21		ug/m3 Air			10/12/15 16:29	1
2-Hexanone	ND		1.6		ug/m3 Air			10/12/15 16:29	1
Methylene Chloride	ND		1.4		ug/m3 Air			10/12/15 16:29	1
4-Methyl-2-pentanone (MIBK)	ND		1.6		ug/m3 Air			10/12/15 16:29	1
Styrene	ND		1.7		ug/m3 Air			10/12/15 16:29	1
1,1,2,2-Tetrachloroethane	ND		2.7		ug/m3 Air			10/12/15 16:29	1
Tetrachloroethene	ND		2.7		ug/m3 Air			10/12/15 16:29	1
Toluene	ND		1.5		ug/m3 Air			10/12/15 16:29	1
1,2,4-Trichlorobenzene	ND		15		ug/m3 Air			10/12/15 16:29	1
1,1,1-Trichloroethane	ND		1.6		ug/m3 Air			10/12/15 16:29	1
1,1,2-Trichloroethane	ND		2.2		ug/m3 Air			10/12/15 16:29	1
Trichloroethene	ND		2.1		ug/m3 Air			10/12/15 16:29	1
Trichlorofluoromethane	ND		2.2		ug/m3 Air			10/12/15 16:29	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.1		ug/m3 Air			10/12/15 16:29	1

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15189-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-88831/11
Matrix: Air
Analysis Batch: 88831

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	ND		3.9		ug/m3 Air			10/12/15 16:29	1
1,3,5-Trimethylbenzene	ND		2.0		ug/m3 Air			10/12/15 16:29	1
Vinyl acetate	ND		2.8		ug/m3 Air			10/12/15 16:29	1
Vinyl chloride	ND		1.0		ug/m3 Air			10/12/15 16:29	1
m,p-Xylene	ND		3.5		ug/m3 Air			10/12/15 16:29	1
o-Xylene	ND		1.7		ug/m3 Air			10/12/15 16:29	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		70 - 130		10/12/15 16:29	1
1,2-Dichloroethane-d4 (Surr)	95		70 - 130		10/12/15 16:29	1
Toluene-d8 (Surr)	99		70 - 130		10/12/15 16:29	1

Lab Sample ID: LCS 320-88831/36
Matrix: Air
Analysis Batch: 88831

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	15.1		ppb v/v		76	71 - 131
Benzene	20.0	20.1		ppb v/v		100	68 - 128
Benzyl chloride	20.0	15.5		ppb v/v		78	58 - 120
Bromodichloromethane	20.0	20.4		ppb v/v		102	65 - 130
Bromoform	20.0	22.3		ppb v/v		111	64 - 144
Bromomethane	20.0	21.3		ppb v/v		107	70 - 131
2-Butanone (MEK)	20.0	16.1		ppb v/v		81	71 - 131
Carbon disulfide	20.0	19.1		ppb v/v		96	63 - 123
Carbon tetrachloride	20.0	21.3		ppb v/v		107	67 - 127
Chlorobenzene	20.0	21.0		ppb v/v		105	70 - 132
Dibromochloromethane	20.0	21.1		ppb v/v		106	68 - 128
Chloroethane	20.0	20.7		ppb v/v		104	70 - 131
Chloroform	20.0	19.1		ppb v/v		96	69 - 129
Chloromethane	20.0	21.4		ppb v/v		107	67 - 127
1,2-Dibromoethane (EDB)	20.0	21.4		ppb v/v		107	68 - 131
1,2-Dichlorobenzene	20.0	22.9		ppb v/v		115	73 - 143
1,3-Dichlorobenzene	20.0	24.8		ppb v/v		124	77 - 136
1,4-Dichlorobenzene	20.0	24.9		ppb v/v		124	73 - 143
Dichlorodifluoromethane	20.0	19.6		ppb v/v		98	69 - 129
1,1-Dichloroethane	20.0	19.1		ppb v/v		95	65 - 125
1,2-Dichloroethane	20.0	19.7		ppb v/v		98	71 - 131
1,1-Dichloroethene	20.0	17.3		ppb v/v		86	53 - 128
cis-1,2-Dichloroethene	20.0	20.3		ppb v/v		102	68 - 128
trans-1,2-Dichloroethene	20.0	20.0		ppb v/v		100	70 - 130
1,2-Dichloropropane	20.0	21.0		ppb v/v		105	74 - 128
cis-1,3-Dichloropropene	20.0	22.6		ppb v/v		113	78 - 132
trans-1,3-Dichloropropene	20.0	19.1		ppb v/v		96	56 - 136
1,2-Dichloro-1,1,2,2-tetrafluoroethane	20.0	16.6		ppb v/v		83	64 - 124
Ethylbenzene	20.0	23.2		ppb v/v		116	76 - 136
4-Ethyltoluene	20.0	18.2		ppb v/v		91	62 - 136

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15189-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-88831/36

Matrix: Air

Analysis Batch: 88831

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hexachlorobutadiene	20.0	21.7		ppb v/v		108	42 - 150
2-Hexanone	20.0	19.0		ppb v/v		95	70 - 128
Methylene Chloride	20.0	17.7		ppb v/v		88	65 - 125
4-Methyl-2-pentanone (MIBK)	20.0	16.5		ppb v/v		83	73 - 133
Styrene	20.0	22.6		ppb v/v		113	76 - 144
1,1,2,2-Tetrachloroethane	20.0	21.4		ppb v/v		107	75 - 135
Tetrachloroethene	20.0	20.1		ppb v/v		101	56 - 138
Toluene	20.0	21.1		ppb v/v		105	71 - 132
1,2,4-Trichlorobenzene	20.0	24.4		ppb v/v		122	59 - 150
1,1,1-Trichloroethane	20.0	18.9		ppb v/v		95	65 - 124
1,1,2-Trichloroethane	20.0	21.6		ppb v/v		108	71 - 131
Trichloroethene	20.0	20.5		ppb v/v		103	64 - 127
Trichlorofluoromethane	20.0	19.3		ppb v/v		97	68 - 128
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	17.9		ppb v/v		90	50 - 132
1,2,4-Trimethylbenzene	20.0	17.3		ppb v/v		87	61 - 145
1,3,5-Trimethylbenzene	20.0	18.3		ppb v/v		91	65 - 136
Vinyl acetate	20.0	19.0		ppb v/v		95	77 - 134
Vinyl chloride	20.0	21.4		ppb v/v		107	69 - 129
m,p-Xylene	40.0	42.4		ppb v/v		106	75 - 138
o-Xylene	20.0	20.5		ppb v/v		103	77 - 132

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	48	36.0		ug/m3 Air		76	71 - 131
Benzene	64	64.1		ug/m3 Air		100	68 - 128
Benzyl chloride	100	80.4		ug/m3 Air		78	58 - 120
Bromodichloromethane	130	136		ug/m3 Air		102	65 - 130
Bromoform	210	230		ug/m3 Air		111	64 - 144
Bromomethane	78	82.9		ug/m3 Air		107	70 - 131
2-Butanone (MEK)	59	47.6		ug/m3 Air		81	71 - 131
Carbon disulfide	62	59.6		ug/m3 Air		96	63 - 123
Carbon tetrachloride	130	134		ug/m3 Air		107	67 - 127
Chlorobenzene	92	96.8		ug/m3 Air		105	70 - 132
Dibromochloromethane	170	180		ug/m3 Air		106	68 - 128
Chloroethane	53	54.7		ug/m3 Air		104	70 - 131
Chloroform	98	93.4		ug/m3 Air		96	69 - 129
Chloromethane	41	44.1		ug/m3 Air		107	67 - 127
1,2-Dibromoethane (EDB)	150	165		ug/m3 Air		107	68 - 131
1,2-Dichlorobenzene	120	138		ug/m3 Air		115	73 - 143
1,3-Dichlorobenzene	120	149		ug/m3 Air		124	77 - 136
1,4-Dichlorobenzene	120	150		ug/m3 Air		124	73 - 143
Dichlorodifluoromethane	99	96.8		ug/m3 Air		98	69 - 129
1,1-Dichloroethane	81	77.2		ug/m3 Air		95	65 - 125
1,2-Dichloroethane	81	79.7		ug/m3 Air		98	71 - 131
1,1-Dichloroethene	79	68.6		ug/m3 Air		86	53 - 128
cis-1,2-Dichloroethene	79	80.6		ug/m3 Air		102	68 - 128
trans-1,2-Dichloroethene	79	79.2		ug/m3 Air		100	70 - 130
1,2-Dichloropropane	92	97.3		ug/m3 Air		105	74 - 128

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15189-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-88831/36

Matrix: Air

Analysis Batch: 88831

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,3-Dichloropropene	91	103		ug/m3 Air		113	78 - 132
trans-1,3-Dichloropropene	91	86.7		ug/m3 Air		96	56 - 136
1,2-Dichloro-1,1,2,2-tetrafluoroethane	140	116		ug/m3 Air		83	64 - 124
Ethylbenzene	87	101		ug/m3 Air		116	76 - 136
4-Ethyltoluene	98	89.6		ug/m3 Air		91	62 - 136
Hexachlorobutadiene	210	231		ug/m3 Air		108	42 - 150
2-Hexanone	82	77.8		ug/m3 Air		95	70 - 128
Methylene Chloride	69	61.4		ug/m3 Air		88	65 - 125
4-Methyl-2-pentanone (MIBK)	82	67.8		ug/m3 Air		83	73 - 133
Styrene	85	96.5		ug/m3 Air		113	76 - 144
1,1,2,2-Tetrachloroethane	140	147		ug/m3 Air		107	75 - 135
Tetrachloroethene	140	136		ug/m3 Air		101	56 - 138
Toluene	75	79.5		ug/m3 Air		105	71 - 132
1,2,4-Trichlorobenzene	150	181		ug/m3 Air		122	59 - 150
1,1,1-Trichloroethane	110	103		ug/m3 Air		95	65 - 124
1,1,2-Trichloroethane	110	118		ug/m3 Air		108	71 - 131
Trichloroethene	110	110		ug/m3 Air		103	64 - 127
Trichlorofluoromethane	110	109		ug/m3 Air		97	68 - 128
1,1,2-Trichloro-1,2,2-trifluoroethane	150	138		ug/m3 Air		90	50 - 132
1,2,4-Trimethylbenzene	98	85.1		ug/m3 Air		87	61 - 145
1,3,5-Trimethylbenzene	98	89.9		ug/m3 Air		91	65 - 136
Vinyl acetate	70	67.0		ug/m3 Air		95	77 - 134
Vinyl chloride	51	54.8		ug/m3 Air		107	69 - 129
m,p-Xylene	170	184		ug/m3 Air		106	75 - 138
o-Xylene	87	89.0		ug/m3 Air		103	77 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	113		70 - 130
1,2-Dichloroethane-d4 (Surr)	96		70 - 130
Toluene-d8 (Surr)	103		70 - 130

Lab Sample ID: LCSD 320-88831/5

Matrix: Air

Analysis Batch: 88831

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	20.0	14.8		ppb v/v		74	71 - 131	2	25
Benzene	20.0	19.8		ppb v/v		99	68 - 128	1	25
Benzyl chloride	20.0	15.5		ppb v/v		77	58 - 120	0	25
Bromodichloromethane	20.0	20.1		ppb v/v		101	65 - 130	1	25
Bromoform	20.0	22.0		ppb v/v		110	64 - 144	1	25
Bromomethane	20.0	20.9		ppb v/v		105	70 - 131	2	25
2-Butanone (MEK)	20.0	15.7		ppb v/v		78	71 - 131	3	25
Carbon disulfide	20.0	18.7		ppb v/v		93	63 - 123	3	25
Carbon tetrachloride	20.0	20.9		ppb v/v		104	67 - 127	2	25
Chlorobenzene	20.0	20.8		ppb v/v		104	70 - 132	1	25

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15189-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-88831/5

Matrix: Air

Analysis Batch: 88831

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dibromochloromethane	20.0	21.0		ppb v/v		105	68 - 128	1	25
Chloroethane	20.0	20.5		ppb v/v		103	70 - 131	1	25
Chloroform	20.0	18.7		ppb v/v		94	69 - 129	2	25
Chloromethane	20.0	20.8		ppb v/v		104	67 - 127	3	25
1,2-Dibromoethane (EDB)	20.0	21.4		ppb v/v		107	68 - 131	0	25
1,2-Dichlorobenzene	20.0	22.5		ppb v/v		112	73 - 143	2	25
1,3-Dichlorobenzene	20.0	24.2		ppb v/v		121	77 - 136	2	25
1,4-Dichlorobenzene	20.0	24.4		ppb v/v		122	73 - 143	2	25
Dichlorodifluoromethane	20.0	19.3		ppb v/v		97	69 - 129	1	25
1,1-Dichloroethane	20.0	18.8		ppb v/v		94	65 - 125	2	25
1,2-Dichloroethane	20.0	19.2		ppb v/v		96	71 - 131	2	25
1,1-Dichloroethene	20.0	17.1		ppb v/v		85	53 - 128	1	25
cis-1,2-Dichloroethene	20.0	19.8		ppb v/v		99	68 - 128	3	25
trans-1,2-Dichloroethene	20.0	19.5		ppb v/v		98	70 - 130	2	25
1,2-Dichloropropane	20.0	20.3		ppb v/v		102	74 - 128	3	25
cis-1,3-Dichloropropene	20.0	22.5		ppb v/v		112	78 - 132	1	25
trans-1,3-Dichloropropene	20.0	19.1		ppb v/v		95	56 - 136	0	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	20.0	17.2		ppb v/v		86	64 - 124	3	25
Ethylbenzene	20.0	22.3		ppb v/v		112	76 - 136	4	25
4-Ethyltoluene	20.0	18.0		ppb v/v		90	62 - 136	1	25
Hexachlorobutadiene	20.0	21.4		ppb v/v		107	42 - 150	1	25
2-Hexanone	20.0	19.3		ppb v/v		97	70 - 128	2	25
Methylene Chloride	20.0	17.3		ppb v/v		87	65 - 125	2	25
4-Methyl-2-pentanone (MIBK)	20.0	16.5		ppb v/v		83	73 - 133	0	25
Styrene	20.0	21.9		ppb v/v		109	76 - 144	3	25
1,1,2,2-Tetrachloroethane	20.0	21.3		ppb v/v		106	75 - 135	1	25
Tetrachloroethene	20.0	20.2		ppb v/v		101	56 - 138	0	25
Toluene	20.0	20.7		ppb v/v		104	71 - 132	2	25
1,2,4-Trichlorobenzene	20.0	23.9		ppb v/v		120	59 - 150	2	25
1,1,1-Trichloroethane	20.0	18.5		ppb v/v		93	65 - 124	2	25
1,1,2-Trichloroethane	20.0	21.2		ppb v/v		106	71 - 131	2	25
Trichloroethene	20.0	20.1		ppb v/v		101	64 - 127	2	25
Trichlorofluoromethane	20.0	18.9		ppb v/v		94	68 - 128	2	25
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	17.7		ppb v/v		88	50 - 132	2	25
1,2,4-Trimethylbenzene	20.0	17.1		ppb v/v		85	61 - 145	1	25
1,3,5-Trimethylbenzene	20.0	18.2		ppb v/v		91	65 - 136	1	25
Vinyl acetate	20.0	18.6		ppb v/v		93	77 - 134	3	25
Vinyl chloride	20.0	21.0		ppb v/v		105	69 - 129	2	25
m,p-Xylene	40.0	40.9		ppb v/v		102	75 - 138	4	25
o-Xylene	20.0	20.4		ppb v/v		102	77 - 132	1	25
Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	48	35.3		ug/m3 Air		74	71 - 131	2	25
Benzene	64	63.2		ug/m3 Air		99	68 - 128	1	25
Benzyl chloride	100	80.1		ug/m3 Air		77	58 - 120	0	25
Bromodichloromethane	130	135		ug/m3 Air		101	65 - 130	1	25
Bromoform	210	227		ug/m3 Air		110	64 - 144	1	25

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15189-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-88831/5

Matrix: Air

Analysis Batch: 88831

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromomethane	78	81.2		ug/m3 Air		105	70 - 131	2	25
2-Butanone (MEK)	59	46.2		ug/m3 Air		78	71 - 131	3	25
Carbon disulfide	62	58.1		ug/m3 Air		93	63 - 123	3	25
Carbon tetrachloride	130	131		ug/m3 Air		104	67 - 127	2	25
Chlorobenzene	92	95.9		ug/m3 Air		104	70 - 132	1	25
Dibromochloromethane	170	179		ug/m3 Air		105	68 - 128	1	25
Chloroethane	53	54.1		ug/m3 Air		103	70 - 131	1	25
Chloroform	98	91.5		ug/m3 Air		94	69 - 129	2	25
Chloromethane	41	43.0		ug/m3 Air		104	67 - 127	3	25
1,2-Dibromoethane (EDB)	150	164		ug/m3 Air		107	68 - 131	0	25
1,2-Dichlorobenzene	120	135		ug/m3 Air		112	73 - 143	2	25
1,3-Dichlorobenzene	120	145		ug/m3 Air		121	77 - 136	2	25
1,4-Dichlorobenzene	120	146		ug/m3 Air		122	73 - 143	2	25
Dichlorodifluoromethane	99	95.5		ug/m3 Air		97	69 - 129	1	25
1,1-Dichloroethane	81	76.0		ug/m3 Air		94	65 - 125	2	25
1,2-Dichloroethane	81	77.8		ug/m3 Air		96	71 - 131	2	25
1,1-Dichloroethene	79	67.8		ug/m3 Air		85	53 - 128	1	25
cis-1,2-Dichloroethene	79	78.5		ug/m3 Air		99	68 - 128	3	25
trans-1,2-Dichloroethene	79	77.4		ug/m3 Air		98	70 - 130	2	25
1,2-Dichloropropane	92	94.0		ug/m3 Air		102	74 - 128	3	25
cis-1,3-Dichloropropene	91	102		ug/m3 Air		112	78 - 132	1	25
trans-1,3-Dichloropropene	91	86.6		ug/m3 Air		95	56 - 136	0	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	140	120		ug/m3 Air		86	64 - 124	3	25
Ethylbenzene	87	97.0		ug/m3 Air		112	76 - 136	4	25
4-Ethyltoluene	98	88.6		ug/m3 Air		90	62 - 136	1	25
Hexachlorobutadiene	210	228		ug/m3 Air		107	42 - 150	1	25
2-Hexanone	82	79.1		ug/m3 Air		97	70 - 128	2	25
Methylene Chloride	69	60.2		ug/m3 Air		87	65 - 125	2	25
4-Methyl-2-pentanone (MIBK)	82	67.8		ug/m3 Air		83	73 - 133	0	25
Styrene	85	93.2		ug/m3 Air		109	76 - 144	3	25
1,1,2,2-Tetrachloroethane	140	146		ug/m3 Air		106	75 - 135	1	25
Tetrachloroethene	140	137		ug/m3 Air		101	56 - 138	0	25
Toluene	75	78.2		ug/m3 Air		104	71 - 132	2	25
1,2,4-Trichlorobenzene	150	178		ug/m3 Air		120	59 - 150	2	25
1,1,1-Trichloroethane	110	101		ug/m3 Air		93	65 - 124	2	25
1,1,2-Trichloroethane	110	116		ug/m3 Air		106	71 - 131	2	25
Trichloroethene	110	108		ug/m3 Air		101	64 - 127	2	25
Trichlorofluoromethane	110	106		ug/m3 Air		94	68 - 128	2	25
1,1,2-Trichloro-1,2,2-trifluoroethane	150	135		ug/m3 Air		88	50 - 132	2	25
1,2,4-Trimethylbenzene	98	83.9		ug/m3 Air		85	61 - 145	1	25
1,3,5-Trimethylbenzene	98	89.4		ug/m3 Air		91	65 - 136	1	25
Vinyl acetate	70	65.4		ug/m3 Air		93	77 - 134	3	25
Vinyl chloride	51	53.7		ug/m3 Air		105	69 - 129	2	25
m,p-Xylene	170	178		ug/m3 Air		102	75 - 138	4	25
o-Xylene	87	88.4		ug/m3 Air		102	77 - 132	1	25

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15189-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-88831/5

Matrix: Air

Analysis Batch: 88831

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	110		70 - 130
1,2-Dichloroethane-d4 (Surr)	94		70 - 130
Toluene-d8 (Surr)	102		70 - 130

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QC Association Summary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15189-1

Air - GC/MS VOA

Analysis Batch: 88831

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-15189-1	SVE NORTH	Total/NA	Air	TO-15	
320-15189-2	SVE SOUTH PRECARBON	Total/NA	Air	TO-15	
320-15189-3	SVE SOUTH POSTCARBON	Total/NA	Air	TO-15	
LCS 320-88831/36	Lab Control Sample	Total/NA	Air	TO-15	
LCSD 320-88831/5	Lab Control Sample Dup	Total/NA	Air	TO-15	
MB 320-88831/11	Method Blank	Total/NA	Air	TO-15	

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Lab Chronicle

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15189-1

Client Sample ID: SVE NORTH

Date Collected: 09/28/15 09:40

Date Received: 09/29/15 09:30

Lab Sample ID: 320-15189-1

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		6.97	70 mL	250 mL	88831	10/12/15 23:54	SRS	TAL SAC

Client Sample ID: SVE SOUTH PRECARBON

Date Collected: 09/28/15 09:00

Date Received: 09/29/15 09:30

Lab Sample ID: 320-15189-2

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		68	6.67 mL	250 mL	88831	10/13/15 00:35	SRS	TAL SAC

Client Sample ID: SVE SOUTH POSTCARBON

Date Collected: 09/28/15 09:20

Date Received: 09/29/15 09:30

Lab Sample ID: 320-15189-3

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1.878	250 mL	250 mL	88831	10/13/15 01:19	SRS	TAL SAC

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Certification Summary

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15189-1

Laboratory: TestAmerica Sacramento

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	01-31-16
Alaska (UST)	State Program	10	UST-055	12-18-15
Arizona	State Program	9	AZ0708	08-11-16
Arkansas DEQ	State Program	6	88-0691	06-17-16
California	State Program	9	2897	01-31-16
Colorado	State Program	8	N/A	08-31-16
Connecticut	State Program	1	PH-0691	06-30-17
Florida	NELAP	4	E87570	06-30-16
Hawaii	State Program	9	N/A	01-29-16
Illinois	NELAP	5	200060	03-17-16
Kansas	NELAP	7	E-10375	10-31-15
Louisiana	NELAP	6	30612	06-30-16
Michigan	State Program	5	9947	01-31-16
Nevada	State Program	9	CA44	07-31-16
New Jersey	NELAP	2	CA005	09-30-15 *
New York	NELAP	2	11666	04-01-16
Oregon	NELAP	10	CA200005	01-29-16
Pennsylvania	NELAP	3	9947	03-31-16
Texas	NELAP	6	T104704399-15-9	05-31-16
US Fish & Wildlife	Federal		LE148388-0	02-28-16
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-16
Utah	NELAP	8	QUAN1	02-28-16
Virginia	NELAP Secondary AB	3	460278	03-14-16
Washington	State Program	10	C581	05-04-16
West Virginia (DW)	State Program	3	9930C	12-31-15
Wyoming	State Program	8	8TMS-Q	01-29-16

Laboratory: TestAmerica Portland

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-012	12-26-15
Oregon	NELAP	10	OR100021	01-09-16
USDA	Federal		P330-11-00092	04-17-17

* Certification renewal pending - certification considered valid.

Method Summary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15189-1

Method	Method Description	Protocol	Laboratory
TO-15	Volatile Organic Compounds in Ambient Air	EPA	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

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Sample Summary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15189-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-15189-1	SVE NORTH	Air	09/28/15 09:40	09/29/15 09:30
320-15189-2	SVE SOUTH PRECARBON	Air	09/28/15 09:00	09/29/15 09:30
320-15189-3	SVE SOUTH POSTCARBON	Air	09/28/15 09:20	09/29/15 09:30

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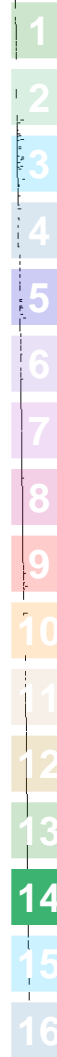
Canister Samples Chain of Custody Record

TestAmerica Laboratories, Inc. assumes no liability with respect to the collection and shipment of these samples



TestAmerica Laboratories, Inc.

Client Contact Information		Project Manager: <u>S. Salisbury</u>		Samples Collected By: <u>B Strellis</u>																																										
Company Name: <u>Apex Companies</u>	Phone: <u>503-807-3835</u>	Project Name: <u>Nustar Vancouver OHM</u>	City/State/Zip: <u>Portland OR 97201</u>	Project Name: <u>Nustar Vancouver</u>	City/State/Zip: <u>Portland OR 97201</u>	Project Name: <u>Nustar Vancouver</u>	City/State/Zip: <u>Portland OR 97201</u>	Project Name: <u>Nustar Vancouver</u>	City/State/Zip: <u>Portland OR 97201</u>	Project Name: <u>Nustar Vancouver</u>	City/State/Zip: <u>Portland OR 97201</u>	Project Name: <u>Nustar Vancouver</u>	City/State/Zip: <u>Portland OR 97201</u>	Project Name: <u>Nustar Vancouver</u>	City/State/Zip: <u>Portland OR 97201</u>																															
Address: <u>3015 SW 1st Ave</u>		Email: <u>ssalisbury@apexcos.com</u>		Standard (Specific) <input checked="" type="checkbox"/>	Rush (Specify)	Site Contact: <u>---</u>	TA Contact: <u>---</u>	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, 'Hg (Start)	Canister in Vacuum in Field, 'Hg (Stop)	Floy Controller ID	Canister ID	MA-APH	EPA 30	EPA 26C / 25.3	ASTM D-1946 / 1945 / 3888	EPA 15/16	TO-3	Other (Please specify in notes section)	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)																				
Phone: <u>503-922-4704</u>		FAX: <u>---</u>		Project Name: <u>Nustar Vancouver</u>		P O #																																								
Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, 'Hg (Start)	Canister in Vacuum in Field, 'Hg (Stop)	Floy Controller ID	Canister ID	MA-APH	EPA 30	EPA 26C / 25.3	ASTM D-1946 / 1945 / 3888	EPA 15/16	TO-3	Other (Please specify in notes section)	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)	Sample Specific Notes:																										
SVE North	9/28/15	0940	0940	-28	-9	34000421	X														X SVE gas																									
SVE South Precarbon	9/28/15	0900	0900	-27	-2	34000474	X														X SVE gas																									
SVE South Postcarbon	9/28/15	0920	0920	-28	-5	34000352	X														X SVE gas																									
Temperature (Fahrenheit)		Start	Interior	Ambient	Stop	Temperature (Fahrenheit)		Start	Interior	Ambient	Stop	320-15189 Chain of Custody																																		
Special Instructions/QC Requirements & Comments: <u>Email results to ssalisbury@apexcos.com</u>														Samples Shipped by: <u>B Strellis</u> Date / Time: <u>9/28/15 1140</u>											Samples Relinquished by: <u>Strellis</u> Date / Time: <u>9/28/15 1140</u>											Relinquished by: <u>Strellis</u> Date / Time: <u>9/28/15 1330</u>										
Released: <u>B Strellis</u>														9/28/15 1700											9/29/15 930																					



Login Sample Receipt Checklist

Client: Apex Companies LLC

Job Number: 320-15189-1

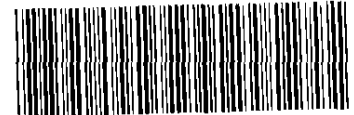
Login Number: 15189

List Source: TestAmerica Sacramento

List Number: 1

Creator: Nelson, Kym D

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	N/A	
Cooler Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Canister C

Certification Type: TO-15 SCAN

Date Cleaned/Batch ID 4/9/15 320-14841

Date of QC 9/10/15

Data File Number 15091020

CANISTER ID NUMBERS

<u>34000424*</u>	<u>34000991</u>	_____
0614	0605	_____
0474	0352	_____
1208	8429	_____
1524		_____
0421		_____
0599		_____
1306		_____

The above canisters were cleaned as a batch. This certifies this batch contains no target analyte concentration greater than or equal to the method criteria for the "Certification Type" indicated above.

* INDICATES THE CAN OR CANS WHICH WERE SCREENED.

[Signature]
 1st level Reviewed By:

7/11/15
 Date:

[Signature]
 2nd level Reviewed By:

9/16/15
 Date:

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-14841-1</u>
SDG No.: <u>6L SCAN Batch</u>	
Client Sample ID: <u>34000424</u>	Lab Sample ID: <u>320-14841-1</u>
Matrix: <u>Air</u>	Lab File ID: <u>15091020.D</u>
Analysis Method: <u>TO-15</u>	Date Collected: <u>09/09/2015 00:00</u>
Sample wt/vol: <u>250 (mL)</u>	Date Analyzed: <u>09/11/2015 02:57</u>
Soil Aliquot Vol: _____	Dilution Factor: <u>1</u>
Soil Extract Vol.: _____	GC Column: <u>RTX-Volatiles</u> ID: <u>0.32 (mm)</u>
% Moisture: _____	Level: (low/med) <u>Low</u>
Analysis Batch No.: <u>85593</u>	Units: <u>ppb v/v</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
67-64-1	Acetone	0.28	J	5.0	0.18
107-02-8	Acrolein	ND		2.0	0.22
107-13-1	Acrylonitrile	ND		2.0	0.19
107-05-1	Allyl chloride	ND		0.80	0.11
71-43-2	Benzene	ND		0.40	0.079
100-44-7	Benzyl chloride	ND		0.80	0.16
75-27-4	Bromodichloromethane	ND		0.30	0.066
75-25-2	Bromoform	ND		0.40	0.070
74-83-9	Bromomethane	ND		0.80	0.34
106-99-0	1,3-Butadiene	ND		0.80	0.15
106-97-8	n-Butane	ND		0.40	0.15
78-93-3	2-Butanone (MEK)	ND		0.80	0.20
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0	0.11
104-51-8	n-Butylbenzene	ND		0.40	0.18
135-98-8	sec-Butylbenzene	ND		0.40	0.070
98-06-6	tert-Butylbenzene	ND		0.80	0.068
75-15-0	Carbon disulfide	ND		0.80	0.078
56-23-5	Carbon tetrachloride	ND		0.80	0.064
108-90-7	Chlorobenzene	ND		0.30	0.064
75-45-6	Chlorodifluoromethane	ND		0.80	0.11
75-00-3	Chloroethane	ND		0.80	0.31
67-66-3	Chloroform	ND		0.30	0.095
74-87-3	Chloromethane	ND		0.80	0.20
95-49-8	2-Chlorotoluene	ND		0.40	0.080
110-82-7	Cyclohexane	ND		0.40	0.084
124-48-1	Dibromochloromethane	ND		0.40	0.079
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80	0.075
74-95-3	Dibromomethane	ND		0.40	0.057
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40	0.16
95-50-1	1,2-Dichlorobenzene	ND		0.40	0.13
541-73-1	1,3-Dichlorobenzene	ND		0.40	0.11
106-46-7	1,4-Dichlorobenzene	ND		0.40	0.15
75-71-8	Dichlorodifluoromethane	ND		0.40	0.15
75-34-3	1,1-Dichloroethane	ND		0.30	0.072
107-06-2	1,2-Dichloroethane	ND		0.80	0.088

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-14841-1</u>
SDG No.: <u>6L SCAN Batch</u>	
Client Sample ID: <u>34000424</u>	Lab Sample ID: <u>320-14841-1</u>
Matrix: <u>Air</u>	Lab File ID: <u>15091020.D</u>
Analysis Method: <u>TO-15</u>	Date Collected: <u>09/09/2015 00:00</u>
Sample wt/vol: <u>250 (mL)</u>	Date Analyzed: <u>09/11/2015 02:57</u>
Soil Aliquot Vol: _____	Dilution Factor: <u>1</u>
Soil Extract Vol.: _____	GC Column: <u>RTX-Volatiles</u> ID: <u>0.32 (mm)</u>
% Moisture: _____	Level: (low/med) <u>Low</u>
Analysis Batch No.: <u>85593</u>	Units: <u>ppb v/v</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	ND		0.80	0.13
156-59-2	cis-1,2-Dichloroethene	ND		0.40	0.089
156-60-5	trans-1,2-Dichloroethene	ND		0.40	0.10
78-87-5	1,2-Dichloropropane	ND		0.40	0.24
10061-01-5	cis-1,3-Dichloropropene	ND		0.40	0.10
10061-02-6	trans-1,3-Dichloropropene	ND		0.40	0.088
123-91-1	1,4-Dioxane	ND		0.80	0.10
141-78-6	Ethyl acetate	ND		0.30	0.18
100-41-4	Ethylbenzene	ND		0.40	0.063
622-96-8	4-Ethyltoluene	ND		0.40	0.19
142-82-5	n-Heptane	ND		0.80	0.063
87-68-3	Hexachlorobutadiene	ND		2.0	0.43
110-54-3	n-Hexane	ND		0.80	0.075
591-78-6	2-Hexanone	ND		0.40	0.087
98-82-8	Isopropylbenzene	ND		0.80	0.10
99-87-6	4-Isopropyltoluene	ND		0.80	0.12
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80	0.050
80-62-6	Methyl methacrylate	ND		0.80	0.16
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40	0.14
75-09-2	Methylene Chloride	ND		0.40	0.072
98-83-9	alpha-Methylstyrene	ND		0.40	0.065
91-20-3	Naphthalene	ND		0.80	0.56
111-65-9	n-Octane	ND		0.40	0.055
109-66-0	n-Pentane	ND		0.80	0.26
115-07-1	Propylene	ND		0.40	0.099
103-65-1	N-Propylbenzene	ND		0.40	0.059
100-42-5	Styrene	ND		0.40	0.059
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40	0.069
127-18-4	Tetrachloroethene	ND		0.40	0.051
109-99-9	Tetrahydrofuran	ND		0.80	0.079
108-88-3	Toluene	ND		0.40	0.051
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.16
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.43
71-55-6	1,1,1-Trichloroethane	ND		0.30	0.065
79-00-5	1,1,2-Trichloroethane	ND		0.40	0.067

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-14841-1
 SDG No.: 6L SCAN Batch
 Client Sample ID: 34000424 Lab Sample ID: 320-14841-1
 Matrix: Air Lab File ID: 15091020.D
 Analysis Method: TO-15 Date Collected: 09/09/2015 00:00
 Sample wt/vol: 250 (mL) Date Analyzed: 09/11/2015 02:57
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-Volatiles ID: 0.32 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 85593 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.40	0.11
75-69-4	Trichlorofluoromethane	ND		0.40	0.20
96-18-4	1,2,3-Trichloropropane	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	ND		0.80	0.16
108-67-8	1,3,5-Trimethylbenzene	ND		0.40	0.13
540-84-1	2,2,4-Trimethylpentane	ND		0.40	0.071
108-05-4	Vinyl acetate	ND		0.80	0.15
593-60-2	Vinyl bromide	ND		0.80	0.26
75-01-4	Vinyl chloride	ND		0.40	0.12
179601-23-1	m,p-Xylene	ND		0.80	0.10
95-47-6	o-Xylene	ND		0.40	0.054

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	118		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	112		70-130
2037-26-5	Toluene-d8 (Surr)	94		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS2\20150910-24860.b\15091020.D
 Lims ID: 320-14841-A-1 Lab Sample ID: 320-14841-1
 Client ID: 34000424
 Sample Type: Client
 Inject. Date: 11-Sep-2015 02:57:30 ALS Bottle#: 15 Worklist Smp#: 34
 Purge Vol: 250.000 mL Dil. Factor: 1.0000
 Sample Info: 320-14841-A-1
 Misc. Info.: 500mL
 Operator ID: SRS Instrument ID: ATMS2
 Method: \\ChromNA\Sacramento\ChromData\ATMS2\20150910-24860.b\TO15_ATMS2N.m
 Limit Group: MSA - TO15 - ICAL
 Last Update: 11-Sep-2015 16:01:37 Calib Date: 12-Aug-2015 00:29:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS2\20150811-24141.b\15081111.D
 Column 1 : RTX Volatiles (0.32 mm) Det: MS SCAN
 Process Host: XAWRK016

First Level Reviewer: ortizam

Date: 11-Sep-2015 16:01:37

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	10.212	10.212	0.000	90	65737	4.00	
* 2 1,4-Difluorobenzene	114	11.556	11.562	-0.006	94	259309	4.00	
* 3 Chlorobenzene-d5 (IS)	117	15.864	15.864	0.000	87	225607	4.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	10.972	10.972	0.000	96	95107	4.46	
\$ 5 Toluene-d8 (Surr)	100	13.734	13.734	0.000	98	146272	3.77	
\$ 6 4-Bromofluorobenzene (Surr	174	17.616	17.616	0.000	94	156076	4.72	
31 Acetone	43	6.927	6.890	0.037	96	6221	0.2771	

Reagents:

VASUISIM_00206 Amount Added: 50.00 Units: mL Run Reagent

Data File: \\ChromNA\Sacramento\ChromData\ATMS2\20150910-24860.b\15091020.D

Injection Date: 11-Sep-2015 02:57:30

Instrument ID: ATMS2

Operator ID: SRS

Lims ID: 320-14841-A-1

Lab Sample ID: 320-14841-1

Worklist Smp#: 34

Client ID: 34000424

Purge Vol: 250.000 mL

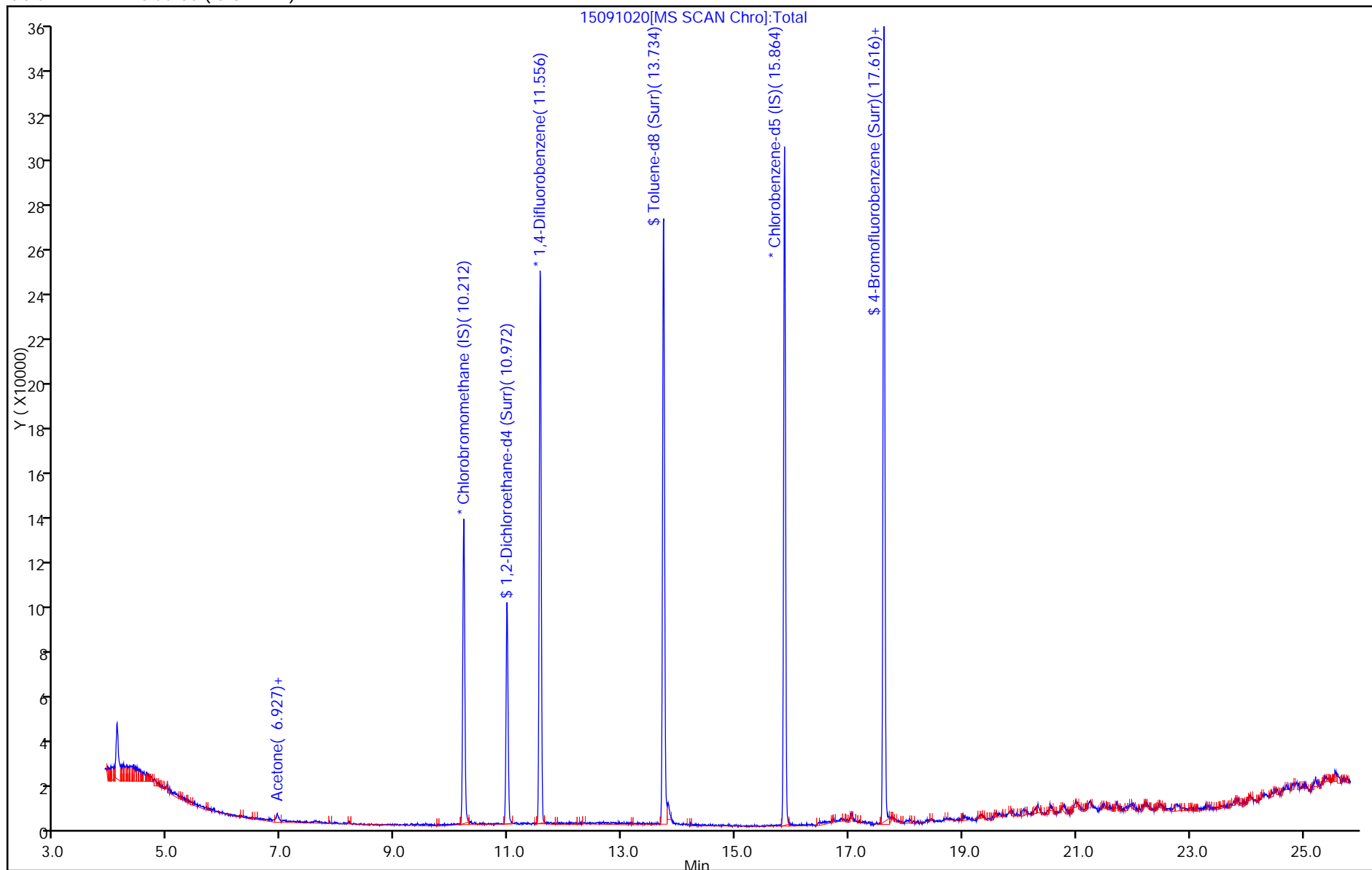
Dil. Factor: 1.0000

ALS Bottle#: 15

Method: TO15_ATMS2N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS2\20150910-24860.b\15091020.D

Injection Date: 11-Sep-2015 02:57:30

Instrument ID: ATMS2

Lims ID: 320-14841-A-1

Lab Sample ID: 320-14841-1

Client ID: 34000424

Operator ID: SRS

ALS Bottle#: 15 Worklist Smp#: 34

Purge Vol: 250.000 mL

Dil. Factor: 1.0000

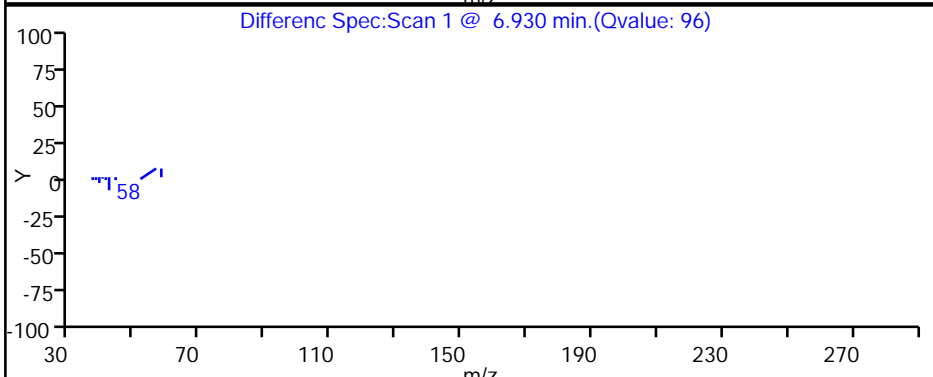
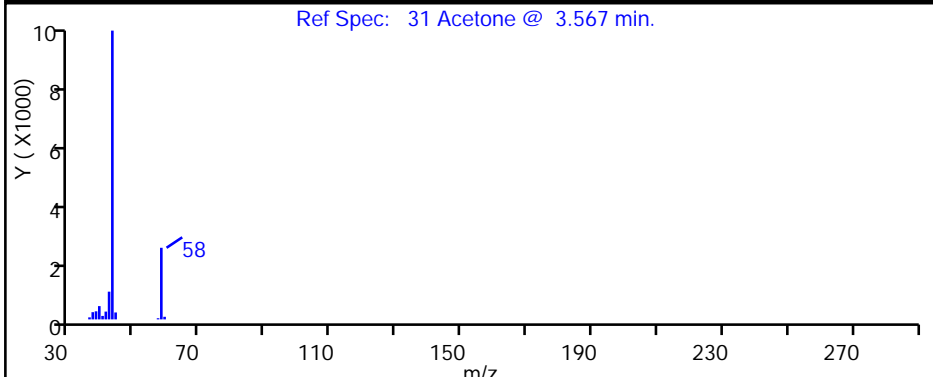
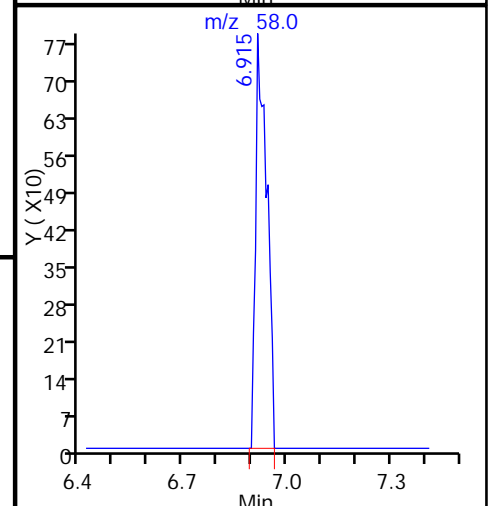
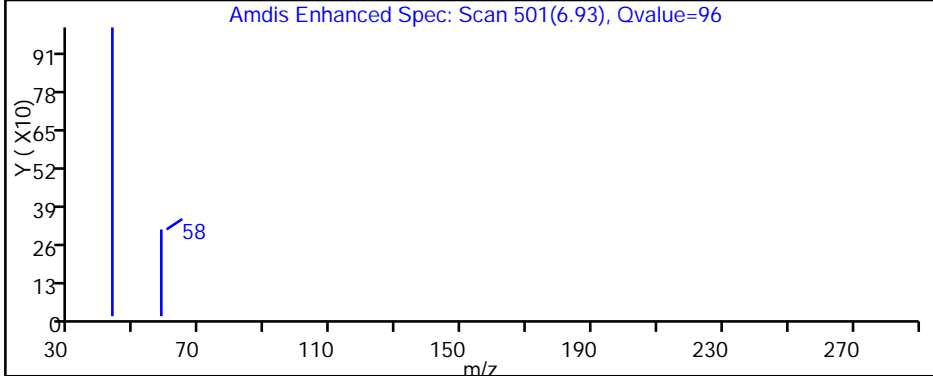
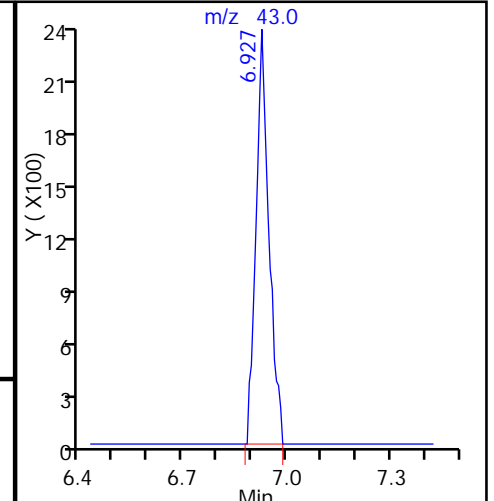
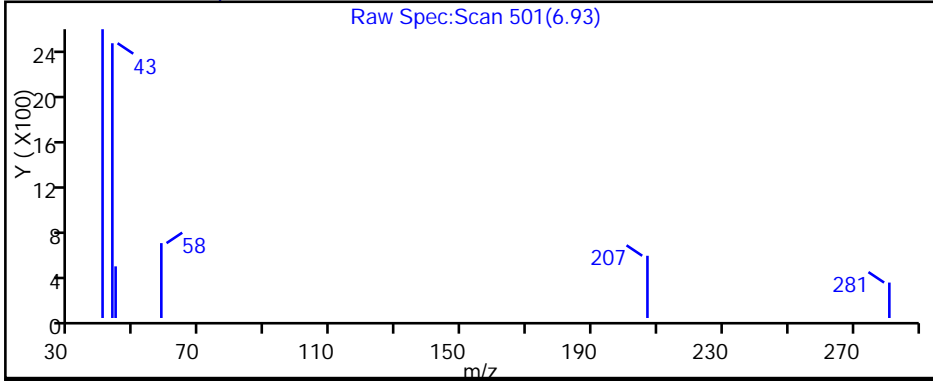
Method: TO15_ATMS2N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Detector: MS SCAN

31 Acetone, CAS: 67-64-1



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-15747-1
Client Project/Site: NuStar Vapor Testing

For:
Apex Companies LLC
3015 SW 1st Avenue
Portland, Oregon 97201

Attn: Stephanie Salisbury



Authorized for release by:
11/12/2015 4:01:06 PM

Sarah Murphy, Project Manager I
(253)922-2310
sarah.murphy@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15747-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15747-1

Job ID: 320-15747-1

Laboratory: TestAmerica Sacramento

Narrative

Receipt

The samples were received on 11/2/2015 9:30 AM; the samples arrived in good condition and properly preserved.

Air - GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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Detection Summary

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15747-1

Client Sample ID: SVE_SOUTH_POSTCARBON_102915

Lab Sample ID: 320-15747-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	0.40		0.30		ppb v/v	1		TO-15	Total/NA
Dichlorodifluoromethane	0.51		0.40		ppb v/v	1		TO-15	Total/NA
1,1-Dichloroethane	1.0		0.30		ppb v/v	1		TO-15	Total/NA
1,1-Dichloroethene	1.2		0.80		ppb v/v	1		TO-15	Total/NA
trans-1,2-Dichloroethene	1.1		0.40		ppb v/v	1		TO-15	Total/NA
Methylene Chloride	0.76		0.40		ppb v/v	1		TO-15	Total/NA
Tetrachloroethene	3.8		0.40		ppb v/v	1		TO-15	Total/NA
1,1,1-Trichloroethane	12		0.30		ppb v/v	1		TO-15	Total/NA
Trichloroethene	59		0.40		ppb v/v	1		TO-15	Total/NA
Vinyl chloride	0.68		0.40		ppb v/v	1		TO-15	Total/NA
cis-1,2-Dichloroethene - DL	87		0.73		ppb v/v	1.82		TO-15	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	2.0		1.5		ug/m3 Air	1		TO-15	Total/NA
Dichlorodifluoromethane	2.5		2.0		ug/m3 Air	1		TO-15	Total/NA
1,1-Dichloroethane	4.2		1.2		ug/m3 Air	1		TO-15	Total/NA
1,1-Dichloroethene	5.0		3.2		ug/m3 Air	1		TO-15	Total/NA
trans-1,2-Dichloroethene	4.5		1.6		ug/m3 Air	1		TO-15	Total/NA
Methylene Chloride	2.6		1.4		ug/m3 Air	1		TO-15	Total/NA
Tetrachloroethene	26		2.7		ug/m3 Air	1		TO-15	Total/NA
1,1,1-Trichloroethane	67		1.6		ug/m3 Air	1		TO-15	Total/NA
Trichloroethene	310		2.1		ug/m3 Air	1		TO-15	Total/NA
Vinyl chloride	1.7		1.0		ug/m3 Air	1		TO-15	Total/NA
cis-1,2-Dichloroethene - DL	340		2.9		ug/m3 Air	1.82		TO-15	Total/NA

Client Sample ID: SVE_SOUTH_PRECARBON_102915

Lab Sample ID: 320-15747-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	58		44		ppb v/v	110		TO-15	Total/NA
Tetrachloroethene	2600		44		ppb v/v	110		TO-15	Total/NA
Trichloroethene	150		44		ppb v/v	110		TO-15	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	230		170		ug/m3 Air	110		TO-15	Total/NA
Tetrachloroethene	18000		300		ug/m3 Air	110		TO-15	Total/NA
Trichloroethene	790		240		ug/m3 Air	110		TO-15	Total/NA

Client Sample ID: SVE_NORTH_EFFLUENT_102915

Lab Sample ID: 320-15747-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	15		14		ppb v/v	34.5		TO-15	Total/NA
Tetrachloroethene	930		14		ppb v/v	34.5		TO-15	Total/NA
Trichloroethene	100		14		ppb v/v	34.5		TO-15	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	59		55		ug/m3 Air	34.5		TO-15	Total/NA
Tetrachloroethene	6300		94		ug/m3 Air	34.5		TO-15	Total/NA
Trichloroethene	550		74		ug/m3 Air	34.5		TO-15	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15747-1

Client Sample ID: SVE_SOUTH_POSTCARBON_102915

Lab Sample ID: 320-15747-1

Date Collected: 10/29/15 14:11

Matrix: Air

Date Received: 11/02/15 09:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		5.0		ppb v/v			11/11/15 20:40	1
Benzene	ND		0.40		ppb v/v			11/11/15 20:40	1
Benzyl chloride	ND		0.80		ppb v/v			11/11/15 20:40	1
Bromodichloromethane	ND		0.30		ppb v/v			11/11/15 20:40	1
Bromoform	ND		0.40		ppb v/v			11/11/15 20:40	1
Bromomethane	ND		0.80		ppb v/v			11/11/15 20:40	1
2-Butanone (MEK)	ND		0.80		ppb v/v			11/11/15 20:40	1
Carbon disulfide	ND		0.80		ppb v/v			11/11/15 20:40	1
Carbon tetrachloride	ND		0.80		ppb v/v			11/11/15 20:40	1
Chlorobenzene	ND		0.30		ppb v/v			11/11/15 20:40	1
Dibromochloromethane	ND		0.40		ppb v/v			11/11/15 20:40	1
Chloroethane	ND		0.80		ppb v/v			11/11/15 20:40	1
Chloroform	0.40		0.30		ppb v/v			11/11/15 20:40	1
Chloromethane	ND		0.80		ppb v/v			11/11/15 20:40	1
1,2-Dibromoethane (EDB)	ND		0.80		ppb v/v			11/11/15 20:40	1
1,2-Dichlorobenzene	ND		0.40		ppb v/v			11/11/15 20:40	1
1,3-Dichlorobenzene	ND		0.40		ppb v/v			11/11/15 20:40	1
1,4-Dichlorobenzene	ND		0.40		ppb v/v			11/11/15 20:40	1
Dichlorodifluoromethane	0.51		0.40		ppb v/v			11/11/15 20:40	1
1,1-Dichloroethane	1.0		0.30		ppb v/v			11/11/15 20:40	1
1,2-Dichloroethane	ND		0.80		ppb v/v			11/11/15 20:40	1
1,1-Dichloroethene	1.2		0.80		ppb v/v			11/11/15 20:40	1
trans-1,2-Dichloroethene	1.1		0.40		ppb v/v			11/11/15 20:40	1
1,2-Dichloropropane	ND		0.40		ppb v/v			11/11/15 20:40	1
cis-1,3-Dichloropropene	ND		0.40		ppb v/v			11/11/15 20:40	1
trans-1,3-Dichloropropene	ND		0.40		ppb v/v			11/11/15 20:40	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40		ppb v/v			11/11/15 20:40	1
Ethylbenzene	ND		0.40		ppb v/v			11/11/15 20:40	1
4-Ethyltoluene	ND		0.40		ppb v/v			11/11/15 20:40	1
Hexachlorobutadiene	ND		2.0		ppb v/v			11/11/15 20:40	1
2-Hexanone	ND		0.40		ppb v/v			11/11/15 20:40	1
Methylene Chloride	0.76		0.40		ppb v/v			11/11/15 20:40	1
4-Methyl-2-pentanone (MIBK)	ND		0.40		ppb v/v			11/11/15 20:40	1
Styrene	ND		0.40		ppb v/v			11/11/15 20:40	1
1,1,2,2-Tetrachloroethane	ND		0.40		ppb v/v			11/11/15 20:40	1
Tetrachloroethene	3.8		0.40		ppb v/v			11/11/15 20:40	1
Toluene	ND		0.40		ppb v/v			11/11/15 20:40	1
1,2,4-Trichlorobenzene	ND		2.0		ppb v/v			11/11/15 20:40	1
1,1,1-Trichloroethane	12		0.30		ppb v/v			11/11/15 20:40	1
1,1,2-Trichloroethane	ND		0.40		ppb v/v			11/11/15 20:40	1
Trichloroethene	59		0.40		ppb v/v			11/11/15 20:40	1
Trichlorofluoromethane	ND		0.40		ppb v/v			11/11/15 20:40	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40		ppb v/v			11/11/15 20:40	1
1,2,4-Trimethylbenzene	ND		0.80		ppb v/v			11/11/15 20:40	1
1,3,5-Trimethylbenzene	ND		0.40		ppb v/v			11/11/15 20:40	1
Vinyl acetate	ND		0.80		ppb v/v			11/11/15 20:40	1
Vinyl chloride	0.68		0.40		ppb v/v			11/11/15 20:40	1
m,p-Xylene	ND		0.80		ppb v/v			11/11/15 20:40	1

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15747-1

Client Sample ID: SVE_SOUTH_POSTCARBON_102915

Lab Sample ID: 320-15747-1

Date Collected: 10/29/15 14:11

Matrix: Air

Date Received: 11/02/15 09:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
o-Xylene	ND		0.40		ppb v/v			11/11/15 20:40	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		12		ug/m3 Air			11/11/15 20:40	1
Benzene	ND		1.3		ug/m3 Air			11/11/15 20:40	1
Benzyl chloride	ND		4.1		ug/m3 Air			11/11/15 20:40	1
Bromodichloromethane	ND		2.0		ug/m3 Air			11/11/15 20:40	1
Bromoform	ND		4.1		ug/m3 Air			11/11/15 20:40	1
Bromomethane	ND		3.1		ug/m3 Air			11/11/15 20:40	1
2-Butanone (MEK)	ND		2.4		ug/m3 Air			11/11/15 20:40	1
Carbon disulfide	ND		2.5		ug/m3 Air			11/11/15 20:40	1
Carbon tetrachloride	ND		5.0		ug/m3 Air			11/11/15 20:40	1
Chlorobenzene	ND		1.4		ug/m3 Air			11/11/15 20:40	1
Dibromochloromethane	ND		3.4		ug/m3 Air			11/11/15 20:40	1
Chloroethane	ND		2.1		ug/m3 Air			11/11/15 20:40	1
Chloroform	2.0		1.5		ug/m3 Air			11/11/15 20:40	1
Chloromethane	ND		1.7		ug/m3 Air			11/11/15 20:40	1
1,2-Dibromoethane (EDB)	ND		6.1		ug/m3 Air			11/11/15 20:40	1
1,2-Dichlorobenzene	ND		2.4		ug/m3 Air			11/11/15 20:40	1
1,3-Dichlorobenzene	ND		2.4		ug/m3 Air			11/11/15 20:40	1
1,4-Dichlorobenzene	ND		2.4		ug/m3 Air			11/11/15 20:40	1
Dichlorodifluoromethane	2.5		2.0		ug/m3 Air			11/11/15 20:40	1
1,1-Dichloroethane	4.2		1.2		ug/m3 Air			11/11/15 20:40	1
1,2-Dichloroethane	ND		3.2		ug/m3 Air			11/11/15 20:40	1
1,1-Dichloroethene	5.0		3.2		ug/m3 Air			11/11/15 20:40	1
trans-1,2-Dichloroethene	4.5		1.6		ug/m3 Air			11/11/15 20:40	1
1,2-Dichloropropane	ND		1.8		ug/m3 Air			11/11/15 20:40	1
cis-1,3-Dichloropropene	ND		1.8		ug/m3 Air			11/11/15 20:40	1
trans-1,3-Dichloropropene	ND		1.8		ug/m3 Air			11/11/15 20:40	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.8		ug/m3 Air			11/11/15 20:40	1
Ethylbenzene	ND		1.7		ug/m3 Air			11/11/15 20:40	1
4-Ethyltoluene	ND		2.0		ug/m3 Air			11/11/15 20:40	1
Hexachlorobutadiene	ND		21		ug/m3 Air			11/11/15 20:40	1
2-Hexanone	ND		1.6		ug/m3 Air			11/11/15 20:40	1
Methylene Chloride	2.6		1.4		ug/m3 Air			11/11/15 20:40	1
4-Methyl-2-pentanone (MIBK)	ND		1.6		ug/m3 Air			11/11/15 20:40	1
Styrene	ND		1.7		ug/m3 Air			11/11/15 20:40	1
1,1,2,2-Tetrachloroethane	ND		2.7		ug/m3 Air			11/11/15 20:40	1
Tetrachloroethene	26		2.7		ug/m3 Air			11/11/15 20:40	1
Toluene	ND		1.5		ug/m3 Air			11/11/15 20:40	1
1,2,4-Trichlorobenzene	ND		15		ug/m3 Air			11/11/15 20:40	1
1,1,1-Trichloroethane	67		1.6		ug/m3 Air			11/11/15 20:40	1
1,1,2-Trichloroethane	ND		2.2		ug/m3 Air			11/11/15 20:40	1
Trichloroethene	310		2.1		ug/m3 Air			11/11/15 20:40	1
Trichlorofluoromethane	ND		2.2		ug/m3 Air			11/11/15 20:40	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.1		ug/m3 Air			11/11/15 20:40	1
1,2,4-Trimethylbenzene	ND		3.9		ug/m3 Air			11/11/15 20:40	1
1,3,5-Trimethylbenzene	ND		2.0		ug/m3 Air			11/11/15 20:40	1
Vinyl acetate	ND		2.8		ug/m3 Air			11/11/15 20:40	1

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15747-1

Client Sample ID: SVE_SOUTH_POSTCARBON_102915

Lab Sample ID: 320-15747-1

Date Collected: 10/29/15 14:11

Matrix: Air

Date Received: 11/02/15 09:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	1.7		1.0		ug/m3 Air			11/11/15 20:40	1
m,p-Xylene	ND		3.5		ug/m3 Air			11/11/15 20:40	1
o-Xylene	ND		1.7		ug/m3 Air			11/11/15 20:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		70 - 130					11/11/15 20:40	1
1,2-Dichloroethane-d4 (Surr)	88		70 - 130					11/11/15 20:40	1
Toluene-d8 (Surr)	100		70 - 130					11/11/15 20:40	1

Method: TO-15 - Volatile Organic Compounds in Ambient Air - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	87		0.73		ppb v/v			11/12/15 08:48	1.82
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	340		2.9		ug/m3 Air			11/12/15 08:48	1.82
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		70 - 130					11/12/15 08:48	1.82
1,2-Dichloroethane-d4 (Surr)	106		70 - 130					11/12/15 08:48	1.82
Toluene-d8 (Surr)	102		70 - 130					11/12/15 08:48	1.82

Client Sample ID: SVE_SOUTH_PRECARBON_102915

Lab Sample ID: 320-15747-2

Date Collected: 10/29/15 14:16

Matrix: Air

Date Received: 11/02/15 09:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		550		ppb v/v			11/11/15 21:21	110
Benzene	ND		44		ppb v/v			11/11/15 21:21	110
Benzyl chloride	ND		88		ppb v/v			11/11/15 21:21	110
Bromodichloromethane	ND		33		ppb v/v			11/11/15 21:21	110
Bromoform	ND		44		ppb v/v			11/11/15 21:21	110
Bromomethane	ND		88		ppb v/v			11/11/15 21:21	110
2-Butanone (MEK)	ND		88		ppb v/v			11/11/15 21:21	110
Carbon disulfide	ND		88		ppb v/v			11/11/15 21:21	110
Carbon tetrachloride	ND		88		ppb v/v			11/11/15 21:21	110
Chlorobenzene	ND		33		ppb v/v			11/11/15 21:21	110
Dibromochloromethane	ND		44		ppb v/v			11/11/15 21:21	110
Chloroethane	ND		88		ppb v/v			11/11/15 21:21	110
Chloroform	ND		33		ppb v/v			11/11/15 21:21	110
Chloromethane	ND		88		ppb v/v			11/11/15 21:21	110
1,2-Dibromoethane (EDB)	ND		88		ppb v/v			11/11/15 21:21	110
1,2-Dichlorobenzene	ND		44		ppb v/v			11/11/15 21:21	110
1,3-Dichlorobenzene	ND		44		ppb v/v			11/11/15 21:21	110
1,4-Dichlorobenzene	ND		44		ppb v/v			11/11/15 21:21	110
Dichlorodifluoromethane	ND		44		ppb v/v			11/11/15 21:21	110
1,1-Dichloroethane	ND		33		ppb v/v			11/11/15 21:21	110
1,2-Dichloroethane	ND		88		ppb v/v			11/11/15 21:21	110
1,1-Dichloroethene	ND		88		ppb v/v			11/11/15 21:21	110

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15747-1

Client Sample ID: SVE_SOUTH_PRECARBON_102915

Lab Sample ID: 320-15747-2

Date Collected: 10/29/15 14:16

Matrix: Air

Date Received: 11/02/15 09:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	58		44		ppb v/v			11/11/15 21:21	110
trans-1,2-Dichloroethene	ND		44		ppb v/v			11/11/15 21:21	110
1,2-Dichloropropane	ND		44		ppb v/v			11/11/15 21:21	110
cis-1,3-Dichloropropene	ND		44		ppb v/v			11/11/15 21:21	110
trans-1,3-Dichloropropene	ND		44		ppb v/v			11/11/15 21:21	110
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		44		ppb v/v			11/11/15 21:21	110
Ethylbenzene	ND		44		ppb v/v			11/11/15 21:21	110
4-Ethyltoluene	ND		44		ppb v/v			11/11/15 21:21	110
Hexachlorobutadiene	ND		220		ppb v/v			11/11/15 21:21	110
2-Hexanone	ND		44		ppb v/v			11/11/15 21:21	110
Methylene Chloride	ND		44		ppb v/v			11/11/15 21:21	110
4-Methyl-2-pentanone (MIBK)	ND		44		ppb v/v			11/11/15 21:21	110
Styrene	ND		44		ppb v/v			11/11/15 21:21	110
1,1,2,2-Tetrachloroethane	ND		44		ppb v/v			11/11/15 21:21	110
Tetrachloroethene	2600		44		ppb v/v			11/11/15 21:21	110
Toluene	ND		44		ppb v/v			11/11/15 21:21	110
1,2,4-Trichlorobenzene	ND		220		ppb v/v			11/11/15 21:21	110
1,1,1-Trichloroethane	ND		33		ppb v/v			11/11/15 21:21	110
1,1,2-Trichloroethane	ND		44		ppb v/v			11/11/15 21:21	110
Trichloroethene	150		44		ppb v/v			11/11/15 21:21	110
Trichlorofluoromethane	ND		44		ppb v/v			11/11/15 21:21	110
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		44		ppb v/v			11/11/15 21:21	110
1,2,4-Trimethylbenzene	ND		88		ppb v/v			11/11/15 21:21	110
1,3,5-Trimethylbenzene	ND		44		ppb v/v			11/11/15 21:21	110
Vinyl acetate	ND		88		ppb v/v			11/11/15 21:21	110
Vinyl chloride	ND		44		ppb v/v			11/11/15 21:21	110
m,p-Xylene	ND		88		ppb v/v			11/11/15 21:21	110
o-Xylene	ND		44		ppb v/v			11/11/15 21:21	110
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		1300		ug/m3 Air			11/11/15 21:21	110
Benzene	ND		140		ug/m3 Air			11/11/15 21:21	110
Benzyl chloride	ND		460		ug/m3 Air			11/11/15 21:21	110
Bromodichloromethane	ND		220		ug/m3 Air			11/11/15 21:21	110
Bromoform	ND		450		ug/m3 Air			11/11/15 21:21	110
Bromomethane	ND		340		ug/m3 Air			11/11/15 21:21	110
2-Butanone (MEK)	ND		260		ug/m3 Air			11/11/15 21:21	110
Carbon disulfide	ND		270		ug/m3 Air			11/11/15 21:21	110
Carbon tetrachloride	ND		550		ug/m3 Air			11/11/15 21:21	110
Chlorobenzene	ND		150		ug/m3 Air			11/11/15 21:21	110
Dibromochloromethane	ND		370		ug/m3 Air			11/11/15 21:21	110
Chloroethane	ND		230		ug/m3 Air			11/11/15 21:21	110
Chloroform	ND		160		ug/m3 Air			11/11/15 21:21	110
Chloromethane	ND		180		ug/m3 Air			11/11/15 21:21	110
1,2-Dibromoethane (EDB)	ND		680		ug/m3 Air			11/11/15 21:21	110
1,2-Dichlorobenzene	ND		260		ug/m3 Air			11/11/15 21:21	110
1,3-Dichlorobenzene	ND		260		ug/m3 Air			11/11/15 21:21	110
1,4-Dichlorobenzene	ND		260		ug/m3 Air			11/11/15 21:21	110
Dichlorodifluoromethane	ND		220		ug/m3 Air			11/11/15 21:21	110

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15747-1

Client Sample ID: SVE_SOUTH_PRECARBON_102915

Lab Sample ID: 320-15747-2

Date Collected: 10/29/15 14:16

Matrix: Air

Date Received: 11/02/15 09:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethane	ND		130		ug/m3 Air			11/11/15 21:21	110
1,2-Dichloroethane	ND		360		ug/m3 Air			11/11/15 21:21	110
1,1-Dichloroethene	ND		350		ug/m3 Air			11/11/15 21:21	110
cis-1,2-Dichloroethene	230		170		ug/m3 Air			11/11/15 21:21	110
trans-1,2-Dichloroethene	ND		170		ug/m3 Air			11/11/15 21:21	110
1,2-Dichloropropane	ND		200		ug/m3 Air			11/11/15 21:21	110
cis-1,3-Dichloropropene	ND		200		ug/m3 Air			11/11/15 21:21	110
trans-1,3-Dichloropropene	ND		200		ug/m3 Air			11/11/15 21:21	110
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		310		ug/m3 Air			11/11/15 21:21	110
Ethylbenzene	ND		190		ug/m3 Air			11/11/15 21:21	110
4-Ethyltoluene	ND		220		ug/m3 Air			11/11/15 21:21	110
Hexachlorobutadiene	ND		2300		ug/m3 Air			11/11/15 21:21	110
2-Hexanone	ND		180		ug/m3 Air			11/11/15 21:21	110
Methylene Chloride	ND		150		ug/m3 Air			11/11/15 21:21	110
4-Methyl-2-pentanone (MIBK)	ND		180		ug/m3 Air			11/11/15 21:21	110
Styrene	ND		190		ug/m3 Air			11/11/15 21:21	110
1,1,2,2-Tetrachloroethane	ND		300		ug/m3 Air			11/11/15 21:21	110
Tetrachloroethene	18000		300		ug/m3 Air			11/11/15 21:21	110
Toluene	ND		170		ug/m3 Air			11/11/15 21:21	110
1,2,4-Trichlorobenzene	ND		1600		ug/m3 Air			11/11/15 21:21	110
1,1,1-Trichloroethane	ND		180		ug/m3 Air			11/11/15 21:21	110
1,1,2-Trichloroethane	ND		240		ug/m3 Air			11/11/15 21:21	110
Trichloroethene	790		240		ug/m3 Air			11/11/15 21:21	110
Trichlorofluoromethane	ND		250		ug/m3 Air			11/11/15 21:21	110
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		340		ug/m3 Air			11/11/15 21:21	110
1,2,4-Trimethylbenzene	ND		430		ug/m3 Air			11/11/15 21:21	110
1,3,5-Trimethylbenzene	ND		220		ug/m3 Air			11/11/15 21:21	110
Vinyl acetate	ND		310		ug/m3 Air			11/11/15 21:21	110
Vinyl chloride	ND		110		ug/m3 Air			11/11/15 21:21	110
m,p-Xylene	ND		380		ug/m3 Air			11/11/15 21:21	110
o-Xylene	ND		190		ug/m3 Air			11/11/15 21:21	110

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		70 - 130		11/11/15 21:21	110
1,2-Dichloroethane-d4 (Surr)	89		70 - 130		11/11/15 21:21	110
Toluene-d8 (Surr)	99		70 - 130		11/11/15 21:21	110

Client Sample ID: SVE_NORTH_EFFLUENT_102915

Lab Sample ID: 320-15747-3

Date Collected: 10/29/15 14:36

Matrix: Air

Date Received: 11/02/15 09:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		170		ppb v/v			11/11/15 22:02	34.5
Benzene	ND		14		ppb v/v			11/11/15 22:02	34.5
Benzyl chloride	ND		28		ppb v/v			11/11/15 22:02	34.5
Bromodichloromethane	ND		10		ppb v/v			11/11/15 22:02	34.5
Bromoform	ND		14		ppb v/v			11/11/15 22:02	34.5

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15747-1

Client Sample ID: SVE_NORTH_EFFLUENT_102915

Lab Sample ID: 320-15747-3

Date Collected: 10/29/15 14:36

Matrix: Air

Date Received: 11/02/15 09:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromomethane	ND		28		ppb v/v			11/11/15 22:02	34.5
2-Butanone (MEK)	ND		28		ppb v/v			11/11/15 22:02	34.5
Carbon disulfide	ND		28		ppb v/v			11/11/15 22:02	34.5
Carbon tetrachloride	ND		28		ppb v/v			11/11/15 22:02	34.5
Chlorobenzene	ND		10		ppb v/v			11/11/15 22:02	34.5
Dibromochloromethane	ND		14		ppb v/v			11/11/15 22:02	34.5
Chloroethane	ND		28		ppb v/v			11/11/15 22:02	34.5
Chloroform	ND		10		ppb v/v			11/11/15 22:02	34.5
Chloromethane	ND		28		ppb v/v			11/11/15 22:02	34.5
1,2-Dibromoethane (EDB)	ND		28		ppb v/v			11/11/15 22:02	34.5
1,2-Dichlorobenzene	ND		14		ppb v/v			11/11/15 22:02	34.5
1,3-Dichlorobenzene	ND		14		ppb v/v			11/11/15 22:02	34.5
1,4-Dichlorobenzene	ND		14		ppb v/v			11/11/15 22:02	34.5
Dichlorodifluoromethane	ND		14		ppb v/v			11/11/15 22:02	34.5
1,1-Dichloroethane	ND		10		ppb v/v			11/11/15 22:02	34.5
1,2-Dichloroethane	ND		28		ppb v/v			11/11/15 22:02	34.5
1,1-Dichloroethene	ND		28		ppb v/v			11/11/15 22:02	34.5
cis-1,2-Dichloroethene	15		14		ppb v/v			11/11/15 22:02	34.5
trans-1,2-Dichloroethene	ND		14		ppb v/v			11/11/15 22:02	34.5
1,2-Dichloropropane	ND		14		ppb v/v			11/11/15 22:02	34.5
cis-1,3-Dichloropropene	ND		14		ppb v/v			11/11/15 22:02	34.5
trans-1,3-Dichloropropene	ND		14		ppb v/v			11/11/15 22:02	34.5
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		14		ppb v/v			11/11/15 22:02	34.5
Ethylbenzene	ND		14		ppb v/v			11/11/15 22:02	34.5
4-Ethyltoluene	ND		14		ppb v/v			11/11/15 22:02	34.5
Hexachlorobutadiene	ND		69		ppb v/v			11/11/15 22:02	34.5
2-Hexanone	ND		14		ppb v/v			11/11/15 22:02	34.5
Methylene Chloride	ND		14		ppb v/v			11/11/15 22:02	34.5
4-Methyl-2-pentanone (MIBK)	ND		14		ppb v/v			11/11/15 22:02	34.5
Styrene	ND		14		ppb v/v			11/11/15 22:02	34.5
1,1,2,2-Tetrachloroethane	ND		14		ppb v/v			11/11/15 22:02	34.5
Tetrachloroethene	930		14		ppb v/v			11/11/15 22:02	34.5
Toluene	ND		14		ppb v/v			11/11/15 22:02	34.5
1,2,4-Trichlorobenzene	ND		69		ppb v/v			11/11/15 22:02	34.5
1,1,1-Trichloroethane	ND		10		ppb v/v			11/11/15 22:02	34.5
1,1,2-Trichloroethane	ND		14		ppb v/v			11/11/15 22:02	34.5
Trichloroethene	100		14		ppb v/v			11/11/15 22:02	34.5
Trichlorofluoromethane	ND		14		ppb v/v			11/11/15 22:02	34.5
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		14		ppb v/v			11/11/15 22:02	34.5
1,2,4-Trimethylbenzene	ND		28		ppb v/v			11/11/15 22:02	34.5
1,3,5-Trimethylbenzene	ND		14		ppb v/v			11/11/15 22:02	34.5
Vinyl acetate	ND		28		ppb v/v			11/11/15 22:02	34.5
Vinyl chloride	ND		14		ppb v/v			11/11/15 22:02	34.5
m,p-Xylene	ND		28		ppb v/v			11/11/15 22:02	34.5
o-Xylene	ND		14		ppb v/v			11/11/15 22:02	34.5
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		410		ug/m3 Air			11/11/15 22:02	34.5
Benzene	ND		44		ug/m3 Air			11/11/15 22:02	34.5

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15747-1

Client Sample ID: SVE_NORTH_EFFLUENT_102915

Lab Sample ID: 320-15747-3

Date Collected: 10/29/15 14:36

Matrix: Air

Date Received: 11/02/15 09:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzyl chloride	ND		140		ug/m3 Air			11/11/15 22:02	34.5
Bromodichloromethane	ND		69		ug/m3 Air			11/11/15 22:02	34.5
Bromoform	ND		140		ug/m3 Air			11/11/15 22:02	34.5
Bromomethane	ND		110		ug/m3 Air			11/11/15 22:02	34.5
2-Butanone (MEK)	ND		81		ug/m3 Air			11/11/15 22:02	34.5
Carbon disulfide	ND		86		ug/m3 Air			11/11/15 22:02	34.5
Carbon tetrachloride	ND		170		ug/m3 Air			11/11/15 22:02	34.5
Chlorobenzene	ND		48		ug/m3 Air			11/11/15 22:02	34.5
Dibromochloromethane	ND		120		ug/m3 Air			11/11/15 22:02	34.5
Chloroethane	ND		73		ug/m3 Air			11/11/15 22:02	34.5
Chloroform	ND		51		ug/m3 Air			11/11/15 22:02	34.5
Chloromethane	ND		57		ug/m3 Air			11/11/15 22:02	34.5
1,2-Dibromoethane (EDB)	ND		210		ug/m3 Air			11/11/15 22:02	34.5
1,2-Dichlorobenzene	ND		83		ug/m3 Air			11/11/15 22:02	34.5
1,3-Dichlorobenzene	ND		83		ug/m3 Air			11/11/15 22:02	34.5
1,4-Dichlorobenzene	ND		83		ug/m3 Air			11/11/15 22:02	34.5
Dichlorodifluoromethane	ND		68		ug/m3 Air			11/11/15 22:02	34.5
1,1-Dichloroethane	ND		42		ug/m3 Air			11/11/15 22:02	34.5
1,2-Dichloroethane	ND		110		ug/m3 Air			11/11/15 22:02	34.5
1,1-Dichloroethene	ND		110		ug/m3 Air			11/11/15 22:02	34.5
cis-1,2-Dichloroethene	59		55		ug/m3 Air			11/11/15 22:02	34.5
trans-1,2-Dichloroethene	ND		55		ug/m3 Air			11/11/15 22:02	34.5
1,2-Dichloropropane	ND		64		ug/m3 Air			11/11/15 22:02	34.5
cis-1,3-Dichloropropene	ND		63		ug/m3 Air			11/11/15 22:02	34.5
trans-1,3-Dichloropropene	ND		63		ug/m3 Air			11/11/15 22:02	34.5
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		96		ug/m3 Air			11/11/15 22:02	34.5
Ethylbenzene	ND		60		ug/m3 Air			11/11/15 22:02	34.5
4-Ethyltoluene	ND		68		ug/m3 Air			11/11/15 22:02	34.5
Hexachlorobutadiene	ND		740		ug/m3 Air			11/11/15 22:02	34.5
2-Hexanone	ND		57		ug/m3 Air			11/11/15 22:02	34.5
Methylene Chloride	ND		48		ug/m3 Air			11/11/15 22:02	34.5
4-Methyl-2-pentanone (MIBK)	ND		57		ug/m3 Air			11/11/15 22:02	34.5
Styrene	ND		59		ug/m3 Air			11/11/15 22:02	34.5
1,1,2,2-Tetrachloroethane	ND		95		ug/m3 Air			11/11/15 22:02	34.5
Tetrachloroethene	6300		94		ug/m3 Air			11/11/15 22:02	34.5
Toluene	ND		52		ug/m3 Air			11/11/15 22:02	34.5
1,2,4-Trichlorobenzene	ND		510		ug/m3 Air			11/11/15 22:02	34.5
1,1,1-Trichloroethane	ND		56		ug/m3 Air			11/11/15 22:02	34.5
1,1,2-Trichloroethane	ND		75		ug/m3 Air			11/11/15 22:02	34.5
Trichloroethene	550		74		ug/m3 Air			11/11/15 22:02	34.5
Trichlorofluoromethane	ND		78		ug/m3 Air			11/11/15 22:02	34.5
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		110		ug/m3 Air			11/11/15 22:02	34.5
1,2,4-Trimethylbenzene	ND		140		ug/m3 Air			11/11/15 22:02	34.5
1,3,5-Trimethylbenzene	ND		68		ug/m3 Air			11/11/15 22:02	34.5
Vinyl acetate	ND		97		ug/m3 Air			11/11/15 22:02	34.5
Vinyl chloride	ND		35		ug/m3 Air			11/11/15 22:02	34.5
m,p-Xylene	ND		120		ug/m3 Air			11/11/15 22:02	34.5
o-Xylene	ND		60		ug/m3 Air			11/11/15 22:02	34.5

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15747-1

Client Sample ID: SVE_NORTH_EFFLUENT_102915

Lab Sample ID: 320-15747-3

Date Collected: 10/29/15 14:36

Matrix: Air

Date Received: 11/02/15 09:30

Sample Container: Summa Canister 6L

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
4-Bromofluorobenzene (Surr)	94		70 - 130		11/11/15 22:02	34.5
1,2-Dichloroethane-d4 (Surr)	90		70 - 130		11/11/15 22:02	34.5
Toluene-d8 (Surr)	99		70 - 130		11/11/15 22:02	34.5

Surrogate Summary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15747-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Matrix: Air

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (70-130)	12DCE (70-130)	TOL (70-130)
320-15747-1	SVE_SOUTH_POSTCARBON_	98	88	100
320-15747-1 - DL	SVE_SOUTH_POSTCARBON_	93	106	102
320-15747-2	SVE_SOUTH_POSTCARBON_02915	92	89	99
320-15747-2	SVE_SOUTH_PRECARBON_102915	92	89	99
320-15747-3	SVE_NORTH_EFFLUENT_102915	94	90	99
LCS 320-92061/3	Lab Control Sample	107	97	99
LCSD 320-92061/45	Lab Control Sample Dup	107	91	103
MB 320-92061/5	Method Blank	100	84	100

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

12DCE = 1,2-Dichloroethane-d4 (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15747-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Lab Sample ID: MB 320-92061/5

Matrix: Air

Analysis Batch: 92061

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		5.0		ppb v/v			11/11/15 16:53	1
Benzene	ND		0.40		ppb v/v			11/11/15 16:53	1
Benzyl chloride	ND		0.80		ppb v/v			11/11/15 16:53	1
Bromodichloromethane	ND		0.30		ppb v/v			11/11/15 16:53	1
Bromoform	ND		0.40		ppb v/v			11/11/15 16:53	1
Bromomethane	ND		0.80		ppb v/v			11/11/15 16:53	1
2-Butanone (MEK)	ND		0.80		ppb v/v			11/11/15 16:53	1
Carbon disulfide	ND		0.80		ppb v/v			11/11/15 16:53	1
Carbon tetrachloride	ND		0.80		ppb v/v			11/11/15 16:53	1
Chlorobenzene	ND		0.30		ppb v/v			11/11/15 16:53	1
Dibromochloromethane	ND		0.40		ppb v/v			11/11/15 16:53	1
Chloroethane	ND		0.80		ppb v/v			11/11/15 16:53	1
Chloroform	ND		0.30		ppb v/v			11/11/15 16:53	1
Chloromethane	ND		0.80		ppb v/v			11/11/15 16:53	1
1,2-Dibromoethane (EDB)	ND		0.80		ppb v/v			11/11/15 16:53	1
1,2-Dichlorobenzene	ND		0.40		ppb v/v			11/11/15 16:53	1
1,3-Dichlorobenzene	ND		0.40		ppb v/v			11/11/15 16:53	1
1,4-Dichlorobenzene	ND		0.40		ppb v/v			11/11/15 16:53	1
Dichlorodifluoromethane	ND		0.40		ppb v/v			11/11/15 16:53	1
1,1-Dichloroethane	ND		0.30		ppb v/v			11/11/15 16:53	1
1,2-Dichloroethane	ND		0.80		ppb v/v			11/11/15 16:53	1
1,1-Dichloroethene	ND		0.80		ppb v/v			11/11/15 16:53	1
cis-1,2-Dichloroethene	ND		0.40		ppb v/v			11/11/15 16:53	1
trans-1,2-Dichloroethene	ND		0.40		ppb v/v			11/11/15 16:53	1
1,2-Dichloropropane	ND		0.40		ppb v/v			11/11/15 16:53	1
cis-1,3-Dichloropropene	ND		0.40		ppb v/v			11/11/15 16:53	1
trans-1,3-Dichloropropene	ND		0.40		ppb v/v			11/11/15 16:53	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40		ppb v/v			11/11/15 16:53	1
Ethylbenzene	ND		0.40		ppb v/v			11/11/15 16:53	1
4-Ethyltoluene	ND		0.40		ppb v/v			11/11/15 16:53	1
Hexachlorobutadiene	ND		2.0		ppb v/v			11/11/15 16:53	1
2-Hexanone	ND		0.40		ppb v/v			11/11/15 16:53	1
Methylene Chloride	ND		0.40		ppb v/v			11/11/15 16:53	1
4-Methyl-2-pentanone (MIBK)	ND		0.40		ppb v/v			11/11/15 16:53	1
Styrene	ND		0.40		ppb v/v			11/11/15 16:53	1
1,1,2,2-Tetrachloroethane	ND		0.40		ppb v/v			11/11/15 16:53	1
Tetrachloroethene	ND		0.40		ppb v/v			11/11/15 16:53	1
Toluene	ND		0.40		ppb v/v			11/11/15 16:53	1
1,2,4-Trichlorobenzene	ND		2.0		ppb v/v			11/11/15 16:53	1
1,1,1-Trichloroethane	ND		0.30		ppb v/v			11/11/15 16:53	1
1,1,2-Trichloroethane	ND		0.40		ppb v/v			11/11/15 16:53	1
Trichloroethene	ND		0.40		ppb v/v			11/11/15 16:53	1
Trichlorofluoromethane	ND		0.40		ppb v/v			11/11/15 16:53	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40		ppb v/v			11/11/15 16:53	1
1,2,4-Trimethylbenzene	ND		0.80		ppb v/v			11/11/15 16:53	1
1,3,5-Trimethylbenzene	ND		0.40		ppb v/v			11/11/15 16:53	1
Vinyl acetate	ND		0.80		ppb v/v			11/11/15 16:53	1
Vinyl chloride	ND		0.40		ppb v/v			11/11/15 16:53	1

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15747-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-92061/5
Matrix: Air
Analysis Batch: 92061

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m,p-Xylene	ND		0.80		ppb v/v			11/11/15 16:53	1
o-Xylene	ND		0.40		ppb v/v			11/11/15 16:53	1
Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		12		ug/m3 Air			11/11/15 16:53	1
Benzene	ND		1.3		ug/m3 Air			11/11/15 16:53	1
Benzyl chloride	ND		4.1		ug/m3 Air			11/11/15 16:53	1
Bromodichloromethane	ND		2.0		ug/m3 Air			11/11/15 16:53	1
Bromoform	ND		4.1		ug/m3 Air			11/11/15 16:53	1
Bromomethane	ND		3.1		ug/m3 Air			11/11/15 16:53	1
2-Butanone (MEK)	ND		2.4		ug/m3 Air			11/11/15 16:53	1
Carbon disulfide	ND		2.5		ug/m3 Air			11/11/15 16:53	1
Carbon tetrachloride	ND		5.0		ug/m3 Air			11/11/15 16:53	1
Chlorobenzene	ND		1.4		ug/m3 Air			11/11/15 16:53	1
Dibromochloromethane	ND		3.4		ug/m3 Air			11/11/15 16:53	1
Chloroethane	ND		2.1		ug/m3 Air			11/11/15 16:53	1
Chloroform	ND		1.5		ug/m3 Air			11/11/15 16:53	1
Chloromethane	ND		1.7		ug/m3 Air			11/11/15 16:53	1
1,2-Dibromoethane (EDB)	ND		6.1		ug/m3 Air			11/11/15 16:53	1
1,2-Dichlorobenzene	ND		2.4		ug/m3 Air			11/11/15 16:53	1
1,3-Dichlorobenzene	ND		2.4		ug/m3 Air			11/11/15 16:53	1
1,4-Dichlorobenzene	ND		2.4		ug/m3 Air			11/11/15 16:53	1
Dichlorodifluoromethane	ND		2.0		ug/m3 Air			11/11/15 16:53	1
1,1-Dichloroethane	ND		1.2		ug/m3 Air			11/11/15 16:53	1
1,2-Dichloroethane	ND		3.2		ug/m3 Air			11/11/15 16:53	1
1,1-Dichloroethene	ND		3.2		ug/m3 Air			11/11/15 16:53	1
cis-1,2-Dichloroethene	ND		1.6		ug/m3 Air			11/11/15 16:53	1
trans-1,2-Dichloroethene	ND		1.6		ug/m3 Air			11/11/15 16:53	1
1,2-Dichloropropane	ND		1.8		ug/m3 Air			11/11/15 16:53	1
cis-1,3-Dichloropropene	ND		1.8		ug/m3 Air			11/11/15 16:53	1
trans-1,3-Dichloropropene	ND		1.8		ug/m3 Air			11/11/15 16:53	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.8		ug/m3 Air			11/11/15 16:53	1
Ethylbenzene	ND		1.7		ug/m3 Air			11/11/15 16:53	1
4-Ethyltoluene	ND		2.0		ug/m3 Air			11/11/15 16:53	1
Hexachlorobutadiene	ND		21		ug/m3 Air			11/11/15 16:53	1
2-Hexanone	ND		1.6		ug/m3 Air			11/11/15 16:53	1
Methylene Chloride	ND		1.4		ug/m3 Air			11/11/15 16:53	1
4-Methyl-2-pentanone (MIBK)	ND		1.6		ug/m3 Air			11/11/15 16:53	1
Styrene	ND		1.7		ug/m3 Air			11/11/15 16:53	1
1,1,2,2-Tetrachloroethane	ND		2.7		ug/m3 Air			11/11/15 16:53	1
Tetrachloroethene	ND		2.7		ug/m3 Air			11/11/15 16:53	1
Toluene	ND		1.5		ug/m3 Air			11/11/15 16:53	1
1,2,4-Trichlorobenzene	ND		15		ug/m3 Air			11/11/15 16:53	1
1,1,1-Trichloroethane	ND		1.6		ug/m3 Air			11/11/15 16:53	1
1,1,2-Trichloroethane	ND		2.2		ug/m3 Air			11/11/15 16:53	1
Trichloroethene	ND		2.1		ug/m3 Air			11/11/15 16:53	1
Trichlorofluoromethane	ND		2.2		ug/m3 Air			11/11/15 16:53	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.1		ug/m3 Air			11/11/15 16:53	1

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15747-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-92061/5
Matrix: Air
Analysis Batch: 92061

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	ND		3.9		ug/m3 Air			11/11/15 16:53	1
1,3,5-Trimethylbenzene	ND		2.0		ug/m3 Air			11/11/15 16:53	1
Vinyl acetate	ND		2.8		ug/m3 Air			11/11/15 16:53	1
Vinyl chloride	ND		1.0		ug/m3 Air			11/11/15 16:53	1
m,p-Xylene	ND		3.5		ug/m3 Air			11/11/15 16:53	1
o-Xylene	ND		1.7		ug/m3 Air			11/11/15 16:53	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		70 - 130		11/11/15 16:53	1
1,2-Dichloroethane-d4 (Surr)	84		70 - 130		11/11/15 16:53	1
Toluene-d8 (Surr)	100		70 - 130		11/11/15 16:53	1

Lab Sample ID: LCS 320-92061/3
Matrix: Air
Analysis Batch: 92061

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	17.8		ppb v/v		89	71 - 131
Benzene	20.0	18.8		ppb v/v		94	68 - 128
Benzyl chloride	20.0	13.7		ppb v/v		69	58 - 120
Bromodichloromethane	20.0	18.8		ppb v/v		94	65 - 130
Bromoform	20.0	21.5		ppb v/v		107	64 - 144
Bromomethane	20.0	23.0		ppb v/v		115	70 - 131
2-Butanone (MEK)	20.0	16.7		ppb v/v		83	71 - 131
Carbon disulfide	20.0	20.2		ppb v/v		101	63 - 123
Carbon tetrachloride	20.0	18.2		ppb v/v		91	67 - 127
Chlorobenzene	20.0	19.4		ppb v/v		97	70 - 132
Dibromochloromethane	20.0	20.1		ppb v/v		101	68 - 128
Chloroethane	20.0	22.5		ppb v/v		113	70 - 131
Chloroform	20.0	19.4		ppb v/v		97	69 - 129
Chloromethane	20.0	25.4		ppb v/v		127	67 - 127
1,2-Dibromoethane (EDB)	20.0	20.2		ppb v/v		101	68 - 131
1,2-Dichlorobenzene	20.0	17.9		ppb v/v		90	73 - 143
1,3-Dichlorobenzene	20.0	19.4		ppb v/v		97	77 - 136
1,4-Dichlorobenzene	20.0	18.9		ppb v/v		94	73 - 143
Dichlorodifluoromethane	20.0	20.5		ppb v/v		103	69 - 129
1,1-Dichloroethane	20.0	20.6		ppb v/v		103	65 - 125
1,2-Dichloroethane	20.0	18.7		ppb v/v		93	71 - 131
1,1-Dichloroethene	20.0	18.3		ppb v/v		92	53 - 128
cis-1,2-Dichloroethene	20.0	19.8		ppb v/v		99	68 - 128
trans-1,2-Dichloroethene	20.0	21.4		ppb v/v		107	70 - 130
1,2-Dichloropropane	20.0	19.6		ppb v/v		98	74 - 128
cis-1,3-Dichloropropene	20.0	21.3		ppb v/v		107	78 - 132
trans-1,3-Dichloropropene	20.0	18.2		ppb v/v		91	56 - 136
1,2-Dichloro-1,1,2,2-tetrafluoroethane	20.0	17.7		ppb v/v		89	64 - 124
Ethylbenzene	20.0	19.6		ppb v/v		98	76 - 136
4-Ethyltoluene	20.0	17.0		ppb v/v		85	62 - 136

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15747-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-92061/3

Matrix: Air

Analysis Batch: 92061

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hexachlorobutadiene	20.0	15.1		ppb v/v		75	42 - 150
2-Hexanone	20.0	17.4		ppb v/v		87	70 - 128
Methylene Chloride	20.0	20.9		ppb v/v		104	65 - 125
4-Methyl-2-pentanone (MIBK)	20.0	17.9		ppb v/v		90	73 - 133
Styrene	20.0	20.7		ppb v/v		103	76 - 144
1,1,2,2-Tetrachloroethane	20.0	19.9		ppb v/v		99	75 - 135
Tetrachloroethene	20.0	18.6		ppb v/v		93	56 - 138
Toluene	20.0	20.2		ppb v/v		101	71 - 132
1,2,4-Trichlorobenzene	20.0	14.3		ppb v/v		71	59 - 150
1,1,1-Trichloroethane	20.0	18.4		ppb v/v		92	65 - 124
1,1,2-Trichloroethane	20.0	20.9		ppb v/v		105	71 - 131
Trichloroethene	20.0	18.2		ppb v/v		91	64 - 127
Trichlorofluoromethane	20.0	19.5		ppb v/v		98	68 - 128
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	18.1		ppb v/v		90	50 - 132
1,2,4-Trimethylbenzene	20.0	19.1		ppb v/v		95	61 - 145
1,3,5-Trimethylbenzene	20.0	17.3		ppb v/v		86	65 - 136
Vinyl acetate	20.0	21.5		ppb v/v		107	77 - 134
Vinyl chloride	20.0	21.8		ppb v/v		109	69 - 129
m,p-Xylene	40.0	37.8		ppb v/v		94	75 - 138
o-Xylene	20.0	19.3		ppb v/v		96	77 - 132

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	48	42.3		ug/m3 Air		89	71 - 131
Benzene	64	60.1		ug/m3 Air		94	68 - 128
Benzyl chloride	100	70.9		ug/m3 Air		69	58 - 120
Bromodichloromethane	130	126		ug/m3 Air		94	65 - 130
Bromoform	210	222		ug/m3 Air		107	64 - 144
Bromomethane	78	89.5		ug/m3 Air		115	70 - 131
2-Butanone (MEK)	59	49.1		ug/m3 Air		83	71 - 131
Carbon disulfide	62	62.9		ug/m3 Air		101	63 - 123
Carbon tetrachloride	130	115		ug/m3 Air		91	67 - 127
Chlorobenzene	92	89.2		ug/m3 Air		97	70 - 132
Dibromochloromethane	170	171		ug/m3 Air		101	68 - 128
Chloroethane	53	59.4		ug/m3 Air		113	70 - 131
Chloroform	98	94.7		ug/m3 Air		97	69 - 129
Chloromethane	41	52.4		ug/m3 Air		127	67 - 127
1,2-Dibromoethane (EDB)	150	155		ug/m3 Air		101	68 - 131
1,2-Dichlorobenzene	120	108		ug/m3 Air		90	73 - 143
1,3-Dichlorobenzene	120	116		ug/m3 Air		97	77 - 136
1,4-Dichlorobenzene	120	114		ug/m3 Air		94	73 - 143
Dichlorodifluoromethane	99	101		ug/m3 Air		103	69 - 129
1,1-Dichloroethane	81	83.2		ug/m3 Air		103	65 - 125
1,2-Dichloroethane	81	75.6		ug/m3 Air		93	71 - 131
1,1-Dichloroethene	79	72.7		ug/m3 Air		92	53 - 128
cis-1,2-Dichloroethene	79	78.4		ug/m3 Air		99	68 - 128
trans-1,2-Dichloroethene	79	84.8		ug/m3 Air		107	70 - 130
1,2-Dichloropropane	92	90.7		ug/m3 Air		98	74 - 128

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15747-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-92061/3

Matrix: Air

Analysis Batch: 92061

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,3-Dichloropropene	91	96.8		ug/m3 Air		107	78 - 132
trans-1,3-Dichloropropene	91	82.6		ug/m3 Air		91	56 - 136
1,2-Dichloro-1,1,2,2-tetrafluoroethane	140	124		ug/m3 Air		89	64 - 124
Ethylbenzene	87	85.2		ug/m3 Air		98	76 - 136
4-Ethyltoluene	98	83.4		ug/m3 Air		85	62 - 136
Hexachlorobutadiene	210	161		ug/m3 Air		75	42 - 150
2-Hexanone	82	71.3		ug/m3 Air		87	70 - 128
Methylene Chloride	69	72.4		ug/m3 Air		104	65 - 125
4-Methyl-2-pentanone (MIBK)	82	73.5		ug/m3 Air		90	73 - 133
Styrene	85	88.1		ug/m3 Air		103	76 - 144
1,1,2,2-Tetrachloroethane	140	136		ug/m3 Air		99	75 - 135
Tetrachloroethene	140	126		ug/m3 Air		93	56 - 138
Toluene	75	76.2		ug/m3 Air		101	71 - 132
1,2,4-Trichlorobenzene	150	106		ug/m3 Air		71	59 - 150
1,1,1-Trichloroethane	110	101		ug/m3 Air		92	65 - 124
1,1,2-Trichloroethane	110	114		ug/m3 Air		105	71 - 131
Trichloroethene	110	98.0		ug/m3 Air		91	64 - 127
Trichlorofluoromethane	110	110		ug/m3 Air		98	68 - 128
1,1,2-Trichloro-1,2,2-trifluoroethane	150	139		ug/m3 Air		90	50 - 132
1,2,4-Trimethylbenzene	98	93.8		ug/m3 Air		95	61 - 145
1,3,5-Trimethylbenzene	98	85.0		ug/m3 Air		86	65 - 136
Vinyl acetate	70	75.5		ug/m3 Air		107	77 - 134
Vinyl chloride	51	55.7		ug/m3 Air		109	69 - 129
m,p-Xylene	170	164		ug/m3 Air		94	75 - 138
o-Xylene	87	83.8		ug/m3 Air		96	77 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	107		70 - 130
1,2-Dichloroethane-d4 (Surr)	97		70 - 130
Toluene-d8 (Surr)	99		70 - 130

Lab Sample ID: LCSD 320-92061/45

Matrix: Air

Analysis Batch: 92061

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	20.0	18.4		ppb v/v		92	71 - 131	3	25
Benzene	20.0	19.4		ppb v/v		97	68 - 128	3	25
Benzyl chloride	20.0	13.0		ppb v/v		65	58 - 120	5	25
Bromodichloromethane	20.0	18.3		ppb v/v		92	65 - 130	3	25
Bromoform	20.0	19.9		ppb v/v		99	64 - 144	8	25
Bromomethane	20.0	22.2		ppb v/v		111	70 - 131	4	25
2-Butanone (MEK)	20.0	17.4		ppb v/v		87	71 - 131	5	25
Carbon disulfide	20.0	19.5		ppb v/v		98	63 - 123	3	25
Carbon tetrachloride	20.0	17.3		ppb v/v		86	67 - 127	5	25
Chlorobenzene	20.0	19.5		ppb v/v		98	70 - 132	1	25

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15747-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-92061/45

Client Sample ID: Lab Control Sample Dup

Matrix: Air

Prep Type: Total/NA

Analysis Batch: 92061

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dibromochloromethane	20.0	18.8		ppb v/v		94	68 - 128	7	25
Chloroethane	20.0	21.6		ppb v/v		108	70 - 131	4	25
Chloroform	20.0	18.2		ppb v/v		91	69 - 129	6	25
Chloromethane	20.0	22.7		ppb v/v		113	67 - 127	11	25
1,2-Dibromoethane (EDB)	20.0	20.1		ppb v/v		101	68 - 131	0	25
1,2-Dichlorobenzene	20.0	16.7		ppb v/v		83	73 - 143	7	25
1,3-Dichlorobenzene	20.0	18.2		ppb v/v		91	77 - 136	6	25
1,4-Dichlorobenzene	20.0	17.7		ppb v/v		89	73 - 143	6	25
Dichlorodifluoromethane	20.0	18.7		ppb v/v		93	69 - 129	9	25
1,1-Dichloroethane	20.0	19.6		ppb v/v		98	65 - 125	5	25
1,2-Dichloroethane	20.0	17.8		ppb v/v		89	71 - 131	5	25
1,1-Dichloroethene	20.0	18.0		ppb v/v		90	53 - 128	2	25
cis-1,2-Dichloroethene	20.0	20.0		ppb v/v		100	68 - 128	1	25
trans-1,2-Dichloroethene	20.0	20.3		ppb v/v		102	70 - 130	5	25
1,2-Dichloropropane	20.0	18.2		ppb v/v		91	74 - 128	8	25
cis-1,3-Dichloropropene	20.0	21.1		ppb v/v		106	78 - 132	1	25
trans-1,3-Dichloropropene	20.0	17.7		ppb v/v		89	56 - 136	3	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	20.0	19.0		ppb v/v		95	64 - 124	7	25
Ethylbenzene	20.0	19.4		ppb v/v		97	76 - 136	1	25
4-Ethyltoluene	20.0	16.6		ppb v/v		83	62 - 136	2	25
Hexachlorobutadiene	20.0	14.5		ppb v/v		73	42 - 150	4	25
2-Hexanone	20.0	15.8		ppb v/v		79	70 - 128	9	25
Methylene Chloride	20.0	19.6		ppb v/v		98	65 - 125	6	25
4-Methyl-2-pentanone (MIBK)	20.0	16.3		ppb v/v		82	73 - 133	9	25
Styrene	20.0	20.1		ppb v/v		101	76 - 144	3	25
1,1,2,2-Tetrachloroethane	20.0	19.6		ppb v/v		98	75 - 135	1	25
Tetrachloroethene	20.0	18.5		ppb v/v		93	56 - 138	1	25
Toluene	20.0	19.7		ppb v/v		98	71 - 132	3	25
1,2,4-Trichlorobenzene	20.0	13.1		ppb v/v		66	59 - 150	9	25
1,1,1-Trichloroethane	20.0	17.1		ppb v/v		86	65 - 124	7	25
1,1,2-Trichloroethane	20.0	20.4		ppb v/v		102	71 - 131	2	25
Trichloroethene	20.0	18.3		ppb v/v		91	64 - 127	0	25
Trichlorofluoromethane	20.0	17.9		ppb v/v		90	68 - 128	9	25
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	17.7		ppb v/v		89	50 - 132	2	25
1,2,4-Trimethylbenzene	20.0	18.5		ppb v/v		92	61 - 145	3	25
1,3,5-Trimethylbenzene	20.0	17.3		ppb v/v		86	65 - 136	0	25
Vinyl acetate	20.0	20.5		ppb v/v		103	77 - 134	5	25
Vinyl chloride	20.0	20.9		ppb v/v		104	69 - 129	4	25
m,p-Xylene	40.0	37.8		ppb v/v		94	75 - 138	0	25
o-Xylene	20.0	18.7		ppb v/v		93	77 - 132	3	25
Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	48	43.8		ug/m3 Air		92	71 - 131	3	25
Benzene	64	62.0		ug/m3 Air		97	68 - 128	3	25
Benzyl chloride	100	67.4		ug/m3 Air		65	58 - 120	5	25
Bromodichloromethane	130	123		ug/m3 Air		92	65 - 130	3	25
Bromoform	210	205		ug/m3 Air		99	64 - 144	8	25

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15747-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-92061/45

Client Sample ID: Lab Control Sample Dup

Matrix: Air

Prep Type: Total/NA

Analysis Batch: 92061

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromomethane	78	86.4		ug/m3 Air		111	70 - 131	4	25
2-Butanone (MEK)	59	51.4		ug/m3 Air		87	71 - 131	5	25
Carbon disulfide	62	60.9		ug/m3 Air		98	63 - 123	3	25
Carbon tetrachloride	130	109		ug/m3 Air		86	67 - 127	5	25
Chlorobenzene	92	89.9		ug/m3 Air		98	70 - 132	1	25
Dibromochloromethane	170	160		ug/m3 Air		94	68 - 128	7	25
Chloroethane	53	57.0		ug/m3 Air		108	70 - 131	4	25
Chloroform	98	88.8		ug/m3 Air		91	69 - 129	6	25
Chloromethane	41	46.8		ug/m3 Air		113	67 - 127	11	25
1,2-Dibromoethane (EDB)	150	155		ug/m3 Air		101	68 - 131	0	25
1,2-Dichlorobenzene	120	100		ug/m3 Air		83	73 - 143	7	25
1,3-Dichlorobenzene	120	109		ug/m3 Air		91	77 - 136	6	25
1,4-Dichlorobenzene	120	107		ug/m3 Air		89	73 - 143	6	25
Dichlorodifluoromethane	99	92.4		ug/m3 Air		93	69 - 129	9	25
1,1-Dichloroethane	81	79.2		ug/m3 Air		98	65 - 125	5	25
1,2-Dichloroethane	81	72.2		ug/m3 Air		89	71 - 131	5	25
1,1-Dichloroethene	79	71.3		ug/m3 Air		90	53 - 128	2	25
cis-1,2-Dichloroethene	79	79.2		ug/m3 Air		100	68 - 128	1	25
trans-1,2-Dichloroethene	79	80.5		ug/m3 Air		102	70 - 130	5	25
1,2-Dichloropropane	92	83.9		ug/m3 Air		91	74 - 128	8	25
cis-1,3-Dichloropropene	91	95.8		ug/m3 Air		106	78 - 132	1	25
trans-1,3-Dichloropropene	91	80.5		ug/m3 Air		89	56 - 136	3	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	140	133		ug/m3 Air		95	64 - 124	7	25
Ethylbenzene	87	84.2		ug/m3 Air		97	76 - 136	1	25
4-Ethyltoluene	98	81.7		ug/m3 Air		83	62 - 136	2	25
Hexachlorobutadiene	210	155		ug/m3 Air		73	42 - 150	4	25
2-Hexanone	82	65.0		ug/m3 Air		79	70 - 128	9	25
Methylene Chloride	69	68.1		ug/m3 Air		98	65 - 125	6	25
4-Methyl-2-pentanone (MIBK)	82	66.9		ug/m3 Air		82	73 - 133	9	25
Styrene	85	85.8		ug/m3 Air		101	76 - 144	3	25
1,1,2,2-Tetrachloroethane	140	134		ug/m3 Air		98	75 - 135	1	25
Tetrachloroethene	140	126		ug/m3 Air		93	56 - 138	1	25
Toluene	75	74.1		ug/m3 Air		98	71 - 132	3	25
1,2,4-Trichlorobenzene	150	97.2		ug/m3 Air		66	59 - 150	9	25
1,1,1-Trichloroethane	110	93.4		ug/m3 Air		86	65 - 124	7	25
1,1,2-Trichloroethane	110	111		ug/m3 Air		102	71 - 131	2	25
Trichloroethene	110	98.2		ug/m3 Air		91	64 - 127	0	25
Trichlorofluoromethane	110	101		ug/m3 Air		90	68 - 128	9	25
1,1,2-Trichloro-1,2,2-trifluoroethane	150	136		ug/m3 Air		89	50 - 132	2	25
1,2,4-Trimethylbenzene	98	90.8		ug/m3 Air		92	61 - 145	3	25
1,3,5-Trimethylbenzene	98	84.9		ug/m3 Air		86	65 - 136	0	25
Vinyl acetate	70	72.2		ug/m3 Air		103	77 - 134	5	25
Vinyl chloride	51	53.4		ug/m3 Air		104	69 - 129	4	25
m,p-Xylene	170	164		ug/m3 Air		94	75 - 138	0	25
o-Xylene	87	81.2		ug/m3 Air		93	77 - 132	3	25

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15747-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-92061/45

Matrix: Air

Analysis Batch: 92061

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	107		70 - 130
1,2-Dichloroethane-d4 (Surr)	91		70 - 130
Toluene-d8 (Surr)	103		70 - 130

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QC Association Summary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15747-1

Air - GC/MS VOA

Analysis Batch: 92061

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-15747-1	SVE_SOUTH_POSTCARBON_102915	Total/NA	Air	TO-15	
320-15747-1 - DL	SVE_SOUTH_POSTCARBON_102915	Total/NA	Air	TO-15	
320-15747-2	SVE_SOUTH_PRECARBON_102915	Total/NA	Air	TO-15	
320-15747-3	SVE_NORTH_EFFLUENT_102915	Total/NA	Air	TO-15	
LCS 320-92061/3	Lab Control Sample	Total/NA	Air	TO-15	
LCSD 320-92061/45	Lab Control Sample Dup	Total/NA	Air	TO-15	
MB 320-92061/5	Method Blank	Total/NA	Air	TO-15	



Lab Chronicle

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15747-1

Client Sample ID: SVE_SOUTH_POSTCARBON_102915

Lab Sample ID: 320-15747-1

Date Collected: 10/29/15 14:11

Matrix: Air

Date Received: 11/02/15 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	453 mL	250 mL	92061	11/11/15 20:40	SRS	TAL SAC
Total/NA	Analysis	TO-15	DL	1.82	250 mL	250 mL	92061	11/12/15 08:48	SRS	TAL SAC

Client Sample ID: SVE_SOUTH_PRECARBON_102915

Lab Sample ID: 320-15747-2

Date Collected: 10/29/15 14:16

Matrix: Air

Date Received: 11/02/15 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		110	4 mL	250 mL	92061	11/11/15 21:21	SRS	TAL SAC

Client Sample ID: SVE_NORTH_EFFLUENT_102915

Lab Sample ID: 320-15747-3

Date Collected: 10/29/15 14:36

Matrix: Air

Date Received: 11/02/15 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		34.5	12 mL	250 mL	92061	11/11/15 22:02	SRS	TAL SAC

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Certification Summary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15747-1

Laboratory: TestAmerica Sacramento

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	01-31-16
Alaska (UST)	State Program	10	UST-055	12-18-15
Arizona	State Program	9	AZ0708	08-11-16
Arkansas DEQ	State Program	6	88-0691	06-17-16
California	State Program	9	2897	01-31-16
Colorado	State Program	8	N/A	08-31-16
Connecticut	State Program	1	PH-0691	06-30-17
Florida	NELAP	4	E87570	06-30-16
Hawaii	State Program	9	N/A	01-29-16
Illinois	NELAP	5	200060	03-17-16
Kansas	NELAP	7	E-10375	01-31-16
Louisiana	NELAP	6	30612	06-30-16
Michigan	State Program	5	9947	01-31-16
Nevada	State Program	9	CA44	07-31-16
New Jersey	NELAP	2	CA005	06-30-16
New York	NELAP	2	11666	04-01-16
Oregon	NELAP	10	CA200005	01-29-16
Pennsylvania	NELAP	3	9947	03-31-16
Texas	NELAP	6	T104704399-15-9	05-31-16
US Fish & Wildlife	Federal		LE148388-0	02-28-16
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-16
Utah	NELAP	8	QUAN1	02-28-16
Virginia	NELAP Secondary AB	3	460278	03-14-16
Washington	State Program	10	C581	05-04-16
West Virginia (DW)	State Program	3	9930C	12-31-15
Wyoming	State Program	8	8TMS-Q	01-29-16

Laboratory: TestAmerica Portland

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-012	12-26-15
Oregon	NELAP	10	OR100021	01-09-16
USDA	Federal		P330-11-00092	04-17-17

Method Summary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15747-1

Method	Method Description	Protocol	Laboratory
TO-15	Volatile Organic Compounds in Ambient Air	EPA	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

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Sample Summary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-15747-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-15747-1	SVE_SOUTH_POSTCARBON_102915	Air	10/29/15 14:11	11/02/15 09:30
320-15747-2	SVE_SOUTH_PRECARBON_102915	Air	10/29/15 14:16	11/02/15 09:30
320-15747-3	SVE_NORTH_EFFLUENT_102915	Air	10/29/15 14:36	11/02/15 09:30

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TestAmerica Sacramento
880 Riverside Parkway

West Sacramento, CA 95605
phone 916.374.4378 fax 916.372.1059

Canister Samples Chain of Custody Record

TestAmerica Laboratories, Inc. assumes no liability with respect to the collection and shipment of these samples

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact Information		Project Manager: Stephanie Salisbury Phone: 503 924 4704 x 1925 Email: S.Salisbury@apexcos.com			Samples Collected By: Joel Mattheck					COC No. _____ of _____ COCs	
Company Name		APEX		Site Contact: _____		TA Contact: _____		Analysis Turnaround Time _____		Standard (Specific) <input checked="" type="checkbox"/>	
Address		3015 SW 1st Ave		City/State/Zip		Portland, OR, 97201		Phone		503 924 4704	
FAX				Project Name		Nuxtar Vancouver Rem.		Site/Location		Nuxtar Vancouver	
P.O.#		1126-17		Rush (Specify): _____		Sample Date(s)		Time Start		Time Stop	
Sample Identification		SUE - South - PostCarbon - 102915		SUE - South - PreCarbon - 102915		SUE - North - Effluent - 102915		Canister Vacuum in Field, 'Hg (Start)		Canister Vacuum in Field, 'Hg (Stop)	
								Flow Controller ID		Canister ID	
			10/29	1410	1411	-30	-5	-	8069	X	X
			10/29	1415	1416	-30	-5	-	7972	X	X
			10/29	1435	1436	-30	-2	-	8087	X	X

Other (Please specify in notes section):
Landfill Gas
Soil Gas
Ambient Air
Indoor Air
Sample Type
Other (Please specify in notes section):
TO-3
EPA 15/16
ASTM D-1946 / 1945 / 3588
EPA 28C / 25.3
EPA 3C
MA-APH
TO-15 (Med / Std / Low / SIM)

Sample Specific Notes:
Standard TAT
↓

For Lab Use Only:
Walk-in Client
Lab Sampling
Job / SDG No.
(See below for Add'l Items)

Barcode: 320-15747 Chain of Custody

Temperature (Fahrenheit):
Start Interior
Stop
Start Ambient
Stop

Temperature (Fahrenheit):
Start Interior
Stop

* SVE System gas

1.0 IR/PL

Special Instructions/QC Requirements & Comments: Please email Results to: S.Salisbury@apexcos.com

Samples Shipped by: Joel Mattheck
Date / Time: 10/29/15, 0700

Samples Relinquished by: Joel Mattheck
Date / Time: 10/29/15, 0700

Reiniquished by:
Date / Time: 10/30/15, 1240

Lab Use Only: Shipper Name:
Date / Time: 10/30/15, 1240

Condition: Rec'd: Joyce Raynor 11/2/15 930

Form No. CA-C-WI-003, Rev. 1, dated 05/10/2013



JOB # 320-15747
Sample # 1

Table with fields: Client/Project, Canister Serial #: 8069, Duration, Cleaning Job, Flow, mL/min, Client ID, Initials, Site Location.

FIELD table with columns: READING, TIME, PRESS., DATE, INITIALS. Rows for INITIAL FIELD VACUUM and FINAL FIELD READING.

LABORATORY table with columns: READING, PRESS., DATE, INITIALS. Rows for INITIAL VACUUM CHECK, INITIAL PRESSURE (PSIA), FINAL PRESSURE (PSIA), Pressurization Gas, and Initial Canister Dilution Factor = 1.82.

CANISTER REPRESSURIZATION table with columns: Date, Pi (PSIA), Pf (PSIA), Initial DF, Initials, NEW DF.

Analytical Dilution Factors section with multiple rows showing calculations for Canister DF, Load DF, and Bag DF, resulting in FINAL DF values.

JOB # **320-15747**
 Sample # **2**

Client/Project:		VFR ID:	
Canister Serial #:	7972	Duration:	<input type="checkbox"/> Hrs <input type="checkbox"/> Min
Cleaning Job:		Flow:	mL/min
Client ID:		Initials:	
Site Location:			

FIELD				
READING	TIME	PRESS.	DATE	INITIALS
INITIAL FIELD VACUUM				
FINAL FIELD READING				

LABORATORY				
READING	PRESS.	DATE	INITIALS	
INITIAL VACUUM CHECK (INCHES Hg)			JMT	
<input type="checkbox"/> Helium Pre-dilution - Final Pressure (INCHES Hg)				
INITIAL PRESSURE (PSIA)	13.19	11/11/15	HL	
FINAL PRESSURE (PSIA)	23.19	11/11/15	HL	
Pressurization Gas: <input type="checkbox"/> N2 <input type="checkbox"/> He	SCREENED <input type="checkbox"/>	SCRN DIL. VS 250mLs:		
Initial Canister Dilution Factor =	1.76			

CANISTER REPRESSURIZATION					
Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
			1.76		#DIV/0!
			#DIV/0!		#DIV/0!
			#DIV/0!		#DIV/0!

Analytical Dilution Factors										
Canister DF =	1.76	X	Load DF =	6.9444444	X	Bag DF =	9	=	FINAL DF	109.8843821
			LVf (mLs)	250		BVf (mLs)	9			
			LVi (mLs)	36		Bvi (mLs)	1			
Canister DF =	1.76	X	Load DF =	#DIV/0!	X	Bag DF =	1	=	FINAL DF	#DIV/0!
			LVf (mLs)			BVf (mLs)				
			LVi (mLs)			Bvi (mLs)				
Canister DF =	1.76	X	Load DF =	#DIV/0!	X	Bag DF =	1	=	FINAL DF	#DIV/0!
			LVf (mLs)			BVf (mLs)				
			LVi (mLs)			Bvi (mLs)				



JOB # 320-15747
 Sample # 3

Client/Project:		VFR ID:	
Canister Serial #:	8087	Duration:	<input type="checkbox"/> Hrs <input type="checkbox"/> Min
Cleaning Job:		Flow:	mL/min
Client ID:		Initials:	
Site Location:			

FIELD				
READING	TIME	PRESS.	DATE	INITIALS
INITIAL FIELD VACUUM				
FINAL FIELD READING				

LABORATORY				
READING	PRESS.	DATE	INITIALS	
INITIAL VACUUM CHECK (INCHES Hg)			JMT	
<input type="checkbox"/> Helium Pre-dilution - Final Pressure (INCHES Hg)				
INITIAL PRESSURE (PSIA)	14.12	11/11/15	HL	
FINAL PRESSURE (PSIA)	23.39	11/11/15	HL	
Pressurization Gas: <input type="checkbox"/> N2 <input type="checkbox"/> He	SCREENED <input type="checkbox"/>	SCRN DIL. VS 250mLs:		
Initial Canister Dilution Factor =	1.66			

CANISTER REPRESSURIZATION					
Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
			1.66		#DIV/0!
			#DIV/0!		#DIV/0!
			#DIV/0!		#DIV/0!

Analytical Dilution Factors						
	Date	Instr.	File #			
Canister DF = 1.66	X	Load DF = 6.9444444	X	Bag DF = 3	=	FINAL DF 34.51074127
		LVf (mLs) 250		BVf (mLs) 3		
		LVi (mLs) 36		Bvi (mLs) 1		
Canister DF = 1.66	X	Load DF = #DIV/0!	X	Bag DF = 1	=	FINAL DF #DIV/0!
		LVf (mLs) 		BVf (mLs) 		
		LVi (mLs) 		Bvi (mLs) 		
Canister DF = 1.66	X	Load DF = #DIV/0!	X	Bag DF = 1	=	FINAL DF #DIV/0!
		LVf (mLs) 		BVf (mLs) 		
		LVi (mLs) 		Bvi (mLs) 		



Login Sample Receipt Checklist

Client: Apex Companies LLC

Job Number: 320-15747-1

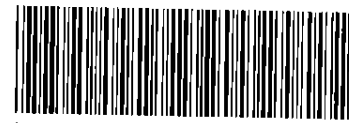
Login Number: 15747

List Source: TestAmerica Sacramento

List Number: 1

Creator: Nelson, Kym D

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	N/A	
Cooler Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Canister

Certification Type: TO-15 SCAN

Date Cleaned/Batch ID 9/25/15 320-15184

Date of QC 9/29/15

Data File Number 15092910

CANISTER ID NUMBERS

<u>7864 *</u>	<u>8374</u>	_____
<u>8087</u>	<u>7972</u>	_____
<u>8069</u>	<u>8302</u>	_____
<u>8157</u>	<u>3400892</u>	_____
<u>8336</u>	_____	_____
<u>7873</u>	_____	_____
<u>8311</u>	_____	_____
<u>7814</u>	_____	_____

The above canisters were cleaned as a batch. This certifies this batch contains no target analyte concentration greater than or equal to the method criteria for the "Certification Type" indicated above.

* INDICATES THE CAN OR CANS WHICH WERE SCREENED.

[Signature]
 1st level Reviewed By:

9/30/15
 Date:

[Signature]
 2nd level Reviewed By:

10/2/15
 Date:



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-15184-1</u>
SDG No.: <u>6L SCAN Batch</u>	
Client Sample ID: <u>7864</u>	Lab Sample ID: <u>320-15184-1</u>
Matrix: <u>Air</u>	Lab File ID: <u>15092910.D</u>
Analysis Method: <u>TO-15</u>	Date Collected: <u>09/25/2015 00:00</u>
Sample wt/vol: <u>250 (mL)</u>	Date Analyzed: <u>09/29/2015 21:41</u>
Soil Aliquot Vol: _____	Dilution Factor: <u>1</u>
Soil Extract Vol.: _____	GC Column: <u>RTX-Volatiles</u> ID: <u>0.32 (mm)</u>
% Moisture: _____	Level: (low/med) <u>Low</u>
Analysis Batch No.: <u>87552</u>	Units: <u>ppb v/v</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
67-64-1	Acetone	0.73	J	5.0	0.18
107-02-8	Acrolein	ND		2.0	0.22
107-13-1	Acrylonitrile	ND		2.0	0.19
107-05-1	Allyl chloride	ND		0.80	0.11
71-43-2	Benzene	ND		0.40	0.079
100-44-7	Benzyl chloride	ND		0.80	0.16
75-27-4	Bromodichloromethane	ND		0.30	0.066
75-25-2	Bromoform	ND		0.40	0.070
74-83-9	Bromomethane	ND		0.80	0.34
106-99-0	1,3-Butadiene	ND		0.80	0.15
106-97-8	n-Butane	ND		0.40	0.15
78-93-3	2-Butanone (MEK)	ND		0.80	0.20
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0	0.11
104-51-8	n-Butylbenzene	ND		0.40	0.18
135-98-8	sec-Butylbenzene	ND		0.40	0.070
98-06-6	tert-Butylbenzene	ND		0.80	0.068
75-15-0	Carbon disulfide	ND		0.80	0.078
56-23-5	Carbon tetrachloride	ND		0.80	0.064
108-90-7	Chlorobenzene	ND		0.30	0.064
75-45-6	Chlorodifluoromethane	ND		0.80	0.11
75-00-3	Chloroethane	ND		0.80	0.31
67-66-3	Chloroform	ND		0.30	0.095
74-87-3	Chloromethane	ND		0.80	0.20
95-49-8	2-Chlorotoluene	ND		0.40	0.080
110-82-7	Cyclohexane	ND		0.40	0.084
124-48-1	Dibromochloromethane	ND		0.40	0.079
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80	0.075
74-95-3	Dibromomethane	ND		0.40	0.057
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40	0.16
95-50-1	1,2-Dichlorobenzene	ND		0.40	0.13
541-73-1	1,3-Dichlorobenzene	ND		0.40	0.11
106-46-7	1,4-Dichlorobenzene	ND		0.40	0.15
75-71-8	Dichlorodifluoromethane	ND		0.40	0.15
75-34-3	1,1-Dichloroethane	ND		0.30	0.072
107-06-2	1,2-Dichloroethane	ND		0.80	0.088

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-15184-1</u>
SDG No.: <u>6L SCAN Batch</u>	
Client Sample ID: <u>7864</u>	Lab Sample ID: <u>320-15184-1</u>
Matrix: <u>Air</u>	Lab File ID: <u>15092910.D</u>
Analysis Method: <u>TO-15</u>	Date Collected: <u>09/25/2015 00:00</u>
Sample wt/vol: <u>250 (mL)</u>	Date Analyzed: <u>09/29/2015 21:41</u>
Soil Aliquot Vol: _____	Dilution Factor: <u>1</u>
Soil Extract Vol.: _____	GC Column: <u>RTX-Volatiles</u> ID: <u>0.32 (mm)</u>
% Moisture: _____	Level: (low/med) <u>Low</u>
Analysis Batch No.: <u>87552</u>	Units: <u>ppb v/v</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	ND		0.80	0.13
156-59-2	cis-1,2-Dichloroethene	ND		0.40	0.089
156-60-5	trans-1,2-Dichloroethene	ND		0.40	0.10
78-87-5	1,2-Dichloropropane	ND		0.40	0.24
10061-01-5	cis-1,3-Dichloropropene	ND		0.40	0.10
10061-02-6	trans-1,3-Dichloropropene	ND		0.40	0.088
123-91-1	1,4-Dioxane	ND		0.80	0.10
141-78-6	Ethyl acetate	ND		0.30	0.18
100-41-4	Ethylbenzene	ND		0.40	0.063
622-96-8	4-Ethyltoluene	ND		0.40	0.19
142-82-5	n-Heptane	ND		0.80	0.063
87-68-3	Hexachlorobutadiene	ND		2.0	0.43
110-54-3	n-Hexane	ND		0.80	0.075
591-78-6	2-Hexanone	ND		0.40	0.087
98-82-8	Isopropylbenzene	ND		0.80	0.10
99-87-6	4-Isopropyltoluene	ND		0.80	0.12
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80	0.050
80-62-6	Methyl methacrylate	ND		0.80	0.16
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40	0.14
75-09-2	Methylene Chloride	0.20	J	0.40	0.072
98-83-9	alpha-Methylstyrene	ND		0.40	0.065
91-20-3	Naphthalene	ND		0.80	0.56
111-65-9	n-Octane	ND		0.40	0.055
109-66-0	n-Pentane	ND		0.80	0.26
115-07-1	Propylene	ND		0.40	0.099
103-65-1	N-Propylbenzene	ND		0.40	0.059
100-42-5	Styrene	ND		0.40	0.059
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40	0.069
127-18-4	Tetrachloroethene	ND		0.40	0.051
109-99-9	Tetrahydrofuran	ND		0.80	0.079
108-88-3	Toluene	ND		0.40	0.051
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.16
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.43
71-55-6	1,1,1-Trichloroethane	ND		0.30	0.065
79-00-5	1,1,2-Trichloroethane	ND		0.40	0.067

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-15184-1
 SDG No.: 6L SCAN Batch
 Client Sample ID: 7864 Lab Sample ID: 320-15184-1
 Matrix: Air Lab File ID: 15092910.D
 Analysis Method: TO-15 Date Collected: 09/25/2015 00:00
 Sample wt/vol: 250 (mL) Date Analyzed: 09/29/2015 21:41
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-Volatiles ID: 0.32 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 87552 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.40	0.11
75-69-4	Trichlorofluoromethane	ND		0.40	0.20
96-18-4	1,2,3-Trichloropropane	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	ND		0.80	0.16
108-67-8	1,3,5-Trimethylbenzene	ND		0.40	0.13
540-84-1	2,2,4-Trimethylpentane	ND		0.40	0.071
108-05-4	Vinyl acetate	ND		0.80	0.15
593-60-2	Vinyl bromide	ND		0.80	0.26
75-01-4	Vinyl chloride	ND		0.40	0.12
179601-23-1	m,p-Xylene	ND		0.80	0.10
95-47-6	o-Xylene	ND		0.40	0.054

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	98		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	101		70-130
2037-26-5	Toluene-d8 (Surr)	95		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS11\20150929-25336.b\15092910.D
 Lims ID: 320-15184-A-1 Lab Sample ID: 320-15184-1
 Client ID: 7864
 Sample Type: Client
 Inject. Date: 29-Sep-2015 21:41:30 ALS Bottle#: 6 Worklist Smp#: 21
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Sample Info: 320-15184-A-1
 Misc. Info.: 500ml Can Cert
 Operator ID: SRS Instrument ID: ATMS11
 Method: \\ChromNA\Sacramento\ChromData\ATMS11\20150929-25336.b\TO15_ATMS11.m
 Limit Group: MSA - TO15 - ICAL
 Last Update: 30-Sep-2015 12:36:39 Calib Date: 29-Sep-2015 02:09:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS11\20150928-25316.b\15092813.D
 Column 1 : RTX Volatiles (0.32 mm) Det: MS SCAN
 Process Host: XAWRK033

First Level Reviewer: ortizam

Date: 30-Sep-2015 12:36:55

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	9.899	9.895	0.004	86	53073	4.00	
* 2 1,4-Difluorobenzene	114	11.262	11.257	0.005	97	212442	4.00	
* 3 Chlorobenzene-d5 (IS)	117	15.598	15.599	-0.001	93	159217	4.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	10.672	10.667	0.005	94	89521	4.05	
\$ 5 Toluene-d8 (Surr)	100	13.451	13.446	0.005	96	124422	3.79	
\$ 6 4-Bromofluorobenzene (Surr	174	17.367	17.369	-0.002	86	58751	3.92	
31 Acetone	43	6.543	6.520	0.023	99	16728	0.7345	
47 Methylene Chloride	49	7.491	7.480	0.011	87	7473	0.2050	

Reagents:

VASUISIM_00214 Amount Added: 50.00 Units: mL Run Reagent

Data File: \\ChromNA\Sacramento\ChromData\ATMS11\20150929-25336.b\15092910.D

Injection Date: 29-Sep-2015 21:41:30

Instrument ID: ATMS11

Operator ID: SRS

Lims ID: 320-15184-A-1

Lab Sample ID: 320-15184-1

Worklist Smp#: 21

Client ID: 7864

Purge Vol: 500.000 mL

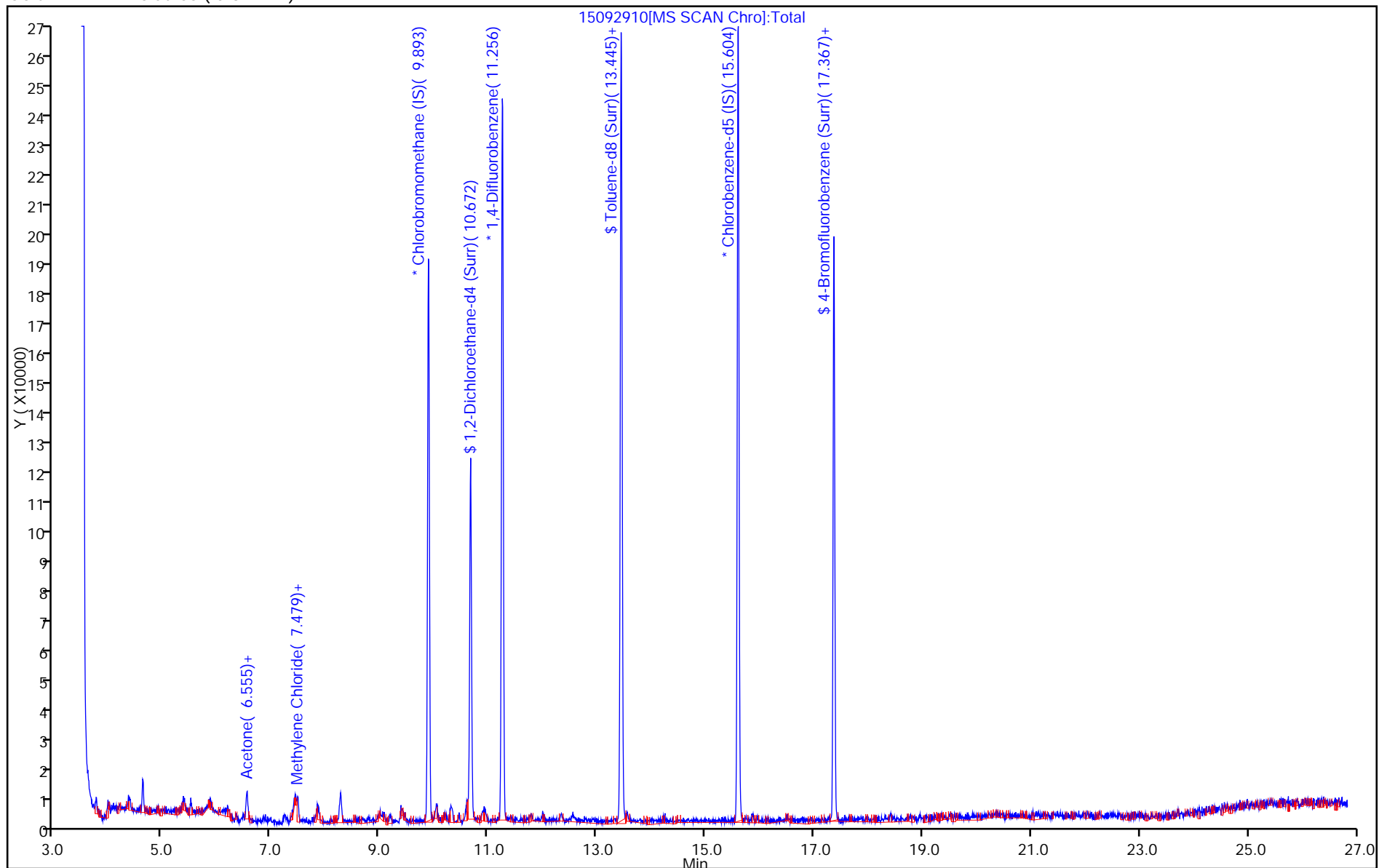
Dil. Factor: 1.0000

ALS Bottle#: 6

Method: TO15_ATMS11

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS11\20150929-25336.b\15092910.D

Injection Date: 29-Sep-2015 21:41:30

Instrument ID: ATMS11

Lims ID: 320-15184-A-1

Lab Sample ID: 320-15184-1

Client ID: 7864

Operator ID: SRS

ALS Bottle#: 6 Worklist Smp#: 21

Purge Vol: 500.000 mL

Dil. Factor: 1.0000

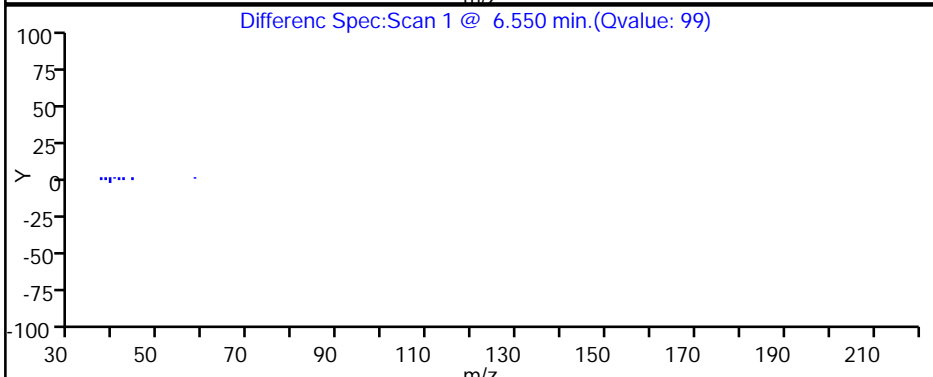
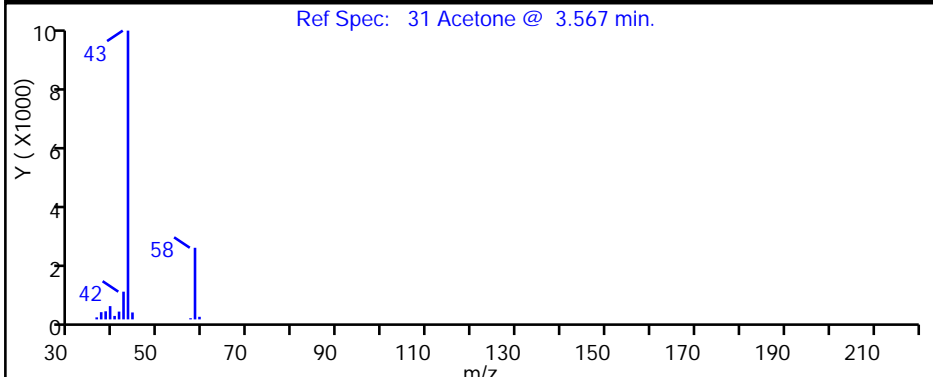
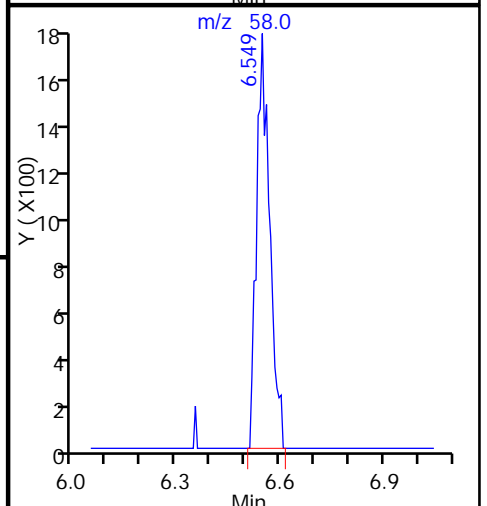
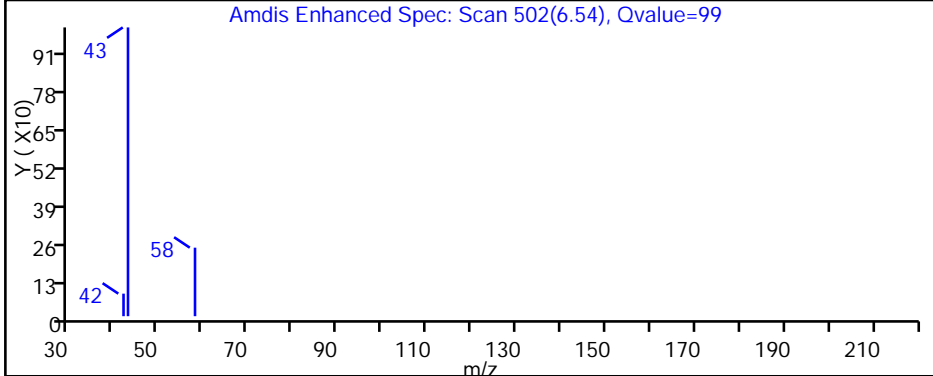
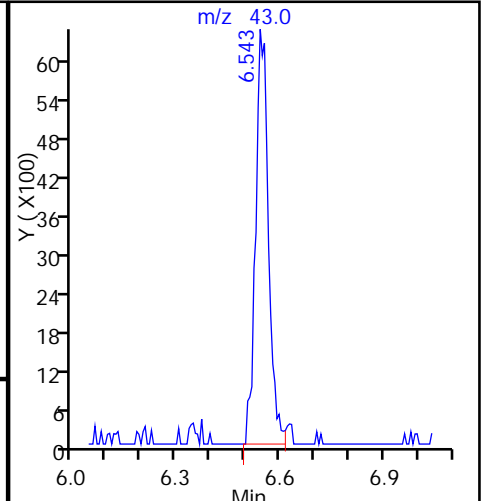
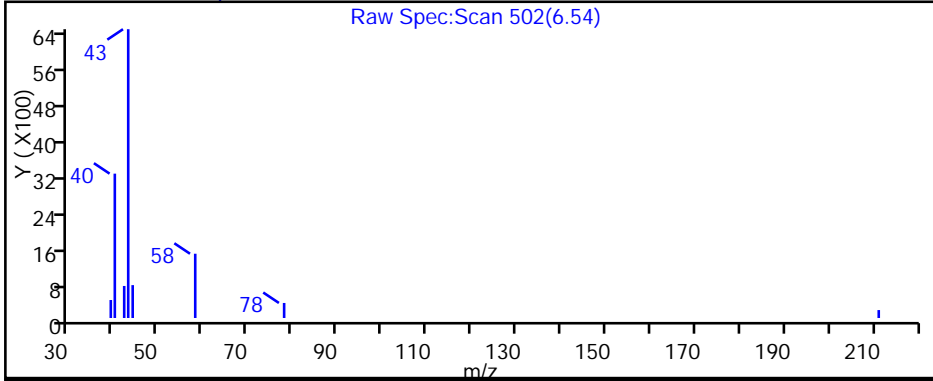
Method: TO15_ATMS11

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Detector: MS SCAN

31 Acetone, CAS: 67-64-1



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS11\20150929-25336.b\15092910.D

Injection Date: 29-Sep-2015 21:41:30

Instrument ID: ATMS11

Lims ID: 320-15184-A-1

Lab Sample ID: 320-15184-1

Client ID: 7864

Operator ID: SRS

ALS Bottle#: 6 Worklist Smp#: 21

Purge Vol: 500.000 mL

Dil. Factor: 1.0000

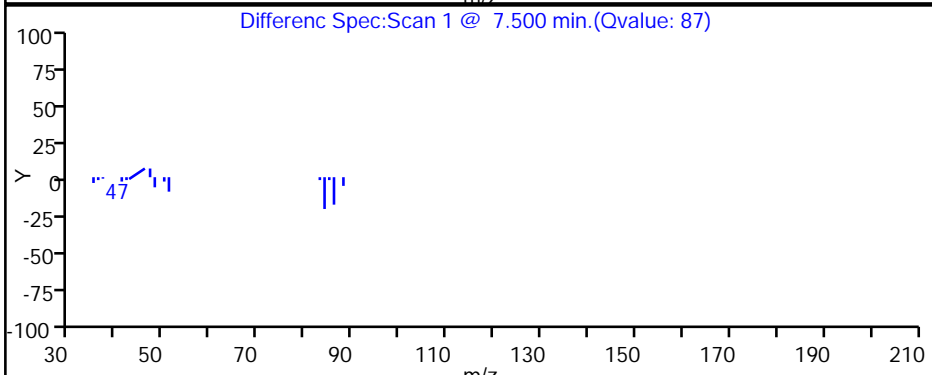
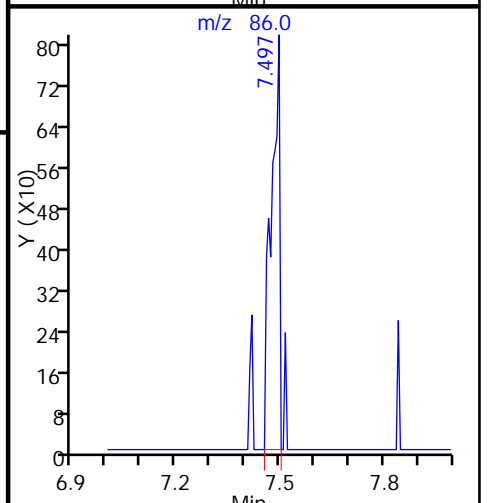
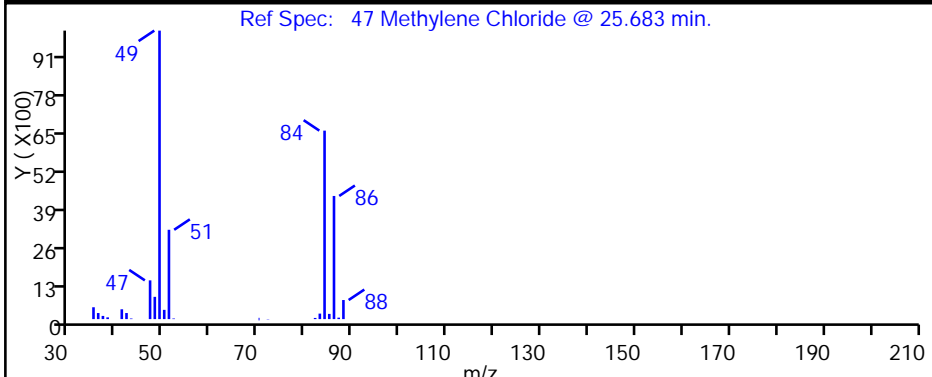
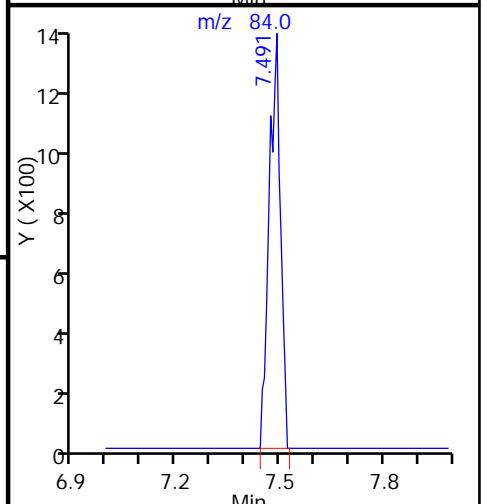
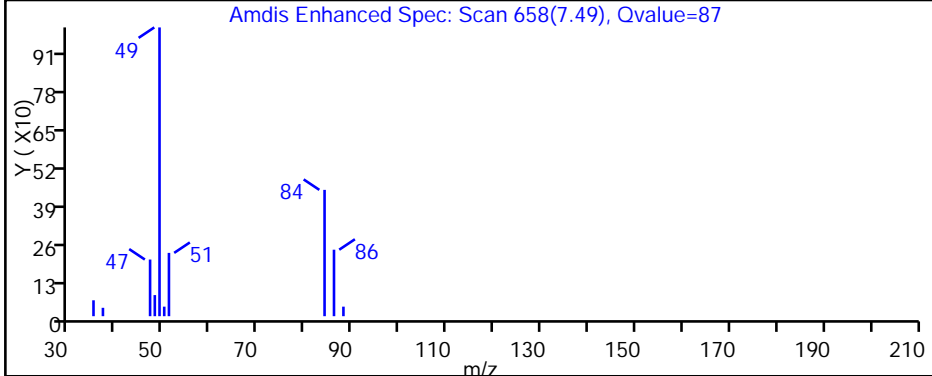
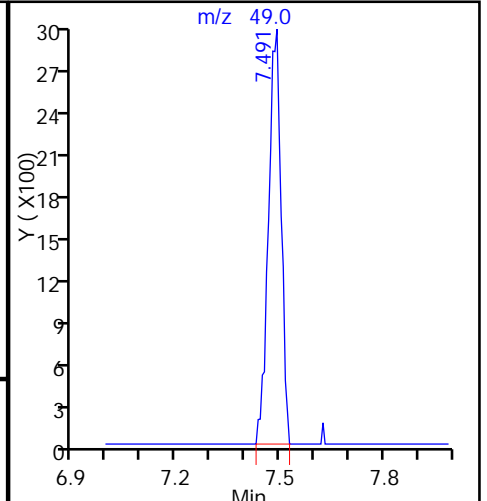
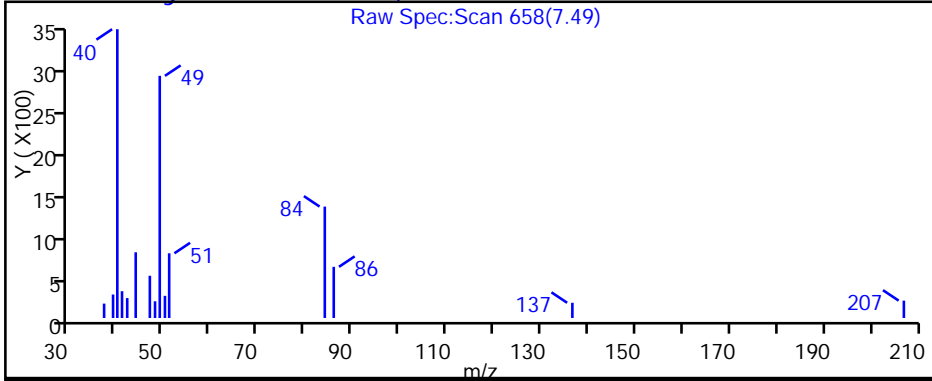
Method: TO15_ATMS11

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Detector: MS SCAN

47 Methylene Chloride, CAS: 75-09-2



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-16183-1
Client Project/Site: NuStar Vapor Testing

For:
Apex Companies LLC
3015 SW 1st Avenue
Portland, Oregon 97201

Attn: Stephanie Salisbury



Authorized for release by:
12/15/2015 2:40:32 PM

Sarah Murphy, Project Manager I
(253)922-2310
sarah.murphy@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16183-1

Qualifiers

Air - GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16183-1

Job ID: 320-16183-1

Laboratory: TestAmerica Sacramento

Narrative

Receipt

The samples were received on 12/1/2015 10:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice.

Air - GC/MS VOA

Method(s) TO-15: The laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for analytical batch 320-95289 recovered outside control limits for the following analytes: Carbon tetrachloride. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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Detection Summary

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16183-1

Client Sample ID: SVE_SOUTH_POSTCARBON_113015

Lab Sample ID: 320-16183-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,3-Dichlorobenzene	4.6		0.40		ppb v/v	1		TO-15	Total/NA
Dichlorodifluoromethane	0.46		0.40		ppb v/v	1		TO-15	Total/NA
1,1-Dichloroethane	0.45		0.30		ppb v/v	1		TO-15	Total/NA
cis-1,2-Dichloroethene	27		0.40		ppb v/v	1		TO-15	Total/NA
trans-1,2-Dichloroethene	0.60		0.40		ppb v/v	1		TO-15	Total/NA
1,1,1-Trichloroethane	5.9		0.30		ppb v/v	1		TO-15	Total/NA
Trichloroethene	11		0.40		ppb v/v	1		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,3-Dichlorobenzene	27		2.4		ug/m3 Air	1		TO-15	Total/NA
Dichlorodifluoromethane	2.3		2.0		ug/m3 Air	1		TO-15	Total/NA
1,1-Dichloroethane	1.8		1.2		ug/m3 Air	1		TO-15	Total/NA
cis-1,2-Dichloroethene	110		1.6		ug/m3 Air	1		TO-15	Total/NA
trans-1,2-Dichloroethene	2.4		1.6		ug/m3 Air	1		TO-15	Total/NA
1,1,1-Trichloroethane	32		1.6		ug/m3 Air	1		TO-15	Total/NA
Trichloroethene	59		2.1		ug/m3 Air	1		TO-15	Total/NA

Client Sample ID: SVE_SOUTH_PRECARBON_113015

Lab Sample ID: 320-16183-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	54		38		ppb v/v	96.2		TO-15	Total/NA
Tetrachloroethene	3000		38		ppb v/v	96.2		TO-15	Total/NA
Trichloroethene	300		38		ppb v/v	96.2		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	210		150		ug/m3 Air	96.2		TO-15	Total/NA
Tetrachloroethene	21000		260		ug/m3 Air	96.2		TO-15	Total/NA
Trichloroethene	1600		210		ug/m3 Air	96.2		TO-15	Total/NA

Client Sample ID: SVE_NORTH_EFFLUENT_113015

Lab Sample ID: 320-16183-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	2300		72		ppb v/v	180		TO-15	Total/NA
Trichloroethene	86		72		ppb v/v	180		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	15000		490		ug/m3 Air	180		TO-15	Total/NA
Trichloroethene	460		390		ug/m3 Air	180		TO-15	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16183-1

Client Sample ID: SVE_SOUTH_POSTCARBON_113015

Lab Sample ID: 320-16183-1

Date Collected: 11/30/15 11:41

Matrix: Air

Date Received: 12/01/15 10:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		5.0		ppb v/v			12/12/15 02:22	1
Benzene	ND		0.40		ppb v/v			12/12/15 02:22	1
Benzyl chloride	ND		0.80		ppb v/v			12/12/15 02:22	1
Bromodichloromethane	ND		0.30		ppb v/v			12/12/15 02:22	1
Bromoform	ND		0.40		ppb v/v			12/12/15 02:22	1
Bromomethane	ND		0.80		ppb v/v			12/12/15 02:22	1
2-Butanone (MEK)	ND		0.80		ppb v/v			12/12/15 02:22	1
Carbon disulfide	ND		0.80		ppb v/v			12/12/15 02:22	1
Carbon tetrachloride	ND	*	0.80		ppb v/v			12/12/15 02:22	1
Chlorobenzene	ND		0.30		ppb v/v			12/12/15 02:22	1
Dibromochloromethane	ND		0.40		ppb v/v			12/12/15 02:22	1
Chloroethane	ND		0.80		ppb v/v			12/12/15 02:22	1
Chloroform	ND		0.30		ppb v/v			12/12/15 02:22	1
Chloromethane	ND		0.80		ppb v/v			12/12/15 02:22	1
1,2-Dibromoethane (EDB)	ND		0.80		ppb v/v			12/12/15 02:22	1
1,2-Dichlorobenzene	ND		0.40		ppb v/v			12/12/15 02:22	1
1,3-Dichlorobenzene	4.6		0.40		ppb v/v			12/12/15 02:22	1
1,4-Dichlorobenzene	ND		0.40		ppb v/v			12/12/15 02:22	1
Dichlorodifluoromethane	0.46		0.40		ppb v/v			12/12/15 02:22	1
1,1-Dichloroethane	0.45		0.30		ppb v/v			12/12/15 02:22	1
1,2-Dichloroethane	ND		0.80		ppb v/v			12/12/15 02:22	1
1,1-Dichloroethene	ND		0.80		ppb v/v			12/12/15 02:22	1
cis-1,2-Dichloroethene	27		0.40		ppb v/v			12/12/15 02:22	1
trans-1,2-Dichloroethene	0.60		0.40		ppb v/v			12/12/15 02:22	1
1,2-Dichloropropane	ND		0.40		ppb v/v			12/12/15 02:22	1
cis-1,3-Dichloropropene	ND		0.40		ppb v/v			12/12/15 02:22	1
trans-1,3-Dichloropropene	ND		0.40		ppb v/v			12/12/15 02:22	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40		ppb v/v			12/12/15 02:22	1
Ethylbenzene	ND		0.40		ppb v/v			12/12/15 02:22	1
4-Ethyltoluene	ND		0.40		ppb v/v			12/12/15 02:22	1
Hexachlorobutadiene	ND		2.0		ppb v/v			12/12/15 02:22	1
2-Hexanone	ND		0.40		ppb v/v			12/12/15 02:22	1
Methylene Chloride	ND		0.40		ppb v/v			12/12/15 02:22	1
4-Methyl-2-pentanone (MIBK)	ND		0.40		ppb v/v			12/12/15 02:22	1
Styrene	ND		0.40		ppb v/v			12/12/15 02:22	1
1,1,2,2-Tetrachloroethane	ND		0.40		ppb v/v			12/12/15 02:22	1
Tetrachloroethene	ND		0.40		ppb v/v			12/12/15 02:22	1
Toluene	ND		0.40		ppb v/v			12/12/15 02:22	1
1,2,4-Trichlorobenzene	ND		2.0		ppb v/v			12/12/15 02:22	1
1,1,1-Trichloroethane	5.9		0.30		ppb v/v			12/12/15 02:22	1
1,1,2-Trichloroethane	ND		0.40		ppb v/v			12/12/15 02:22	1
Trichloroethene	11		0.40		ppb v/v			12/12/15 02:22	1
Trichlorofluoromethane	ND		0.40		ppb v/v			12/12/15 02:22	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40		ppb v/v			12/12/15 02:22	1
1,2,4-Trimethylbenzene	ND		0.80		ppb v/v			12/12/15 02:22	1
1,3,5-Trimethylbenzene	ND		0.40		ppb v/v			12/12/15 02:22	1
Vinyl acetate	ND		0.80		ppb v/v			12/12/15 02:22	1
Vinyl chloride	ND		0.40		ppb v/v			12/12/15 02:22	1

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16183-1

Client Sample ID: SVE_SOUTH_POSTCARBON_113015

Lab Sample ID: 320-16183-1

Date Collected: 11/30/15 11:41

Matrix: Air

Date Received: 12/01/15 10:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m,p-Xylene	ND		0.80		ppb v/v			12/12/15 02:22	1
o-Xylene	ND		0.40		ppb v/v			12/12/15 02:22	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		12		ug/m3 Air			12/12/15 02:22	1
Benzene	ND		1.3		ug/m3 Air			12/12/15 02:22	1
Benzyl chloride	ND		4.1		ug/m3 Air			12/12/15 02:22	1
Bromodichloromethane	ND		2.0		ug/m3 Air			12/12/15 02:22	1
Bromoform	ND		4.1		ug/m3 Air			12/12/15 02:22	1
Bromomethane	ND		3.1		ug/m3 Air			12/12/15 02:22	1
2-Butanone (MEK)	ND		2.4		ug/m3 Air			12/12/15 02:22	1
Carbon disulfide	ND		2.5		ug/m3 Air			12/12/15 02:22	1
Carbon tetrachloride	ND	*	5.0		ug/m3 Air			12/12/15 02:22	1
Chlorobenzene	ND		1.4		ug/m3 Air			12/12/15 02:22	1
Dibromochloromethane	ND		3.4		ug/m3 Air			12/12/15 02:22	1
Chloroethane	ND		2.1		ug/m3 Air			12/12/15 02:22	1
Chloroform	ND		1.5		ug/m3 Air			12/12/15 02:22	1
Chloromethane	ND		1.7		ug/m3 Air			12/12/15 02:22	1
1,2-Dibromoethane (EDB)	ND		6.1		ug/m3 Air			12/12/15 02:22	1
1,2-Dichlorobenzene	ND		2.4		ug/m3 Air			12/12/15 02:22	1
1,3-Dichlorobenzene	27		2.4		ug/m3 Air			12/12/15 02:22	1
1,4-Dichlorobenzene	ND		2.4		ug/m3 Air			12/12/15 02:22	1
Dichlorodifluoromethane	2.3		2.0		ug/m3 Air			12/12/15 02:22	1
1,1-Dichloroethane	1.8		1.2		ug/m3 Air			12/12/15 02:22	1
1,2-Dichloroethane	ND		3.2		ug/m3 Air			12/12/15 02:22	1
1,1-Dichloroethene	ND		3.2		ug/m3 Air			12/12/15 02:22	1
cis-1,2-Dichloroethene	110		1.6		ug/m3 Air			12/12/15 02:22	1
trans-1,2-Dichloroethene	2.4		1.6		ug/m3 Air			12/12/15 02:22	1
1,2-Dichloropropane	ND		1.8		ug/m3 Air			12/12/15 02:22	1
cis-1,3-Dichloropropene	ND		1.8		ug/m3 Air			12/12/15 02:22	1
trans-1,3-Dichloropropene	ND		1.8		ug/m3 Air			12/12/15 02:22	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.8		ug/m3 Air			12/12/15 02:22	1
Ethylbenzene	ND		1.7		ug/m3 Air			12/12/15 02:22	1
4-Ethyltoluene	ND		2.0		ug/m3 Air			12/12/15 02:22	1
Hexachlorobutadiene	ND		21		ug/m3 Air			12/12/15 02:22	1
2-Hexanone	ND		1.6		ug/m3 Air			12/12/15 02:22	1
Methylene Chloride	ND		1.4		ug/m3 Air			12/12/15 02:22	1
4-Methyl-2-pentanone (MIBK)	ND		1.6		ug/m3 Air			12/12/15 02:22	1
Styrene	ND		1.7		ug/m3 Air			12/12/15 02:22	1
1,1,2,2-Tetrachloroethane	ND		2.7		ug/m3 Air			12/12/15 02:22	1
Tetrachloroethene	ND		2.7		ug/m3 Air			12/12/15 02:22	1
Toluene	ND		1.5		ug/m3 Air			12/12/15 02:22	1
1,2,4-Trichlorobenzene	ND		15		ug/m3 Air			12/12/15 02:22	1
1,1,1-Trichloroethane	32		1.6		ug/m3 Air			12/12/15 02:22	1
1,1,2-Trichloroethane	ND		2.2		ug/m3 Air			12/12/15 02:22	1
Trichloroethene	59		2.1		ug/m3 Air			12/12/15 02:22	1
Trichlorofluoromethane	ND		2.2		ug/m3 Air			12/12/15 02:22	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.1		ug/m3 Air			12/12/15 02:22	1
1,2,4-Trimethylbenzene	ND		3.9		ug/m3 Air			12/12/15 02:22	1

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16183-1

Client Sample ID: SVE_SOUTH_POSTCARBON_113015

Lab Sample ID: 320-16183-1

Date Collected: 11/30/15 11:41

Matrix: Air

Date Received: 12/01/15 10:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	ND		2.0		ug/m3 Air			12/12/15 02:22	1
Vinyl acetate	ND		2.8		ug/m3 Air			12/12/15 02:22	1
Vinyl chloride	ND		1.0		ug/m3 Air			12/12/15 02:22	1
m,p-Xylene	ND		3.5		ug/m3 Air			12/12/15 02:22	1
o-Xylene	ND		1.7		ug/m3 Air			12/12/15 02:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		70 - 130		12/12/15 02:22	1
1,2-Dichloroethane-d4 (Surr)	99		70 - 130		12/12/15 02:22	1
Toluene-d8 (Surr)	98		70 - 130		12/12/15 02:22	1

Client Sample ID: SVE_SOUTH_PRECARBON_113015

Lab Sample ID: 320-16183-2

Date Collected: 11/30/15 11:43

Matrix: Air

Date Received: 12/01/15 10:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		480		ppb v/v			12/12/15 03:13	96.2
Benzene	ND		38		ppb v/v			12/12/15 03:13	96.2
Benzyl chloride	ND		77		ppb v/v			12/12/15 03:13	96.2
Bromodichloromethane	ND		29		ppb v/v			12/12/15 03:13	96.2
Bromoform	ND		38		ppb v/v			12/12/15 03:13	96.2
Bromomethane	ND		77		ppb v/v			12/12/15 03:13	96.2
2-Butanone (MEK)	ND		77		ppb v/v			12/12/15 03:13	96.2
Carbon disulfide	ND		77		ppb v/v			12/12/15 03:13	96.2
Carbon tetrachloride	ND *		77		ppb v/v			12/12/15 03:13	96.2
Chlorobenzene	ND		29		ppb v/v			12/12/15 03:13	96.2
Dibromochloromethane	ND		38		ppb v/v			12/12/15 03:13	96.2
Chloroethane	ND		77		ppb v/v			12/12/15 03:13	96.2
Chloroform	ND		29		ppb v/v			12/12/15 03:13	96.2
Chloromethane	ND		77		ppb v/v			12/12/15 03:13	96.2
1,2-Dibromoethane (EDB)	ND		77		ppb v/v			12/12/15 03:13	96.2
1,2-Dichlorobenzene	ND		38		ppb v/v			12/12/15 03:13	96.2
1,3-Dichlorobenzene	ND		38		ppb v/v			12/12/15 03:13	96.2
1,4-Dichlorobenzene	ND		38		ppb v/v			12/12/15 03:13	96.2
Dichlorodifluoromethane	ND		38		ppb v/v			12/12/15 03:13	96.2
1,1-Dichloroethane	ND		29		ppb v/v			12/12/15 03:13	96.2
1,2-Dichloroethane	ND		77		ppb v/v			12/12/15 03:13	96.2
1,1-Dichloroethene	ND		77		ppb v/v			12/12/15 03:13	96.2
cis-1,2-Dichloroethene	54		38		ppb v/v			12/12/15 03:13	96.2
trans-1,2-Dichloroethene	ND		38		ppb v/v			12/12/15 03:13	96.2
1,2-Dichloropropane	ND		38		ppb v/v			12/12/15 03:13	96.2
cis-1,3-Dichloropropene	ND		38		ppb v/v			12/12/15 03:13	96.2
trans-1,3-Dichloropropene	ND		38		ppb v/v			12/12/15 03:13	96.2
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		38		ppb v/v			12/12/15 03:13	96.2
Ethylbenzene	ND		38		ppb v/v			12/12/15 03:13	96.2
4-Ethyltoluene	ND		38		ppb v/v			12/12/15 03:13	96.2
Hexachlorobutadiene	ND		190		ppb v/v			12/12/15 03:13	96.2

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16183-1

Client Sample ID: SVE_SOUTH_PRECARBON_113015

Lab Sample ID: 320-16183-2

Date Collected: 11/30/15 11:43

Matrix: Air

Date Received: 12/01/15 10:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Hexanone	ND		38		ppb v/v			12/12/15 03:13	96.2
Methylene Chloride	ND		38		ppb v/v			12/12/15 03:13	96.2
4-Methyl-2-pentanone (MIBK)	ND		38		ppb v/v			12/12/15 03:13	96.2
Styrene	ND		38		ppb v/v			12/12/15 03:13	96.2
1,1,2,2-Tetrachloroethane	ND		38		ppb v/v			12/12/15 03:13	96.2
Tetrachloroethene	3000		38		ppb v/v			12/12/15 03:13	96.2
Toluene	ND		38		ppb v/v			12/12/15 03:13	96.2
1,2,4-Trichlorobenzene	ND		190		ppb v/v			12/12/15 03:13	96.2
1,1,1-Trichloroethane	ND		29		ppb v/v			12/12/15 03:13	96.2
1,1,2-Trichloroethane	ND		38		ppb v/v			12/12/15 03:13	96.2
Trichloroethene	300		38		ppb v/v			12/12/15 03:13	96.2
Trichlorofluoromethane	ND		38		ppb v/v			12/12/15 03:13	96.2
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		38		ppb v/v			12/12/15 03:13	96.2
1,2,4-Trimethylbenzene	ND		77		ppb v/v			12/12/15 03:13	96.2
1,3,5-Trimethylbenzene	ND		38		ppb v/v			12/12/15 03:13	96.2
Vinyl acetate	ND		77		ppb v/v			12/12/15 03:13	96.2
Vinyl chloride	ND		38		ppb v/v			12/12/15 03:13	96.2
m,p-Xylene	ND		77		ppb v/v			12/12/15 03:13	96.2
o-Xylene	ND		38		ppb v/v			12/12/15 03:13	96.2
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		1100		ug/m3 Air			12/12/15 03:13	96.2
Benzene	ND		120		ug/m3 Air			12/12/15 03:13	96.2
Benzyl chloride	ND		400		ug/m3 Air			12/12/15 03:13	96.2
Bromodichloromethane	ND		190		ug/m3 Air			12/12/15 03:13	96.2
Bromoform	ND		400		ug/m3 Air			12/12/15 03:13	96.2
Bromomethane	ND		300		ug/m3 Air			12/12/15 03:13	96.2
2-Butanone (MEK)	ND		230		ug/m3 Air			12/12/15 03:13	96.2
Carbon disulfide	ND		240		ug/m3 Air			12/12/15 03:13	96.2
Carbon tetrachloride	ND *		480		ug/m3 Air			12/12/15 03:13	96.2
Chlorobenzene	ND		130		ug/m3 Air			12/12/15 03:13	96.2
Dibromochloromethane	ND		330		ug/m3 Air			12/12/15 03:13	96.2
Chloroethane	ND		200		ug/m3 Air			12/12/15 03:13	96.2
Chloroform	ND		140		ug/m3 Air			12/12/15 03:13	96.2
Chloromethane	ND		160		ug/m3 Air			12/12/15 03:13	96.2
1,2-Dibromoethane (EDB)	ND		590		ug/m3 Air			12/12/15 03:13	96.2
1,2-Dichlorobenzene	ND		230		ug/m3 Air			12/12/15 03:13	96.2
1,3-Dichlorobenzene	ND		230		ug/m3 Air			12/12/15 03:13	96.2
1,4-Dichlorobenzene	ND		230		ug/m3 Air			12/12/15 03:13	96.2
Dichlorodifluoromethane	ND		190		ug/m3 Air			12/12/15 03:13	96.2
1,1-Dichloroethane	ND		120		ug/m3 Air			12/12/15 03:13	96.2
1,2-Dichloroethane	ND		310		ug/m3 Air			12/12/15 03:13	96.2
1,1-Dichloroethene	ND		310		ug/m3 Air			12/12/15 03:13	96.2
cis-1,2-Dichloroethene	210		150		ug/m3 Air			12/12/15 03:13	96.2
trans-1,2-Dichloroethene	ND		150		ug/m3 Air			12/12/15 03:13	96.2
1,2-Dichloropropane	ND		180		ug/m3 Air			12/12/15 03:13	96.2
cis-1,3-Dichloropropene	ND		170		ug/m3 Air			12/12/15 03:13	96.2
trans-1,3-Dichloropropene	ND		170		ug/m3 Air			12/12/15 03:13	96.2
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		270		ug/m3 Air			12/12/15 03:13	96.2

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16183-1

Client Sample ID: SVE_SOUTH_PRECARBON_113015

Lab Sample ID: 320-16183-2

Date Collected: 11/30/15 11:43

Matrix: Air

Date Received: 12/01/15 10:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		170		ug/m3 Air			12/12/15 03:13	96.2
4-Ethyltoluene	ND		190		ug/m3 Air			12/12/15 03:13	96.2
Hexachlorobutadiene	ND		2100		ug/m3 Air			12/12/15 03:13	96.2
2-Hexanone	ND		160		ug/m3 Air			12/12/15 03:13	96.2
Methylene Chloride	ND		130		ug/m3 Air			12/12/15 03:13	96.2
4-Methyl-2-pentanone (MIBK)	ND		160		ug/m3 Air			12/12/15 03:13	96.2
Styrene	ND		160		ug/m3 Air			12/12/15 03:13	96.2
1,1,2,2-Tetrachloroethane	ND		260		ug/m3 Air			12/12/15 03:13	96.2
Tetrachloroethene	21000		260		ug/m3 Air			12/12/15 03:13	96.2
Toluene	ND		150		ug/m3 Air			12/12/15 03:13	96.2
1,2,4-Trichlorobenzene	ND		1400		ug/m3 Air			12/12/15 03:13	96.2
1,1,1-Trichloroethane	ND		160		ug/m3 Air			12/12/15 03:13	96.2
1,1,2-Trichloroethane	ND		210		ug/m3 Air			12/12/15 03:13	96.2
Trichloroethene	1600		210		ug/m3 Air			12/12/15 03:13	96.2
Trichlorofluoromethane	ND		220		ug/m3 Air			12/12/15 03:13	96.2
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		290		ug/m3 Air			12/12/15 03:13	96.2
1,2,4-Trimethylbenzene	ND		380		ug/m3 Air			12/12/15 03:13	96.2
1,3,5-Trimethylbenzene	ND		190		ug/m3 Air			12/12/15 03:13	96.2
Vinyl acetate	ND		270		ug/m3 Air			12/12/15 03:13	96.2
Vinyl chloride	ND		98		ug/m3 Air			12/12/15 03:13	96.2
m,p-Xylene	ND		330		ug/m3 Air			12/12/15 03:13	96.2
o-Xylene	ND		170		ug/m3 Air			12/12/15 03:13	96.2
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		70 - 130					12/12/15 03:13	96.2
1,2-Dichloroethane-d4 (Surr)	100		70 - 130					12/12/15 03:13	96.2
Toluene-d8 (Surr)	100		70 - 130					12/12/15 03:13	96.2

Client Sample ID: SVE_NORTH_EFFLUENT_113015

Lab Sample ID: 320-16183-3

Date Collected: 11/30/15 11:58

Matrix: Air

Date Received: 12/01/15 10:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		900		ppb v/v			12/12/15 04:04	180
Benzene	ND		72		ppb v/v			12/12/15 04:04	180
Benzyl chloride	ND		140		ppb v/v			12/12/15 04:04	180
Bromodichloromethane	ND		54		ppb v/v			12/12/15 04:04	180
Bromoform	ND		72		ppb v/v			12/12/15 04:04	180
Bromomethane	ND		140		ppb v/v			12/12/15 04:04	180
2-Butanone (MEK)	ND		140		ppb v/v			12/12/15 04:04	180
Carbon disulfide	ND		140		ppb v/v			12/12/15 04:04	180
Carbon tetrachloride	ND *		140		ppb v/v			12/12/15 04:04	180
Chlorobenzene	ND		54		ppb v/v			12/12/15 04:04	180
Dibromochloromethane	ND		72		ppb v/v			12/12/15 04:04	180
Chloroethane	ND		140		ppb v/v			12/12/15 04:04	180
Chloroform	ND		54		ppb v/v			12/12/15 04:04	180
Chloromethane	ND		140		ppb v/v			12/12/15 04:04	180

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16183-1

Client Sample ID: SVE_NORTH_EFFLUENT_113015

Lab Sample ID: 320-16183-3

Date Collected: 11/30/15 11:58

Matrix: Air

Date Received: 12/01/15 10:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		140		ppb v/v			12/12/15 04:04	180
1,2-Dichlorobenzene	ND		72		ppb v/v			12/12/15 04:04	180
1,3-Dichlorobenzene	ND		72		ppb v/v			12/12/15 04:04	180
1,4-Dichlorobenzene	ND		72		ppb v/v			12/12/15 04:04	180
Dichlorodifluoromethane	ND		72		ppb v/v			12/12/15 04:04	180
1,1-Dichloroethane	ND		54		ppb v/v			12/12/15 04:04	180
1,2-Dichloroethane	ND		140		ppb v/v			12/12/15 04:04	180
1,1-Dichloroethene	ND		140		ppb v/v			12/12/15 04:04	180
cis-1,2-Dichloroethene	ND		72		ppb v/v			12/12/15 04:04	180
trans-1,2-Dichloroethene	ND		72		ppb v/v			12/12/15 04:04	180
1,2-Dichloropropane	ND		72		ppb v/v			12/12/15 04:04	180
cis-1,3-Dichloropropene	ND		72		ppb v/v			12/12/15 04:04	180
trans-1,3-Dichloropropene	ND		72		ppb v/v			12/12/15 04:04	180
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		72		ppb v/v			12/12/15 04:04	180
Ethylbenzene	ND		72		ppb v/v			12/12/15 04:04	180
4-Ethyltoluene	ND		72		ppb v/v			12/12/15 04:04	180
Hexachlorobutadiene	ND		360		ppb v/v			12/12/15 04:04	180
2-Hexanone	ND		72		ppb v/v			12/12/15 04:04	180
Methylene Chloride	ND		72		ppb v/v			12/12/15 04:04	180
4-Methyl-2-pentanone (MIBK)	ND		72		ppb v/v			12/12/15 04:04	180
Styrene	ND		72		ppb v/v			12/12/15 04:04	180
1,1,2,2-Tetrachloroethane	ND		72		ppb v/v			12/12/15 04:04	180
Tetrachloroethene	2300		72		ppb v/v			12/12/15 04:04	180
Toluene	ND		72		ppb v/v			12/12/15 04:04	180
1,2,4-Trichlorobenzene	ND		360		ppb v/v			12/12/15 04:04	180
1,1,1-Trichloroethane	ND		54		ppb v/v			12/12/15 04:04	180
1,1,2-Trichloroethane	ND		72		ppb v/v			12/12/15 04:04	180
Trichloroethene	86		72		ppb v/v			12/12/15 04:04	180
Trichlorofluoromethane	ND		72		ppb v/v			12/12/15 04:04	180
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		72		ppb v/v			12/12/15 04:04	180
1,2,4-Trimethylbenzene	ND		140		ppb v/v			12/12/15 04:04	180
1,3,5-Trimethylbenzene	ND		72		ppb v/v			12/12/15 04:04	180
Vinyl acetate	ND		140		ppb v/v			12/12/15 04:04	180
Vinyl chloride	ND		72		ppb v/v			12/12/15 04:04	180
m,p-Xylene	ND		140		ppb v/v			12/12/15 04:04	180
o-Xylene	ND		72		ppb v/v			12/12/15 04:04	180
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		2100		ug/m3 Air			12/12/15 04:04	180
Benzene	ND		230		ug/m3 Air			12/12/15 04:04	180
Benzyl chloride	ND		750		ug/m3 Air			12/12/15 04:04	180
Bromodichloromethane	ND		360		ug/m3 Air			12/12/15 04:04	180
Bromoform	ND		740		ug/m3 Air			12/12/15 04:04	180
Bromomethane	ND		560		ug/m3 Air			12/12/15 04:04	180
2-Butanone (MEK)	ND		420		ug/m3 Air			12/12/15 04:04	180
Carbon disulfide	ND		450		ug/m3 Air			12/12/15 04:04	180
Carbon tetrachloride	ND	*	910		ug/m3 Air			12/12/15 04:04	180
Chlorobenzene	ND		250		ug/m3 Air			12/12/15 04:04	180
Dibromochloromethane	ND		610		ug/m3 Air			12/12/15 04:04	180

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16183-1

Client Sample ID: SVE_NORTH_EFFLUENT_113015

Lab Sample ID: 320-16183-3

Date Collected: 11/30/15 11:58

Matrix: Air

Date Received: 12/01/15 10:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroethane	ND		380		ug/m3 Air			12/12/15 04:04	180
Chloroform	ND		260		ug/m3 Air			12/12/15 04:04	180
Chloromethane	ND		300		ug/m3 Air			12/12/15 04:04	180
1,2-Dibromoethane (EDB)	ND		1100		ug/m3 Air			12/12/15 04:04	180
1,2-Dichlorobenzene	ND		430		ug/m3 Air			12/12/15 04:04	180
1,3-Dichlorobenzene	ND		430		ug/m3 Air			12/12/15 04:04	180
1,4-Dichlorobenzene	ND		430		ug/m3 Air			12/12/15 04:04	180
Dichlorodifluoromethane	ND		360		ug/m3 Air			12/12/15 04:04	180
1,1-Dichloroethane	ND		220		ug/m3 Air			12/12/15 04:04	180
1,2-Dichloroethane	ND		580		ug/m3 Air			12/12/15 04:04	180
1,1-Dichloroethene	ND		570		ug/m3 Air			12/12/15 04:04	180
cis-1,2-Dichloroethene	ND		290		ug/m3 Air			12/12/15 04:04	180
trans-1,2-Dichloroethene	ND		290		ug/m3 Air			12/12/15 04:04	180
1,2-Dichloropropane	ND		330		ug/m3 Air			12/12/15 04:04	180
cis-1,3-Dichloropropene	ND		330		ug/m3 Air			12/12/15 04:04	180
trans-1,3-Dichloropropene	ND		330		ug/m3 Air			12/12/15 04:04	180
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		500		ug/m3 Air			12/12/15 04:04	180
Ethylbenzene	ND		310		ug/m3 Air			12/12/15 04:04	180
4-Ethyltoluene	ND		350		ug/m3 Air			12/12/15 04:04	180
Hexachlorobutadiene	ND		3800		ug/m3 Air			12/12/15 04:04	180
2-Hexanone	ND		300		ug/m3 Air			12/12/15 04:04	180
Methylene Chloride	ND		250		ug/m3 Air			12/12/15 04:04	180
4-Methyl-2-pentanone (MIBK)	ND		290		ug/m3 Air			12/12/15 04:04	180
Styrene	ND		310		ug/m3 Air			12/12/15 04:04	180
1,1,2,2-Tetrachloroethane	ND		490		ug/m3 Air			12/12/15 04:04	180
Tetrachloroethene	15000		490		ug/m3 Air			12/12/15 04:04	180
Toluene	ND		270		ug/m3 Air			12/12/15 04:04	180
1,2,4-Trichlorobenzene	ND		2700		ug/m3 Air			12/12/15 04:04	180
1,1,1-Trichloroethane	ND		290		ug/m3 Air			12/12/15 04:04	180
1,1,2-Trichloroethane	ND		390		ug/m3 Air			12/12/15 04:04	180
Trichloroethene	460		390		ug/m3 Air			12/12/15 04:04	180
Trichlorofluoromethane	ND		400		ug/m3 Air			12/12/15 04:04	180
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		550		ug/m3 Air			12/12/15 04:04	180
1,2,4-Trimethylbenzene	ND		710		ug/m3 Air			12/12/15 04:04	180
1,3,5-Trimethylbenzene	ND		350		ug/m3 Air			12/12/15 04:04	180
Vinyl acetate	ND		510		ug/m3 Air			12/12/15 04:04	180
Vinyl chloride	ND		180		ug/m3 Air			12/12/15 04:04	180
m,p-Xylene	ND		630		ug/m3 Air			12/12/15 04:04	180
o-Xylene	ND		310		ug/m3 Air			12/12/15 04:04	180

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		70 - 130		12/12/15 04:04	180
1,2-Dichloroethane-d4 (Surr)	99		70 - 130		12/12/15 04:04	180
Toluene-d8 (Surr)	99		70 - 130		12/12/15 04:04	180

TestAmerica Sacramento

Surrogate Summary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16183-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Matrix: Air

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (70-130)	12DCE (70-130)	TOL (70-130)
320-16183-1	SVE_SOUTH_POSTCARBON_	101	99	98
320-16183-2	SVE_SOUTH_PRECARBON_1	92	100	100
320-16183-3	SVE_NORTH_EFFLUENT_1130	93	99	99
LCS 320-95289/4	Lab Control Sample	107	104	102
LCSD 320-95289/5	Lab Control Sample Dup	105	100	102
MB 320-95289/7	Method Blank	98	98	98

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

12DCE = 1,2-Dichloroethane-d4 (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16183-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Lab Sample ID: MB 320-95289/7

Matrix: Air

Analysis Batch: 95289

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		5.0		ppb v/v			12/11/15 18:41	1
Benzene	ND		0.40		ppb v/v			12/11/15 18:41	1
Benzyl chloride	ND		0.80		ppb v/v			12/11/15 18:41	1
Bromodichloromethane	ND		0.30		ppb v/v			12/11/15 18:41	1
Bromoform	ND		0.40		ppb v/v			12/11/15 18:41	1
Bromomethane	ND		0.80		ppb v/v			12/11/15 18:41	1
2-Butanone (MEK)	ND		0.80		ppb v/v			12/11/15 18:41	1
Carbon disulfide	ND		0.80		ppb v/v			12/11/15 18:41	1
Carbon tetrachloride	ND		0.80		ppb v/v			12/11/15 18:41	1
Chlorobenzene	ND		0.30		ppb v/v			12/11/15 18:41	1
Dibromochloromethane	ND		0.40		ppb v/v			12/11/15 18:41	1
Chloroethane	ND		0.80		ppb v/v			12/11/15 18:41	1
Chloroform	ND		0.30		ppb v/v			12/11/15 18:41	1
Chloromethane	ND		0.80		ppb v/v			12/11/15 18:41	1
1,2-Dibromoethane (EDB)	ND		0.80		ppb v/v			12/11/15 18:41	1
1,2-Dichlorobenzene	ND		0.40		ppb v/v			12/11/15 18:41	1
1,3-Dichlorobenzene	ND		0.40		ppb v/v			12/11/15 18:41	1
1,4-Dichlorobenzene	ND		0.40		ppb v/v			12/11/15 18:41	1
Dichlorodifluoromethane	ND		0.40		ppb v/v			12/11/15 18:41	1
1,1-Dichloroethane	ND		0.30		ppb v/v			12/11/15 18:41	1
1,2-Dichloroethane	ND		0.80		ppb v/v			12/11/15 18:41	1
1,1-Dichloroethene	ND		0.80		ppb v/v			12/11/15 18:41	1
cis-1,2-Dichloroethene	ND		0.40		ppb v/v			12/11/15 18:41	1
trans-1,2-Dichloroethene	ND		0.40		ppb v/v			12/11/15 18:41	1
1,2-Dichloropropane	ND		0.40		ppb v/v			12/11/15 18:41	1
cis-1,3-Dichloropropene	ND		0.40		ppb v/v			12/11/15 18:41	1
trans-1,3-Dichloropropene	ND		0.40		ppb v/v			12/11/15 18:41	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40		ppb v/v			12/11/15 18:41	1
Ethylbenzene	ND		0.40		ppb v/v			12/11/15 18:41	1
4-Ethyltoluene	ND		0.40		ppb v/v			12/11/15 18:41	1
Hexachlorobutadiene	ND		2.0		ppb v/v			12/11/15 18:41	1
2-Hexanone	ND		0.40		ppb v/v			12/11/15 18:41	1
Methylene Chloride	ND		0.40		ppb v/v			12/11/15 18:41	1
4-Methyl-2-pentanone (MIBK)	ND		0.40		ppb v/v			12/11/15 18:41	1
Styrene	ND		0.40		ppb v/v			12/11/15 18:41	1
1,1,2,2-Tetrachloroethane	ND		0.40		ppb v/v			12/11/15 18:41	1
Tetrachloroethene	ND		0.40		ppb v/v			12/11/15 18:41	1
Toluene	ND		0.40		ppb v/v			12/11/15 18:41	1
1,2,4-Trichlorobenzene	ND		2.0		ppb v/v			12/11/15 18:41	1
1,1,1-Trichloroethane	ND		0.30		ppb v/v			12/11/15 18:41	1
1,1,2-Trichloroethane	ND		0.40		ppb v/v			12/11/15 18:41	1
Trichloroethene	ND		0.40		ppb v/v			12/11/15 18:41	1
Trichlorofluoromethane	ND		0.40		ppb v/v			12/11/15 18:41	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40		ppb v/v			12/11/15 18:41	1
1,2,4-Trimethylbenzene	ND		0.80		ppb v/v			12/11/15 18:41	1
1,3,5-Trimethylbenzene	ND		0.40		ppb v/v			12/11/15 18:41	1
Vinyl acetate	ND		0.80		ppb v/v			12/11/15 18:41	1
Vinyl chloride	ND		0.40		ppb v/v			12/11/15 18:41	1

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16183-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-95289/7
Matrix: Air
Analysis Batch: 95289

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m,p-Xylene	ND		0.80		ppb v/v			12/11/15 18:41	1
o-Xylene	ND		0.40		ppb v/v			12/11/15 18:41	1
Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		12		ug/m3 Air			12/11/15 18:41	1
Benzene	ND		1.3		ug/m3 Air			12/11/15 18:41	1
Benzyl chloride	ND		4.1		ug/m3 Air			12/11/15 18:41	1
Bromodichloromethane	ND		2.0		ug/m3 Air			12/11/15 18:41	1
Bromoform	ND		4.1		ug/m3 Air			12/11/15 18:41	1
Bromomethane	ND		3.1		ug/m3 Air			12/11/15 18:41	1
2-Butanone (MEK)	ND		2.4		ug/m3 Air			12/11/15 18:41	1
Carbon disulfide	ND		2.5		ug/m3 Air			12/11/15 18:41	1
Carbon tetrachloride	ND		5.0		ug/m3 Air			12/11/15 18:41	1
Chlorobenzene	ND		1.4		ug/m3 Air			12/11/15 18:41	1
Dibromochloromethane	ND		3.4		ug/m3 Air			12/11/15 18:41	1
Chloroethane	ND		2.1		ug/m3 Air			12/11/15 18:41	1
Chloroform	ND		1.5		ug/m3 Air			12/11/15 18:41	1
Chloromethane	ND		1.7		ug/m3 Air			12/11/15 18:41	1
1,2-Dibromoethane (EDB)	ND		6.1		ug/m3 Air			12/11/15 18:41	1
1,2-Dichlorobenzene	ND		2.4		ug/m3 Air			12/11/15 18:41	1
1,3-Dichlorobenzene	ND		2.4		ug/m3 Air			12/11/15 18:41	1
1,4-Dichlorobenzene	ND		2.4		ug/m3 Air			12/11/15 18:41	1
Dichlorodifluoromethane	ND		2.0		ug/m3 Air			12/11/15 18:41	1
1,1-Dichloroethane	ND		1.2		ug/m3 Air			12/11/15 18:41	1
1,2-Dichloroethane	ND		3.2		ug/m3 Air			12/11/15 18:41	1
1,1-Dichloroethene	ND		3.2		ug/m3 Air			12/11/15 18:41	1
cis-1,2-Dichloroethene	ND		1.6		ug/m3 Air			12/11/15 18:41	1
trans-1,2-Dichloroethene	ND		1.6		ug/m3 Air			12/11/15 18:41	1
1,2-Dichloropropane	ND		1.8		ug/m3 Air			12/11/15 18:41	1
cis-1,3-Dichloropropene	ND		1.8		ug/m3 Air			12/11/15 18:41	1
trans-1,3-Dichloropropene	ND		1.8		ug/m3 Air			12/11/15 18:41	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.8		ug/m3 Air			12/11/15 18:41	1
Ethylbenzene	ND		1.7		ug/m3 Air			12/11/15 18:41	1
4-Ethyltoluene	ND		2.0		ug/m3 Air			12/11/15 18:41	1
Hexachlorobutadiene	ND		21		ug/m3 Air			12/11/15 18:41	1
2-Hexanone	ND		1.6		ug/m3 Air			12/11/15 18:41	1
Methylene Chloride	ND		1.4		ug/m3 Air			12/11/15 18:41	1
4-Methyl-2-pentanone (MIBK)	ND		1.6		ug/m3 Air			12/11/15 18:41	1
Styrene	ND		1.7		ug/m3 Air			12/11/15 18:41	1
1,1,2,2-Tetrachloroethane	ND		2.7		ug/m3 Air			12/11/15 18:41	1
Tetrachloroethene	ND		2.7		ug/m3 Air			12/11/15 18:41	1
Toluene	ND		1.5		ug/m3 Air			12/11/15 18:41	1
1,2,4-Trichlorobenzene	ND		15		ug/m3 Air			12/11/15 18:41	1
1,1,1-Trichloroethane	ND		1.6		ug/m3 Air			12/11/15 18:41	1
1,1,2-Trichloroethane	ND		2.2		ug/m3 Air			12/11/15 18:41	1
Trichloroethene	ND		2.1		ug/m3 Air			12/11/15 18:41	1
Trichlorofluoromethane	ND		2.2		ug/m3 Air			12/11/15 18:41	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.1		ug/m3 Air			12/11/15 18:41	1

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16183-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-95289/7
Matrix: Air
Analysis Batch: 95289

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	ND		3.9		ug/m3 Air			12/11/15 18:41	1
1,3,5-Trimethylbenzene	ND		2.0		ug/m3 Air			12/11/15 18:41	1
Vinyl acetate	ND		2.8		ug/m3 Air			12/11/15 18:41	1
Vinyl chloride	ND		1.0		ug/m3 Air			12/11/15 18:41	1
m,p-Xylene	ND		3.5		ug/m3 Air			12/11/15 18:41	1
o-Xylene	ND		1.7		ug/m3 Air			12/11/15 18:41	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		70 - 130		12/11/15 18:41	1
1,2-Dichloroethane-d4 (Surr)	98		70 - 130		12/11/15 18:41	1
Toluene-d8 (Surr)	98		70 - 130		12/11/15 18:41	1

Lab Sample ID: LCS 320-95289/4
Matrix: Air
Analysis Batch: 95289

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	20.5		ppb v/v		102	71 - 131
Benzene	20.0	20.3		ppb v/v		102	68 - 128
Benzyl chloride	20.0	18.8		ppb v/v		94	58 - 120
Bromodichloromethane	20.0	21.4		ppb v/v		107	65 - 130
Bromoform	20.0	23.5		ppb v/v		117	64 - 144
Bromomethane	20.0	21.5		ppb v/v		108	70 - 131
2-Butanone (MEK)	20.0	20.7		ppb v/v		103	71 - 131
Carbon disulfide	20.0	20.4		ppb v/v		102	63 - 123
Carbon tetrachloride	20.0	26.4	*	ppb v/v		132	67 - 127
Chlorobenzene	20.0	20.1		ppb v/v		100	70 - 132
Dibromochloromethane	20.0	21.5		ppb v/v		108	68 - 128
Chloroethane	20.0	21.6		ppb v/v		108	70 - 131
Chloroform	20.0	20.3		ppb v/v		102	69 - 129
Chloromethane	20.0	20.5		ppb v/v		103	67 - 127
1,2-Dibromoethane (EDB)	20.0	20.4		ppb v/v		102	68 - 131
1,2-Dichlorobenzene	20.0	22.3		ppb v/v		111	73 - 143
1,3-Dichlorobenzene	20.0	23.3		ppb v/v		117	77 - 136
1,4-Dichlorobenzene	20.0	21.9		ppb v/v		110	73 - 143
Dichlorodifluoromethane	20.0	21.2		ppb v/v		106	69 - 129
1,1-Dichloroethane	20.0	20.8		ppb v/v		104	65 - 125
1,2-Dichloroethane	20.0	20.5		ppb v/v		103	71 - 131
1,1-Dichloroethene	20.0	20.7		ppb v/v		104	53 - 128
cis-1,2-Dichloroethene	20.0	20.4		ppb v/v		102	68 - 128
trans-1,2-Dichloroethene	20.0	20.6		ppb v/v		103	70 - 130
1,2-Dichloropropane	20.0	20.9		ppb v/v		104	74 - 128
cis-1,3-Dichloropropene	20.0	21.1		ppb v/v		105	78 - 132
trans-1,3-Dichloropropene	20.0	20.9		ppb v/v		104	56 - 136
1,2-Dichloro-1,1,2,2-tetrafluoroethane	20.0	20.3		ppb v/v		102	64 - 124
Ethylbenzene	20.0	20.1		ppb v/v		100	76 - 136
4-Ethyltoluene	20.0	20.5		ppb v/v		102	62 - 136

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16183-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-95289/4

Matrix: Air

Analysis Batch: 95289

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hexachlorobutadiene	20.0	21.0		ppb v/v		105	42 - 150
2-Hexanone	20.0	19.3		ppb v/v		96	70 - 128
Methylene Chloride	20.0	20.0		ppb v/v		100	65 - 125
4-Methyl-2-pentanone (MIBK)	20.0	19.3		ppb v/v		97	73 - 133
Styrene	20.0	20.5		ppb v/v		103	76 - 144
1,1,2,2-Tetrachloroethane	20.0	20.8		ppb v/v		104	75 - 135
Tetrachloroethene	20.0	19.4		ppb v/v		97	56 - 138
Toluene	20.0	19.2		ppb v/v		96	71 - 132
1,2,4-Trichlorobenzene	20.0	22.3		ppb v/v		111	59 - 150
1,1,1-Trichloroethane	20.0	20.4		ppb v/v		102	65 - 124
1,1,2-Trichloroethane	20.0	20.2		ppb v/v		101	71 - 131
Trichloroethene	20.0	20.2		ppb v/v		101	64 - 127
Trichlorofluoromethane	20.0	20.4		ppb v/v		102	68 - 128
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	20.4		ppb v/v		102	50 - 132
1,2,4-Trimethylbenzene	20.0	21.8		ppb v/v		109	61 - 145
1,3,5-Trimethylbenzene	20.0	20.8		ppb v/v		104	65 - 136
Vinyl acetate	20.0	23.5		ppb v/v		118	77 - 134
Vinyl chloride	20.0	19.8		ppb v/v		99	69 - 129
m,p-Xylene	40.0	41.1		ppb v/v		103	75 - 138
o-Xylene	20.0	20.5		ppb v/v		102	77 - 132

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	48	48.6		ug/m3 Air		102	71 - 131
Benzene	64	64.9		ug/m3 Air		102	68 - 128
Benzyl chloride	100	97.6		ug/m3 Air		94	58 - 120
Bromodichloromethane	130	144		ug/m3 Air		107	65 - 130
Bromoform	210	242		ug/m3 Air		117	64 - 144
Bromomethane	78	83.5		ug/m3 Air		108	70 - 131
2-Butanone (MEK)	59	61.0		ug/m3 Air		103	71 - 131
Carbon disulfide	62	63.7		ug/m3 Air		102	63 - 123
Carbon tetrachloride	130	166	*	ug/m3 Air		132	67 - 127
Chlorobenzene	92	92.5		ug/m3 Air		100	70 - 132
Dibromochloromethane	170	184		ug/m3 Air		108	68 - 128
Chloroethane	53	56.9		ug/m3 Air		108	70 - 131
Chloroform	98	99.3		ug/m3 Air		102	69 - 129
Chloromethane	41	42.4		ug/m3 Air		103	67 - 127
1,2-Dibromoethane (EDB)	150	157		ug/m3 Air		102	68 - 131
1,2-Dichlorobenzene	120	134		ug/m3 Air		111	73 - 143
1,3-Dichlorobenzene	120	140		ug/m3 Air		117	77 - 136
1,4-Dichlorobenzene	120	132		ug/m3 Air		110	73 - 143
Dichlorodifluoromethane	99	105		ug/m3 Air		106	69 - 129
1,1-Dichloroethane	81	84.2		ug/m3 Air		104	65 - 125
1,2-Dichloroethane	81	83.2		ug/m3 Air		103	71 - 131
1,1-Dichloroethene	79	82.3		ug/m3 Air		104	53 - 128
cis-1,2-Dichloroethene	79	81.1		ug/m3 Air		102	68 - 128
trans-1,2-Dichloroethene	79	81.7		ug/m3 Air		103	70 - 130
1,2-Dichloropropane	92	96.5		ug/m3 Air		104	74 - 128

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16183-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-95289/4

Matrix: Air

Analysis Batch: 95289

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,3-Dichloropropene	91	95.6		ug/m3 Air		105	78 - 132
trans-1,3-Dichloropropene	91	94.7		ug/m3 Air		104	56 - 136
1,2-Dichloro-1,1,2,2-tetrafluoroethane	140	142		ug/m3 Air		102	64 - 124
Ethylbenzene	87	87.3		ug/m3 Air		100	76 - 136
4-Ethyltoluene	98	101		ug/m3 Air		102	62 - 136
Hexachlorobutadiene	210	224		ug/m3 Air		105	42 - 150
2-Hexanone	82	79.0		ug/m3 Air		96	70 - 128
Methylene Chloride	69	69.3		ug/m3 Air		100	65 - 125
4-Methyl-2-pentanone (MIBK)	82	79.2		ug/m3 Air		97	73 - 133
Styrene	85	87.5		ug/m3 Air		103	76 - 144
1,1,2,2-Tetrachloroethane	140	143		ug/m3 Air		104	75 - 135
Tetrachloroethene	140	131		ug/m3 Air		97	56 - 138
Toluene	75	72.5		ug/m3 Air		96	71 - 132
1,2,4-Trichlorobenzene	150	165		ug/m3 Air		111	59 - 150
1,1,1-Trichloroethane	110	111		ug/m3 Air		102	65 - 124
1,1,2-Trichloroethane	110	110		ug/m3 Air		101	71 - 131
Trichloroethene	110	108		ug/m3 Air		101	64 - 127
Trichlorofluoromethane	110	115		ug/m3 Air		102	68 - 128
1,1,2-Trichloro-1,2,2-trifluoroethane	150	157		ug/m3 Air		102	50 - 132
1,2,4-Trimethylbenzene	98	107		ug/m3 Air		109	61 - 145
1,3,5-Trimethylbenzene	98	102		ug/m3 Air		104	65 - 136
Vinyl acetate	70	82.8		ug/m3 Air		118	77 - 134
Vinyl chloride	51	50.6		ug/m3 Air		99	69 - 129
m,p-Xylene	170	178		ug/m3 Air		103	75 - 138
o-Xylene	87	88.8		ug/m3 Air		102	77 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	107		70 - 130
1,2-Dichloroethane-d4 (Surr)	104		70 - 130
Toluene-d8 (Surr)	102		70 - 130

Lab Sample ID: LCSD 320-95289/5

Matrix: Air

Analysis Batch: 95289

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	20.0	20.7		ppb v/v		103	71 - 131	1	25
Benzene	20.0	20.4		ppb v/v		102	68 - 128	1	25
Benzyl chloride	20.0	19.0		ppb v/v		95	58 - 120	1	25
Bromodichloromethane	20.0	21.6		ppb v/v		108	65 - 130	1	25
Bromoform	20.0	23.4		ppb v/v		117	64 - 144	0	25
Bromomethane	20.0	21.8		ppb v/v		109	70 - 131	1	25
2-Butanone (MEK)	20.0	21.2		ppb v/v		106	71 - 131	2	25
Carbon disulfide	20.0	20.7		ppb v/v		103	63 - 123	1	25
Carbon tetrachloride	20.0	26.7	*	ppb v/v		133	67 - 127	1	25
Chlorobenzene	20.0	20.1		ppb v/v		101	70 - 132	0	25

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16183-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-95289/5

Matrix: Air

Analysis Batch: 95289

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dibromochloromethane	20.0	21.7		ppb v/v		108	68 - 128	1	25
Chloroethane	20.0	21.8		ppb v/v		109	70 - 131	1	25
Chloroform	20.0	20.5		ppb v/v		102	69 - 129	1	25
Chloromethane	20.0	20.9		ppb v/v		104	67 - 127	2	25
1,2-Dibromoethane (EDB)	20.0	20.6		ppb v/v		103	68 - 131	1	25
1,2-Dichlorobenzene	20.0	22.4		ppb v/v		112	73 - 143	0	25
1,3-Dichlorobenzene	20.0	23.2		ppb v/v		116	77 - 136	0	25
1,4-Dichlorobenzene	20.0	22.0		ppb v/v		110	73 - 143	0	25
Dichlorodifluoromethane	20.0	21.3		ppb v/v		106	69 - 129	1	25
1,1-Dichloroethane	20.0	20.9		ppb v/v		105	65 - 125	1	25
1,2-Dichloroethane	20.0	20.8		ppb v/v		104	71 - 131	1	25
1,1-Dichloroethene	20.0	20.9		ppb v/v		105	53 - 128	1	25
cis-1,2-Dichloroethene	20.0	20.7		ppb v/v		104	68 - 128	1	25
trans-1,2-Dichloroethene	20.0	20.9		ppb v/v		104	70 - 130	1	25
1,2-Dichloropropane	20.0	21.5		ppb v/v		107	74 - 128	3	25
cis-1,3-Dichloropropene	20.0	21.1		ppb v/v		106	78 - 132	0	25
trans-1,3-Dichloropropene	20.0	20.9		ppb v/v		105	56 - 136	0	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	20.0	20.6		ppb v/v		103	64 - 124	1	25
Ethylbenzene	20.0	20.1		ppb v/v		101	76 - 136	0	25
4-Ethyltoluene	20.0	20.3		ppb v/v		102	62 - 136	1	25
Hexachlorobutadiene	20.0	21.7		ppb v/v		109	42 - 150	3	25
2-Hexanone	20.0	19.3		ppb v/v		96	70 - 128	0	25
Methylene Chloride	20.0	20.2		ppb v/v		101	65 - 125	1	25
4-Methyl-2-pentanone (MIBK)	20.0	19.4		ppb v/v		97	73 - 133	0	25
Styrene	20.0	20.4		ppb v/v		102	76 - 144	1	25
1,1,1,2-Tetrachloroethane	20.0	20.8		ppb v/v		104	75 - 135	0	25
Tetrachloroethene	20.0	19.3		ppb v/v		97	56 - 138	0	25
Toluene	20.0	19.4		ppb v/v		97	71 - 132	1	25
1,2,4-Trichlorobenzene	20.0	22.4		ppb v/v		112	59 - 150	1	25
1,1,1-Trichloroethane	20.0	20.6		ppb v/v		103	65 - 124	1	25
1,1,2-Trichloroethane	20.0	20.3		ppb v/v		101	71 - 131	1	25
Trichloroethene	20.0	20.3		ppb v/v		101	64 - 127	1	25
Trichlorofluoromethane	20.0	20.5		ppb v/v		103	68 - 128	1	25
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	20.6		ppb v/v		103	50 - 132	1	25
1,2,4-Trimethylbenzene	20.0	19.3		ppb v/v		96	61 - 145	12	25
1,3,5-Trimethylbenzene	20.0	21.0		ppb v/v		105	65 - 136	1	25
Vinyl acetate	20.0	23.7		ppb v/v		119	77 - 134	1	25
Vinyl chloride	20.0	20.0		ppb v/v		100	69 - 129	1	25
m,p-Xylene	40.0	41.0		ppb v/v		103	75 - 138	0	25
o-Xylene	20.0	20.3		ppb v/v		102	77 - 132	1	25
Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	48	49.1		ug/m3 Air		103	71 - 131	1	25
Benzene	64	65.3		ug/m3 Air		102	68 - 128	1	25
Benzyl chloride	100	98.2		ug/m3 Air		95	58 - 120	1	25
Bromodichloromethane	130	145		ug/m3 Air		108	65 - 130	1	25
Bromoform	210	242		ug/m3 Air		117	64 - 144	0	25

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16183-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-95289/5

Matrix: Air

Analysis Batch: 95289

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromomethane	78	84.7		ug/m3 Air		109	70 - 131	1	25
2-Butanone (MEK)	59	62.4		ug/m3 Air		106	71 - 131	2	25
Carbon disulfide	62	64.4		ug/m3 Air		103	63 - 123	1	25
Carbon tetrachloride	130	168	*	ug/m3 Air		133	67 - 127	1	25
Chlorobenzene	92	92.5		ug/m3 Air		101	70 - 132	0	25
Dibromochloromethane	170	185		ug/m3 Air		108	68 - 128	1	25
Chloroethane	53	57.4		ug/m3 Air		109	70 - 131	1	25
Chloroform	98	99.9		ug/m3 Air		102	69 - 129	1	25
Chloromethane	41	43.1		ug/m3 Air		104	67 - 127	2	25
1,2-Dibromoethane (EDB)	150	158		ug/m3 Air		103	68 - 131	1	25
1,2-Dichlorobenzene	120	134		ug/m3 Air		112	73 - 143	0	25
1,3-Dichlorobenzene	120	140		ug/m3 Air		116	77 - 136	0	25
1,4-Dichlorobenzene	120	132		ug/m3 Air		110	73 - 143	0	25
Dichlorodifluoromethane	99	105		ug/m3 Air		106	69 - 129	1	25
1,1-Dichloroethane	81	84.7		ug/m3 Air		105	65 - 125	1	25
1,2-Dichloroethane	81	84.2		ug/m3 Air		104	71 - 131	1	25
1,1-Dichloroethene	79	82.9		ug/m3 Air		105	53 - 128	1	25
cis-1,2-Dichloroethene	79	82.2		ug/m3 Air		104	68 - 128	1	25
trans-1,2-Dichloroethene	79	82.8		ug/m3 Air		104	70 - 130	1	25
1,2-Dichloropropane	92	99.2		ug/m3 Air		107	74 - 128	3	25
cis-1,3-Dichloropropene	91	95.8		ug/m3 Air		106	78 - 132	0	25
trans-1,3-Dichloropropene	91	95.0		ug/m3 Air		105	56 - 136	0	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	140	144		ug/m3 Air		103	64 - 124	1	25
Ethylbenzene	87	87.3		ug/m3 Air		101	76 - 136	0	25
4-Ethyltoluene	98	100		ug/m3 Air		102	62 - 136	1	25
Hexachlorobutadiene	210	232		ug/m3 Air		109	42 - 150	3	25
2-Hexanone	82	79.0		ug/m3 Air		96	70 - 128	0	25
Methylene Chloride	69	70.2		ug/m3 Air		101	65 - 125	1	25
4-Methyl-2-pentanone (MIBK)	82	79.5		ug/m3 Air		97	73 - 133	0	25
Styrene	85	87.1		ug/m3 Air		102	76 - 144	1	25
1,1,2,2-Tetrachloroethane	140	143		ug/m3 Air		104	75 - 135	0	25
Tetrachloroethene	140	131		ug/m3 Air		97	56 - 138	0	25
Toluene	75	73.2		ug/m3 Air		97	71 - 132	1	25
1,2,4-Trichlorobenzene	150	167		ug/m3 Air		112	59 - 150	1	25
1,1,1-Trichloroethane	110	112		ug/m3 Air		103	65 - 124	1	25
1,1,2-Trichloroethane	110	111		ug/m3 Air		101	71 - 131	1	25
Trichloroethene	110	109		ug/m3 Air		101	64 - 127	1	25
Trichlorofluoromethane	110	115		ug/m3 Air		103	68 - 128	1	25
1,1,2-Trichloro-1,2,2-trifluoroethane	150	158		ug/m3 Air		103	50 - 132	1	25
1,2,4-Trimethylbenzene	98	94.7		ug/m3 Air		96	61 - 145	12	25
1,3,5-Trimethylbenzene	98	103		ug/m3 Air		105	65 - 136	1	25
Vinyl acetate	70	83.5		ug/m3 Air		119	77 - 134	1	25
Vinyl chloride	51	51.0		ug/m3 Air		100	69 - 129	1	25
m,p-Xylene	170	178		ug/m3 Air		103	75 - 138	0	25
o-Xylene	87	88.4		ug/m3 Air		102	77 - 132	1	25

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16183-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-95289/5

Matrix: Air

Analysis Batch: 95289

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	105		70 - 130
1,2-Dichloroethane-d4 (Surr)	100		70 - 130
Toluene-d8 (Surr)	102		70 - 130

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QC Association Summary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16183-1

Air - GC/MS VOA

Analysis Batch: 95289

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-16183-1	SVE_SOUTH_POSTCARBON_113015	Total/NA	Air	TO-15	
320-16183-2	SVE_SOUTH_PRECARBON_113015	Total/NA	Air	TO-15	
320-16183-3	SVE_NORTH_EFFLUENT_113015	Total/NA	Air	TO-15	
LCS 320-95289/4	Lab Control Sample	Total/NA	Air	TO-15	
LCSD 320-95289/5	Lab Control Sample Dup	Total/NA	Air	TO-15	
MB 320-95289/7	Method Blank	Total/NA	Air	TO-15	

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Lab Chronicle

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16183-1

Client Sample ID: SVE_SOUTH_POSTCARBON_113015

Lab Sample ID: 320-16183-1

Date Collected: 11/30/15 11:41

Matrix: Air

Date Received: 12/01/15 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	403 mL	250 mL	95289	12/12/15 02:22	SRS	TAL SAC

Client Sample ID: SVE_SOUTH_PRECARBON_113015

Lab Sample ID: 320-16183-2

Date Collected: 11/30/15 11:43

Matrix: Air

Date Received: 12/01/15 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		96.2	4 mL	250 mL	95289	12/12/15 03:13	SRS	TAL SAC

Client Sample ID: SVE_NORTH_EFFLUENT_113015

Lab Sample ID: 320-16183-3

Date Collected: 11/30/15 11:58

Matrix: Air

Date Received: 12/01/15 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		180	3 mL	250 mL	95289	12/12/15 04:04	SRS	TAL SAC

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Certification Summary

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16183-1

Laboratory: TestAmerica Sacramento

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	01-31-16
Alaska (UST)	State Program	10	UST-055	12-18-16
Arizona	State Program	9	AZ0708	08-11-16
Arkansas DEQ	State Program	6	88-0691	06-17-16
California	State Program	9	2897	01-31-16
Colorado	State Program	8	N/A	08-31-16
Connecticut	State Program	1	PH-0691	06-30-17
Florida	NELAP	4	E87570	06-30-16
Hawaii	State Program	9	N/A	01-29-16
Illinois	NELAP	5	200060	03-17-16
Kansas	NELAP	7	E-10375	01-31-16
Louisiana	NELAP	6	30612	06-30-16
Michigan	State Program	5	9947	01-31-16
Nevada	State Program	9	CA44	07-31-16
New Jersey	NELAP	2	CA005	06-30-16
New York	NELAP	2	11666	04-01-16
Oregon	NELAP	10	CA200005	01-29-16
Pennsylvania	NELAP	3	9947	03-31-16
Texas	NELAP	6	T104704399-15-9	05-31-16
US Fish & Wildlife	Federal		LE148388-0	02-28-16
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-16
Utah	NELAP	8	QUAN1	02-28-16
Virginia	NELAP Secondary AB	3	460278	03-14-16
Washington	State Program	10	C581	05-04-16
West Virginia (DW)	State Program	3	9930C	12-31-15
Wyoming	State Program	8	8TMS-Q	01-29-16

Laboratory: TestAmerica Portland

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-012	12-26-15
Oregon	NELAP	10	OR100021	01-09-16
USDA	Federal		P330-11-00092	04-17-17

Method Summary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16183-1

Method	Method Description	Protocol	Laboratory
TO-15	Volatile Organic Compounds in Ambient Air	EPA	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

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Sample Summary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16183-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-16183-1	SVE_SOUTH_POSTCARBON_113015	Air	11/30/15 11:41	12/01/15 10:30
320-16183-2	SVE_SOUTH_PRECARBON_113015	Air	11/30/15 11:43	12/01/15 10:30
320-16183-3	SVE_NORTH_EFFLUENT_113015	Air	11/30/15 11:58	12/01/15 10:30

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JOB # **320-16183**
 Sample # **1**

Client/Project:		VFR ID:	
Canister Serial #:	7867	Duration:	<input type="checkbox"/> Hrs <input type="checkbox"/> Min
Cleaning Job:		Flow:	mL/min
Client ID:		Initials:	
Site Location:			

FIELD				
READING	TIME	PRESS.	DATE	INITIALS
INITIAL FIELD VACUUM				
FINAL FIELD READING				

LABORATORY				
READING	PRESS.	DATE	INITIALS	
INITIAL VACUUM CHECK (INCHES Hg)	29.8		JMT	
<input type="checkbox"/> Helium Pre-dilution - Final Pressure (INCHES Hg)				
INITIAL PRESSURE (PSIA)	14.59	12/07/15	SV	
FINAL PRESSURE (PSIA)	23.57	12/07/15	SV	
Pressurization Gas: <input type="checkbox"/> N2 <input type="checkbox"/> He	SCREENED <input type="checkbox"/>	SCRN DIL. VS 250mLs:		
Initial Canister Dilution Factor =	1.62			

CANISTER REPRESSURIZATION					
Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
			1.62		#DIV/0!
			#DIV/0!		#DIV/0!
			#DIV/0!		#DIV/0!

Analytical Dilution Factors							
	Canister DF		Load DF		Bag DF		FINAL DF
	1.62	X	0.6203474	X	1	=	1.002165051
			LVf (mLs) 250		BVf (mLs)		
			LVi (mLs) 403		BVi (mLs)		



JOB # **320-16183**
 Sample # **2**

Client/Project:		VFR ID:	
Canister Serial #:	8431	Duration:	<input type="checkbox"/> Hrs <input type="checkbox"/> Min
Cleaning Job:		Flow:	mL/min
Client ID:		Initials:	
Site Location:			

FIELD				
READING	TIME	PRESS.	DATE	INITIALS
INITIAL FIELD VACUUM				
FINAL FIELD READING				

LABORATORY				
READING	PRESS.	DATE	INITIALS	
INITIAL VACUUM CHECK (INCHES Hg)	29.8		JMT	
<input type="checkbox"/> Helium Pre-dilution - Final Pressure (INCHES Hg)				
INITIAL PRESSURE (PSIA)	15.31	12/07/15	SV	
FINAL PRESSURE (PSIA)	23.57	12/07/15	SV	
Pressurization Gas: <input type="checkbox"/> N2 <input type="checkbox"/> He	SCREENED <input type="checkbox"/>	SCRN DIL. VS 250mLs:		
Initial Canister Dilution Factor =	1.54			

CANISTER REPRESSURIZATION					
Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
			1.54		#DIV/0!
			#DIV/0!		#DIV/0!
			#DIV/0!		#DIV/0!

Analytical Dilution Factors							
	Date	Instr.	File #				
Canister DF = 1.54 X	12/11/2015	ATMS9		=	FINAL DF	96.219/9099	
					Load DF = 6.9444444 X		
					LVf (mLs) 250	Bag DF = 9	
					LVi (mLs) 36	BVf (mLs) 9	
				Bvi (mLs) 1			
Canister DF = 1.54 X				=	FINAL DF	#DIV/0!	
					Load DF = #DIV/0! X		
					LVf (mLs)	Bag DF = 1	
					LVi (mLs)	BVf (mLs)	
				Bvi (mLs)			
Canister DF = 1.54 X				=	FINAL DF	#DIV/0!	
					Load DF = #DIV/0! X		
					LVf (mLs)	Bag DF = 1	
					LVi (mLs)	BVf (mLs)	
				Bvi (mLs)			



JOB # 320-16183
 Sample # 3

Client/Project:		VFR ID:	
Canister Serial #:	8043	Duration:	<input type="checkbox"/> Hrs <input type="checkbox"/> Min
Cleaning Job:		Flow:	mL/min
Client ID:		Initials:	
Site Location:			

FIELD				
READING	TIME	PRESS.	DATE	INITIALS
INITIAL FIELD VACUUM				
FINAL FIELD READING				

LABORATORY				
READING		PRESS.	DATE	INITIALS
INITIAL VACUUM CHECK (INCHES Hg)		29.8		JMT
<input type="checkbox"/> Helium Pre-dilution - Final Pressure (INCHES Hg)				
INITIAL PRESSURE (PSIA)		11.05	12/07/15	SV
FINAL PRESSURE (PSIA)		23.91	12/07/15	SV
Pressurization Gas: <input type="checkbox"/> N2 <input type="checkbox"/> He		SCREENED <input type="checkbox"/>	SCRN DIL. VS 250mLs:	
Initial Canister Dilution Factor =	2.16			

CANISTER REPRESSURIZATION					
Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
			2.16		#DIV/0!
			#DIV/0!		#DIV/0!
			#DIV/0!		#DIV/0!

Analytical Dilution Factors								
Canister DF = 2.16	X	Load DF = 9.2592593	X	Bag DF = 9	=	FINAL DF	180.3167421	
							LVf (mLs) 250	BVf (mLs) 9
							LVi (mLs) 27	Bvi (mLs) 1
Canister DF = 2.16	X	Load DF = #DIV/0!	X	Bag DF = 1	=	FINAL DF	#DIV/0!	
							LVf (mLs)	BVf (mLs)
							LVi (mLs)	Bvi (mLs)
Canister DF = 2.16	X	Load DF = #DIV/0!	X	Bag DF = 1	=	FINAL DF	#DIV/0!	
							LVf (mLs)	BVf (mLs)
							LVi (mLs)	Bvi (mLs)



Login Sample Receipt Checklist

Client: Apex Companies LLC

Job Number: 320-16183-1

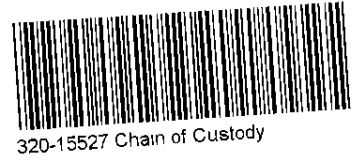
Login Number: 16183
List Number: 1
Creator: Nelson, Kym D

List Source: TestAmerica Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	N/A	
Cooler Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Certification Type TO-15 SCAN
 Date Cleaned/Batch ID 10/07/15 320-15527
 Date of QC 10/22/15
 Data File Number MS7102215



CANISTER ID NUMBERS

<u>8343</u>	<u>7851</u>	
<u>8143</u>	<u>8410</u>	
<u>8052</u>	<u>7867 *</u>	
<u>8045</u>	<u>8431</u>	
<u>8200</u>		
<u>8043</u>		
<u>8335</u>		
<u>8329</u>		

The above canisters were cleaned as a batch. This certifies this batch contains no target analyte concentration greater than or equal to the method criteria for the "Certification Type" indicated above.

"*" INDICATES THE CAN OR CANS WHICH WERE SCREENED.

[Signature]
1st level Reviewed By:

10/26/15
Date:

[Signature]
2nd level Reviewed By:

10/30/2015
Date:



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-15527-1
 SDG No.: _____
 Client Sample ID: 7867 Lab Sample ID: 320-15527-11
 Matrix: Air Lab File ID: MS7102215.d
 Analysis Method: TO-15 Date Collected: 10/07/2015 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 10/23/2015 03:35
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-Volatiles ID: 0.32 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 90122 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
67-64-1	Acetone	0.18	J	5.0	0.18
107-02-8	Acrolein	ND		2.0	0.22
107-13-1	Acrylonitrile	ND		2.0	0.19
107-05-1	Allyl chloride	ND		0.80	0.11
71-43-2	Benzene	ND		0.40	0.079
100-44-7	Benzyl chloride	ND		0.80	0.16
75-27-4	Bromodichloromethane	ND		0.30	0.066
75-25-2	Bromoform	ND		0.40	0.070
74-83-9	Bromomethane	ND		0.80	0.34
106-99-0	1,3-Butadiene	ND		0.80	0.15
106-97-8	n-Butane	ND		0.40	0.15
78-93-3	2-Butanone (MEK)	ND		0.80	0.20
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0	0.11
104-51-8	n-Butylbenzene	ND		0.40	0.18
135-98-8	sec-Butylbenzene	ND		0.40	0.070
98-06-6	tert-Butylbenzene	ND		0.80	0.068
75-15-0	Carbon disulfide	ND		0.80	0.078
56-23-5	Carbon tetrachloride	ND		0.80	0.064
108-90-7	Chlorobenzene	ND		0.30	0.064
75-45-6	Chlorodifluoromethane	ND		0.80	0.11
75-00-3	Chloroethane	ND		0.80	0.31
67-66-3	Chloroform	ND		0.30	0.095
74-87-3	Chloromethane	ND		0.80	0.20
95-49-8	2-Chlorotoluene	ND		0.40	0.080
110-82-7	Cyclohexane	ND		0.40	0.084
124-48-1	Dibromochloromethane	ND		0.40	0.079
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80	0.075
74-95-3	Dibromomethane	ND		0.40	0.057
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40	0.16
95-50-1	1,2-Dichlorobenzene	ND		0.40	0.13
541-73-1	1,3-Dichlorobenzene	ND		0.40	0.11
106-46-7	1,4-Dichlorobenzene	ND		0.40	0.15
75-71-8	Dichlorodifluoromethane	ND		0.40	0.15
75-34-3	1,1-Dichloroethane	ND		0.30	0.072
107-06-2	1,2-Dichloroethane	ND		0.80	0.088

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-15527-1
 SDG No.: _____
 Client Sample ID: 7867 Lab Sample ID: 320-15527-11
 Matrix: Air Lab File ID: MS7102215.d
 Analysis Method: TO-15 Date Collected: 10/07/2015 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 10/23/2015 03:35
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-Volatiles ID: 0.32 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 90122 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	ND		0.80	0.13
156-59-2	cis-1,2-Dichloroethene	ND		0.40	0.089
156-60-5	trans-1,2-Dichloroethene	ND		0.40	0.10
78-87-5	1,2-Dichloropropane	ND		0.40	0.24
10061-01-5	cis-1,3-Dichloropropene	ND		0.40	0.10
10061-02-6	trans-1,3-Dichloropropene	ND		0.40	0.088
123-91-1	1,4-Dioxane	ND		0.80	0.10
141-78-6	Ethyl acetate	ND		0.30	0.18
100-41-4	Ethylbenzene	ND		0.40	0.063
622-96-8	4-Ethyltoluene	ND		0.40	0.19
142-82-5	n-Heptane	ND		0.80	0.063
87-68-3	Hexachlorobutadiene	ND		2.0	0.43
110-54-3	n-Hexane	ND		0.80	0.075
591-78-6	2-Hexanone	ND		0.40	0.087
98-82-8	Isopropylbenzene	ND		0.80	0.10
99-87-6	4-Isopropyltoluene	ND		0.80	0.12
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80	0.050
80-62-6	Methyl methacrylate	ND		0.80	0.16
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40	0.14
75-09-2	Methylene Chloride	ND		0.40	0.072
98-83-9	alpha-Methylstyrene	ND		0.40	0.065
91-20-3	Naphthalene	ND		0.80	0.56
111-65-9	n-Octane	ND		0.40	0.055
109-66-0	n-Pentane	ND		0.80	0.26
115-07-1	Propylene	ND		0.40	0.099
103-65-1	N-Propylbenzene	ND		0.40	0.059
100-42-5	Styrene	ND		0.40	0.059
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40	0.069
127-18-4	Tetrachloroethene	0.29	J	0.40	0.051
109-99-9	Tetrahydrofuran	ND		0.80	0.079
108-88-3	Toluene	ND		0.40	0.051
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.16
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.43
71-55-6	1,1,1-Trichloroethane	ND		0.30	0.065
79-00-5	1,1,2-Trichloroethane	ND		0.40	0.067

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-15527-1
 SDG No.: _____
 Client Sample ID: 7867 Lab Sample ID: 320-15527-11
 Matrix: Air Lab File ID: MS7102215.d
 Analysis Method: TO-15 Date Collected: 10/07/2015 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 10/23/2015 03:35
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-Volatiles ID: 0.32 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 90122 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.40	0.11
75-69-4	Trichlorofluoromethane	ND		0.40	0.20
96-18-4	1,2,3-Trichloropropane	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	ND		0.80	0.16
108-67-8	1,3,5-Trimethylbenzene	ND		0.40	0.13
540-84-1	2,2,4-Trimethylpentane	ND		0.40	0.071
108-05-4	Vinyl acetate	ND		0.80	0.15
593-60-2	Vinyl bromide	ND		0.80	0.26
75-01-4	Vinyl chloride	ND		0.40	0.12
179601-23-1	m,p-Xylene	ND		0.80	0.10
95-47-6	o-Xylene	ND		0.40	0.054

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	94		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	96		70-130
2037-26-5	Toluene-d8 (Surr)	98		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS7\20151022-25935.b\MS7102215.d
 Lims ID: 320-15527-A-11 Lab Sample ID: 320-15527-11
 Client ID: 7867
 Sample Type: Client
 Inject. Date: 23-Oct-2015 03:35:30 ALS Bottle#: 11 Worklist Smp#: 15
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 320-15527-A-11
 Misc. Info.: 500 mL CAN CERT
 Operator ID: LHS Instrument ID: ATMS7
 Method: \\ChromNA\Sacramento\ChromData\ATMS7\20151022-25935.b\TO15_ATMS7N.m
 Limit Group: MSA - TO15 - ICAL
 Last Update: 23-Oct-2015 13:14:52 Calib Date: 21-Oct-2015 13:17:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS7\20151020-25869.b\MS7102024.d
 Column 1 : RTX Volatiles (0.32 mm) Det: MS SCAN
 Process Host: XAWRK001

First Level Reviewer: leeh Date: 23-Oct-2015 08:03:48

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	12.384	12.409	-0.024	93	37131	4.00	
* 2 1,4-Difluorobenzene	114	14.532	14.568	-0.036	96	168506	4.00	
* 3 Chlorobenzene-d5 (IS)	117	21.218	21.242	-0.024	89	174238	4.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	13.577	13.613	-0.036	93	56586	3.82	
\$ 5 Toluene-d8 (Surr)	100	17.945	17.975	-0.030	97	119173	3.94	
\$ 6 4-Bromofluorobenzene (Surr	95	23.761	23.779	-0.018	89	111996	3.77	
32 Acetone	43	7.463	7.420	0.043	96	4303	0.1814	
73 n-Octane	43	17.945	17.999	-0.054	43	1990	0.0316	
80 Tetrachloroethene	166	19.630	19.654	-0.024	95	7970	0.2936	

Reagents:

VASUISIM_00222 Amount Added: 50.00 Units: mL Run Reagent

Data File: \\ChromNA\Sacramento\ChromData\ATMS7\20151022-25935.b\MS7102215.d

Injection Date: 23-Oct-2015 03:35:30

Instrument ID: ATMS7

Operator ID: LHS

Lims ID: 320-15527-A-11

Lab Sample ID: 320-15527-11

Worklist Smp#: 15

Client ID: 7867

Purge Vol: 5.000 mL

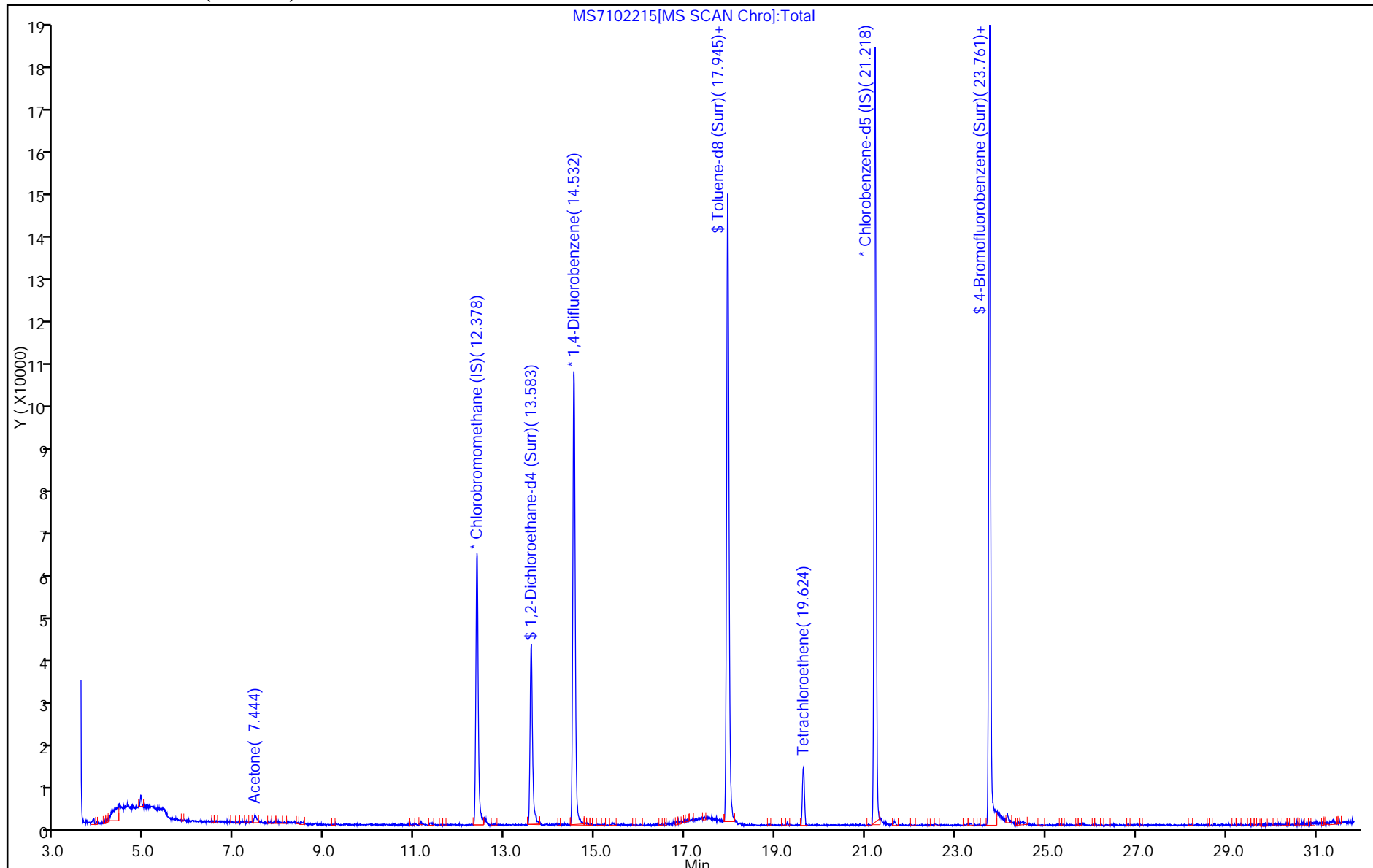
Dil. Factor: 1.0000

ALS Bottle#: 11

Method: TO15_ATMS7N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS7\20151022-25935.b\MS7102215.d

Injection Date: 23-Oct-2015 03:35:30

Instrument ID: ATMS7

Lims ID: 320-15527-A-11

Lab Sample ID: 320-15527-11

Client ID: 7867

Operator ID: LHS

ALS Bottle#: 11 Worklist Smp#: 15

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

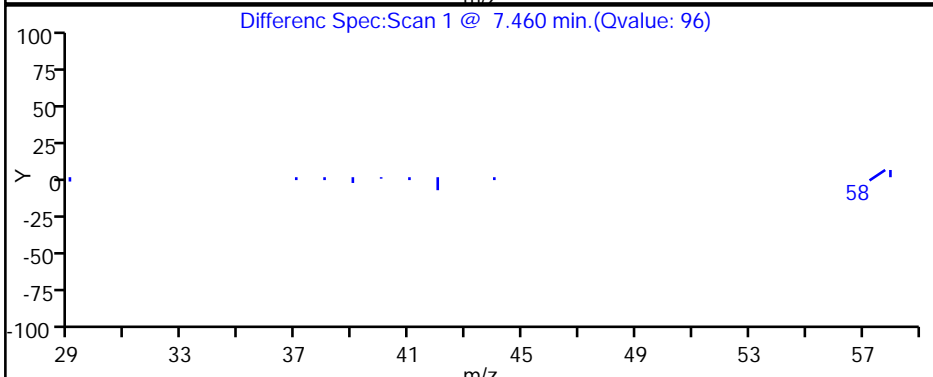
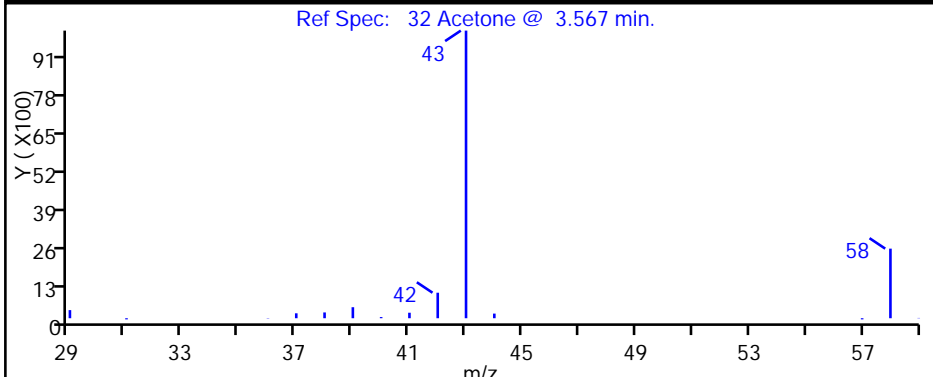
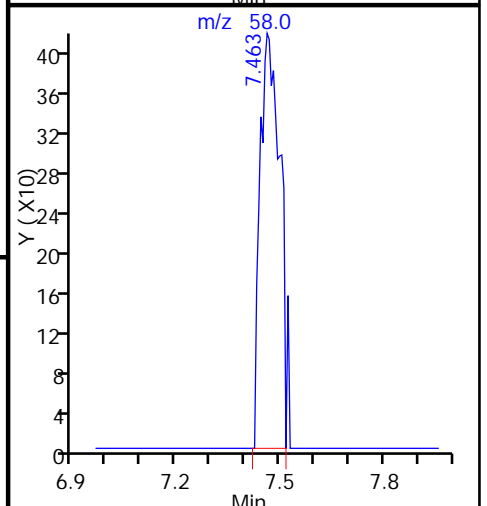
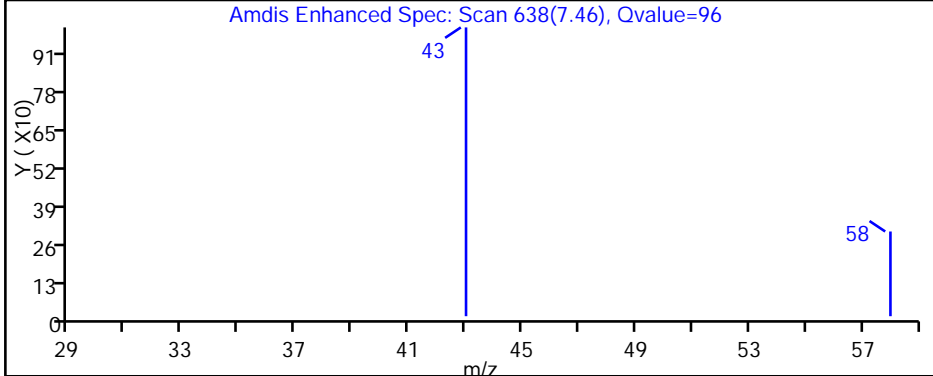
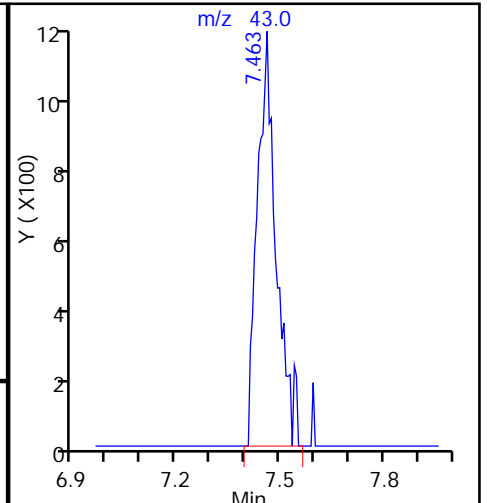
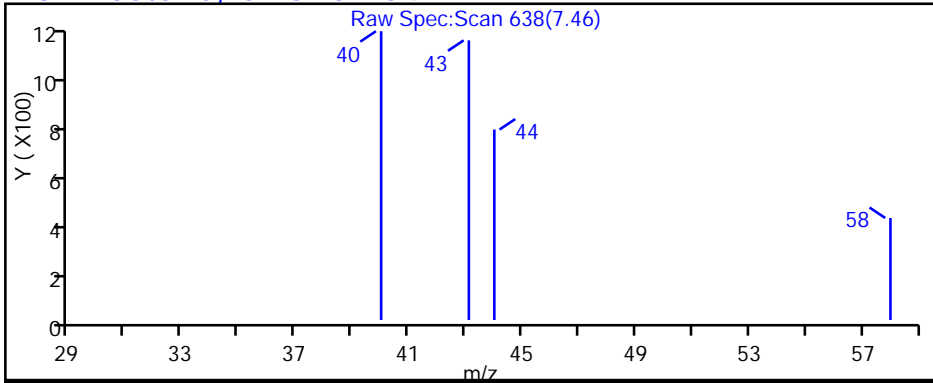
Method: TO15_ATMS7N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Detector: MS SCAN

32 Acetone, CAS: 67-64-1



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS7\20151022-25935.b\MS7102215.d

Injection Date: 23-Oct-2015 03:35:30

Instrument ID: ATMS7

Lims ID: 320-15527-A-11

Lab Sample ID: 320-15527-11

Client ID: 7867

Operator ID: LHS

ALS Bottle#: 11

Worklist Smp#: 15

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

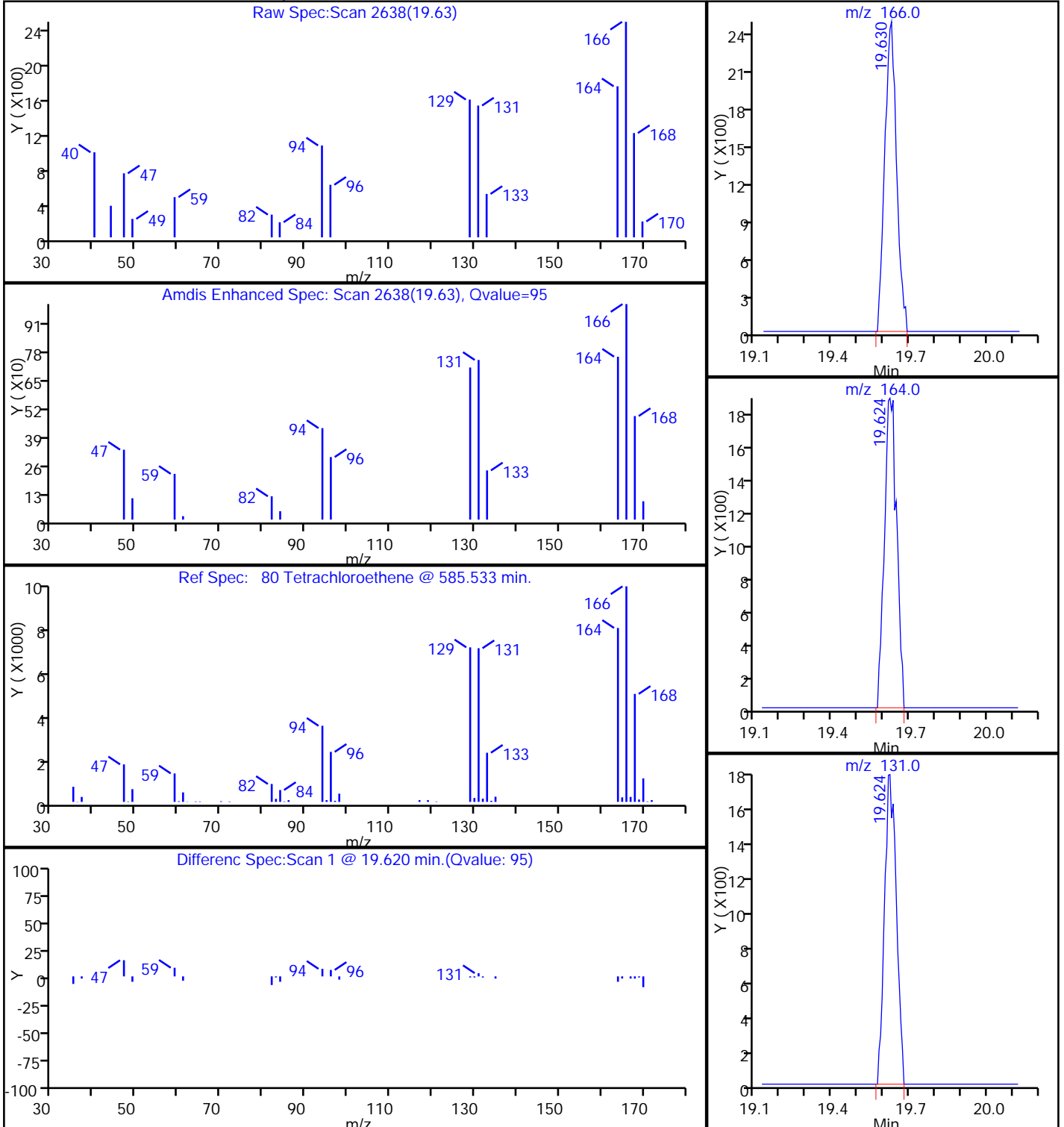
Method: TO15_ATMS7N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Detector: MS SCAN

80 Tetrachloroethene, CAS: 127-18-4



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-16694-1
Client Project/Site: NuStar Vapor Testing

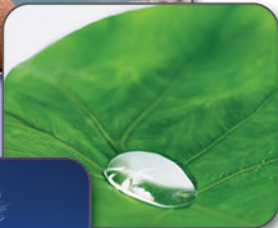
For:
Apex Companies LLC
3015 SW 1st Avenue
Portland, Oregon 97201

Attn: Stephanie Salisbury



Authorized for release by:
1/19/2016 4:00:47 PM

Sarah Murphy, Project Manager I
(253)922-2310
sarah.murphy@testamericainc.com



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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16694-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16694-1

Job ID: 320-16694-1

Laboratory: TestAmerica Sacramento

Narrative

Receipt

The samples were received on 1/6/2016 10:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice.

Receipt Exceptions

The incorrect asset number was listed on the COC: SVE_SOUTH_PRE CARBON_122815 (320-16694-2). The container label lists 34000285, while the COC lists 12840. The asset has been verified against the shipping order.

Air - GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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Detection Summary

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16694-1

Client Sample ID: SVE_SOUTH_POST CARBON_12/28/15

Lab Sample ID: 320-16694-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	7.0		0.40		ppb v/v	1		TO-15	Total/NA
Toluene	0.40		0.40		ppb v/v	1		TO-15	Total/NA
1,1,1-Trichloroethane	0.43		0.30		ppb v/v	1		TO-15	Total/NA
Trichloroethene	1.2		0.40		ppb v/v	1		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	28		1.6		ug/m3 Air	1		TO-15	Total/NA
Toluene	1.5		1.5		ug/m3 Air	1		TO-15	Total/NA
1,1,1-Trichloroethane	2.4		1.6		ug/m3 Air	1		TO-15	Total/NA
Trichloroethene	6.5		2.1		ug/m3 Air	1		TO-15	Total/NA

Client Sample ID: SVE_SOUTH_PRE CARBON_122815

Lab Sample ID: 320-16694-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	45		41		ppb v/v	102		TO-15	Total/NA
Tetrachloroethene	5200		41		ppb v/v	102		TO-15	Total/NA
Trichloroethene	230		41		ppb v/v	102		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	180		160		ug/m3 Air	102		TO-15	Total/NA
Tetrachloroethene	35000		280		ug/m3 Air	102		TO-15	Total/NA
Trichloroethene	1200		220		ug/m3 Air	102		TO-15	Total/NA

Client Sample ID: SVE_NORTH_EFFLUENT_122815

Lab Sample ID: 320-16694-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	820		7.8		ppb v/v	19.6		TO-15	Total/NA
Trichloroethene	21		7.8		ppb v/v	19.6		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	5600		53		ug/m3 Air	19.6		TO-15	Total/NA
Trichloroethene	110		42		ug/m3 Air	19.6		TO-15	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16694-1

Client Sample ID: SVE_SOUTH_POST CARBON_12/28/15

Lab Sample ID: 320-16694-1

Date Collected: 12/28/15 09:15

Matrix: Air

Date Received: 01/06/16 10:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		5.0		ppb v/v			01/15/16 21:00	1
Benzene	ND		0.40		ppb v/v			01/15/16 21:00	1
Benzyl chloride	ND		0.80		ppb v/v			01/15/16 21:00	1
Bromodichloromethane	ND		0.30		ppb v/v			01/15/16 21:00	1
Bromoform	ND		0.40		ppb v/v			01/15/16 21:00	1
Bromomethane	ND		0.80		ppb v/v			01/15/16 21:00	1
2-Butanone (MEK)	ND		0.80		ppb v/v			01/15/16 21:00	1
Carbon disulfide	ND		0.80		ppb v/v			01/15/16 21:00	1
Carbon tetrachloride	ND		0.80		ppb v/v			01/15/16 21:00	1
Chlorobenzene	ND		0.30		ppb v/v			01/15/16 21:00	1
Dibromochloromethane	ND		0.40		ppb v/v			01/15/16 21:00	1
Chloroethane	ND		0.80		ppb v/v			01/15/16 21:00	1
Chloroform	ND		0.30		ppb v/v			01/15/16 21:00	1
Chloromethane	ND		0.80		ppb v/v			01/15/16 21:00	1
1,2-Dibromoethane (EDB)	ND		0.80		ppb v/v			01/15/16 21:00	1
1,2-Dichlorobenzene	ND		0.40		ppb v/v			01/15/16 21:00	1
1,3-Dichlorobenzene	ND		0.40		ppb v/v			01/15/16 21:00	1
1,4-Dichlorobenzene	ND		0.40		ppb v/v			01/15/16 21:00	1
Dichlorodifluoromethane	ND		0.40		ppb v/v			01/15/16 21:00	1
1,1-Dichloroethane	ND		0.30		ppb v/v			01/15/16 21:00	1
1,2-Dichloroethane	ND		0.80		ppb v/v			01/15/16 21:00	1
1,1-Dichloroethene	ND		0.80		ppb v/v			01/15/16 21:00	1
cis-1,2-Dichloroethene	7.0		0.40		ppb v/v			01/15/16 21:00	1
trans-1,2-Dichloroethene	ND		0.40		ppb v/v			01/15/16 21:00	1
1,2-Dichloropropane	ND		0.40		ppb v/v			01/15/16 21:00	1
cis-1,3-Dichloropropene	ND		0.40		ppb v/v			01/15/16 21:00	1
trans-1,3-Dichloropropene	ND		0.40		ppb v/v			01/15/16 21:00	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40		ppb v/v			01/15/16 21:00	1
Ethylbenzene	ND		0.40		ppb v/v			01/15/16 21:00	1
4-Ethyltoluene	ND		0.40		ppb v/v			01/15/16 21:00	1
Hexachlorobutadiene	ND		2.0		ppb v/v			01/15/16 21:00	1
2-Hexanone	ND		0.40		ppb v/v			01/15/16 21:00	1
Methylene Chloride	ND		0.40		ppb v/v			01/15/16 21:00	1
4-Methyl-2-pentanone (MIBK)	ND		0.40		ppb v/v			01/15/16 21:00	1
Styrene	ND		0.40		ppb v/v			01/15/16 21:00	1
1,1,2,2-Tetrachloroethane	ND		0.40		ppb v/v			01/15/16 21:00	1
Tetrachloroethene	ND		0.40		ppb v/v			01/15/16 21:00	1
Toluene	0.40		0.40		ppb v/v			01/15/16 21:00	1
1,2,4-Trichlorobenzene	ND		2.0		ppb v/v			01/15/16 21:00	1
1,1,1-Trichloroethane	0.43		0.30		ppb v/v			01/15/16 21:00	1
1,1,2-Trichloroethane	ND		0.40		ppb v/v			01/15/16 21:00	1
Trichloroethene	1.2		0.40		ppb v/v			01/15/16 21:00	1
Trichlorofluoromethane	ND		0.40		ppb v/v			01/15/16 21:00	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40		ppb v/v			01/15/16 21:00	1
1,2,4-Trimethylbenzene	ND		0.80		ppb v/v			01/15/16 21:00	1
1,3,5-Trimethylbenzene	ND		0.40		ppb v/v			01/15/16 21:00	1
Vinyl acetate	ND		0.80		ppb v/v			01/15/16 21:00	1
Vinyl chloride	ND		0.40		ppb v/v			01/15/16 21:00	1

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16694-1

Client Sample ID: SVE_SOUTH_POST CARBON_12/28/15

Lab Sample ID: 320-16694-1

Date Collected: 12/28/15 09:15

Matrix: Air

Date Received: 01/06/16 10:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m,p-Xylene	ND		0.80		ppb v/v			01/15/16 21:00	1
o-Xylene	ND		0.40		ppb v/v			01/15/16 21:00	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		12		ug/m3 Air			01/15/16 21:00	1
Benzene	ND		1.3		ug/m3 Air			01/15/16 21:00	1
Benzyl chloride	ND		4.1		ug/m3 Air			01/15/16 21:00	1
Bromodichloromethane	ND		2.0		ug/m3 Air			01/15/16 21:00	1
Bromoform	ND		4.1		ug/m3 Air			01/15/16 21:00	1
Bromomethane	ND		3.1		ug/m3 Air			01/15/16 21:00	1
2-Butanone (MEK)	ND		2.4		ug/m3 Air			01/15/16 21:00	1
Carbon disulfide	ND		2.5		ug/m3 Air			01/15/16 21:00	1
Carbon tetrachloride	ND		5.0		ug/m3 Air			01/15/16 21:00	1
Chlorobenzene	ND		1.4		ug/m3 Air			01/15/16 21:00	1
Dibromochloromethane	ND		3.4		ug/m3 Air			01/15/16 21:00	1
Chloroethane	ND		2.1		ug/m3 Air			01/15/16 21:00	1
Chloroform	ND		1.5		ug/m3 Air			01/15/16 21:00	1
Chloromethane	ND		1.7		ug/m3 Air			01/15/16 21:00	1
1,2-Dibromoethane (EDB)	ND		6.1		ug/m3 Air			01/15/16 21:00	1
1,2-Dichlorobenzene	ND		2.4		ug/m3 Air			01/15/16 21:00	1
1,3-Dichlorobenzene	ND		2.4		ug/m3 Air			01/15/16 21:00	1
1,4-Dichlorobenzene	ND		2.4		ug/m3 Air			01/15/16 21:00	1
Dichlorodifluoromethane	ND		2.0		ug/m3 Air			01/15/16 21:00	1
1,1-Dichloroethane	ND		1.2		ug/m3 Air			01/15/16 21:00	1
1,2-Dichloroethane	ND		3.2		ug/m3 Air			01/15/16 21:00	1
1,1-Dichloroethene	ND		3.2		ug/m3 Air			01/15/16 21:00	1
cis-1,2-Dichloroethene	28		1.6		ug/m3 Air			01/15/16 21:00	1
trans-1,2-Dichloroethene	ND		1.6		ug/m3 Air			01/15/16 21:00	1
1,2-Dichloropropane	ND		1.8		ug/m3 Air			01/15/16 21:00	1
cis-1,3-Dichloropropene	ND		1.8		ug/m3 Air			01/15/16 21:00	1
trans-1,3-Dichloropropene	ND		1.8		ug/m3 Air			01/15/16 21:00	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.8		ug/m3 Air			01/15/16 21:00	1
Ethylbenzene	ND		1.7		ug/m3 Air			01/15/16 21:00	1
4-Ethyltoluene	ND		2.0		ug/m3 Air			01/15/16 21:00	1
Hexachlorobutadiene	ND		21		ug/m3 Air			01/15/16 21:00	1
2-Hexanone	ND		1.6		ug/m3 Air			01/15/16 21:00	1
Methylene Chloride	ND		1.4		ug/m3 Air			01/15/16 21:00	1
4-Methyl-2-pentanone (MIBK)	ND		1.6		ug/m3 Air			01/15/16 21:00	1
Styrene	ND		1.7		ug/m3 Air			01/15/16 21:00	1
1,1,2,2-Tetrachloroethane	ND		2.7		ug/m3 Air			01/15/16 21:00	1
Tetrachloroethene	ND		2.7		ug/m3 Air			01/15/16 21:00	1
Toluene	1.5		1.5		ug/m3 Air			01/15/16 21:00	1
1,2,4-Trichlorobenzene	ND		15		ug/m3 Air			01/15/16 21:00	1
1,1,1-Trichloroethane	2.4		1.6		ug/m3 Air			01/15/16 21:00	1
1,1,2-Trichloroethane	ND		2.2		ug/m3 Air			01/15/16 21:00	1
Trichloroethene	6.5		2.1		ug/m3 Air			01/15/16 21:00	1
Trichlorofluoromethane	ND		2.2		ug/m3 Air			01/15/16 21:00	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.1		ug/m3 Air			01/15/16 21:00	1
1,2,4-Trimethylbenzene	ND		3.9		ug/m3 Air			01/15/16 21:00	1

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16694-1

Client Sample ID: SVE_SOUTH_POST CARBON_12/28/15

Lab Sample ID: 320-16694-1

Date Collected: 12/28/15 09:15

Matrix: Air

Date Received: 01/06/16 10:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	ND		2.0		ug/m3 Air			01/15/16 21:00	1
Vinyl acetate	ND		2.8		ug/m3 Air			01/15/16 21:00	1
Vinyl chloride	ND		1.0		ug/m3 Air			01/15/16 21:00	1
m,p-Xylene	ND		3.5		ug/m3 Air			01/15/16 21:00	1
o-Xylene	ND		1.7		ug/m3 Air			01/15/16 21:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		70 - 130		01/15/16 21:00	1
1,2-Dichloroethane-d4 (Surr)	93		70 - 130		01/15/16 21:00	1
Toluene-d8 (Surr)	101		70 - 130		01/15/16 21:00	1

Client Sample ID: SVE_SOUTH_PRE CARBON_122815

Lab Sample ID: 320-16694-2

Date Collected: 12/28/15 09:21

Matrix: Air

Date Received: 01/06/16 10:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		510		ppb v/v			01/15/16 21:46	102
Benzene	ND		41		ppb v/v			01/15/16 21:46	102
Benzyl chloride	ND		82		ppb v/v			01/15/16 21:46	102
Bromodichloromethane	ND		31		ppb v/v			01/15/16 21:46	102
Bromoform	ND		41		ppb v/v			01/15/16 21:46	102
Bromomethane	ND		82		ppb v/v			01/15/16 21:46	102
2-Butanone (MEK)	ND		82		ppb v/v			01/15/16 21:46	102
Carbon disulfide	ND		82		ppb v/v			01/15/16 21:46	102
Carbon tetrachloride	ND		82		ppb v/v			01/15/16 21:46	102
Chlorobenzene	ND		31		ppb v/v			01/15/16 21:46	102
Dibromochloromethane	ND		41		ppb v/v			01/15/16 21:46	102
Chloroethane	ND		82		ppb v/v			01/15/16 21:46	102
Chloroform	ND		31		ppb v/v			01/15/16 21:46	102
Chloromethane	ND		82		ppb v/v			01/15/16 21:46	102
1,2-Dibromoethane (EDB)	ND		82		ppb v/v			01/15/16 21:46	102
1,2-Dichlorobenzene	ND		41		ppb v/v			01/15/16 21:46	102
1,3-Dichlorobenzene	ND		41		ppb v/v			01/15/16 21:46	102
1,4-Dichlorobenzene	ND		41		ppb v/v			01/15/16 21:46	102
Dichlorodifluoromethane	ND		41		ppb v/v			01/15/16 21:46	102
1,1-Dichloroethane	ND		31		ppb v/v			01/15/16 21:46	102
1,2-Dichloroethane	ND		82		ppb v/v			01/15/16 21:46	102
1,1-Dichloroethene	ND		82		ppb v/v			01/15/16 21:46	102
cis-1,2-Dichloroethene	45		41		ppb v/v			01/15/16 21:46	102
trans-1,2-Dichloroethene	ND		41		ppb v/v			01/15/16 21:46	102
1,2-Dichloropropane	ND		41		ppb v/v			01/15/16 21:46	102
cis-1,3-Dichloropropene	ND		41		ppb v/v			01/15/16 21:46	102
trans-1,3-Dichloropropene	ND		41		ppb v/v			01/15/16 21:46	102
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		41		ppb v/v			01/15/16 21:46	102
Ethylbenzene	ND		41		ppb v/v			01/15/16 21:46	102
4-Ethyltoluene	ND		41		ppb v/v			01/15/16 21:46	102
Hexachlorobutadiene	ND		200		ppb v/v			01/15/16 21:46	102

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16694-1

Client Sample ID: SVE_SOUTH_PRE CARBON_122815

Lab Sample ID: 320-16694-2

Date Collected: 12/28/15 09:21

Matrix: Air

Date Received: 01/06/16 10:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Hexanone	ND		41		ppb v/v			01/15/16 21:46	102
Methylene Chloride	ND		41		ppb v/v			01/15/16 21:46	102
4-Methyl-2-pentanone (MIBK)	ND		41		ppb v/v			01/15/16 21:46	102
Styrene	ND		41		ppb v/v			01/15/16 21:46	102
1,1,2,2-Tetrachloroethane	ND		41		ppb v/v			01/15/16 21:46	102
Tetrachloroethene	5200		41		ppb v/v			01/15/16 21:46	102
Toluene	ND		41		ppb v/v			01/15/16 21:46	102
1,2,4-Trichlorobenzene	ND		200		ppb v/v			01/15/16 21:46	102
1,1,1-Trichloroethane	ND		31		ppb v/v			01/15/16 21:46	102
1,1,2-Trichloroethane	ND		41		ppb v/v			01/15/16 21:46	102
Trichloroethene	230		41		ppb v/v			01/15/16 21:46	102
Trichlorofluoromethane	ND		41		ppb v/v			01/15/16 21:46	102
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		41		ppb v/v			01/15/16 21:46	102
1,2,4-Trimethylbenzene	ND		82		ppb v/v			01/15/16 21:46	102
1,3,5-Trimethylbenzene	ND		41		ppb v/v			01/15/16 21:46	102
Vinyl acetate	ND		82		ppb v/v			01/15/16 21:46	102
Vinyl chloride	ND		41		ppb v/v			01/15/16 21:46	102
m,p-Xylene	ND		82		ppb v/v			01/15/16 21:46	102
o-Xylene	ND		41		ppb v/v			01/15/16 21:46	102
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		1200		ug/m3 Air			01/15/16 21:46	102
Benzene	ND		130		ug/m3 Air			01/15/16 21:46	102
Benzyl chloride	ND		420		ug/m3 Air			01/15/16 21:46	102
Bromodichloromethane	ND		210		ug/m3 Air			01/15/16 21:46	102
Bromoform	ND		420		ug/m3 Air			01/15/16 21:46	102
Bromomethane	ND		320		ug/m3 Air			01/15/16 21:46	102
2-Butanone (MEK)	ND		240		ug/m3 Air			01/15/16 21:46	102
Carbon disulfide	ND		250		ug/m3 Air			01/15/16 21:46	102
Carbon tetrachloride	ND		510		ug/m3 Air			01/15/16 21:46	102
Chlorobenzene	ND		140		ug/m3 Air			01/15/16 21:46	102
Dibromochloromethane	ND		350		ug/m3 Air			01/15/16 21:46	102
Chloroethane	ND		220		ug/m3 Air			01/15/16 21:46	102
Chloroform	ND		150		ug/m3 Air			01/15/16 21:46	102
Chloromethane	ND		170		ug/m3 Air			01/15/16 21:46	102
1,2-Dibromoethane (EDB)	ND		630		ug/m3 Air			01/15/16 21:46	102
1,2-Dichlorobenzene	ND		250		ug/m3 Air			01/15/16 21:46	102
1,3-Dichlorobenzene	ND		250		ug/m3 Air			01/15/16 21:46	102
1,4-Dichlorobenzene	ND		250		ug/m3 Air			01/15/16 21:46	102
Dichlorodifluoromethane	ND		200		ug/m3 Air			01/15/16 21:46	102
1,1-Dichloroethane	ND		120		ug/m3 Air			01/15/16 21:46	102
1,2-Dichloroethane	ND		330		ug/m3 Air			01/15/16 21:46	102
1,1-Dichloroethene	ND		320		ug/m3 Air			01/15/16 21:46	102
cis-1,2-Dichloroethene	180		160		ug/m3 Air			01/15/16 21:46	102
trans-1,2-Dichloroethene	ND		160		ug/m3 Air			01/15/16 21:46	102
1,2-Dichloropropane	ND		190		ug/m3 Air			01/15/16 21:46	102
cis-1,3-Dichloropropene	ND		190		ug/m3 Air			01/15/16 21:46	102
trans-1,3-Dichloropropene	ND		190		ug/m3 Air			01/15/16 21:46	102
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		290		ug/m3 Air			01/15/16 21:46	102

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16694-1

Client Sample ID: SVE_SOUTH_PRE CARBON_122815

Lab Sample ID: 320-16694-2

Date Collected: 12/28/15 09:21

Matrix: Air

Date Received: 01/06/16 10:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		180		ug/m3 Air			01/15/16 21:46	102
4-Ethyltoluene	ND		200		ug/m3 Air			01/15/16 21:46	102
Hexachlorobutadiene	ND		2200		ug/m3 Air			01/15/16 21:46	102
2-Hexanone	ND		170		ug/m3 Air			01/15/16 21:46	102
Methylene Chloride	ND		140		ug/m3 Air			01/15/16 21:46	102
4-Methyl-2-pentanone (MIBK)	ND		170		ug/m3 Air			01/15/16 21:46	102
Styrene	ND		170		ug/m3 Air			01/15/16 21:46	102
1,1,2,2-Tetrachloroethane	ND		280		ug/m3 Air			01/15/16 21:46	102
Tetrachloroethene	35000		280		ug/m3 Air			01/15/16 21:46	102
Toluene	ND		150		ug/m3 Air			01/15/16 21:46	102
1,2,4-Trichlorobenzene	ND		1500		ug/m3 Air			01/15/16 21:46	102
1,1,1-Trichloroethane	ND		170		ug/m3 Air			01/15/16 21:46	102
1,1,2-Trichloroethane	ND		220		ug/m3 Air			01/15/16 21:46	102
Trichloroethene	1200		220		ug/m3 Air			01/15/16 21:46	102
Trichlorofluoromethane	ND		230		ug/m3 Air			01/15/16 21:46	102
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		310		ug/m3 Air			01/15/16 21:46	102
1,2,4-Trimethylbenzene	ND		400		ug/m3 Air			01/15/16 21:46	102
1,3,5-Trimethylbenzene	ND		200		ug/m3 Air			01/15/16 21:46	102
Vinyl acetate	ND		290		ug/m3 Air			01/15/16 21:46	102
Vinyl chloride	ND		100		ug/m3 Air			01/15/16 21:46	102
m,p-Xylene	ND		350		ug/m3 Air			01/15/16 21:46	102
o-Xylene	ND		180		ug/m3 Air			01/15/16 21:46	102
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		70 - 130					01/15/16 21:46	102
1,2-Dichloroethane-d4 (Surr)	95		70 - 130					01/15/16 21:46	102
Toluene-d8 (Surr)	101		70 - 130					01/15/16 21:46	102

Client Sample ID: SVE_NORTH_EFFLUENT_122815

Lab Sample ID: 320-16694-3

Date Collected: 12/28/15 09:51

Matrix: Air

Date Received: 01/06/16 10:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		98		ppb v/v			01/15/16 22:32	19.6
Benzene	ND		7.8		ppb v/v			01/15/16 22:32	19.6
Benzyl chloride	ND		16		ppb v/v			01/15/16 22:32	19.6
Bromodichloromethane	ND		5.9		ppb v/v			01/15/16 22:32	19.6
Bromoform	ND		7.8		ppb v/v			01/15/16 22:32	19.6
Bromomethane	ND		16		ppb v/v			01/15/16 22:32	19.6
2-Butanone (MEK)	ND		16		ppb v/v			01/15/16 22:32	19.6
Carbon disulfide	ND		16		ppb v/v			01/15/16 22:32	19.6
Carbon tetrachloride	ND		16		ppb v/v			01/15/16 22:32	19.6
Chlorobenzene	ND		5.9		ppb v/v			01/15/16 22:32	19.6
Dibromochloromethane	ND		7.8		ppb v/v			01/15/16 22:32	19.6
Chloroethane	ND		16		ppb v/v			01/15/16 22:32	19.6
Chloroform	ND		5.9		ppb v/v			01/15/16 22:32	19.6
Chloromethane	ND		16		ppb v/v			01/15/16 22:32	19.6

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16694-1

Client Sample ID: SVE_NORTH_EFFLUENT_122815

Lab Sample ID: 320-16694-3

Date Collected: 12/28/15 09:51

Matrix: Air

Date Received: 01/06/16 10:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		16		ppb v/v			01/15/16 22:32	19.6
1,2-Dichlorobenzene	ND		7.8		ppb v/v			01/15/16 22:32	19.6
1,3-Dichlorobenzene	ND		7.8		ppb v/v			01/15/16 22:32	19.6
1,4-Dichlorobenzene	ND		7.8		ppb v/v			01/15/16 22:32	19.6
Dichlorodifluoromethane	ND		7.8		ppb v/v			01/15/16 22:32	19.6
1,1-Dichloroethane	ND		5.9		ppb v/v			01/15/16 22:32	19.6
1,2-Dichloroethane	ND		16		ppb v/v			01/15/16 22:32	19.6
1,1-Dichloroethene	ND		16		ppb v/v			01/15/16 22:32	19.6
cis-1,2-Dichloroethene	ND		7.8		ppb v/v			01/15/16 22:32	19.6
trans-1,2-Dichloroethene	ND		7.8		ppb v/v			01/15/16 22:32	19.6
1,2-Dichloropropane	ND		7.8		ppb v/v			01/15/16 22:32	19.6
cis-1,3-Dichloropropene	ND		7.8		ppb v/v			01/15/16 22:32	19.6
trans-1,3-Dichloropropene	ND		7.8		ppb v/v			01/15/16 22:32	19.6
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		7.8		ppb v/v			01/15/16 22:32	19.6
Ethylbenzene	ND		7.8		ppb v/v			01/15/16 22:32	19.6
4-Ethyltoluene	ND		7.8		ppb v/v			01/15/16 22:32	19.6
Hexachlorobutadiene	ND		39		ppb v/v			01/15/16 22:32	19.6
2-Hexanone	ND		7.8		ppb v/v			01/15/16 22:32	19.6
Methylene Chloride	ND		7.8		ppb v/v			01/15/16 22:32	19.6
4-Methyl-2-pentanone (MIBK)	ND		7.8		ppb v/v			01/15/16 22:32	19.6
Styrene	ND		7.8		ppb v/v			01/15/16 22:32	19.6
1,1,2,2-Tetrachloroethane	ND		7.8		ppb v/v			01/15/16 22:32	19.6
Tetrachloroethene	820		7.8		ppb v/v			01/15/16 22:32	19.6
Toluene	ND		7.8		ppb v/v			01/15/16 22:32	19.6
1,2,4-Trichlorobenzene	ND		39		ppb v/v			01/15/16 22:32	19.6
1,1,1-Trichloroethane	ND		5.9		ppb v/v			01/15/16 22:32	19.6
1,1,2-Trichloroethane	ND		7.8		ppb v/v			01/15/16 22:32	19.6
Trichloroethene	21		7.8		ppb v/v			01/15/16 22:32	19.6
Trichlorofluoromethane	ND		7.8		ppb v/v			01/15/16 22:32	19.6
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		7.8		ppb v/v			01/15/16 22:32	19.6
1,2,4-Trimethylbenzene	ND		16		ppb v/v			01/15/16 22:32	19.6
1,3,5-Trimethylbenzene	ND		7.8		ppb v/v			01/15/16 22:32	19.6
Vinyl acetate	ND		16		ppb v/v			01/15/16 22:32	19.6
Vinyl chloride	ND		7.8		ppb v/v			01/15/16 22:32	19.6
m,p-Xylene	ND		16		ppb v/v			01/15/16 22:32	19.6
o-Xylene	ND		7.8		ppb v/v			01/15/16 22:32	19.6
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		230		ug/m3 Air			01/15/16 22:32	19.6
Benzene	ND		25		ug/m3 Air			01/15/16 22:32	19.6
Benzyl chloride	ND		81		ug/m3 Air			01/15/16 22:32	19.6
Bromodichloromethane	ND		39		ug/m3 Air			01/15/16 22:32	19.6
Bromoform	ND		81		ug/m3 Air			01/15/16 22:32	19.6
Bromomethane	ND		61		ug/m3 Air			01/15/16 22:32	19.6
2-Butanone (MEK)	ND		46		ug/m3 Air			01/15/16 22:32	19.6
Carbon disulfide	ND		49		ug/m3 Air			01/15/16 22:32	19.6
Carbon tetrachloride	ND		99		ug/m3 Air			01/15/16 22:32	19.6
Chlorobenzene	ND		27		ug/m3 Air			01/15/16 22:32	19.6
Dibromochloromethane	ND		67		ug/m3 Air			01/15/16 22:32	19.6

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16694-1

Client Sample ID: SVE_NORTH_EFFLUENT_122815

Lab Sample ID: 320-16694-3

Date Collected: 12/28/15 09:51

Matrix: Air

Date Received: 01/06/16 10:30

Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroethane	ND		41		ug/m3 Air			01/15/16 22:32	19.6
Chloroform	ND		29		ug/m3 Air			01/15/16 22:32	19.6
Chloromethane	ND		32		ug/m3 Air			01/15/16 22:32	19.6
1,2-Dibromoethane (EDB)	ND		120		ug/m3 Air			01/15/16 22:32	19.6
1,2-Dichlorobenzene	ND		47		ug/m3 Air			01/15/16 22:32	19.6
1,3-Dichlorobenzene	ND		47		ug/m3 Air			01/15/16 22:32	19.6
1,4-Dichlorobenzene	ND		47		ug/m3 Air			01/15/16 22:32	19.6
Dichlorodifluoromethane	ND		39		ug/m3 Air			01/15/16 22:32	19.6
1,1-Dichloroethane	ND		24		ug/m3 Air			01/15/16 22:32	19.6
1,2-Dichloroethane	ND		63		ug/m3 Air			01/15/16 22:32	19.6
1,1-Dichloroethene	ND		62		ug/m3 Air			01/15/16 22:32	19.6
cis-1,2-Dichloroethene	ND		31		ug/m3 Air			01/15/16 22:32	19.6
trans-1,2-Dichloroethene	ND		31		ug/m3 Air			01/15/16 22:32	19.6
1,2-Dichloropropane	ND		36		ug/m3 Air			01/15/16 22:32	19.6
cis-1,3-Dichloropropene	ND		36		ug/m3 Air			01/15/16 22:32	19.6
trans-1,3-Dichloropropene	ND		36		ug/m3 Air			01/15/16 22:32	19.6
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		55		ug/m3 Air			01/15/16 22:32	19.6
Ethylbenzene	ND		34		ug/m3 Air			01/15/16 22:32	19.6
4-Ethyltoluene	ND		39		ug/m3 Air			01/15/16 22:32	19.6
Hexachlorobutadiene	ND		420		ug/m3 Air			01/15/16 22:32	19.6
2-Hexanone	ND		32		ug/m3 Air			01/15/16 22:32	19.6
Methylene Chloride	ND		27		ug/m3 Air			01/15/16 22:32	19.6
4-Methyl-2-pentanone (MIBK)	ND		32		ug/m3 Air			01/15/16 22:32	19.6
Styrene	ND		33		ug/m3 Air			01/15/16 22:32	19.6
1,1,2,2-Tetrachloroethane	ND		54		ug/m3 Air			01/15/16 22:32	19.6
Tetrachloroethene	5600		53		ug/m3 Air			01/15/16 22:32	19.6
Toluene	ND		30		ug/m3 Air			01/15/16 22:32	19.6
1,2,4-Trichlorobenzene	ND		290		ug/m3 Air			01/15/16 22:32	19.6
1,1,1-Trichloroethane	ND		32		ug/m3 Air			01/15/16 22:32	19.6
1,1,2-Trichloroethane	ND		43		ug/m3 Air			01/15/16 22:32	19.6
Trichloroethene	110		42		ug/m3 Air			01/15/16 22:32	19.6
Trichlorofluoromethane	ND		44		ug/m3 Air			01/15/16 22:32	19.6
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		60		ug/m3 Air			01/15/16 22:32	19.6
1,2,4-Trimethylbenzene	ND		77		ug/m3 Air			01/15/16 22:32	19.6
1,3,5-Trimethylbenzene	ND		39		ug/m3 Air			01/15/16 22:32	19.6
Vinyl acetate	ND		55		ug/m3 Air			01/15/16 22:32	19.6
Vinyl chloride	ND		20		ug/m3 Air			01/15/16 22:32	19.6
m,p-Xylene	ND		68		ug/m3 Air			01/15/16 22:32	19.6
o-Xylene	ND		34		ug/m3 Air			01/15/16 22:32	19.6
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		70 - 130					01/15/16 22:32	19.6
1,2-Dichloroethane-d4 (Surr)	96		70 - 130					01/15/16 22:32	19.6
Toluene-d8 (Surr)	103		70 - 130					01/15/16 22:32	19.6

TestAmerica Sacramento

Surrogate Summary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16694-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Matrix: Air

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (70-130)	12DCE (70-130)	TOL (70-130)
320-16694-1	SVE_SOUTH_POST CARBON_	107	93	101
320-16694-2	SVE_SOUTH_PRE CARBON_122815	103	95	101
320-16694-3	SVE_NORTH_EFFLUENT_122815	107	96	103
LCS 320-98236/4	Lab Control Sample	116	96	104
LCSD 320-98236/5	Lab Control Sample Dup	116	99	103
MB 320-98236/7	Method Blank	104	94	100

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

12DCE = 1,2-Dichloroethane-d4 (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16694-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Lab Sample ID: MB 320-98236/7

Matrix: Air

Analysis Batch: 98236

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		5.0		ppb v/v			01/15/16 20:10	1
Benzene	ND		0.40		ppb v/v			01/15/16 20:10	1
Benzyl chloride	ND		0.80		ppb v/v			01/15/16 20:10	1
Bromodichloromethane	ND		0.30		ppb v/v			01/15/16 20:10	1
Bromoform	ND		0.40		ppb v/v			01/15/16 20:10	1
Bromomethane	ND		0.80		ppb v/v			01/15/16 20:10	1
2-Butanone (MEK)	ND		0.80		ppb v/v			01/15/16 20:10	1
Carbon disulfide	ND		0.80		ppb v/v			01/15/16 20:10	1
Carbon tetrachloride	ND		0.80		ppb v/v			01/15/16 20:10	1
Chlorobenzene	ND		0.30		ppb v/v			01/15/16 20:10	1
Dibromochloromethane	ND		0.40		ppb v/v			01/15/16 20:10	1
Chloroethane	ND		0.80		ppb v/v			01/15/16 20:10	1
Chloroform	ND		0.30		ppb v/v			01/15/16 20:10	1
Chloromethane	ND		0.80		ppb v/v			01/15/16 20:10	1
1,2-Dibromoethane (EDB)	ND		0.80		ppb v/v			01/15/16 20:10	1
1,2-Dichlorobenzene	ND		0.40		ppb v/v			01/15/16 20:10	1
1,3-Dichlorobenzene	ND		0.40		ppb v/v			01/15/16 20:10	1
1,4-Dichlorobenzene	ND		0.40		ppb v/v			01/15/16 20:10	1
Dichlorodifluoromethane	ND		0.40		ppb v/v			01/15/16 20:10	1
1,1-Dichloroethane	ND		0.30		ppb v/v			01/15/16 20:10	1
1,2-Dichloroethane	ND		0.80		ppb v/v			01/15/16 20:10	1
1,1-Dichloroethene	ND		0.80		ppb v/v			01/15/16 20:10	1
cis-1,2-Dichloroethene	ND		0.40		ppb v/v			01/15/16 20:10	1
trans-1,2-Dichloroethene	ND		0.40		ppb v/v			01/15/16 20:10	1
1,2-Dichloropropane	ND		0.40		ppb v/v			01/15/16 20:10	1
cis-1,3-Dichloropropene	ND		0.40		ppb v/v			01/15/16 20:10	1
trans-1,3-Dichloropropene	ND		0.40		ppb v/v			01/15/16 20:10	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40		ppb v/v			01/15/16 20:10	1
Ethylbenzene	ND		0.40		ppb v/v			01/15/16 20:10	1
4-Ethyltoluene	ND		0.40		ppb v/v			01/15/16 20:10	1
Hexachlorobutadiene	ND		2.0		ppb v/v			01/15/16 20:10	1
2-Hexanone	ND		0.40		ppb v/v			01/15/16 20:10	1
Methylene Chloride	ND		0.40		ppb v/v			01/15/16 20:10	1
4-Methyl-2-pentanone (MIBK)	ND		0.40		ppb v/v			01/15/16 20:10	1
Styrene	ND		0.40		ppb v/v			01/15/16 20:10	1
1,1,2,2-Tetrachloroethane	ND		0.40		ppb v/v			01/15/16 20:10	1
Tetrachloroethene	ND		0.40		ppb v/v			01/15/16 20:10	1
Toluene	ND		0.40		ppb v/v			01/15/16 20:10	1
1,2,4-Trichlorobenzene	ND		2.0		ppb v/v			01/15/16 20:10	1
1,1,1-Trichloroethane	ND		0.30		ppb v/v			01/15/16 20:10	1
1,1,2-Trichloroethane	ND		0.40		ppb v/v			01/15/16 20:10	1
Trichloroethene	ND		0.40		ppb v/v			01/15/16 20:10	1
Trichlorofluoromethane	ND		0.40		ppb v/v			01/15/16 20:10	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40		ppb v/v			01/15/16 20:10	1
1,2,4-Trimethylbenzene	ND		0.80		ppb v/v			01/15/16 20:10	1
1,3,5-Trimethylbenzene	ND		0.40		ppb v/v			01/15/16 20:10	1
Vinyl acetate	ND		0.80		ppb v/v			01/15/16 20:10	1
Vinyl chloride	ND		0.40		ppb v/v			01/15/16 20:10	1

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16694-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-98236/7
Matrix: Air
Analysis Batch: 98236

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
m,p-Xylene	ND		0.80		ppb v/v			01/15/16 20:10	1
o-Xylene	ND		0.40		ppb v/v			01/15/16 20:10	1
Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Acetone	ND		12		ug/m3 Air			01/15/16 20:10	1
Benzene	ND		1.3		ug/m3 Air			01/15/16 20:10	1
Benzyl chloride	ND		4.1		ug/m3 Air			01/15/16 20:10	1
Bromodichloromethane	ND		2.0		ug/m3 Air			01/15/16 20:10	1
Bromoform	ND		4.1		ug/m3 Air			01/15/16 20:10	1
Bromomethane	ND		3.1		ug/m3 Air			01/15/16 20:10	1
2-Butanone (MEK)	ND		2.4		ug/m3 Air			01/15/16 20:10	1
Carbon disulfide	ND		2.5		ug/m3 Air			01/15/16 20:10	1
Carbon tetrachloride	ND		5.0		ug/m3 Air			01/15/16 20:10	1
Chlorobenzene	ND		1.4		ug/m3 Air			01/15/16 20:10	1
Dibromochloromethane	ND		3.4		ug/m3 Air			01/15/16 20:10	1
Chloroethane	ND		2.1		ug/m3 Air			01/15/16 20:10	1
Chloroform	ND		1.5		ug/m3 Air			01/15/16 20:10	1
Chloromethane	ND		1.7		ug/m3 Air			01/15/16 20:10	1
1,2-Dibromoethane (EDB)	ND		6.1		ug/m3 Air			01/15/16 20:10	1
1,2-Dichlorobenzene	ND		2.4		ug/m3 Air			01/15/16 20:10	1
1,3-Dichlorobenzene	ND		2.4		ug/m3 Air			01/15/16 20:10	1
1,4-Dichlorobenzene	ND		2.4		ug/m3 Air			01/15/16 20:10	1
Dichlorodifluoromethane	ND		2.0		ug/m3 Air			01/15/16 20:10	1
1,1-Dichloroethane	ND		1.2		ug/m3 Air			01/15/16 20:10	1
1,2-Dichloroethane	ND		3.2		ug/m3 Air			01/15/16 20:10	1
1,1-Dichloroethene	ND		3.2		ug/m3 Air			01/15/16 20:10	1
cis-1,2-Dichloroethene	ND		1.6		ug/m3 Air			01/15/16 20:10	1
trans-1,2-Dichloroethene	ND		1.6		ug/m3 Air			01/15/16 20:10	1
1,2-Dichloropropane	ND		1.8		ug/m3 Air			01/15/16 20:10	1
cis-1,3-Dichloropropene	ND		1.8		ug/m3 Air			01/15/16 20:10	1
trans-1,3-Dichloropropene	ND		1.8		ug/m3 Air			01/15/16 20:10	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.8		ug/m3 Air			01/15/16 20:10	1
Ethylbenzene	ND		1.7		ug/m3 Air			01/15/16 20:10	1
4-Ethyltoluene	ND		2.0		ug/m3 Air			01/15/16 20:10	1
Hexachlorobutadiene	ND		21		ug/m3 Air			01/15/16 20:10	1
2-Hexanone	ND		1.6		ug/m3 Air			01/15/16 20:10	1
Methylene Chloride	ND		1.4		ug/m3 Air			01/15/16 20:10	1
4-Methyl-2-pentanone (MIBK)	ND		1.6		ug/m3 Air			01/15/16 20:10	1
Styrene	ND		1.7		ug/m3 Air			01/15/16 20:10	1
1,1,2,2-Tetrachloroethane	ND		2.7		ug/m3 Air			01/15/16 20:10	1
Tetrachloroethene	ND		2.7		ug/m3 Air			01/15/16 20:10	1
Toluene	ND		1.5		ug/m3 Air			01/15/16 20:10	1
1,2,4-Trichlorobenzene	ND		15		ug/m3 Air			01/15/16 20:10	1
1,1,1-Trichloroethane	ND		1.6		ug/m3 Air			01/15/16 20:10	1
1,1,2-Trichloroethane	ND		2.2		ug/m3 Air			01/15/16 20:10	1
Trichloroethene	ND		2.1		ug/m3 Air			01/15/16 20:10	1
Trichlorofluoromethane	ND		2.2		ug/m3 Air			01/15/16 20:10	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.1		ug/m3 Air			01/15/16 20:10	1

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16694-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-98236/7
Matrix: Air
Analysis Batch: 98236

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	ND		3.9		ug/m3 Air			01/15/16 20:10	1
1,3,5-Trimethylbenzene	ND		2.0		ug/m3 Air			01/15/16 20:10	1
Vinyl acetate	ND		2.8		ug/m3 Air			01/15/16 20:10	1
Vinyl chloride	ND		1.0		ug/m3 Air			01/15/16 20:10	1
m,p-Xylene	ND		3.5		ug/m3 Air			01/15/16 20:10	1
o-Xylene	ND		1.7		ug/m3 Air			01/15/16 20:10	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		70 - 130					01/15/16 20:10	1
1,2-Dichloroethane-d4 (Surr)	94		70 - 130					01/15/16 20:10	1
Toluene-d8 (Surr)	100		70 - 130					01/15/16 20:10	1

Lab Sample ID: LCS 320-98236/4
Matrix: Air
Analysis Batch: 98236

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	15.8		ppb v/v		79	71 - 131
Benzene	20.0	18.6		ppb v/v		93	68 - 128
Benzyl chloride	20.0	14.9		ppb v/v		75	58 - 120
Bromodichloromethane	20.0	18.9		ppb v/v		94	65 - 130
Bromoform	20.0	20.1		ppb v/v		101	64 - 144
Bromomethane	20.0	19.6		ppb v/v		98	70 - 131
2-Butanone (MEK)	20.0	18.6		ppb v/v		93	71 - 131
Carbon disulfide	20.0	18.4		ppb v/v		92	63 - 123
Carbon tetrachloride	20.0	22.1		ppb v/v		111	67 - 127
Chlorobenzene	20.0	19.7		ppb v/v		99	70 - 132
Dibromochloromethane	20.0	18.8		ppb v/v		94	68 - 128
Chloroethane	20.0	19.9		ppb v/v		99	70 - 131
Chloroform	20.0	18.8		ppb v/v		94	69 - 129
Chloromethane	20.0	18.7		ppb v/v		94	67 - 127
1,2-Dibromoethane (EDB)	20.0	19.6		ppb v/v		98	68 - 131
1,2-Dichlorobenzene	20.0	18.3		ppb v/v		91	73 - 143
1,3-Dichlorobenzene	20.0	18.2		ppb v/v		91	77 - 136
1,4-Dichlorobenzene	20.0	18.6		ppb v/v		93	73 - 143
Dichlorodifluoromethane	20.0	19.7		ppb v/v		99	69 - 129
1,1-Dichloroethane	20.0	18.4		ppb v/v		92	65 - 125
1,2-Dichloroethane	20.0	19.1		ppb v/v		96	71 - 131
1,1-Dichloroethene	20.0	17.6		ppb v/v		88	53 - 128
cis-1,2-Dichloroethene	20.0	19.2		ppb v/v		96	68 - 128
trans-1,2-Dichloroethene	20.0	18.6		ppb v/v		93	70 - 130
1,2-Dichloropropane	20.0	20.9		ppb v/v		104	74 - 128
cis-1,3-Dichloropropene	20.0	21.5		ppb v/v		108	78 - 132
trans-1,3-Dichloropropene	20.0	17.8		ppb v/v		89	56 - 136
1,2-Dichloro-1,1,2,2-tetrafluoroethane	20.0	18.9		ppb v/v		95	64 - 124
Ethylbenzene	20.0	16.2		ppb v/v		81	76 - 136
4-Ethyltoluene	20.0	15.5		ppb v/v		77	62 - 136

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16694-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-98236/4

Matrix: Air

Analysis Batch: 98236

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hexachlorobutadiene	20.0	17.9		ppb v/v		89	42 - 150
2-Hexanone	20.0	21.8		ppb v/v		109	70 - 128
Methylene Chloride	20.0	16.1		ppb v/v		80	65 - 125
4-Methyl-2-pentanone (MIBK)	20.0	20.3		ppb v/v		102	73 - 133
Styrene	20.0	17.1		ppb v/v		86	76 - 144
1,1,2,2-Tetrachloroethane	20.0	17.2		ppb v/v		86	75 - 135
Tetrachloroethene	20.0	18.1		ppb v/v		91	56 - 138
Toluene	20.0	19.7		ppb v/v		99	71 - 132
1,2,4-Trichlorobenzene	20.0	22.2		ppb v/v		111	59 - 150
1,1,1-Trichloroethane	20.0	18.7		ppb v/v		94	65 - 124
1,1,2-Trichloroethane	20.0	19.8		ppb v/v		99	71 - 131
Trichloroethene	20.0	18.7		ppb v/v		94	64 - 127
Trichlorofluoromethane	20.0	19.6		ppb v/v		98	68 - 128
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	17.4		ppb v/v		87	50 - 132
1,2,4-Trimethylbenzene	20.0	18.5		ppb v/v		93	61 - 145
1,3,5-Trimethylbenzene	20.0	16.4		ppb v/v		82	65 - 136
Vinyl acetate	20.0	18.2		ppb v/v		91	77 - 134
Vinyl chloride	20.0	19.3		ppb v/v		97	69 - 129
m,p-Xylene	40.0	32.3		ppb v/v		81	75 - 138
o-Xylene	20.0	16.4		ppb v/v		82	77 - 132

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	48	37.4		ug/m3 Air		79	71 - 131
Benzene	64	59.5		ug/m3 Air		93	68 - 128
Benzyl chloride	100	77.3		ug/m3 Air		75	58 - 120
Bromodichloromethane	130	127		ug/m3 Air		94	65 - 130
Bromoform	210	208		ug/m3 Air		101	64 - 144
Bromomethane	78	75.9		ug/m3 Air		98	70 - 131
2-Butanone (MEK)	59	55.0		ug/m3 Air		93	71 - 131
Carbon disulfide	62	57.2		ug/m3 Air		92	63 - 123
Carbon tetrachloride	130	139		ug/m3 Air		111	67 - 127
Chlorobenzene	92	90.8		ug/m3 Air		99	70 - 132
Dibromochloromethane	170	160		ug/m3 Air		94	68 - 128
Chloroethane	53	52.4		ug/m3 Air		99	70 - 131
Chloroform	98	91.8		ug/m3 Air		94	69 - 129
Chloromethane	41	38.6		ug/m3 Air		94	67 - 127
1,2-Dibromoethane (EDB)	150	151		ug/m3 Air		98	68 - 131
1,2-Dichlorobenzene	120	110		ug/m3 Air		91	73 - 143
1,3-Dichlorobenzene	120	109		ug/m3 Air		91	77 - 136
1,4-Dichlorobenzene	120	112		ug/m3 Air		93	73 - 143
Dichlorodifluoromethane	99	97.6		ug/m3 Air		99	69 - 129
1,1-Dichloroethane	81	74.3		ug/m3 Air		92	65 - 125
1,2-Dichloroethane	81	77.4		ug/m3 Air		96	71 - 131
1,1-Dichloroethene	79	69.7		ug/m3 Air		88	53 - 128
cis-1,2-Dichloroethene	79	76.0		ug/m3 Air		96	68 - 128
trans-1,2-Dichloroethene	79	73.6		ug/m3 Air		93	70 - 130
1,2-Dichloropropane	92	96.5		ug/m3 Air		104	74 - 128

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16694-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-98236/4

Matrix: Air

Analysis Batch: 98236

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,3-Dichloropropene	91	97.6		ug/m3 Air		108	78 - 132
trans-1,3-Dichloropropene	91	80.8		ug/m3 Air		89	56 - 136
1,2-Dichloro-1,1,2,2-tetrafluoroethane	140	132		ug/m3 Air		95	64 - 124
Ethylbenzene	87	70.3		ug/m3 Air		81	76 - 136
4-Ethyltoluene	98	76.2		ug/m3 Air		77	62 - 136
Hexachlorobutadiene	210	191		ug/m3 Air		89	42 - 150
2-Hexanone	82	89.2		ug/m3 Air		109	70 - 128
Methylene Chloride	69	55.8		ug/m3 Air		80	65 - 125
4-Methyl-2-pentanone (MIBK)	82	83.2		ug/m3 Air		102	73 - 133
Styrene	85	72.9		ug/m3 Air		86	76 - 144
1,1,2,2-Tetrachloroethane	140	118		ug/m3 Air		86	75 - 135
Tetrachloroethene	140	123		ug/m3 Air		91	56 - 138
Toluene	75	74.3		ug/m3 Air		99	71 - 132
1,2,4-Trichlorobenzene	150	165		ug/m3 Air		111	59 - 150
1,1,1-Trichloroethane	110	102		ug/m3 Air		94	65 - 124
1,1,2-Trichloroethane	110	108		ug/m3 Air		99	71 - 131
Trichloroethene	110	101		ug/m3 Air		94	64 - 127
Trichlorofluoromethane	110	110		ug/m3 Air		98	68 - 128
1,1,2-Trichloro-1,2,2-trifluoroethane	150	133		ug/m3 Air		87	50 - 132
1,2,4-Trimethylbenzene	98	91.1		ug/m3 Air		93	61 - 145
1,3,5-Trimethylbenzene	98	80.6		ug/m3 Air		82	65 - 136
Vinyl acetate	70	64.2		ug/m3 Air		91	77 - 134
Vinyl chloride	51	49.4		ug/m3 Air		97	69 - 129
m,p-Xylene	170	140		ug/m3 Air		81	75 - 138
o-Xylene	87	71.3		ug/m3 Air		82	77 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	116		70 - 130
1,2-Dichloroethane-d4 (Surr)	96		70 - 130
Toluene-d8 (Surr)	104		70 - 130

Lab Sample ID: LCSD 320-98236/5

Matrix: Air

Analysis Batch: 98236

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	20.0	17.2		ppb v/v		86	71 - 131	9	25
Benzene	20.0	19.0		ppb v/v		95	68 - 128	2	25
Benzyl chloride	20.0	15.7		ppb v/v		79	58 - 120	5	25
Bromodichloromethane	20.0	19.3		ppb v/v		96	65 - 130	2	25
Bromoform	20.0	20.6		ppb v/v		103	64 - 144	2	25
Bromomethane	20.0	21.1		ppb v/v		106	70 - 131	8	25
2-Butanone (MEK)	20.0	20.2		ppb v/v		101	71 - 131	8	25
Carbon disulfide	20.0	19.3		ppb v/v		97	63 - 123	5	25
Carbon tetrachloride	20.0	22.5		ppb v/v		112	67 - 127	2	25
Chlorobenzene	20.0	20.2		ppb v/v		101	70 - 132	2	25

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16694-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-98236/5

Matrix: Air

Analysis Batch: 98236

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dibromochloromethane	20.0	19.3		ppb v/v		96	68 - 128	2	25
Chloroethane	20.0	21.8		ppb v/v		109	70 - 131	9	25
Chloroform	20.0	19.6		ppb v/v		98	69 - 129	4	25
Chloromethane	20.0	19.7		ppb v/v		99	67 - 127	5	25
1,2-Dibromoethane (EDB)	20.0	20.0		ppb v/v		100	68 - 131	2	25
1,2-Dichlorobenzene	20.0	18.8		ppb v/v		94	73 - 143	3	25
1,3-Dichlorobenzene	20.0	18.6		ppb v/v		93	77 - 136	2	25
1,4-Dichlorobenzene	20.0	18.9		ppb v/v		94	73 - 143	1	25
Dichlorodifluoromethane	20.0	20.5		ppb v/v		103	69 - 129	4	25
1,1-Dichloroethane	20.0	19.1		ppb v/v		95	65 - 125	4	25
1,2-Dichloroethane	20.0	19.5		ppb v/v		98	71 - 131	2	25
1,1-Dichloroethene	20.0	18.6		ppb v/v		93	53 - 128	5	25
cis-1,2-Dichloroethene	20.0	20.0		ppb v/v		100	68 - 128	4	25
trans-1,2-Dichloroethene	20.0	19.5		ppb v/v		98	70 - 130	5	25
1,2-Dichloropropane	20.0	21.2		ppb v/v		106	74 - 128	1	25
cis-1,3-Dichloropropene	20.0	21.9		ppb v/v		109	78 - 132	2	25
trans-1,3-Dichloropropene	20.0	18.1		ppb v/v		91	56 - 136	2	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	20.0	20.1		ppb v/v		101	64 - 124	6	25
Ethylbenzene	20.0	16.6		ppb v/v		83	76 - 136	3	25
4-Ethyltoluene	20.0	16.3		ppb v/v		82	62 - 136	5	25
Hexachlorobutadiene	20.0	18.3		ppb v/v		92	42 - 150	2	25
2-Hexanone	20.0	22.7		ppb v/v		114	70 - 128	4	25
Methylene Chloride	20.0	17.0		ppb v/v		85	65 - 125	5	25
4-Methyl-2-pentanone (MIBK)	20.0	21.1		ppb v/v		106	73 - 133	4	25
Styrene	20.0	17.7		ppb v/v		88	76 - 144	3	25
1,1,2,2-Tetrachloroethane	20.0	17.8		ppb v/v		89	75 - 135	4	25
Tetrachloroethene	20.0	18.6		ppb v/v		93	56 - 138	3	25
Toluene	20.0	19.9		ppb v/v		99	71 - 132	1	25
1,2,4-Trichlorobenzene	20.0	23.1		ppb v/v		115	59 - 150	4	25
1,1,1-Trichloroethane	20.0	19.5		ppb v/v		97	65 - 124	4	25
1,1,2-Trichloroethane	20.0	20.3		ppb v/v		101	71 - 131	2	25
Trichloroethene	20.0	19.3		ppb v/v		96	64 - 127	3	25
Trichlorofluoromethane	20.0	20.6		ppb v/v		103	68 - 128	5	25
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	18.4		ppb v/v		92	50 - 132	5	25
1,2,4-Trimethylbenzene	20.0	17.4		ppb v/v		87	61 - 145	7	25
1,3,5-Trimethylbenzene	20.0	17.6		ppb v/v		88	65 - 136	7	25
Vinyl acetate	20.0	19.5		ppb v/v		97	77 - 134	7	25
Vinyl chloride	20.0	20.3		ppb v/v		102	69 - 129	5	25
m,p-Xylene	40.0	33.6		ppb v/v		84	75 - 138	4	25
o-Xylene	20.0	17.1		ppb v/v		85	77 - 132	4	25
Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	48	40.8		ug/m3 Air		86	71 - 131	9	25
Benzene	64	60.9		ug/m3 Air		95	68 - 128	2	25
Benzyl chloride	100	81.3		ug/m3 Air		79	58 - 120	5	25
Bromodichloromethane	130	129		ug/m3 Air		96	65 - 130	2	25
Bromoform	210	213		ug/m3 Air		103	64 - 144	2	25

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16694-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-98236/5

Client Sample ID: Lab Control Sample Dup

Matrix: Air

Prep Type: Total/NA

Analysis Batch: 98236

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromomethane	78	82.1		ug/m3 Air		106	70 - 131	8	25
2-Butanone (MEK)	59	59.6		ug/m3 Air		101	71 - 131	8	25
Carbon disulfide	62	60.1		ug/m3 Air		97	63 - 123	5	25
Carbon tetrachloride	130	141		ug/m3 Air		112	67 - 127	2	25
Chlorobenzene	92	93.0		ug/m3 Air		101	70 - 132	2	25
Dibromochloromethane	170	164		ug/m3 Air		96	68 - 128	2	25
Chloroethane	53	57.6		ug/m3 Air		109	70 - 131	9	25
Chloroform	98	95.9		ug/m3 Air		98	69 - 129	4	25
Chloromethane	41	40.7		ug/m3 Air		99	67 - 127	5	25
1,2-Dibromoethane (EDB)	150	153		ug/m3 Air		100	68 - 131	2	25
1,2-Dichlorobenzene	120	113		ug/m3 Air		94	73 - 143	3	25
1,3-Dichlorobenzene	120	112		ug/m3 Air		93	77 - 136	2	25
1,4-Dichlorobenzene	120	113		ug/m3 Air		94	73 - 143	1	25
Dichlorodifluoromethane	99	101		ug/m3 Air		103	69 - 129	4	25
1,1-Dichloroethane	81	77.2		ug/m3 Air		95	65 - 125	4	25
1,2-Dichloroethane	81	79.0		ug/m3 Air		98	71 - 131	2	25
1,1-Dichloroethene	79	73.7		ug/m3 Air		93	53 - 128	5	25
cis-1,2-Dichloroethene	79	79.2		ug/m3 Air		100	68 - 128	4	25
trans-1,2-Dichloroethene	79	77.4		ug/m3 Air		98	70 - 130	5	25
1,2-Dichloropropane	92	97.9		ug/m3 Air		106	74 - 128	1	25
cis-1,3-Dichloropropene	91	99.4		ug/m3 Air		109	78 - 132	2	25
trans-1,3-Dichloropropene	91	82.2		ug/m3 Air		91	56 - 136	2	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	140	141		ug/m3 Air		101	64 - 124	6	25
Ethylbenzene	87	72.2		ug/m3 Air		83	76 - 136	3	25
4-Ethyltoluene	98	80.2		ug/m3 Air		82	62 - 136	5	25
Hexachlorobutadiene	210	195		ug/m3 Air		92	42 - 150	2	25
2-Hexanone	82	93.0		ug/m3 Air		114	70 - 128	4	25
Methylene Chloride	69	58.9		ug/m3 Air		85	65 - 125	5	25
4-Methyl-2-pentanone (MIBK)	82	86.4		ug/m3 Air		106	73 - 133	4	25
Styrene	85	75.3		ug/m3 Air		88	76 - 144	3	25
1,1,2,2-Tetrachloroethane	140	122		ug/m3 Air		89	75 - 135	4	25
Tetrachloroethene	140	126		ug/m3 Air		93	56 - 138	3	25
Toluene	75	74.8		ug/m3 Air		99	71 - 132	1	25
1,2,4-Trichlorobenzene	150	171		ug/m3 Air		115	59 - 150	4	25
1,1,1-Trichloroethane	110	106		ug/m3 Air		97	65 - 124	4	25
1,1,2-Trichloroethane	110	111		ug/m3 Air		101	71 - 131	2	25
Trichloroethene	110	103		ug/m3 Air		96	64 - 127	3	25
Trichlorofluoromethane	110	116		ug/m3 Air		103	68 - 128	5	25
1,1,2-Trichloro-1,2,2-trifluoroethane	150	141		ug/m3 Air		92	50 - 132	5	25
1,2,4-Trimethylbenzene	98	85.3		ug/m3 Air		87	61 - 145	7	25
1,3,5-Trimethylbenzene	98	86.4		ug/m3 Air		88	65 - 136	7	25
Vinyl acetate	70	68.7		ug/m3 Air		97	77 - 134	7	25
Vinyl chloride	51	52.0		ug/m3 Air		102	69 - 129	5	25
m,p-Xylene	170	146		ug/m3 Air		84	75 - 138	4	25
o-Xylene	87	74.1		ug/m3 Air		85	77 - 132	4	25

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16694-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-98236/5

Matrix: Air

Analysis Batch: 98236

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	116		70 - 130
1,2-Dichloroethane-d4 (Surr)	99		70 - 130
Toluene-d8 (Surr)	103		70 - 130

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QC Association Summary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16694-1

Air - GC/MS VOA

Analysis Batch: 98236

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-16694-1	SVE_SOUTH_POST CARBON_12/28/15	Total/NA	Air	TO-15	
320-16694-2	SVE_SOUTH_PRE CARBON_122815	Total/NA	Air	TO-15	
320-16694-3	SVE_NORTH_EFFLUENT_122815	Total/NA	Air	TO-15	
LCS 320-98236/4	Lab Control Sample	Total/NA	Air	TO-15	
LCSD 320-98236/5	Lab Control Sample Dup	Total/NA	Air	TO-15	
MB 320-98236/7	Method Blank	Total/NA	Air	TO-15	

Lab Chronicle

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16694-1

Client Sample ID: SVE_SOUTH_POST CARBON_12/28/15

Lab Sample ID: 320-16694-1

Date Collected: 12/28/15 09:15

Matrix: Air

Date Received: 01/06/16 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	502 mL	250 mL	98236	01/15/16 21:00	AP1	TAL SAC

Client Sample ID: SVE_SOUTH_PRE CARBON_122815

Lab Sample ID: 320-16694-2

Date Collected: 12/28/15 09:21

Matrix: Air

Date Received: 01/06/16 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		102	3.89 mL	250 mL	98236	01/15/16 21:46	AP1	TAL SAC

Client Sample ID: SVE_NORTH_EFFLUENT_122815

Lab Sample ID: 320-16694-3

Date Collected: 12/28/15 09:51

Matrix: Air

Date Received: 01/06/16 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		19.6	25 mL	250 mL	98236	01/15/16 22:32	AP1	TAL SAC

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Certification Summary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16694-1

Laboratory: TestAmerica Sacramento

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	01-31-16
Alaska (UST)	State Program	10	UST-055	12-18-16
Arizona	State Program	9	AZ0708	08-11-16
Arkansas DEQ	State Program	6	88-0691	06-17-16
California	State Program	9	2897	01-31-16
Colorado	State Program	8	N/A	08-31-16
Connecticut	State Program	1	PH-0691	06-30-17
Florida	NELAP	4	E87570	06-30-16
Hawaii	State Program	9	N/A	01-31-17
Illinois	NELAP	5	200060	03-17-16
Kansas	NELAP	7	E-10375	01-31-16
Louisiana	NELAP	6	30612	06-30-16
Michigan	State Program	5	9947	01-31-16
Nevada	State Program	9	CA44	07-31-16
New Jersey	NELAP	2	CA005	06-30-16
New York	NELAP	2	11666	04-01-16
Oregon	NELAP	10	CA200005	01-29-16
Pennsylvania	NELAP	3	9947	03-31-16
Texas	NELAP	6	T104704399-15-9	05-31-16
US Fish & Wildlife	Federal		LE148388-0	02-28-16
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-16
Utah	NELAP	8	QUAN1	02-28-17
Virginia	NELAP Secondary AB	3	460278	03-14-16
Washington	State Program	10	C581	05-04-16
West Virginia (DW)	State Program	3	9930C	12-31-15 *
Wyoming	State Program	8	8TMS-Q	01-29-16

Laboratory: TestAmerica Portland

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
USDA	Federal		P330-11-00092	04-17-17

* Certification renewal pending - certification considered valid.

TestAmerica Sacramento

Method Summary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16694-1

Method	Method Description	Protocol	Laboratory
TO-15	Volatile Organic Compounds in Ambient Air	EPA	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

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Sample Summary

Client: Apex Companies LLC
Project/Site: NuStar Vapor Testing

TestAmerica Job ID: 320-16694-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-16694-1	SVE_SOUTH_POST CARBON_12/28/15	Air	12/28/15 09:15	01/06/16 10:30
320-16694-2	SVE_SOUTH_PRE CARBON_122815	Air	12/28/15 09:21	01/06/16 10:30
320-16694-3	SVE_NORTH_EFFLUENT_122815	Air	12/28/15 09:51	01/06/16 10:30

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JOB #
 Sample #

Client/Project:	VFR ID:	
Canister Serial #: 8435	Duration:	<input type="checkbox"/> Hrs <input type="checkbox"/> Min
Cleaning Job:	Flow:	mL/min
Client ID:	Initials:	
Site Location:		

FIELD				
READING	TIME	PRESS.	DATE	INITIALS
INITIAL FIELD VACUUM				
FINAL FIELD READING				

LABORATORY				
READING	PRESS.	DATE	INITIALS	
INITIAL VACUUM CHECK (INCHES Hg)	29.8		JMT	
<input type="checkbox"/> Helium Pre-dilution - Final Pressure (INCHES Hg)				
INITIAL PRESSURE (PSIA)	11.88	01/12/16	SV	
FINAL PRESSURE (PSIA)	23.95	01/12/16	SV	
Pressurization Gas: <input type="checkbox"/> N2 <input type="checkbox"/> He	SCREENED <input type="checkbox"/>	SCRN DIL. VS 250mLs:		
Initial Canister Dilution Factor =	2.02			

CANISTER REPRESSURIZATION					
Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
			2.02		#DIV/0!
			#DIV/0!		#DIV/0!
			#DIV/0!		#DIV/0!

Analytical Dilution Factors						
Canister DF =	X	Load DF =	X	Bag DF =	=	FINAL DF
2.02		0.498008		1		1.00398071
		LVf (mLs)		BVf (mLs)		
		LVi (mLs)		BVi (mLs)		



JOB # **320-16694**
 Sample # **2**

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Client/Project:		VFR ID:	
Canister Serial #:	34000285	Duration:	<input type="checkbox"/> Hrs <input type="checkbox"/> Min
Cleaning Job:		Flow:	mL/min
Client ID:		Initials:	
Site Location:			

FIELD				
READING	TIME	PRESS.	DATE	INITIALS
INITIAL FIELD VACUUM				
FINAL FIELD READING				

LABORATORY				
READING	PRESS.	DATE	INITIALS	
INITIAL VACUUM CHECK (INCHES Hg)	29.8		JMT	
<input type="checkbox"/> Helium Pre-dilution - Final Pressure (INCHES Hg)				
INITIAL PRESSURE (PSIA)	14.92	01/12/16	SV	
FINAL PRESSURE (PSIA)	23.65	01/12/16	SV	
Pressurization Gas: <input type="checkbox"/> N2 <input type="checkbox"/> He	SCREENED <input type="checkbox"/>	SCRN DIL. VS 250mLs:		
Initial Canister Dilution Factor =	1.59			

CANISTER REPRESSURIZATION					
Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
			1.59		#DIV/0!
			#DIV/0!		#DIV/0!
			#DIV/0!		#DIV/0!

Analytical Dilution Factors						
	Date	Instr.	File #			
Canister DF = 1.59 X	1/15/2016	ATMS11		=	FINAL DF	101.9006128
	Load DF = 7.1428571 X				9	
	LVf (mLs) 250				9	
	LVi (mLs) 35				1	
Canister DF = 1.59 X				=	FINAL DF	#DIV/0!
	Load DF = #DIV/0! X				1	
	LVf (mLs)					
	LVi (mLs)					
Canister DF = 1.59 X				=	FINAL DF	#DIV/0!
	Load DF = #DIV/0! X				1	
	LVf (mLs)					
	LVi (mLs)					

JOB # **320-16694**
 Sample # **3**

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Client/Project:		VFR ID:	
Canister Serial #:	34001573	Duration:	<input type="checkbox"/> Hrs <input type="checkbox"/> Min
Cleaning Job:		Flow:	mL/min
Client ID:		Initials:	
Site Location:			

FIELD				
READING	TIME	PRESS.	DATE	INITIALS
INITIAL FIELD VACUUM				
FINAL FIELD READING				

LABORATORY				
READING	PRESS.	DATE	INITIALS	
INITIAL VACUUM CHECK (INCHES Hg)	29.8		JMT	
<input type="checkbox"/> Helium Pre-dilution - Final Pressure (INCHES Hg)				
INITIAL PRESSURE (PSIA)	12.30	01/12/16	SV	
FINAL PRESSURE (PSIA)	24.07	01/12/16	SV	
Pressurization Gas: <input type="checkbox"/> N2 <input type="checkbox"/> He	SCREENED <input type="checkbox"/>	SCRN DIL. VS 250mLs:		
Initial Canister Dilution Factor =	1.96			

CANISTER REPRESSURIZATION					
Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
			1.96		#DIV/0!
			#DIV/0!		#DIV/0!
			#DIV/0!		#DIV/0!

Analytical Dilution Factors						
	Date	Instr.	File #			
Canister DF = 1.96	1/15/2016	ATMS11		X	FINAL DF	
						19.56910569
					Load DF = 10	
					LVf (mLs) 250	
					LVi (mLs) 25	
				X	Bag DF = 1	
					BVf (mLs)	
					Bvi (mLs)	
Canister DF = 1.96				X	FINAL DF	
						#DIV/0!
					Load DF = #DIV/0!	
					LVf (mLs)	
					LVi (mLs)	
				X	Bag DF = 1	
					BVf (mLs)	
					Bvi (mLs)	
Canister DF = 1.96				X	FINAL DF	
						#DIV/0!
					Load DF = #DIV/0!	
					LVf (mLs)	
					LVi (mLs)	
				X	Bag DF = 1	
					BVf (mLs)	
					Bvi (mLs)	

Login Sample Receipt Checklist

Client: Apex Companies LLC

Job Number: 320-16694-1

Login Number: 16694
List Number: 1
Creator: Nelson, Kym D

List Source: TestAmerica Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	N/A	
Cooler Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



320-16172 Chain of Custody

CANISTER QC CERTIFICATION



Certification Type: TO-15 Scan

Date Cleaned/Batch ID 11/27/15 320-16172

Date of QC 12/2/15

Data File Number 15120216

CANISTER ID NUMBERS

<u>34000018</u>	<u>↓ 0386</u>	_____
<u>1440</u>	<u>8340</u>	_____
<u>1345</u>	<u>8298</u>	_____
<u>0285</u>	<u>8467</u>	_____
<u>2125</u>	_____	_____
<u>0269</u>	_____	_____
<u>0554</u>	_____	_____
<u>↓ 1200*</u>	_____	_____

The above canisters were cleaned as a batch. This certifies this batch contains no target analyte concentration greater than or equal to the method criteria for the "Certification Type" indicated above.

"*" INDICATES THE CAN OR CANS WHICH WERE SCREENED.

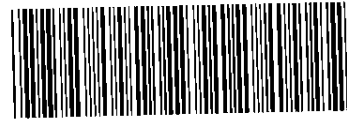
[Signature]
1st level Reviewed By:

12/3/15
Date:

[Signature]
2nd level Reviewed By:

12/4/15
Date:





320-16361 Chain of Custody

CANISTER QC CERTIFICATION

Certification Type: TO-15 Scan

Date Cleaned/Batch ID 12/8/15 320-16361

Date of QC 12/9/15

Data File Number C:\MSDCHEM\1\DATA\151209\MS7120917.d

CANISTER ID NUMBERS

<u>34032084</u>	<u>↓ 0501*</u>	_____
<u>0878</u>	<u>8435</u>	_____
<u>0537</u>	<u>8294</u>	_____
<u>1397</u>	<u>8164</u>	_____
<u>0528</u>	_____	_____
<u>1317</u>	_____	_____
<u>1573</u>	_____	_____
<u>0268</u>	_____	_____

The above canisters were cleaned as a batch. This certifies this batch contains no target analyte concentration greater than or equal to the method criteria for the "Certification Type" indicated above.

"*" INDICATES THE CAN OR CANS WHICH WERE SCREENED.

Hosung Lee
1st level Reviewed By:

12/10/15
Date:

[Signature]
2nd level Reviewed By:

12/29/15
Date:



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-16172-1
 SDG No.: _____
 Client Sample ID: 34001200 Lab Sample ID: 320-16172-8
 Matrix: Air Lab File ID: 15120216.D
 Analysis Method: TO-15 Date Collected: 11/27/2015 00:00
 Sample wt/vol: 250 (mL) Date Analyzed: 12/03/2015 01:57
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-Volatiles ID: 0.32 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 94279 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
67-64-1	Acetone	0.39	J	5.0	0.18
107-02-8	Acrolein	ND		2.0	0.22
107-13-1	Acrylonitrile	ND		2.0	0.19
107-05-1	Allyl chloride	ND		0.80	0.11
71-43-2	Benzene	ND		0.40	0.079
100-44-7	Benzyl chloride	ND		0.80	0.16
75-27-4	Bromodichloromethane	ND		0.30	0.066
75-25-2	Bromoform	ND		0.40	0.070
74-83-9	Bromomethane	ND		0.80	0.34
106-99-0	1,3-Butadiene	ND		0.80	0.15
106-97-8	n-Butane	ND		0.40	0.15
78-93-3	2-Butanone (MEK)	ND		0.80	0.20
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0	0.11
104-51-8	n-Butylbenzene	ND		0.40	0.18
135-98-8	sec-Butylbenzene	ND		0.40	0.070
98-06-6	tert-Butylbenzene	ND		0.80	0.068
75-15-0	Carbon disulfide	ND		0.80	0.078
56-23-5	Carbon tetrachloride	ND		0.80	0.064
108-90-7	Chlorobenzene	ND		0.30	0.064
75-45-6	Chlorodifluoromethane	ND		0.80	0.11
75-00-3	Chloroethane	ND		0.80	0.31
67-66-3	Chloroform	ND		0.30	0.095
74-87-3	Chloromethane	ND		0.80	0.20
95-49-8	2-Chlorotoluene	ND		0.40	0.080
110-82-7	Cyclohexane	ND		0.40	0.084
124-48-1	Dibromochloromethane	ND		0.40	0.079
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80	0.075
74-95-3	Dibromomethane	ND		0.40	0.057
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40	0.16
95-50-1	1,2-Dichlorobenzene	ND		0.40	0.13
541-73-1	1,3-Dichlorobenzene	ND		0.40	0.11
106-46-7	1,4-Dichlorobenzene	ND		0.40	0.15
75-71-8	Dichlorodifluoromethane	ND		0.40	0.15
75-34-3	1,1-Dichloroethane	ND		0.30	0.072
107-06-2	1,2-Dichloroethane	ND		0.80	0.088

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-16172-1
 SDG No.: _____
 Client Sample ID: 34001200 Lab Sample ID: 320-16172-8
 Matrix: Air Lab File ID: 15120216.D
 Analysis Method: TO-15 Date Collected: 11/27/2015 00:00
 Sample wt/vol: 250 (mL) Date Analyzed: 12/03/2015 01:57
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-Volatiles ID: 0.32 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 94279 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	ND		0.80	0.13
156-59-2	cis-1,2-Dichloroethene	ND		0.40	0.089
156-60-5	trans-1,2-Dichloroethene	ND		0.40	0.10
78-87-5	1,2-Dichloropropane	ND		0.40	0.24
10061-01-5	cis-1,3-Dichloropropene	ND		0.40	0.10
10061-02-6	trans-1,3-Dichloropropene	ND		0.40	0.088
123-91-1	1,4-Dioxane	ND		0.80	0.10
141-78-6	Ethyl acetate	ND		0.30	0.18
100-41-4	Ethylbenzene	ND		0.40	0.063
622-96-8	4-Ethyltoluene	ND		0.40	0.19
142-82-5	n-Heptane	ND		0.80	0.063
87-68-3	Hexachlorobutadiene	ND		2.0	0.43
110-54-3	n-Hexane	ND		0.80	0.075
591-78-6	2-Hexanone	ND		0.40	0.087
98-82-8	Isopropylbenzene	ND		0.80	0.10
99-87-6	4-Isopropyltoluene	ND		0.80	0.12
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80	0.050
80-62-6	Methyl methacrylate	ND		0.80	0.16
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40	0.14
75-09-2	Methylene Chloride	ND		0.40	0.072
98-83-9	alpha-Methylstyrene	ND		0.40	0.065
91-20-3	Naphthalene	ND		0.80	0.56
111-65-9	n-Octane	ND		0.40	0.055
109-66-0	n-Pentane	ND		0.80	0.26
115-07-1	Propylene	ND		0.40	0.099
103-65-1	N-Propylbenzene	ND		0.40	0.059
100-42-5	Styrene	ND		0.40	0.059
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40	0.069
127-18-4	Tetrachloroethene	ND		0.40	0.051
109-99-9	Tetrahydrofuran	ND		0.80	0.079
108-88-3	Toluene	ND		0.40	0.051
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.16
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.43
71-55-6	1,1,1-Trichloroethane	ND		0.30	0.065
79-00-5	1,1,2-Trichloroethane	ND		0.40	0.067

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-16172-1
 SDG No.: _____
 Client Sample ID: 34001200 Lab Sample ID: 320-16172-8
 Matrix: Air Lab File ID: 15120216.D
 Analysis Method: TO-15 Date Collected: 11/27/2015 00:00
 Sample wt/vol: 250 (mL) Date Analyzed: 12/03/2015 01:57
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-Volatiles ID: 0.32 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 94279 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.40	0.11
75-69-4	Trichlorofluoromethane	ND		0.40	0.20
96-18-4	1,2,3-Trichloropropane	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	ND		0.80	0.16
108-67-8	1,3,5-Trimethylbenzene	ND		0.40	0.13
540-84-1	2,2,4-Trimethylpentane	ND		0.40	0.071
108-05-4	Vinyl acetate	ND		0.80	0.15
593-60-2	Vinyl bromide	ND		0.80	0.26
75-01-4	Vinyl chloride	ND		0.40	0.12
179601-23-1	m,p-Xylene	ND		0.80	0.10
95-47-6	o-Xylene	ND		0.40	0.054

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	94		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	101		70-130
2037-26-5	Toluene-d8 (Surr)	99		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS11\20151202-26867.b\15120216.D
 Lims ID: 320-16172-A-8 Lab Sample ID: 320-16172-8
 Client ID: 34001200
 Sample Type: Client
 Inject. Date: 03-Dec-2015 01:57:30 ALS Bottle#: 11 Worklist Smp#: 16
 Purge Vol: 500.000 mL Dil. Factor: 1.0000
 Sample Info: 320-16172-A-8
 Misc. Info.: 500ml Can Cert
 Operator ID: KY Instrument ID: ATMS11
 Method: \\ChromNA\Sacramento\ChromData\ATMS11\20151202-26867.b\TO15_ATMS11.m
 Limit Group: MSA - TO15 - ICAL
 Last Update: 03-Dec-2015 14:59:46 Calib Date: 24-Nov-2015 02:37:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS11\20151123-26681.b\15112012.D
 Column 1 : RTX Volatiles (0.32 mm) Det: MS SCAN
 Process Host: XAWRK005

First Level Reviewer: yangk

Date: 03-Dec-2015 14:42:38

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.521	11.517	0.004	93	33425	4.00	
* 2 1,4-Difluorobenzene	114	13.625	13.627	-0.002	97	142068	4.00	
* 3 Chlorobenzene-d5 (IS)	117	19.736	19.733	0.003	92	113727	4.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	12.688	12.691	-0.003	0	57688	4.04	
\$ 5 Toluene-d8 (Surr)	100	16.878	16.881	-0.003	97	87752	3.94	
\$ 6 4-Bromofluorobenzene (Surr	174	21.743	21.746	-0.003	85	52328	3.75	
14 Propene	41	3.779	3.769	0.010	87	560	0.0782	
31 Acetone	43	6.917	6.853	0.064	88	3540	0.3931	

Reagents:

VASUISIM_00237

Amount Added: 50.00

Units: mL

Run Reagent

Data File: \\ChromNA\Sacramento\ChromData\ATMS11\20151202-26867.b\15120216.D

Injection Date: 03-Dec-2015 01:57:30

Instrument ID: ATMS11

Operator ID: KY

Lims ID: 320-16172-A-8

Lab Sample ID: 320-16172-8

Worklist Smp#: 16

Client ID: 34001200

Purge Vol: 500.000 mL

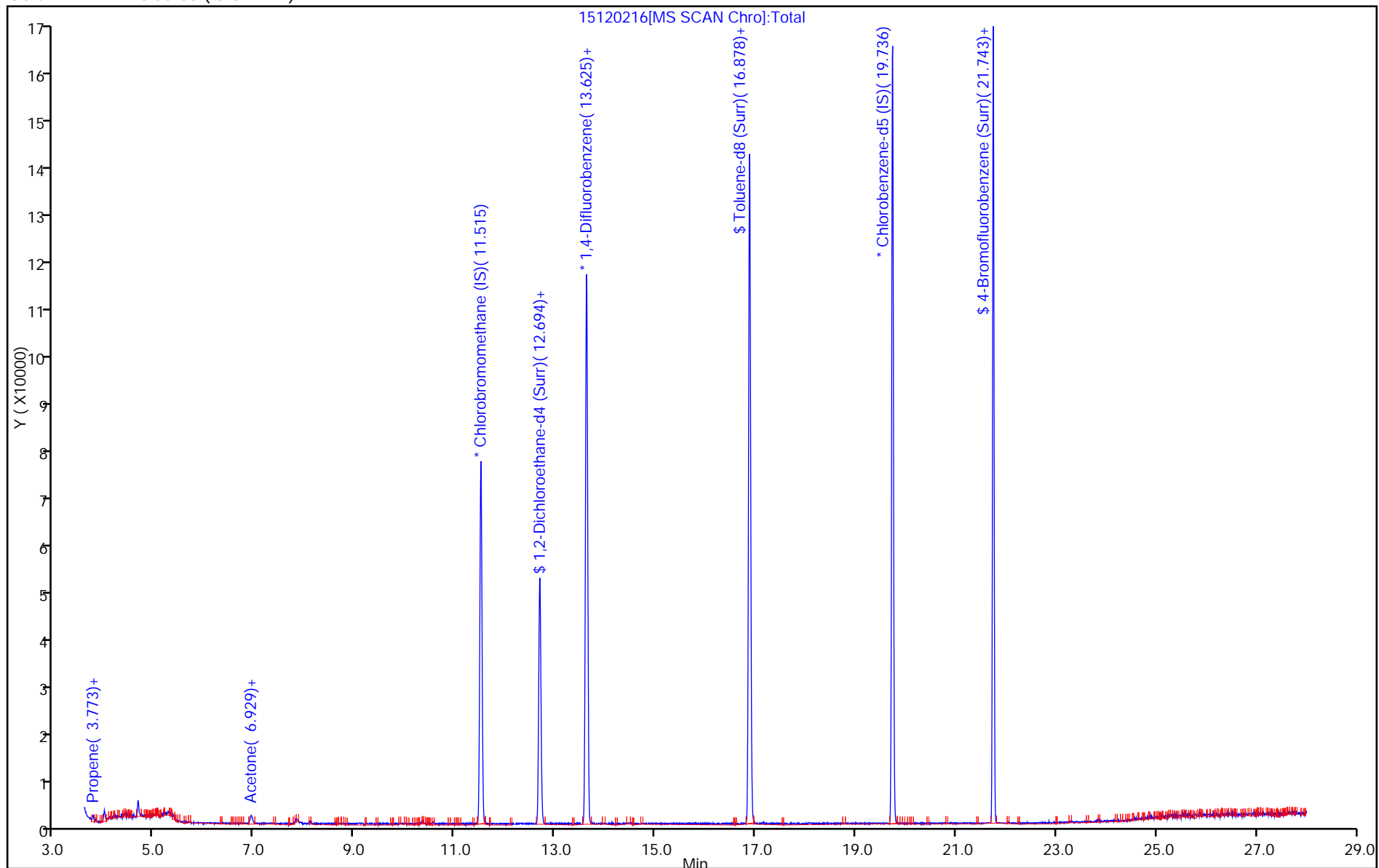
Dil. Factor: 1.0000

ALS Bottle#: 11

Method: TO15_ATMS11

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS11\20151202-26867.b\15120216.D

Injection Date: 03-Dec-2015 01:57:30

Instrument ID: ATMS11

Lims ID: 320-16172-A-8

Lab Sample ID: 320-16172-8

Client ID: 34001200

Operator ID: KY

ALS Bottle#: 11 Worklist Smp#: 16

Purge Vol: 500.000 mL

Dil. Factor: 1.0000

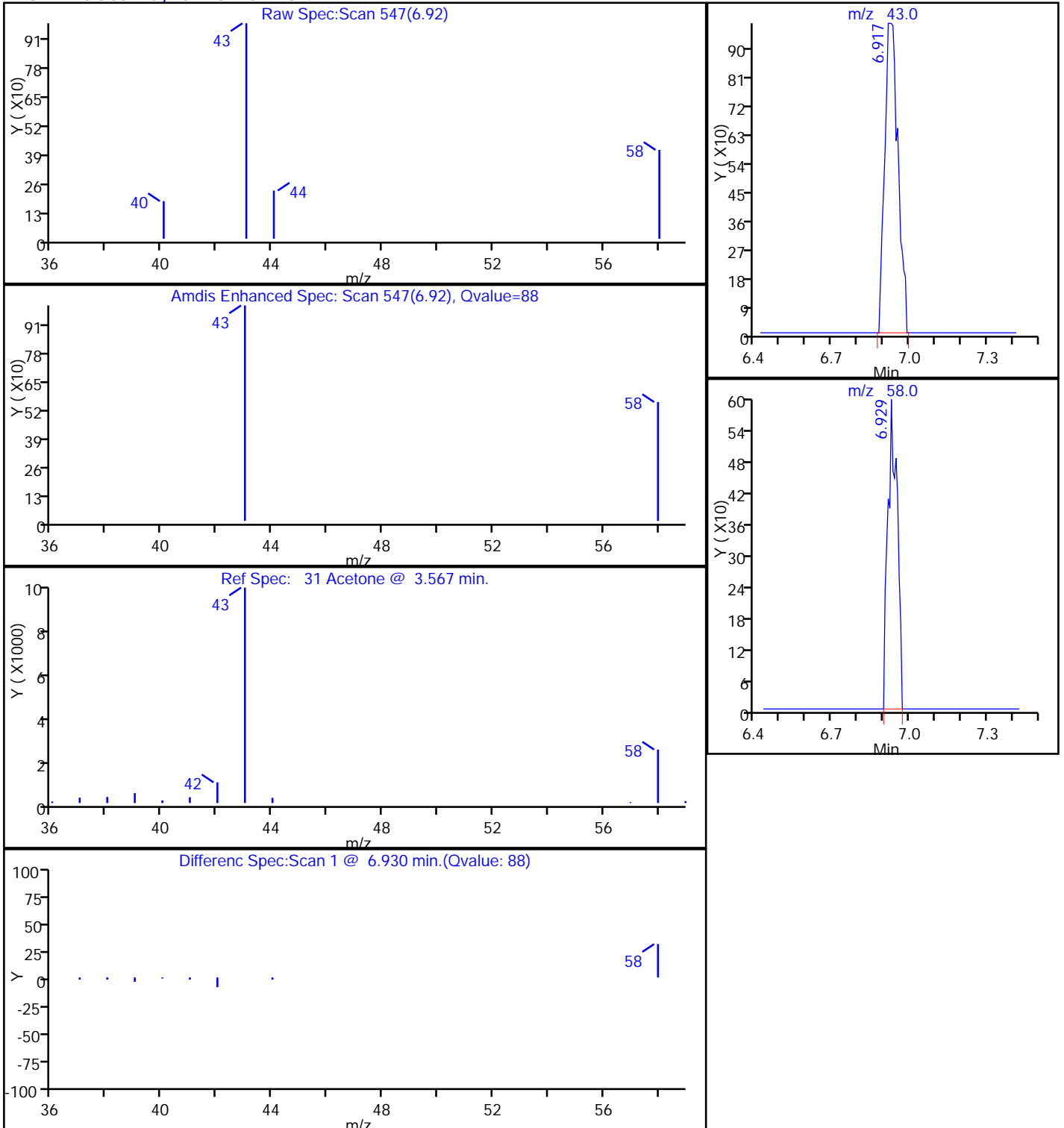
Method: TO15_ATMS11

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Detector: MS SCAN

31 Acetone, CAS: 67-64-1



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-16361-1
 SDG No.: _____
 Client Sample ID: 34000501 Lab Sample ID: 320-16361-9
 Matrix: Air Lab File ID: MS7120913.d
 Analysis Method: TO-15 Date Collected: 12/08/2015 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 12/09/2015 22:27
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-Volatiles ID: 0.32 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 95020 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
67-64-1	Acetone	ND		5.0	0.18
107-02-8	Acrolein	ND		2.0	0.22
107-13-1	Acrylonitrile	ND		2.0	0.19
107-05-1	Allyl chloride	ND		0.80	0.11
71-43-2	Benzene	ND		0.40	0.079
100-44-7	Benzyl chloride	ND		0.80	0.16
75-27-4	Bromodichloromethane	ND		0.30	0.066
75-25-2	Bromoform	ND		0.40	0.070
74-83-9	Bromomethane	ND		0.80	0.34
106-99-0	1,3-Butadiene	ND		0.80	0.15
106-97-8	n-Butane	ND		0.40	0.15
78-93-3	2-Butanone (MEK)	ND		0.80	0.20
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0	0.11
104-51-8	n-Butylbenzene	ND		0.40	0.18
135-98-8	sec-Butylbenzene	ND		0.40	0.070
98-06-6	tert-Butylbenzene	ND		0.80	0.068
75-15-0	Carbon disulfide	ND		0.80	0.078
56-23-5	Carbon tetrachloride	ND		0.80	0.064
108-90-7	Chlorobenzene	ND		0.30	0.064
75-45-6	Chlorodifluoromethane	ND		0.80	0.11
75-00-3	Chloroethane	ND		0.80	0.31
67-66-3	Chloroform	ND		0.30	0.095
74-87-3	Chloromethane	ND		0.80	0.20
95-49-8	2-Chlorotoluene	ND		0.40	0.080
110-82-7	Cyclohexane	ND		0.40	0.084
124-48-1	Dibromochloromethane	ND		0.40	0.079
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80	0.075
74-95-3	Dibromomethane	ND		0.40	0.057
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40	0.16
95-50-1	1,2-Dichlorobenzene	ND		0.40	0.13
541-73-1	1,3-Dichlorobenzene	ND		0.40	0.11
106-46-7	1,4-Dichlorobenzene	ND		0.40	0.15
75-71-8	Dichlorodifluoromethane	ND		0.40	0.15
75-34-3	1,1-Dichloroethane	ND		0.30	0.072
107-06-2	1,2-Dichloroethane	ND		0.80	0.088

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-16361-1
 SDG No.: _____
 Client Sample ID: 34000501 Lab Sample ID: 320-16361-9
 Matrix: Air Lab File ID: MS7120913.d
 Analysis Method: TO-15 Date Collected: 12/08/2015 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 12/09/2015 22:27
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-Volatiles ID: 0.32 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 95020 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	ND		0.80	0.13
156-59-2	cis-1,2-Dichloroethene	ND		0.40	0.089
156-60-5	trans-1,2-Dichloroethene	ND		0.40	0.10
78-87-5	1,2-Dichloropropane	ND		0.40	0.24
10061-01-5	cis-1,3-Dichloropropene	ND		0.40	0.10
10061-02-6	trans-1,3-Dichloropropene	ND		0.40	0.088
123-91-1	1,4-Dioxane	ND		0.80	0.10
141-78-6	Ethyl acetate	ND		0.30	0.18
100-41-4	Ethylbenzene	ND		0.40	0.063
622-96-8	4-Ethyltoluene	ND		0.40	0.19
142-82-5	n-Heptane	ND		0.80	0.063
87-68-3	Hexachlorobutadiene	ND		2.0	0.43
110-54-3	n-Hexane	ND		0.80	0.075
591-78-6	2-Hexanone	ND		0.40	0.087
98-82-8	Isopropylbenzene	ND		0.80	0.10
99-87-6	4-Isopropyltoluene	ND		0.80	0.12
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80	0.050
80-62-6	Methyl methacrylate	ND		0.80	0.16
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40	0.14
75-09-2	Methylene Chloride	ND		0.40	0.072
98-83-9	alpha-Methylstyrene	ND		0.40	0.065
91-20-3	Naphthalene	ND		0.80	0.56
111-65-9	n-Octane	ND		0.40	0.055
109-66-0	n-Pentane	ND		0.80	0.26
115-07-1	Propylene	ND		0.40	0.099
103-65-1	N-Propylbenzene	ND		0.40	0.059
100-42-5	Styrene	ND		0.40	0.059
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40	0.069
127-18-4	Tetrachloroethene	ND		0.40	0.051
109-99-9	Tetrahydrofuran	ND		0.80	0.079
108-88-3	Toluene	ND		0.40	0.051
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.16
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.43
71-55-6	1,1,1-Trichloroethane	ND		0.30	0.065
79-00-5	1,1,2-Trichloroethane	ND		0.40	0.067

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-16361-1
 SDG No.: _____
 Client Sample ID: 34000501 Lab Sample ID: 320-16361-9
 Matrix: Air Lab File ID: MS7120913.d
 Analysis Method: TO-15 Date Collected: 12/08/2015 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 12/09/2015 22:27
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: RTX-Volatiles ID: 0.32 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 95020 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.40	0.11
75-69-4	Trichlorofluoromethane	ND		0.40	0.20
96-18-4	1,2,3-Trichloropropane	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	ND		0.80	0.16
108-67-8	1,3,5-Trimethylbenzene	ND		0.40	0.13
540-84-1	2,2,4-Trimethylpentane	ND		0.40	0.071
108-05-4	Vinyl acetate	ND		0.80	0.15
593-60-2	Vinyl bromide	ND		0.80	0.26
75-01-4	Vinyl chloride	ND		0.40	0.12
179601-23-1	m,p-Xylene	ND		0.80	0.10
95-47-6	o-Xylene	ND		0.40	0.054

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	88		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	105		70-130
2037-26-5	Toluene-d8 (Surr)	93		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS7\20151209-27020.b\MS7120913.d
 Lims ID: 320-16361-A-9 Lab Sample ID: 320-16361-9
 Client ID: 34000501
 Sample Type: Client
 Inject. Date: 09-Dec-2015 22:27:30 ALS Bottle#: 12 Worklist Smp#: 13
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 320-16361-A-9
 Misc. Info.: 500 mL CAN CERT
 Operator ID: LHS Instrument ID: ATMS7
 Method: \\ChromNA\Sacramento\ChromData\ATMS7\20151209-27020.b\TO15_ATMS7N.m
 Limit Group: MSA - TO15 - ICAL
 Last Update: 10-Dec-2015 15:01:59 Calib Date: 21-Oct-2015 13:17:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS7\20151020-25869.b\MS7102024.d
 Column 1 : RTX Volatiles (0.32 mm) Det: MS SCAN
 Process Host: XAWRK008

First Level Reviewer: phanthasena

Date: 10-Dec-2015 15:01:59

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	12.433	12.445	-0.012	94	34103	4.00	
* 2 1,4-Difluorobenzene	114	14.586	14.586	0.000	92	154866	4.00	
* 3 Chlorobenzene-d5 (IS)	117	21.254	21.260	-0.006	90	155711	4.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	13.637	13.644	-0.007	95	56993	4.19	
\$ 5 Toluene-d8 (Surr)	100	17.993	17.993	0.000	97	103726	3.73	
\$ 6 4-Bromofluorobenzene (Surr	95	23.797	23.791	0.006	94	93731	3.53	
73 n-Octane	43	18.005	18.018	-0.013	43	2314	0.0411	

Reagents:

VASUISIM_00231 Amount Added: 50.00 Units: mL Run Reagent

Data File: \\ChromNA\Sacramento\ChromData\ATMS7\20151209-27020.b\MS7120913.d

Injection Date: 09-Dec-2015 22:27:30

Instrument ID: ATMS7

Operator ID: LHS

Lims ID: 320-16361-A-9

Lab Sample ID: 320-16361-9

Worklist Smp#: 13

Client ID: 34000501

Purge Vol: 5.000 mL

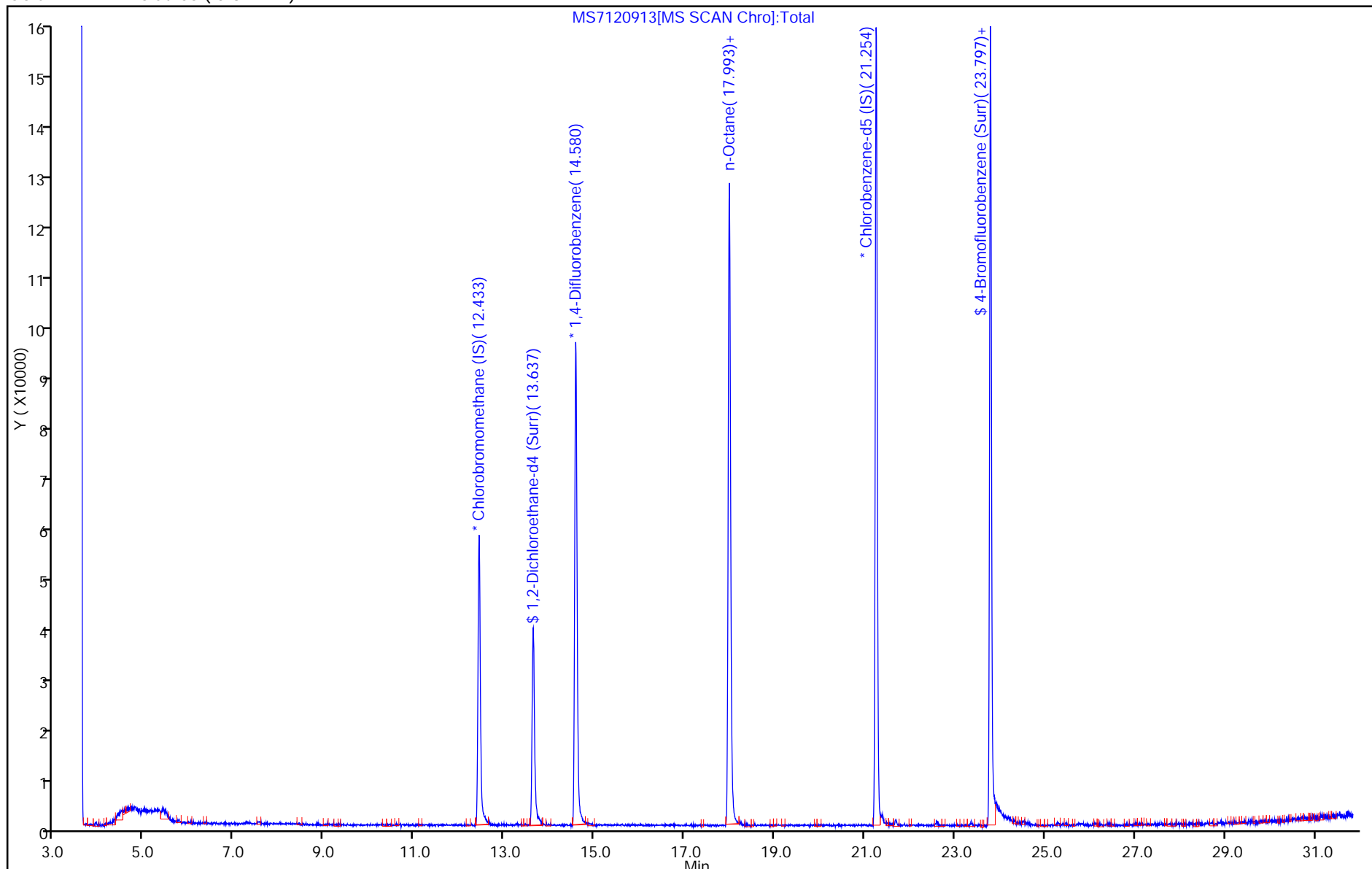
Dil. Factor: 1.0000

ALS Bottle#: 12

Method: TO15_ATMS7N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)



October 06, 2015

Stephanie Bosze-Salisbury
Apex Companies, LLC
3015 SW First Avenue
Portland, OR 97201

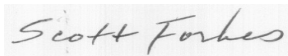
RE: Project: NuStar - Vancouver GW Monitori
Pace Project No.: 1254320

Dear Stephanie Bosze-Salisbury:

Enclosed are the analytical results for sample(s) received by the laboratory on September 29, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Scott M Forbes
scott.forbes@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: NuStar - Vancouver GW Monitori

Pace Project No.: 1254320

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414

A2LA Certification #: 2926.01

Alaska Certification #: UST-078

Alaska Certification #MN00064

Alabama Certification #40770

Arizona Certification #: AZ-0014

Arkansas Certification #: 88-0680

California Certification #: 01155CA

Colorado Certification #Pace

Connecticut Certification #: PH-0256

EPA Region 8 Certification #: 8TMS-L

Florida/NELAP Certification #: E87605

Guam Certification #:14-008r

Georgia Certification #: 959

Georgia EPD #: Pace

Idaho Certification #: MN00064

Hawaii Certification #MN00064

Illinois Certification #: 200011

Indiana Certification#C-MN-01

Iowa Certification #: 368

Kansas Certification #: E-10167

Kentucky Dept of Envi. Protection - DW #90062

Kentucky Dept of Envi. Protection - WW #:90062

Louisiana DEQ Certification #: 3086

Louisiana DHH #: LA140001

Maine Certification #: 2013011

Maryland Certification #: 322

Michigan DEPH Certification #: 9909

Minnesota Certification #: 027-053-137

Mississippi Certification #: Pace

Montana Certification #: MT0092

Nevada Certification #: MN_00064

Nebraska Certification #: Pace

New Jersey Certification #: MN-002

New York Certification #: 11647

North Carolina Certification #: 530

North Carolina State Public Health #: 27700

North Dakota Certification #: R-036

Ohio EPA #: 4150

Ohio VAP Certification #: CL101

Oklahoma Certification #: 9507

Oregon Certification #: MN200001

Oregon Certification #: MN300001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification

Saipan (CNMI) #:MP0003

South Carolina #:74003001

Texas Certification #: T104704192

Tennessee Certification #: 02818

Utah Certification #: MN000642013-4

Virginia DGS Certification #: 251

Washington Certification #: C486

West Virginia Certification #: 382

West Virginia DHHR #:9952C

Wisconsin Certification #: 999407970

Davis Certification IDs

2795 Second Street Suite 300 Davis, CA 95618

North Dakota Certification #: R-214

Oregon Certification #: CA300002

Washington Certification #: C926-14a

California Certification #: 08263CA

New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:

11277CA

Florida Department of Health (NELAC): E87595

Illinois Environmental Protection Agency: 0025721

Kansas Department of Health and Environment (NELAC):

E-10266

Louisiana Dept. of Environmental Quality (NELAC/LELAP):

02006

Pennsylvania Dept. of Env Protection (NELAC): 68-04202

Texas Commission on Env. Quality (NELAC):

T104704405-09-TX

U.S. Dept. of Agriculture Foreign Soil Import: P330-10-

00119

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: NuStar - Vancouver GW Monitori
Pace Project No.: 1254320

Lab ID	Sample ID	Matrix	Date Collected	Date Received
1254320001	MW-22i	Water	09/23/15 08:35	09/29/15 09:45
1254320002	MW-21i-105	Water	09/23/15 09:16	09/29/15 09:45
1254320003	MW-21i-40	Water	09/23/15 09:51	09/29/15 09:45
1254320004	MW-15	Water	09/23/15 10:19	09/29/15 09:45
1254320005	MW-19i	Water	09/23/15 10:54	09/29/15 09:45
1254320006	MW-2	Water	09/23/15 11:29	09/29/15 09:45
1254320007	MW-16	Water	09/23/15 12:18	09/29/15 09:45
1254320008	MW-18i	Water	09/23/15 13:06	09/29/15 09:45
1254320009	MW-20i	Water	09/23/15 13:56	09/29/15 09:45
1254320010	MW-7	Water	09/24/15 08:47	09/29/15 09:45
1254320011	MW-7 DUP	Water	09/24/15 08:47	09/29/15 09:45
1254320012	MW-5	Water	09/24/15 09:41	09/29/15 09:45
1254320013	MW-1	Water	09/24/15 10:16	09/29/15 09:45
1254320014	MGMS2-40	Water	09/25/15 09:02	09/29/15 09:45
1254320015	MGMS2-60	Water	09/25/15 09:55	09/29/15 09:45
1254320016	MGMS2-110	Water	09/25/15 10:15	09/29/15 09:45
1254320017	MGMS2-132	Water	09/25/15 10:36	09/29/15 09:45
1254320018	Trip Blank	Water	09/28/15 09:30	09/29/15 09:45

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: NuStar - Vancouver GW Monitori

Pace Project No.: 1254320

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
1254320001	MW-22i	EPA 8260B	JMB	32	PASI-DAV
1254320002	MW-21i-105	EPA 8260B	JMB	31	PASI-DAV
1254320003	MW-21i-40	EPA 8260B	JMB	31	PASI-DAV
1254320004	MW-15	EPA 8260B	JMB	31	PASI-DAV
1254320005	MW-19i	EPA 8260B	JMB	31	PASI-DAV
1254320006	MW-2	EPA 8260B	JMB	31	PASI-DAV
1254320007	MW-16	EPA 8260B	JMB	31	PASI-DAV
1254320008	MW-18i	EPA 8260B	JMB	31	PASI-DAV
1254320009	MW-20i	EPA 8260B	JMB	31	PASI-DAV
1254320010	MW-7	RSK 175	DR1	3	PASI-M
		EPA 8260B	JMB	31	PASI-DAV
		SM 5310B	JMA	1	PASI-N
1254320011	MW-7 DUP	RSK 175	DR1	3	PASI-M
		EPA 8260B	JMB	31	PASI-DAV
		SM 5310B	JMA	1	PASI-N
1254320012	MW-5	EPA 8260B	JMB	31	PASI-DAV
1254320013	MW-1	EPA 8260B	JMB	31	PASI-DAV
1254320014	MGMS2-40	RSK 175	DR1	3	PASI-M
		EPA 8260B	JMB	31	PASI-DAV
		SM 5310B	JMA	1	PASI-N
1254320015	MGMS2-60	EPA 8260B	JMB	31	PASI-DAV
1254320016	MGMS2-110	EPA 8260B	JMB	31	PASI-DAV
1254320017	MGMS2-132	EPA 8260B	JMB	31	PASI-DAV

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NuStar - Vancouver GW Monitori

Pace Project No.: 1254320

Sample: MW-22i	Lab ID: 1254320001	Collected: 09/23/15 08:35	Received: 09/29/15 09:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/30/15 11:02	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/30/15 11:02	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/30/15 11:02	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/30/15 11:02	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/30/15 11:02	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/30/15 11:02	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/30/15 11:02	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/30/15 11:02	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/30/15 11:02	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 11:02	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 11:02	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 11:02	106-46-7	
1,1-Dichloroethane	0.50	ug/L	0.50	1		09/30/15 11:02	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/30/15 11:02	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		09/30/15 11:02	75-35-4	
cis-1,2-Dichloroethene	10.0	ug/L	0.50	1		09/30/15 11:02	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/30/15 11:02	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/30/15 11:02	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 11:02	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 11:02	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/30/15 11:02	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/30/15 11:02	79-34-5	
Tetrachloroethene	2.1	ug/L	0.50	1		09/30/15 11:02	127-18-4	
TPH as Gas	52.5	ug/L	50.0	1		09/30/15 11:02		DQ
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/30/15 11:02	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/30/15 11:02	79-00-5	
Trichloroethene	11.5	ug/L	0.50	1		09/30/15 11:02	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/30/15 11:02	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		09/30/15 11:02	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	111	%	70-130	1		09/30/15 11:02	17060-07-0	
Toluene-d8 (S)	98	%	70-130	1		09/30/15 11:02	2037-26-5	
4-Bromofluorobenzene (S)	97	%	70-130	1		09/30/15 11:02	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NuStar - Vancouver GW Monitori

Pace Project No.: 1254320

Sample: MW-21i-105		Lab ID: 1254320002		Collected: 09/23/15 09:16		Received: 09/29/15 09:45		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV		Analytical Method: EPA 8260B							
Bromodichloromethane	ND	ug/L	0.50	1		09/30/15 12:37	75-27-4		
Bromoform	ND	ug/L	0.50	1		09/30/15 12:37	75-25-2		
Bromomethane	ND	ug/L	20.0	1		09/30/15 12:37	74-83-9		
Carbon tetrachloride	ND	ug/L	0.50	1		09/30/15 12:37	56-23-5		
Chlorobenzene	ND	ug/L	0.50	1		09/30/15 12:37	108-90-7		
Chloroethane	ND	ug/L	0.50	1		09/30/15 12:37	75-00-3		
Chloroform	ND	ug/L	0.50	1		09/30/15 12:37	67-66-3		
Chloromethane	ND	ug/L	0.50	1		09/30/15 12:37	74-87-3		
Dibromochloromethane	ND	ug/L	0.50	1		09/30/15 12:37	124-48-1		
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 12:37	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 12:37	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 12:37	106-46-7		
1,1-Dichloroethane	0.91	ug/L	0.50	1		09/30/15 12:37	75-34-3		
1,2-Dichloroethane	ND	ug/L	0.50	1		09/30/15 12:37	107-06-2		
1,1-Dichloroethene	ND	ug/L	0.50	1		09/30/15 12:37	75-35-4		
cis-1,2-Dichloroethene	41.4	ug/L	0.50	1		09/30/15 12:37	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/30/15 12:37	156-60-5		
1,2-Dichloropropane	ND	ug/L	0.50	1		09/30/15 12:37	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 12:37	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 12:37	10061-02-6		
Methylene Chloride	ND	ug/L	5.0	1		09/30/15 12:37	75-09-2		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/30/15 12:37	79-34-5		
Tetrachloroethene	3.4	ug/L	0.50	1		09/30/15 12:37	127-18-4		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/30/15 12:37	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/30/15 12:37	79-00-5		
Trichloroethene	5.4	ug/L	0.50	1		09/30/15 12:37	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		09/30/15 12:37	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		09/30/15 12:37	75-01-4		
Surrogates									
1,2-Dichloroethane-d4 (S)	108	%.	70-130	1		09/30/15 12:37	17060-07-0		
Toluene-d8 (S)	99	%.	70-130	1		09/30/15 12:37	2037-26-5		
4-Bromofluorobenzene (S)	94	%.	70-130	1		09/30/15 12:37	460-00-4		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NuStar - Vancouver GW Monitori

Pace Project No.: 1254320

Sample: MW-21i-40		Lab ID: 1254320003	Collected: 09/23/15 09:51	Received: 09/29/15 09:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/30/15 13:02	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/30/15 13:02	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/30/15 13:02	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/30/15 13:02	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/30/15 13:02	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/30/15 13:02	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/30/15 13:02	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/30/15 13:02	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/30/15 13:02	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 13:02	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 13:02	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 13:02	106-46-7	
1,1-Dichloroethane	3.3	ug/L	0.50	1		09/30/15 13:02	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/30/15 13:02	107-06-2	
1,1-Dichloroethene	0.95	ug/L	0.50	1		09/30/15 13:02	75-35-4	
cis-1,2-Dichloroethene	84.2	ug/L	0.50	1		09/30/15 13:02	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/30/15 13:02	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/30/15 13:02	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 13:02	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 13:02	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/30/15 13:02	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/30/15 13:02	79-34-5	
Tetrachloroethene	26.3	ug/L	0.50	1		09/30/15 13:02	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/30/15 13:02	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/30/15 13:02	79-00-5	
Trichloroethene	26.6	ug/L	0.50	1		09/30/15 13:02	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/30/15 13:02	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		09/30/15 13:02	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	110	%	70-130	1		09/30/15 13:02	17060-07-0	
Toluene-d8 (S)	98	%	70-130	1		09/30/15 13:02	2037-26-5	
4-Bromofluorobenzene (S)	94	%	70-130	1		09/30/15 13:02	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar - Vancouver GW Monitori

Pace Project No.: 1254320

Sample: MW-15	Lab ID: 1254320004	Collected: 09/23/15 10:19	Received: 09/29/15 09:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/30/15 13:26	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/30/15 13:26	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/30/15 13:26	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/30/15 13:26	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/30/15 13:26	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/30/15 13:26	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/30/15 13:26	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/30/15 13:26	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/30/15 13:26	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 13:26	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 13:26	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 13:26	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		09/30/15 13:26	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/30/15 13:26	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		09/30/15 13:26	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		09/30/15 13:26	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/30/15 13:26	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/30/15 13:26	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 13:26	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 13:26	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/30/15 13:26	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/30/15 13:26	79-34-5	
Tetrachloroethene	0.62	ug/L	0.50	1		09/30/15 13:26	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/30/15 13:26	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/30/15 13:26	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		09/30/15 13:26	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/30/15 13:26	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		09/30/15 13:26	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	109	%.	70-130	1		09/30/15 13:26	17060-07-0	
Toluene-d8 (S)	98	%.	70-130	1		09/30/15 13:26	2037-26-5	
4-Bromofluorobenzene (S)	92	%.	70-130	1		09/30/15 13:26	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar - Vancouver GW Monitori

Pace Project No.: 1254320

Sample: MW-19i		Lab ID: 1254320005		Collected: 09/23/15 10:54	Received: 09/29/15 09:45	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/30/15 13:50	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/30/15 13:50	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/30/15 13:50	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/30/15 13:50	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/30/15 13:50	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/30/15 13:50	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/30/15 13:50	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/30/15 13:50	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/30/15 13:50	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 13:50	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 13:50	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 13:50	106-46-7	
1,1-Dichloroethane	0.75	ug/L	0.50	1		09/30/15 13:50	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/30/15 13:50	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		09/30/15 13:50	75-35-4	
cis-1,2-Dichloroethene	11.0	ug/L	0.50	1		09/30/15 13:50	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/30/15 13:50	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/30/15 13:50	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 13:50	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 13:50	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/30/15 13:50	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/30/15 13:50	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		09/30/15 13:50	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/30/15 13:50	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/30/15 13:50	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		09/30/15 13:50	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/30/15 13:50	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		09/30/15 13:50	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	109	%.	70-130	1		09/30/15 13:50	17060-07-0	
Toluene-d8 (S)	98	%.	70-130	1		09/30/15 13:50	2037-26-5	
4-Bromofluorobenzene (S)	97	%.	70-130	1		09/30/15 13:50	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar - Vancouver GW Monitori

Pace Project No.: 1254320

Sample: MW-2		Lab ID: 1254320006		Collected: 09/23/15 11:29	Received: 09/29/15 09:45	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/30/15 14:14	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/30/15 14:14	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/30/15 14:14	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/30/15 14:14	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/30/15 14:14	108-90-7	
Chloroethane	2.7	ug/L	0.50	1		09/30/15 14:14	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/30/15 14:14	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/30/15 14:14	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/30/15 14:14	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 14:14	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 14:14	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 14:14	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		09/30/15 14:14	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/30/15 14:14	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		09/30/15 14:14	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		09/30/15 14:14	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/30/15 14:14	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/30/15 14:14	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 14:14	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 14:14	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/30/15 14:14	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/30/15 14:14	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		09/30/15 14:14	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/30/15 14:14	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/30/15 14:14	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		09/30/15 14:14	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/30/15 14:14	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		09/30/15 14:14	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	109	%.	70-130	1		09/30/15 14:14	17060-07-0	
Toluene-d8 (S)	99	%.	70-130	1		09/30/15 14:14	2037-26-5	
4-Bromofluorobenzene (S)	94	%.	70-130	1		09/30/15 14:14	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar - Vancouver GW Monitori

Pace Project No.: 1254320

Sample: MW-16		Lab ID: 1254320007		Collected: 09/23/15 12:18	Received: 09/29/15 09:45	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/30/15 14:38	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/30/15 14:38	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/30/15 14:38	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/30/15 14:38	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/30/15 14:38	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/30/15 14:38	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/30/15 14:38	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/30/15 14:38	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/30/15 14:38	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 14:38	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 14:38	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 14:38	106-46-7	
1,1-Dichloroethane	0.56	ug/L	0.50	1		09/30/15 14:38	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/30/15 14:38	107-06-2	
1,1-Dichloroethene	0.65	ug/L	0.50	1		09/30/15 14:38	75-35-4	
cis-1,2-Dichloroethene	10.4	ug/L	0.50	1		09/30/15 14:38	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/30/15 14:38	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/30/15 14:38	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 14:38	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 14:38	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/30/15 14:38	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/30/15 14:38	79-34-5	
Tetrachloroethene	173	ug/L	0.84	1.67		10/01/15 00:18	127-18-4	
1,1,1-Trichloroethane	1.2	ug/L	0.50	1		09/30/15 14:38	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/30/15 14:38	79-00-5	
Trichloroethene	43.5	ug/L	0.50	1		09/30/15 14:38	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/30/15 14:38	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		09/30/15 14:38	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	110	%	70-130	1		09/30/15 14:38	17060-07-0	
Toluene-d8 (S)	99	%	70-130	1		09/30/15 14:38	2037-26-5	
4-Bromofluorobenzene (S)	95	%	70-130	1		09/30/15 14:38	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar - Vancouver GW Monitori

Pace Project No.: 1254320

Sample: MW-18i		Lab ID: 1254320008		Collected: 09/23/15 13:06	Received: 09/29/15 09:45	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/30/15 15:02	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/30/15 15:02	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/30/15 15:02	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/30/15 15:02	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/30/15 15:02	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/30/15 15:02	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/30/15 15:02	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/30/15 15:02	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/30/15 15:02	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 15:02	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 15:02	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 15:02	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		09/30/15 15:02	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/30/15 15:02	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		09/30/15 15:02	75-35-4	
cis-1,2-Dichloroethene	3.5	ug/L	0.50	1		09/30/15 15:02	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/30/15 15:02	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/30/15 15:02	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 15:02	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 15:02	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/30/15 15:02	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/30/15 15:02	79-34-5	
Tetrachloroethene	3.4	ug/L	0.50	1		09/30/15 15:02	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/30/15 15:02	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/30/15 15:02	79-00-5	
Trichloroethene	1.8	ug/L	0.50	1		09/30/15 15:02	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/30/15 15:02	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		09/30/15 15:02	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	112	%.	70-130	1		09/30/15 15:02	17060-07-0	
Toluene-d8 (S)	100	%.	70-130	1		09/30/15 15:02	2037-26-5	
4-Bromofluorobenzene (S)	95	%.	70-130	1		09/30/15 15:02	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar - Vancouver GW Monitori

Pace Project No.: 1254320

Sample: MW-20i		Lab ID: 1254320009		Collected: 09/23/15 13:56	Received: 09/29/15 09:45	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/30/15 15:27	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/30/15 15:27	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/30/15 15:27	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/30/15 15:27	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/30/15 15:27	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/30/15 15:27	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/30/15 15:27	67-66-3	
Chloromethane	0.54	ug/L	0.50	1		09/30/15 15:27	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/30/15 15:27	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 15:27	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 15:27	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 15:27	106-46-7	
1,1-Dichloroethane	0.69	ug/L	0.50	1		09/30/15 15:27	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/30/15 15:27	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		09/30/15 15:27	75-35-4	
cis-1,2-Dichloroethene	13.8	ug/L	0.50	1		09/30/15 15:27	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/30/15 15:27	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/30/15 15:27	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 15:27	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 15:27	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/30/15 15:27	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/30/15 15:27	79-34-5	
Tetrachloroethene	4.1	ug/L	0.50	1		09/30/15 15:27	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/30/15 15:27	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/30/15 15:27	79-00-5	
Trichloroethene	2.1	ug/L	0.50	1		09/30/15 15:27	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/30/15 15:27	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		09/30/15 15:27	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	110	%	70-130	1		09/30/15 15:27	17060-07-0	
Toluene-d8 (S)	99	%	70-130	1		09/30/15 15:27	2037-26-5	
4-Bromofluorobenzene (S)	94	%	70-130	1		09/30/15 15:27	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar - Vancouver GW Monitori

Pace Project No.: 1254320

Sample: MW-7	Lab ID: 1254320010	Collected: 09/24/15 08:47	Received: 09/29/15 09:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace		Analytical Method: RSK 175						
Ethane	ND	ug/L	10.0	1		10/02/15 13:58	74-84-0	
Ethene	ND	ug/L	10.0	1		10/02/15 13:58	74-85-1	
Methane	6120	ug/L	10.0	1		10/02/15 13:58	74-82-8	H1
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/30/15 19:52	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/30/15 19:52	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/30/15 19:52	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/30/15 19:52	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/30/15 19:52	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/30/15 19:52	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/30/15 19:52	67-66-3	
Chloromethane	0.81	ug/L	0.50	1		09/30/15 19:52	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/30/15 19:52	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 19:52	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 19:52	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 19:52	106-46-7	
1,1-Dichloroethane	1.7	ug/L	0.50	1		09/30/15 19:52	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/30/15 19:52	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		09/30/15 19:52	75-35-4	
cis-1,2-Dichloroethene	12.4	ug/L	0.50	1		09/30/15 19:52	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/30/15 19:52	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/30/15 19:52	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 19:52	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 19:52	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/30/15 19:52	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/30/15 19:52	79-34-5	
Tetrachloroethene	4.5	ug/L	0.50	1		09/30/15 19:52	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/30/15 19:52	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/30/15 19:52	79-00-5	
Trichloroethene	4.2	ug/L	0.50	1		09/30/15 19:52	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/30/15 19:52	75-69-4	
Vinyl chloride	4.6	ug/L	0.50	1		09/30/15 19:52	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	111	%	70-130	1		09/30/15 19:52	17060-07-0	
Toluene-d8 (S)	99	%	70-130	1		09/30/15 19:52	2037-26-5	
4-Bromofluorobenzene (S)	94	%	70-130	1		09/30/15 19:52	460-00-4	
5310B TOC		Analytical Method: SM 5310B						
Total Organic Carbon	40.5	mg/L	1.0	1		10/02/15 14:03	7440-44-0	

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ANALYTICAL RESULTS

Project: NuStar - Vancouver GW Monitori

Pace Project No.: 1254320

Sample: MW-7 DUP		Lab ID: 1254320011	Collected: 09/24/15 08:47	Received: 09/29/15 09:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace		Analytical Method: RSK 175						
Ethane	ND	ug/L	10.0	1		10/02/15 14:06	74-84-0	
Ethene	ND	ug/L	10.0	1		10/02/15 14:06	74-85-1	
Methane	3880	ug/L	10.0	1		10/02/15 14:06	74-82-8	H1
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/30/15 21:28	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/30/15 21:28	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/30/15 21:28	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/30/15 21:28	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/30/15 21:28	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/30/15 21:28	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/30/15 21:28	67-66-3	
Chloromethane	0.93	ug/L	0.50	1		09/30/15 21:28	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/30/15 21:28	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 21:28	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 21:28	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 21:28	106-46-7	
1,1-Dichloroethane	1.8	ug/L	0.50	1		09/30/15 21:28	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/30/15 21:28	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		09/30/15 21:28	75-35-4	
cis-1,2-Dichloroethene	12.7	ug/L	0.50	1		09/30/15 21:28	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/30/15 21:28	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/30/15 21:28	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 21:28	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 21:28	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/30/15 21:28	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/30/15 21:28	79-34-5	
Tetrachloroethene	4.5	ug/L	0.50	1		09/30/15 21:28	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/30/15 21:28	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/30/15 21:28	79-00-5	
Trichloroethene	4.2	ug/L	0.50	1		09/30/15 21:28	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/30/15 21:28	75-69-4	
Vinyl chloride	4.8	ug/L	0.50	1		09/30/15 21:28	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	108	%	70-130	1		09/30/15 21:28	17060-07-0	
Toluene-d8 (S)	98	%	70-130	1		09/30/15 21:28	2037-26-5	
4-Bromofluorobenzene (S)	97	%	70-130	1		09/30/15 21:28	460-00-4	
5310B TOC		Analytical Method: SM 5310B						
Total Organic Carbon	40.6	mg/L	1.0	1		10/02/15 14:59	7440-44-0	

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ANALYTICAL RESULTS

Project: NuStar - Vancouver GW Monitori

Pace Project No.: 1254320

Sample: MW-5	Lab ID: 1254320012	Collected: 09/24/15 09:41	Received: 09/29/15 09:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/30/15 21:53	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/30/15 21:53	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/30/15 21:53	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/30/15 21:53	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/30/15 21:53	108-90-7	
Chloroethane	24.6	ug/L	0.50	1		09/30/15 21:53	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/30/15 21:53	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/30/15 21:53	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/30/15 21:53	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 21:53	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 21:53	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 21:53	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		09/30/15 21:53	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/30/15 21:53	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		09/30/15 21:53	75-35-4	
cis-1,2-Dichloroethene	4.0	ug/L	0.50	1		09/30/15 21:53	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/30/15 21:53	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/30/15 21:53	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 21:53	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 21:53	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/30/15 21:53	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/30/15 21:53	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		09/30/15 21:53	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/30/15 21:53	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/30/15 21:53	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		09/30/15 21:53	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/30/15 21:53	75-69-4	
Vinyl chloride	1.3	ug/L	0.50	1		09/30/15 21:53	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	106	%.	70-130	1		09/30/15 21:53	17060-07-0	
Toluene-d8 (S)	97	%.	70-130	1		09/30/15 21:53	2037-26-5	
4-Bromofluorobenzene (S)	93	%.	70-130	1		09/30/15 21:53	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar - Vancouver GW Monitori

Pace Project No.: 1254320

Sample: MW-1	Lab ID: 1254320013	Collected: 09/24/15 10:16	Received: 09/29/15 09:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/30/15 22:17	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/30/15 22:17	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/30/15 22:17	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/30/15 22:17	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/30/15 22:17	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/30/15 22:17	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/30/15 22:17	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/30/15 22:17	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/30/15 22:17	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 22:17	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 22:17	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 22:17	106-46-7	
1,1-Dichloroethane	8.4	ug/L	0.50	1		09/30/15 22:17	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/30/15 22:17	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		09/30/15 22:17	75-35-4	
cis-1,2-Dichloroethene	39.1	ug/L	0.50	1		09/30/15 22:17	156-59-2	
trans-1,2-Dichloroethene	0.65	ug/L	0.50	1		09/30/15 22:17	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/30/15 22:17	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 22:17	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 22:17	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/30/15 22:17	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/30/15 22:17	79-34-5	
Tetrachloroethene	2.8	ug/L	0.50	1		09/30/15 22:17	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/30/15 22:17	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/30/15 22:17	79-00-5	
Trichloroethene	2.4	ug/L	0.50	1		09/30/15 22:17	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/30/15 22:17	75-69-4	
Vinyl chloride	32.7	ug/L	0.50	1		09/30/15 22:17	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	110	%.	70-130	1		09/30/15 22:17	17060-07-0	
Toluene-d8 (S)	98	%.	70-130	1		09/30/15 22:17	2037-26-5	
4-Bromofluorobenzene (S)	94	%.	70-130	1		09/30/15 22:17	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar - Vancouver GW Monitori

Pace Project No.: 1254320

Sample: MGMS2-40		Lab ID: 1254320014		Collected: 09/25/15 09:02	Received: 09/29/15 09:45	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace		Analytical Method: RSK 175						
Ethane	16.9	ug/L	10.0	1		10/02/15 23:50	74-84-0	CL
Ethene	ND	ug/L	10.0	1		10/02/15 23:50	74-85-1	CL
Methane	601	ug/L	10.0	1		10/02/15 23:50	74-82-8	CL
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/30/15 22:41	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/30/15 22:41	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/30/15 22:41	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/30/15 22:41	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/30/15 22:41	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/30/15 22:41	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/30/15 22:41	67-66-3	
Chloromethane	0.82	ug/L	0.50	1		09/30/15 22:41	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/30/15 22:41	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 22:41	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 22:41	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 22:41	106-46-7	
1,1-Dichloroethane	12.3	ug/L	0.50	1		09/30/15 22:41	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/30/15 22:41	107-06-2	
1,1-Dichloroethene	4.2	ug/L	0.50	1		09/30/15 22:41	75-35-4	
cis-1,2-Dichloroethene	105	ug/L	0.50	1		09/30/15 22:41	156-59-2	
trans-1,2-Dichloroethene	0.61	ug/L	0.50	1		09/30/15 22:41	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/30/15 22:41	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 22:41	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 22:41	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/30/15 22:41	75-09-2	
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50	1		09/30/15 22:41	79-34-5	
Tetrachloroethene	67.4	ug/L	0.50	1		09/30/15 22:41	127-18-4	
1,1,1-Trichloroethane	0.92	ug/L	0.50	1		09/30/15 22:41	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/30/15 22:41	79-00-5	
Trichloroethene	45.9	ug/L	0.50	1		09/30/15 22:41	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/30/15 22:41	75-69-4	
Vinyl chloride	57.8	ug/L	0.50	1		09/30/15 22:41	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	109	%	70-130	1		09/30/15 22:41	17060-07-0	
Toluene-d8 (S)	99	%	70-130	1		09/30/15 22:41	2037-26-5	
4-Bromofluorobenzene (S)	94	%	70-130	1		09/30/15 22:41	460-00-4	
5310B TOC		Analytical Method: SM 5310B						
Total Organic Carbon	10.9	mg/L	1.0	1		10/02/15 15:18	7440-44-0	

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ANALYTICAL RESULTS

Project: NuStar - Vancouver GW Monitori

Pace Project No.: 1254320

Sample: MGMS2-60		Lab ID: 1254320015		Collected: 09/25/15 09:55	Received: 09/29/15 09:45	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/30/15 23:05	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/30/15 23:05	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/30/15 23:05	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/30/15 23:05	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/30/15 23:05	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/30/15 23:05	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/30/15 23:05	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/30/15 23:05	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/30/15 23:05	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 23:05	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 23:05	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 23:05	106-46-7	
1,1-Dichloroethane	2.5	ug/L	0.50	1		09/30/15 23:05	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/30/15 23:05	107-06-2	
1,1-Dichloroethene	0.50	ug/L	0.50	1		09/30/15 23:05	75-35-4	
cis-1,2-Dichloroethene	51.6	ug/L	0.50	1		09/30/15 23:05	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/30/15 23:05	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/30/15 23:05	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 23:05	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 23:05	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/30/15 23:05	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/30/15 23:05	79-34-5	
Tetrachloroethene	18.4	ug/L	0.50	1		09/30/15 23:05	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/30/15 23:05	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/30/15 23:05	79-00-5	
Trichloroethene	15.8	ug/L	0.50	1		09/30/15 23:05	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/30/15 23:05	75-69-4	
Vinyl chloride	9.7	ug/L	0.50	1		09/30/15 23:05	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	108	%.	70-130	1		09/30/15 23:05	17060-07-0	
Toluene-d8 (S)	98	%.	70-130	1		09/30/15 23:05	2037-26-5	
4-Bromofluorobenzene (S)	96	%.	70-130	1		09/30/15 23:05	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar - Vancouver GW Monitori

Pace Project No.: 1254320

Sample: MGMS2-110		Lab ID: 1254320016		Collected: 09/25/15 10:15	Received: 09/29/15 09:45	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/30/15 23:30	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/30/15 23:30	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/30/15 23:30	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/30/15 23:30	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/30/15 23:30	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/30/15 23:30	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/30/15 23:30	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/30/15 23:30	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/30/15 23:30	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 23:30	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 23:30	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 23:30	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		09/30/15 23:30	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/30/15 23:30	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		09/30/15 23:30	75-35-4	
cis-1,2-Dichloroethene	15.3	ug/L	0.50	1		09/30/15 23:30	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/30/15 23:30	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/30/15 23:30	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 23:30	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 23:30	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/30/15 23:30	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/30/15 23:30	79-34-5	
Tetrachloroethene	9.4	ug/L	0.50	1		09/30/15 23:30	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/30/15 23:30	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/30/15 23:30	79-00-5	
Trichloroethene	5.9	ug/L	0.50	1		09/30/15 23:30	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/30/15 23:30	75-69-4	
Vinyl chloride	4.1	ug/L	0.50	1		09/30/15 23:30	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	110	%.	70-130	1		09/30/15 23:30	17060-07-0	
Toluene-d8 (S)	99	%.	70-130	1		09/30/15 23:30	2037-26-5	
4-Bromofluorobenzene (S)	93	%.	70-130	1		09/30/15 23:30	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar - Vancouver GW Monitori

Pace Project No.: 1254320

Sample: MGMS2-132		Lab ID: 1254320017		Collected: 09/25/15 10:36	Received: 09/29/15 09:45	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/30/15 23:54	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/30/15 23:54	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/30/15 23:54	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/30/15 23:54	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/30/15 23:54	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/30/15 23:54	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/30/15 23:54	67-66-3	
Chloromethane	0.83	ug/L	0.50	1		09/30/15 23:54	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/30/15 23:54	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 23:54	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 23:54	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/30/15 23:54	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		09/30/15 23:54	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/30/15 23:54	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		09/30/15 23:54	75-35-4	
cis-1,2-Dichloroethene	20.5	ug/L	0.50	1		09/30/15 23:54	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/30/15 23:54	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/30/15 23:54	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 23:54	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/30/15 23:54	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/30/15 23:54	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/30/15 23:54	79-34-5	
Tetrachloroethene	6.7	ug/L	0.50	1		09/30/15 23:54	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/30/15 23:54	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/30/15 23:54	79-00-5	
Trichloroethene	5.2	ug/L	0.50	1		09/30/15 23:54	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/30/15 23:54	75-69-4	
Vinyl chloride	4.6	ug/L	0.50	1		09/30/15 23:54	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	109	%.	70-130	1		09/30/15 23:54	17060-07-0	
Toluene-d8 (S)	99	%.	70-130	1		09/30/15 23:54	2037-26-5	
4-Bromofluorobenzene (S)	93	%.	70-130	1		09/30/15 23:54	460-00-4	

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QUALITY CONTROL DATA

Project: NuStar - Vancouver GW Monitori
Pace Project No.: 1254320

QC Batch: AIR/24313 Analysis Method: RSK 175
QC Batch Method: RSK 175 Analysis Description: RSK 175 AIR HEADSPACE
Associated Lab Samples: 1254320010, 1254320011

METHOD BLANK: 2096585 Matrix: Water
Associated Lab Samples: 1254320010, 1254320011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethane	ug/L	ND	10.0	10/02/15 11:08	
Ethene	ug/L	ND	10.0	10/02/15 11:08	
Methane	ug/L	ND	10.0	10/02/15 11:08	

LABORATORY CONTROL SAMPLE & LCSD: 2096586

Parameter	Units	2096587								
		Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Ethane	ug/L	114	121	124	106	109	85-115	3	20	
Ethene	ug/L	106	114	116	107	109	85-115	2	20	
Methane	ug/L	60.7	65.2	65.2	107	107	85-115	0	20	

SAMPLE DUPLICATE: 2098956

Parameter	Units	92269431011		RPD	Max RPD	Qualifiers
		Result	Dup Result			
Ethane	ug/L	ND	ND		20	
Ethene	ug/L	ND	ND		20	
Methane	ug/L	ND	.95J		20	

SAMPLE DUPLICATE: 2098957

Parameter	Units	92269554008		RPD	Max RPD	Qualifiers
		Result	Dup Result			
Ethane	ug/L	ND	ND		20	
Ethene	ug/L	ND	ND		20	
Methane	ug/L	ND	.91J		20	

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QUALITY CONTROL DATA

Project: NuStar - Vancouver GW Monitori
Pace Project No.: 1254320

QC Batch: AIR/24328 Analysis Method: RSK 175
QC Batch Method: RSK 175 Analysis Description: RSK 175 AIR HEADSPACE
Associated Lab Samples: 1254320014

METHOD BLANK: 2097927 Matrix: Water
Associated Lab Samples: 1254320014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethane	ug/L	ND	10.0	10/02/15 21:16	
Ethene	ug/L	ND	10.0	10/02/15 21:16	
Methane	ug/L	ND	10.0	10/02/15 21:16	

LABORATORY CONTROL SAMPLE & LCSD: 2097928

Parameter	Units	2097929								
		Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Ethane	ug/L	114	123	126	108	111	85-115	2	20	
Ethene	ug/L	106	115	117	108	111	85-115	2	20	
Methane	ug/L	60.7	64.5	66.2	106	109	85-115	3	20	

SAMPLE DUPLICATE: 2099004

Parameter	Units	92269554009		RPD	Max RPD	Qualifiers
		Result	Dup Result			
Ethane	ug/L	ND	ND		20	CL
Ethene	ug/L	ND	ND		20	CL
Methane	ug/L	1.6J	1.4J		20	CL

SAMPLE DUPLICATE: 2099005

Parameter	Units	92269560006		RPD	Max RPD	Qualifiers
		Result	Dup Result			
Ethane	ug/L	ND	ND		20	CL
Ethene	ug/L	ND	ND		20	CL
Methane	ug/L	1.2J	1.1J		20	CL

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QUALITY CONTROL DATA

Project: NuStar - Vancouver GW Monitori

Pace Project No.: 1254320

QC Batch: DAVM/2241 Analysis Method: EPA 8260B
 QC Batch Method: EPA 8260B Analysis Description: 8260 MSV
 Associated Lab Samples: 1254320001, 1254320002, 1254320003, 1254320004, 1254320005, 1254320006, 1254320007, 1254320008, 1254320009

METHOD BLANK: 252489 Matrix: Water
 Associated Lab Samples: 1254320001, 1254320002, 1254320003, 1254320004, 1254320005, 1254320006, 1254320007, 1254320008, 1254320009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	09/30/15 10:38	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	09/30/15 10:38	
1,1,2-Trichloroethane	ug/L	ND	0.50	09/30/15 10:38	
1,1-Dichloroethane	ug/L	ND	0.50	09/30/15 10:38	
1,1-Dichloroethene	ug/L	ND	0.50	09/30/15 10:38	
1,2-Dichlorobenzene	ug/L	ND	0.50	09/30/15 10:38	
1,2-Dichloroethane	ug/L	ND	0.50	09/30/15 10:38	
1,2-Dichloropropane	ug/L	ND	0.50	09/30/15 10:38	
1,3-Dichlorobenzene	ug/L	ND	0.50	09/30/15 10:38	
1,4-Dichlorobenzene	ug/L	ND	0.50	09/30/15 10:38	
Bromodichloromethane	ug/L	ND	0.50	09/30/15 10:38	
Bromoform	ug/L	ND	0.50	09/30/15 10:38	
Bromomethane	ug/L	ND	20.0	09/30/15 10:38	
Carbon tetrachloride	ug/L	ND	0.50	09/30/15 10:38	
Chlorobenzene	ug/L	ND	0.50	09/30/15 10:38	
Chloroethane	ug/L	ND	0.50	09/30/15 10:38	
Chloroform	ug/L	ND	0.50	09/30/15 10:38	
Chloromethane	ug/L	ND	0.50	09/30/15 10:38	
cis-1,2-Dichloroethene	ug/L	ND	0.50	09/30/15 10:38	
cis-1,3-Dichloropropene	ug/L	ND	0.50	09/30/15 10:38	
Dibromochloromethane	ug/L	ND	0.50	09/30/15 10:38	
Methylene Chloride	ug/L	ND	5.0	09/30/15 10:38	
Tetrachloroethene	ug/L	ND	0.50	09/30/15 10:38	
TPH as Gas	ug/L	ND	50.0	09/30/15 10:38	
trans-1,2-Dichloroethene	ug/L	ND	0.50	09/30/15 10:38	
trans-1,3-Dichloropropene	ug/L	ND	0.50	09/30/15 10:38	
Trichloroethene	ug/L	ND	0.50	09/30/15 10:38	
Trichlorofluoromethane	ug/L	ND	0.50	09/30/15 10:38	
Vinyl chloride	ug/L	ND	0.50	09/30/15 10:38	
1,2-Dichloroethane-d4 (S)	%	111	70-130	09/30/15 10:38	
4-Bromofluorobenzene (S)	%	93	70-130	09/30/15 10:38	
Toluene-d8 (S)	%	98	70-130	09/30/15 10:38	

LABORATORY CONTROL SAMPLE: 252490

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	40	42.4	106	70-130	
1,1,2,2-Tetrachloroethane	ug/L	40	38.8	97	70-130	

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QUALITY CONTROL DATA

Project: NuStar - Vancouver GW Monitori
Pace Project No.: 1254320

LABORATORY CONTROL SAMPLE: 252490

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,2-Trichloroethane	ug/L	40	40.5	101	70-130	
1,1-Dichloroethane	ug/L	40	41.3	103	70-130	
1,1-Dichloroethene	ug/L	40	39.5	99	70-130	
1,2-Dichlorobenzene	ug/L	40	41.1	103	70-130	
1,2-Dichloroethane	ug/L	40	43.3	108	70-130	
1,2-Dichloropropane	ug/L	40	41.8	104	70-130	
1,3-Dichlorobenzene	ug/L	40	44.1	110	70-130	
1,4-Dichlorobenzene	ug/L	40	41.0	102	70-130	
Bromodichloromethane	ug/L	40	42.1	105	70-130	
Bromoform	ug/L	40	41.5	104	70-135	
Bromomethane	ug/L	40	34.8	87	50-135	
Carbon tetrachloride	ug/L	40	43.1	108	70-130	
Chlorobenzene	ug/L	40	40.5	101	70-130	
Chloroethane	ug/L	40	42.6	107	70-130	
Chloroform	ug/L	40	41.9	105	70-130	
Chloromethane	ug/L	40	45.2	113	70-130	
cis-1,2-Dichloroethene	ug/L	40	41.7	104	70-130	
cis-1,3-Dichloropropene	ug/L	40	43.1	108	70-130	
Dibromochloromethane	ug/L	40	42.0	105	70-130	
Methylene Chloride	ug/L	40	40.2	100	70-130	
Tetrachloroethene	ug/L	40	42.7	107	70-130	
trans-1,2-Dichloroethene	ug/L	40	39.7	99	70-130	
trans-1,3-Dichloropropene	ug/L	40	42.9	107	70-130	
Trichloroethene	ug/L	40	41.3	103	70-130	
Trichlorofluoromethane	ug/L	40	45.4	114	70-130	
Vinyl chloride	ug/L	40	43.7	109	70-130	
1,2-Dichloroethane-d4 (S)	%			106	70-130	
4-Bromofluorobenzene (S)	%			108	70-130	
Toluene-d8 (S)	%			101	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 252491 252492

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		1254320001 Result	Spike Conc.	Spike Conc.	Result							Result
1,1,1-Trichloroethane	ug/L	ND	40	40	40.7	40.2	101	100	70-130	1	25	
1,1,2,2-Tetrachloroethane	ug/L	ND	40	40	38.9	37.2	97	93	70-130	5	25	
1,1,2-Trichloroethane	ug/L	ND	40	40	39.3	37.8	98	94	70-130	4	25	
1,1-Dichloroethane	ug/L	0.50	40	40	40.3	39.2	99	97	70-130	3	25	
1,1-Dichloroethene	ug/L	ND	40	40	38.0	37.2	95	93	70-130	2	25	
1,2-Dichlorobenzene	ug/L	ND	40	40	39.3	39.1	98	98	70-130	1	25	
1,2-Dichloroethane	ug/L	ND	40	40	41.4	40.3	104	101	70-130	3	25	
1,2-Dichloropropane	ug/L	ND	40	40	39.7	38.9	99	97	70-130	2	25	
1,3-Dichlorobenzene	ug/L	ND	40	40	43.4	42.3	108	106	70-130	2	25	
1,4-Dichlorobenzene	ug/L	ND	40	40	38.9	39.2	97	98	70-130	1	25	
Bromodichloromethane	ug/L	ND	40	40	40.8	40.1	102	100	70-130	2	25	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NuStar - Vancouver GW Monitori

Pace Project No.: 1254320

Parameter	Units	252491		252492		MS % Rec	MSD % Rec	% Rec	Limits	RPD	Max RPD	Qual
		1254320001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
Bromoform	ug/L	ND	40	40	40.2	39.5	101	99	70-135	2	25	
Bromomethane	ug/L	ND	40	40	34.7	34.9	87	87	50-135	0	25	
Carbon tetrachloride	ug/L	ND	40	40	42.0	40.8	105	102	70-130	3	25	
Chlorobenzene	ug/L	ND	40	40	39.7	38.9	99	97	70-130	2	25	
Chloroethane	ug/L	ND	40	40	42.2	42.6	105	106	70-130	1	25	
Chloroform	ug/L	ND	40	40	40.3	39.1	101	98	70-130	3	25	
Chloromethane	ug/L	ND	40	40	44.9	45.9	112	115	70-130	2	25	
cis-1,2-Dichloroethene	ug/L	10.0	40	40	49.9	48.3	100	96	70-130	3	25	
cis-1,3-Dichloropropene	ug/L	ND	40	40	40.9	40.6	102	101	70-130	1	25	
Dibromochloromethane	ug/L	ND	40	40	40.5	39.4	101	99	70-130	3	25	
Methylene Chloride	ug/L	ND	40	40	39.4	38.0	98	95	70-130	3	25	
Tetrachloroethene	ug/L	2.1	40	40	42.6	42.0	101	100	70-130	2	25	
trans-1,2-Dichloroethene	ug/L	ND	40	40	37.9	38.0	95	95	70-130	0	25	
trans-1,3-Dichloropropene	ug/L	ND	40	40	41.7	40.2	104	100	70-130	4	25	
Trichloroethene	ug/L	11.5	40	40	51.4	50.0	100	96	70-130	3	25	
Trichlorofluoromethane	ug/L	ND	40	40	44.2	43.2	110	108	70-130	2	25	
Vinyl chloride	ug/L	ND	40	40	42.6	42.8	107	107	70-130	0	25	
1,2-Dichloroethane-d4 (S)	%						107	103	70-130			
4-Bromofluorobenzene (S)	%						106	107	70-130			
Toluene-d8 (S)	%						101	100	70-130			

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QUALITY CONTROL DATA

Project: NuStar - Vancouver GW Monitori

Pace Project No.: 1254320

QC Batch: DAVM/2242 Analysis Method: EPA 8260B
 QC Batch Method: EPA 8260B Analysis Description: 8260 MSV
 Associated Lab Samples: 1254320010, 1254320011, 1254320012, 1254320013, 1254320014, 1254320015, 1254320016, 1254320017

METHOD BLANK: 252654 Matrix: Water
 Associated Lab Samples: 1254320010, 1254320011, 1254320012, 1254320013, 1254320014, 1254320015, 1254320016, 1254320017

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	09/30/15 19:28	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	09/30/15 19:28	
1,1,2-Trichloroethane	ug/L	ND	0.50	09/30/15 19:28	
1,1-Dichloroethane	ug/L	ND	0.50	09/30/15 19:28	
1,1-Dichloroethene	ug/L	ND	0.50	09/30/15 19:28	
1,2-Dichlorobenzene	ug/L	ND	0.50	09/30/15 19:28	
1,2-Dichloroethane	ug/L	ND	0.50	09/30/15 19:28	
1,2-Dichloropropane	ug/L	ND	0.50	09/30/15 19:28	
1,3-Dichlorobenzene	ug/L	ND	0.50	09/30/15 19:28	
1,4-Dichlorobenzene	ug/L	ND	0.50	09/30/15 19:28	
Bromodichloromethane	ug/L	ND	0.50	09/30/15 19:28	
Bromoform	ug/L	ND	0.50	09/30/15 19:28	
Bromomethane	ug/L	ND	20.0	09/30/15 19:28	
Carbon tetrachloride	ug/L	ND	0.50	09/30/15 19:28	
Chlorobenzene	ug/L	ND	0.50	09/30/15 19:28	
Chloroethane	ug/L	ND	0.50	09/30/15 19:28	
Chloroform	ug/L	ND	0.50	09/30/15 19:28	
Chloromethane	ug/L	ND	0.50	09/30/15 19:28	
cis-1,2-Dichloroethene	ug/L	ND	0.50	09/30/15 19:28	
cis-1,3-Dichloropropene	ug/L	ND	0.50	09/30/15 19:28	
Dibromochloromethane	ug/L	ND	0.50	09/30/15 19:28	
Methylene Chloride	ug/L	ND	5.0	09/30/15 19:28	
Tetrachloroethene	ug/L	ND	0.50	09/30/15 19:28	
trans-1,2-Dichloroethene	ug/L	ND	0.50	09/30/15 19:28	
trans-1,3-Dichloropropene	ug/L	ND	0.50	09/30/15 19:28	
Trichloroethene	ug/L	ND	0.50	09/30/15 19:28	
Trichlorofluoromethane	ug/L	ND	0.50	09/30/15 19:28	
Vinyl chloride	ug/L	ND	0.50	09/30/15 19:28	
1,2-Dichloroethane-d4 (S)	%	111	70-130	09/30/15 19:28	
4-Bromofluorobenzene (S)	%	93	70-130	09/30/15 19:28	
Toluene-d8 (S)	%	98	70-130	09/30/15 19:28	

LABORATORY CONTROL SAMPLE: 252655

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	40	40.9	102	70-130	
1,1,2,2-Tetrachloroethane	ug/L	40	35.2	88	70-130	
1,1,2-Trichloroethane	ug/L	40	37.8	95	70-130	
1,1-Dichloroethane	ug/L	40	38.4	96	70-130	
1,1-Dichloroethene	ug/L	40	38.3	96	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NuStar - Vancouver GW Monitori
Pace Project No.: 1254320

LABORATORY CONTROL SAMPLE: 252655

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichlorobenzene	ug/L	40	39.6	99	70-130	
1,2-Dichloroethane	ug/L	40	41.4	104	70-130	
1,2-Dichloropropane	ug/L	40	39.6	99	70-130	
1,3-Dichlorobenzene	ug/L	40	44.1	110	70-130	
1,4-Dichlorobenzene	ug/L	40	39.9	100	70-130	
Bromodichloromethane	ug/L	40	40.7	102	70-130	
Bromoform	ug/L	40	38.2	95	70-135	
Bromomethane	ug/L	40	34.1	85	50-135	
Carbon tetrachloride	ug/L	40	41.5	104	70-130	
Chlorobenzene	ug/L	40	39.5	99	70-130	
Chloroethane	ug/L	40	41.9	105	70-130	
Chloroform	ug/L	40	40.8	102	70-130	
Chloromethane	ug/L	40	45.3	113	70-130	
cis-1,2-Dichloroethene	ug/L	40	39.5	99	70-130	
cis-1,3-Dichloropropene	ug/L	40	41.2	103	70-130	
Dibromochloromethane	ug/L	40	40.2	100	70-130	
Methylene Chloride	ug/L	40	39.3	98	70-130	
Tetrachloroethene	ug/L	40	40.6	102	70-130	
trans-1,2-Dichloroethene	ug/L	40	38.3	96	70-130	
trans-1,3-Dichloropropene	ug/L	40	40.5	101	70-130	
Trichloroethene	ug/L	40	40.8	102	70-130	
Trichlorofluoromethane	ug/L	40	44.2	111	70-130	
Vinyl chloride	ug/L	40	42.3	106	70-130	
1,2-Dichloroethane-d4 (S)	%			106	70-130	
4-Bromofluorobenzene (S)	%			109	70-130	
Toluene-d8 (S)	%			100	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 252656 252657

Parameter	Units	1254320010		252657		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result							MSD Result
1,1,1-Trichloroethane	ug/L	ND	40	40	36.3	36.4	91	91	70-130	0	25	
1,1,2,2-Tetrachloroethane	ug/L	ND	40	40	33.6	33.8	84	84	70-130	1	25	
1,1,2-Trichloroethane	ug/L	ND	40	40	34.4	34.6	86	86	70-130	0	25	
1,1-Dichloroethane	ug/L	1.7	40	40	37.6	37.2	90	89	70-130	1	25	
1,1-Dichloroethene	ug/L	ND	40	40	34.4	34.7	86	87	70-130	1	25	
1,2-Dichlorobenzene	ug/L	ND	40	40	35.8	35.6	90	89	70-130	1	25	
1,2-Dichloroethane	ug/L	ND	40	40	37.0	36.9	93	92	70-130	0	25	
1,2-Dichloropropane	ug/L	ND	40	40	35.6	35.4	89	89	70-130	0	25	
1,3-Dichlorobenzene	ug/L	ND	40	40	38.9	39.6	97	99	70-130	2	25	
1,4-Dichlorobenzene	ug/L	ND	40	40	35.9	35.9	90	90	70-130	0	25	
Bromodichloromethane	ug/L	ND	40	40	36.5	36.8	91	92	70-130	1	25	
Bromoform	ug/L	ND	40	40	34.7	34.3	87	86	70-135	1	25	
Bromomethane	ug/L	ND	40	40	27.7	28.9	69	72	50-135	4	25	
Carbon tetrachloride	ug/L	ND	40	40	36.9	37.0	92	92	70-130	0	25	

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QUALITY CONTROL DATA

Project: NuStar - Vancouver GW Monitori

Pace Project No.: 1254320

Parameter	Units	252656		252657		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		1254320010 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
Chlorobenzene	ug/L	ND	40	40	35.9	36.3	90	91	70-130	1	25	
Chloroethane	ug/L	ND	40	40	37.3	39.2	93	98	70-130	5	25	
Chloroform	ug/L	ND	40	40	36.2	37.7	91	94	70-130	4	25	
Chloromethane	ug/L	0.81	40	40	40.9	43.4	100	107	70-130	6	25	
cis-1,2-Dichloroethene	ug/L	12.4	40	40	47.3	48.0	87	89	70-130	2	25	
cis-1,3-Dichloropropene	ug/L	ND	40	40	36.5	36.1	91	90	70-130	1	25	
Dibromochloromethane	ug/L	ND	40	40	36.1	35.7	90	89	70-130	1	25	
Methylene Chloride	ug/L	ND	40	40	35.9	35.7	90	89	70-130	1	25	
Tetrachloroethene	ug/L	4.5	40	40	41.6	41.4	93	92	70-130	0	25	
trans-1,2-Dichloroethene	ug/L	ND	40	40	34.3	34.6	85	86	70-130	1	25	
trans-1,3-Dichloropropene	ug/L	ND	40	40	36.5	36.5	91	91	70-130	0	25	
Trichloroethene	ug/L	4.2	40	40	39.5	39.7	88	89	70-130	0	25	
Trichlorofluoromethane	ug/L	ND	40	40	39.6	39.4	99	99	70-130	0	25	
Vinyl chloride	ug/L	4.6	40	40	42.6	44.1	95	99	70-130	4	25	
1,2-Dichloroethane-d4 (S)	%						105	104	70-130			
4-Bromofluorobenzene (S)	%						108	109	70-130			
Toluene-d8 (S)	%						101	102	70-130			

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QUALITY CONTROL DATA

Project: NuStar - Vancouver GW Monitori

Pace Project No.: 1254320

QC Batch: WETA/7487

Analysis Method: SM 5310B

QC Batch Method: SM 5310B

Analysis Description: 5310B TOC

Associated Lab Samples: 1254320010, 1254320011, 1254320014

METHOD BLANK: 162382

Matrix: Water

Associated Lab Samples:

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	10/02/15 13:44	

LABORATORY CONTROL SAMPLE: 162383

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	25.9	25.9	100	90-110	

MATRIX SPIKE SAMPLE: 162385

Parameter	Units	1254320010 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	40.5	20	56.6	80	75-125	

SAMPLE DUPLICATE: 162384

Parameter	Units	1254320010 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	40.5	39.9	1	20	

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QUALIFIERS

Project: NuStar - Vancouver GW Monitori
Pace Project No.: 1254320

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-DAV Pace Analytical Services - Davis

PASI-M Pace Analytical Services - Minneapolis

PASI-N Pace Analytical Services - New Orleans

ANALYTE QUALIFIERS

CL The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.

DQ Primarily compounds not found in typical Gasoline.

H1 Analysis conducted outside the recognized method holding time.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NuStar - Vancouver GW Monitori

Pace Project No.: 1254320

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
1254320010	MW-7	RSK 175	AIR/24313		
1254320011	MW-7 DUP	RSK 175	AIR/24313		
1254320014	MGMS2-40	RSK 175	AIR/24328		
1254320001	MW-22i	EPA 8260B	DAVM/2241		
1254320002	MW-21i-105	EPA 8260B	DAVM/2241		
1254320003	MW-21i-40	EPA 8260B	DAVM/2241		
1254320004	MW-15	EPA 8260B	DAVM/2241		
1254320005	MW-19i	EPA 8260B	DAVM/2241		
1254320006	MW-2	EPA 8260B	DAVM/2241		
1254320007	MW-16	EPA 8260B	DAVM/2241		
1254320008	MW-18i	EPA 8260B	DAVM/2241		
1254320009	MW-20i	EPA 8260B	DAVM/2241		
1254320010	MW-7	EPA 8260B	DAVM/2242		
1254320011	MW-7 DUP	EPA 8260B	DAVM/2242		
1254320012	MW-5	EPA 8260B	DAVM/2242		
1254320013	MW-1	EPA 8260B	DAVM/2242		
1254320014	MGMS2-40	EPA 8260B	DAVM/2242		
1254320015	MGMS2-60	EPA 8260B	DAVM/2242		
1254320016	MGMS2-110	EPA 8260B	DAVM/2242		
1254320017	MGMS2-132	EPA 8260B	DAVM/2242		
1254320010	MW-7	SM 5310B	WETA/7487		
1254320011	MW-7 DUP	SM 5310B	WETA/7487		
1254320014	MGMS2-40	SM 5310B	WETA/7487		

REPORT OF LABORATORY ANALYSIS

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2795 2nd Street, Suite 300
Davis, CA 95618
Lab: 530.297.4800
Fax: 530.297.4802

SRG # / Lab No.

1254320

Project Contact (Hardcopy or PDF To):
Stephanie Bosze
Company / Address: Apex Companies
3015 SW 1st Ave., Portland, OR 97201
Phone Number:
503-924-4704 ext 1925
Fax Number:
503-924-4707
Project #: 320001126-17
P.O. #: NuStar Vancouver GWM

California EDF Report? Yes No
CRA EQUIS Required Yes No
XLS Report Required Yes No

Global ID:
EDD Deliverable To (Email Address):
SSalisbury@apexcos.com
Bill to:
Apex Companies
Sampler Name & Signature: Chris Brackett

Sample Designation	Sampling		Container				Preservative				Matrix			Analysis Request					TAT	Other: Please Specify	For Lab Use Only						
	Date	Time	40 ml VOA	Sleeve	Poly	250 mL Glass	Tedlar	HCl	HNO ₃	H ₂ SO ₄	None	Water	Soil	Air	TOC	Methane, Ethane, Ethene	Nitrate, Sulfate	Ammonia				12 hr	24 hr	48hr	72hr	1 wk	
MW-22i	9/23/2015	835	4					4				X											X		001		
MW-21i-105	9/23/2015	916	4					4				X											X		002		
MW-21i-40	9/23/2015	951	4					4				X											X		003		
MW-15	9/23/2015	1019	4					4				X											X		004		
MW-19i	9/23/2015	1054	4					4				X											X		005		
MW-2	9/23/2015	1129	4					4				X											X		006		
MW-16	9/23/2015	1218	4					4				X											X		007		
MW-18i	9/23/2015	1306	4					4				X											X		008		
MW-20i	9/23/2015	1356	4					4				X											X		009		
MW-7	9/24/2015	847	7	1				4	1	3		X											X		010		
MW-7 DUP	9/24/2015	847	7	1				4	1	3		X											X		011		
MW-5	9/24/2015	941	4					4				X											X		012		
MW-1	9/24/2015	1016	4					4				X											X		013		

Relinquished by: Joel Matthecheck
Date: 9/28/15
Time: 0930

Received by: Cameron Richardson
Date: 09/29/15
Time: 0945

Temp °C: 1.6
Initials: CR
Date: 09/29/15
Time: 09:45

Therm. ID #: DA1434
Coolant Present: Yes / No



2795 2nd Street, Suite 300
Davis, CA 95618
Lab: 530.297.4800
Fax: 530.297.4802

SRG # / Lab No.

1254320

Page 2 of 2

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF To):
Stephanie Bosze
Company / Address: Apex Companies
3015 SW 1st Ave., Portland, OR 97201
Phone Number: 503-924-4704 ext 1925
Fax Number: 503-924-4707
Project #: 320001126-17
P.O. #:
Project Name: NuStar Vancouver GWM
Project Address:

Global ID:
EDD Deliverable To (Email Address):
SSalisbury@apexcos.com
Bill to:
Apex Companies
Sampler Name & Signature: Chris Brackett


California EDF Report? Yes No
CRA EQUIS Required Yes No
XLS Report Required Yes No

Sample Designation	Sampling		Container					Preservative				Matrix			TAT
	Date	Time	40 ml VOA	Sleeve	Poly	Tedlar	HCl	HNO ₃	H ₂ SO ₄	None	Water	Soil	Air		
MGMS2-40	09/25/15	902	7	1			4	1	3	X			X	014	
MGMS2-60	09/25/15	955	4				4			X				015	
MGMS2-110	09/25/15	1015	4				4			X				016	
MGMS2-132	09/25/15	1036	4				4			X				017	
TRIP Blank	-	-	4				4			X				018	

Relinquished by: *Joel Mathebeck* Date: *9/28/15* Time Received by: *RACE DAVIS* Date: *09/29/15* Time Received by: *Amazon Richardson*

Temp °C	1.6	Initials	CH	Date	09/29/15	Time	0945	Therm. ID #	DA434	Coolant Present	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
---------	-----	----------	----	------	----------	------	------	-------------	-------	-----------------	---

BLUE
ICE
CHEST

	Document Name: Sample Condition Upon Receipt Form	Document Revised: 25Feb2015 Page 1 of 1
	Document No.: F-DAV-C-002-rev.02	Issuing Authority: Pace Davis, CA Quality Office

Sample Condition Upon Receipt **Client Name:** APEX **Project #:** _____

WO# : 1254320



1254320

Courier: Fed Ex UPS USPS Client
 Commercial Pace OnTrac Other: N/A
Tracking Number: 7746 0820 8483

Custody Seal on Cooler/Box Present? Yes No **Seals Intact?** Yes No **Optional:** Proj. Due Date: _____ Proj. Name: _____

Packing Material: Bubble Wrap Bubble Bags None Other: N/A **Temp Blank?** Yes No

Thermom. Used: DA1434 DA2285 **Type of Ice:** Wet Blue Dry Ice None Samples on ice, cooling process has begun

Cooler Temp Read(°C): 1.8 **Cooler Temp Corrected(°C):** 1.6 **Biological Tissue Frozen?** Yes No N/A
Temp should be above freezing to 6°C **Correction Factor:** -0.2 **Date and Initials of Person Examining Contents:** CAR 09/29/15

			Comments:
Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.	<i>No analysis for sample - 018, SR will log it in as an Hold until further clarification</i>
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	2.	
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.	
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.	
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.	
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.	
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.	
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.	
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.	
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.	
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.	Note if sediment is visible in the dissolved container.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12.	<i>No date for sample - 018, SR will log in the date as the date COC was relinquished.</i>
-Includes Date/Time/ID/Analysis Matrix: <u>WT</u>			
All containers needing acid/base preservation have been checked?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13.	<input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> HCl
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide) Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Sample #	
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Initial when completed:	Lot # of added preservative:
Trip Blank Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.	
Trip Blank Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	15.	
Pace Trip Blank Lot # (if purchased): <u>N/A</u>			

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: Scott Plus **Date:** 9/30/15

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

October 09, 2015

Stephanie Bosze-Salisbury
Apex Companies, LLC
3015 SW First Avenue
Portland, OR 97201

RE: Project: NuStar Vancouver GWM
Pace Project No.: 1254044

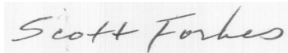
Dear Stephanie Bosze-Salisbury:

Enclosed are the analytical results for sample(s) received by the laboratory on September 24, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Scott M Forbes
scott.forbes@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Davis Certification IDs

2795 Second Street Suite 300 Davis, CA 95618
North Dakota Certification #: R-214
Oregon Certification #: CA300002

Washington Certification #: C926-14a
California Certification #: 08263CA

New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:
11277CA
Florida Department of Health (NELAC): E87595
Illinois Environmental Protection Agency: 0025721
Kansas Department of Health and Environment (NELAC):
E-10266
Louisiana Dept. of Environmental Quality (NELAC/LELAP):
02006

Pennsylvania Dept. of Env Protection (NELAC): 68-04202
Texas Commission on Env. Quality (NELAC):
T104704405-09-TX
U.S. Dept. of Agriculture Foreign Soil Import: P330-10-
00119

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Lab ID	Sample ID	Matrix	Date Collected	Date Received
1254044001	MW-9	Water	09/17/15 11:31	09/24/15 07:28
1254044002	MW-23i	Water	09/17/15 12:13	09/24/15 07:28
1254044003	MW-17	Water	09/17/15 13:03	09/24/15 07:28
1254044004	MW-24d	Water	09/18/15 08:47	09/24/15 07:28
1254044005	MW-8	Water	09/18/15 09:31	09/24/15 07:28
1254044006	MW-3	Water	09/18/15 10:05	09/24/15 07:28
1254044007	MW-6	Water	09/18/15 10:41	09/24/15 07:28
1254044008	MW-14	Water	09/21/15 08:56	09/24/15 07:28
1254044009	S-1	Water	09/21/15 09:36	09/24/15 07:28
1254044010	MW-26	Water	09/21/15 10:11	09/24/15 07:28
1254044011	MW-25i	Water	09/21/15 11:08	09/24/15 07:28
1254044012	MW-10	Water	09/21/15 11:49	09/24/15 07:28
1254044013	MGMS1-43	Water	09/21/15 12:39	09/24/15 07:28
1254044014	MGMS1-60	Water	09/21/15 13:02	09/24/15 07:28
1254044015	MGMS1-110	Water	09/21/15 13:41	09/24/15 07:28
1254044016	EW-1	Water	09/21/15 14:33	09/24/15 07:28
1254044017	MW-12	Water	09/22/15 09:12	09/24/15 07:28
1254044018	MW-12 DUP	Water	09/22/15 09:12	09/24/15 07:28
1254044019	MP-1	Water	09/22/15 09:59	09/24/15 07:28
1254044020	MW-24i	Water	09/22/15 10:33	09/24/15 07:28
1254044021	EX-1	Water	09/22/15 11:07	09/24/15 07:28
1254044022	MW-19	Water	09/22/15 11:45	09/24/15 07:28
1254044023	MW-13	Water	09/22/15 12:22	09/24/15 07:28
1254044024	MGMS3-40	Water	09/22/15 12:59	09/24/15 07:28
1254044025	MGMS3-40 DUP	Water	09/22/15 12:59	09/24/15 07:28
1254044026	MGMS3-60	Water	09/22/15 13:29	09/24/15 07:28
1254044027	MGMS3-101	Water	09/22/15 13:46	09/24/15 07:28
1254044028	MGMS3-132	Water	09/22/15 14:05	09/24/15 07:28

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: NuStar Vancouver GWM
Pace Project No.: 1254044

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
1254044001	MW-9	EPA 8260B	JMB	31	PASI-DAV
1254044002	MW-23i	EPA 8260B	JMB	31	PASI-DAV
1254044003	MW-17	EPA 8260B	JMB	31	PASI-DAV
1254044004	MW-24d	EPA 8260B	JMB	31	PASI-DAV
1254044005	MW-8	EPA 8260B	JMB	31	PASI-DAV
1254044006	MW-3	EPA 8260B	JMB	31	PASI-DAV
1254044007	MW-6	EPA 8260B	JMB	31	PASI-DAV
1254044008	MW-14	EPA 8260B	JMB	31	PASI-DAV
1254044009	S-1	EPA 8260B	JMB	31	PASI-DAV
1254044010	MW-26	EPA 8260B	JMB	31	PASI-DAV
1254044011	MW-25i	EPA 8260B	JMB	31	PASI-DAV
1254044012	MW-10	EPA 8260B	JMB	31	PASI-DAV
1254044013	MGMS1-43	EPA 8260B	JMB	31	PASI-DAV
1254044014	MGMS1-60	EPA 8260B	JMB	31	PASI-DAV
1254044015	MGMS1-110	EPA 8260B	JMB	31	PASI-DAV
1254044016	EW-1	EPA 8260B	JMB	31	PASI-DAV
1254044017	MW-12	EPA 8260B	JMB	31	PASI-DAV
		EPA 300.0	LM	2	PASI-DAV
		SM 5310B	JMA	1	PASI-N
1254044018	MW-12 DUP	EPA 8260B	JMB	31	PASI-DAV
		SM 5310B	JMA	1	PASI-N
1254044019	MP-1	EPA 8260B	JMB	31	PASI-DAV
		SM 5310B	JMA	1	PASI-N
1254044020	MW-24i	EPA 8260B	JMB	31	PASI-DAV
		SM 5310B	JMA	1	PASI-N
1254044021	EX-1	EPA 8260B	JMB	31	PASI-DAV
		SM 5310B	JMA	1	PASI-N
1254044022	MW-19	EPA 8260B	JMB	31	PASI-DAV
		EPA 300.0	LM	2	PASI-DAV
1254044023	MW-13	EPA 8260B	JMB	31	PASI-DAV
		EPA 300.0	LM	2	PASI-DAV
1254044024	MGMS3-40	EPA 8260B	JMB	31	PASI-DAV
		EPA 300.0	LM	2	PASI-DAV
1254044025	MGMS3-40 DUP	EPA 8260B	JMB	31	PASI-DAV
1254044026	MGMS3-60	EPA 8260B	JMB	31	PASI-DAV
1254044027	MGMS3-101	EPA 8260B	JMB	31	PASI-DAV
1254044028	MGMS3-132	EPA 8260B	JMB	31	PASI-DAV

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Sample: MW-9		Lab ID: 1254044001	Collected: 09/17/15 11:31	Received: 09/24/15 07:28	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/25/15 22:22	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/25/15 22:22	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/25/15 22:22	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/25/15 22:22	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/25/15 22:22	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/25/15 22:22	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/25/15 22:22	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/25/15 22:22	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/25/15 22:22	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 22:22	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 22:22	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 22:22	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		09/25/15 22:22	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/25/15 22:22	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		09/25/15 22:22	75-35-4	
cis-1,2-Dichloroethene	2.4	ug/L	0.50	1		09/25/15 22:22	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/25/15 22:22	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/25/15 22:22	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/25/15 22:22	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/25/15 22:22	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/25/15 22:22	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/25/15 22:22	79-34-5	
Tetrachloroethene	74.3	ug/L	0.50	1		09/25/15 22:22	127-18-4	
1,1,1-Trichloroethane	2.2	ug/L	0.50	1		09/25/15 22:22	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/25/15 22:22	79-00-5	
Trichloroethene	31.6	ug/L	0.50	1		09/25/15 22:22	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/25/15 22:22	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		09/25/15 22:22	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	106	%.	70-130	1		09/25/15 22:22	17060-07-0	
Toluene-d8 (S)	97	%.	70-130	1		09/25/15 22:22	2037-26-5	
4-Bromofluorobenzene (S)	94	%.	70-130	1		09/25/15 22:22	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Sample: MW-23i		Lab ID: 1254044002		Collected: 09/17/15 12:13		Received: 09/24/15 07:28		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV		Analytical Method: EPA 8260B							
Bromodichloromethane	ND	ug/L	0.50	1		09/26/15 01:34	75-27-4		
Bromoform	ND	ug/L	0.50	1		09/26/15 01:34	75-25-2		
Bromomethane	ND	ug/L	20.0	1		09/26/15 01:34	74-83-9		
Carbon tetrachloride	ND	ug/L	0.50	1		09/26/15 01:34	56-23-5		
Chlorobenzene	ND	ug/L	0.50	1		09/26/15 01:34	108-90-7		
Chloroethane	ND	ug/L	0.50	1		09/26/15 01:34	75-00-3		
Chloroform	ND	ug/L	0.50	1		09/26/15 01:34	67-66-3		
Chloromethane	ND	ug/L	0.50	1		09/26/15 01:34	74-87-3		
Dibromochloromethane	ND	ug/L	0.50	1		09/26/15 01:34	124-48-1		
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/26/15 01:34	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/26/15 01:34	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/26/15 01:34	106-46-7		
1,1-Dichloroethane	ND	ug/L	0.50	1		09/26/15 01:34	75-34-3		
1,2-Dichloroethane	ND	ug/L	0.50	1		09/26/15 01:34	107-06-2		
1,1-Dichloroethene	ND	ug/L	0.50	1		09/26/15 01:34	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		09/26/15 01:34	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/26/15 01:34	156-60-5		
1,2-Dichloropropane	ND	ug/L	0.50	1		09/26/15 01:34	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/26/15 01:34	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/26/15 01:34	10061-02-6		
Methylene Chloride	ND	ug/L	5.0	1		09/26/15 01:34	75-09-2		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/26/15 01:34	79-34-5		
Tetrachloroethene	ND	ug/L	0.50	1		09/26/15 01:34	127-18-4		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/26/15 01:34	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/26/15 01:34	79-00-5		
Trichloroethene	ND	ug/L	0.50	1		09/26/15 01:34	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		09/26/15 01:34	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		09/26/15 01:34	75-01-4		
Surrogates									
1,2-Dichloroethane-d4 (S)	110	%.	70-130	1		09/26/15 01:34	17060-07-0		
Toluene-d8 (S)	97	%.	70-130	1		09/26/15 01:34	2037-26-5		
4-Bromofluorobenzene (S)	93	%.	70-130	1		09/26/15 01:34	460-00-4		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Sample: MW-17		Lab ID: 1254044003		Collected: 09/17/15 13:03	Received: 09/24/15 07:28	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/25/15 19:42	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/25/15 19:42	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/25/15 19:42	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/25/15 19:42	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/25/15 19:42	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/25/15 19:42	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/25/15 19:42	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/25/15 19:42	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/25/15 19:42	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 19:42	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 19:42	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 19:42	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		09/25/15 19:42	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/25/15 19:42	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		09/25/15 19:42	75-35-4	
cis-1,2-Dichloroethene	0.53	ug/L	0.50	1		09/25/15 19:42	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/25/15 19:42	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/25/15 19:42	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/25/15 19:42	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/25/15 19:42	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/25/15 19:42	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/25/15 19:42	79-34-5	
Tetrachloroethene	2.5	ug/L	0.50	1		09/25/15 19:42	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/25/15 19:42	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/25/15 19:42	79-00-5	
Trichloroethene	4.2	ug/L	0.50	1		09/25/15 19:42	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/25/15 19:42	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		09/25/15 19:42	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	107	%	70-130	1		09/25/15 19:42	17060-07-0	
Toluene-d8 (S)	98	%	70-130	1		09/25/15 19:42	2037-26-5	
4-Bromofluorobenzene (S)	98	%	70-130	1		09/25/15 19:42	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Sample: MW-24d	Lab ID: 1254044004	Collected: 09/18/15 08:47	Received: 09/24/15 07:28	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/25/15 22:46	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/25/15 22:46	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/25/15 22:46	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/25/15 22:46	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/25/15 22:46	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/25/15 22:46	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/25/15 22:46	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/25/15 22:46	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/25/15 22:46	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 22:46	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 22:46	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 22:46	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		09/25/15 22:46	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/25/15 22:46	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		09/25/15 22:46	75-35-4	
cis-1,2-Dichloroethene	2.1	ug/L	0.50	1		09/25/15 22:46	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/25/15 22:46	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/25/15 22:46	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/25/15 22:46	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/25/15 22:46	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/25/15 22:46	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/25/15 22:46	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		09/25/15 22:46	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/25/15 22:46	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/25/15 22:46	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		09/25/15 22:46	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/25/15 22:46	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		09/25/15 22:46	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	106	%.	70-130	1		09/25/15 22:46	17060-07-0	
Toluene-d8 (S)	97	%.	70-130	1		09/25/15 22:46	2037-26-5	
4-Bromofluorobenzene (S)	92	%.	70-130	1		09/25/15 22:46	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Sample: MW-8	Lab ID: 1254044005	Collected: 09/18/15 09:31	Received: 09/24/15 07:28	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/25/15 23:11	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/25/15 23:11	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/25/15 23:11	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/25/15 23:11	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/25/15 23:11	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/25/15 23:11	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/25/15 23:11	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/25/15 23:11	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/25/15 23:11	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 23:11	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 23:11	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 23:11	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		09/25/15 23:11	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/25/15 23:11	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		09/25/15 23:11	75-35-4	
cis-1,2-Dichloroethene	2.0	ug/L	0.50	1		09/25/15 23:11	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/25/15 23:11	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/25/15 23:11	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/25/15 23:11	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/25/15 23:11	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/25/15 23:11	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/25/15 23:11	79-34-5	
Tetrachloroethene	6.3	ug/L	0.50	1		09/25/15 23:11	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/25/15 23:11	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/25/15 23:11	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		09/25/15 23:11	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/25/15 23:11	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		09/25/15 23:11	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	107	%.	70-130	1		09/25/15 23:11	17060-07-0	
Toluene-d8 (S)	95	%.	70-130	1		09/25/15 23:11	2037-26-5	
4-Bromofluorobenzene (S)	94	%.	70-130	1		09/25/15 23:11	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Sample: MW-3	Lab ID: 1254044006	Collected: 09/18/15 10:05	Received: 09/24/15 07:28	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/25/15 23:35	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/25/15 23:35	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/25/15 23:35	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/25/15 23:35	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/25/15 23:35	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/25/15 23:35	75-00-3	
Chloroform	0.85	ug/L	0.50	1		09/25/15 23:35	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/25/15 23:35	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/25/15 23:35	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 23:35	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 23:35	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 23:35	106-46-7	
1,1-Dichloroethane	8.2	ug/L	0.50	1		09/25/15 23:35	75-34-3	
1,2-Dichloroethane	0.56	ug/L	0.50	1		09/25/15 23:35	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		09/25/15 23:35	75-35-4	
cis-1,2-Dichloroethene	106	ug/L	0.50	1		09/25/15 23:35	156-59-2	
trans-1,2-Dichloroethene	2.1	ug/L	0.50	1		09/25/15 23:35	156-60-5	
1,2-Dichloropropane	1.5	ug/L	0.50	1		09/25/15 23:35	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/25/15 23:35	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/25/15 23:35	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/25/15 23:35	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/25/15 23:35	79-34-5	
Tetrachloroethene	169	ug/L	0.50	1		09/25/15 23:35	127-18-4	
1,1,1-Trichloroethane	2.1	ug/L	0.50	1		09/25/15 23:35	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/25/15 23:35	79-00-5	
Trichloroethene	40.2	ug/L	0.50	1		09/25/15 23:35	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/25/15 23:35	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		09/25/15 23:35	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	108	%.	70-130	1		09/25/15 23:35	17060-07-0	
Toluene-d8 (S)	96	%.	70-130	1		09/25/15 23:35	2037-26-5	
4-Bromofluorobenzene (S)	93	%.	70-130	1		09/25/15 23:35	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Sample: MW-6		Lab ID: 1254044007		Collected: 09/18/15 10:41		Received: 09/24/15 07:28		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV		Analytical Method: EPA 8260B							
Bromodichloromethane	ND	ug/L	0.50	1		09/25/15 23:58	75-27-4		
Bromoform	ND	ug/L	0.50	1		09/25/15 23:58	75-25-2		
Bromomethane	ND	ug/L	20.0	1		09/25/15 23:58	74-83-9		
Carbon tetrachloride	ND	ug/L	0.50	1		09/25/15 23:58	56-23-5		
Chlorobenzene	ND	ug/L	0.50	1		09/25/15 23:58	108-90-7		
Chloroethane	ND	ug/L	0.50	1		09/25/15 23:58	75-00-3		
Chloroform	ND	ug/L	0.50	1		09/25/15 23:58	67-66-3		
Chloromethane	ND	ug/L	0.50	1		09/25/15 23:58	74-87-3		
Dibromochloromethane	ND	ug/L	0.50	1		09/25/15 23:58	124-48-1		
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 23:58	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 23:58	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 23:58	106-46-7		
1,1-Dichloroethane	ND	ug/L	0.50	1		09/25/15 23:58	75-34-3		
1,2-Dichloroethane	ND	ug/L	0.50	1		09/25/15 23:58	107-06-2		
1,1-Dichloroethene	ND	ug/L	0.50	1		09/25/15 23:58	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		09/25/15 23:58	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/25/15 23:58	156-60-5		
1,2-Dichloropropane	ND	ug/L	0.50	1		09/25/15 23:58	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/25/15 23:58	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/25/15 23:58	10061-02-6		
Methylene Chloride	ND	ug/L	5.0	1		09/25/15 23:58	75-09-2		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/25/15 23:58	79-34-5		
Tetrachloroethene	ND	ug/L	0.50	1		09/25/15 23:58	127-18-4		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/25/15 23:58	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/25/15 23:58	79-00-5		
Trichloroethene	ND	ug/L	0.50	1		09/25/15 23:58	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		09/25/15 23:58	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		09/25/15 23:58	75-01-4		
Surrogates									
1,2-Dichloroethane-d4 (S)	108	%.	70-130	1		09/25/15 23:58	17060-07-0		
Toluene-d8 (S)	97	%.	70-130	1		09/25/15 23:58	2037-26-5		
4-Bromofluorobenzene (S)	93	%.	70-130	1		09/25/15 23:58	460-00-4		

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Sample: MW-14		Lab ID: 1254044008	Collected: 09/21/15 08:56	Received: 09/24/15 07:28	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/26/15 00:22	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/26/15 00:22	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/26/15 00:22	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/26/15 00:22	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/26/15 00:22	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/26/15 00:22	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/26/15 00:22	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/26/15 00:22	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/26/15 00:22	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/26/15 00:22	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/26/15 00:22	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/26/15 00:22	106-46-7	
1,1-Dichloroethane	15.2	ug/L	0.50	1		09/26/15 00:22	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/26/15 00:22	107-06-2	
1,1-Dichloroethene	5.6	ug/L	0.50	1		09/26/15 00:22	75-35-4	
cis-1,2-Dichloroethene	116	ug/L	0.50	1		09/26/15 00:22	156-59-2	
trans-1,2-Dichloroethene	2.1	ug/L	0.50	1		09/26/15 00:22	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/26/15 00:22	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/26/15 00:22	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/26/15 00:22	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/26/15 00:22	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/26/15 00:22	79-34-5	
Tetrachloroethene	201	ug/L	2.5	5		09/28/15 16:25	127-18-4	
1,1,1-Trichloroethane	4.7	ug/L	0.50	1		09/26/15 00:22	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/26/15 00:22	79-00-5	
Trichloroethene	654	ug/L	2.5	5		09/28/15 16:25	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/26/15 00:22	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		09/26/15 00:22	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	109	%.	70-130	1		09/26/15 00:22	17060-07-0	
Toluene-d8 (S)	99	%.	70-130	1		09/26/15 00:22	2037-26-5	
4-Bromofluorobenzene (S)	93	%.	70-130	1		09/26/15 00:22	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Sample: S-1		Lab ID: 1254044009		Collected: 09/21/15 09:36		Received: 09/24/15 07:28		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV		Analytical Method: EPA 8260B							
Bromodichloromethane	ND	ug/L	0.50	1		09/26/15 00:46	75-27-4		
Bromoform	ND	ug/L	0.50	1		09/26/15 00:46	75-25-2		
Bromomethane	ND	ug/L	20.0	1		09/26/15 00:46	74-83-9		
Carbon tetrachloride	ND	ug/L	0.50	1		09/26/15 00:46	56-23-5		
Chlorobenzene	ND	ug/L	0.50	1		09/26/15 00:46	108-90-7		
Chloroethane	ND	ug/L	0.50	1		09/26/15 00:46	75-00-3		
Chloroform	ND	ug/L	0.50	1		09/26/15 00:46	67-66-3		
Chloromethane	ND	ug/L	0.50	1		09/26/15 00:46	74-87-3		
Dibromochloromethane	ND	ug/L	0.50	1		09/26/15 00:46	124-48-1		
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/26/15 00:46	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/26/15 00:46	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/26/15 00:46	106-46-7		
1,1-Dichloroethane	ND	ug/L	0.50	1		09/26/15 00:46	75-34-3		
1,2-Dichloroethane	ND	ug/L	0.50	1		09/26/15 00:46	107-06-2		
1,1-Dichloroethene	ND	ug/L	0.50	1		09/26/15 00:46	75-35-4		
cis-1,2-Dichloroethene	1.2	ug/L	0.50	1		09/26/15 00:46	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/26/15 00:46	156-60-5		
1,2-Dichloropropane	ND	ug/L	0.50	1		09/26/15 00:46	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/26/15 00:46	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/26/15 00:46	10061-02-6		
Methylene Chloride	ND	ug/L	5.0	1		09/26/15 00:46	75-09-2		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/26/15 00:46	79-34-5		
Tetrachloroethene	1.6	ug/L	0.50	1		09/26/15 00:46	127-18-4		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/26/15 00:46	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/26/15 00:46	79-00-5		
Trichloroethene	5.1	ug/L	0.50	1		09/26/15 00:46	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		09/26/15 00:46	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		09/26/15 00:46	75-01-4		
Surrogates									
1,2-Dichloroethane-d4 (S)	108	%.	70-130	1		09/26/15 00:46	17060-07-0		
Toluene-d8 (S)	98	%.	70-130	1		09/26/15 00:46	2037-26-5		
4-Bromofluorobenzene (S)	93	%.	70-130	1		09/26/15 00:46	460-00-4		

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Sample: MW-26		Lab ID: 1254044010		Collected: 09/21/15 10:11		Received: 09/24/15 07:28		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV		Analytical Method: EPA 8260B							
Bromodichloromethane	ND	ug/L	1.7	3.33		09/26/15 03:09	75-27-4		
Bromoform	ND	ug/L	1.7	3.33		09/26/15 03:09	75-25-2		
Bromomethane	ND	ug/L	66.6	3.33		09/26/15 03:09	74-83-9		
Carbon tetrachloride	ND	ug/L	1.7	3.33		09/26/15 03:09	56-23-5		
Chlorobenzene	ND	ug/L	1.7	3.33		09/26/15 03:09	108-90-7		
Chloroethane	ND	ug/L	1.7	3.33		09/26/15 03:09	75-00-3		
Chloroform	ND	ug/L	1.7	3.33		09/26/15 03:09	67-66-3		
Chloromethane	ND	ug/L	1.7	3.33		09/26/15 03:09	74-87-3		
Dibromochloromethane	ND	ug/L	1.7	3.33		09/26/15 03:09	124-48-1		
1,2-Dichlorobenzene	ND	ug/L	1.7	3.33		09/26/15 03:09	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.7	3.33		09/26/15 03:09	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.7	3.33		09/26/15 03:09	106-46-7		
1,1-Dichloroethane	4.3	ug/L	1.7	3.33		09/26/15 03:09	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.7	3.33		09/26/15 03:09	107-06-2		
1,1-Dichloroethene	ND	ug/L	1.7	3.33		09/26/15 03:09	75-35-4		
cis-1,2-Dichloroethene	72.4	ug/L	1.7	3.33		09/26/15 03:09	156-59-2		
trans-1,2-Dichloroethene	1.7	ug/L	1.7	3.33		09/26/15 03:09	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.7	3.33		09/26/15 03:09	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	1.7	3.33		09/26/15 03:09	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.7	3.33		09/26/15 03:09	10061-02-6		
Methylene Chloride	ND	ug/L	16.6	3.33		09/26/15 03:09	75-09-2		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.7	3.33		09/26/15 03:09	79-34-5		
Tetrachloroethene	176	ug/L	1.7	3.33		09/26/15 03:09	127-18-4		
1,1,1-Trichloroethane	2.7	ug/L	1.7	3.33		09/26/15 03:09	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.7	3.33		09/26/15 03:09	79-00-5		
Trichloroethene	326	ug/L	1.7	3.33		09/26/15 03:09	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.7	3.33		09/26/15 03:09	75-69-4		
Vinyl chloride	ND	ug/L	1.7	3.33		09/26/15 03:09	75-01-4		
Surrogates									
1,2-Dichloroethane-d4 (S)	109	%	70-130	3.33		09/26/15 03:09	17060-07-0		
Toluene-d8 (S)	98	%	70-130	3.33		09/26/15 03:09	2037-26-5		
4-Bromofluorobenzene (S)	91	%	70-130	3.33		09/26/15 03:09	460-00-4		

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Sample: MW-25i		Lab ID: 1254044011	Collected: 09/21/15 11:08	Received: 09/24/15 07:28	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/26/15 01:10	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/26/15 01:10	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/26/15 01:10	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/26/15 01:10	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/26/15 01:10	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/26/15 01:10	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/26/15 01:10	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/26/15 01:10	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/26/15 01:10	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/26/15 01:10	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/26/15 01:10	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/26/15 01:10	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		09/26/15 01:10	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/26/15 01:10	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		09/26/15 01:10	75-35-4	
cis-1,2-Dichloroethene	0.75	ug/L	0.50	1		09/26/15 01:10	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/26/15 01:10	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/26/15 01:10	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/26/15 01:10	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/26/15 01:10	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/26/15 01:10	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/26/15 01:10	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		09/26/15 01:10	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/26/15 01:10	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/26/15 01:10	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		09/26/15 01:10	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/26/15 01:10	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		09/26/15 01:10	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	109	%.	70-130	1		09/26/15 01:10	17060-07-0	
Toluene-d8 (S)	97	%.	70-130	1		09/26/15 01:10	2037-26-5	
4-Bromofluorobenzene (S)	94	%.	70-130	1		09/26/15 01:10	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Sample: MW-10	Lab ID: 1254044012	Collected: 09/21/15 11:49	Received: 09/24/15 07:28	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/29/15 12:16	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/29/15 12:16	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/29/15 12:16	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/29/15 12:16	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/29/15 12:16	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/29/15 12:16	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/29/15 12:16	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/29/15 12:16	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/29/15 12:16	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/29/15 12:16	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/29/15 12:16	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/29/15 12:16	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		09/29/15 12:16	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/29/15 12:16	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		09/29/15 12:16	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		09/29/15 12:16	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/29/15 12:16	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/29/15 12:16	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/29/15 12:16	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/29/15 12:16	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/29/15 12:16	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/29/15 12:16	79-34-5	
Tetrachloroethene	2.4	ug/L	0.50	1		09/29/15 12:16	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/29/15 12:16	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/29/15 12:16	79-00-5	
Trichloroethene	1.6	ug/L	0.50	1		09/29/15 12:16	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/29/15 12:16	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		09/29/15 12:16	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	108	%.	70-130	1		09/29/15 12:16	17060-07-0	
Toluene-d8 (S)	98	%.	70-130	1		09/29/15 12:16	2037-26-5	
4-Bromofluorobenzene (S)	97	%.	70-130	1		09/29/15 12:16	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Sample: MGMS1-43		Lab ID: 1254044013	Collected: 09/21/15 12:39	Received: 09/24/15 07:28	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	10.0	20		09/28/15 16:01	75-27-4	
Bromoform	ND	ug/L	10.0	20		09/28/15 16:01	75-25-2	
Bromomethane	ND	ug/L	400	20		09/28/15 16:01	74-83-9	
Carbon tetrachloride	ND	ug/L	10.0	20		09/28/15 16:01	56-23-5	
Chlorobenzene	ND	ug/L	10.0	20		09/28/15 16:01	108-90-7	
Chloroethane	ND	ug/L	10.0	20		09/28/15 16:01	75-00-3	
Chloroform	ND	ug/L	10.0	20		09/28/15 16:01	67-66-3	
Chloromethane	ND	ug/L	10.0	20		09/28/15 16:01	74-87-3	
Dibromochloromethane	ND	ug/L	10.0	20		09/28/15 16:01	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	10.0	20		09/28/15 16:01	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	10.0	20		09/28/15 16:01	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	10.0	20		09/28/15 16:01	106-46-7	
1,1-Dichloroethane	124	ug/L	10.0	20		09/28/15 16:01	75-34-3	
1,2-Dichloroethane	ND	ug/L	10.0	20		09/28/15 16:01	107-06-2	
1,1-Dichloroethene	14.1	ug/L	10.0	20		09/28/15 16:01	75-35-4	
cis-1,2-Dichloroethene	2810	ug/L	10.0	20		09/28/15 16:01	156-59-2	
trans-1,2-Dichloroethene	24.8	ug/L	10.0	20		09/28/15 16:01	156-60-5	
1,2-Dichloropropane	ND	ug/L	10.0	20		09/28/15 16:01	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	10.0	20		09/28/15 16:01	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	10.0	20		09/28/15 16:01	10061-02-6	
Methylene Chloride	ND	ug/L	100	20		09/28/15 16:01	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	10.0	20		09/28/15 16:01	79-34-5	
Tetrachloroethene	53.5	ug/L	10.0	20		09/28/15 16:01	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	10.0	20		09/28/15 16:01	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	10.0	20		09/28/15 16:01	79-00-5	
Trichloroethene	171	ug/L	10.0	20		09/28/15 16:01	79-01-6	
Trichlorofluoromethane	ND	ug/L	10.0	20		09/28/15 16:01	75-69-4	
Vinyl chloride	129	ug/L	10.0	20		09/28/15 16:01	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	109	%.	70-130	20		09/28/15 16:01	17060-07-0	
Toluene-d8 (S)	97	%.	70-130	20		09/28/15 16:01	2037-26-5	
4-Bromofluorobenzene (S)	93	%.	70-130	20		09/28/15 16:01	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Sample: MGMS1-60		Lab ID: 1254044014		Collected: 09/21/15 13:02	Received: 09/24/15 07:28	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/26/15 01:58	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/26/15 01:58	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/26/15 01:58	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/26/15 01:58	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/26/15 01:58	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/26/15 01:58	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/26/15 01:58	67-66-3	
Chloromethane	0.55	ug/L	0.50	1		09/26/15 01:58	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/26/15 01:58	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/26/15 01:58	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/26/15 01:58	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/26/15 01:58	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		09/26/15 01:58	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/26/15 01:58	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		09/26/15 01:58	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		09/26/15 01:58	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/26/15 01:58	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/26/15 01:58	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/26/15 01:58	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/26/15 01:58	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/26/15 01:58	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/26/15 01:58	79-34-5	
Tetrachloroethene	2.3	ug/L	0.50	1		09/26/15 01:58	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/26/15 01:58	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/26/15 01:58	79-00-5	
Trichloroethene	1.6	ug/L	0.50	1		09/26/15 01:58	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/26/15 01:58	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		09/26/15 01:58	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	110	%.	70-130	1		09/26/15 01:58	17060-07-0	
Toluene-d8 (S)	97	%.	70-130	1		09/26/15 01:58	2037-26-5	
4-Bromofluorobenzene (S)	94	%.	70-130	1		09/26/15 01:58	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Sample: MGMS1-110		Lab ID: 1254044015		Collected: 09/21/15 13:41	Received: 09/24/15 07:28	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/26/15 02:22	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/26/15 02:22	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/26/15 02:22	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/26/15 02:22	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/26/15 02:22	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/26/15 02:22	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/26/15 02:22	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/26/15 02:22	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/26/15 02:22	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/26/15 02:22	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/26/15 02:22	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/26/15 02:22	106-46-7	
1,1-Dichloroethane	1.1	ug/L	0.50	1		09/26/15 02:22	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/26/15 02:22	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		09/26/15 02:22	75-35-4	
cis-1,2-Dichloroethene	49.0	ug/L	0.50	1		09/26/15 02:22	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/26/15 02:22	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/26/15 02:22	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/26/15 02:22	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/26/15 02:22	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/26/15 02:22	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/26/15 02:22	79-34-5	
Tetrachloroethene	19.4	ug/L	0.50	1		09/26/15 02:22	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/26/15 02:22	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/26/15 02:22	79-00-5	
Trichloroethene	20.4	ug/L	0.50	1		09/26/15 02:22	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/26/15 02:22	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		09/26/15 02:22	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	107	%.	70-130	1		09/26/15 02:22	17060-07-0	
Toluene-d8 (S)	97	%.	70-130	1		09/26/15 02:22	2037-26-5	
4-Bromofluorobenzene (S)	93	%.	70-130	1		09/26/15 02:22	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Sample: EW-1	Lab ID: 1254044016	Collected: 09/21/15 14:33	Received: 09/24/15 07:28	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/26/15 02:45	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/26/15 02:45	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/26/15 02:45	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/26/15 02:45	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/26/15 02:45	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/26/15 02:45	75-00-3	
Chloroform	2.0	ug/L	0.50	1		09/26/15 02:45	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/26/15 02:45	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/26/15 02:45	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/26/15 02:45	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/26/15 02:45	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/26/15 02:45	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		09/26/15 02:45	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/26/15 02:45	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		09/26/15 02:45	75-35-4	
cis-1,2-Dichloroethene	3.9	ug/L	0.50	1		09/26/15 02:45	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/26/15 02:45	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/26/15 02:45	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/26/15 02:45	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/26/15 02:45	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/26/15 02:45	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/26/15 02:45	79-34-5	
Tetrachloroethene	45.3	ug/L	0.50	1		09/26/15 02:45	127-18-4	
1,1,1-Trichloroethane	0.56	ug/L	0.50	1		09/26/15 02:45	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/26/15 02:45	79-00-5	
Trichloroethene	12.5	ug/L	0.50	1		09/26/15 02:45	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/26/15 02:45	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		09/26/15 02:45	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	110	%.	70-130	1		09/26/15 02:45	17060-07-0	
Toluene-d8 (S)	97	%.	70-130	1		09/26/15 02:45	2037-26-5	
4-Bromofluorobenzene (S)	93	%.	70-130	1		09/26/15 02:45	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Sample: MW-12	Lab ID: 1254044017	Collected: 09/22/15 09:12	Received: 09/24/15 07:28	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	8.3	16.67		09/26/15 03:57	75-27-4	
Bromoform	ND	ug/L	8.3	16.67		09/26/15 03:57	75-25-2	
Bromomethane	ND	ug/L	333	16.67		09/26/15 03:57	74-83-9	
Carbon tetrachloride	ND	ug/L	8.3	16.67		09/26/15 03:57	56-23-5	
Chlorobenzene	ND	ug/L	8.3	16.67		09/26/15 03:57	108-90-7	
Chloroethane	ND	ug/L	8.3	16.67		09/26/15 03:57	75-00-3	
Chloroform	ND	ug/L	8.3	16.67		09/26/15 03:57	67-66-3	
Chloromethane	ND	ug/L	8.3	16.67		09/26/15 03:57	74-87-3	
Dibromochloromethane	ND	ug/L	8.3	16.67		09/26/15 03:57	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	8.3	16.67		09/26/15 03:57	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	8.3	16.67		09/26/15 03:57	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	8.3	16.67		09/26/15 03:57	106-46-7	
1,1-Dichloroethane	120	ug/L	8.3	16.67		09/26/15 03:57	75-34-3	
1,2-Dichloroethane	ND	ug/L	8.3	16.67		09/26/15 03:57	107-06-2	
1,1-Dichloroethene	16.9	ug/L	8.3	16.67		09/26/15 03:57	75-35-4	
cis-1,2-Dichloroethene	2250	ug/L	8.3	16.67		09/26/15 03:57	156-59-2	
trans-1,2-Dichloroethene	23.4	ug/L	8.3	16.67		09/26/15 03:57	156-60-5	
1,2-Dichloropropane	ND	ug/L	8.3	16.67		09/26/15 03:57	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	8.3	16.67		09/26/15 03:57	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	8.3	16.67		09/26/15 03:57	10061-02-6	
Methylene Chloride	ND	ug/L	83.4	16.67		09/26/15 03:57	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	8.3	16.67		09/26/15 03:57	79-34-5	
Tetrachloroethene	343	ug/L	8.3	16.67		09/26/15 03:57	127-18-4	
1,1,1-Trichloroethane	15.7	ug/L	8.3	16.67		09/26/15 03:57	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	8.3	16.67		09/26/15 03:57	79-00-5	
Trichloroethene	239	ug/L	8.3	16.67		09/26/15 03:57	79-01-6	
Trichlorofluoromethane	ND	ug/L	8.3	16.67		09/26/15 03:57	75-69-4	
Vinyl chloride	22.5	ug/L	8.3	16.67		09/26/15 03:57	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	108	%	70-130	16.67		09/26/15 03:57	17060-07-0	
Toluene-d8 (S)	98	%	70-130	16.67		09/26/15 03:57	2037-26-5	
4-Bromofluorobenzene (S)	93	%	70-130	16.67		09/26/15 03:57	460-00-4	
300.0 IC Anions		Analytical Method: EPA 300.0						
Sulfate	143	mg/L	10.0	20		09/24/15 09:02	14808-79-8	
Nitrate as N	47.0	mg/L	2.0	20		09/24/15 09:02	14797-55-8	
5310B TOC		Analytical Method: SM 5310B						
Total Organic Carbon	4.4	mg/L	1.0	1		09/29/15 10:49	7440-44-0	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Sample: MW-12 DUP		Lab ID: 1254044018		Collected: 09/22/15 09:12		Received: 09/24/15 07:28		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV		Analytical Method: EPA 8260B							
Bromodichloromethane	ND	ug/L	8.3	16.67		09/26/15 04:21	75-27-4		
Bromoform	ND	ug/L	8.3	16.67		09/26/15 04:21	75-25-2		
Bromomethane	ND	ug/L	333	16.67		09/26/15 04:21	74-83-9		
Carbon tetrachloride	ND	ug/L	8.3	16.67		09/26/15 04:21	56-23-5		
Chlorobenzene	ND	ug/L	8.3	16.67		09/26/15 04:21	108-90-7		
Chloroethane	ND	ug/L	8.3	16.67		09/26/15 04:21	75-00-3		
Chloroform	ND	ug/L	8.3	16.67		09/26/15 04:21	67-66-3		
Chloromethane	ND	ug/L	8.3	16.67		09/26/15 04:21	74-87-3		
Dibromochloromethane	ND	ug/L	8.3	16.67		09/26/15 04:21	124-48-1		
1,2-Dichlorobenzene	ND	ug/L	8.3	16.67		09/26/15 04:21	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	8.3	16.67		09/26/15 04:21	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	8.3	16.67		09/26/15 04:21	106-46-7		
1,1-Dichloroethane	134	ug/L	8.3	16.67		09/26/15 04:21	75-34-3		
1,2-Dichloroethane	ND	ug/L	8.3	16.67		09/26/15 04:21	107-06-2		
1,1-Dichloroethene	21.4	ug/L	8.3	16.67		09/26/15 04:21	75-35-4		
cis-1,2-Dichloroethene	2490	ug/L	8.3	16.67		09/26/15 04:21	156-59-2		
trans-1,2-Dichloroethene	25.7	ug/L	8.3	16.67		09/26/15 04:21	156-60-5		
1,2-Dichloropropane	ND	ug/L	8.3	16.67		09/26/15 04:21	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	8.3	16.67		09/26/15 04:21	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	8.3	16.67		09/26/15 04:21	10061-02-6		
Methylene Chloride	ND	ug/L	83.4	16.67		09/26/15 04:21	75-09-2		
1,1,2,2-Tetrachloroethane	ND	ug/L	8.3	16.67		09/26/15 04:21	79-34-5		
Tetrachloroethene	425	ug/L	8.3	16.67		09/26/15 04:21	127-18-4		
1,1,1-Trichloroethane	20.1	ug/L	8.3	16.67		09/26/15 04:21	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	8.3	16.67		09/26/15 04:21	79-00-5		
Trichloroethene	282	ug/L	8.3	16.67		09/26/15 04:21	79-01-6		
Trichlorofluoromethane	ND	ug/L	8.3	16.67		09/26/15 04:21	75-69-4		
Vinyl chloride	26.5	ug/L	8.3	16.67		09/26/15 04:21	75-01-4		
Surrogates									
1,2-Dichloroethane-d4 (S)	108	%	70-130	16.67		09/26/15 04:21	17060-07-0		
Toluene-d8 (S)	96	%	70-130	16.67		09/26/15 04:21	2037-26-5		
4-Bromofluorobenzene (S)	94	%	70-130	16.67		09/26/15 04:21	460-00-4		
5310B TOC		Analytical Method: SM 5310B							
Total Organic Carbon	4.8	mg/L	1.0	1		09/29/15 11:46	7440-44-0		

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Sample: MP-1	Lab ID: 1254044019	Collected: 09/22/15 09:59	Received: 09/24/15 07:28	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV								
Analytical Method: EPA 8260B								
Bromodichloromethane	ND	ug/L	1.2	2.5		09/29/15 22:55	75-27-4	
Bromoform	ND	ug/L	1.2	2.5		09/29/15 22:55	75-25-2	
Bromomethane	ND	ug/L	50.0	2.5		09/29/15 22:55	74-83-9	
Carbon tetrachloride	ND	ug/L	1.2	2.5		09/29/15 22:55	56-23-5	
Chlorobenzene	ND	ug/L	1.2	2.5		09/29/15 22:55	108-90-7	
Chloroethane	ND	ug/L	1.2	2.5		09/29/15 22:55	75-00-3	
Chloroform	ND	ug/L	1.2	2.5		09/29/15 22:55	67-66-3	
Chloromethane	ND	ug/L	1.2	2.5		09/29/15 22:55	74-87-3	
Dibromochloromethane	ND	ug/L	1.2	2.5		09/29/15 22:55	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	1.2	2.5		09/29/15 22:55	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.2	2.5		09/29/15 22:55	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.2	2.5		09/29/15 22:55	106-46-7	
1,1-Dichloroethane	1.8	ug/L	1.2	2.5		09/29/15 22:55	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.2	2.5		09/29/15 22:55	107-06-2	
1,1-Dichloroethene	1.4	ug/L	1.2	2.5		09/29/15 22:55	75-35-4	
cis-1,2-Dichloroethene	38.3	ug/L	1.2	2.5		09/29/15 22:55	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.2	2.5		09/29/15 22:55	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.2	2.5		09/29/15 22:55	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.2	2.5		09/29/15 22:55	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.2	2.5		09/29/15 22:55	10061-02-6	
Methylene Chloride	ND	ug/L	12.5	2.5		09/29/15 22:55	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.2	2.5		09/29/15 22:55	79-34-5	
Tetrachloroethene	343	ug/L	1.2	2.5		09/29/15 22:55	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	1.2	2.5		09/29/15 22:55	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.2	2.5		09/29/15 22:55	79-00-5	
Trichloroethene	68.3	ug/L	1.2	2.5		09/29/15 22:55	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.2	2.5		09/29/15 22:55	75-69-4	
Vinyl chloride	ND	ug/L	1.2	2.5		09/29/15 22:55	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	107	%	70-130	2.5		09/29/15 22:55	17060-07-0	
Toluene-d8 (S)	99	%	70-130	2.5		09/29/15 22:55	2037-26-5	
4-Bromofluorobenzene (S)	93	%	70-130	2.5		09/29/15 22:55	460-00-4	
5310B TOC								
Analytical Method: SM 5310B								
Total Organic Carbon	2.2	mg/L	1.0	1		09/29/15 14:01	7440-44-0	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Sample: MW-24i	Lab ID: 1254044020	Collected: 09/22/15 10:33	Received: 09/24/15 07:28	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/25/15 20:37	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/25/15 20:37	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/25/15 20:37	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/25/15 20:37	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/25/15 20:37	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/25/15 20:37	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/25/15 20:37	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/25/15 20:37	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/25/15 20:37	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 20:37	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 20:37	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 20:37	106-46-7	
1,1-Dichloroethane	1.9	ug/L	0.50	1		09/25/15 20:37	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/25/15 20:37	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		09/25/15 20:37	75-35-4	
cis-1,2-Dichloroethene	4.7	ug/L	0.50	1		09/25/15 20:37	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/25/15 20:37	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/25/15 20:37	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/25/15 20:37	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/25/15 20:37	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/25/15 20:37	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/25/15 20:37	79-34-5	
Tetrachloroethene	2.2	ug/L	0.50	1		09/25/15 20:37	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/25/15 20:37	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/25/15 20:37	79-00-5	
Trichloroethene	0.80	ug/L	0.50	1		09/25/15 20:37	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/25/15 20:37	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		09/25/15 20:37	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	100	%	70-130	1		09/25/15 20:37	17060-07-0	
Toluene-d8 (S)	98	%	70-130	1		09/25/15 20:37	2037-26-5	
4-Bromofluorobenzene (S)	94	%	70-130	1		09/25/15 20:37	460-00-4	
5310B TOC		Analytical Method: SM 5310B						
Total Organic Carbon	2.3	mg/L	1.0	1		09/29/15 14:20	7440-44-0	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Sample: EX-1		Lab ID: 1254044021	Collected: 09/22/15 11:07	Received: 09/24/15 07:28	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/25/15 22:52	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/25/15 22:52	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/25/15 22:52	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/25/15 22:52	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/25/15 22:52	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/25/15 22:52	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/25/15 22:52	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/25/15 22:52	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/25/15 22:52	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 22:52	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 22:52	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 22:52	106-46-7	
1,1-Dichloroethane	2.9	ug/L	0.50	1		09/25/15 22:52	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/25/15 22:52	107-06-2	
1,1-Dichloroethene	3.7	ug/L	0.50	1		09/25/15 22:52	75-35-4	
cis-1,2-Dichloroethene	543	ug/L	2.5	5		09/29/15 23:22	156-59-2	
trans-1,2-Dichloroethene	2.6	ug/L	0.50	1		09/25/15 22:52	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/25/15 22:52	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/25/15 22:52	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/25/15 22:52	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/25/15 22:52	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/25/15 22:52	79-34-5	
Tetrachloroethene	302	ug/L	2.5	5		09/29/15 23:22	127-18-4	
1,1,1-Trichloroethane	0.65	ug/L	0.50	1		09/25/15 22:52	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/25/15 22:52	79-00-5	
Trichloroethene	61.9	ug/L	0.50	1		09/25/15 22:52	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/25/15 22:52	75-69-4	
Vinyl chloride	24.4	ug/L	0.50	1		09/25/15 22:52	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	102	%	70-130	1		09/25/15 22:52	17060-07-0	
Toluene-d8 (S)	98	%	70-130	1		09/25/15 22:52	2037-26-5	
4-Bromofluorobenzene (S)	94	%	70-130	1		09/25/15 22:52	460-00-4	
5310B TOC		Analytical Method: SM 5310B						
Total Organic Carbon	22.6	mg/L	1.0	1		09/29/15 14:39	7440-44-0	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Sample: MW-19	Lab ID: 1254044022	Collected: 09/22/15 11:45	Received: 09/24/15 07:28	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/25/15 23:18	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/25/15 23:18	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/25/15 23:18	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/25/15 23:18	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/25/15 23:18	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/25/15 23:18	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/25/15 23:18	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/25/15 23:18	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/25/15 23:18	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 23:18	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 23:18	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 23:18	106-46-7	
1,1-Dichloroethane	4.9	ug/L	0.50	1		09/25/15 23:18	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/25/15 23:18	107-06-2	
1,1-Dichloroethene	31.7	ug/L	0.50	1		09/25/15 23:18	75-35-4	
cis-1,2-Dichloroethene	185	ug/L	25.0	50		09/30/15 00:16	156-59-2	
trans-1,2-Dichloroethene	2.0	ug/L	0.50	1		09/25/15 23:18	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/25/15 23:18	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/25/15 23:18	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/25/15 23:18	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/25/15 23:18	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/25/15 23:18	79-34-5	
Tetrachloroethene	7200	ug/L	25.0	50		09/30/15 00:16	127-18-4	
1,1,1-Trichloroethane	74.8	ug/L	0.50	1		09/25/15 23:18	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/25/15 23:18	79-00-5	
Trichloroethene	791	ug/L	25.0	50		09/30/15 00:16	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/25/15 23:18	75-69-4	
Vinyl chloride	6.8	ug/L	0.50	1		09/25/15 23:18	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	104	%	70-130	1		09/25/15 23:18	17060-07-0	
Toluene-d8 (S)	101	%	70-130	1		09/25/15 23:18	2037-26-5	
4-Bromofluorobenzene (S)	100	%	70-130	1		09/25/15 23:18	460-00-4	
300.0 IC Anions		Analytical Method: EPA 300.0						
Sulfate	92.2	mg/L	5.0	10		09/24/15 09:36	14808-79-8	
Nitrate as N	135	mg/L	2.0	20		09/24/15 09:59	14797-55-8	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Sample: MW-13	Lab ID: 1254044023	Collected: 09/22/15 12:22	Received: 09/24/15 07:28	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/25/15 23:45	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/25/15 23:45	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/25/15 23:45	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/25/15 23:45	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/25/15 23:45	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/25/15 23:45	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/25/15 23:45	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/25/15 23:45	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/25/15 23:45	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 23:45	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 23:45	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/25/15 23:45	106-46-7	
1,1-Dichloroethane	33.9	ug/L	0.50	1		09/25/15 23:45	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/25/15 23:45	107-06-2	
1,1-Dichloroethene	21.0	ug/L	0.50	1		09/25/15 23:45	75-35-4	
cis-1,2-Dichloroethene	754	ug/L	12.5	25		09/29/15 23:49	156-59-2	
trans-1,2-Dichloroethene	15.6	ug/L	0.50	1		09/25/15 23:45	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/25/15 23:45	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/25/15 23:45	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/25/15 23:45	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/25/15 23:45	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/25/15 23:45	79-34-5	
Tetrachloroethene	2370	ug/L	12.5	25		09/29/15 23:49	127-18-4	
1,1,1-Trichloroethane	10.4	ug/L	0.50	1		09/25/15 23:45	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/25/15 23:45	79-00-5	
Trichloroethene	1740	ug/L	12.5	25		09/29/15 23:49	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/25/15 23:45	75-69-4	
Vinyl chloride	2.4	ug/L	0.50	1		09/25/15 23:45	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	105	%	70-130	1		09/25/15 23:45	17060-07-0	
Toluene-d8 (S)	101	%	70-130	1		09/25/15 23:45	2037-26-5	
4-Bromofluorobenzene (S)	100	%	70-130	1		09/25/15 23:45	460-00-4	
300.0 IC Anions		Analytical Method: EPA 300.0						
Sulfate	121	mg/L	5.0	10		09/24/15 09:47	14808-79-8	
Nitrate as N	135	mg/L	2.0	20		09/24/15 10:10	14797-55-8	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Sample: MGMS3-40		Lab ID: 1254044024	Collected: 09/22/15 12:59	Received: 09/24/15 07:28	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/29/15 22:02	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/29/15 22:02	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/29/15 22:02	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/29/15 22:02	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/29/15 22:02	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/29/15 22:02	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/29/15 22:02	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/29/15 22:02	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/29/15 22:02	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/29/15 22:02	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/29/15 22:02	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/29/15 22:02	106-46-7	
1,1-Dichloroethane	2.8	ug/L	0.50	1		09/29/15 22:02	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/29/15 22:02	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		09/29/15 22:02	75-35-4	
cis-1,2-Dichloroethene	164	ug/L	0.50	1		09/29/15 22:02	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/29/15 22:02	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/29/15 22:02	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/29/15 22:02	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/29/15 22:02	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/29/15 22:02	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/29/15 22:02	79-34-5	
Tetrachloroethene	2.5	ug/L	0.50	1		09/29/15 22:02	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/29/15 22:02	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/29/15 22:02	79-00-5	
Trichloroethene	8.6	ug/L	0.50	1		09/29/15 22:02	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/29/15 22:02	75-69-4	
Vinyl chloride	61.9	ug/L	0.50	1		09/29/15 22:02	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	105	%	70-130	1		09/29/15 22:02	17060-07-0	
Toluene-d8 (S)	98	%	70-130	1		09/29/15 22:02	2037-26-5	
4-Bromofluorobenzene (S)	88	%	70-130	1		09/29/15 22:02	460-00-4	
300.0 IC Anions		Analytical Method: EPA 300.0						
Sulfate	24.3	mg/L	0.50	1		09/24/15 11:19	14808-79-8	
Nitrate as N	ND	mg/L	0.10	1		09/24/15 11:19	14797-55-8	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Sample: MGMS3-40 DUP		Lab ID: 1254044025		Collected: 09/22/15 12:59	Received: 09/24/15 07:28	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/29/15 22:29	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/29/15 22:29	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/29/15 22:29	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/29/15 22:29	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/29/15 22:29	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/29/15 22:29	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/29/15 22:29	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/29/15 22:29	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/29/15 22:29	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/29/15 22:29	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/29/15 22:29	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/29/15 22:29	106-46-7	
1,1-Dichloroethane	2.5	ug/L	0.50	1		09/29/15 22:29	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/29/15 22:29	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		09/29/15 22:29	75-35-4	
cis-1,2-Dichloroethene	151	ug/L	0.50	1		09/29/15 22:29	156-59-2	
trans-1,2-Dichloroethene	1.2	ug/L	0.50	1		09/29/15 22:29	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/29/15 22:29	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/29/15 22:29	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/29/15 22:29	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/29/15 22:29	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/29/15 22:29	79-34-5	
Tetrachloroethene	2.3	ug/L	0.50	1		09/29/15 22:29	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/29/15 22:29	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/29/15 22:29	79-00-5	
Trichloroethene	7.8	ug/L	0.50	1		09/29/15 22:29	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/29/15 22:29	75-69-4	
Vinyl chloride	51.9	ug/L	0.50	1		09/29/15 22:29	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	106	%	70-130	1		09/29/15 22:29	17060-07-0	
Toluene-d8 (S)	97	%	70-130	1		09/29/15 22:29	2037-26-5	
4-Bromofluorobenzene (S)	92	%	70-130	1		09/29/15 22:29	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Sample: MGMS3-60		Lab ID: 1254044026		Collected: 09/22/15 13:29	Received: 09/24/15 07:28	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/29/15 20:42	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/29/15 20:42	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/29/15 20:42	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/29/15 20:42	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/29/15 20:42	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/29/15 20:42	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/29/15 20:42	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/29/15 20:42	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/29/15 20:42	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/29/15 20:42	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/29/15 20:42	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/29/15 20:42	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		09/29/15 20:42	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/29/15 20:42	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		09/29/15 20:42	75-35-4	
cis-1,2-Dichloroethene	7.7	ug/L	0.50	1		09/29/15 20:42	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/29/15 20:42	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/29/15 20:42	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/29/15 20:42	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/29/15 20:42	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/29/15 20:42	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/29/15 20:42	79-34-5	
Tetrachloroethene	3.9	ug/L	0.50	1		09/29/15 20:42	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/29/15 20:42	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/29/15 20:42	79-00-5	
Trichloroethene	2.0	ug/L	0.50	1		09/29/15 20:42	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/29/15 20:42	75-69-4	
Vinyl chloride	0.60	ug/L	0.50	1		09/29/15 20:42	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	104	%.	70-130	1		09/29/15 20:42	17060-07-0	
Toluene-d8 (S)	98	%.	70-130	1		09/29/15 20:42	2037-26-5	
4-Bromofluorobenzene (S)	92	%.	70-130	1		09/29/15 20:42	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Sample: MGMS3-101		Lab ID: 1254044027	Collected: 09/22/15 13:46	Received: 09/24/15 07:28	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/29/15 21:08	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/29/15 21:08	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/29/15 21:08	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/29/15 21:08	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/29/15 21:08	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/29/15 21:08	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/29/15 21:08	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/29/15 21:08	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/29/15 21:08	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/29/15 21:08	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/29/15 21:08	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/29/15 21:08	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		09/29/15 21:08	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/29/15 21:08	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		09/29/15 21:08	75-35-4	
cis-1,2-Dichloroethene	5.3	ug/L	0.50	1		09/29/15 21:08	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/29/15 21:08	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/29/15 21:08	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/29/15 21:08	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/29/15 21:08	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/29/15 21:08	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/29/15 21:08	79-34-5	
Tetrachloroethene	3.8	ug/L	0.50	1		09/29/15 21:08	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/29/15 21:08	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/29/15 21:08	79-00-5	
Trichloroethene	2.6	ug/L	0.50	1		09/29/15 21:08	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/29/15 21:08	75-69-4	
Vinyl chloride	1.2	ug/L	0.50	1		09/29/15 21:08	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	103	%.	70-130	1		09/29/15 21:08	17060-07-0	
Toluene-d8 (S)	98	%.	70-130	1		09/29/15 21:08	2037-26-5	
4-Bromofluorobenzene (S)	90	%.	70-130	1		09/29/15 21:08	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Sample: MGMS3-132		Lab ID: 1254044028		Collected: 09/22/15 14:05	Received: 09/24/15 07:28	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		09/29/15 21:35	75-27-4	
Bromoform	ND	ug/L	0.50	1		09/29/15 21:35	75-25-2	
Bromomethane	ND	ug/L	20.0	1		09/29/15 21:35	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		09/29/15 21:35	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		09/29/15 21:35	108-90-7	
Chloroethane	ND	ug/L	0.50	1		09/29/15 21:35	75-00-3	
Chloroform	ND	ug/L	0.50	1		09/29/15 21:35	67-66-3	
Chloromethane	ND	ug/L	0.50	1		09/29/15 21:35	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		09/29/15 21:35	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		09/29/15 21:35	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		09/29/15 21:35	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		09/29/15 21:35	106-46-7	
1,1-Dichloroethane	0.74	ug/L	0.50	1		09/29/15 21:35	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		09/29/15 21:35	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		09/29/15 21:35	75-35-4	
cis-1,2-Dichloroethene	13.3	ug/L	0.50	1		09/29/15 21:35	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		09/29/15 21:35	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		09/29/15 21:35	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		09/29/15 21:35	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		09/29/15 21:35	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		09/29/15 21:35	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		09/29/15 21:35	79-34-5	
Tetrachloroethene	8.1	ug/L	0.50	1		09/29/15 21:35	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		09/29/15 21:35	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		09/29/15 21:35	79-00-5	
Trichloroethene	8.2	ug/L	0.50	1		09/29/15 21:35	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		09/29/15 21:35	75-69-4	
Vinyl chloride	1.2	ug/L	0.50	1		09/29/15 21:35	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	108	%.	70-130	1		09/29/15 21:35	17060-07-0	
Toluene-d8 (S)	99	%.	70-130	1		09/29/15 21:35	2037-26-5	
4-Bromofluorobenzene (S)	91	%.	70-130	1		09/29/15 21:35	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

QC Batch: DAVM/2219 Analysis Method: EPA 8260B
 QC Batch Method: EPA 8260B Analysis Description: 8260 MSV
 Associated Lab Samples: 1254044001, 1254044002, 1254044003, 1254044004, 1254044005, 1254044006, 1254044007, 1254044008,
 1254044009, 1254044010, 1254044011, 1254044012, 1254044013, 1254044014, 1254044015, 1254044016,
 1254044017, 1254044018

METHOD BLANK: 251283 Matrix: Water

Associated Lab Samples: 1254044001, 1254044002, 1254044003, 1254044004, 1254044005, 1254044006, 1254044007, 1254044008,
 1254044009, 1254044010, 1254044011, 1254044012, 1254044013, 1254044014, 1254044015, 1254044016,
 1254044017, 1254044018

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	09/25/15 19:19	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	09/25/15 19:19	
1,1,2-Trichloroethane	ug/L	ND	0.50	09/25/15 19:19	
1,1-Dichloroethane	ug/L	ND	0.50	09/25/15 19:19	
1,1-Dichloroethene	ug/L	ND	0.50	09/25/15 19:19	
1,2-Dichlorobenzene	ug/L	ND	0.50	09/25/15 19:19	
1,2-Dichloroethane	ug/L	ND	0.50	09/25/15 19:19	
1,2-Dichloropropane	ug/L	ND	0.50	09/25/15 19:19	
1,3-Dichlorobenzene	ug/L	ND	0.50	09/25/15 19:19	
1,4-Dichlorobenzene	ug/L	ND	0.50	09/25/15 19:19	
Bromodichloromethane	ug/L	ND	0.50	09/25/15 19:19	
Bromoform	ug/L	ND	0.50	09/25/15 19:19	
Bromomethane	ug/L	ND	20.0	09/25/15 19:19	
Carbon tetrachloride	ug/L	ND	0.50	09/25/15 19:19	
Chlorobenzene	ug/L	ND	0.50	09/25/15 19:19	
Chloroethane	ug/L	ND	0.50	09/25/15 19:19	
Chloroform	ug/L	ND	0.50	09/25/15 19:19	
Chloromethane	ug/L	ND	0.50	09/25/15 19:19	
cis-1,2-Dichloroethene	ug/L	ND	0.50	09/25/15 19:19	
cis-1,3-Dichloropropene	ug/L	ND	0.50	09/25/15 19:19	
Dibromochloromethane	ug/L	ND	0.50	09/25/15 19:19	
Methylene Chloride	ug/L	ND	5.0	09/25/15 19:19	
Tetrachloroethene	ug/L	ND	0.50	09/25/15 19:19	
trans-1,2-Dichloroethene	ug/L	ND	0.50	09/25/15 19:19	
trans-1,3-Dichloropropene	ug/L	ND	0.50	09/25/15 19:19	
Trichloroethene	ug/L	ND	0.50	09/25/15 19:19	
Trichlorofluoromethane	ug/L	ND	0.50	09/25/15 19:19	
Vinyl chloride	ug/L	ND	0.50	09/25/15 19:19	
1,2-Dichloroethane-d4 (S)	%	107	70-130	09/25/15 19:19	
4-Bromofluorobenzene (S)	%	96	70-130	09/25/15 19:19	
Toluene-d8 (S)	%	95	70-130	09/25/15 19:19	

LABORATORY CONTROL SAMPLE: 251284

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	40	38.8	97	70-130	

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

LABORATORY CONTROL SAMPLE: 251284

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,2,2-Tetrachloroethane	ug/L	40	41.0	102	70-130	
1,1,2-Trichloroethane	ug/L	40	39.3	98	70-130	
1,1-Dichloroethane	ug/L	40	38.5	96	70-130	
1,1-Dichloroethene	ug/L	40	38.2	95	70-130	
1,2-Dichlorobenzene	ug/L	40	39.7	99	70-130	
1,2-Dichloroethane	ug/L	40	40.4	101	70-130	
1,2-Dichloropropane	ug/L	40	40.0	100	70-130	
1,3-Dichlorobenzene	ug/L	40	41.7	104	70-130	
1,4-Dichlorobenzene	ug/L	40	39.7	99	70-130	
Bromodichloromethane	ug/L	40	39.2	98	70-130	
Bromoform	ug/L	40	40.8	102	70-135	
Bromomethane	ug/L	40	31.7	79	50-135	
Carbon tetrachloride	ug/L	40	39.3	98	70-130	
Chlorobenzene	ug/L	40	39.2	98	70-130	
Chloroethane	ug/L	40	41.1	103	70-130	
Chloroform	ug/L	40	38.7	97	70-130	
Chloromethane	ug/L	40	43.0	107	70-130	
cis-1,2-Dichloroethene	ug/L	40	38.8	97	70-130	
cis-1,3-Dichloropropene	ug/L	40	40.8	102	70-130	
Dibromochloromethane	ug/L	40	39.1	98	70-130	
Methylene Chloride	ug/L	40	38.6	97	70-130	
Tetrachloroethene	ug/L	40	39.3	98	70-130	
trans-1,2-Dichloroethene	ug/L	40	37.4	93	70-130	
trans-1,3-Dichloropropene	ug/L	40	40.4	101	70-130	
Trichloroethene	ug/L	40	38.7	97	70-130	
Trichlorofluoromethane	ug/L	40	40.9	102	70-130	
Vinyl chloride	ug/L	40	41.5	104	70-130	
1,2-Dichloroethane-d4 (S)	%			102	70-130	
4-Bromofluorobenzene (S)	%			106	70-130	
Toluene-d8 (S)	%			99	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 251287 251288

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		1254044003 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
1,1,1-Trichloroethane	ug/L	ND	40	40	36.6	34.2	92	86	70-130	7	25	
1,1,2,2-Tetrachloroethane	ug/L	ND	40	40	38.5	33.3	96	83	70-130	15	25	
1,1,2-Trichloroethane	ug/L	ND	40	40	36.6	33.7	91	84	70-130	8	25	
1,1-Dichloroethane	ug/L	ND	40	40	37.0	33.7	92	84	70-130	9	25	
1,1-Dichloroethene	ug/L	ND	40	40	36.4	33.4	91	83	70-130	9	25	
1,2-Dichlorobenzene	ug/L	ND	40	40	37.6	34.4	94	86	70-130	9	25	
1,2-Dichloroethane	ug/L	ND	40	40	37.8	34.6	95	87	70-130	9	25	
1,2-Dichloropropane	ug/L	ND	40	40	37.2	34.4	93	86	70-130	8	25	
1,3-Dichlorobenzene	ug/L	ND	40	40	39.7	35.3	99	88	70-130	12	25	
1,4-Dichlorobenzene	ug/L	ND	40	40	37.4	34.6	94	87	70-130	8	25	

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Parameter	Units	251287		251288		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		1254044003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
Bromodichloromethane	ug/L	ND	40	40	36.8	34.2	92	85	70-130	7	25	
Bromoform	ug/L	ND	40	40	38.3	33.6	96	84	70-135	13	25	
Bromomethane	ug/L	ND	40	40	33.0	30.6	83	76	50-135	8	25	
Carbon tetrachloride	ug/L	ND	40	40	37.1	34.4	93	86	70-130	8	25	
Chlorobenzene	ug/L	ND	40	40	37.2	34.1	93	85	70-130	9	25	
Chloroethane	ug/L	ND	40	40	39.9	36.8	100	92	70-130	8	25	
Chloroform	ug/L	ND	40	40	36.9	33.6	92	84	70-130	9	25	
Chloromethane	ug/L	ND	40	40	41.8	38.3	105	96	70-130	9	25	
cis-1,2-Dichloroethene	ug/L	0.53	40	40	37.4	34.6	92	85	70-130	8	25	
cis-1,3-Dichloropropene	ug/L	ND	40	40	37.6	34.9	94	87	70-130	7	25	
Dibromochloromethane	ug/L	ND	40	40	36.3	33.4	91	84	70-130	8	25	
Methylene Chloride	ug/L	ND	40	40	36.8	33.7	92	84	70-130	9	25	
Tetrachloroethene	ug/L	2.5	40	40	39.0	36.4	91	85	70-130	7	25	
trans-1,2-Dichloroethene	ug/L	ND	40	40	36.1	33.3	90	83	70-130	8	25	
trans-1,3-Dichloropropene	ug/L	ND	40	40	38.1	34.9	95	87	70-130	9	25	
Trichloroethene	ug/L	4.2	40	40	40.7	37.9	91	84	70-130	7	25	
Trichlorofluoromethane	ug/L	ND	40	40	38.3	35.7	96	89	70-130	7	25	
Vinyl chloride	ug/L	ND	40	40	39.6	36.4	99	91	70-130	8	25	
1,2-Dichloroethane-d4 (S)	%						103	102	70-130			
4-Bromofluorobenzene (S)	%						105	104	70-130			
Toluene-d8 (S)	%						99	97	70-130			

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

QC Batch: DAVM/2220 Analysis Method: EPA 8260B
 QC Batch Method: EPA 8260B Analysis Description: 8260 MSV
 Associated Lab Samples: 1254044019, 1254044020, 1254044021, 1254044022, 1254044023, 1254044024, 1254044025, 1254044026, 1254044027, 1254044028

METHOD BLANK: 251289 Matrix: Water
 Associated Lab Samples: 1254044019, 1254044020, 1254044021, 1254044022, 1254044023, 1254044024, 1254044025, 1254044026, 1254044027, 1254044028

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	09/25/15 20:11	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	09/25/15 20:11	
1,1,2-Trichloroethane	ug/L	ND	0.50	09/25/15 20:11	
1,1-Dichloroethane	ug/L	ND	0.50	09/25/15 20:11	
1,1-Dichloroethene	ug/L	ND	0.50	09/25/15 20:11	
1,2-Dichlorobenzene	ug/L	ND	0.50	09/25/15 20:11	
1,2-Dichloroethane	ug/L	ND	0.50	09/25/15 20:11	
1,2-Dichloropropane	ug/L	ND	0.50	09/25/15 20:11	
1,3-Dichlorobenzene	ug/L	ND	0.50	09/25/15 20:11	
1,4-Dichlorobenzene	ug/L	ND	0.50	09/25/15 20:11	
Bromodichloromethane	ug/L	ND	0.50	09/25/15 20:11	
Bromoform	ug/L	ND	0.50	09/25/15 20:11	
Bromomethane	ug/L	ND	20.0	09/25/15 20:11	
Carbon tetrachloride	ug/L	ND	0.50	09/25/15 20:11	
Chlorobenzene	ug/L	ND	0.50	09/25/15 20:11	
Chloroethane	ug/L	ND	0.50	09/25/15 20:11	
Chloroform	ug/L	ND	0.50	09/25/15 20:11	
Chloromethane	ug/L	ND	0.50	09/25/15 20:11	
cis-1,2-Dichloroethene	ug/L	ND	0.50	09/25/15 20:11	
cis-1,3-Dichloropropene	ug/L	ND	0.50	09/25/15 20:11	
Dibromochloromethane	ug/L	ND	0.50	09/25/15 20:11	
Methylene Chloride	ug/L	ND	5.0	09/25/15 20:11	
Tetrachloroethene	ug/L	ND	0.50	09/25/15 20:11	
trans-1,2-Dichloroethene	ug/L	ND	0.50	09/25/15 20:11	
trans-1,3-Dichloropropene	ug/L	ND	0.50	09/25/15 20:11	
Trichloroethene	ug/L	ND	0.50	09/25/15 20:11	
Trichlorofluoromethane	ug/L	ND	0.50	09/25/15 20:11	
Vinyl chloride	ug/L	ND	0.50	09/25/15 20:11	
1,2-Dichloroethane-d4 (S)	%	98	70-130	09/25/15 20:11	
4-Bromofluorobenzene (S)	%	94	70-130	09/25/15 20:11	
Toluene-d8 (S)	%	98	70-130	09/25/15 20:11	

LABORATORY CONTROL SAMPLE: 251290

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	40	38.8	97	70-130	
1,1,2,2-Tetrachloroethane	ug/L	40	39.4	99	70-130	
1,1,2-Trichloroethane	ug/L	40	39.8	99	70-130	

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

LABORATORY CONTROL SAMPLE: 251290

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1-Dichloroethane	ug/L	40	39.2	98	70-130	
1,1-Dichloroethene	ug/L	40	38.2	95	70-130	
1,2-Dichlorobenzene	ug/L	40	38.0	95	70-130	
1,2-Dichloroethane	ug/L	40	36.1	90	70-130	
1,2-Dichloropropane	ug/L	40	40.1	100	70-130	
1,3-Dichlorobenzene	ug/L	40	40.4	101	70-130	
1,4-Dichlorobenzene	ug/L	40	38.2	96	70-130	
Bromodichloromethane	ug/L	40	40.2	101	70-130	
Bromoform	ug/L	40	36.8	92	70-135	
Bromomethane	ug/L	40	33.3	83	50-135	
Carbon tetrachloride	ug/L	40	38.4	96	70-130	
Chlorobenzene	ug/L	40	38.8	97	70-130	
Chloroethane	ug/L	40	38.8	97	70-130	
Chloroform	ug/L	40	38.6	97	70-130	
Chloromethane	ug/L	40	36.0	90	70-130	
cis-1,2-Dichloroethene	ug/L	40	40.3	101	70-130	
cis-1,3-Dichloropropene	ug/L	40	42.1	105	70-130	
Dibromochloromethane	ug/L	40	41.8	105	70-130	
Methylene Chloride	ug/L	40	37.9	95	70-130	
Tetrachloroethene	ug/L	40	39.2	98	70-130	
trans-1,2-Dichloroethene	ug/L	40	40.9	102	70-130	
trans-1,3-Dichloropropene	ug/L	40	38.8	97	70-130	
Trichloroethene	ug/L	40	39.8	99	70-130	
Trichlorofluoromethane	ug/L	40	36.8	92	70-130	
Vinyl chloride	ug/L	40	35.4	89	70-130	
1,2-Dichloroethane-d4 (S)	%			102	70-130	
4-Bromofluorobenzene (S)	%			103	70-130	
Toluene-d8 (S)	%			101	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 251291 251292

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		1254044020 Result	Spike Conc.	Spike Conc.	MSD Result							
1,1,1-Trichloroethane	ug/L	ND	40	40	38.9	39.3	97	98	70-130	1	25	
1,1,2,2-Tetrachloroethane	ug/L	ND	40	40	41.5	41.0	104	103	70-130	1	25	
1,1,2-Trichloroethane	ug/L	ND	40	40	40.7	40.1	102	100	70-130	1	25	
1,1-Dichloroethane	ug/L	1.9	40	40	41.4	41.5	99	99	70-130	0	25	
1,1-Dichloroethene	ug/L	ND	40	40	38.5	49.0	96	123	70-130	24	25	
1,2-Dichlorobenzene	ug/L	ND	40	40	38.6	38.5	96	96	70-130	0	25	
1,2-Dichloroethane	ug/L	ND	40	40	36.6	36.9	92	92	70-130	1	25	
1,2-Dichloropropane	ug/L	ND	40	40	40.2	41.0	101	102	70-130	2	25	
1,3-Dichlorobenzene	ug/L	ND	40	40	40.3	40.6	101	101	70-130	1	25	
1,4-Dichlorobenzene	ug/L	ND	40	40	38.4	38.7	96	97	70-130	1	25	
Bromodichloromethane	ug/L	ND	40	40	40.8	41.0	102	102	70-130	0	25	
Bromoform	ug/L	ND	40	40	38.8	38.1	97	95	70-135	2	25	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM
Pace Project No.: 1254044

Parameter	Units	251291		251292		MS % Rec	MSD % Rec	% Rec	Limits	RPD	Max RPD	Qual
		1254044020 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
Bromomethane	ug/L	ND	40	40	35.6	37.0	89	92	50-135	4	25	
Carbon tetrachloride	ug/L	ND	40	40	38.4	38.8	96	97	70-130	1	25	
Chlorobenzene	ug/L	ND	40	40	38.9	38.8	97	97	70-130	0	25	
Chloroethane	ug/L	ND	40	40	40.7	41.1	102	103	70-130	1	25	
Chloroform	ug/L	ND	40	40	39.0	39.7	98	99	70-130	2	25	
Chloromethane	ug/L	ND	40	40	38.5	38.8	96	97	70-130	1	25	
cis-1,2-Dichloroethene	ug/L	4.7	40	40	44.8	45.3	100	102	70-130	1	25	
cis-1,3-Dichloropropene	ug/L	ND	40	40	42.8	43.0	107	108	70-130	1	25	
Dibromochloromethane	ug/L	ND	40	40	42.3	42.7	106	107	70-130	1	25	
Methylene Chloride	ug/L	ND	40	40	37.9	38.1	95	95	70-130	1	25	
Tetrachloroethene	ug/L	2.2	40	40	41.3	41.4	98	98	70-130	0	25	
trans-1,2-Dichloroethene	ug/L	ND	40	40	40.9	41.1	102	103	70-130	1	25	
trans-1,3-Dichloropropene	ug/L	ND	40	40	40.0	39.7	100	99	70-130	1	25	
Trichloroethene	ug/L	0.80	40	40	40.7	41.2	100	101	70-130	1	25	
Trichlorofluoromethane	ug/L	ND	40	40	37.1	37.2	93	93	70-130	0	25	
Vinyl chloride	ug/L	ND	40	40	38.6	38.7	96	96	70-130	0	25	
1,2-Dichloroethane-d4 (S)	%.						101	103	70-130			
4-Bromofluorobenzene (S)	%.						106	107	70-130			
Toluene-d8 (S)	%.						100	100	70-130			

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

QC Batch: DAWT/1387

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Associated Lab Samples: 1254044017, 1254044022, 1254044023, 1254044024

METHOD BLANK: 250373

Matrix: Water

Associated Lab Samples: 1254044017, 1254044022, 1254044023, 1254044024

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.10	09/24/15 09:13	
Sulfate	mg/L	ND	0.50	09/24/15 09:13	

LABORATORY CONTROL SAMPLE: 250374

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	5	5.2	103	90-110	
Sulfate	mg/L	25	25.7	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 250375 250376

Parameter	Units	250375		250376		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		1254044024 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							MSD Result
Nitrate as N	mg/L	ND	5	5	5.0	5.0	100	99	90-110	1	20	
Sulfate	mg/L	24.3	25	25	49.9	49.1	102	99	90-110	2	20	

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

QC Batch: WETA/7420 Analysis Method: SM 5310B
 QC Batch Method: SM 5310B Analysis Description: 5310B TOC
 Associated Lab Samples: 1254044017, 1254044018, 1254044019, 1254044020, 1254044021

METHOD BLANK: 160729 Matrix: Water

Associated Lab Samples:

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	09/29/15 10:12	

LABORATORY CONTROL SAMPLE: 160730

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	25.9	26.4	102	90-110	

MATRIX SPIKE SAMPLE: 160732

Parameter	Units	1254044017 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	4.4	20	23.7	97	75-125	

SAMPLE DUPLICATE: 160731

Parameter	Units	1254044017 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	4.4	4.6	5	20	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-DAV Pace Analytical Services - Davis

PASI-N Pace Analytical Services - New Orleans

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NuStar Vancouver GWM

Pace Project No.: 1254044

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
1254044001	MW-9	EPA 8260B	DAVM/2219		
1254044002	MW-23i	EPA 8260B	DAVM/2219		
1254044003	MW-17	EPA 8260B	DAVM/2219		
1254044004	MW-24d	EPA 8260B	DAVM/2219		
1254044005	MW-8	EPA 8260B	DAVM/2219		
1254044006	MW-3	EPA 8260B	DAVM/2219		
1254044007	MW-6	EPA 8260B	DAVM/2219		
1254044008	MW-14	EPA 8260B	DAVM/2219		
1254044009	S-1	EPA 8260B	DAVM/2219		
1254044010	MW-26	EPA 8260B	DAVM/2219		
1254044011	MW-25i	EPA 8260B	DAVM/2219		
1254044012	MW-10	EPA 8260B	DAVM/2219		
1254044013	MGMS1-43	EPA 8260B	DAVM/2219		
1254044014	MGMS1-60	EPA 8260B	DAVM/2219		
1254044015	MGMS1-110	EPA 8260B	DAVM/2219		
1254044016	EW-1	EPA 8260B	DAVM/2219		
1254044017	MW-12	EPA 8260B	DAVM/2219		
1254044018	MW-12 DUP	EPA 8260B	DAVM/2219		
1254044019	MP-1	EPA 8260B	DAVM/2220		
1254044020	MW-24i	EPA 8260B	DAVM/2220		
1254044021	EX-1	EPA 8260B	DAVM/2220		
1254044022	MW-19	EPA 8260B	DAVM/2220		
1254044023	MW-13	EPA 8260B	DAVM/2220		
1254044024	MGMS3-40	EPA 8260B	DAVM/2220		
1254044025	MGMS3-40 DUP	EPA 8260B	DAVM/2220		
1254044026	MGMS3-60	EPA 8260B	DAVM/2220		
1254044027	MGMS3-101	EPA 8260B	DAVM/2220		
1254044028	MGMS3-132	EPA 8260B	DAVM/2220		
1254044017	MW-12	EPA 300.0	DAWT/1387		
1254044022	MW-19	EPA 300.0	DAWT/1387		
1254044023	MW-13	EPA 300.0	DAWT/1387		
1254044024	MGMS3-40	EPA 300.0	DAWT/1387		
1254044017	MW-12	SM 5310B	WETA/7420		
1254044018	MW-12 DUP	SM 5310B	WETA/7420		
1254044019	MP-1	SM 5310B	WETA/7420		
1254044020	MW-24i	SM 5310B	WETA/7420		
1254044021	EX-1	SM 5310B	WETA/7420		

REPORT OF LABORATORY ANALYSIS

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2795 2nd Street, Suite 300
 Davis, CA 95618
 Lab: 530.297.4800
 Fax: 530.297.4802

SRG # / Lab No. 1254049

Project Contact (Hardcopy or PDF To):
 Stephanie Bosze
 Company / Address: Apex Companies
 3015 SW 1st Ave., Portland, OR 97201
 Phone Number: 503-924-4704 ext 1925
 Fax Number: 503-924-4707
 Project #: P.O. #:
 320001126-17
 Project Name: NuStar Vancouver GWM
 Project Address:

California EDF Report? Yes No
 CRA EQUIS Required Yes No
 XLS Report Required Yes No

Global ID:
 EDD Deliverable To (Email Address):
 SSsalisbury@apexcos.com
 Bill to:
 Apex Companies
 Sampler Name & Signature: Chris Brackett

Sample Designation	Sampling		Container			Preservative				Matrix			TAT		
	Date	Time	Sleeve	Poly	TL Glass	Tedlar	HCl	HNO ₃	H ₂ SO ₄	None	Water	Soil		Air	
MGMS1-60	09/21/15	1302	4				4				X			X	014
MGMS1-110	09/21/15	1341	4				4				X			X	015
EW-1	09/21/15	1433	4				4				X			X	016
MW-12	09/22/15	912	7	2	2		4	3	4		X			X	017
MW-12 DUP	09/22/15	912	7	1			4	1	3		X			X	018
MP-1	09/22/15	959	7	1			4	1	3		X			X	015
MW-24i	09/22/15	1033	7	1			4	1	3		X			X	020
EX-1	09/22/15	1107	7	1			4	1	3		X			X	024
MW-19	09/22/15	1145	4	1	2		4	2	1		X			X	022
MW-13	09/22/15	1222	4	1	2		4	2	1		X			X	023
MGMS3-40	09/22/15	1259	4	1	2		4	2	1		X			X	024
MGMS3-40 DUP	09/22/15	1259	4				4				X			X	025
MGMS3-60	09/22/15	1329	4				4				X			X	026

Analysis Request
 Other: Please Specify

For Lab Use Only

Temp °C: 03/10.7 CAR
 Initials: CAR
 Date: 09/24/15
 Time: 7:30
 Therm. ID #: DAZZES
 Coolant Present: Yes / No

Remarks:
 092415
 0725
 Received by: Michelle Sperry
 Time: 03/15
 Relinquished by: Brandon Strellis
 Date: 9/23
 Relinquished by: Received by Laboratory:
 Date: Time: Received by Laboratory:



2795 2nd Street, Suite 300
Davis, CA 95618
Lab: 530.297.4800
Fax: 530.297.4802

SRG # / Lab No. **125 4044**

Project Contact (Hardcopy or PDF To):
Stephanie Bosze
Company / Address: Apex Companies
3015 SW 1st Ave., Portland, OR 97201
Phone Number: 503-924-4704 ext 1925
Fax Number: 503-924-4707
Project #: 320001126-17
P.O. #:
Project Name: NuStar Vancouver GWM
Project Address:
Global ID:
EDD Deliverable To (Email Address): SSalisbun@apexcos.com
Bill to: Apex Companies
Sampler Name & Signature: Chris Brackett

California EDF Report? Yes No
CRA EQUIS Required Yes No
XLS Report Required Yes No

Sample Designation	Sampling		Container				Preservative				Matrix				TAT	For Lab Use Only
	Date	Time	40 ml VOA	Glove	Poly	250 ml Glass	Tedlar	HCl	HNO ₃	H ₂ SO ₄	None	Water	Soil	Air		
MW-9	9/17/2015	1131	4					4				X			X	801
MW-23i	9/17/2015	1213	4					4				X			X	002
MW-17	9/17/2015	1303	4					4				X			X	003
MW-24d	9/18/2015	847	4					4				X			X	004
MW-8	9/18/2015	931	4					4				X			X	005
MW-3	9/18/2015	1005	4					4				X			X	006
MW-6	9/18/2015	1041	4					4				X			X	007
MW-14	9/21/2015	856	4					4				X			X	008
S-1	9/21/2015	936	4					4				X			X	009
MW-26	9/21/2015	1011	4					4				X			X	010
MW-25i	9/21/2015	1108	4					4				X			X	011
MW-10	9/21/2015	1149	4					4				X			X	012
MGMS1-43	9/21/2015	1239	4					4				X			X	013

Other: Please Specify
Ammonia
Nitrate, Sulfate
Methane, Ethane, Ethene
TOC
Volatile Halocarbons (EPA 8260B)

Analysis Request
HOLD
Temp °C: 0.3 / 0.7 / 0.0
Initials: H / C / C
Date: 09/24/15
Time: 7:30
Therm. ID #: DAZZS
Coolant Present: Yes No

Remarks:
Received by: *Brandon Strellis* Date: *9/23* Time: *08 15*
Received by: *Michelle Sperry* Date: *09/24/15* Time: *0728*
Received by Laboratory: *Face*

Sample Condition Upon Receipt Client Name: Apex Project #: **WO# : 1254044**
 Courier: Fed Ex UPS USPS Client
 Commercial Pace OnTrac Other: _____
 Tracking Number: 8071 1280 8690 / " " 8705

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No
 Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No
 Thermom. Used: DA1434 DA2285 Type of Ice: Wet Blue Dry Ice None Samples on ice, cooling process has begun
 Cooler Temp Read(°C): 0.0/0.4 Cooler Temp Corrected(°C): 0.3/0.7 Biological Tissue Frozen? Yes No N/A
 Temp should be above freezing to 6°C Correction Factor: +0.3 Date and Initials of Person Examining Contents: CR 092415

		Comments:
Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1. MW-23i + MW-24i both have
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2. <u>2 broken</u> VOA'S
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3. _____
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4. <u>COC says MW-12 has</u>
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5. <u>2 CR 092415</u>
Short Hold Time Analysis (<72 hr)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6. For MW-24i (^{0.20} 0.02) the broken
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7. VOAS were HCl ^{was preserved} not preserved
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8. The broken VOAS Formu-23i (002)
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9. Were the ^{the} HCl preserved.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved container.
Sample Labels Match COC?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes Date/Time/ID/Analysis Matrix: <u>WT</u>		
All containers needing acid/base preservation have been checked?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	13. <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> HCl
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH >9 Sulfide, NaOH >12 Cyanide)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Sample #
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed: _____ Lot # of added preservative: _____
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____		

CLIENT NOTIFICATION/RESOLUTION Field Data Required? Yes No
 Person Contacted: _____ Date/Time: _____
 Comments/Resolution: _____

Project Manager Review: [Signature] Date: 9/25/15
 Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Chain of Custody

WO#: 2026192



2026192



Workorder: 1254044 Workorder Name: NuStar Vancouver GWM Owner Received D: _____

Report To:
 Scott M Forbes
 Pace Analytical Services, Inc.
 315 Chestnut St. PO Box 1212
 Virginia, MN 55792
 Phone (218) 735-6700
 Fax (218) 742-1010

Subcontract To:
 Pace Analytical Minnesota
 1700 Elm Street
 Suite 200
 Minneapolis, MN 55414
 Phone (612) 607-1700

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers				LAB USE ONLY
						1	2	3	4	
1	MW-12	PS	9/22/2015 09:12	1254044017	Water	1				
2	MW-12 DUP	PS	9/22/2015 09:12	1254044018	Water	1				
3	MP-1	PS	9/22/2015 09:59	1254044019	Water	1				
4	MW-24i	PS	9/22/2015 10:33	1254044020	Water	1				
5	EX-1	PS	9/22/2015 11:07	1254044021	Water	1				

Due:
9/30/15

TOP

Transfers	Released By	Date/Time	Received By	Date/Time	Received on Ice	Y or N	Samples Intact	Y or N
1	WJ	9/22/15 16:00	SEDEX					
2	SEDEX	9/22/15 9:00	Jays	9/25/15				
3								

Cooler Temperature on Receipt: 2.7 °C

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
 This chain of custody is considered complete as is since this information is available in the owner laboratory.

WO#: 2026192

PM: ADC

Due Date: 10/05/15

CLIENT: PASI-VA PASI Virginia MN



Sample Condition Upon I

1000 Riverbend Blvd., Suite F
St. Rose, LA 70087

Pro, _____

Courier: Pace Courier Hired Courier Fed X UPS DHL USPS Customer Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: Yes No

Thermometer Used:

- Therm Fisher IR 5
- Therm Fisher IR 6
- Therm Fisher IR 7

Type of Ice:

Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 9-26-15 PV

Temp must be measured from Temperature blank when present *AD* Comments:

Temperature Blank Present?"	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1	
Chain of Custody Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2	
Chain of Custody Complete:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3	
Chain of Custody Relinquished:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4	
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	5	
Samples Arrived within Hold Time:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8	
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10	
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11	
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12	
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13	If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14	
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15	

Client Notification/ Resolution:

Person Contacted: _____

Date/Time: _____

Comments/ Resolution: _____



Calscience



WORK ORDER NUMBER: 15-09-2100

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Pace Analytical

Client Project Name: NuStar Vancouver GWM

Attention: Scott M Forbes
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Nicole Scott for

Approved for release on 09/30/2015 by:
Amanda Porter
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.



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Client Project Name: NuStar Vancouver GWM
Work Order Number: 15-09-2100

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 09/26/15. They were assigned to Work Order 15-09-2100.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.



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Analytical Report

Pace Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 09/26/15
Work Order: 15-09-2100
Preparation: N/A
Method: RSK-175M
Units: ug/L

Project: NuStar Vancouver GWM

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-12	15-09-2100-1-A	09/22/15 09:12	Aqueous	GC 61	N/A	09/28/15 13:21	150928L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Ethane		20.1		1.00		1.00	
Ethylene		ND		1.00		1.00	
Methane		462		1.00		1.00	
MW-12 DUP	15-09-2100-2-A	09/22/15 09:12	Aqueous	GC 61	N/A	09/28/15 13:54	150928L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Ethane		17.4		1.00		1.00	
Ethylene		ND		1.00		1.00	
Methane		330		1.00		1.00	
MP-1	15-09-2100-3-A	09/22/15 09:59	Aqueous	GC 61	N/A	09/28/15 14:28	150928L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Ethane		ND		1.00		1.00	
Ethylene		ND		1.00		1.00	
MP-1	15-09-2100-3-A	09/22/15 09:59	Aqueous	GC 61	N/A	09/28/15 15:51	150928L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Methane		3200		8.00		8.00	
MW-24i	15-09-2100-4-A	09/22/15 10:33	Aqueous	GC 61	N/A	09/28/15 16:19	150928L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Ethane		ND		1.00		1.00	
Ethylene		ND		1.00		1.00	
Methane		2.11		1.00		1.00	
EX-1	15-09-2100-5-A	09/22/15 11:07	Aqueous	GC 61	N/A	09/28/15 16:42	150928L01
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Ethane		3.06		1.00		1.00	
Ethylene		ND		1.00		1.00	
Methane		433		1.00		1.00	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Pace Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 09/26/15
Work Order: 15-09-2100
Preparation: N/A
Method: RSK-175M
Units: ug/L

Project: NuStar Vancouver GWM

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-661-1317	N/A	Aqueous	GC 61	N/A	09/28/15 12:56	150928L01

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Ethane	ND	1.00	1.00	
Ethylene	ND	1.00	1.00	
Methane	ND	1.00	1.00	



Calscience

Analytical Report

Pace Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 09/26/15
Work Order: 15-09-2100
Preparation: N/A
Method: SM 4500-NH3 B/C
Units: mg/L

Project: NuStar Vancouver GWM

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-12	15-09-2100-1-E	09/22/15 09:12	Aqueous	BUR05	09/29/15	09/29/15 16:40	F0929NH3L1
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Ammonia (as N)		110	1.0		10.0		
MW-19	15-09-2100-6-A	09/22/15 11:45	Aqueous	BUR05	09/29/15	09/29/15 16:40	F0929NH3L1
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Ammonia (as N)		46	1.0		10.0		
MW-13	15-09-2100-7-A	09/22/15 12:22	Aqueous	BUR05	09/29/15	09/29/15 16:40	F0929NH3L1
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Ammonia (as N)		48	1.0		10.0		
MGMS3-40	15-09-2100-8-A	09/22/15 12:59	Aqueous	BUR05	09/29/15	09/29/15 16:40	F0929NH3L1
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Ammonia (as N)		1.1	0.10		1.00		
Method Blank	099-12-814-2200	N/A	Aqueous	BUR05	09/29/15	09/29/15 16:40	F0929NH3L1
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Ammonia (as N)		ND	0.10		1.00		

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Quality Control - LCS/LCSD

Pace Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 09/26/15
Work Order: 15-09-2100
Preparation: N/A
Method: RSK-175M

Project: NuStar Vancouver GWM

Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-12-661-1317	LCS	Aqueous	GC 61	N/A	09/28/15 12:04	150928L01			
099-12-661-1317	LCSD	Aqueous	GC 61	N/A	09/28/15 12:26	150928L01			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Ethane	99.40	91.80	92	91.75	92	80-120	0	0-20	
Ethylene	102.0	95.02	93	94.82	93	80-120	0	0-20	
Methane	102.0	95.97	94	95.67	94	80-120	0	0-20	

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - LCS/LCSD

Pace Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 09/26/15
Work Order: 15-09-2100
Preparation: N/A
Method: SM 4500-NH3 B/C

Project: NuStar Vancouver GWM

Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-12-814-2200	LCS	Aqueous	BUR05	09/29/15	09/29/15 16:40	F0929NH3L1			
099-12-814-2200	LCSD	Aqueous	BUR05	09/29/15	09/29/15 16:40	F0929NH3L1			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Ammonia (as N)	5.000	4.536	91	4.592	92	80-120	1	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

Sample Analysis Summary Report

Work Order: 15-09-2100

Page 1 of 1

<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
RSK-175M	N/A	929	GC 61	2
SM 4500-NH3 B/C	N/A	685	BUR05	1

Glossary of Terms and Qualifiers

Work Order: 15-09-2100

Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

Chain of Custody

15-09-2100



Workorder: 1254044

Workorder Name: NuStar Vancouver GWM

Results Requested

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers		Requested Analysis	LAB USE ONLY
					H2SO4	Unpreserved		
1	MW-9	9/17/2015 11:31	1254044001	Water				Dne: 9/30/15
2	MW-20	9/17/2015 12:13	1254044002	Water				
3	MW-42	9/17/2015 13:03	1254044003	Water				
4	MW-24	9/18/2015 08:47	1254044004	Water				
5	MW-6	9/18/2015 09:34	1254044005	Water				
6	MW-5	9/18/2015 10:05	1254044006	Water				
7	MW-6	9/18/2015 10:41	1254044007	Water				
8	MW-14	9/24/2015 08:56	1254044008	Water				
9	S-1	9/24/2015 09:36	1254044009	Water				
10	MW-26	9/24/2015 10:11	1254044010	Water				
11	MW-25	9/24/2015 11:08	1254044011	Water				
12	MW-10	9/21/2015 11:48	1254044012	Water				
13	MW-13	9/21/2015 12:39	1254044013	Water				
14	MW-18	9/21/2015 13:02	1254044014	Water				
15	MW-11	9/21/2015 13:41	1254044015	Water				
16	MW-1	9/21/2015 14:33	1254044016	Water				
17	MW-12	9/22/2015 09:12	1254044017	Water				
18	MW-12 DUP	9/22/2015 09:12	1254044018	Water				
19	MP-1	9/22/2015 09:59	1254044019	Water				

Methane, Ethane, Ethene, Ammonia

P.O. 1254044

Carl Scance

Scott M Forbes
Pace Analytical Davis
2795 Second Street
Suite 300
Davis, CA 95618
Phone (530) 297-4800
Email: scott.forbes@pacelabs.com

9/26/15 11:00



Chain of Custody

100



Workorder: 1254044 **Workorder Name:** NuStar Vancouver GWM
Report/Invoice To: Subcontract To
 Scott M Forbes
 Pace Analytical Davis
 2795 Second Street
 Suite 300
 Davis, CA 95618
 Phone (530) 297-4800
 Email: scott.forbes@pacelabs.com
 P.O. 1254044
 Cal Science

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers		Requested Analysis	Results Requested
					H2SO4	Unpreserved		
20	MW-241	9/22/2015 10:33	1254044020	Water				
21	EX-1	9/22/2015 11:07	1254044021	Water				
22	MW-19	9/22/2015 11:45	1254044022	Water				
23	MW-13	9/22/2015 12:22	1254044023	Water				
24	MGMS3-40	9/22/2015 12:59	1254044024	Water				
25	MGMS3-40-BUP	9/22/2015 12:50	1254044025	Water				
26	MGMS3-60	9/22/2015 13:29	1254044026	Water				
27	MGMS3-T01	9/22/2015 13:46	1254044027	Water				
28	MGMS3-132	9/22/2015 14:05	1254044028	Water				
29								
30								
31								
32								

45678 }
SNF
9/25/15

Methane, Ethane, Ethene, Ammonia

Due: 9/30/15

LAB USE ONLY

Samples that are crossed off were not sent to lab, ignore them.

Scott



2100

Transfers	Released By	Date/Time	Received By	Date/Time	Received on Ice	Y or N	Samples Intact	Y or N	Comments
1	SAE	09/25/15	SAE	9/26/15					1100
2									
3									

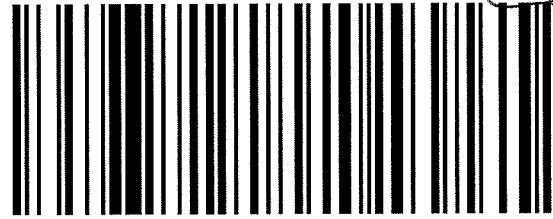
Cooler Temperature on Receipt _____ °C

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

2190



800.334.5000
ontrac.com



D10010837181273

Date Printed 9/25/2015

Tracking#D10010837181273

Shipped From:
PACE ANALYTICAL
2795 2ND STREET 300
DAVIS, CA 95618

Sent By: SAMPLE RECEIVINGX125
Phone#: (530)297-4800
wgt(lbs): 40
Reference: SUB 1254044
Reference 2: 600

Ship To Company:
CALSCIENCE ENVIRONMENTAL LABS
7440 LINCOLN WAY
GARDEN GROVE, CA 92841
SAMPLE RECEIVING (714)895-5494

Service: **G**
Sort Code: **ORG**
Special Services:
Saturday Delivery
Signature Required

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SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: Pace

DATE: 09/26/2015

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC5 (CF:-0.2°C); Temperature (w/o CF): 2.8 °C (w/ CF): 2.6 °C; [x] Blank [] Sample

[] Sample(s) outside temperature criteria (PM/APM contacted by: _____)

[] Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

[] Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: [] Air [] Filter

Checked by: [Signature]

CUSTODY SEAL:

Cooler [x] Present and Intact [] Present but Not Intact [] Not Present [] N/A

Checked by: [Signature]

Sample(s) [] Present and Intact [] Present but Not Intact [x] Not Present [] N/A

Checked by: [Signature]

SAMPLE CONDITION:

Chain-of-Custody (COC) document(s) received with samples [x] Yes [] No [] N/A

COC document(s) received complete [] Yes [x] No [] N/A

[] Sampling date [] Sampling time [] Matrix [x] Number of containers

[] No analysis requested [] Not relinquished [] No relinquished date [] No relinquished time

Sampler's name indicated on COC [] Yes [] No [x] N/A

Sample container label(s) consistent with COC [x] Yes [] No [] N/A

Sample container(s) intact and in good condition [x] Yes [] No [] N/A

Proper containers for analyses requested [x] Yes [] No [] N/A

Sufficient volume/mass for analyses requested [x] Yes [] No [] N/A

Samples received within holding time [x] Yes [] No [] N/A

Aqueous samples for certain analyses received within 15-minute holding time

[] pH [] Residual Chlorine [] Dissolved Sulfide [] Dissolved Oxygen [] Yes [] No [x] N/A

Proper preservation chemical(s) noted on COC and/or sample container [x] Yes [] No [] N/A

Unpreserved aqueous sample(s) received for certain analyses

[x] Volatile Organics [] Total Metals [] Dissolved Metals

Container(s) for certain analysis free of headspace [x] Yes [] No [] N/A

[x] Volatile Organics [] Dissolved Gases (RSK-175) [] Dissolved Oxygen (SM 4500)

[] Carbon Dioxide (SM 4500) [] Ferrous Iron (SM 3500) [] Hydrogen Sulfide (Hach)

Tedlar™ bag(s) free of condensation [] Yes [] No [x] N/A

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: [x] VOA [] VOAh [] VOAna2 [] 100PJ [] 100PJna2 [] 125AGB [] 125AGBh [] 125AGBp [] 125PB

[] 125PBzanna [] 250AGB [] 250CGB [] 250CGBs [] 250PB [] 250PBn [] 500AGB [] 500AGJ [] 500AGJs

[] 500PB [] 1AGB [] 1AGBna2 [x] 1AGBs [] 1PB [] 1PBna [] _____ [] _____ [] _____ [] _____

Solid: [] 4ozCGJ [] 8ozCGJ [] 16ozCGJ [] Sleeve (_____) [] EnCores® (_____) [] TerraCores® (_____) [] _____

Air: [] Tedlar™ [] Canister [] Sorbent Tube [] PUF [] _____ Other Matrix (____): [] _____ [] _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO3, na = NaOH, na2 = Na2S2O3, p = H3PO4, Labeled/Checked by: [Signature]

s = H2SO4, u = ultra-pure, zanna = Zn(CH3CO2)2 + NaOH

Reviewed by: [Signature]

*HA received 1 val only

Return to Contents

December 17, 2015

Stephanie Bosze-Salisbury
Apex Companies, LLC
3015 SW First Avenue
Portland, OR 97201

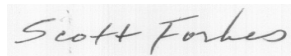
RE: Project: NuStar Vancouver GWM
Pace Project No.: 1258373

Dear Stephanie Bosze-Salisbury:

Enclosed are the analytical results for sample(s) received by the laboratory on December 10, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Scott M Forbes
scott.forbes@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

CERTIFICATIONS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414

A2LA Certification #: 2926.01

Alaska Certification #: UST-078

Alaska Certification #MN00064

Alabama Certification #40770

Arizona Certification #: AZ-0014

Arkansas Certification #: 88-0680

California Certification #: 01155CA

Colorado Certification #Pace

Connecticut Certification #: PH-0256

EPA Region 8 Certification #: 8TMS-L

Florida/NELAP Certification #: E87605

Guam Certification #:14-008r

Georgia Certification #: 959

Georgia EPD #: Pace

Idaho Certification #: MN00064

Hawaii Certification #MN00064

Illinois Certification #: 200011

Indiana Certification#C-MN-01

Iowa Certification #: 368

Kansas Certification #: E-10167

Kentucky Dept of Envi. Protection - DW #90062

Kentucky Dept of Envi. Protection - WW #:90062

Louisiana DEQ Certification #: 3086

Louisiana DHH #: LA140001

Maine Certification #: 2013011

Maryland Certification #: 322

Michigan DEPH Certification #: 9909

Minnesota Certification #: 027-053-137

Mississippi Certification #: Pace

Montana Certification #: MT0092

Nevada Certification #: MN_00064

Nebraska Certification #: Pace

New Jersey Certification #: MN-002

New York Certification #: 11647

North Carolina Certification #: 530

North Carolina State Public Health #: 27700

North Dakota Certification #: R-036

Ohio EPA #: 4150

Ohio VAP Certification #: CL101

Oklahoma Certification #: 9507

Oregon Certification #: MN200001

Oregon Certification #: MN300001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification

Saipan (CNMI) #:MP0003

South Carolina #:74003001

Texas Certification #: T104704192

Tennessee Certification #: 02818

Utah Certification #: MN000642013-4

Virginia DGS Certification #: 251

Washington Certification #: C486

West Virginia Certification #: 382

West Virginia DHHR #:9952C

Wisconsin Certification #: 999407970

Davis Certification IDs

2795 Second Street Suite 300 Davis, CA 95618

North Dakota Certification #: R-214

Oregon Certification #: CA300002

Washington Certification #: C926-15a

California Certification #: 08263CA

New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:

11277CA

Florida Department of Health (NELAC): E87595

Illinois Environmental Protection Agency: 0025721

Kansas Department of Health and Environment (NELAC):

E-10266

Louisiana Dept. of Environmental Quality (NELAC/LELAP):

02006

Pennsylvania Dept. of Env Protection (NELAC): 68-04202

Texas Commission on Env. Quality (NELAC):

T104704405-09-TX

U.S. Dept. of Agriculture Foreign Soil Import: P330-10-

00119

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Lab ID	Sample ID	Matrix	Date Collected	Date Received
1258373001	MW-24D	Water	12/09/15 08:30	12/10/15 09:45
1258373002	MW-3	Water	12/09/15 07:15	12/10/15 09:45
1258373003	S-1	Water	12/08/15 15:20	12/10/15 09:45
1258373004	S-2	Water	12/08/15 15:00	12/10/15 09:45
1258373005	MW-13	Water	12/08/15 14:35	12/10/15 09:45
1258373006	MW-1	Water	12/08/15 14:00	12/10/15 09:45
1258373007	MW-5	Water	12/08/15 13:33	12/10/15 09:45
1258373008	MW-5 DUP	Water	12/08/15 13:33	12/10/15 09:45
1258373009	MW-7	Water	12/08/15 13:00	12/10/15 09:45
1258373010	MW-9	Water	12/08/15 12:30	12/10/15 09:45
1258373011	MW-9 DUP	Water	12/08/15 12:30	12/10/15 09:45
1258373012	MP-1	Water	12/08/15 12:05	12/10/15 09:45
1258373013	MW-24i	Water	12/08/15 11:35	12/10/15 09:45
1258373014	EX-1	Water	12/08/15 10:46	12/10/15 09:45
1258373015	MW-19	Water	12/08/15 09:45	12/10/15 09:45
1258373016	MW-19 DUP	Water	12/08/15 09:45	12/10/15 09:45
1258373017	MW-12	Water	12/08/15 09:20	12/10/15 09:45
1258373018	MGMS1-60	Water	12/08/15 08:45	12/10/15 09:45
1258373019	MGMS1-43	Water	12/08/15 08:30	12/10/15 09:45
1258373020	MGMS2-40	Water	12/08/15 07:30	12/10/15 09:45
1258373021	MGMS3-60	Water	12/07/15 15:10	12/10/15 09:45
1258373022	MGMS3-40	Water	12/07/15 14:50	12/10/15 09:45
1258373023	MW-19i	Water	12/07/15 14:30	12/10/15 09:45
1258373024	MW-18i	Water	12/07/15 13:55	12/10/15 09:45
1258373025	MW-8	Water	12/07/15 13:10	12/10/15 09:45
1258373026	MW-32S	Water	12/07/15 12:40	12/10/15 09:45
1258373027	MW-21i-105	Water	12/07/15 11:15	12/10/15 09:45
1258373028	MW-22i	Water	12/07/15 10:50	12/10/15 09:45
1258373029	MW-21i-40	Water	12/07/15 12:00	12/10/15 09:45
1258373030	MW-26	Water	12/07/15 10:15	12/10/15 09:45
1258373031	MW-25i	Water	12/07/15 09:40	12/10/15 09:45
1258373032	MW-23i	Water	12/07/15 09:00	12/10/15 09:45
1258373033	TRIP Blank A	Water	12/07/15 00:00	12/10/15 09:45
1258373034	Field Blank	Water	12/09/15 12:00	12/10/15 09:45
1258373035	TRIP Blank B	Water	12/07/15 00:00	12/10/15 09:45

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: NuStar Vancouver GWM
Pace Project No.: 1258373

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
1258373001	MW-24D	EPA 8260B	MJY	31	PASI-DAV
1258373002	MW-3	EPA 8260B	MJY	31	PASI-DAV
1258373003	S-1	EPA 8260B	MJY	31	PASI-DAV
1258373004	S-2	EPA 8260B	MJY	31	PASI-DAV
1258373005	MW-13	EPA 8260B	JMB	31	PASI-DAV
1258373006	MW-1	EPA 8260B	MJY	31	PASI-DAV
1258373007	MW-5	EPA 8260B	MJY	31	PASI-DAV
1258373008	MW-5 DUP	EPA 8260B	MJY	31	PASI-DAV
1258373009	MW-7	RSK 175	DR1	3	PASI-M
		EPA 8260B	MJY	31	PASI-DAV
		SM 5310B	JMA	1	PASI-N
1258373010	MW-9	EPA 8260B	MJY	31	PASI-DAV
1258373011	MW-9 DUP	EPA 8260B	JMB, MJY	31	PASI-DAV
1258373012	MP-1	RSK 175	DR1	3	PASI-M
		EPA 8260B	MJY	31	PASI-DAV
		SM 5310B	JMA	1	PASI-N
1258373013	MW-24i	RSK 175	DR1	3	PASI-M
		EPA 8260B	MJY	31	PASI-DAV
		SM 5310B	JMA	1	PASI-N
1258373014	EX-1	RSK 175	DR1	3	PASI-M
		EPA 8260B	JMB	31	PASI-DAV
		SM 5310B	JMA	1	PASI-N
1258373015	MW-19	EPA 8260B	JMB	31	PASI-DAV
1258373016	MW-19 DUP	EPA 8260B	JMB	31	PASI-DAV
1258373017	MW-12	RSK 175	DR1	3	PASI-M
		EPA 8260B	JMB	31	PASI-DAV
		SM 5310B	JMA	1	PASI-N
1258373018	MGMS1-60	EPA 8260B	MJY	31	PASI-DAV
1258373019	MGMS1-43	EPA 8260B	JMB	31	PASI-DAV
1258373020	MGMS2-40	RSK 175	DR1	3	PASI-M
		EPA 8260B	MJY	31	PASI-DAV
		SM 5310B	JMA	1	PASI-N
1258373021	MGMS3-60	EPA 8260B	JMB	31	PASI-DAV
1258373022	MGMS3-40	EPA 8260B	JMB	31	PASI-DAV
1258373023	MW-19i	EPA 8260B	JMB	31	PASI-DAV
1258373024	MW-18i	EPA 8260B	JMB	31	PASI-DAV
1258373025	MW-8	EPA 8260B	JMB	31	PASI-DAV

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: NuStar Vancouver GWM
Pace Project No.: 1258373

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
1258373026	MW-32S	EPA 8260B	JMB	31	PASI-DAV
1258373027	MW-21i-105	EPA 8260B	JMB	31	PASI-DAV
1258373028	MW-22i	EPA 8260B	JMB	31	PASI-DAV
1258373029	MW-21i-40	EPA 8260B	JMB	31	PASI-DAV
1258373030	MW-26	EPA 8260B	JMB	31	PASI-DAV
1258373031	MW-25i	EPA 8260B	JMB	31	PASI-DAV
1258373032	MW-23i	EPA 8260B	JMB	31	PASI-DAV
1258373033	TRIP Blank A	EPA 8260B	JMB	31	PASI-DAV
1258373034	Field Blank	EPA 8260B	JMB	31	PASI-DAV
1258373035	TRIP Blank B	EPA 8260B	JMB	31	PASI-DAV

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM
Pace Project No.: 1258373

Sample: MW-24D	Lab ID: 1258373001	Collected: 12/09/15 08:30	Received: 12/10/15 09:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		12/10/15 19:45	75-27-4	
Bromoform	ND	ug/L	0.50	1		12/10/15 19:45	75-25-2	
Bromomethane	ND	ug/L	20.0	1		12/10/15 19:45	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		12/10/15 19:45	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		12/10/15 19:45	108-90-7	
Chloroethane	ND	ug/L	0.50	1		12/10/15 19:45	75-00-3	
Chloroform	ND	ug/L	0.50	1		12/10/15 19:45	67-66-3	
Chloromethane	ND	ug/L	0.50	1		12/10/15 19:45	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		12/10/15 19:45	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		12/10/15 19:45	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		12/10/15 19:45	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		12/10/15 19:45	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		12/10/15 19:45	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		12/10/15 19:45	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		12/10/15 19:45	75-35-4	
cis-1,2-Dichloroethene	1.4	ug/L	0.50	1		12/10/15 19:45	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		12/10/15 19:45	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		12/10/15 19:45	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		12/10/15 19:45	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		12/10/15 19:45	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		12/10/15 19:45	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		12/10/15 19:45	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		12/10/15 19:45	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		12/10/15 19:45	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		12/10/15 19:45	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		12/10/15 19:45	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		12/10/15 19:45	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		12/10/15 19:45	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	114	%.	70-130	1		12/10/15 19:45	17060-07-0	
Toluene-d8 (S)	100	%.	70-130	1		12/10/15 19:45	2037-26-5	
4-Bromofluorobenzene (S)	84	%.	70-130	1		12/10/15 19:45	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM
Pace Project No.: 1258373

Sample: MW-3		Lab ID: 1258373002		Collected: 12/09/15 07:15	Received: 12/10/15 09:45	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		12/10/15 21:25	75-27-4	
Bromoform	ND	ug/L	0.50	1		12/10/15 21:25	75-25-2	
Bromomethane	ND	ug/L	20.0	1		12/10/15 21:25	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		12/10/15 21:25	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		12/10/15 21:25	108-90-7	
Chloroethane	ND	ug/L	0.50	1		12/10/15 21:25	75-00-3	
Chloroform	0.66	ug/L	0.50	1		12/10/15 21:25	67-66-3	
Chloromethane	ND	ug/L	0.50	1		12/10/15 21:25	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		12/10/15 21:25	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		12/10/15 21:25	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		12/10/15 21:25	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		12/10/15 21:25	106-46-7	
1,1-Dichloroethane	4.9	ug/L	0.50	1		12/10/15 21:25	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		12/10/15 21:25	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		12/10/15 21:25	75-35-4	
cis-1,2-Dichloroethene	72.2	ug/L	0.50	1		12/10/15 21:25	156-59-2	
trans-1,2-Dichloroethene	1.8	ug/L	0.50	1		12/10/15 21:25	156-60-5	
1,2-Dichloropropane	1.1	ug/L	0.50	1		12/10/15 21:25	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		12/10/15 21:25	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		12/10/15 21:25	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		12/10/15 21:25	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		12/10/15 21:25	79-34-5	
Tetrachloroethene	145	ug/L	0.50	1		12/10/15 21:25	127-18-4	
1,1,1-Trichloroethane	1.8	ug/L	0.50	1		12/10/15 21:25	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		12/10/15 21:25	79-00-5	
Trichloroethene	33.6	ug/L	0.50	1		12/10/15 21:25	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		12/10/15 21:25	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		12/10/15 21:25	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	113	%	70-130	1		12/10/15 21:25	17060-07-0	
Toluene-d8 (S)	100	%	70-130	1		12/10/15 21:25	2037-26-5	
4-Bromofluorobenzene (S)	87	%	70-130	1		12/10/15 21:25	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: S-1		Lab ID: 1258373003		Collected: 12/08/15 15:20	Received: 12/10/15 09:45	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		12/10/15 21:45	75-27-4	
Bromoform	ND	ug/L	0.50	1		12/10/15 21:45	75-25-2	
Bromomethane	ND	ug/L	20.0	1		12/10/15 21:45	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		12/10/15 21:45	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		12/10/15 21:45	108-90-7	
Chloroethane	ND	ug/L	0.50	1		12/10/15 21:45	75-00-3	
Chloroform	ND	ug/L	0.50	1		12/10/15 21:45	67-66-3	
Chloromethane	ND	ug/L	0.50	1		12/10/15 21:45	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		12/10/15 21:45	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		12/10/15 21:45	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		12/10/15 21:45	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		12/10/15 21:45	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		12/10/15 21:45	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		12/10/15 21:45	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		12/10/15 21:45	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		12/10/15 21:45	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		12/10/15 21:45	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		12/10/15 21:45	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		12/10/15 21:45	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		12/10/15 21:45	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		12/10/15 21:45	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		12/10/15 21:45	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		12/10/15 21:45	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		12/10/15 21:45	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		12/10/15 21:45	79-00-5	
Trichloroethene	0.56	ug/L	0.50	1		12/10/15 21:45	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		12/10/15 21:45	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		12/10/15 21:45	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	113	%	70-130	1		12/10/15 21:45	17060-07-0	
Toluene-d8 (S)	100	%	70-130	1		12/10/15 21:45	2037-26-5	
4-Bromofluorobenzene (S)	86	%	70-130	1		12/10/15 21:45	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: S-2		Lab ID: 1258373004		Collected: 12/08/15 15:00	Received: 12/10/15 09:45	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		12/11/15 01:04	75-27-4	
Bromoform	ND	ug/L	0.50	1		12/11/15 01:04	75-25-2	
Bromomethane	ND	ug/L	20.0	1		12/11/15 01:04	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		12/11/15 01:04	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		12/11/15 01:04	108-90-7	
Chloroethane	ND	ug/L	0.50	1		12/11/15 01:04	75-00-3	
Chloroform	ND	ug/L	0.50	1		12/11/15 01:04	67-66-3	
Chloromethane	ND	ug/L	0.50	1		12/11/15 01:04	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		12/11/15 01:04	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 01:04	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 01:04	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 01:04	106-46-7	
1,1-Dichloroethane	3.0	ug/L	0.50	1		12/11/15 01:04	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		12/11/15 01:04	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		12/11/15 01:04	75-35-4	
cis-1,2-Dichloroethene	3.2	ug/L	0.50	1		12/11/15 01:04	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		12/11/15 01:04	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		12/11/15 01:04	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 01:04	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 01:04	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		12/11/15 01:04	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		12/11/15 01:04	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		12/11/15 01:04	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		12/11/15 01:04	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		12/11/15 01:04	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		12/11/15 01:04	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		12/11/15 01:04	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		12/11/15 01:04	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	119	%.	70-130	1		12/11/15 01:04	17060-07-0	
Toluene-d8 (S)	100	%.	70-130	1		12/11/15 01:04	2037-26-5	
4-Bromofluorobenzene (S)	82	%.	70-130	1		12/11/15 01:04	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: MW-13		Lab ID: 1258373005		Collected: 12/08/15 14:35	Received: 12/10/15 09:45	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		12/12/15 00:41	75-27-4	
Bromoform	ND	ug/L	0.50	1		12/12/15 00:41	75-25-2	
Bromomethane	ND	ug/L	20.0	1		12/12/15 00:41	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		12/12/15 00:41	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		12/12/15 00:41	108-90-7	
Chloroethane	ND	ug/L	0.50	1		12/12/15 00:41	75-00-3	
Chloroform	ND	ug/L	0.50	1		12/12/15 00:41	67-66-3	
Chloromethane	ND	ug/L	0.50	1		12/12/15 00:41	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		12/12/15 00:41	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		12/12/15 00:41	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		12/12/15 00:41	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		12/12/15 00:41	106-46-7	
1,1-Dichloroethane	0.89	ug/L	0.50	1		12/12/15 00:41	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		12/12/15 00:41	107-06-2	
1,1-Dichloroethene	0.64	ug/L	0.50	1		12/12/15 00:41	75-35-4	
cis-1,2-Dichloroethene	30.5	ug/L	0.50	1		12/12/15 00:41	156-59-2	
trans-1,2-Dichloroethene	0.88	ug/L	0.50	1		12/12/15 00:41	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		12/12/15 00:41	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		12/12/15 00:41	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		12/12/15 00:41	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		12/12/15 00:41	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		12/12/15 00:41	79-34-5	
Tetrachloroethene	185	ug/L	0.50	1		12/12/15 00:41	127-18-4	
1,1,1-Trichloroethane	0.70	ug/L	0.50	1		12/12/15 00:41	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		12/12/15 00:41	79-00-5	
Trichloroethene	121	ug/L	0.50	1		12/12/15 00:41	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		12/12/15 00:41	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		12/12/15 00:41	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	110	%.	70-130	1		12/12/15 00:41	17060-07-0	
Toluene-d8 (S)	101	%.	70-130	1		12/12/15 00:41	2037-26-5	
4-Bromofluorobenzene (S)	89	%.	70-130	1		12/12/15 00:41	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: MW-1		Lab ID: 1258373006		Collected: 12/08/15 14:00	Received: 12/10/15 09:45	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		12/10/15 22:05	75-27-4	
Bromoform	ND	ug/L	0.50	1		12/10/15 22:05	75-25-2	
Bromomethane	ND	ug/L	20.0	1		12/10/15 22:05	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		12/10/15 22:05	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		12/10/15 22:05	108-90-7	
Chloroethane	ND	ug/L	0.50	1		12/10/15 22:05	75-00-3	
Chloroform	ND	ug/L	0.50	1		12/10/15 22:05	67-66-3	
Chloromethane	ND	ug/L	0.50	1		12/10/15 22:05	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		12/10/15 22:05	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		12/10/15 22:05	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		12/10/15 22:05	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		12/10/15 22:05	106-46-7	
1,1-Dichloroethane	1.4	ug/L	0.50	1		12/10/15 22:05	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		12/10/15 22:05	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		12/10/15 22:05	75-35-4	
cis-1,2-Dichloroethene	25.2	ug/L	0.50	1		12/10/15 22:05	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		12/10/15 22:05	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		12/10/15 22:05	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		12/10/15 22:05	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		12/10/15 22:05	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		12/10/15 22:05	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		12/10/15 22:05	79-34-5	
Tetrachloroethene	18.0	ug/L	0.50	1		12/10/15 22:05	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		12/10/15 22:05	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		12/10/15 22:05	79-00-5	
Trichloroethene	8.9	ug/L	0.50	1		12/10/15 22:05	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		12/10/15 22:05	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		12/10/15 22:05	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	112	%	70-130	1		12/10/15 22:05	17060-07-0	
Toluene-d8 (S)	100	%	70-130	1		12/10/15 22:05	2037-26-5	
4-Bromofluorobenzene (S)	85	%	70-130	1		12/10/15 22:05	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: MW-5	Lab ID: 1258373007	Collected: 12/08/15 13:33	Received: 12/10/15 09:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		12/10/15 22:25	75-27-4	
Bromoform	ND	ug/L	0.50	1		12/10/15 22:25	75-25-2	
Bromomethane	ND	ug/L	20.0	1		12/10/15 22:25	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		12/10/15 22:25	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		12/10/15 22:25	108-90-7	
Chloroethane	ND	ug/L	0.50	1		12/10/15 22:25	75-00-3	
Chloroform	ND	ug/L	0.50	1		12/10/15 22:25	67-66-3	
Chloromethane	ND	ug/L	0.50	1		12/10/15 22:25	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		12/10/15 22:25	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		12/10/15 22:25	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		12/10/15 22:25	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		12/10/15 22:25	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		12/10/15 22:25	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		12/10/15 22:25	107-06-2	
1,1-Dichloroethene	0.73	ug/L	0.50	1		12/10/15 22:25	75-35-4	
cis-1,2-Dichloroethene	199	ug/L	0.50	1		12/10/15 22:25	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		12/10/15 22:25	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		12/10/15 22:25	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		12/10/15 22:25	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		12/10/15 22:25	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		12/10/15 22:25	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		12/10/15 22:25	79-34-5	
Tetrachloroethene	29.5	ug/L	0.50	1		12/10/15 22:25	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		12/10/15 22:25	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		12/10/15 22:25	79-00-5	
Trichloroethene	43.2	ug/L	0.50	1		12/10/15 22:25	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		12/10/15 22:25	75-69-4	
Vinyl chloride	32.3	ug/L	0.50	1		12/10/15 22:25	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	115	%.	70-130	1		12/10/15 22:25	17060-07-0	
Toluene-d8 (S)	101	%.	70-130	1		12/10/15 22:25	2037-26-5	
4-Bromofluorobenzene (S)	86	%.	70-130	1		12/10/15 22:25	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: MW-5 DUP		Lab ID: 1258373008		Collected: 12/08/15 13:33	Received: 12/10/15 09:45	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		12/10/15 22:45	75-27-4	
Bromoform	ND	ug/L	0.50	1		12/10/15 22:45	75-25-2	
Bromomethane	ND	ug/L	20.0	1		12/10/15 22:45	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		12/10/15 22:45	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		12/10/15 22:45	108-90-7	
Chloroethane	ND	ug/L	0.50	1		12/10/15 22:45	75-00-3	
Chloroform	ND	ug/L	0.50	1		12/10/15 22:45	67-66-3	
Chloromethane	ND	ug/L	0.50	1		12/10/15 22:45	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		12/10/15 22:45	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		12/10/15 22:45	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		12/10/15 22:45	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		12/10/15 22:45	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		12/10/15 22:45	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		12/10/15 22:45	107-06-2	
1,1-Dichloroethene	0.68	ug/L	0.50	1		12/10/15 22:45	75-35-4	
cis-1,2-Dichloroethene	175	ug/L	0.50	1		12/10/15 22:45	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		12/10/15 22:45	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		12/10/15 22:45	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		12/10/15 22:45	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		12/10/15 22:45	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		12/10/15 22:45	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		12/10/15 22:45	79-34-5	
Tetrachloroethene	27.1	ug/L	0.50	1		12/10/15 22:45	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		12/10/15 22:45	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		12/10/15 22:45	79-00-5	
Trichloroethene	38.5	ug/L	0.50	1		12/10/15 22:45	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		12/10/15 22:45	75-69-4	
Vinyl chloride	28.4	ug/L	0.50	1		12/10/15 22:45	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	115	%	70-130	1		12/10/15 22:45	17060-07-0	
Toluene-d8 (S)	101	%	70-130	1		12/10/15 22:45	2037-26-5	
4-Bromofluorobenzene (S)	85	%	70-130	1		12/10/15 22:45	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: MW-7	Lab ID: 1258373009	Collected: 12/08/15 13:00	Received: 12/10/15 09:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace		Analytical Method: RSK 175						
Ethane	ND	ug/L	10.0	1		12/14/15 21:48	74-84-0	
Ethene	ND	ug/L	10.0	1		12/14/15 21:48	74-85-1	
Methane	6300	ug/L	10.0	1		12/14/15 21:48	74-82-8	
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		12/10/15 23:05	75-27-4	
Bromoform	ND	ug/L	0.50	1		12/10/15 23:05	75-25-2	
Bromomethane	ND	ug/L	20.0	1		12/10/15 23:05	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		12/10/15 23:05	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		12/10/15 23:05	108-90-7	
Chloroethane	ND	ug/L	0.50	1		12/10/15 23:05	75-00-3	
Chloroform	ND	ug/L	0.50	1		12/10/15 23:05	67-66-3	
Chloromethane	ND	ug/L	0.50	1		12/10/15 23:05	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		12/10/15 23:05	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		12/10/15 23:05	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		12/10/15 23:05	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		12/10/15 23:05	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		12/10/15 23:05	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		12/10/15 23:05	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		12/10/15 23:05	75-35-4	
cis-1,2-Dichloroethene	4.1	ug/L	0.50	1		12/10/15 23:05	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		12/10/15 23:05	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		12/10/15 23:05	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		12/10/15 23:05	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		12/10/15 23:05	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		12/10/15 23:05	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		12/10/15 23:05	79-34-5	
Tetrachloroethene	9.4	ug/L	0.50	1		12/10/15 23:05	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		12/10/15 23:05	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		12/10/15 23:05	79-00-5	
Trichloroethene	1.7	ug/L	0.50	1		12/10/15 23:05	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		12/10/15 23:05	75-69-4	
Vinyl chloride	1.9	ug/L	0.50	1		12/10/15 23:05	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	114	%	70-130	1		12/10/15 23:05	17060-07-0	
Toluene-d8 (S)	101	%	70-130	1		12/10/15 23:05	2037-26-5	
4-Bromofluorobenzene (S)	85	%	70-130	1		12/10/15 23:05	460-00-4	
5310B TOC		Analytical Method: SM 5310B						
Total Organic Carbon	9.8	mg/L	1.0	1		12/11/15 17:20	7440-44-0	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: MW-9		Lab ID: 1258373010		Collected: 12/08/15 12:30	Received: 12/10/15 09:45	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		12/10/15 23:25	75-27-4	
Bromoform	ND	ug/L	0.50	1		12/10/15 23:25	75-25-2	
Bromomethane	ND	ug/L	20.0	1		12/10/15 23:25	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		12/10/15 23:25	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		12/10/15 23:25	108-90-7	
Chloroethane	ND	ug/L	0.50	1		12/10/15 23:25	75-00-3	
Chloroform	ND	ug/L	0.50	1		12/10/15 23:25	67-66-3	
Chloromethane	ND	ug/L	0.50	1		12/10/15 23:25	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		12/10/15 23:25	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		12/10/15 23:25	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		12/10/15 23:25	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		12/10/15 23:25	106-46-7	
1,1-Dichloroethane	3.5	ug/L	0.50	1		12/10/15 23:25	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		12/10/15 23:25	107-06-2	
1,1-Dichloroethene	0.85	ug/L	0.50	1		12/10/15 23:25	75-35-4	
cis-1,2-Dichloroethene	145	ug/L	0.50	1		12/10/15 23:25	156-59-2	
trans-1,2-Dichloroethene	4.2	ug/L	0.50	1		12/10/15 23:25	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		12/10/15 23:25	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		12/10/15 23:25	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		12/10/15 23:25	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		12/10/15 23:25	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		12/10/15 23:25	79-34-5	
Tetrachloroethene	199	ug/L	0.50	1		12/10/15 23:25	127-18-4	
1,1,1-Trichloroethane	2.4	ug/L	0.50	1		12/10/15 23:25	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		12/10/15 23:25	79-00-5	
Trichloroethene	113	ug/L	0.50	1		12/10/15 23:25	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		12/10/15 23:25	75-69-4	
Vinyl chloride	2.0	ug/L	0.50	1		12/10/15 23:25	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	115	%.	70-130	1		12/10/15 23:25	17060-07-0	
Toluene-d8 (S)	100	%.	70-130	1		12/10/15 23:25	2037-26-5	
4-Bromofluorobenzene (S)	84	%.	70-130	1		12/10/15 23:25	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: MW-9 DUP		Lab ID: 1258373011	Collected: 12/08/15 12:30	Received: 12/10/15 09:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		12/10/15 23:45	75-27-4	
Bromoform	ND	ug/L	0.50	1		12/10/15 23:45	75-25-2	
Bromomethane	ND	ug/L	20.0	1		12/10/15 23:45	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		12/10/15 23:45	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		12/10/15 23:45	108-90-7	
Chloroethane	ND	ug/L	0.50	1		12/10/15 23:45	75-00-3	
Chloroform	ND	ug/L	0.50	1		12/10/15 23:45	67-66-3	
Chloromethane	ND	ug/L	0.50	1		12/10/15 23:45	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		12/10/15 23:45	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		12/10/15 23:45	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		12/10/15 23:45	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		12/10/15 23:45	106-46-7	
1,1-Dichloroethane	3.7	ug/L	0.50	1		12/10/15 23:45	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		12/10/15 23:45	107-06-2	
1,1-Dichloroethene	0.93	ug/L	0.50	1		12/10/15 23:45	75-35-4	
cis-1,2-Dichloroethene	153	ug/L	0.50	1		12/10/15 23:45	156-59-2	
trans-1,2-Dichloroethene	4.4	ug/L	0.50	1		12/10/15 23:45	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		12/10/15 23:45	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		12/10/15 23:45	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		12/10/15 23:45	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		12/10/15 23:45	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		12/10/15 23:45	79-34-5	
Tetrachloroethene	198	ug/L	0.84	1.67		12/12/15 02:01	127-18-4	
1,1,1-Trichloroethane	2.5	ug/L	0.50	1		12/10/15 23:45	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		12/10/15 23:45	79-00-5	
Trichloroethene	118	ug/L	0.50	1		12/10/15 23:45	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		12/10/15 23:45	75-69-4	
Vinyl chloride	2.1	ug/L	0.50	1		12/10/15 23:45	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	116	%	70-130	1		12/10/15 23:45	17060-07-0	
Toluene-d8 (S)	100	%	70-130	1		12/10/15 23:45	2037-26-5	
4-Bromofluorobenzene (S)	84	%	70-130	1		12/10/15 23:45	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: MP-1	Lab ID: 1258373012	Collected: 12/08/15 12:05	Received: 12/10/15 09:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace		Analytical Method: RSK 175						
Ethane	ND	ug/L	10.0	1		12/14/15 22:29	74-84-0	
Ethene	ND	ug/L	10.0	1		12/14/15 22:29	74-85-1	
Methane	5370	ug/L	10.0	1		12/14/15 22:29	74-82-8	
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	1.2	2.5		12/11/15 01:44	75-27-4	
Bromoform	ND	ug/L	1.2	2.5		12/11/15 01:44	75-25-2	
Bromomethane	ND	ug/L	50.0	2.5		12/11/15 01:44	74-83-9	
Carbon tetrachloride	ND	ug/L	1.2	2.5		12/11/15 01:44	56-23-5	
Chlorobenzene	ND	ug/L	1.2	2.5		12/11/15 01:44	108-90-7	
Chloroethane	ND	ug/L	1.2	2.5		12/11/15 01:44	75-00-3	
Chloroform	ND	ug/L	1.2	2.5		12/11/15 01:44	67-66-3	
Chloromethane	ND	ug/L	1.2	2.5		12/11/15 01:44	74-87-3	
Dibromochloromethane	ND	ug/L	1.2	2.5		12/11/15 01:44	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	1.2	2.5		12/11/15 01:44	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.2	2.5		12/11/15 01:44	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.2	2.5		12/11/15 01:44	106-46-7	
1,1-Dichloroethane	1.8	ug/L	1.2	2.5		12/11/15 01:44	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.2	2.5		12/11/15 01:44	107-06-2	
1,1-Dichloroethene	1.5	ug/L	1.2	2.5		12/11/15 01:44	75-35-4	
cis-1,2-Dichloroethene	50.9	ug/L	1.2	2.5		12/11/15 01:44	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.2	2.5		12/11/15 01:44	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.2	2.5		12/11/15 01:44	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.2	2.5		12/11/15 01:44	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.2	2.5		12/11/15 01:44	10061-02-6	
Methylene Chloride	ND	ug/L	12.5	2.5		12/11/15 01:44	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.2	2.5		12/11/15 01:44	79-34-5	
Tetrachloroethene	308	ug/L	1.2	2.5		12/11/15 01:44	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	1.2	2.5		12/11/15 01:44	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.2	2.5		12/11/15 01:44	79-00-5	
Trichloroethene	62.6	ug/L	1.2	2.5		12/11/15 01:44	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.2	2.5		12/11/15 01:44	75-69-4	
Vinyl chloride	ND	ug/L	1.2	2.5		12/11/15 01:44	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	117	%	70-130	2.5		12/11/15 01:44	17060-07-0	
Toluene-d8 (S)	101	%	70-130	2.5		12/11/15 01:44	2037-26-5	
4-Bromofluorobenzene (S)	81	%	70-130	2.5		12/11/15 01:44	460-00-4	
5310B TOC		Analytical Method: SM 5310B						
Total Organic Carbon	9.9	mg/L	1.0	1		12/11/15 17:39	7440-44-0	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: MW-24i	Lab ID: 1258373013	Collected: 12/08/15 11:35	Received: 12/10/15 09:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace		Analytical Method: RSK 175						
Ethane	ND	ug/L	10.0	1		12/14/15 22:37	74-84-0	
Ethene	ND	ug/L	10.0	1		12/14/15 22:37	74-85-1	
Methane	245	ug/L	10.0	1		12/14/15 22:37	74-82-8	
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		12/11/15 00:05	75-27-4	
Bromoform	ND	ug/L	0.50	1		12/11/15 00:05	75-25-2	
Bromomethane	ND	ug/L	20.0	1		12/11/15 00:05	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		12/11/15 00:05	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		12/11/15 00:05	108-90-7	
Chloroethane	ND	ug/L	0.50	1		12/11/15 00:05	75-00-3	
Chloroform	ND	ug/L	0.50	1		12/11/15 00:05	67-66-3	
Chloromethane	ND	ug/L	0.50	1		12/11/15 00:05	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		12/11/15 00:05	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 00:05	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 00:05	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 00:05	106-46-7	
1,1-Dichloroethane	0.74	ug/L	0.50	1		12/11/15 00:05	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		12/11/15 00:05	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		12/11/15 00:05	75-35-4	
cis-1,2-Dichloroethene	18.0	ug/L	0.50	1		12/11/15 00:05	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		12/11/15 00:05	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		12/11/15 00:05	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 00:05	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 00:05	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		12/11/15 00:05	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		12/11/15 00:05	79-34-5	
Tetrachloroethene	189	ug/L	0.50	1		12/11/15 00:05	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		12/11/15 00:05	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		12/11/15 00:05	79-00-5	
Trichloroethene	36.4	ug/L	0.50	1		12/11/15 00:05	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		12/11/15 00:05	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		12/11/15 00:05	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	116	%	70-130	1		12/11/15 00:05	17060-07-0	
Toluene-d8 (S)	100	%	70-130	1		12/11/15 00:05	2037-26-5	
4-Bromofluorobenzene (S)	84	%	70-130	1		12/11/15 00:05	460-00-4	
5310B TOC		Analytical Method: SM 5310B						
Total Organic Carbon	3.5	mg/L	1.0	1		12/11/15 17:57	7440-44-0	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: EX-1		Lab ID: 1258373014		Collected: 12/08/15 10:46	Received: 12/10/15 09:45	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace		Analytical Method: RSK 175						
Ethane	ND	ug/L	10.0	1		12/14/15 22:45	74-84-0	
Ethene	ND	ug/L	10.0	1		12/14/15 22:45	74-85-1	
Methane	ND	ug/L	10.0	1		12/14/15 22:45	74-82-8	
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	1.7	3.33		12/12/15 01:21	75-27-4	
Bromoform	ND	ug/L	1.7	3.33		12/12/15 01:21	75-25-2	
Bromomethane	ND	ug/L	66.6	3.33		12/12/15 01:21	74-83-9	
Carbon tetrachloride	ND	ug/L	1.7	3.33		12/12/15 01:21	56-23-5	
Chlorobenzene	ND	ug/L	1.7	3.33		12/12/15 01:21	108-90-7	
Chloroethane	ND	ug/L	1.7	3.33		12/12/15 01:21	75-00-3	
Chloroform	ND	ug/L	1.7	3.33		12/12/15 01:21	67-66-3	
Chloromethane	ND	ug/L	1.7	3.33		12/12/15 01:21	74-87-3	
Dibromochloromethane	ND	ug/L	1.7	3.33		12/12/15 01:21	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	1.7	3.33		12/12/15 01:21	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.7	3.33		12/12/15 01:21	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.7	3.33		12/12/15 01:21	106-46-7	
1,1-Dichloroethane	ND	ug/L	1.7	3.33		12/12/15 01:21	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.7	3.33		12/12/15 01:21	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.7	3.33		12/12/15 01:21	75-35-4	
cis-1,2-Dichloroethene	427	ug/L	1.7	3.33		12/12/15 01:21	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.7	3.33		12/12/15 01:21	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.7	3.33		12/12/15 01:21	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.7	3.33		12/12/15 01:21	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.7	3.33		12/12/15 01:21	10061-02-6	
Methylene Chloride	ND	ug/L	16.6	3.33		12/12/15 01:21	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.7	3.33		12/12/15 01:21	79-34-5	
Tetrachloroethene	94.4	ug/L	1.7	3.33		12/12/15 01:21	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	1.7	3.33		12/12/15 01:21	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.7	3.33		12/12/15 01:21	79-00-5	
Trichloroethene	21.3	ug/L	1.7	3.33		12/12/15 01:21	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.7	3.33		12/12/15 01:21	75-69-4	
Vinyl chloride	2.1	ug/L	1.7	3.33		12/12/15 01:21	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	113	%	70-130	3.33		12/12/15 01:21	17060-07-0	
Toluene-d8 (S)	100	%	70-130	3.33		12/12/15 01:21	2037-26-5	
4-Bromofluorobenzene (S)	88	%	70-130	3.33		12/12/15 01:21	460-00-4	
5310B TOC		Analytical Method: SM 5310B						
Total Organic Carbon	7.5	mg/L	1.0	1		12/11/15 18:16	7440-44-0	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: MW-19		Lab ID: 1258373015		Collected: 12/08/15 09:45		Received: 12/10/15 09:45		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Med Water		Analytical Method: EPA 8260B							
Bromodichloromethane	ND	ug/L	10.0	20		12/12/15 02:21	75-27-4		
Bromoform	ND	ug/L	10.0	20		12/12/15 02:21	75-25-2		
Bromomethane	ND	ug/L	400	20		12/12/15 02:21	74-83-9		
Carbon tetrachloride	ND	ug/L	10.0	20		12/12/15 02:21	56-23-5		
Chlorobenzene	ND	ug/L	10.0	20		12/12/15 02:21	108-90-7		
Chloroethane	ND	ug/L	10.0	20		12/12/15 02:21	75-00-3		
Chloroform	ND	ug/L	10.0	20		12/12/15 02:21	67-66-3		
Chloromethane	ND	ug/L	10.0	20		12/12/15 02:21	74-87-3		
Dibromochloromethane	ND	ug/L	10.0	20		12/12/15 02:21	124-48-1		
1,2-Dichlorobenzene	ND	ug/L	10.0	20		12/12/15 02:21	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	10.0	20		12/12/15 02:21	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	10.0	20		12/12/15 02:21	106-46-7		
1,1-Dichloroethane	150	ug/L	10.0	20		12/12/15 02:21	75-34-3		
1,2-Dichloroethane	ND	ug/L	10.0	20		12/12/15 02:21	107-06-2		
1,1-Dichloroethene	33.5	ug/L	10.0	20		12/12/15 02:21	75-35-4		
cis-1,2-Dichloroethene	1640	ug/L	10.0	20		12/12/15 02:21	156-59-2		
trans-1,2-Dichloroethene	16.4	ug/L	10.0	20		12/12/15 02:21	156-60-5		
1,2-Dichloropropane	ND	ug/L	10.0	20		12/12/15 02:21	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	10.0	20		12/12/15 02:21	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	10.0	20		12/12/15 02:21	10061-02-6		
Methylene Chloride	ND	ug/L	100	20		12/12/15 02:21	75-09-2		
1,1,2,2-Tetrachloroethane	ND	ug/L	10.0	20		12/12/15 02:21	79-34-5		
Tetrachloroethene	2900	ug/L	10.0	20		12/12/15 02:21	127-18-4		
1,1,1-Trichloroethane	36.2	ug/L	10.0	20		12/12/15 02:21	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	10.0	20		12/12/15 02:21	79-00-5		
Trichloroethene	1550	ug/L	10.0	20		12/12/15 02:21	79-01-6		
Trichlorofluoromethane	ND	ug/L	10.0	20		12/12/15 02:21	75-69-4		
Vinyl chloride	87.3	ug/L	10.0	20		12/12/15 02:21	75-01-4		
Surrogates									
1,2-Dichloroethane-d4 (S)	114	%	70-130	20		12/12/15 02:21	17060-07-0		
Toluene-d8 (S)	101	%	70-130	20		12/12/15 02:21	2037-26-5		
4-Bromofluorobenzene (S)	86	%	70-130	20		12/12/15 02:21	460-00-4		

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: MW-19 DUP		Lab ID: 1258373016		Collected: 12/08/15 09:45		Received: 12/10/15 09:45		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Med Water		Analytical Method: EPA 8260B							
Bromodichloromethane	ND	ug/L	10.0	20		12/12/15 02:41	75-27-4		
Bromoform	ND	ug/L	10.0	20		12/12/15 02:41	75-25-2		
Bromomethane	ND	ug/L	400	20		12/12/15 02:41	74-83-9		
Carbon tetrachloride	ND	ug/L	10.0	20		12/12/15 02:41	56-23-5		
Chlorobenzene	ND	ug/L	10.0	20		12/12/15 02:41	108-90-7		
Chloroethane	ND	ug/L	10.0	20		12/12/15 02:41	75-00-3		
Chloroform	ND	ug/L	10.0	20		12/12/15 02:41	67-66-3		
Chloromethane	ND	ug/L	10.0	20		12/12/15 02:41	74-87-3		
Dibromochloromethane	ND	ug/L	10.0	20		12/12/15 02:41	124-48-1		
1,2-Dichlorobenzene	ND	ug/L	10.0	20		12/12/15 02:41	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	10.0	20		12/12/15 02:41	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	10.0	20		12/12/15 02:41	106-46-7		
1,1-Dichloroethane	155	ug/L	10.0	20		12/12/15 02:41	75-34-3		
1,2-Dichloroethane	ND	ug/L	10.0	20		12/12/15 02:41	107-06-2		
1,1-Dichloroethene	35.1	ug/L	10.0	20		12/12/15 02:41	75-35-4		
cis-1,2-Dichloroethene	1680	ug/L	10.0	20		12/12/15 02:41	156-59-2		
trans-1,2-Dichloroethene	17.2	ug/L	10.0	20		12/12/15 02:41	156-60-5		
1,2-Dichloropropane	ND	ug/L	10.0	20		12/12/15 02:41	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	10.0	20		12/12/15 02:41	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	10.0	20		12/12/15 02:41	10061-02-6		
Methylene Chloride	ND	ug/L	100	20		12/12/15 02:41	75-09-2		
1,1,2,2-Tetrachloroethane	ND	ug/L	10.0	20		12/12/15 02:41	79-34-5		
Tetrachloroethene	3020	ug/L	10.0	20		12/12/15 02:41	127-18-4		
1,1,1-Trichloroethane	37.1	ug/L	10.0	20		12/12/15 02:41	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	10.0	20		12/12/15 02:41	79-00-5		
Trichloroethene	1600	ug/L	10.0	20		12/12/15 02:41	79-01-6		
Trichlorofluoromethane	ND	ug/L	10.0	20		12/12/15 02:41	75-69-4		
Vinyl chloride	89.8	ug/L	10.0	20		12/12/15 02:41	75-01-4		
Surrogates									
1,2-Dichloroethane-d4 (S)	113	%	70-130	20		12/12/15 02:41	17060-07-0		
Toluene-d8 (S)	101	%	70-130	20		12/12/15 02:41	2037-26-5		
4-Bromofluorobenzene (S)	86	%	70-130	20		12/12/15 02:41	460-00-4		

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: MW-12		Lab ID: 1258373017		Collected: 12/08/15 09:20	Received: 12/10/15 09:45	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace		Analytical Method: RSK 175						
Ethane	ND	ug/L	10.0	1		12/14/15 22:54	74-84-0	
Ethene	ND	ug/L	10.0	1		12/14/15 22:54	74-85-1	
Methane	ND	ug/L	10.0	1		12/14/15 22:54	74-82-8	
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		12/12/15 01:01	75-27-4	
Bromoform	ND	ug/L	0.50	1		12/12/15 01:01	75-25-2	
Bromomethane	ND	ug/L	20.0	1		12/12/15 01:01	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		12/12/15 01:01	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		12/12/15 01:01	108-90-7	
Chloroethane	ND	ug/L	0.50	1		12/12/15 01:01	75-00-3	
Chloroform	ND	ug/L	0.50	1		12/12/15 01:01	67-66-3	
Chloromethane	ND	ug/L	0.50	1		12/12/15 01:01	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		12/12/15 01:01	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		12/12/15 01:01	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		12/12/15 01:01	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		12/12/15 01:01	106-46-7	
1,1-Dichloroethane	0.84	ug/L	0.50	1		12/12/15 01:01	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		12/12/15 01:01	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		12/12/15 01:01	75-35-4	
cis-1,2-Dichloroethene	40.1	ug/L	0.50	1		12/12/15 01:01	156-59-2	
trans-1,2-Dichloroethene	0.72	ug/L	0.50	1		12/12/15 01:01	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		12/12/15 01:01	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		12/12/15 01:01	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		12/12/15 01:01	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		12/12/15 01:01	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		12/12/15 01:01	79-34-5	
Tetrachloroethene	44.9	ug/L	0.50	1		12/12/15 01:01	127-18-4	
1,1,1-Trichloroethane	0.52	ug/L	0.50	1		12/12/15 01:01	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		12/12/15 01:01	79-00-5	
Trichloroethene	22.0	ug/L	0.50	1		12/12/15 01:01	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		12/12/15 01:01	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		12/12/15 01:01	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	110	%	70-130	1		12/12/15 01:01	17060-07-0	
Toluene-d8 (S)	101	%	70-130	1		12/12/15 01:01	2037-26-5	
4-Bromofluorobenzene (S)	88	%	70-130	1		12/12/15 01:01	460-00-4	
5310B TOC		Analytical Method: SM 5310B						
Total Organic Carbon	16.5	mg/L		1.0	1	12/11/15 18:35	7440-44-0	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: MGMS1-60		Lab ID: 1258373018		Collected: 12/08/15 08:45	Received: 12/10/15 09:45	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		12/11/15 00:24	75-27-4	
Bromoform	ND	ug/L	0.50	1		12/11/15 00:24	75-25-2	
Bromomethane	ND	ug/L	20.0	1		12/11/15 00:24	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		12/11/15 00:24	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		12/11/15 00:24	108-90-7	
Chloroethane	ND	ug/L	0.50	1		12/11/15 00:24	75-00-3	
Chloroform	ND	ug/L	0.50	1		12/11/15 00:24	67-66-3	
Chloromethane	ND	ug/L	0.50	1		12/11/15 00:24	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		12/11/15 00:24	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 00:24	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 00:24	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 00:24	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		12/11/15 00:24	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		12/11/15 00:24	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		12/11/15 00:24	75-35-4	
cis-1,2-Dichloroethene	18.8	ug/L	0.50	1		12/11/15 00:24	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		12/11/15 00:24	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		12/11/15 00:24	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 00:24	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 00:24	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		12/11/15 00:24	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		12/11/15 00:24	79-34-5	
Tetrachloroethene	13.8	ug/L	0.50	1		12/11/15 00:24	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		12/11/15 00:24	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		12/11/15 00:24	79-00-5	
Trichloroethene	12.4	ug/L	0.50	1		12/11/15 00:24	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		12/11/15 00:24	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		12/11/15 00:24	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	116	%	70-130	1		12/11/15 00:24	17060-07-0	
Toluene-d8 (S)	100	%	70-130	1		12/11/15 00:24	2037-26-5	
4-Bromofluorobenzene (S)	84	%	70-130	1		12/11/15 00:24	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: MGMS1-43		Lab ID: 1258373019		Collected: 12/08/15 08:30	Received: 12/10/15 09:45	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	5.0	10		12/12/15 01:41	75-27-4	
Bromoform	ND	ug/L	5.0	10		12/12/15 01:41	75-25-2	
Bromomethane	ND	ug/L	200	10		12/12/15 01:41	74-83-9	
Carbon tetrachloride	ND	ug/L	5.0	10		12/12/15 01:41	56-23-5	
Chlorobenzene	ND	ug/L	5.0	10		12/12/15 01:41	108-90-7	
Chloroethane	ND	ug/L	5.0	10		12/12/15 01:41	75-00-3	
Chloroform	ND	ug/L	5.0	10		12/12/15 01:41	67-66-3	
Chloromethane	ND	ug/L	5.0	10		12/12/15 01:41	74-87-3	
Dibromochloromethane	ND	ug/L	5.0	10		12/12/15 01:41	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	5.0	10		12/12/15 01:41	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	10		12/12/15 01:41	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	10		12/12/15 01:41	106-46-7	
1,1-Dichloroethane	91.8	ug/L	5.0	10		12/12/15 01:41	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	10		12/12/15 01:41	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	10		12/12/15 01:41	75-35-4	
cis-1,2-Dichloroethene	1580	ug/L	5.0	10		12/12/15 01:41	156-59-2	
trans-1,2-Dichloroethene	11.5	ug/L	5.0	10		12/12/15 01:41	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	10		12/12/15 01:41	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	5.0	10		12/12/15 01:41	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	10		12/12/15 01:41	10061-02-6	
Methylene Chloride	ND	ug/L	50.0	10		12/12/15 01:41	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	10		12/12/15 01:41	79-34-5	
Tetrachloroethene	26.2	ug/L	5.0	10		12/12/15 01:41	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	5.0	10		12/12/15 01:41	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	10		12/12/15 01:41	79-00-5	
Trichloroethene	88.1	ug/L	5.0	10		12/12/15 01:41	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	10		12/12/15 01:41	75-69-4	
Vinyl chloride	230	ug/L	5.0	10		12/12/15 01:41	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	113	%	70-130	10		12/12/15 01:41	17060-07-0	
Toluene-d8 (S)	100	%	70-130	10		12/12/15 01:41	2037-26-5	
4-Bromofluorobenzene (S)	88	%	70-130	10		12/12/15 01:41	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: MGMS2-40		Lab ID: 1258373020		Collected: 12/08/15 07:30	Received: 12/10/15 09:45	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace		Analytical Method: RSK 175						
Ethane	72.2	ug/L	10.0	1		12/15/15 10:31	74-84-0	
Ethene	22.8	ug/L	10.0	1		12/15/15 10:31	74-85-1	
Methane	3190	ug/L	10.0	1		12/15/15 10:31	74-82-8	
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		12/11/15 00:44	75-27-4	
Bromoform	ND	ug/L	0.50	1		12/11/15 00:44	75-25-2	
Bromomethane	ND	ug/L	20.0	1		12/11/15 00:44	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		12/11/15 00:44	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		12/11/15 00:44	108-90-7	
Chloroethane	3.8	ug/L	0.50	1		12/11/15 00:44	75-00-3	
Chloroform	ND	ug/L	0.50	1		12/11/15 00:44	67-66-3	
Chloromethane	ND	ug/L	0.50	1		12/11/15 00:44	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		12/11/15 00:44	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 00:44	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 00:44	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 00:44	106-46-7	
1,1-Dichloroethane	13.5	ug/L	0.50	1		12/11/15 00:44	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		12/11/15 00:44	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		12/11/15 00:44	75-35-4	
cis-1,2-Dichloroethene	7.2	ug/L	0.50	1		12/11/15 00:44	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		12/11/15 00:44	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		12/11/15 00:44	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 00:44	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 00:44	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		12/11/15 00:44	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		12/11/15 00:44	79-34-5	
Tetrachloroethene	4.0	ug/L	0.50	1		12/11/15 00:44	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		12/11/15 00:44	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		12/11/15 00:44	79-00-5	
Trichloroethene	2.8	ug/L	0.50	1		12/11/15 00:44	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		12/11/15 00:44	75-69-4	
Vinyl chloride	3.3	ug/L	0.50	1		12/11/15 00:44	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	116	%	70-130	1		12/11/15 00:44	17060-07-0	
Toluene-d8 (S)	100	%	70-130	1		12/11/15 00:44	2037-26-5	
4-Bromofluorobenzene (S)	83	%	70-130	1		12/11/15 00:44	460-00-4	
5310B TOC		Analytical Method: SM 5310B						
Total Organic Carbon	7.9	mg/L	1.0	1		12/11/15 18:54	7440-44-0	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: MGMS3-60	Lab ID: 1258373021	Collected: 12/07/15 15:10	Received: 12/10/15 09:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		12/11/15 09:54	75-27-4	
Bromoform	ND	ug/L	0.50	1		12/11/15 09:54	75-25-2	
Bromomethane	ND	ug/L	20.0	1		12/11/15 09:54	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		12/11/15 09:54	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		12/11/15 09:54	108-90-7	
Chloroethane	ND	ug/L	0.50	1		12/11/15 09:54	75-00-3	L2,M0
Chloroform	ND	ug/L	0.50	1		12/11/15 09:54	67-66-3	
Chloromethane	ND	ug/L	0.50	1		12/11/15 09:54	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		12/11/15 09:54	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 09:54	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 09:54	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 09:54	106-46-7	
1,1-Dichloroethane	0.75	ug/L	0.50	1		12/11/15 09:54	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		12/11/15 09:54	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		12/11/15 09:54	75-35-4	
cis-1,2-Dichloroethene	13.9	ug/L	0.50	1		12/11/15 09:54	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		12/11/15 09:54	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		12/11/15 09:54	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 09:54	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 09:54	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		12/11/15 09:54	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		12/11/15 09:54	79-34-5	
Tetrachloroethene	4.2	ug/L	0.50	1		12/11/15 09:54	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		12/11/15 09:54	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		12/11/15 09:54	79-00-5	
Trichloroethene	2.5	ug/L	0.50	1		12/11/15 09:54	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		12/11/15 09:54	75-69-4	
Vinyl chloride	16.7	ug/L	0.50	1		12/11/15 09:54	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	116	%	70-130	1		12/11/15 09:54	17060-07-0	
Toluene-d8 (S)	100	%	70-130	1		12/11/15 09:54	2037-26-5	
4-Bromofluorobenzene (S)	80	%	70-130	1		12/11/15 09:54	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: MGMS3-40		Lab ID: 1258373022	Collected: 12/07/15 14:50	Received: 12/10/15 09:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	1.2	2.5		12/11/15 16:35	75-27-4	
Bromoform	ND	ug/L	1.2	2.5		12/11/15 16:35	75-25-2	
Bromomethane	ND	ug/L	50.0	2.5		12/11/15 16:35	74-83-9	
Carbon tetrachloride	ND	ug/L	1.2	2.5		12/11/15 16:35	56-23-5	
Chlorobenzene	ND	ug/L	1.2	2.5		12/11/15 16:35	108-90-7	
Chloroethane	ND	ug/L	1.2	2.5		12/11/15 16:35	75-00-3	L2
Chloroform	ND	ug/L	1.2	2.5		12/11/15 16:35	67-66-3	
Chloromethane	ND	ug/L	1.2	2.5		12/11/15 16:35	74-87-3	
Dibromochloromethane	ND	ug/L	1.2	2.5		12/11/15 16:35	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	1.2	2.5		12/11/15 16:35	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.2	2.5		12/11/15 16:35	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.2	2.5		12/11/15 16:35	106-46-7	
1,1-Dichloroethane	9.1	ug/L	1.2	2.5		12/11/15 16:35	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.2	2.5		12/11/15 16:35	107-06-2	
1,1-Dichloroethene	2.0	ug/L	1.2	2.5		12/11/15 16:35	75-35-4	
cis-1,2-Dichloroethene	370	ug/L	1.2	2.5		12/11/15 16:35	156-59-2	
trans-1,2-Dichloroethene	3.1	ug/L	1.2	2.5		12/11/15 16:35	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.2	2.5		12/11/15 16:35	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.2	2.5		12/11/15 16:35	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.2	2.5		12/11/15 16:35	10061-02-6	
Methylene Chloride	ND	ug/L	12.5	2.5		12/11/15 16:35	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.2	2.5		12/11/15 16:35	79-34-5	
Tetrachloroethene	109	ug/L	1.2	2.5		12/11/15 16:35	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	1.2	2.5		12/11/15 16:35	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.2	2.5		12/11/15 16:35	79-00-5	
Trichloroethene	94.8	ug/L	1.2	2.5		12/11/15 16:35	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.2	2.5		12/11/15 16:35	75-69-4	
Vinyl chloride	4.0	ug/L	1.2	2.5		12/11/15 16:35	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	120	%	70-130	2.5		12/11/15 16:35	17060-07-0	
Toluene-d8 (S)	101	%	70-130	2.5		12/11/15 16:35	2037-26-5	
4-Bromofluorobenzene (S)	77	%	70-130	2.5		12/11/15 16:35	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: MW-19i	Lab ID: 1258373023	Collected: 12/07/15 14:30	Received: 12/10/15 09:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		12/11/15 12:54	75-27-4	
Bromoform	ND	ug/L	0.50	1		12/11/15 12:54	75-25-2	
Bromomethane	ND	ug/L	20.0	1		12/11/15 12:54	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		12/11/15 12:54	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		12/11/15 12:54	108-90-7	
Chloroethane	ND	ug/L	0.50	1		12/11/15 12:54	75-00-3	L2
Chloroform	ND	ug/L	0.50	1		12/11/15 12:54	67-66-3	
Chloromethane	ND	ug/L	0.50	1		12/11/15 12:54	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		12/11/15 12:54	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 12:54	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 12:54	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 12:54	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		12/11/15 12:54	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		12/11/15 12:54	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		12/11/15 12:54	75-35-4	
cis-1,2-Dichloroethene	3.0	ug/L	0.50	1		12/11/15 12:54	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		12/11/15 12:54	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		12/11/15 12:54	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 12:54	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 12:54	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		12/11/15 12:54	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		12/11/15 12:54	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		12/11/15 12:54	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		12/11/15 12:54	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		12/11/15 12:54	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		12/11/15 12:54	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		12/11/15 12:54	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		12/11/15 12:54	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	117	%	70-130	1		12/11/15 12:54	17060-07-0	
Toluene-d8 (S)	101	%	70-130	1		12/11/15 12:54	2037-26-5	
4-Bromofluorobenzene (S)	83	%	70-130	1		12/11/15 12:54	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: MW-18i	Lab ID: 1258373024	Collected: 12/07/15 13:55	Received: 12/10/15 09:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		12/11/15 13:14	75-27-4	
Bromoform	ND	ug/L	0.50	1		12/11/15 13:14	75-25-2	
Bromomethane	ND	ug/L	20.0	1		12/11/15 13:14	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		12/11/15 13:14	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		12/11/15 13:14	108-90-7	
Chloroethane	ND	ug/L	0.50	1		12/11/15 13:14	75-00-3	L2
Chloroform	ND	ug/L	0.50	1		12/11/15 13:14	67-66-3	
Chloromethane	ND	ug/L	0.50	1		12/11/15 13:14	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		12/11/15 13:14	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 13:14	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 13:14	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 13:14	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		12/11/15 13:14	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		12/11/15 13:14	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		12/11/15 13:14	75-35-4	
cis-1,2-Dichloroethene	6.5	ug/L	0.50	1		12/11/15 13:14	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		12/11/15 13:14	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		12/11/15 13:14	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 13:14	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 13:14	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		12/11/15 13:14	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		12/11/15 13:14	79-34-5	
Tetrachloroethene	4.0	ug/L	0.50	1		12/11/15 13:14	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		12/11/15 13:14	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		12/11/15 13:14	79-00-5	
Trichloroethene	2.6	ug/L	0.50	1		12/11/15 13:14	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		12/11/15 13:14	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		12/11/15 13:14	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	117	%.	70-130	1		12/11/15 13:14	17060-07-0	
Toluene-d8 (S)	101	%.	70-130	1		12/11/15 13:14	2037-26-5	
4-Bromofluorobenzene (S)	81	%.	70-130	1		12/11/15 13:14	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: MW-8	Lab ID: 1258373025	Collected: 12/07/15 13:10	Received: 12/10/15 09:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		12/11/15 13:34	75-27-4	
Bromoform	ND	ug/L	0.50	1		12/11/15 13:34	75-25-2	
Bromomethane	ND	ug/L	20.0	1		12/11/15 13:34	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		12/11/15 13:34	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		12/11/15 13:34	108-90-7	
Chloroethane	ND	ug/L	0.50	1		12/11/15 13:34	75-00-3	L2
Chloroform	ND	ug/L	0.50	1		12/11/15 13:34	67-66-3	
Chloromethane	ND	ug/L	0.50	1		12/11/15 13:34	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		12/11/15 13:34	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 13:34	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 13:34	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 13:34	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		12/11/15 13:34	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		12/11/15 13:34	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		12/11/15 13:34	75-35-4	
cis-1,2-Dichloroethene	2.0	ug/L	0.50	1		12/11/15 13:34	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		12/11/15 13:34	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		12/11/15 13:34	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 13:34	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 13:34	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		12/11/15 13:34	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		12/11/15 13:34	79-34-5	
Tetrachloroethene	1.1	ug/L	0.50	1		12/11/15 13:34	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		12/11/15 13:34	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		12/11/15 13:34	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		12/11/15 13:34	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		12/11/15 13:34	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		12/11/15 13:34	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	118	%	70-130	1		12/11/15 13:34	17060-07-0	
Toluene-d8 (S)	101	%	70-130	1		12/11/15 13:34	2037-26-5	
4-Bromofluorobenzene (S)	80	%	70-130	1		12/11/15 13:34	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: MW-32S	Lab ID: 1258373026	Collected: 12/07/15 12:40	Received: 12/10/15 09:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		12/11/15 13:54	75-27-4	
Bromoform	ND	ug/L	0.50	1		12/11/15 13:54	75-25-2	
Bromomethane	ND	ug/L	20.0	1		12/11/15 13:54	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		12/11/15 13:54	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		12/11/15 13:54	108-90-7	
Chloroethane	ND	ug/L	0.50	1		12/11/15 13:54	75-00-3	L2
Chloroform	ND	ug/L	0.50	1		12/11/15 13:54	67-66-3	
Chloromethane	ND	ug/L	0.50	1		12/11/15 13:54	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		12/11/15 13:54	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 13:54	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 13:54	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 13:54	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		12/11/15 13:54	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		12/11/15 13:54	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		12/11/15 13:54	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		12/11/15 13:54	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		12/11/15 13:54	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		12/11/15 13:54	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 13:54	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 13:54	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		12/11/15 13:54	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		12/11/15 13:54	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		12/11/15 13:54	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		12/11/15 13:54	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		12/11/15 13:54	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		12/11/15 13:54	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		12/11/15 13:54	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		12/11/15 13:54	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	118	%	70-130	1		12/11/15 13:54	17060-07-0	
Toluene-d8 (S)	100	%	70-130	1		12/11/15 13:54	2037-26-5	
4-Bromofluorobenzene (S)	79	%	70-130	1		12/11/15 13:54	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: MW-21i-105		Lab ID: 1258373027		Collected: 12/07/15 11:15	Received: 12/10/15 09:45	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		12/11/15 14:14	75-27-4	
Bromoform	ND	ug/L	0.50	1		12/11/15 14:14	75-25-2	
Bromomethane	ND	ug/L	20.0	1		12/11/15 14:14	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		12/11/15 14:14	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		12/11/15 14:14	108-90-7	
Chloroethane	ND	ug/L	0.50	1		12/11/15 14:14	75-00-3	L2
Chloroform	ND	ug/L	0.50	1		12/11/15 14:14	67-66-3	
Chloromethane	ND	ug/L	0.50	1		12/11/15 14:14	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		12/11/15 14:14	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 14:14	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 14:14	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 14:14	106-46-7	
1,1-Dichloroethane	0.79	ug/L	0.50	1		12/11/15 14:14	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		12/11/15 14:14	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		12/11/15 14:14	75-35-4	
cis-1,2-Dichloroethene	28.5	ug/L	0.50	1		12/11/15 14:14	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		12/11/15 14:14	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		12/11/15 14:14	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 14:14	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 14:14	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		12/11/15 14:14	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		12/11/15 14:14	79-34-5	
Tetrachloroethene	4.9	ug/L	0.50	1		12/11/15 14:14	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		12/11/15 14:14	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		12/11/15 14:14	79-00-5	
Trichloroethene	8.1	ug/L	0.50	1		12/11/15 14:14	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		12/11/15 14:14	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		12/11/15 14:14	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	119	%	70-130	1		12/11/15 14:14	17060-07-0	
Toluene-d8 (S)	100	%	70-130	1		12/11/15 14:14	2037-26-5	
4-Bromofluorobenzene (S)	81	%	70-130	1		12/11/15 14:14	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: MW-22i	Lab ID: 1258373028	Collected: 12/07/15 10:50	Received: 12/10/15 09:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		12/11/15 14:35	75-27-4	
Bromoform	ND	ug/L	0.50	1		12/11/15 14:35	75-25-2	
Bromomethane	ND	ug/L	20.0	1		12/11/15 14:35	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		12/11/15 14:35	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		12/11/15 14:35	108-90-7	
Chloroethane	ND	ug/L	0.50	1		12/11/15 14:35	75-00-3	L2
Chloroform	ND	ug/L	0.50	1		12/11/15 14:35	67-66-3	
Chloromethane	ND	ug/L	0.50	1		12/11/15 14:35	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		12/11/15 14:35	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 14:35	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 14:35	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 14:35	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		12/11/15 14:35	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		12/11/15 14:35	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		12/11/15 14:35	75-35-4	
cis-1,2-Dichloroethene	8.3	ug/L	0.50	1		12/11/15 14:35	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		12/11/15 14:35	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		12/11/15 14:35	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 14:35	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 14:35	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		12/11/15 14:35	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		12/11/15 14:35	79-34-5	
Tetrachloroethene	2.1	ug/L	0.50	1		12/11/15 14:35	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		12/11/15 14:35	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		12/11/15 14:35	79-00-5	
Trichloroethene	11.0	ug/L	0.50	1		12/11/15 14:35	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		12/11/15 14:35	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		12/11/15 14:35	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	119	%	70-130	1		12/11/15 14:35	17060-07-0	
Toluene-d8 (S)	100	%	70-130	1		12/11/15 14:35	2037-26-5	
4-Bromofluorobenzene (S)	78	%	70-130	1		12/11/15 14:35	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: MW-21i-40		Lab ID: 1258373029		Collected: 12/07/15 12:00	Received: 12/10/15 09:45	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		12/11/15 14:55	75-27-4	
Bromoform	ND	ug/L	0.50	1		12/11/15 14:55	75-25-2	
Bromomethane	ND	ug/L	20.0	1		12/11/15 14:55	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		12/11/15 14:55	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		12/11/15 14:55	108-90-7	
Chloroethane	ND	ug/L	0.50	1		12/11/15 14:55	75-00-3	L2
Chloroform	ND	ug/L	0.50	1		12/11/15 14:55	67-66-3	
Chloromethane	ND	ug/L	0.50	1		12/11/15 14:55	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		12/11/15 14:55	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 14:55	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 14:55	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 14:55	106-46-7	
1,1-Dichloroethane	2.8	ug/L	0.50	1		12/11/15 14:55	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		12/11/15 14:55	107-06-2	
1,1-Dichloroethene	0.70	ug/L	0.50	1		12/11/15 14:55	75-35-4	
cis-1,2-Dichloroethene	63.6	ug/L	0.50	1		12/11/15 14:55	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		12/11/15 14:55	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		12/11/15 14:55	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 14:55	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 14:55	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		12/11/15 14:55	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		12/11/15 14:55	79-34-5	
Tetrachloroethene	24.7	ug/L	0.50	1		12/11/15 14:55	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		12/11/15 14:55	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		12/11/15 14:55	79-00-5	
Trichloroethene	21.1	ug/L	0.50	1		12/11/15 14:55	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		12/11/15 14:55	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		12/11/15 14:55	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	119	%	70-130	1		12/11/15 14:55	17060-07-0	
Toluene-d8 (S)	101	%	70-130	1		12/11/15 14:55	2037-26-5	
4-Bromofluorobenzene (S)	79	%	70-130	1		12/11/15 14:55	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: MW-26	Lab ID: 1258373030	Collected: 12/07/15 10:15	Received: 12/10/15 09:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	1.2	2.5		12/11/15 16:55	75-27-4	
Bromoform	ND	ug/L	1.2	2.5		12/11/15 16:55	75-25-2	
Bromomethane	ND	ug/L	50.0	2.5		12/11/15 16:55	74-83-9	
Carbon tetrachloride	ND	ug/L	1.2	2.5		12/11/15 16:55	56-23-5	
Chlorobenzene	ND	ug/L	1.2	2.5		12/11/15 16:55	108-90-7	
Chloroethane	ND	ug/L	1.2	2.5		12/11/15 16:55	75-00-3	L2
Chloroform	ND	ug/L	1.2	2.5		12/11/15 16:55	67-66-3	
Chloromethane	ND	ug/L	1.2	2.5		12/11/15 16:55	74-87-3	
Dibromochloromethane	ND	ug/L	1.2	2.5		12/11/15 16:55	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	1.2	2.5		12/11/15 16:55	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.2	2.5		12/11/15 16:55	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.2	2.5		12/11/15 16:55	106-46-7	
1,1-Dichloroethane	8.5	ug/L	1.2	2.5		12/11/15 16:55	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.2	2.5		12/11/15 16:55	107-06-2	
1,1-Dichloroethene	1.7	ug/L	1.2	2.5		12/11/15 16:55	75-35-4	
cis-1,2-Dichloroethene	75.0	ug/L	1.2	2.5		12/11/15 16:55	156-59-2	
trans-1,2-Dichloroethene	1.6	ug/L	1.2	2.5		12/11/15 16:55	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.2	2.5		12/11/15 16:55	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.2	2.5		12/11/15 16:55	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.2	2.5		12/11/15 16:55	10061-02-6	
Methylene Chloride	ND	ug/L	12.5	2.5		12/11/15 16:55	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.2	2.5		12/11/15 16:55	79-34-5	
Tetrachloroethene	179	ug/L	1.2	2.5		12/11/15 16:55	127-18-4	
1,1,1-Trichloroethane	3.5	ug/L	1.2	2.5		12/11/15 16:55	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.2	2.5		12/11/15 16:55	79-00-5	
Trichloroethene	393	ug/L	1.2	2.5		12/11/15 16:55	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.2	2.5		12/11/15 16:55	75-69-4	
Vinyl chloride	ND	ug/L	1.2	2.5		12/11/15 16:55	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	120	%	70-130	2.5		12/11/15 16:55	17060-07-0	
Toluene-d8 (S)	101	%	70-130	2.5		12/11/15 16:55	2037-26-5	
4-Bromofluorobenzene (S)	77	%	70-130	2.5		12/11/15 16:55	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: MW-25i	Lab ID: 1258373031	Collected: 12/07/15 09:40	Received: 12/10/15 09:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		12/11/15 15:15	75-27-4	
Bromoform	ND	ug/L	0.50	1		12/11/15 15:15	75-25-2	
Bromomethane	ND	ug/L	20.0	1		12/11/15 15:15	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		12/11/15 15:15	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		12/11/15 15:15	108-90-7	
Chloroethane	ND	ug/L	0.50	1		12/11/15 15:15	75-00-3	L2
Chloroform	ND	ug/L	0.50	1		12/11/15 15:15	67-66-3	
Chloromethane	ND	ug/L	0.50	1		12/11/15 15:15	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		12/11/15 15:15	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 15:15	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 15:15	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 15:15	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		12/11/15 15:15	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		12/11/15 15:15	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		12/11/15 15:15	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		12/11/15 15:15	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		12/11/15 15:15	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		12/11/15 15:15	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 15:15	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 15:15	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		12/11/15 15:15	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		12/11/15 15:15	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		12/11/15 15:15	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		12/11/15 15:15	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		12/11/15 15:15	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		12/11/15 15:15	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		12/11/15 15:15	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		12/11/15 15:15	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	119	%.	70-130	1		12/11/15 15:15	17060-07-0	
Toluene-d8 (S)	101	%.	70-130	1		12/11/15 15:15	2037-26-5	
4-Bromofluorobenzene (S)	78	%.	70-130	1		12/11/15 15:15	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: MW-23i	Lab ID: 1258373032	Collected: 12/07/15 09:00	Received: 12/10/15 09:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		12/11/15 15:35	75-27-4	
Bromoform	ND	ug/L	0.50	1		12/11/15 15:35	75-25-2	
Bromomethane	ND	ug/L	20.0	1		12/11/15 15:35	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		12/11/15 15:35	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		12/11/15 15:35	108-90-7	
Chloroethane	ND	ug/L	0.50	1		12/11/15 15:35	75-00-3	L2
Chloroform	ND	ug/L	0.50	1		12/11/15 15:35	67-66-3	
Chloromethane	ND	ug/L	0.50	1		12/11/15 15:35	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		12/11/15 15:35	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 15:35	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 15:35	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 15:35	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		12/11/15 15:35	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		12/11/15 15:35	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		12/11/15 15:35	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		12/11/15 15:35	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		12/11/15 15:35	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		12/11/15 15:35	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 15:35	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 15:35	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		12/11/15 15:35	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		12/11/15 15:35	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		12/11/15 15:35	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		12/11/15 15:35	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		12/11/15 15:35	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		12/11/15 15:35	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		12/11/15 15:35	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		12/11/15 15:35	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	118	%.	70-130	1		12/11/15 15:35	17060-07-0	
Toluene-d8 (S)	101	%.	70-130	1		12/11/15 15:35	2037-26-5	
4-Bromofluorobenzene (S)	77	%.	70-130	1		12/11/15 15:35	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: TRIP Blank A	Lab ID: 1258373033	Collected: 12/07/15 00:00	Received: 12/10/15 09:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		12/11/15 11:54	75-27-4	
Bromoform	ND	ug/L	0.50	1		12/11/15 11:54	75-25-2	
Bromomethane	ND	ug/L	20.0	1		12/11/15 11:54	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		12/11/15 11:54	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		12/11/15 11:54	108-90-7	
Chloroethane	ND	ug/L	0.50	1		12/11/15 11:54	75-00-3	L2
Chloroform	ND	ug/L	0.50	1		12/11/15 11:54	67-66-3	
Chloromethane	ND	ug/L	0.50	1		12/11/15 11:54	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		12/11/15 11:54	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 11:54	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 11:54	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 11:54	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		12/11/15 11:54	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		12/11/15 11:54	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		12/11/15 11:54	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		12/11/15 11:54	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		12/11/15 11:54	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		12/11/15 11:54	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 11:54	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 11:54	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		12/11/15 11:54	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		12/11/15 11:54	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		12/11/15 11:54	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		12/11/15 11:54	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		12/11/15 11:54	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		12/11/15 11:54	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		12/11/15 11:54	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		12/11/15 11:54	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	115	%.	70-130	1		12/11/15 11:54	17060-07-0	
Toluene-d8 (S)	101	%.	70-130	1		12/11/15 11:54	2037-26-5	
4-Bromofluorobenzene (S)	85	%.	70-130	1		12/11/15 11:54	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: Field Blank	Lab ID: 1258373034	Collected: 12/09/15 12:00	Received: 12/10/15 09:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		12/11/15 12:14	75-27-4	
Bromoform	ND	ug/L	0.50	1		12/11/15 12:14	75-25-2	
Bromomethane	ND	ug/L	20.0	1		12/11/15 12:14	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		12/11/15 12:14	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		12/11/15 12:14	108-90-7	
Chloroethane	ND	ug/L	0.50	1		12/11/15 12:14	75-00-3	L2
Chloroform	ND	ug/L	0.50	1		12/11/15 12:14	67-66-3	
Chloromethane	ND	ug/L	0.50	1		12/11/15 12:14	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		12/11/15 12:14	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 12:14	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 12:14	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 12:14	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		12/11/15 12:14	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		12/11/15 12:14	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		12/11/15 12:14	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		12/11/15 12:14	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		12/11/15 12:14	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		12/11/15 12:14	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 12:14	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 12:14	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		12/11/15 12:14	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		12/11/15 12:14	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		12/11/15 12:14	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		12/11/15 12:14	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		12/11/15 12:14	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		12/11/15 12:14	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		12/11/15 12:14	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		12/11/15 12:14	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	116	%.	70-130	1		12/11/15 12:14	17060-07-0	
Toluene-d8 (S)	101	%.	70-130	1		12/11/15 12:14	2037-26-5	
4-Bromofluorobenzene (S)	84	%.	70-130	1		12/11/15 12:14	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Sample: TRIP Blank B	Lab ID: 1258373035	Collected: 12/07/15 00:00	Received: 12/10/15 09:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		12/11/15 12:34	75-27-4	
Bromoform	ND	ug/L	0.50	1		12/11/15 12:34	75-25-2	
Bromomethane	ND	ug/L	20.0	1		12/11/15 12:34	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		12/11/15 12:34	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		12/11/15 12:34	108-90-7	
Chloroethane	ND	ug/L	0.50	1		12/11/15 12:34	75-00-3	L2
Chloroform	ND	ug/L	0.50	1		12/11/15 12:34	67-66-3	
Chloromethane	ND	ug/L	0.50	1		12/11/15 12:34	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		12/11/15 12:34	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 12:34	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 12:34	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		12/11/15 12:34	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		12/11/15 12:34	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		12/11/15 12:34	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		12/11/15 12:34	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		12/11/15 12:34	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		12/11/15 12:34	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		12/11/15 12:34	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 12:34	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		12/11/15 12:34	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		12/11/15 12:34	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		12/11/15 12:34	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		12/11/15 12:34	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		12/11/15 12:34	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		12/11/15 12:34	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		12/11/15 12:34	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		12/11/15 12:34	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		12/11/15 12:34	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	116	%.	70-130	1		12/11/15 12:34	17060-07-0	
Toluene-d8 (S)	101	%.	70-130	1		12/11/15 12:34	2037-26-5	
4-Bromofluorobenzene (S)	83	%.	70-130	1		12/11/15 12:34	460-00-4	

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

QC Batch: AIR/24846 Analysis Method: RSK 175
 QC Batch Method: RSK 175 Analysis Description: RSK 175 AIR HEADSPACE
 Associated Lab Samples: 1258373009, 1258373012, 1258373013, 1258373014, 1258373017

METHOD BLANK: 2157729 Matrix: Water
 Associated Lab Samples: 1258373009, 1258373012, 1258373013, 1258373014, 1258373017

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethane	ug/L	ND	10.0	12/14/15 20:26	
Ethene	ug/L	ND	10.0	12/14/15 20:26	
Methane	ug/L	ND	10.0	12/14/15 20:26	

LABORATORY CONTROL SAMPLE & LCSD: 2157730

Parameter	Units	2157731								
		Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Ethane	ug/L	114	111	110	97	96	85-115	1	20	
Ethene	ug/L	106	104	102	98	96	85-115	1	20	
Methane	ug/L	60.7	58.6	57.7	97	95	85-115	2	20	

SAMPLE DUPLICATE: 2157985

Parameter	Units	92279037004		RPD	Max RPD	Qualifiers
		Result	Dup Result			
Ethane	ug/L	ND	ND		20	
Ethene	ug/L	ND	ND		20	
Methane	ug/L	2.0J	2.1J		20	

SAMPLE DUPLICATE: 2157990

Parameter	Units	60209023005		RPD	Max RPD	Qualifiers
		Result	Dup Result			
Ethane	ug/L	ND	ND		20	
Ethene	ug/L	ND	ND		20	
Methane	ug/L	ND	1.7J		20	

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

QC Batch:	AIR/24852	Analysis Method:	RSK 175
QC Batch Method:	RSK 175	Analysis Description:	RSK 175 AIR HEADSPACE
Associated Lab Samples:	1258373020		

METHOD BLANK: 2158779 Matrix: Water

Associated Lab Samples: 1258373020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethane	ug/L	ND	10.0	12/15/15 08:58	
Ethene	ug/L	ND	10.0	12/15/15 08:58	
Methane	ug/L	ND	10.0	12/15/15 08:58	

LABORATORY CONTROL SAMPLE & LCSD: 2158780

2158781

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Ethane	ug/L	114	111	107	97	94	85-115	3	20	
Ethene	ug/L	106	103	100	97	95	85-115	2	20	
Methane	ug/L	60.7	58.4	57.2	96	94	85-115	2	20	

SAMPLE DUPLICATE: 2158828

Parameter	Units	1258373020 Result	Dup Result	RPD	Max RPD	Qualifiers
Ethane	ug/L	72.2	75.3	4	20	
Ethene	ug/L	22.8	24.1	5	20	
Methane	ug/L	3190	3290	3	20	

SAMPLE DUPLICATE: 2158829

Parameter	Units	10333127003 Result	Dup Result	RPD	Max RPD	Qualifiers
Ethane	ug/L	ND	ND		20	
Ethene	ug/L	ND	ND		20	
Methane	ug/L	3320	4350	27	20 R1	

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

QC Batch: DAVM/2758 Analysis Method: EPA 8260B
 QC Batch Method: EPA 8260B Analysis Description: 8260 MSV Med Water
 Associated Lab Samples: 1258373001, 1258373002, 1258373003, 1258373004, 1258373005, 1258373006, 1258373007, 1258373008,
 1258373009, 1258373010, 1258373011, 1258373012, 1258373013, 1258373014, 1258373015, 1258373016,
 1258373017, 1258373018, 1258373019, 1258373020

METHOD BLANK: 274464

Matrix: Water

Associated Lab Samples: 1258373001, 1258373002, 1258373003, 1258373004, 1258373005, 1258373006, 1258373007, 1258373008,
 1258373009, 1258373010, 1258373011, 1258373012, 1258373013, 1258373014, 1258373015, 1258373016,
 1258373017, 1258373018, 1258373019, 1258373020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	12/10/15 19:21	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	12/10/15 19:21	
1,1,2-Trichloroethane	ug/L	ND	0.50	12/10/15 19:21	
1,1-Dichloroethane	ug/L	ND	0.50	12/10/15 19:21	
1,1-Dichloroethene	ug/L	ND	0.50	12/10/15 19:21	
1,2-Dichlorobenzene	ug/L	ND	0.50	12/10/15 19:21	
1,2-Dichloroethane	ug/L	ND	0.50	12/10/15 19:21	
1,2-Dichloropropane	ug/L	ND	0.50	12/10/15 19:21	
1,3-Dichlorobenzene	ug/L	ND	0.50	12/10/15 19:21	
1,4-Dichlorobenzene	ug/L	ND	0.50	12/10/15 19:21	
Bromodichloromethane	ug/L	ND	0.50	12/10/15 19:21	
Bromoform	ug/L	ND	0.50	12/10/15 19:21	
Bromomethane	ug/L	ND	20.0	12/10/15 19:21	
Carbon tetrachloride	ug/L	ND	0.50	12/10/15 19:21	
Chlorobenzene	ug/L	ND	0.50	12/10/15 19:21	
Chloroethane	ug/L	ND	0.50	12/10/15 19:21	
Chloroform	ug/L	ND	0.50	12/10/15 19:21	
Chloromethane	ug/L	ND	0.50	12/10/15 19:21	
cis-1,2-Dichloroethene	ug/L	ND	0.50	12/10/15 19:21	
cis-1,3-Dichloropropene	ug/L	ND	0.50	12/10/15 19:21	
Dibromochloromethane	ug/L	ND	0.50	12/10/15 19:21	
Methylene Chloride	ug/L	ND	5.0	12/10/15 19:21	
Tetrachloroethene	ug/L	ND	0.50	12/10/15 19:21	
trans-1,2-Dichloroethene	ug/L	ND	0.50	12/10/15 19:21	
trans-1,3-Dichloropropene	ug/L	ND	0.50	12/10/15 19:21	
Trichloroethene	ug/L	ND	0.50	12/10/15 19:21	
Trichlorofluoromethane	ug/L	ND	0.50	12/10/15 19:21	
Vinyl chloride	ug/L	ND	0.50	12/10/15 19:21	
1,2-Dichloroethane-d4 (S)	%	114	70-130	12/10/15 19:21	
4-Bromofluorobenzene (S)	%	83	70-130	12/10/15 19:21	
Toluene-d8 (S)	%	100	70-130	12/10/15 19:21	

LABORATORY CONTROL SAMPLE: 274465

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	40	43.4	109	70-130	

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

LABORATORY CONTROL SAMPLE: 274465

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,2,2-Tetrachloroethane	ug/L	40	39.4	98	70-130	
1,1,2-Trichloroethane	ug/L	40	40.8	102	70-130	
1,1-Dichloroethane	ug/L	40	41.6	104	70-130	
1,1-Dichloroethene	ug/L	40	40.3	101	70-130	
1,2-Dichlorobenzene	ug/L	40	36.7	92	70-130	
1,2-Dichloroethane	ug/L	40	43.5	109	70-130	
1,2-Dichloropropane	ug/L	40	41.8	104	70-130	
1,3-Dichlorobenzene	ug/L	40	37.3	93	70-130	
1,4-Dichlorobenzene	ug/L	40	36.5	91	70-130	
Bromodichloromethane	ug/L	40	43.5	109	70-130	
Bromoform	ug/L	40	38.0	95	70-135	
Bromomethane	ug/L	40	33.2	83	50-135	
Carbon tetrachloride	ug/L	40	43.8	110	70-130	
Chlorobenzene	ug/L	40	36.8	92	70-130	
Chloroethane	ug/L	40	30.0	75	70-130	
Chloroform	ug/L	40	42.2	105	70-130	
Chloromethane	ug/L	40	42.1	105	70-130	
cis-1,2-Dichloroethene	ug/L	40	40.6	101	70-130	
cis-1,3-Dichloropropene	ug/L	40	43.2	108	70-130	
Dibromochloromethane	ug/L	40	40.6	102	70-130	
Methylene Chloride	ug/L	40	39.7	99	70-130	
Tetrachloroethene	ug/L	40	39.0	97	70-130	
trans-1,2-Dichloroethene	ug/L	40	40.5	101	70-130	
trans-1,3-Dichloropropene	ug/L	40	45.8	114	70-130	
Trichloroethene	ug/L	40	39.6	99	70-130	
Trichlorofluoromethane	ug/L	40	41.2	103	70-130	
Vinyl chloride	ug/L	40	42.8	107	70-130	
1,2-Dichloroethane-d4 (S)	%			111	70-130	
4-Bromofluorobenzene (S)	%			96	70-130	
Toluene-d8 (S)	%			102	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 274466 274467

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		1258373001 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
1,1,1-Trichloroethane	ug/L	ND	40	40	42.4	43.7	106	109	70-130	3	25	
1,1,2,2-Tetrachloroethane	ug/L	ND	40	40	39.0	40.4	97	101	70-130	3	25	
1,1,2-Trichloroethane	ug/L	ND	40	40	40.4	41.6	101	104	70-130	3	25	
1,1-Dichloroethane	ug/L	ND	40	40	40.5	41.8	101	104	70-130	3	25	
1,1-Dichloroethene	ug/L	ND	40	40	39.5	40.9	99	102	70-130	4	25	
1,2-Dichlorobenzene	ug/L	ND	40	40	36.3	37.4	91	93	70-130	3	25	
1,2-Dichloroethane	ug/L	ND	40	40	42.7	43.8	107	110	70-130	3	25	
1,2-Dichloropropane	ug/L	ND	40	40	40.8	42.0	102	105	70-130	3	25	
1,3-Dichlorobenzene	ug/L	ND	40	40	36.2	37.3	91	93	70-130	3	25	
1,4-Dichlorobenzene	ug/L	ND	40	40	35.9	37.1	90	93	70-130	3	25	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 274466		274467		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		1258373001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
Bromodichloromethane	ug/L	ND	40	40	43.1	44.6	108	111	70-130	3	25	
Bromoform	ug/L	ND	40	40	38.0	39.5	95	99	70-135	4	25	
Bromomethane	ug/L	ND	40	40	32.6	32.9	81	82	50-135	1	25	
Carbon tetrachloride	ug/L	ND	40	40	43.0	44.2	108	111	70-130	3	25	
Chlorobenzene	ug/L	ND	40	40	36.0	37.2	90	93	70-130	3	25	
Chloroethane	ug/L	ND	40	40	28.7	27.8	72	70	70-130	3	25	
Chloroform	ug/L	ND	40	40	41.3	42.3	103	106	70-130	3	25	
Chloromethane	ug/L	ND	40	40	41.3	42.1	103	105	70-130	2	25	
cis-1,2-Dichloroethene	ug/L	1.4	40	40	41.7	43.0	101	104	70-130	3	25	
cis-1,3-Dichloropropene	ug/L	ND	40	40	42.4	43.8	106	110	70-130	3	25	
Dibromochloromethane	ug/L	ND	40	40	40.3	41.4	101	103	70-130	3	25	
Methylene Chloride	ug/L	ND	40	40	39.3	40.1	98	100	70-130	2	25	
Tetrachloroethene	ug/L	ND	40	40	38.1	39.4	95	99	70-130	3	25	
trans-1,2-Dichloroethene	ug/L	ND	40	40	39.8	41.1	99	103	70-130	3	25	
trans-1,3-Dichloropropene	ug/L	ND	40	40	45.2	46.7	113	117	70-130	3	25	
Trichloroethene	ug/L	ND	40	40	38.3	39.9	96	100	70-130	4	25	
Trichlorofluoromethane	ug/L	ND	40	40	40.2	40.8	101	102	70-130	1	25	
Vinyl chloride	ug/L	ND	40	40	41.9	42.9	105	107	70-130	2	25	
1,2-Dichloroethane-d4 (S)	%						110	109	70-130			
4-Bromofluorobenzene (S)	%						97	97	70-130			
Toluene-d8 (S)	%						102	102	70-130			

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

QC Batch: DAVM/2759 Analysis Method: EPA 8260B
 QC Batch Method: EPA 8260B Analysis Description: 8260 MSV Med Water
 Associated Lab Samples: 1258373021, 1258373022, 1258373023, 1258373024, 1258373025, 1258373026, 1258373027, 1258373028,
 1258373029, 1258373030, 1258373031, 1258373032, 1258373033, 1258373034, 1258373035

METHOD BLANK: 274570 Matrix: Water
 Associated Lab Samples: 1258373021, 1258373022, 1258373023, 1258373024, 1258373025, 1258373026, 1258373027, 1258373028,
 1258373029, 1258373030, 1258373031, 1258373032, 1258373033, 1258373034, 1258373035

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	12/11/15 09:34	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	12/11/15 09:34	
1,1,2-Trichloroethane	ug/L	ND	0.50	12/11/15 09:34	
1,1-Dichloroethane	ug/L	ND	0.50	12/11/15 09:34	
1,1-Dichloroethene	ug/L	ND	0.50	12/11/15 09:34	
1,2-Dichlorobenzene	ug/L	ND	0.50	12/11/15 09:34	
1,2-Dichloroethane	ug/L	ND	0.50	12/11/15 09:34	
1,2-Dichloropropane	ug/L	ND	0.50	12/11/15 09:34	
1,3-Dichlorobenzene	ug/L	ND	0.50	12/11/15 09:34	
1,4-Dichlorobenzene	ug/L	ND	0.50	12/11/15 09:34	
Bromodichloromethane	ug/L	ND	0.50	12/11/15 09:34	
Bromoform	ug/L	ND	0.50	12/11/15 09:34	
Bromomethane	ug/L	ND	20.0	12/11/15 09:34	
Carbon tetrachloride	ug/L	ND	0.50	12/11/15 09:34	
Chlorobenzene	ug/L	ND	0.50	12/11/15 09:34	
Chloroethane	ug/L	ND	0.50	12/11/15 09:34	
Chloroform	ug/L	ND	0.50	12/11/15 09:34	
Chloromethane	ug/L	ND	0.50	12/11/15 09:34	
cis-1,2-Dichloroethene	ug/L	ND	0.50	12/11/15 09:34	
cis-1,3-Dichloropropene	ug/L	ND	0.50	12/11/15 09:34	
Dibromochloromethane	ug/L	ND	0.50	12/11/15 09:34	
Methylene Chloride	ug/L	ND	5.0	12/11/15 09:34	
Tetrachloroethene	ug/L	ND	0.50	12/11/15 09:34	
trans-1,2-Dichloroethene	ug/L	ND	0.50	12/11/15 09:34	
trans-1,3-Dichloropropene	ug/L	ND	0.50	12/11/15 09:34	
Trichloroethene	ug/L	ND	0.50	12/11/15 09:34	
Trichlorofluoromethane	ug/L	ND	0.50	12/11/15 09:34	
Vinyl chloride	ug/L	ND	0.50	12/11/15 09:34	
1,2-Dichloroethane-d4 (S)	%	115	70-130	12/11/15 09:34	
4-Bromofluorobenzene (S)	%	81	70-130	12/11/15 09:34	
Toluene-d8 (S)	%	101	70-130	12/11/15 09:34	

LABORATORY CONTROL SAMPLE: 274571

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	40	43.3	108	70-130	
1,1,2,2-Tetrachloroethane	ug/L	40	40.3	101	70-130	
1,1,2-Trichloroethane	ug/L	40	42.2	105	70-130	

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

LABORATORY CONTROL SAMPLE: 274571

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1-Dichloroethane	ug/L	40	41.5	104	70-130	
1,1-Dichloroethene	ug/L	40	39.2	98	70-130	
1,2-Dichlorobenzene	ug/L	40	36.9	92	70-130	
1,2-Dichloroethane	ug/L	40	45.2	113	70-130	
1,2-Dichloropropane	ug/L	40	42.3	106	70-130	
1,3-Dichlorobenzene	ug/L	40	36.4	91	70-130	
1,4-Dichlorobenzene	ug/L	40	36.0	90	70-130	
Bromodichloromethane	ug/L	40	44.3	111	70-130	
Bromoform	ug/L	40	38.3	96	70-135	
Bromomethane	ug/L	40	33.5	84	50-135	
Carbon tetrachloride	ug/L	40	43.5	109	70-130	
Chlorobenzene	ug/L	40	36.1	90	70-130	
Chloroethane	ug/L	40	26.3	66	70-130 L0	
Chloroform	ug/L	40	42.4	106	70-130	
Chloromethane	ug/L	40	42.7	107	70-130	
cis-1,2-Dichloroethene	ug/L	40	40.5	101	70-130	
cis-1,3-Dichloropropene	ug/L	40	44.0	110	70-130	
Dibromochloromethane	ug/L	40	41.0	102	70-130	
Methylene Chloride	ug/L	40	39.7	99	70-130	
Tetrachloroethene	ug/L	40	38.3	96	70-130	
trans-1,2-Dichloroethene	ug/L	40	40.1	100	70-130	
trans-1,3-Dichloropropene	ug/L	40	46.8	117	70-130	
Trichloroethene	ug/L	40	39.1	98	70-130	
Trichlorofluoromethane	ug/L	40	42.0	105	70-130	
Vinyl chloride	ug/L	40	42.4	106	70-130	
1,2-Dichloroethane-d4 (S)	%			115	70-130	
4-Bromofluorobenzene (S)	%			95	70-130	
Toluene-d8 (S)	%			103	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 274572 274573

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		1258373021 Result	Spike Conc.	Spike Conc.	MS Result								
1,1,1-Trichloroethane	ug/L	ND	40	40	43.4	42.9	108	107	70-130	1	25		
1,1,2,2-Tetrachloroethane	ug/L	ND	40	40	41.2	40.7	103	102	70-130	1	25		
1,1,2-Trichloroethane	ug/L	ND	40	40	41.4	41.2	104	103	70-130	1	25		
1,1-Dichloroethane	ug/L	0.75	40	40	42.2	41.8	104	103	70-130	1	25		
1,1-Dichloroethene	ug/L	ND	40	40	39.8	39.4	100	99	70-130	1	25		
1,2-Dichlorobenzene	ug/L	ND	40	40	36.9	36.4	92	91	70-130	1	25		
1,2-Dichloroethane	ug/L	ND	40	40	44.1	43.4	110	108	70-130	2	25		
1,2-Dichloropropane	ug/L	ND	40	40	41.9	41.5	105	104	70-130	1	25		
1,3-Dichlorobenzene	ug/L	ND	40	40	36.7	36.2	92	91	70-130	1	25		
1,4-Dichlorobenzene	ug/L	ND	40	40	36.5	36.0	91	90	70-130	1	25		
Bromodichloromethane	ug/L	ND	40	40	44.1	43.6	110	109	70-130	1	25		
Bromoform	ug/L	ND	40	40	39.0	38.9	98	97	70-135	0	25		

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 274572		274573		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		1258373021 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Bromomethane	ug/L	ND	40	40	32.4	32.7	81	82	50-135	1	25		
Carbon tetrachloride	ug/L	ND	40	40	43.7	43.2	109	108	70-130	1	25		
Chlorobenzene	ug/L	ND	40	40	36.4	36.0	91	90	70-130	1	25		
Chloroethane	ug/L	ND	40	40	24.9	25.1	62	63	70-130	1	25	M0	
Chloroform	ug/L	ND	40	40	42.1	41.7	105	104	70-130	1	25		
Chloromethane	ug/L	ND	40	40	42.2	41.4	106	103	70-130	2	25		
cis-1,2-Dichloroethene	ug/L	13.9	40	40	55.3	54.6	103	102	70-130	1	25		
cis-1,3-Dichloropropene	ug/L	ND	40	40	43.3	43.0	108	107	70-130	1	25		
Dibromochloromethane	ug/L	ND	40	40	41.0	40.6	102	102	70-130	1	25		
Methylene Chloride	ug/L	ND	40	40	39.5	39.7	99	99	70-130	0	25		
Tetrachloroethene	ug/L	4.2	40	40	42.2	42.0	95	94	70-130	1	25		
trans-1,2-Dichloroethene	ug/L	ND	40	40	40.7	40.1	101	99	70-130	2	25		
trans-1,3-Dichloropropene	ug/L	ND	40	40	46.7	46.2	117	115	70-130	1	25		
Trichloroethene	ug/L	2.5	40	40	41.6	40.9	98	96	70-130	2	25		
Trichlorofluoromethane	ug/L	ND	40	40	40.9	40.0	102	100	70-130	2	25		
Vinyl chloride	ug/L	16.7	40	40	57.7	56.7	103	100	70-130	2	25		
1,2-Dichloroethane-d4 (S)	%.						113	112	70-130				
4-Bromofluorobenzene (S)	%.						96	96	70-130				
Toluene-d8 (S)	%.						103	102	70-130				

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

QC Batch: WETA/8311 Analysis Method: SM 5310B
 QC Batch Method: SM 5310B Analysis Description: 5310B TOC
 Associated Lab Samples: 1258373009, 1258373012, 1258373013, 1258373014, 1258373017, 1258373020

METHOD BLANK: 183669 Matrix: Water

Associated Lab Samples:

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	12/11/15 16:04	

LABORATORY CONTROL SAMPLE: 183670

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	24.1	23.1	96	90-110	

MATRIX SPIKE SAMPLE: 183672

Parameter	Units	2029651001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	ND	2000	986	49	75-125	M6

SAMPLE DUPLICATE: 183671

Parameter	Units	2029651001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	ND	ND		20	

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QUALIFIERS

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-DAV Pace Analytical Services - Davis

PASI-M Pace Analytical Services - Minneapolis

PASI-N Pace Analytical Services - New Orleans

ANALYTE QUALIFIERS

L0 Analyte recovery in the laboratory control sample (LCS) was outside QC limits.

L2 Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results may be biased low.

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

R1 RPD value was outside control limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NuStar Vancouver GWM

Pace Project No.: 1258373

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
1258373009	MW-7	RSK 175	AIR/24846		
1258373012	MP-1	RSK 175	AIR/24846		
1258373013	MW-24i	RSK 175	AIR/24846		
1258373014	EX-1	RSK 175	AIR/24846		
1258373017	MW-12	RSK 175	AIR/24846		
1258373020	MGMS2-40	RSK 175	AIR/24852		
1258373001	MW-24D	EPA 8260B	DAVM/2758		
1258373002	MW-3	EPA 8260B	DAVM/2758		
1258373003	S-1	EPA 8260B	DAVM/2758		
1258373004	S-2	EPA 8260B	DAVM/2758		
1258373005	MW-13	EPA 8260B	DAVM/2758		
1258373006	MW-1	EPA 8260B	DAVM/2758		
1258373007	MW-5	EPA 8260B	DAVM/2758		
1258373008	MW-5 DUP	EPA 8260B	DAVM/2758		
1258373009	MW-7	EPA 8260B	DAVM/2758		
1258373010	MW-9	EPA 8260B	DAVM/2758		
1258373011	MW-9 DUP	EPA 8260B	DAVM/2758		
1258373012	MP-1	EPA 8260B	DAVM/2758		
1258373013	MW-24i	EPA 8260B	DAVM/2758		
1258373014	EX-1	EPA 8260B	DAVM/2758		
1258373015	MW-19	EPA 8260B	DAVM/2758		
1258373016	MW-19 DUP	EPA 8260B	DAVM/2758		
1258373017	MW-12	EPA 8260B	DAVM/2758		
1258373018	MGMS1-60	EPA 8260B	DAVM/2758		
1258373019	MGMS1-43	EPA 8260B	DAVM/2758		
1258373020	MGMS2-40	EPA 8260B	DAVM/2758		
1258373021	MGMS3-60	EPA 8260B	DAVM/2759		
1258373022	MGMS3-40	EPA 8260B	DAVM/2759		
1258373023	MW-19i	EPA 8260B	DAVM/2759		
1258373024	MW-18i	EPA 8260B	DAVM/2759		
1258373025	MW-8	EPA 8260B	DAVM/2759		
1258373026	MW-32S	EPA 8260B	DAVM/2759		
1258373027	MW-21i-105	EPA 8260B	DAVM/2759		
1258373028	MW-22i	EPA 8260B	DAVM/2759		
1258373029	MW-21i-40	EPA 8260B	DAVM/2759		
1258373030	MW-26	EPA 8260B	DAVM/2759		
1258373031	MW-25i	EPA 8260B	DAVM/2759		
1258373032	MW-23i	EPA 8260B	DAVM/2759		
1258373033	TRIP Blank A	EPA 8260B	DAVM/2759		
1258373034	Field Blank	EPA 8260B	DAVM/2759		
1258373035	TRIP Blank B	EPA 8260B	DAVM/2759		
1258373009	MW-7	SM 5310B	WETA/8311		
1258373012	MP-1	SM 5310B	WETA/8311		
1258373013	MW-24i	SM 5310B	WETA/8311		
1258373014	EX-1	SM 5310B	WETA/8311		
1258373017	MW-12	SM 5310B	WETA/8311		
1258373020	MGMS2-40	SM 5310B	WETA/8311		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NuStar Vancouver GWM
Pace Project No.: 1258373

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
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2795 2nd Street, Suite 300
 Davis, CA 95618
 Lab: 530.297.4800
 Fax: 530.297.4802

SRG # / Lab No.

258373

Page

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3

Project Contact (Hardcopy or PDF To):

Stephanie Bosze
 Company / Address: Salisbury
 Apex Companies
 3015 SW 1st Ave., Portland, OR 97201

Phone Number:

503-924-4704 ext 1925

Fax Number:

503-924-4707

Project #:

320001126-17

Project Name:

NuStar Vancouver GWM

Project Address:

NuStar Vancouver GWM

Global ID:

EDD Deliverable To (Email Address):

Ssalisbury@apexcos.com

Bill to:

Apex Companies

Sampler Name & Signature: Joel Mattecheck

JM

California EDF Report? Yes No

CRA EQUIS Required Yes No

XLS Report Required Yes No

Chain-of-Custody Record and Analysis Request

Analysis Request

Other: Please Specify

TAT
 12 hr
 24 hr
 48hr
 72hr
 1 wk
 For Lab Use Only

Sample Designation	Date	Time	Container			Preservative			Matrix			Volatile Halocarbons (EPA 826B)	TOC	Methane, Ethane, Ethene	HOLD	TAT	
			40 ml VOA	Sleeve	Poly	Tedlar	HCl	HNO ₃	H ₂ SO ₄	None	Water						Soil
MW-24D	12/9/2015	0830	4				4					X				X	001
MW-3	12/9/2015	0715	4				4					X				X	002
S-1	12/8/2015	1520	4				4					X				X	003
S-2	12/8/2015	1500	4				4					X				X	004
MW-13	12/8/2015	1435	4				4					X				X	005
MW-1	12/8/2015	1400	4				4					X				X	006
MW-5	12/8/2015	1333	4				4					X				X	007
MW-5 DUP	12/8/2015	1333	4				4					X				X	008
MW-7	12/8/2015	1300	6		1		6	1				X	X			X	009
MW-9	12/8/2015	1230	4				4					X				X	010
MW-9 DUP	12/8/2015	1230	4				4					X				X	011
MP-1	12/8/2015	1205	6		1		6	1				X	X			X	012
MW-24i	12/8/2015	1135	6		1		6	1				X	X			X	013

Relinquished by: *Joel Mattecheck* Date: *12/19/15* Time: *1500*
 Received by: *[Signature]* Date: *12/05* Time: *0945*

Remarks: -----
 Relinquished by: _____ Date: _____ Time: _____
 Received by: _____ Date: _____ Time: _____
 For Lab Use Only: Sample Receipt
 Temp °C _____ Initials _____ Date _____ Therm. ID # _____
 Coolant Present _____ Yes / No _____



2795 2nd Street, Suite 300
Davis, CA 95618
Lab: 530.297.4800
Fax: 530.297.4802

SRG # / Lab No. 1258373

Page 3 of 3

Project Contact (Hardcopy or PDF To):
Stephanie Bosze Salisbury
Company / Address: Apex Companies
3015 SW 1st Ave., Portland, OR 97201

California EDF Report?
 Yes No
CRA EQUIS Required
 Yes No
XLS Report Required
 Yes No

Global ID:
EDD Deliverable To (Email Address):
Ssalisbury@apexcos.com
Bill to:
Apex Companies
Sampler Name & Signature: Joel Matthecheck

Chain-of-Custody Record and Analysis Request

Sample Designation	Sampling		Container				Preservative				Matrix			Analysis Request Other: Please Specify	TAT	For Lab Use Only
	Date	Time	40 ml VOA	Sleeve	Poly	250 ml Glass	Tedlar	HCl	HNO ₃	H ₂ SO ₄	None	Water	Soil			
MW21-105	12/7/2015	1115	4				4				X				X	021
MW-22i	12/7/2015	1050	4				4				X				X	028
MW21-40	12/7/2015	1200	4				4				X				X	019
MW-26	12/7/2015	1015	4				4				X				X	020
MW-25i	12/7/2015	0940	4				4				X				X	02
MW-23i	12/7/2015	0900	4				4				X				X	012
TRIP Blank	-	-	1				1				X				X	027
Field Blank	12/9/15	1200	4				4				X				X	024
TRIP Blank	-	-	1				1				X				X	025
Temp Blank	-	-	1				1				X				X	026
Temp Blank	-	-	1				1				X				X	027

Remarks: 12/015
0445

Received by: Joel Matthecheck
Time: 1300
Date: 12/9/15

Received by:
Time:
Date:

Received by Laboratory:
Time:
Date:

Temp °C: _____ Initials: _____ Date: _____ Time: _____ Therm. ID #: _____ Coolant Present: _____ Yes / No

Sample Condition Upon Receipt

Client Name: Apex LLC

Project #:

WO#: 1258373



1258373

Courier: Fed Ex UPS USPS Client
 Commercial Pace OnTrac Other:
 Tracking Number: 7751 6598 2068 - no COC
7751 6597 6132 -

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Optional: Proj. Due Date: Proj. Name:

Packing Material: Bubble Wrap Bubble Bags None Other: Temp Blank? Yes No

Thermom. Used: DA1434 DA2285 Type of Ice: Wet Blue Dry Ice None Samples on ice, cooling process has begun

Cooler Temp Read(°C): 3.8/5.8 Cooler Temp Corrected(°C): 3.6/5.6 Biological Tissue Frozen? Yes No N/A
 Temp should be above freezing to 6°C Correction Factor: -0.2 Date and Initials of Person Examining Contents: GSJ/12/10/15

		Comments:
Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<p>1. Two Trip Blanks received on the</p> <p>2. COC with no distinctions. One was</p> <p>3. Shipped with each cooler. SR will</p> <p>4. make one A and one B. The samples</p> <p>5. shipped with the one named A ^{include} _{the 2015}</p> <p>6. For 001-003, 005-007, 011-015, 019-020,</p> <p>7. 023, 027, 029 & 032. No date on labdor</p> <p>8. COC. SR logged date as 120715 pending</p> <p>9. clarification. Temp Blanks listed on</p> <p>CDC without analysis or sample info.</p> <p>SR logged in on hold with sample date</p> <p>10. of 120715 per S. Forbes.</p> <p>11. Note if sediment is visible in the dissolved container.</p> <p>12. Sample - 002 has "0717" for the</p> <p>time on the label.</p> <p>13. <input type="checkbox"/> HNO₃ <input type="checkbox"/> H₂SO₄ <input type="checkbox"/> NaOH <input type="checkbox"/> HCl</p> <p>Sample #</p> <p>Initial when completed: Lot # of added preservative:</p> <p>14.</p> <p>15.</p>
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Sample Labels Match COC?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
-Includes Date/Time/ID/Analysis Matrix: <u>WT</u>		
All containers needing acid/base preservation have been checked?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide) Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Trip Blank Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: Scott [Signature] Date: 12/10/15

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Chain of Custody

10332944
 Pace Analytical
 www.pacelabs.com

Workorder: 1258373

Workorder Name: NuStar Vancouver GWM

Owner Received Date: 12/10/2015

Results Requested By: 12/17/2015

Report To
 Scott M Forbes
 Pace Analytical Services, Inc.
 315 Chestnut St. PO Box 1212
 Virginia, MN 55792
 Phone (218) 735-6700
 Fax (218) 742-1010

Subcontract To
 Pace Analytical Minnesota
 1700 Elm Street
 Suite 200
 Minneapolis, MN 55414
 Phone (612) 607-1700

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers		LAB USE ONLY
						HCL	H2SO4	
1	MW-7	PS	12/8/2015 13:00	1258373009	Water	1		001
2	MP-1	PS	12/8/2015 12:05	1258373012	Water	1		002
3	MW-24i	PS	12/8/2015 11:35	1258373013	Water	1		003
4	EX-1	PS	12/8/2015 10:46	1258373014	Water	1		004
5	MW-12	PS	12/8/2015 09:20	1258373017	Water	1		005
6	MGMS2-40	PS	12/8/2015 07:30	1258373020	Water	1		004

Requested Analysis: (Methane, Ethane, Ethene)
 RSK175
 X X X X X X

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	<i>[Signature]</i>	12-08-2015 16:00	<i>[Signature]</i>	12/15/15 9:50	
2					
3					

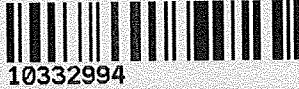
Cooler Temperature on Receipt 3.9 °C Custody Seal Y or N Received on Ice Y or N Samples Intact Y or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
 This chain of custody is considered complete as is since this information is available in the owner laboratory.

Sample Condition Upon Receipt Client Name: Pace Virginia Project #: **WO# : 10332994**

Courier: Fed Ex UPS USPS Client
 Commercial Pace Speedee Other: _____

Tracking Number: 7751 7570 1714



Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No

Packing Material: Bubble Wrap Bubble Bags None Other: plastic bags Temp Blank? Yes No

Thermometer Used: B88A9130516413 B88A912167504 B88A0143310098 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temp Read (°C): 3.6 Cooler Temp Corrected (°C): 3.9 Biological Tissue Frozen? Yes No N/A

Temp should be above freezing to 6°C Correction Factor: Add 0.3 Date and Initials of Person Examining Contents: OMB 12/11/15

USDA Regulated Soil (N/A, water sample)
 Did samples originate in a quarantine zone within the United States: AL, AR, AZ, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or WA (check maps)? Yes No
 Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? Yes No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

	COMMENTS:
Chain of Custody Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and/or Signature on COC? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72 hr)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A - Pace Containers Used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	9. *V G4H vials received. RSK analysis. No headspace in vials
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11. Note if sediment is visible in the dissolved container
Sample Labels Match COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A -Includes Date/Time/ID/Analysis Matrix: <u>water</u>	12.
All containers needing acid/base preservation have been checked? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> HCl Sample # _____ Initial when completed: _____ Lot # of added preservative: _____
Headspace in VOA Vials (>6mm)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A Pace Trip Blank Lot # (if purchased): _____	15.

CLIENT NOTIFICATION/RESOLUTION Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: [Signature] Date: 12/11/15

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

WO#: 2029779



Chain of Custody



Workorder: 1258373

Workorder Name: NuStar Vancouver GWM

Owner Received Date: 12/10/2015

Results Requested By: 12/17/2015

Report To: Subcontract To: Requested Analysis

Scott M Forbes
 Pace Analytical Services, Inc.
 315 Chestnut St. PO Box 1212
 Virginia, MN 55792
 Phone (218) 735-6700
 Fax (218) 742-1010

Pace Analytical New Orleans
 1000 Riverbend Blvd
 Suite F
 St. Rose, LA 70087
 Phone (504) 469-0333

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers		LAB USE ONLY
						Matrix	Matrix	
1	MW-7	PS	12/8/2015 13:00	1258373009	Water	1		X
2	MP-1	PS	12/8/2015 12:05	1258373012	Water	1		X
3	MW-24i	PS	12/8/2015 11:35	1258373013	Water	1		X
4	EX-1	PS	12/8/2015 10:46	1258373014	Water	1		X
5	MW-12	PS	12/8/2015 09:20	1258373017	Water	1		X
6	MWMS2-40	PS	12/8/2015 07:30	1258373020	Water	1		X

Transfers	Released By	Date/Time	Received By	Date/Time	Received on Ice	Y or N	Samples Intact	Y or N
1	<i>[Signature]</i>	12-05-16:00						
2	<i>[Signature]</i>	12-11-15 08:40	<i>[Signature]</i>	12-11-15				
3								

Cooler Temperature on Receipt 1-4°C Custody Seal Y or N Received on Ice Y or N Samples Intact Y or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
 This chain of custody is considered complete as is since this information is available in the owner laboratory.



1000 Riverbend Blvd., Suite F
St. Rose, LA 70087

WO#: 2029779

Sample Condition Upon R

PM: ADC Due Date: 12/17/15
CLIENT: PASI-VA PASI Virginia MN

Project: _____

Courier: Pace Courier Hired Courier Fed X UPS DHL USPS Customer Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: Yes No

Thermometer Used: Therm Fisher IR 5
 Therm Fisher IR 6
 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 12-11-15 [Signature]

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1
Chain of Custody Present: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	9
Sample Labels match COC: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G). <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13
Headspace in VOA Vials (>6mm): <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14
Trip Blank Present: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15

Client Notification/ Resolution:

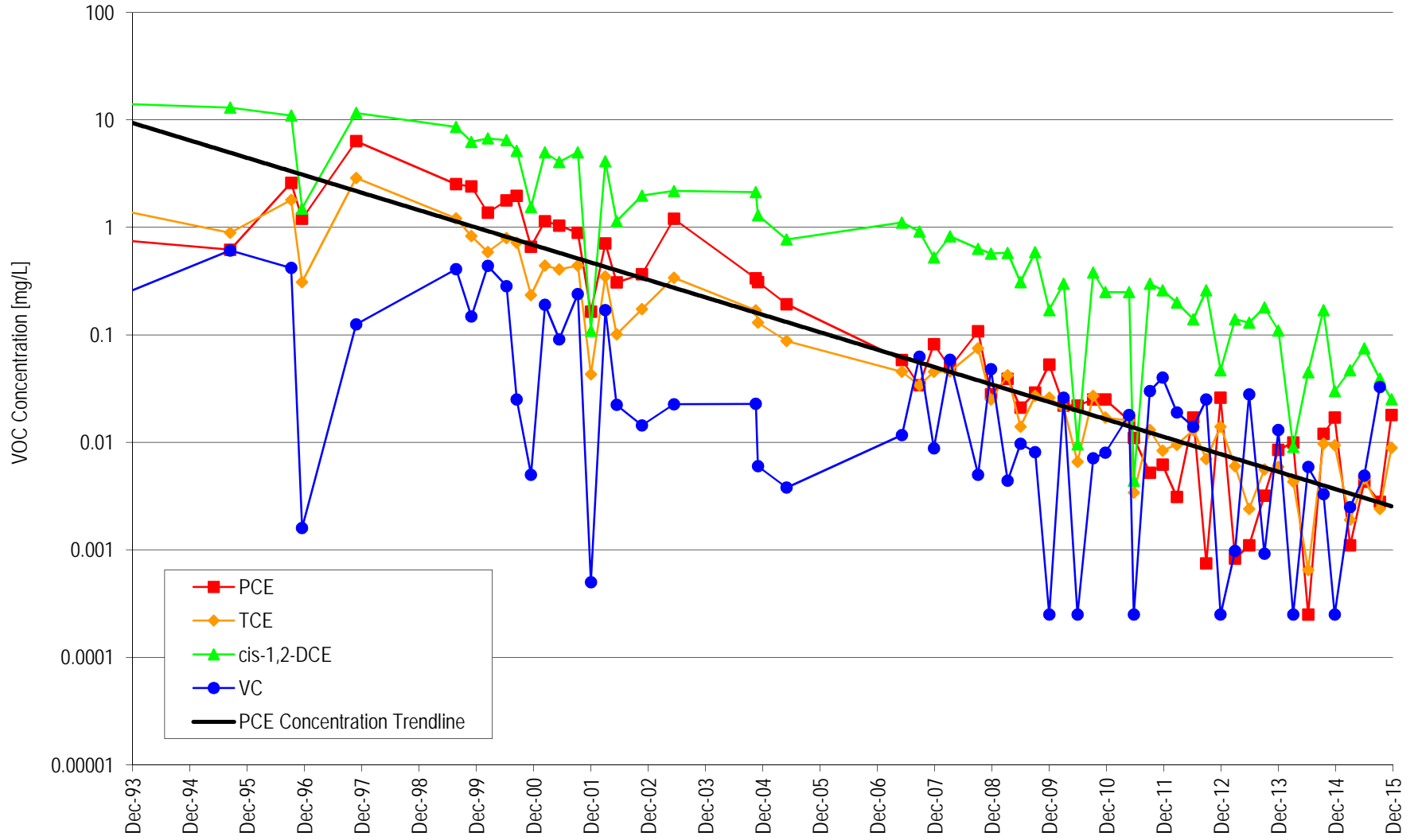
Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

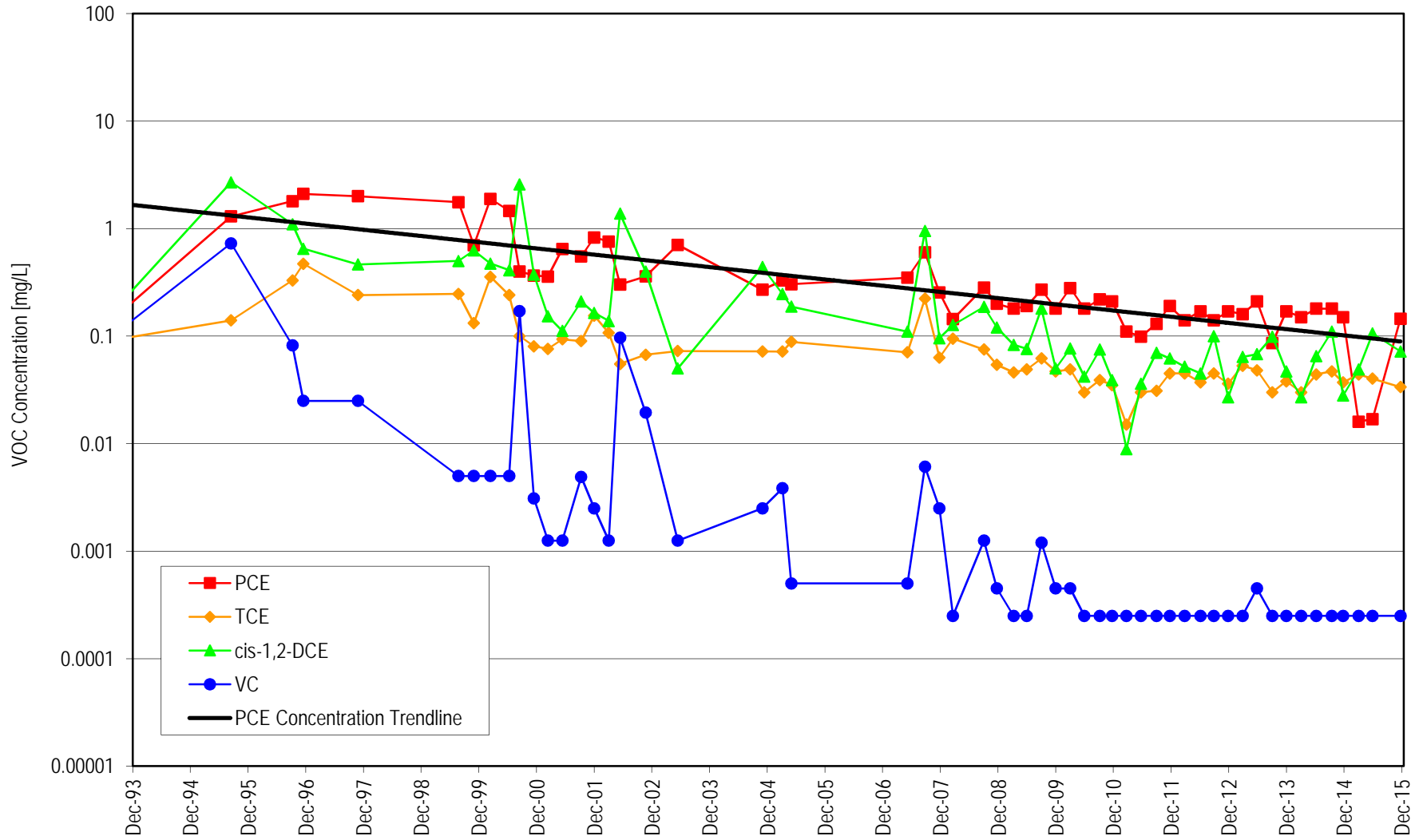
Appendix D

Concentration Trend Plots

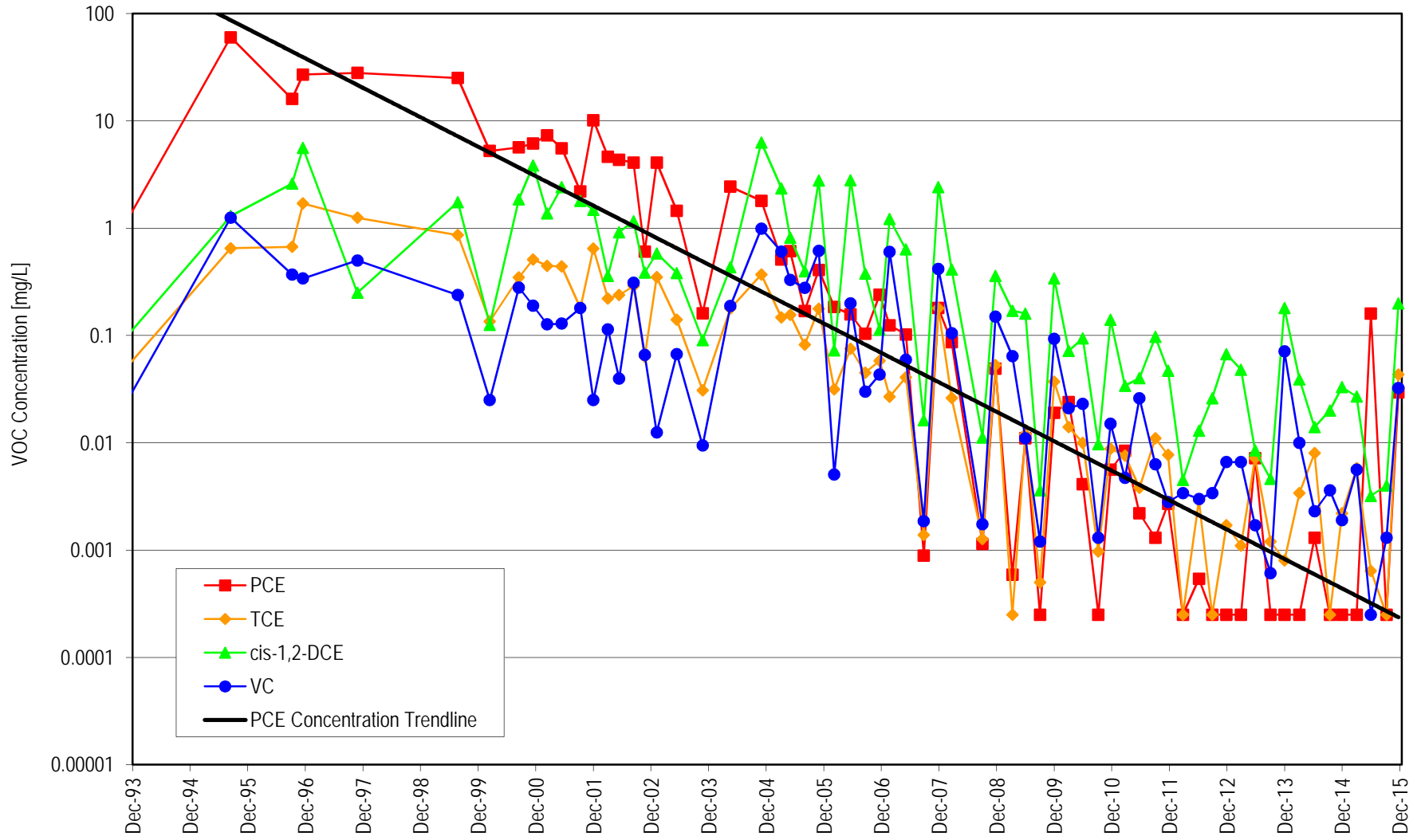
VOC Concentrations in MW-1



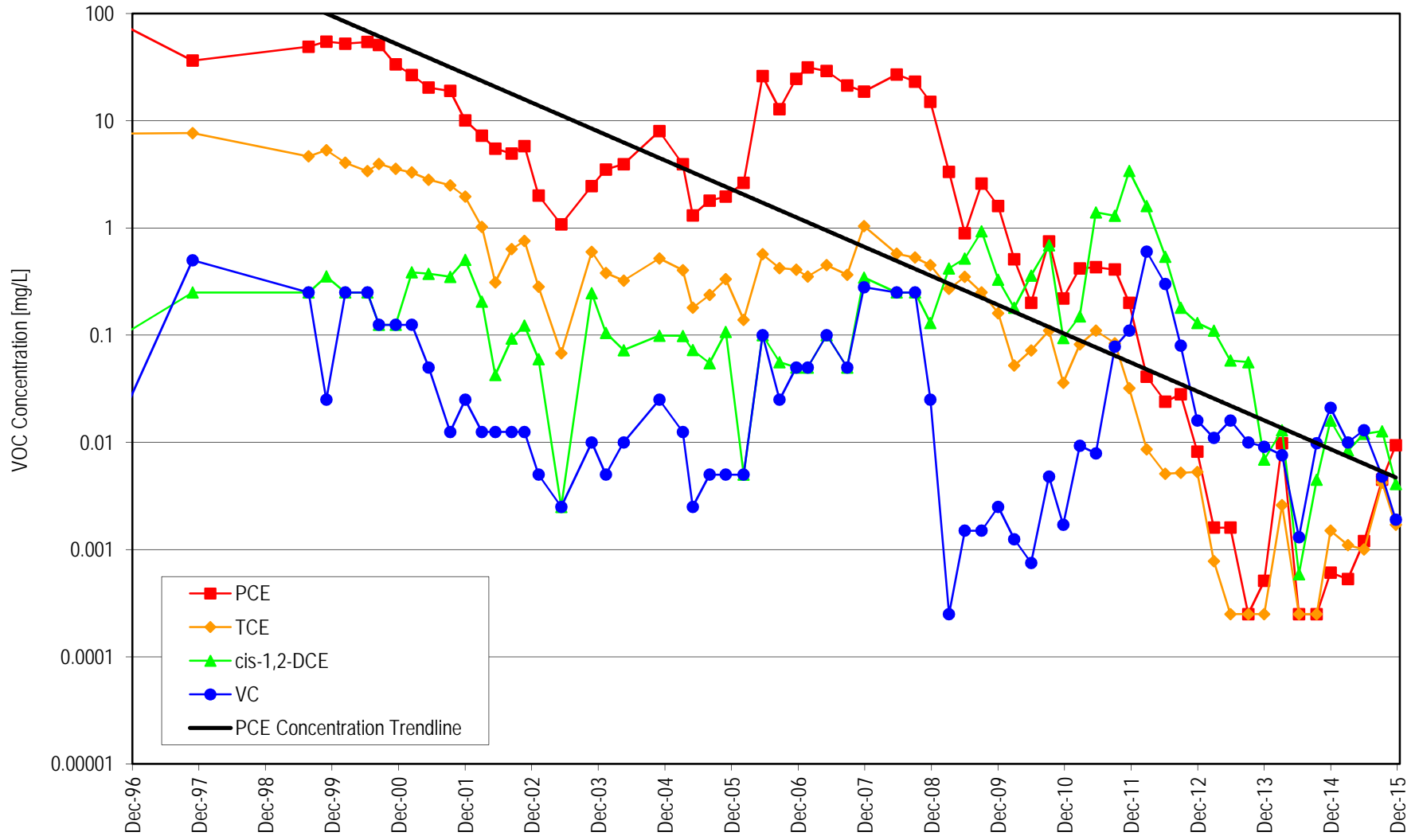
VOC Concentrations in MW-3



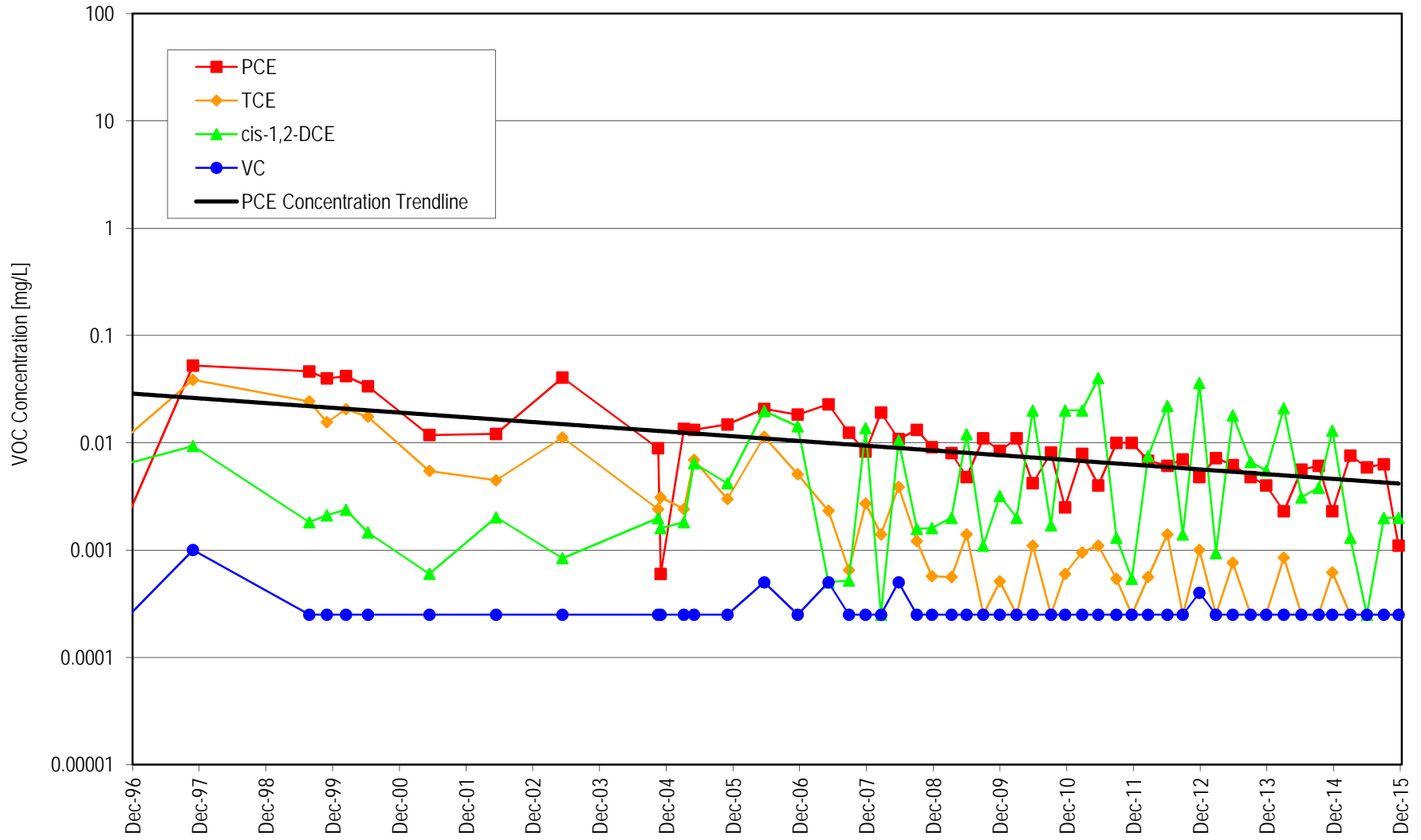
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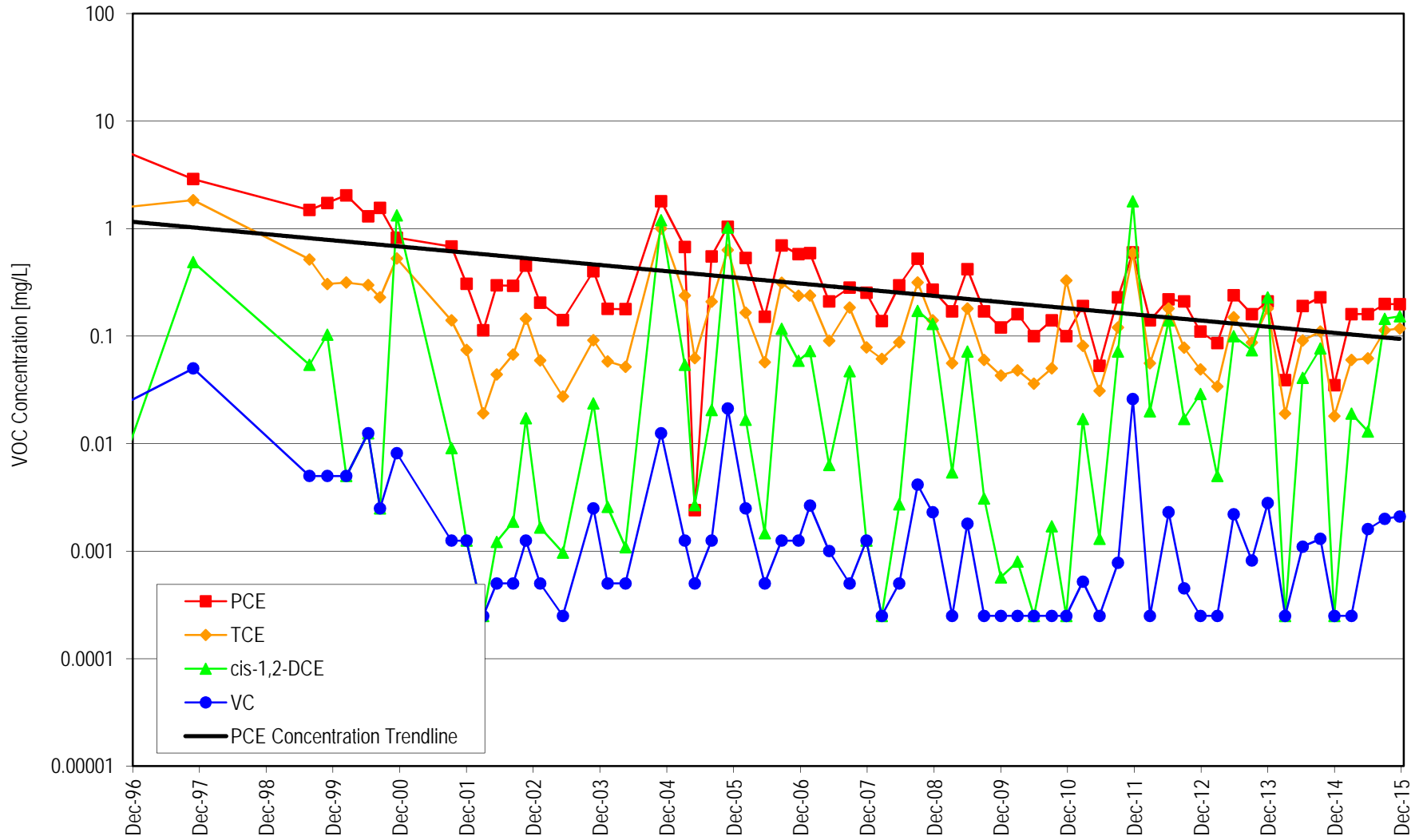
VOC Concentrations in MW-7



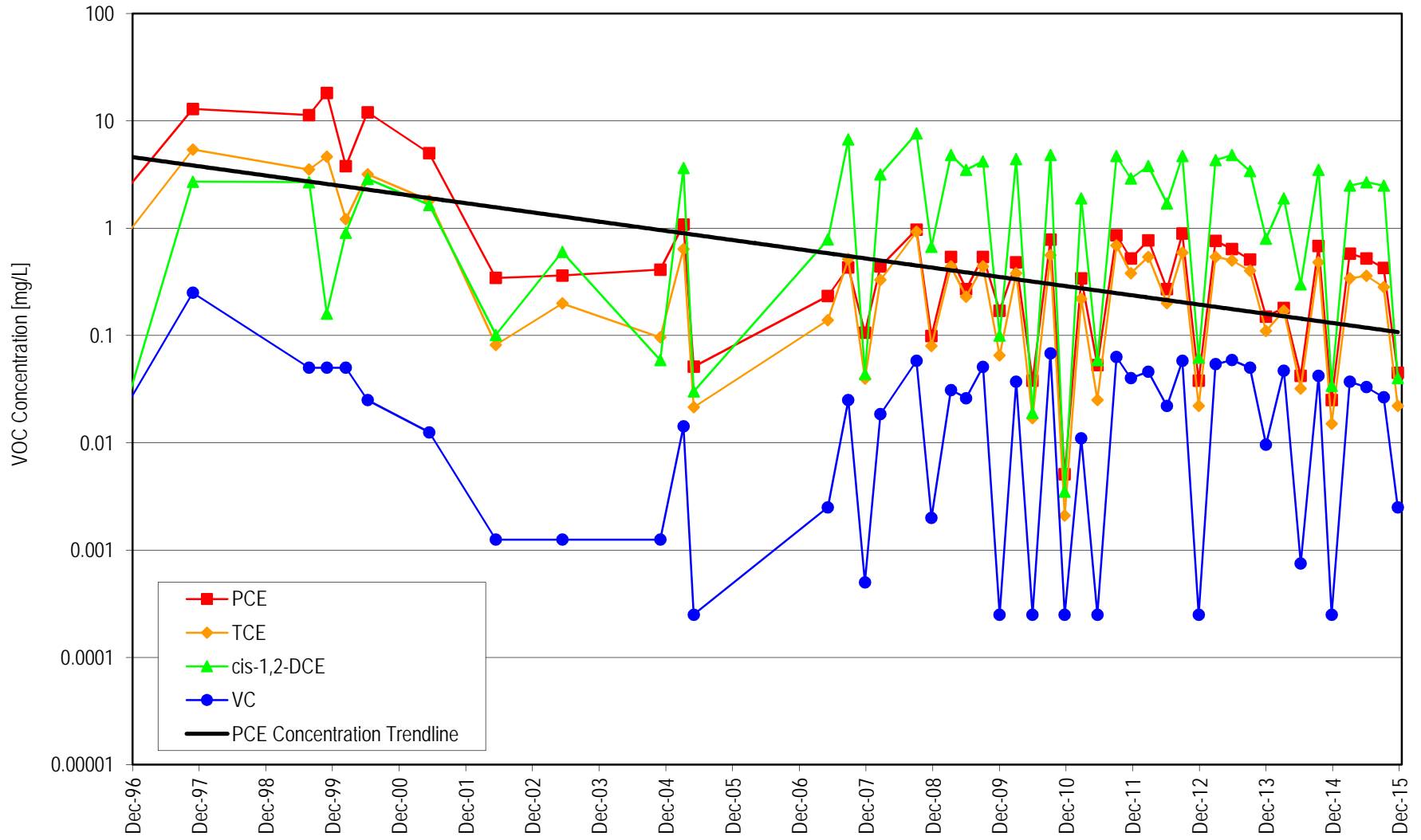
VOC Concentrations in MW-8



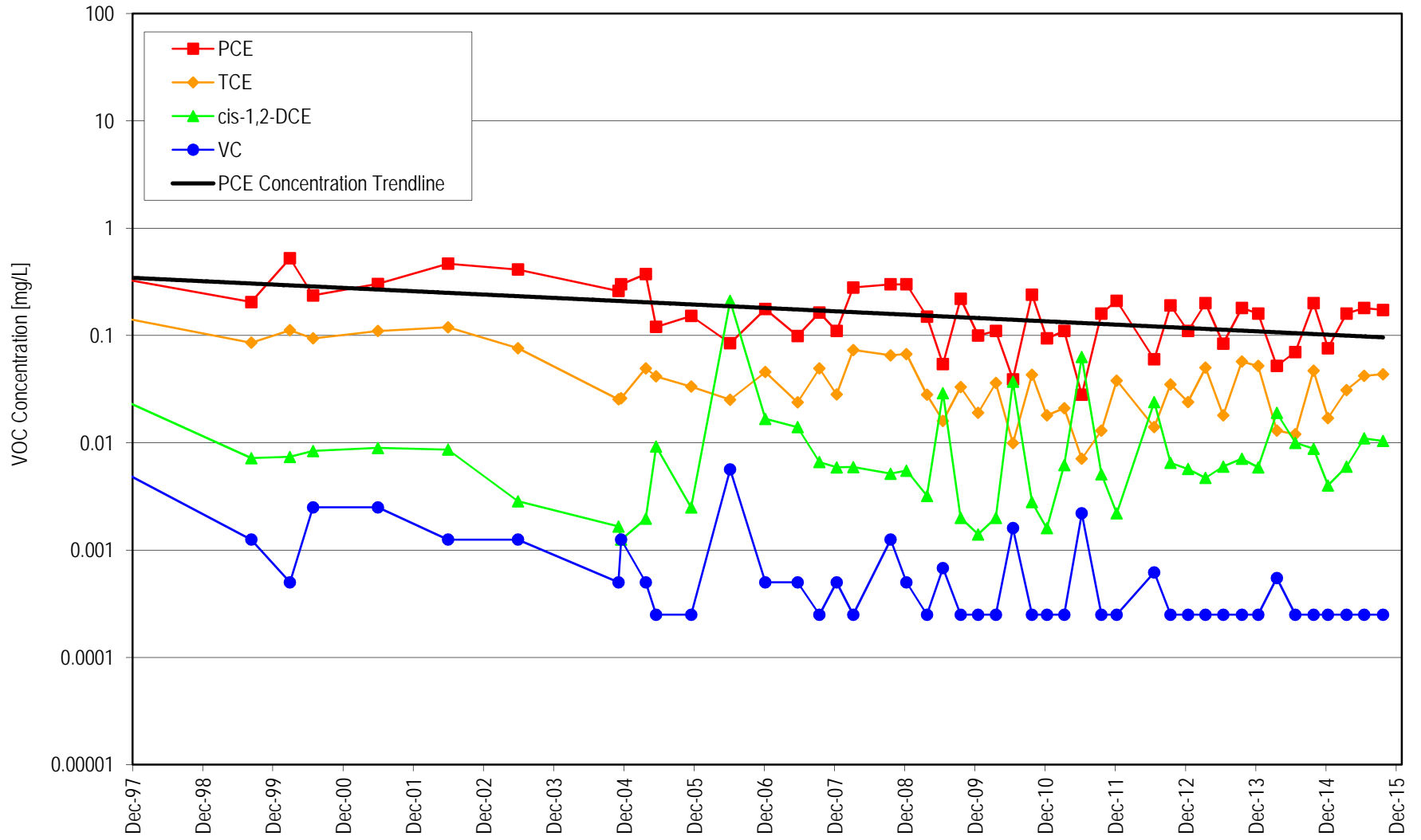
VOC Concentrations in MW-9



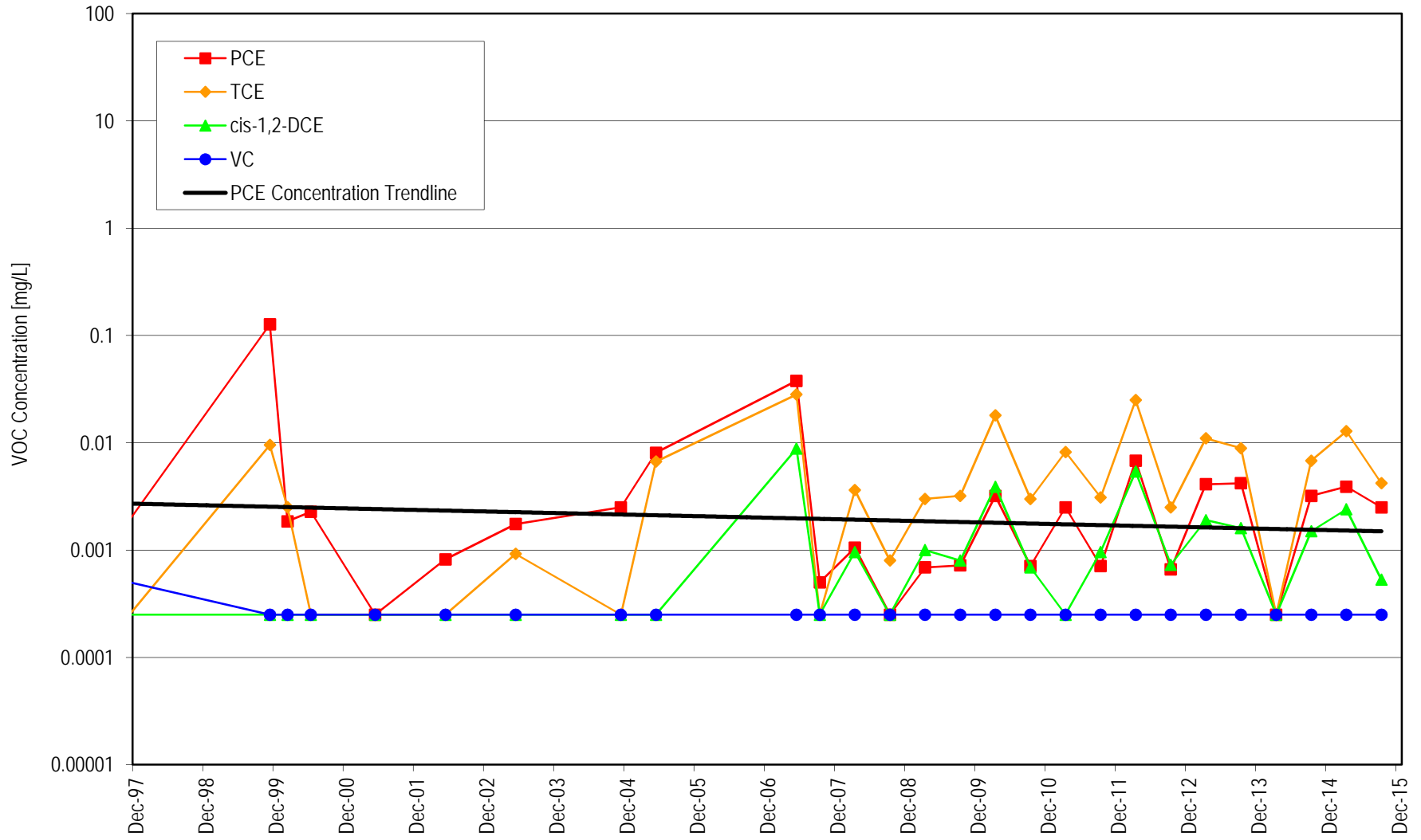
VOC Concentrations in MW-12



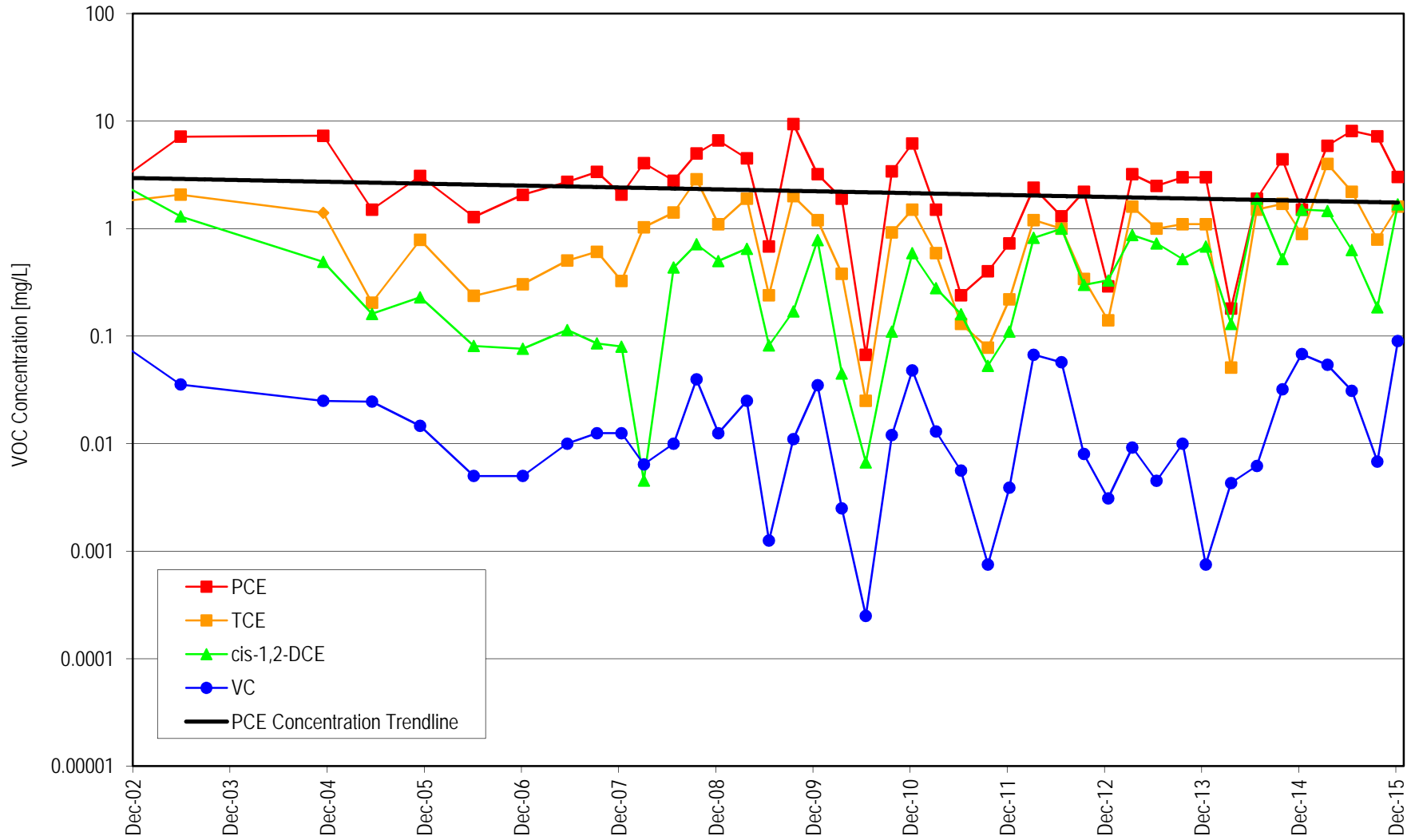
VOC Concentrations in MW-16



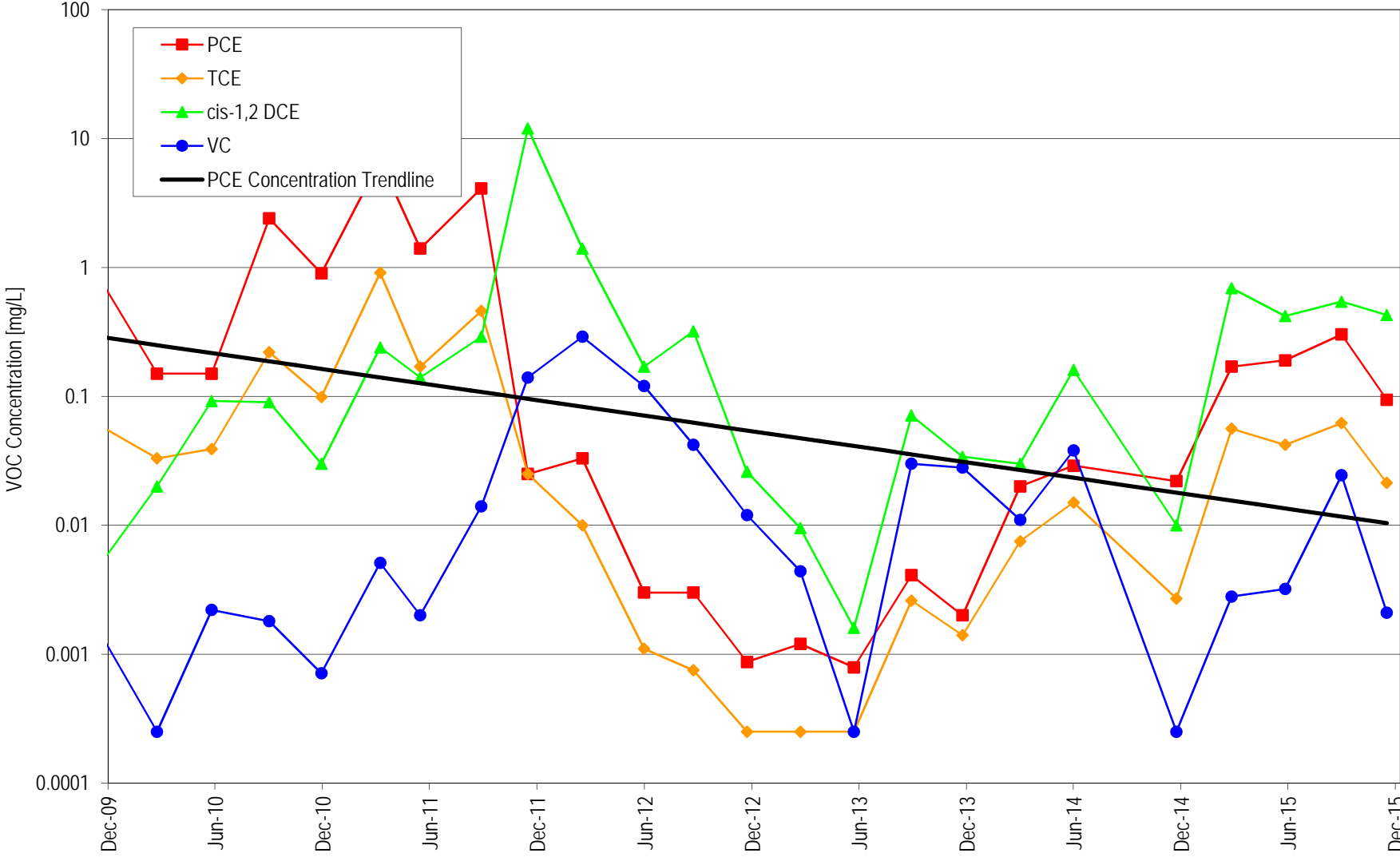
VOC Concentrations in MW-17



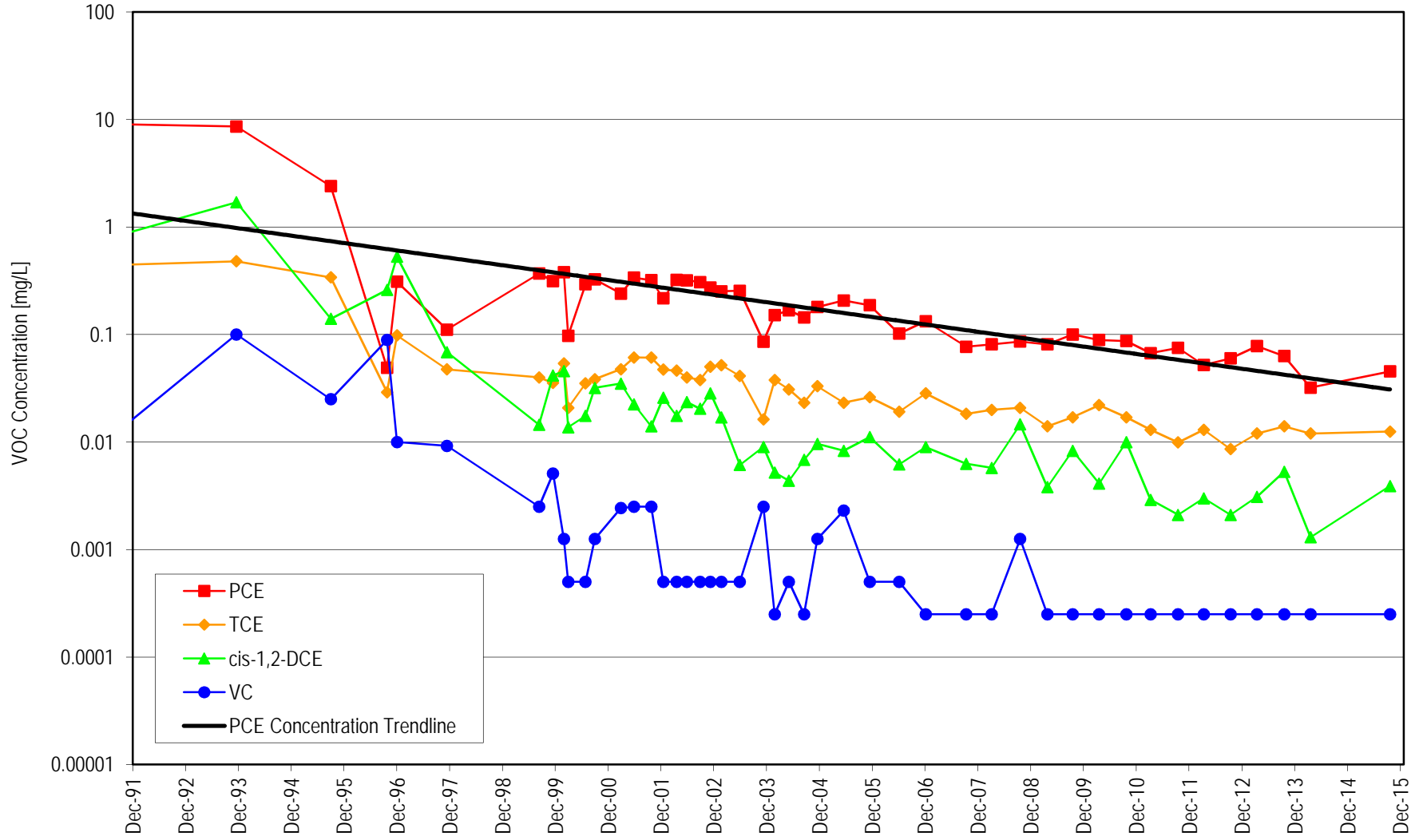
VOC Concentrations in MW-19



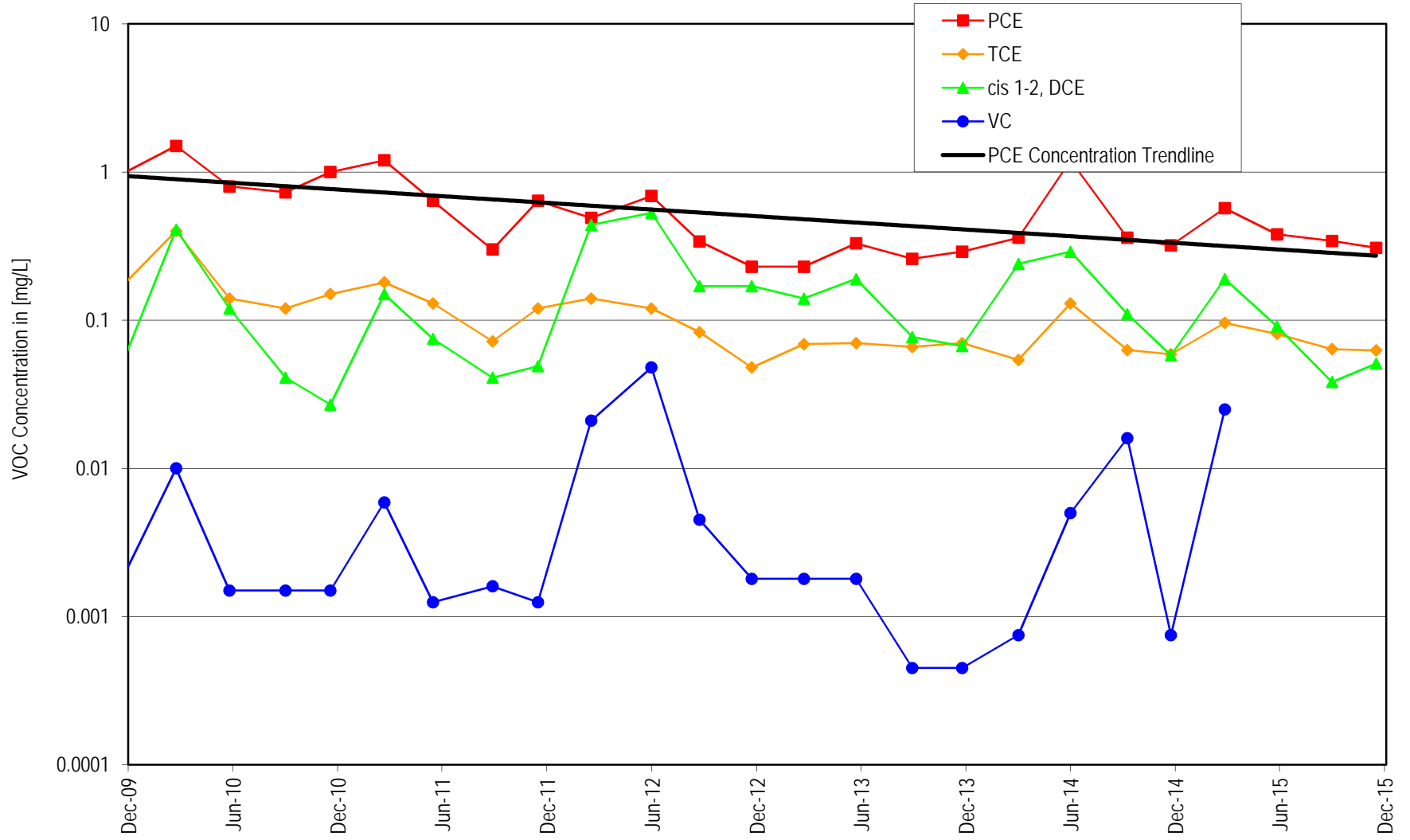
VOC Concentrations in EX



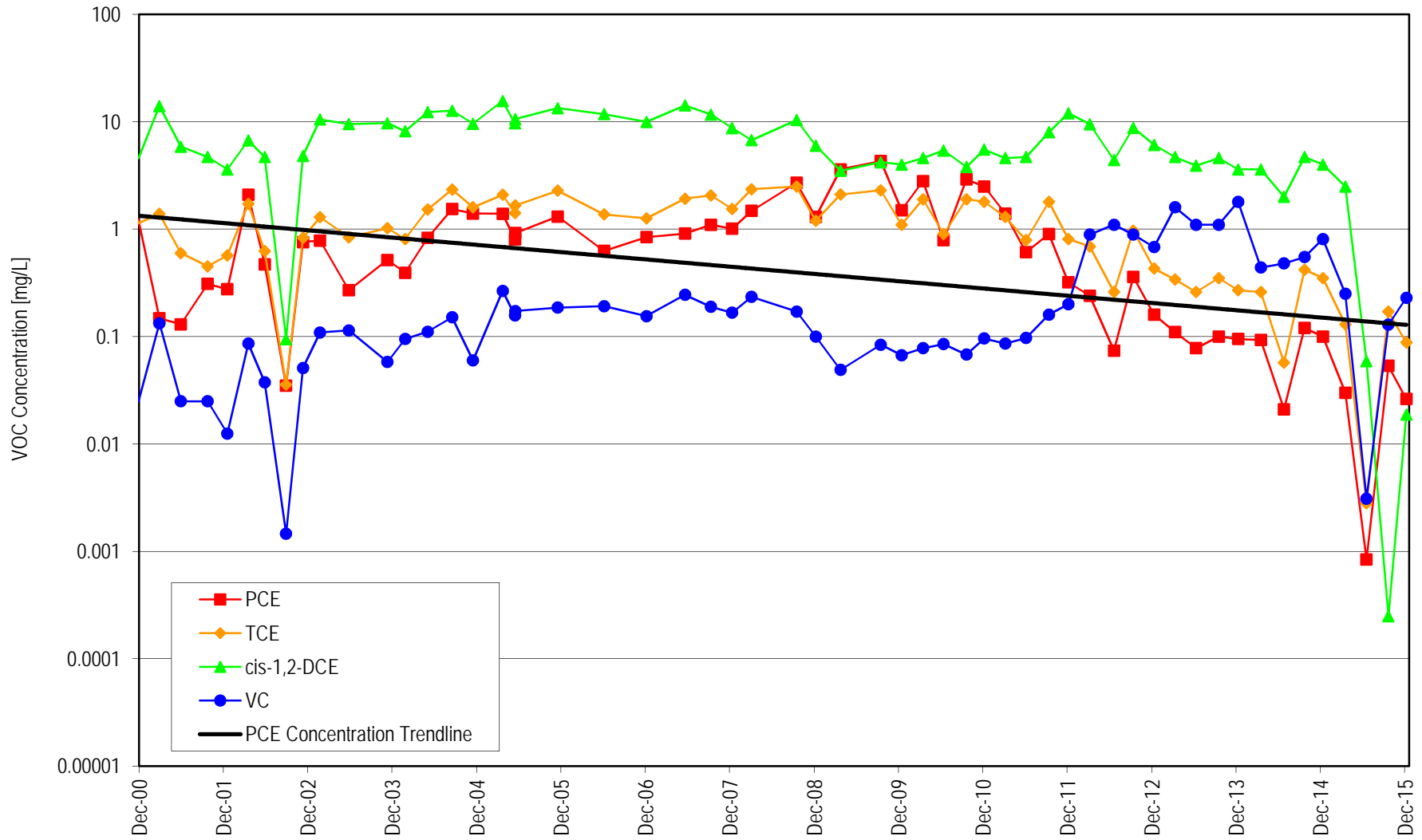
VOC Concentrations in EW-1



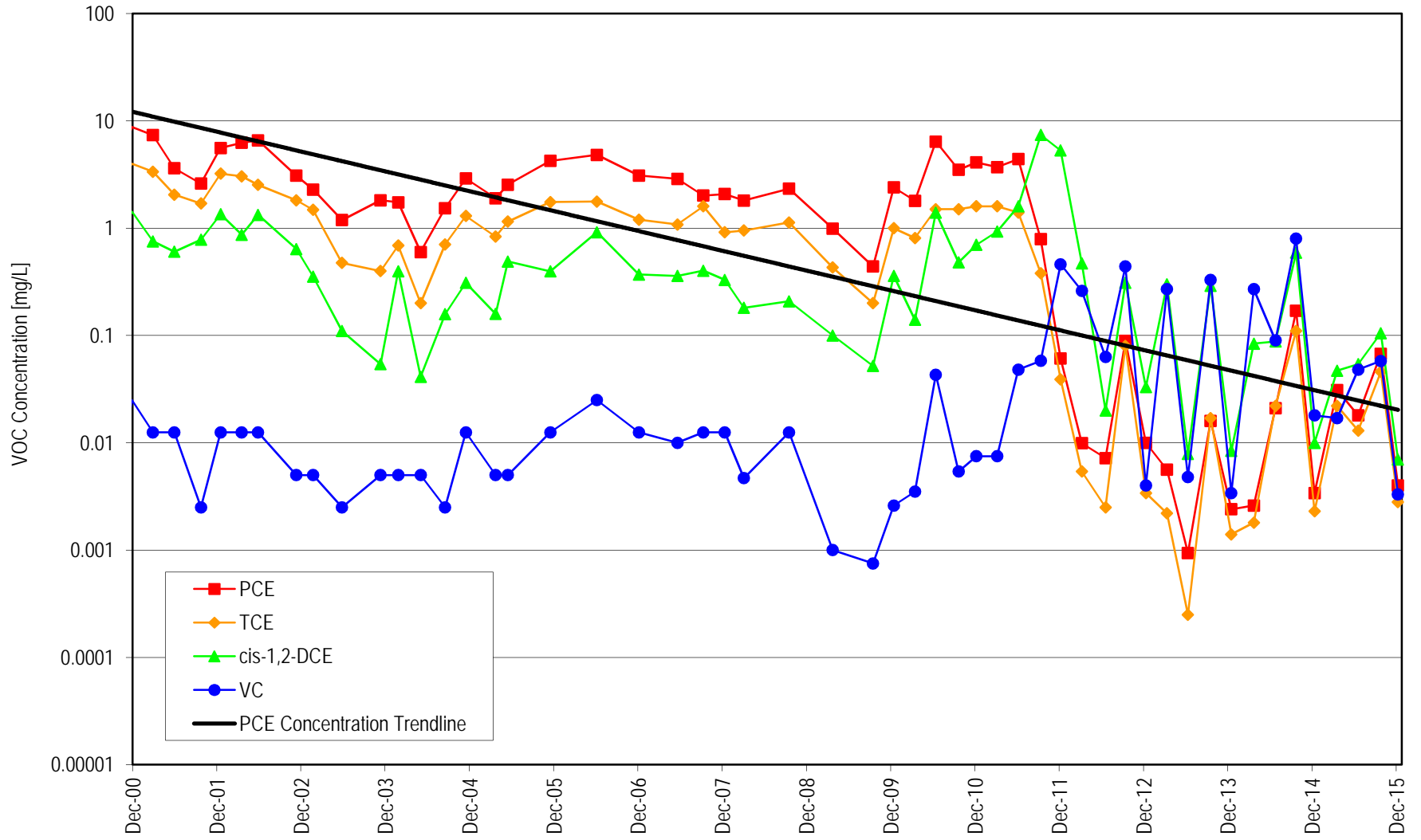
VOC Concentrations in MP-1



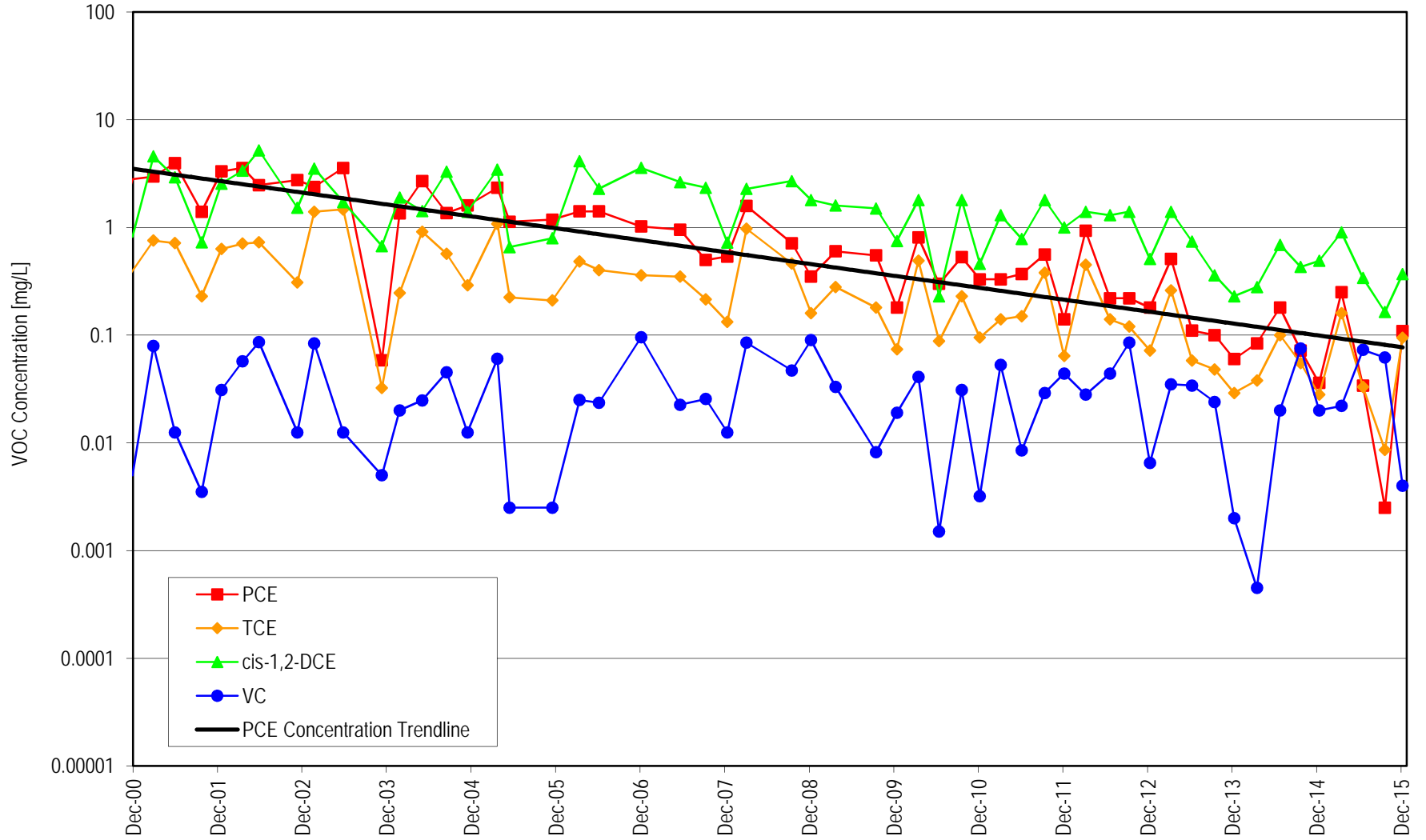
VOC Concentrations in MGMS1-43



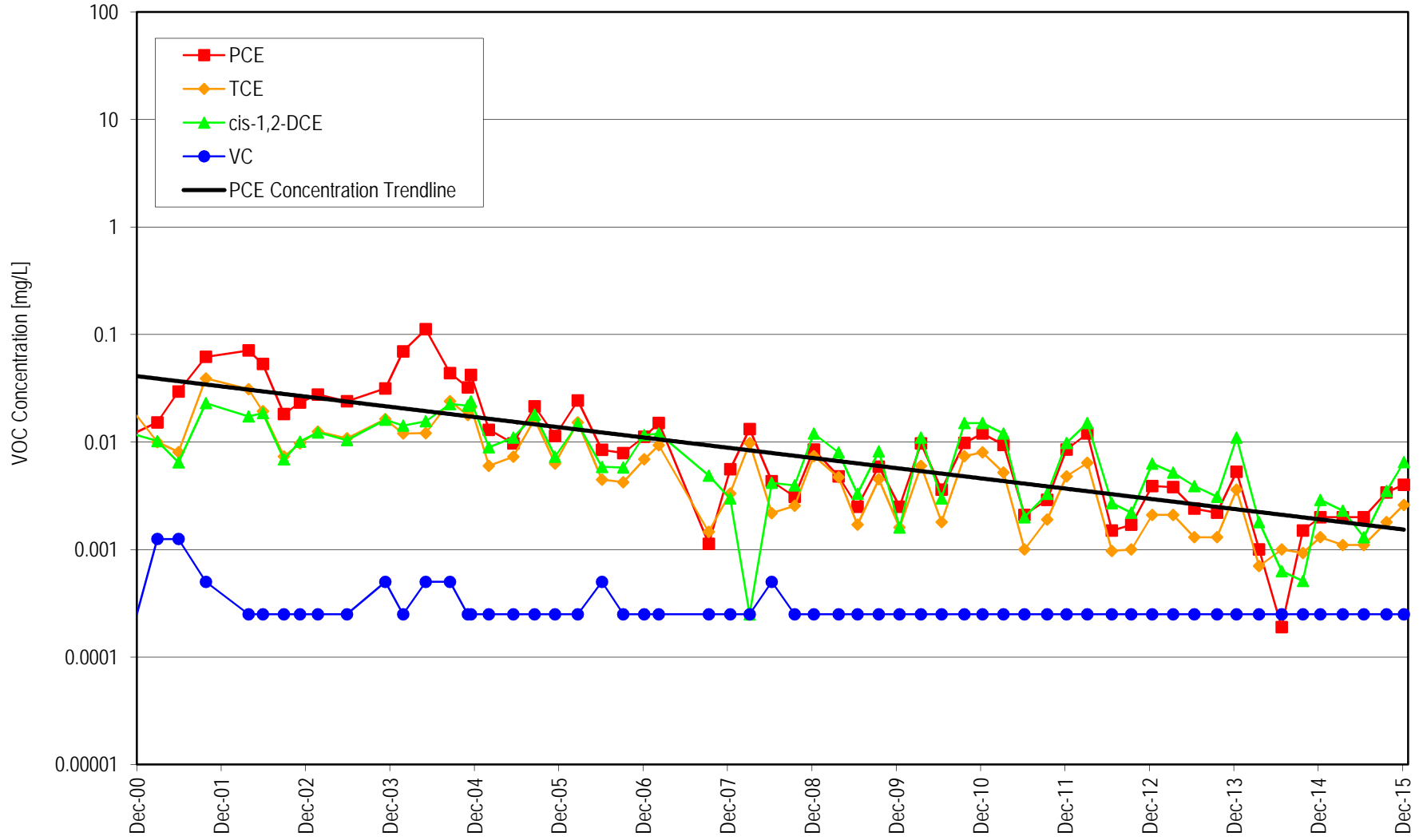
VOC Concentrations in MGMS2-40



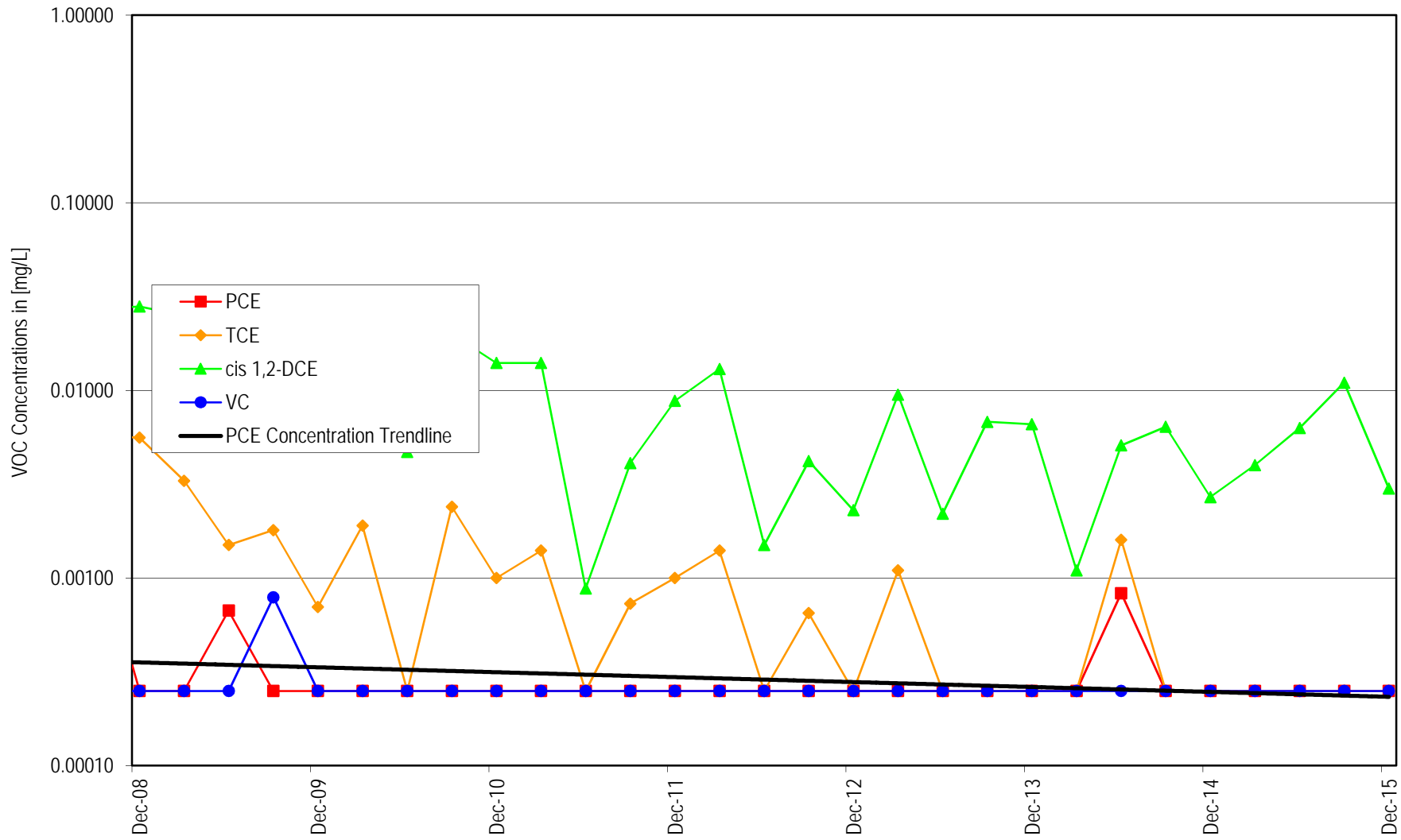
VOC Concentrations in MGMTS3-40



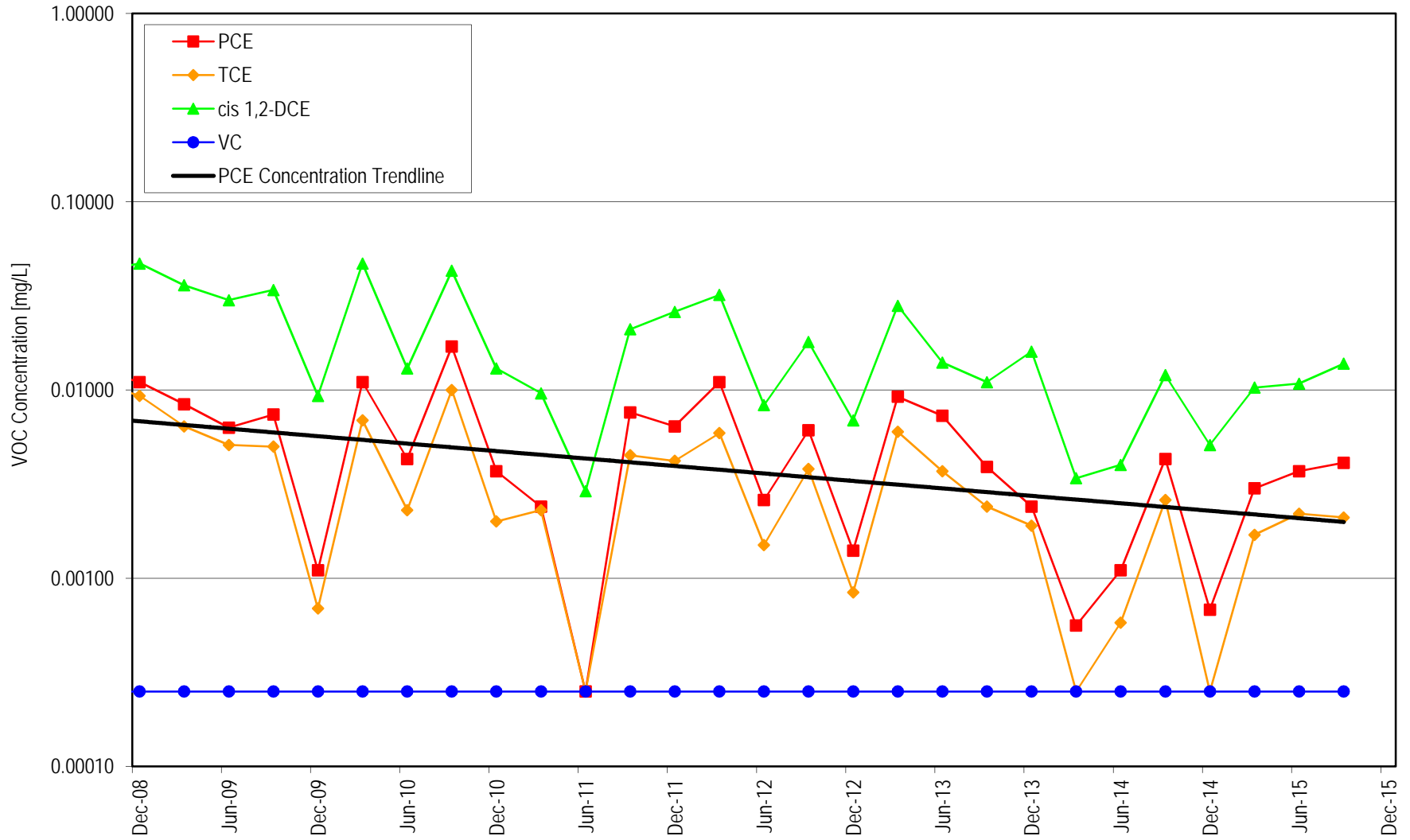
VOC Concentrations in MW-18i



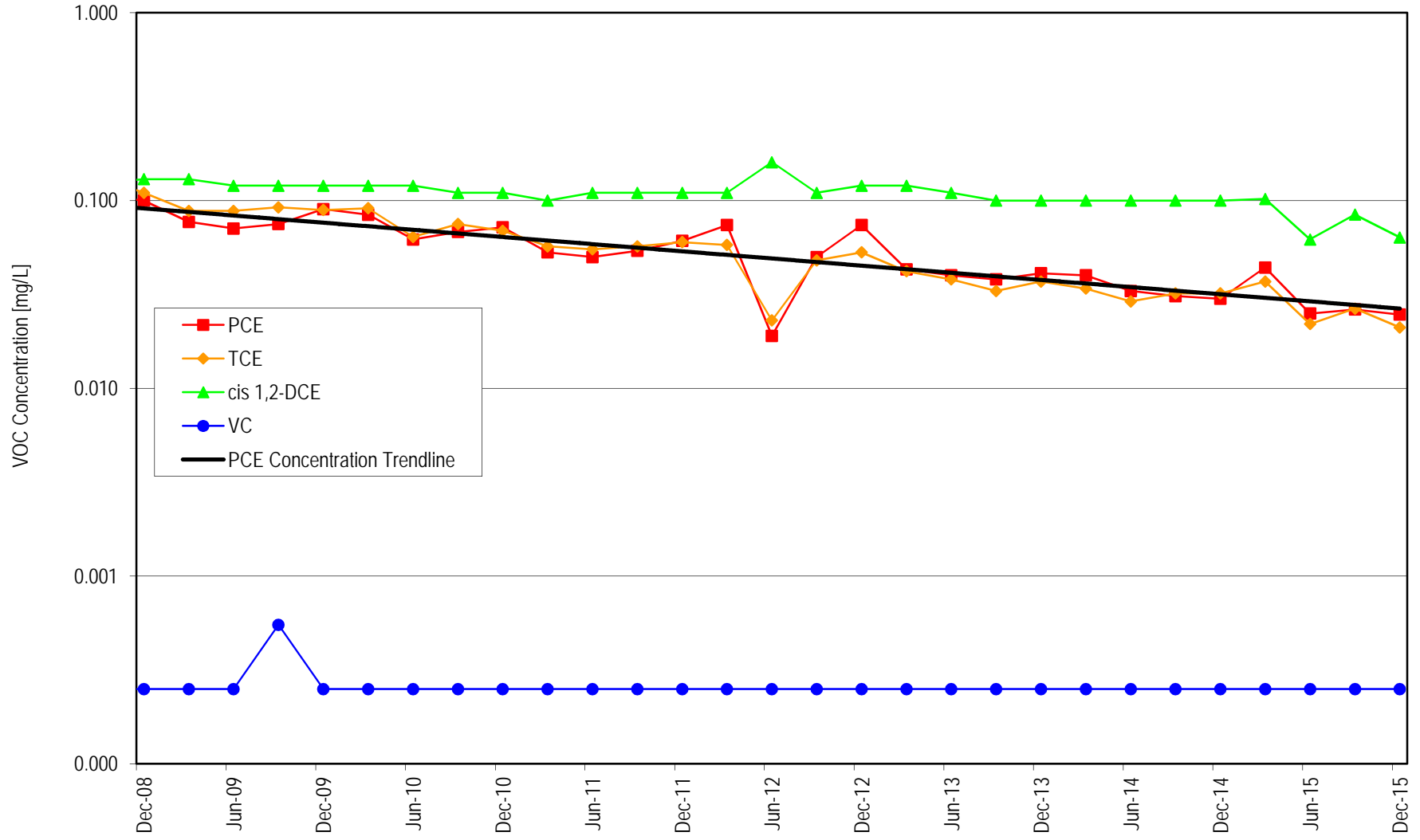
VOC Concentrations in MW-19i



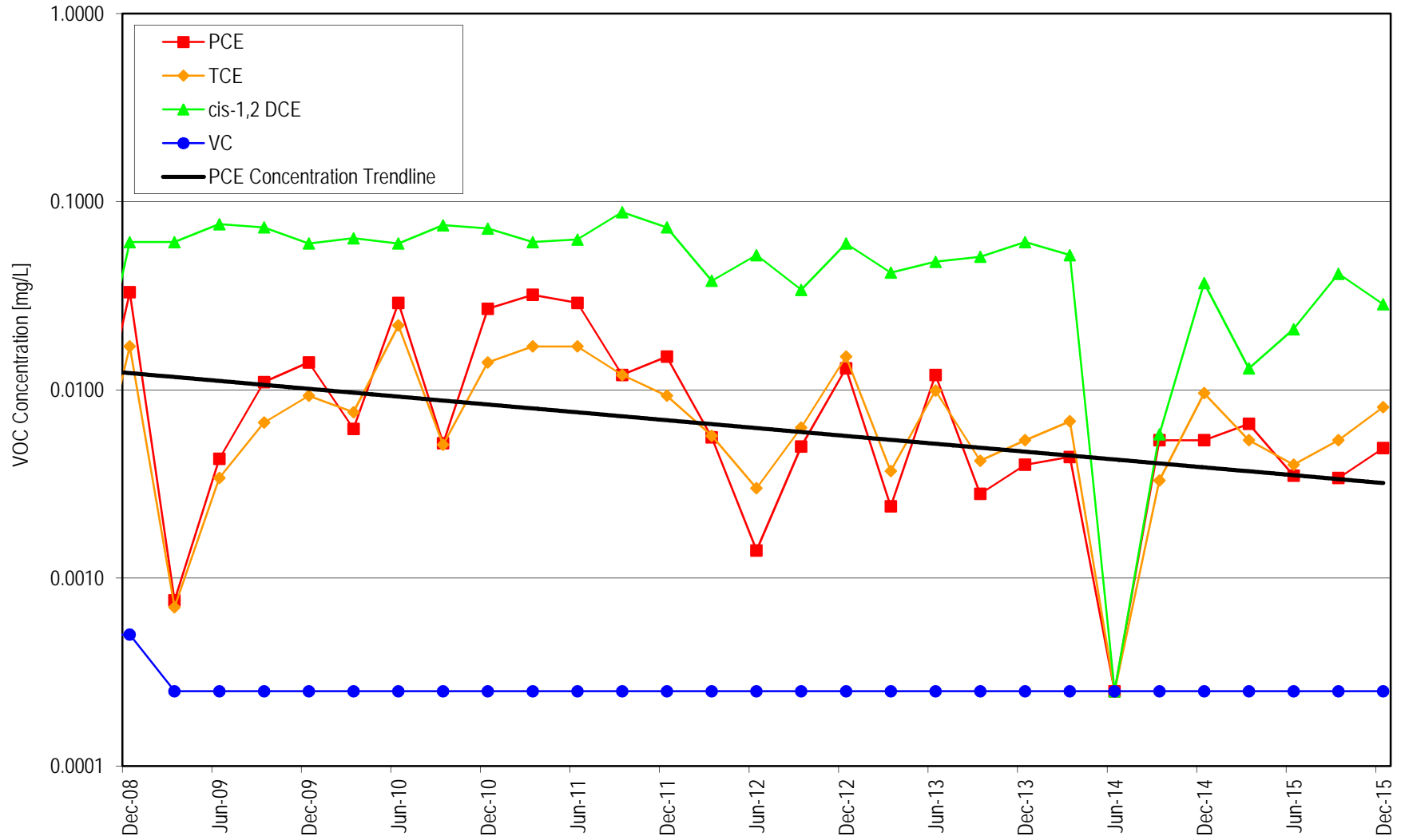
VOC Concentrations in MW-20i



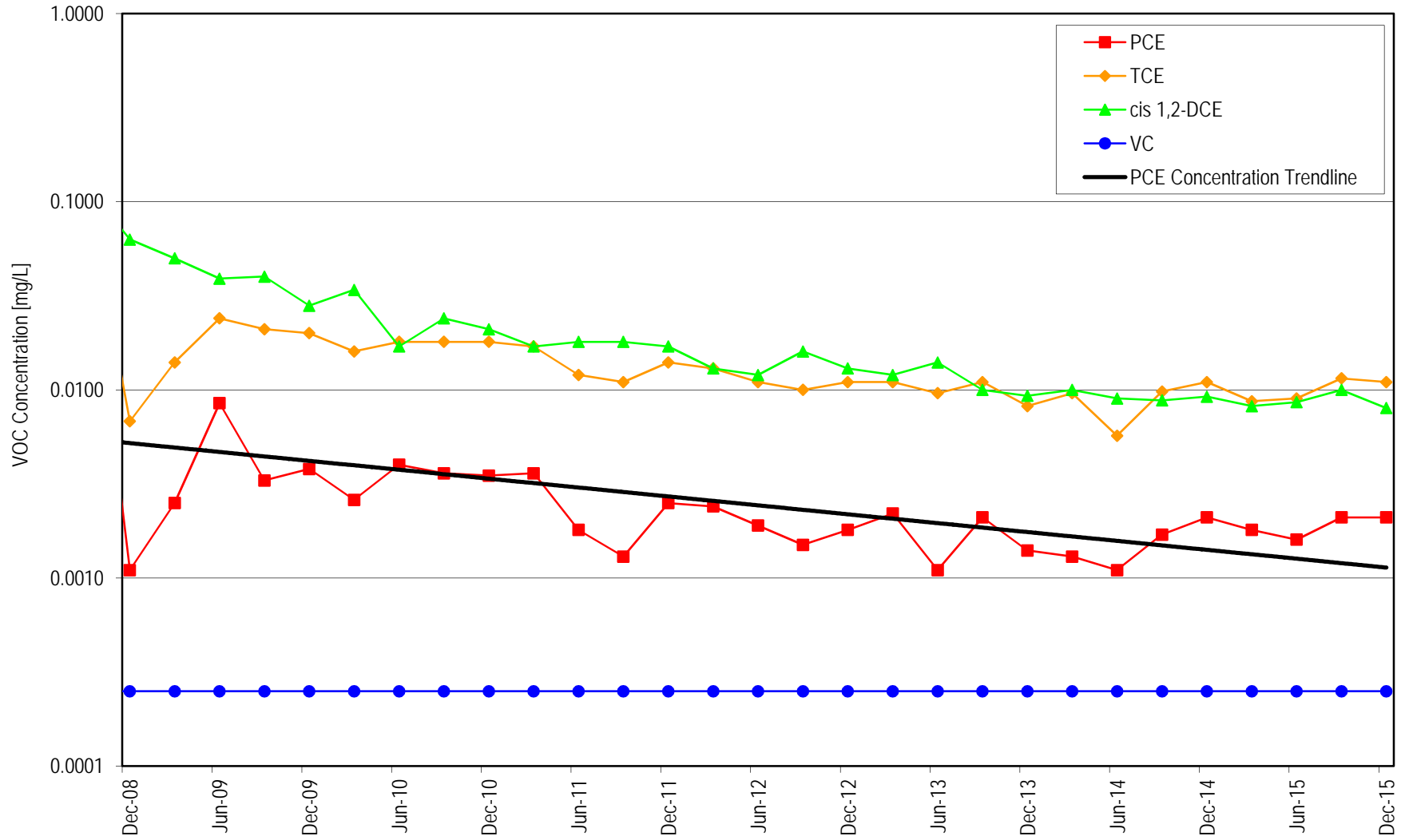
VOC Concentrations in MW-21i-40



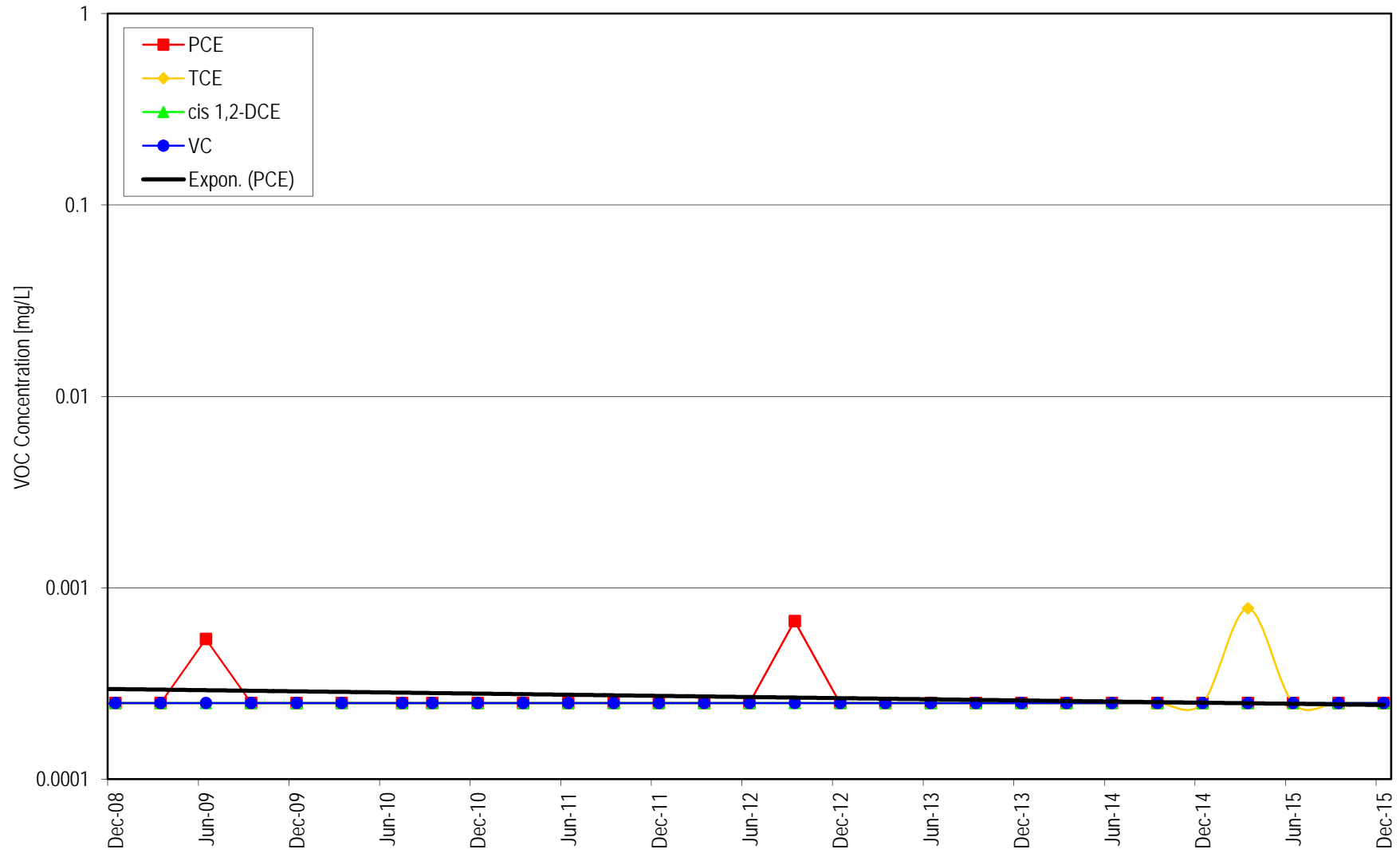
VOC Concentrations in MW-21i-105



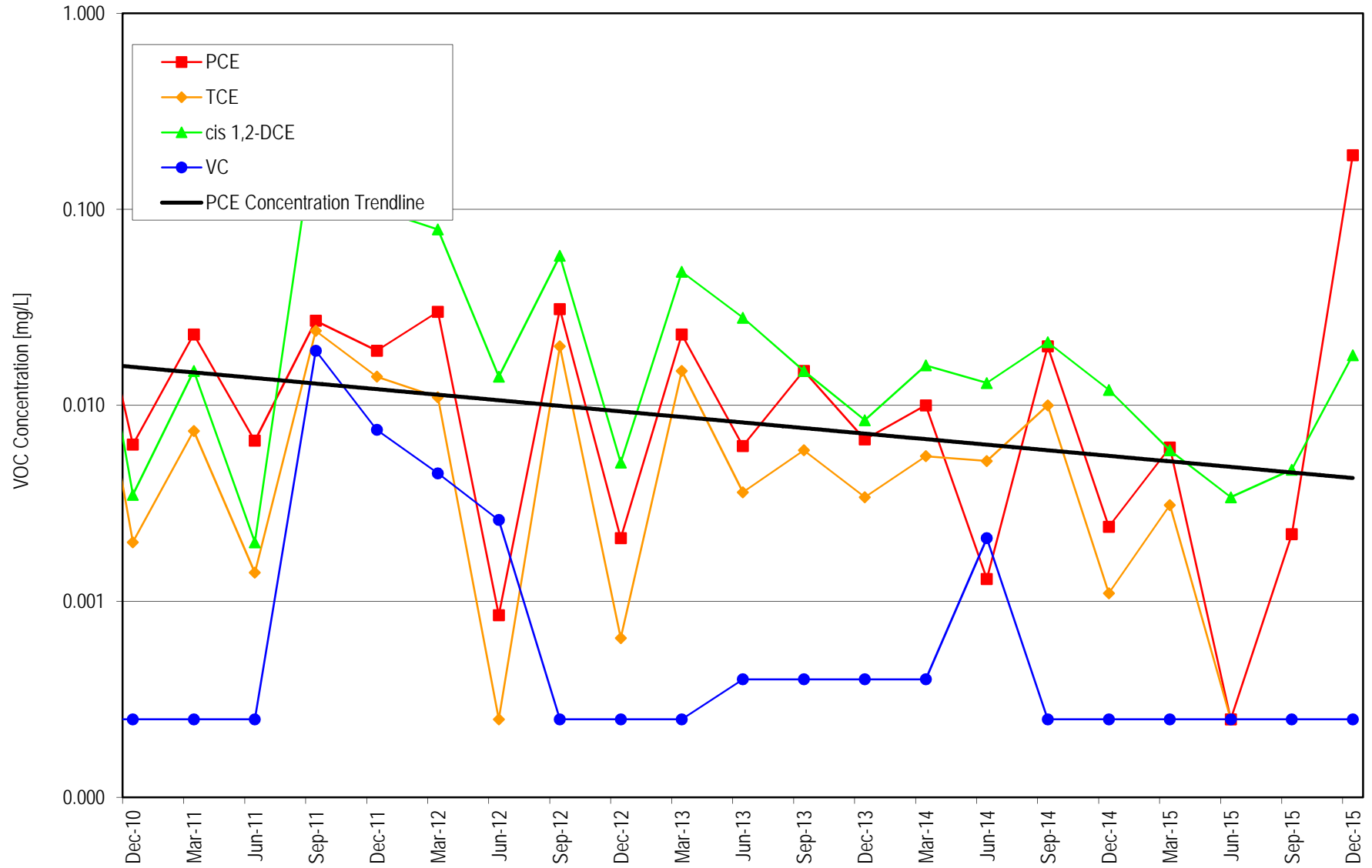
VOC Concentrations in MW-22i



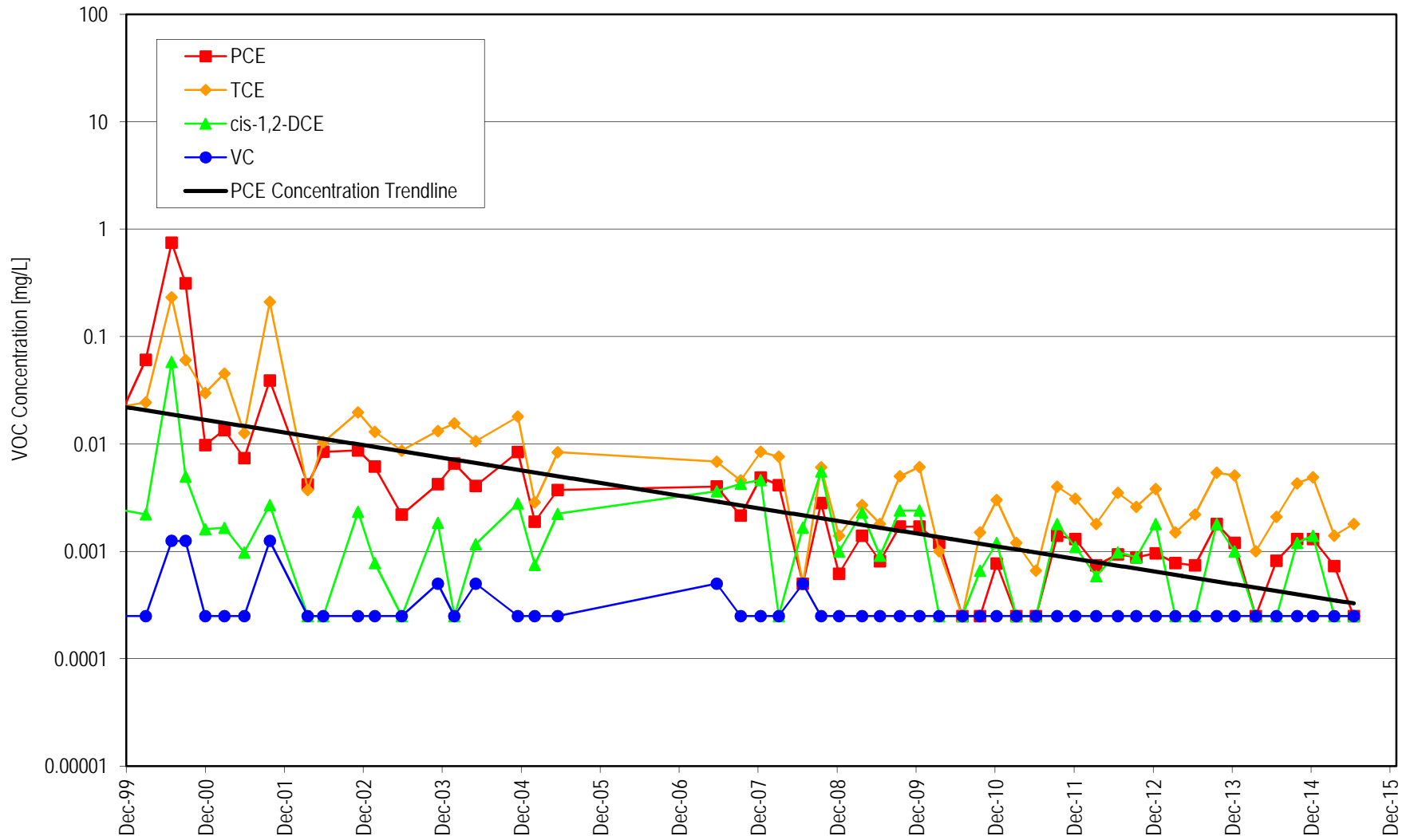
VOC Concentrations in MW-23i



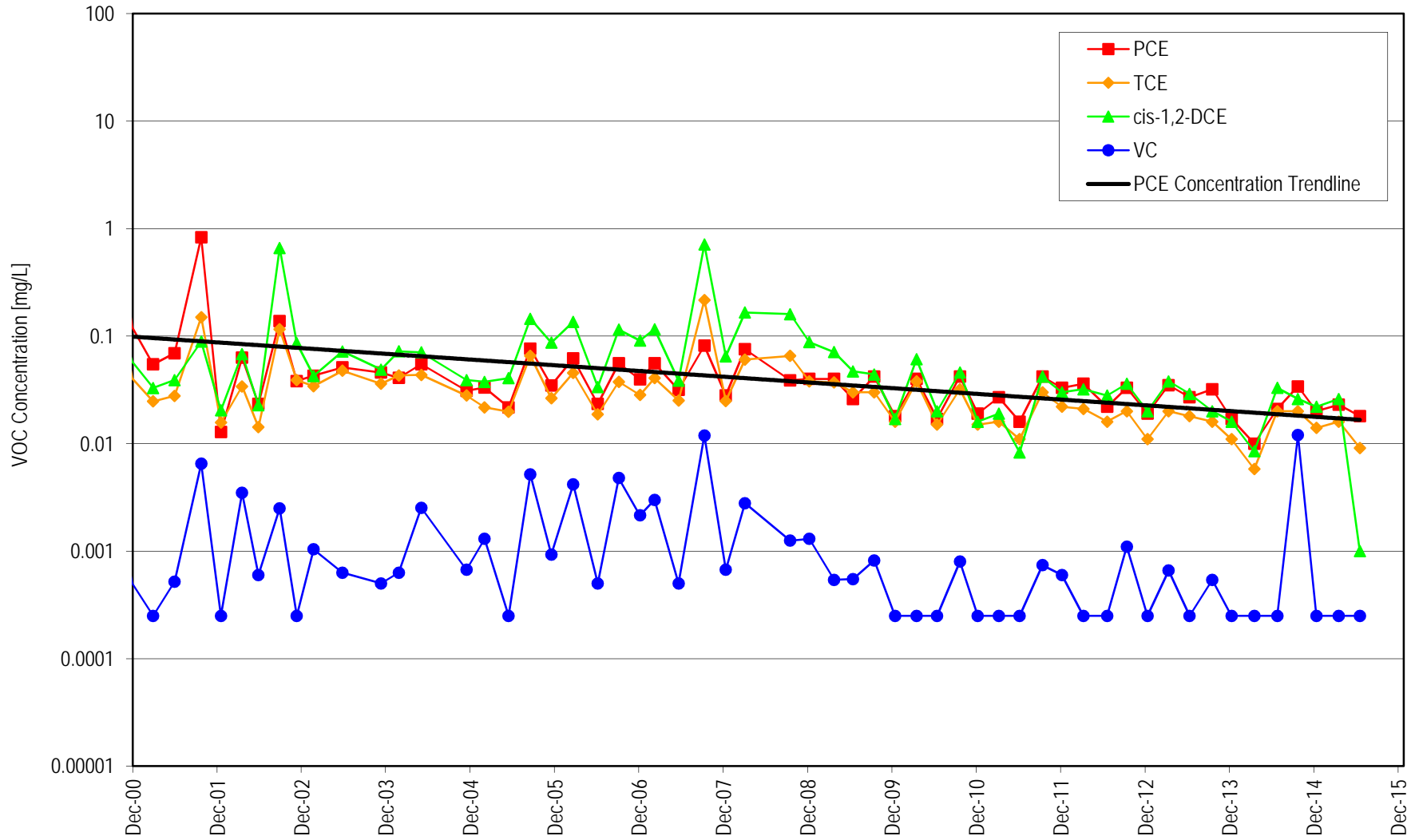
VOC Concentrations in MW-24i



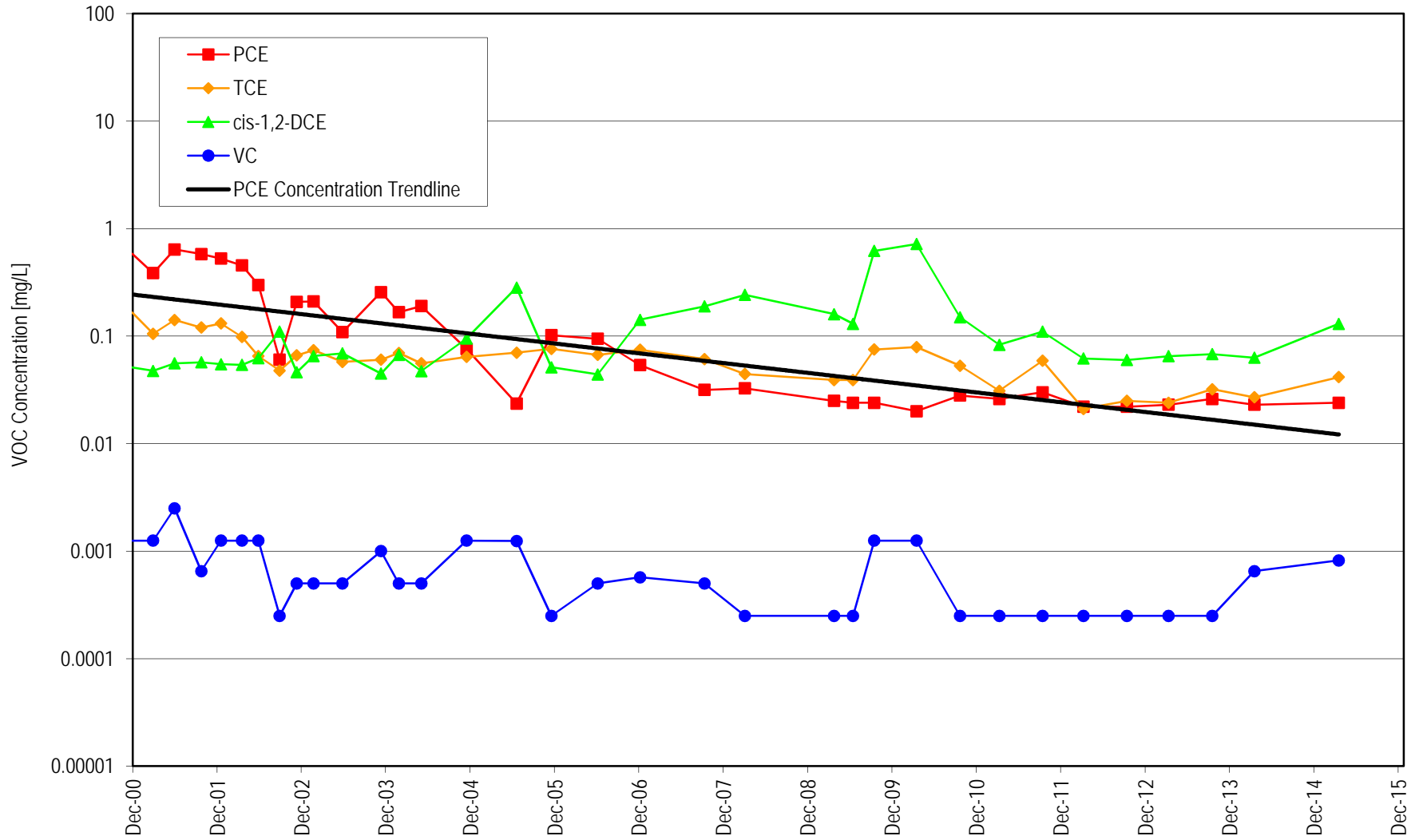
VOC Concentrations in S-1



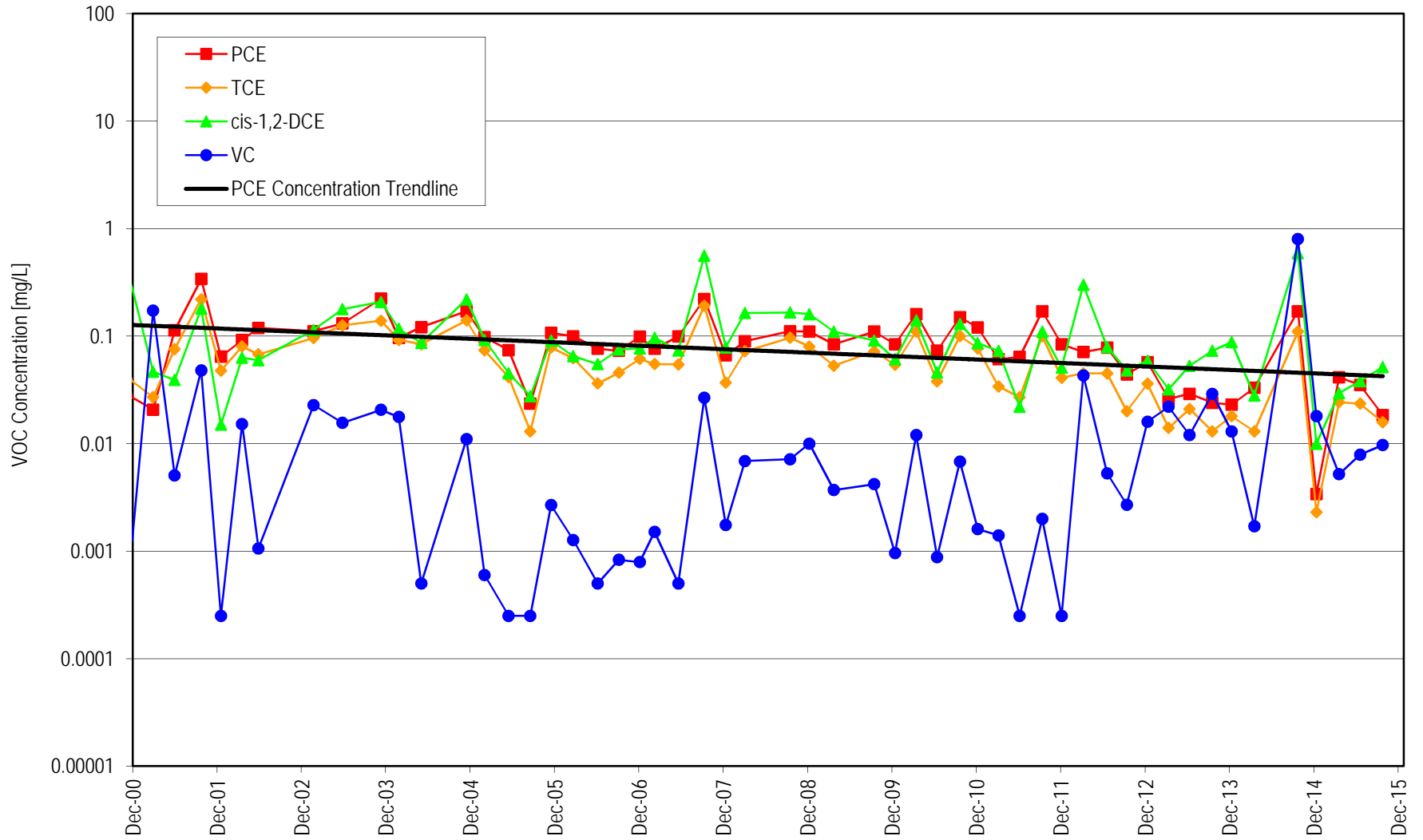
VOC Concentrations in MGMTS1-60



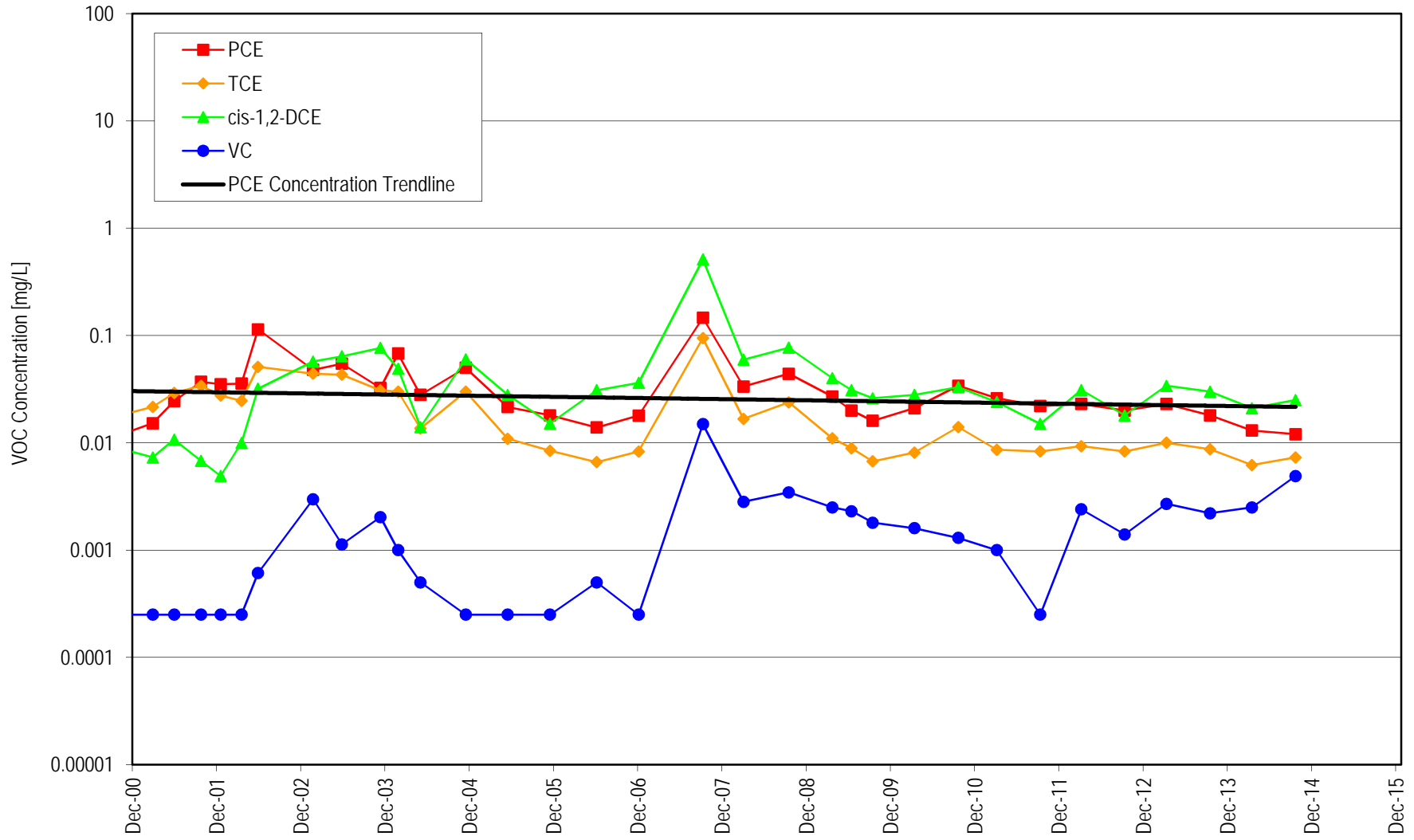
VOC Concentrations in MGMS1-110



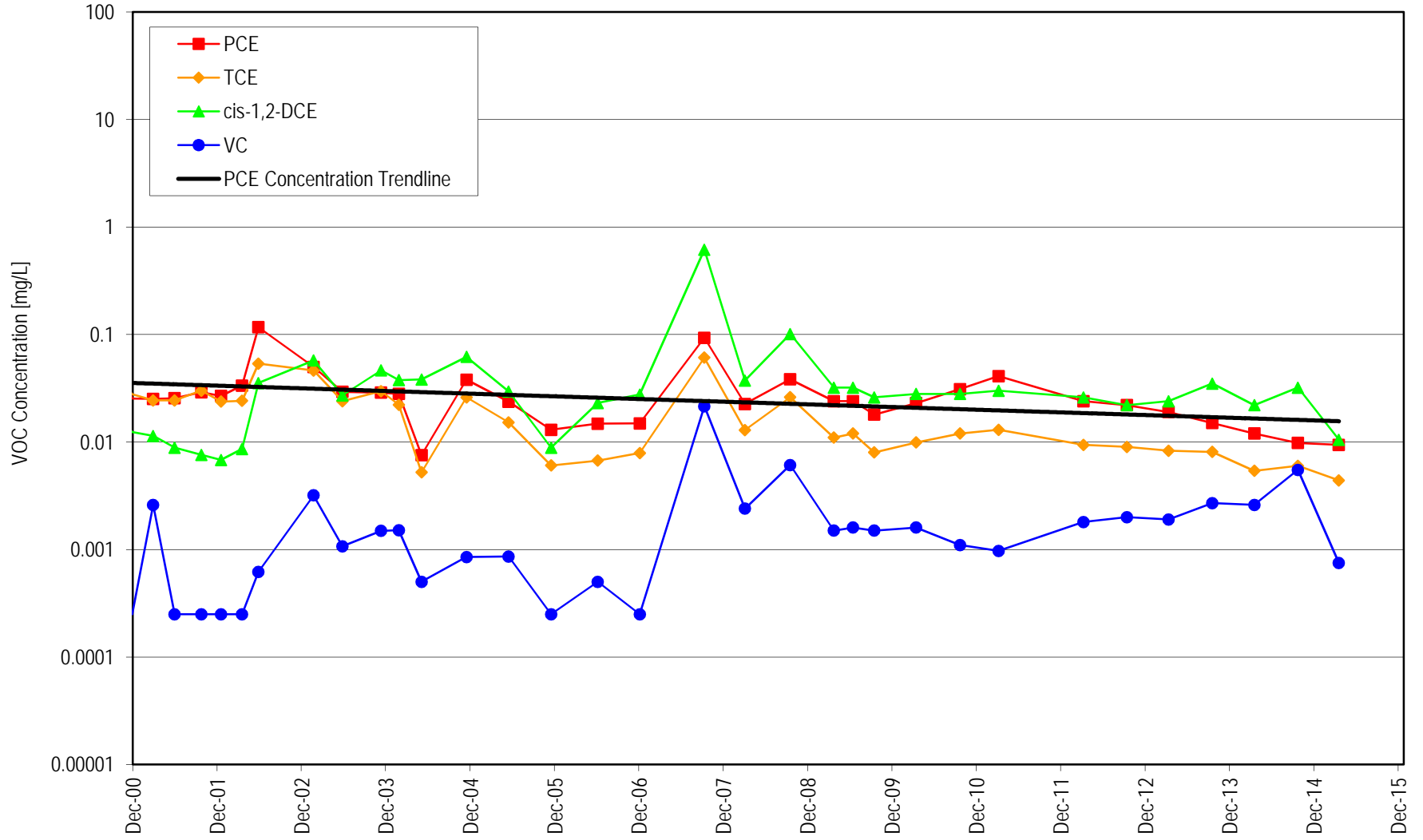
VOC Concentrations in MGMTS2-60



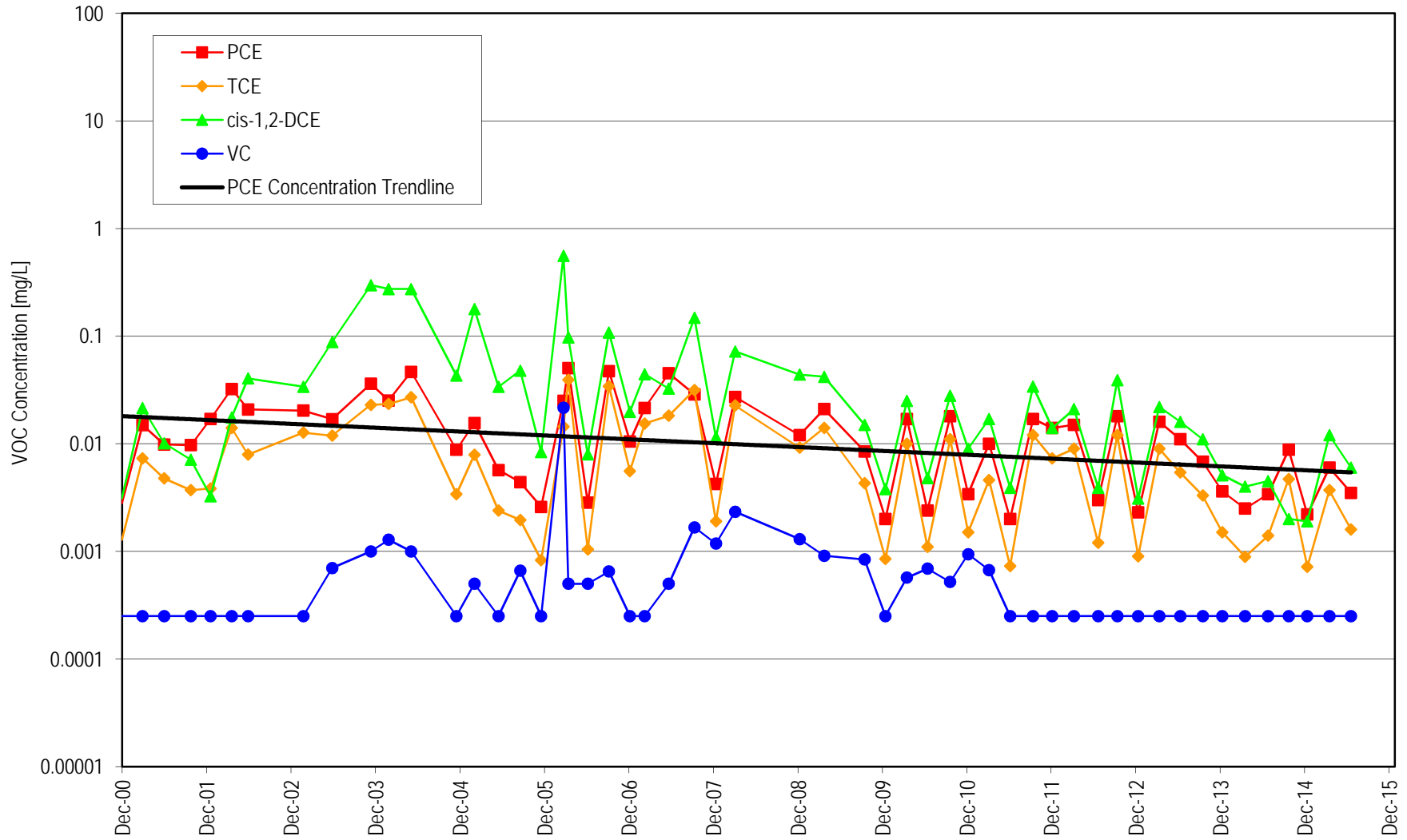
VOC Concentrations in MGMS2-110



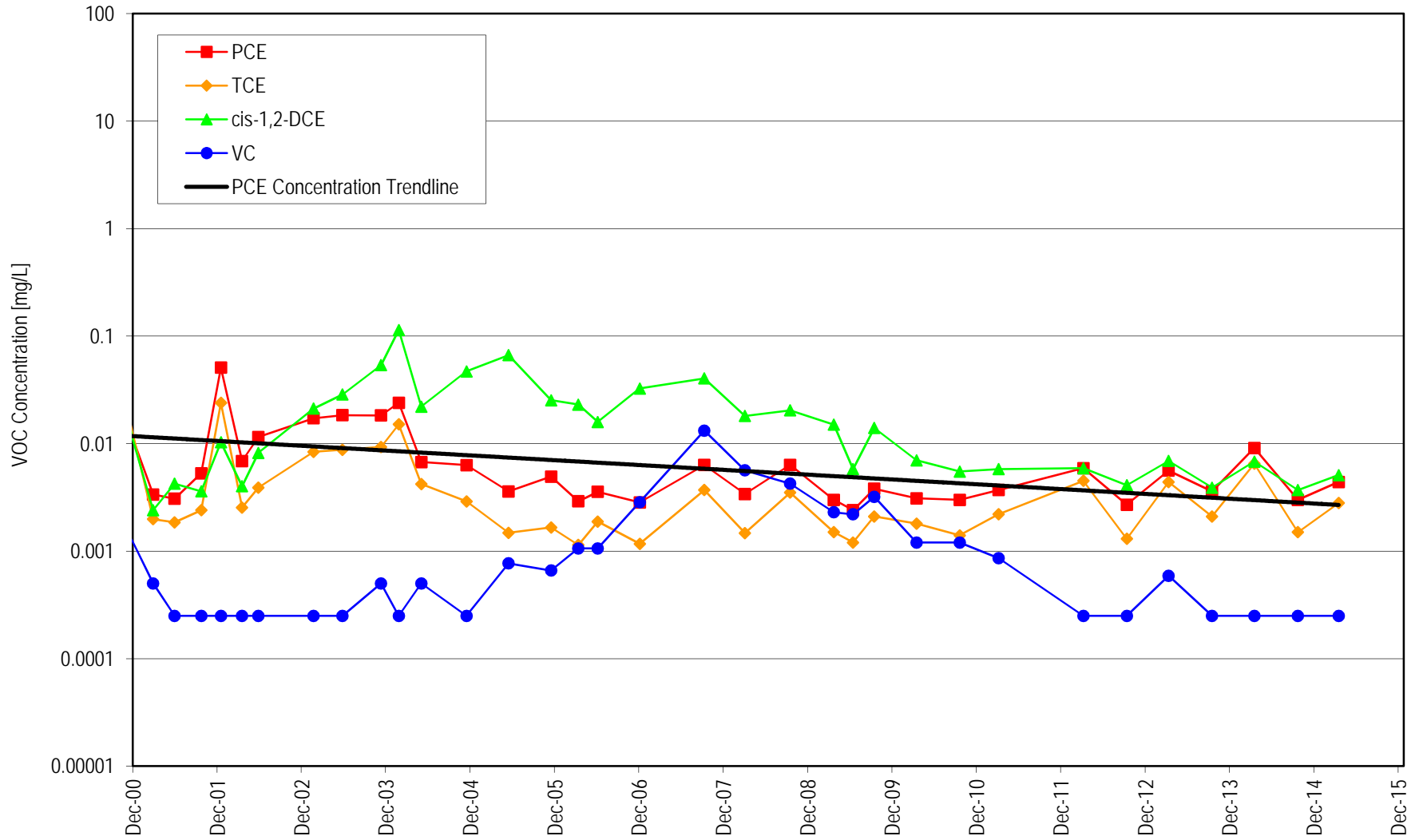
VOC Concentrations in MGMS2-132



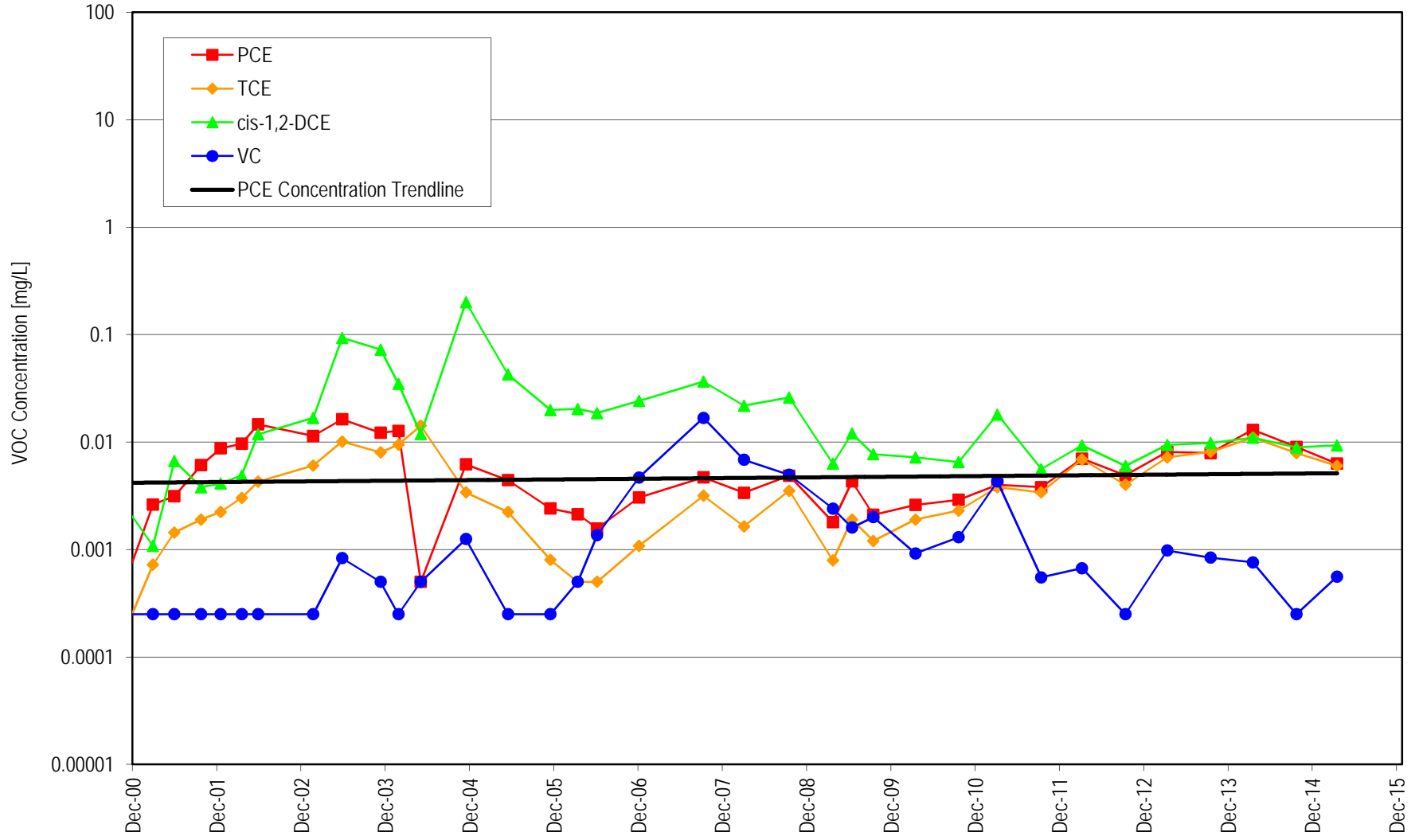
VOC Concentrations in MGMS3-60



VOC Concentrations in MGMS3-101

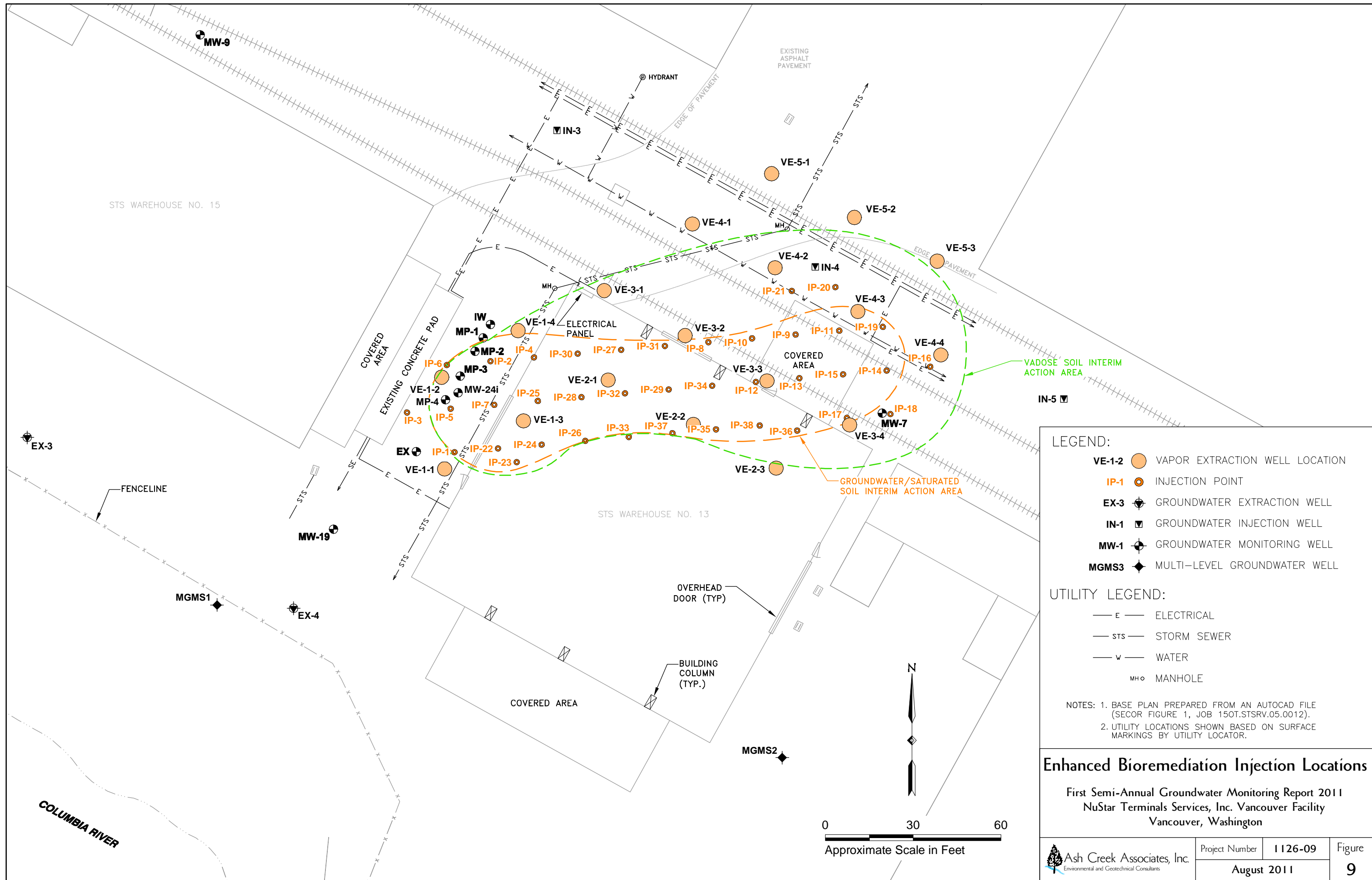


VOC Concentrations in MGMS3-132



Appendix E

**2008 – SVE and Bioremediation Injection Layout and
Historical Monitoring Tables**



LEGEND:

- VE-1-2 ○ VAPOR EXTRACTION WELL LOCATION
- IP-1 ○ INJECTION POINT
- EX-3 ⊕ GROUNDWATER EXTRACTION WELL
- IN-1 ▽ GROUNDWATER INJECTION WELL
- MW-1 ⊕ GROUNDWATER MONITORING WELL
- MGMS3 ◆ MULTI-LEVEL GROUNDWATER WELL

UTILITY LEGEND:

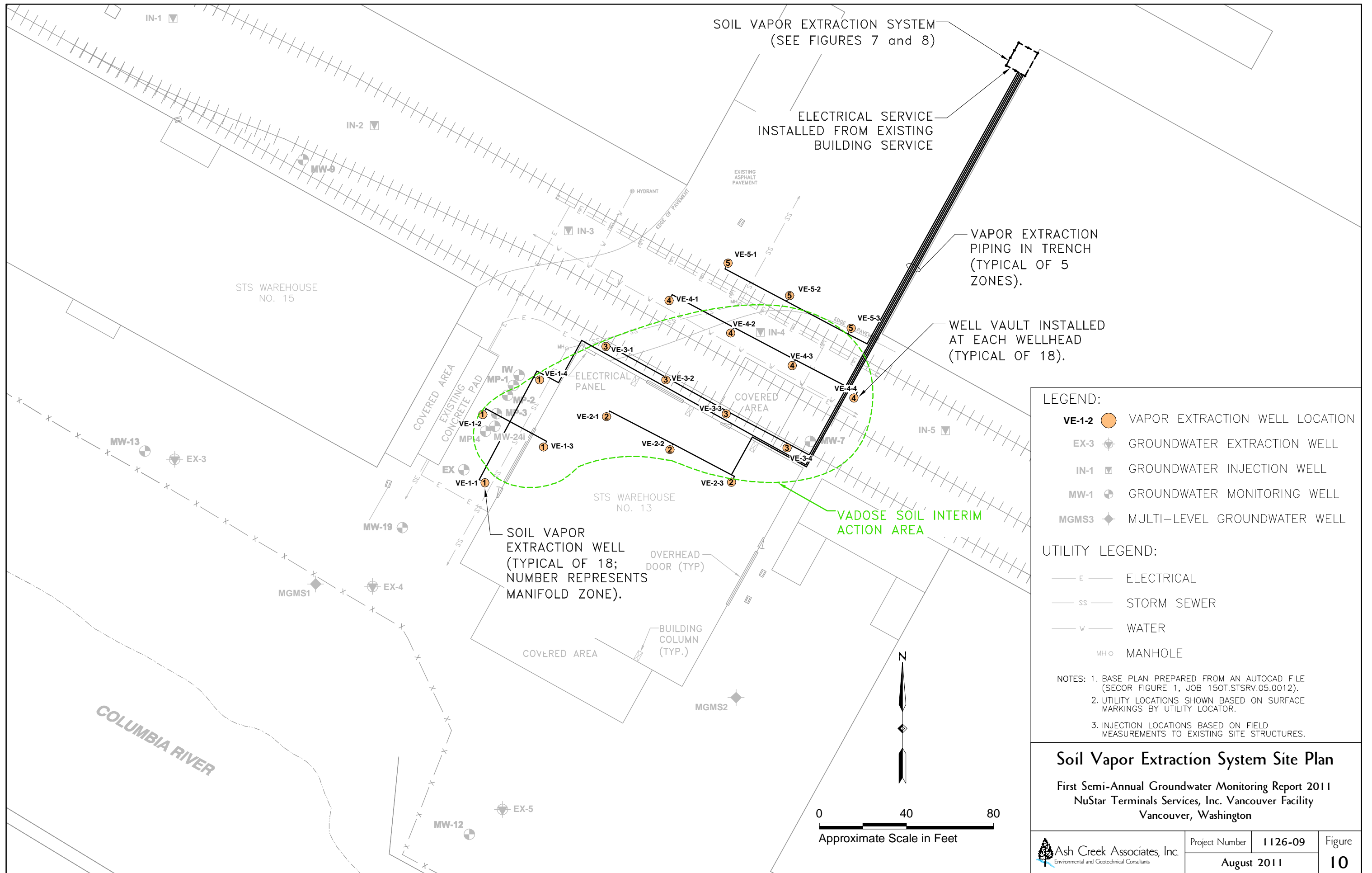
- E — ELECTRICAL
- STS — STORM SEWER
- W — WATER
- MH ⊕ MANHOLE

NOTES:

1. BASE PLAN PREPARED FROM AN AUTOCAD FILE (SECOR FIGURE 1, JOB 150T.STSRV.05.0012).
2. UTILITY LOCATIONS SHOWN BASED ON SURFACE MARKINGS BY UTILITY LOCATOR.

Enhanced Bioremediation Injection Locations

First Semi-Annual Groundwater Monitoring Report 2011
 NuStar Terminals Services, Inc. Vancouver Facility
 Vancouver, Washington



LEGEND:

- VE-1-2** VAPOR EXTRACTION WELL LOCATION
- EX-3** GROUNDWATER EXTRACTION WELL
- IN-1** GROUNDWATER INJECTION WELL
- MW-1** GROUNDWATER MONITORING WELL
- MGMS3** MULTI-LEVEL GROUNDWATER WELL

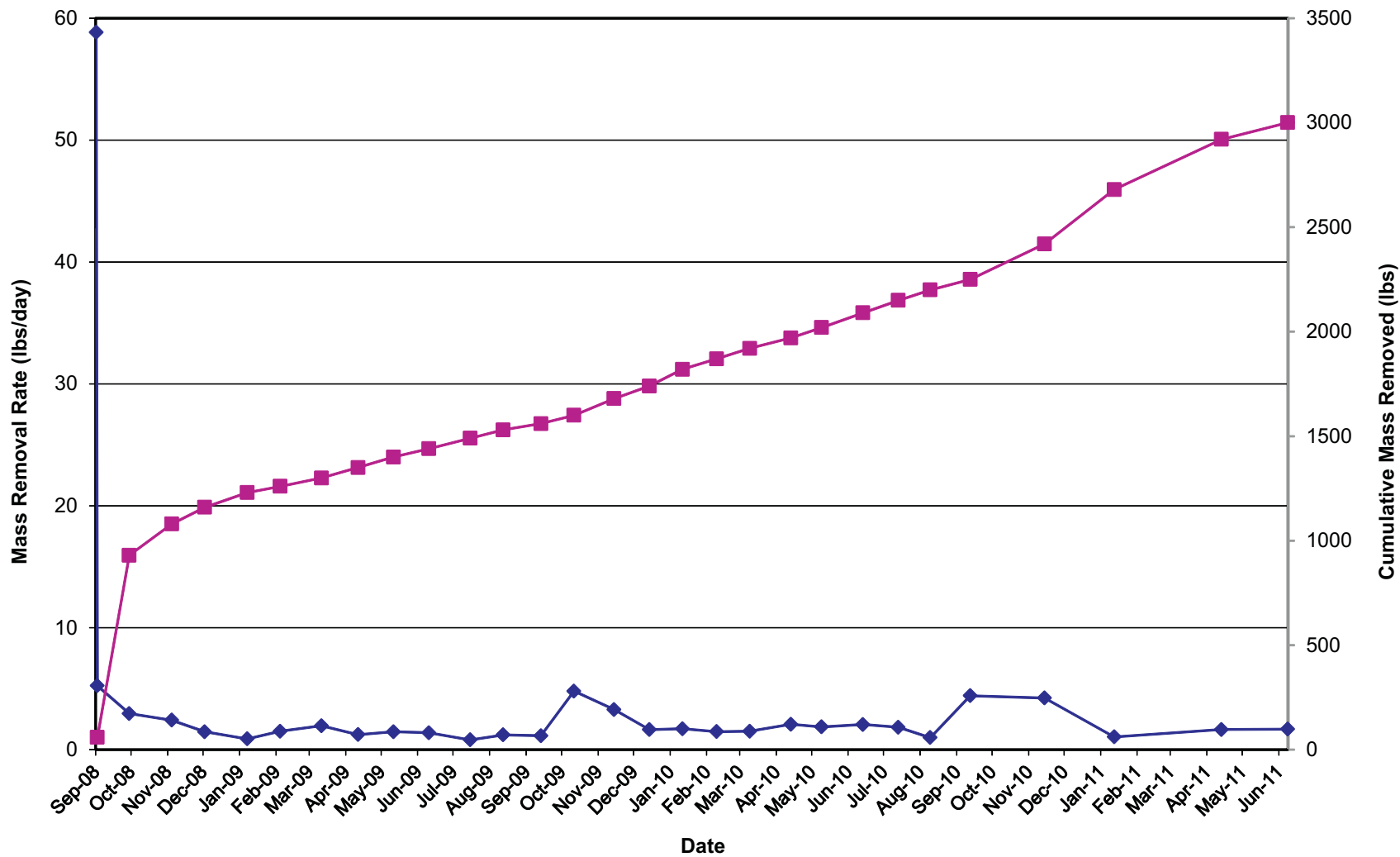
UTILITY LEGEND:

- ELECTRICAL
- STORM SEWER
- WATER
- MANHOLE

NOTES:

1. BASE PLAN PREPARED FROM AN AUTOCAD FILE (SECOR FIGURE 1, JOB 150T.STSRV.05.0012).
2. UTILITY LOCATIONS SHOWN BASED ON SURFACE MARKINGS BY UTILITY LOCATOR.
3. INJECTION LOCATIONS BASED ON FIELD MEASUREMENTS TO EXISTING SITE STRUCTURES.

Soil Vapor Extraction System Site Plan
 First Semi-Annual Groundwater Monitoring Report 2011
 NuStar Terminals Services, Inc. Vancouver Facility
 Vancouver, Washington



Legend:

- ◆ Removal Rate (lbs/day)
- Cumulative Mass Removal

2008 SVE System - VOC Mass Removal

Second Semi-Annual Groundwater Monitoring Report 2011
 NuStar Terminals Services, Inc. Vancouver Facility
 Vancouver, Washington



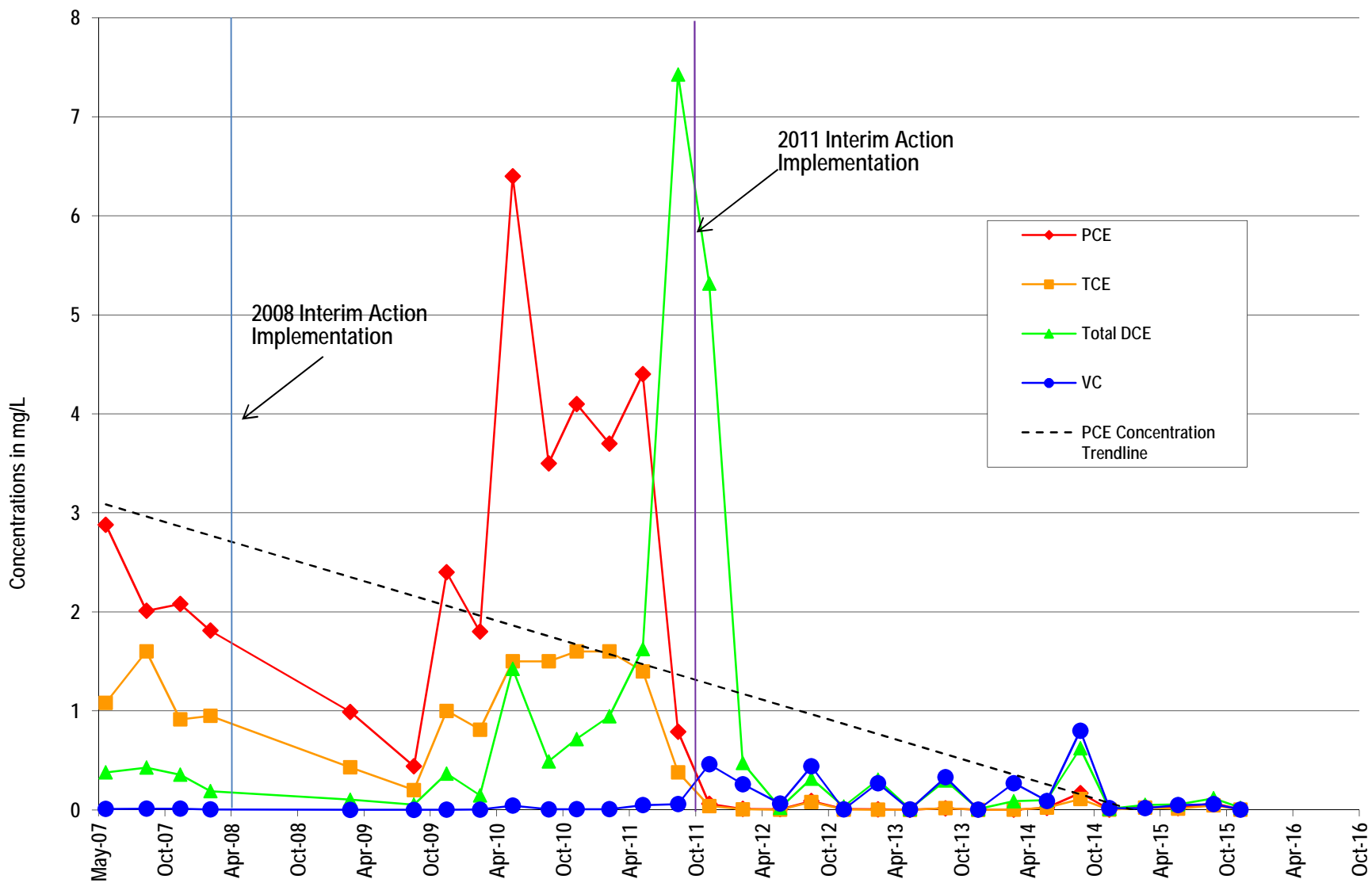
Project Number	1126-09
January 2012	

Figure
11

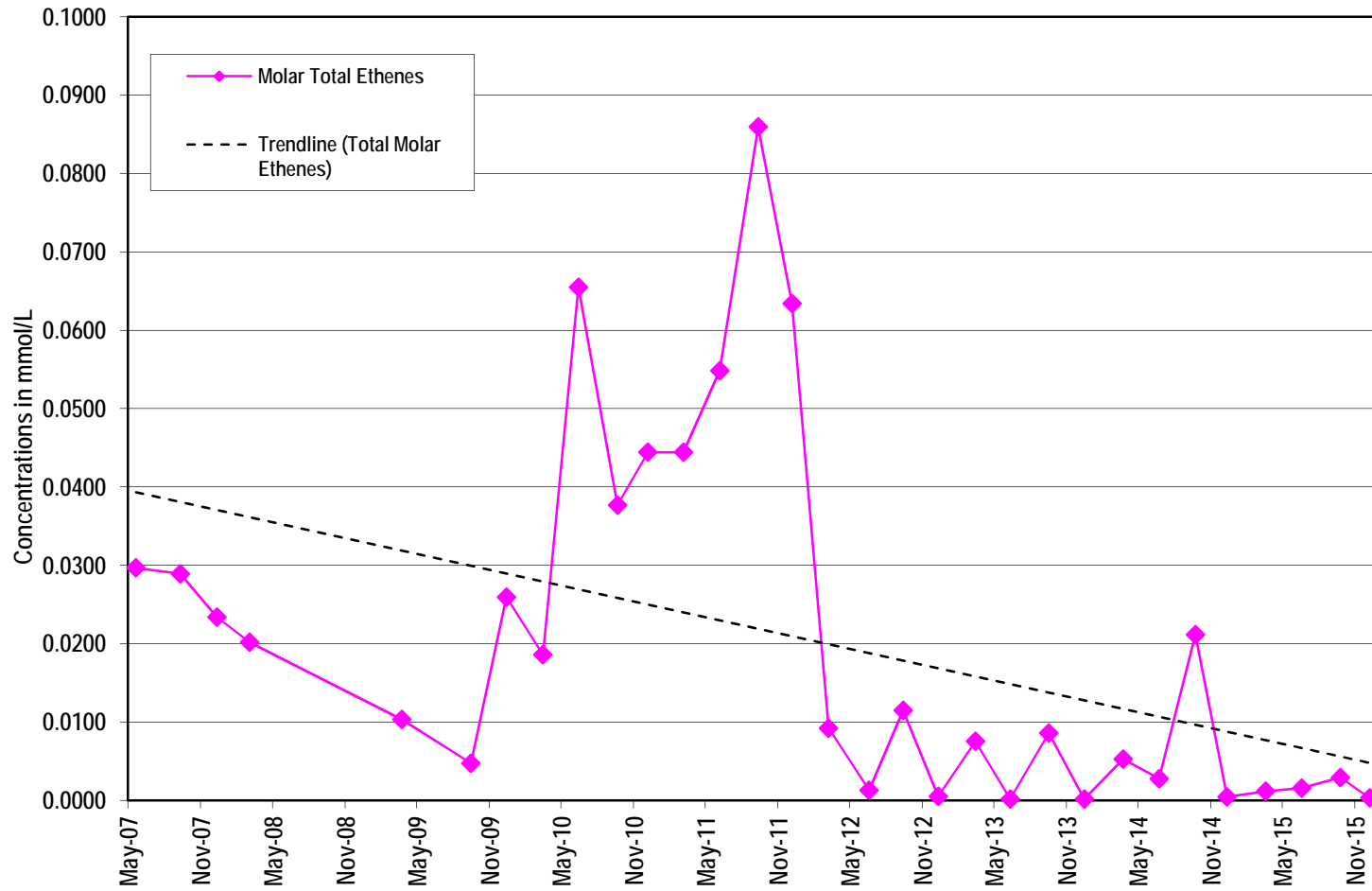
Appendix F

Molar Concentration Trend Plots – Interim Action Wells

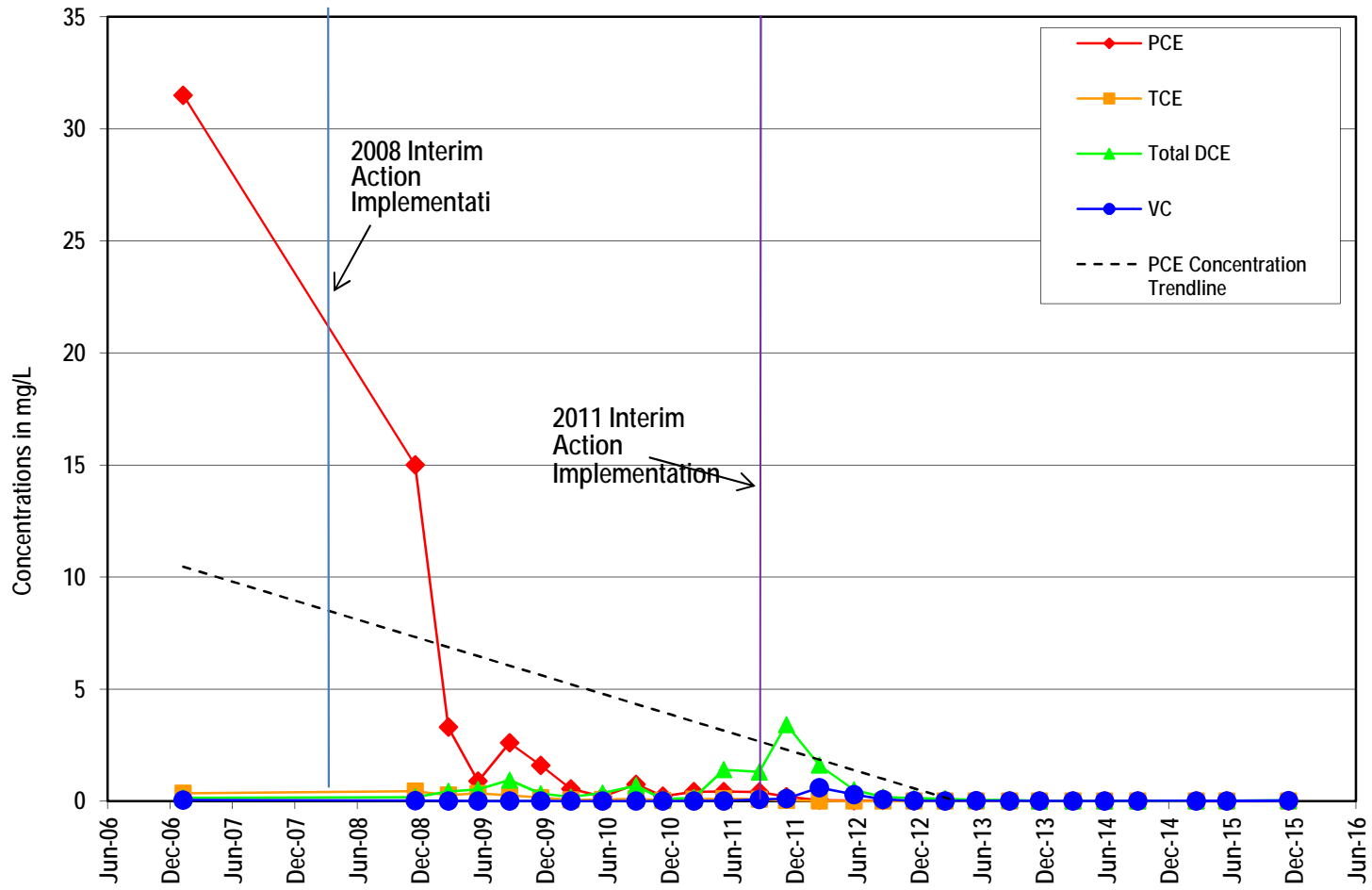
Interim Action Area - VOC Trends: MGMS2-40



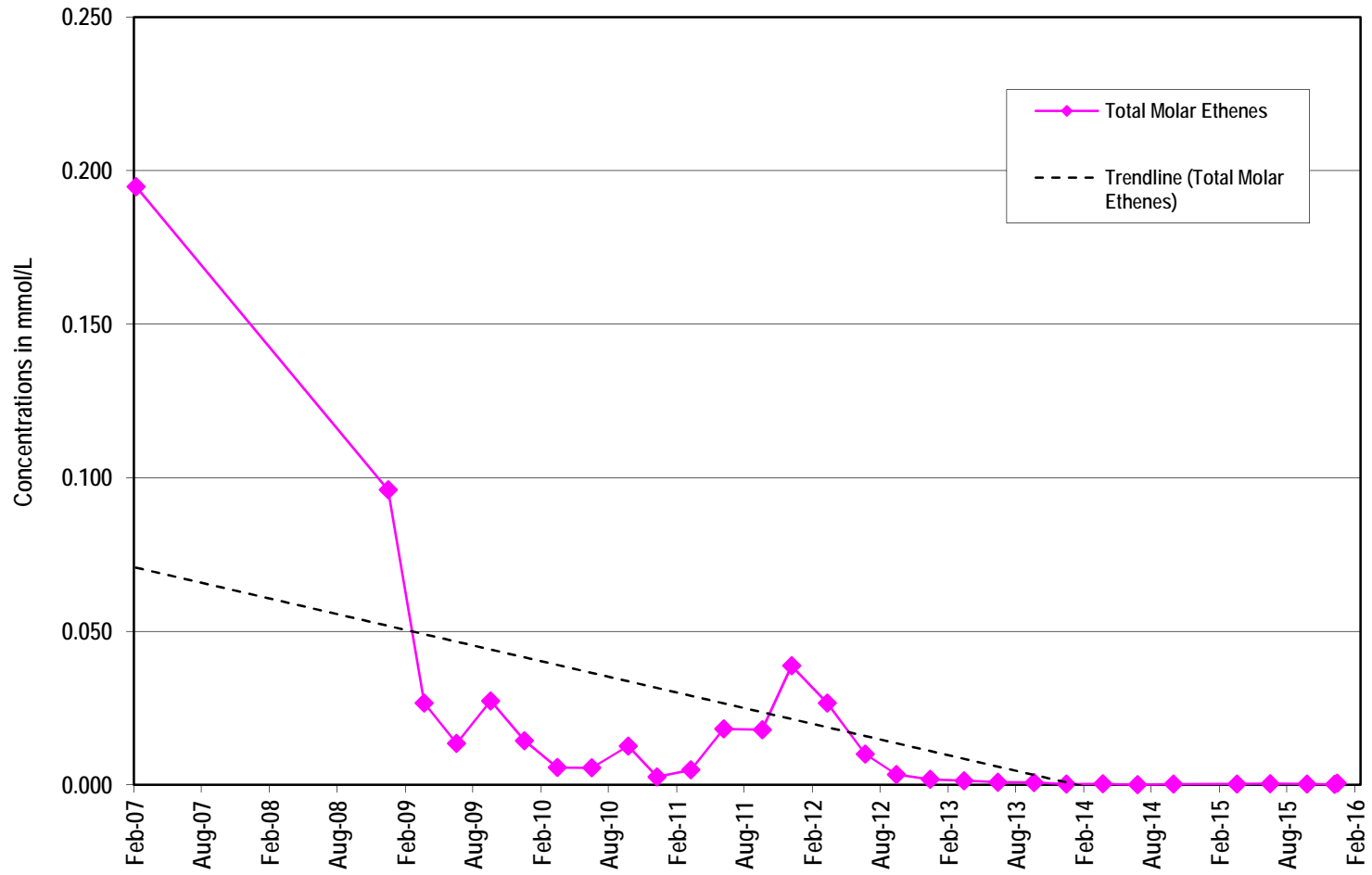
Total Molar Ethenes in MGMS2-40



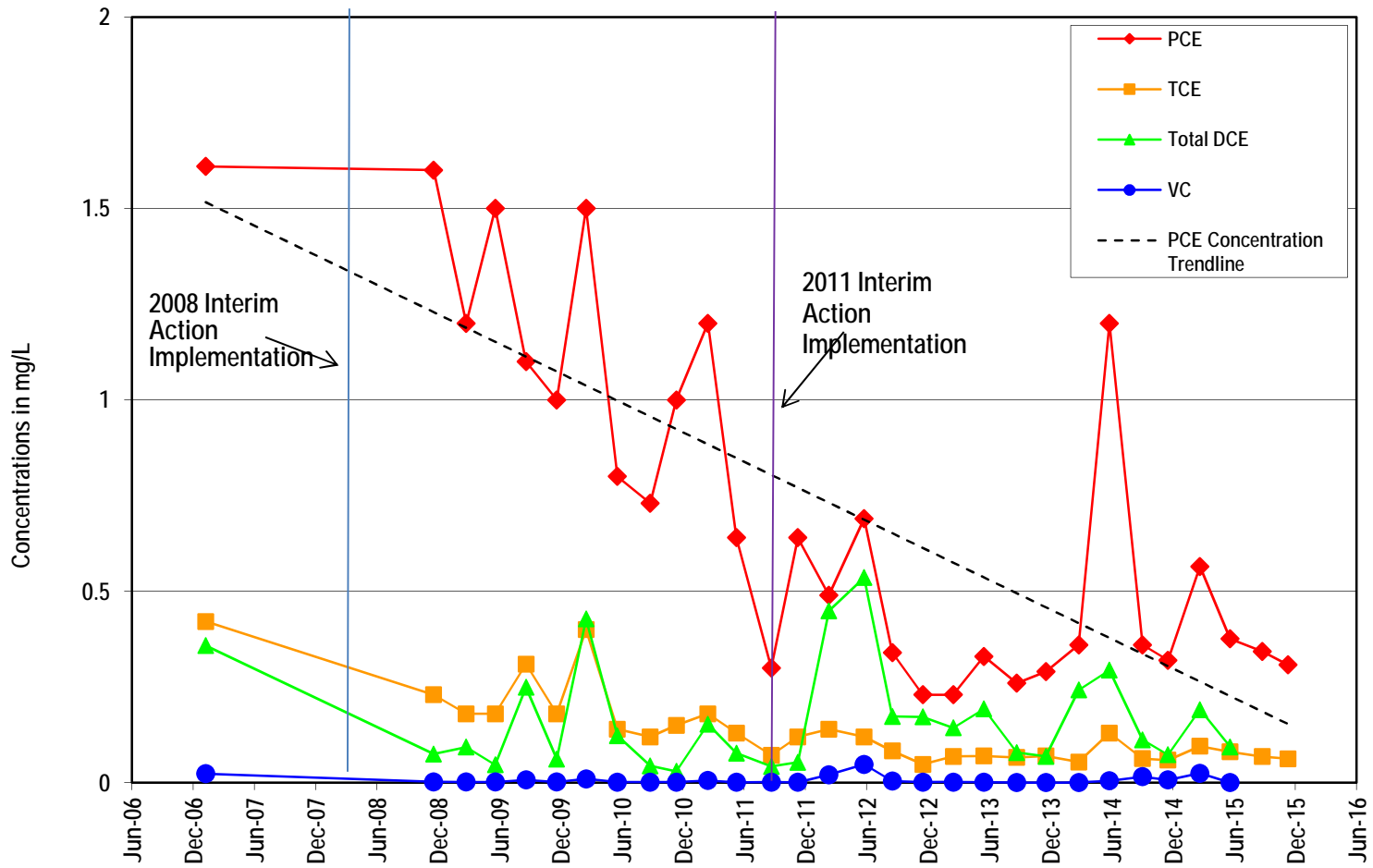
Interim Action Area - VOC Trends: MW-7



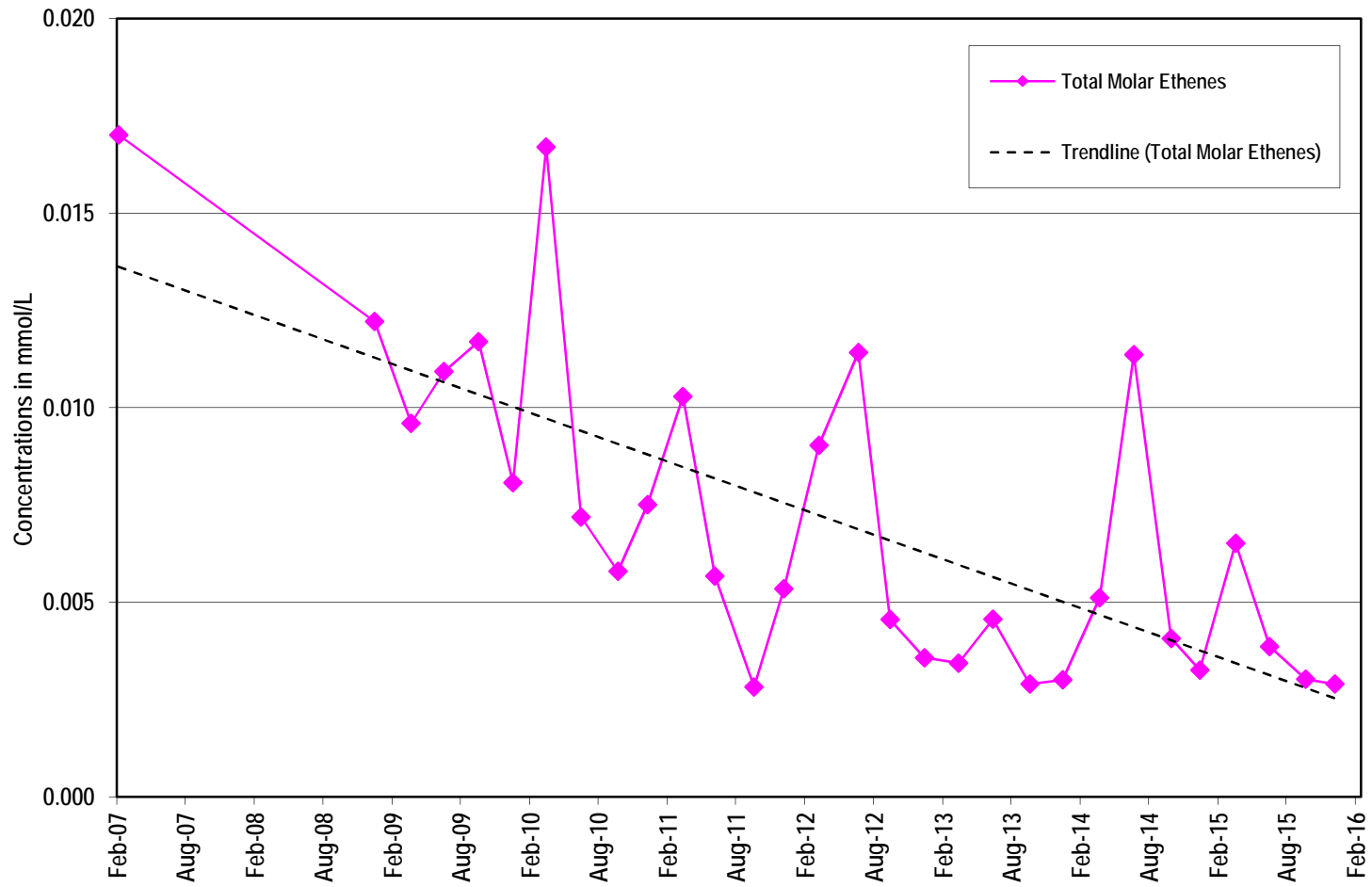
Total Molar Ethenes in MW-7



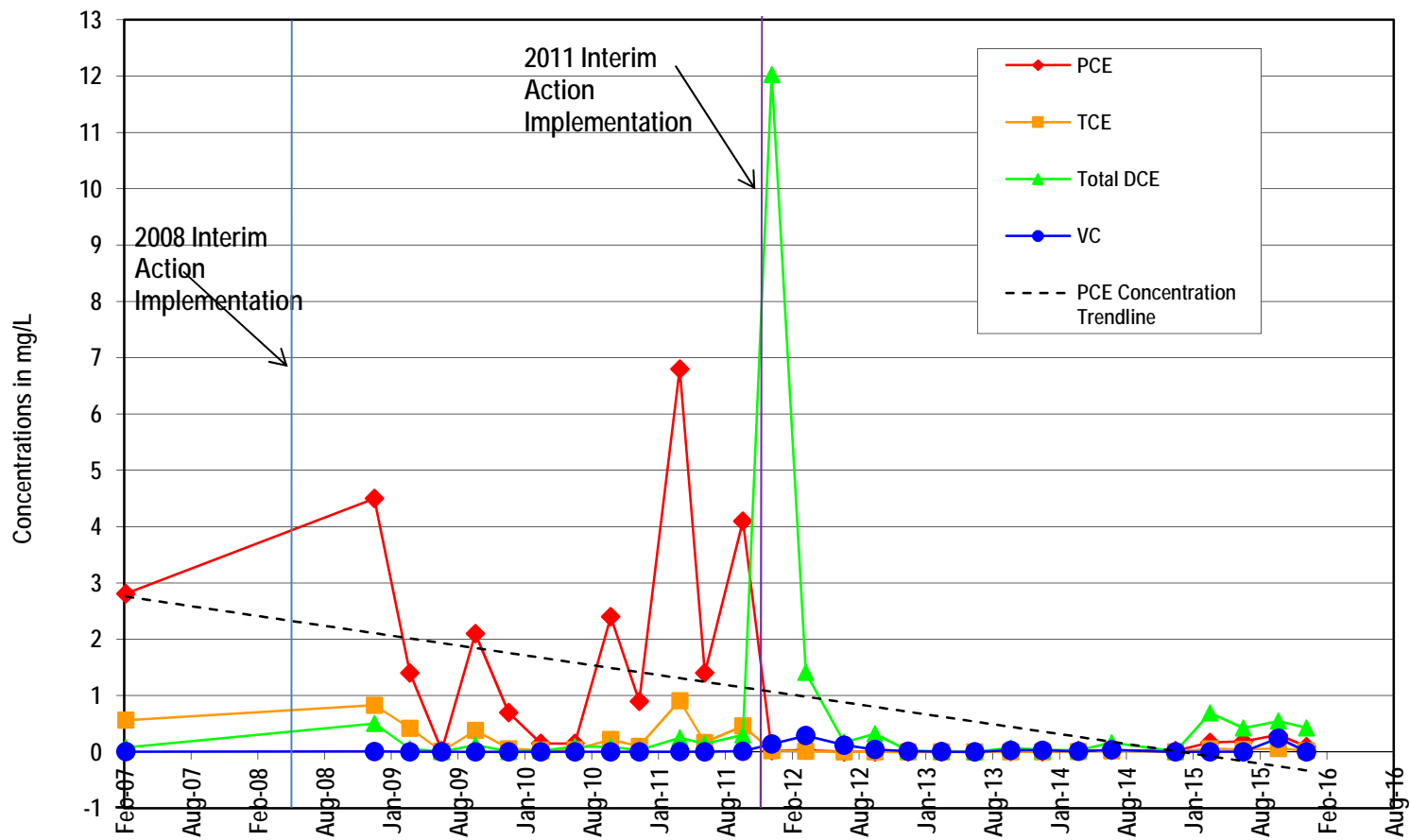
Interim Action Area - VOC Trends: MP-1



Total Molar Ethenes in MP-1



Interim Action Area - VOC Trends: EX



Total Molar Ethenes in EX

