



August 11, 2016

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

Re: Semi-Annual Groundwater Monitoring Report
January through June 2016
NuStar Vancouver Facility
Vancouver, Washington
1126-18

Dear Mr. Rankine:

Enclosed, please find the *Semi-Annual Groundwater Monitoring Report January through June 2016*. The report was prepared on behalf of NuStar Terminals Services, Inc. (NuStar) by Apex Companies, LLC (Apex) and presents data collected from January through June 2016.

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 black ink that reads 'Stephanie B. Salisbury'.

Stephanie Bosze Salisbury, L.G.
Associate Geologist

ENCLOSURE

Semi-Annual Groundwater Monitoring Report January through June 2016 (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
January through June 2016
NuStar Vancouver Facility
Vancouver, Washington*

Prepared for:
NuStar Terminals Services, Inc.

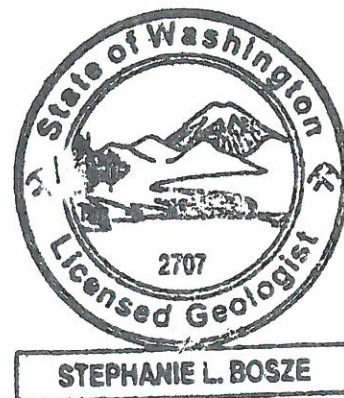
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***Semi-Annual Groundwater Monitoring Report
January through June 2016
NuStar Vancouver Facility
Vancouver, Washington***

**Prepared for:
NuStar Terminals Services, Inc.**

**August 11, 2016
1126-18**



Stephanie Bosze Salisbury

**Stephanie Bosze Salisbury, L.G.
Associate Geologist**

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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 first and second quarters of 2016. 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 January through June 2016 is summarized in Table 1.

Two monitoring events were conducted during this period: the first quarter 2016 groundwater monitoring event was conducted from March 8 through 11, 2016 and the second quarter 2016 event was conducted from June 15 through 17, 2016.

2.1 Water Level Measurements

First quarter 2016 groundwater levels were measured on March 8, 2016 and second quarter 2016 groundwater levels were measured on June 15, 2016. 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 (second quarter only), and selected off-site wells (MW-17, MW-23i, MW-25i, MW-26, MW-30i, MW-31i, MW-32s, MW-32i, MW-F, MW-G, S-1 and S-2).

Well MW-7 was not gauged during the first quarter gauging event as the monument was located under standing water from a rain event. The well monument for well MW-14 was rusted shut and could not be accessed and the gauging port for MGMS1-110 was broken and could not be accessed. Well MW-E was covered with crates and also could not be accessed for gauging.

During the second quarter event, the monument for well MW-14 remained rusted shut and could not be accessed. The monument will be replaced during third quarter along with other necessary well repairs at the terminal. Wells MW-16 and MW-31i were under puddles of water and could not be accessed for gauging or sampling.

2.2 Monitoring Well Sampling and Analysis

The sampling and analysis program for first and second quarter 2016 is summarized in Table 1. Groundwater monitoring data sheets for the sampling events are included in Appendix A. In addition to the monitoring program, field blanks, equipment blanks, and trip blanks were prepared and sample duplicate samples were collected from wells (MGMS-40, MW-12, MW-19 and MW-25i during first quarter and MW-7, MW-12, and MW-19 during second quarter) for quality assurance/quality control (QA/QC) purposes. In addition, during both the first and second quarter 2016, one or more field blanks, equipment blanks, and trip blanks were submitted to the laboratory along with each sample. As previously discussed, wells MW-7, MW-14, MW-E and MGMS1-1(110) were not accessible during the first quarter event and could not be sampled. Additionally, during the second quarter 2016 sampling event, wells MW-14, MW-16 and MW-31i could not be accessed for sampling.

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 first and second quarter 2016 monitoring events are listed in Table 2. Groundwater elevations and estimated elevation contours for the Shallow and Intermediate Zone wells for the first quarter 2016 are shown on Figures 3 and 4, respectively. Groundwater elevations and estimated elevation contours for the Shallow and Intermediate Zone wells for the second quarter 2016 are shown on Figures 5 and 6, respectively.

3.1 First Quarter 2016

Shallow Zone. On March 7, 2016, 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 20.66 to 30.45 feet below the ground surface (bgs), and the corresponding groundwater elevations in these wells ranged from 7.67 to 9.60 feet above mean sea level (MSL; Figure 3).

During the first quarter 2016 monitoring event, gauging of the Shallow Zone wells was completed between 8:15 am and 10:54 a.m. During the time interval in which Shallow Zone monitoring wells were gauged, the water level in the adjacent Columbia River decreased by 0.30 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 first quarter 2016 gauging event, groundwater elevations in the Shallow Zone were variable, with a general high adjacent to the Columbia River and through the central portion of the terminal. From the groundwater high, groundwater flow was to the northwest and southeast at gradients of 0.001 ft/ft and 0.003 ft/ft, respectively.

Intermediate Zone. On March 7, 2016, 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 66 minutes (between 10:58 a.m. and 12:04 p.m.). During the time interval in which Intermediate Zone wells were gauged, water levels in the adjacent Columbia River decreased by 0.06 foot.

The observed depths to groundwater in the Intermediate Zone wells ranged from 20.66 to 25.30 feet bgs, and groundwater elevations in these wells ranged from 9.01 to 9.37 feet above MSL (Figure 4). During the March 7, 2016 gauging event there was a high in the Intermediate Zone located at the center of the terminal, trending from well MW-24i to well MW-21i-105. From the groundwater high, groundwater flow was towards the river with a gradient of approximately 0.004 ft/ft, and to the west, north and east with a slight gradient of approximately 0.0002 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 24.51 feet bgs, corresponding to an elevation of 9.40 feet above MSL. A groundwater potentiometric map was not prepared for Deep Zone groundwater.

3.2 Second Quarter 2016

Shallow Zone. On June 15, 2016, 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 25.40 to 28.67 feet bgs, and groundwater elevations in these wells ranged from 6.30 to 11.95 feet above MSL (Figure 5).

During the second quarter 2016 monitoring event gauging of the Shallow Zone wells was completed between 11:26 a.m. and 1 p.m. During the gauging activities, the water level in the adjacent Columbia River increased by 0.14 feet. During the second quarter event, there was a general groundwater divide trending between wells MW-10 and MW-15. From the divide, groundwater flow was towards the river with a gradient of 0.14 ft/ft and towards the northeast with a gradient of 0.006 ft/ft.

Intermediate Zone. On June 15, 2016, 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 137 minutes (between 10:45 a.m. and 1:02 p.m.). During the Intermediate Zone gauging event, water levels in the adjacent Columbia River increased by 0.05 foot. The observed depths to groundwater in these wells ranged from 27.93 to 29.10 feet bgs, and groundwater elevations in these wells ranged from 4.97 to 5.35 feet above MSL (Figure 6). During the December gauging event the groundwater flow was to the southeast (towards the river) with a gradient of 0.0004 ft/ft.

Deep Zone. Depth to water in Deep Zone well MW-24d was 28.79 feet bgs, corresponding to an elevation of 5.12 feet above MSL.

4.0 Groundwater Sample Analytical Results

Complete copies of the laboratory reports for the first and second quarter 2016 groundwater monitoring events, including the quality assurance evaluation report and chain-of-custody documentation, are included in Appendix C.

4.1 First Quarter 2016

The March 2016 monitoring program included the collection of groundwater samples from the wells listed in the first column of Table 1. Exceptions to the scope were described in Section 2.2. The sample results for first quarter 2016 are summarized in Table 3 and select VOCs are shown on Figure 7.

4.2 Second Quarter 2016

The June 2016 monitoring program included the collection of groundwater samples from the wells listed in the second column of Table 1. Exceptions to the scope were described in Section 2.2. The sample results for second quarter 2016 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 to slightly increasing

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 first and second quarter 2016 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 first and second quarter 2016 monitoring events. Table 4 shows the results of interim action groundwater monitoring from the February 2007 baseline event through the second quarter 2016 monitoring event. Wells MW-24i and MGMS2-40 were not located within the 2008 interim action injection area but are located within the footprint of 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 second quarter 2016. 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 second quarter 2016.

A discussion of reductive dechlorination of VOCs in groundwater from prior to the 2008 interim action through second quarter 2016 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 June 2016.

The concentration of PCE has decreased in each well, with observed reductions through June 2016 ranging from 79 percent in well EX to over 92 percent in wells MW-7 and MGMS2-40. Likewise, the concentration of TCE also decreased in the interim action monitoring wells with reductions through June 2016 of about 84 percent in well MP-1 to over 99 percent in well MW-7. 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 and MW-7, the rapid increase in DCE concentration in response to the interim action injections has been followed by a decreasing trend for DCE. In well EX, DCE concentrations have increased slightly over the past six monitoring events. Additional groundwater interim action, scheduled for third quarter 2016, will help to further reduce VOC concentrations, including DCE, in the vicinity of well EX.

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 March and June 2016 groundwater monitoring events at concentrations of 0.0637 and 0.031 milligrams per liter (mg/L), respectively. Ethene was not detected in the other interim action evaluation wells during the March and June 2016 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 suggest 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. The additional groundwater interim action, scheduled for third quarter 2016, will help to further reduce VOC concentrations in the 2011 interim action area, and will extend the remediation area to the southern property boundary, adjacent to the Columbia River

Another indicator of effective reduction of chlorinated ethenes is a decrease in the total molar chloroethene concentration (the 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 June 2016 monitoring event, the decrease in total molar concentration in the interim action monitoring wells MP-1, MW-7, EX and MGMS2-40 ranged from 32 percent (in well EX) to 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. With the exception of well MW-7, TOC concentrations are no longer greater than pre-2011 bioinjection concentrations in the interim action monitoring wells, suggesting that enhanced reductive dechlorination is limited 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 first and second quarter monitoring events were negative in only one of the six wells used to evaluate the interim action (MGMS2-40). These data suggest that while anaerobic dechlorination 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 generally above 1.0 mg/L during the first quarter 2016, with the exception of wells EX and MW-12. During the second quarter 2016 monitoring event, DO concentrations were above 1.0 mg/L in each of the interim action monitoring wells.

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 first and second quarter 2016 events

indicated that enhanced reductive dechlorination was very effective but is now limited in the 2011 interim action area; however natural attenuation processes are ongoing as evidenced by the following.

- PCE and TCE concentrations are consistently decreasing (greater than 84% 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.

As previously mentioned, additional enhanced bioremediation injections are scheduled for third quarter 2016. While the primary focus of this additional interim action will be in the area to the south of the 2011 interim action, adjacent to the Columbia River, the reduction in VOC mass in the Shallow Zone groundwater will support the continued natural attenuation of VOCs throughout the 2008/2011 interim action areas.

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). 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 February 1, February 29, March 29, April 27, May 25, and June 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 June 2016 is presented in Tables 9 and 10 and on Figures 11 and 12, respectively. The North and South Systems have removed approximately 221 and 2,400 pounds of VOCs respectively since startup in October 2011. Including the mass removed from the 2008 SVE System, the total mass removal by SVE at the Facility to date is approximately 5,770 pounds.

6.0 Future Activities

Quarterly groundwater monitoring for the third and fourth quarters of 2016 will be conducted in September and December 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. Ecology's comments will be addressed and a revised FS will be prepared. Upon Ecology approval of the FS, 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 working through the FS and the associated regulatory approval process, 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 September 15, 2015. After addressing comments from Ecology, the Port of Vancouver, and the Confederated Tribes and Bands of the Yakama Nation, NuStar submitted a revised work plan to Ecology on November 24, 2015. After posting the document for public comment, Ecology approved the Revised 2015 Interim Action Work Plan on April 14, 2016. Per Ecology's request, the interim action will also include baseline sediment and surface water sampling in the Columbia River and an additional groundwater interim action to the northwest of the NuStar terminal. The "NW Area bioremediation injections" will be completed as a joint project between NuStar and the Port of Vancouver. Both the NW Area bioremediation injections and the NuStar terminal sediment sampling and bioremediation injections will be implemented during third quarter 2016.

7.0 References

- Apex Companies, LLC. *First Semi-Annual Groundwater Monitoring Report, January through June 2013. NuStar Vancouver Facility Vancouver, Washington.* August 14, 2013.
- Ash Creek Associates, Inc. (Ash Creek), 2007. *Release Area Interim Action Design, Support Terminals Services Vancouver Facility.* May 8, 2007.
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- 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: First and Second Quarters 2016
 NuStar Vancouver Facility
 Vancouver, Washington

Monitoring Program	Well ID	Groundwater Zone	Included Monitoring Wells	
			First Quarter	Second 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 checked="" 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 checked="" 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: First and Second Quarters 2016
 NuStar Vancouver Facility
 Vancouver, Washington

Monitoring Program	Well ID	Groundwater Zone	Included Monitoring Wells	
			First Quarter	Second 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 checked="" type="checkbox"/>
	MP-1	Shallow	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	MP-2	Shallow	<input type="checkbox"/>	<input 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: 2015-2016
 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)	09/17/15	27.80	4.80
	12/09/15	21.81	10.79
	03/07/16	23.24	9.36
	06/15/16	26.76	5.84
MW-2 (34.04)	09/17/15	29.16	4.88
	12/09/15	24.13	9.91
	03/07/16	26.37	7.67
	06/15/16	28.34	5.70
MW-3 (34.41)	09/17/15	29.80	4.61
	12/09/15	26.92	7.49
	03/07/16	25.50	8.91
	06/15/16	27.20	7.21
MW-5 (33.86)	09/17/15	29.16	4.70
	12/09/15	26.42	7.44
	03/07/16	25.00	8.86
	06/15/16	26.47	7.39
MW-6 (32.83)	09/17/15	28.00	4.83
	12/09/15	23.22	9.61
	03/07/16	23.48	9.35
	06/15/16	25.84	6.99
MW-7 (33.74)	09/17/15	28.85	4.89
	12/09/15	26.99	6.75
	03/07/16	Not gauged; monument under water.	
	06/15/16	26.24	7.50
MW-8 (33.97)	09/17/15	28.47	5.50
	12/09/15	25.71	8.26
	03/07/16	24.92	9.05
	06/15/16	25.91	8.06
MW-9 (33.86)	09/17/15	29.03	4.83
	12/09/15	26.91	6.95
	03/07/16	25.12	8.74
	06/15/16	26.29	7.57
MW-10 (34.83)	09/17/15	29.22	5.61
	12/09/15	27.20	7.63
	03/07/16	25.76	9.07
	06/15/16	26.25	8.58

Please refer to notes at end of table.

Table 2
 Groundwater Elevation Data: 2015-2016
 NuStar Vancouver Facility
 Vancouver, Washington

Well Number/ (TOC Elevation)	Date of Measurement	Depth to Water (feet BTOC)	Groundwater Elevation (feet)
MW-12 (31.43)	09/17/15	26.59	4.84
	12/09/15	20.15	11.28
	03/07/16	22.01	9.42
	06/15/16	25.60	5.83
MW-13 (33.15)	09/17/15	28.40	4.75
	12/09/15	23.74	9.41
	03/07/16	24.05	9.10
	06/15/16	26.32	6.83
MW-14 (33.81)	09/17/15	28.97	4.84
	12/09/15	Not gauged; monument under water.	
	03/07/16	25.09	8.72
	06/15/16	Not gauged; monument damaged.	
MW-15 (39.13)	09/17/15	34.01	5.12
	12/09/15	32.38	6.75
	03/07/16	30.45	8.68
	06/15/16	31.42	7.71
MW-16 (33.05)	09/17/15	28.08	4.97
	12/09/15	Not gauged; monument under water.	
	03/07/16	23.85	9.20
	06/28/16	Not gauged; monument under water.	
MW-17 (32.65)	09/17/15	27.80	4.85
	12/09/15	23.95	8.70
	03/07/16	23.71	8.94
	06/15/16	25.84	6.81
MW-18i (33.40)	09/17/15	28.44	4.96
	12/09/05	22.58	10.82
	03/07/16	24.21	9.19
	06/15/16	28.10	5.30
MW-19 (33.59)	09/17/15	28.86	4.73
	12/09/15	25.72	7.87
	03/07/16	24.79	8.80
	06/15/16	26.61	6.98
MW-19i (33.62)	09/17/15	28.67	4.95
	12/09/15	22.73	10.89
	03/07/16	24.48	9.14
	06/15/16	28.38	5.24

Please refer to notes at end of table.

Table 2
 Groundwater Elevation Data: 2015-2016
 NuStar Vancouver Facility
 Vancouver, Washington

Well Number/ (TOC Elevation)	Date of Measurement	Depth to Water (feet BTOC)	Groundwater Elevation (feet)
MW-20i (33.14)	09/17/15	28.22	4.92
	12/09/15	Not gauged; monument under water.	
	03/07/16	24.03	9.11
	06/15/16	27.85	5.29
MW21i-40 (34.10)	09/17/15	29.01	5.09
	12/09/15	23.33	10.77
	03/07/16	24.95	9.15
	06/15/16	28.90	5.20
MW-21i-105 (33.99)	09/17/15	29.12	4.87
	12/07/15	23.45	10.54
	03/07/16	24.67	9.32
	06/15/16	28.64	5.35
MW-22i (34.39)	09/17/15	29.46	4.93
	12/07/15	23.67	10.72
	03/07/16	25.30	9.09
	06/15/16	29.10	5.29
MW-23i (33.80)	09/17/15	28.69	5.11
	12/09/15	22.85	10.95
	03/07/16	24.64	9.16
	06/15/16	28.67	5.13
MW-24i (33.47)	09/17/15	28.42	5.05
	12/09/15	26.56	6.91
	03/07/16	24.10	9.37
	06/15/16	28.37	5.10
MW-25i (33.58)	09/17/15	28.59	4.99
	12/09/15	22.79	10.79
	03/07/16	24.46	9.12
	06/15/16	28.38	5.20
MW-26 (33.73)	09/17/15	28.90	4.83
	12/07/15	27.43	6.30
	03/07/16	25.19	8.54
	06/15/16	26.05	7.68
MW-24d (33.91)	09/17/15	29.25	4.66
	12/07/15	22.55	11.36
	03/07/16	24.51	9.40
	06/15/16	28.79	5.12

Please refer to notes at end of table.

Table 2
 Groundwater Elevation Data: 2015-2016
 NuStar Vancouver Facility
 Vancouver, Washington

Well Number/ (TOC Elevation)	Date of Measurement	Depth to Water (feet BTOC)	Groundwater Elevation (feet)
EW-1 (31.40)	09/17/15	26.60	4.80
	12/09/15	19.45	11.95
	03/07/16	21.92	9.48
	06/15/16	25.40	6.00
<i>Secor Interim Action Pilot Study Wells</i>			
S-1 (33.24)	09/17/15	28.20	5.04
	12/09/15	22.30	10.94
	03/07/16	24.08	9.16
	06/15/16	28.11	5.13
S-2 (33.15)	09/17/15	28.20	4.95
	12/09/15	22.40	10.75
	03/07/16	24.02	9.13
	06/15/16	27.97	5.18
<i>Multi-Level Monitoring Wells</i>			
MGMS1-3 (43)* (32.86)	09/17/15	28.38	4.48
	12/09/15	21.70	11.16
	03/07/16	23.89	8.97
	06/15/16	26.42	6.44
MGMS1-2(60)* (32.86)	09/17/15	28.15	4.71
	12/09/15	22.92	9.94
	03/07/16	23.85	9.01
	06/15/16	27.80	5.06
MGMS1-1(110)* (32.86)	09/17/15	28.14	NM
	12/09/15	23.70	9.16
	03/07/16	Well damaged; unable to gauge.	
	06/15/16	27.81	5.05
MGMS2-4(40)* (32.59)	09/17/15	28.05	4.54
	12/09/15	21.38	11.21
	03/07/16	22.99	9.60
	06/15/16	25.54	7.05
MGMS2-3(60)* (32.59)	09/17/15	28.02	4.57
	12/09/15	21.41	11.18
	03/07/16	23.32	9.27
	06/15/16	27.51	5.08
MGMS2-2(110)* (32.59)	09/17/15	28.12	4.47
	12/09/15	21.38	11.21
	03/07/16	23.33	9.26
	06/15/16	27.42	5.17

Please refer to notes at end of table.

Table 2
 Groundwater Elevation Data: 2015-2016
 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)	09/17/15	28.14	4.45
	12/09/15	24.51	8.08
	03/07/16	23.41	9.18
	06/15/16	27.40	5.19
MGMS3-4(40)* (31.65)	09/17/15	26.86	4.79
	12/09/15	20.28	11.37
	03/07/16	22.45	9.20
	06/15/16	26.24	5.41
MGMS3-3(60)* (31.65)	09/17/15	26.80	4.85
	12/09/15	20.23	11.42
	03/07/16	22.45	9.20
	06/15/16	26.68	4.97
MGMS3-2(110)* (31.65)	09/17/15	26.85	4.80
	12/09/15	20.18	11.47
	03/07/16	22.41	9.24
	06/15/16	26.75	4.90
MGMS3-1(132)* (31.65)	09/17/15	26.87	4.78
	12/09/15	20.17	11.48
	03/07/16	22.52	9.13
	06/15/16	26.74	4.91
<i>Port of Vancouver Wells</i>			
MW-30i (29.77)	09/17/15	24.96	4.81
	12/09/15	Unable to locate; under new gravel.	
	03/07/16	20.66	9.11
	06/15/16	24.39	5.38
MW-31i (31.33)	09/17/15	26.60	4.73
	12/9/2015	20.76	10.57
	03/07/16	22.29	9.04
	6/15/2016	Did not measure; under water	
MW-32s (34.34)	09/17/15	29.85	4.49
	12/09/15	26.22	8.12
	03/07/16	25.58	8.76
	06/15/16	27.93	6.41
MW-32i (34.41)	09/17/15	29.55	4.86
	12/09/15	23.74	10.67
	03/07/16	25.28	9.13
	06/15/16	29.12	5.29

Please refer to notes at end of table.

Table 2
 Groundwater Elevation Data: 2015-2016
 NuStar Vancouver Facility
 Vancouver, Washington

Well Number/ (TOC Elevation)	Date of Measurement	Depth to Water (feet BTOC)	Groundwater Elevation (feet)
MW-E (30.64)	09/17/15	26.30	4.34
	102/9/15	20.57	10.07
	03/07/16	Under shipping containers; no access.	
	06/15/16	25.74	4.90
MW-F (33.48)	09/17/15	Dry	NA
	12/09/15	23.45	10.03
	03/07/16	24.94	8.54
	06/15/16	28.67	4.81
MW-G (31.50)	09/17/15	27.57	3.93
	12/09/15	21.70	9.80
	03/07/16	23.26	8.24
	06/15/16	27.11	4.39

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.
4. NM = Not measured.

Table 3
Groundwater Analytical Results: 2016
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	3/7/2015	<0.00050	<0.0020	<0.0050	<0.00050	0.0044	<0.00050	<0.00050	0.0519	<0.00050	<0.00050	0.0180	<0.00050	<0.00050	0.0103	0.00057
	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
	3/7/2016	<0.00050	<0.0020	<0.0050	<0.00050	0.0044	<0.00050	<0.00050	0.0519	<0.00050	<0.00050	0.0180	<0.00050	<0.00050	0.0103	0.00057
	6/15/2016	<0.00050	<0.002	<0.00050	<0.00050	0.0037	<0.00050	<0.00050	0.0131	<0.00050	<0.00050	0.00067	<0.00050	<0.00050	0.00120	0.0053
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
	3/7/2016	<0.00050	<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
MW-3	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
	3/7/2016	<0.00050	<0.0020	0.00076	<0.00050	0.0022	<0.00050	<0.00050	0.062	0.0025	0.0013	0.199	0.0036	<0.00050	0.0451	<0.00050
	6/16/2016	<0.00050	<0.0020	<0.00050	<0.00050	0.0011	<0.00050	<0.00050	0.0502	0.00082	<0.00050	0.0495	0.00077	<0.00050	0.0174	<0.00050
MW-5	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	0.00073	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	0.00068	0.1750	<0.00050	<0.00050	0.0271	<0.00050	<0.00050	0.0385	0.0284
	3/8/2016	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0040	<0.00050	<0.00050	0.0099	<0.00050	<0.00050	0.0031	<0.00050
	6/17/2016	<0.00050	0.00750	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0233	<0.00050	<0.00050	0.0073	<0.00050	<0.00050	0.0032	<0.00050
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
	3/7/2016	<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	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
	6/17/2016	<0.00050	<0.0020	<0.00050	<0.00050	0.0006	<0.00050	<0.00050	0.0109	<0.00050	<0.00050	0.00069	<0.00050	<0.00050	0.0021	0.0054
	6/17/16 DUP	<0.00050	<0.002	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0110	<0.00050	<0.00050	0.00062	<0.00050	<0.00050	0.0020	0.0054
MW-8	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
	3/8/2016	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0013	<0.00050	<0.00050	0.0064	<0.00050	<0.00050	<0.00050	<0.00050
	6/15/2016	<0.00050	<0.002	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0041	<0.00050	<0.00050	<0.00050	<0.00050
MW-9	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
	3/8/2016	<0.0010	<0.0040	<0.0010	<0.0010	0.00410	<0.001	<0.0010	0.1170	0.00380	<0.0010	0.1640	0.0023	<0.0010	0.0946	0.0034
	6/17/2016	<0.00050	<0.0020	<0.00050	<0.00050	0.00180	<0.00050	0.00058	0.0607	0.00240	<0.00050	0.1160	0.0017	<0.00050	0.0683	0.00089

Please refer to notes at end of table.

Table 3
Groundwater Analytical Results: 2016
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
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
	3/7/2016	< 0.00050	< 0.0020	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0010	< 0.00050
MW-12	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
	3/8/2016	< 0.0036	< 0.0143	< 0.0036	< 0.0036	0.080	< 0.0036	0.0154	1.38	0.0162	< 0.0036	0.325	0.0077	< 0.0036	0.209	0.0213
	3/8/16 DUP	< 0.0036	< 0.0143	< 0.0036	< 0.0036	0.082	< 0.0036	0.0166	1.39	0.0156	< 0.0036	0.336	0.0077	< 0.0036	0.210	0.0212
	6/16/2016	< 0.0084	< 0.0334	< 0.0084	< 0.0084	0.174	< 0.0084	0.0299	3.31	0.0316	< 0.0084	0.314	0.0128	< 0.0084	0.288	0.0523
6/16/16 DUP	< 0.0084	< 0.0334	< 0.0084	< 0.0084	0.192	< 0.0084	0.0319	3.42	0.0374	< 0.0084	0.367	0.0154	< 0.0084	0.311	0.0670	
MW-13	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	0.0305	0.00088	< 0.00050	0.185	0.0007	< 0.00050	0.121	< 0.00050
	3/8/2016	< 0.0025	< 0.010	< 0.0025	< 0.0025	0.01430	< 0.0025	0.00640	0.3360	0.00460	< 0.0025	0.839	0.0037	< 0.0025	0.736	< 0.0025
	6/16/2016	< 0.0084	< 0.0334	< 0.0084	< 0.0084	0.04130	< 0.0084	0.01780	0.8410	0.01920	< 0.0084	2.470	0.0101	< 0.0084	1.820	< 0.0084
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.														
	3/8/2016	< 0.00050	< 0.0020	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.004	< 0.00050	< 0.00050	0.013	< 0.00050	< 0.00050	0.029
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
	3/8/2016	< 0.00050	< 0.0020	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00059	< 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
	3/8/2016	< 0.00050	< 0.0020	< 0.00050	< 0.00050	0.00083	< 0.00050	< 0.00050	0.00330	< 0.00050	< 0.00050	0.0094	< 0.00050	< 0.00050	0.0227	< 0.00050
MW-18i	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
	3/9/2016	< 0.00050	< 0.0020	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0016	< 0.00050	< 0.00050	0.0010	< 0.00050
	6/16/2016	< 0.00050	< 0.0020	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00098	< 0.00050	< 0.00050	0.00073	< 0.00050

Please refer to notes at end of table.

Table 3
Groundwater Analytical Results: 2016
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
MW-19	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	<0.00050	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
	3/8/2016	<0.010	<0.040	<0.010	<0.010	0.0966	<0.010	0.0420	1.520	0.0202	<0.010	4.08	0.0408	<0.010	2.61	0.0648
	3/8/16 DUP	<0.010	<0.040	<0.010	<0.010	0.0930	<0.010	0.0428	1.460	0.0182	<0.010	3.76	0.0404	<0.010	2.56	0.0724
	6/16/2016	<0.010	<0.040	<0.010	<0.010	<0.010	<0.010	0.0222	0.507	<0.010	<0.010	3.25	0.0292	<0.010	1.03	0.0183
6/16/2016 DUP	<0.0125	<0.050	<0.0125	<0.0125	0.0195	<0.0125	0.0238	0.505	<0.0125	<0.0125	3.46	0.0281	<0.0125	1.02	0.0176	
MW-19i	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
	3/8/2016	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0054	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	6/16/2016	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0032	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
MW-20i	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.														
	3/8/2016	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00680	<0.00050	<0.00050	0.0034	<0.00050	<0.00050	0.0018	<0.00050
6/16/2016	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00740	<0.00050	<0.00050	0.0021	<0.00050	<0.00050	0.0015	<0.00050	
MW-21i-105	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
	3/8/2016	<0.00050	<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
	6/16/2016	<0.00050	<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
MW-21i-40	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
	3/9/2016	<0.00050	<0.0020	<0.00050	<0.00050	0.0021	<0.00050	<0.00050	0.0586	<0.00050	<0.00050	0.0142	<0.00050	<0.00050	0.0151	<0.00050
	6/16/2016	<0.00050	<0.0020	<0.00050	<0.00050	0.0023	<0.00050	0.00080	0.0678	<0.00050	<0.00050	0.0181	<0.00050	<0.00050	0.0171	<0.00050
MW-22i	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
	3/9/2016	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.008	<0.00050	<0.00050	0.0022	<0.00050	<0.00050	0.0120	<0.00050
	6/16/2016	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0065	<0.00050	<0.00050	0.001	<0.00050	<0.00050	0.0079	<0.00050
MW-23i	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
	3/8/2016	<0.00050	<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
	6/16/2016	<0.00050	<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
MW-24i	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
	3/8/2016	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0035	<0.00050	<0.00050	0.0041	<0.00050	<0.00050	0.0016	<0.00050
	6/17/2016	<0.00050	<0.0020	<0.00050	<0.00050	0.00099	<0.00050	<0.00050	0.0078	<0.00050	<0.00050	0.0115	<0.00050	<0.00050	0.0063	<0.00050

Please refer to notes at end of table.

Table 3
Groundwater Analytical Results: 2016
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	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	
	3/9/2016	<0.00050	<0.0020	<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	
	6/17/2016	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00087	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
MW-25i	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	
	3/9/2016	<0.00050	<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	
	3/9/2016 DUP 6/15/2016	<0.00050	<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	
MW-26	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	
	3/8/2016	<0.0012	<0.005	<0.0012	<0.0012	0.008	<0.0012	0.0015	0.0761	0.0018	<0.0012	0.171	0.0037	<0.0012	0.370	<0.0012	
	6/15/2016	<0.001	<0.004	<0.001	<0.001	0.0046	<0.001	0.0014	0.0831	0.0022	<0.001	0.192	0.0022	<0.001	0.343	<0.001	
MW-32s	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	
	6/16/2016	<0.00050	<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	
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 3/8/2016	< 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	< 0.00050
S-1	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	
	3/9/2016	<0.00050	<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	
	6/16/2016	<0.00050	<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	
S-2	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	
	6/16/2016	<0.00050	<0.0020	<0.00050	<0.00050	0.0043	<0.00050	<0.00050	0.0060	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
MGMS1-3(43)	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	
	3/9/2016	<0.010	<0.040	<0.010	<0.010	0.094	<0.010	<0.010	1.70	0.0124	<0.010	0.0241	<0.010	<0.010	0.082	0.209	
	6/17/2016	<0.0083	<0.0333	<0.0083	<0.0083	0.163	<0.0083	0.0266	3.13	0.0361	<0.0083	0.0646	<0.0083	<0.0083	0.248	0.288	
MGMS1-2(60)	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	
	3/9/2016	<0.00050	<0.00050	<0.00050	<0.00050	0.0005	<0.00050	<0.00050	0.0175	<0.00050	<0.00050	0.0169	<0.00050	<0.00050	0.014	<0.00050	
	6/17/2016	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0118	<0.00050	<0.00050	0.0180	<0.00050	<0.00050	0.0111	<0.00050	

Please refer to notes at end of table.

Table 3
 Groundwater Analytical Results: 2016
 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)	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	
	3/9/2016	< 0.00050	< 0.0020	< 0.00050	< 0.00050	0.0206	< 0.00050	0.0016	0.036	< 0.00050	< 0.00050	0.0065	< 0.00050	< 0.00050	0.0062	0.0360	
	6/17/2016	< 0.00050	< 0.0020	< 0.00050	< 0.00050	0.0249	< 0.00050	0.0264	0.744	0.0028	< 0.00050	0.2230	0.0031	< 0.00050	0.1460	0.2270	
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															
	6/17/2016	< 0.00050	< 0.0020	< 0.00050	< 0.00050	0.0011	< 0.00050	< 0.00050	0.0194	< 0.00050	< 0.00050	0.0172	< 0.00050	< 0.00050	0.0118	0.0034	
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	
	3/9/2016	< 0.00050	< 0.0020	< 0.00050	< 0.00050	0.00073	< 0.00050	< 0.00050	0.0226	< 0.00050	< 0.00050	0.0071	< 0.00050	< 0.00050	0.00800	0.01	
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	
	3/9/2016	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.00086	< 0.00050	< 0.00050	0.0368	< 0.00050	< 0.00050	0.0079	0.00069	< 0.00050	0.0107	0.0124	
MGMS3-4(40)	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	
	3/9/2016	< 0.0025	< 0.010	< 0.0025	< 0.0025	0.0116	< 0.0025	< 0.0025	0.610	0.0040	< 0.0025	0.0867	< 0.0025	< 0.0025	0.0897	0.0229	
	3/8/2016 DUP	< 0.0025	< 0.010	< 0.0025	< 0.0025	0.0124	< 0.0025	< 0.0025	0.643	0.0054	< 0.0025	0.0974	< 0.0025	< 0.0025	0.1020	0.0280	
	6/17/2016	< 0.0012	< 0.0050	< 0.0012	< 0.0012	0.0245	< 0.0012	0.006	0.955	0.0091	< 0.0012	0.2320	< 0.0012	< 0.0012	0.2090	0.0859	
MGMS3-3(60)	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	
	3/9/2016	< 0.00050	< 0.0020	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0014	< 0.00050	< 0.00050	0.0028	< 0.00050	< 0.00050	0.0008	< 0.00050	
	6/17/2016	< 0.00050	< 0.0020	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0174	< 0.00050	< 0.00050	0.0058	< 0.00050	< 0.00050	0.0050	< 0.00050	
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	
	3/9/2016	< 0.00050	< 0.0020	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.0073	< 0.00050	< 0.00050	0.0075	< 0.00050	< 0.00050	0.0061	< 0.00050	
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	
	3/9/2016	< 0.00050	< 0.0020	< 0.00050	< 0.00050	0.00100	< 0.00050	0.00056	0.0144	< 0.00050	< 0.00050	0.0135	0.00056	< 0.00050	0.0127	0.0008	

Please refer to notes at end of table.

Table 3
 Groundwater Analytical Results: 2016
 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)														
EX-1	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
	3/8/2016	<0.0012	<0.0050	<0.0012	<0.0012	0.0040	<0.0012	0.0029	1.16 E	0.0036	<0.0012	0.274	0.0050	<0.0012	0.0711	0.0133
	6/17/2016	<0.0050	<0.02	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	1.040	<0.0050	<0.0050	0.592	<0.0050	<0.0050	0.0908	<0.0050
MP-1	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
	3/8/2016	<0.00084	<0.0033	<0.00084	<0.00084	0.0075	<0.00084	0.0021	0.1480	0.0012	<0.00084	0.433	<0.00084	<0.00084	0.1000	<0.00084
	6/17/2016	<0.00050	<0.0020	<0.00050	<0.00050	0.0050	<0.00050	0.0015	0.1250	0.00097	<0.00050	0.206	<0.00050	<0.00050	0.0673	<0.00050

Notes:

1. mg/L (ppm) = Milligrams per liter (parts per million).
2. **Bold** values represents detected concentration of listed analyte.
3. < = Not detected at or above the specified laboratory method reporting limit (MRL).
4. E = Analyte concentration exceeded the calibration range. Reported result is estimated.

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	6/17/2016
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	0.00069
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	0.0021
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	0.0109
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	<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	0.0054
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	<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	<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	0.00060
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	<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	<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	18.9
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	1.67
Oxidation Reduction Potential (mV)	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	-120.1

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	3/8/2016	6/17/2016
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	0.433	0.206
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	0.1000	0.0673
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	0.1480	0.1250
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	0.0012	0.0010
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	<0.00084	<0.00050
Ethene	N/A	N/A	N/A	N/A	<0.001	<0.001	0.00247	<0.0010	<0.0010	<0.0010	<0.000010	<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	<0.010	<0.010
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	0.0021	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	0.0075	0.0050
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	<0.00084	<0.00050	
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	<0.00084	<0.00050
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	5.1	<1.0
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	1.13	3.71
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	29.5	-8.6

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:	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	3/8/2016	6/17/2016
Analyte	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	0.274	0.592
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	0.0026	0.0014	0.0075	0.0150	NS	0.0027	0.056	0.042	0.0619	0.0213	0.0711	0.0908	
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	1.160	1.040
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	0.00068	<0.00050	<0.00050	0.00097	NS	<0.00050	0.0019	0.0016	0.0026	<0.00050	0.0036	<0.0050	
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	0.0133	<0.0050
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	<0.0010	<0.010
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	0.00054	<0.00050	<0.00050	0.0011	NS	<0.00050	0.0021	0.0026	0.0037	<0.00050	0.0029	<0.0050	
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	0.0019	0.0038	0.00080	0.00290	NS	<0.00050	0.0035	0.0026	0.0029	<0.00050	0.0040	<0.0050	
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	NS	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0012	<0.0050	
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	NS	<0.00050	0.0025	0.00088	0.00065	<0.00050	0.0050	<0.0050	
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	22	1.2
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	--	0.36	2.72
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	--	113.3	4.8

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	3/8/2016	6/16/2016
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	0.325	0.314
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	0.209	0.288
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	1.38	3.31
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	0.0162	0.0316
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	0.0213	0.0523
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	<0.010	<0.010
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	0.0154	0.0299
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	0.080	0.174
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	<0.0036	<0.0084
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	0.0077	0.0128
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	5.5	3.7
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	0.71	2.68
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	62.2	59.7

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	3/8/2016	6/17/2016
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	0.0041	0.0115
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	0.0016	0.0063
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	0.0035	0.0078
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	<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	<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	<0.010	<0.010
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	<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	<0.00050	0.00099
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	<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	<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	1.0	<1.0
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	1.75	3.12
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	47.8	14.0

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	3/8/2016	6/17/2016
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	0.0065	0.2230
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	0.0062	0.1460
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	0.036	0.744
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	<0.00050	0.0028
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	0.0360	0.2270
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	0.0637	0.031
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	0.0016	0.0264
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	0.0135	0.0206	0.0249
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	<0.00050	<0.00050	<0.00050
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	<0.00050	0.0031
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	7.4	3.8
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	5.52	1.60
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	-161.7	-72.2

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
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

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	
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.
2/1/2016	30.4	-28.0	0.0	-25.0	2.6	3.00	Used APEX PID #3.
2/29/2016	0.0	-13.0	0.0	-13.0	0.0	0.10	Used APEX PID #3.
3/29/2016	0.0	-12.0	0.0	-12.0	0.0	0.20	Used APEX PID #3.
4/27/2016	0.2	-11.0	0.0	-5.0	0.0	1.00	Used APEX PID #3. North SVE system turned off.
5/25/2016	--	--	--	--	--	--	North SVE system intentionally turned off for approx . 60 days to evaluate system efficiency.
6/28/2016	20.4	-23.0	14.3	-23.0	0.9	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

Please refer to notes at end of table.

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

Sampling Location	Sample ID	Date	1,1,1- Trichloro- ethane	1,1- Dichloro- ethene	cis-1,2- Dichloro- ethene	trans-1,2- Dichloro- ethene	Methylene Chloride	Tetrachloro- ethene	Toluene	Trichloro- ethene	Vinyl Chloride
			Concentrations in µg/m ³								
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
System Effluent	North_Effluent_020116	2/1/2016	<53	<100	<51	<51	<45	11,000	<48	150	<33
System Effluent	SVE_North_Effluent_032916	3/29/2016	19	<14	<7.2	<7.2	<6.3	920	<6.9	19	<4.7
System Effluent	North_Effluent	4/27/2016	<15	<29	<14	<14	<13	1,500	<14	75	<9.2
System Effluent	North_Effluent_62816	6/28/2016	<11	<22	<11	<13	<9.6	1,800	<10	83	<7.1

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

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	
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
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

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	
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
2/1/2016	0.1	-24	0.3	19.0	9.2	16	0.0	7.0	Used Apex PID #3
2/29/2016	0.2	-18	25.2	30.0	8.5	17	2.3	6.0	Used Apex PID #3
3/29/2016	0.0	-19	54.0	28.0	13.2	16	3.4	7.0	Used Apex PID #3
4/27/2016	5.0	-28	32.0	50.0	21.3	0.2	22.3	1.0	Used Apex PID #3
5/25/2016	0.2	-100	0.3	3.0	23.2	2	9.7	0.6	Used Apex PID #3
6/28/2016	--	--	--	--	--	--	--	--	System shut down

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.

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	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 µg/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
Pre Carbon	SVE_SOUTH_PRE CARBON	2/1/2016	<8.6	<22	20	<11	<9.8	2,900	<11	14.0	120.0	<7.2	<37
Post Carbon	SVE_SOUTH_POST CARBON	2/1/2016	2.2	<3.2	160	2.90	<1.4	<2.7	<1.5	92.0	260.0	<1.0	<5.2
Pre Carbon	SVE_SOUTH_PRE CARBON	3/29/2016	<230	<610	710	<300	<270	71,000	<290	520.0	2,800.0	<200	<670
Post Carbon	SVE_SOUTH_POST CARBON	3/29/2016	<69	<180	490	<23	<79	9,300	<86	1500.0	9,300.0	<58	<200

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	4/27/2016	<6.4	<17	12	<8.4	<7.4	910	<8.0	<8.7	23.0	<5.4	<18
Post Carbon	SVE_SOUTH_POST CARBON	4/27/2016	<63	<160	180	<82	<72	11,000	<78	110.0	2,200.0	<53	<180
Pre Carbon	SVE_SOUTH_PRE CARBON	5/25/2016	<1.2	<3.2	4	<1.6	<1.4	550	2.9	2.9	22.0	<1.0	3.9
Post Carbon	SVE_SOUTH_POST CARBON	5/25/2016	<16	<41	2300	30.00	<18	14,000	<19	130.0	3,300.0	<13	<45

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.

15,751

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
2/1/2016	3.00	215	11.2	0.215
2/29/2016	0.10	215	0.9	0.018
3/29/2016	0.20	215	1.6	0.030
4/27/2016	1.00	215	1.9	0.036
5/25/2016	--*	--*	--*	--*
6/28/2016	0.10	215	1.9	0.036

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
2/1/2016	Sample	0.215	35	8	217
2/29/2016	Sample	0.018	28	1	218
3/29/2016	Sample	0.030	29	1	219
4/27/2016	Sample	0.036	29	2	221
5/25/2016	Sample	--*	--*	--*	221
6/28/2016	Sample	0.036	0	0	221

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.
6. * = Not sampled. System intentionally shut down to evaluate system efficiency.

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
2/1/2016	19.0	--	3	0.2
2/29/2016	30.0	--	3	0.2
3/29/2016	28.0	--	75	4.4
4/27/2016	5.0	--	1	0.1
5/25/2016	3.0	--	1	0.0
6/28/2016	-- *	--	--*	--*

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

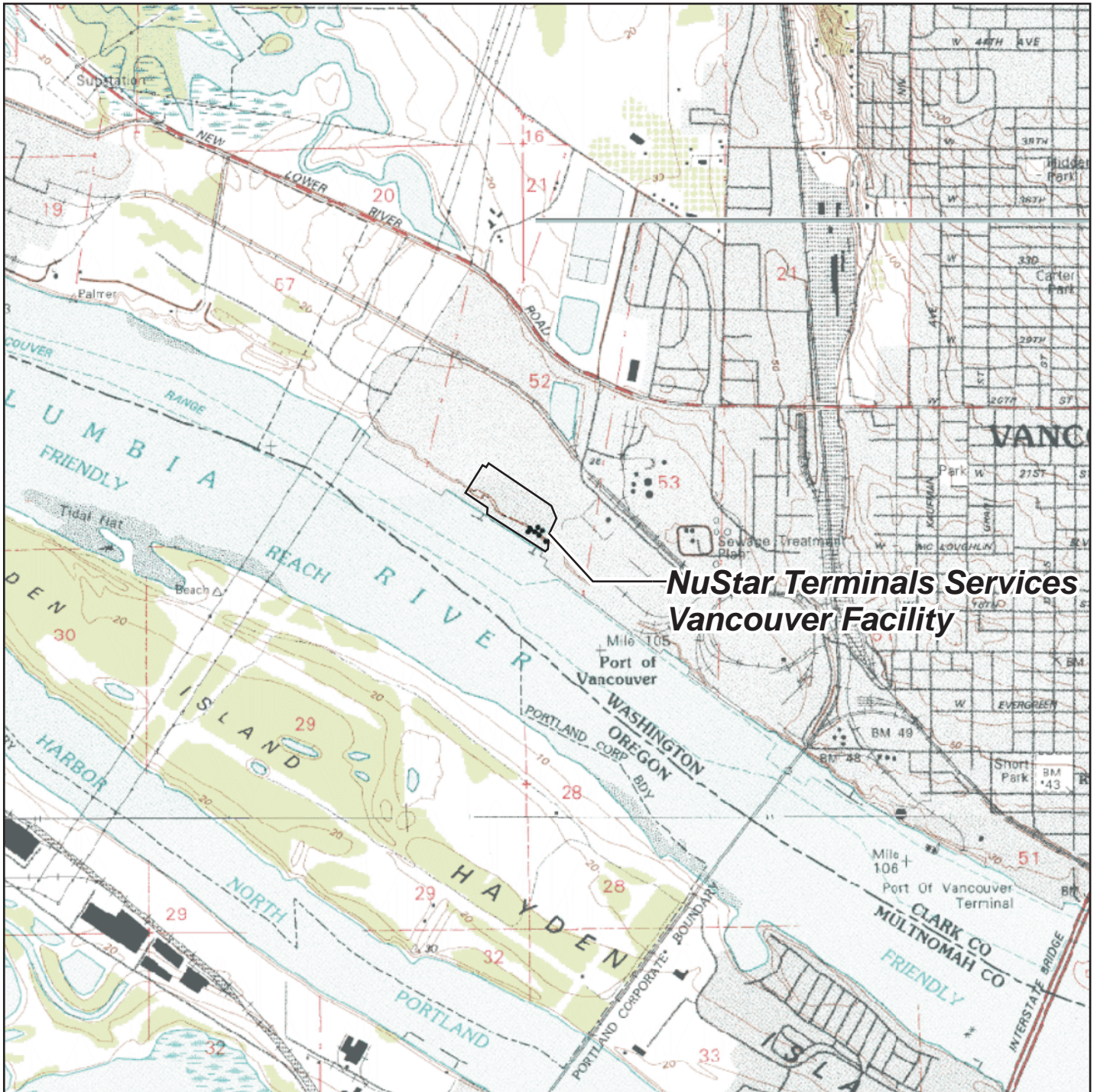
Please refer to notes at end of table.

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)
2/1/2016	Sample	0.2	35	41	2260
2/29/2016	Sample	0.2	28	6	2266
3/29/2016	Sample	4.4	29	67	2333
4/27/2016	Sample	0.1	29	66	2399
5/25/2016	Sample	0.0	28	2	2401
6/28/2016	Sample	--*	0	--*	--*

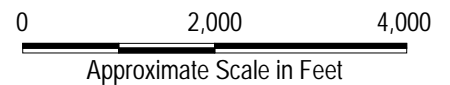
Notes:

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.
6. Flow rate was not measured on dates with dashes. For calculations, rate is assumed to be the same as measured the date before.
7. 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.
8. * = system was off for part replacement.



**NuStar Terminals Services
Vancouver Facility**

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



Vancouver



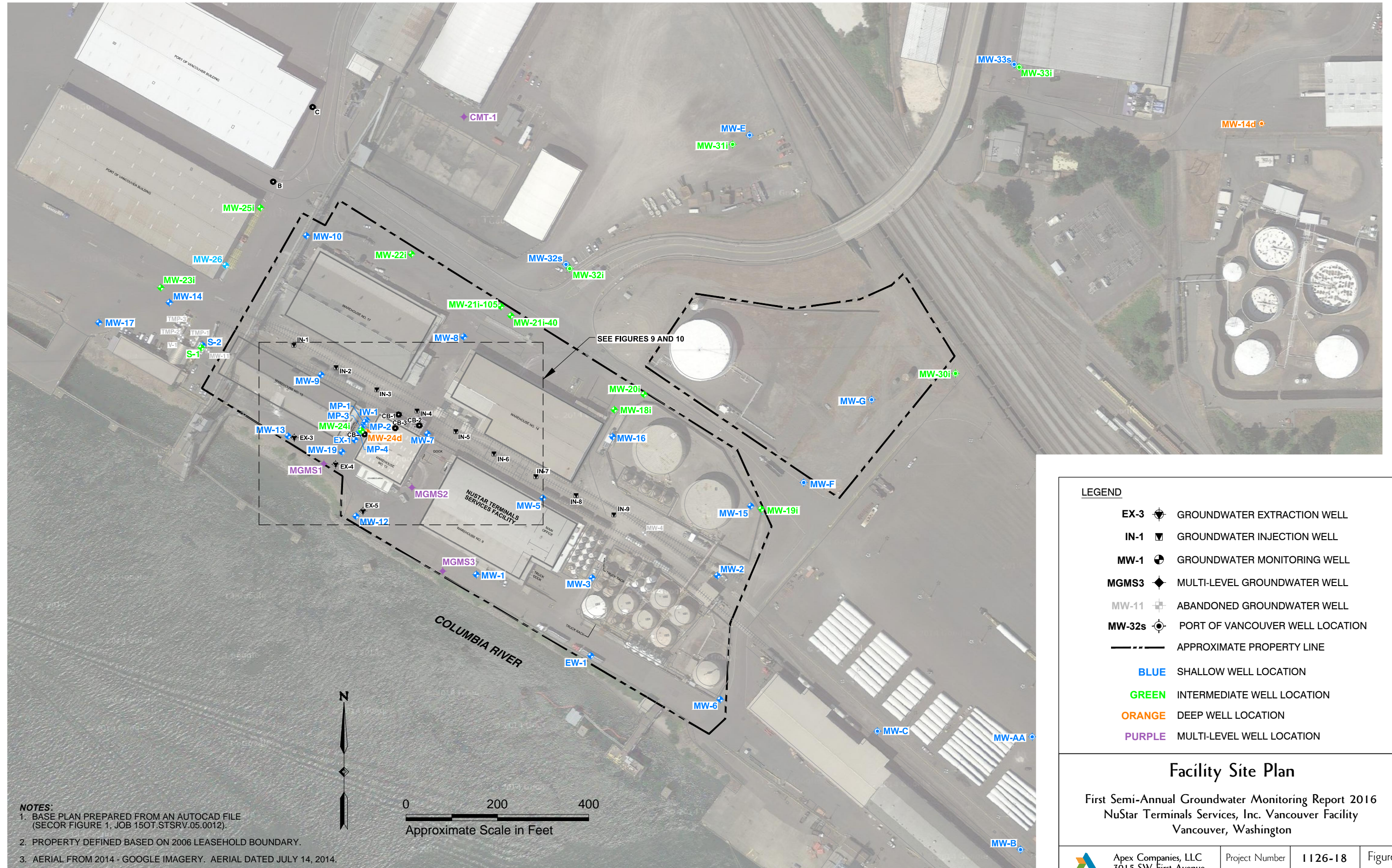
Facility Location Map

First Semi-Annual Groundwater Monitoring Report 2016
NuStar Terminals Services, Inc. Vancouver Facility
Vancouver, Washington

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

Project Number 1126-18
August 2016

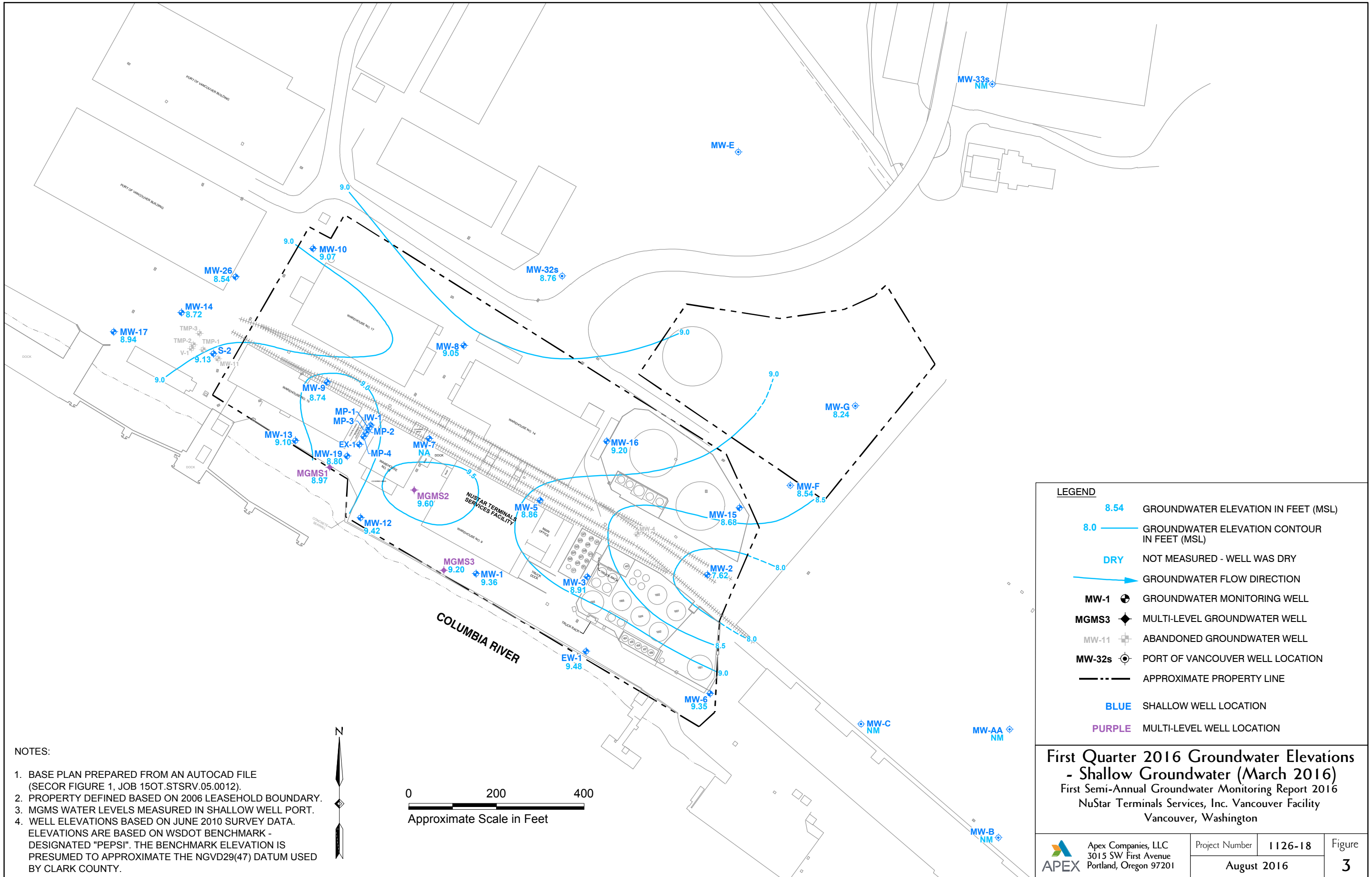
Figure
1



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
 First Semi-Annual Groundwater Monitoring Report 2016
 NuStar Terminals Services, Inc. Vancouver Facility
 Vancouver, Washington

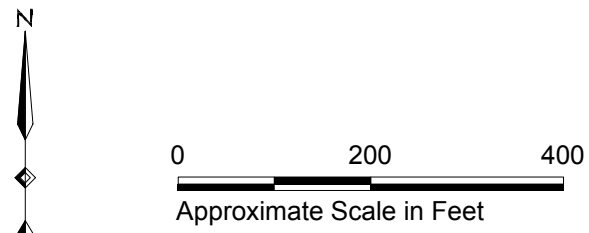


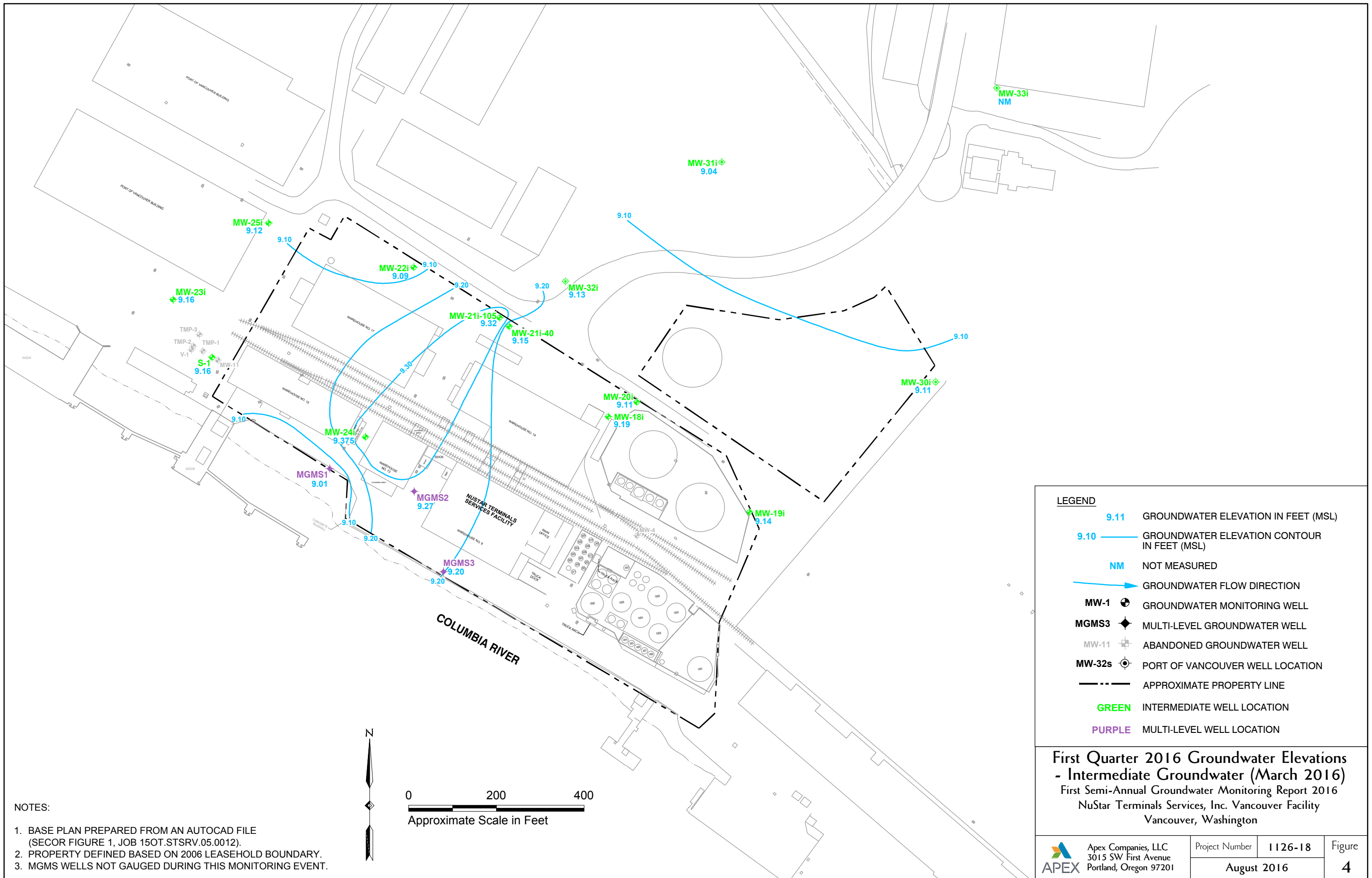
LEGEND

- 8.54 GROUNDWATER ELEVATION IN FEET (MSL)
- 8.0 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

First Quarter 2016 Groundwater Elevations - Shallow Groundwater (March 2016)
 First Semi-Annual Groundwater Monitoring Report 2016
 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.





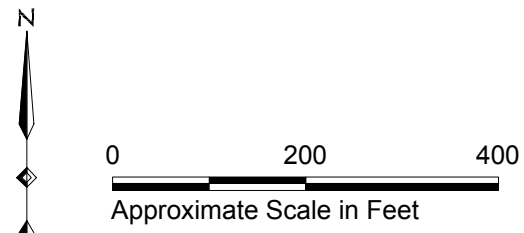
LEGEND

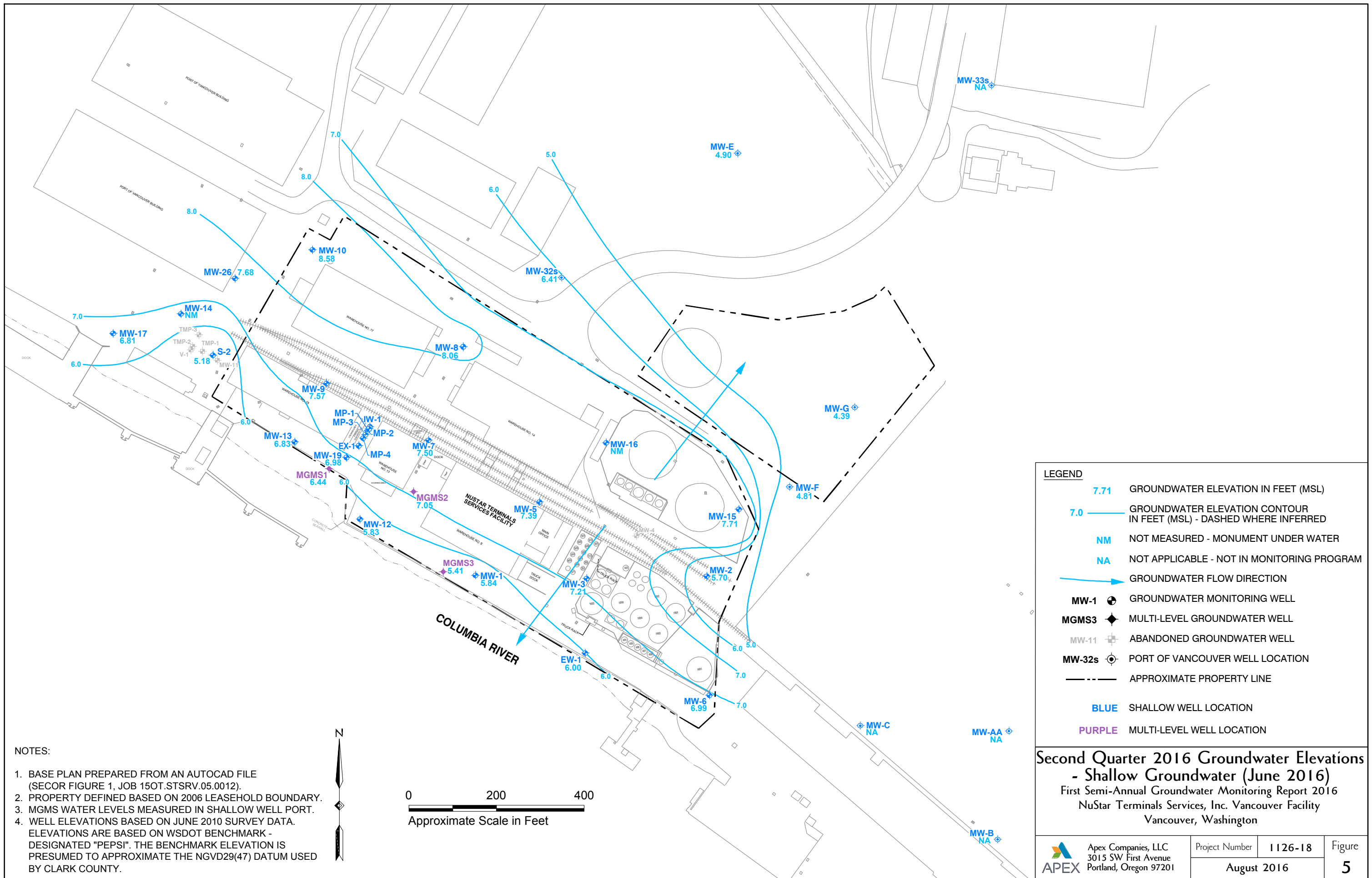
- 9.11 GROUNDWATER ELEVATION IN FEET (MSL)
- 9.10 GROUNDWATER ELEVATION CONTOUR IN FEET (MSL)
- NM NOT MEASURED
- GROUNDWATER FLOW DIRECTION
- MW-1 GROUNDWATER MONITORING WELL
- MGMS3 MULTI-LEVEL GROUNDWATER WELL
- MW-11 ABANDONED GROUNDWATER WELL
- MW-32s PORT OF VANCOUVER WELL LOCATION
- - - APPROXIMATE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

First Quarter 2016 Groundwater Elevations - Intermediate Groundwater (March 2016)
 First Semi-Annual Groundwater Monitoring Report 2016
 NuStar Terminals Services, Inc. Vancouver Facility
 Vancouver, Washington

Apex Companies, LLC 3015 SW First Avenue Portland, Oregon 97201	Project Number	1126-18	Figure
	August 2016		4

- 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.



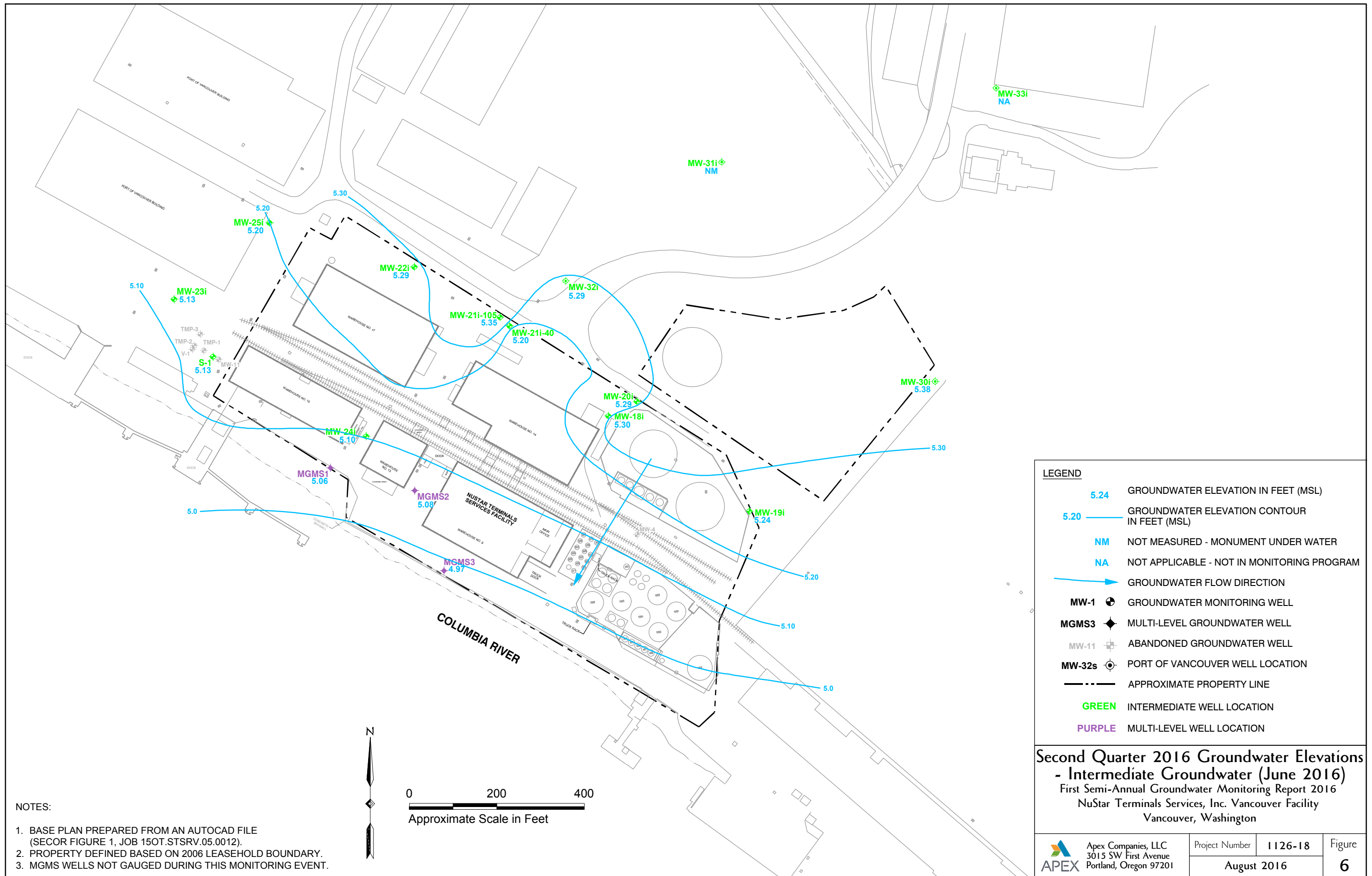


LEGEND

- 7.71 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

- 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.

Second Quarter 2016 Groundwater Elevations - Shallow Groundwater (June 2016)
 First Semi-Annual Groundwater Monitoring Report 2016
 NuStar Terminals Services, Inc. Vancouver Facility
 Vancouver, Washington



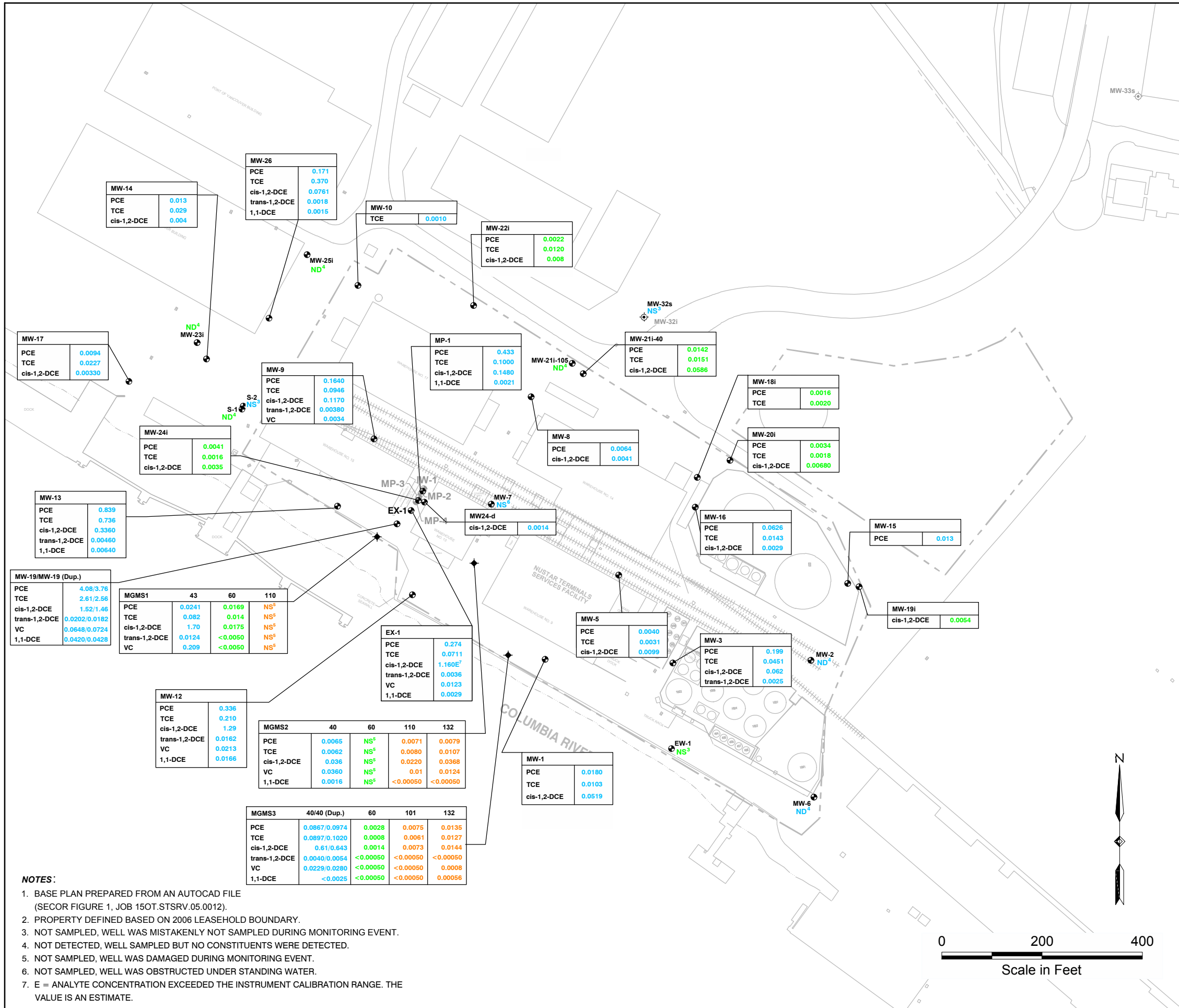
NOTES:

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

- 5.24 GROUNDWATER ELEVATION IN FEET (MSL)
- 5.20 GROUNDWATER ELEVATION CONTOUR IN FEET (MSL)
- 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
- GREEN INTERMEDIATE WELL LOCATION
- PURPLE MULTI-LEVEL WELL LOCATION

Second Quarter 2016 Groundwater Elevations - Intermediate Groundwater (June 2016)
 First Semi-Annual Groundwater Monitoring Report 2016
 NuStar Terminals Services, Inc. Vancouver Facility
 Vancouver, Washington



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	0.0169
TCE	0.014
cis-1,2-DCE	0.0175
trans-1,2-DCE	<0.0050
VC	<0.0050

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

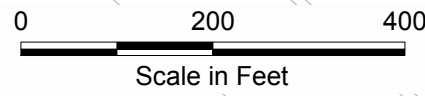
- BLUE** SHALLOW ZONE CONCENTRATION DATA (DEPTHS OF 0 TO 45 FEET)
- GREEN** INTERMEDIATE ZONE CONCENTRATION DATA (DEPTHS OF 45 TO 100 FEET)
- ORANGE** DEEP ZONE CONCENTRATION DATA (DEPTHS OVER 100 FEET)

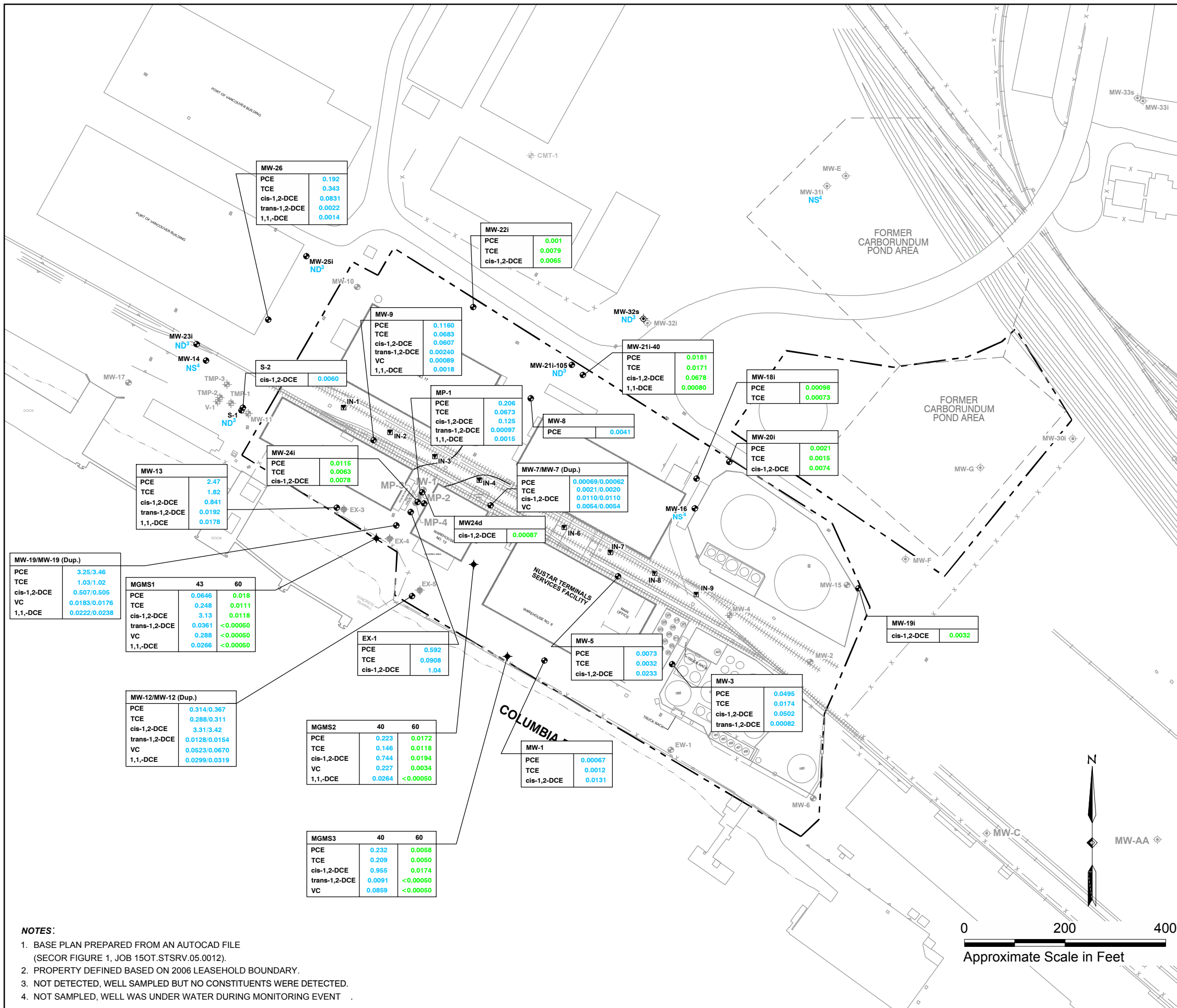
ABBREVIATIONS

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.
 5. NOT SAMPLED, WELL WAS DAMAGED DURING MONITORING EVENT.
 6. NOT SAMPLED, WELL WAS OBSTRUCTED UNDER STANDING WATER.
 7. E = ANALYTE CONCENTRATION EXCEEDED THE INSTRUMENT CALIBRATION RANGE. THE VALUE IS AN ESTIMATE.

**First Quarter 2016
Groundwater Concentrations**
First Semi-Annual Groundwater Monitoring Report 2016
NuStar Terminals Services, Inc. Vancouver Facility
Vancouver, Washington





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	0.018
TCE	0.0111
cis-1,2-DCE	0.0118
trans-1,2-DCE	<0.00050
1,1,-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

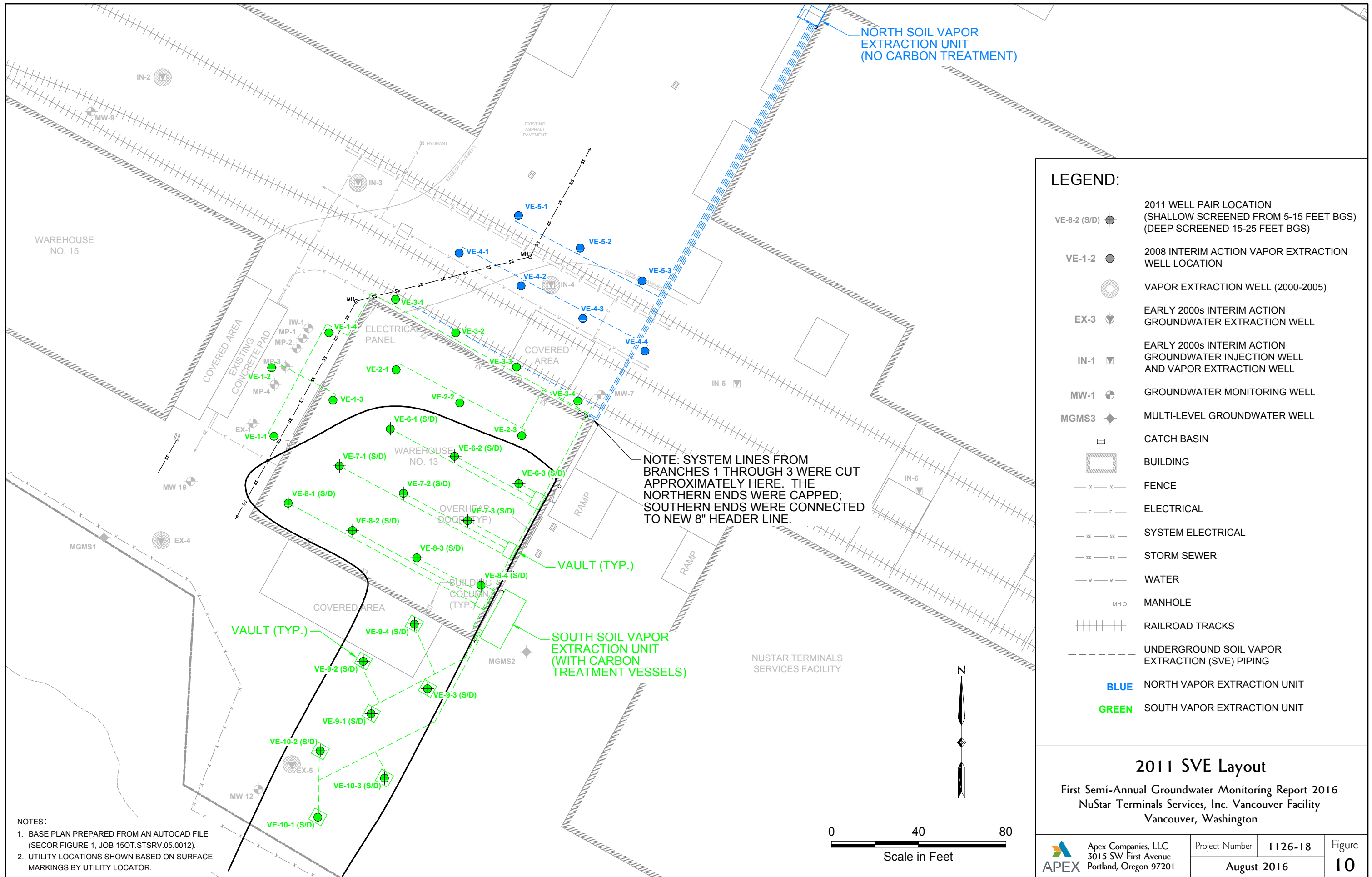
PCE	TETRACHLOROETHENE
TCE	TRICHLOROETHENE
cis-1,2-DCE	CIS-1,2-DICHLOROETHENE
trans-1,2-DCE	TRANS-1,2-DICHLOROETHENE
VC	VINYL CHLORIDE
1,1,-DCE	1,1-DICHLOROETHENE

- 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 DETECTED, WELL SAMPLED BUT NO CONSTITUENTS WERE DETECTED.
 4. NOT SAMPLED, WELL WAS UNDER WATER DURING MONITORING EVENT

Second Quarter 2016
Groundwater Concentrations
 First Semi-Annual Groundwater Monitoring Report 2016
 NuStar Terminals Services, Inc. Vancouver Facility
 Vancouver, Washington

Apex Companies, LLC 3015 SW First Avenue Portland, Oregon 97201	Project Number	1126-18	Figure	8
	August 2016			



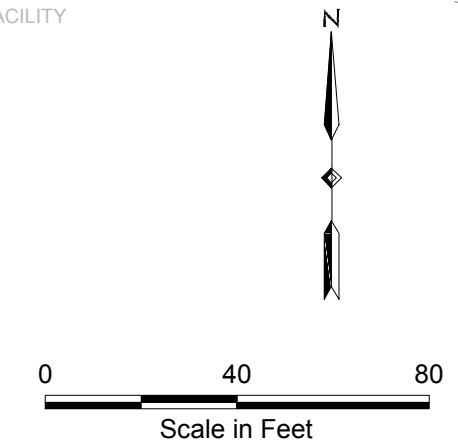


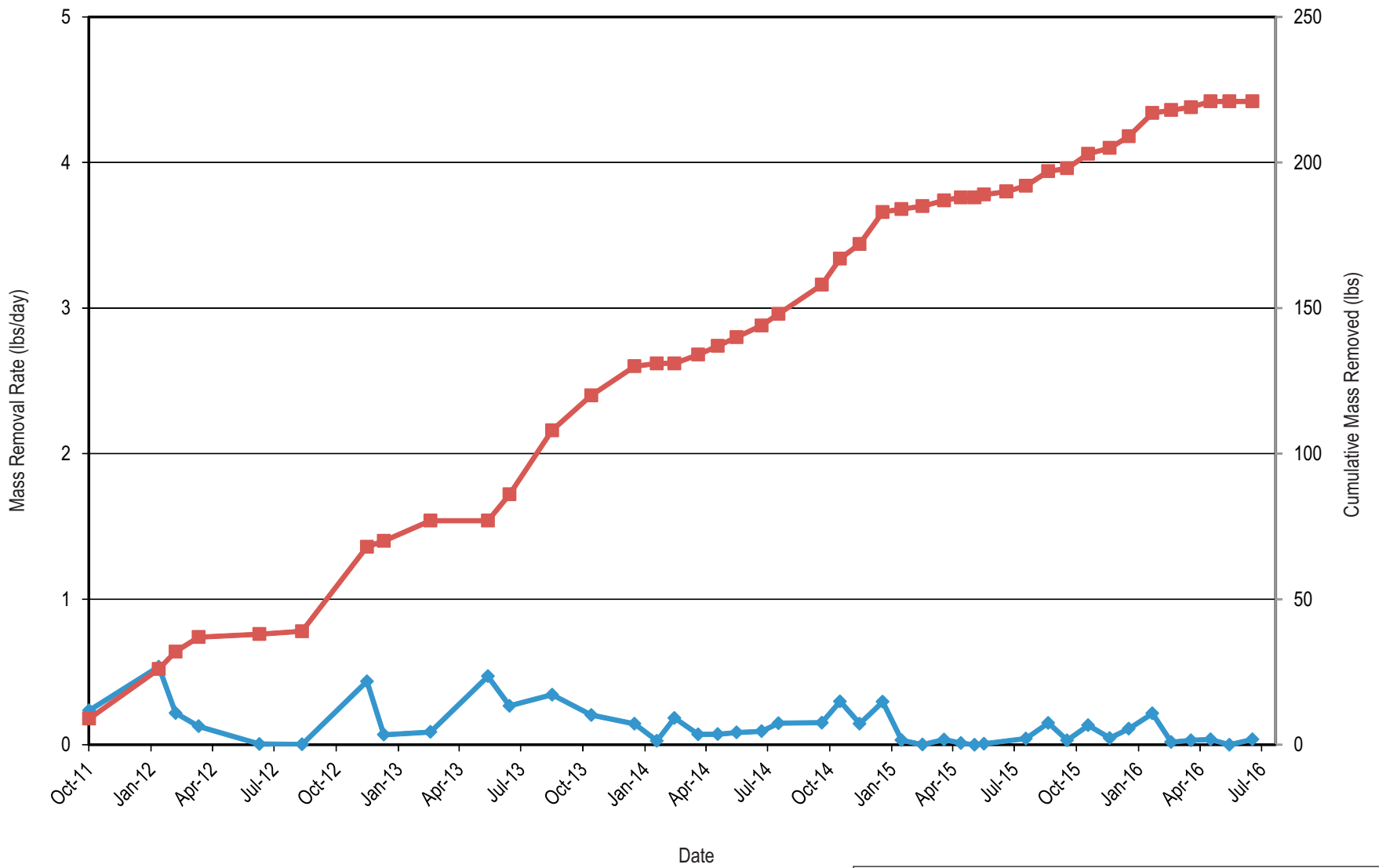
LEGEND:

- VE-6-2 (S/D) [Symbol] 2011 WELL PAIR LOCATION (SHALLOW SCREENED FROM 5-15 FEET BGS) (DEEP SCREENED 15-25 FEET BGS)
- VE-1-2 [Symbol] 2008 INTERIM ACTION VAPOR EXTRACTION WELL LOCATION
- [Symbol] VAPOR EXTRACTION WELL (2000-2005)
- EX-3 [Symbol] EARLY 2000s INTERIM ACTION GROUNDWATER EXTRACTION WELL
- IN-1 [Symbol] EARLY 2000s INTERIM ACTION GROUNDWATER INJECTION WELL AND VAPOR EXTRACTION WELL
- MW-1 [Symbol] GROUNDWATER MONITORING WELL
- MGMS3 [Symbol] MULTI-LEVEL GROUNDWATER WELL
- [Symbol] CATCH BASIN
- [Symbol] BUILDING
- x - x - FENCE
- E - E - ELECTRICAL
- SE - SE - SYSTEM ELECTRICAL
- SS - SS - STORM SEWER
- V - V - WATER
- MHO [Symbol] MANHOLE
- [Symbol] 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.





Legend:

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

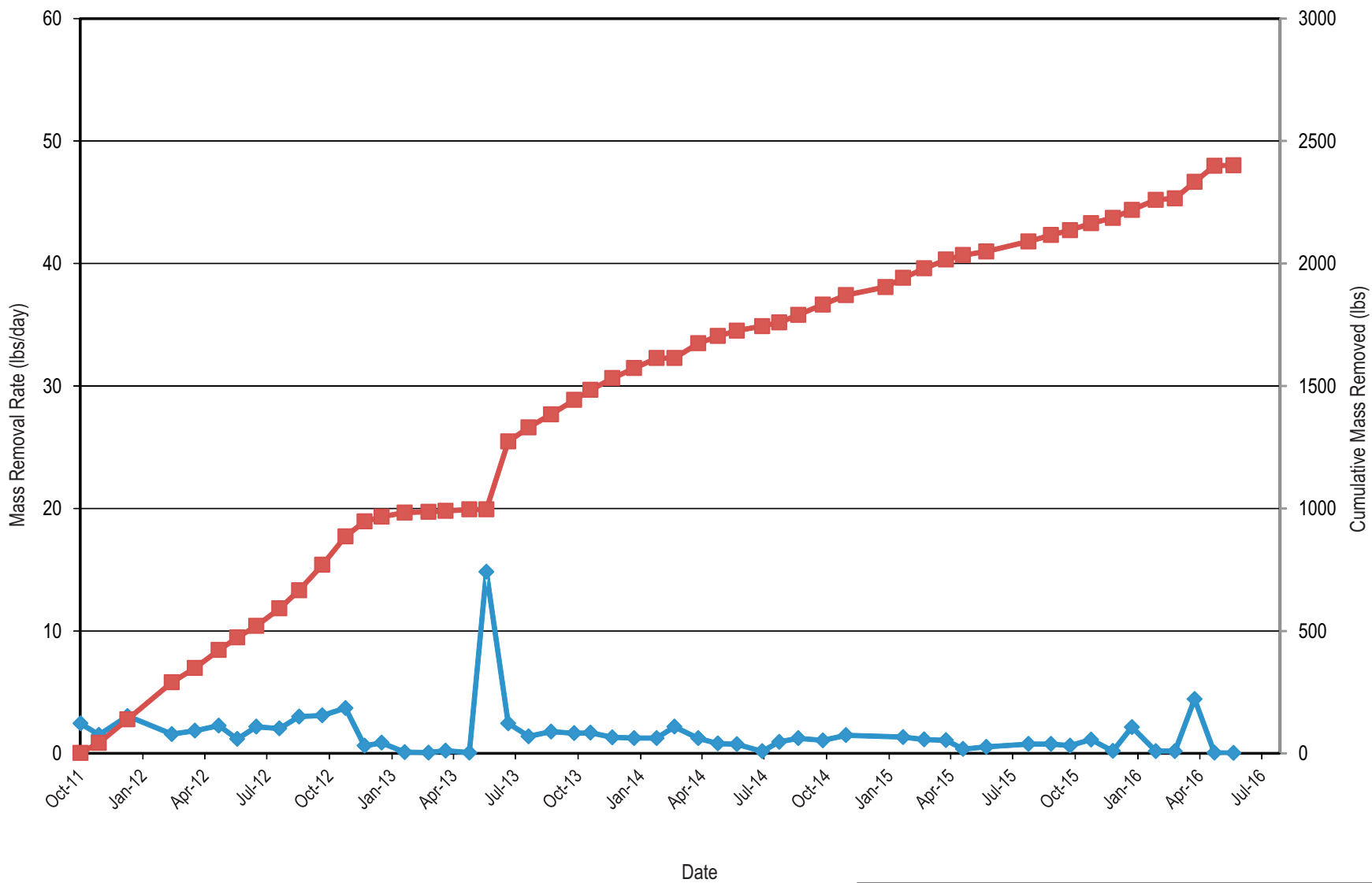
North SVE System - VOC Mass Removal

First Semi-Annual Groundwater Monitoring Report 2016
 NuStar Terminals Services, Inc. Vancouver Facility
 Vancouver, Washington

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

Project Number	1126-18
August 2016	

Figure
11



Legend:

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

South SVE System – VOC Mass Removal

First Semi-Annual Groundwater Monitoring Report 2016
 NuStar Terminals Services, Inc. Vancouver Facility
 Vancouver, Washington

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

Project Number	1126-18
August 2016	

Figure
12

Appendix A

Field Sampling Data Sheets



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


PROJECT NUMBER _____
 FIELD REPORT NUMBER _____
 PAGE _____ OF _____
 DATE 3/9/16

PROJECT 1st @ GWM ARRIVAL TIME 0700
 LOCATION Vancouver Port DEPARTURE TIME 1530
 CLIENT Nustar Vancouver WEATHER RAIN
 PURPOSE OF OBSERVATIONS GWM Event
 APEX REPRESENTATIVE KK/JM APEX PROJECT MANAGER S. Salisbury
 CONTRACTOR _____ PERMIT NO. 245966
 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.

0700 - onsite
 0715 - get permit
 0745 - Begin GW Sampling (see Sampling sheets for 3/9/16)
 * Unable to sample following wells *
 - MW-7 (under large puddle)
 - MW-16 (under large puddle)
 - MGMS2-60 (Bladder not functional down well)
 - MGMS1-110 (Missing sample port / plug unable to sample)
 * collected Dup @ mw-25i due to inability to sample Dup @ mw-7
 1500 - collect field Blank (equip Blank)
 1510 - collect field Blank
 * Drum Log *
 - 1 full 55 gal drum
 - 1 15% full 55 gal drum
 1530 - offsite

EQUIP BLANK	3x40 ml	3/9/16	1500
Field Blank	3x40 ml	3/9/16	1510

BY 

 APEX REPRESENTATIVE

REVIEWED BY _____

 APEX PROJECT MANAGER

WELL GAGING DATA SHEET



Client:	NuStar Kansas	Job Number:	
Project:	1 st Q GWM	Date:	3/7/16
Weather:	Part sunny	Sampler:	KK/JM
		Time In/Out:	

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-1	0815	—	23.24	—	—	—	
MW-12	0820	—	22.01	—	—	—	
MW-19	0824	—	24.79	—	—	—	
EX-1	0829	—	24.90	—	—	—	
MP-4	0835	—	25.00	—	—	—	
MW-24i	1200	—	24.10	—	—	—	
MP-3	0845	—	25.02	—	—	—	
MW-24d	0850	—	24.51	—	—	—	
MP-2	0854	—	25.24	—	—	—	
MP-1	0859	—	25.20	—	—	—	
IW-1	0903	—	25.21	—	—	—	
MW-13	0906	—	24.05	—	—	—	
S-2	0904	—	24.02	—	—	—	
MW-14	0920	—	25.09	—	—	—	Monument Lid rusted on
MW-17	0925	—	23.71	—	—	—	
MW-26	0930	—	25.19	—	—	—	
MW-10	0937	—	25.76	—	—	—	
MW-8	0942	—	24.92	—	—	—	
MW-32S	0947	—	25.58	—	—	—	
MW-E	0949	—	—	—	—	—	Under Conex crates/covered
MW-15	0956	—	30.45	—	—	—	
MW-F	1002	—	24.94	—	—	—	
MW-6	1007	—	23.26	—	—	—	
MW-2	1013	—	26.37	—	—	—	
MW-6	1020	—	23.48	—	—	—	
EW-1	1023	—	21.92	—	—	—	
MW-3	1026	—	25.50	—	—	—	
MW-9	1033	—	25.12	—	—	—	
MW-7	1036	—	—	—	—	—	under large puddle unable to gauge
MW-5	1038	—	25.00	—	—	—	
MW-16	1054	—	23.85	—	—	—	
MW-18i	1058	—	24.21	—	—	—	

WELL MONITORING DATA SHEET



Well I.D.	S-1	Job Number:	
Client:	NuStar Vancouver	Date:	3/9/16
Project:	1st QGWM	Sampler:	KK/JM
Weather:	Rain	Time In/Out:	0740

WELL DATA

Well Depth:	—	Well Diameter:	2"	Water Height:	—
Depth to Water:	23.17	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:	DFD		

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
0740	—	—	23.17	0.30	6.62	11.07	145	3.18	111.3	—	C
0743	—	—	23.18		6.31	11.80	146	2.86	122.9	—	C
0746	—	—	23.21		6.38	12.17	146	2.16	117.6	—	C
0749	—	—	23.24	∇	6.44	12.53	145	1.68	112.2	—	C
0752	—	—	23.18	∇	6.48	12.68	148	1.42	108.4	—	C
0755	—	—	23.20	∇	6.58	12.89	148	1.23	105.1	—	C

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


SAMPLING DATA

Sample ID:	S-1	Sampling Flow Rate:	0.30	Analytical Laboratory:	Pace	
Sample Time:	0758	Final Depth to Water:	23.20	Did Well Dewater?:	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
3X 40ML	HCl	HVOC	yes (no)	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

Jan

WELL MONITORING DATA SHEET

	Well I.D.:	MW-25i	Job Number:	
	Client:	NuStar Vancouver	Date:	3/9/16
	Project:	1st Q GWM	Sampler:	KK/JM
	Weather:	Rain	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	2"	Water Height	—
Depth to Water:	23.60	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:				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			
0823	—	—	23.60	0.30	7.76	10.65	138	3.65	-11.4	—	C			
0826	—	—	23.60		7.35	11.80	170	1.76	0.9	—	C			
0829	—	—	23.60		7.35	12.25	176	1.41	-9.6	—	C			
0832	—	—	23.60		7.33	12.45	176	1.98	-18.1	—	C			
0835	—	—	23.59		7.35	12.49	174	2.18	-20.9	—	C			
0838	—	—	23.59	✓	7.39	12.38	172	2.31	-26.1	—	C			


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

SAMPLING DATA

Sample ID:	MW-25i	Sampling Flow Rate	0.30	Analytical Laboratory:	Pace	
Sample Time:	0840	Final Depth to Water:	23.59	Did Well Dewater?	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
3 x 40 ml	HCl	HVOC	yes <u>no</u>	—	—	—
3 x 40 ml	HCl	HVOC	yes <u>no</u>	—	—	MW-25i Dup
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.	mw-21i-40	Job Number:	
	Client:	NuStar Vancouver	Date:	3/9/16
	Project:	1st Q GWM	Sampler:	KK/JM
	Weather:	Rain	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	2"
Depth to Water:	24.20	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
0921	—	—	24.20	0.30	7.47	13.21	210	2.55	-71.1	—	C
0924	—	—	24.20	↓	7.34	13.89	218	4.83	-65.9	—	C
0927	—	—	24.20	↓	7.37	13.93	220	5.02	-65.4	—	C
0930	—	—	24.21	↓	7.35	13.99	220	5.04	-63.5	—	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	0.30	Analytical Laboratory:	Pace
Sample Time:	0933	Final Depth to Water:	24.22	Did Well Dewater?	NO
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD
3 x 40 ml	HCl	H-VOC	yes <u>no</u>	—	—
			yes no		
			yes no		
			yes no		
			yes no		
			yes no		

COMMENTS

--

WELL MONITORING DATA SHEET



Well I.D.	MW-18i	Job Number:	
Client:	NyStar Vancouver	Date:	3/9/16
Project:	1st Q Gwm	Sampler:	KK/JM
Weather:	Rain	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	2"	Water Height	—
Depth to Water:	23.50	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
1012	—	—	23.50	0.30	5.98	11.84	121	5.82	179.8	—	C
1015	—	—	23.50	↓	6.03	13.12	122	4.12	170.1	—	C
1018	—	—	23.50	↓	6.28	13.48	123	3.51	156.1	—	C
1021	—	—	23.50	↓	6.32	13.54	124	3.42	148.6	—	C
1024	—	—	23.50	↓	6.34	13.62	123	3.34	144.2	—	C


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

SAMPLING DATA

Sample ID:	MW-18i	Sampling Flow Rate	0.30	Analytical Laboratory:	Pace	
Sample Time:	1026	Final Depth to Water:	23.50	Did Well Dewater?	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
3 x 40 ml	HCl	HVOC	yes <u>no</u>	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.	<i>mw-24d</i>	Job Number:	
	Client:	<i>NuStar Vancouver</i>	Date:	<i>3/9/16</i>
	Project:	<i>1st & GWM</i>	Sampler:	<i>KK/JM</i>
	Weather:	<i>Rain</i>	Time In/Out:	

WELL DATA

Well Depth:	<i>—</i>	Well Diameter:	<i>2"</i>	Water Height	<i>—</i>
Depth to Water:	<i>24.10</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	<i>—</i>

PURGING DATA

Purge Method:		<i>RP</i>			Pump Intake Depth:		<i>MS</i>			Comments	
Sampling Method:		<i>LF</i>			Tubing Type:		<i>DED</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
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
<i>1115</i>	<i>—</i>	<i>—</i>	<i>24.10</i>	<i>0.30</i>	<i>7.96</i>	<i>13.59</i>	<i>288</i>	<i>4.06</i>	<i>-119.7</i>	<i>—</i>	<i>C</i>
<i>1118</i>	<i>—</i>	<i>—</i>	<i>24.20</i>	<i> </i>	<i>8.71</i>	<i>14.01</i>	<i>294</i>	<i>1.17</i>	<i>-223.7</i>	<i>—</i>	<i>C</i>
<i>1121</i>	<i>—</i>	<i>—</i>	<i>24.15</i>	<i> </i>	<i>8.72</i>	<i>14.11</i>	<i>295</i>	<i>0.72</i>	<i>-231.7</i>	<i>—</i>	<i>C</i>
<i>1124</i>	<i>—</i>	<i>—</i>	<i>24.15</i>	<i> </i>	<i>8.69</i>	<i>14.10</i>	<i>294</i>	<i>0.57</i>	<i>-240.6</i>	<i>—</i>	<i>C</i>
<i>1127</i>	<i>—</i>	<i>—</i>	<i>24.25</i>	<i>✓</i>	<i>8.67</i>	<i>14.10</i>	<i>293</i>	<i>0.49</i>	<i>-232.1</i>	<i>—</i>	<i>C</i>


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

SAMPLING DATA

Sample ID:	<i>mw-24d</i>	Sampling Flow Rate	<i>0.30</i>	Analytical Laboratory:	<i>Pace</i>	
Sample Time:	<i>1130</i>	Final Depth to Water:	<i>24.22</i>	Did Well Dewater?	<i>NO</i>	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
<i>3 x 40 ml</i>	<i>HCl</i>	<i>HVOC</i>	yes <i>(no)</i>	<i>—</i>	<i>—</i>	<i>—</i>
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.	MGMS1-43	Job Number:	
	Client:	Nustar Vancouver	Date:	3/9/16
	Project:	1st Q GWM	Sampler:	KK/JM
	Weather:	Rain	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	—	Water Height	—
Depth to Water:	23.32	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
1209	—	—	23.32	0.3	8.36	12.71	1977	6.18	-122.3	—	C
1212	—	—	23.33	↓	8.29	13.17	2045	6.29	-144.3	—	C
1215	—	—	23.35	↓	8.29	13.26	2053	6.31	-144.9	—	C
1218	—	—	23.42	↓	8.25	13.34	2062	6.25	-148.0	—	C


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

SAMPLING DATA

Sample ID:	MGMS1-43	Sampling Flow Rate:	0.30	Analytical Laboratory:	Pace	
Sample Time:	1220	Final Depth to Water:	23.51	Did Well Dewater?	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
3 X 40ml	HCl	HVOC	yes (no)	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.	MGMS2-132	Job Number:	
	Client:	Mustar Vancouver	Date:	3/9/16
	Project:	1st Q GWM	Sampler:	KK/JM
	Weather:	Rain	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	—	Water Height	—
Depth to Water:	23.02	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:				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		
1307	—	—	23.04	0.30	7.24	12.71	612	1.96	-89.9	—	C		
1310	—	—	23.08	0.30	7.16	12.52	328	0.82	-74.7	—	C		
1313	—	—	23.10	0.30	7.14	12.46	320	0.64	-72.2	—	C		
1316	—	—	23.11	0.30	7.17	12.45	316	0.58	-75.0	—	C		


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

SAMPLING DATA

Sample ID:	MGMS2-132	Sampling Flow Rate	0.30	Analytical Laboratory:	Pace
Sample Time:	1318	Final Depth to Water:	23.15	Did Well Dewater?	NO
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
3x 40 ml	HCl	H VOC	yes no	—	—
			yes no		
			yes no		
			yes no		
			yes no		
			yes no		

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.	MGMS2-110	Job Number:	
	Client:	NuStar Vancouver	Date:	3/9/16
	Project:	1st Q GWM	Sampler:	KK/JM
	Weather:	Rain	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	—	Water Height:	—
Depth to Water:	23.00	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
1320	—	—	23.01	0.30	7.18	12.73	242	0.44	-74.4	—	C
1323	—	—	23.04	0.30	6.95	12.87	198	0.28	-61.8	—	C
1326	—	—	23.05	0.30	7.02	12.95	195	0.42	-64.2	—	C
1329	—	—	23.05	0.30	6.98	13.06	194	0.51	-64.0	—	C


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

SAMPLING DATA

Sample ID:	MGMS2-110	Sampling Flow Rate:	0.30	Analytical Laboratory:	Pace	
Sample Time:	1330	Final Depth to Water:	23.06	Did Well Dewater?	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
3x40 ML	HCl	HVOC	yes <input checked="" type="radio"/> no	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.	MW-20i	Job Number:	
	Client:	NuStar Vancouver	Date:	3/8/16
	Project:	1st Q GWM	Sampler:	KK/JM
	Weather:	Rain	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	—	Water Height	—
Depth to Water:	24.22	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
1344	—	—	24.20	0.3	7.22	11.19	119	3.81	-41.0	—	C
1347	—	—	24.15	1	7.16	12.83	125	2.33	-54.7	—	C
1350	—	—	24.15	1	7.09	13.06	126	2.29	-55.7	—	C
1353	—	—	24.15	1	7.08	13.12	126	2.41	-55.2	—	C


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

SAMPLING DATA

Sample ID:	MW-20i	Sampling Flow Rate	0.30	Analytical Laboratory:	Pace
Sample Time:	1355	Final Depth to Water:	24.15	Did Well Dewater?	NO
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
3 x 40 mL	HCl	HVOC	yes no	—	—
			yes no		
			yes no		
			yes no		
			yes no		

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.	MW-13	Job Number:	
	Client:	MuStar Vancouver	Date:	3/8/16
	Project:	1st & Gwm	Sampler:	KK/JM
	Weather:	cloudy	Time In/Out:	0850

WELL DATA

Well Depth:	—	Well Diameter:	4"	Water Height	—
Depth to Water:	23.94	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
0850	—	—	23.94	0.30	8.27	13.00	2682	2.49	192.1	—	C
0853	—	—	24.11	↓	8.40	13.88	2924	0.79	143.8	—	C
0856	—	—	24.14	↓	8.44	14.14	2930	0.45	139.7	—	C
0859	—	—	24.16	↓	8.44	14.13	2929	0.41	140.1	—	C


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

SAMPLING DATA

Sample ID:	MW-13	Sampling Flow Rate:	0.30	Analytical Laboratory:	Pace
Sample Time:	0900	Final Depth to Water:	24.10	Did Well Dewater?	NO
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
3 x 40ml	Hcl	Hvoc	yes (no)	—	—
			yes no		
			yes no		
			yes no		
			yes no		
			yes no		

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.	MW-17	Job Number:	
	Client:	Mustar Vancouver	Date:	3/8/16
	Project:	1st @ Bwm	Sampler:	KK/JM
	Weather:	Cloudy	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	4"
Depth to Water:	23.38	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
0916	—	—	23.40	0.30	7.45	12.65	648	2.06	217.1	—	C
0919	—	—	23.63	↓	6.89	13.86	715	2.79	211.5	—	C
0922	—	—	23.65	↓	6.84	14.02	729	2.92	199.6	—	C
0925	—	—	23.61	↓	6.80	14.05	738	3.05	194.5	—	C


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

SAMPLING DATA

Sample ID:	MW-17	Sampling Flow Rate	0.30	Analytical Laboratory:	Pace
Sample Time:		Final Depth to Water:	23.60	Did Well Dewater?	NO
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
3 x 40 mL	HCl	HVOC	yes <u>no</u>	—	—
			yes no		
			yes no		
			yes no		
			yes no		
			yes no		

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.	MW-23i	Job Number:	
	Client:	NuStar Vancouver	Date:	3/8/16
	Project:	1st Q GWM	Sampler:	KK/JM
	Weather:	cloudy	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	2"	Water Height	—
Depth to Water:	24.80	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:				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						
1021	—	—	24.78	0.30	6.79	13.35	132	5.61	165.3	—	C						
1024	—	—	24.78	↓	6.81	14.03	135	3.35	159.5	—	C						
1027	—	—	24.78	↓	6.83	14.21	137	3.14	148.2	—	C						
1030	—	—	24.78	↓	6.85	14.28	139	2.98	144.1	—	C						


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

SAMPLING DATA

Sample ID:	MW-23i	Sampling Flow Rate	0.30	Analytical Laboratory:	Pace	
Sample Time:	1032	Final Depth to Water:	24.78	Did Well Dewater?	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
3 X 40 ML	HCl	H VOC	yes <u>no</u>	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.	mw-8	Job Number:	
	Client:	Nustar Vancouver	Date:	3/8/16
	Project:	1st Q GWM	Sampler:	KE/JM
	Weather:	Rain	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	4"	Water Height	—
Depth to Water:	24.56	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								
1052	—	—	24.87	0.30	6.22	13.40	1245	1.70	141.0	—	C								
1055	—	—	24.96	0.30	5.98	14.05	1289	0.70	147.1	—	C								
1058	—	—	25.03	0.30	5.94	14.13	1298	0.53	149.2	—	C								
1101	—	—	25.10	0.30	5.92	14.15	1299	0.49	149.6	—	C								

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


SAMPLING DATA

Sample ID:	mw-8	Sampling Flow Rate	0.30	Analytical Laboratory:	Pace	
Sample Time:	1105	Final Depth to Water:	25.10	Did Well Dewater?	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
3X 40ML	HCl	HVOC	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.:	EX	Job Number:	
	Client:	NuStar Vancouver	Date:	3/8/16
	Project:	1st Q GWM	Sampler:	KK/JM
	Weather:	Rain	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	4"	Water Height	—
Depth to Water:	24.75	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:				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								
1138	—	—	24.75	0.30	6.72	12.76	1306	1.91	120.5	—	C								
1141	—	—	24.82	0.30	6.92	13.95	1358	0.62	115.9	—	C								
1144	—	—	24.82	0.30	6.96	14.03	1367	0.48	114.2	—	C								
1147	—	—	24.83	0.30	6.98	14.12	1365	0.36	113.3	—	C								

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

SAMPLING DATA

Sample ID:	EX	Sampling Flow Rate	0.30	Analytical Laboratory:	Pace		
Sample Time:	1150	Final Depth to Water:	24.82	Did Well Dewater?	NO		
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID	
3 x 40 mL	HCl	HVOC	yes <input checked="" type="radio"/> no	—	—	—	
3 x 40 mL	HCl	TOC	yes <input checked="" type="radio"/> no	—	—	—	
1 x 250 mL	H ₂ SO ₄	Methane, Ethane	yes <input checked="" type="radio"/> no	—	—	—	
			yes no				
			yes no				
			yes no				

COMMENTS

WELL MONITORING DATA SHEET



Well I.D.	MW-9	Job Number:	
Client:	NuStar Vancouver	Date:	3/8/16
Project:	1st Q GWM	Sampler:	KR/SM
Weather:	Rain	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	4"	Water Height	—
Depth to Water:	24.95	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
1206	—	—	24.95	0.30	6.99	12.48	1188	1.68	107.5	—	C
1209	—	—	24.95		6.69	12.87	1185	0.55	116.2	—	C
1212	—	—	24.95		6.64	12.87	1171	0.53	118.2	—	C
1215	—	—	24.95	∇	6.62	12.90	1146	0.48	118.8	—	C


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

SAMPLING DATA

Sample ID:	MW-9	Sampling Flow Rate:	0.30	Analytical Laboratory:	Price	
Sample Time:	1218	Final Depth to Water:	24.95	Did Well Dewater?:	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
3 x 40 mL	HCl	HVOC	yes <u>no</u>	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.:	<i>MW-5</i>	Job Number:	
	Client:	<i>NuStar Vancouver</i>	Date:	<i>3/8/16</i>
	Project:	<i>1st Q GWM</i>	Sampler:	<i>KK/SM</i>
	Weather:	<i>Cloudy</i>	Time In/Out:	

WELL DATA

Well Depth:	<i>—</i>	Well Diameter:	<i>2"</i>	Water Height	<i>—</i>
Depth to Water:	<i>24.90</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	<i>—</i>

PURGING DATA

Purge Method:	<i>BP</i>	Pump Intake Depth:	<i>MS</i>	Comments	
Sampling Method:	<i>LF</i>	Tubing Type:	<i>DED</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
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria
<i>1229</i>	<i>—</i>	<i>—</i>	<i>24.90</i>	<i>0.30</i>	<i>6.32</i>	<i>13.76</i>	<i>493</i>	<i>1.60</i>	<i>66.5</i>	<i>—</i>	<i>C</i>
<i>1232</i>	<i>—</i>	<i>—</i>	<i>24.84</i>	<i> </i>	<i>6.27</i>	<i>14.69</i>	<i>454</i>	<i>0.71</i>	<i>63.0</i>	<i>—</i>	<i>C</i>
<i>1235</i>	<i>—</i>	<i>—</i>	<i>24.84</i>	<i> </i>	<i>6.23</i>	<i>14.86</i>	<i>442</i>	<i>0.42</i>	<i>61.8</i>	<i>—</i>	<i>C</i>
<i>1238</i>	<i>—</i>	<i>—</i>	<i>24.85</i>	<i>↓</i>	<i>6.21</i>	<i>14.98</i>	<i>436</i>	<i>0.38</i>	<i>64.0</i>	<i>—</i>	<i>C</i>

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

SAMPLING DATA

Sample ID:	<i>MW-5</i>	Sampling Flow Rate:	<i>0.30</i>	Analytical Laboratory:	<i>Pace</i>
Sample Time:	<i>1240</i>	Final Depth to Water:	<i>24.85</i>	Did Well Dewater?	<i>NO</i>
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
<i>3X 40ML</i>	<i>HCl</i>	<i>H VOC</i>	yes <i>(no)</i>	<i>—</i>	<i>—</i>
			yes no		
			yes no		
			yes no		
			yes no		
			yes no		

COMMENTS

WELL MONITORING DATA SHEET



Well I.D.	<i>MW-15</i>	Job Number:	
Client:	<i>NuStar Vancouver</i>	Date:	<i>3/8/16</i>
Project:	<i>1st Q GWM</i>	Sampler:	<i>KK/JM</i>
Weather:	<i>cloudy</i>	Time In/Out:	

WELL DATA

Well Depth:	<i>—</i>	Well Diameter:	<i>4"</i>	Water Height	<i>—</i>
Depth to Water:	<i>30.34</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	<i>—</i>

PURGING DATA

Purge Method:	<i>BP</i>	Pump Intake Depth:	<i>MS</i>	Comments	
Sampling Method:	<i>LF</i>	Tubing Type:	<i>Ded.</i>		<i>—</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
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	← Stabilization Criteria
<i>1253</i>	<i>—</i>	<i>—</i>	<i>30.38</i>	<i>0.30</i>	<i>6.42</i>	<i>12.13</i>	<i>526</i>	<i>2.29</i>	<i>75.6</i>	<i>—</i>	<i>C</i>
<i>1256</i>	<i>—</i>	<i>—</i>	<i>30.41</i>	<i>↓</i>	<i>6.20</i>	<i>12.55</i>	<i>541</i>	<i>0.87</i>	<i>81.6</i>	<i>—</i>	<i>C</i>
<i>1259</i>	<i>—</i>	<i>—</i>	<i>30.42</i>	<i>↓</i>	<i>6.18</i>	<i>12.66</i>	<i>545</i>	<i>0.61</i>	<i>82.7</i>	<i>—</i>	<i>C</i>
<i>1302</i>	<i>—</i>	<i>—</i>	<i>30.42</i>	<i>↓</i>	<i>6.18</i>	<i>12.68</i>	<i>546</i>	<i>0.59</i>	<i>83.0</i>	<i>—</i>	<i>C</i>


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

SAMPLING DATA

Sample ID:	<i>MW-15</i>	Sampling Flow Rate	<i>0.30</i>	Analytical Laboratory:	<i>Pace</i>
Sample Time:	<i>1305</i>	Final Depth to Water:	<i>30.41</i>	Did Well Dewater?	<i>NO</i>
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
<i>3 X 40ML</i>	<i>HCl</i>	<i>HVOC</i>	yes <i>no</i>	<i>—</i>	<i>—</i>
			yes no		
			yes no		
			yes no		
			yes no		

COMMENTS

WELL GAGING DATA SHEET

	Client:	NUSTAL	Job Number:	1126-
	Project:	VAN GWM	Date:	6/15/16
	Weather:	Overcast	Sampler:	C. CLOUGH / K. KLINE
			Time In/Out:	

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-30i							0/3 BOLTS PRESENT
EW-1	1029	—	25.40	—	—	—	0/3 BOLTS.
MW-6	1033	—	25.84	—	—	—	3/3 BOLTS.
MW-F	1035	—	28.67	—	—	—	3/3 BOLTS
MW-G	1039	—	27.11	—	—	—	3/3 BOLTS
MW-30i	1045	—	24.39	—	—	—	0/3 BOLTS
MW-18i	1049	—	28.10	—	—	—	2/2 BOLTS
MW-20i	1050	—	27.85	—	—	—	0/2 BOLTS
MW-19i	1053	—	28.38	—	—	—	1/2 BOLTS monument filled with bentonite
MW-15	1055	—	31.42	—	—	—	Raised monument
MW-32i	1103	—	29.12	—	—	—	3/3 BOLTS
MW-32S	1101	—	27.93	—	—	—	3/3 BOLTS
MW-21i-40	1109	—	28.90	—	—	—	2/2 BOLTS
MW-21i-105	1107	—	28.64	—	—	—	3/3 BOLTS
MW-22i	1114	—	29.10	—	—	—	0/2 BOLTS.
MW-10	1116	—	26.25	—	—	—	NA
MW-25i	1118	—	28.38	—	—	—	2/3 BOLTS.
MW-26	1121	—	26.05	—	—	—	3/3 BOLTS.
MW-23i	1123	—	28.67	—	—	—	2/2 BOLTS
MW-14	—	—	—	—	—	—	could not open well cover
MW-17	1126	—	25.84	—	—	—	0/3 BOLTS
S-1	1129	—	28.11	—	—	—	0/3 BOLTS
S-2	1130	—	27.97	—	—	—	0/3 BOLTS
MW-13	1132	—	26.32	—	—	—	1/3 BOLTS
MW-12	1135	—	25.60	—	—	—	0/3 BOLTS
MP-1	1202	—	26.56	—	—	—	0/3 BOLTS.
MP-2	1204	—	26.63	—	—	—	0/3 BOLTS.
MW-24d	1206	—	28.79	—	—	—	0/2 BOLTS.
MP-3	1207	—	26.47	—	—	—	3/3 BOLTS.
MW-24i	1209	—	28.37	—	—	—	0/3 BOLTS.
MP-4	1210	—	26.49	—	—	—	0/3 BOLTS.
EX-1	1212	—	26.49	—	—	—	0/3 BOLTS.
MW-19	1214	—	26.61	—	—	—	3/3 BOLTS.

WELL MONITORING DATA SHEET



Well I.D.	MW-8	Job Number:	
Client:	MuStar Vancouver	Date:	6/15/16
Project:	2nd & GWM	Sampler:	KK/CC
Weather:	Cloudy	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	4"	Water Height	—
Depth to Water:	25.75	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:	Bladder	Pump Intake Depth:	MS	Comments	
Sampling Method:	LF	Tubing Type:	Dedicated		

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
1553	—	—	25.95	0.20	6.44	18.86	3290	12.56	-8.0	—	AC
1556	—	—	26.10		6.15	17.42	3124	7.66	-4.0	—	AC
1559	—	—	26.18		6.07	16.70	3066	6.57	-2.6	—	AC
1602	—	—	26.25		6.03	16.56	3044	6.00	-1.7	—	AC
1605	—	—	26.28		6.02	16.74	3056	6.08	-1.8	—	AC
1608	—	—	26.33		6.02	16.82	3053	6.11	-1.7	—	AC


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

SAMPLING DATA

Sample ID:	MW-8	Sampling Flow Rate:	0.20	Analytical Laboratory:	Pace
Sample Time:	1610	Final Depth to Water:	26.30	Did Well Dewater?	NO
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
3x40ml	HCl	HVOC	yes <input checked="" type="checkbox"/> no	—	—
			yes no		
			yes no		
			yes no		
			yes no		

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.	MW-26	Job Number:	
	Client:	NuStar Vancouver	Date:	6/15/16
	Project:	2nd Q GWM	Sampler:	KK/CC
	Weather:	Cloudy	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	2"	Water Height	—
Depth to Water:	26.06	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:	Bladder	Pump Intake Depth:	MS	Comments	
Sampling Method:	LF	Tubing Type:	Dedicated	—	

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
1515	—	—	26.10	0.20	6.08	17.64	9294	11.80	-2.1	—	AC
1518	—	—	26.09		6.07	16.29	8775	8.24	-3.5	—	AC
1521	—	—	26.10		6.03	15.68	7974	6.06	-4.0	—	AC
1524	—	—	26.10		6.00	15.61	7613	5.98	-3.4	—	AC
1527	—	—	26.10		5.98	15.54	7349	6.00	-2.9	—	AC

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


SAMPLING DATA

Sample ID:	MW-26	Sampling Flow Rate	0.20	Analytical Laboratory:	Pace
Sample Time:	1530	Final Depth to Water:	26.10	Did Well Dewater?	NO
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
3 x 40 ml	HCl	HVOC	yes <u>no</u>	—	—
			yes no		
			yes no		
			yes no		
			yes no		

COMMENTS

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WELL MONITORING DATA SHEET

	Well I.D.:	MW-25i	Job Number:	
	Client:	AluStar Vancouver	Date:	6/15/16
	Project:	2nd & GWM	Sampler:	KK/CC
	Weather:	cloudy	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	2"	Water Height:	—
Depth to Water:	28.15	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:		Bladder		Pump Intake Depth:		MS		Comments			
Sampling Method:		LF		Tubing Type:		Dedicated					
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
1422	—	—	27.92	0.20	6.97	20.55	417	12.99	-42.2	—	AC
1425	—	—	27.92	0.20	6.74	17.85	413	10.61	-34.3	—	AC
1428	—	—	27.92	0.20	6.65	18.24	417	8.84	-30.8	—	AC
1431	—	—	27.95	0.20	6.60	18.62	426	7.75	-29.5	—	AC
1434	—	—	27.94	0.20	6.63	18.66	431	6.64	-31.8	—	AC
1437	—	—	27.93	0.20	6.67	18.92	444	6.41	-34.3	—	AC
1440	—	—	27.91	0.20	6.71	19.31	453	5.96	-35.7	—	AC
1443	—	—	27.90	0.20	6.72	19.48	459	5.59	-35.9	—	AC
1446	—	—	27.90	0.20	6.70	19.31	460	5.41	-34.9	—	AC
1449	—	—	27.91	0.20	6.69	19.14	458	5.24	-33.5	—	AC


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

SAMPLING DATA

Sample ID:	MW-25i	Sampling Flow Rate:	0.20	Analytical Laboratory:	Pace
Sample Time:	1450	Final Depth to Water:	27.85	Did Well Dewater?	NO
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
3 x 40 ml	HCl	HVOC	yes (no)	—	—
			yes no		
			yes no		
			yes no		
			yes no		

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.	MW-1	Job Number:	
	Client:	Mustar Vancouver	Date:	6/15/16
	Project:	2nd Q GWM	Sampler:	KK/CC
	Weather:	overcast	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	2"	Water Height	—
Depth to Water:	26.81	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:	Bladder Pump	Pump Intake Depth:	MS	Comments
Sampling Method:	LF	Tubing Type:	Dedicated	

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
1343	—	—	26.89	0.20	6.84	19.96	764	7.77	-70.1	—	C
1346	—	—	26.93		6.37	18.76	702	5.56	-70.5	—	C
1349	—	—	26.86		6.13	18.20	653	3.74	-75.4	—	C
1352	—	—	26.88		6.08	18.45	639	2.96	-78.4	—	C
1355	—	—	26.88		6.14	18.65	633	2.74	-82.4	—	C
1358	—	—	26.89		6.16	18.72	633	2.58	-94.2	—	C


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

SAMPLING DATA

Sample ID:	MW-1	Sampling Flow Rate	0.20	Analytical Laboratory:	Pace
Sample Time:	1400	Final Depth to Water:	26.90	Did Well Dewater?	NO
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
3 x 40 ml	HCl	HVOC	yes <u>no</u>	—	—
			yes no		
			yes no		
			yes no		
			yes no		

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.	MW-19i	Job Number:	
	Client:	NuStar Vancouver	Date:	6/16/16
	Project:	2nd @ GWM	Sampler:	RK/CC
	Weather:	Part Sun	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	2"	Water Height	—
Depth to Water:	28.28	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:			Dedicated		—	
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			
1358	—	—	28.25	0.3	7.33	18.43	366	6.21	33.9	—	AC			
1401	—	—	28.25	1	6.92	16.05	344	4.76	43.2	—	AC			
1404	—	—	28.25	1	6.73	15.17	340	3.12	35.6	—	AC			
1407	—	—	28.25	1	6.71	15.15	339	3.06	32.2	—	AC			
1410	—	—	28.25	1	6.70	15.23	339	2.96	30.1	—	AC			


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

SAMPLING DATA

Sample ID:	MW-19i	Sampling Flow Rate	0.3	Analytical Laboratory:	Pace	
Sample Time:	1415	Final Depth to Water:	28.25	Did Well Dewater?	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
3 x 40ml	HCl	HVOC	yes no	—	—	—
			yes	no		
			yes	no		
			yes	no		
			yes	no		
			yes	no		

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.	MW-20i	Job Number:	
	Client:	NuStar Vancouver	Date:	6/16/16
	Project:	2nd @ GWM	Sampler:	KK/CC
	Weather:	Part sun	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	2"	Water Height	—
Depth to Water:	27.75	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:			MS		Comments	
Sampling Method:				LF				Tubing Type:			Dedicated		—	
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			
1328	—	—	27.75	0.30	7.32	20.73	266	5.76	32.8	—	C			
1331	—	—	27.75		6.88	16.76	271	5.27	54.8	—	C			
1334	—	—	27.74		6.55	16.22	277	5.36	65.6	—	C			
1337	—	—	27.75		6.55	16.18	279	5.64	67.7	—	C			
1340	—	—	27.75		6.58	16.24	281	5.71	67.2	—	C			


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

SAMPLING DATA

Sample ID:	MW-20i	Sampling Flow Rate	0.30	Analytical Laboratory:	Pace	
Sample Time:	1345	Final Depth to Water:	27.75	Did Well Dewater?	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
3 x 40ml	HCl	HVOC	yes <u>no</u>	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.	MW-18i	Job Number:	
	Client:	NuStar Vancouver	Date:	6/16/16
	Project:	2nd @ GWM	Sampler:	PK/ce
	Weather:	Sunny	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	2"	Water Height	—
Depth to Water:	27.99	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:			Dedicated			
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			
1308	—	—	28.00	0.25	7.38	20.54	256	6.31	34.2	—	C			
1311	—	—	27.99		6.68	17.76	242	6.42	51.2	—	C			
1314	—	—	27.98		6.64	17.52	240	6.26	59.7	—	C			
1317	—	—	27.98		6.61	17.37	239	6.07	62.8	—	C			


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

SAMPLING DATA

Sample ID:	MW-18i	Sampling Flow Rate	0.25	Analytical Laboratory:	Pace	
Sample Time:	1300	Final Depth to Water:	27.98	Did Well Dewater?	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
3 x 40 ml	HCl	HVOC	yes <input checked="" type="radio"/> no	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.	MW-3	Job Number:	
	Client:	NuStar Vancouver	Date:	6/16/16
	Project:	2nd @ GWM	Sampler:	KK, CC
	Weather:	Sunny	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	2"
Depth to Water:	27.27	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:	Duplicated	—

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
1240	—	—	27.37	0.2	7.12	19.03	685	7.61	38.8	—	AC
1243	—	—	27.39		6.82	17.91	675	7.46	52.1	—	AC
1246	—	—	27.37		6.75	17.50	670	7.64	57.7	—	AC
1249	—	—	27.37		6.76	17.46	669	7.72	57.8	—	AC
1252	—	—	27.37		6.77	17.44	668	7.75	57.6	—	AC

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


SAMPLING DATA

Sample ID:	MW-3	Sampling Flow Rate	0.20	Analytical Laboratory:	Pace
Sample Time:	1255	Final Depth to Water:	27.38	Did Well Dewater?	NO
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
3x 40 ml	HCl	HVOC	yes (no)	—	—
			yes no		
			yes no		
			yes no		
			yes no		

COMMENTS

--

WELL MONITORING DATA SHEET

	Well I.D.	MW-21i-40	Job Number:	
	Client:	NuStar Vancouver	Date:	6/16/16
	Project:	2nd Q GWM	Sampler:	KK, CC
	Weather:	overcast	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	2"	Water Height	—
Depth to Water:	28.50	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:catrol		

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
1109	—	—	28.45	0.20	6.99	18.07	418	10.62	42.1	—	AC
1112	—	—	28.45		6.81	16.80	413	6.71	48.7	—	AC
1115	—	—	28.44		6.65	16.23	410	3.42	53.6	—	AC
1118	—	—	28.45		6.60	15.97	409	2.01	54.6	—	AC
1121	—	—	28.45		6.60	15.91	408	1.91	53.9	—	AC
1124	—	—	28.45		6.61	15.82	406	1.68	52.7	—	AC


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

SAMPLING DATA

Sample ID:	MW-21i-40	Sampling Flow Rate:	0.20	Analytical Laboratory:	PaCe	
Sample Time:	1125	Final Depth to Water:	28.55	Did Well Dewater?	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
3x40 ml	HCl	HVOC	yes <input checked="" type="checkbox"/> no	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.	MW-325	Job Number:	
	Client:	Mustar	Date:	6/16/16
	Project:	2nd & Gwm	Sampler:	KK, CC
	Weather:	Part sun	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	2"	Water Height	—
Depth to Water:	27.97	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:	Bladder Pump	Pump Intake Depth:	ms	Comments
Sampling Method:	LF	Tubing Type:	Dedicated	

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
1032	—	—	28.12	0.20	6.56	16.86	754	5.69	39.6	—	AC
1035	—	—	28.25	—	6.42	16.56	771	3.18	48.0	—	AC
1038	—	—	28.35	—	6.38	16.60	781	2.22	50.6	—	AC
1041	—	—	28.51	—	6.40	16.66	789	2.08	51.3	—	AC
1044	—	—	28.60	—	6.43	16.72	793	1.98	50.7	—	AC

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


SAMPLING DATA

Sample ID:	MW-325	Sampling Flow Rate	0.20	Analytical Laboratory:	Pace
Sample Time:	1047	Final Depth to Water:	28.80	Did Well Dewater?	NO
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
3X 40 ml	HCl	HVOC	yes <u>no</u>	—	—
			yes no		
			yes no		
			yes no		
			yes no		

COMMENTS

--

WELL MONITORING DATA SHEET

	Well I.D.	<i>MW-22i</i>	Job Number:	
	Client:	<i>Nustar</i>	Date:	<i>6/16/16</i>
	Project:	<i>2nd @ Gwm</i>	Sampler:	<i>KK, CC</i>
	Weather:	<i>Cloudy</i>	Time In/Out:	

WELL DATA

Well Depth:	<i>—</i>	Well Diameter:	<i>2"</i>	Water Height	<i>—</i>
Depth to Water:	<i>28.61</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	<i>—</i>

PURGING DATA

Purge Method:		<i>Bladder</i>			Pump Intake Depth:		<i>MS</i>			Comments	
Sampling Method:		<i>LF</i>			Tubing Type:		<i>NEW</i>			<i>—</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
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
<i>0956</i>	<i>—</i>	<i>—</i>	<i>28.62</i>	<i>0.25</i>	<i>6.79</i>	<i>16.95</i>	<i>551</i>	<i>7.62</i>	<i>17.5</i>	<i>—</i>	<i>AC</i>
<i>0959</i>	<i>—</i>	<i>—</i>	<i>28.63</i>	<i> </i>	<i>6.62</i>	<i>16.42</i>	<i>575</i>	<i>3.76</i>	<i>11.5</i>	<i>—</i>	<i>AC</i>
<i>1002</i>	<i>—</i>	<i>—</i>	<i>28.65</i>	<i> </i>	<i>6.53</i>	<i>16.22</i>	<i>581</i>	<i>1.95</i>	<i>5.3</i>	<i>—</i>	<i>AC</i>
<i>1005</i>	<i>—</i>	<i>—</i>	<i>28.65</i>	<i> </i>	<i>6.52</i>	<i>16.35</i>	<i>585</i>	<i>1.68</i>	<i>-0.5</i>	<i>—</i>	<i>AC</i>
<i>1008</i>	<i>—</i>	<i>—</i>	<i>28.65</i>	<i> </i>	<i>6.57</i>	<i>16.55</i>	<i>591</i>	<i>1.60</i>	<i>-6.3</i>	<i>—</i>	<i>AC</i>


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

SAMPLING DATA

Sample ID:	<i>MW-22i</i>	Sampling Flow Rate	<i>0.25</i>	Analytical Laboratory:	<i>Pace</i>	
Sample Time:	<i>1010</i>	Final Depth to Water:	<i>28.67</i>	Did Well Dewater?	<i>NO</i>	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
<i>3 x 40ml</i>	<i>HCl</i>	<i>HVOC</i>	yes <i>(no)</i>	<i>—</i>	<i>—</i>	<i>—</i>
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.	MW-23i	Job Number:	
	Client:	Nustar Vancouver	Date:	6/16/16
	Project:	2nd @ GWM	Sampler:	KK, CC
	Weather:	Part Sun	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	2"	Water Height:	—
Depth to Water:	27.95	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:		Bladder		Pump Intake Depth:		MS		Comments			
Sampling Method:		LF		Tubing Type:		Dedicated					
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
0916	—	—	27.96	0.25	7.05	16.60	245	10.38	96.2	—	C
0919	—	—	27.98		6.89	16.04	249	8.37	99.3	—	C
0922	—	—	27.98		6.85	15.84	250	7.44	97.7	—	C
0925	—	—	28.00		6.87	15.79	250	7.16	95.1	—	C
0928	—	—	28.00		6.91	15.72	249	7.11	91.2	—	C

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

SAMPLING DATA

Sample ID:	MW-23i	Sampling Flow Rate:	0.25	Analytical Laboratory:	Pace
Sample Time:	0930	Final Depth to Water:	28.01	Did Well Dewater?:	NO
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
3 X 40 ml	HCl	HVOC	yes (no)	—	—
			yes no		
			yes no		
			yes no		
			yes no		

COMMENTS

WELL MONITORING DATA SHEET



Well I.D.	S-1	Job Number:	
Client:	NuStar	Date:	6/16/16
Project:	2nd & Glenn	Sampler:	KK, CC
Weather:	overcast	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	2"	Water Height	—
Depth to Water:	27.28	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:	Bladder	Pump Intake Depth:	MS	Comments	
Sampling Method:	LF	Tubing Type:	Dedicated		

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
0842	—	—	27.05	0.25	7.41	15.88	318	14.51	64.1	—	C
0845	—	—	27.10		7.20	15.47	279	12.35	77.8	—	C
0848	—	—	27.12		7.08	15.42	266	10.38	83.0	—	C
0851	—	—	27.14		7.00	15.42	252	8.80	91.1	—	C
0854	—	—	27.14		6.99	15.44	250	8.82	95.0	—	C
0857	—	—	27.12		6.94	15.32	248	9.08	100.8	—	C


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

SAMPLING DATA

Sample ID:	S-1	Sampling Flow Rate	0.25	Analytical Laboratory:	Puce
Sample Time:	0900	Final Depth to Water:	27.32	Did Well Dewater?	NO
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
3 x 40ml	HCl	HVOC	yes no	—	—
			yes no		
			yes no		
			yes no		
			yes no		

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.	S-2	Job Number:	
	Client:	NuStar	Date:	6/16/16
	Project:	2nd Q GWM	Sampler:	KK, CC
	Weather:	Over-cast	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	2"	Water Height	—
Depth to Water:	27.10	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:	Bladder	Pump Intake Depth:	MS	Comments	
Sampling Method:	LF	Tubing Type:	Dedicated		

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
0813	—	—	27.33	0.25	7.18	15.04	2658	7.91	177.2	—	AC
0816	—	—	27.39		6.66	14.86	3060	5.70	142.2	—	AC
0819	—	—	27.43		6.56	14.79	3181	3.88	113.5	—	AC
0822	—	—	27.38		6.54	14.85	3217	3.03	94.6	—	AC
0825	—	—	27.42		6.55	14.89	3224	2.88	87.3	—	AC
0828	—	—	27.45		6.56	14.85	3213	2.72	85.3	—	AC

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

SAMPLING DATA

Sample ID:	S-2	Sampling Flow Rate	0.25	Analytical Laboratory:	Pace	
Sample Time:	0830	Final Depth to Water:	27.30	Did Well Dewater?	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
3 X 40 ml	HCl	HVOC	yes <u>no</u>	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

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 6/17/16

PROJECT	<u>2nd @ GWM</u>	ARRIVAL TIME	<u>0707</u>
LOCATION	<u>Vancouver, WA</u>	DEPARTURE TIME	_____
CLIENT	<u>NuStar Vancouver</u>	WEATHER	<u>cloudy</u>
PURPOSE OF OBSERVATIONS	<u>Ground water sampling</u>		
APEX REPRESENTATIVE	<u>KK/CC</u>	APEX PROJECT MANAGER	<u>S. Salisbury</u>
CONTRACTOR	_____	PERMIT NO.	<u>24664</u>
CONTRACTOR REP.	_____	H&S REVIEW	<u>YES</u>

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.

0707	On site, check in, sign in, get permit! Review HASP & sign
0730	1st location cal usi and star sampling
1344	Finish sampling last well
1350	Empty purge bucket
1400	Sign out, turn in permit
1405	OFF Site
* Did not sample MW-16 under large puddle and MW-14 well cover would not come off.	
waste Drum 80% Full	
Trip Blank	3 0735
Field Blank	3 0745
Equipment Blank	0800


BY


 APEX REPRESENTATIVE

REVIEWED BY

 APEX PROJECT MANAGER

WELL MONITORING DATA SHEET

	Well I.D.	MP-1	Job Number:	
	Client:		Date:	6/17/16
	Project:	2nd @ GWM	Sampler:	KK/CC
	Weather:		Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	2"	Water Height	—
Depth to Water:	26.75	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:			MS		Comments	
Sampling Method:				LF				Tubing Type:			Dedicated		—	
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	—	—	26.81	0.30	7.22	15.40	1629	4.08	-13.2	—	AC			
1328	—	—	26.72		7.17	15.21	1616	3.76	-10.4	—	AC			
1331	—	—	26.64		7.16	15.12	1608	3.71	-8.6	—	AC			


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

SAMPLING DATA

Sample ID:	MP-1	Sampling Flow Rate	0.30	Analytical Laboratory:	Pace	
Sample Time:	1335	Final Depth to Water:	26.75	Did Well Dewater?	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
3 x 40 ml	HCl	HUOC	yes <input type="radio"/> no <input checked="" type="radio"/>	—	—	—
3 x 40 ml	HCl	Ethanol, methane	yes <input type="radio"/> no <input checked="" type="radio"/>	—	—	—
1 x 250	H ₂ SO ₄	TOC	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-9	Job Number:	
	Client:	NuStar Vancouver	Date:	6/17/16
	Project:	2nd @ GWM	Sampler:	KK/CC
	Weather:	Cloudy	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	4"	Water Height:	—
Depth to Water:	26.50	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:				3P				Pump Intake Depth:			MS		Comments	
Sampling Method:				LF				Tubing Type:			Dedicated			
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			
1122	—	—	26.50	0.30	6.75	15.47	1613	9.61	-14.4	—	AC			
1125	—	—	26.50		6.71	15.16	1644	3.81	-10.3	—	AC			
1128	—	—	26.50		6.71	14.89	1646	3.62	-9.8	—	AC			
1131	—	—	26.50		6.71	14.83	1647	3.46	-9.3	—	AC			


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

SAMPLING DATA

Sample ID:	MW-9	Sampling Flow Rate:	0.30	Analytical Laboratory:	Pace	
Sample Time:	1135	Final Depth to Water:	26.5	Did Well Dewater?	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
3x40ml	HCl	HVOC	yes <u>no</u>	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.	MGMS1-60	Job Number:	
	Client:	NuStar Vancouver	Date:	6/17/16
	Project:	2nd Q Gum	Sampler:	RK/CC
	Weather:	cloudy	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	—	Water Height	—
Depth to Water:	26.78	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:	Dedicated		

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	—	—	26.83	0.20	7.74	17.28	396	2.11	-69.5	—	AC
0941	—	—	26.84		7.46	16.96	324	1.10	-54.5	—	AC
0944	—	—	26.86		7.44	16.92	320	0.91	-44.6	—	AC
0947	—	—	26.87		7.40	16.87	314	0.81	-41.7	—	AC


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

SAMPLING DATA

Sample ID:	MGMS1-60	Sampling Flow Rate:	0.20	Analytical Laboratory:	Pace	
Sample Time:	0950	Final Depth to Water:	26.84	Did Well Dewater?:	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
3x40ml	HCl	HVOC	yes <input checked="" type="radio"/> no	—	—	—
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

	Well I.D.	MGMS2-40	Job Number:	
	Client:	NuStar Vancouver	Date:	6/17/16
	Project:	2nd & GWM	Sampler:	KK/CC
	Weather:	Cloudy	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	—	Water Height:	—
Depth to Water:	25.78	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:				Dedicated				—	
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	—	—	26.18	0.20	6.98	17.37	3654	2.79	-70.4	—	C						
0838	—	—	26.15		6.93	17.19	3659	1.84	-71.2	—	C						
0841	—	—	26.15		6.91	17.04	3658	1.76	-71.6	—	C						
0844	—	—	26.16		6.90	17.00	3657	1.60	-72.2	—	C						


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:	0845	Final Depth to Water:	26.68	Did Well Dewater?:	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
3 x 40 ml	HCl	HVOC	yes <input type="radio"/> no <input checked="" type="radio"/>	—	—	—
3 x 40 ml	HCl	Ethane, methane	yes <input type="radio"/> no <input checked="" type="radio"/>	—	—	—
1 x 250 ml	H ₂ SO ₄	TOC	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-5	Job Number:	
	Client:	NuStar Vancouver	Date:	6/17/16
	Project:	2nd Q GWM	Sampler:	KK/CC
	Weather:	Cloudy	Time In/Out:	

WELL DATA

Well Depth:	—	Well Diameter:	2"	Water Height	—
Depth to Water:	26.73	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:			Dedicated			
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			
1013	—	—	26.75	0.20	6.41	17.06	321	7.33	37.6	—		C		
1016	—	—	26.75		6.29	17.11	322	3.64	42.8	—		C		
1019	—	—	26.75		6.25	17.11	319	3.57	45.6	—		C		
1022	—	—	26.75		6.24	17.10	316	3.55	46.7	—		C		

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

SAMPLING DATA

Sample ID:	MW-5	Sampling Flow Rate	0.20	Analytical Laboratory:	Pace	
Sample Time:	1025	Final Depth to Water:	26.76	Did Well Dewater?	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
3 x 40 ml	HCl	HVOC	yes <u>no</u>	—	—	—
3 x 40 ml	HCl		yes no		MS	—
3 x 40 ml	HCl		yes no		MSD	—
			yes no			
			yes no			
			yes no			

COMMENTS

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	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
(continued)	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		0.027	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
	3/7/2016	<0.00050	<0.0020	<0.0050	<0.00050	0.0044	<0.00050	<0.00050	0.0519	<0.00050	<0.00050	0.0180	<0.00050	<0.00050	0.0103	0.00057
	6/15/2016	<0.00050	<0.002	<0.00050	<0.00050	0.0037	<0.00050	<0.00050	0.0131	<0.00050	<0.00050	0.00067	<0.00050	<0.00050	0.0012	0.0053

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
	3/7/2016	<0.00050	<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

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	
3/7/2016	<0.00050	<0.0020	0.00076	<0.00050	0.0022	<0.00050	<0.00050	0.062	0.0025	0.0013	0.199	0.0036	<0.00050	0.0451	<0.00050	
6/16/2016	<0.00050	<0.0020	<0.00050	<0.00050	0.0011	<0.00050	<0.00050	0.0502	0.00082	<0.00050	0.0495	0.00077	<0.00050	0.0174	<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	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
(continued)	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
	3/8/2016	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.004	<0.00050	<0.00050	0.0099	<0.00050	<0.00050	0.0031	<0.00050	
6/17/2016	<0.00050	0.0075	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0233	<0.00050	<0.00050	0.0073	<0.00050	<0.00050	0.0032	<0.00050		
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	<0.00020	<0.00050	<0.00020	<0.0010	
	12/02/96	<0.00050	<0.00050	<0.00050	<0.00020	<0.00020	<0.00020	<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	
	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	
	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	
	11/17/04	<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	
	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	<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	<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	<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	<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	<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	<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	<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	<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	<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	<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	<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	<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	<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	<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	<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	<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	<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	<0.00050	
3/7/2016	<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	
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	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
(continued)	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	0.057	<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	0.0015	<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	0.01	
	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	0.01	
	12/16/13	<0.00050	0.0024	<0.00050	<0.00050	0.0029	<0.00050	<0.00050	0.069	<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	0.063	<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	0.0098	<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	0.0094	<0.00050	<0.00050	0.0025	0.0077	
	6/25/2014	<0.00050	0.0013	<0.00050	<0.00050	0.00017	<0.00050	<0.00050	0.00059	<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	0.0014	
	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	0.0098	
	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	0.0088	
	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	0.0010	0.015	
	12/15/2014 DUP	<0.00050	0.0016	<0.00050	<0.00050	0.0045	<0.00050	<0.00050	0.016	<0.00050	0.00061	<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	0.0011	0.010	
	3/20/15 DUP	<0.00050	<0.00050	<0.00050	<0.00050	0.0010	<0.00050	<0.00050	0.0077	<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	0.0012	<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	0.00096	<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	0.00450	<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	0.00450	<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	0.00940	<0.00050	<0.00050	0.0017	0.002		
6/17/2016	<0.00050	<0.0020	<0.00050	<0.00050	0.0006	<0.00050	<0.00050	0.0109	<0.00050	0.00069	<0.00050	<0.00050	0.0021	0.0054		
6/17/16 DUP	<0.00050	<0.002	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.011	<0.00050	0.00062	<0.00050	<0.00050	0.002	0.0054		
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 (continued)	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
	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 ¹	<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	<0.0005	<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	0.031	<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
	3/8/2016	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0013	<0.00050	<0.00050	0.0064	<0.00050	<0.00050	<0.00050	<0.00050
	6/15/2016	<0.00050	<0.002	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0041	<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
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	0.0051	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
	3/8/2016	<0.0010	<0.0040	<0.0010	<0.0010	0.0041	<0.001	<0.0010	0.117	0.0038	<0.0010	0.164	0.0023	<0.0010	0.0946	0.0034
	6/17/2016	<0.00050	<0.0020	<0.00050	<0.00050	0.0018	<0.00050	0.00058	0.0607	0.0024	<0.00050	0.116	0.0017	<0.00050	0.0683	0.00089
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	0.0012	<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
	3/7/2016	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00098	<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 (continued)	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
	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
	3/8/2016	<0.0036	<0.0143	<0.0036	<0.0036	0.080	<0.0036	0.0154	1.38	0.0162	<0.0036	0.325	0.0077	<0.0036	0.209	0.0213
	3/8/16 DUP	<0.0036	<0.0143	<0.0036	<0.0036	0.082	<0.0036	0.0166	1.39	0.0156	<0.0036	0.336	0.0077	<0.0036	0.21	0.0212
6/16/2016	<0.0084	<0.0334	<0.0084	<0.0084	0.174	<0.0084	0.0299	3.31	0.0316	<0.0084	0.314	0.0128	<0.0084	0.288	0.0523	
6/16/16 DUP	<0.0084	<0.0334	<0.0084	<0.0084	0.192	<0.0084	0.0319	3.42	0.0374	<0.0084	0.367	0.0154	<0.0084	0.311	0.067	
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	0.00062	<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
	3/8/2016	<0.0025	<0.010	<0.0025	<0.0025	0.0143	<0.0025	0.0064	0.336	0.0046	<0.0025	0.839	0.0037	<0.0025	0.736	<0.0025
	6/16/2016	<0.0084	<0.0334	<0.0084	<0.0084	0.0413	<0.0084	0.0178	0.841	0.0192	<0.0084	2.47	0.0101	<0.0084	1.82	<0.0084
	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
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	<0.0500	<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	<0.0050	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.															
3/8/2016	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0042	<0.00050	<0.00050	0.0125	<0.00050	<0.00050	0.029	<0.00050	
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
3/8/2016	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00059	<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	<0.00050	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	0.01	<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	
3/8/2016	<0.00050	<0.0020	<0.00050	<0.00050	0.00083	<0.00050	<0.00050	0.0033	<0.00050	<0.00050	0.0094	<0.00050	<0.00050	0.0227	<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	0.0102	<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)														
		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	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
(continued)	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
	3/9/2016	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0016	<0.00050	<0.00050	0.001	<0.00050
	6/16/2016	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00098	<0.00050	<0.00050	0.00073	<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
	3/8/2016	<0.010	<0.040	<0.010	<0.010	0.0966	<0.010	0.042	1.52	0.0202	<0.010	4.08	0.0408	<0.010	2.61	0.0648
	3/8/16 DUP	<0.010	<0.040	<0.010	<0.010	0.093	<0.010	0.0428	1.46	0.0182	<0.010	3.76	0.0404	<0.010	2.56	0.0724
	6/16/2016	<0.010	<0.040	<0.010	<0.010	<0.010	<0.010	0.0222	0.507	<0.010	<0.010	3.25	0.0292	<0.010	1.03	0.0183
	6/16/2016 DUP	<0.0125	<0.050	<0.0125	<0.0125	0.0195	<0.0125	0.0238	0.505	<0.0125	<0.0125	3.46	0.0281	<0.0125	1.02	0.0176
	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
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
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
	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
	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
	09/19/13	<0.00050	<0.00050	<0.00050	<0.00050	0.00056	<0.00050	<0.00050	0.0068	<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
	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
	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
	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
	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
	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
	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
	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
	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
	3/8/2016	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0054	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	6/16/2016	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0032	<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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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

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.														
	3/8/2016	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0068	<0.00050	<0.00050	0.0034	<0.00050	<0.0050	0.0018	<0.00050
	6/16/2016	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0074	<0.00050	<0.00050	0.0021	<0.00050	<0.00050	0.0015	<0.00050
	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
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	<0.000500	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
	3/8/2016	<0.00050	<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
	6/16/2016	<0.00050	<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
	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
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
	3/9/2016	<0.00050	<0.0020	<0.00050	<0.00050	0.0021	<0.00050	<0.00050	0.0586	<0.00050	<0.00050	0.0142	<0.00050	<0.00050	0.0151	<0.00050
	6/16/2016	<0.00050	<0.0020	<0.00050	<0.00050	0.0023	<0.00050	0.0008	0.0678	<0.00050	<0.00050	0.0181	<0.00050	<0.00050	0.0171	<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
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	0.0011	<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-22i (continued)	9/26/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0088	<0.00050	<0.00050	0.0017	<0.00050	<0.00050	0.0098	<0.00050
	12/10/2014	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0092	<0.00050	<0.00050	0.0021	<0.00050	<0.00050	0.011	<0.00050
	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	0.0100	<0.00050	<0.00050	0.0021	<0.00050	<0.00050	0.012	<0.00050
	12/7/2015	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0080	<0.00050	<0.00050	0.0021	<0.00050	<0.00050	0.011	<0.00050
	3/9/2016	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.008	<0.00050	<0.00050	0.0022	<0.00050	<0.00050	0.012	<0.00050
	6/16/2016	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0065	<0.00050	<0.00050	0.001	<0.00050	<0.00050	0.0079	<0.00050
MW-23i	06/10/08	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
	06/10/08 DUP	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
	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
	03/25/09	<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
	06/16/09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00054	<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
	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
	03/17/10	<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
	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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	12/08/10	<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
	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	<0.0005	<0.0005
	09/13/11	<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
	12/06/11	<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
	03/07/12	<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
	06/19/12	<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
	09/11/12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00067	<0.00050	<0.00050	<0.00050	<0.00050
	12/12/12	<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
03/12/13	<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	
06/12/13	<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	
09/18/13	<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	
12/11/13	<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	
3/19/2014	<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	

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
	3/8/2016	<0.00050	<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
	6/16/2016	<0.00050	<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
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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0035	<0.0005	<0.0005	0.00630	<0.0005	<0.0005	0.00200	<0.0005
	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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.002	<0.0005	<0.0005	0.0066	<0.0005	<0.0005	0.0014	<0.0005
	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	<0.0005	<0.0005	<0.0005	<0.0005	0.002	<0.0005	<0.0005	0.01	<0.0005	<0.0005	0.0009	<0.0005	<0.0005	<0.0005	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	0.00060	<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	
3/8/2016	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0035	<0.00050	<0.00050	0.0041	<0.00050	<0.00050	0.0016	<0.00050	
6/17/2016	<0.00050	<0.0020	<0.00050	<0.00050	0.00099	<0.00050	<0.00050	0.0078	<0.00050	<0.00050	0.0115	<0.00050	<0.00050	0.0063	<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	<0.0005	<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
	09/14/12	<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
	3/8/2016	<0.0012	<0.005	<0.0012	<0.0012	0.008	<0.0012	0.0015	0.0761	0.0018	<0.0012	0.171	0.0037	<0.0012	0.37	<0.0012
	6/15/2016	<0.001	<0.004	<0.001	<0.001	0.0046	<0.001	0.0014	0.0831	0.0022	<0.001	0.192	0.0022	<0.001	0.343	<0.001
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
6/16/2016	<0.00050	<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	
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	
3/8/2016	<0.00050	<0.0020	0.002	<0.00050	<0.00050	<0.00050	<0.00050	0.0029	<0.00050	<0.00050	0.0626	0.00083	<0.00050	0.0143	<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	0.00234	<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
	3/9/2016	<0.00050	<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
6/16/2016	<0.00050	<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	
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	0.0017	<0.00050	<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	
6/16/2016	<0.00050	<0.0020	<0.00050	<0.00050	0.0043	<0.00050	<0.00050	0.006	<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	0.052	<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	
3/9/2016	<0.010	<0.040	<0.010	<0.010	0.094	<0.010	<0.010	1.7	0.0124	<0.010	0.0241	<0.010	<0.010	0.082	0.209	
6/17/2016	<0.0083	<0.0333	<0.0083	<0.0083	0.163	<0.0083	0.0266	3.13	0.0361	<0.0083	0.0646	<0.0083	<0.0083	0.248	0.288	

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	0.017	<0.00050	<0.00050	0.018	<0.00050	<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	
3/9/2016	<0.00050	<0.00050	<0.00050	<0.00050	0.0005	<0.00050	<0.00050	0.0175	<0.00050	<0.00050	0.0169	<0.00050	<0.00050	0.014	<0.00050	
6/17/2016	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0118	<0.00050	<0.00050	0.018	<0.00050	<0.00050	0.0111	<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	<0.0100	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 ⁷	<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	
3/9/2016	<0.00050	<0.0020	<0.00050	<0.00050	0.0206	<0.00050	0.0016	0.036	<0.00050	<0.00050	0.0065	<0.00050	<0.00050	0.0062	0.036	
6/17/2016	<0.00050	<0.0020	<0.00050	<0.00050	0.0249	<0.00050	0.0264	0.744	0.0028	<0.00050	0.223	0.0031	<0.00050	0.146	0.227	

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														
	6/17/2016	<0.00050	<0.0020	<0.00050	<0.00050	0.0011	<0.00050	<0.00050	0.0194	<0.00050	<0.00050	0.0172	<0.00050	<0.00050	0.0118	0.0034

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	<0.00050	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	<0.0010	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	<0.00050	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	<0.0010	0.028	<0.0010	--	0.0136	<0.0010	
	11/15/04	<0.00050	<0.00050	<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	<0.00050	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	<0.000500	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	<0.00100	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	<0.00050	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	<0.00250	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	<0.000500	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	<0.000500	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	<0.00050	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	<0.00050	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	<0.00050	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	
	3/9/2016	<0.00050	<0.0020	<0.00050	<0.00050	0.00073	<0.00050	<0.00050	0.0226	<0.00050	<0.00050	0.0071	<0.00050	<0.00050	0.008	0.01	
	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)														
		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
MGMS2-1(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	<0.00050	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
	3/9/2016	<0.00050	<0.00050	<0.00050	<0.00050	0.00086	<0.00050	<0.00050	0.0368	<0.00050	<0.00050	0.0079	<0.00069	<0.00050	0.0107	0.0124
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
	3/9/2016	<0.0025	<0.010	<0.0025	<0.0025	0.0116	<0.0025	<0.0025	0.61	0.004	<0.0025	0.0867	<0.0025	<0.0025	0.0897	0.0229
3/8/2016 DUP	<0.0025	<0.010	<0.0025	<0.0025	0.0124	<0.0025	<0.0025	0.643	0.0054	<0.0025	0.0974	<0.0025	<0.0025	0.102	0.028	
6/17/2016	<0.0012	<0.0050	<0.0012	<0.0012	0.0245	<0.0012	0.006	0.955	0.0091	<0.0012	0.232	<0.0012	<0.0012	0.2090	0.0859	
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
	3/9/2016	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0014	<0.00050	<0.00050	0.0028	<0.00050	<0.00050	0.00078	<0.00050
	6/17/2016	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0174	<0.00050	<0.00050	0.0058	<0.00050	<0.00050	0.005	<0.00050
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	
3/9/2016	<0.00050	<0.0020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0073	<0.00050	<0.00050	0.0075	<0.00050	<0.00050	0.0061	<0.00050	
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	
3/9/2016	<0.00050	<0.0020	<0.00050	<0.00050	0.001	<0.00050	0.00056	0.0144	<0.00050	<0.00050	0.0135	0.00056	<0.00050	0.0127	0.0008	

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
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
	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	0.0041	<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	0.0056	<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	0.02	<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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	3/8/2016	<0.0012	<0.0050	<0.0012	<0.0012	0.004	<0.0012	0.0029	1.16	0.0036	<0.0012	0.274	0.005	<0.0012	0.0711	0.0133
	6/17/2016	<0.0050	<0.02	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	1.04	<0.0050	<0.0050	0.592	<0.0050	<0.0050	0.0908	<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
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
	3/8/2016	<0.00084	<0.0033	<0.00084	<0.00084	0.0075	<0.00084	0.0021	0.148	0.0012	<0.00084	0.433	<0.00084	<0.00084	0.100	<0.00084
	6/17/2016	<0.00050	<0.0020	<0.00050	<0.00050	0.005	<0.00050	0.0015	0.125	0.00097	<0.00050	0.206	<0.00050	<0.00050	0.0673	<0.00050

Notes:

1. HVOCS = Halogenated volatile organic compounds analysis by U.S. Environmental Protection Agency (EPA) Method 8260B; results reported in micrograms per liter (µg/L).
2. 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).
3. -- = Not sampled or not analyzed.
4. < = Not detected at or above the specified laboratory method reporting limit (MRL).
5. B = Estimated concentration based on data quality review - similar detection in associated equipment blank (less than 5x difference).
6. J = Estimated concentration based on data quality review - similar detection in field blank (less than 5x difference).
7. 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.
8. ND = Not detected and no reporting limit specified.
9. 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.
10. 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 2016 groundwater sampling events and air samples collected during the January (occurring on February 1), February, March, April, May and June 2016 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.

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.

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.

Appendix C – Laboratory Analytical Reports and Data Quality Review

Several MS and MS duplicates (MSD) were analyzed during the batch analyses for both groundwater monitoring events. During the first quarter 2016 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 considered acceptable and no data were flagged.

The MS/MSD RPD's were within control limits.

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. One laboratory duplicate was out of control limits for methane. Because the RPD between the LCS and LCSD for the sample batch was within control limits, the data were considered acceptable and no data were flagged.

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, with the exception of one surrogate associated with samples MW-24i and MGMS2-40. Because only one of three surrogates was outside of recovery limits, and less than 2 percent above the recovery limit, no data were flagged.

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 2016 monitoring events.

Appendix C – Laboratory Analytical Reports and Data Quality Review

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 2016 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. No analytes were identified in the trip blanks collected during the first and second quarter 2016 monitoring events.

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
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-17132-1
Client Project/Site: NuStar Vancouver Interim Action

For:
Apex Companies LLC
3015 SW 1st Avenue
Portland, Oregon 97201

Attn: Stephanie Salisbury



Authorized for release by:
2/23/2016 3:54:27 PM

Sarah Murphy, Project Manager I
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LINKS

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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 Vancouver Interim Action

TestAmerica Job ID: 320-17132-1

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 Vancouver Interim Action

TestAmerica Job ID: 320-17132-1

Job ID: 320-17132-1

Laboratory: TestAmerica Sacramento

Narrative

Receipt

The samples were received on 2/3/2016 9:45 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 Vancouver Interim Action

TestAmerica Job ID: 320-17132-1

Client Sample ID: VCP_SOUTH_POSTCARBON_020116

Lab Sample ID: 320-17132-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.93		0.80		ppb v/v	1		TO-15	Total/NA
Chloromethane	1.0		0.80		ppb v/v	1		TO-15	Total/NA
Dichlorodifluoromethane	0.55		0.40		ppb v/v	1		TO-15	Total/NA
1,1-Dichloroethane	0.55		0.30		ppb v/v	1		TO-15	Total/NA
cis-1,2-Dichloroethene	40		0.40		ppb v/v	1		TO-15	Total/NA
trans-1,2-Dichloroethene	0.74		0.40		ppb v/v	1		TO-15	Total/NA
1,1,1-Trichloroethane	17		0.30		ppb v/v	1		TO-15	Total/NA
Trichloroethene	48		0.40		ppb v/v	1		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	2.7		2.4		ug/m3 Air	1		TO-15	Total/NA
Chloromethane	2.2		1.7		ug/m3 Air	1		TO-15	Total/NA
Dichlorodifluoromethane	2.7		2.0		ug/m3 Air	1		TO-15	Total/NA
1,1-Dichloroethane	2.2		1.2		ug/m3 Air	1		TO-15	Total/NA
cis-1,2-Dichloroethene	160		1.6		ug/m3 Air	1		TO-15	Total/NA
trans-1,2-Dichloroethene	2.9		1.6		ug/m3 Air	1		TO-15	Total/NA
1,1,1-Trichloroethane	92		1.6		ug/m3 Air	1		TO-15	Total/NA
Trichloroethene	260		2.1		ug/m3 Air	1		TO-15	Total/NA

Client Sample ID: VCP_SOUTH_PRE-CARBON_020116

Lab Sample ID: 320-17132-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	4.9		2.8		ppb v/v	7.07		TO-15	Total/NA
Tetrachloroethene	420		2.8		ppb v/v	7.07		TO-15	Total/NA
1,1,1-Trichloroethane	2.5		2.1		ppb v/v	7.07		TO-15	Total/NA
Trichloroethene	22		2.8		ppb v/v	7.07		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	20		11		ug/m3 Air	7.07		TO-15	Total/NA
Tetrachloroethene	2900		19		ug/m3 Air	7.07		TO-15	Total/NA
1,1,1-Trichloroethane	14		12		ug/m3 Air	7.07		TO-15	Total/NA
Trichloroethene	120		15		ug/m3 Air	7.07		TO-15	Total/NA

Client Sample ID: VCP_NORTH_EFFLUENT_020116

Lab Sample ID: 320-17132-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	1700		13		ppb v/v	32.1		TO-15	Total/NA
Trichloroethene	28		13		ppb v/v	32.1		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	11000		87		ug/m3 Air	32.1		TO-15	Total/NA
Trichloroethene	150		69		ug/m3 Air	32.1		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 Vancouver Interim Action

TestAmerica Job ID: 320-17132-1

Client Sample ID: VCP_SOUTH_POSTCARBON_020116

Lab Sample ID: 320-17132-1

Date Collected: 02/01/16 11:58

Matrix: Air

Date Received: 02/03/16 09:45

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			02/19/16 22:32	1
Benzene	ND		0.40		ppb v/v			02/19/16 22:32	1
Benzyl chloride	ND		0.80		ppb v/v			02/19/16 22:32	1
Bromodichloromethane	ND		0.30		ppb v/v			02/19/16 22:32	1
Bromoform	ND		0.40		ppb v/v			02/19/16 22:32	1
Bromomethane	ND		0.80		ppb v/v			02/19/16 22:32	1
2-Butanone (MEK)	0.93		0.80		ppb v/v			02/19/16 22:32	1
Carbon disulfide	ND		0.80		ppb v/v			02/19/16 22:32	1
Carbon tetrachloride	ND		0.80		ppb v/v			02/19/16 22:32	1
Chlorobenzene	ND		0.30		ppb v/v			02/19/16 22:32	1
Dibromochloromethane	ND		0.40		ppb v/v			02/19/16 22:32	1
Chloroethane	ND		0.80		ppb v/v			02/19/16 22:32	1
Chloroform	ND		0.30		ppb v/v			02/19/16 22:32	1
Chloromethane	1.0		0.80		ppb v/v			02/19/16 22:32	1
1,2-Dibromoethane (EDB)	ND		0.80		ppb v/v			02/19/16 22:32	1
1,2-Dichlorobenzene	ND		0.40		ppb v/v			02/19/16 22:32	1
1,3-Dichlorobenzene	ND		0.40		ppb v/v			02/19/16 22:32	1
1,4-Dichlorobenzene	ND		0.40		ppb v/v			02/19/16 22:32	1
Dichlorodifluoromethane	0.55		0.40		ppb v/v			02/19/16 22:32	1
1,1-Dichloroethane	0.55		0.30		ppb v/v			02/19/16 22:32	1
1,2-Dichloroethane	ND		0.80		ppb v/v			02/19/16 22:32	1
1,1-Dichloroethene	ND		0.80		ppb v/v			02/19/16 22:32	1
cis-1,2-Dichloroethene	40		0.40		ppb v/v			02/19/16 22:32	1
trans-1,2-Dichloroethene	0.74		0.40		ppb v/v			02/19/16 22:32	1
1,2-Dichloropropane	ND		0.40		ppb v/v			02/19/16 22:32	1
cis-1,3-Dichloropropene	ND		0.40		ppb v/v			02/19/16 22:32	1
trans-1,3-Dichloropropene	ND		0.40		ppb v/v			02/19/16 22:32	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40		ppb v/v			02/19/16 22:32	1
Ethylbenzene	ND		0.40		ppb v/v			02/19/16 22:32	1
4-Ethyltoluene	ND		0.40		ppb v/v			02/19/16 22:32	1
Hexachlorobutadiene	ND		2.0		ppb v/v			02/19/16 22:32	1
2-Hexanone	ND		0.40		ppb v/v			02/19/16 22:32	1
Methylene Chloride	ND		0.40		ppb v/v			02/19/16 22:32	1
4-Methyl-2-pentanone (MIBK)	ND		0.40		ppb v/v			02/19/16 22:32	1
Styrene	ND		0.40		ppb v/v			02/19/16 22:32	1
1,1,2,2-Tetrachloroethane	ND		0.40		ppb v/v			02/19/16 22:32	1
Tetrachloroethene	ND		0.40		ppb v/v			02/19/16 22:32	1
Toluene	ND		0.40		ppb v/v			02/19/16 22:32	1
1,2,4-Trichlorobenzene	ND		2.0		ppb v/v			02/19/16 22:32	1
1,1,1-Trichloroethane	17		0.30		ppb v/v			02/19/16 22:32	1
1,1,2-Trichloroethane	ND		0.40		ppb v/v			02/19/16 22:32	1
Trichloroethene	48		0.40		ppb v/v			02/19/16 22:32	1
Trichlorofluoromethane	ND		0.40		ppb v/v			02/19/16 22:32	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40		ppb v/v			02/19/16 22:32	1
1,2,4-Trimethylbenzene	ND		0.80		ppb v/v			02/19/16 22:32	1
1,3,5-Trimethylbenzene	ND		0.40		ppb v/v			02/19/16 22:32	1
Vinyl acetate	ND		0.80		ppb v/v			02/19/16 22:32	1
Vinyl chloride	ND		0.40		ppb v/v			02/19/16 22:32	1

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vancouver Interim Action

TestAmerica Job ID: 320-17132-1

Client Sample ID: VCP_SOUTH_POSTCARBON_020116

Lab Sample ID: 320-17132-1

Date Collected: 02/01/16 11:58

Matrix: Air

Date Received: 02/03/16 09:45

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			02/19/16 22:32	1
o-Xylene	ND		0.40		ppb v/v			02/19/16 22:32	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		12		ug/m3 Air			02/19/16 22:32	1
Benzene	ND		1.3		ug/m3 Air			02/19/16 22:32	1
Benzyl chloride	ND		4.1		ug/m3 Air			02/19/16 22:32	1
Bromodichloromethane	ND		2.0		ug/m3 Air			02/19/16 22:32	1
Bromoform	ND		4.1		ug/m3 Air			02/19/16 22:32	1
Bromomethane	ND		3.1		ug/m3 Air			02/19/16 22:32	1
2-Butanone (MEK)	2.7		2.4		ug/m3 Air			02/19/16 22:32	1
Carbon disulfide	ND		2.5		ug/m3 Air			02/19/16 22:32	1
Carbon tetrachloride	ND		5.0		ug/m3 Air			02/19/16 22:32	1
Chlorobenzene	ND		1.4		ug/m3 Air			02/19/16 22:32	1
Dibromochloromethane	ND		3.4		ug/m3 Air			02/19/16 22:32	1
Chloroethane	ND		2.1		ug/m3 Air			02/19/16 22:32	1
Chloroform	ND		1.5		ug/m3 Air			02/19/16 22:32	1
Chloromethane	2.2		1.7		ug/m3 Air			02/19/16 22:32	1
1,2-Dibromoethane (EDB)	ND		6.1		ug/m3 Air			02/19/16 22:32	1
1,2-Dichlorobenzene	ND		2.4		ug/m3 Air			02/19/16 22:32	1
1,3-Dichlorobenzene	ND		2.4		ug/m3 Air			02/19/16 22:32	1
1,4-Dichlorobenzene	ND		2.4		ug/m3 Air			02/19/16 22:32	1
Dichlorodifluoromethane	2.7		2.0		ug/m3 Air			02/19/16 22:32	1
1,1-Dichloroethane	2.2		1.2		ug/m3 Air			02/19/16 22:32	1
1,2-Dichloroethane	ND		3.2		ug/m3 Air			02/19/16 22:32	1
1,1-Dichloroethene	ND		3.2		ug/m3 Air			02/19/16 22:32	1
cis-1,2-Dichloroethene	160		1.6		ug/m3 Air			02/19/16 22:32	1
trans-1,2-Dichloroethene	2.9		1.6		ug/m3 Air			02/19/16 22:32	1
1,2-Dichloropropane	ND		1.8		ug/m3 Air			02/19/16 22:32	1
cis-1,3-Dichloropropene	ND		1.8		ug/m3 Air			02/19/16 22:32	1
trans-1,3-Dichloropropene	ND		1.8		ug/m3 Air			02/19/16 22:32	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.8		ug/m3 Air			02/19/16 22:32	1
Ethylbenzene	ND		1.7		ug/m3 Air			02/19/16 22:32	1
4-Ethyltoluene	ND		2.0		ug/m3 Air			02/19/16 22:32	1
Hexachlorobutadiene	ND		21		ug/m3 Air			02/19/16 22:32	1
2-Hexanone	ND		1.6		ug/m3 Air			02/19/16 22:32	1
Methylene Chloride	ND		1.4		ug/m3 Air			02/19/16 22:32	1
4-Methyl-2-pentanone (MIBK)	ND		1.6		ug/m3 Air			02/19/16 22:32	1
Styrene	ND		1.7		ug/m3 Air			02/19/16 22:32	1
1,1,2,2-Tetrachloroethane	ND		2.7		ug/m3 Air			02/19/16 22:32	1
Tetrachloroethene	ND		2.7		ug/m3 Air			02/19/16 22:32	1
Toluene	ND		1.5		ug/m3 Air			02/19/16 22:32	1
1,2,4-Trichlorobenzene	ND		15		ug/m3 Air			02/19/16 22:32	1
1,1,1-Trichloroethane	92		1.6		ug/m3 Air			02/19/16 22:32	1
1,1,2-Trichloroethane	ND		2.2		ug/m3 Air			02/19/16 22:32	1
Trichloroethene	260		2.1		ug/m3 Air			02/19/16 22:32	1
Trichlorofluoromethane	ND		2.2		ug/m3 Air			02/19/16 22:32	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.1		ug/m3 Air			02/19/16 22:32	1
1,2,4-Trimethylbenzene	ND		3.9		ug/m3 Air			02/19/16 22:32	1

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vancouver Interim Action

TestAmerica Job ID: 320-17132-1

Client Sample ID: VCP_SOUTH_POSTCARBON_020116

Lab Sample ID: 320-17132-1

Date Collected: 02/01/16 11:58

Matrix: Air

Date Received: 02/03/16 09:45

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			02/19/16 22:32	1
Vinyl acetate	ND		2.8		ug/m3 Air			02/19/16 22:32	1
Vinyl chloride	ND		1.0		ug/m3 Air			02/19/16 22:32	1
m,p-Xylene	ND		3.5		ug/m3 Air			02/19/16 22:32	1
o-Xylene	ND		1.7		ug/m3 Air			02/19/16 22:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		70 - 130		02/19/16 22:32	1
1,2-Dichloroethane-d4 (Surr)	101		70 - 130		02/19/16 22:32	1
Toluene-d8 (Surr)	100		70 - 130		02/19/16 22:32	1

Client Sample ID: VCP_SOUTH_PRE-CARBON_020116

Lab Sample ID: 320-17132-2

Date Collected: 02/01/16 12:01

Matrix: Air

Date Received: 02/03/16 09:45

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			02/19/16 23:21	7.07
Benzene	ND		2.8		ppb v/v			02/19/16 23:21	7.07
Benzyl chloride	ND		5.7		ppb v/v			02/19/16 23:21	7.07
Bromodichloromethane	ND		2.1		ppb v/v			02/19/16 23:21	7.07
Bromoform	ND		2.8		ppb v/v			02/19/16 23:21	7.07
Bromomethane	ND		5.7		ppb v/v			02/19/16 23:21	7.07
2-Butanone (MEK)	ND		5.7		ppb v/v			02/19/16 23:21	7.07
Carbon disulfide	ND		5.7		ppb v/v			02/19/16 23:21	7.07
Carbon tetrachloride	ND		5.7		ppb v/v			02/19/16 23:21	7.07
Chlorobenzene	ND		2.1		ppb v/v			02/19/16 23:21	7.07
Dibromochloromethane	ND		2.8		ppb v/v			02/19/16 23:21	7.07
Chloroethane	ND		5.7		ppb v/v			02/19/16 23:21	7.07
Chloroform	ND		2.1		ppb v/v			02/19/16 23:21	7.07
Chloromethane	ND		5.7		ppb v/v			02/19/16 23:21	7.07
1,2-Dibromoethane (EDB)	ND		5.7		ppb v/v			02/19/16 23:21	7.07
1,2-Dichlorobenzene	ND		2.8		ppb v/v			02/19/16 23:21	7.07
1,3-Dichlorobenzene	ND		2.8		ppb v/v			02/19/16 23:21	7.07
1,4-Dichlorobenzene	ND		2.8		ppb v/v			02/19/16 23:21	7.07
Dichlorodifluoromethane	ND		2.8		ppb v/v			02/19/16 23:21	7.07
1,1-Dichloroethane	ND		2.1		ppb v/v			02/19/16 23:21	7.07
1,2-Dichloroethane	ND		5.7		ppb v/v			02/19/16 23:21	7.07
1,1-Dichloroethene	ND		5.7		ppb v/v			02/19/16 23:21	7.07
cis-1,2-Dichloroethene	4.9		2.8		ppb v/v			02/19/16 23:21	7.07
trans-1,2-Dichloroethene	ND		2.8		ppb v/v			02/19/16 23:21	7.07
1,2-Dichloropropane	ND		2.8		ppb v/v			02/19/16 23:21	7.07
cis-1,3-Dichloropropene	ND		2.8		ppb v/v			02/19/16 23:21	7.07
trans-1,3-Dichloropropene	ND		2.8		ppb v/v			02/19/16 23:21	7.07
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.8		ppb v/v			02/19/16 23:21	7.07
Ethylbenzene	ND		2.8		ppb v/v			02/19/16 23:21	7.07
4-Ethyltoluene	ND		2.8		ppb v/v			02/19/16 23:21	7.07
Hexachlorobutadiene	ND		14		ppb v/v			02/19/16 23:21	7.07

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vancouver Interim Action

TestAmerica Job ID: 320-17132-1

Client Sample ID: VCP_SOUTH_PRE-CARBON_020116

Lab Sample ID: 320-17132-2

Date Collected: 02/01/16 12:01

Matrix: Air

Date Received: 02/03/16 09:45

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		2.8		ppb v/v			02/19/16 23:21	7.07
Methylene Chloride	ND		2.8		ppb v/v			02/19/16 23:21	7.07
4-Methyl-2-pentanone (MIBK)	ND		2.8		ppb v/v			02/19/16 23:21	7.07
Styrene	ND		2.8		ppb v/v			02/19/16 23:21	7.07
1,1,2,2-Tetrachloroethane	ND		2.8		ppb v/v			02/19/16 23:21	7.07
Tetrachloroethene	420		2.8		ppb v/v			02/19/16 23:21	7.07
Toluene	ND		2.8		ppb v/v			02/19/16 23:21	7.07
1,2,4-Trichlorobenzene	ND		14		ppb v/v			02/19/16 23:21	7.07
1,1,1-Trichloroethane	2.5		2.1		ppb v/v			02/19/16 23:21	7.07
1,1,2-Trichloroethane	ND		2.8		ppb v/v			02/19/16 23:21	7.07
Trichloroethene	22		2.8		ppb v/v			02/19/16 23:21	7.07
Trichlorofluoromethane	ND		2.8		ppb v/v			02/19/16 23:21	7.07
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.8		ppb v/v			02/19/16 23:21	7.07
1,2,4-Trimethylbenzene	ND		5.7		ppb v/v			02/19/16 23:21	7.07
1,3,5-Trimethylbenzene	ND		2.8		ppb v/v			02/19/16 23:21	7.07
Vinyl acetate	ND		5.7		ppb v/v			02/19/16 23:21	7.07
Vinyl chloride	ND		2.8		ppb v/v			02/19/16 23:21	7.07
m,p-Xylene	ND		5.7		ppb v/v			02/19/16 23:21	7.07
o-Xylene	ND		2.8		ppb v/v			02/19/16 23:21	7.07

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		84		ug/m3 Air			02/19/16 23:21	7.07
Benzene	ND		9.0		ug/m3 Air			02/19/16 23:21	7.07
Benzyl chloride	ND		29		ug/m3 Air			02/19/16 23:21	7.07
Bromodichloromethane	ND		14		ug/m3 Air			02/19/16 23:21	7.07
Bromoform	ND		29		ug/m3 Air			02/19/16 23:21	7.07
Bromomethane	ND		22		ug/m3 Air			02/19/16 23:21	7.07
2-Butanone (MEK)	ND		17		ug/m3 Air			02/19/16 23:21	7.07
Carbon disulfide	ND		18		ug/m3 Air			02/19/16 23:21	7.07
Carbon tetrachloride	ND		36		ug/m3 Air			02/19/16 23:21	7.07
Chlorobenzene	ND		9.8		ug/m3 Air			02/19/16 23:21	7.07
Dibromochloromethane	ND		24		ug/m3 Air			02/19/16 23:21	7.07
Chloroethane	ND		15		ug/m3 Air			02/19/16 23:21	7.07
Chloroform	ND		10		ug/m3 Air			02/19/16 23:21	7.07
Chloromethane	ND		12		ug/m3 Air			02/19/16 23:21	7.07
1,2-Dibromoethane (EDB)	ND		43		ug/m3 Air			02/19/16 23:21	7.07
1,2-Dichlorobenzene	ND		17		ug/m3 Air			02/19/16 23:21	7.07
1,3-Dichlorobenzene	ND		17		ug/m3 Air			02/19/16 23:21	7.07
1,4-Dichlorobenzene	ND		17		ug/m3 Air			02/19/16 23:21	7.07
Dichlorodifluoromethane	ND		14		ug/m3 Air			02/19/16 23:21	7.07
1,1-Dichloroethane	ND		8.6		ug/m3 Air			02/19/16 23:21	7.07
1,2-Dichloroethane	ND		23		ug/m3 Air			02/19/16 23:21	7.07
1,1-Dichloroethene	ND		22		ug/m3 Air			02/19/16 23:21	7.07
cis-1,2-Dichloroethene	20		11		ug/m3 Air			02/19/16 23:21	7.07
trans-1,2-Dichloroethene	ND		11		ug/m3 Air			02/19/16 23:21	7.07
1,2-Dichloropropane	ND		13		ug/m3 Air			02/19/16 23:21	7.07
cis-1,3-Dichloropropene	ND		13		ug/m3 Air			02/19/16 23:21	7.07
trans-1,3-Dichloropropene	ND		13		ug/m3 Air			02/19/16 23:21	7.07
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		20		ug/m3 Air			02/19/16 23:21	7.07

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vancouver Interim Action

TestAmerica Job ID: 320-17132-1

Client Sample ID: VCP_SOUTH_PRE-CARBON_020116

Lab Sample ID: 320-17132-2

Date Collected: 02/01/16 12:01

Matrix: Air

Date Received: 02/03/16 09:45

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		12		ug/m3 Air			02/19/16 23:21	7.07
4-Ethyltoluene	ND		14		ug/m3 Air			02/19/16 23:21	7.07
Hexachlorobutadiene	ND		150		ug/m3 Air			02/19/16 23:21	7.07
2-Hexanone	ND		12		ug/m3 Air			02/19/16 23:21	7.07
Methylene Chloride	ND		9.8		ug/m3 Air			02/19/16 23:21	7.07
4-Methyl-2-pentanone (MIBK)	ND		12		ug/m3 Air			02/19/16 23:21	7.07
Styrene	ND		12		ug/m3 Air			02/19/16 23:21	7.07
1,1,2,2-Tetrachloroethane	ND		19		ug/m3 Air			02/19/16 23:21	7.07
Tetrachloroethene	2900		19		ug/m3 Air			02/19/16 23:21	7.07
Toluene	ND		11		ug/m3 Air			02/19/16 23:21	7.07
1,2,4-Trichlorobenzene	ND		100		ug/m3 Air			02/19/16 23:21	7.07
1,1,1-Trichloroethane	14		12		ug/m3 Air			02/19/16 23:21	7.07
1,1,2-Trichloroethane	ND		15		ug/m3 Air			02/19/16 23:21	7.07
Trichloroethene	120		15		ug/m3 Air			02/19/16 23:21	7.07
Trichlorofluoromethane	ND		16		ug/m3 Air			02/19/16 23:21	7.07
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		22		ug/m3 Air			02/19/16 23:21	7.07
1,2,4-Trimethylbenzene	ND		28		ug/m3 Air			02/19/16 23:21	7.07
1,3,5-Trimethylbenzene	ND		14		ug/m3 Air			02/19/16 23:21	7.07
Vinyl acetate	ND		20		ug/m3 Air			02/19/16 23:21	7.07
Vinyl chloride	ND		7.2		ug/m3 Air			02/19/16 23:21	7.07
m,p-Xylene	ND		25		ug/m3 Air			02/19/16 23:21	7.07
o-Xylene	ND		12		ug/m3 Air			02/19/16 23:21	7.07
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		70 - 130					02/19/16 23:21	7.07
1,2-Dichloroethane-d4 (Surr)	101		70 - 130					02/19/16 23:21	7.07
Toluene-d8 (Surr)	101		70 - 130					02/19/16 23:21	7.07

Client Sample ID: VCP_NORTH_EFFLUENT_020116

Lab Sample ID: 320-17132-3

Date Collected: 02/01/16 12:25

Matrix: Air

Date Received: 02/03/16 09:45

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		160		ppb v/v			02/20/16 00:10	32.1
Benzene	ND		13		ppb v/v			02/20/16 00:10	32.1
Benzyl chloride	ND		26		ppb v/v			02/20/16 00:10	32.1
Bromodichloromethane	ND		9.6		ppb v/v			02/20/16 00:10	32.1
Bromoform	ND		13		ppb v/v			02/20/16 00:10	32.1
Bromomethane	ND		26		ppb v/v			02/20/16 00:10	32.1
2-Butanone (MEK)	ND		26		ppb v/v			02/20/16 00:10	32.1
Carbon disulfide	ND		26		ppb v/v			02/20/16 00:10	32.1
Carbon tetrachloride	ND		26		ppb v/v			02/20/16 00:10	32.1
Chlorobenzene	ND		9.6		ppb v/v			02/20/16 00:10	32.1
Dibromochloromethane	ND		13		ppb v/v			02/20/16 00:10	32.1
Chloroethane	ND		26		ppb v/v			02/20/16 00:10	32.1
Chloroform	ND		9.6		ppb v/v			02/20/16 00:10	32.1
Chloromethane	ND		26		ppb v/v			02/20/16 00:10	32.1

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vancouver Interim Action

TestAmerica Job ID: 320-17132-1

Client Sample ID: VCP_NORTH_EFFLUENT_020116

Lab Sample ID: 320-17132-3

Date Collected: 02/01/16 12:25

Matrix: Air

Date Received: 02/03/16 09:45

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		26		ppb v/v			02/20/16 00:10	32.1
1,2-Dichlorobenzene	ND		13		ppb v/v			02/20/16 00:10	32.1
1,3-Dichlorobenzene	ND		13		ppb v/v			02/20/16 00:10	32.1
1,4-Dichlorobenzene	ND		13		ppb v/v			02/20/16 00:10	32.1
Dichlorodifluoromethane	ND		13		ppb v/v			02/20/16 00:10	32.1
1,1-Dichloroethane	ND		9.6		ppb v/v			02/20/16 00:10	32.1
1,2-Dichloroethane	ND		26		ppb v/v			02/20/16 00:10	32.1
1,1-Dichloroethene	ND		26		ppb v/v			02/20/16 00:10	32.1
cis-1,2-Dichloroethene	ND		13		ppb v/v			02/20/16 00:10	32.1
trans-1,2-Dichloroethene	ND		13		ppb v/v			02/20/16 00:10	32.1
1,2-Dichloropropane	ND		13		ppb v/v			02/20/16 00:10	32.1
cis-1,3-Dichloropropene	ND		13		ppb v/v			02/20/16 00:10	32.1
trans-1,3-Dichloropropene	ND		13		ppb v/v			02/20/16 00:10	32.1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		13		ppb v/v			02/20/16 00:10	32.1
Ethylbenzene	ND		13		ppb v/v			02/20/16 00:10	32.1
4-Ethyltoluene	ND		13		ppb v/v			02/20/16 00:10	32.1
Hexachlorobutadiene	ND		64		ppb v/v			02/20/16 00:10	32.1
2-Hexanone	ND		13		ppb v/v			02/20/16 00:10	32.1
Methylene Chloride	ND		13		ppb v/v			02/20/16 00:10	32.1
4-Methyl-2-pentanone (MIBK)	ND		13		ppb v/v			02/20/16 00:10	32.1
Styrene	ND		13		ppb v/v			02/20/16 00:10	32.1
1,1,2,2-Tetrachloroethane	ND		13		ppb v/v			02/20/16 00:10	32.1
Tetrachloroethene	1700		13		ppb v/v			02/20/16 00:10	32.1
Toluene	ND		13		ppb v/v			02/20/16 00:10	32.1
1,2,4-Trichlorobenzene	ND		64		ppb v/v			02/20/16 00:10	32.1
1,1,1-Trichloroethane	ND		9.6		ppb v/v			02/20/16 00:10	32.1
1,1,2-Trichloroethane	ND		13		ppb v/v			02/20/16 00:10	32.1
Trichloroethene	28		13		ppb v/v			02/20/16 00:10	32.1
Trichlorofluoromethane	ND		13		ppb v/v			02/20/16 00:10	32.1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		13		ppb v/v			02/20/16 00:10	32.1
1,2,4-Trimethylbenzene	ND		26		ppb v/v			02/20/16 00:10	32.1
1,3,5-Trimethylbenzene	ND		13		ppb v/v			02/20/16 00:10	32.1
Vinyl acetate	ND		26		ppb v/v			02/20/16 00:10	32.1
Vinyl chloride	ND		13		ppb v/v			02/20/16 00:10	32.1
m,p-Xylene	ND		26		ppb v/v			02/20/16 00:10	32.1
o-Xylene	ND		13		ppb v/v			02/20/16 00:10	32.1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		380		ug/m3 Air			02/20/16 00:10	32.1
Benzene	ND		41		ug/m3 Air			02/20/16 00:10	32.1
Benzyl chloride	ND		130		ug/m3 Air			02/20/16 00:10	32.1
Bromodichloromethane	ND		65		ug/m3 Air			02/20/16 00:10	32.1
Bromoform	ND		130		ug/m3 Air			02/20/16 00:10	32.1
Bromomethane	ND		100		ug/m3 Air			02/20/16 00:10	32.1
2-Butanone (MEK)	ND		76		ug/m3 Air			02/20/16 00:10	32.1
Carbon disulfide	ND		80		ug/m3 Air			02/20/16 00:10	32.1
Carbon tetrachloride	ND		160		ug/m3 Air			02/20/16 00:10	32.1
Chlorobenzene	ND		44		ug/m3 Air			02/20/16 00:10	32.1
Dibromochloromethane	ND		110		ug/m3 Air			02/20/16 00:10	32.1

TestAmerica Sacramento

Client Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vancouver Interim Action

TestAmerica Job ID: 320-17132-1

Client Sample ID: VCP_NORTH_EFFLUENT_020116

Lab Sample ID: 320-17132-3

Date Collected: 02/01/16 12:25

Matrix: Air

Date Received: 02/03/16 09:45

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		68		ug/m3 Air			02/20/16 00:10	32.1
Chloroform	ND		47		ug/m3 Air			02/20/16 00:10	32.1
Chloromethane	ND		53		ug/m3 Air			02/20/16 00:10	32.1
1,2-Dibromoethane (EDB)	ND		200		ug/m3 Air			02/20/16 00:10	32.1
1,2-Dichlorobenzene	ND		77		ug/m3 Air			02/20/16 00:10	32.1
1,3-Dichlorobenzene	ND		77		ug/m3 Air			02/20/16 00:10	32.1
1,4-Dichlorobenzene	ND		77		ug/m3 Air			02/20/16 00:10	32.1
Dichlorodifluoromethane	ND		63		ug/m3 Air			02/20/16 00:10	32.1
1,1-Dichloroethane	ND		39		ug/m3 Air			02/20/16 00:10	32.1
1,2-Dichloroethane	ND		100		ug/m3 Air			02/20/16 00:10	32.1
1,1-Dichloroethene	ND		100		ug/m3 Air			02/20/16 00:10	32.1
cis-1,2-Dichloroethene	ND		51		ug/m3 Air			02/20/16 00:10	32.1
trans-1,2-Dichloroethene	ND		51		ug/m3 Air			02/20/16 00:10	32.1
1,2-Dichloropropane	ND		59		ug/m3 Air			02/20/16 00:10	32.1
cis-1,3-Dichloropropene	ND		58		ug/m3 Air			02/20/16 00:10	32.1
trans-1,3-Dichloropropene	ND		58		ug/m3 Air			02/20/16 00:10	32.1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		90		ug/m3 Air			02/20/16 00:10	32.1
Ethylbenzene	ND		56		ug/m3 Air			02/20/16 00:10	32.1
4-Ethyltoluene	ND		63		ug/m3 Air			02/20/16 00:10	32.1
Hexachlorobutadiene	ND		680		ug/m3 Air			02/20/16 00:10	32.1
2-Hexanone	ND		53		ug/m3 Air			02/20/16 00:10	32.1
Methylene Chloride	ND		45		ug/m3 Air			02/20/16 00:10	32.1
4-Methyl-2-pentanone (MIBK)	ND		53		ug/m3 Air			02/20/16 00:10	32.1
Styrene	ND		55		ug/m3 Air			02/20/16 00:10	32.1
1,1,2,2-Tetrachloroethane	ND		88		ug/m3 Air			02/20/16 00:10	32.1
Tetrachloroethene	11000		87		ug/m3 Air			02/20/16 00:10	32.1
Toluene	ND		48		ug/m3 Air			02/20/16 00:10	32.1
1,2,4-Trichlorobenzene	ND		480		ug/m3 Air			02/20/16 00:10	32.1
1,1,1-Trichloroethane	ND		53		ug/m3 Air			02/20/16 00:10	32.1
1,1,2-Trichloroethane	ND		70		ug/m3 Air			02/20/16 00:10	32.1
Trichloroethene	150		69		ug/m3 Air			02/20/16 00:10	32.1
Trichlorofluoromethane	ND		72		ug/m3 Air			02/20/16 00:10	32.1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		98		ug/m3 Air			02/20/16 00:10	32.1
1,2,4-Trimethylbenzene	ND		130		ug/m3 Air			02/20/16 00:10	32.1
1,3,5-Trimethylbenzene	ND		63		ug/m3 Air			02/20/16 00:10	32.1
Vinyl acetate	ND		90		ug/m3 Air			02/20/16 00:10	32.1
Vinyl chloride	ND		33		ug/m3 Air			02/20/16 00:10	32.1
m,p-Xylene	ND		110		ug/m3 Air			02/20/16 00:10	32.1
o-Xylene	ND		56		ug/m3 Air			02/20/16 00:10	32.1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		70 - 130		02/20/16 00:10	32.1
1,2-Dichloroethane-d4 (Surr)	100		70 - 130		02/20/16 00:10	32.1
Toluene-d8 (Surr)	100		70 - 130		02/20/16 00:10	32.1

TestAmerica Sacramento

Surrogate Summary

Client: Apex Companies LLC
Project/Site: NuStar Vancouver Interim Action

TestAmerica Job ID: 320-17132-1

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)
320-17132-1	VCP_SOUTH_POSTCARBON_	99	101	100
320-17132-2	VCP_SOUTH_PRE-CARBON_C 20116	99	101	101
320-17132-3	VCP_NORTH_EFFLUENT_020 16	96	100	100
LCS 320-100901/4	Lab Control Sample	110	99	102
LCSD 320-100901/16	Lab Control Sample Dup	107	98	101
MB 320-100901/7	Method Blank	99	101	101

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 Vancouver Interim Action

TestAmerica Job ID: 320-17132-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Lab Sample ID: MB 320-100901/7

Matrix: Air

Analysis Batch: 100901

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			02/19/16 21:36	1
Benzene	ND		0.40		ppb v/v			02/19/16 21:36	1
Benzyl chloride	ND		0.80		ppb v/v			02/19/16 21:36	1
Bromodichloromethane	ND		0.30		ppb v/v			02/19/16 21:36	1
Bromoform	ND		0.40		ppb v/v			02/19/16 21:36	1
Bromomethane	ND		0.80		ppb v/v			02/19/16 21:36	1
2-Butanone (MEK)	ND		0.80		ppb v/v			02/19/16 21:36	1
Carbon disulfide	ND		0.80		ppb v/v			02/19/16 21:36	1
Carbon tetrachloride	ND		0.80		ppb v/v			02/19/16 21:36	1
Chlorobenzene	ND		0.30		ppb v/v			02/19/16 21:36	1
Dibromochloromethane	ND		0.40		ppb v/v			02/19/16 21:36	1
Chloroethane	ND		0.80		ppb v/v			02/19/16 21:36	1
Chloroform	ND		0.30		ppb v/v			02/19/16 21:36	1
Chloromethane	ND		0.80		ppb v/v			02/19/16 21:36	1
1,2-Dibromoethane (EDB)	ND		0.80		ppb v/v			02/19/16 21:36	1
1,2-Dichlorobenzene	ND		0.40		ppb v/v			02/19/16 21:36	1
1,3-Dichlorobenzene	ND		0.40		ppb v/v			02/19/16 21:36	1
1,4-Dichlorobenzene	ND		0.40		ppb v/v			02/19/16 21:36	1
Dichlorodifluoromethane	ND		0.40		ppb v/v			02/19/16 21:36	1
1,1-Dichloroethane	ND		0.30		ppb v/v			02/19/16 21:36	1
1,2-Dichloroethane	ND		0.80		ppb v/v			02/19/16 21:36	1
1,1-Dichloroethene	ND		0.80		ppb v/v			02/19/16 21:36	1
cis-1,2-Dichloroethene	ND		0.40		ppb v/v			02/19/16 21:36	1
trans-1,2-Dichloroethene	ND		0.40		ppb v/v			02/19/16 21:36	1
1,2-Dichloropropane	ND		0.40		ppb v/v			02/19/16 21:36	1
cis-1,3-Dichloropropene	ND		0.40		ppb v/v			02/19/16 21:36	1
trans-1,3-Dichloropropene	ND		0.40		ppb v/v			02/19/16 21:36	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40		ppb v/v			02/19/16 21:36	1
Ethylbenzene	ND		0.40		ppb v/v			02/19/16 21:36	1
4-Ethyltoluene	ND		0.40		ppb v/v			02/19/16 21:36	1
Hexachlorobutadiene	ND		2.0		ppb v/v			02/19/16 21:36	1
2-Hexanone	ND		0.40		ppb v/v			02/19/16 21:36	1
Methylene Chloride	ND		0.40		ppb v/v			02/19/16 21:36	1
4-Methyl-2-pentanone (MIBK)	ND		0.40		ppb v/v			02/19/16 21:36	1
Styrene	ND		0.40		ppb v/v			02/19/16 21:36	1
1,1,2,2-Tetrachloroethane	ND		0.40		ppb v/v			02/19/16 21:36	1
Tetrachloroethene	ND		0.40		ppb v/v			02/19/16 21:36	1
Toluene	ND		0.40		ppb v/v			02/19/16 21:36	1
1,2,4-Trichlorobenzene	ND		2.0		ppb v/v			02/19/16 21:36	1
1,1,1-Trichloroethane	ND		0.30		ppb v/v			02/19/16 21:36	1
1,1,2-Trichloroethane	ND		0.40		ppb v/v			02/19/16 21:36	1
Trichloroethene	ND		0.40		ppb v/v			02/19/16 21:36	1
Trichlorofluoromethane	ND		0.40		ppb v/v			02/19/16 21:36	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40		ppb v/v			02/19/16 21:36	1
1,2,4-Trimethylbenzene	ND		0.80		ppb v/v			02/19/16 21:36	1
1,3,5-Trimethylbenzene	ND		0.40		ppb v/v			02/19/16 21:36	1
Vinyl acetate	ND		0.80		ppb v/v			02/19/16 21:36	1
Vinyl chloride	ND		0.40		ppb v/v			02/19/16 21:36	1

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vancouver Interim Action

TestAmerica Job ID: 320-17132-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-100901/7

Matrix: Air

Analysis Batch: 100901

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			02/19/16 21:36	1
o-Xylene	ND		0.40		ppb v/v			02/19/16 21:36	1
Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		12		ug/m3 Air			02/19/16 21:36	1
Benzene	ND		1.3		ug/m3 Air			02/19/16 21:36	1
Benzyl chloride	ND		4.1		ug/m3 Air			02/19/16 21:36	1
Bromodichloromethane	ND		2.0		ug/m3 Air			02/19/16 21:36	1
Bromoform	ND		4.1		ug/m3 Air			02/19/16 21:36	1
Bromomethane	ND		3.1		ug/m3 Air			02/19/16 21:36	1
2-Butanone (MEK)	ND		2.4		ug/m3 Air			02/19/16 21:36	1
Carbon disulfide	ND		2.5		ug/m3 Air			02/19/16 21:36	1
Carbon tetrachloride	ND		5.0		ug/m3 Air			02/19/16 21:36	1
Chlorobenzene	ND		1.4		ug/m3 Air			02/19/16 21:36	1
Dibromochloromethane	ND		3.4		ug/m3 Air			02/19/16 21:36	1
Chloroethane	ND		2.1		ug/m3 Air			02/19/16 21:36	1
Chloroform	ND		1.5		ug/m3 Air			02/19/16 21:36	1
Chloromethane	ND		1.7		ug/m3 Air			02/19/16 21:36	1
1,2-Dibromoethane (EDB)	ND		6.1		ug/m3 Air			02/19/16 21:36	1
1,2-Dichlorobenzene	ND		2.4		ug/m3 Air			02/19/16 21:36	1
1,3-Dichlorobenzene	ND		2.4		ug/m3 Air			02/19/16 21:36	1
1,4-Dichlorobenzene	ND		2.4		ug/m3 Air			02/19/16 21:36	1
Dichlorodifluoromethane	ND		2.0		ug/m3 Air			02/19/16 21:36	1
1,1-Dichloroethane	ND		1.2		ug/m3 Air			02/19/16 21:36	1
1,2-Dichloroethane	ND		3.2		ug/m3 Air			02/19/16 21:36	1
1,1-Dichloroethene	ND		3.2		ug/m3 Air			02/19/16 21:36	1
cis-1,2-Dichloroethene	ND		1.6		ug/m3 Air			02/19/16 21:36	1
trans-1,2-Dichloroethene	ND		1.6		ug/m3 Air			02/19/16 21:36	1
1,2-Dichloropropane	ND		1.8		ug/m3 Air			02/19/16 21:36	1
cis-1,3-Dichloropropene	ND		1.8		ug/m3 Air			02/19/16 21:36	1
trans-1,3-Dichloropropene	ND		1.8		ug/m3 Air			02/19/16 21:36	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.8		ug/m3 Air			02/19/16 21:36	1
Ethylbenzene	ND		1.7		ug/m3 Air			02/19/16 21:36	1
4-Ethyltoluene	ND		2.0		ug/m3 Air			02/19/16 21:36	1
Hexachlorobutadiene	ND		21		ug/m3 Air			02/19/16 21:36	1
2-Hexanone	ND		1.6		ug/m3 Air			02/19/16 21:36	1
Methylene Chloride	ND		1.4		ug/m3 Air			02/19/16 21:36	1
4-Methyl-2-pentanone (MIBK)	ND		1.6		ug/m3 Air			02/19/16 21:36	1
Styrene	ND		1.7		ug/m3 Air			02/19/16 21:36	1
1,1,2,2-Tetrachloroethane	ND		2.7		ug/m3 Air			02/19/16 21:36	1
Tetrachloroethene	ND		2.7		ug/m3 Air			02/19/16 21:36	1
Toluene	ND		1.5		ug/m3 Air			02/19/16 21:36	1
1,2,4-Trichlorobenzene	ND		15		ug/m3 Air			02/19/16 21:36	1
1,1,1-Trichloroethane	ND		1.6		ug/m3 Air			02/19/16 21:36	1
1,1,2-Trichloroethane	ND		2.2		ug/m3 Air			02/19/16 21:36	1
Trichloroethene	ND		2.1		ug/m3 Air			02/19/16 21:36	1
Trichlorofluoromethane	ND		2.2		ug/m3 Air			02/19/16 21:36	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.1		ug/m3 Air			02/19/16 21:36	1

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vancouver Interim Action

TestAmerica Job ID: 320-17132-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-100901/7

Matrix: Air

Analysis Batch: 100901

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			02/19/16 21:36	1
1,3,5-Trimethylbenzene	ND		2.0		ug/m3 Air			02/19/16 21:36	1
Vinyl acetate	ND		2.8		ug/m3 Air			02/19/16 21:36	1
Vinyl chloride	ND		1.0		ug/m3 Air			02/19/16 21:36	1
m,p-Xylene	ND		3.5		ug/m3 Air			02/19/16 21:36	1
o-Xylene	ND		1.7		ug/m3 Air			02/19/16 21:36	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		70 - 130		02/19/16 21:36	1
1,2-Dichloroethane-d4 (Surr)	101		70 - 130		02/19/16 21:36	1
Toluene-d8 (Surr)	101		70 - 130		02/19/16 21:36	1

Lab Sample ID: LCS 320-100901/4

Matrix: Air

Analysis Batch: 100901

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	19.3		ppb v/v		97	71 - 131
Benzene	20.0	19.0		ppb v/v		95	68 - 128
Benzyl chloride	20.0	21.0		ppb v/v		105	58 - 120
Bromodichloromethane	20.0	19.1		ppb v/v		96	65 - 130
Bromoform	20.0	21.0		ppb v/v		105	64 - 144
Bromomethane	20.0	19.9		ppb v/v		99	70 - 131
2-Butanone (MEK)	20.0	19.1		ppb v/v		95	71 - 131
Carbon disulfide	20.0	18.1		ppb v/v		91	63 - 123
Carbon tetrachloride	20.0	19.1		ppb v/v		95	67 - 127
Chlorobenzene	20.0	20.0		ppb v/v		100	70 - 132
Dibromochloromethane	20.0	20.1		ppb v/v		101	68 - 128
Chloroethane	20.0	19.5		ppb v/v		98	70 - 131
Chloroform	20.0	18.5		ppb v/v		92	69 - 129
Chloromethane	20.0	20.0		ppb v/v		100	67 - 127
1,2-Dibromoethane (EDB)	20.0	20.5		ppb v/v		102	68 - 131
1,2-Dichlorobenzene	20.0	24.6		ppb v/v		123	73 - 143
1,3-Dichlorobenzene	20.0	24.4		ppb v/v		122	77 - 136
1,4-Dichlorobenzene	20.0	25.1		ppb v/v		126	73 - 143
Dichlorodifluoromethane	20.0	18.9		ppb v/v		95	69 - 129
1,1-Dichloroethane	20.0	18.0		ppb v/v		90	65 - 125
1,2-Dichloroethane	20.0	19.2		ppb v/v		96	71 - 131
1,1-Dichloroethene	20.0	17.0		ppb v/v		85	53 - 128
cis-1,2-Dichloroethene	20.0	18.6		ppb v/v		93	68 - 128
trans-1,2-Dichloroethene	20.0	18.4		ppb v/v		92	70 - 130
1,2-Dichloropropane	20.0	19.9		ppb v/v		99	74 - 128
cis-1,3-Dichloropropene	20.0	21.2		ppb v/v		106	78 - 132
trans-1,3-Dichloropropene	20.0	18.6		ppb v/v		93	56 - 136
1,2-Dichloro-1,1,2,2-tetrafluoroethane	20.0	19.6		ppb v/v		98	64 - 124
Ethylbenzene	20.0	20.3		ppb v/v		101	76 - 136
4-Ethyltoluene	20.0	20.7		ppb v/v		104	62 - 136

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vancouver Interim Action

TestAmerica Job ID: 320-17132-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-100901/4

Matrix: Air

Analysis Batch: 100901

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	24.5		ppb v/v		122	42 - 150
2-Hexanone	20.0	19.6		ppb v/v		98	70 - 128
Methylene Chloride	20.0	17.0		ppb v/v		85	65 - 125
4-Methyl-2-pentanone (MIBK)	20.0	20.2		ppb v/v		101	73 - 133
Styrene	20.0	22.2		ppb v/v		111	76 - 144
1,1,2,2-Tetrachloroethane	20.0	21.8		ppb v/v		109	75 - 135
Tetrachloroethene	20.0	19.7		ppb v/v		98	56 - 138
Toluene	20.0	19.7		ppb v/v		99	71 - 132
1,2,4-Trichlorobenzene	20.0	26.7		ppb v/v		134	59 - 150
1,1,1-Trichloroethane	20.0	18.4		ppb v/v		92	65 - 124
1,1,2-Trichloroethane	20.0	20.4		ppb v/v		102	71 - 131
Trichloroethene	20.0	19.7		ppb v/v		99	64 - 127
Trichlorofluoromethane	20.0	19.2		ppb v/v		96	68 - 128
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	17.1		ppb v/v		86	50 - 132
1,2,4-Trimethylbenzene	20.0	23.1		ppb v/v		115	61 - 145
1,3,5-Trimethylbenzene	20.0	21.6		ppb v/v		108	65 - 136
Vinyl acetate	20.0	20.6		ppb v/v		103	77 - 134
Vinyl chloride	20.0	19.0		ppb v/v		95	69 - 129
m,p-Xylene	40.0	40.7		ppb v/v		102	75 - 138
o-Xylene	20.0	21.0		ppb v/v		105	77 - 132
Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	48	46.0		ug/m3 Air		97	71 - 131
Benzene	64	60.6		ug/m3 Air		95	68 - 128
Benzyl chloride	100	109		ug/m3 Air		105	58 - 120
Bromodichloromethane	130	128		ug/m3 Air		96	65 - 130
Bromoform	210	217		ug/m3 Air		105	64 - 144
Bromomethane	78	77.2		ug/m3 Air		99	70 - 131
2-Butanone (MEK)	59	56.3		ug/m3 Air		95	71 - 131
Carbon disulfide	62	56.5		ug/m3 Air		91	63 - 123
Carbon tetrachloride	130	120		ug/m3 Air		95	67 - 127
Chlorobenzene	92	92.0		ug/m3 Air		100	70 - 132
Dibromochloromethane	170	171		ug/m3 Air		101	68 - 128
Chloroethane	53	51.5		ug/m3 Air		98	70 - 131
Chloroform	98	90.1		ug/m3 Air		92	69 - 129
Chloromethane	41	41.4		ug/m3 Air		100	67 - 127
1,2-Dibromoethane (EDB)	150	158		ug/m3 Air		102	68 - 131
1,2-Dichlorobenzene	120	148		ug/m3 Air		123	73 - 143
1,3-Dichlorobenzene	120	147		ug/m3 Air		122	77 - 136
1,4-Dichlorobenzene	120	151		ug/m3 Air		126	73 - 143
Dichlorodifluoromethane	99	93.5		ug/m3 Air		95	69 - 129
1,1-Dichloroethane	81	72.9		ug/m3 Air		90	65 - 125
1,2-Dichloroethane	81	77.8		ug/m3 Air		96	71 - 131
1,1-Dichloroethene	79	67.5		ug/m3 Air		85	53 - 128
cis-1,2-Dichloroethene	79	73.9		ug/m3 Air		93	68 - 128
trans-1,2-Dichloroethene	79	72.8		ug/m3 Air		92	70 - 130
1,2-Dichloropropane	92	91.8		ug/m3 Air		99	74 - 128

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vancouver Interim Action

TestAmerica Job ID: 320-17132-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-100901/4

Matrix: Air

Analysis Batch: 100901

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	96.3		ug/m3 Air		106	78 - 132
trans-1,3-Dichloropropene	91	84.5		ug/m3 Air		93	56 - 136
1,2-Dichloro-1,1,2,2-tetrafluoroethane	140	137		ug/m3 Air		98	64 - 124
Ethylbenzene	87	88.1		ug/m3 Air		101	76 - 136
4-Ethyltoluene	98	102		ug/m3 Air		104	62 - 136
Hexachlorobutadiene	210	261		ug/m3 Air		122	42 - 150
2-Hexanone	82	80.4		ug/m3 Air		98	70 - 128
Methylene Chloride	69	59.0		ug/m3 Air		85	65 - 125
4-Methyl-2-pentanone (MIBK)	82	82.9		ug/m3 Air		101	73 - 133
Styrene	85	94.7		ug/m3 Air		111	76 - 144
1,1,2,2-Tetrachloroethane	140	150		ug/m3 Air		109	75 - 135
Tetrachloroethene	140	133		ug/m3 Air		98	56 - 138
Toluene	75	74.4		ug/m3 Air		99	71 - 132
1,2,4-Trichlorobenzene	150	198		ug/m3 Air		134	59 - 150
1,1,1-Trichloroethane	110	101		ug/m3 Air		92	65 - 124
1,1,2-Trichloroethane	110	111		ug/m3 Air		102	71 - 131
Trichloroethene	110	106		ug/m3 Air		99	64 - 127
Trichlorofluoromethane	110	108		ug/m3 Air		96	68 - 128
1,1,2-Trichloro-1,2,2-trifluoroethane	150	131		ug/m3 Air		86	50 - 132
1,2,4-Trimethylbenzene	98	113		ug/m3 Air		115	61 - 145
1,3,5-Trimethylbenzene	98	106		ug/m3 Air		108	65 - 136
Vinyl acetate	70	72.7		ug/m3 Air		103	77 - 134
Vinyl chloride	51	48.6		ug/m3 Air		95	69 - 129
m,p-Xylene	170	177		ug/m3 Air		102	75 - 138
o-Xylene	87	91.2		ug/m3 Air		105	77 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	110		70 - 130
1,2-Dichloroethane-d4 (Surr)	99		70 - 130
Toluene-d8 (Surr)	102		70 - 130

Lab Sample ID: LCSD 320-100901/16

Matrix: Air

Analysis Batch: 100901

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	19.9		ppb v/v		100	71 - 131	3	25
Benzene	20.0	19.2		ppb v/v		96	68 - 128	1	25
Benzyl chloride	20.0	21.0		ppb v/v		105	58 - 120	0	25
Bromodichloromethane	20.0	19.3		ppb v/v		97	65 - 130	1	25
Bromoform	20.0	21.1		ppb v/v		106	64 - 144	0	25
Bromomethane	20.0	20.5		ppb v/v		103	70 - 131	3	25
2-Butanone (MEK)	20.0	19.3		ppb v/v		96	71 - 131	1	25
Carbon disulfide	20.0	18.6		ppb v/v		93	63 - 123	3	25
Carbon tetrachloride	20.0	19.0		ppb v/v		95	67 - 127	0	25
Chlorobenzene	20.0	20.0		ppb v/v		100	70 - 132	0	25

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
 Project/Site: NuStar Vancouver Interim Action

TestAmerica Job ID: 320-17132-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-100901/16
Matrix: Air
Analysis Batch: 100901

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	20.0		ppb v/v		100	68 - 128	0	25
Chloroethane	20.0	20.2		ppb v/v		101	70 - 131	3	25
Chloroform	20.0	18.9		ppb v/v		95	69 - 129	2	25
Chloromethane	20.0	20.3		ppb v/v		102	67 - 127	1	25
1,2-Dibromoethane (EDB)	20.0	20.6		ppb v/v		103	68 - 131	0	25
1,2-Dichlorobenzene	20.0	24.6		ppb v/v		123	73 - 143	0	25
1,3-Dichlorobenzene	20.0	24.4		ppb v/v		122	77 - 136	0	25
1,4-Dichlorobenzene	20.0	25.0		ppb v/v		125	73 - 143	0	25
Dichlorodifluoromethane	20.0	20.1		ppb v/v		100	69 - 129	6	25
1,1-Dichloroethane	20.0	18.4		ppb v/v		92	65 - 125	2	25
1,2-Dichloroethane	20.0	19.4		ppb v/v		97	71 - 131	1	25
1,1-Dichloroethene	20.0	17.5		ppb v/v		87	53 - 128	2	25
cis-1,2-Dichloroethene	20.0	19.1		ppb v/v		95	68 - 128	2	25
trans-1,2-Dichloroethene	20.0	18.8		ppb v/v		94	70 - 130	2	25
1,2-Dichloropropane	20.0	19.9		ppb v/v		99	74 - 128	0	25
cis-1,3-Dichloropropene	20.0	21.1		ppb v/v		106	78 - 132	1	25
trans-1,3-Dichloropropene	20.0	18.6		ppb v/v		93	56 - 136	0	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	20.0	19.9		ppb v/v		99	64 - 124	1	25
Ethylbenzene	20.0	20.4		ppb v/v		102	76 - 136	1	25
4-Ethyltoluene	20.0	20.9		ppb v/v		104	62 - 136	1	25
Hexachlorobutadiene	20.0	24.5		ppb v/v		123	42 - 150	0	25
2-Hexanone	20.0	19.6		ppb v/v		98	70 - 128	0	25
Methylene Chloride	20.0	17.3		ppb v/v		87	65 - 125	2	25
4-Methyl-2-pentanone (MIBK)	20.0	20.2		ppb v/v		101	73 - 133	0	25
Styrene	20.0	22.2		ppb v/v		111	76 - 144	0	25
1,1,1,2-Tetrachloroethane	20.0	21.8		ppb v/v		109	75 - 135	0	25
Tetrachloroethene	20.0	19.7		ppb v/v		99	56 - 138	0	25
Toluene	20.0	19.8		ppb v/v		99	71 - 132	1	25
1,2,4-Trichlorobenzene	20.0	26.3		ppb v/v		131	59 - 150	2	25
1,1,1-Trichloroethane	20.0	18.9		ppb v/v		95	65 - 124	3	25
1,1,2-Trichloroethane	20.0	20.4		ppb v/v		102	71 - 131	0	25
Trichloroethene	20.0	19.7		ppb v/v		98	64 - 127	0	25
Trichlorofluoromethane	20.0	19.9		ppb v/v		100	68 - 128	4	25
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	17.7		ppb v/v		88	50 - 132	3	25
1,2,4-Trimethylbenzene	20.0	23.0		ppb v/v		115	61 - 145	1	25
1,3,5-Trimethylbenzene	20.0	21.5		ppb v/v		107	65 - 136	1	25
Vinyl acetate	20.0	21.0		ppb v/v		105	77 - 134	2	25
Vinyl chloride	20.0	20.1		ppb v/v		100	69 - 129	5	25
m,p-Xylene	40.0	41.1		ppb v/v		103	75 - 138	1	25
o-Xylene	20.0	21.0		ppb v/v		105	77 - 132	0	25
Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	48	47.3		ug/m3 Air		100	71 - 131	3	25
Benzene	64	61.3		ug/m3 Air		96	68 - 128	1	25
Benzyl chloride	100	109		ug/m3 Air		105	58 - 120	0	25
Bromodichloromethane	130	130		ug/m3 Air		97	65 - 130	1	25
Bromoform	210	218		ug/m3 Air		106	64 - 144	0	25

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vancouver Interim Action

TestAmerica Job ID: 320-17132-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-100901/16

Client Sample ID: Lab Control Sample Dup

Matrix: Air

Prep Type: Total/NA

Analysis Batch: 100901

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromomethane	78	79.7		ug/m3 Air		103	70 - 131	3	25
2-Butanone (MEK)	59	56.8		ug/m3 Air		96	71 - 131	1	25
Carbon disulfide	62	58.0		ug/m3 Air		93	63 - 123	3	25
Carbon tetrachloride	130	120		ug/m3 Air		95	67 - 127	0	25
Chlorobenzene	92	92.3		ug/m3 Air		100	70 - 132	0	25
Dibromochloromethane	170	171		ug/m3 Air		100	68 - 128	0	25
Chloroethane	53	53.3		ug/m3 Air		101	70 - 131	3	25
Chloroform	98	92.3		ug/m3 Air		95	69 - 129	2	25
Chloromethane	41	42.0		ug/m3 Air		102	67 - 127	1	25
1,2-Dibromoethane (EDB)	150	158		ug/m3 Air		103	68 - 131	0	25
1,2-Dichlorobenzene	120	148		ug/m3 Air		123	73 - 143	0	25
1,3-Dichlorobenzene	120	147		ug/m3 Air		122	77 - 136	0	25
1,4-Dichlorobenzene	120	151		ug/m3 Air		125	73 - 143	0	25
Dichlorodifluoromethane	99	99.4		ug/m3 Air		100	69 - 129	6	25
1,1-Dichloroethane	81	74.4		ug/m3 Air		92	65 - 125	2	25
1,2-Dichloroethane	81	78.6		ug/m3 Air		97	71 - 131	1	25
1,1-Dichloroethene	79	69.2		ug/m3 Air		87	53 - 128	2	25
cis-1,2-Dichloroethene	79	75.6		ug/m3 Air		95	68 - 128	2	25
trans-1,2-Dichloroethene	79	74.4		ug/m3 Air		94	70 - 130	2	25
1,2-Dichloropropane	92	91.9		ug/m3 Air		99	74 - 128	0	25
cis-1,3-Dichloropropene	91	95.8		ug/m3 Air		106	78 - 132	1	25
trans-1,3-Dichloropropene	91	84.3		ug/m3 Air		93	56 - 136	0	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	140	139		ug/m3 Air		99	64 - 124	1	25
Ethylbenzene	87	88.7		ug/m3 Air		102	76 - 136	1	25
4-Ethyltoluene	98	103		ug/m3 Air		104	62 - 136	1	25
Hexachlorobutadiene	210	261		ug/m3 Air		123	42 - 150	0	25
2-Hexanone	82	80.4		ug/m3 Air		98	70 - 128	0	25
Methylene Chloride	69	60.1		ug/m3 Air		87	65 - 125	2	25
4-Methyl-2-pentanone (MIBK)	82	82.6		ug/m3 Air		101	73 - 133	0	25
Styrene	85	94.7		ug/m3 Air		111	76 - 144	0	25
1,1,2,2-Tetrachloroethane	140	149		ug/m3 Air		109	75 - 135	0	25
Tetrachloroethene	140	134		ug/m3 Air		99	56 - 138	0	25
Toluene	75	74.8		ug/m3 Air		99	71 - 132	1	25
1,2,4-Trichlorobenzene	150	195		ug/m3 Air		131	59 - 150	2	25
1,1,1-Trichloroethane	110	103		ug/m3 Air		95	65 - 124	3	25
1,1,2-Trichloroethane	110	112		ug/m3 Air		102	71 - 131	0	25
Trichloroethene	110	106		ug/m3 Air		98	64 - 127	0	25
Trichlorofluoromethane	110	112		ug/m3 Air		100	68 - 128	4	25
1,1,2-Trichloro-1,2,2-trifluoroethane	150	135		ug/m3 Air		88	50 - 132	3	25
1,2,4-Trimethylbenzene	98	113		ug/m3 Air		115	61 - 145	1	25
1,3,5-Trimethylbenzene	98	105		ug/m3 Air		107	65 - 136	1	25
Vinyl acetate	70	74.1		ug/m3 Air		105	77 - 134	2	25
Vinyl chloride	51	51.4		ug/m3 Air		100	69 - 129	5	25
m,p-Xylene	170	178		ug/m3 Air		103	75 - 138	1	25
o-Xylene	87	91.1		ug/m3 Air		105	77 - 132	0	25

TestAmerica Sacramento

QC Sample Results

Client: Apex Companies LLC
Project/Site: NuStar Vancouver Interim Action

TestAmerica Job ID: 320-17132-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-100901/16

Matrix: Air

Analysis Batch: 100901

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)	98		70 - 130
Toluene-d8 (Surr)	101		70 - 130

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QC Association Summary

Client: Apex Companies LLC
Project/Site: NuStar Vancouver Interim Action

TestAmerica Job ID: 320-17132-1

Air - GC/MS VOA

Analysis Batch: 100901

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-17132-1	VCP_SOUTH_POSTCARBON_020116	Total/NA	Air	TO-15	
320-17132-2	VCP_SOUTH_PRE-CARBON_020116	Total/NA	Air	TO-15	
320-17132-3	VCP_NORTH_EFFLUENT_020116	Total/NA	Air	TO-15	
LCS 320-100901/4	Lab Control Sample	Total/NA	Air	TO-15	
LCSD 320-100901/16	Lab Control Sample Dup	Total/NA	Air	TO-15	
MB 320-100901/7	Method Blank	Total/NA	Air	TO-15	

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Lab Chronicle

Client: Apex Companies LLC
Project/Site: NuStar Vancouver Interim Action

TestAmerica Job ID: 320-17132-1

Client Sample ID: VCP_SOUTH_POSTCARBON_020116

Lab Sample ID: 320-17132-1

Date Collected: 02/01/16 11:58

Matrix: Air

Date Received: 02/03/16 09:45

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	537 mL	250 mL	100901	02/19/16 22:32	AP1	TAL SAC

Client Sample ID: VCP_SOUTH_PRE-CARBON_020116

Lab Sample ID: 320-17132-2

Date Collected: 02/01/16 12:01

Matrix: Air

Date Received: 02/03/16 09:45

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		7.07	90 mL	250 mL	100901	02/19/16 23:21	AP1	TAL SAC

Client Sample ID: VCP_NORTH_EFFLUENT_020116

Lab Sample ID: 320-17132-3

Date Collected: 02/01/16 12:25

Matrix: Air

Date Received: 02/03/16 09:45

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		32.1	15 mL	250 mL	100901	02/20/16 00:10	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 Vancouver Interim Action

TestAmerica Job ID: 320-17132-1

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	01-31-17
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	01-31-17
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	03-17-17
Kansas	NELAP	7	E-10375	05-31-16
Louisiana	NELAP	6	30612	06-30-16
Michigan	State Program	5	9947	01-31-18
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	01-29-17
Pennsylvania	NELAP	3	9947	03-31-16
Texas	NELAP	6	T104704399-15-9	05-31-16
US Fish & Wildlife	Federal		LE148388-0	10-31-16
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	12-31-16
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 Vancouver Interim Action

TestAmerica Job ID: 320-17132-1

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 Vancouver Interim Action

TestAmerica Job ID: 320-17132-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-17132-1	VCP_SOUTH_POSTCARBON_020116	Air	02/01/16 11:58	02/03/16 09:45
320-17132-2	VCP_SOUTH_PRE-CARBON_020116	Air	02/01/16 12:01	02/03/16 09:45
320-17132-3	VCP_NORTH_EFFLUENT_020116	Air	02/01/16 12:25	02/03/16 09:45

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TestAmerica Los Angeles
 3585 Cadillac, Suite A
 Costa Mesa, CA 92626
 Phone 714-258-8610 Fax 714-258-0921

Canister Samples Chain of Custody Record



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

Client Contact Information		Project Manager: Stephanie Salisbury		1 of 1 COCs																			
Company Apex Companies		Samples Collected By: Mike Stevens																					
Address: 3015 SW 1st Ave		Phone: 503-924-4704 x1925		EPA 3C																			
City/State/Zip: Portland, 97201		Email: SSalisbury@apexcos.com		EPA 25C																			
Phone: 503-924-4704 x 1925		Site Contact:		TO-14A																			
FAX: 503-924-4707		LAB Contact:		TO-15																			
Project Name: NuStar Vancouver Interim Action		Analysis Turnaround Time		Other (Please specify in notes section)																			
Site: NuStar Vancouver		Standard (Specify) X		ASTM D-1946																			
PO # 1126-20 Task 2		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 Controller ID																		
2/1/2016	1157	1158	-30	-7	34000827																		
2/1/2016	1200	1201	-30	-10	34001063																		
2/1/2016	1224	1225	-30	-5	34001576																		
<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">Pressure (inches of Hg)</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			Pressure (inches of Hg)			Start	Interior	Ambient	Stop		
Temperature (Fahrenheit)																							
Start	Interior	Ambient																					
Stop																							
Pressure (inches of Hg)																							
Start	Interior	Ambient																					
Stop																							
<p>Special Instructions/QC Requirements & Comments: Sample Type: Soil Vapor Extraction System Effluent</p>																							
Samples Shipped by: <i>[Signature]</i>		Date/Time: 2/2/16 / 1045		Samples Received by: <i>[Signature]</i>																			
Samples Relinquished by: <i>[Signature]</i>		Date/Time: 2/2/16 / 1500		Received by: <i>[Signature]</i>																			
Relinquished by: <i>[Signature]</i>		Date/Time:		Received by:																			
Lab Use Only		Shipper Name:		Condition:																			



JOB # **320-17132**
Sample # **1**

Client/Project:		VFR ID:	
Canister Serial #:	34000827	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)		10.65	02/08/16	KY
FINAL PRESSURE (PSIA)		22.91	02/08/16	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										
Canister DF =	2.15	X	Load DF =	0.4655493	X	Bag DF =	1	=	FINAL DF	1.001477518
			LVf (mLs)	250		BVf (mLs)				
			LVi (mLs)	537		BVi (mLs)				
Canister DF =	2.15	X	Load DF =	#DIV/0!	X	Bag DF =	1	=	FINAL DF	#DIV/0!
			LVf (mLs)			BVf (mLs)				
			LVi (mLs)			BVi (mLs)				
Canister DF =	2.15	X	Load DF =	#DIV/0!	X	Bag DF =	1	=	FINAL DF	#DIV/0!
			LVf (mLs)			BVf (mLs)				
			LVi (mLs)			BVi (mLs)				



JOB # **320-17132**
 Sample # **2**

Client/Project:		VFR ID:	
Canister Serial #:	34001063	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)		9.41	02/08/16	KY
FINAL PRESSURE (PSIA)		23.94	02/08/16	KY
Pressurization Gas: <input type="checkbox"/> N2 <input type="checkbox"/> He		SCREENED <input type="checkbox"/>	SCRN DIL. VS 250mLs:	
Initial Canister Dilution Factor =	2.54			

CANISTER REPRESSURIZATION					
Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
			2.54		#DIV/0!
			#DIV/0!		#DIV/0!
			#DIV/0!		#DIV/0!

Analytical Dilution Factors										
Canister DF =	2.54	X	Load DF =	2.777778	X	Bag DF =	1	=	FINAL DF	7.066950053
			LVf (mLs)	250		BVf (mLs)				
			LVi (mLs)	90		BVi (mLs)				
Canister DF =	2.54	X	Load DF =	#DIV/0!	X	Bag DF =	1	=	FINAL DF	#DIV/0!
			LVf (mLs)			BVf (mLs)				
			LVi (mLs)			BVi (mLs)				
Canister DF =	2.54	X	Load DF =	#DIV/0!	X	Bag DF =	1	=	FINAL DF	#DIV/0!
			LVf (mLs)			BVf (mLs)				
			LVi (mLs)			BVi (mLs)				



JOB # **320-17132**
 Sample # **3**

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Client/Project:		VFR ID:		
Canister Serial #:	34001576	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)	11.93	02/08/16	KY	
FINAL PRESSURE (PSIA)	22.99	02/08/16	KY	
Pressurization Gas: <input type="checkbox"/> N2 <input type="checkbox"/> He	SCREENED <input type="checkbox"/>	SCRN DIL. VS 250mLs:		
Initial Canister Dilution Factor =	1.93			

CANISTER REPRESSURIZATION					
Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
			1.93		#DIV/0!
			#DIV/0!		#DIV/0!
			#DIV/0!		#DIV/0!

Analytical Dilution Factors						
	Date	Instr.	File #			
Canister DF = 1.93	2/19/2016	ATMS2	FINAL DF	X	32.11791003	
Load DF = 5.5555556				X		
LVf (mLs) 250						
LVi (mLs) 45						
Bag DF = 3						
BVf (mLs) 3						
Bvi (mLs) 1						
Canister DF = 1.93				X	#DIV/0!	
Load DF = #DIV/0!				X		
LVf (mLs)						
LVi (mLs)						
Bag DF = 1						
BVf (mLs)						
Bvi (mLs)						
Canister DF = 1.93				X	#DIV/0!	
Load DF = #DIV/0!				X		
LVf (mLs)						
LVi (mLs)						
Bag DF = 1						
BVf (mLs)						
Bvi (mLs)						

Login Sample Receipt Checklist

Client: Apex Companies LLC

Job Number: 320-17132-1

Login Number: 17132
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 (excluding tests with immediate HTs)	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	





320-16483 Chain of Custody

Canister Batch Certification

Certification Type TO-15 Scan
Date Cleaned/Batch ID 12/15/15 320-16483
Date of QC C:\MSDCHEM\1\DATA\151229\
Data File Number MS7122918.d

CANISTER ID NUMBERS

* 34000827	↓	1561	
0270	↓	1662	
0059		8451	
0153		8036	
2113			
1274			
0457			
↓ 1462			

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.

Hosangha 12/30/15
1st level Reviewed By: Date:
[Signature] 1/2/16
2nd level Reviewed By: Date:



Certification Type TO-15 Scan
Date Cleaned/Batch ID 12/23/15 320-16602
Date of QC 12/24/15
Data File Number C:\MSDCHEM\DATA\151224\

MS7122418.d
CANISTER ID NUMBERS

<u>34001155 *</u>	<u>1240</u>	
<u>0202</u>	<u>1063</u>	
<u>2019</u>	<u>8448</u>	
<u>1042</u>	<u>7806</u>	
<u>0504</u>		
<u>1201</u>		
<u>1363</u>		
<u>1511</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:

12/29/15
Date:

[Signature]
2nd level Reviewed By:

12/30/15
Date:

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-16477-1
 SDG No.: _____
 Client Sample ID: 34001204 Lab Sample ID: 320-16477-1
 Matrix: Air Lab File ID: MS7121612.d
 Analysis Method: TO-15 Date Collected: 12/15/2015 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 12/16/2015 23:13
 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.: 95769 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.: 320-16477-1
 SDG No.: _____
 Client Sample ID: 34001204 Lab Sample ID: 320-16477-1
 Matrix: Air Lab File ID: MS7121612.d
 Analysis Method: TO-15 Date Collected: 12/15/2015 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 12/16/2015 23:13
 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.: 95769 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.: 320-16477-1
 SDG No.: _____
 Client Sample ID: 34001204 Lab Sample ID: 320-16477-1
 Matrix: Air Lab File ID: MS7121612.d
 Analysis Method: TO-15 Date Collected: 12/15/2015 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 12/16/2015 23:13
 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.: 95769 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)	84		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	115		70-130
2037-26-5	Toluene-d8 (Surr)	96		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS7\20151216-27193.b\MS7121612.d
 Lims ID: 320-16477-A-1 Lab Sample ID: 320-16477-1
 Client ID: 34001204
 Sample Type: Client
 Inject. Date: 16-Dec-2015 23:13:30 ALS Bottle#: 11 Worklist Smp#: 12
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 320-16477-A-1
 Misc. Info.: 500 mL CAN CERT
 Operator ID: LHS Instrument ID: ATMS7
 Method: \\ChromNA\Sacramento\ChromData\ATMS7\20151216-27193.b\TO15_ATMS7N.m
 Limit Group: MSA - TO15 - ICAL
 Last Update: 17-Dec-2015 16:50:09 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: XAWRK009

First Level Reviewer: phanthasena Date: 17-Dec-2015 15:42:21

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	12.348	12.372	-0.024	94	37096	4.00	
* 2 1,4-Difluorobenzene	114	14.501	14.519	-0.018	96	165196	4.00	
* 3 Chlorobenzene-d5 (IS)	117	21.187	21.199	-0.012	91	166514	4.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	13.552	13.570	-0.018	97	66747	4.60	
\$ 5 Toluene-d8 (Surr)	100	17.914	17.926	-0.012	97	114456	3.86	
\$ 6 4-Bromofluorobenzene (Surr	95	23.730	23.742	-0.012	90	95916	3.38	
11 Propene	41	3.861	3.873	-0.012	61	334	0.0345	
32 Acetone	43	7.469	7.390	0.079	96	3840	0.1621	

Reagents:

VASUISIM_00248 Amount Added: 50.00 Units: mL Run Reagent

Data File: \\ChromNA\Sacramento\ChromData\ATMS7\20151216-27193.b\MS7121612.d

Injection Date: 16-Dec-2015 23:13:30

Instrument ID: ATMS7

Operator ID: LHS

Lims ID: 320-16477-A-1

Lab Sample ID: 320-16477-1

Worklist Smp#: 12

Client ID: 34001204

Purge Vol: 5.000 mL

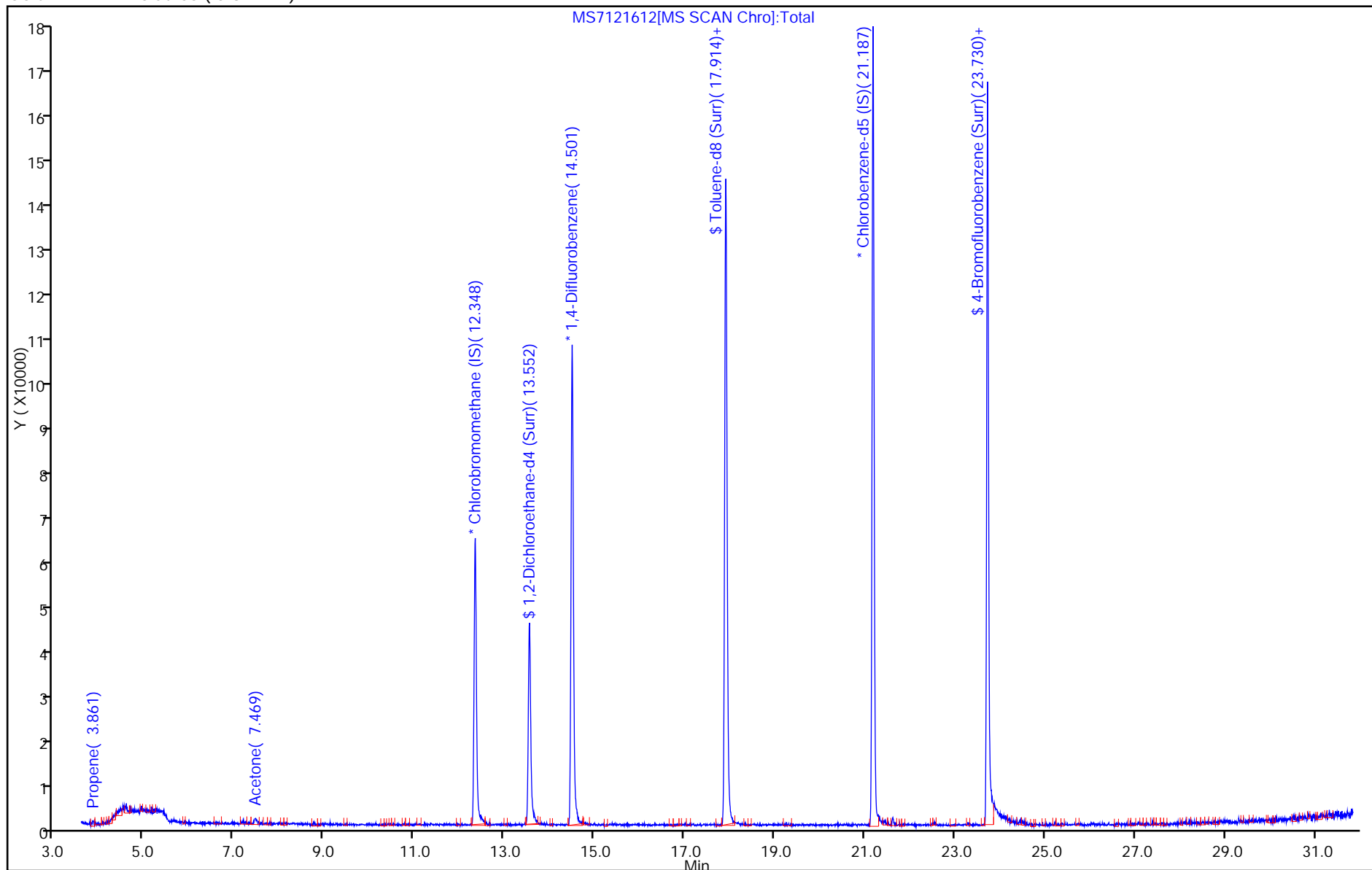
Dil. Factor: 1.0000

ALS Bottle#: 11

Method: TO15_ATMS7N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-16483-1
 SDG No.: _____
 Client Sample ID: 34000827 Lab Sample ID: 320-16483-1
 Matrix: Air Lab File ID: MS7122918.d
 Analysis Method: TO-15 Date Collected: 12/15/2015 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 12/30/2015 00:44
 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.: 96798 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
67-64-1	Acetone	1.1	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	0.20	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	0.38	J	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.: 320-16483-1
 SDG No.: _____
 Client Sample ID: 34000827 Lab Sample ID: 320-16483-1
 Matrix: Air Lab File ID: MS7122918.d
 Analysis Method: TO-15 Date Collected: 12/15/2015 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 12/30/2015 00:44
 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.: 96798 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	0.14	J	0.40	0.099
103-65-1	N-Propylbenzene	ND		0.40	0.059
100-42-5	Styrene	0.063	J	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.: 320-16483-1
 SDG No.: _____
 Client Sample ID: 34000827 Lab Sample ID: 320-16483-1
 Matrix: Air Lab File ID: MS7122918.d
 Analysis Method: TO-15 Date Collected: 12/15/2015 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 12/30/2015 00:44
 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.: 96798 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)	84		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	109		70-130
2037-26-5	Toluene-d8 (Surr)	91		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS7\20151229-27461.b\MS7122918.d
 Lims ID: 320-16483-A-1 Lab Sample ID: 320-16483-1
 Client ID: 34000827
 Sample Type: Client
 Inject. Date: 30-Dec-2015 00:44:30 ALS Bottle#: 2 Worklist Smp#: 18
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 320-16483-A-1
 Misc. Info.: 500 mL CAN CERT
 Operator ID: LHS Instrument ID: ATMS7
 Method: \\ChromNA\Sacramento\ChromData\ATMS7\20151229-27461.b\TO15_ATMS7N.m
 Limit Group: MSA - TO15 - ICAL
 Last Update: 30-Dec-2015 16:31:52 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: XAWRK035

First Level Reviewer: phanthasena

Date: 30-Dec-2015 16:31:52

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	12.348	12.354	-0.006	96	42221	4.00	
* 2 1,4-Difluorobenzene	114	14.495	14.507	-0.012	96	190318	4.00	
* 3 Chlorobenzene-d5 (IS)	117	21.181	21.187	-0.006	90	188228	4.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	13.546	13.552	-0.006	98	73170	4.38	
\$ 5 Toluene-d8 (Surr)	100	17.908	17.914	-0.006	96	124669	3.65	
\$ 6 4-Bromofluorobenzene (Surr	95	23.724	23.730	-0.006	92	107424	3.35	
11 Propene	41	3.867	3.867	0.000	80	1532	0.1390	
16 Chloromethane	50	4.403	4.396	0.007	98	3973	0.3781	
32 Acetone	43	7.420	7.383	0.037	99	29982	1.11	
39 Methylene Chloride	49	8.777	8.770	0.007	64	1424	0.0715	
40 Carbon disulfide	76	8.819	8.825	-0.006	93	5955	0.2029	
87 m-Xylene & p-Xylene	91	21.607	21.607	-0.012	11	2297	0.0412	
89 Styrene	104	22.550	22.550	0.000	87	2540	0.0631	

Reagents:

VASUISIM_00248

Amount Added: 50.00

Units: mL

Run Reagent

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS7\20151229-27461.b\MS7122918.d

Injection Date: 30-Dec-2015 00:44:30

Instrument ID: ATMS7

Operator ID: LHS

Lims ID: 320-16483-A-1

Lab Sample ID: 320-16483-1

Worklist Smp#: 18

Client ID: 34000827

Purge Vol: 5.000 mL

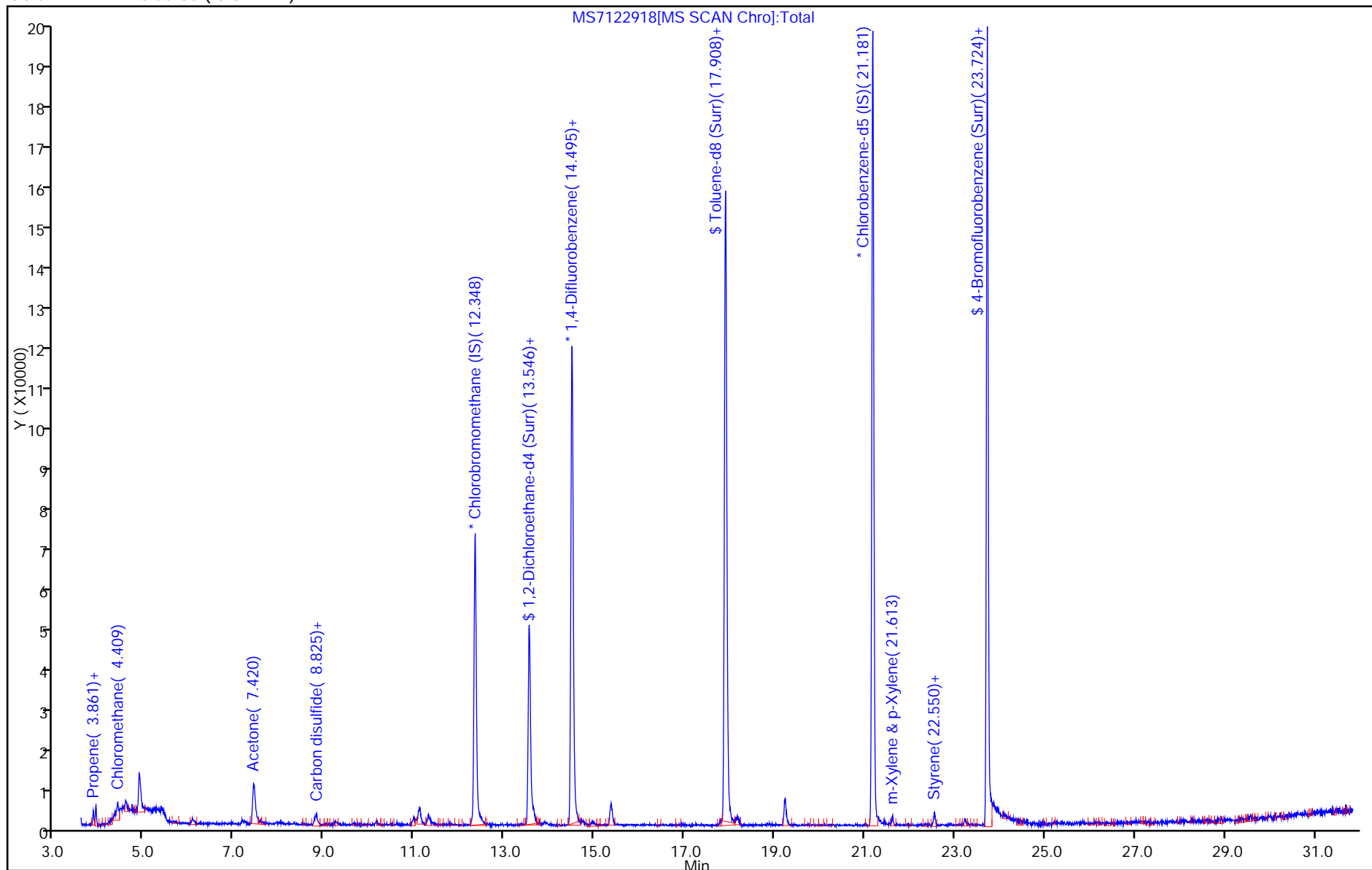
Dil. Factor: 1.0000

ALS Bottle#: 2

Method: TO15_ATMS7N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS7\20151229-27461.b\MS7122918.d

Injection Date: 30-Dec-2015 00:44:30

Instrument ID: ATMS7

Lims ID: 320-16483-A-1

Lab Sample ID: 320-16483-1

Client ID: 34000827

Operator ID: LHS

ALS Bottle#: 2

Worklist Smp#: 18

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

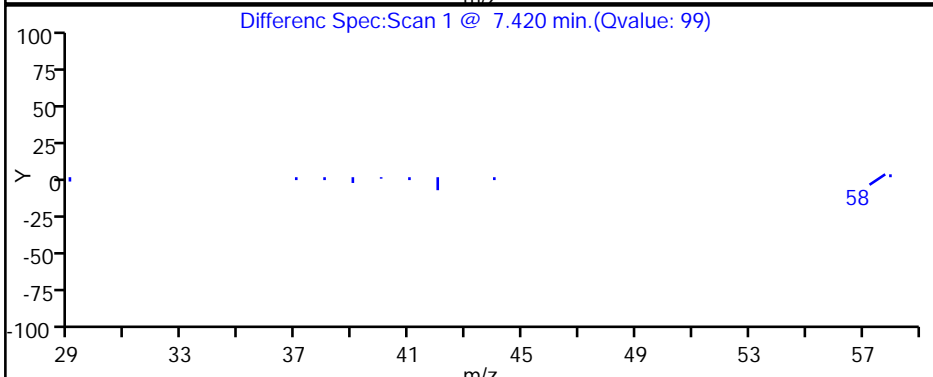
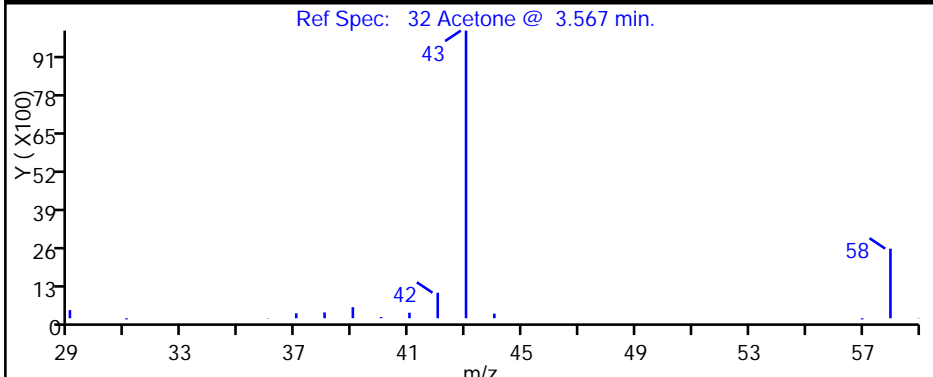
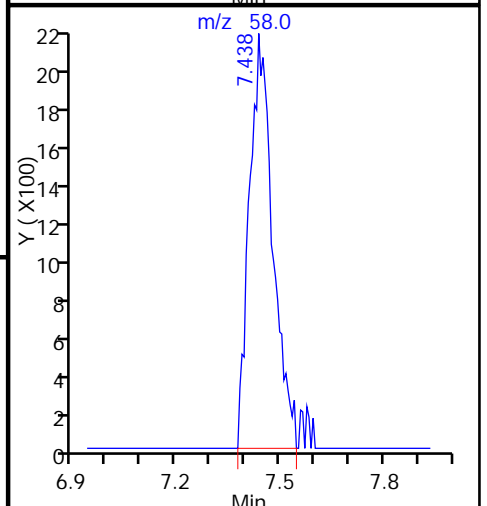
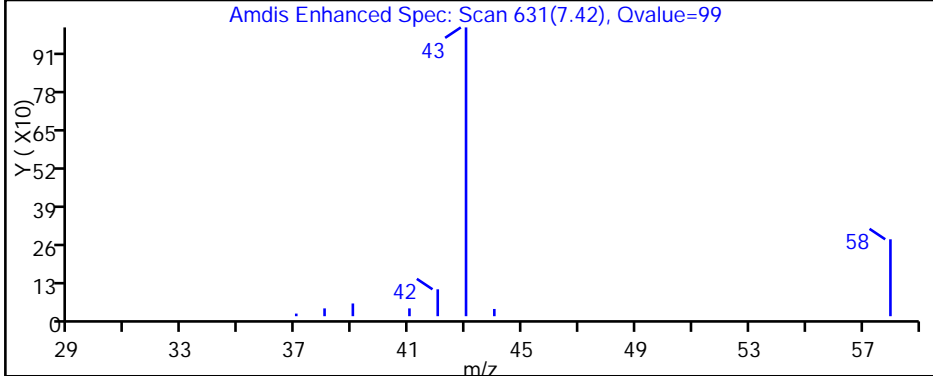
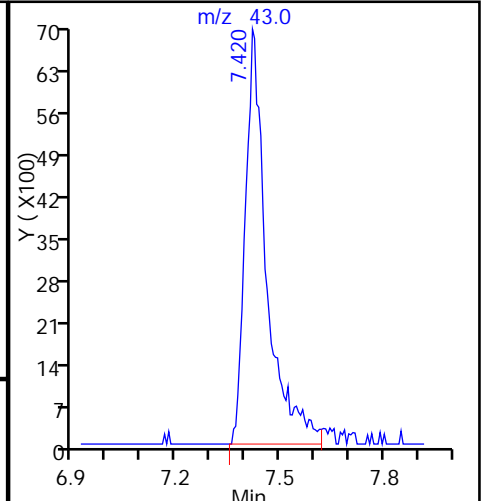
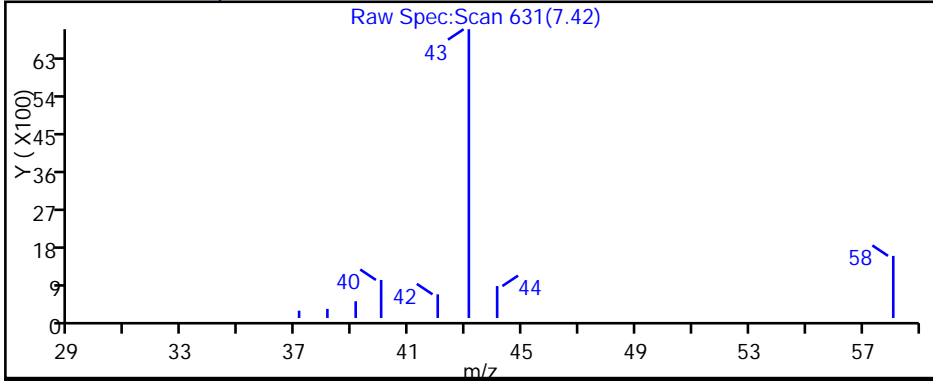
Method: TO15_ATMS7N

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\20151229-27461.b\MS7122918.d

Injection Date: 30-Dec-2015 00:44:30

Instrument ID: ATMS7

Lims ID: 320-16483-A-1

Lab Sample ID: 320-16483-1

Client ID: 34000827

Operator ID: LHS

ALS Bottle#: 2 Worklist Smp#: 18

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

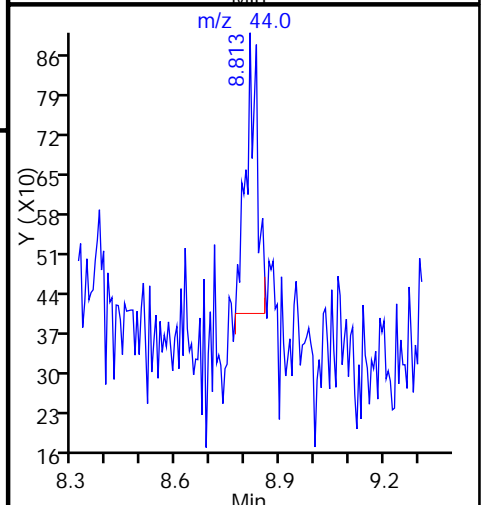
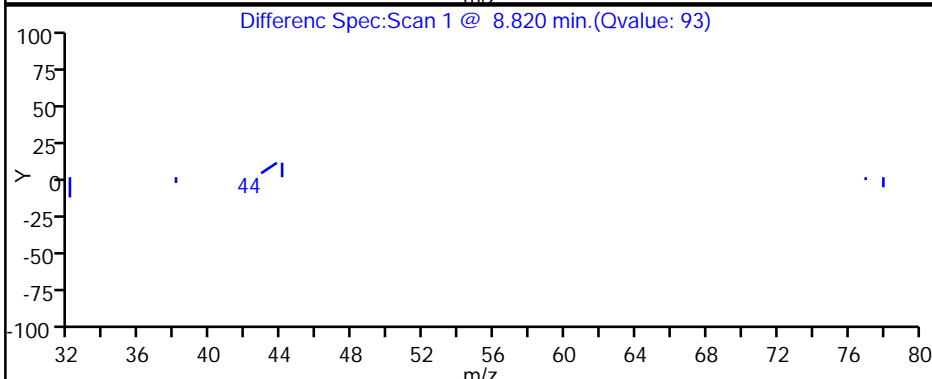
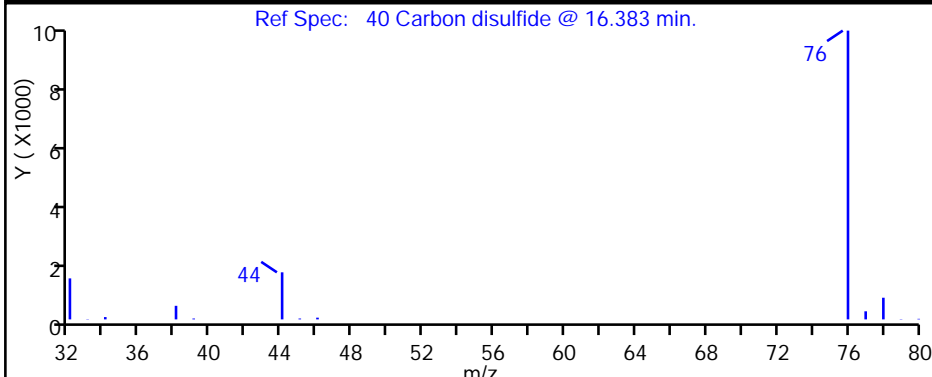
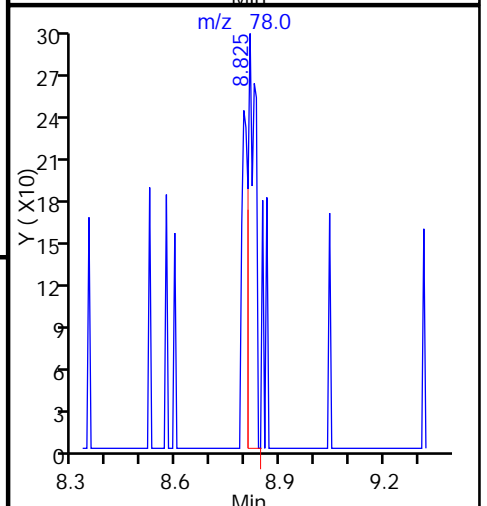
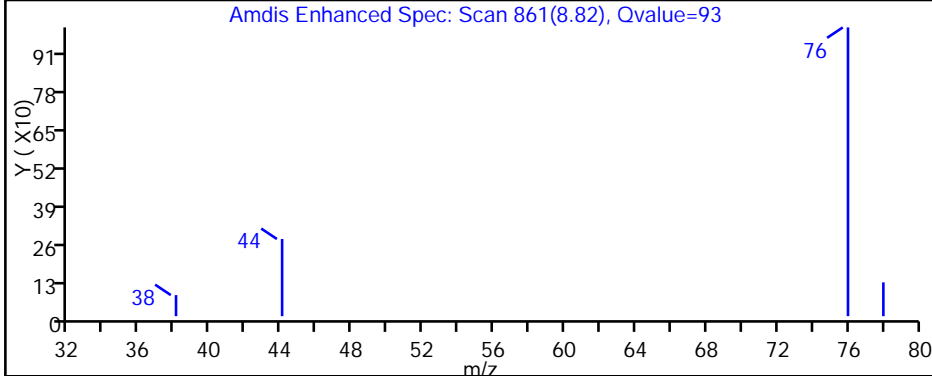
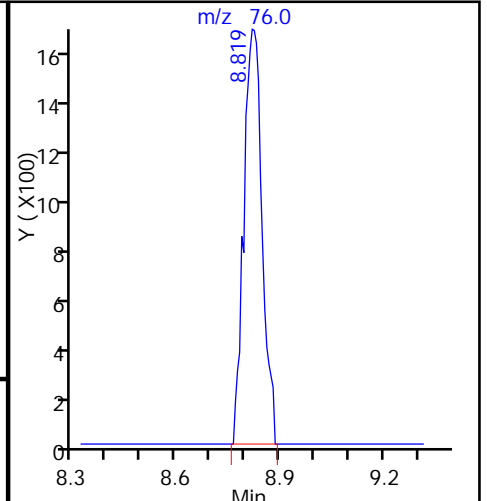
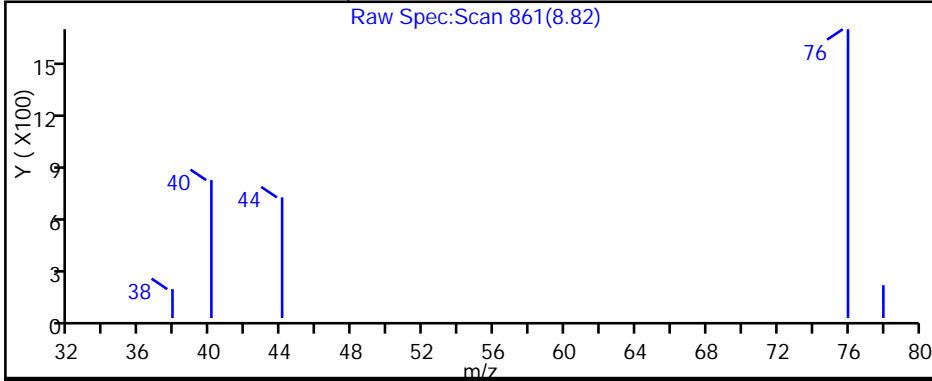
Method: TO15_ATMS7N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Detector: MS SCAN

40 Carbon disulfide, CAS: 75-15-0



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS7\20151229-27461.b\MS7122918.d

Injection Date: 30-Dec-2015 00:44:30

Instrument ID: ATMS7

Lims ID: 320-16483-A-1

Lab Sample ID: 320-16483-1

Client ID: 34000827

Operator ID: LHS

ALS Bottle#: 2 Worklist Smp#: 18

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

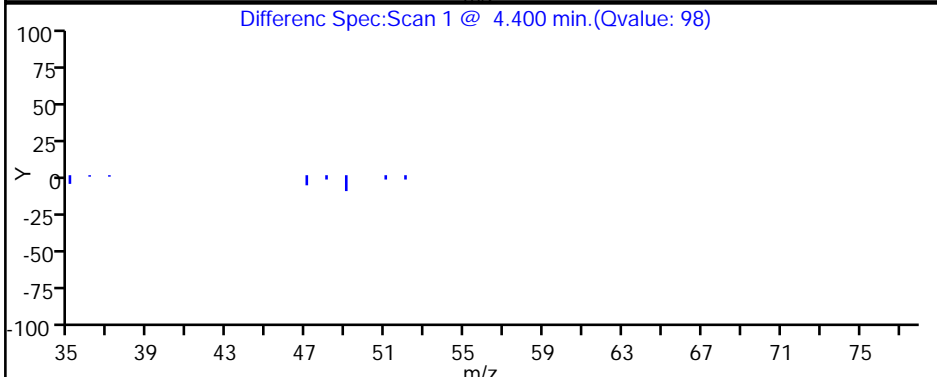
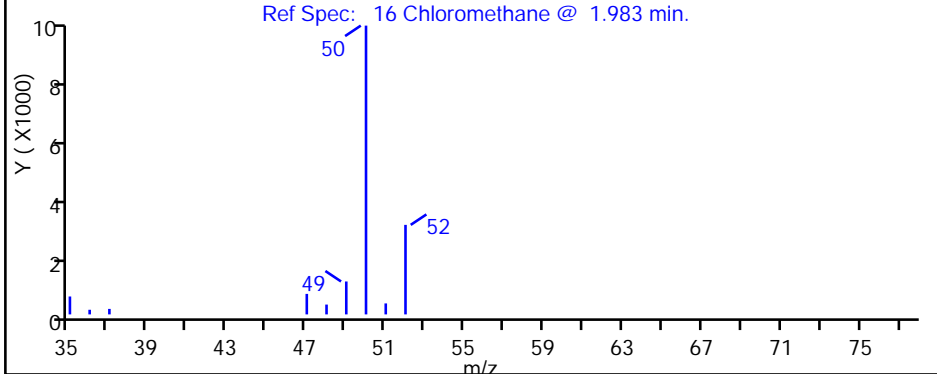
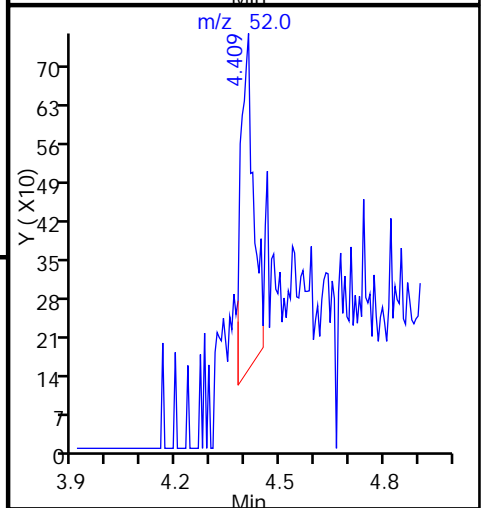
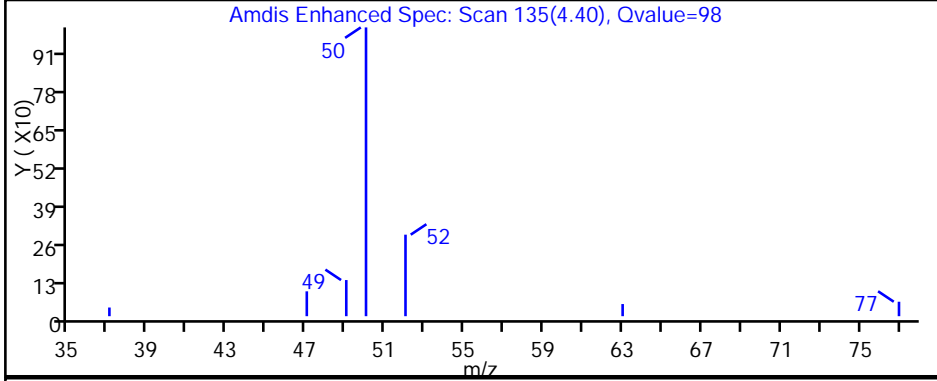
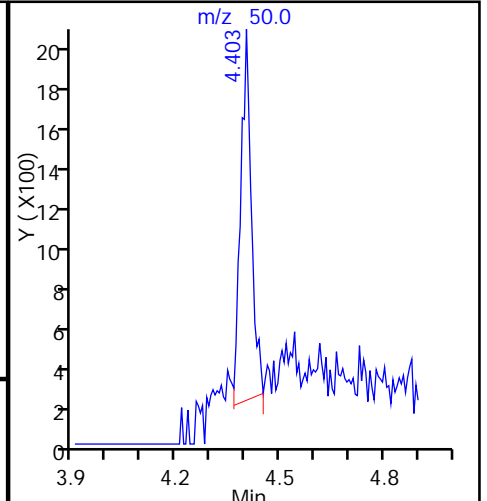
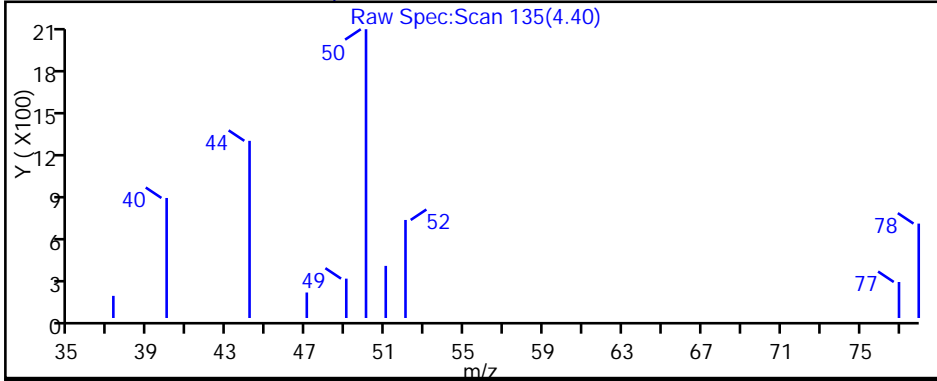
Method: TO15_ATMS7N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Detector: MS SCAN

16 Chloromethane, CAS: 74-87-3



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS7\20151229-27461.b\MS7122918.d

Injection Date: 30-Dec-2015 00:44:30

Instrument ID: ATMS7

Lims ID: 320-16483-A-1

Lab Sample ID: 320-16483-1

Client ID: 34000827

Operator ID: LHS

ALS Bottle#: 2 Worklist Smp#: 18

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

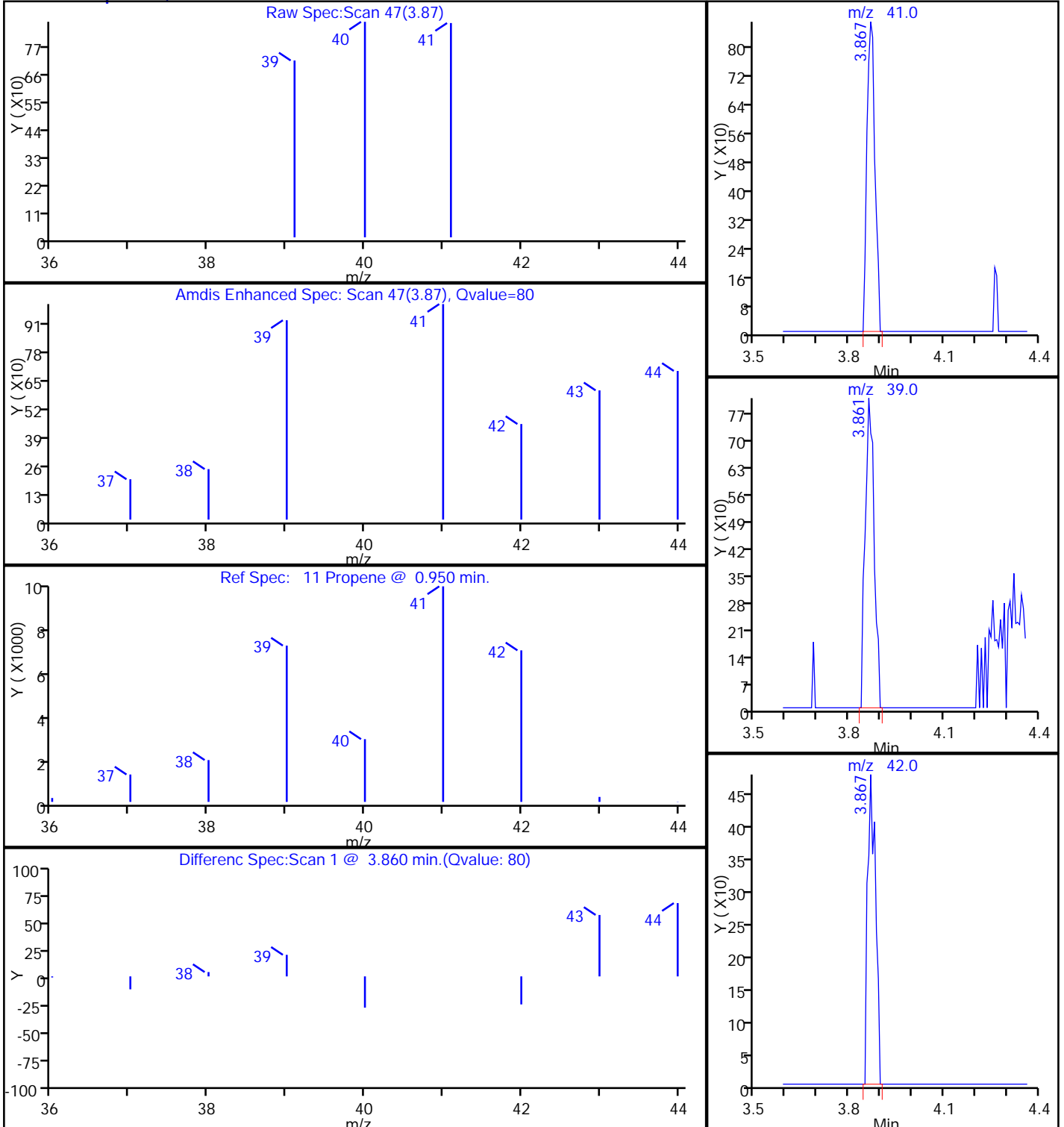
Method: TO15_ATMS7N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Detector: MS SCAN

11 Propene, CAS: 115-07-1



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS7\20151229-27461.b\MS7122918.d

Injection Date: 30-Dec-2015 00:44:30

Instrument ID: ATMS7

Lims ID: 320-16483-A-1

Lab Sample ID: 320-16483-1

Client ID: 34000827

Operator ID: LHS

ALS Bottle#: 2 Worklist Smp#: 18

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

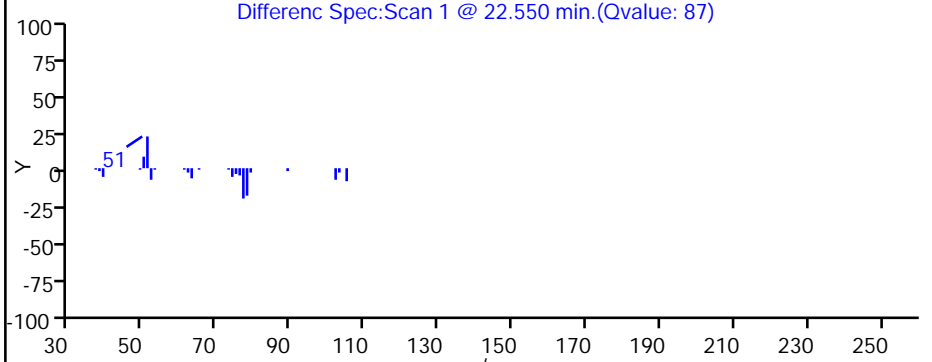
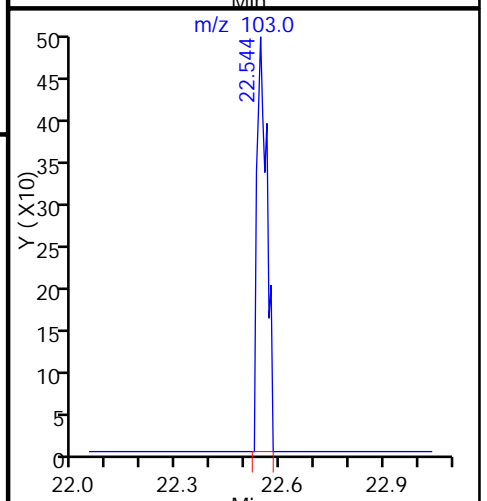
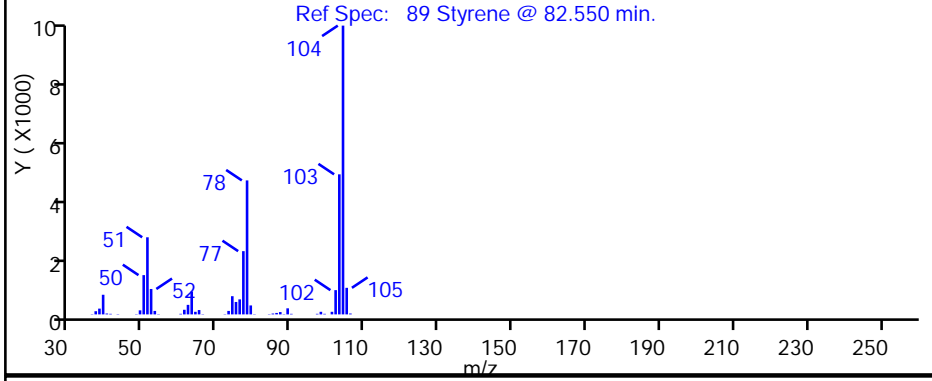
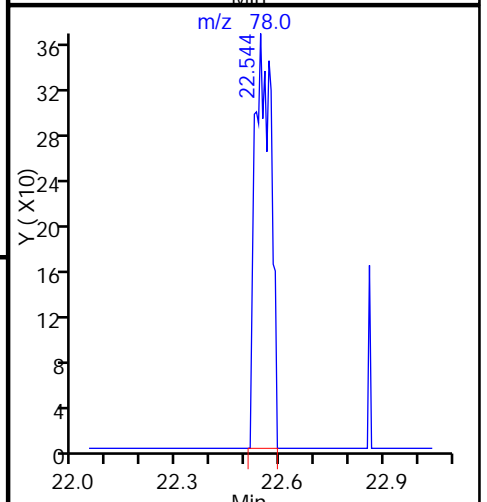
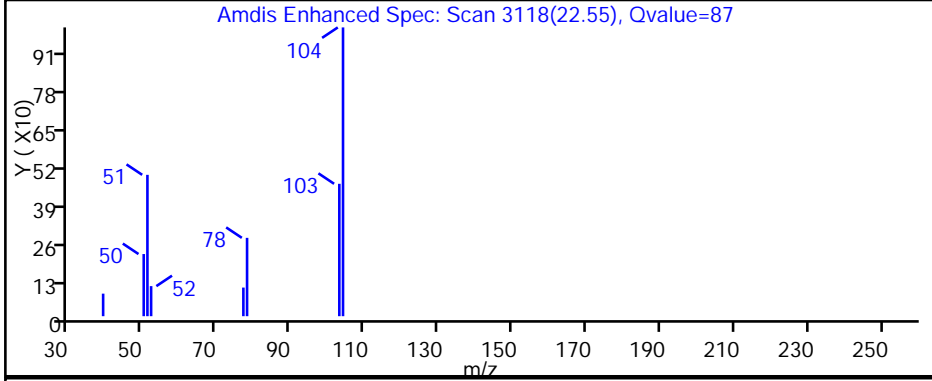
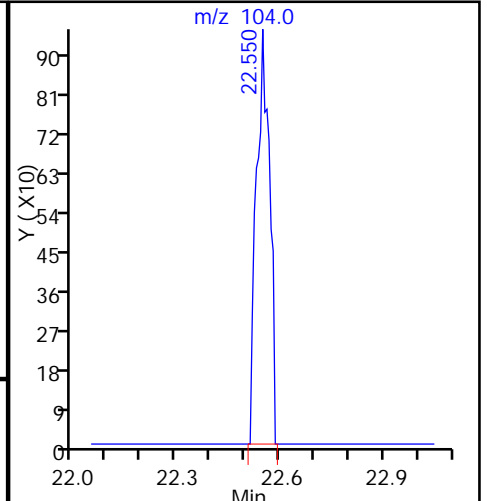
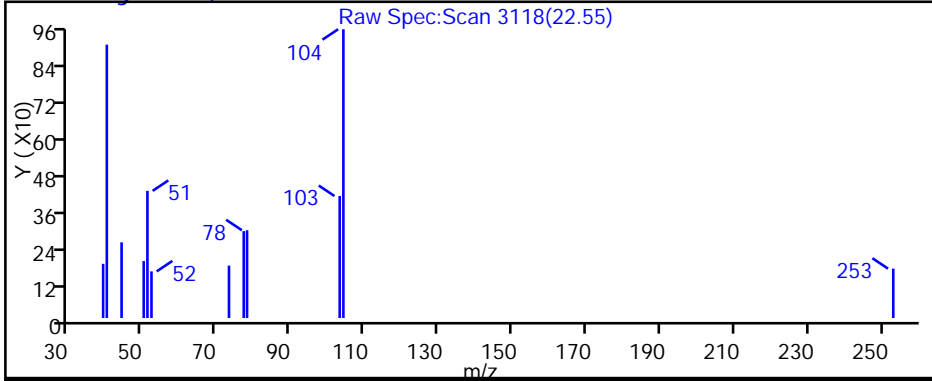
Method: TO15_ATMS7N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Detector: MS SCAN

89 Styrene, CAS: 100-42-5



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-16602-1
 SDG No.: _____
 Client Sample ID: 34001155 Lab Sample ID: 320-16602-1
 Matrix: Air Lab File ID: MS7122418.d
 Analysis Method: TO-15 Date Collected: 12/23/2015 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 12/25/2015 04:26
 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.: 96670 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.: 320-16602-1
 SDG No.: _____
 Client Sample ID: 34001155 Lab Sample ID: 320-16602-1
 Matrix: Air Lab File ID: MS7122418.d
 Analysis Method: TO-15 Date Collected: 12/23/2015 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 12/25/2015 04:26
 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.: 96670 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	0.12	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.: 320-16602-1
 SDG No.: _____
 Client Sample ID: 34001155 Lab Sample ID: 320-16602-1
 Matrix: Air Lab File ID: MS7122418.d
 Analysis Method: TO-15 Date Collected: 12/23/2015 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 12/25/2015 04:26
 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.: 96670 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)	80		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	114		70-130
2037-26-5	Toluene-d8 (Surr)	96		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS7\20151224-27426.b\MS7122418.d
 Lims ID: 320-16602-A-1 Lab Sample ID: 320-16602-1
 Client ID: 34001155
 Sample Type: Client
 Inject. Date: 25-Dec-2015 04:26:30 ALS Bottle#: 5 Worklist Smp#: 18
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 320-16602-A-1
 Misc. Info.: 500 mL CAN CERT
 Operator ID: LHS Instrument ID: ATMS7
 Method: \\ChromNA\Sacramento\ChromData\ATMS7\20151224-27426.b\TO15_ATMS7N.m
 Limit Group: MSA - TO15 - ICAL
 Last Update: 29-Dec-2015 07:54:56 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: XAWRK032

First Level Reviewer: leeh

Date: 29-Dec-2015 07:54:56

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	12.329	12.378	-0.049	94	38010	4.00	
* 2 1,4-Difluorobenzene	114	14.483	14.532	-0.049	96	173049	4.00	
* 3 Chlorobenzene-d5 (IS)	117	21.175	21.205	-0.030	91	178816	4.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	13.546	13.583	-0.037	97	69170	4.55	
\$ 5 Toluene-d8 (Surr)	100	17.896	17.932	-0.036	96	118905	3.83	
\$ 6 4-Bromofluorobenzene (Surr	95	23.718	23.748	-0.030	90	97254	3.19	
11 Propene	41	3.849	3.873	-0.024	71	1144	0.1153	
73 n-Octane	43	17.908	17.963	-0.055	47	1862	0.0288	

Reagents:

VASUISIM_00248 Amount Added: 50.00 Units: mL Run Reagent

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS7\20151224-27426.b\MS7122418.d

Injection Date: 25-Dec-2015 04:26:30

Instrument ID: ATMS7

Operator ID: LHS

Lims ID: 320-16602-A-1

Lab Sample ID: 320-16602-1

Worklist Smp#: 18

Client ID: 34001155

Purge Vol: 5.000 mL

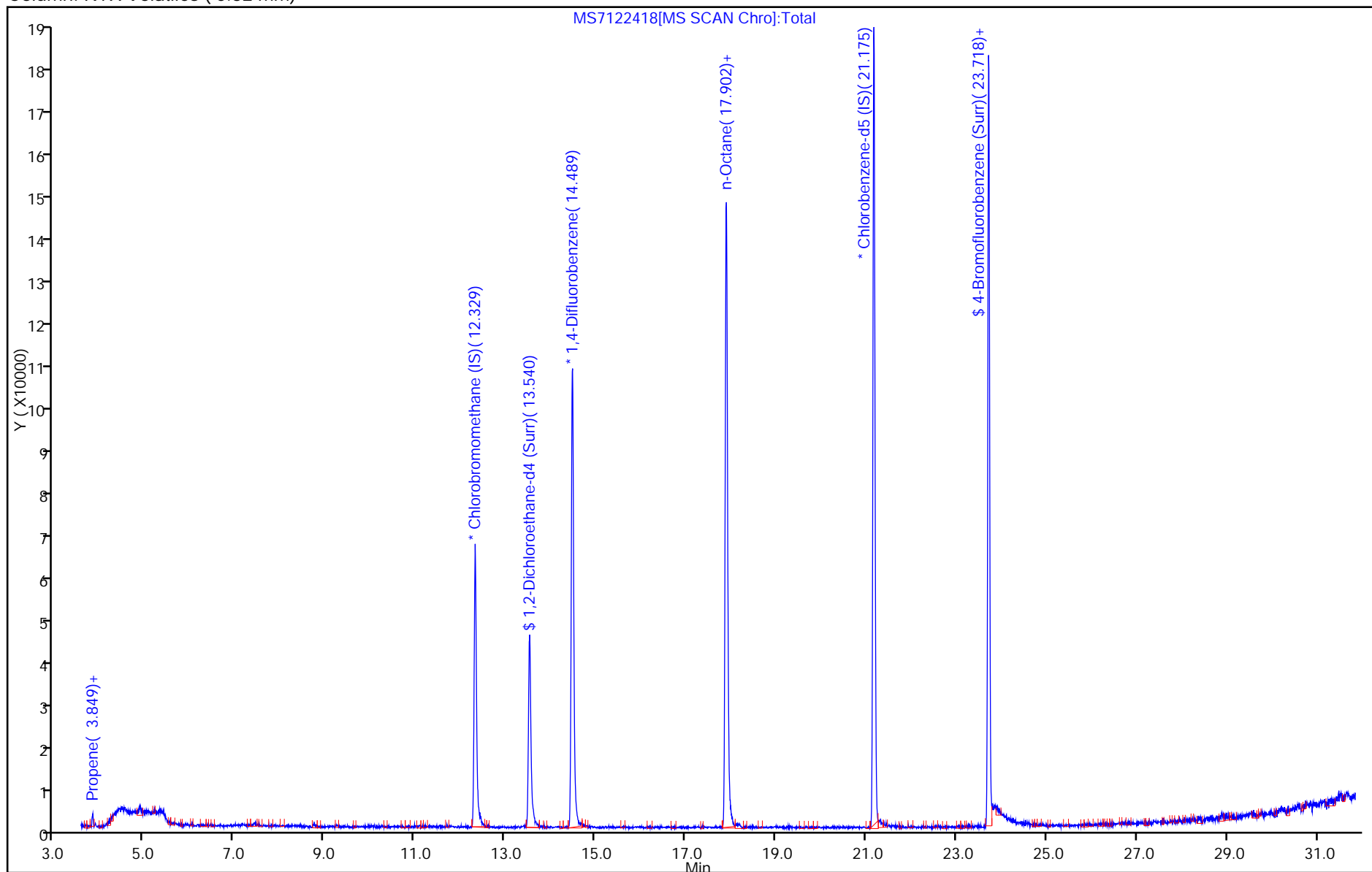
Dil. Factor: 1.0000

ALS Bottle#: 5

Method: TO15_ATMS7N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS7\20151224-27426.b\MS7122418.d

Injection Date: 25-Dec-2015 04:26:30

Instrument ID: ATMS7

Lims ID: 320-16602-A-1

Lab Sample ID: 320-16602-1

Client ID: 34001155

Operator ID: LHS

ALS Bottle#: 5 Worklist Smp#: 18

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

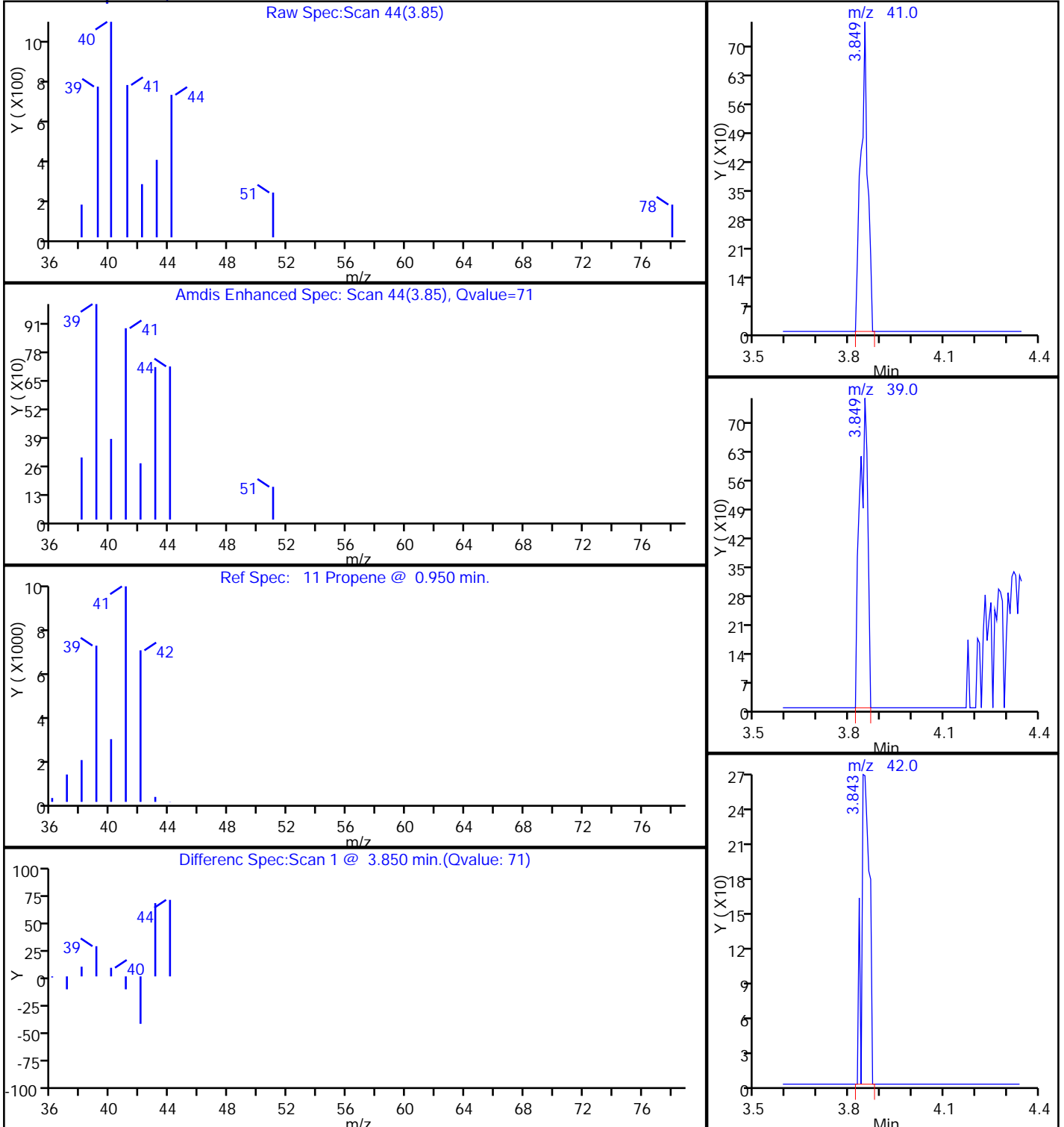
Method: TO15_ATMS7N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Detector: MS SCAN

11 Propene, CAS: 115-07-1



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: 320-17500-1
Client Project/Site: NuStar Vapor Testing

For:
Apex Companies LLC
3015 SW 1st Avenue
Portland, Oregon 97201

Attn: Stephanie Salisbury



Authorized for release by:
3/17/2016 4:17:41 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: 320-17500-1

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: 320-17500-1

Job ID: 320-17500-1

Laboratory: TestAmerica Sacramento

Narrative

Receipt

The samples were received on 3/1/2016 10:00 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: 320-17500-1

Client Sample ID: SVE_SOUTH_PRECARBON_022916

Lab Sample ID: 320-17500-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	260		95		ppb v/v	237		TO-15	Total/NA
1,1,1-Trichloroethane	98		71		ppb v/v	237		TO-15	Total/NA
Trichloroethene	660		95		ppb v/v	237		TO-15	Total/NA
Tetrachloroethene - DL	16000		190		ppb v/v	475		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	1000		380		ug/m3 Air	237		TO-15	Total/NA
1,1,1-Trichloroethane	540		390		ug/m3 Air	237		TO-15	Total/NA
Trichloroethene	3600		510		ug/m3 Air	237		TO-15	Total/NA
Tetrachloroethene - DL	110000		1300		ug/m3 Air	475		TO-15	Total/NA

Client Sample ID: SVE_SOUTH_POSTCARBON_022916

Lab Sample ID: 320-17500-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	5.6		3.8		ppb v/v	9.6		TO-15	Total/NA
cis-1,2-Dichloroethene	110		3.8		ppb v/v	9.6		TO-15	Total/NA
Tetrachloroethene	68		3.8		ppb v/v	9.6		TO-15	Total/NA
1,1,1-Trichloroethane	84		2.9		ppb v/v	9.6		TO-15	Total/NA
Trichloroethene - DL	820		7.7		ppb v/v	19.2		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	18		12		ug/m3 Air	9.6		TO-15	Total/NA
cis-1,2-Dichloroethene	440		15		ug/m3 Air	9.6		TO-15	Total/NA
Tetrachloroethene	460		26		ug/m3 Air	9.6		TO-15	Total/NA
1,1,1-Trichloroethane	460		16		ug/m3 Air	9.6		TO-15	Total/NA
Trichloroethene - DL	4400		41		ug/m3 Air	19.2		TO-15	Total/NA

Client Sample ID: SVE_NORTH_EFFLUENT_022916

Lab Sample ID: 320-17500-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	7.3		4.1		ppb v/v	10.3		TO-15	Total/NA
1,1,1-Trichloroethane	5.5		3.1		ppb v/v	10.3		TO-15	Total/NA
Trichloroethene	29		4.1		ppb v/v	10.3		TO-15	Total/NA
Tetrachloroethene - DL	1200		14		ppb v/v	36.1		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	29		16		ug/m3 Air	10.3		TO-15	Total/NA
1,1,1-Trichloroethane	30		17		ug/m3 Air	10.3		TO-15	Total/NA
Trichloroethene	160		22		ug/m3 Air	10.3		TO-15	Total/NA
Tetrachloroethene - DL	7800		98		ug/m3 Air	36.1		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: 320-17500-1

Client Sample ID: SVE_SOUTH_PRECARBON_022916

Lab Sample ID: 320-17500-1

Date Collected: 02/29/16 11:03

Matrix: Air

Date Received: 03/01/16 10:00

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		1200		ppb v/v			03/15/16 22:10	237
Benzene	ND		95		ppb v/v			03/15/16 22:10	237
Benzyl chloride	ND		190		ppb v/v			03/15/16 22:10	237
Bromodichloromethane	ND		71		ppb v/v			03/15/16 22:10	237
Bromoform	ND		95		ppb v/v			03/15/16 22:10	237
Bromomethane	ND		190		ppb v/v			03/15/16 22:10	237
2-Butanone (MEK)	ND		190		ppb v/v			03/15/16 22:10	237
Carbon disulfide	ND		190		ppb v/v			03/15/16 22:10	237
Carbon tetrachloride	ND		190		ppb v/v			03/15/16 22:10	237
Chlorobenzene	ND		71		ppb v/v			03/15/16 22:10	237
Dibromochloromethane	ND		95		ppb v/v			03/15/16 22:10	237
Chloroethane	ND		190		ppb v/v			03/15/16 22:10	237
Chloroform	ND		71		ppb v/v			03/15/16 22:10	237
Chloromethane	ND		190		ppb v/v			03/15/16 22:10	237
1,2-Dibromoethane (EDB)	ND		190		ppb v/v			03/15/16 22:10	237
1,2-Dichlorobenzene	ND		95		ppb v/v			03/15/16 22:10	237
1,3-Dichlorobenzene	ND		95		ppb v/v			03/15/16 22:10	237
1,4-Dichlorobenzene	ND		95		ppb v/v			03/15/16 22:10	237
Dichlorodifluoromethane	ND		95		ppb v/v			03/15/16 22:10	237
1,1-Dichloroethane	ND		71		ppb v/v			03/15/16 22:10	237
1,2-Dichloroethane	ND		190		ppb v/v			03/15/16 22:10	237
1,1-Dichloroethene	ND		190		ppb v/v			03/15/16 22:10	237
cis-1,2-Dichloroethene	260		95		ppb v/v			03/15/16 22:10	237
trans-1,2-Dichloroethene	ND		95		ppb v/v			03/15/16 22:10	237
1,2-Dichloropropane	ND		95		ppb v/v			03/15/16 22:10	237
cis-1,3-Dichloropropene	ND		95		ppb v/v			03/15/16 22:10	237
trans-1,3-Dichloropropene	ND		95		ppb v/v			03/15/16 22:10	237
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		95		ppb v/v			03/15/16 22:10	237
Ethylbenzene	ND		95		ppb v/v			03/15/16 22:10	237
4-Ethyltoluene	ND		95		ppb v/v			03/15/16 22:10	237
Hexachlorobutadiene	ND		470		ppb v/v			03/15/16 22:10	237
2-Hexanone	ND		95		ppb v/v			03/15/16 22:10	237
Methylene Chloride	ND		95		ppb v/v			03/15/16 22:10	237
4-Methyl-2-pentanone (MIBK)	ND		95		ppb v/v			03/15/16 22:10	237
Styrene	ND		95		ppb v/v			03/15/16 22:10	237
1,1,2,2-Tetrachloroethane	ND		95		ppb v/v			03/15/16 22:10	237
Toluene	ND		95		ppb v/v			03/15/16 22:10	237
1,2,4-Trichlorobenzene	ND		470		ppb v/v			03/15/16 22:10	237
1,1,1-Trichloroethane	98		71		ppb v/v			03/15/16 22:10	237
1,1,2-Trichloroethane	ND		95		ppb v/v			03/15/16 22:10	237
Trichloroethene	660		95		ppb v/v			03/15/16 22:10	237
Trichlorofluoromethane	ND		95		ppb v/v			03/15/16 22:10	237
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		95		ppb v/v			03/15/16 22:10	237
1,2,4-Trimethylbenzene	ND		190		ppb v/v			03/15/16 22:10	237
1,3,5-Trimethylbenzene	ND		95		ppb v/v			03/15/16 22:10	237
Vinyl acetate	ND		190		ppb v/v			03/15/16 22:10	237
Vinyl chloride	ND		95		ppb v/v			03/15/16 22:10	237
m,p-Xylene	ND		190		ppb v/v			03/15/16 22:10	237

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-17500-1

Client Sample ID: SVE_SOUTH_PRECARBON_022916

Lab Sample ID: 320-17500-1

Date Collected: 02/29/16 11:03

Matrix: Air

Date Received: 03/01/16 10:00

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
o-Xylene	ND		95		ppb v/v			03/15/16 22:10	237
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		2800		ug/m3 Air			03/15/16 22:10	237
Benzene	ND		300		ug/m3 Air			03/15/16 22:10	237
Benzyl chloride	ND		980		ug/m3 Air			03/15/16 22:10	237
Bromodichloromethane	ND		480		ug/m3 Air			03/15/16 22:10	237
Bromoform	ND		980		ug/m3 Air			03/15/16 22:10	237
Bromomethane	ND		740		ug/m3 Air			03/15/16 22:10	237
2-Butanone (MEK)	ND		560		ug/m3 Air			03/15/16 22:10	237
Carbon disulfide	ND		590		ug/m3 Air			03/15/16 22:10	237
Carbon tetrachloride	ND		1200		ug/m3 Air			03/15/16 22:10	237
Chlorobenzene	ND		330		ug/m3 Air			03/15/16 22:10	237
Dibromochloromethane	ND		810		ug/m3 Air			03/15/16 22:10	237
Chloroethane	ND		500		ug/m3 Air			03/15/16 22:10	237
Chloroform	ND		350		ug/m3 Air			03/15/16 22:10	237
Chloromethane	ND		390		ug/m3 Air			03/15/16 22:10	237
1,2-Dibromoethane (EDB)	ND		1500		ug/m3 Air			03/15/16 22:10	237
1,2-Dichlorobenzene	ND		570		ug/m3 Air			03/15/16 22:10	237
1,3-Dichlorobenzene	ND		570		ug/m3 Air			03/15/16 22:10	237
1,4-Dichlorobenzene	ND		570		ug/m3 Air			03/15/16 22:10	237
Dichlorodifluoromethane	ND		470		ug/m3 Air			03/15/16 22:10	237
1,1-Dichloroethane	ND		290		ug/m3 Air			03/15/16 22:10	237
1,2-Dichloroethane	ND		770		ug/m3 Air			03/15/16 22:10	237
1,1-Dichloroethene	ND		750		ug/m3 Air			03/15/16 22:10	237
cis-1,2-Dichloroethene	1000		380		ug/m3 Air			03/15/16 22:10	237
trans-1,2-Dichloroethene	ND		380		ug/m3 Air			03/15/16 22:10	237
1,2-Dichloropropane	ND		440		ug/m3 Air			03/15/16 22:10	237
cis-1,3-Dichloropropene	ND		430		ug/m3 Air			03/15/16 22:10	237
trans-1,3-Dichloropropene	ND		430		ug/m3 Air			03/15/16 22:10	237
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		660		ug/m3 Air			03/15/16 22:10	237
Ethylbenzene	ND		410		ug/m3 Air			03/15/16 22:10	237
4-Ethyltoluene	ND		470		ug/m3 Air			03/15/16 22:10	237
Hexachlorobutadiene	ND		5100		ug/m3 Air			03/15/16 22:10	237
2-Hexanone	ND		390		ug/m3 Air			03/15/16 22:10	237
Methylene Chloride	ND		330		ug/m3 Air			03/15/16 22:10	237
4-Methyl-2-pentanone (MIBK)	ND		390		ug/m3 Air			03/15/16 22:10	237
Styrene	ND		400		ug/m3 Air			03/15/16 22:10	237
1,1,2,2-Tetrachloroethane	ND		650		ug/m3 Air			03/15/16 22:10	237
Toluene	ND		360		ug/m3 Air			03/15/16 22:10	237
1,2,4-Trichlorobenzene	ND		3500		ug/m3 Air			03/15/16 22:10	237
1,1,1-Trichloroethane	540		390		ug/m3 Air			03/15/16 22:10	237
1,1,2-Trichloroethane	ND		520		ug/m3 Air			03/15/16 22:10	237
Trichloroethene	3600		510		ug/m3 Air			03/15/16 22:10	237
Trichlorofluoromethane	ND		530		ug/m3 Air			03/15/16 22:10	237
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		730		ug/m3 Air			03/15/16 22:10	237
1,2,4-Trimethylbenzene	ND		930		ug/m3 Air			03/15/16 22:10	237
1,3,5-Trimethylbenzene	ND		470		ug/m3 Air			03/15/16 22:10	237
Vinyl acetate	ND		670		ug/m3 Air			03/15/16 22:10	237

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-17500-1

Client Sample ID: SVE_SOUTH_PRECARBON_022916

Lab Sample ID: 320-17500-1

Date Collected: 02/29/16 11:03

Matrix: Air

Date Received: 03/01/16 10:00

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
Vinyl chloride	ND		240		ug/m3 Air			03/15/16 22:10	237
m,p-Xylene	ND		820		ug/m3 Air			03/15/16 22:10	237
o-Xylene	ND		410		ug/m3 Air			03/15/16 22:10	237
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		70 - 130					03/15/16 22:10	237
1,2-Dichloroethane-d4 (Surr)	93		70 - 130					03/15/16 22:10	237
Toluene-d8 (Surr)	102		70 - 130					03/15/16 22:10	237

Method: TO-15 - Volatile Organic Compounds in Ambient Air - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	16000		190		ppb v/v			03/16/16 11:50	475
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	110000		1300		ug/m3 Air			03/16/16 11:50	475
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		70 - 130					03/16/16 11:50	475
1,2-Dichloroethane-d4 (Surr)	97		70 - 130					03/16/16 11:50	475
Toluene-d8 (Surr)	103		70 - 130					03/16/16 11:50	475

Client Sample ID: SVE_SOUTH_POSTCARBON_022916

Lab Sample ID: 320-17500-2

Date Collected: 02/29/16 11:09

Matrix: Air

Date Received: 03/01/16 10:00

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		48		ppb v/v			03/15/16 22:55	9.6
Benzene	5.6		3.8		ppb v/v			03/15/16 22:55	9.6
Benzyl chloride	ND		7.7		ppb v/v			03/15/16 22:55	9.6
Bromodichloromethane	ND		2.9		ppb v/v			03/15/16 22:55	9.6
Bromoform	ND		3.8		ppb v/v			03/15/16 22:55	9.6
Bromomethane	ND		7.7		ppb v/v			03/15/16 22:55	9.6
2-Butanone (MEK)	ND		7.7		ppb v/v			03/15/16 22:55	9.6
Carbon disulfide	ND		7.7		ppb v/v			03/15/16 22:55	9.6
Carbon tetrachloride	ND		7.7		ppb v/v			03/15/16 22:55	9.6
Chlorobenzene	ND		2.9		ppb v/v			03/15/16 22:55	9.6
Dibromochloromethane	ND		3.8		ppb v/v			03/15/16 22:55	9.6
Chloroethane	ND		7.7		ppb v/v			03/15/16 22:55	9.6
Chloroform	ND		2.9		ppb v/v			03/15/16 22:55	9.6
Chloromethane	ND		7.7		ppb v/v			03/15/16 22:55	9.6
1,2-Dibromoethane (EDB)	ND		7.7		ppb v/v			03/15/16 22:55	9.6
1,2-Dichlorobenzene	ND		3.8		ppb v/v			03/15/16 22:55	9.6
1,3-Dichlorobenzene	ND		3.8		ppb v/v			03/15/16 22:55	9.6
1,4-Dichlorobenzene	ND		3.8		ppb v/v			03/15/16 22:55	9.6
Dichlorodifluoromethane	ND		3.8		ppb v/v			03/15/16 22:55	9.6
1,1-Dichloroethane	ND		2.9		ppb v/v			03/15/16 22:55	9.6
1,2-Dichloroethane	ND		7.7		ppb v/v			03/15/16 22:55	9.6
1,1-Dichloroethene	ND		7.7		ppb v/v			03/15/16 22:55	9.6

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-17500-1

Client Sample ID: SVE_SOUTH_POSTCARBON_022916

Lab Sample ID: 320-17500-2

Date Collected: 02/29/16 11:09

Matrix: Air

Date Received: 03/01/16 10:00

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
cis-1,2-Dichloroethene	110		3.8		ppb v/v			03/15/16 22:55	9.6
trans-1,2-Dichloroethene	ND		3.8		ppb v/v			03/15/16 22:55	9.6
1,2-Dichloropropane	ND		3.8		ppb v/v			03/15/16 22:55	9.6
cis-1,3-Dichloropropene	ND		3.8		ppb v/v			03/15/16 22:55	9.6
trans-1,3-Dichloropropene	ND		3.8		ppb v/v			03/15/16 22:55	9.6
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		3.8		ppb v/v			03/15/16 22:55	9.6
Ethylbenzene	ND		3.8		ppb v/v			03/15/16 22:55	9.6
4-Ethyltoluene	ND		3.8		ppb v/v			03/15/16 22:55	9.6
Hexachlorobutadiene	ND		19		ppb v/v			03/15/16 22:55	9.6
2-Hexanone	ND		3.8		ppb v/v			03/15/16 22:55	9.6
Methylene Chloride	ND		3.8		ppb v/v			03/15/16 22:55	9.6
4-Methyl-2-pentanone (MIBK)	ND		3.8		ppb v/v			03/15/16 22:55	9.6
Styrene	ND		3.8		ppb v/v			03/15/16 22:55	9.6
1,1,2,2-Tetrachloroethane	ND		3.8		ppb v/v			03/15/16 22:55	9.6
Tetrachloroethene	68		3.8		ppb v/v			03/15/16 22:55	9.6
Toluene	ND		3.8		ppb v/v			03/15/16 22:55	9.6
1,2,4-Trichlorobenzene	ND		19		ppb v/v			03/15/16 22:55	9.6
1,1,1-Trichloroethane	84		2.9		ppb v/v			03/15/16 22:55	9.6
1,1,2-Trichloroethane	ND		3.8		ppb v/v			03/15/16 22:55	9.6
Trichlorofluoromethane	ND		3.8		ppb v/v			03/15/16 22:55	9.6
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.8		ppb v/v			03/15/16 22:55	9.6
1,2,4-Trimethylbenzene	ND		7.7		ppb v/v			03/15/16 22:55	9.6
1,3,5-Trimethylbenzene	ND		3.8		ppb v/v			03/15/16 22:55	9.6
Vinyl acetate	ND		7.7		ppb v/v			03/15/16 22:55	9.6
Vinyl chloride	ND		3.8		ppb v/v			03/15/16 22:55	9.6
m,p-Xylene	ND		7.7		ppb v/v			03/15/16 22:55	9.6
o-Xylene	ND		3.8		ppb v/v			03/15/16 22:55	9.6
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		110		ug/m3 Air			03/15/16 22:55	9.6
Benzene	18		12		ug/m3 Air			03/15/16 22:55	9.6
Benzyl chloride	ND		40		ug/m3 Air			03/15/16 22:55	9.6
Bromodichloromethane	ND		19		ug/m3 Air			03/15/16 22:55	9.6
Bromoform	ND		40		ug/m3 Air			03/15/16 22:55	9.6
Bromomethane	ND		30		ug/m3 Air			03/15/16 22:55	9.6
2-Butanone (MEK)	ND		23		ug/m3 Air			03/15/16 22:55	9.6
Carbon disulfide	ND		24		ug/m3 Air			03/15/16 22:55	9.6
Carbon tetrachloride	ND		48		ug/m3 Air			03/15/16 22:55	9.6
Chlorobenzene	ND		13		ug/m3 Air			03/15/16 22:55	9.6
Dibromochloromethane	ND		33		ug/m3 Air			03/15/16 22:55	9.6
Chloroethane	ND		20		ug/m3 Air			03/15/16 22:55	9.6
Chloroform	ND		14		ug/m3 Air			03/15/16 22:55	9.6
Chloromethane	ND		16		ug/m3 Air			03/15/16 22:55	9.6
1,2-Dibromoethane (EDB)	ND		59		ug/m3 Air			03/15/16 22:55	9.6
1,2-Dichlorobenzene	ND		23		ug/m3 Air			03/15/16 22:55	9.6
1,3-Dichlorobenzene	ND		23		ug/m3 Air			03/15/16 22:55	9.6
1,4-Dichlorobenzene	ND		23		ug/m3 Air			03/15/16 22:55	9.6
Dichlorodifluoromethane	ND		19		ug/m3 Air			03/15/16 22:55	9.6
1,1-Dichloroethane	ND		12		ug/m3 Air			03/15/16 22:55	9.6

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-17500-1

Client Sample ID: SVE_SOUTH_POSTCARBON_022916

Lab Sample ID: 320-17500-2

Date Collected: 02/29/16 11:09

Matrix: Air

Date Received: 03/01/16 10:00

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-Dichloroethane	ND		31		ug/m3 Air			03/15/16 22:55	9.6
1,1-Dichloroethene	ND		30		ug/m3 Air			03/15/16 22:55	9.6
cis-1,2-Dichloroethene	440		15		ug/m3 Air			03/15/16 22:55	9.6
trans-1,2-Dichloroethene	ND		15		ug/m3 Air			03/15/16 22:55	9.6
1,2-Dichloropropane	ND		18		ug/m3 Air			03/15/16 22:55	9.6
cis-1,3-Dichloropropene	ND		17		ug/m3 Air			03/15/16 22:55	9.6
trans-1,3-Dichloropropene	ND		17		ug/m3 Air			03/15/16 22:55	9.6
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		27		ug/m3 Air			03/15/16 22:55	9.6
Ethylbenzene	ND		17		ug/m3 Air			03/15/16 22:55	9.6
4-Ethyltoluene	ND		19		ug/m3 Air			03/15/16 22:55	9.6
Hexachlorobutadiene	ND		200		ug/m3 Air			03/15/16 22:55	9.6
2-Hexanone	ND		16		ug/m3 Air			03/15/16 22:55	9.6
Methylene Chloride	ND		13		ug/m3 Air			03/15/16 22:55	9.6
4-Methyl-2-pentanone (MIBK)	ND		16		ug/m3 Air			03/15/16 22:55	9.6
Styrene	ND		16		ug/m3 Air			03/15/16 22:55	9.6
1,1,2,2-Tetrachloroethane	ND		26		ug/m3 Air			03/15/16 22:55	9.6
Tetrachloroethene	460		26		ug/m3 Air			03/15/16 22:55	9.6
Toluene	ND		14		ug/m3 Air			03/15/16 22:55	9.6
1,2,4-Trichlorobenzene	ND		140		ug/m3 Air			03/15/16 22:55	9.6
1,1,1-Trichloroethane	460		16		ug/m3 Air			03/15/16 22:55	9.6
1,1,2-Trichloroethane	ND		21		ug/m3 Air			03/15/16 22:55	9.6
Trichlorofluoromethane	ND		22		ug/m3 Air			03/15/16 22:55	9.6
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		29		ug/m3 Air			03/15/16 22:55	9.6
1,2,4-Trimethylbenzene	ND		38		ug/m3 Air			03/15/16 22:55	9.6
1,3,5-Trimethylbenzene	ND		19		ug/m3 Air			03/15/16 22:55	9.6
Vinyl acetate	ND		27		ug/m3 Air			03/15/16 22:55	9.6
Vinyl chloride	ND		9.8		ug/m3 Air			03/15/16 22:55	9.6
m,p-Xylene	ND		33		ug/m3 Air			03/15/16 22:55	9.6
o-Xylene	ND		17		ug/m3 Air			03/15/16 22:55	9.6

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		70 - 130		03/15/16 22:55	9.6
1,2-Dichloroethane-d4 (Surr)	99		70 - 130		03/15/16 22:55	9.6
Toluene-d8 (Surr)	100		70 - 130		03/15/16 22:55	9.6

Method: TO-15 - Volatile Organic Compounds in Ambient Air - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	820		7.7		ppb v/v			03/16/16 12:35	19.2
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	4400		41		ug/m3 Air			03/16/16 12:35	19.2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		70 - 130		03/16/16 12:35	19.2
1,2-Dichloroethane-d4 (Surr)	105		70 - 130		03/16/16 12:35	19.2
Toluene-d8 (Surr)	100		70 - 130		03/16/16 12:35	19.2

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-17500-1

Client Sample ID: SVE_NORTH_EFFLUENT_022916

Lab Sample ID: 320-17500-3

Date Collected: 02/29/16 11:30

Matrix: Air

Date Received: 03/01/16 10:00

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			03/15/16 23:41	10.3
Benzene	ND		4.1		ppb v/v			03/15/16 23:41	10.3
Benzyl chloride	ND		8.2		ppb v/v			03/15/16 23:41	10.3
Bromodichloromethane	ND		3.1		ppb v/v			03/15/16 23:41	10.3
Bromoform	ND		4.1		ppb v/v			03/15/16 23:41	10.3
Bromomethane	ND		8.2		ppb v/v			03/15/16 23:41	10.3
2-Butanone (MEK)	ND		8.2		ppb v/v			03/15/16 23:41	10.3
Carbon disulfide	ND		8.2		ppb v/v			03/15/16 23:41	10.3
Carbon tetrachloride	ND		8.2		ppb v/v			03/15/16 23:41	10.3
Chlorobenzene	ND		3.1		ppb v/v			03/15/16 23:41	10.3
Dibromochloromethane	ND		4.1		ppb v/v			03/15/16 23:41	10.3
Chloroethane	ND		8.2		ppb v/v			03/15/16 23:41	10.3
Chloroform	ND		3.1		ppb v/v			03/15/16 23:41	10.3
Chloromethane	ND		8.2		ppb v/v			03/15/16 23:41	10.3
1,2-Dibromoethane (EDB)	ND		8.2		ppb v/v			03/15/16 23:41	10.3
1,2-Dichlorobenzene	ND		4.1		ppb v/v			03/15/16 23:41	10.3
1,3-Dichlorobenzene	ND		4.1		ppb v/v			03/15/16 23:41	10.3
1,4-Dichlorobenzene	ND		4.1		ppb v/v			03/15/16 23:41	10.3
Dichlorodifluoromethane	ND		4.1		ppb v/v			03/15/16 23:41	10.3
1,1-Dichloroethane	ND		3.1		ppb v/v			03/15/16 23:41	10.3
1,2-Dichloroethane	ND		8.2		ppb v/v			03/15/16 23:41	10.3
1,1-Dichloroethene	ND		8.2		ppb v/v			03/15/16 23:41	10.3
cis-1,2-Dichloroethene	7.3		4.1		ppb v/v			03/15/16 23:41	10.3
trans-1,2-Dichloroethene	ND		4.1		ppb v/v			03/15/16 23:41	10.3
1,2-Dichloropropane	ND		4.1		ppb v/v			03/15/16 23:41	10.3
cis-1,3-Dichloropropene	ND		4.1		ppb v/v			03/15/16 23:41	10.3
trans-1,3-Dichloropropene	ND		4.1		ppb v/v			03/15/16 23:41	10.3
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		4.1		ppb v/v			03/15/16 23:41	10.3
Ethylbenzene	ND		4.1		ppb v/v			03/15/16 23:41	10.3
4-Ethyltoluene	ND		4.1		ppb v/v			03/15/16 23:41	10.3
Hexachlorobutadiene	ND		21		ppb v/v			03/15/16 23:41	10.3
2-Hexanone	ND		4.1		ppb v/v			03/15/16 23:41	10.3
Methylene Chloride	ND		4.1		ppb v/v			03/15/16 23:41	10.3
4-Methyl-2-pentanone (MIBK)	ND		4.1		ppb v/v			03/15/16 23:41	10.3
Styrene	ND		4.1		ppb v/v			03/15/16 23:41	10.3
1,1,2,2-Tetrachloroethane	ND		4.1		ppb v/v			03/15/16 23:41	10.3
Toluene	ND		4.1		ppb v/v			03/15/16 23:41	10.3
1,2,4-Trichlorobenzene	ND		21		ppb v/v			03/15/16 23:41	10.3
1,1,1-Trichloroethane	5.5		3.1		ppb v/v			03/15/16 23:41	10.3
1,1,2-Trichloroethane	ND		4.1		ppb v/v			03/15/16 23:41	10.3
Trichloroethene	29		4.1		ppb v/v			03/15/16 23:41	10.3
Trichlorofluoromethane	ND		4.1		ppb v/v			03/15/16 23:41	10.3
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		4.1		ppb v/v			03/15/16 23:41	10.3
1,2,4-Trimethylbenzene	ND		8.2		ppb v/v			03/15/16 23:41	10.3
1,3,5-Trimethylbenzene	ND		4.1		ppb v/v			03/15/16 23:41	10.3
Vinyl acetate	ND		8.2		ppb v/v			03/15/16 23:41	10.3
Vinyl chloride	ND		4.1		ppb v/v			03/15/16 23:41	10.3
m,p-Xylene	ND		8.2		ppb v/v			03/15/16 23:41	10.3

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-17500-1

Client Sample ID: SVE_NORTH_EFFLUENT_022916

Lab Sample ID: 320-17500-3

Date Collected: 02/29/16 11:30

Matrix: Air

Date Received: 03/01/16 10:00

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
o-Xylene	ND		4.1		ppb v/v			03/15/16 23:41	10.3
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		120		ug/m3 Air			03/15/16 23:41	10.3
Benzene	ND		13		ug/m3 Air			03/15/16 23:41	10.3
Benzyl chloride	ND		43		ug/m3 Air			03/15/16 23:41	10.3
Bromodichloromethane	ND		21		ug/m3 Air			03/15/16 23:41	10.3
Bromoform	ND		43		ug/m3 Air			03/15/16 23:41	10.3
Bromomethane	ND		32		ug/m3 Air			03/15/16 23:41	10.3
2-Butanone (MEK)	ND		24		ug/m3 Air			03/15/16 23:41	10.3
Carbon disulfide	ND		26		ug/m3 Air			03/15/16 23:41	10.3
Carbon tetrachloride	ND		52		ug/m3 Air			03/15/16 23:41	10.3
Chlorobenzene	ND		14		ug/m3 Air			03/15/16 23:41	10.3
Dibromochloromethane	ND		35		ug/m3 Air			03/15/16 23:41	10.3
Chloroethane	ND		22		ug/m3 Air			03/15/16 23:41	10.3
Chloroform	ND		15		ug/m3 Air			03/15/16 23:41	10.3
Chloromethane	ND		17		ug/m3 Air			03/15/16 23:41	10.3
1,2-Dibromoethane (EDB)	ND		63		ug/m3 Air			03/15/16 23:41	10.3
1,2-Dichlorobenzene	ND		25		ug/m3 Air			03/15/16 23:41	10.3
1,3-Dichlorobenzene	ND		25		ug/m3 Air			03/15/16 23:41	10.3
1,4-Dichlorobenzene	ND		25		ug/m3 Air			03/15/16 23:41	10.3
Dichlorodifluoromethane	ND		20		ug/m3 Air			03/15/16 23:41	10.3
1,1-Dichloroethane	ND		13		ug/m3 Air			03/15/16 23:41	10.3
1,2-Dichloroethane	ND		33		ug/m3 Air			03/15/16 23:41	10.3
1,1-Dichloroethene	ND		33		ug/m3 Air			03/15/16 23:41	10.3
cis-1,2-Dichloroethene	29		16		ug/m3 Air			03/15/16 23:41	10.3
trans-1,2-Dichloroethene	ND		16		ug/m3 Air			03/15/16 23:41	10.3
1,2-Dichloropropane	ND		19		ug/m3 Air			03/15/16 23:41	10.3
cis-1,3-Dichloropropene	ND		19		ug/m3 Air			03/15/16 23:41	10.3
trans-1,3-Dichloropropene	ND		19		ug/m3 Air			03/15/16 23:41	10.3
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		29		ug/m3 Air			03/15/16 23:41	10.3
Ethylbenzene	ND		18		ug/m3 Air			03/15/16 23:41	10.3
4-Ethyltoluene	ND		20		ug/m3 Air			03/15/16 23:41	10.3
Hexachlorobutadiene	ND		220		ug/m3 Air			03/15/16 23:41	10.3
2-Hexanone	ND		17		ug/m3 Air			03/15/16 23:41	10.3
Methylene Chloride	ND		14		ug/m3 Air			03/15/16 23:41	10.3
4-Methyl-2-pentanone (MIBK)	ND		17		ug/m3 Air			03/15/16 23:41	10.3
Styrene	ND		18		ug/m3 Air			03/15/16 23:41	10.3
1,1,2,2-Tetrachloroethane	ND		28		ug/m3 Air			03/15/16 23:41	10.3
Toluene	ND		16		ug/m3 Air			03/15/16 23:41	10.3
1,2,4-Trichlorobenzene	ND		150		ug/m3 Air			03/15/16 23:41	10.3
1,1,1-Trichloroethane	30		17		ug/m3 Air			03/15/16 23:41	10.3
1,1,2-Trichloroethane	ND		22		ug/m3 Air			03/15/16 23:41	10.3
Trichloroethene	160		22		ug/m3 Air			03/15/16 23:41	10.3
Trichlorofluoromethane	ND		23		ug/m3 Air			03/15/16 23:41	10.3
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		32		ug/m3 Air			03/15/16 23:41	10.3
1,2,4-Trimethylbenzene	ND		41		ug/m3 Air			03/15/16 23:41	10.3
1,3,5-Trimethylbenzene	ND		20		ug/m3 Air			03/15/16 23:41	10.3
Vinyl acetate	ND		29		ug/m3 Air			03/15/16 23:41	10.3

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-17500-1

Client Sample ID: SVE_NORTH_EFFLUENT_022916

Lab Sample ID: 320-17500-3

Date Collected: 02/29/16 11:30

Matrix: Air

Date Received: 03/01/16 10:00

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
Vinyl chloride	ND		11		ug/m3 Air			03/15/16 23:41	10.3
m,p-Xylene	ND		36		ug/m3 Air			03/15/16 23:41	10.3
o-Xylene	ND		18		ug/m3 Air			03/15/16 23:41	10.3

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		70 - 130		03/15/16 23:41	10.3
1,2-Dichloroethane-d4 (Surr)	99		70 - 130		03/15/16 23:41	10.3
Toluene-d8 (Surr)	100		70 - 130		03/15/16 23:41	10.3

Method: TO-15 - Volatile Organic Compounds in Ambient Air - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	1200		14		ppb v/v			03/16/16 20:57	36.1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	7800		98		ug/m3 Air			03/16/16 20:57	36.1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		70 - 130		03/16/16 20:57	36.1
1,2-Dichloroethane-d4 (Surr)	100		70 - 130		03/16/16 20:57	36.1
Toluene-d8 (Surr)	101		70 - 130		03/16/16 20:57	36.1

Surrogate Summary

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

TestAmerica Job ID: 320-17500-1

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)
320-17500-1	SVE_SOUTH_PRECARBON_02	95	93	102
320-17500-1 - DL	SVE_SOUTH_PRECARBON_02	96	97	103
320-17500-2	SVE_SOUTH_POSTCARBON_1	101	99	100
320-17500-2 - DL	SVE_SOUTH_POSTCARBON_1	94	105	100
320-17500-3	SVE_NORTH_EFFLUENT_0229	99	99	100
320-17500-3 - DL	SVE_NORTH_EFFLUENT_0229	98	100	101
LCS 320-103462/4	Lab Control Sample	96	97	102
LCS 320-103587/4	Lab Control Sample	100	103	102
LCSD 320-103462/5	Lab Control Sample Dup	97	96	102
LCSD 320-103587/5	Lab Control Sample Dup	99	100	102
MB 320-103462/7	Method Blank	83	96	101
MB 320-103587/7	Method Blank	95	100	102

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: 320-17500-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Lab Sample ID: MB 320-103462/7

Matrix: Air

Analysis Batch: 103462

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			03/15/16 19:47	1
Benzene	ND		0.40		ppb v/v			03/15/16 19:47	1
Benzyl chloride	ND		0.80		ppb v/v			03/15/16 19:47	1
Bromodichloromethane	ND		0.30		ppb v/v			03/15/16 19:47	1
Bromoform	ND		0.40		ppb v/v			03/15/16 19:47	1
Bromomethane	ND		0.80		ppb v/v			03/15/16 19:47	1
2-Butanone (MEK)	ND		0.80		ppb v/v			03/15/16 19:47	1
Carbon disulfide	ND		0.80		ppb v/v			03/15/16 19:47	1
Carbon tetrachloride	ND		0.80		ppb v/v			03/15/16 19:47	1
Chlorobenzene	ND		0.30		ppb v/v			03/15/16 19:47	1
Dibromochloromethane	ND		0.40		ppb v/v			03/15/16 19:47	1
Chloroethane	ND		0.80		ppb v/v			03/15/16 19:47	1
Chloroform	ND		0.30		ppb v/v			03/15/16 19:47	1
Chloromethane	ND		0.80		ppb v/v			03/15/16 19:47	1
1,2-Dibromoethane (EDB)	ND		0.80		ppb v/v			03/15/16 19:47	1
1,2-Dichlorobenzene	ND		0.40		ppb v/v			03/15/16 19:47	1
1,3-Dichlorobenzene	ND		0.40		ppb v/v			03/15/16 19:47	1
1,4-Dichlorobenzene	ND		0.40		ppb v/v			03/15/16 19:47	1
Dichlorodifluoromethane	ND		0.40		ppb v/v			03/15/16 19:47	1
1,1-Dichloroethane	ND		0.30		ppb v/v			03/15/16 19:47	1
1,2-Dichloroethane	ND		0.80		ppb v/v			03/15/16 19:47	1
1,1-Dichloroethene	ND		0.80		ppb v/v			03/15/16 19:47	1
cis-1,2-Dichloroethene	ND		0.40		ppb v/v			03/15/16 19:47	1
trans-1,2-Dichloroethene	ND		0.40		ppb v/v			03/15/16 19:47	1
1,2-Dichloropropane	ND		0.40		ppb v/v			03/15/16 19:47	1
cis-1,3-Dichloropropene	ND		0.40		ppb v/v			03/15/16 19:47	1
trans-1,3-Dichloropropene	ND		0.40		ppb v/v			03/15/16 19:47	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40		ppb v/v			03/15/16 19:47	1
Ethylbenzene	ND		0.40		ppb v/v			03/15/16 19:47	1
4-Ethyltoluene	ND		0.40		ppb v/v			03/15/16 19:47	1
Hexachlorobutadiene	ND		2.0		ppb v/v			03/15/16 19:47	1
2-Hexanone	ND		0.40		ppb v/v			03/15/16 19:47	1
Methylene Chloride	ND		0.40		ppb v/v			03/15/16 19:47	1
4-Methyl-2-pentanone (MIBK)	ND		0.40		ppb v/v			03/15/16 19:47	1
Styrene	ND		0.40		ppb v/v			03/15/16 19:47	1
1,1,2,2-Tetrachloroethane	ND		0.40		ppb v/v			03/15/16 19:47	1
Tetrachloroethene	ND		0.40		ppb v/v			03/15/16 19:47	1
Toluene	ND		0.40		ppb v/v			03/15/16 19:47	1
1,2,4-Trichlorobenzene	ND		2.0		ppb v/v			03/15/16 19:47	1
1,1,1-Trichloroethane	ND		0.30		ppb v/v			03/15/16 19:47	1
1,1,2-Trichloroethane	ND		0.40		ppb v/v			03/15/16 19:47	1
Trichloroethene	ND		0.40		ppb v/v			03/15/16 19:47	1
Trichlorofluoromethane	ND		0.40		ppb v/v			03/15/16 19:47	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40		ppb v/v			03/15/16 19:47	1
1,2,4-Trimethylbenzene	ND		0.80		ppb v/v			03/15/16 19:47	1
1,3,5-Trimethylbenzene	ND		0.40		ppb v/v			03/15/16 19:47	1
Vinyl acetate	ND		0.80		ppb v/v			03/15/16 19:47	1
Vinyl chloride	ND		0.40		ppb v/v			03/15/16 19:47	1

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-17500-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-103462/7

Matrix: Air

Analysis Batch: 103462

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			03/15/16 19:47	1
o-Xylene	ND		0.40		ppb v/v			03/15/16 19:47	1
Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		12		ug/m3 Air			03/15/16 19:47	1
Benzene	ND		1.3		ug/m3 Air			03/15/16 19:47	1
Benzyl chloride	ND		4.1		ug/m3 Air			03/15/16 19:47	1
Bromodichloromethane	ND		2.0		ug/m3 Air			03/15/16 19:47	1
Bromoform	ND		4.1		ug/m3 Air			03/15/16 19:47	1
Bromomethane	ND		3.1		ug/m3 Air			03/15/16 19:47	1
2-Butanone (MEK)	ND		2.4		ug/m3 Air			03/15/16 19:47	1
Carbon disulfide	ND		2.5		ug/m3 Air			03/15/16 19:47	1
Carbon tetrachloride	ND		5.0		ug/m3 Air			03/15/16 19:47	1
Chlorobenzene	ND		1.4		ug/m3 Air			03/15/16 19:47	1
Dibromochloromethane	ND		3.4		ug/m3 Air			03/15/16 19:47	1
Chloroethane	ND		2.1		ug/m3 Air			03/15/16 19:47	1
Chloroform	ND		1.5		ug/m3 Air			03/15/16 19:47	1
Chloromethane	ND		1.7		ug/m3 Air			03/15/16 19:47	1
1,2-Dibromoethane (EDB)	ND		6.1		ug/m3 Air			03/15/16 19:47	1
1,2-Dichlorobenzene	ND		2.4		ug/m3 Air			03/15/16 19:47	1
1,3-Dichlorobenzene	ND		2.4		ug/m3 Air			03/15/16 19:47	1
1,4-Dichlorobenzene	ND		2.4		ug/m3 Air			03/15/16 19:47	1
Dichlorodifluoromethane	ND		2.0		ug/m3 Air			03/15/16 19:47	1
1,1-Dichloroethane	ND		1.2		ug/m3 Air			03/15/16 19:47	1
1,2-Dichloroethane	ND		3.2		ug/m3 Air			03/15/16 19:47	1
1,1-Dichloroethene	ND		3.2		ug/m3 Air			03/15/16 19:47	1
cis-1,2-Dichloroethene	ND		1.6		ug/m3 Air			03/15/16 19:47	1
trans-1,2-Dichloroethene	ND		1.6		ug/m3 Air			03/15/16 19:47	1
1,2-Dichloropropane	ND		1.8		ug/m3 Air			03/15/16 19:47	1
cis-1,3-Dichloropropene	ND		1.8		ug/m3 Air			03/15/16 19:47	1
trans-1,3-Dichloropropene	ND		1.8		ug/m3 Air			03/15/16 19:47	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.8		ug/m3 Air			03/15/16 19:47	1
Ethylbenzene	ND		1.7		ug/m3 Air			03/15/16 19:47	1
4-Ethyltoluene	ND		2.0		ug/m3 Air			03/15/16 19:47	1
Hexachlorobutadiene	ND		21		ug/m3 Air			03/15/16 19:47	1
2-Hexanone	ND		1.6		ug/m3 Air			03/15/16 19:47	1
Methylene Chloride	ND		1.4		ug/m3 Air			03/15/16 19:47	1
4-Methyl-2-pentanone (MIBK)	ND		1.6		ug/m3 Air			03/15/16 19:47	1
Styrene	ND		1.7		ug/m3 Air			03/15/16 19:47	1
1,1,2,2-Tetrachloroethane	ND		2.7		ug/m3 Air			03/15/16 19:47	1
Tetrachloroethene	ND		2.7		ug/m3 Air			03/15/16 19:47	1
Toluene	ND		1.5		ug/m3 Air			03/15/16 19:47	1
1,2,4-Trichlorobenzene	ND		15		ug/m3 Air			03/15/16 19:47	1
1,1,1-Trichloroethane	ND		1.6		ug/m3 Air			03/15/16 19:47	1
1,1,2-Trichloroethane	ND		2.2		ug/m3 Air			03/15/16 19:47	1
Trichloroethene	ND		2.1		ug/m3 Air			03/15/16 19:47	1
Trichlorofluoromethane	ND		2.2		ug/m3 Air			03/15/16 19:47	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.1		ug/m3 Air			03/15/16 19:47	1

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-17500-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-103462/7

Matrix: Air

Analysis Batch: 103462

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			03/15/16 19:47	1
1,3,5-Trimethylbenzene	ND		2.0		ug/m3 Air			03/15/16 19:47	1
Vinyl acetate	ND		2.8		ug/m3 Air			03/15/16 19:47	1
Vinyl chloride	ND		1.0		ug/m3 Air			03/15/16 19:47	1
m,p-Xylene	ND		3.5		ug/m3 Air			03/15/16 19:47	1
o-Xylene	ND		1.7		ug/m3 Air			03/15/16 19:47	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	83		70 - 130		03/15/16 19:47	1
1,2-Dichloroethane-d4 (Surr)	96		70 - 130		03/15/16 19:47	1
Toluene-d8 (Surr)	101		70 - 130		03/15/16 19:47	1

Lab Sample ID: LCS 320-103462/4

Matrix: Air

Analysis Batch: 103462

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	15.9		ppb v/v		79	71 - 131
Benzene	20.0	17.5		ppb v/v		88	68 - 128
Benzyl chloride	20.0	17.8		ppb v/v		89	58 - 120
Bromodichloromethane	20.0	17.8		ppb v/v		89	65 - 130
Bromoform	20.0	20.5		ppb v/v		102	64 - 144
Bromomethane	20.0	18.9		ppb v/v		95	70 - 131
2-Butanone (MEK)	20.0	17.0		ppb v/v		85	71 - 131
Carbon disulfide	20.0	17.6		ppb v/v		88	63 - 123
Carbon tetrachloride	20.0	17.9		ppb v/v		90	67 - 127
Chlorobenzene	20.0	20.4		ppb v/v		102	70 - 132
Dibromochloromethane	20.0	18.7		ppb v/v		94	68 - 128
Chloroethane	20.0	18.7		ppb v/v		94	70 - 131
Chloroform	20.0	18.1		ppb v/v		90	69 - 129
Chloromethane	20.0	16.7		ppb v/v		83	67 - 127
1,2-Dibromoethane (EDB)	20.0	20.5		ppb v/v		103	68 - 131
1,2-Dichlorobenzene	20.0	22.1		ppb v/v		110	73 - 143
1,3-Dichlorobenzene	20.0	22.9		ppb v/v		114	77 - 136
1,4-Dichlorobenzene	20.0	22.6		ppb v/v		113	73 - 143
Dichlorodifluoromethane	20.0	16.7		ppb v/v		84	69 - 129
1,1-Dichloroethane	20.0	17.9		ppb v/v		90	65 - 125
1,2-Dichloroethane	20.0	17.3		ppb v/v		87	71 - 131
1,1-Dichloroethene	20.0	16.3		ppb v/v		82	53 - 128
cis-1,2-Dichloroethene	20.0	18.3		ppb v/v		91	68 - 128
trans-1,2-Dichloroethene	20.0	17.7		ppb v/v		88	70 - 130
1,2-Dichloropropane	20.0	19.2		ppb v/v		96	74 - 128
cis-1,3-Dichloropropene	20.0	20.8		ppb v/v		104	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	17.8		ppb v/v		89	64 - 124
Ethylbenzene	20.0	19.0		ppb v/v		95	76 - 136
4-Ethyltoluene	20.0	19.9		ppb v/v		100	62 - 136

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-17500-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-103462/4

Matrix: Air

Analysis Batch: 103462

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	23.7		ppb v/v		119	42 - 150
2-Hexanone	20.0	18.2		ppb v/v		91	70 - 128
Methylene Chloride	20.0	15.3		ppb v/v		77	65 - 125
4-Methyl-2-pentanone (MIBK)	20.0	16.1		ppb v/v		81	73 - 133
Styrene	20.0	20.3		ppb v/v		101	76 - 144
1,1,2,2-Tetrachloroethane	20.0	21.0		ppb v/v		105	75 - 135
Tetrachloroethene	20.0	18.5		ppb v/v		92	56 - 138
Toluene	20.0	20.4		ppb v/v		102	71 - 132
1,2,4-Trichlorobenzene	20.0	23.7		ppb v/v		118	59 - 150
1,1,1-Trichloroethane	20.0	18.1		ppb v/v		90	65 - 124
1,1,2-Trichloroethane	20.0	20.9		ppb v/v		104	71 - 131
Trichloroethene	20.0	19.1		ppb v/v		96	64 - 127
Trichlorofluoromethane	20.0	18.6		ppb v/v		93	68 - 128
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	17.0		ppb v/v		85	50 - 132
1,2,4-Trimethylbenzene	20.0	21.8		ppb v/v		109	61 - 145
1,3,5-Trimethylbenzene	20.0	21.3		ppb v/v		106	65 - 136
Vinyl acetate	20.0	17.6		ppb v/v		88	77 - 134
Vinyl chloride	20.0	18.0		ppb v/v		90	69 - 129
m,p-Xylene	40.0	41.9		ppb v/v		105	75 - 138
o-Xylene	20.0	21.3		ppb v/v		106	77 - 132

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	48	37.7		ug/m3 Air		79	71 - 131
Benzene	64	56.1		ug/m3 Air		88	68 - 128
Benzyl chloride	100	92.0		ug/m3 Air		89	58 - 120
Bromodichloromethane	130	119		ug/m3 Air		89	65 - 130
Bromoform	210	212		ug/m3 Air		102	64 - 144
Bromomethane	78	73.5		ug/m3 Air		95	70 - 131
2-Butanone (MEK)	59	50.1		ug/m3 Air		85	71 - 131
Carbon disulfide	62	54.9		ug/m3 Air		88	63 - 123
Carbon tetrachloride	130	113		ug/m3 Air		90	67 - 127
Chlorobenzene	92	93.9		ug/m3 Air		102	70 - 132
Dibromochloromethane	170	160		ug/m3 Air		94	68 - 128
Chloroethane	53	49.4		ug/m3 Air		94	70 - 131
Chloroform	98	88.4		ug/m3 Air		90	69 - 129
Chloromethane	41	34.5		ug/m3 Air		83	67 - 127
1,2-Dibromoethane (EDB)	150	158		ug/m3 Air		103	68 - 131
1,2-Dichlorobenzene	120	133		ug/m3 Air		110	73 - 143
1,3-Dichlorobenzene	120	138		ug/m3 Air		114	77 - 136
1,4-Dichlorobenzene	120	136		ug/m3 Air		113	73 - 143
Dichlorodifluoromethane	99	82.7		ug/m3 Air		84	69 - 129
1,1-Dichloroethane	81	72.6		ug/m3 Air		90	65 - 125
1,2-Dichloroethane	81	70.1		ug/m3 Air		87	71 - 131
1,1-Dichloroethene	79	64.8		ug/m3 Air		82	53 - 128
cis-1,2-Dichloroethene	79	72.4		ug/m3 Air		91	68 - 128
trans-1,2-Dichloroethene	79	70.0		ug/m3 Air		88	70 - 130
1,2-Dichloropropane	92	88.6		ug/m3 Air		96	74 - 128

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-17500-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-103462/4

Matrix: Air

Analysis Batch: 103462

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	94.4		ug/m3 Air		104	78 - 132
trans-1,3-Dichloropropene	91	82.8		ug/m3 Air		91	56 - 136
1,2-Dichloro-1,1,2,2-tetrafluoroethane	140	125		ug/m3 Air		89	64 - 124
Ethylbenzene	87	82.6		ug/m3 Air		95	76 - 136
4-Ethyltoluene	98	98.0		ug/m3 Air		100	62 - 136
Hexachlorobutadiene	210	253		ug/m3 Air		119	42 - 150
2-Hexanone	82	74.7		ug/m3 Air		91	70 - 128
Methylene Chloride	69	53.3		ug/m3 Air		77	65 - 125
4-Methyl-2-pentanone (MIBK)	82	66.1		ug/m3 Air		81	73 - 133
Styrene	85	86.4		ug/m3 Air		101	76 - 144
1,1,2,2-Tetrachloroethane	140	144		ug/m3 Air		105	75 - 135
Tetrachloroethene	140	125		ug/m3 Air		92	56 - 138
Toluene	75	76.7		ug/m3 Air		102	71 - 132
1,2,4-Trichlorobenzene	150	176		ug/m3 Air		118	59 - 150
1,1,1-Trichloroethane	110	98.6		ug/m3 Air		90	65 - 124
1,1,2-Trichloroethane	110	114		ug/m3 Air		104	71 - 131
Trichloroethene	110	103		ug/m3 Air		96	64 - 127
Trichlorofluoromethane	110	105		ug/m3 Air		93	68 - 128
1,1,2-Trichloro-1,2,2-trifluoroethane	150	131		ug/m3 Air		85	50 - 132
1,2,4-Trimethylbenzene	98	107		ug/m3 Air		109	61 - 145
1,3,5-Trimethylbenzene	98	105		ug/m3 Air		106	65 - 136
Vinyl acetate	70	62.0		ug/m3 Air		88	77 - 134
Vinyl chloride	51	46.0		ug/m3 Air		90	69 - 129
m,p-Xylene	170	182		ug/m3 Air		105	75 - 138
o-Xylene	87	92.4		ug/m3 Air		106	77 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	96		70 - 130
1,2-Dichloroethane-d4 (Surr)	97		70 - 130
Toluene-d8 (Surr)	102		70 - 130

Lab Sample ID: LCSD 320-103462/5

Matrix: Air

Analysis Batch: 103462

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	16.1		ppb v/v		80	71 - 131	1	25
Benzene	20.0	18.5		ppb v/v		92	68 - 128	5	25
Benzyl chloride	20.0	19.2		ppb v/v		96	58 - 120	8	25
Bromodichloromethane	20.0	18.5		ppb v/v		93	65 - 130	4	25
Bromoform	20.0	22.3		ppb v/v		111	64 - 144	9	25
Bromomethane	20.0	19.2		ppb v/v		96	70 - 131	2	25
2-Butanone (MEK)	20.0	18.0		ppb v/v		90	71 - 131	6	25
Carbon disulfide	20.0	18.0		ppb v/v		90	63 - 123	2	25
Carbon tetrachloride	20.0	18.8		ppb v/v		94	67 - 127	5	25
Chlorobenzene	20.0	22.0		ppb v/v		110	70 - 132	8	25

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-17500-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-103462/5

Client Sample ID: Lab Control Sample Dup

Matrix: Air

Prep Type: Total/NA

Analysis Batch: 103462

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dibromochloromethane	20.0	20.4		ppb v/v		102	68 - 128	8	25
Chloroethane	20.0	18.7		ppb v/v		93	70 - 131	0	25
Chloroform	20.0	18.8		ppb v/v		94	69 - 129	4	25
Chloromethane	20.0	16.5		ppb v/v		83	67 - 127	1	25
1,2-Dibromoethane (EDB)	20.0	22.2		ppb v/v		111	68 - 131	8	25
1,2-Dichlorobenzene	20.0	23.5		ppb v/v		118	73 - 143	6	25
1,3-Dichlorobenzene	20.0	23.2		ppb v/v		116	77 - 136	1	25
1,4-Dichlorobenzene	20.0	23.0		ppb v/v		115	73 - 143	2	25
Dichlorodifluoromethane	20.0	17.0		ppb v/v		85	69 - 129	2	25
1,1-Dichloroethane	20.0	18.6		ppb v/v		93	65 - 125	3	25
1,2-Dichloroethane	20.0	18.1		ppb v/v		91	71 - 131	5	25
1,1-Dichloroethene	20.0	16.6		ppb v/v		83	53 - 128	1	25
cis-1,2-Dichloroethene	20.0	19.2		ppb v/v		96	68 - 128	5	25
trans-1,2-Dichloroethene	20.0	18.1		ppb v/v		91	70 - 130	3	25
1,2-Dichloropropane	20.0	20.1		ppb v/v		100	74 - 128	5	25
cis-1,3-Dichloropropene	20.0	21.8		ppb v/v		109	78 - 132	5	25
trans-1,3-Dichloropropene	20.0	19.9		ppb v/v		99	56 - 136	8	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	20.0	18.3		ppb v/v		91	64 - 124	3	25
Ethylbenzene	20.0	20.4		ppb v/v		102	76 - 136	7	25
4-Ethyltoluene	20.0	22.4		ppb v/v		112	62 - 136	12	25
Hexachlorobutadiene	20.0	25.0		ppb v/v		125	42 - 150	5	25
2-Hexanone	20.0	19.8		ppb v/v		99	70 - 128	8	25
Methylene Chloride	20.0	15.6		ppb v/v		78	65 - 125	2	25
4-Methyl-2-pentanone (MIBK)	20.0	16.8		ppb v/v		84	73 - 133	4	25
Styrene	20.0	21.9		ppb v/v		110	76 - 144	8	25
1,1,2,2-Tetrachloroethane	20.0	22.5		ppb v/v		112	75 - 135	7	25
Tetrachloroethene	20.0	20.1		ppb v/v		100	56 - 138	8	25
Toluene	20.0	21.3		ppb v/v		106	71 - 132	4	25
1,2,4-Trichlorobenzene	20.0	25.1		ppb v/v		126	59 - 150	6	25
1,1,1-Trichloroethane	20.0	18.7		ppb v/v		94	65 - 124	4	25
1,1,2-Trichloroethane	20.0	22.5		ppb v/v		112	71 - 131	7	25
Trichloroethene	20.0	20.1		ppb v/v		100	64 - 127	5	25
Trichlorofluoromethane	20.0	18.8		ppb v/v		94	68 - 128	1	25
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	17.3		ppb v/v		87	50 - 132	2	25
1,2,4-Trimethylbenzene	20.0	23.7		ppb v/v		119	61 - 145	8	25
1,3,5-Trimethylbenzene	20.0	23.2		ppb v/v		116	65 - 136	9	25
Vinyl acetate	20.0	17.7		ppb v/v		89	77 - 134	1	25
Vinyl chloride	20.0	18.4		ppb v/v		92	69 - 129	2	25
m,p-Xylene	40.0	45.2		ppb v/v		113	75 - 138	8	25
o-Xylene	20.0	23.0		ppb v/v		115	77 - 132	8	25
Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	48	38.2		ug/m3 Air		80	71 - 131	1	25
Benzene	64	59.1		ug/m3 Air		92	68 - 128	5	25
Benzyl chloride	100	99.3		ug/m3 Air		96	58 - 120	8	25
Bromodichloromethane	130	124		ug/m3 Air		93	65 - 130	4	25
Bromoform	210	230		ug/m3 Air		111	64 - 144	9	25

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-17500-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-103462/5

Client Sample ID: Lab Control Sample Dup

Matrix: Air

Prep Type: Total/NA

Analysis Batch: 103462

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromomethane	78	74.7		ug/m3 Air		96	70 - 131	2	25
2-Butanone (MEK)	59	53.2		ug/m3 Air		90	71 - 131	6	25
Carbon disulfide	62	56.2		ug/m3 Air		90	63 - 123	2	25
Carbon tetrachloride	130	118		ug/m3 Air		94	67 - 127	5	25
Chlorobenzene	92	101		ug/m3 Air		110	70 - 132	8	25
Dibromochloromethane	170	174		ug/m3 Air		102	68 - 128	8	25
Chloroethane	53	49.3		ug/m3 Air		93	70 - 131	0	25
Chloroform	98	92.0		ug/m3 Air		94	69 - 129	4	25
Chloromethane	41	34.1		ug/m3 Air		83	67 - 127	1	25
1,2-Dibromoethane (EDB)	150	171		ug/m3 Air		111	68 - 131	8	25
1,2-Dichlorobenzene	120	141		ug/m3 Air		118	73 - 143	6	25
1,3-Dichlorobenzene	120	140		ug/m3 Air		116	77 - 136	1	25
1,4-Dichlorobenzene	120	138		ug/m3 Air		115	73 - 143	2	25
Dichlorodifluoromethane	99	84.1		ug/m3 Air		85	69 - 129	2	25
1,1-Dichloroethane	81	75.1		ug/m3 Air		93	65 - 125	3	25
1,2-Dichloroethane	81	73.4		ug/m3 Air		91	71 - 131	5	25
1,1-Dichloroethene	79	65.6		ug/m3 Air		83	53 - 128	1	25
cis-1,2-Dichloroethene	79	76.1		ug/m3 Air		96	68 - 128	5	25
trans-1,2-Dichloroethene	79	71.9		ug/m3 Air		91	70 - 130	3	25
1,2-Dichloropropane	92	92.8		ug/m3 Air		100	74 - 128	5	25
cis-1,3-Dichloropropene	91	99.1		ug/m3 Air		109	78 - 132	5	25
trans-1,3-Dichloropropene	91	90.2		ug/m3 Air		99	56 - 136	8	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	140	128		ug/m3 Air		91	64 - 124	3	25
Ethylbenzene	87	88.5		ug/m3 Air		102	76 - 136	7	25
4-Ethyltoluene	98	110		ug/m3 Air		112	62 - 136	12	25
Hexachlorobutadiene	210	266		ug/m3 Air		125	42 - 150	5	25
2-Hexanone	82	81.1		ug/m3 Air		99	70 - 128	8	25
Methylene Chloride	69	54.1		ug/m3 Air		78	65 - 125	2	25
4-Methyl-2-pentanone (MIBK)	82	68.9		ug/m3 Air		84	73 - 133	4	25
Styrene	85	93.5		ug/m3 Air		110	76 - 144	8	25
1,1,2,2-Tetrachloroethane	140	154		ug/m3 Air		112	75 - 135	7	25
Tetrachloroethene	140	136		ug/m3 Air		100	56 - 138	8	25
Toluene	75	80.2		ug/m3 Air		106	71 - 132	4	25
1,2,4-Trichlorobenzene	150	187		ug/m3 Air		126	59 - 150	6	25
1,1,1-Trichloroethane	110	102		ug/m3 Air		94	65 - 124	4	25
1,1,2-Trichloroethane	110	123		ug/m3 Air		112	71 - 131	7	25
Trichloroethene	110	108		ug/m3 Air		100	64 - 127	5	25
Trichlorofluoromethane	110	106		ug/m3 Air		94	68 - 128	1	25
1,1,2-Trichloro-1,2,2-trifluoroethane	150	133		ug/m3 Air		87	50 - 132	2	25
1,2,4-Trimethylbenzene	98	117		ug/m3 Air		119	61 - 145	8	25
1,3,5-Trimethylbenzene	98	114		ug/m3 Air		116	65 - 136	9	25
Vinyl acetate	70	62.4		ug/m3 Air		89	77 - 134	1	25
Vinyl chloride	51	47.0		ug/m3 Air		92	69 - 129	2	25
m,p-Xylene	170	196		ug/m3 Air		113	75 - 138	8	25
o-Xylene	87	99.9		ug/m3 Air		115	77 - 132	8	25

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-17500-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-103462/5

Matrix: Air

Analysis Batch: 103462

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

<i>Surrogate</i>	<i>%Recovery</i>	<i>LCSD Qualifier</i>	<i>LCSD Limits</i>
4-Bromofluorobenzene (Surr)	97		70 - 130
1,2-Dichloroethane-d4 (Surr)	96		70 - 130
Toluene-d8 (Surr)	102		70 - 130

Lab Sample ID: MB 320-103587/7

Matrix: Air

Analysis Batch: 103587

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			03/16/16 20:12	1
Benzene	ND		0.40		ppb v/v			03/16/16 20:12	1
Benzyl chloride	ND		0.80		ppb v/v			03/16/16 20:12	1
Bromodichloromethane	ND		0.30		ppb v/v			03/16/16 20:12	1
Bromoform	ND		0.40		ppb v/v			03/16/16 20:12	1
Bromomethane	ND		0.80		ppb v/v			03/16/16 20:12	1
2-Butanone (MEK)	ND		0.80		ppb v/v			03/16/16 20:12	1
Carbon disulfide	ND		0.80		ppb v/v			03/16/16 20:12	1
Carbon tetrachloride	ND		0.80		ppb v/v			03/16/16 20:12	1
Chlorobenzene	ND		0.30		ppb v/v			03/16/16 20:12	1
Dibromochloromethane	ND		0.40		ppb v/v			03/16/16 20:12	1
Chloroethane	ND		0.80		ppb v/v			03/16/16 20:12	1
Chloroform	ND		0.30		ppb v/v			03/16/16 20:12	1
Chloromethane	ND		0.80		ppb v/v			03/16/16 20:12	1
1,2-Dibromoethane (EDB)	ND		0.80		ppb v/v			03/16/16 20:12	1
1,2-Dichlorobenzene	ND		0.40		ppb v/v			03/16/16 20:12	1
1,3-Dichlorobenzene	ND		0.40		ppb v/v			03/16/16 20:12	1
1,4-Dichlorobenzene	ND		0.40		ppb v/v			03/16/16 20:12	1
Dichlorodifluoromethane	ND		0.40		ppb v/v			03/16/16 20:12	1
1,1-Dichloroethane	ND		0.30		ppb v/v			03/16/16 20:12	1
1,2-Dichloroethane	ND		0.80		ppb v/v			03/16/16 20:12	1
1,1-Dichloroethene	ND		0.80		ppb v/v			03/16/16 20:12	1
cis-1,2-Dichloroethene	ND		0.40		ppb v/v			03/16/16 20:12	1
trans-1,2-Dichloroethene	ND		0.40		ppb v/v			03/16/16 20:12	1
1,2-Dichloropropane	ND		0.40		ppb v/v			03/16/16 20:12	1
cis-1,3-Dichloropropene	ND		0.40		ppb v/v			03/16/16 20:12	1
trans-1,3-Dichloropropene	ND		0.40		ppb v/v			03/16/16 20:12	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40		ppb v/v			03/16/16 20:12	1
Ethylbenzene	ND		0.40		ppb v/v			03/16/16 20:12	1
4-Ethyltoluene	ND		0.40		ppb v/v			03/16/16 20:12	1
Hexachlorobutadiene	ND		2.0		ppb v/v			03/16/16 20:12	1
2-Hexanone	ND		0.40		ppb v/v			03/16/16 20:12	1
Methylene Chloride	ND		0.40		ppb v/v			03/16/16 20:12	1
4-Methyl-2-pentanone (MIBK)	ND		0.40		ppb v/v			03/16/16 20:12	1
Styrene	ND		0.40		ppb v/v			03/16/16 20:12	1
1,1,2,2-Tetrachloroethane	ND		0.40		ppb v/v			03/16/16 20:12	1
Tetrachloroethene	ND		0.40		ppb v/v			03/16/16 20:12	1
Toluene	ND		0.40		ppb v/v			03/16/16 20:12	1
1,2,4-Trichlorobenzene	ND		2.0		ppb v/v			03/16/16 20:12	1

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-17500-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-103587/7
Matrix: Air
Analysis Batch: 103587

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.30		ppb v/v			03/16/16 20:12	1
1,1,2-Trichloroethane	ND		0.40		ppb v/v			03/16/16 20:12	1
Trichloroethene	ND		0.40		ppb v/v			03/16/16 20:12	1
Trichlorofluoromethane	ND		0.40		ppb v/v			03/16/16 20:12	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40		ppb v/v			03/16/16 20:12	1
1,2,4-Trimethylbenzene	ND		0.80		ppb v/v			03/16/16 20:12	1
1,3,5-Trimethylbenzene	ND		0.40		ppb v/v			03/16/16 20:12	1
Vinyl acetate	ND		0.80		ppb v/v			03/16/16 20:12	1
Vinyl chloride	ND		0.40		ppb v/v			03/16/16 20:12	1
m,p-Xylene	ND		0.80		ppb v/v			03/16/16 20:12	1
o-Xylene	ND		0.40		ppb v/v			03/16/16 20:12	1

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		12		ug/m3 Air			03/16/16 20:12	1
Benzene	ND		1.3		ug/m3 Air			03/16/16 20:12	1
Benzyl chloride	ND		4.1		ug/m3 Air			03/16/16 20:12	1
Bromodichloromethane	ND		2.0		ug/m3 Air			03/16/16 20:12	1
Bromoform	ND		4.1		ug/m3 Air			03/16/16 20:12	1
Bromomethane	ND		3.1		ug/m3 Air			03/16/16 20:12	1
2-Butanone (MEK)	ND		2.4		ug/m3 Air			03/16/16 20:12	1
Carbon disulfide	ND		2.5		ug/m3 Air			03/16/16 20:12	1
Carbon tetrachloride	ND		5.0		ug/m3 Air			03/16/16 20:12	1
Chlorobenzene	ND		1.4		ug/m3 Air			03/16/16 20:12	1
Dibromochloromethane	ND		3.4		ug/m3 Air			03/16/16 20:12	1
Chloroethane	ND		2.1		ug/m3 Air			03/16/16 20:12	1
Chloroform	ND		1.5		ug/m3 Air			03/16/16 20:12	1
Chloromethane	ND		1.7		ug/m3 Air			03/16/16 20:12	1
1,2-Dibromoethane (EDB)	ND		6.1		ug/m3 Air			03/16/16 20:12	1
1,2-Dichlorobenzene	ND		2.4		ug/m3 Air			03/16/16 20:12	1
1,3-Dichlorobenzene	ND		2.4		ug/m3 Air			03/16/16 20:12	1
1,4-Dichlorobenzene	ND		2.4		ug/m3 Air			03/16/16 20:12	1
Dichlorodifluoromethane	ND		2.0		ug/m3 Air			03/16/16 20:12	1
1,1-Dichloroethane	ND		1.2		ug/m3 Air			03/16/16 20:12	1
1,2-Dichloroethane	ND		3.2		ug/m3 Air			03/16/16 20:12	1
1,1-Dichloroethene	ND		3.2		ug/m3 Air			03/16/16 20:12	1
cis-1,2-Dichloroethene	ND		1.6		ug/m3 Air			03/16/16 20:12	1
trans-1,2-Dichloroethene	ND		1.6		ug/m3 Air			03/16/16 20:12	1
1,2-Dichloropropane	ND		1.8		ug/m3 Air			03/16/16 20:12	1
cis-1,3-Dichloropropene	ND		1.8		ug/m3 Air			03/16/16 20:12	1
trans-1,3-Dichloropropene	ND		1.8		ug/m3 Air			03/16/16 20:12	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.8		ug/m3 Air			03/16/16 20:12	1
Ethylbenzene	ND		1.7		ug/m3 Air			03/16/16 20:12	1
4-Ethyltoluene	ND		2.0		ug/m3 Air			03/16/16 20:12	1
Hexachlorobutadiene	ND		21		ug/m3 Air			03/16/16 20:12	1
2-Hexanone	ND		1.6		ug/m3 Air			03/16/16 20:12	1
Methylene Chloride	ND		1.4		ug/m3 Air			03/16/16 20:12	1
4-Methyl-2-pentanone (MIBK)	ND		1.6		ug/m3 Air			03/16/16 20:12	1
Styrene	ND		1.7		ug/m3 Air			03/16/16 20:12	1

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-17500-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-103587/7
Matrix: Air
Analysis Batch: 103587

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		2.7		ug/m3 Air			03/16/16 20:12	1
Tetrachloroethene	ND		2.7		ug/m3 Air			03/16/16 20:12	1
Toluene	ND		1.5		ug/m3 Air			03/16/16 20:12	1
1,2,4-Trichlorobenzene	ND		15		ug/m3 Air			03/16/16 20:12	1
1,1,1-Trichloroethane	ND		1.6		ug/m3 Air			03/16/16 20:12	1
1,1,2-Trichloroethane	ND		2.2		ug/m3 Air			03/16/16 20:12	1
Trichloroethene	ND		2.1		ug/m3 Air			03/16/16 20:12	1
Trichlorofluoromethane	ND		2.2		ug/m3 Air			03/16/16 20:12	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.1		ug/m3 Air			03/16/16 20:12	1
1,2,4-Trimethylbenzene	ND		3.9		ug/m3 Air			03/16/16 20:12	1
1,3,5-Trimethylbenzene	ND		2.0		ug/m3 Air			03/16/16 20:12	1
Vinyl acetate	ND		2.8		ug/m3 Air			03/16/16 20:12	1
Vinyl chloride	ND		1.0		ug/m3 Air			03/16/16 20:12	1
m,p-Xylene	ND		3.5		ug/m3 Air			03/16/16 20:12	1
o-Xylene	ND		1.7		ug/m3 Air			03/16/16 20:12	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		70 - 130		03/16/16 20:12	1
1,2-Dichloroethane-d4 (Surr)	100		70 - 130		03/16/16 20:12	1
Toluene-d8 (Surr)	102		70 - 130		03/16/16 20:12	1

Lab Sample ID: LCS 320-103587/4
Matrix: Air
Analysis Batch: 103587

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	18.6		ppb v/v		93	71 - 131
Benzene	20.0	17.9		ppb v/v		90	68 - 128
Benzyl chloride	20.0	19.4		ppb v/v		97	58 - 120
Bromodichloromethane	20.0	18.4		ppb v/v		92	65 - 130
Bromoform	20.0	22.1		ppb v/v		110	64 - 144
Bromomethane	20.0	20.4		ppb v/v		102	70 - 131
2-Butanone (MEK)	20.0	18.8		ppb v/v		94	71 - 131
Carbon disulfide	20.0	18.1		ppb v/v		90	63 - 123
Carbon tetrachloride	20.0	18.9		ppb v/v		94	67 - 127
Chlorobenzene	20.0	21.5		ppb v/v		108	70 - 132
Dibromochloromethane	20.0	19.9		ppb v/v		100	68 - 128
Chloroethane	20.0	19.6		ppb v/v		98	70 - 131
Chloroform	20.0	18.9		ppb v/v		94	69 - 129
Chloromethane	20.0	19.2		ppb v/v		96	67 - 127
1,2-Dibromoethane (EDB)	20.0	21.4		ppb v/v		107	68 - 131
1,2-Dichlorobenzene	20.0	23.2		ppb v/v		116	73 - 143
1,3-Dichlorobenzene	20.0	23.2		ppb v/v		116	77 - 136
1,4-Dichlorobenzene	20.0	22.9		ppb v/v		115	73 - 143
Dichlorodifluoromethane	20.0	18.5		ppb v/v		92	69 - 129
1,1-Dichloroethane	20.0	18.7		ppb v/v		93	65 - 125
1,2-Dichloroethane	20.0	18.7		ppb v/v		94	71 - 131
1,1-Dichloroethene	20.0	17.1		ppb v/v		86	53 - 128

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-17500-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-103587/4

Matrix: Air

Analysis Batch: 103587

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	20.0	18.7		ppb v/v		94	68 - 128
trans-1,2-Dichloroethene	20.0	18.6		ppb v/v		93	70 - 130
1,2-Dichloropropane	20.0	20.3		ppb v/v		101	74 - 128
cis-1,3-Dichloropropene	20.0	21.2		ppb v/v		106	78 - 132
trans-1,3-Dichloropropene	20.0	19.4		ppb v/v		97	56 - 136
1,2-Dichloro-1,1,2,2-tetrafluoroethane	20.0	19.0		ppb v/v		95	64 - 124
Ethylbenzene	20.0	19.7		ppb v/v		99	76 - 136
4-Ethyltoluene	20.0	22.4		ppb v/v		112	62 - 136
Hexachlorobutadiene	20.0	24.9		ppb v/v		125	42 - 150
2-Hexanone	20.0	20.9		ppb v/v		105	70 - 128
Methylene Chloride	20.0	16.8		ppb v/v		84	65 - 125
4-Methyl-2-pentanone (MIBK)	20.0	19.0		ppb v/v		95	73 - 133
Styrene	20.0	21.4		ppb v/v		107	76 - 144
1,1,2,2-Tetrachloroethane	20.0	22.0		ppb v/v		110	75 - 135
Tetrachloroethene	20.0	19.5		ppb v/v		97	56 - 138
Toluene	20.0	20.7		ppb v/v		104	71 - 132
1,2,4-Trichlorobenzene	20.0	25.5		ppb v/v		128	59 - 150
1,1,1-Trichloroethane	20.0	19.0		ppb v/v		95	65 - 124
1,1,2-Trichloroethane	20.0	21.8		ppb v/v		109	71 - 131
Trichloroethene	20.0	19.4		ppb v/v		97	64 - 127
Trichlorofluoromethane	20.0	19.7		ppb v/v		99	68 - 128
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	17.3		ppb v/v		87	50 - 132
1,2,4-Trimethylbenzene	20.0	23.9		ppb v/v		119	61 - 145
1,3,5-Trimethylbenzene	20.0	23.4		ppb v/v		117	65 - 136
Vinyl acetate	20.0	19.2		ppb v/v		96	77 - 134
Vinyl chloride	20.0	20.1		ppb v/v		100	69 - 129
m,p-Xylene	40.0	44.3		ppb v/v		111	75 - 138
o-Xylene	20.0	22.4		ppb v/v		112	77 - 132

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	48	44.2		ug/m3 Air		93	71 - 131
Benzene	64	57.3		ug/m3 Air		90	68 - 128
Benzyl chloride	100	101		ug/m3 Air		97	58 - 120
Bromodichloromethane	130	123		ug/m3 Air		92	65 - 130
Bromoform	210	228		ug/m3 Air		110	64 - 144
Bromomethane	78	79.3		ug/m3 Air		102	70 - 131
2-Butanone (MEK)	59	55.4		ug/m3 Air		94	71 - 131
Carbon disulfide	62	56.2		ug/m3 Air		90	63 - 123
Carbon tetrachloride	130	119		ug/m3 Air		94	67 - 127
Chlorobenzene	92	99.0		ug/m3 Air		108	70 - 132
Dibromochloromethane	170	170		ug/m3 Air		100	68 - 128
Chloroethane	53	51.7		ug/m3 Air		98	70 - 131
Chloroform	98	92.1		ug/m3 Air		94	69 - 129
Chloromethane	41	39.6		ug/m3 Air		96	67 - 127
1,2-Dibromoethane (EDB)	150	164		ug/m3 Air		107	68 - 131
1,2-Dichlorobenzene	120	140		ug/m3 Air		116	73 - 143
1,3-Dichlorobenzene	120	139		ug/m3 Air		116	77 - 136

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-17500-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-103587/4

Matrix: Air

Analysis Batch: 103587

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dichlorobenzene	120	138		ug/m3 Air		115	73 - 143
Dichlorodifluoromethane	99	91.3		ug/m3 Air		92	69 - 129
1,1-Dichloroethane	81	75.5		ug/m3 Air		93	65 - 125
1,2-Dichloroethane	81	75.9		ug/m3 Air		94	71 - 131
1,1-Dichloroethene	79	67.9		ug/m3 Air		86	53 - 128
cis-1,2-Dichloroethene	79	74.3		ug/m3 Air		94	68 - 128
trans-1,2-Dichloroethene	79	73.6		ug/m3 Air		93	70 - 130
1,2-Dichloropropane	92	93.8		ug/m3 Air		101	74 - 128
cis-1,3-Dichloropropene	91	96.3		ug/m3 Air		106	78 - 132
trans-1,3-Dichloropropene	91	87.8		ug/m3 Air		97	56 - 136
1,2-Dichloro-1,1,2,2-tetrafluoroethane	140	133		ug/m3 Air		95	64 - 124
Ethylbenzene	87	85.7		ug/m3 Air		99	76 - 136
4-Ethyltoluene	98	110		ug/m3 Air		112	62 - 136
Hexachlorobutadiene	210	266		ug/m3 Air		125	42 - 150
2-Hexanone	82	85.8		ug/m3 Air		105	70 - 128
Methylene Chloride	69	58.3		ug/m3 Air		84	65 - 125
4-Methyl-2-pentanone (MIBK)	82	77.7		ug/m3 Air		95	73 - 133
Styrene	85	91.2		ug/m3 Air		107	76 - 144
1,1,1,2-Tetrachloroethane	140	151		ug/m3 Air		110	75 - 135
Tetrachloroethene	140	132		ug/m3 Air		97	56 - 138
Toluene	75	78.0		ug/m3 Air		104	71 - 132
1,2,4-Trichlorobenzene	150	190		ug/m3 Air		128	59 - 150
1,1,1-Trichloroethane	110	104		ug/m3 Air		95	65 - 124
1,1,2-Trichloroethane	110	119		ug/m3 Air		109	71 - 131
Trichloroethene	110	104		ug/m3 Air		97	64 - 127
Trichlorofluoromethane	110	111		ug/m3 Air		99	68 - 128
1,1,2-Trichloro-1,2,2-trifluoroethane	150	133		ug/m3 Air		87	50 - 132
1,2,4-Trimethylbenzene	98	117		ug/m3 Air		119	61 - 145
1,3,5-Trimethylbenzene	98	115		ug/m3 Air		117	65 - 136
Vinyl acetate	70	67.6		ug/m3 Air		96	77 - 134
Vinyl chloride	51	51.3		ug/m3 Air		100	69 - 129
m,p-Xylene	170	192		ug/m3 Air		111	75 - 138
o-Xylene	87	97.4		ug/m3 Air		112	77 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	100		70 - 130
1,2-Dichloroethane-d4 (Surr)	103		70 - 130
Toluene-d8 (Surr)	102		70 - 130

Lab Sample ID: LCSD 320-103587/5

Matrix: Air

Analysis Batch: 103587

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	17.9		ppb v/v		90	71 - 131	4	25
Benzene	20.0	17.5		ppb v/v		88	68 - 128	2	25

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-17500-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-103587/5

Client Sample ID: Lab Control Sample Dup

Matrix: Air

Prep Type: Total/NA

Analysis Batch: 103587

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzyl chloride	20.0	18.6		ppb v/v		93	58 - 120	4	25
Bromodichloromethane	20.0	17.9		ppb v/v		89	65 - 130	3	25
Bromoform	20.0	21.6		ppb v/v		108	64 - 144	2	25
Bromomethane	20.0	19.6		ppb v/v		98	70 - 131	4	25
2-Butanone (MEK)	20.0	18.2		ppb v/v		91	71 - 131	3	25
Carbon disulfide	20.0	17.5		ppb v/v		87	63 - 123	3	25
Carbon tetrachloride	20.0	18.3		ppb v/v		92	67 - 127	3	25
Chlorobenzene	20.0	21.2		ppb v/v		106	70 - 132	1	25
Dibromochloromethane	20.0	19.7		ppb v/v		99	68 - 128	1	25
Chloroethane	20.0	19.3		ppb v/v		97	70 - 131	1	25
Chloroform	20.0	18.0		ppb v/v		90	69 - 129	5	25
Chloromethane	20.0	19.1		ppb v/v		96	67 - 127	0	25
1,2-Dibromoethane (EDB)	20.0	21.2		ppb v/v		106	68 - 131	1	25
1,2-Dichlorobenzene	20.0	22.5		ppb v/v		113	73 - 143	3	25
1,3-Dichlorobenzene	20.0	23.5		ppb v/v		118	77 - 136	1	25
1,4-Dichlorobenzene	20.0	23.1		ppb v/v		115	73 - 143	1	25
Dichlorodifluoromethane	20.0	19.1		ppb v/v		95	69 - 129	3	25
1,1-Dichloroethane	20.0	17.7		ppb v/v		88	65 - 125	5	25
1,2-Dichloroethane	20.0	18.0		ppb v/v		90	71 - 131	4	25
1,1-Dichloroethene	20.0	16.3		ppb v/v		82	53 - 128	5	25
cis-1,2-Dichloroethene	20.0	18.1		ppb v/v		90	68 - 128	4	25
trans-1,2-Dichloroethene	20.0	17.5		ppb v/v		88	70 - 130	6	25
1,2-Dichloropropane	20.0	19.6		ppb v/v		98	74 - 128	3	25
cis-1,3-Dichloropropene	20.0	20.9		ppb v/v		104	78 - 132	2	25
trans-1,3-Dichloropropene	20.0	19.2		ppb v/v		96	56 - 136	1	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	20.0	19.0		ppb v/v		95	64 - 124	0	25
Ethylbenzene	20.0	19.3		ppb v/v		97	76 - 136	2	25
4-Ethyltoluene	20.0	20.8		ppb v/v		104	62 - 136	7	25
Hexachlorobutadiene	20.0	24.2		ppb v/v		121	42 - 150	3	25
2-Hexanone	20.0	20.3		ppb v/v		101	70 - 128	3	25
Methylene Chloride	20.0	15.7		ppb v/v		78	65 - 125	7	25
4-Methyl-2-pentanone (MIBK)	20.0	18.1		ppb v/v		90	73 - 133	5	25
Styrene	20.0	20.8		ppb v/v		104	76 - 144	3	25
1,1,2,2-Tetrachloroethane	20.0	21.4		ppb v/v		107	75 - 135	3	25
Tetrachloroethene	20.0	19.1		ppb v/v		96	56 - 138	2	25
Toluene	20.0	20.4		ppb v/v		102	71 - 132	1	25
1,2,4-Trichlorobenzene	20.0	24.6		ppb v/v		123	59 - 150	4	25
1,1,1-Trichloroethane	20.0	18.1		ppb v/v		90	65 - 124	5	25
1,1,2-Trichloroethane	20.0	21.6		ppb v/v		108	71 - 131	1	25
Trichloroethene	20.0	19.2		ppb v/v		96	64 - 127	1	25
Trichlorofluoromethane	20.0	18.9		ppb v/v		95	68 - 128	4	25
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	16.6		ppb v/v		83	50 - 132	4	25
1,2,4-Trimethylbenzene	20.0	22.9		ppb v/v		114	61 - 145	4	25
1,3,5-Trimethylbenzene	20.0	22.4		ppb v/v		112	65 - 136	5	25
Vinyl acetate	20.0	18.0		ppb v/v		90	77 - 134	7	25
Vinyl chloride	20.0	19.8		ppb v/v		99	69 - 129	2	25
m,p-Xylene	40.0	42.9		ppb v/v		107	75 - 138	3	25

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-17500-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-103587/5

Client Sample ID: Lab Control Sample Dup

Matrix: Air

Prep Type: Total/NA

Analysis Batch: 103587

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
o-Xylene	20.0	22.0		ppb v/v		110	77 - 132	2	25
Acetone	48	42.6		ug/m3 Air		90	71 - 131	4	25
Benzene	64	56.0		ug/m3 Air		88	68 - 128	2	25
Benzyl chloride	100	96.4		ug/m3 Air		93	58 - 120	4	25
Bromodichloromethane	130	120		ug/m3 Air		89	65 - 130	3	25
Bromoform	210	223		ug/m3 Air		108	64 - 144	2	25
Bromomethane	78	76.1		ug/m3 Air		98	70 - 131	4	25
2-Butanone (MEK)	59	53.7		ug/m3 Air		91	71 - 131	3	25
Carbon disulfide	62	54.5		ug/m3 Air		87	63 - 123	3	25
Carbon tetrachloride	130	115		ug/m3 Air		92	67 - 127	3	25
Chlorobenzene	92	97.6		ug/m3 Air		106	70 - 132	1	25
Dibromochloromethane	170	168		ug/m3 Air		99	68 - 128	1	25
Chloroethane	53	51.0		ug/m3 Air		97	70 - 131	1	25
Chloroform	98	87.9		ug/m3 Air		90	69 - 129	5	25
Chloromethane	41	39.5		ug/m3 Air		96	67 - 127	0	25
1,2-Dibromoethane (EDB)	150	163		ug/m3 Air		106	68 - 131	1	25
1,2-Dichlorobenzene	120	135		ug/m3 Air		113	73 - 143	3	25
1,3-Dichlorobenzene	120	141		ug/m3 Air		118	77 - 136	1	25
1,4-Dichlorobenzene	120	139		ug/m3 Air		115	73 - 143	1	25
Dichlorodifluoromethane	99	94.3		ug/m3 Air		95	69 - 129	3	25
1,1-Dichloroethane	81	71.6		ug/m3 Air		88	65 - 125	5	25
1,2-Dichloroethane	81	72.8		ug/m3 Air		90	71 - 131	4	25
1,1-Dichloroethene	79	64.8		ug/m3 Air		82	53 - 128	5	25
cis-1,2-Dichloroethene	79	71.7		ug/m3 Air		90	68 - 128	4	25
trans-1,2-Dichloroethene	79	69.5		ug/m3 Air		88	70 - 130	6	25
1,2-Dichloropropane	92	90.6		ug/m3 Air		98	74 - 128	3	25
cis-1,3-Dichloropropene	91	94.8		ug/m3 Air		104	78 - 132	2	25
trans-1,3-Dichloropropene	91	87.3		ug/m3 Air		96	56 - 136	1	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	140	133		ug/m3 Air		95	64 - 124	0	25
Ethylbenzene	87	83.9		ug/m3 Air		97	76 - 136	2	25
4-Ethyltoluene	98	102		ug/m3 Air		104	62 - 136	7	25
Hexachlorobutadiene	210	258		ug/m3 Air		121	42 - 150	3	25
2-Hexanone	82	83.0		ug/m3 Air		101	70 - 128	3	25
Methylene Chloride	69	54.5		ug/m3 Air		78	65 - 125	7	25
4-Methyl-2-pentanone (MIBK)	82	74.0		ug/m3 Air		90	73 - 133	5	25
Styrene	85	88.8		ug/m3 Air		104	76 - 144	3	25
1,1,1,2-Tetrachloroethane	140	147		ug/m3 Air		107	75 - 135	3	25
Tetrachloroethene	140	130		ug/m3 Air		96	56 - 138	2	25
Toluene	75	77.0		ug/m3 Air		102	71 - 132	1	25
1,2,4-Trichlorobenzene	150	182		ug/m3 Air		123	59 - 150	4	25
1,1,1-Trichloroethane	110	98.5		ug/m3 Air		90	65 - 124	5	25
1,1,2-Trichloroethane	110	118		ug/m3 Air		108	71 - 131	1	25
Trichloroethene	110	103		ug/m3 Air		96	64 - 127	1	25
Trichlorofluoromethane	110	106		ug/m3 Air		95	68 - 128	4	25
1,1,2-Trichloro-1,2,2-trifluoroethane	150	128		ug/m3 Air		83	50 - 132	4	25

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-17500-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-103587/5

Client Sample ID: Lab Control Sample Dup

Matrix: Air

Prep Type: Total/NA

Analysis Batch: 103587

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4-Trimethylbenzene	98	112		ug/m3 Air		114	61 - 145	4	25
1,3,5-Trimethylbenzene	98	110		ug/m3 Air		112	65 - 136	5	25
Vinyl acetate	70	63.3		ug/m3 Air		90	77 - 134	7	25
Vinyl chloride	51	50.5		ug/m3 Air		99	69 - 129	2	25
m,p-Xylene	170	186		ug/m3 Air		107	75 - 138	3	25
o-Xylene	87	95.4		ug/m3 Air		110	77 - 132	2	25

Surrogate	LCSD %Recovery	LCSD Qualifier	LCSD Limits
4-Bromofluorobenzene (Surr)	99		70 - 130
1,2-Dichloroethane-d4 (Surr)	100		70 - 130
Toluene-d8 (Surr)	102		70 - 130

QC Association Summary

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

TestAmerica Job ID: 320-17500-1

Air - GC/MS VOA

Analysis Batch: 103462

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-17500-1	SVE_SOUTH_PRECARBON_022916	Total/NA	Air	TO-15	
320-17500-1 - DL	SVE_SOUTH_PRECARBON_022916	Total/NA	Air	TO-15	
320-17500-2	SVE_SOUTH_POSTCARBON_022916	Total/NA	Air	TO-15	
320-17500-2 - DL	SVE_SOUTH_POSTCARBON_022916	Total/NA	Air	TO-15	
320-17500-3	SVE_NORTH_EFFLUENT_022916	Total/NA	Air	TO-15	
LCS 320-103462/4	Lab Control Sample	Total/NA	Air	TO-15	
LCSD 320-103462/5	Lab Control Sample Dup	Total/NA	Air	TO-15	
MB 320-103462/7	Method Blank	Total/NA	Air	TO-15	

Analysis Batch: 103587

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-17500-3 - DL	SVE_NORTH_EFFLUENT_022916	Total/NA	Air	TO-15	
LCS 320-103587/4	Lab Control Sample	Total/NA	Air	TO-15	
LCSD 320-103587/5	Lab Control Sample Dup	Total/NA	Air	TO-15	
MB 320-103587/7	Method Blank	Total/NA	Air	TO-15	

Lab Chronicle

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

TestAmerica Job ID: 320-17500-1

Client Sample ID: SVE_SOUTH_PRECARBON_022916

Lab Sample ID: 320-17500-1

Date Collected: 02/29/16 11:03

Matrix: Air

Date Received: 03/01/16 10:00

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		237	3.4 mL	250 mL	103462	03/15/16 22:10	YK1	TAL SAC
Total/NA	Analysis	TO-15	DL	475	1.7 mL	250 mL	103462	03/16/16 11:50	YK1	TAL SAC

Client Sample ID: SVE_SOUTH_POSTCARBON_022916

Lab Sample ID: 320-17500-2

Date Collected: 02/29/16 11:09

Matrix: Air

Date Received: 03/01/16 10:00

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		9.6	70 mL	250 mL	103462	03/15/16 22:55	YK1	TAL SAC
Total/NA	Analysis	TO-15	DL	19.2	35 mL	250 mL	103462	03/16/16 12:35	YK1	TAL SAC

Client Sample ID: SVE_NORTH_EFFLUENT_022916

Lab Sample ID: 320-17500-3

Date Collected: 02/29/16 11:30

Matrix: Air

Date Received: 03/01/16 10:00

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	70 mL	250 mL	103462	03/15/16 23:41	YK1	TAL SAC
Total/NA	Analysis	TO-15	DL	36.1	20 mL	250 mL	103587	03/16/16 20:57	YK1	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: 320-17500-1

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	01-31-17
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	01-31-17
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	03-17-17
Kansas	NELAP	7	E-10375	05-31-16
Louisiana	NELAP	6	30612	06-30-16
Michigan	State Program	5	9947	01-31-18
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	01-29-17
Pennsylvania	NELAP	3	9947	03-31-16
Texas	NELAP	6	T104704399-15-9	05-31-16
US Fish & Wildlife	Federal		LE148388-0	10-31-16
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	03-14-17
Washington	State Program	10	C581	05-04-16
West Virginia (DW)	State Program	3	9930C	12-31-16
Wyoming	State Program	8	8TMS-Q	01-29-17

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

Method Summary

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

TestAmerica Job ID: 320-17500-1

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: 320-17500-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-17500-1	SVE_SOUTH_PRECARBON_022916	Air	02/29/16 11:03	03/01/16 10:00
320-17500-2	SVE_SOUTH_POSTCARBON_022916	Air	02/29/16 11:09	03/01/16 10:00
320-17500-3	SVE_NORTH_EFFLUENT_022916	Air	02/29/16 11:30	03/01/16 10:00

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- 7
- 8
- 9
- 10
- 11
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- 13
- 14
- 15
- 16
- 17

Client Contact Information
 Company Name: Apex Companies
 Address: 3015 SW 1st Ave
 City/State/Zip: Portland, OR 97201
 Phone: 503 231 4704
 FAX:
 Project Name: Mister Hammer REM
 Site/Location: Mister Hammer
 P O #: 1136-18

Project Manager: Stephen Salisbury
 Phone: 503-231-4704 x 1735
 Email: S.Salisbury@apexcos.com

Site Contact:
 TA Contact:

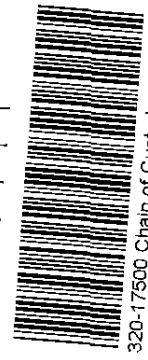
Analysis Turnaround Time
 Standard (Specific): X
 Rush (Specify):

Project Manager: Stephen Salisbury
 Samples Collected By: Kyle Kline

COC No. _____ of _____ COCs

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-1945 / 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)	Sample Specific Notes:
								X															
SUE_SOUTH_Pretreat-03916	2/29	1102	1103	-30	-4		8060		X														
SUE_SOUTH_Pretreat-03916	2/29	1108	1109	-30	-4		8060		X														
SUE_NORTH_Effluent-03916	2/29	1129	1130	-30	-4		8065		X														



Special Instructions/QC Requirements & Comments:
 Email Results to: ssalisbury@apexcos.com

Samples Shipped by: _____ Date / Time: _____
 Samples Received by: _____

Samples Relinquished by: Kyle Kline Date / Time: 2/29/16 1345
 Relinquished by: _____ Date / Time: 2/29/16 1700

Lab Use Only: _____



Login Sample Receipt Checklist

Client: Apex Companies LLC

Job Number: 320-17500-1

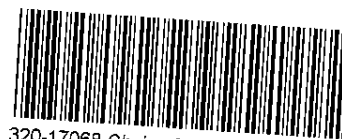
Login Number: 17500

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?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	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	



320-17068 Chain of Custody

Canister Batch Certification

Certification Type TO-15 Scan
 Date Cleaned/Batch ID 1/29/16 320-17068
 Date of QC 2/2/16
 Data File Number C:\MSDCHEM\1\DATA\160202\

MS7020215.d
CANISTER ID NUMBERS

<u>34000152 *</u>	<u>0543</u>	
<u>1303</u>	<u>1486</u>	
<u>0278</u>	<u>8065</u>	
<u>1385</u>	<u>8086</u>	
<u>1145</u>		
<u>0553</u>		
<u>1433</u>		
<u>1165</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] 2/3/16
 1st level Reviewed By: Date:
[Signature] 2/3/16
 2nd level Reviewed By: Date:

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-17068-1
 SDG No.: _____
 Client Sample ID: 34000152 Lab Sample ID: 320-17068-1
 Matrix: Air Lab File ID: MS7020215.d
 Analysis Method: TO-15 Date Collected: 01/29/2016 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 02/02/2016 21:16
 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.: 99700 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.: 320-17068-1
 SDG No.: _____
 Client Sample ID: 34000152 Lab Sample ID: 320-17068-1
 Matrix: Air Lab File ID: MS7020215.d
 Analysis Method: TO-15 Date Collected: 01/29/2016 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 02/02/2016 21:16
 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.: 99700 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.: 320-17068-1
 SDG No.: _____
 Client Sample ID: 34000152 Lab Sample ID: 320-17068-1
 Matrix: Air Lab File ID: MS7020215.d
 Analysis Method: TO-15 Date Collected: 01/29/2016 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 02/02/2016 21:16
 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.: 99700 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)	114		70-130
2037-26-5	Toluene-d8 (Surr)	103		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS7\20160202-28218.b\MS7020215.d
 Lims ID: 320-17068-A-1 Lab Sample ID: 320-17068-1
 Client ID: 34000152
 Sample Type: Client
 Inject. Date: 02-Feb-2016 21:16:30 ALS Bottle#: 12 Worklist Smp#: 15
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 320-17068-A-1
 Misc. Info.: 500 mL CAN CERT
 Operator ID: LHS Instrument ID: ATMS7
 Method: \\ChromNA\Sacramento\ChromData\ATMS7\20160202-28218.b\TO15_ATMS7N.m
 Limit Group: MSA - TO15 - ICAL
 Last Update: 03-Feb-2016 17:49:24 Calib Date: 15-Jan-2016 12:37:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS7\20160114-27830.b\MS7011423.d
 Column 1 : RTX Volatiles (0.32 mm) Det: MS SCAN
 Process Host: XAWRK008

First Level Reviewer: phanthasena

Date: 03-Feb-2016 17:50:18

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	12.323	12.341	-0.018	95	52532	4.00	
* 2 1,4-Difluorobenzene	114	14.483	14.495	-0.012	96	245664	4.00	
* 3 Chlorobenzene-d5 (IS)	117	21.169	21.175	-0.006	90	249788	4.00	
\$ 4 1,2-Dichloroethane-d4 (Surr)	65	13.534	13.546	-0.012	92	80383	4.56	
\$ 5 Toluene-d8 (Surr)	100	17.890	17.902	-0.012	98	186126	4.11	
\$ 6 4-Bromofluorobenzene (Surr)	95	23.712	23.736	-0.024	87	163846	3.90	
11 Propene	41	3.861	3.861	0.000	78	848	0.0736	
32 Acetone	43	7.438	7.371	0.067	90	2603	0.0946	
39 Methylene Chloride	49	8.746	8.758	-0.012	83	1398	0.0705	
73 n-Octane	43	17.908	17.926	-0.018	53	2302	0.0314	

Reagents:

VASUISIM_00260

Amount Added: 50.00

Units: mL

Run Reagent

Data File: \\ChromNA\Sacramento\ChromData\ATMS7\20160202-28218.b\MS7020215.d

Injection Date: 02-Feb-2016 21:16:30

Instrument ID: ATMS7

Operator ID: LHS

Lims ID: 320-17068-A-1

Lab Sample ID: 320-17068-1

Worklist Smp#: 15

Client ID: 34000152

Purge Vol: 5.000 mL

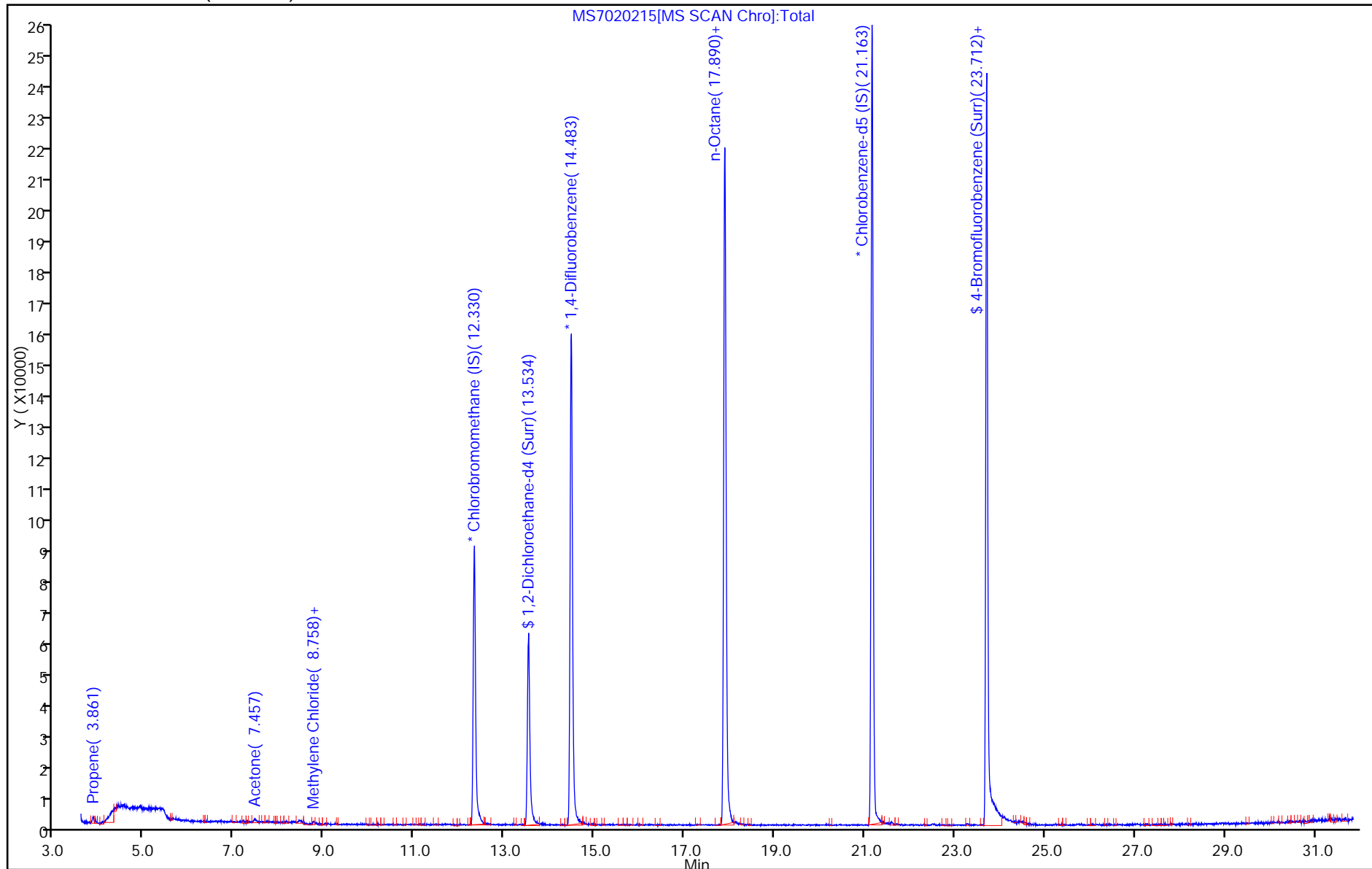
Dil. Factor: 1.0000

ALS Bottle#: 12

Method: TO15_ATMS7N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)



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: 320-18034-1
Client Project/Site: NuStar Vapor Testing

For:
Apex Companies LLC
3015 SW 1st Avenue
Portland, Oregon 97201

Attn: Stephanie Salisbury



Authorized for release by:
4/14/2016 3:58:51 PM

Sarah Murphy, Project Manager I
(253)922-2310
sarah.murphy@testamericainc.com



LINKS

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www.testamericainc.com

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: 320-18034-1

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: 320-18034-1

Job ID: 320-18034-1

Laboratory: TestAmerica Sacramento

Narrative

Receipt

The samples were received on 3/31/2016 10:20 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: 320-18034-1

Client Sample ID: SVE_SOUTH_PRECARBON_032916

Lab Sample ID: 320-18034-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	180		77		ppb v/v	192		TO-15	Total/NA
Tetrachloroethene	10000		77		ppb v/v	192		TO-15	Total/NA
1,1,1-Trichloroethane	96		58		ppb v/v	192		TO-15	Total/NA
Trichloroethene	510		77		ppb v/v	192		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	710		300		ug/m3 Air	192		TO-15	Total/NA
Tetrachloroethene	71000		520		ug/m3 Air	192		TO-15	Total/NA
1,1,1-Trichloroethane	520		310		ug/m3 Air	192		TO-15	Total/NA
Trichloroethene	2800		410		ug/m3 Air	192		TO-15	Total/NA

Client Sample ID: SVE_SOUTH_POSTCARBON_032916

Lab Sample ID: 320-18034-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	120		23		ppb v/v	56.9		TO-15	Total/NA
Tetrachloroethene	1400		23		ppb v/v	56.9		TO-15	Total/NA
1,1,1-Trichloroethane	270		17		ppb v/v	56.9		TO-15	Total/NA
Trichloroethene	1700		23		ppb v/v	56.9		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	490		90		ug/m3 Air	56.9		TO-15	Total/NA
Tetrachloroethene	9300		150		ug/m3 Air	56.9		TO-15	Total/NA
1,1,1-Trichloroethane	1500		93		ug/m3 Air	56.9		TO-15	Total/NA
Trichloroethene	9300		120		ug/m3 Air	56.9		TO-15	Total/NA

Client Sample ID: SVE_NORTH_EFFLUENT_032916

Lab Sample ID: 320-18034-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	130		1.8		ppb v/v	4.55		TO-15	Total/NA
Trichloroethene	3.5		1.8		ppb v/v	4.55		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	920		12		ug/m3 Air	4.55		TO-15	Total/NA
Trichloroethene	19		9.8		ug/m3 Air	4.55		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: 320-18034-1

Client Sample ID: SVE_SOUTH_PRECARBON_032916

Lab Sample ID: 320-18034-1

Date Collected: 03/29/16 10:15

Matrix: Air

Date Received: 03/31/16 10:20

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		960		ppb v/v			04/12/16 23:56	192
Benzene	ND		77		ppb v/v			04/12/16 23:56	192
Benzyl chloride	ND		150		ppb v/v			04/12/16 23:56	192
Bromodichloromethane	ND		58		ppb v/v			04/12/16 23:56	192
Bromoform	ND		77		ppb v/v			04/12/16 23:56	192
Bromomethane	ND		150		ppb v/v			04/12/16 23:56	192
2-Butanone (MEK)	ND		150		ppb v/v			04/12/16 23:56	192
Carbon disulfide	ND		150		ppb v/v			04/12/16 23:56	192
Carbon tetrachloride	ND		150		ppb v/v			04/12/16 23:56	192
Chlorobenzene	ND		58		ppb v/v			04/12/16 23:56	192
Dibromochloromethane	ND		77		ppb v/v			04/12/16 23:56	192
Chloroethane	ND		150		ppb v/v			04/12/16 23:56	192
Chloroform	ND		58		ppb v/v			04/12/16 23:56	192
Chloromethane	ND		150		ppb v/v			04/12/16 23:56	192
1,2-Dibromoethane (EDB)	ND		150		ppb v/v			04/12/16 23:56	192
1,2-Dichlorobenzene	ND		77		ppb v/v			04/12/16 23:56	192
1,3-Dichlorobenzene	ND		77		ppb v/v			04/12/16 23:56	192
1,4-Dichlorobenzene	ND		77		ppb v/v			04/12/16 23:56	192
Dichlorodifluoromethane	ND		77		ppb v/v			04/12/16 23:56	192
1,1-Dichloroethane	ND		58		ppb v/v			04/12/16 23:56	192
1,2-Dichloroethane	ND		150		ppb v/v			04/12/16 23:56	192
1,1-Dichloroethene	ND		150		ppb v/v			04/12/16 23:56	192
cis-1,2-Dichloroethene	180		77		ppb v/v			04/12/16 23:56	192
trans-1,2-Dichloroethene	ND		77		ppb v/v			04/12/16 23:56	192
1,2-Dichloropropane	ND		77		ppb v/v			04/12/16 23:56	192
cis-1,3-Dichloropropene	ND		77		ppb v/v			04/12/16 23:56	192
trans-1,3-Dichloropropene	ND		77		ppb v/v			04/12/16 23:56	192
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		77		ppb v/v			04/12/16 23:56	192
Ethylbenzene	ND		77		ppb v/v			04/12/16 23:56	192
4-Ethyltoluene	ND		77		ppb v/v			04/12/16 23:56	192
Hexachlorobutadiene	ND		380		ppb v/v			04/12/16 23:56	192
2-Hexanone	ND		77		ppb v/v			04/12/16 23:56	192
Methylene Chloride	ND		77		ppb v/v			04/12/16 23:56	192
4-Methyl-2-pentanone (MIBK)	ND		77		ppb v/v			04/12/16 23:56	192
Styrene	ND		77		ppb v/v			04/12/16 23:56	192
1,1,2,2-Tetrachloroethane	ND		77		ppb v/v			04/12/16 23:56	192
Tetrachloroethene	10000		77		ppb v/v			04/12/16 23:56	192
Toluene	ND		77		ppb v/v			04/12/16 23:56	192
1,2,4-Trichlorobenzene	ND		380		ppb v/v			04/12/16 23:56	192
1,1,1-Trichloroethane	96		58		ppb v/v			04/12/16 23:56	192
1,1,2-Trichloroethane	ND		77		ppb v/v			04/12/16 23:56	192
Trichloroethene	510		77		ppb v/v			04/12/16 23:56	192
Trichlorofluoromethane	ND		77		ppb v/v			04/12/16 23:56	192
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		77		ppb v/v			04/12/16 23:56	192
1,2,4-Trimethylbenzene	ND		150		ppb v/v			04/12/16 23:56	192
1,3,5-Trimethylbenzene	ND		77		ppb v/v			04/12/16 23:56	192
Vinyl acetate	ND		150		ppb v/v			04/12/16 23:56	192
Vinyl chloride	ND		77		ppb v/v			04/12/16 23:56	192

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-18034-1

Client Sample ID: SVE_SOUTH_PRECARBON_032916

Lab Sample ID: 320-18034-1

Date Collected: 03/29/16 10:15

Matrix: Air

Date Received: 03/31/16 10:20

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		150		ppb v/v			04/12/16 23:56	192
o-Xylene	ND		77		ppb v/v			04/12/16 23:56	192
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		2300		ug/m3 Air			04/12/16 23:56	192
Benzene	ND		250		ug/m3 Air			04/12/16 23:56	192
Benzyl chloride	ND		800		ug/m3 Air			04/12/16 23:56	192
Bromodichloromethane	ND		390		ug/m3 Air			04/12/16 23:56	192
Bromoform	ND		790		ug/m3 Air			04/12/16 23:56	192
Bromomethane	ND		600		ug/m3 Air			04/12/16 23:56	192
2-Butanone (MEK)	ND		450		ug/m3 Air			04/12/16 23:56	192
Carbon disulfide	ND		480		ug/m3 Air			04/12/16 23:56	192
Carbon tetrachloride	ND		970		ug/m3 Air			04/12/16 23:56	192
Chlorobenzene	ND		270		ug/m3 Air			04/12/16 23:56	192
Dibromochloromethane	ND		650		ug/m3 Air			04/12/16 23:56	192
Chloroethane	ND		410		ug/m3 Air			04/12/16 23:56	192
Chloroform	ND		280		ug/m3 Air			04/12/16 23:56	192
Chloromethane	ND		320		ug/m3 Air			04/12/16 23:56	192
1,2-Dibromoethane (EDB)	ND		1200		ug/m3 Air			04/12/16 23:56	192
1,2-Dichlorobenzene	ND		460		ug/m3 Air			04/12/16 23:56	192
1,3-Dichlorobenzene	ND		460		ug/m3 Air			04/12/16 23:56	192
1,4-Dichlorobenzene	ND		460		ug/m3 Air			04/12/16 23:56	192
Dichlorodifluoromethane	ND		380		ug/m3 Air			04/12/16 23:56	192
1,1-Dichloroethane	ND		230		ug/m3 Air			04/12/16 23:56	192
1,2-Dichloroethane	ND		620		ug/m3 Air			04/12/16 23:56	192
1,1-Dichloroethene	ND		610		ug/m3 Air			04/12/16 23:56	192
cis-1,2-Dichloroethene	710		300		ug/m3 Air			04/12/16 23:56	192
trans-1,2-Dichloroethene	ND		300		ug/m3 Air			04/12/16 23:56	192
1,2-Dichloropropane	ND		350		ug/m3 Air			04/12/16 23:56	192
cis-1,3-Dichloropropene	ND		350		ug/m3 Air			04/12/16 23:56	192
trans-1,3-Dichloropropene	ND		350		ug/m3 Air			04/12/16 23:56	192
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		540		ug/m3 Air			04/12/16 23:56	192
Ethylbenzene	ND		330		ug/m3 Air			04/12/16 23:56	192
4-Ethyltoluene	ND		380		ug/m3 Air			04/12/16 23:56	192
Hexachlorobutadiene	ND		4100		ug/m3 Air			04/12/16 23:56	192
2-Hexanone	ND		310		ug/m3 Air			04/12/16 23:56	192
Methylene Chloride	ND		270		ug/m3 Air			04/12/16 23:56	192
4-Methyl-2-pentanone (MIBK)	ND		310		ug/m3 Air			04/12/16 23:56	192
Styrene	ND		330		ug/m3 Air			04/12/16 23:56	192
1,1,2,2-Tetrachloroethane	ND		530		ug/m3 Air			04/12/16 23:56	192
Tetrachloroethene	71000		520		ug/m3 Air			04/12/16 23:56	192
Toluene	ND		290		ug/m3 Air			04/12/16 23:56	192
1,2,4-Trichlorobenzene	ND		2800		ug/m3 Air			04/12/16 23:56	192
1,1,1-Trichloroethane	520		310		ug/m3 Air			04/12/16 23:56	192
1,1,2-Trichloroethane	ND		420		ug/m3 Air			04/12/16 23:56	192
Trichloroethene	2800		410		ug/m3 Air			04/12/16 23:56	192
Trichlorofluoromethane	ND		430		ug/m3 Air			04/12/16 23:56	192
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		590		ug/m3 Air			04/12/16 23:56	192
1,2,4-Trimethylbenzene	ND		760		ug/m3 Air			04/12/16 23:56	192

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-18034-1

Client Sample ID: SVE_SOUTH_PRECARBON_032916

Lab Sample ID: 320-18034-1

Date Collected: 03/29/16 10:15

Matrix: Air

Date Received: 03/31/16 10:20

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		380		ug/m3 Air			04/12/16 23:56	192
Vinyl acetate	ND		540		ug/m3 Air			04/12/16 23:56	192
Vinyl chloride	ND		200		ug/m3 Air			04/12/16 23:56	192
m,p-Xylene	ND		670		ug/m3 Air			04/12/16 23:56	192
o-Xylene	ND		330		ug/m3 Air			04/12/16 23:56	192

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	70		70 - 130		04/12/16 23:56	192
1,2-Dichloroethane-d4 (Surr)	119		70 - 130		04/12/16 23:56	192
Toluene-d8 (Surr)	98		70 - 130		04/12/16 23:56	192

Client Sample ID: SVE_SOUTH_POSTCARBON_032916

Lab Sample ID: 320-18034-2

Date Collected: 03/29/16 10:18

Matrix: Air

Date Received: 03/31/16 10:20

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		280		ppb v/v			04/13/16 00:48	56.9
Benzene	ND		23		ppb v/v			04/13/16 00:48	56.9
Benzyl chloride	ND		46		ppb v/v			04/13/16 00:48	56.9
Bromodichloromethane	ND		17		ppb v/v			04/13/16 00:48	56.9
Bromoform	ND		23		ppb v/v			04/13/16 00:48	56.9
Bromomethane	ND		46		ppb v/v			04/13/16 00:48	56.9
2-Butanone (MEK)	ND		46		ppb v/v			04/13/16 00:48	56.9
Carbon disulfide	ND		46		ppb v/v			04/13/16 00:48	56.9
Carbon tetrachloride	ND		46		ppb v/v			04/13/16 00:48	56.9
Chlorobenzene	ND		17		ppb v/v			04/13/16 00:48	56.9
Dibromochloromethane	ND		23		ppb v/v			04/13/16 00:48	56.9
Chloroethane	ND		46		ppb v/v			04/13/16 00:48	56.9
Chloroform	ND		17		ppb v/v			04/13/16 00:48	56.9
Chloromethane	ND		46		ppb v/v			04/13/16 00:48	56.9
1,2-Dibromoethane (EDB)	ND		46		ppb v/v			04/13/16 00:48	56.9
1,2-Dichlorobenzene	ND		23		ppb v/v			04/13/16 00:48	56.9
1,3-Dichlorobenzene	ND		23		ppb v/v			04/13/16 00:48	56.9
1,4-Dichlorobenzene	ND		23		ppb v/v			04/13/16 00:48	56.9
Dichlorodifluoromethane	ND		23		ppb v/v			04/13/16 00:48	56.9
1,1-Dichloroethane	ND		17		ppb v/v			04/13/16 00:48	56.9
1,2-Dichloroethane	ND		46		ppb v/v			04/13/16 00:48	56.9
1,1-Dichloroethene	ND		46		ppb v/v			04/13/16 00:48	56.9
cis-1,2-Dichloroethene	120		23		ppb v/v			04/13/16 00:48	56.9
trans-1,2-Dichloroethene	ND		23		ppb v/v			04/13/16 00:48	56.9
1,2-Dichloropropane	ND		23		ppb v/v			04/13/16 00:48	56.9
cis-1,3-Dichloropropene	ND		23		ppb v/v			04/13/16 00:48	56.9
trans-1,3-Dichloropropene	ND		23		ppb v/v			04/13/16 00:48	56.9
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		23		ppb v/v			04/13/16 00:48	56.9
Ethylbenzene	ND		23		ppb v/v			04/13/16 00:48	56.9
4-Ethyltoluene	ND		23		ppb v/v			04/13/16 00:48	56.9
Hexachlorobutadiene	ND		110		ppb v/v			04/13/16 00:48	56.9

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-18034-1

Client Sample ID: SVE_SOUTH_POSTCARBON_032916

Lab Sample ID: 320-18034-2

Date Collected: 03/29/16 10:18

Matrix: Air

Date Received: 03/31/16 10:20

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		23		ppb v/v			04/13/16 00:48	56.9
Methylene Chloride	ND		23		ppb v/v			04/13/16 00:48	56.9
4-Methyl-2-pentanone (MIBK)	ND		23		ppb v/v			04/13/16 00:48	56.9
Styrene	ND		23		ppb v/v			04/13/16 00:48	56.9
1,1,2,2-Tetrachloroethane	ND		23		ppb v/v			04/13/16 00:48	56.9
Tetrachloroethene	1400		23		ppb v/v			04/13/16 00:48	56.9
Toluene	ND		23		ppb v/v			04/13/16 00:48	56.9
1,2,4-Trichlorobenzene	ND		110		ppb v/v			04/13/16 00:48	56.9
1,1,1-Trichloroethane	270		17		ppb v/v			04/13/16 00:48	56.9
1,1,2-Trichloroethane	ND		23		ppb v/v			04/13/16 00:48	56.9
Trichloroethene	1700		23		ppb v/v			04/13/16 00:48	56.9
Trichlorofluoromethane	ND		23		ppb v/v			04/13/16 00:48	56.9
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		23		ppb v/v			04/13/16 00:48	56.9
1,2,4-Trimethylbenzene	ND		46		ppb v/v			04/13/16 00:48	56.9
1,3,5-Trimethylbenzene	ND		23		ppb v/v			04/13/16 00:48	56.9
Vinyl acetate	ND		46		ppb v/v			04/13/16 00:48	56.9
Vinyl chloride	ND		23		ppb v/v			04/13/16 00:48	56.9
m,p-Xylene	ND		46		ppb v/v			04/13/16 00:48	56.9
o-Xylene	ND		23		ppb v/v			04/13/16 00:48	56.9

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		680		ug/m3 Air			04/13/16 00:48	56.9
Benzene	ND		73		ug/m3 Air			04/13/16 00:48	56.9
Benzyl chloride	ND		240		ug/m3 Air			04/13/16 00:48	56.9
Bromodichloromethane	ND		110		ug/m3 Air			04/13/16 00:48	56.9
Bromoform	ND		240		ug/m3 Air			04/13/16 00:48	56.9
Bromomethane	ND		180		ug/m3 Air			04/13/16 00:48	56.9
2-Butanone (MEK)	ND		130		ug/m3 Air			04/13/16 00:48	56.9
Carbon disulfide	ND		140		ug/m3 Air			04/13/16 00:48	56.9
Carbon tetrachloride	ND		290		ug/m3 Air			04/13/16 00:48	56.9
Chlorobenzene	ND		79		ug/m3 Air			04/13/16 00:48	56.9
Dibromochloromethane	ND		190		ug/m3 Air			04/13/16 00:48	56.9
Chloroethane	ND		120		ug/m3 Air			04/13/16 00:48	56.9
Chloroform	ND		83		ug/m3 Air			04/13/16 00:48	56.9
Chloromethane	ND		94		ug/m3 Air			04/13/16 00:48	56.9
1,2-Dibromoethane (EDB)	ND		350		ug/m3 Air			04/13/16 00:48	56.9
1,2-Dichlorobenzene	ND		140		ug/m3 Air			04/13/16 00:48	56.9
1,3-Dichlorobenzene	ND		140		ug/m3 Air			04/13/16 00:48	56.9
1,4-Dichlorobenzene	ND		140		ug/m3 Air			04/13/16 00:48	56.9
Dichlorodifluoromethane	ND		110		ug/m3 Air			04/13/16 00:48	56.9
1,1-Dichloroethane	ND		69		ug/m3 Air			04/13/16 00:48	56.9
1,2-Dichloroethane	ND		180		ug/m3 Air			04/13/16 00:48	56.9
1,1-Dichloroethene	ND		180		ug/m3 Air			04/13/16 00:48	56.9
cis-1,2-Dichloroethene	490		90		ug/m3 Air			04/13/16 00:48	56.9
trans-1,2-Dichloroethene	ND		90		ug/m3 Air			04/13/16 00:48	56.9
1,2-Dichloropropane	ND		110		ug/m3 Air			04/13/16 00:48	56.9
cis-1,3-Dichloropropene	ND		100		ug/m3 Air			04/13/16 00:48	56.9
trans-1,3-Dichloropropene	ND		100		ug/m3 Air			04/13/16 00:48	56.9
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		160		ug/m3 Air			04/13/16 00:48	56.9

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-18034-1

Client Sample ID: SVE_SOUTH_POSTCARBON_032916

Lab Sample ID: 320-18034-2

Date Collected: 03/29/16 10:18

Matrix: Air

Date Received: 03/31/16 10:20

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		99		ug/m3 Air			04/13/16 00:48	56.9
4-Ethyltoluene	ND		110		ug/m3 Air			04/13/16 00:48	56.9
Hexachlorobutadiene	ND		1200		ug/m3 Air			04/13/16 00:48	56.9
2-Hexanone	ND		93		ug/m3 Air			04/13/16 00:48	56.9
Methylene Chloride	ND		79		ug/m3 Air			04/13/16 00:48	56.9
4-Methyl-2-pentanone (MIBK)	ND		93		ug/m3 Air			04/13/16 00:48	56.9
Styrene	ND		97		ug/m3 Air			04/13/16 00:48	56.9
1,1,2,2-Tetrachloroethane	ND		160		ug/m3 Air			04/13/16 00:48	56.9
Tetrachloroethene	9300		150		ug/m3 Air			04/13/16 00:48	56.9
Toluene	ND		86		ug/m3 Air			04/13/16 00:48	56.9
1,2,4-Trichlorobenzene	ND		840		ug/m3 Air			04/13/16 00:48	56.9
1,1,1-Trichloroethane	1500		93		ug/m3 Air			04/13/16 00:48	56.9
1,1,2-Trichloroethane	ND		120		ug/m3 Air			04/13/16 00:48	56.9
Trichloroethene	9300		120		ug/m3 Air			04/13/16 00:48	56.9
Trichlorofluoromethane	ND		130		ug/m3 Air			04/13/16 00:48	56.9
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		170		ug/m3 Air			04/13/16 00:48	56.9
1,2,4-Trimethylbenzene	ND		220		ug/m3 Air			04/13/16 00:48	56.9
1,3,5-Trimethylbenzene	ND		110		ug/m3 Air			04/13/16 00:48	56.9
Vinyl acetate	ND		160		ug/m3 Air			04/13/16 00:48	56.9
Vinyl chloride	ND		58		ug/m3 Air			04/13/16 00:48	56.9
m,p-Xylene	ND		200		ug/m3 Air			04/13/16 00:48	56.9
o-Xylene	ND		99		ug/m3 Air			04/13/16 00:48	56.9
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	70		70 - 130					04/13/16 00:48	56.9
1,2-Dichloroethane-d4 (Surr)	118		70 - 130					04/13/16 00:48	56.9
Toluene-d8 (Surr)	98		70 - 130					04/13/16 00:48	56.9

Client Sample ID: SVE_NORTH_EFFLUENT_032916

Lab Sample ID: 320-18034-3

Date Collected: 03/29/16 10:55

Matrix: Air

Date Received: 03/31/16 10:20

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		23		ppb v/v			04/13/16 01:40	4.55
Benzene	ND		1.8		ppb v/v			04/13/16 01:40	4.55
Benzyl chloride	ND		3.6		ppb v/v			04/13/16 01:40	4.55
Bromodichloromethane	ND		1.4		ppb v/v			04/13/16 01:40	4.55
Bromoform	ND		1.8		ppb v/v			04/13/16 01:40	4.55
Bromomethane	ND		3.6		ppb v/v			04/13/16 01:40	4.55
2-Butanone (MEK)	ND		3.6		ppb v/v			04/13/16 01:40	4.55
Carbon disulfide	ND		3.6		ppb v/v			04/13/16 01:40	4.55
Carbon tetrachloride	ND		3.6		ppb v/v			04/13/16 01:40	4.55
Chlorobenzene	ND		1.4		ppb v/v			04/13/16 01:40	4.55
Dibromochloromethane	ND		1.8		ppb v/v			04/13/16 01:40	4.55
Chloroethane	ND		3.6		ppb v/v			04/13/16 01:40	4.55
Chloroform	ND		1.4		ppb v/v			04/13/16 01:40	4.55
Chloromethane	ND		3.6		ppb v/v			04/13/16 01:40	4.55

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-18034-1

Client Sample ID: SVE_NORTH_EFFLUENT_032916

Lab Sample ID: 320-18034-3

Date Collected: 03/29/16 10:55

Matrix: Air

Date Received: 03/31/16 10:20

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		3.6		ppb v/v			04/13/16 01:40	4.55
1,2-Dichlorobenzene	ND		1.8		ppb v/v			04/13/16 01:40	4.55
1,3-Dichlorobenzene	ND		1.8		ppb v/v			04/13/16 01:40	4.55
1,4-Dichlorobenzene	ND		1.8		ppb v/v			04/13/16 01:40	4.55
Dichlorodifluoromethane	ND		1.8		ppb v/v			04/13/16 01:40	4.55
1,1-Dichloroethane	ND		1.4		ppb v/v			04/13/16 01:40	4.55
1,2-Dichloroethane	ND		3.6		ppb v/v			04/13/16 01:40	4.55
1,1-Dichloroethene	ND		3.6		ppb v/v			04/13/16 01:40	4.55
cis-1,2-Dichloroethene	ND		1.8		ppb v/v			04/13/16 01:40	4.55
trans-1,2-Dichloroethene	ND		1.8		ppb v/v			04/13/16 01:40	4.55
1,2-Dichloropropane	ND		1.8		ppb v/v			04/13/16 01:40	4.55
cis-1,3-Dichloropropene	ND		1.8		ppb v/v			04/13/16 01:40	4.55
trans-1,3-Dichloropropene	ND		1.8		ppb v/v			04/13/16 01:40	4.55
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		1.8		ppb v/v			04/13/16 01:40	4.55
Ethylbenzene	ND		1.8		ppb v/v			04/13/16 01:40	4.55
4-Ethyltoluene	ND		1.8		ppb v/v			04/13/16 01:40	4.55
Hexachlorobutadiene	ND		9.1		ppb v/v			04/13/16 01:40	4.55
2-Hexanone	ND		1.8		ppb v/v			04/13/16 01:40	4.55
Methylene Chloride	ND		1.8		ppb v/v			04/13/16 01:40	4.55
4-Methyl-2-pentanone (MIBK)	ND		1.8		ppb v/v			04/13/16 01:40	4.55
Styrene	ND		1.8		ppb v/v			04/13/16 01:40	4.55
1,1,2,2-Tetrachloroethane	ND		1.8		ppb v/v			04/13/16 01:40	4.55
Tetrachloroethene	130		1.8		ppb v/v			04/13/16 01:40	4.55
Toluene	ND		1.8		ppb v/v			04/13/16 01:40	4.55
1,2,4-Trichlorobenzene	ND		9.1		ppb v/v			04/13/16 01:40	4.55
1,1,1-Trichloroethane	ND		1.4		ppb v/v			04/13/16 01:40	4.55
1,1,2-Trichloroethane	ND		1.8		ppb v/v			04/13/16 01:40	4.55
Trichloroethene	3.5		1.8		ppb v/v			04/13/16 01:40	4.55
Trichlorofluoromethane	ND		1.8		ppb v/v			04/13/16 01:40	4.55
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.8		ppb v/v			04/13/16 01:40	4.55
1,2,4-Trimethylbenzene	ND		3.6		ppb v/v			04/13/16 01:40	4.55
1,3,5-Trimethylbenzene	ND		1.8		ppb v/v			04/13/16 01:40	4.55
Vinyl acetate	ND		3.6		ppb v/v			04/13/16 01:40	4.55
Vinyl chloride	ND		1.8		ppb v/v			04/13/16 01:40	4.55
m,p-Xylene	ND		3.6		ppb v/v			04/13/16 01:40	4.55
o-Xylene	ND		1.8		ppb v/v			04/13/16 01:40	4.55
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		54		ug/m3 Air			04/13/16 01:40	4.55
Benzene	ND		5.8		ug/m3 Air			04/13/16 01:40	4.55
Benzyl chloride	ND		19		ug/m3 Air			04/13/16 01:40	4.55
Bromodichloromethane	ND		9.1		ug/m3 Air			04/13/16 01:40	4.55
Bromoform	ND		19		ug/m3 Air			04/13/16 01:40	4.55
Bromomethane	ND		14		ug/m3 Air			04/13/16 01:40	4.55
2-Butanone (MEK)	ND		11		ug/m3 Air			04/13/16 01:40	4.55
Carbon disulfide	ND		11		ug/m3 Air			04/13/16 01:40	4.55
Carbon tetrachloride	ND		23		ug/m3 Air			04/13/16 01:40	4.55
Chlorobenzene	ND		6.3		ug/m3 Air			04/13/16 01:40	4.55
Dibromochloromethane	ND		16		ug/m3 Air			04/13/16 01:40	4.55

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-18034-1

Client Sample ID: SVE_NORTH_EFFLUENT_032916

Lab Sample ID: 320-18034-3

Date Collected: 03/29/16 10:55

Matrix: Air

Date Received: 03/31/16 10:20

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		9.6		ug/m3 Air			04/13/16 01:40	4.55
Chloroform	ND		6.7		ug/m3 Air			04/13/16 01:40	4.55
Chloromethane	ND		7.5		ug/m3 Air			04/13/16 01:40	4.55
1,2-Dibromoethane (EDB)	ND		28		ug/m3 Air			04/13/16 01:40	4.55
1,2-Dichlorobenzene	ND		11		ug/m3 Air			04/13/16 01:40	4.55
1,3-Dichlorobenzene	ND		11		ug/m3 Air			04/13/16 01:40	4.55
1,4-Dichlorobenzene	ND		11		ug/m3 Air			04/13/16 01:40	4.55
Dichlorodifluoromethane	ND		9.0		ug/m3 Air			04/13/16 01:40	4.55
1,1-Dichloroethane	ND		5.5		ug/m3 Air			04/13/16 01:40	4.55
1,2-Dichloroethane	ND		15		ug/m3 Air			04/13/16 01:40	4.55
1,1-Dichloroethene	ND		14		ug/m3 Air			04/13/16 01:40	4.55
cis-1,2-Dichloroethene	ND		7.2		ug/m3 Air			04/13/16 01:40	4.55
trans-1,2-Dichloroethene	ND		7.2		ug/m3 Air			04/13/16 01:40	4.55
1,2-Dichloropropane	ND		8.4		ug/m3 Air			04/13/16 01:40	4.55
cis-1,3-Dichloropropene	ND		8.3		ug/m3 Air			04/13/16 01:40	4.55
trans-1,3-Dichloropropene	ND		8.3		ug/m3 Air			04/13/16 01:40	4.55
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		13		ug/m3 Air			04/13/16 01:40	4.55
Ethylbenzene	ND		7.9		ug/m3 Air			04/13/16 01:40	4.55
4-Ethyltoluene	ND		8.9		ug/m3 Air			04/13/16 01:40	4.55
Hexachlorobutadiene	ND		97		ug/m3 Air			04/13/16 01:40	4.55
2-Hexanone	ND		7.5		ug/m3 Air			04/13/16 01:40	4.55
Methylene Chloride	ND		6.3		ug/m3 Air			04/13/16 01:40	4.55
4-Methyl-2-pentanone (MIBK)	ND		7.5		ug/m3 Air			04/13/16 01:40	4.55
Styrene	ND		7.8		ug/m3 Air			04/13/16 01:40	4.55
1,1,2,2-Tetrachloroethane	ND		12		ug/m3 Air			04/13/16 01:40	4.55
Tetrachloroethene	920		12		ug/m3 Air			04/13/16 01:40	4.55
Toluene	ND		6.9		ug/m3 Air			04/13/16 01:40	4.55
1,2,4-Trichlorobenzene	ND		68		ug/m3 Air			04/13/16 01:40	4.55
1,1,1-Trichloroethane	ND		7.4		ug/m3 Air			04/13/16 01:40	4.55
1,1,2-Trichloroethane	ND		9.9		ug/m3 Air			04/13/16 01:40	4.55
Trichloroethene	19		9.8		ug/m3 Air			04/13/16 01:40	4.55
Trichlorofluoromethane	ND		10		ug/m3 Air			04/13/16 01:40	4.55
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		14		ug/m3 Air			04/13/16 01:40	4.55
1,2,4-Trimethylbenzene	ND		18		ug/m3 Air			04/13/16 01:40	4.55
1,3,5-Trimethylbenzene	ND		8.9		ug/m3 Air			04/13/16 01:40	4.55
Vinyl acetate	ND		13		ug/m3 Air			04/13/16 01:40	4.55
Vinyl chloride	ND		4.7		ug/m3 Air			04/13/16 01:40	4.55
m,p-Xylene	ND		16		ug/m3 Air			04/13/16 01:40	4.55
o-Xylene	ND		7.9		ug/m3 Air			04/13/16 01:40	4.55
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	78		70 - 130					04/13/16 01:40	4.55
1,2-Dichloroethane-d4 (Surr)	119		70 - 130					04/13/16 01:40	4.55
Toluene-d8 (Surr)	94		70 - 130					04/13/16 01:40	4.55

TestAmerica Sacramento

Surrogate Summary

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

TestAmerica Job ID: 320-18034-1

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)
320-18034-1	SVE_SOUTH_PRECARBON_032916	70	119	98
320-18034-2	SVE_SOUTH_POSTCARBON_032916	70	118	98
320-18034-3	SVE_NORTH_EFFLUENT_032916	78	119	94
LCS 320-106127/4	Lab Control Sample	108	114	100
LCSD 320-106127/5	Lab Control Sample Dup	109	113	103
MB 320-106127/9	Method Blank	79	111	97

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: 320-18034-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Lab Sample ID: MB 320-106127/9

Matrix: Air

Analysis Batch: 106127

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			04/12/16 22:11	1
Benzene	ND		0.40		ppb v/v			04/12/16 22:11	1
Benzyl chloride	ND		0.80		ppb v/v			04/12/16 22:11	1
Bromodichloromethane	ND		0.30		ppb v/v			04/12/16 22:11	1
Bromoform	ND		0.40		ppb v/v			04/12/16 22:11	1
Bromomethane	ND		0.80		ppb v/v			04/12/16 22:11	1
2-Butanone (MEK)	ND		0.80		ppb v/v			04/12/16 22:11	1
Carbon disulfide	ND		0.80		ppb v/v			04/12/16 22:11	1
Carbon tetrachloride	ND		0.80		ppb v/v			04/12/16 22:11	1
Chlorobenzene	ND		0.30		ppb v/v			04/12/16 22:11	1
Dibromochloromethane	ND		0.40		ppb v/v			04/12/16 22:11	1
Chloroethane	ND		0.80		ppb v/v			04/12/16 22:11	1
Chloroform	ND		0.30		ppb v/v			04/12/16 22:11	1
Chloromethane	ND		0.80		ppb v/v			04/12/16 22:11	1
1,2-Dibromoethane (EDB)	ND		0.80		ppb v/v			04/12/16 22:11	1
1,2-Dichlorobenzene	ND		0.40		ppb v/v			04/12/16 22:11	1
1,3-Dichlorobenzene	ND		0.40		ppb v/v			04/12/16 22:11	1
1,4-Dichlorobenzene	ND		0.40		ppb v/v			04/12/16 22:11	1
Dichlorodifluoromethane	ND		0.40		ppb v/v			04/12/16 22:11	1
1,1-Dichloroethane	ND		0.30		ppb v/v			04/12/16 22:11	1
1,2-Dichloroethane	ND		0.80		ppb v/v			04/12/16 22:11	1
1,1-Dichloroethene	ND		0.80		ppb v/v			04/12/16 22:11	1
cis-1,2-Dichloroethene	ND		0.40		ppb v/v			04/12/16 22:11	1
trans-1,2-Dichloroethene	ND		0.40		ppb v/v			04/12/16 22:11	1
1,2-Dichloropropane	ND		0.40		ppb v/v			04/12/16 22:11	1
cis-1,3-Dichloropropene	ND		0.40		ppb v/v			04/12/16 22:11	1
trans-1,3-Dichloropropene	ND		0.40		ppb v/v			04/12/16 22:11	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40		ppb v/v			04/12/16 22:11	1
Ethylbenzene	ND		0.40		ppb v/v			04/12/16 22:11	1
4-Ethyltoluene	ND		0.40		ppb v/v			04/12/16 22:11	1
Hexachlorobutadiene	ND		2.0		ppb v/v			04/12/16 22:11	1
2-Hexanone	ND		0.40		ppb v/v			04/12/16 22:11	1
Methylene Chloride	ND		0.40		ppb v/v			04/12/16 22:11	1
4-Methyl-2-pentanone (MIBK)	ND		0.40		ppb v/v			04/12/16 22:11	1
Styrene	ND		0.40		ppb v/v			04/12/16 22:11	1
1,1,2,2-Tetrachloroethane	ND		0.40		ppb v/v			04/12/16 22:11	1
Tetrachloroethene	ND		0.40		ppb v/v			04/12/16 22:11	1
Toluene	ND		0.40		ppb v/v			04/12/16 22:11	1
1,2,4-Trichlorobenzene	ND		2.0		ppb v/v			04/12/16 22:11	1
1,1,1-Trichloroethane	ND		0.30		ppb v/v			04/12/16 22:11	1
1,1,2-Trichloroethane	ND		0.40		ppb v/v			04/12/16 22:11	1
Trichloroethene	ND		0.40		ppb v/v			04/12/16 22:11	1
Trichlorofluoromethane	ND		0.40		ppb v/v			04/12/16 22:11	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40		ppb v/v			04/12/16 22:11	1
1,2,4-Trimethylbenzene	ND		0.80		ppb v/v			04/12/16 22:11	1
1,3,5-Trimethylbenzene	ND		0.40		ppb v/v			04/12/16 22:11	1
Vinyl acetate	ND		0.80		ppb v/v			04/12/16 22:11	1
Vinyl chloride	ND		0.40		ppb v/v			04/12/16 22:11	1

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-18034-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-106127/9
Matrix: Air
Analysis Batch: 106127

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			04/12/16 22:11	1
o-Xylene	ND		0.40		ppb v/v			04/12/16 22:11	1
Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Acetone	ND		12		ug/m3 Air			04/12/16 22:11	1
Benzene	ND		1.3		ug/m3 Air			04/12/16 22:11	1
Benzyl chloride	ND		4.1		ug/m3 Air			04/12/16 22:11	1
Bromodichloromethane	ND		2.0		ug/m3 Air			04/12/16 22:11	1
Bromoform	ND		4.1		ug/m3 Air			04/12/16 22:11	1
Bromomethane	ND		3.1		ug/m3 Air			04/12/16 22:11	1
2-Butanone (MEK)	ND		2.4		ug/m3 Air			04/12/16 22:11	1
Carbon disulfide	ND		2.5		ug/m3 Air			04/12/16 22:11	1
Carbon tetrachloride	ND		5.0		ug/m3 Air			04/12/16 22:11	1
Chlorobenzene	ND		1.4		ug/m3 Air			04/12/16 22:11	1
Dibromochloromethane	ND		3.4		ug/m3 Air			04/12/16 22:11	1
Chloroethane	ND		2.1		ug/m3 Air			04/12/16 22:11	1
Chloroform	ND		1.5		ug/m3 Air			04/12/16 22:11	1
Chloromethane	ND		1.7		ug/m3 Air			04/12/16 22:11	1
1,2-Dibromoethane (EDB)	ND		6.1		ug/m3 Air			04/12/16 22:11	1
1,2-Dichlorobenzene	ND		2.4		ug/m3 Air			04/12/16 22:11	1
1,3-Dichlorobenzene	ND		2.4		ug/m3 Air			04/12/16 22:11	1
1,4-Dichlorobenzene	ND		2.4		ug/m3 Air			04/12/16 22:11	1
Dichlorodifluoromethane	ND		2.0		ug/m3 Air			04/12/16 22:11	1
1,1-Dichloroethane	ND		1.2		ug/m3 Air			04/12/16 22:11	1
1,2-Dichloroethane	ND		3.2		ug/m3 Air			04/12/16 22:11	1
1,1-Dichloroethene	ND		3.2		ug/m3 Air			04/12/16 22:11	1
cis-1,2-Dichloroethene	ND		1.6		ug/m3 Air			04/12/16 22:11	1
trans-1,2-Dichloroethene	ND		1.6		ug/m3 Air			04/12/16 22:11	1
1,2-Dichloropropane	ND		1.8		ug/m3 Air			04/12/16 22:11	1
cis-1,3-Dichloropropene	ND		1.8		ug/m3 Air			04/12/16 22:11	1
trans-1,3-Dichloropropene	ND		1.8		ug/m3 Air			04/12/16 22:11	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.8		ug/m3 Air			04/12/16 22:11	1
Ethylbenzene	ND		1.7		ug/m3 Air			04/12/16 22:11	1
4-Ethyltoluene	ND		2.0		ug/m3 Air			04/12/16 22:11	1
Hexachlorobutadiene	ND		21		ug/m3 Air			04/12/16 22:11	1
2-Hexanone	ND		1.6		ug/m3 Air			04/12/16 22:11	1
Methylene Chloride	ND		1.4		ug/m3 Air			04/12/16 22:11	1
4-Methyl-2-pentanone (MIBK)	ND		1.6		ug/m3 Air			04/12/16 22:11	1
Styrene	ND		1.7		ug/m3 Air			04/12/16 22:11	1
1,1,2,2-Tetrachloroethane	ND		2.7		ug/m3 Air			04/12/16 22:11	1
Tetrachloroethene	ND		2.7		ug/m3 Air			04/12/16 22:11	1
Toluene	ND		1.5		ug/m3 Air			04/12/16 22:11	1
1,2,4-Trichlorobenzene	ND		15		ug/m3 Air			04/12/16 22:11	1
1,1,1-Trichloroethane	ND		1.6		ug/m3 Air			04/12/16 22:11	1
1,1,2-Trichloroethane	ND		2.2		ug/m3 Air			04/12/16 22:11	1
Trichloroethene	ND		2.1		ug/m3 Air			04/12/16 22:11	1
Trichlorofluoromethane	ND		2.2		ug/m3 Air			04/12/16 22:11	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.1		ug/m3 Air			04/12/16 22:11	1

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-18034-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-106127/9

Matrix: Air

Analysis Batch: 106127

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			04/12/16 22:11	1
1,3,5-Trimethylbenzene	ND		2.0		ug/m3 Air			04/12/16 22:11	1
Vinyl acetate	ND		2.8		ug/m3 Air			04/12/16 22:11	1
Vinyl chloride	ND		1.0		ug/m3 Air			04/12/16 22:11	1
m,p-Xylene	ND		3.5		ug/m3 Air			04/12/16 22:11	1
o-Xylene	ND		1.7		ug/m3 Air			04/12/16 22:11	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	79		70 - 130		04/12/16 22:11	1
1,2-Dichloroethane-d4 (Surr)	111		70 - 130		04/12/16 22:11	1
Toluene-d8 (Surr)	97		70 - 130		04/12/16 22:11	1

Lab Sample ID: LCS 320-106127/4

Matrix: Air

Analysis Batch: 106127

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	18.9		ppb v/v		95	71 - 131
Benzene	20.0	17.3		ppb v/v		87	68 - 128
Benzyl chloride	20.0	18.5		ppb v/v		92	58 - 120
Bromodichloromethane	20.0	18.1		ppb v/v		91	65 - 130
Bromoform	20.0	16.4		ppb v/v		82	64 - 144
Bromomethane	20.0	18.3		ppb v/v		92	70 - 131
2-Butanone (MEK)	20.0	18.9		ppb v/v		94	71 - 131
Carbon disulfide	20.0	16.6		ppb v/v		83	63 - 123
Carbon tetrachloride	20.0	18.2		ppb v/v		91	67 - 127
Chlorobenzene	20.0	18.0		ppb v/v		90	70 - 132
Dibromochloromethane	20.0	16.9		ppb v/v		84	68 - 128
Chloroethane	20.0	19.4		ppb v/v		97	70 - 131
Chloroform	20.0	18.0		ppb v/v		90	69 - 129
Chloromethane	20.0	21.5		ppb v/v		108	67 - 127
1,2-Dibromoethane (EDB)	20.0	17.5		ppb v/v		87	68 - 131
1,2-Dichlorobenzene	20.0	18.2		ppb v/v		91	73 - 143
1,3-Dichlorobenzene	20.0	19.4		ppb v/v		97	77 - 136
1,4-Dichlorobenzene	20.0	19.6		ppb v/v		98	73 - 143
Dichlorodifluoromethane	20.0	19.8		ppb v/v		99	69 - 129
1,1-Dichloroethane	20.0	17.9		ppb v/v		90	65 - 125
1,2-Dichloroethane	20.0	19.5		ppb v/v		97	71 - 131
1,1-Dichloroethene	20.0	17.1		ppb v/v		85	53 - 128
cis-1,2-Dichloroethene	20.0	17.1		ppb v/v		86	68 - 128
trans-1,2-Dichloroethene	20.0	17.9		ppb v/v		89	70 - 130
1,2-Dichloropropane	20.0	19.0		ppb v/v		95	74 - 128
cis-1,3-Dichloropropene	20.0	20.6		ppb v/v		103	78 - 132
trans-1,3-Dichloropropene	20.0	17.2		ppb v/v		86	56 - 136
1,2-Dichloro-1,1,2,2-tetrafluoroethane	20.0	18.6		ppb v/v		93	64 - 124
Ethylbenzene	20.0	18.9		ppb v/v		94	76 - 136
4-Ethyltoluene	20.0	17.5		ppb v/v		88	62 - 136

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-18034-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-106127/4

Matrix: Air

Analysis Batch: 106127

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	17.0		ppb v/v		85	42 - 150
2-Hexanone	20.0	23.5		ppb v/v		118	70 - 128
Methylene Chloride	20.0	17.3		ppb v/v		87	65 - 125
4-Methyl-2-pentanone (MIBK)	20.0	23.2		ppb v/v		116	73 - 133
Styrene	20.0	21.3		ppb v/v		106	76 - 144
1,1,2,2-Tetrachloroethane	20.0	17.9		ppb v/v		90	75 - 135
Tetrachloroethene	20.0	16.2		ppb v/v		81	56 - 138
Toluene	20.0	18.0		ppb v/v		90	71 - 132
1,2,4-Trichlorobenzene	20.0	19.5		ppb v/v		97	59 - 150
1,1,1-Trichloroethane	20.0	18.3		ppb v/v		92	65 - 124
1,1,2-Trichloroethane	20.0	17.3		ppb v/v		86	71 - 131
Trichloroethene	20.0	17.2		ppb v/v		86	64 - 127
Trichlorofluoromethane	20.0	19.1		ppb v/v		96	68 - 128
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	15.6		ppb v/v		78	50 - 132
1,2,4-Trimethylbenzene	20.0	21.2		ppb v/v		106	61 - 145
1,3,5-Trimethylbenzene	20.0	19.5		ppb v/v		97	65 - 136
Vinyl acetate	20.0	23.3		ppb v/v		117	77 - 134
Vinyl chloride	20.0	19.2		ppb v/v		96	69 - 129
m,p-Xylene	40.0	40.6		ppb v/v		102	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	44.9		ug/m3 Air		95	71 - 131
Benzene	64	55.3		ug/m3 Air		87	68 - 128
Benzyl chloride	100	95.6		ug/m3 Air		92	58 - 120
Bromodichloromethane	130	122		ug/m3 Air		91	65 - 130
Bromoform	210	170		ug/m3 Air		82	64 - 144
Bromomethane	78	71.1		ug/m3 Air		92	70 - 131
2-Butanone (MEK)	59	55.6		ug/m3 Air		94	71 - 131
Carbon disulfide	62	51.7		ug/m3 Air		83	63 - 123
Carbon tetrachloride	130	115		ug/m3 Air		91	67 - 127
Chlorobenzene	92	82.8		ug/m3 Air		90	70 - 132
Dibromochloromethane	170	144		ug/m3 Air		84	68 - 128
Chloroethane	53	51.3		ug/m3 Air		97	70 - 131
Chloroform	98	88.0		ug/m3 Air		90	69 - 129
Chloromethane	41	44.5		ug/m3 Air		108	67 - 127
1,2-Dibromoethane (EDB)	150	134		ug/m3 Air		87	68 - 131
1,2-Dichlorobenzene	120	109		ug/m3 Air		91	73 - 143
1,3-Dichlorobenzene	120	117		ug/m3 Air		97	77 - 136
1,4-Dichlorobenzene	120	118		ug/m3 Air		98	73 - 143
Dichlorodifluoromethane	99	97.9		ug/m3 Air		99	69 - 129
1,1-Dichloroethane	81	72.6		ug/m3 Air		90	65 - 125
1,2-Dichloroethane	81	78.8		ug/m3 Air		97	71 - 131
1,1-Dichloroethene	79	67.7		ug/m3 Air		85	53 - 128
cis-1,2-Dichloroethene	79	67.9		ug/m3 Air		86	68 - 128
trans-1,2-Dichloroethene	79	70.8		ug/m3 Air		89	70 - 130
1,2-Dichloropropane	92	88.0		ug/m3 Air		95	74 - 128

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-18034-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-106127/4

Matrix: Air

Analysis Batch: 106127

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	93.7		ug/m3 Air		103	78 - 132
trans-1,3-Dichloropropene	91	78.3		ug/m3 Air		86	56 - 136
1,2-Dichloro-1,1,2,2-tetrafluoroethane	140	130		ug/m3 Air		93	64 - 124
Ethylbenzene	87	82.0		ug/m3 Air		94	76 - 136
4-Ethyltoluene	98	86.1		ug/m3 Air		88	62 - 136
Hexachlorobutadiene	210	181		ug/m3 Air		85	42 - 150
2-Hexanone	82	96.4		ug/m3 Air		118	70 - 128
Methylene Chloride	69	60.2		ug/m3 Air		87	65 - 125
4-Methyl-2-pentanone (MIBK)	82	95.2		ug/m3 Air		116	73 - 133
Styrene	85	90.7		ug/m3 Air		106	76 - 144
1,1,2,2-Tetrachloroethane	140	123		ug/m3 Air		90	75 - 135
Tetrachloroethene	140	110		ug/m3 Air		81	56 - 138
Toluene	75	67.8		ug/m3 Air		90	71 - 132
1,2,4-Trichlorobenzene	150	145		ug/m3 Air		97	59 - 150
1,1,1-Trichloroethane	110	99.9		ug/m3 Air		92	65 - 124
1,1,2-Trichloroethane	110	94.4		ug/m3 Air		86	71 - 131
Trichloroethene	110	92.5		ug/m3 Air		86	64 - 127
Trichlorofluoromethane	110	108		ug/m3 Air		96	68 - 128
1,1,2-Trichloro-1,2,2-trifluoroethane	150	120		ug/m3 Air		78	50 - 132
1,2,4-Trimethylbenzene	98	104		ug/m3 Air		106	61 - 145
1,3,5-Trimethylbenzene	98	95.7		ug/m3 Air		97	65 - 136
Vinyl acetate	70	82.2		ug/m3 Air		117	77 - 134
Vinyl chloride	51	49.0		ug/m3 Air		96	69 - 129
m,p-Xylene	170	176		ug/m3 Air		102	75 - 138
o-Xylene	87	88.9		ug/m3 Air		102	77 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	108		70 - 130
1,2-Dichloroethane-d4 (Surr)	114		70 - 130
Toluene-d8 (Surr)	100		70 - 130

Lab Sample ID: LCSD 320-106127/5

Matrix: Air

Analysis Batch: 106127

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	19.1		ppb v/v		95	71 - 131	1	25
Benzene	20.0	17.5		ppb v/v		88	68 - 128	1	25
Benzyl chloride	20.0	19.0		ppb v/v		95	58 - 120	3	25
Bromodichloromethane	20.0	18.3		ppb v/v		92	65 - 130	1	25
Bromoform	20.0	16.7		ppb v/v		84	64 - 144	2	25
Bromomethane	20.0	19.2		ppb v/v		96	70 - 131	5	25
2-Butanone (MEK)	20.0	18.9		ppb v/v		95	71 - 131	0	25
Carbon disulfide	20.0	17.3		ppb v/v		86	63 - 123	4	25
Carbon tetrachloride	20.0	18.4		ppb v/v		92	67 - 127	1	25
Chlorobenzene	20.0	18.2		ppb v/v		91	70 - 132	1	25

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-18034-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-106127/5

Client Sample ID: Lab Control Sample Dup

Matrix: Air

Prep Type: Total/NA

Analysis Batch: 106127

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dibromochloromethane	20.0	16.5		ppb v/v		82	68 - 128	2	25
Chloroethane	20.0	20.2		ppb v/v		101	70 - 131	4	25
Chloroform	20.0	18.3		ppb v/v		91	69 - 129	1	25
Chloromethane	20.0	20.5		ppb v/v		102	67 - 127	5	25
1,2-Dibromoethane (EDB)	20.0	17.5		ppb v/v		87	68 - 131	0	25
1,2-Dichlorobenzene	20.0	18.6		ppb v/v		93	73 - 143	2	25
1,3-Dichlorobenzene	20.0	19.9		ppb v/v		100	77 - 136	3	25
1,4-Dichlorobenzene	20.0	19.8		ppb v/v		99	73 - 143	1	25
Dichlorodifluoromethane	20.0	20.8		ppb v/v		104	69 - 129	5	25
1,1-Dichloroethane	20.0	18.3		ppb v/v		91	65 - 125	2	25
1,2-Dichloroethane	20.0	19.5		ppb v/v		97	71 - 131	0	25
1,1-Dichloroethene	20.0	17.7		ppb v/v		89	53 - 128	4	25
cis-1,2-Dichloroethene	20.0	17.6		ppb v/v		88	68 - 128	3	25
trans-1,2-Dichloroethene	20.0	18.5		ppb v/v		92	70 - 130	4	25
1,2-Dichloropropane	20.0	19.2		ppb v/v		96	74 - 128	1	25
cis-1,3-Dichloropropene	20.0	20.8		ppb v/v		104	78 - 132	1	25
trans-1,3-Dichloropropene	20.0	16.8		ppb v/v		84	56 - 136	2	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	20.0	19.2		ppb v/v		96	64 - 124	3	25
Ethylbenzene	20.0	19.1		ppb v/v		96	76 - 136	1	25
4-Ethyltoluene	20.0	18.0		ppb v/v		90	62 - 136	3	25
Hexachlorobutadiene	20.0	17.7		ppb v/v		89	42 - 150	4	25
2-Hexanone	20.0	23.7		ppb v/v		118	70 - 128	1	25
Methylene Chloride	20.0	17.9		ppb v/v		89	65 - 125	3	25
4-Methyl-2-pentanone (MIBK)	20.0	23.3		ppb v/v		116	73 - 133	0	25
Styrene	20.0	21.8		ppb v/v		109	76 - 144	2	25
1,1,2,2-Tetrachloroethane	20.0	18.2		ppb v/v		91	75 - 135	2	25
Tetrachloroethene	20.0	16.1		ppb v/v		81	56 - 138	1	25
Toluene	20.0	18.4		ppb v/v		92	71 - 132	2	25
1,2,4-Trichlorobenzene	20.0	20.3		ppb v/v		102	59 - 150	4	25
1,1,1-Trichloroethane	20.0	18.7		ppb v/v		94	65 - 124	2	25
1,1,2-Trichloroethane	20.0	17.0		ppb v/v		85	71 - 131	2	25
Trichloroethene	20.0	17.7		ppb v/v		89	64 - 127	3	25
Trichlorofluoromethane	20.0	19.8		ppb v/v		99	68 - 128	3	25
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	16.2		ppb v/v		81	50 - 132	4	25
1,2,4-Trimethylbenzene	20.0	21.3		ppb v/v		107	61 - 145	0	25
1,3,5-Trimethylbenzene	20.0	19.7		ppb v/v		99	65 - 136	1	25
Vinyl acetate	20.0	23.0		ppb v/v		115	77 - 134	2	25
Vinyl chloride	20.0	19.8		ppb v/v		99	69 - 129	3	25
m,p-Xylene	40.0	41.1		ppb v/v		103	75 - 138	1	25
o-Xylene	20.0	20.8		ppb v/v		104	77 - 132	2	25
Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	48	45.3		ug/m3 Air		95	71 - 131	1	25
Benzene	64	56.0		ug/m3 Air		88	68 - 128	1	25
Benzyl chloride	100	98.1		ug/m3 Air		95	58 - 120	3	25
Bromodichloromethane	130	123		ug/m3 Air		92	65 - 130	1	25
Bromoform	210	173		ug/m3 Air		84	64 - 144	2	25

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-18034-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-106127/5

Client Sample ID: Lab Control Sample Dup

Matrix: Air

Prep Type: Total/NA

Analysis Batch: 106127

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromomethane	78	74.6		ug/m3 Air		96	70 - 131	5	25
2-Butanone (MEK)	59	55.8		ug/m3 Air		95	71 - 131	0	25
Carbon disulfide	62	53.8		ug/m3 Air		86	63 - 123	4	25
Carbon tetrachloride	130	116		ug/m3 Air		92	67 - 127	1	25
Chlorobenzene	92	83.6		ug/m3 Air		91	70 - 132	1	25
Dibromochloromethane	170	141		ug/m3 Air		82	68 - 128	2	25
Chloroethane	53	53.3		ug/m3 Air		101	70 - 131	4	25
Chloroform	98	89.1		ug/m3 Air		91	69 - 129	1	25
Chloromethane	41	42.3		ug/m3 Air		102	67 - 127	5	25
1,2-Dibromoethane (EDB)	150	134		ug/m3 Air		87	68 - 131	0	25
1,2-Dichlorobenzene	120	112		ug/m3 Air		93	73 - 143	2	25
1,3-Dichlorobenzene	120	120		ug/m3 Air		100	77 - 136	3	25
1,4-Dichlorobenzene	120	119		ug/m3 Air		99	73 - 143	1	25
Dichlorodifluoromethane	99	103		ug/m3 Air		104	69 - 129	5	25
1,1-Dichloroethane	81	74.0		ug/m3 Air		91	65 - 125	2	25
1,2-Dichloroethane	81	78.8		ug/m3 Air		97	71 - 131	0	25
1,1-Dichloroethene	79	70.3		ug/m3 Air		89	53 - 128	4	25
cis-1,2-Dichloroethene	79	69.8		ug/m3 Air		88	68 - 128	3	25
trans-1,2-Dichloroethene	79	73.3		ug/m3 Air		92	70 - 130	4	25
1,2-Dichloropropane	92	88.9		ug/m3 Air		96	74 - 128	1	25
cis-1,3-Dichloropropene	91	94.4		ug/m3 Air		104	78 - 132	1	25
trans-1,3-Dichloropropene	91	76.4		ug/m3 Air		84	56 - 136	2	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	140	134		ug/m3 Air		96	64 - 124	3	25
Ethylbenzene	87	83.0		ug/m3 Air		96	76 - 136	1	25
4-Ethyltoluene	98	88.3		ug/m3 Air		90	62 - 136	3	25
Hexachlorobutadiene	210	189		ug/m3 Air		89	42 - 150	4	25
2-Hexanone	82	97.1		ug/m3 Air		118	70 - 128	1	25
Methylene Chloride	69	62.2		ug/m3 Air		89	65 - 125	3	25
4-Methyl-2-pentanone (MIBK)	82	95.4		ug/m3 Air		116	73 - 133	0	25
Styrene	85	92.9		ug/m3 Air		109	76 - 144	2	25
1,1,2,2-Tetrachloroethane	140	125		ug/m3 Air		91	75 - 135	2	25
Tetrachloroethene	140	109		ug/m3 Air		81	56 - 138	1	25
Toluene	75	69.5		ug/m3 Air		92	71 - 132	2	25
1,2,4-Trichlorobenzene	150	151		ug/m3 Air		102	59 - 150	4	25
1,1,1-Trichloroethane	110	102		ug/m3 Air		94	65 - 124	2	25
1,1,2-Trichloroethane	110	92.9		ug/m3 Air		85	71 - 131	2	25
Trichloroethene	110	95.3		ug/m3 Air		89	64 - 127	3	25
Trichlorofluoromethane	110	111		ug/m3 Air		99	68 - 128	3	25
1,1,2-Trichloro-1,2,2-trifluoroethane	150	124		ug/m3 Air		81	50 - 132	4	25
1,2,4-Trimethylbenzene	98	105		ug/m3 Air		107	61 - 145	0	25
1,3,5-Trimethylbenzene	98	96.9		ug/m3 Air		99	65 - 136	1	25
Vinyl acetate	70	80.9		ug/m3 Air		115	77 - 134	2	25
Vinyl chloride	51	50.6		ug/m3 Air		99	69 - 129	3	25
m,p-Xylene	170	179		ug/m3 Air		103	75 - 138	1	25
o-Xylene	87	90.2		ug/m3 Air		104	77 - 132	2	25

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-18034-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-106127/5

Matrix: Air

Analysis Batch: 106127

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	109		70 - 130
1,2-Dichloroethane-d4 (Surr)	113		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: 320-18034-1

Air - GC/MS VOA

Analysis Batch: 106127

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-18034-1	SVE_SOUTH_PRECARBON_032916	Total/NA	Air	TO-15	
320-18034-2	SVE_SOUTH_POSTCARBON_032916	Total/NA	Air	TO-15	
320-18034-3	SVE_NORTH_EFFLUENT_032916	Total/NA	Air	TO-15	
LCS 320-106127/4	Lab Control Sample	Total/NA	Air	TO-15	
LCSD 320-106127/5	Lab Control Sample Dup	Total/NA	Air	TO-15	
MB 320-106127/9	Method Blank	Total/NA	Air	TO-15	

Lab Chronicle

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

TestAmerica Job ID: 320-18034-1

Client Sample ID: SVE_SOUTH_PRECARBON_032916

Lab Sample ID: 320-18034-1

Date Collected: 03/29/16 10:15

Matrix: Air

Date Received: 03/31/16 10:20

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		192	2 mL	250 mL	106127	04/12/16 23:56	HL1	TAL SAC

Client Sample ID: SVE_SOUTH_POSTCARBON_032916

Lab Sample ID: 320-18034-2

Date Collected: 03/29/16 10:18

Matrix: Air

Date Received: 03/31/16 10:20

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		56.9	8.333 mL	250 mL	106127	04/13/16 00:48	HL1	TAL SAC

Client Sample ID: SVE_NORTH_EFFLUENT_032916

Lab Sample ID: 320-18034-3

Date Collected: 03/29/16 10:55

Matrix: Air

Date Received: 03/31/16 10:20

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		4.55	100 mL	250 mL	106127	04/13/16 01:40	HL1	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: 320-18034-1

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	01-31-17
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	01-31-17
Colorado	State Program	8	CA00044	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	03-17-17
Kansas	NELAP	7	E-10375	05-31-16
Louisiana	NELAP	6	30612	06-30-16
Michigan	State Program	5	9947	01-31-18
Nevada	State Program	9	CA00044	07-31-16
New Jersey	NELAP	2	CA005	06-30-16
New York	NELAP	2	11666	04-01-17
Oregon	NELAP	10	4040	01-29-17
Pennsylvania	NELAP	3	68-01272	03-31-17
Texas	NELAP	6	T104704399	05-31-16
US Fish & Wildlife	Federal		LE148388-0	10-31-16
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-16
Utah	NELAP	8	CA00044	02-28-17
Virginia	NELAP Secondary AB	3	460278	03-14-17
Washington	State Program	10	C581	05-04-16
West Virginia (DW)	State Program	3	9930C	12-31-16
Wyoming	State Program	8	8TMS-L	01-29-17

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

Method Summary

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

TestAmerica Job ID: 320-18034-1

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



Sample Summary

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

TestAmerica Job ID: 320-18034-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-18034-1	SVE_SOUTH_PRECARBON_032916	Air	03/29/16 10:15	03/31/16 10:20
320-18034-2	SVE_SOUTH_POSTCARBON_032916	Air	03/29/16 10:18	03/31/16 10:20
320-18034-3	SVE_NORTH_EFFLUENT_032916	Air	03/29/16 10:55	03/31/16 10:20

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TestAmerica Sacramento
880 Riverside Parkway

West Sacramento, CA 95605
phone 916.374.4378 fax 916.372.1059

Client Contact Information
Company Name: Apex Companies
Address: 3015 SW 1st Ave
City/State/Zip: Portland OR 97301
Phone: 503-984-4704
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Project Name: Mustang Vancouver REM
Site/Location: Mustang Vancouver
P O #: 1126-18

Project Manager: Stephen Salisbury
Phone: 503 924 4704 X 1925
Email: SSalisbury@Apexcos.com

Site Contact:
TA Contact:

Analysis Turnaround Time
Standard (Specific)
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
SVE - South - Pre Carbon - 0329/16	3/29/16	1014	1015	-30	-1	-	7854
SVE - South - Post Carbon - 0329/16	3/29/16	1018	1019	-30	-4	-	8126
SVE - North - Effluent - 0329/16	3/29/16	1054	1055	-30	-4	-	8070

Project Manager: Kyle Kline

Samples Collected By: Kyle Kline

COC No: 1 of 1 COCs

Other (Please specify in notes section)	Sample Type	Other (Please specify in notes section)
Landfill Gas		
Soil Gas		
Ambient Air		
Indoor Air		
TO-15 (Med / Std / Low / SIM)		
MA-APH		
EPA 3C		
EPA 25C / 25.3		
ASTM D-1946 / 1945 / 3588		
EPA 15/16		
TO-3		

For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No.:
(See below for Add'l items)

Sample Specific Notes:



Temperature (Fahrenheit)	
Start Interior	
Stop Ambient	
Temperature (Fahrenheit)	
Start Interior	
Stop Ambient	

Special Instructions/QC Requirements & Comments:
Email Results TO: SSalisbury@Apexcos.com

Samples Shipped by:	Date / Time:	Samples Received by:	Date / Time:
Kyle Kline	3/30/16 1020	Samuel N...	3/30/16 1020
Samples Relinquished by:	Date / Time:	Received by:	Date / Time:
Kyle Kline	3/30/16 1220	Samuel N...	3/30/16 1700
Lab Use Only:	Shipper Name:	Collection:	
	Shipper Name:	33-16-1020	

JOB # **320-18034**
Sample # **1**

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Client/Project:		VFR ID:	
Canister Serial #:	7854	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)	15.67	04/11/16	SV	
FINAL PRESSURE (PSIA)	24.06	04/11/16	SV	
Pressurization Gas: <input type="checkbox"/> N2 <input type="checkbox"/> He	SCREENED <input type="checkbox"/>	SCRN DIL. VS 250mLs:		
Initial Canister Dilution Factor =	1.54			

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										
Canister DF =	1.54	X	Load DF =	2.5	X	Bag DF =	50	=	FINAL DF	191.9272495
			LVf (mLs)	250		BVf (mLs)	50			
			LVi (mLs)	100		Bvi (mLs)	1			
Canister DF =	1.54	X	Load DF =	#DIV/0!	X	Bag DF =	1	=	FINAL DF	#DIV/0!
			LVf (mLs)			BVf (mLs)				
			LVi (mLs)			Bvi (mLs)				
Canister DF =	1.54	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: 320-18034-1

Login Number: 18034

List Source: TestAmerica Sacramento

List Number: 1

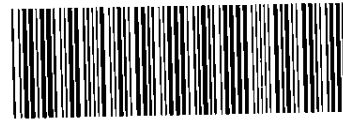
Creator: Nelson, Kym D

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 (excluding tests with immediate HTs)	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	



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



320-17340 Chain of Custody

Canister QC Certification Batch Certification

Certification Type T0-15 Scan
 Date Cleaned/Batch ID 2/17/16 320-17340
 Date of QC 2/21/16
 Data File Number MS9022022.D

CANISTER ID NUMBERS

<u>34000878</u>	<u>8070</u>	
<u>1510</u>	<u>8126</u>	
<u>0556</u>	<u>7921</u>	
<u>0416</u>	<u>7965*</u>	
<u>1217</u>		
<u>0584</u>		
<u>7854</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] FOR AP
1st level Reviewed By:

2/24/16
Date:

[Signature]
2nd level Reviewed By:

2/26/16
Date:

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FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-17340-1
 SDG No.: _____
 Client Sample ID: 7965 Lab Sample ID: 320-17340-12
 Matrix: Air Lab File ID: MS9022022.D
 Analysis Method: TO-15 Date Collected: 02/17/2016 00:00
 Sample wt/vol: 250 (mL) Date Analyzed: 02/21/2016 08:31
 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.: 101011 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.: 320-17340-1
 SDG No.: _____
 Client Sample ID: 7965 Lab Sample ID: 320-17340-12
 Matrix: Air Lab File ID: MS9022022.D
 Analysis Method: TO-15 Date Collected: 02/17/2016 00:00
 Sample wt/vol: 250 (mL) Date Analyzed: 02/21/2016 08:31
 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.: 101011 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	0.090	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.: 320-17340-1
 SDG No.: _____
 Client Sample ID: 7965 Lab Sample ID: 320-17340-12
 Matrix: Air Lab File ID: MS9022022.D
 Analysis Method: TO-15 Date Collected: 02/17/2016 00:00
 Sample wt/vol: 250 (mL) Date Analyzed: 02/21/2016 08:31
 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.: 101011 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)	102		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	98		70-130
2037-26-5	Toluene-d8 (Surr)	100		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS9\20160220-28523.b\MS9022022.D
 Lims ID: 320-17340-A-12 Lab Sample ID: 320-17340-12
 Client ID: 7965
 Sample Type: Client
 Inject. Date: 21-Feb-2016 08:31:30 ALS Bottle#: 3 Worklist Smp#: 20
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 320-17340-A-12
 Misc. Info.: 500 mL
 Operator ID: KY Instrument ID: ATMS9
 Method: \\ChromNA\Sacramento\ChromData\ATMS9\20160220-28523.b\TO15_ATMS9N.m
 Limit Group: MSA - TO15 - ICAL
 Last Update: 22-Feb-2016 14:16:26 Calib Date: 18-Feb-2016 03:49:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS9\20160217-28444.b\MS9021712.D
 Column 1 : RTX Volatiles (0.32 mm) Det: MS SCAN
 Process Host: XAWRK008

First Level Reviewer: phanthasena

Date: 22-Feb-2016 14:16:26

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	12.437	12.443	-0.006	96	35797	4.00	
* 2 1,4-Difluorobenzene	114	14.530	14.542	-0.012	96	155227	4.00	
* 3 Chlorobenzene-d5 (IS)	117	20.449	20.456	-0.007	90	130966	4.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	13.611	13.624	-0.013	98	55134	3.93	
\$ 5 Toluene-d8 (Surr)	100	17.700	17.706	-0.006	97	97831	4.01	
\$ 6 4-Bromofluorobenzene (Surr	174	22.372	22.372	0.000	88	74940	4.08	
14 Propene	41	4.231	4.164	0.066	63	638	0.0626	
18 Chloromethane	50	4.766	4.699	0.067	6	561	0.0522	
31 Acetone	43	7.704	7.631	0.073	91	2881	0.1502	
47 Methylene Chloride	49	8.964	8.958	0.006	84	1439	0.0901	
88 n-Octane	43	17.693	17.706	-0.013	42	1069	0.0265	
98 m-Xylene & p-Xylene	91	20.790	20.790	0.006	1	1076	0.0229	
104 Isopropylbenzene	120	22.043	22.049	-0.006	85	116	0.006879	
111 1,3,5-Trimethylbenzene	120	22.871	22.877	-0.006	83	385	0.0149	
121 4-Isopropyltoluene	119	23.856	23.856	0.000	94	1058	0.0163	
117 1,3-Dichlorobenzene	146	23.960	23.966	-0.006	87	849	0.0271	
120 1,4-Dichlorobenzene	146	24.087	24.093	-0.006	89	733	0.0238	
123 n-Butylbenzene	92	24.391	24.398	-0.007	89	398	0.0122	
122 1,2-Dichlorobenzene	146	24.574	24.574	0.000	91	731	0.0244	
126 1,2,4-Trichlorobenzene	180	26.819	26.831	-0.012	1	430	0.0180	
128 Hexachlorobutadiene	225	27.068	27.093	-0.025	74	856	0.0317	

Reagents:

VASUISIM_00267

Amount Added: 50.00

Units: mL

Run Reagent

Data File: \\ChromNA\Sacramento\ChromData\ATMS9\20160220-28523.b\MS9022022.D

Injection Date: 21-Feb-2016 08:31:30

Instrument ID: ATMS9

Operator ID: KY

Lims ID: 320-17340-A-12

Lab Sample ID: 320-17340-12

Worklist Smp#: 20

Client ID: 7965

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

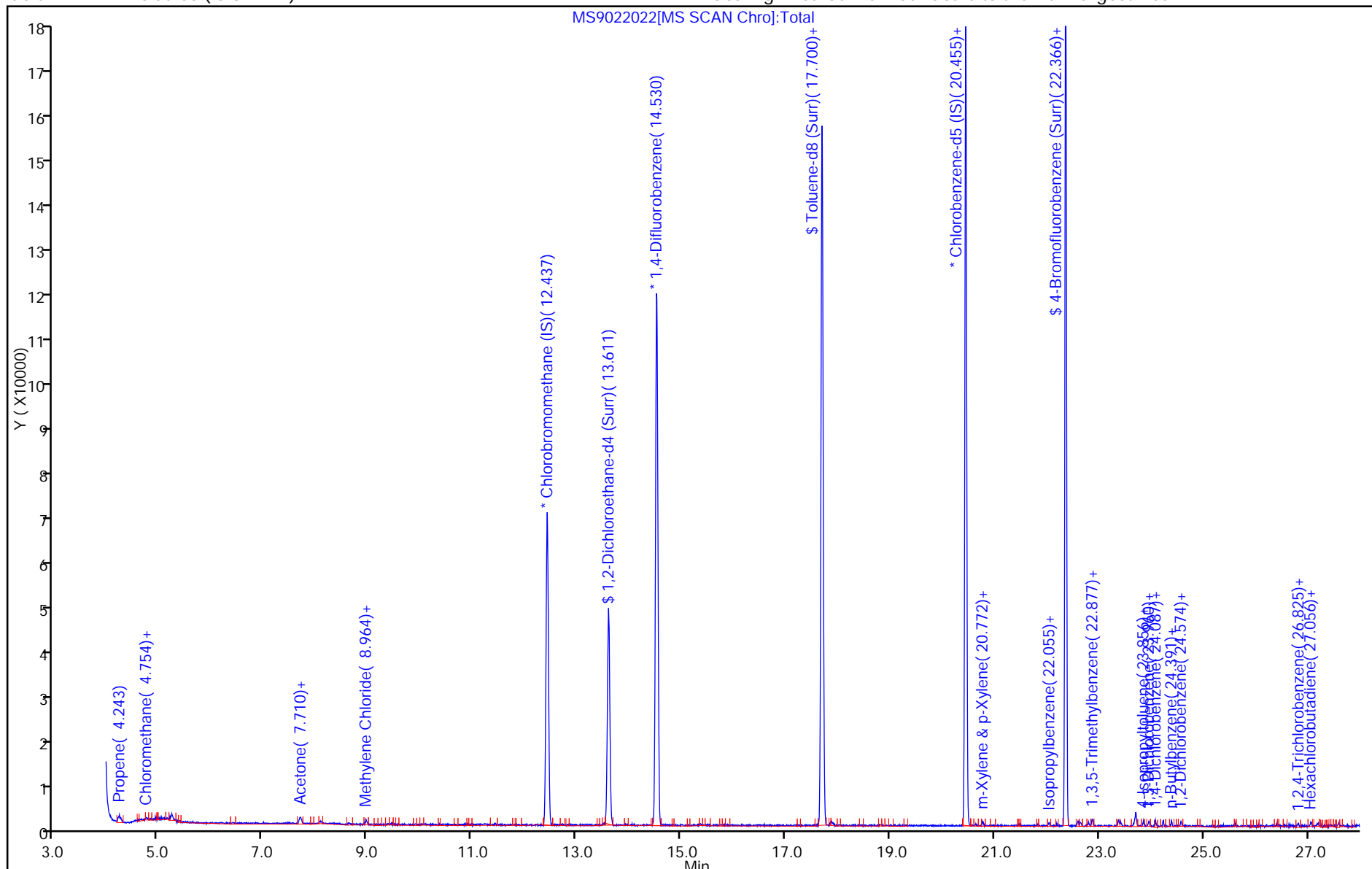
ALS Bottle#: 3

Method: TO15_ATMS9N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Peak: 2



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS9\20160220-28523.b\MS9022022.D

Injection Date: 21-Feb-2016 08:31:30

Instrument ID: ATMS9

Lims ID: 320-17340-A-12

Lab Sample ID: 320-17340-12

Client ID: 7965

Operator ID: KY

ALS Bottle#: 3 Worklist Smp#: 20

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

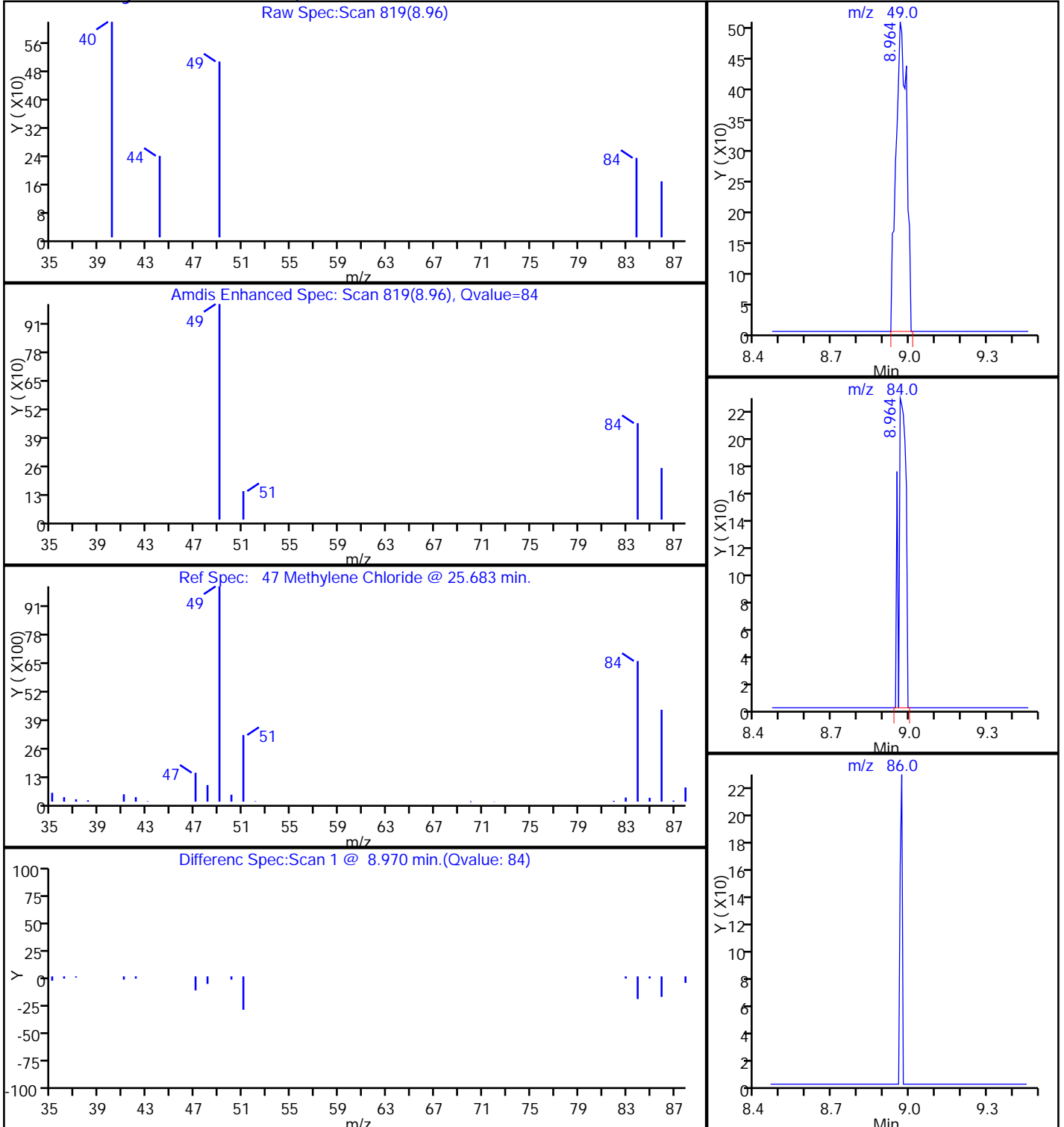
Method: TO15_ATMS9N

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: 320-18588-1
Client Project/Site: NuStar Vapor Testing

For:
Apex Companies LLC
3015 SW 1st Avenue
Portland, Oregon 97201

Attn: Stephanie Salisbury



Authorized for release by:
5/11/2016 10:20:09 AM

Sarah Murphy, Project Manager I
(253)922-2310
sarah.murphy@testamericainc.com

LINKS

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results through
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www.testamericainc.com

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: 320-18588-1

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: 320-18588-1

Job ID: 320-18588-1

Laboratory: TestAmerica Sacramento

Narrative

Receipt

The samples were received on 4/29/2016 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice.

Receipt Exceptions

The container asset for the following sample did not match the information listed on the Chain-of-Custody (COC): NORTH_EFFLUENT (320-18588-3). The container asset lists 34000301, while the COC lists 3400301.

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: 320-18588-1

Client Sample ID: SOUTH_POST CARBON

Lab Sample ID: 320-18588-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	45		21		ppb v/v	51.79		TO-15	Total/NA
Tetrachloroethene	1700		21		ppb v/v	51.79		TO-15	Total/NA
1,1,1-Trichloroethane	21		16		ppb v/v	51.79		TO-15	Total/NA
Trichloroethene	400		21		ppb v/v	51.79		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	180		82		ug/m3 Air	51.79		TO-15	Total/NA
Tetrachloroethene	11000		140		ug/m3 Air	51.79		TO-15	Total/NA
1,1,1-Trichloroethane	110		85		ug/m3 Air	51.79		TO-15	Total/NA
Trichloroethene	2200		110		ug/m3 Air	51.79		TO-15	Total/NA

Client Sample ID: SOUTH_POST BLOWER

Lab Sample ID: 320-18588-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	3.1		2.1		ppb v/v	5.3		TO-15	Total/NA
Tetrachloroethene	130		2.1		ppb v/v	5.3		TO-15	Total/NA
Trichloroethene	4.3		2.1		ppb v/v	5.3		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	12		8.4		ug/m3 Air	5.3		TO-15	Total/NA
Tetrachloroethene	910		14		ug/m3 Air	5.3		TO-15	Total/NA
Trichloroethene	23		11		ug/m3 Air	5.3		TO-15	Total/NA

Client Sample ID: NORTH_EFFLUENT

Lab Sample ID: 320-18588-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	220		3.6		ppb v/v	9.02		TO-15	Total/NA
Trichloroethene	14		3.6		ppb v/v	9.02		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	1500		24		ug/m3 Air	9.02		TO-15	Total/NA
Trichloroethene	75		19		ug/m3 Air	9.02		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: 320-18588-1

Client Sample ID: SOUTH_POST CARBON

Lab Sample ID: 320-18588-1

Date Collected: 04/27/16 14:01

Matrix: Air

Date Received: 04/29/16 10:00

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		260		ppb v/v			05/09/16 18:02	51.79
Benzene	ND		21		ppb v/v			05/09/16 18:02	51.79
Benzyl chloride	ND		41		ppb v/v			05/09/16 18:02	51.79
Bromodichloromethane	ND		16		ppb v/v			05/09/16 18:02	51.79
Bromoform	ND		21		ppb v/v			05/09/16 18:02	51.79
Bromomethane	ND		41		ppb v/v			05/09/16 18:02	51.79
2-Butanone (MEK)	ND		41		ppb v/v			05/09/16 18:02	51.79
Carbon disulfide	ND		41		ppb v/v			05/09/16 18:02	51.79
Carbon tetrachloride	ND		41		ppb v/v			05/09/16 18:02	51.79
Chlorobenzene	ND		16		ppb v/v			05/09/16 18:02	51.79
Dibromochloromethane	ND		21		ppb v/v			05/09/16 18:02	51.79
Chloroethane	ND		41		ppb v/v			05/09/16 18:02	51.79
Chloroform	ND		16		ppb v/v			05/09/16 18:02	51.79
Chloromethane	ND		41		ppb v/v			05/09/16 18:02	51.79
1,2-Dibromoethane (EDB)	ND		41		ppb v/v			05/09/16 18:02	51.79
1,2-Dichlorobenzene	ND		21		ppb v/v			05/09/16 18:02	51.79
1,3-Dichlorobenzene	ND		21		ppb v/v			05/09/16 18:02	51.79
1,4-Dichlorobenzene	ND		21		ppb v/v			05/09/16 18:02	51.79
Dichlorodifluoromethane	ND		21		ppb v/v			05/09/16 18:02	51.79
1,1-Dichloroethane	ND		16		ppb v/v			05/09/16 18:02	51.79
1,2-Dichloroethane	ND		41		ppb v/v			05/09/16 18:02	51.79
1,1-Dichloroethene	ND		41		ppb v/v			05/09/16 18:02	51.79
cis-1,2-Dichloroethene	45		21		ppb v/v			05/09/16 18:02	51.79
trans-1,2-Dichloroethene	ND		21		ppb v/v			05/09/16 18:02	51.79
1,2-Dichloropropane	ND		21		ppb v/v			05/09/16 18:02	51.79
cis-1,3-Dichloropropene	ND		21		ppb v/v			05/09/16 18:02	51.79
trans-1,3-Dichloropropene	ND		21		ppb v/v			05/09/16 18:02	51.79
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		21		ppb v/v			05/09/16 18:02	51.79
Ethylbenzene	ND		21		ppb v/v			05/09/16 18:02	51.79
4-Ethyltoluene	ND		21		ppb v/v			05/09/16 18:02	51.79
Hexachlorobutadiene	ND		100		ppb v/v			05/09/16 18:02	51.79
2-Hexanone	ND		21		ppb v/v			05/09/16 18:02	51.79
Methylene Chloride	ND		21		ppb v/v			05/09/16 18:02	51.79
4-Methyl-2-pentanone (MIBK)	ND		21		ppb v/v			05/09/16 18:02	51.79
Styrene	ND		21		ppb v/v			05/09/16 18:02	51.79
1,1,2,2-Tetrachloroethane	ND		21		ppb v/v			05/09/16 18:02	51.79
Tetrachloroethene	1700		21		ppb v/v			05/09/16 18:02	51.79
Toluene	ND		21		ppb v/v			05/09/16 18:02	51.79
1,2,4-Trichlorobenzene	ND		100		ppb v/v			05/09/16 18:02	51.79
1,1,1-Trichloroethane	21		16		ppb v/v			05/09/16 18:02	51.79
1,1,2-Trichloroethane	ND		21		ppb v/v			05/09/16 18:02	51.79
Trichloroethene	400		21		ppb v/v			05/09/16 18:02	51.79
Trichlorofluoromethane	ND		21		ppb v/v			05/09/16 18:02	51.79
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		21		ppb v/v			05/09/16 18:02	51.79
1,2,4-Trimethylbenzene	ND		41		ppb v/v			05/09/16 18:02	51.79
1,3,5-Trimethylbenzene	ND		21		ppb v/v			05/09/16 18:02	51.79
Vinyl acetate	ND		41		ppb v/v			05/09/16 18:02	51.79
Vinyl chloride	ND		21		ppb v/v			05/09/16 18:02	51.79

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-18588-1

Client Sample ID: SOUTH_POST CARBON

Lab Sample ID: 320-18588-1

Date Collected: 04/27/16 14:01

Matrix: Air

Date Received: 04/29/16 10:00

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		41		ppb v/v			05/09/16 18:02	51.79
o-Xylene	ND		21		ppb v/v			05/09/16 18:02	51.79
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		620		ug/m3 Air			05/09/16 18:02	51.79
Benzene	ND		66		ug/m3 Air			05/09/16 18:02	51.79
Benzyl chloride	ND		210		ug/m3 Air			05/09/16 18:02	51.79
Bromodichloromethane	ND		100		ug/m3 Air			05/09/16 18:02	51.79
Bromoform	ND		210		ug/m3 Air			05/09/16 18:02	51.79
Bromomethane	ND		160		ug/m3 Air			05/09/16 18:02	51.79
2-Butanone (MEK)	ND		120		ug/m3 Air			05/09/16 18:02	51.79
Carbon disulfide	ND		130		ug/m3 Air			05/09/16 18:02	51.79
Carbon tetrachloride	ND		260		ug/m3 Air			05/09/16 18:02	51.79
Chlorobenzene	ND		72		ug/m3 Air			05/09/16 18:02	51.79
Dibromochloromethane	ND		180		ug/m3 Air			05/09/16 18:02	51.79
Chloroethane	ND		110		ug/m3 Air			05/09/16 18:02	51.79
Chloroform	ND		76		ug/m3 Air			05/09/16 18:02	51.79
Chloromethane	ND		86		ug/m3 Air			05/09/16 18:02	51.79
1,2-Dibromoethane (EDB)	ND		320		ug/m3 Air			05/09/16 18:02	51.79
1,2-Dichlorobenzene	ND		120		ug/m3 Air			05/09/16 18:02	51.79
1,3-Dichlorobenzene	ND		120		ug/m3 Air			05/09/16 18:02	51.79
1,4-Dichlorobenzene	ND		120		ug/m3 Air			05/09/16 18:02	51.79
Dichlorodifluoromethane	ND		100		ug/m3 Air			05/09/16 18:02	51.79
1,1-Dichloroethane	ND		63		ug/m3 Air			05/09/16 18:02	51.79
1,2-Dichloroethane	ND		170		ug/m3 Air			05/09/16 18:02	51.79
1,1-Dichloroethene	ND		160		ug/m3 Air			05/09/16 18:02	51.79
cis-1,2-Dichloroethene	180		82		ug/m3 Air			05/09/16 18:02	51.79
trans-1,2-Dichloroethene	ND		82		ug/m3 Air			05/09/16 18:02	51.79
1,2-Dichloropropane	ND		96		ug/m3 Air			05/09/16 18:02	51.79
cis-1,3-Dichloropropene	ND		94		ug/m3 Air			05/09/16 18:02	51.79
trans-1,3-Dichloropropene	ND		94		ug/m3 Air			05/09/16 18:02	51.79
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		140		ug/m3 Air			05/09/16 18:02	51.79
Ethylbenzene	ND		90		ug/m3 Air			05/09/16 18:02	51.79
4-Ethyltoluene	ND		100		ug/m3 Air			05/09/16 18:02	51.79
Hexachlorobutadiene	ND		1100		ug/m3 Air			05/09/16 18:02	51.79
2-Hexanone	ND		85		ug/m3 Air			05/09/16 18:02	51.79
Methylene Chloride	ND		72		ug/m3 Air			05/09/16 18:02	51.79
4-Methyl-2-pentanone (MIBK)	ND		85		ug/m3 Air			05/09/16 18:02	51.79
Styrene	ND		88		ug/m3 Air			05/09/16 18:02	51.79
1,1,2,2-Tetrachloroethane	ND		140		ug/m3 Air			05/09/16 18:02	51.79
Tetrachloroethene	11000		140		ug/m3 Air			05/09/16 18:02	51.79
Toluene	ND		78		ug/m3 Air			05/09/16 18:02	51.79
1,2,4-Trichlorobenzene	ND		770		ug/m3 Air			05/09/16 18:02	51.79
1,1,1-Trichloroethane	110		85		ug/m3 Air			05/09/16 18:02	51.79
1,1,2-Trichloroethane	ND		110		ug/m3 Air			05/09/16 18:02	51.79
Trichloroethene	2200		110		ug/m3 Air			05/09/16 18:02	51.79
Trichlorofluoromethane	ND		120		ug/m3 Air			05/09/16 18:02	51.79
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		160		ug/m3 Air			05/09/16 18:02	51.79
1,2,4-Trimethylbenzene	ND		200		ug/m3 Air			05/09/16 18:02	51.79

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-18588-1

Client Sample ID: SOUTH_POST CARBON

Lab Sample ID: 320-18588-1

Date Collected: 04/27/16 14:01

Matrix: Air

Date Received: 04/29/16 10:00

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
1,3,5-Trimethylbenzene	ND		100		ug/m3 Air			05/09/16 18:02	51.79
Vinyl acetate	ND		150		ug/m3 Air			05/09/16 18:02	51.79
Vinyl chloride	ND		53		ug/m3 Air			05/09/16 18:02	51.79
m,p-Xylene	ND		180		ug/m3 Air			05/09/16 18:02	51.79
o-Xylene	ND		90		ug/m3 Air			05/09/16 18:02	51.79

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	86		70 - 130		05/09/16 18:02	51.79
1,2-Dichloroethane-d4 (Surr)	85		70 - 130		05/09/16 18:02	51.79
Toluene-d8 (Surr)	84		70 - 130		05/09/16 18:02	51.79

Client Sample ID: SOUTH_POST BLOWER

Lab Sample ID: 320-18588-2

Date Collected: 04/27/16 14:06

Matrix: Air

Date Received: 04/29/16 10:00

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		27		ppb v/v			05/09/16 18:51	5.3
Benzene	ND		2.1		ppb v/v			05/09/16 18:51	5.3
Benzyl chloride	ND		4.2		ppb v/v			05/09/16 18:51	5.3
Bromodichloromethane	ND		1.6		ppb v/v			05/09/16 18:51	5.3
Bromoform	ND		2.1		ppb v/v			05/09/16 18:51	5.3
Bromomethane	ND		4.2		ppb v/v			05/09/16 18:51	5.3
2-Butanone (MEK)	ND		4.2		ppb v/v			05/09/16 18:51	5.3
Carbon disulfide	ND		4.2		ppb v/v			05/09/16 18:51	5.3
Carbon tetrachloride	ND		4.2		ppb v/v			05/09/16 18:51	5.3
Chlorobenzene	ND		1.6		ppb v/v			05/09/16 18:51	5.3
Dibromochloromethane	ND		2.1		ppb v/v			05/09/16 18:51	5.3
Chloroethane	ND		4.2		ppb v/v			05/09/16 18:51	5.3
Chloroform	ND		1.6		ppb v/v			05/09/16 18:51	5.3
Chloromethane	ND		4.2		ppb v/v			05/09/16 18:51	5.3
1,2-Dibromoethane (EDB)	ND		4.2		ppb v/v			05/09/16 18:51	5.3
1,2-Dichlorobenzene	ND		2.1		ppb v/v			05/09/16 18:51	5.3
1,3-Dichlorobenzene	ND		2.1		ppb v/v			05/09/16 18:51	5.3
1,4-Dichlorobenzene	ND		2.1		ppb v/v			05/09/16 18:51	5.3
Dichlorodifluoromethane	ND		2.1		ppb v/v			05/09/16 18:51	5.3
1,1-Dichloroethane	ND		1.6		ppb v/v			05/09/16 18:51	5.3
1,2-Dichloroethane	ND		4.2		ppb v/v			05/09/16 18:51	5.3
1,1-Dichloroethene	ND		4.2		ppb v/v			05/09/16 18:51	5.3
cis-1,2-Dichloroethene	3.1		2.1		ppb v/v			05/09/16 18:51	5.3
trans-1,2-Dichloroethene	ND		2.1		ppb v/v			05/09/16 18:51	5.3
1,2-Dichloropropane	ND		2.1		ppb v/v			05/09/16 18:51	5.3
cis-1,3-Dichloropropene	ND		2.1		ppb v/v			05/09/16 18:51	5.3
trans-1,3-Dichloropropene	ND		2.1		ppb v/v			05/09/16 18:51	5.3
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.1		ppb v/v			05/09/16 18:51	5.3
Ethylbenzene	ND		2.1		ppb v/v			05/09/16 18:51	5.3
4-Ethyltoluene	ND		2.1		ppb v/v			05/09/16 18:51	5.3
Hexachlorobutadiene	ND		11		ppb v/v			05/09/16 18:51	5.3

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-18588-1

Client Sample ID: SOUTH_POST BLOWER

Lab Sample ID: 320-18588-2

Date Collected: 04/27/16 14:06

Matrix: Air

Date Received: 04/29/16 10:00

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		2.1		ppb v/v			05/09/16 18:51	5.3
Methylene Chloride	ND		2.1		ppb v/v			05/09/16 18:51	5.3
4-Methyl-2-pentanone (MIBK)	ND		2.1		ppb v/v			05/09/16 18:51	5.3
Styrene	ND		2.1		ppb v/v			05/09/16 18:51	5.3
1,1,2,2-Tetrachloroethane	ND		2.1		ppb v/v			05/09/16 18:51	5.3
Tetrachloroethene	130		2.1		ppb v/v			05/09/16 18:51	5.3
Toluene	ND		2.1		ppb v/v			05/09/16 18:51	5.3
1,2,4-Trichlorobenzene	ND		11		ppb v/v			05/09/16 18:51	5.3
1,1,1-Trichloroethane	ND		1.6		ppb v/v			05/09/16 18:51	5.3
1,1,2-Trichloroethane	ND		2.1		ppb v/v			05/09/16 18:51	5.3
Trichloroethene	4.3		2.1		ppb v/v			05/09/16 18:51	5.3
Trichlorofluoromethane	ND		2.1		ppb v/v			05/09/16 18:51	5.3
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.1		ppb v/v			05/09/16 18:51	5.3
1,2,4-Trimethylbenzene	ND		4.2		ppb v/v			05/09/16 18:51	5.3
1,3,5-Trimethylbenzene	ND		2.1		ppb v/v			05/09/16 18:51	5.3
Vinyl acetate	ND		4.2		ppb v/v			05/09/16 18:51	5.3
Vinyl chloride	ND		2.1		ppb v/v			05/09/16 18:51	5.3
m,p-Xylene	ND		4.2		ppb v/v			05/09/16 18:51	5.3
o-Xylene	ND		2.1		ppb v/v			05/09/16 18:51	5.3
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		63		ug/m3 Air			05/09/16 18:51	5.3
Benzene	ND		6.8		ug/m3 Air			05/09/16 18:51	5.3
Benzyl chloride	ND		22		ug/m3 Air			05/09/16 18:51	5.3
Bromodichloromethane	ND		11		ug/m3 Air			05/09/16 18:51	5.3
Bromoform	ND		22		ug/m3 Air			05/09/16 18:51	5.3
Bromomethane	ND		16		ug/m3 Air			05/09/16 18:51	5.3
2-Butanone (MEK)	ND		13		ug/m3 Air			05/09/16 18:51	5.3
Carbon disulfide	ND		13		ug/m3 Air			05/09/16 18:51	5.3
Carbon tetrachloride	ND		27		ug/m3 Air			05/09/16 18:51	5.3
Chlorobenzene	ND		7.3		ug/m3 Air			05/09/16 18:51	5.3
Dibromochloromethane	ND		18		ug/m3 Air			05/09/16 18:51	5.3
Chloroethane	ND		11		ug/m3 Air			05/09/16 18:51	5.3
Chloroform	ND		7.8		ug/m3 Air			05/09/16 18:51	5.3
Chloromethane	ND		8.8		ug/m3 Air			05/09/16 18:51	5.3
1,2-Dibromoethane (EDB)	ND		33		ug/m3 Air			05/09/16 18:51	5.3
1,2-Dichlorobenzene	ND		13		ug/m3 Air			05/09/16 18:51	5.3
1,3-Dichlorobenzene	ND		13		ug/m3 Air			05/09/16 18:51	5.3
1,4-Dichlorobenzene	ND		13		ug/m3 Air			05/09/16 18:51	5.3
Dichlorodifluoromethane	ND		10		ug/m3 Air			05/09/16 18:51	5.3
1,1-Dichloroethane	ND		6.4		ug/m3 Air			05/09/16 18:51	5.3
1,2-Dichloroethane	ND		17		ug/m3 Air			05/09/16 18:51	5.3
1,1-Dichloroethene	ND		17		ug/m3 Air			05/09/16 18:51	5.3
cis-1,2-Dichloroethene	12		8.4		ug/m3 Air			05/09/16 18:51	5.3
trans-1,2-Dichloroethene	ND		8.4		ug/m3 Air			05/09/16 18:51	5.3
1,2-Dichloropropane	ND		9.8		ug/m3 Air			05/09/16 18:51	5.3
cis-1,3-Dichloropropene	ND		9.6		ug/m3 Air			05/09/16 18:51	5.3
trans-1,3-Dichloropropene	ND		9.6		ug/m3 Air			05/09/16 18:51	5.3
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		15		ug/m3 Air			05/09/16 18:51	5.3

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-18588-1

Client Sample ID: SOUTH_POST BLOWER

Lab Sample ID: 320-18588-2

Date Collected: 04/27/16 14:06

Matrix: Air

Date Received: 04/29/16 10:00

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		9.2		ug/m3 Air			05/09/16 18:51	5.3
4-Ethyltoluene	ND		10		ug/m3 Air			05/09/16 18:51	5.3
Hexachlorobutadiene	ND		110		ug/m3 Air			05/09/16 18:51	5.3
2-Hexanone	ND		8.7		ug/m3 Air			05/09/16 18:51	5.3
Methylene Chloride	ND		7.4		ug/m3 Air			05/09/16 18:51	5.3
4-Methyl-2-pentanone (MIBK)	ND		8.7		ug/m3 Air			05/09/16 18:51	5.3
Styrene	ND		9.0		ug/m3 Air			05/09/16 18:51	5.3
1,1,2,2-Tetrachloroethane	ND		15		ug/m3 Air			05/09/16 18:51	5.3
Tetrachloroethene	910		14		ug/m3 Air			05/09/16 18:51	5.3
Toluene	ND		8.0		ug/m3 Air			05/09/16 18:51	5.3
1,2,4-Trichlorobenzene	ND		79		ug/m3 Air			05/09/16 18:51	5.3
1,1,1-Trichloroethane	ND		8.7		ug/m3 Air			05/09/16 18:51	5.3
1,1,2-Trichloroethane	ND		12		ug/m3 Air			05/09/16 18:51	5.3
Trichloroethene	23		11		ug/m3 Air			05/09/16 18:51	5.3
Trichlorofluoromethane	ND		12		ug/m3 Air			05/09/16 18:51	5.3
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		16		ug/m3 Air			05/09/16 18:51	5.3
1,2,4-Trimethylbenzene	ND		21		ug/m3 Air			05/09/16 18:51	5.3
1,3,5-Trimethylbenzene	ND		10		ug/m3 Air			05/09/16 18:51	5.3
Vinyl acetate	ND		15		ug/m3 Air			05/09/16 18:51	5.3
Vinyl chloride	ND		5.4		ug/m3 Air			05/09/16 18:51	5.3
m,p-Xylene	ND		18		ug/m3 Air			05/09/16 18:51	5.3
o-Xylene	ND		9.2		ug/m3 Air			05/09/16 18:51	5.3
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		70 - 130					05/09/16 18:51	5.3
1,2-Dichloroethane-d4 (Surr)	83		70 - 130					05/09/16 18:51	5.3
Toluene-d8 (Surr)	77		70 - 130					05/09/16 18:51	5.3

Client Sample ID: NORTH_EFFLUENT

Lab Sample ID: 320-18588-3

Date Collected: 04/27/16 14:11

Matrix: Air

Date Received: 04/29/16 10:00

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		45		ppb v/v			05/09/16 19:41	9.02
Benzene	ND		3.6		ppb v/v			05/09/16 19:41	9.02
Benzyl chloride	ND		7.2		ppb v/v			05/09/16 19:41	9.02
Bromodichloromethane	ND		2.7		ppb v/v			05/09/16 19:41	9.02
Bromoform	ND		3.6		ppb v/v			05/09/16 19:41	9.02
Bromomethane	ND		7.2		ppb v/v			05/09/16 19:41	9.02
2-Butanone (MEK)	ND		7.2		ppb v/v			05/09/16 19:41	9.02
Carbon disulfide	ND		7.2		ppb v/v			05/09/16 19:41	9.02
Carbon tetrachloride	ND		7.2		ppb v/v			05/09/16 19:41	9.02
Chlorobenzene	ND		2.7		ppb v/v			05/09/16 19:41	9.02
Dibromochloromethane	ND		3.6		ppb v/v			05/09/16 19:41	9.02
Chloroethane	ND		7.2		ppb v/v			05/09/16 19:41	9.02
Chloroform	ND		2.7		ppb v/v			05/09/16 19:41	9.02
Chloromethane	ND		7.2		ppb v/v			05/09/16 19:41	9.02

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-18588-1

Client Sample ID: NORTH_EFFLUENT

Lab Sample ID: 320-18588-3

Date Collected: 04/27/16 14:11

Matrix: Air

Date Received: 04/29/16 10:00

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		7.2		ppb v/v			05/09/16 19:41	9.02
1,2-Dichlorobenzene	ND		3.6		ppb v/v			05/09/16 19:41	9.02
1,3-Dichlorobenzene	ND		3.6		ppb v/v			05/09/16 19:41	9.02
1,4-Dichlorobenzene	ND		3.6		ppb v/v			05/09/16 19:41	9.02
Dichlorodifluoromethane	ND		3.6		ppb v/v			05/09/16 19:41	9.02
1,1-Dichloroethane	ND		2.7		ppb v/v			05/09/16 19:41	9.02
1,2-Dichloroethane	ND		7.2		ppb v/v			05/09/16 19:41	9.02
1,1-Dichloroethene	ND		7.2		ppb v/v			05/09/16 19:41	9.02
cis-1,2-Dichloroethene	ND		3.6		ppb v/v			05/09/16 19:41	9.02
trans-1,2-Dichloroethene	ND		3.6		ppb v/v			05/09/16 19:41	9.02
1,2-Dichloropropane	ND		3.6		ppb v/v			05/09/16 19:41	9.02
cis-1,3-Dichloropropene	ND		3.6		ppb v/v			05/09/16 19:41	9.02
trans-1,3-Dichloropropene	ND		3.6		ppb v/v			05/09/16 19:41	9.02
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		3.6		ppb v/v			05/09/16 19:41	9.02
Ethylbenzene	ND		3.6		ppb v/v			05/09/16 19:41	9.02
4-Ethyltoluene	ND		3.6		ppb v/v			05/09/16 19:41	9.02
Hexachlorobutadiene	ND		18		ppb v/v			05/09/16 19:41	9.02
2-Hexanone	ND		3.6		ppb v/v			05/09/16 19:41	9.02
Methylene Chloride	ND		3.6		ppb v/v			05/09/16 19:41	9.02
4-Methyl-2-pentanone (MIBK)	ND		3.6		ppb v/v			05/09/16 19:41	9.02
Styrene	ND		3.6		ppb v/v			05/09/16 19:41	9.02
1,1,2,2-Tetrachloroethane	ND		3.6		ppb v/v			05/09/16 19:41	9.02
Tetrachloroethene	220		3.6		ppb v/v			05/09/16 19:41	9.02
Toluene	ND		3.6		ppb v/v			05/09/16 19:41	9.02
1,2,4-Trichlorobenzene	ND		18		ppb v/v			05/09/16 19:41	9.02
1,1,1-Trichloroethane	ND		2.7		ppb v/v			05/09/16 19:41	9.02
1,1,2-Trichloroethane	ND		3.6		ppb v/v			05/09/16 19:41	9.02
Trichloroethene	14		3.6		ppb v/v			05/09/16 19:41	9.02
Trichlorofluoromethane	ND		3.6		ppb v/v			05/09/16 19:41	9.02
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.6		ppb v/v			05/09/16 19:41	9.02
1,2,4-Trimethylbenzene	ND		7.2		ppb v/v			05/09/16 19:41	9.02
1,3,5-Trimethylbenzene	ND		3.6		ppb v/v			05/09/16 19:41	9.02
Vinyl acetate	ND		7.2		ppb v/v			05/09/16 19:41	9.02
Vinyl chloride	ND		3.6		ppb v/v			05/09/16 19:41	9.02
m,p-Xylene	ND		7.2		ppb v/v			05/09/16 19:41	9.02
o-Xylene	ND		3.6		ppb v/v			05/09/16 19:41	9.02
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		110		ug/m3 Air			05/09/16 19:41	9.02
Benzene	ND		12		ug/m3 Air			05/09/16 19:41	9.02
Benzyl chloride	ND		37		ug/m3 Air			05/09/16 19:41	9.02
Bromodichloromethane	ND		18		ug/m3 Air			05/09/16 19:41	9.02
Bromoform	ND		37		ug/m3 Air			05/09/16 19:41	9.02
Bromomethane	ND		28		ug/m3 Air			05/09/16 19:41	9.02
2-Butanone (MEK)	ND		21		ug/m3 Air			05/09/16 19:41	9.02
Carbon disulfide	ND		22		ug/m3 Air			05/09/16 19:41	9.02
Carbon tetrachloride	ND		45		ug/m3 Air			05/09/16 19:41	9.02
Chlorobenzene	ND		12		ug/m3 Air			05/09/16 19:41	9.02
Dibromochloromethane	ND		31		ug/m3 Air			05/09/16 19:41	9.02

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-18588-1

Client Sample ID: NORTH_EFFLUENT

Lab Sample ID: 320-18588-3

Date Collected: 04/27/16 14:11

Matrix: Air

Date Received: 04/29/16 10:00

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		19		ug/m3 Air			05/09/16 19:41	9.02
Chloroform	ND		13		ug/m3 Air			05/09/16 19:41	9.02
Chloromethane	ND		15		ug/m3 Air			05/09/16 19:41	9.02
1,2-Dibromoethane (EDB)	ND		55		ug/m3 Air			05/09/16 19:41	9.02
1,2-Dichlorobenzene	ND		22		ug/m3 Air			05/09/16 19:41	9.02
1,3-Dichlorobenzene	ND		22		ug/m3 Air			05/09/16 19:41	9.02
1,4-Dichlorobenzene	ND		22		ug/m3 Air			05/09/16 19:41	9.02
Dichlorodifluoromethane	ND		18		ug/m3 Air			05/09/16 19:41	9.02
1,1-Dichloroethane	ND		11		ug/m3 Air			05/09/16 19:41	9.02
1,2-Dichloroethane	ND		29		ug/m3 Air			05/09/16 19:41	9.02
1,1-Dichloroethene	ND		29		ug/m3 Air			05/09/16 19:41	9.02
cis-1,2-Dichloroethene	ND		14		ug/m3 Air			05/09/16 19:41	9.02
trans-1,2-Dichloroethene	ND		14		ug/m3 Air			05/09/16 19:41	9.02
1,2-Dichloropropane	ND		17		ug/m3 Air			05/09/16 19:41	9.02
cis-1,3-Dichloropropene	ND		16		ug/m3 Air			05/09/16 19:41	9.02
trans-1,3-Dichloropropene	ND		16		ug/m3 Air			05/09/16 19:41	9.02
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		25		ug/m3 Air			05/09/16 19:41	9.02
Ethylbenzene	ND		16		ug/m3 Air			05/09/16 19:41	9.02
4-Ethyltoluene	ND		18		ug/m3 Air			05/09/16 19:41	9.02
Hexachlorobutadiene	ND		190		ug/m3 Air			05/09/16 19:41	9.02
2-Hexanone	ND		15		ug/m3 Air			05/09/16 19:41	9.02
Methylene Chloride	ND		13		ug/m3 Air			05/09/16 19:41	9.02
4-Methyl-2-pentanone (MIBK)	ND		15		ug/m3 Air			05/09/16 19:41	9.02
Styrene	ND		15		ug/m3 Air			05/09/16 19:41	9.02
1,1,2,2-Tetrachloroethane	ND		25		ug/m3 Air			05/09/16 19:41	9.02
Tetrachloroethene	1500		24		ug/m3 Air			05/09/16 19:41	9.02
Toluene	ND		14		ug/m3 Air			05/09/16 19:41	9.02
1,2,4-Trichlorobenzene	ND		130		ug/m3 Air			05/09/16 19:41	9.02
1,1,1-Trichloroethane	ND		15		ug/m3 Air			05/09/16 19:41	9.02
1,1,2-Trichloroethane	ND		20		ug/m3 Air			05/09/16 19:41	9.02
Trichloroethene	75		19		ug/m3 Air			05/09/16 19:41	9.02
Trichlorofluoromethane	ND		20		ug/m3 Air			05/09/16 19:41	9.02
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		28		ug/m3 Air			05/09/16 19:41	9.02
1,2,4-Trimethylbenzene	ND		35		ug/m3 Air			05/09/16 19:41	9.02
1,3,5-Trimethylbenzene	ND		18		ug/m3 Air			05/09/16 19:41	9.02
Vinyl acetate	ND		25		ug/m3 Air			05/09/16 19:41	9.02
Vinyl chloride	ND		9.2		ug/m3 Air			05/09/16 19:41	9.02
m,p-Xylene	ND		31		ug/m3 Air			05/09/16 19:41	9.02
o-Xylene	ND		16		ug/m3 Air			05/09/16 19:41	9.02
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		70 - 130					05/09/16 19:41	9.02
1,2-Dichloroethane-d4 (Surr)	83		70 - 130					05/09/16 19:41	9.02
Toluene-d8 (Surr)	84		70 - 130					05/09/16 19:41	9.02

TestAmerica Sacramento

Surrogate Summary

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

TestAmerica Job ID: 320-18588-1

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)
320-18588-1	SOUTH_POST CARBON	86	85	84
320-18588-2	SOUTH_POST BLOWER	105	83	77
320-18588-3	NORTH_EFFLUENT	97	83	84
LCS 320-109284/3	Lab Control Sample	99	84	86
LCSD 320-109284/4	Lab Control Sample Dup	100	84	86
MB 320-109284/6	Method Blank	93	84	85

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: 320-18588-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Lab Sample ID: MB 320-109284/6

Matrix: Air

Analysis Batch: 109284

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			05/09/16 17:11	1
Benzene	ND		0.40		ppb v/v			05/09/16 17:11	1
Benzyl chloride	ND		0.80		ppb v/v			05/09/16 17:11	1
Bromodichloromethane	ND		0.30		ppb v/v			05/09/16 17:11	1
Bromoform	ND		0.40		ppb v/v			05/09/16 17:11	1
Bromomethane	ND		0.80		ppb v/v			05/09/16 17:11	1
2-Butanone (MEK)	ND		0.80		ppb v/v			05/09/16 17:11	1
Carbon disulfide	ND		0.80		ppb v/v			05/09/16 17:11	1
Carbon tetrachloride	ND		0.80		ppb v/v			05/09/16 17:11	1
Chlorobenzene	ND		0.30		ppb v/v			05/09/16 17:11	1
Dibromochloromethane	ND		0.40		ppb v/v			05/09/16 17:11	1
Chloroethane	ND		0.80		ppb v/v			05/09/16 17:11	1
Chloroform	ND		0.30		ppb v/v			05/09/16 17:11	1
Chloromethane	ND		0.80		ppb v/v			05/09/16 17:11	1
1,2-Dibromoethane (EDB)	ND		0.80		ppb v/v			05/09/16 17:11	1
1,2-Dichlorobenzene	ND		0.40		ppb v/v			05/09/16 17:11	1
1,3-Dichlorobenzene	ND		0.40		ppb v/v			05/09/16 17:11	1
1,4-Dichlorobenzene	ND		0.40		ppb v/v			05/09/16 17:11	1
Dichlorodifluoromethane	ND		0.40		ppb v/v			05/09/16 17:11	1
1,1-Dichloroethane	ND		0.30		ppb v/v			05/09/16 17:11	1
1,2-Dichloroethane	ND		0.80		ppb v/v			05/09/16 17:11	1
1,1-Dichloroethene	ND		0.80		ppb v/v			05/09/16 17:11	1
cis-1,2-Dichloroethene	ND		0.40		ppb v/v			05/09/16 17:11	1
trans-1,2-Dichloroethene	ND		0.40		ppb v/v			05/09/16 17:11	1
1,2-Dichloropropane	ND		0.40		ppb v/v			05/09/16 17:11	1
cis-1,3-Dichloropropene	ND		0.40		ppb v/v			05/09/16 17:11	1
trans-1,3-Dichloropropene	ND		0.40		ppb v/v			05/09/16 17:11	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40		ppb v/v			05/09/16 17:11	1
Ethylbenzene	ND		0.40		ppb v/v			05/09/16 17:11	1
4-Ethyltoluene	ND		0.40		ppb v/v			05/09/16 17:11	1
Hexachlorobutadiene	ND		2.0		ppb v/v			05/09/16 17:11	1
2-Hexanone	ND		0.40		ppb v/v			05/09/16 17:11	1
Methylene Chloride	ND		0.40		ppb v/v			05/09/16 17:11	1
4-Methyl-2-pentanone (MIBK)	ND		0.40		ppb v/v			05/09/16 17:11	1
Styrene	ND		0.40		ppb v/v			05/09/16 17:11	1
1,1,2,2-Tetrachloroethane	ND		0.40		ppb v/v			05/09/16 17:11	1
Tetrachloroethene	ND		0.40		ppb v/v			05/09/16 17:11	1
Toluene	ND		0.40		ppb v/v			05/09/16 17:11	1
1,2,4-Trichlorobenzene	ND		2.0		ppb v/v			05/09/16 17:11	1
1,1,1-Trichloroethane	ND		0.30		ppb v/v			05/09/16 17:11	1
1,1,2-Trichloroethane	ND		0.40		ppb v/v			05/09/16 17:11	1
Trichloroethene	ND		0.40		ppb v/v			05/09/16 17:11	1
Trichlorofluoromethane	ND		0.40		ppb v/v			05/09/16 17:11	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40		ppb v/v			05/09/16 17:11	1
1,2,4-Trimethylbenzene	ND		0.80		ppb v/v			05/09/16 17:11	1
1,3,5-Trimethylbenzene	ND		0.40		ppb v/v			05/09/16 17:11	1
Vinyl acetate	ND		0.80		ppb v/v			05/09/16 17:11	1
Vinyl chloride	ND		0.40		ppb v/v			05/09/16 17:11	1

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-18588-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-109284/6
Matrix: Air
Analysis Batch: 109284

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			05/09/16 17:11	1
o-Xylene	ND		0.40		ppb v/v			05/09/16 17:11	1
Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		12		ug/m3 Air			05/09/16 17:11	1
Benzene	ND		1.3		ug/m3 Air			05/09/16 17:11	1
Benzyl chloride	ND		4.1		ug/m3 Air			05/09/16 17:11	1
Bromodichloromethane	ND		2.0		ug/m3 Air			05/09/16 17:11	1
Bromoform	ND		4.1		ug/m3 Air			05/09/16 17:11	1
Bromomethane	ND		3.1		ug/m3 Air			05/09/16 17:11	1
2-Butanone (MEK)	ND		2.4		ug/m3 Air			05/09/16 17:11	1
Carbon disulfide	ND		2.5		ug/m3 Air			05/09/16 17:11	1
Carbon tetrachloride	ND		5.0		ug/m3 Air			05/09/16 17:11	1
Chlorobenzene	ND		1.4		ug/m3 Air			05/09/16 17:11	1
Dibromochloromethane	ND		3.4		ug/m3 Air			05/09/16 17:11	1
Chloroethane	ND		2.1		ug/m3 Air			05/09/16 17:11	1
Chloroform	ND		1.5		ug/m3 Air			05/09/16 17:11	1
Chloromethane	ND		1.7		ug/m3 Air			05/09/16 17:11	1
1,2-Dibromoethane (EDB)	ND		6.1		ug/m3 Air			05/09/16 17:11	1
1,2-Dichlorobenzene	ND		2.4		ug/m3 Air			05/09/16 17:11	1
1,3-Dichlorobenzene	ND		2.4		ug/m3 Air			05/09/16 17:11	1
1,4-Dichlorobenzene	ND		2.4		ug/m3 Air			05/09/16 17:11	1
Dichlorodifluoromethane	ND		2.0		ug/m3 Air			05/09/16 17:11	1
1,1-Dichloroethane	ND		1.2		ug/m3 Air			05/09/16 17:11	1
1,2-Dichloroethane	ND		3.2		ug/m3 Air			05/09/16 17:11	1
1,1-Dichloroethene	ND		3.2		ug/m3 Air			05/09/16 17:11	1
cis-1,2-Dichloroethene	ND		1.6		ug/m3 Air			05/09/16 17:11	1
trans-1,2-Dichloroethene	ND		1.6		ug/m3 Air			05/09/16 17:11	1
1,2-Dichloropropane	ND		1.8		ug/m3 Air			05/09/16 17:11	1
cis-1,3-Dichloropropene	ND		1.8		ug/m3 Air			05/09/16 17:11	1
trans-1,3-Dichloropropene	ND		1.8		ug/m3 Air			05/09/16 17:11	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.8		ug/m3 Air			05/09/16 17:11	1
Ethylbenzene	ND		1.7		ug/m3 Air			05/09/16 17:11	1
4-Ethyltoluene	ND		2.0		ug/m3 Air			05/09/16 17:11	1
Hexachlorobutadiene	ND		21		ug/m3 Air			05/09/16 17:11	1
2-Hexanone	ND		1.6		ug/m3 Air			05/09/16 17:11	1
Methylene Chloride	ND		1.4		ug/m3 Air			05/09/16 17:11	1
4-Methyl-2-pentanone (MIBK)	ND		1.6		ug/m3 Air			05/09/16 17:11	1
Styrene	ND		1.7		ug/m3 Air			05/09/16 17:11	1
1,1,2,2-Tetrachloroethane	ND		2.7		ug/m3 Air			05/09/16 17:11	1
Tetrachloroethene	ND		2.7		ug/m3 Air			05/09/16 17:11	1
Toluene	ND		1.5		ug/m3 Air			05/09/16 17:11	1
1,2,4-Trichlorobenzene	ND		15		ug/m3 Air			05/09/16 17:11	1
1,1,1-Trichloroethane	ND		1.6		ug/m3 Air			05/09/16 17:11	1
1,1,2-Trichloroethane	ND		2.2		ug/m3 Air			05/09/16 17:11	1
Trichloroethene	ND		2.1		ug/m3 Air			05/09/16 17:11	1
Trichlorofluoromethane	ND		2.2		ug/m3 Air			05/09/16 17:11	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.1		ug/m3 Air			05/09/16 17:11	1

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-18588-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-109284/6
Matrix: Air
Analysis Batch: 109284

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			05/09/16 17:11	1
1,3,5-Trimethylbenzene	ND		2.0		ug/m3 Air			05/09/16 17:11	1
Vinyl acetate	ND		2.8		ug/m3 Air			05/09/16 17:11	1
Vinyl chloride	ND		1.0		ug/m3 Air			05/09/16 17:11	1
m,p-Xylene	ND		3.5		ug/m3 Air			05/09/16 17:11	1
o-Xylene	ND		1.7		ug/m3 Air			05/09/16 17:11	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		70 - 130		05/09/16 17:11	1
1,2-Dichloroethane-d4 (Surr)	84		70 - 130		05/09/16 17:11	1
Toluene-d8 (Surr)	85		70 - 130		05/09/16 17:11	1

Lab Sample ID: LCS 320-109284/3
Matrix: Air
Analysis Batch: 109284

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	17.2		ppb v/v		86	71 - 131
Benzene	20.0	16.1		ppb v/v		81	68 - 128
Benzyl chloride	20.0	19.5		ppb v/v		98	58 - 120
Bromodichloromethane	20.0	16.0		ppb v/v		80	65 - 130
Bromoform	20.0	19.9		ppb v/v		99	64 - 144
Bromomethane	20.0	19.7		ppb v/v		98	70 - 131
2-Butanone (MEK)	20.0	18.1		ppb v/v		90	71 - 131
Carbon disulfide	20.0	17.6		ppb v/v		88	63 - 123
Carbon tetrachloride	20.0	17.7		ppb v/v		88	67 - 127
Chlorobenzene	20.0	18.6		ppb v/v		93	70 - 132
Dibromochloromethane	20.0	18.9		ppb v/v		94	68 - 128
Chloroethane	20.0	20.2		ppb v/v		101	70 - 131
Chloroform	20.0	17.7		ppb v/v		89	69 - 129
Chloromethane	20.0	18.4		ppb v/v		92	67 - 127
1,2-Dibromoethane (EDB)	20.0	19.2		ppb v/v		96	68 - 131
1,2-Dichlorobenzene	20.0	19.5		ppb v/v		98	73 - 143
1,3-Dichlorobenzene	20.0	20.2		ppb v/v		101	77 - 136
1,4-Dichlorobenzene	20.0	20.4		ppb v/v		102	73 - 143
Dichlorodifluoromethane	20.0	17.6		ppb v/v		88	69 - 129
1,1-Dichloroethane	20.0	18.0		ppb v/v		90	65 - 125
1,2-Dichloroethane	20.0	15.4		ppb v/v		77	71 - 131
1,1-Dichloroethene	20.0	16.6		ppb v/v		83	53 - 128
cis-1,2-Dichloroethene	20.0	18.0		ppb v/v		90	68 - 128
trans-1,2-Dichloroethene	20.0	18.0		ppb v/v		90	70 - 130
1,2-Dichloropropane	20.0	15.9		ppb v/v		80	74 - 128
cis-1,3-Dichloropropene	20.0	17.7		ppb v/v		89	78 - 132
trans-1,3-Dichloropropene	20.0	17.2		ppb v/v		86	56 - 136
1,2-Dichloro-1,1,2,2-tetrafluoroethane	20.0	18.1		ppb v/v		91	64 - 124
Ethylbenzene	20.0	18.7		ppb v/v		94	76 - 136
4-Ethyltoluene	20.0	17.7		ppb v/v		88	62 - 136

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-18588-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-109284/3

Matrix: Air

Analysis Batch: 109284

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	17.6		ppb v/v		88	42 - 150
2-Hexanone	20.0	20.7		ppb v/v		104	70 - 128
Methylene Chloride	20.0	16.9		ppb v/v		85	65 - 125
4-Methyl-2-pentanone (MIBK)	20.0	17.8		ppb v/v		89	73 - 133
Styrene	20.0	20.1		ppb v/v		101	76 - 144
1,1,2,2-Tetrachloroethane	20.0	19.4		ppb v/v		97	75 - 135
Tetrachloroethene	20.0	18.2		ppb v/v		91	56 - 138
Toluene	20.0	16.3		ppb v/v		82	71 - 132
1,2,4-Trichlorobenzene	20.0	19.3		ppb v/v		96	59 - 150
1,1,1-Trichloroethane	20.0	17.4		ppb v/v		87	65 - 124
1,1,2-Trichloroethane	20.0	19.0		ppb v/v		95	71 - 131
Trichloroethene	20.0	16.0		ppb v/v		80	64 - 127
Trichlorofluoromethane	20.0	17.6		ppb v/v		88	68 - 128
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	16.6		ppb v/v		83	50 - 132
1,2,4-Trimethylbenzene	20.0	17.4		ppb v/v		87	61 - 145
1,3,5-Trimethylbenzene	20.0	19.1		ppb v/v		95	65 - 136
Vinyl acetate	20.0	22.7		ppb v/v		113	77 - 134
Vinyl chloride	20.0	17.9		ppb v/v		90	69 - 129
m,p-Xylene	40.0	37.7		ppb v/v		94	75 - 138
o-Xylene	20.0	19.0		ppb v/v		95	77 - 132

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	48	40.7		ug/m3 Air		86	71 - 131
Benzene	64	51.5		ug/m3 Air		81	68 - 128
Benzyl chloride	100	101		ug/m3 Air		98	58 - 120
Bromodichloromethane	130	107		ug/m3 Air		80	65 - 130
Bromoform	210	206		ug/m3 Air		99	64 - 144
Bromomethane	78	76.3		ug/m3 Air		98	70 - 131
2-Butanone (MEK)	59	53.3		ug/m3 Air		90	71 - 131
Carbon disulfide	62	54.8		ug/m3 Air		88	63 - 123
Carbon tetrachloride	130	111		ug/m3 Air		88	67 - 127
Chlorobenzene	92	85.5		ug/m3 Air		93	70 - 132
Dibromochloromethane	170	161		ug/m3 Air		94	68 - 128
Chloroethane	53	53.3		ug/m3 Air		101	70 - 131
Chloroform	98	86.7		ug/m3 Air		89	69 - 129
Chloromethane	41	38.0		ug/m3 Air		92	67 - 127
1,2-Dibromoethane (EDB)	150	147		ug/m3 Air		96	68 - 131
1,2-Dichlorobenzene	120	117		ug/m3 Air		98	73 - 143
1,3-Dichlorobenzene	120	121		ug/m3 Air		101	77 - 136
1,4-Dichlorobenzene	120	123		ug/m3 Air		102	73 - 143
Dichlorodifluoromethane	99	86.9		ug/m3 Air		88	69 - 129
1,1-Dichloroethane	81	73.0		ug/m3 Air		90	65 - 125
1,2-Dichloroethane	81	62.3		ug/m3 Air		77	71 - 131
1,1-Dichloroethene	79	65.7		ug/m3 Air		83	53 - 128
cis-1,2-Dichloroethene	79	71.4		ug/m3 Air		90	68 - 128
trans-1,2-Dichloroethene	79	71.4		ug/m3 Air		90	70 - 130
1,2-Dichloropropane	92	73.7		ug/m3 Air		80	74 - 128

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-18588-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-109284/3

Matrix: Air

Analysis Batch: 109284

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	80.5		ug/m3 Air		89	78 - 132
trans-1,3-Dichloropropene	91	78.3		ug/m3 Air		86	56 - 136
1,2-Dichloro-1,1,2,2-tetrafluoroethane	140	127		ug/m3 Air		91	64 - 124
Ethylbenzene	87	81.3		ug/m3 Air		94	76 - 136
4-Ethyltoluene	98	87.0		ug/m3 Air		88	62 - 136
Hexachlorobutadiene	210	188		ug/m3 Air		88	42 - 150
2-Hexanone	82	84.8		ug/m3 Air		104	70 - 128
Methylene Chloride	69	58.7		ug/m3 Air		85	65 - 125
4-Methyl-2-pentanone (MIBK)	82	72.8		ug/m3 Air		89	73 - 133
Styrene	85	85.8		ug/m3 Air		101	76 - 144
1,1,2,2-Tetrachloroethane	140	133		ug/m3 Air		97	75 - 135
Tetrachloroethene	140	123		ug/m3 Air		91	56 - 138
Toluene	75	61.6		ug/m3 Air		82	71 - 132
1,2,4-Trichlorobenzene	150	143		ug/m3 Air		96	59 - 150
1,1,1-Trichloroethane	110	95.1		ug/m3 Air		87	65 - 124
1,1,2-Trichloroethane	110	104		ug/m3 Air		95	71 - 131
Trichloroethene	110	86.1		ug/m3 Air		80	64 - 127
Trichlorofluoromethane	110	98.8		ug/m3 Air		88	68 - 128
1,1,2-Trichloro-1,2,2-trifluoroethane	150	127		ug/m3 Air		83	50 - 132
1,2,4-Trimethylbenzene	98	85.5		ug/m3 Air		87	61 - 145
1,3,5-Trimethylbenzene	98	93.8		ug/m3 Air		95	65 - 136
Vinyl acetate	70	79.9		ug/m3 Air		113	77 - 134
Vinyl chloride	51	45.9		ug/m3 Air		90	69 - 129
m,p-Xylene	170	163		ug/m3 Air		94	75 - 138
o-Xylene	87	82.7		ug/m3 Air		95	77 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		70 - 130
1,2-Dichloroethane-d4 (Surr)	84		70 - 130
Toluene-d8 (Surr)	86		70 - 130

Lab Sample ID: LCSD 320-109284/4

Matrix: Air

Analysis Batch: 109284

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	17.4		ppb v/v		87	71 - 131	1	25
Benzene	20.0	16.4		ppb v/v		82	68 - 128	1	25
Benzyl chloride	20.0	19.6		ppb v/v		98	58 - 120	1	25
Bromodichloromethane	20.0	16.3		ppb v/v		82	65 - 130	2	25
Bromoform	20.0	20.2		ppb v/v		101	64 - 144	1	25
Bromomethane	20.0	19.9		ppb v/v		99	70 - 131	1	25
2-Butanone (MEK)	20.0	18.4		ppb v/v		92	71 - 131	2	25
Carbon disulfide	20.0	17.8		ppb v/v		89	63 - 123	1	25
Carbon tetrachloride	20.0	18.0		ppb v/v		90	67 - 127	2	25
Chlorobenzene	20.0	18.8		ppb v/v		94	70 - 132	1	25

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-18588-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-109284/4
Matrix: Air
Analysis Batch: 109284

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	19.1		ppb v/v		95	68 - 128	1	25
Chloroethane	20.0	20.4		ppb v/v		102	70 - 131	1	25
Chloroform	20.0	18.0		ppb v/v		90	69 - 129	1	25
Chloromethane	20.0	18.5		ppb v/v		92	67 - 127	0	25
1,2-Dibromoethane (EDB)	20.0	19.4		ppb v/v		97	68 - 131	1	25
1,2-Dichlorobenzene	20.0	19.8		ppb v/v		99	73 - 143	2	25
1,3-Dichlorobenzene	20.0	20.5		ppb v/v		103	77 - 136	2	25
1,4-Dichlorobenzene	20.0	20.7		ppb v/v		104	73 - 143	2	25
Dichlorodifluoromethane	20.0	17.8		ppb v/v		89	69 - 129	2	25
1,1-Dichloroethane	20.0	18.3		ppb v/v		91	65 - 125	1	25
1,2-Dichloroethane	20.0	15.6		ppb v/v		78	71 - 131	1	25
1,1-Dichloroethene	20.0	16.8		ppb v/v		84	53 - 128	1	25
cis-1,2-Dichloroethene	20.0	18.3		ppb v/v		92	68 - 128	2	25
trans-1,2-Dichloroethene	20.0	18.3		ppb v/v		92	70 - 130	2	25
1,2-Dichloropropane	20.0	16.3		ppb v/v		82	74 - 128	2	25
cis-1,3-Dichloropropene	20.0	18.1		ppb v/v		91	78 - 132	2	25
trans-1,3-Dichloropropene	20.0	17.5		ppb v/v		87	56 - 136	1	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	20.0	18.5		ppb v/v		93	64 - 124	2	25
Ethylbenzene	20.0	18.9		ppb v/v		94	76 - 136	1	25
4-Ethyltoluene	20.0	17.9		ppb v/v		90	62 - 136	1	25
Hexachlorobutadiene	20.0	17.8		ppb v/v		89	42 - 150	1	25
2-Hexanone	20.0	21.0		ppb v/v		105	70 - 128	1	25
Methylene Chloride	20.0	17.1		ppb v/v		85	65 - 125	1	25
4-Methyl-2-pentanone (MIBK)	20.0	18.1		ppb v/v		90	73 - 133	2	25
Styrene	20.0	20.4		ppb v/v		102	76 - 144	1	25
1,1,2,2-Tetrachloroethane	20.0	19.7		ppb v/v		98	75 - 135	2	25
Tetrachloroethene	20.0	18.5		ppb v/v		93	56 - 138	2	25
Toluene	20.0	16.6		ppb v/v		83	71 - 132	2	25
1,2,4-Trichlorobenzene	20.0	19.6		ppb v/v		98	59 - 150	2	25
1,1,1-Trichloroethane	20.0	17.8		ppb v/v		89	65 - 124	2	25
1,1,2-Trichloroethane	20.0	19.2		ppb v/v		96	71 - 131	1	25
Trichloroethene	20.0	16.3		ppb v/v		81	64 - 127	2	25
Trichlorofluoromethane	20.0	17.9		ppb v/v		89	68 - 128	2	25
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	16.9		ppb v/v		85	50 - 132	2	25
1,2,4-Trimethylbenzene	20.0	17.7		ppb v/v		89	61 - 145	2	25
1,3,5-Trimethylbenzene	20.0	19.4		ppb v/v		97	65 - 136	1	25
Vinyl acetate	20.0	23.1		ppb v/v		116	77 - 134	2	25
Vinyl chloride	20.0	18.5		ppb v/v		92	69 - 129	3	25
m,p-Xylene	40.0	37.9		ppb v/v		95	75 - 138	1	25
o-Xylene	20.0	19.3		ppb v/v		96	77 - 132	1	25
Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	48	41.3		ug/m3 Air		87	71 - 131	1	25
Benzene	64	52.3		ug/m3 Air		82	68 - 128	1	25
Benzyl chloride	100	102		ug/m3 Air		98	58 - 120	1	25
Bromodichloromethane	130	109		ug/m3 Air		82	65 - 130	2	25
Bromoform	210	209		ug/m3 Air		101	64 - 144	1	25

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-18588-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-109284/4

Client Sample ID: Lab Control Sample Dup

Matrix: Air

Prep Type: Total/NA

Analysis Batch: 109284

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromomethane	78	77.1		ug/m3 Air		99	70 - 131	1	25
2-Butanone (MEK)	59	54.3		ug/m3 Air		92	71 - 131	2	25
Carbon disulfide	62	55.5		ug/m3 Air		89	63 - 123	1	25
Carbon tetrachloride	130	113		ug/m3 Air		90	67 - 127	2	25
Chlorobenzene	92	86.5		ug/m3 Air		94	70 - 132	1	25
Dibromochloromethane	170	162		ug/m3 Air		95	68 - 128	1	25
Chloroethane	53	53.7		ug/m3 Air		102	70 - 131	1	25
Chloroform	98	87.9		ug/m3 Air		90	69 - 129	1	25
Chloromethane	41	38.1		ug/m3 Air		92	67 - 127	0	25
1,2-Dibromoethane (EDB)	150	149		ug/m3 Air		97	68 - 131	1	25
1,2-Dichlorobenzene	120	119		ug/m3 Air		99	73 - 143	2	25
1,3-Dichlorobenzene	120	123		ug/m3 Air		103	77 - 136	2	25
1,4-Dichlorobenzene	120	125		ug/m3 Air		104	73 - 143	2	25
Dichlorodifluoromethane	99	88.3		ug/m3 Air		89	69 - 129	2	25
1,1-Dichloroethane	81	73.9		ug/m3 Air		91	65 - 125	1	25
1,2-Dichloroethane	81	63.2		ug/m3 Air		78	71 - 131	1	25
1,1-Dichloroethene	79	66.6		ug/m3 Air		84	53 - 128	1	25
cis-1,2-Dichloroethene	79	72.6		ug/m3 Air		92	68 - 128	2	25
trans-1,2-Dichloroethene	79	72.6		ug/m3 Air		92	70 - 130	2	25
1,2-Dichloropropane	92	75.5		ug/m3 Air		82	74 - 128	2	25
cis-1,3-Dichloropropene	91	82.2		ug/m3 Air		91	78 - 132	2	25
trans-1,3-Dichloropropene	91	79.2		ug/m3 Air		87	56 - 136	1	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	140	129		ug/m3 Air		93	64 - 124	2	25
Ethylbenzene	87	81.9		ug/m3 Air		94	76 - 136	1	25
4-Ethyltoluene	98	88.1		ug/m3 Air		90	62 - 136	1	25
Hexachlorobutadiene	210	190		ug/m3 Air		89	42 - 150	1	25
2-Hexanone	82	86.0		ug/m3 Air		105	70 - 128	1	25
Methylene Chloride	69	59.3		ug/m3 Air		85	65 - 125	1	25
4-Methyl-2-pentanone (MIBK)	82	74.1		ug/m3 Air		90	73 - 133	2	25
Styrene	85	86.9		ug/m3 Air		102	76 - 144	1	25
1,1,2,2-Tetrachloroethane	140	135		ug/m3 Air		98	75 - 135	2	25
Tetrachloroethene	140	125		ug/m3 Air		93	56 - 138	2	25
Toluene	75	62.7		ug/m3 Air		83	71 - 132	2	25
1,2,4-Trichlorobenzene	150	146		ug/m3 Air		98	59 - 150	2	25
1,1,1-Trichloroethane	110	97.1		ug/m3 Air		89	65 - 124	2	25
1,1,2-Trichloroethane	110	105		ug/m3 Air		96	71 - 131	1	25
Trichloroethene	110	87.4		ug/m3 Air		81	64 - 127	2	25
Trichlorofluoromethane	110	101		ug/m3 Air		89	68 - 128	2	25
1,1,2-Trichloro-1,2,2-trifluoroethane	150	130		ug/m3 Air		85	50 - 132	2	25
1,2,4-Trimethylbenzene	98	87.1		ug/m3 Air		89	61 - 145	2	25
1,3,5-Trimethylbenzene	98	95.2		ug/m3 Air		97	65 - 136	1	25
Vinyl acetate	70	81.4		ug/m3 Air		116	77 - 134	2	25
Vinyl chloride	51	47.3		ug/m3 Air		92	69 - 129	3	25
m,p-Xylene	170	165		ug/m3 Air		95	75 - 138	1	25
o-Xylene	87	83.7		ug/m3 Air		96	77 - 132	1	25

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-18588-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-109284/4

Matrix: Air

Analysis Batch: 109284

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

<i>Surrogate</i>	<i>LCSD %Recovery</i>	<i>LCSD Qualifier</i>	<i>Limits</i>
<i>4-Bromofluorobenzene (Surr)</i>	100		70 - 130
<i>1,2-Dichloroethane-d4 (Surr)</i>	84		70 - 130
<i>Toluene-d8 (Surr)</i>	86		70 - 130

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QC Association Summary

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

TestAmerica Job ID: 320-18588-1

Air - GC/MS VOA

Analysis Batch: 109284

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-18588-1	SOUTH_POST CARBON	Total/NA	Air	TO-15	
320-18588-2	SOUTH_POST BLOWER	Total/NA	Air	TO-15	
320-18588-3	NORTH_EFFLUENT	Total/NA	Air	TO-15	
LCS 320-109284/3	Lab Control Sample	Total/NA	Air	TO-15	
LCSD 320-109284/4	Lab Control Sample Dup	Total/NA	Air	TO-15	
MB 320-109284/6	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: 320-18588-1

Client Sample ID: SOUTH_POST CARBON

Date Collected: 04/27/16 14:01

Date Received: 04/29/16 10:00

Lab Sample ID: 320-18588-1

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		51.79	11 mL	250 mL	109284	05/09/16 18:02	SRS	TAL SAC

Client Sample ID: SOUTH_POST BLOWER

Date Collected: 04/27/16 14:06

Date Received: 04/29/16 10:00

Lab Sample ID: 320-18588-2

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		5.3	100 mL	250 mL	109284	05/09/16 18:51	SRS	TAL SAC

Client Sample ID: NORTH_EFFLUENT

Date Collected: 04/27/16 14:11

Date Received: 04/29/16 10:00

Lab Sample ID: 320-18588-3

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		9.02	60 mL	250 mL	109284	05/09/16 19:41	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: 320-18588-1

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	01-31-17
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	01-31-17
Colorado	State Program	8	CA00044	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	03-17-17
Kansas	NELAP	7	E-10375	05-31-16
Louisiana	NELAP	6	30612	06-30-16
Maine	State Program	1	CA0004	04-18-18
Michigan	State Program	5	9947	01-31-18
Nevada	State Program	9	CA00044	07-31-16
New Jersey	NELAP	2	CA005	06-30-16
New York	NELAP	2	11666	04-01-17
Oregon	NELAP	10	4040	01-29-17
Pennsylvania	NELAP	3	68-01272	03-31-17
Texas	NELAP	6	T104704399	05-31-16
US Fish & Wildlife	Federal		LE148388-0	10-31-16
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-16
Utah	NELAP	8	CA00044	02-28-17
Virginia	NELAP	3	460278	03-14-17
Washington	State Program	10	C581	05-05-17
West Virginia (DW)	State Program	3	9930C	12-31-16
Wyoming	State Program	8	8TMS-L	01-29-17

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

Method Summary

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

TestAmerica Job ID: 320-18588-1

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: 320-18588-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-18588-1	SOUTH_POST CARBON	Air	04/27/16 14:01	04/29/16 10:00
320-18588-2	SOUTH_POST BLOWER	Air	04/27/16 14:06	04/29/16 10:00
320-18588-3	NORTH_EFFLUENT	Air	04/27/16 14:11	04/29/16 10:00

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JOB # **320-18588**
 Sample # **1**

Client/Project:		VFR ID:	
Canister Serial #:	34000135	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)	10.76	05/06/16	SV	
FINAL PRESSURE (PSIA)	24.52	05/06/16	SV	
Pressurization Gas: <input type="checkbox"/> N2 <input type="checkbox"/> He	SCREENED <input type="checkbox"/>	SCRN DIL. VS 250mLs:		
Initial Canister Dilution Factor =	2.28			

CANISTER REPRESSURIZATION					
Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
			2.28		#DIV/0!
			#DIV/0!		#DIV/0!
			#DIV/0!		#DIV/0!

Analytical Dilution Factors										
	Date	Instr.	File #							
Canister DF =	2.28	X	Load DF =	7.5757576	X	Bag DF =	3	=	FINAL DF	51.79114566
			LVf (mLs)	250		BVf (mLs)	3			
			LVi (mLs)	33		Bvi (mLs)	1			
Canister DF =	2.28	X	Load DF =	#DIV/0!	X	Bag DF =	1	=	FINAL DF	#DIV/0!
			LVf (mLs)			BVf (mLs)				
			LVi (mLs)			Bvi (mLs)				
Canister DF =	2.28	X	Load DF =	#DIV/0!	X	Bag DF =	1	=	FINAL DF	#DIV/0!
			LVf (mLs)			BVf (mLs)				
			LVi (mLs)			Bvi (mLs)				



JOB # **320-18588**
Sample # **2**

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Client/Project:		VFR ID:	
Canister Serial #:	8448	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)	12.02	05/06/16	SV	
FINAL PRESSURE (PSIA)	25.47	05/06/16	SV	
Pressurization Gas: <input type="checkbox"/> N2 <input type="checkbox"/> He	SCREENED <input type="checkbox"/>	SCRN DIL. VS 250mLs:		
Initial Canister Dilution Factor =	2.12			

CANISTER REPRESSURIZATION					
Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
			2.12		#DIV/0!
			#DIV/0!		#DIV/0!
			#DIV/0!		#DIV/0!

Analytical Dilution Factors						
	Date	Instr.	File #			
Canister DF = 2.12	5/9/2016	ATMS9		X	FINAL DF	5.297420965
Load DF = 2.5				X		
LVf (mLs)						
LVi (mLs)						
Bag DF = 1						
BVf (mLs)						
Bvi (mLs)						
Canister DF = 2.12				X	FINAL DF	#DIV/0!
Load DF = #DIV/0!				X		
LVf (mLs)						
LVi (mLs)						
Bag DF = 1						
BVf (mLs)						
Bvi (mLs)						
Canister DF = 2.12				X	FINAL DF	#DIV/0!
Load DF = #DIV/0!				X		
LVf (mLs)						
LVi (mLs)						
Bag DF = 1						
BVf (mLs)						
Bvi (mLs)						

JOB # **320-18588**
 Sample # **3**

Client/Project:		VFR ID:	
Canister Serial #:	34000301	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)	11.26	05/06/16	SV	
FINAL PRESSURE (PSIA)	24.37	05/06/16	SV	
Pressurization Gas: <input type="checkbox"/> N2 <input type="checkbox"/> He	SCREENED <input type="checkbox"/>	SCRN DIL. VS 250mLs:		
Initial Canister Dilution Factor =	2.16			

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										
	Date	Instr.	File #							
Canister DF =	2.16	X	Load DF =	4.1666667	X	Bag DF =	1	=	FINAL DF	9.017910006
			LVf (mLs)	250		BVf (mLs)				
			LVi (mLs)	60		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)				
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

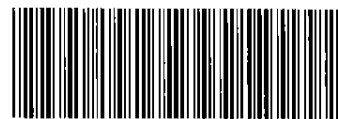
Client: Apex Companies LLC

Job Number: 320-18588-1

Login Number: 18588
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.	False	Refer to Job Narrative for details.
Samples are received within Holding Time (excluding tests with immediate HTs)	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 2/29/16 320-17488
 Date of QC 3/2/16
 Data File Number 16030118-D

CANISTER ID NUMBERS

<u>34000135 *</u>	<u>0728</u>	
<u>0092</u>	<u>0599</u>	
<u>0589</u>	<u>8453</u>	
<u>1122</u>	<u>8350</u>	
<u>0178</u>		
<u>0083</u>		
<u>1659</u>		
<u>0383</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:
[Signature]
2nd level Reviewed By:

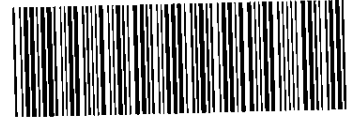
3/2/16
Date:
3/20/16
Date:





TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



320-17630 Chain of Custody

Batch Certification

Certification Type TO-15 Scan
 Date Cleaned/Batch ID 3/8/16 32017630
 Date of QC 3/16/2016
 Data File Number C:\MSDCHEM\1\DATA\160316\

→ MS7031624.d
CANISTER ID NUMBERS

<u>34000301 *</u>	<u>0464</u>	
<u>1672</u>	<u>2017</u>	
<u>0389</u>	<u>1283</u>	
<u>2108</u>	<u>0532</u>	
<u>0559</u>		
<u>1211</u>		
<u>0465</u>		
<u>1655</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:

3/18/16
 Date:

SRS Bos VG
 2nd level Reviewed By:

3/25/16
 Date:





Certification Type TO-15 Scan
 Date Cleaned/Batch ID 3/24/16 320-17919
 Date of QC 3/28/2016
 Data File Number C:\MSDCHEM\1\DATA\160328\

→ MS9032821.d
CANISTER ID NUMBERS

34000183	7833	
0460	7762	
2081	7960	
1458	8448 *	
0545		
0837		
2123		
7866		

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:

3/29/2016
 Date:

[Signature]
 2nd level Reviewed By:

4/1/16
 Date:



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-17488-1
 SDG No.: _____
 Client Sample ID: 34000135 Lab Sample ID: 320-17488-1
 Matrix: Air Lab File ID: 16030118.D
 Analysis Method: TO-15 Date Collected: 02/29/2016 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 03/02/2016 00:33
 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.: 102006 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.: 320-17488-1
 SDG No.: _____
 Client Sample ID: 34000135 Lab Sample ID: 320-17488-1
 Matrix: Air Lab File ID: 16030118.D
 Analysis Method: TO-15 Date Collected: 02/29/2016 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 03/02/2016 00:33
 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.: 102006 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	0.13	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.: 320-17488-1
 SDG No.: _____
 Client Sample ID: 34000135 Lab Sample ID: 320-17488-1
 Matrix: Air Lab File ID: 16030118.D
 Analysis Method: TO-15 Date Collected: 02/29/2016 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 03/02/2016 00:33
 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.: 102006 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)	91		70-130
2037-26-5	Toluene-d8 (Surr)	98		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS2\20160301-28763.b\16030118.D
 Lims ID: 320-17488-A-1 Lab Sample ID: 320-17488-1
 Client ID: 34000135
 Sample Type: Client
 Inject. Date: 02-Mar-2016 00:33:30 ALS Bottle#: 11 Worklist Smp#: 31
 Purge Vol: 250.000 mL Dil. Factor: 1.0000
 Sample Info: 320-17488-A-1
 Misc. Info.: 500ML
 Operator ID: SRS Instrument ID: ATMS2
 Method: \\ChromNA\Sacramento\ChromData\ATMS2\20160301-28763.b\TO15_ATMS2N.m
 Limit Group: MSA - TO15 - ICAL
 Last Update: 02-Mar-2016 10:55:43 Calib Date: 18-Feb-2016 17:08:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS2\20160218-28455.b\16021810.D
 Column 1 : RTX Volatiles (0.32 mm) Det: MS SCAN
 Process Host: XAWRK001

First Level Reviewer: yangk

Date: 02-Mar-2016 10:55:43

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.742	11.748	-0.006	90	61535	4.00	
* 2 1,4-Difluorobenzene	114	13.841	13.847	-0.006	94	262715	4.00	
* 3 Chlorobenzene-d5 (IS)	117	19.858	19.858	0.000	86	226933	4.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	12.898	12.910	-0.012	0	73303	3.62	
\$ 5 Toluene-d8 (Surr)	100	17.047	17.059	-0.012	99	158229	3.93	
\$ 6 4-Bromofluorobenzene (Surr	174	21.841	21.841	0.000	96	142362	3.77	
10 Propene	41	4.065	4.053	0.012	74	955	0.0857	
32 Acetone	43	7.216	7.149	0.067	47	2010	0.1375	
39 Methylene Chloride	49	8.402	8.390	0.012	91	2108	0.1328	
123 1,2,4-Trichlorobenzene	180	26.270	26.270	0.000	1	484	0.0253	
124 Hexachlorobutadiene	225	26.525	26.526	-0.001	63	568	0.0239	

Reagents:

vasuisim_00275

Amount Added: 50.00

Units: mL

Run Reagent

Data File: \\ChromNA\Sacramento\ChromData\ATMS2\20160301-28763.b\16030118.D

Injection Date: 02-Mar-2016 00:33:30

Instrument ID: ATMS2

Operator ID: SRS

Lims ID: 320-17488-A-1

Lab Sample ID: 320-17488-1

Worklist Smp#: 31

Client ID: 34000135

Purge Vol: 250.000 mL

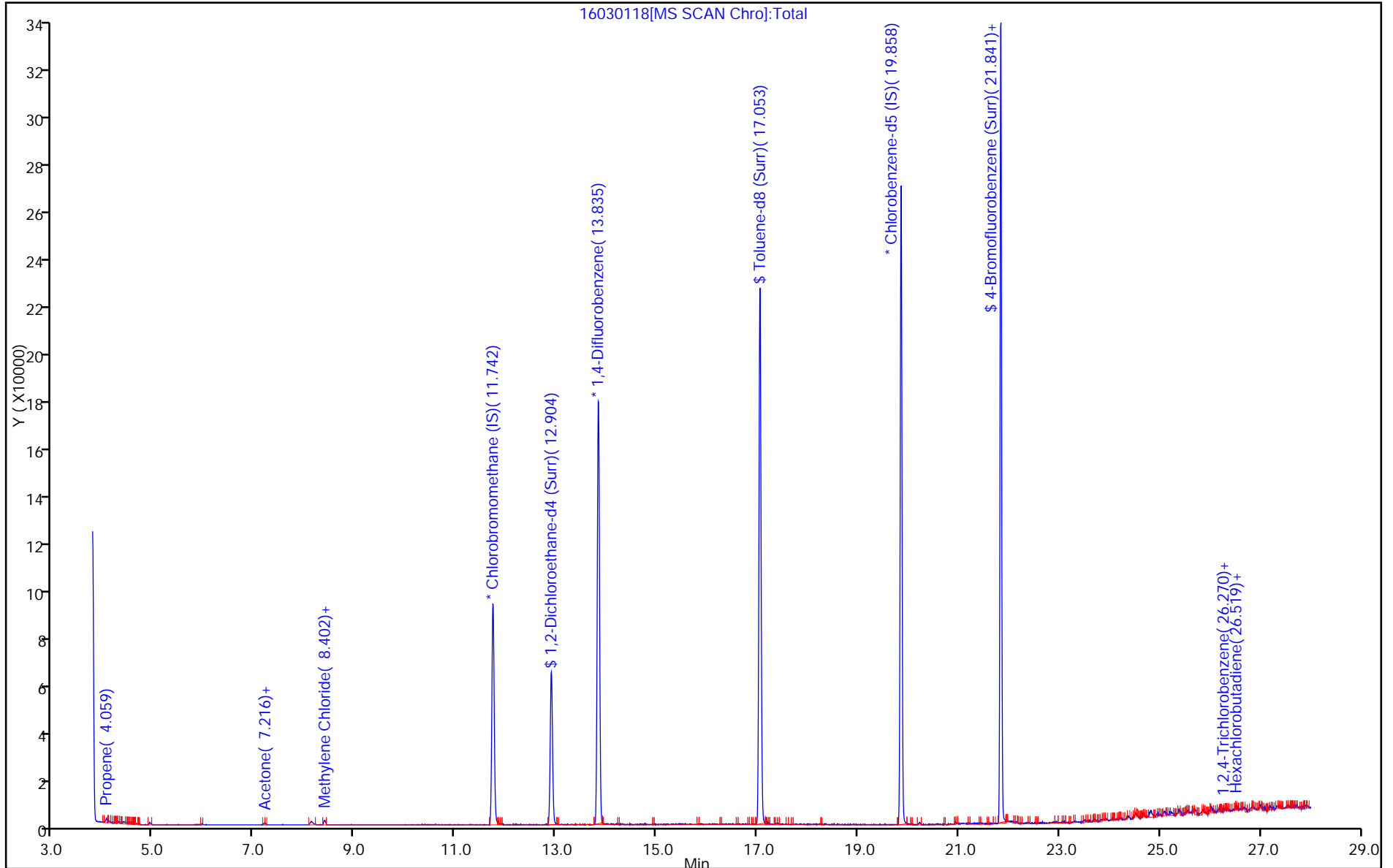
Dil. Factor: 1.0000

ALS Bottle#: 11

Method: TO15_ATMS2N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS2\20160301-28763.b\16030118.D

Injection Date: 02-Mar-2016 00:33:30

Instrument ID: ATMS2

Lims ID: 320-17488-A-1

Lab Sample ID: 320-17488-1

Client ID: 34000135

Operator ID: SRS

ALS Bottle#: 11 Worklist Smp#: 31

Purge Vol: 250.000 mL

Dil. Factor: 1.0000

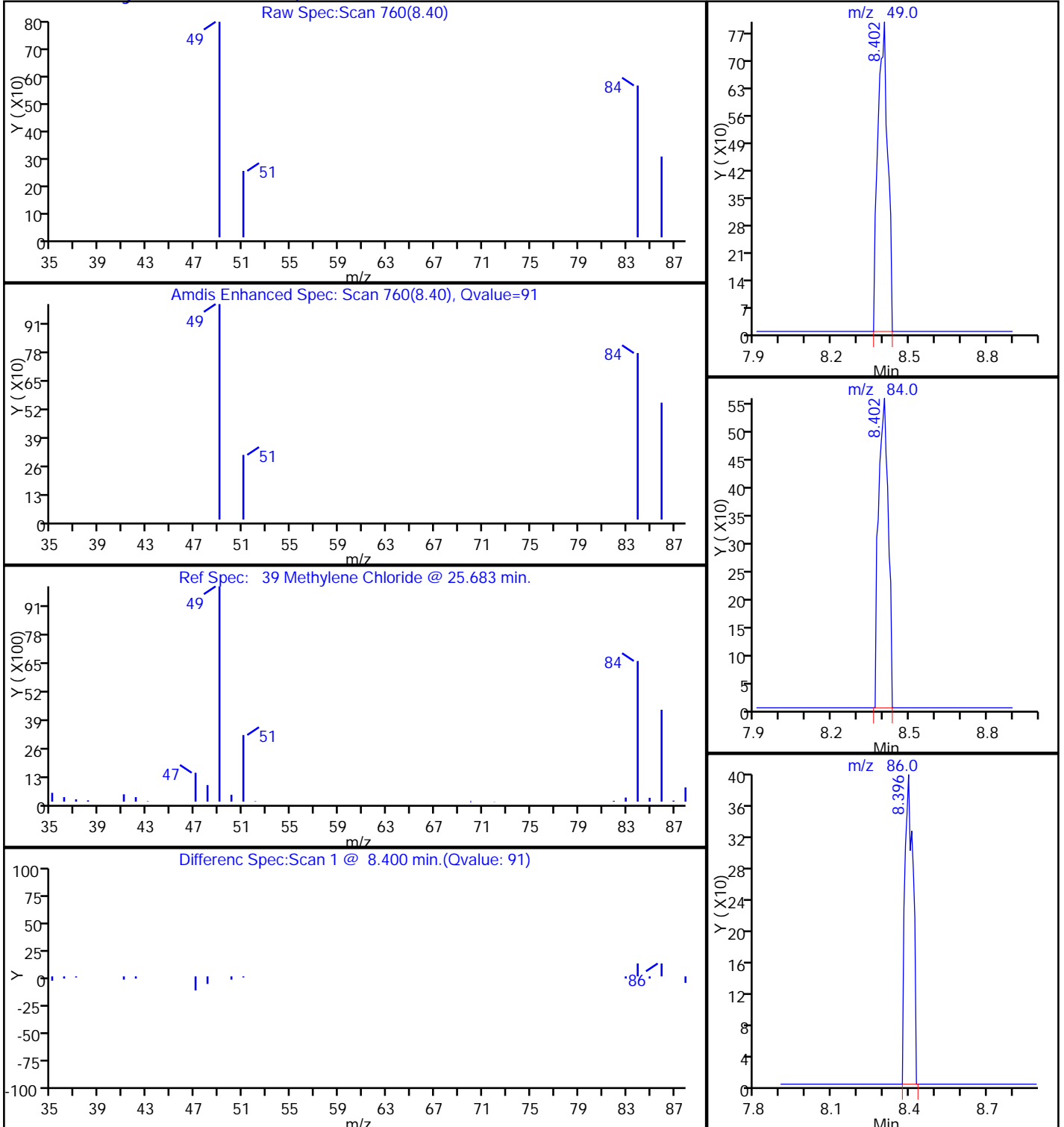
Method: TO15_ATMS2N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Detector: MS SCAN

39 Methylene Chloride, CAS: 75-09-2



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-17630-1
 SDG No.: _____
 Client Sample ID: 34000301 Lab Sample ID: 320-17630-1
 Matrix: Air Lab File ID: MS7031624.D
 Analysis Method: TO-15 Date Collected: 03/08/2016 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 03/17/2016 09:02
 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.: 103534 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.: 320-17630-1
 SDG No.: _____
 Client Sample ID: 34000301 Lab Sample ID: 320-17630-1
 Matrix: Air Lab File ID: MS7031624.D
 Analysis Method: TO-15 Date Collected: 03/08/2016 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 03/17/2016 09:02
 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.: 103534 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.: 320-17630-1
 SDG No.: _____
 Client Sample ID: 34000301 Lab Sample ID: 320-17630-1
 Matrix: Air Lab File ID: MS7031624.D
 Analysis Method: TO-15 Date Collected: 03/08/2016 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 03/17/2016 09:02
 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.: 103534 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)	71		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	102		70-130
2037-26-5	Toluene-d8 (Surr)	96		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS7\20160316-29147.b\MS7031624.D
 Lims ID: 320-17630-A-1 Lab Sample ID: 320-17630-1
 Client ID: 34000301
 Sample Type: Client
 Inject. Date: 17-Mar-2016 09:02:30 ALS Bottle#: 2 Worklist Smp#: 24
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 320-17630-A-1
 Misc. Info.: 500 mL CAN CERT
 Operator ID: LHS Instrument ID: ATMS7
 Method: \\ChromNA\Sacramento\ChromData\ATMS7\20160316-29147.b\TO15_ATMS7N.m
 Limit Group: MSA - TO15 - ICAL
 Last Update: 18-Mar-2016 07:56:46 Calib Date: 15-Mar-2016 17:30:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS7\20160315-29097.b\MS7031422.D
 Column 1 : RTX Volatiles (0.32 mm) Det: MS SCAN
 Process Host: XAWRK009

First Level Reviewer: leeh

Date: 17-Mar-2016 13:07:55

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	12.366	12.354	0.012	94	56046	4.00	
* 2 1,4-Difluorobenzene	114	14.520	14.507	0.013	96	252527	4.00	
* 3 Chlorobenzene-d5 (IS)	117	21.205	21.193	0.012	91	191129	4.00	
\$ 4 1,2-Dichloroethane-d4 (Surr)	65	13.570	13.558	0.012	94	91379	4.10	
\$ 5 Toluene-d8 (Surr)	100	17.932	17.920	0.012	97	156210	3.85	
\$ 6 4-Bromofluorobenzene (Surr)	95	23.748	23.736	0.012	85	88145	2.85	
11 Propene	41	3.873	3.867	0.006	86	1121	0.0732	
32 Acetone	43	7.444	7.377	0.067	97	12897	0.3518	
39 Methylene Chloride	49	8.789	8.770	0.019	47	1497	0.0584	
73 n-Octane	43	17.932	17.951	-0.019	44	2358	0.0294	

Reagents:

VASUISIM_00280 Amount Added: 50.00 Units: mL Run Reagent

Data File: \\ChromNA\Sacramento\ChromData\ATMS7\20160316-29147.b\MS7031624.D

Injection Date: 17-Mar-2016 09:02:30

Instrument ID: ATMS7

Operator ID: LHS

Lims ID: 320-17630-A-1

Lab Sample ID: 320-17630-1

Worklist Smp#: 24

Client ID: 34000301

Purge Vol: 5.000 mL

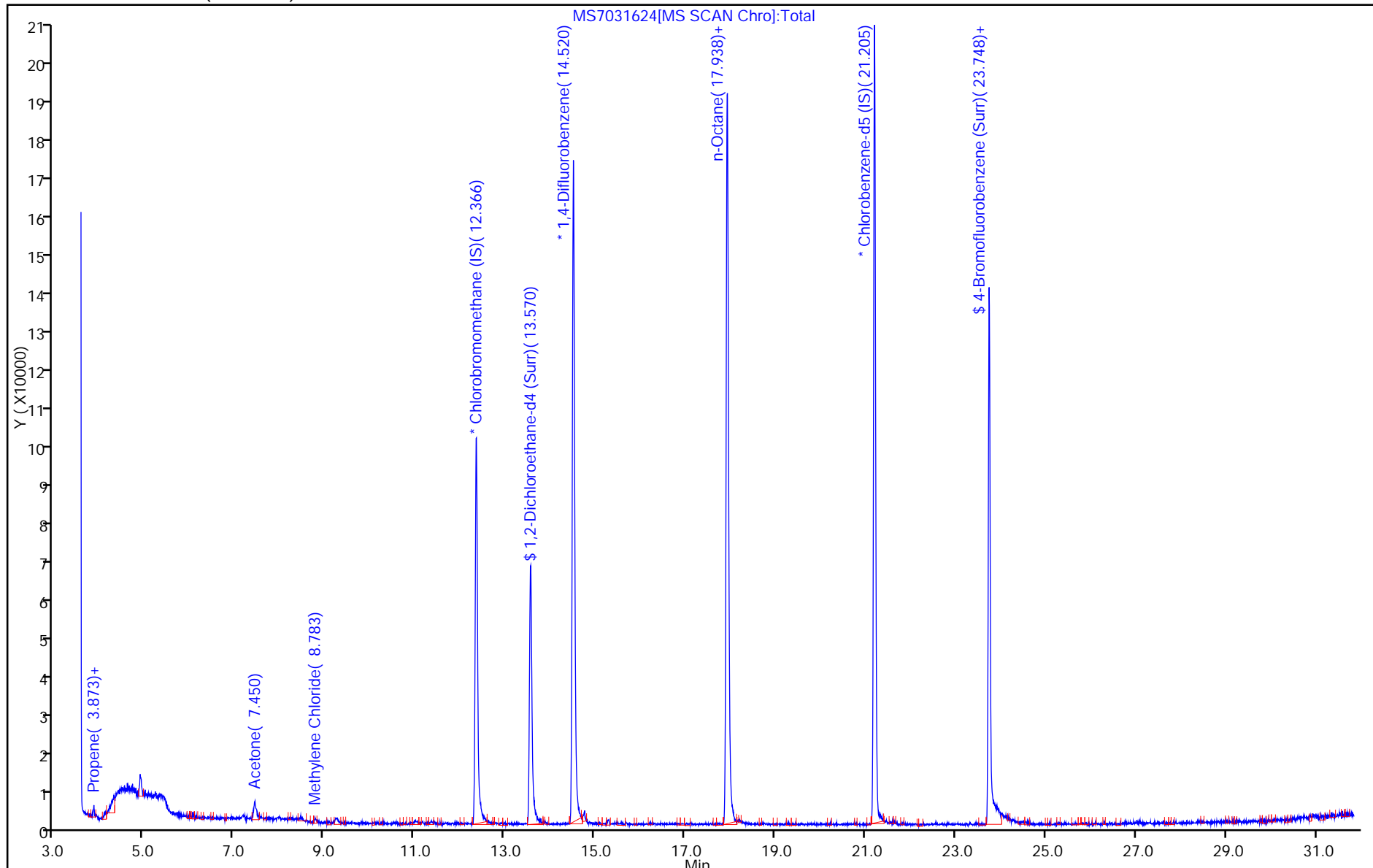
Dil. Factor: 1.0000

ALS Bottle#: 2

Method: TO15_ATMS7N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS7\20160316-29147.b\MS7031624.D

Injection Date: 17-Mar-2016 09:02:30

Instrument ID: ATMS7

Lims ID: 320-17630-A-1

Lab Sample ID: 320-17630-1

Client ID: 34000301

Operator ID: LHS

ALS Bottle#: 2 Worklist Smp#: 24

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

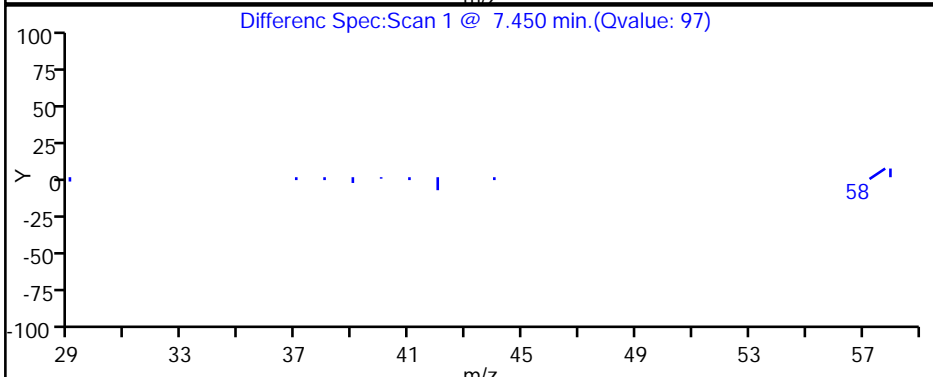
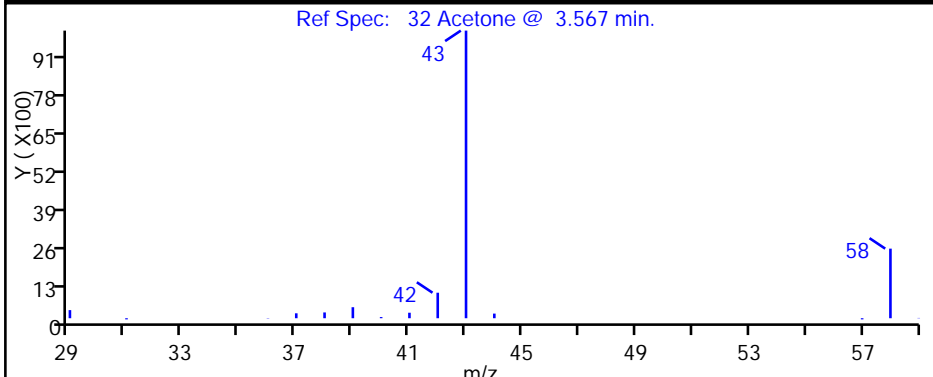
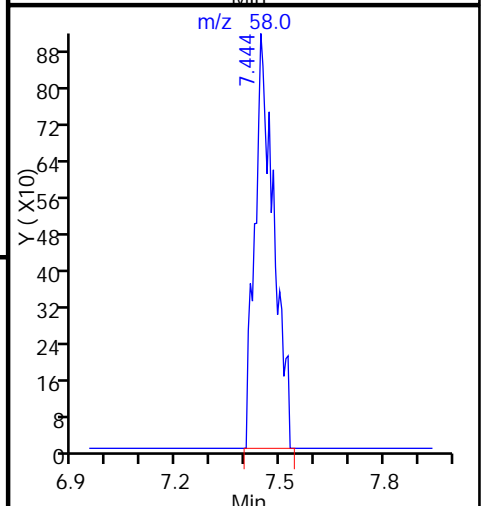
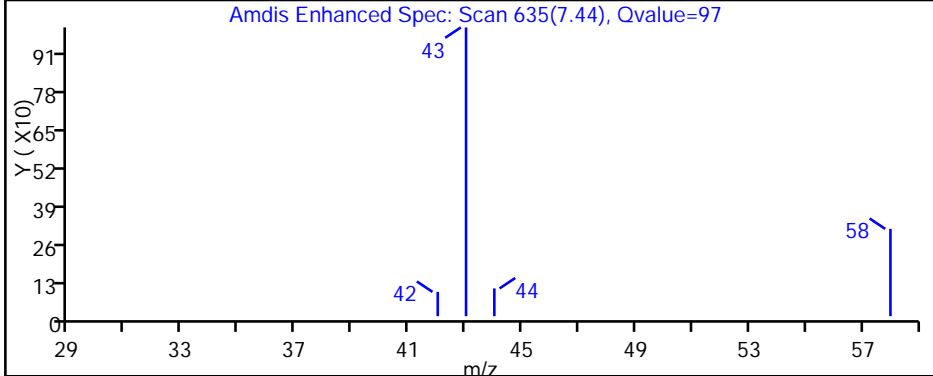
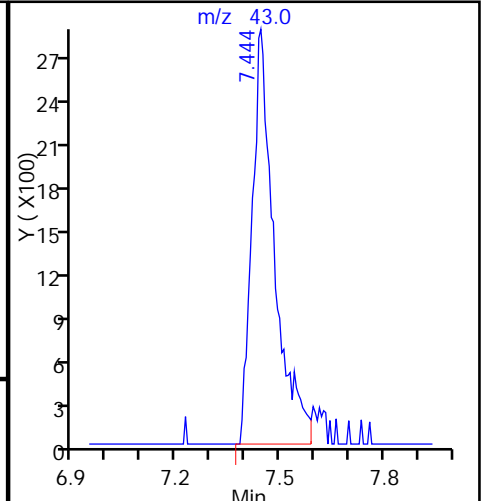
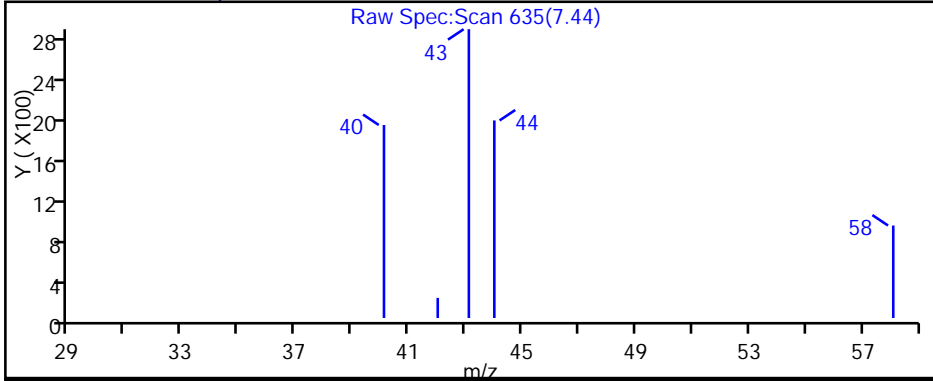
Method: TO15_ATMS7N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Detector: MS SCAN

32 Acetone, CAS: 67-64-1



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-17919-1
 SDG No.: _____
 Client Sample ID: 8448 Lab Sample ID: 320-17919-12
 Matrix: Air Lab File ID: MS9032821.D
 Analysis Method: TO-15 Date Collected: 03/24/2016 00:00
 Sample wt/vol: 250 (mL) Date Analyzed: 03/29/2016 03:29
 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.: 104536 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
67-64-1	Acetone	0.21	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.: 320-17919-1
 SDG No.: _____
 Client Sample ID: 8448 Lab Sample ID: 320-17919-12
 Matrix: Air Lab File ID: MS9032821.D
 Analysis Method: TO-15 Date Collected: 03/24/2016 00:00
 Sample wt/vol: 250 (mL) Date Analyzed: 03/29/2016 03:29
 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.: 104536 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.: 320-17919-1
 SDG No.: _____
 Client Sample ID: 8448 Lab Sample ID: 320-17919-12
 Matrix: Air Lab File ID: MS9032821.D
 Analysis Method: TO-15 Date Collected: 03/24/2016 00:00
 Sample wt/vol: 250 (mL) Date Analyzed: 03/29/2016 03:29
 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.: 104536 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)	103		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	107		70-130
2037-26-5	Toluene-d8 (Surr)	99		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS9\20160328-29402.b\MS9032821.D
 Lims ID: 320-17919-A-12 Lab Sample ID: 320-17919-12
 Client ID: 8448
 Sample Type: Client
 Inject. Date: 29-Mar-2016 03:29:30 ALS Bottle#: 3 Worklist Smp#: 21
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 320-17919-A-12
 Misc. Info.: 500mL
 Operator ID: SRS Instrument ID: ATMS9
 Method: \\ChromNA\Sacramento\ChromData\ATMS9\20160328-29402.b\TO15_ATMS9N.m
 Limit Group: MSA - TO15 - ICAL
 Last Update: 29-Mar-2016 10:09:01 Calib Date: 12-Mar-2016 18:48:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS9\20160314-29063.b\MS9031212.D
 Column 1 : RTX Volatiles (0.32 mm) Det: MS SCAN
 Process Host: XAWRK028

First Level Reviewer: leeh

Date: 29-Mar-2016 10:08:02

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	12.437	12.443	-0.006	98	33685	4.00	
* 2 1,4-Difluorobenzene	114	14.530	14.542	-0.012	96	142998	4.00	
* 3 Chlorobenzene-d5 (IS)	117	20.456	20.455	0.001	91	125700	4.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	13.612	13.617	-0.005	98	55754	4.27	
\$ 5 Toluene-d8 (Surr)	100	17.700	17.706	-0.006	97	90083	3.96	
\$ 6 4-Bromofluorobenzene (Surr	174	22.372	22.372	0.000	86	73398	4.11	
31 Acetone	43	7.711	7.637	0.073	92	3449	0.2098	
115 1,2,4-Trimethylbenzene	120	23.418	23.430	-0.012	86	128	0.005393	
123 n-Butylbenzene	92	24.398	24.398	0.000	89	296	0.0111	

Reagents:

VASUISIM_00277 Amount Added: 50.00 Units: mL Run Reagent

Data File: \\ChromNA\Sacramento\ChromData\ATMS9\20160328-29402.b\MS9032821.D

Injection Date: 29-Mar-2016 03:29:30

Instrument ID: ATMS9

Operator ID: SRS

Lims ID: 320-17919-A-12

Lab Sample ID: 320-17919-12

Worklist Smp#: 21

Client ID: 8448

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

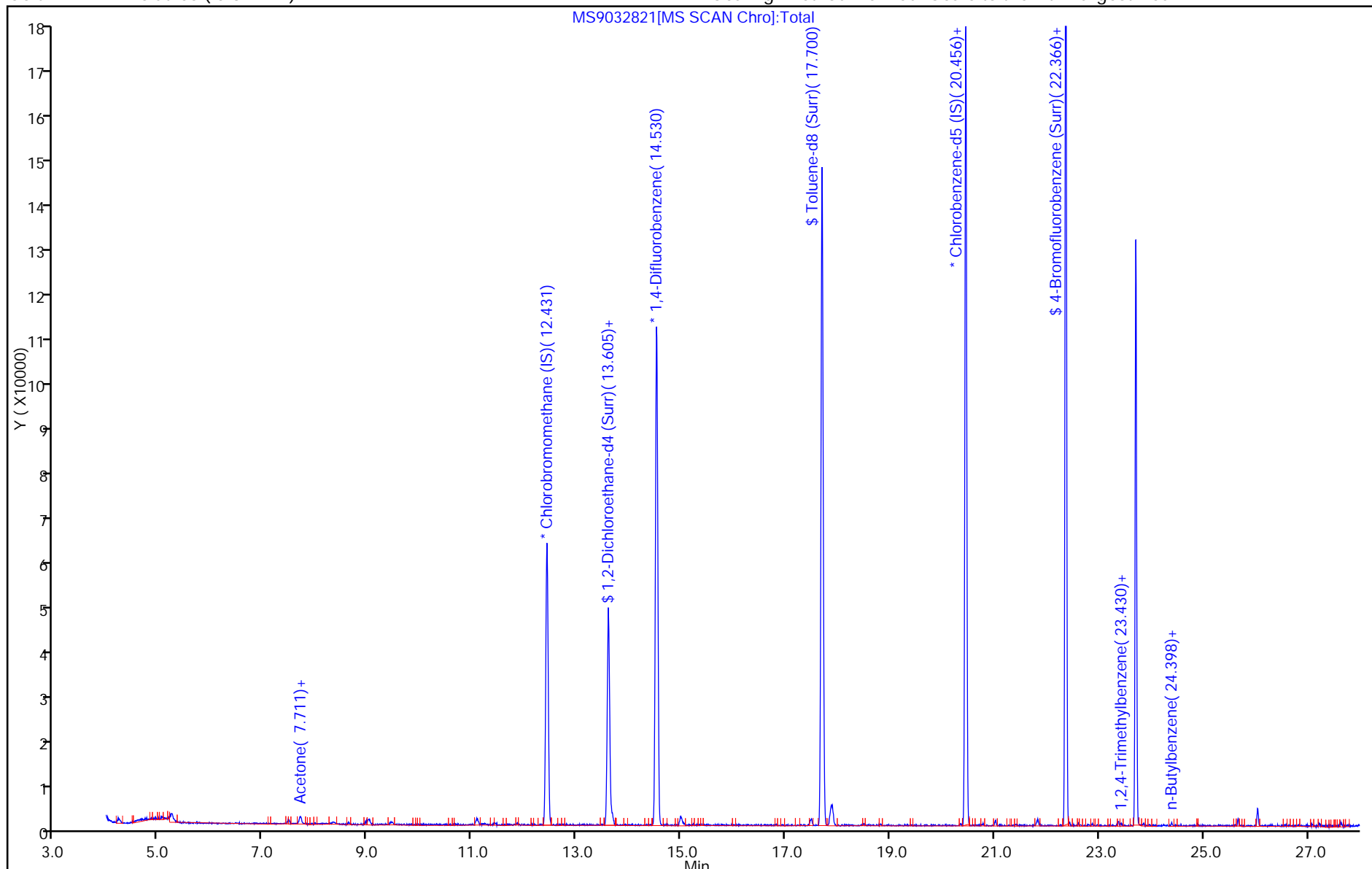
ALS Bottle#: 3

Method: TO15_ATMS9N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Peak: 2



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS9\20160328-29402.b\MS9032821.D

Injection Date: 29-Mar-2016 03:29:30

Instrument ID: ATMS9

Lims ID: 320-17919-A-12

Lab Sample ID: 320-17919-12

Client ID: 8448

Operator ID: SRS

ALS Bottle#: 3 Worklist Smp#: 21

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

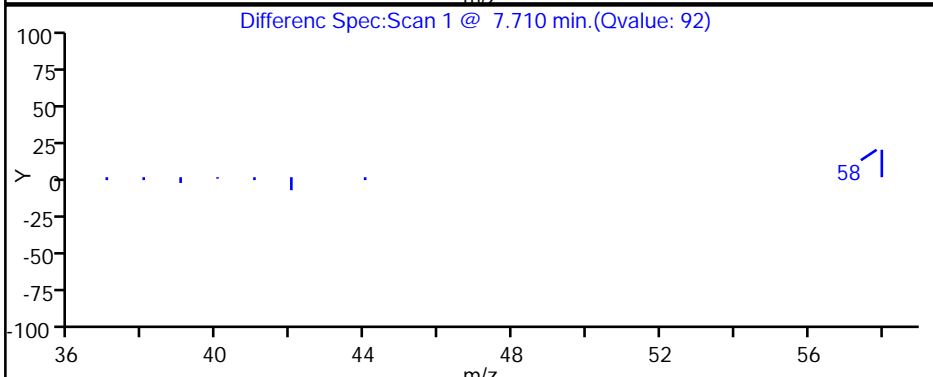
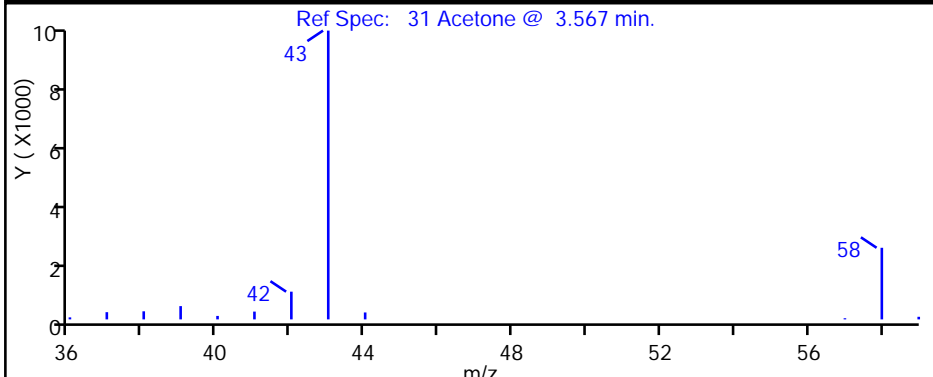
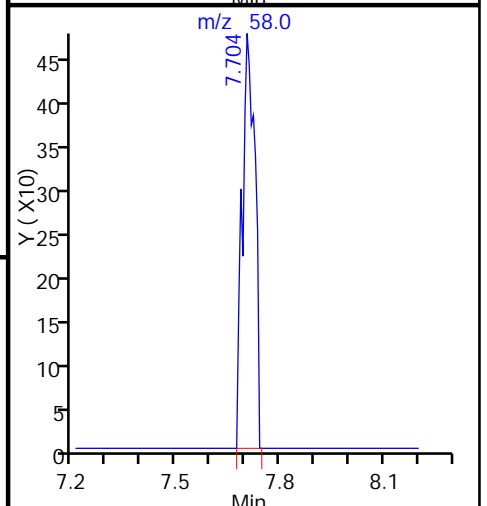
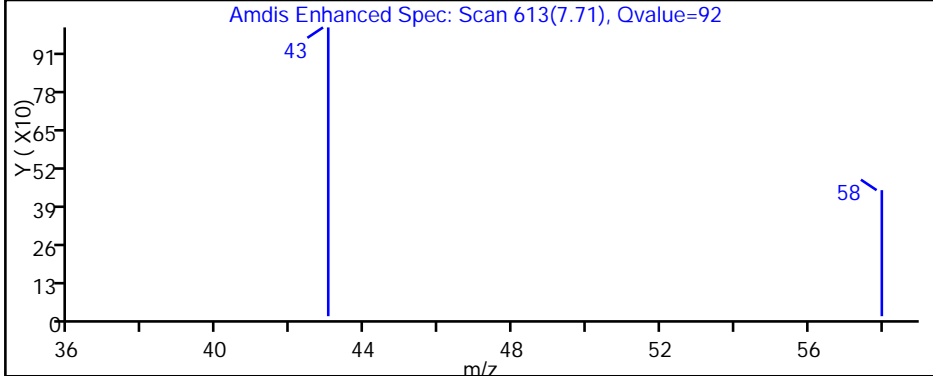
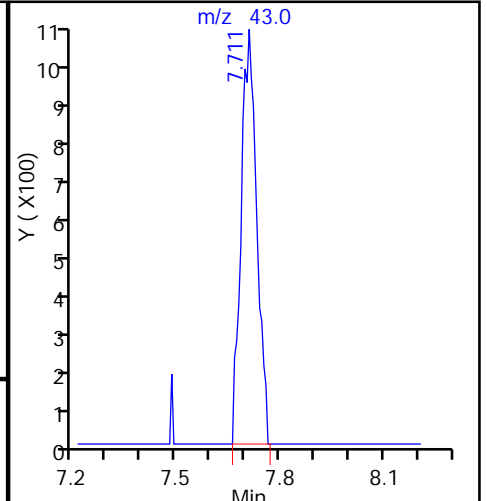
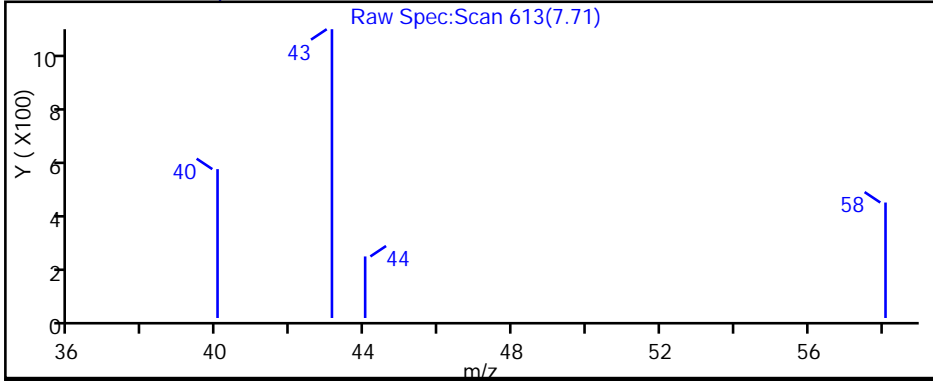
Method: TO15_ATMS9N

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: 320-19176-1
Client Project/Site: NuStar Vapor Testing

For:
Apex Companies LLC
3015 SW 1st Avenue
Portland, Oregon 97201

Attn: Stephanie Salisbury



Authorized for release by:
6/9/2016 1:59:29 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.

- 1
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Definitions/Glossary

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

TestAmerica Job ID: 320-19176-1

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: 320-19176-1

Job ID: 320-19176-1

Laboratory: TestAmerica Sacramento

Narrative

Receipt

The samples were received on 5/27/2016 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 320-112818 recovered above the upper control limit for Styrene. The samples associated with this CCV were non-detects for the affected analytes; 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.



Detection Summary

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

TestAmerica Job ID: 320-19176-1

Client Sample ID: SVE_SOUTH_PRECARBON_052516

Lab Sample ID: 320-19176-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	9.4		5.0		ppb v/v	1		TO-15	Total/NA
2-Butanone (MEK)	1.3		0.80		ppb v/v	1		TO-15	Total/NA
Dichlorodifluoromethane	0.66		0.40		ppb v/v	1		TO-15	Total/NA
cis-1,2-Dichloroethene	1.0		0.40		ppb v/v	1		TO-15	Total/NA
Toluene	0.78		0.40		ppb v/v	1		TO-15	Total/NA
1,1,1-Trichloroethane	0.53		0.30		ppb v/v	1		TO-15	Total/NA
Trichloroethene	4.2		0.40		ppb v/v	1		TO-15	Total/NA
m,p-Xylene	0.89		0.80		ppb v/v	1		TO-15	Total/NA
Tetrachloroethene - DL	81		0.83		ppb v/v	2.08		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	22		12		ug/m3 Air	1		TO-15	Total/NA
2-Butanone (MEK)	3.9		2.4		ug/m3 Air	1		TO-15	Total/NA
Dichlorodifluoromethane	3.3		2.0		ug/m3 Air	1		TO-15	Total/NA
cis-1,2-Dichloroethene	4.1		1.6		ug/m3 Air	1		TO-15	Total/NA
Toluene	2.9		1.5		ug/m3 Air	1		TO-15	Total/NA
1,1,1-Trichloroethane	2.9		1.6		ug/m3 Air	1		TO-15	Total/NA
Trichloroethene	22		2.1		ug/m3 Air	1		TO-15	Total/NA
m,p-Xylene	3.9		3.5		ug/m3 Air	1		TO-15	Total/NA
Tetrachloroethene - DL	550		5.6		ug/m3 Air	2.08		TO-15	Total/NA

Client Sample ID: SVE_SOUTH_POSTCARBON_052516

Lab Sample ID: 320-19176-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	570		5.2		ppb v/v	12.88		TO-15	Total/NA
trans-1,2-Dichloroethene	7.5		5.2		ppb v/v	12.88		TO-15	Total/NA
1,1,1-Trichloroethane	24		3.9		ppb v/v	12.88		TO-15	Total/NA
Trichloroethene	620		5.2		ppb v/v	12.88		TO-15	Total/NA
Tetrachloroethene - DL	2100		24		ppb v/v	59.6		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	2300		20		ug/m3 Air	12.88		TO-15	Total/NA
trans-1,2-Dichloroethene	30		20		ug/m3 Air	12.88		TO-15	Total/NA
1,1,1-Trichloroethane	130		21		ug/m3 Air	12.88		TO-15	Total/NA
Trichloroethene	3300		28		ug/m3 Air	12.88		TO-15	Total/NA
Tetrachloroethene - DL	14000		160		ug/m3 Air	59.6		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: 320-19176-1

Client Sample ID: SVE_SOUTH_PRECARBON_052516

Lab Sample ID: 320-19176-1

Date Collected: 05/25/16 13:53

Matrix: Air

Date Received: 05/27/16 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	9.4		5.0		ppb v/v			06/08/16 00:07	1
Benzene	ND		0.40		ppb v/v			06/08/16 00:07	1
Benzyl chloride	ND		0.80		ppb v/v			06/08/16 00:07	1
Bromodichloromethane	ND		0.30		ppb v/v			06/08/16 00:07	1
Bromoform	ND		0.40		ppb v/v			06/08/16 00:07	1
Bromomethane	ND		0.80		ppb v/v			06/08/16 00:07	1
2-Butanone (MEK)	1.3		0.80		ppb v/v			06/08/16 00:07	1
Carbon disulfide	ND		0.80		ppb v/v			06/08/16 00:07	1
Carbon tetrachloride	ND		0.80		ppb v/v			06/08/16 00:07	1
Chlorobenzene	ND		0.30		ppb v/v			06/08/16 00:07	1
Dibromochloromethane	ND		0.40		ppb v/v			06/08/16 00:07	1
Chloroethane	ND		0.80		ppb v/v			06/08/16 00:07	1
Chloroform	ND		0.30		ppb v/v			06/08/16 00:07	1
Chloromethane	ND		0.80		ppb v/v			06/08/16 00:07	1
1,2-Dibromoethane (EDB)	ND		0.80		ppb v/v			06/08/16 00:07	1
1,2-Dichlorobenzene	ND		0.40		ppb v/v			06/08/16 00:07	1
1,3-Dichlorobenzene	ND		0.40		ppb v/v			06/08/16 00:07	1
1,4-Dichlorobenzene	ND		0.40		ppb v/v			06/08/16 00:07	1
Dichlorodifluoromethane	0.66		0.40		ppb v/v			06/08/16 00:07	1
1,1-Dichloroethane	ND		0.30		ppb v/v			06/08/16 00:07	1
1,2-Dichloroethane	ND		0.80		ppb v/v			06/08/16 00:07	1
1,1-Dichloroethene	ND		0.80		ppb v/v			06/08/16 00:07	1
cis-1,2-Dichloroethene	1.0		0.40		ppb v/v			06/08/16 00:07	1
trans-1,2-Dichloroethene	ND		0.40		ppb v/v			06/08/16 00:07	1
1,2-Dichloropropane	ND		0.40		ppb v/v			06/08/16 00:07	1
cis-1,3-Dichloropropene	ND		0.40		ppb v/v			06/08/16 00:07	1
trans-1,3-Dichloropropene	ND		0.40		ppb v/v			06/08/16 00:07	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40		ppb v/v			06/08/16 00:07	1
Ethylbenzene	ND		0.40		ppb v/v			06/08/16 00:07	1
4-Ethyltoluene	ND		0.40		ppb v/v			06/08/16 00:07	1
Hexachlorobutadiene	ND		2.0		ppb v/v			06/08/16 00:07	1
2-Hexanone	ND		0.40		ppb v/v			06/08/16 00:07	1
Methylene Chloride	ND		0.40		ppb v/v			06/08/16 00:07	1
4-Methyl-2-pentanone (MIBK)	ND		0.40		ppb v/v			06/08/16 00:07	1
Styrene	ND		0.40		ppb v/v			06/08/16 00:07	1
1,1,2,2-Tetrachloroethane	ND		0.40		ppb v/v			06/08/16 00:07	1
Toluene	0.78		0.40		ppb v/v			06/08/16 00:07	1
1,2,4-Trichlorobenzene	ND		2.0		ppb v/v			06/08/16 00:07	1
1,1,1-Trichloroethane	0.53		0.30		ppb v/v			06/08/16 00:07	1
1,1,2-Trichloroethane	ND		0.40		ppb v/v			06/08/16 00:07	1
Trichloroethene	4.2		0.40		ppb v/v			06/08/16 00:07	1
Trichlorofluoromethane	ND		0.40		ppb v/v			06/08/16 00:07	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40		ppb v/v			06/08/16 00:07	1
1,2,4-Trimethylbenzene	ND		0.80		ppb v/v			06/08/16 00:07	1
1,3,5-Trimethylbenzene	ND		0.40		ppb v/v			06/08/16 00:07	1
Vinyl acetate	ND		0.80		ppb v/v			06/08/16 00:07	1
Vinyl chloride	ND		0.40		ppb v/v			06/08/16 00:07	1
m,p-Xylene	0.89		0.80		ppb v/v			06/08/16 00:07	1

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-19176-1

Client Sample ID: SVE_SOUTH_PRECARBON_052516

Lab Sample ID: 320-19176-1

Date Collected: 05/25/16 13:53

Matrix: Air

Date Received: 05/27/16 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			06/08/16 00:07	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	22		12		ug/m3 Air			06/08/16 00:07	1
Benzene	ND		1.3		ug/m3 Air			06/08/16 00:07	1
Benzyl chloride	ND		4.1		ug/m3 Air			06/08/16 00:07	1
Bromodichloromethane	ND		2.0		ug/m3 Air			06/08/16 00:07	1
Bromoform	ND		4.1		ug/m3 Air			06/08/16 00:07	1
Bromomethane	ND		3.1		ug/m3 Air			06/08/16 00:07	1
2-Butanone (MEK)	3.9		2.4		ug/m3 Air			06/08/16 00:07	1
Carbon disulfide	ND		2.5		ug/m3 Air			06/08/16 00:07	1
Carbon tetrachloride	ND		5.0		ug/m3 Air			06/08/16 00:07	1
Chlorobenzene	ND		1.4		ug/m3 Air			06/08/16 00:07	1
Dibromochloromethane	ND		3.4		ug/m3 Air			06/08/16 00:07	1
Chloroethane	ND		2.1		ug/m3 Air			06/08/16 00:07	1
Chloroform	ND		1.5		ug/m3 Air			06/08/16 00:07	1
Chloromethane	ND		1.7		ug/m3 Air			06/08/16 00:07	1
1,2-Dibromoethane (EDB)	ND		6.1		ug/m3 Air			06/08/16 00:07	1
1,2-Dichlorobenzene	ND		2.4		ug/m3 Air			06/08/16 00:07	1
1,3-Dichlorobenzene	ND		2.4		ug/m3 Air			06/08/16 00:07	1
1,4-Dichlorobenzene	ND		2.4		ug/m3 Air			06/08/16 00:07	1
Dichlorodifluoromethane	3.3		2.0		ug/m3 Air			06/08/16 00:07	1
1,1-Dichloroethane	ND		1.2		ug/m3 Air			06/08/16 00:07	1
1,2-Dichloroethane	ND		3.2		ug/m3 Air			06/08/16 00:07	1
1,1-Dichloroethene	ND		3.2		ug/m3 Air			06/08/16 00:07	1
cis-1,2-Dichloroethene	4.1		1.6		ug/m3 Air			06/08/16 00:07	1
trans-1,2-Dichloroethene	ND		1.6		ug/m3 Air			06/08/16 00:07	1
1,2-Dichloropropane	ND		1.8		ug/m3 Air			06/08/16 00:07	1
cis-1,3-Dichloropropene	ND		1.8		ug/m3 Air			06/08/16 00:07	1
trans-1,3-Dichloropropene	ND		1.8		ug/m3 Air			06/08/16 00:07	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.8		ug/m3 Air			06/08/16 00:07	1
Ethylbenzene	ND		1.7		ug/m3 Air			06/08/16 00:07	1
4-Ethyltoluene	ND		2.0		ug/m3 Air			06/08/16 00:07	1
Hexachlorobutadiene	ND		21		ug/m3 Air			06/08/16 00:07	1
2-Hexanone	ND		1.6		ug/m3 Air			06/08/16 00:07	1
Methylene Chloride	ND		1.4		ug/m3 Air			06/08/16 00:07	1
4-Methyl-2-pentanone (MIBK)	ND		1.6		ug/m3 Air			06/08/16 00:07	1
Styrene	ND		1.7		ug/m3 Air			06/08/16 00:07	1
1,1,2,2-Tetrachloroethane	ND		2.7		ug/m3 Air			06/08/16 00:07	1
Toluene	2.9		1.5		ug/m3 Air			06/08/16 00:07	1
1,2,4-Trichlorobenzene	ND		15		ug/m3 Air			06/08/16 00:07	1
1,1,1-Trichloroethane	2.9		1.6		ug/m3 Air			06/08/16 00:07	1
1,1,2-Trichloroethane	ND		2.2		ug/m3 Air			06/08/16 00:07	1
Trichloroethene	22		2.1		ug/m3 Air			06/08/16 00:07	1
Trichlorofluoromethane	ND		2.2		ug/m3 Air			06/08/16 00:07	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.1		ug/m3 Air			06/08/16 00:07	1
1,2,4-Trimethylbenzene	ND		3.9		ug/m3 Air			06/08/16 00:07	1
1,3,5-Trimethylbenzene	ND		2.0		ug/m3 Air			06/08/16 00:07	1
Vinyl acetate	ND		2.8		ug/m3 Air			06/08/16 00:07	1

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-19176-1

Client Sample ID: SVE_SOUTH_PRECARBON_052516

Lab Sample ID: 320-19176-1

Date Collected: 05/25/16 13:53

Matrix: Air

Date Received: 05/27/16 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	ND		1.0		ug/m3 Air			06/08/16 00:07	1
m,p-Xylene	3.9		3.5		ug/m3 Air			06/08/16 00:07	1
o-Xylene	ND		1.7		ug/m3 Air			06/08/16 00:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		70 - 130					06/08/16 00:07	1
1,2-Dichloroethane-d4 (Surr)	101		70 - 130					06/08/16 00:07	1
Toluene-d8 (Surr)	103		70 - 130					06/08/16 00:07	1

Method: TO-15 - Volatile Organic Compounds in Ambient Air - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	81		0.83		ppb v/v			06/08/16 20:49	2.08
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	550		5.6		ug/m3 Air			06/08/16 20:49	2.08
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		70 - 130					06/08/16 20:49	2.08
1,2-Dichloroethane-d4 (Surr)	105		70 - 130					06/08/16 20:49	2.08
Toluene-d8 (Surr)	100		70 - 130					06/08/16 20:49	2.08

Client Sample ID: SVE_SOUTH_POSTCARBON_052516

Lab Sample ID: 320-19176-2

Date Collected: 05/25/16 13:51

Matrix: Air

Date Received: 05/27/16 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		64		ppb v/v			06/08/16 00:50	12.88
Benzene	ND		5.2		ppb v/v			06/08/16 00:50	12.88
Benzyl chloride	ND		10		ppb v/v			06/08/16 00:50	12.88
Bromodichloromethane	ND		3.9		ppb v/v			06/08/16 00:50	12.88
Bromoform	ND		5.2		ppb v/v			06/08/16 00:50	12.88
Bromomethane	ND		10		ppb v/v			06/08/16 00:50	12.88
2-Butanone (MEK)	ND		10		ppb v/v			06/08/16 00:50	12.88
Carbon disulfide	ND		10		ppb v/v			06/08/16 00:50	12.88
Carbon tetrachloride	ND		10		ppb v/v			06/08/16 00:50	12.88
Chlorobenzene	ND		3.9		ppb v/v			06/08/16 00:50	12.88
Dibromochloromethane	ND		5.2		ppb v/v			06/08/16 00:50	12.88
Chloroethane	ND		10		ppb v/v			06/08/16 00:50	12.88
Chloroform	ND		3.9		ppb v/v			06/08/16 00:50	12.88
Chloromethane	ND		10		ppb v/v			06/08/16 00:50	12.88
1,2-Dibromoethane (EDB)	ND		10		ppb v/v			06/08/16 00:50	12.88
1,2-Dichlorobenzene	ND		5.2		ppb v/v			06/08/16 00:50	12.88
1,3-Dichlorobenzene	ND		5.2		ppb v/v			06/08/16 00:50	12.88
1,4-Dichlorobenzene	ND		5.2		ppb v/v			06/08/16 00:50	12.88
Dichlorodifluoromethane	ND		5.2		ppb v/v			06/08/16 00:50	12.88
1,1-Dichloroethane	ND		3.9		ppb v/v			06/08/16 00:50	12.88
1,2-Dichloroethane	ND		10		ppb v/v			06/08/16 00:50	12.88
1,1-Dichloroethene	ND		10		ppb v/v			06/08/16 00:50	12.88

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-19176-1

Client Sample ID: SVE_SOUTH_POSTCARBON_052516

Lab Sample ID: 320-19176-2

Date Collected: 05/25/16 13:51

Matrix: Air

Date Received: 05/27/16 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	570		5.2		ppb v/v			06/08/16 00:50	12.88
trans-1,2-Dichloroethene	7.5		5.2		ppb v/v			06/08/16 00:50	12.88
1,2-Dichloropropane	ND		5.2		ppb v/v			06/08/16 00:50	12.88
cis-1,3-Dichloropropene	ND		5.2		ppb v/v			06/08/16 00:50	12.88
trans-1,3-Dichloropropene	ND		5.2		ppb v/v			06/08/16 00:50	12.88
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		5.2		ppb v/v			06/08/16 00:50	12.88
Ethylbenzene	ND		5.2		ppb v/v			06/08/16 00:50	12.88
4-Ethyltoluene	ND		5.2		ppb v/v			06/08/16 00:50	12.88
Hexachlorobutadiene	ND		26		ppb v/v			06/08/16 00:50	12.88
2-Hexanone	ND		5.2		ppb v/v			06/08/16 00:50	12.88
Methylene Chloride	ND		5.2		ppb v/v			06/08/16 00:50	12.88
4-Methyl-2-pentanone (MIBK)	ND		5.2		ppb v/v			06/08/16 00:50	12.88
Styrene	ND		5.2		ppb v/v			06/08/16 00:50	12.88
1,1,2,2-Tetrachloroethane	ND		5.2		ppb v/v			06/08/16 00:50	12.88
Toluene	ND		5.2		ppb v/v			06/08/16 00:50	12.88
1,2,4-Trichlorobenzene	ND		26		ppb v/v			06/08/16 00:50	12.88
1,1,1-Trichloroethane	24		3.9		ppb v/v			06/08/16 00:50	12.88
1,1,2-Trichloroethane	ND		5.2		ppb v/v			06/08/16 00:50	12.88
Trichloroethene	620		5.2		ppb v/v			06/08/16 00:50	12.88
Trichlorofluoromethane	ND		5.2		ppb v/v			06/08/16 00:50	12.88
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.2		ppb v/v			06/08/16 00:50	12.88
1,2,4-Trimethylbenzene	ND		10		ppb v/v			06/08/16 00:50	12.88
1,3,5-Trimethylbenzene	ND		5.2		ppb v/v			06/08/16 00:50	12.88
Vinyl acetate	ND		10		ppb v/v			06/08/16 00:50	12.88
Vinyl chloride	ND		5.2		ppb v/v			06/08/16 00:50	12.88
m,p-Xylene	ND		10		ppb v/v			06/08/16 00:50	12.88
o-Xylene	ND		5.2		ppb v/v			06/08/16 00:50	12.88
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		150		ug/m3 Air			06/08/16 00:50	12.88
Benzene	ND		16		ug/m3 Air			06/08/16 00:50	12.88
Benzyl chloride	ND		53		ug/m3 Air			06/08/16 00:50	12.88
Bromodichloromethane	ND		26		ug/m3 Air			06/08/16 00:50	12.88
Bromoform	ND		53		ug/m3 Air			06/08/16 00:50	12.88
Bromomethane	ND		40		ug/m3 Air			06/08/16 00:50	12.88
2-Butanone (MEK)	ND		30		ug/m3 Air			06/08/16 00:50	12.88
Carbon disulfide	ND		32		ug/m3 Air			06/08/16 00:50	12.88
Carbon tetrachloride	ND		65		ug/m3 Air			06/08/16 00:50	12.88
Chlorobenzene	ND		18		ug/m3 Air			06/08/16 00:50	12.88
Dibromochloromethane	ND		44		ug/m3 Air			06/08/16 00:50	12.88
Chloroethane	ND		27		ug/m3 Air			06/08/16 00:50	12.88
Chloroform	ND		19		ug/m3 Air			06/08/16 00:50	12.88
Chloromethane	ND		21		ug/m3 Air			06/08/16 00:50	12.88
1,2-Dibromoethane (EDB)	ND		79		ug/m3 Air			06/08/16 00:50	12.88
1,2-Dichlorobenzene	ND		31		ug/m3 Air			06/08/16 00:50	12.88
1,3-Dichlorobenzene	ND		31		ug/m3 Air			06/08/16 00:50	12.88
1,4-Dichlorobenzene	ND		31		ug/m3 Air			06/08/16 00:50	12.88
Dichlorodifluoromethane	ND		25		ug/m3 Air			06/08/16 00:50	12.88
1,1-Dichloroethane	ND		16		ug/m3 Air			06/08/16 00:50	12.88

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-19176-1

Client Sample ID: SVE_SOUTH_POSTCARBON_052516

Lab Sample ID: 320-19176-2

Date Collected: 05/25/16 13:51

Matrix: Air

Date Received: 05/27/16 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-Dichloroethane	ND		42		ug/m3 Air			06/08/16 00:50	12.88
1,1-Dichloroethene	ND		41		ug/m3 Air			06/08/16 00:50	12.88
cis-1,2-Dichloroethene	2300		20		ug/m3 Air			06/08/16 00:50	12.88
trans-1,2-Dichloroethene	30		20		ug/m3 Air			06/08/16 00:50	12.88
1,2-Dichloropropane	ND		24		ug/m3 Air			06/08/16 00:50	12.88
cis-1,3-Dichloropropene	ND		23		ug/m3 Air			06/08/16 00:50	12.88
trans-1,3-Dichloropropene	ND		23		ug/m3 Air			06/08/16 00:50	12.88
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		36		ug/m3 Air			06/08/16 00:50	12.88
Ethylbenzene	ND		22		ug/m3 Air			06/08/16 00:50	12.88
4-Ethyltoluene	ND		25		ug/m3 Air			06/08/16 00:50	12.88
Hexachlorobutadiene	ND		270		ug/m3 Air			06/08/16 00:50	12.88
2-Hexanone	ND		21		ug/m3 Air			06/08/16 00:50	12.88
Methylene Chloride	ND		18		ug/m3 Air			06/08/16 00:50	12.88
4-Methyl-2-pentanone (MIBK)	ND		21		ug/m3 Air			06/08/16 00:50	12.88
Styrene	ND		22		ug/m3 Air			06/08/16 00:50	12.88
1,1,2,2-Tetrachloroethane	ND		35		ug/m3 Air			06/08/16 00:50	12.88
Toluene	ND		19		ug/m3 Air			06/08/16 00:50	12.88
1,2,4-Trichlorobenzene	ND		190		ug/m3 Air			06/08/16 00:50	12.88
1,1,1-Trichloroethane	130		21		ug/m3 Air			06/08/16 00:50	12.88
1,1,2-Trichloroethane	ND		28		ug/m3 Air			06/08/16 00:50	12.88
Trichloroethene	3300		28		ug/m3 Air			06/08/16 00:50	12.88
Trichlorofluoromethane	ND		29		ug/m3 Air			06/08/16 00:50	12.88
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		39		ug/m3 Air			06/08/16 00:50	12.88
1,2,4-Trimethylbenzene	ND		51		ug/m3 Air			06/08/16 00:50	12.88
1,3,5-Trimethylbenzene	ND		25		ug/m3 Air			06/08/16 00:50	12.88
Vinyl acetate	ND		36		ug/m3 Air			06/08/16 00:50	12.88
Vinyl chloride	ND		13		ug/m3 Air			06/08/16 00:50	12.88
m,p-Xylene	ND		45		ug/m3 Air			06/08/16 00:50	12.88
o-Xylene	ND		22		ug/m3 Air			06/08/16 00:50	12.88

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		70 - 130		06/08/16 00:50	12.88
1,2-Dichloroethane-d4 (Surr)	101		70 - 130		06/08/16 00:50	12.88
Toluene-d8 (Surr)	101		70 - 130		06/08/16 00:50	12.88

Method: TO-15 - Volatile Organic Compounds in Ambient Air - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	2100		24		ppb v/v			06/08/16 21:33	59.6
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	14000		160		ug/m3 Air			06/08/16 21:33	59.6

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		70 - 130		06/08/16 21:33	59.6
1,2-Dichloroethane-d4 (Surr)	105		70 - 130		06/08/16 21:33	59.6
Toluene-d8 (Surr)	100		70 - 130		06/08/16 21:33	59.6

TestAmerica Sacramento

Surrogate Summary

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

TestAmerica Job ID: 320-19176-1

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)
320-19176-1	SVE_SOUTH_PRECARBON_01	98	101	103
320-19176-1 - DL	SVE_SOUTH_PRECARBON_01	98	105	100
320-19176-2	SVE_SOUTH_POSTCARBON_01	94	101	101
320-19176-2 - DL	SVE_SOUTH_POSTCARBON_01	91	105	100
LCS 320-112818/3	Lab Control Sample	105	103	102
LCS 320-113001/3	Lab Control Sample	104	105	102
LCSD 320-112818/4	Lab Control Sample Dup	103	103	101
LCSD 320-113001/4	Lab Control Sample Dup	104	102	101
MB 320-112818/9	Method Blank	96	100	99
MB 320-113001/6	Method Blank	99	102	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: 320-19176-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Lab Sample ID: MB 320-112818/9

Matrix: Air

Analysis Batch: 112818

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			06/07/16 18:52	1
Benzene	ND		0.40		ppb v/v			06/07/16 18:52	1
Benzyl chloride	ND		0.80		ppb v/v			06/07/16 18:52	1
Bromodichloromethane	ND		0.30		ppb v/v			06/07/16 18:52	1
Bromoform	ND		0.40		ppb v/v			06/07/16 18:52	1
Bromomethane	ND		0.80		ppb v/v			06/07/16 18:52	1
2-Butanone (MEK)	ND		0.80		ppb v/v			06/07/16 18:52	1
Carbon disulfide	ND		0.80		ppb v/v			06/07/16 18:52	1
Carbon tetrachloride	ND		0.80		ppb v/v			06/07/16 18:52	1
Chlorobenzene	ND		0.30		ppb v/v			06/07/16 18:52	1
Dibromochloromethane	ND		0.40		ppb v/v			06/07/16 18:52	1
Chloroethane	ND		0.80		ppb v/v			06/07/16 18:52	1
Chloroform	ND		0.30		ppb v/v			06/07/16 18:52	1
Chloromethane	ND		0.80		ppb v/v			06/07/16 18:52	1
1,2-Dibromoethane (EDB)	ND		0.80		ppb v/v			06/07/16 18:52	1
1,2-Dichlorobenzene	ND		0.40		ppb v/v			06/07/16 18:52	1
1,3-Dichlorobenzene	ND		0.40		ppb v/v			06/07/16 18:52	1
1,4-Dichlorobenzene	ND		0.40		ppb v/v			06/07/16 18:52	1
Dichlorodifluoromethane	ND		0.40		ppb v/v			06/07/16 18:52	1
1,1-Dichloroethane	ND		0.30		ppb v/v			06/07/16 18:52	1
1,2-Dichloroethane	ND		0.80		ppb v/v			06/07/16 18:52	1
1,1-Dichloroethene	ND		0.80		ppb v/v			06/07/16 18:52	1
cis-1,2-Dichloroethene	ND		0.40		ppb v/v			06/07/16 18:52	1
trans-1,2-Dichloroethene	ND		0.40		ppb v/v			06/07/16 18:52	1
1,2-Dichloropropane	ND		0.40		ppb v/v			06/07/16 18:52	1
cis-1,3-Dichloropropene	ND		0.40		ppb v/v			06/07/16 18:52	1
trans-1,3-Dichloropropene	ND		0.40		ppb v/v			06/07/16 18:52	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40		ppb v/v			06/07/16 18:52	1
Ethylbenzene	ND		0.40		ppb v/v			06/07/16 18:52	1
4-Ethyltoluene	ND		0.40		ppb v/v			06/07/16 18:52	1
Hexachlorobutadiene	ND		2.0		ppb v/v			06/07/16 18:52	1
2-Hexanone	ND		0.40		ppb v/v			06/07/16 18:52	1
Methylene Chloride	ND		0.40		ppb v/v			06/07/16 18:52	1
4-Methyl-2-pentanone (MIBK)	ND		0.40		ppb v/v			06/07/16 18:52	1
Styrene	ND		0.40		ppb v/v			06/07/16 18:52	1
1,1,2,2-Tetrachloroethane	ND		0.40		ppb v/v			06/07/16 18:52	1
Tetrachloroethene	ND		0.40		ppb v/v			06/07/16 18:52	1
Toluene	ND		0.40		ppb v/v			06/07/16 18:52	1
1,2,4-Trichlorobenzene	ND		2.0		ppb v/v			06/07/16 18:52	1
1,1,1-Trichloroethane	ND		0.30		ppb v/v			06/07/16 18:52	1
1,1,2-Trichloroethane	ND		0.40		ppb v/v			06/07/16 18:52	1
Trichloroethene	ND		0.40		ppb v/v			06/07/16 18:52	1
Trichlorofluoromethane	ND		0.40		ppb v/v			06/07/16 18:52	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40		ppb v/v			06/07/16 18:52	1
1,2,4-Trimethylbenzene	ND		0.80		ppb v/v			06/07/16 18:52	1
1,3,5-Trimethylbenzene	ND		0.40		ppb v/v			06/07/16 18:52	1
Vinyl acetate	ND		0.80		ppb v/v			06/07/16 18:52	1
Vinyl chloride	ND		0.40		ppb v/v			06/07/16 18:52	1

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-19176-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-112818/9
Matrix: Air
Analysis Batch: 112818

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			06/07/16 18:52	1
o-Xylene	ND		0.40		ppb v/v			06/07/16 18:52	1
Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Acetone	ND		12		ug/m3 Air			06/07/16 18:52	1
Benzene	ND		1.3		ug/m3 Air			06/07/16 18:52	1
Benzyl chloride	ND		4.1		ug/m3 Air			06/07/16 18:52	1
Bromodichloromethane	ND		2.0		ug/m3 Air			06/07/16 18:52	1
Bromoform	ND		4.1		ug/m3 Air			06/07/16 18:52	1
Bromomethane	ND		3.1		ug/m3 Air			06/07/16 18:52	1
2-Butanone (MEK)	ND		2.4		ug/m3 Air			06/07/16 18:52	1
Carbon disulfide	ND		2.5		ug/m3 Air			06/07/16 18:52	1
Carbon tetrachloride	ND		5.0		ug/m3 Air			06/07/16 18:52	1
Chlorobenzene	ND		1.4		ug/m3 Air			06/07/16 18:52	1
Dibromochloromethane	ND		3.4		ug/m3 Air			06/07/16 18:52	1
Chloroethane	ND		2.1		ug/m3 Air			06/07/16 18:52	1
Chloroform	ND		1.5		ug/m3 Air			06/07/16 18:52	1
Chloromethane	ND		1.7		ug/m3 Air			06/07/16 18:52	1
1,2-Dibromoethane (EDB)	ND		6.1		ug/m3 Air			06/07/16 18:52	1
1,2-Dichlorobenzene	ND		2.4		ug/m3 Air			06/07/16 18:52	1
1,3-Dichlorobenzene	ND		2.4		ug/m3 Air			06/07/16 18:52	1
1,4-Dichlorobenzene	ND		2.4		ug/m3 Air			06/07/16 18:52	1
Dichlorodifluoromethane	ND		2.0		ug/m3 Air			06/07/16 18:52	1
1,1-Dichloroethane	ND		1.2		ug/m3 Air			06/07/16 18:52	1
1,2-Dichloroethane	ND		3.2		ug/m3 Air			06/07/16 18:52	1
1,1-Dichloroethene	ND		3.2		ug/m3 Air			06/07/16 18:52	1
cis-1,2-Dichloroethene	ND		1.6		ug/m3 Air			06/07/16 18:52	1
trans-1,2-Dichloroethene	ND		1.6		ug/m3 Air			06/07/16 18:52	1
1,2-Dichloropropane	ND		1.8		ug/m3 Air			06/07/16 18:52	1
cis-1,3-Dichloropropene	ND		1.8		ug/m3 Air			06/07/16 18:52	1
trans-1,3-Dichloropropene	ND		1.8		ug/m3 Air			06/07/16 18:52	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.8		ug/m3 Air			06/07/16 18:52	1
Ethylbenzene	ND		1.7		ug/m3 Air			06/07/16 18:52	1
4-Ethyltoluene	ND		2.0		ug/m3 Air			06/07/16 18:52	1
Hexachlorobutadiene	ND		21		ug/m3 Air			06/07/16 18:52	1
2-Hexanone	ND		1.6		ug/m3 Air			06/07/16 18:52	1
Methylene Chloride	ND		1.4		ug/m3 Air			06/07/16 18:52	1
4-Methyl-2-pentanone (MIBK)	ND		1.6		ug/m3 Air			06/07/16 18:52	1
Styrene	ND		1.7		ug/m3 Air			06/07/16 18:52	1
1,1,2,2-Tetrachloroethane	ND		2.7		ug/m3 Air			06/07/16 18:52	1
Tetrachloroethene	ND		2.7		ug/m3 Air			06/07/16 18:52	1
Toluene	ND		1.5		ug/m3 Air			06/07/16 18:52	1
1,2,4-Trichlorobenzene	ND		15		ug/m3 Air			06/07/16 18:52	1
1,1,1-Trichloroethane	ND		1.6		ug/m3 Air			06/07/16 18:52	1
1,1,2-Trichloroethane	ND		2.2		ug/m3 Air			06/07/16 18:52	1
Trichloroethene	ND		2.1		ug/m3 Air			06/07/16 18:52	1
Trichlorofluoromethane	ND		2.2		ug/m3 Air			06/07/16 18:52	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.1		ug/m3 Air			06/07/16 18:52	1

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-19176-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-112818/9
Matrix: Air
Analysis Batch: 112818

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			06/07/16 18:52	1
1,3,5-Trimethylbenzene	ND		2.0		ug/m3 Air			06/07/16 18:52	1
Vinyl acetate	ND		2.8		ug/m3 Air			06/07/16 18:52	1
Vinyl chloride	ND		1.0		ug/m3 Air			06/07/16 18:52	1
m,p-Xylene	ND		3.5		ug/m3 Air			06/07/16 18:52	1
o-Xylene	ND		1.7		ug/m3 Air			06/07/16 18:52	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		70 - 130					06/07/16 18:52	1
1,2-Dichloroethane-d4 (Surr)	100		70 - 130					06/07/16 18:52	1
Toluene-d8 (Surr)	99		70 - 130					06/07/16 18:52	1

Lab Sample ID: LCS 320-112818/3
Matrix: Air
Analysis Batch: 112818

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	16.5		ppb v/v		83	71 - 131
Benzene	20.0	19.6		ppb v/v		98	68 - 128
Benzyl chloride	20.0	12.0		ppb v/v		60	58 - 120
Bromodichloromethane	20.0	20.3		ppb v/v		101	65 - 130
Bromoform	20.0	19.4		ppb v/v		97	64 - 144
Bromomethane	20.0	22.6		ppb v/v		113	70 - 131
2-Butanone (MEK)	20.0	17.0		ppb v/v		85	71 - 131
Carbon disulfide	20.0	19.6		ppb v/v		98	63 - 123
Carbon tetrachloride	20.0	19.9		ppb v/v		99	67 - 127
Chlorobenzene	20.0	19.5		ppb v/v		98	70 - 132
Dibromochloromethane	20.0	19.9		ppb v/v		100	68 - 128
Chloroethane	20.0	22.6		ppb v/v		113	70 - 131
Chloroform	20.0	20.1		ppb v/v		100	69 - 129
Chloromethane	20.0	22.5		ppb v/v		112	67 - 127
1,2-Dibromoethane (EDB)	20.0	20.6		ppb v/v		103	68 - 131
1,2-Dichlorobenzene	20.0	20.0		ppb v/v		100	73 - 143
1,3-Dichlorobenzene	20.0	21.1		ppb v/v		106	77 - 136
1,4-Dichlorobenzene	20.0	21.4		ppb v/v		107	73 - 143
Dichlorodifluoromethane	20.0	21.4		ppb v/v		107	69 - 129
1,1-Dichloroethane	20.0	19.6		ppb v/v		98	65 - 125
1,2-Dichloroethane	20.0	20.6		ppb v/v		103	71 - 131
1,1-Dichloroethene	20.0	18.7		ppb v/v		93	53 - 128
cis-1,2-Dichloroethene	20.0	19.9		ppb v/v		100	68 - 128
trans-1,2-Dichloroethene	20.0	20.9		ppb v/v		104	70 - 130
1,2-Dichloropropane	20.0	21.1		ppb v/v		106	74 - 128
cis-1,3-Dichloropropene	20.0	22.6		ppb v/v		113	78 - 132
trans-1,3-Dichloropropene	20.0	19.4		ppb v/v		97	56 - 136
1,2-Dichloro-1,1,2,2-tetrafluoroethane	20.0	20.4		ppb v/v		102	64 - 124
Ethylbenzene	20.0	23.3		ppb v/v		117	76 - 136
4-Ethyltoluene	20.0	15.4		ppb v/v		77	62 - 136

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-19176-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-112818/3

Matrix: Air

Analysis Batch: 112818

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	16.9		ppb v/v		84	42 - 150
2-Hexanone	20.0	17.3		ppb v/v		87	70 - 128
Methylene Chloride	20.0	17.1		ppb v/v		86	65 - 125
4-Methyl-2-pentanone (MIBK)	20.0	17.7		ppb v/v		88	73 - 133
Styrene	20.0	24.5		ppb v/v		123	76 - 144
1,1,2,2-Tetrachloroethane	20.0	18.5		ppb v/v		92	75 - 135
Tetrachloroethene	20.0	18.7		ppb v/v		93	56 - 138
Toluene	20.0	20.3		ppb v/v		102	71 - 132
1,2,4-Trichlorobenzene	20.0	16.5		ppb v/v		82	59 - 150
1,1,1-Trichloroethane	20.0	19.7		ppb v/v		99	65 - 124
1,1,2-Trichloroethane	20.0	20.5		ppb v/v		103	71 - 131
Trichloroethene	20.0	19.2		ppb v/v		96	64 - 127
Trichlorofluoromethane	20.0	20.7		ppb v/v		104	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	15.9		ppb v/v		80	61 - 145
1,3,5-Trimethylbenzene	20.0	15.4		ppb v/v		77	65 - 136
Vinyl acetate	20.0	18.9		ppb v/v		95	77 - 134
Vinyl chloride	20.0	22.8		ppb v/v		114	69 - 129
m,p-Xylene	40.0	48.6		ppb v/v		121	75 - 138
o-Xylene	20.0	23.2		ppb v/v		116	77 - 132
Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	48	39.2		ug/m3 Air		83	71 - 131
Benzene	64	62.7		ug/m3 Air		98	68 - 128
Benzyl chloride	100	62.1		ug/m3 Air		60	58 - 120
Bromodichloromethane	130	136		ug/m3 Air		101	65 - 130
Bromoform	210	200		ug/m3 Air		97	64 - 144
Bromomethane	78	87.8		ug/m3 Air		113	70 - 131
2-Butanone (MEK)	59	50.1		ug/m3 Air		85	71 - 131
Carbon disulfide	62	61.2		ug/m3 Air		98	63 - 123
Carbon tetrachloride	130	125		ug/m3 Air		99	67 - 127
Chlorobenzene	92	90.0		ug/m3 Air		98	70 - 132
Dibromochloromethane	170	170		ug/m3 Air		100	68 - 128
Chloroethane	53	59.5		ug/m3 Air		113	70 - 131
Chloroform	98	98.0		ug/m3 Air		100	69 - 129
Chloromethane	41	46.4		ug/m3 Air		112	67 - 127
1,2-Dibromoethane (EDB)	150	158		ug/m3 Air		103	68 - 131
1,2-Dichlorobenzene	120	120		ug/m3 Air		100	73 - 143
1,3-Dichlorobenzene	120	127		ug/m3 Air		106	77 - 136
1,4-Dichlorobenzene	120	129		ug/m3 Air		107	73 - 143
Dichlorodifluoromethane	99	106		ug/m3 Air		107	69 - 129
1,1-Dichloroethane	81	79.2		ug/m3 Air		98	65 - 125
1,2-Dichloroethane	81	83.6		ug/m3 Air		103	71 - 131
1,1-Dichloroethene	79	74.0		ug/m3 Air		93	53 - 128
cis-1,2-Dichloroethene	79	79.0		ug/m3 Air		100	68 - 128
trans-1,2-Dichloroethene	79	82.8		ug/m3 Air		104	70 - 130
1,2-Dichloropropane	92	97.7		ug/m3 Air		106	74 - 128

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-19176-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-112818/3

Matrix: Air

Analysis Batch: 112818

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	88.2		ug/m3 Air		97	56 - 136
1,2-Dichloro-1,1,2,2-tetrafluoroethane	140	143		ug/m3 Air		102	64 - 124
Ethylbenzene	87	101		ug/m3 Air		117	76 - 136
4-Ethyltoluene	98	75.7		ug/m3 Air		77	62 - 136
Hexachlorobutadiene	210	180		ug/m3 Air		84	42 - 150
2-Hexanone	82	70.9		ug/m3 Air		87	70 - 128
Methylene Chloride	69	59.4		ug/m3 Air		86	65 - 125
4-Methyl-2-pentanone (MIBK)	82	72.5		ug/m3 Air		88	73 - 133
Styrene	85	104		ug/m3 Air		123	76 - 144
1,1,2,2-Tetrachloroethane	140	127		ug/m3 Air		92	75 - 135
Tetrachloroethene	140	127		ug/m3 Air		93	56 - 138
Toluene	75	76.5		ug/m3 Air		102	71 - 132
1,2,4-Trichlorobenzene	150	122		ug/m3 Air		82	59 - 150
1,1,1-Trichloroethane	110	108		ug/m3 Air		99	65 - 124
1,1,2-Trichloroethane	110	112		ug/m3 Air		103	71 - 131
Trichloroethene	110	103		ug/m3 Air		96	64 - 127
Trichlorofluoromethane	110	117		ug/m3 Air		104	68 - 128
1,1,2-Trichloro-1,2,2-trifluoroethane	150	137		ug/m3 Air		90	50 - 132
1,2,4-Trimethylbenzene	98	78.2		ug/m3 Air		80	61 - 145
1,3,5-Trimethylbenzene	98	75.6		ug/m3 Air		77	65 - 136
Vinyl acetate	70	66.6		ug/m3 Air		95	77 - 134
Vinyl chloride	51	58.2		ug/m3 Air		114	69 - 129
m,p-Xylene	170	211		ug/m3 Air		121	75 - 138
o-Xylene	87	101		ug/m3 Air		116	77 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	105		70 - 130
1,2-Dichloroethane-d4 (Surr)	103		70 - 130
Toluene-d8 (Surr)	102		70 - 130

Lab Sample ID: LCSD 320-112818/4

Matrix: Air

Analysis Batch: 112818

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	16.6		ppb v/v		83	71 - 131	1	25
Benzene	20.0	20.0		ppb v/v		100	68 - 128	2	25
Benzyl chloride	20.0	12.6		ppb v/v		63	58 - 120	5	25
Bromodichloromethane	20.0	20.6		ppb v/v		103	65 - 130	1	25
Bromoform	20.0	20.1		ppb v/v		100	64 - 144	4	25
Bromomethane	20.0	22.8		ppb v/v		114	70 - 131	1	25
2-Butanone (MEK)	20.0	17.1		ppb v/v		86	71 - 131	1	25
Carbon disulfide	20.0	19.8		ppb v/v		99	63 - 123	1	25
Carbon tetrachloride	20.0	20.1		ppb v/v		100	67 - 127	1	25
Chlorobenzene	20.0	20.3		ppb v/v		101	70 - 132	4	25

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-19176-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-112818/4

Matrix: Air

Analysis Batch: 112818

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	20.5		ppb v/v		102	68 - 128	3	25
Chloroethane	20.0	22.5		ppb v/v		112	70 - 131	0	25
Chloroform	20.0	20.2		ppb v/v		101	69 - 129	1	25
Chloromethane	20.0	22.8		ppb v/v		114	67 - 127	1	25
1,2-Dibromoethane (EDB)	20.0	21.2		ppb v/v		106	68 - 131	3	25
1,2-Dichlorobenzene	20.0	20.6		ppb v/v		103	73 - 143	3	25
1,3-Dichlorobenzene	20.0	22.0		ppb v/v		110	77 - 136	4	25
1,4-Dichlorobenzene	20.0	22.3		ppb v/v		111	73 - 143	4	25
Dichlorodifluoromethane	20.0	21.8		ppb v/v		109	69 - 129	2	25
1,1-Dichloroethane	20.0	19.7		ppb v/v		98	65 - 125	1	25
1,2-Dichloroethane	20.0	20.9		ppb v/v		104	71 - 131	1	25
1,1-Dichloroethene	20.0	18.6		ppb v/v		93	53 - 128	0	25
cis-1,2-Dichloroethene	20.0	20.0		ppb v/v		100	68 - 128	0	25
trans-1,2-Dichloroethene	20.0	21.0		ppb v/v		105	70 - 130	1	25
1,2-Dichloropropane	20.0	21.3		ppb v/v		107	74 - 128	1	25
cis-1,3-Dichloropropene	20.0	23.0		ppb v/v		115	78 - 132	1	25
trans-1,3-Dichloropropene	20.0	20.1		ppb v/v		101	56 - 136	4	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	20.0	20.8		ppb v/v		104	64 - 124	2	25
Ethylbenzene	20.0	24.1		ppb v/v		121	76 - 136	3	25
4-Ethyltoluene	20.0	15.8		ppb v/v		79	62 - 136	3	25
Hexachlorobutadiene	20.0	17.8		ppb v/v		89	42 - 150	6	25
2-Hexanone	20.0	18.0		ppb v/v		90	70 - 128	4	25
Methylene Chloride	20.0	17.2		ppb v/v		86	65 - 125	1	25
4-Methyl-2-pentanone (MIBK)	20.0	18.2		ppb v/v		91	73 - 133	3	25
Styrene	20.0	25.1		ppb v/v		126	76 - 144	2	25
1,1,1,2-Tetrachloroethane	20.0	19.0		ppb v/v		95	75 - 135	3	25
Tetrachloroethene	20.0	19.2		ppb v/v		96	56 - 138	3	25
Toluene	20.0	20.7		ppb v/v		103	71 - 132	2	25
1,2,4-Trichlorobenzene	20.0	17.9		ppb v/v		90	59 - 150	8	25
1,1,1-Trichloroethane	20.0	19.8		ppb v/v		99	65 - 124	1	25
1,1,2-Trichloroethane	20.0	21.2		ppb v/v		106	71 - 131	3	25
Trichloroethene	20.0	19.6		ppb v/v		98	64 - 127	2	25
Trichlorofluoromethane	20.0	20.9		ppb v/v		105	68 - 128	1	25
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	18.1		ppb v/v		90	50 - 132	1	25
1,2,4-Trimethylbenzene	20.0	16.5		ppb v/v		82	61 - 145	4	25
1,3,5-Trimethylbenzene	20.0	15.9		ppb v/v		80	65 - 136	4	25
Vinyl acetate	20.0	18.7		ppb v/v		93	77 - 134	1	25
Vinyl chloride	20.0	23.5		ppb v/v		118	69 - 129	3	25
m,p-Xylene	40.0	49.3		ppb v/v		123	75 - 138	2	25
o-Xylene	20.0	23.3		ppb v/v		116	77 - 132	0	25
Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	48	39.5		ug/m3 Air		83	71 - 131	1	25
Benzene	64	63.9		ug/m3 Air		100	68 - 128	2	25
Benzyl chloride	100	65.1		ug/m3 Air		63	58 - 120	5	25
Bromodichloromethane	130	138		ug/m3 Air		103	65 - 130	1	25
Bromoform	210	207		ug/m3 Air		100	64 - 144	4	25

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-19176-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-112818/4

Client Sample ID: Lab Control Sample Dup

Matrix: Air

Prep Type: Total/NA

Analysis Batch: 112818

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromomethane	78	88.6		ug/m3 Air		114	70 - 131	1	25
2-Butanone (MEK)	59	50.5		ug/m3 Air		86	71 - 131	1	25
Carbon disulfide	62	61.8		ug/m3 Air		99	63 - 123	1	25
Carbon tetrachloride	130	126		ug/m3 Air		100	67 - 127	1	25
Chlorobenzene	92	93.3		ug/m3 Air		101	70 - 132	4	25
Dibromochloromethane	170	174		ug/m3 Air		102	68 - 128	3	25
Chloroethane	53	59.3		ug/m3 Air		112	70 - 131	0	25
Chloroform	98	98.7		ug/m3 Air		101	69 - 129	1	25
Chloromethane	41	47.1		ug/m3 Air		114	67 - 127	1	25
1,2-Dibromoethane (EDB)	150	163		ug/m3 Air		106	68 - 131	3	25
1,2-Dichlorobenzene	120	124		ug/m3 Air		103	73 - 143	3	25
1,3-Dichlorobenzene	120	133		ug/m3 Air		110	77 - 136	4	25
1,4-Dichlorobenzene	120	134		ug/m3 Air		111	73 - 143	4	25
Dichlorodifluoromethane	99	108		ug/m3 Air		109	69 - 129	2	25
1,1-Dichloroethane	81	79.7		ug/m3 Air		98	65 - 125	1	25
1,2-Dichloroethane	81	84.4		ug/m3 Air		104	71 - 131	1	25
1,1-Dichloroethene	79	73.8		ug/m3 Air		93	53 - 128	0	25
cis-1,2-Dichloroethene	79	79.2		ug/m3 Air		100	68 - 128	0	25
trans-1,2-Dichloroethene	79	83.2		ug/m3 Air		105	70 - 130	1	25
1,2-Dichloropropane	92	98.4		ug/m3 Air		107	74 - 128	1	25
cis-1,3-Dichloropropene	91	104		ug/m3 Air		115	78 - 132	1	25
trans-1,3-Dichloropropene	91	91.3		ug/m3 Air		101	56 - 136	4	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	140	145		ug/m3 Air		104	64 - 124	2	25
Ethylbenzene	87	105		ug/m3 Air		121	76 - 136	3	25
4-Ethyltoluene	98	77.8		ug/m3 Air		79	62 - 136	3	25
Hexachlorobutadiene	210	190		ug/m3 Air		89	42 - 150	6	25
2-Hexanone	82	73.7		ug/m3 Air		90	70 - 128	4	25
Methylene Chloride	69	59.9		ug/m3 Air		86	65 - 125	1	25
4-Methyl-2-pentanone (MIBK)	82	74.4		ug/m3 Air		91	73 - 133	3	25
Styrene	85	107		ug/m3 Air		126	76 - 144	2	25
1,1,2,2-Tetrachloroethane	140	130		ug/m3 Air		95	75 - 135	3	25
Tetrachloroethene	140	130		ug/m3 Air		96	56 - 138	3	25
Toluene	75	77.8		ug/m3 Air		103	71 - 132	2	25
1,2,4-Trichlorobenzene	150	133		ug/m3 Air		90	59 - 150	8	25
1,1,1-Trichloroethane	110	108		ug/m3 Air		99	65 - 124	1	25
1,1,2-Trichloroethane	110	116		ug/m3 Air		106	71 - 131	3	25
Trichloroethene	110	106		ug/m3 Air		98	64 - 127	2	25
Trichlorofluoromethane	110	118		ug/m3 Air		105	68 - 128	1	25
1,1,2-Trichloro-1,2,2-trifluoroethane	150	138		ug/m3 Air		90	50 - 132	1	25
1,2,4-Trimethylbenzene	98	81.0		ug/m3 Air		82	61 - 145	4	25
1,3,5-Trimethylbenzene	98	78.3		ug/m3 Air		80	65 - 136	4	25
Vinyl acetate	70	65.7		ug/m3 Air		93	77 - 134	1	25
Vinyl chloride	51	60.1		ug/m3 Air		118	69 - 129	3	25
m,p-Xylene	170	214		ug/m3 Air		123	75 - 138	2	25
o-Xylene	87	101		ug/m3 Air		116	77 - 132	0	25

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-19176-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-112818/4
Matrix: Air
Analysis Batch: 112818

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

<i>Surrogate</i>	<i>%Recovery</i>	<i>LCSD Qualifier</i>	<i>LCSD Limits</i>
4-Bromofluorobenzene (Surr)	103		70 - 130
1,2-Dichloroethane-d4 (Surr)	103		70 - 130
Toluene-d8 (Surr)	101		70 - 130

Lab Sample ID: MB 320-113001/6
Matrix: Air
Analysis Batch: 113001

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			06/08/16 17:05	1
Benzene	ND		0.40		ppb v/v			06/08/16 17:05	1
Benzyl chloride	ND		0.80		ppb v/v			06/08/16 17:05	1
Bromodichloromethane	ND		0.30		ppb v/v			06/08/16 17:05	1
Bromoform	ND		0.40		ppb v/v			06/08/16 17:05	1
Bromomethane	ND		0.80		ppb v/v			06/08/16 17:05	1
2-Butanone (MEK)	ND		0.80		ppb v/v			06/08/16 17:05	1
Carbon disulfide	ND		0.80		ppb v/v			06/08/16 17:05	1
Carbon tetrachloride	ND		0.80		ppb v/v			06/08/16 17:05	1
Chlorobenzene	ND		0.30		ppb v/v			06/08/16 17:05	1
Dibromochloromethane	ND		0.40		ppb v/v			06/08/16 17:05	1
Chloroethane	ND		0.80		ppb v/v			06/08/16 17:05	1
Chloroform	ND		0.30		ppb v/v			06/08/16 17:05	1
Chloromethane	ND		0.80		ppb v/v			06/08/16 17:05	1
1,2-Dibromoethane (EDB)	ND		0.80		ppb v/v			06/08/16 17:05	1
1,2-Dichlorobenzene	ND		0.40		ppb v/v			06/08/16 17:05	1
1,3-Dichlorobenzene	ND		0.40		ppb v/v			06/08/16 17:05	1
1,4-Dichlorobenzene	ND		0.40		ppb v/v			06/08/16 17:05	1
Dichlorodifluoromethane	ND		0.40		ppb v/v			06/08/16 17:05	1
1,1-Dichloroethane	ND		0.30		ppb v/v			06/08/16 17:05	1
1,2-Dichloroethane	ND		0.80		ppb v/v			06/08/16 17:05	1
1,1-Dichloroethene	ND		0.80		ppb v/v			06/08/16 17:05	1
cis-1,2-Dichloroethene	ND		0.40		ppb v/v			06/08/16 17:05	1
trans-1,2-Dichloroethene	ND		0.40		ppb v/v			06/08/16 17:05	1
1,2-Dichloropropane	ND		0.40		ppb v/v			06/08/16 17:05	1
cis-1,3-Dichloropropene	ND		0.40		ppb v/v			06/08/16 17:05	1
trans-1,3-Dichloropropene	ND		0.40		ppb v/v			06/08/16 17:05	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40		ppb v/v			06/08/16 17:05	1
Ethylbenzene	ND		0.40		ppb v/v			06/08/16 17:05	1
4-Ethyltoluene	ND		0.40		ppb v/v			06/08/16 17:05	1
Hexachlorobutadiene	ND		2.0		ppb v/v			06/08/16 17:05	1
2-Hexanone	ND		0.40		ppb v/v			06/08/16 17:05	1
Methylene Chloride	ND		0.40		ppb v/v			06/08/16 17:05	1
4-Methyl-2-pentanone (MIBK)	ND		0.40		ppb v/v			06/08/16 17:05	1
Styrene	ND		0.40		ppb v/v			06/08/16 17:05	1
1,1,2,2-Tetrachloroethane	ND		0.40		ppb v/v			06/08/16 17:05	1
Tetrachloroethene	ND		0.40		ppb v/v			06/08/16 17:05	1
Toluene	ND		0.40		ppb v/v			06/08/16 17:05	1
1,2,4-Trichlorobenzene	ND		2.0		ppb v/v			06/08/16 17:05	1

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-19176-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-113001/6
Matrix: Air
Analysis Batch: 113001

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.30		ppb v/v			06/08/16 17:05	1
1,1,2-Trichloroethane	ND		0.40		ppb v/v			06/08/16 17:05	1
Trichloroethene	ND		0.40		ppb v/v			06/08/16 17:05	1
Trichlorofluoromethane	ND		0.40		ppb v/v			06/08/16 17:05	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40		ppb v/v			06/08/16 17:05	1
1,2,4-Trimethylbenzene	ND		0.80		ppb v/v			06/08/16 17:05	1
1,3,5-Trimethylbenzene	ND		0.40		ppb v/v			06/08/16 17:05	1
Vinyl acetate	ND		0.80		ppb v/v			06/08/16 17:05	1
Vinyl chloride	ND		0.40		ppb v/v			06/08/16 17:05	1
m,p-Xylene	ND		0.80		ppb v/v			06/08/16 17:05	1
o-Xylene	ND		0.40		ppb v/v			06/08/16 17:05	1

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		12		ug/m3 Air			06/08/16 17:05	1
Benzene	ND		1.3		ug/m3 Air			06/08/16 17:05	1
Benzyl chloride	ND		4.1		ug/m3 Air			06/08/16 17:05	1
Bromodichloromethane	ND		2.0		ug/m3 Air			06/08/16 17:05	1
Bromoform	ND		4.1		ug/m3 Air			06/08/16 17:05	1
Bromomethane	ND		3.1		ug/m3 Air			06/08/16 17:05	1
2-Butanone (MEK)	ND		2.4		ug/m3 Air			06/08/16 17:05	1
Carbon disulfide	ND		2.5		ug/m3 Air			06/08/16 17:05	1
Carbon tetrachloride	ND		5.0		ug/m3 Air			06/08/16 17:05	1
Chlorobenzene	ND		1.4		ug/m3 Air			06/08/16 17:05	1
Dibromochloromethane	ND		3.4		ug/m3 Air			06/08/16 17:05	1
Chloroethane	ND		2.1		ug/m3 Air			06/08/16 17:05	1
Chloroform	ND		1.5		ug/m3 Air			06/08/16 17:05	1
Chloromethane	ND		1.7		ug/m3 Air			06/08/16 17:05	1
1,2-Dibromoethane (EDB)	ND		6.1		ug/m3 Air			06/08/16 17:05	1
1,2-Dichlorobenzene	ND		2.4		ug/m3 Air			06/08/16 17:05	1
1,3-Dichlorobenzene	ND		2.4		ug/m3 Air			06/08/16 17:05	1
1,4-Dichlorobenzene	ND		2.4		ug/m3 Air			06/08/16 17:05	1
Dichlorodifluoromethane	ND		2.0		ug/m3 Air			06/08/16 17:05	1
1,1-Dichloroethane	ND		1.2		ug/m3 Air			06/08/16 17:05	1
1,2-Dichloroethane	ND		3.2		ug/m3 Air			06/08/16 17:05	1
1,1-Dichloroethene	ND		3.2		ug/m3 Air			06/08/16 17:05	1
cis-1,2-Dichloroethene	ND		1.6		ug/m3 Air			06/08/16 17:05	1
trans-1,2-Dichloroethene	ND		1.6		ug/m3 Air			06/08/16 17:05	1
1,2-Dichloropropane	ND		1.8		ug/m3 Air			06/08/16 17:05	1
cis-1,3-Dichloropropene	ND		1.8		ug/m3 Air			06/08/16 17:05	1
trans-1,3-Dichloropropene	ND		1.8		ug/m3 Air			06/08/16 17:05	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.8		ug/m3 Air			06/08/16 17:05	1
Ethylbenzene	ND		1.7		ug/m3 Air			06/08/16 17:05	1
4-Ethyltoluene	ND		2.0		ug/m3 Air			06/08/16 17:05	1
Hexachlorobutadiene	ND		21		ug/m3 Air			06/08/16 17:05	1
2-Hexanone	ND		1.6		ug/m3 Air			06/08/16 17:05	1
Methylene Chloride	ND		1.4		ug/m3 Air			06/08/16 17:05	1
4-Methyl-2-pentanone (MIBK)	ND		1.6		ug/m3 Air			06/08/16 17:05	1
Styrene	ND		1.7		ug/m3 Air			06/08/16 17:05	1

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-19176-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-113001/6
Matrix: Air
Analysis Batch: 113001

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		2.7		ug/m3 Air			06/08/16 17:05	1
Tetrachloroethene	ND		2.7		ug/m3 Air			06/08/16 17:05	1
Toluene	ND		1.5		ug/m3 Air			06/08/16 17:05	1
1,2,4-Trichlorobenzene	ND		15		ug/m3 Air			06/08/16 17:05	1
1,1,1-Trichloroethane	ND		1.6		ug/m3 Air			06/08/16 17:05	1
1,1,2-Trichloroethane	ND		2.2		ug/m3 Air			06/08/16 17:05	1
Trichloroethene	ND		2.1		ug/m3 Air			06/08/16 17:05	1
Trichlorofluoromethane	ND		2.2		ug/m3 Air			06/08/16 17:05	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.1		ug/m3 Air			06/08/16 17:05	1
1,2,4-Trimethylbenzene	ND		3.9		ug/m3 Air			06/08/16 17:05	1
1,3,5-Trimethylbenzene	ND		2.0		ug/m3 Air			06/08/16 17:05	1
Vinyl acetate	ND		2.8		ug/m3 Air			06/08/16 17:05	1
Vinyl chloride	ND		1.0		ug/m3 Air			06/08/16 17:05	1
m,p-Xylene	ND		3.5		ug/m3 Air			06/08/16 17:05	1
o-Xylene	ND		1.7		ug/m3 Air			06/08/16 17:05	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		70 - 130		06/08/16 17:05	1
1,2-Dichloroethane-d4 (Surr)	102		70 - 130		06/08/16 17:05	1
Toluene-d8 (Surr)	100		70 - 130		06/08/16 17:05	1

Lab Sample ID: LCS 320-113001/3
Matrix: Air
Analysis Batch: 113001

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	16.7		ppb v/v		83	71 - 131
Benzene	20.0	19.6		ppb v/v		98	68 - 128
Benzyl chloride	20.0	12.1		ppb v/v		60	58 - 120
Bromodichloromethane	20.0	20.3		ppb v/v		101	65 - 130
Bromoform	20.0	19.5		ppb v/v		97	64 - 144
Bromomethane	20.0	23.1		ppb v/v		115	70 - 131
2-Butanone (MEK)	20.0	17.1		ppb v/v		86	71 - 131
Carbon disulfide	20.0	20.0		ppb v/v		100	63 - 123
Carbon tetrachloride	20.0	19.8		ppb v/v		99	67 - 127
Chlorobenzene	20.0	19.6		ppb v/v		98	70 - 132
Dibromochloromethane	20.0	19.9		ppb v/v		100	68 - 128
Chloroethane	20.0	22.7		ppb v/v		113	70 - 131
Chloroform	20.0	20.1		ppb v/v		101	69 - 129
Chloromethane	20.0	23.2		ppb v/v		116	67 - 127
1,2-Dibromoethane (EDB)	20.0	20.6		ppb v/v		103	68 - 131
1,2-Dichlorobenzene	20.0	19.4		ppb v/v		97	73 - 143
1,3-Dichlorobenzene	20.0	21.1		ppb v/v		105	77 - 136
1,4-Dichlorobenzene	20.0	21.2		ppb v/v		106	73 - 143
Dichlorodifluoromethane	20.0	22.3		ppb v/v		111	69 - 129
1,1-Dichloroethane	20.0	19.7		ppb v/v		98	65 - 125
1,2-Dichloroethane	20.0	20.5		ppb v/v		103	71 - 131
1,1-Dichloroethene	20.0	18.8		ppb v/v		94	53 - 128

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-19176-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-113001/3

Matrix: Air

Analysis Batch: 113001

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	20.0	19.8		ppb v/v		99	68 - 128
trans-1,2-Dichloroethene	20.0	20.8		ppb v/v		104	70 - 130
1,2-Dichloropropane	20.0	21.1		ppb v/v		105	74 - 128
cis-1,3-Dichloropropene	20.0	22.5		ppb v/v		113	78 - 132
trans-1,3-Dichloropropene	20.0	19.6		ppb v/v		98	56 - 136
1,2-Dichloro-1,1,2,2-tetrafluoroethane	20.0	20.9		ppb v/v		104	64 - 124
Ethylbenzene	20.0	23.3		ppb v/v		117	76 - 136
4-Ethyltoluene	20.0	15.3		ppb v/v		77	62 - 136
Hexachlorobutadiene	20.0	16.7		ppb v/v		84	42 - 150
2-Hexanone	20.0	17.7		ppb v/v		89	70 - 128
Methylene Chloride	20.0	17.3		ppb v/v		86	65 - 125
4-Methyl-2-pentanone (MIBK)	20.0	18.2		ppb v/v		91	73 - 133
Styrene	20.0	23.9		ppb v/v		119	76 - 144
1,1,2,2-Tetrachloroethane	20.0	18.5		ppb v/v		92	75 - 135
Tetrachloroethene	20.0	18.7		ppb v/v		93	56 - 138
Toluene	20.0	20.2		ppb v/v		101	71 - 132
1,2,4-Trichlorobenzene	20.0	16.6		ppb v/v		83	59 - 150
1,1,1-Trichloroethane	20.0	19.8		ppb v/v		99	65 - 124
1,1,2-Trichloroethane	20.0	20.5		ppb v/v		103	71 - 131
Trichloroethene	20.0	19.1		ppb v/v		96	64 - 127
Trichlorofluoromethane	20.0	21.1		ppb v/v		106	68 - 128
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	18.0		ppb v/v		90	50 - 132
1,2,4-Trimethylbenzene	20.0	14.1		ppb v/v		71	61 - 145
1,3,5-Trimethylbenzene	20.0	15.5		ppb v/v		77	65 - 136
Vinyl acetate	20.0	19.0		ppb v/v		95	77 - 134
Vinyl chloride	20.0	23.5		ppb v/v		117	69 - 129
m,p-Xylene	40.0	46.6		ppb v/v		117	75 - 138
o-Xylene	20.0	21.9		ppb v/v		109	77 - 132

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	48	39.6		ug/m3 Air		83	71 - 131
Benzene	64	62.5		ug/m3 Air		98	68 - 128
Benzyl chloride	100	62.5		ug/m3 Air		60	58 - 120
Bromodichloromethane	130	136		ug/m3 Air		101	65 - 130
Bromoform	210	202		ug/m3 Air		97	64 - 144
Bromomethane	78	89.6		ug/m3 Air		115	70 - 131
2-Butanone (MEK)	59	50.5		ug/m3 Air		86	71 - 131
Carbon disulfide	62	62.2		ug/m3 Air		100	63 - 123
Carbon tetrachloride	130	125		ug/m3 Air		99	67 - 127
Chlorobenzene	92	90.2		ug/m3 Air		98	70 - 132
Dibromochloromethane	170	170		ug/m3 Air		100	68 - 128
Chloroethane	53	59.9		ug/m3 Air		113	70 - 131
Chloroform	98	98.2		ug/m3 Air		101	69 - 129
Chloromethane	41	47.9		ug/m3 Air		116	67 - 127
1,2-Dibromoethane (EDB)	150	159		ug/m3 Air		103	68 - 131
1,2-Dichlorobenzene	120	117		ug/m3 Air		97	73 - 143
1,3-Dichlorobenzene	120	127		ug/m3 Air		105	77 - 136

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-19176-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-113001/3
Matrix: Air
Analysis Batch: 113001

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dichlorobenzene	120	128		ug/m3 Air		106	73 - 143
Dichlorodifluoromethane	99	110		ug/m3 Air		111	69 - 129
1,1-Dichloroethane	81	79.6		ug/m3 Air		98	65 - 125
1,2-Dichloroethane	81	83.0		ug/m3 Air		103	71 - 131
1,1-Dichloroethene	79	74.3		ug/m3 Air		94	53 - 128
cis-1,2-Dichloroethene	79	78.3		ug/m3 Air		99	68 - 128
trans-1,2-Dichloroethene	79	82.3		ug/m3 Air		104	70 - 130
1,2-Dichloropropane	92	97.5		ug/m3 Air		105	74 - 128
cis-1,3-Dichloropropene	91	102		ug/m3 Air		113	78 - 132
trans-1,3-Dichloropropene	91	88.8		ug/m3 Air		98	56 - 136
1,2-Dichloro-1,1,2,2-tetrafluoroethane	140	146		ug/m3 Air		104	64 - 124
Ethylbenzene	87	101		ug/m3 Air		117	76 - 136
4-Ethyltoluene	98	75.4		ug/m3 Air		77	62 - 136
Hexachlorobutadiene	210	179		ug/m3 Air		84	42 - 150
2-Hexanone	82	72.6		ug/m3 Air		89	70 - 128
Methylene Chloride	69	60.1		ug/m3 Air		86	65 - 125
4-Methyl-2-pentanone (MIBK)	82	74.7		ug/m3 Air		91	73 - 133
Styrene	85	102		ug/m3 Air		119	76 - 144
1,1,2,2-Tetrachloroethane	140	127		ug/m3 Air		92	75 - 135
Tetrachloroethene	140	127		ug/m3 Air		93	56 - 138
Toluene	75	76.0		ug/m3 Air		101	71 - 132
1,2,4-Trichlorobenzene	150	123		ug/m3 Air		83	59 - 150
1,1,1-Trichloroethane	110	108		ug/m3 Air		99	65 - 124
1,1,2-Trichloroethane	110	112		ug/m3 Air		103	71 - 131
Trichloroethene	110	103		ug/m3 Air		96	64 - 127
Trichlorofluoromethane	110	119		ug/m3 Air		106	68 - 128
1,1,2-Trichloro-1,2,2-trifluoroethane	150	138		ug/m3 Air		90	50 - 132
1,2,4-Trimethylbenzene	98	69.5		ug/m3 Air		71	61 - 145
1,3,5-Trimethylbenzene	98	76.1		ug/m3 Air		77	65 - 136
Vinyl acetate	70	66.7		ug/m3 Air		95	77 - 134
Vinyl chloride	51	60.0		ug/m3 Air		117	69 - 129
m,p-Xylene	170	202		ug/m3 Air		117	75 - 138
o-Xylene	87	94.9		ug/m3 Air		109	77 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		70 - 130
1,2-Dichloroethane-d4 (Surr)	105		70 - 130
Toluene-d8 (Surr)	102		70 - 130

Lab Sample ID: LCSD 320-113001/4
Matrix: Air
Analysis Batch: 113001

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	16.7		ppb v/v		83	71 - 131	0	25
Benzene	20.0	19.8		ppb v/v		99	68 - 128	1	25

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-19176-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-113001/4

Matrix: Air

Analysis Batch: 113001

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
Benzyl chloride	20.0	12.3		ppb v/v		61	58 - 120	2	25
Bromodichloromethane	20.0	20.5		ppb v/v		103	65 - 130	1	25
Bromoform	20.0	20.1		ppb v/v		100	64 - 144	3	25
Bromomethane	20.0	22.5		ppb v/v		113	70 - 131	2	25
2-Butanone (MEK)	20.0	16.8		ppb v/v		84	71 - 131	2	25
Carbon disulfide	20.0	19.6		ppb v/v		98	63 - 123	2	25
Carbon tetrachloride	20.0	20.1		ppb v/v		100	67 - 127	1	25
Chlorobenzene	20.0	20.1		ppb v/v		101	70 - 132	3	25
Dibromochloromethane	20.0	20.4		ppb v/v		102	68 - 128	2	25
Chloroethane	20.0	22.4		ppb v/v		112	70 - 131	1	25
Chloroform	20.0	19.9		ppb v/v		100	69 - 129	1	25
Chloromethane	20.0	23.0		ppb v/v		115	67 - 127	1	25
1,2-Dibromoethane (EDB)	20.0	21.1		ppb v/v		106	68 - 131	2	25
1,2-Dichlorobenzene	20.0	20.2		ppb v/v		101	73 - 143	4	25
1,3-Dichlorobenzene	20.0	21.7		ppb v/v		109	77 - 136	3	25
1,4-Dichlorobenzene	20.0	22.1		ppb v/v		110	73 - 143	4	25
Dichlorodifluoromethane	20.0	21.7		ppb v/v		108	69 - 129	3	25
1,1-Dichloroethane	20.0	19.5		ppb v/v		97	65 - 125	1	25
1,2-Dichloroethane	20.0	20.9		ppb v/v		104	71 - 131	2	25
1,1-Dichloroethene	20.0	18.6		ppb v/v		93	53 - 128	1	25
cis-1,2-Dichloroethene	20.0	19.7		ppb v/v		99	68 - 128	0	25
trans-1,2-Dichloroethene	20.0	20.7		ppb v/v		104	70 - 130	0	25
1,2-Dichloropropane	20.0	21.2		ppb v/v		106	74 - 128	1	25
cis-1,3-Dichloropropene	20.0	22.7		ppb v/v		114	78 - 132	1	25
trans-1,3-Dichloropropene	20.0	20.0		ppb v/v		100	56 - 136	2	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	20.0	20.6		ppb v/v		103	64 - 124	1	25
Ethylbenzene	20.0	23.9		ppb v/v		120	76 - 136	3	25
4-Ethyltoluene	20.0	15.6		ppb v/v		78	62 - 136	2	25
Hexachlorobutadiene	20.0	17.3		ppb v/v		86	42 - 150	3	25
2-Hexanone	20.0	17.8		ppb v/v		89	70 - 128	0	25
Methylene Chloride	20.0	17.2		ppb v/v		86	65 - 125	1	25
4-Methyl-2-pentanone (MIBK)	20.0	18.0		ppb v/v		90	73 - 133	1	25
Styrene	20.0	25.0		ppb v/v		125	76 - 144	5	25
1,1,2,2-Tetrachloroethane	20.0	18.9		ppb v/v		94	75 - 135	2	25
Tetrachloroethene	20.0	19.2		ppb v/v		96	56 - 138	3	25
Toluene	20.0	20.4		ppb v/v		102	71 - 132	1	25
1,2,4-Trichlorobenzene	20.0	17.3		ppb v/v		87	59 - 150	4	25
1,1,1-Trichloroethane	20.0	19.6		ppb v/v		98	65 - 124	1	25
1,1,2-Trichloroethane	20.0	21.0		ppb v/v		105	71 - 131	2	25
Trichloroethene	20.0	19.3		ppb v/v		97	64 - 127	1	25
Trichlorofluoromethane	20.0	20.8		ppb v/v		104	68 - 128	1	25
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	18.1		ppb v/v		90	50 - 132	0	25
1,2,4-Trimethylbenzene	20.0	16.2		ppb v/v		81	61 - 145	14	25
1,3,5-Trimethylbenzene	20.0	15.6		ppb v/v		78	65 - 136	1	25
Vinyl acetate	20.0	18.8		ppb v/v		94	77 - 134	1	25
Vinyl chloride	20.0	23.3		ppb v/v		116	69 - 129	1	25
m,p-Xylene	40.0	49.0		ppb v/v		123	75 - 138	5	25

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-19176-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-113001/4

Client Sample ID: Lab Control Sample Dup

Matrix: Air

Prep Type: Total/NA

Analysis Batch: 113001

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
o-Xylene	20.0	23.1		ppb v/v		115	77 - 132	5	25
Acetone	48	39.7		ug/m3 Air		83	71 - 131	0	25
Benzene	64	63.1		ug/m3 Air		99	68 - 128	1	25
Benzyl chloride	100	63.6		ug/m3 Air		61	58 - 120	2	25
Bromodichloromethane	130	137		ug/m3 Air		103	65 - 130	1	25
Bromoform	210	207		ug/m3 Air		100	64 - 144	3	25
Bromomethane	78	87.4		ug/m3 Air		113	70 - 131	2	25
2-Butanone (MEK)	59	49.7		ug/m3 Air		84	71 - 131	2	25
Carbon disulfide	62	61.0		ug/m3 Air		98	63 - 123	2	25
Carbon tetrachloride	130	126		ug/m3 Air		100	67 - 127	1	25
Chlorobenzene	92	92.6		ug/m3 Air		101	70 - 132	3	25
Dibromochloromethane	170	174		ug/m3 Air		102	68 - 128	2	25
Chloroethane	53	59.1		ug/m3 Air		112	70 - 131	1	25
Chloroform	98	97.2		ug/m3 Air		100	69 - 129	1	25
Chloromethane	41	47.5		ug/m3 Air		115	67 - 127	1	25
1,2-Dibromoethane (EDB)	150	162		ug/m3 Air		106	68 - 131	2	25
1,2-Dichlorobenzene	120	122		ug/m3 Air		101	73 - 143	4	25
1,3-Dichlorobenzene	120	131		ug/m3 Air		109	77 - 136	3	25
1,4-Dichlorobenzene	120	133		ug/m3 Air		110	73 - 143	4	25
Dichlorodifluoromethane	99	107		ug/m3 Air		108	69 - 129	3	25
1,1-Dichloroethane	81	78.9		ug/m3 Air		97	65 - 125	1	25
1,2-Dichloroethane	81	84.5		ug/m3 Air		104	71 - 131	2	25
1,1-Dichloroethene	79	73.8		ug/m3 Air		93	53 - 128	1	25
cis-1,2-Dichloroethene	79	78.1		ug/m3 Air		99	68 - 128	0	25
trans-1,2-Dichloroethene	79	82.3		ug/m3 Air		104	70 - 130	0	25
1,2-Dichloropropane	92	98.1		ug/m3 Air		106	74 - 128	1	25
cis-1,3-Dichloropropene	91	103		ug/m3 Air		114	78 - 132	1	25
trans-1,3-Dichloropropene	91	90.6		ug/m3 Air		100	56 - 136	2	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	140	144		ug/m3 Air		103	64 - 124	1	25
Ethylbenzene	87	104		ug/m3 Air		120	76 - 136	3	25
4-Ethyltoluene	98	76.8		ug/m3 Air		78	62 - 136	2	25
Hexachlorobutadiene	210	184		ug/m3 Air		86	42 - 150	3	25
2-Hexanone	82	72.8		ug/m3 Air		89	70 - 128	0	25
Methylene Chloride	69	59.7		ug/m3 Air		86	65 - 125	1	25
4-Methyl-2-pentanone (MIBK)	82	73.9		ug/m3 Air		90	73 - 133	1	25
Styrene	85	107		ug/m3 Air		125	76 - 144	5	25
1,1,2,2-Tetrachloroethane	140	130		ug/m3 Air		94	75 - 135	2	25
Tetrachloroethene	140	130		ug/m3 Air		96	56 - 138	3	25
Toluene	75	77.0		ug/m3 Air		102	71 - 132	1	25
1,2,4-Trichlorobenzene	150	128		ug/m3 Air		87	59 - 150	4	25
1,1,1-Trichloroethane	110	107		ug/m3 Air		98	65 - 124	1	25
1,1,2-Trichloroethane	110	115		ug/m3 Air		105	71 - 131	2	25
Trichloroethene	110	104		ug/m3 Air		97	64 - 127	1	25
Trichlorofluoromethane	110	117		ug/m3 Air		104	68 - 128	1	25
1,1,2-Trichloro-1,2,2-trifluoroethane	150	138		ug/m3 Air		90	50 - 132	0	25

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-19176-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-113001/4
Matrix: Air
Analysis Batch: 113001

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
1,2,4-Trimethylbenzene	98	79.5		ug/m3 Air		81	61 - 145	14	25
1,3,5-Trimethylbenzene	98	76.7		ug/m3 Air		78	65 - 136	1	25
Vinyl acetate	70	66.3		ug/m3 Air		94	77 - 134	1	25
Vinyl chloride	51	59.5		ug/m3 Air		116	69 - 129	1	25
m,p-Xylene	170	213		ug/m3 Air		123	75 - 138	5	25
o-Xylene	87	100		ug/m3 Air		115	77 - 132	5	25

Surrogate	LCSD %Recovery	LCSD Qualifier	LCSD Limits
4-Bromofluorobenzene (Surr)	104		70 - 130
1,2-Dichloroethane-d4 (Surr)	102		70 - 130
Toluene-d8 (Surr)	101		70 - 130

QC Association Summary

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

TestAmerica Job ID: 320-19176-1

Air - GC/MS VOA

Analysis Batch: 112818

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-19176-1	SVE_SOUTH_PRECARBON_052516	Total/NA	Air	TO-15	
320-19176-2	SVE_SOUTH_POSTCARBON_052516	Total/NA	Air	TO-15	
LCS 320-112818/3	Lab Control Sample	Total/NA	Air	TO-15	
LCSD 320-112818/4	Lab Control Sample Dup	Total/NA	Air	TO-15	
MB 320-112818/9	Method Blank	Total/NA	Air	TO-15	

Analysis Batch: 113001

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-19176-1 - DL	SVE_SOUTH_PRECARBON_052516	Total/NA	Air	TO-15	
320-19176-2 - DL	SVE_SOUTH_POSTCARBON_052516	Total/NA	Air	TO-15	
LCS 320-113001/3	Lab Control Sample	Total/NA	Air	TO-15	
LCSD 320-113001/4	Lab Control Sample Dup	Total/NA	Air	TO-15	
MB 320-113001/6	Method Blank	Total/NA	Air	TO-15	

Lab Chronicle

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

TestAmerica Job ID: 320-19176-1

Client Sample ID: SVE_SOUTH_PRECARBON_052516

Lab Sample ID: 320-19176-1

Date Collected: 05/25/16 13:53

Matrix: Air

Date Received: 05/27/16 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	520 mL	250 mL	112818	06/08/16 00:07	SRS	TAL SAC
Total/NA	Analysis	TO-15	DL	2.08	250 mL	250 mL	113001	06/08/16 20:49	AP1	TAL SAC

Client Sample ID: SVE_SOUTH_POSTCARBON_052516

Lab Sample ID: 320-19176-2

Date Collected: 05/25/16 13:51

Matrix: Air

Date Received: 05/27/16 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		12.88	37 mL	250 mL	112818	06/08/16 00:50	SRS	TAL SAC
Total/NA	Analysis	TO-15	DL	59.6	8 mL	250 mL	113001	06/08/16 21:33	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: 320-19176-1

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	01-31-17
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	06-17-17
California	State Program	9	2897	01-31-17
Colorado	State Program	8	CA00044	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	03-17-17
Kansas	NELAP	7	E-10375	07-31-16
Louisiana	NELAP	6	30612	06-30-16
Maine	State Program	1	CA0004	04-18-18
Michigan	State Program	5	9947	01-31-18
Nevada	State Program	9	CA00044	07-31-16
New Jersey	NELAP	2	CA005	06-30-16
New York	NELAP	2	11666	04-01-17
Oregon	NELAP	10	4040	01-29-17
Pennsylvania	NELAP	3	68-01272	03-31-17
Texas	NELAP	6	T104704399	07-31-17
US Fish & Wildlife	Federal		LE148388-0	10-31-16
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-16
Utah	NELAP	8	CA00044	02-28-17
Virginia	NELAP	3	460278	03-14-17
Washington	State Program	10	C581	05-05-17
West Virginia (DW)	State Program	3	9930C	12-31-16
Wyoming	State Program	8	8TMS-L	01-29-17

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

Method Summary

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

TestAmerica Job ID: 320-19176-1

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: 320-19176-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-19176-1	SVE_SOUTH_PRECARBON_052516	Air	05/25/16 13:53	05/27/16 09:30
320-19176-2	SVE_SOUTH_POSTCARBON_052516	Air	05/25/16 13:51	05/27/16 09:30

- 1
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JOB # **320-19176**
 Sample # **1**

Client/Project:	VFR ID:	
Canister Serial #: 34000552	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)	11.52	06/01/16	SV	
FINAL PRESSURE (PSIA)	23.99	06/01/16	SV	
Pressurization Gas: <input type="checkbox"/> N2 <input type="checkbox"/> He		<input type="checkbox"/>	SCRN DIL. VS 250mLs:	
Initial Canister Dilution Factor =	2.08			

CANISTER REPRESSURIZATION					
Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
			2.08		#DIV/0!
			#DIV/0!		#DIV/0!
			#DIV/0!		#DIV/0!

Analytical Dilution Factors						
	Date	Instr.	File #			
Canister DF = 2.08	6/7/2016	ATMS2		FINAL DF		
X						
Load DF = 0.4807692						
X						
LVf (mLs) 250				Bag DF = 1	=	1.00118523
LVi (mLs) 520				BVf (mLs)		
				Bvi (mLs)		
Canister DF = 2.08	6/8/2016	ATMS2		FINAL DF		
X						
Load DF = 1						
X						
LVf (mLs) 250				Bag DF = 1	=	2.082465278
LVi (mLs) 250				BVf (mLs)		
				Bvi (mLs)		
Canister DF = 2.08				FINAL DF		
X						
Load DF = #DIV/0!						
X						
LVf (mLs)				Bag DF = 1	=	#DIV/0!
LVi (mLs)				BVf (mLs)		
				Bvi (mLs)		



JOB # **320-19176**
 Sample # **2**

Client/Project:		VFR ID:	
Canister Serial #:	34001441	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)	12.56	06/01/16	SV	
FINAL PRESSURE (PSIA)	23.95	06/01/16	SV	
Pressurization Gas: <input type="checkbox"/> N2 <input type="checkbox"/> He		<input type="checkbox"/>	SCRN DIL. VS 250mLs:	
Initial Canister Dilution Factor =	1.91			

CANISTER REPRESSURIZATION					
Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
			1.91		#DIV/0!
			#DIV/0!		#DIV/0!
			#DIV/0!		#DIV/0!

Analytical Dilution Factors							
	Date	Instr.	File #				
Canister DF = 1.91 X	6/7/2016	ATMS2		=	FINAL DF	12.88410226	
					Load DF = 6.7567568 X		
					LVf (mLs) 250	Bag DF = 1	
					LVi (mLs) 37	BVf (mLs) 1	
Canister DF = 1.91 X	6/8/2016	ATMS2		=	FINAL DF	59.58897293	
					Load DF = 3.4722222 X		
					LVf (mLs) 250	Bag DF = 9	
					LVi (mLs) 72	BVf (mLs) 9	
Canister DF = 1.91 X				=	FINAL DF	#DIV/0!	
					Load DF = #DIV/0! X		
					LVf (mLs) 250	Bag DF = 1	
					LVi (mLs) 37	BVf (mLs) 1	



Login Sample Receipt Checklist

Client: Apex Companies LLC

Job Number: 320-19176-1

Login Number: 19176
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.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	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	



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



320-18562 Chain of Custody

Certification Type TO15 Screen
Date Cleaned/Batch ID 4/28/16 320-18562
Date of QC 4/29/16
Data File Number MS9042821.D

CANISTER ID NUMBERS

<u>34001429</u>	<u>0552</u>	
<u>2026</u>	<u>0790</u>	
<u>1516</u>	<u>0345</u>	
<u>1441</u>	<u>2125 *</u>	
<u>1527</u>		
<u>1039</u>		
<u>1204</u>		
<u>0014</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:
[Signature]
2nd level Reviewed By:

5/2/16
Date:
5/5/16
Date:

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-18562-1
 SDG No.: _____
 Client Sample ID: 34002125 Lab Sample ID: 320-18562-12
 Matrix: Air Lab File ID: MS9042821.D
 Analysis Method: TO-15 Date Collected: 04/28/2016 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 04/29/2016 07:31
 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.: 108091 Units: ppb v/v

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: TestAmerica Sacramento Job No.: 320-18562-1
 SDG No.: _____
 Client Sample ID: 34002125 Lab Sample ID: 320-18562-12
 Matrix: Air Lab File ID: MS9042821.D
 Analysis Method: TO-15 Date Collected: 04/28/2016 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 04/29/2016 07:31
 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.: 108091 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	0.20	J B	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.: 320-18562-1
 SDG No.: _____
 Client Sample ID: 34002125 Lab Sample ID: 320-18562-12
 Matrix: Air Lab File ID: MS9042821.D
 Analysis Method: TO-15 Date Collected: 04/28/2016 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 04/29/2016 07:31
 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.: 108091 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)	92		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	86		70-130
2037-26-5	Toluene-d8 (Surr)	87		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS9\20160428-30284.b\MS9042821.D
 Lims ID: 320-18562-A-12
 Client ID: 34002125
 Sample Type: Client
 Inject. Date: 29-Apr-2016 07:31:30 ALS Bottle#: 13 Worklist Smp#: 29
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 320-18562-A-12
 Misc. Info.: 500mL Can Cert.
 Operator ID: KY Instrument ID: ATMS9
 Method: \\ChromNA\Sacramento\ChromData\ATMS9\20160428-30284.b\TO15_ATMS9N.m
 Limit Group: MSA - TO15 - ICAL
 Last Update: 29-Apr-2016 15:07:38 Calib Date: 12-Mar-2016 18:48:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS9\20160314-29063.b\MS9031212.D
 Column 1 : RTX Volatiles (0.32 mm) Det: MS SCAN
 Process Host: XAWRK017

First Level Reviewer: yangk Date: 29-Apr-2016 14:55:41

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	12.437	12.456	-0.019	97	39094	4.00	
* 2 1,4-Difluorobenzene	114	14.536	14.548	-0.012	96	180941	4.00	
* 3 Chlorobenzene-d5 (IS)	117	20.455	20.462	-0.007	90	139325	4.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	13.605	13.624	-0.019	98	52338	3.46	
\$ 5 Toluene-d8 (Surr)	100	17.700	17.706	-0.006	97	100032	3.47	
\$ 6 4-Bromofluorobenzene (Surr	174	22.372	22.372	0.000	87	73235	3.70	
31 Acetone	43	7.704	7.644	0.060	94	5391	0.2826	
47 Methylene Chloride	49	8.957	8.970	-0.013	95	2948	0.1995	
120 1,4-Dichlorobenzene	146	24.099	24.100	-0.001	86	573	0.0194	
122 1,2-Dichlorobenzene	146	24.574	24.580	-0.006	94	621	0.0214	

Reagents:

VAMIS20_00001 Amount Added: 50.00 Units: mL Run Reagent

Data File: \\ChromNA\Sacramento\ChromData\ATMS9\20160428-30284.b\MS9042821.D

Injection Date: 29-Apr-2016 07:31:30

Instrument ID: ATMS9

Operator ID: KY

Lims ID: 320-18562-A-12

Lab Sample ID: 320-18562-12

Worklist Smp#: 29

Client ID: 34002125

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

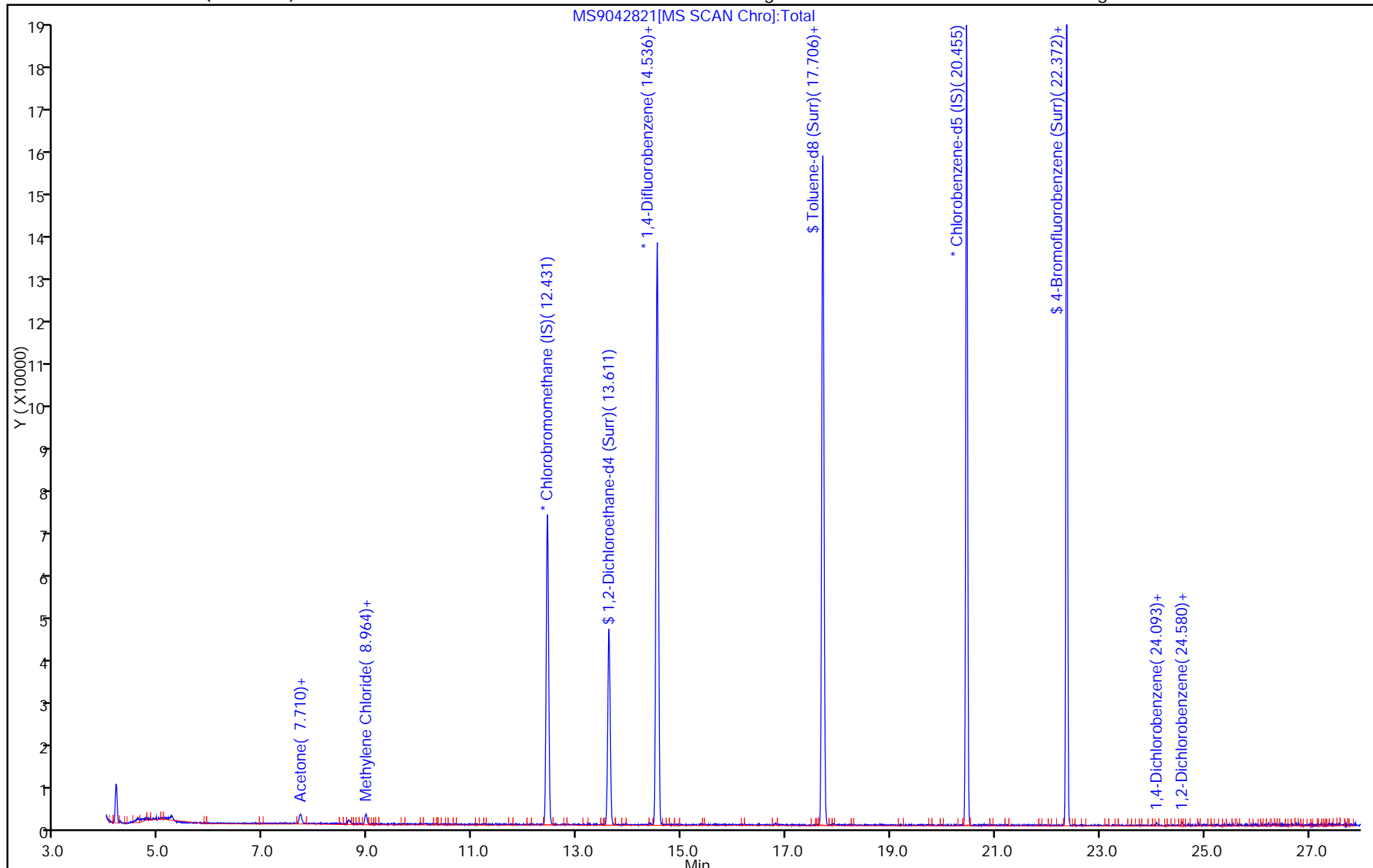
ALS Bottle#: 13

Method: TO15_ATMS9N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Peak: 2



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS9\20160428-30284.b\MS9042821.D

Injection Date: 29-Apr-2016 07:31:30

Instrument ID: ATMS9

Lims ID: 320-18562-A-12

Lab Sample ID: 320-18562-12

Client ID: 34002125

Operator ID: KY

ALS Bottle#: 13 Worklist Smp#: 29

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

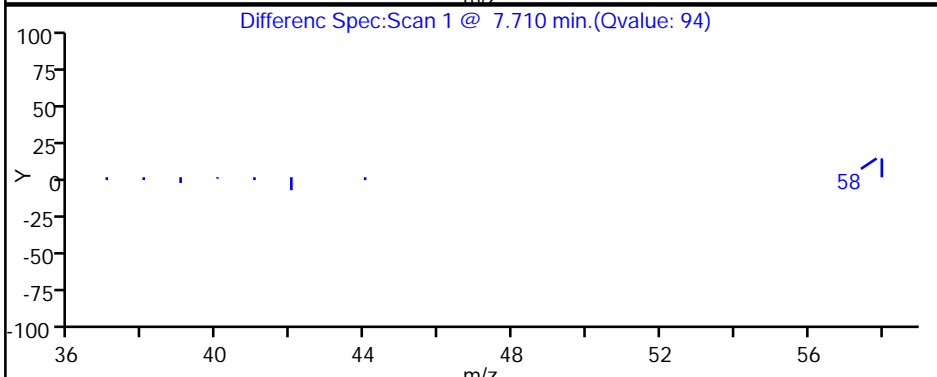
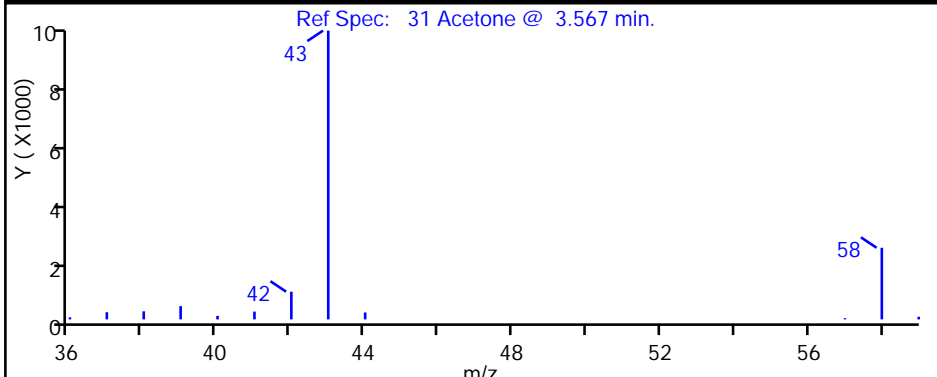
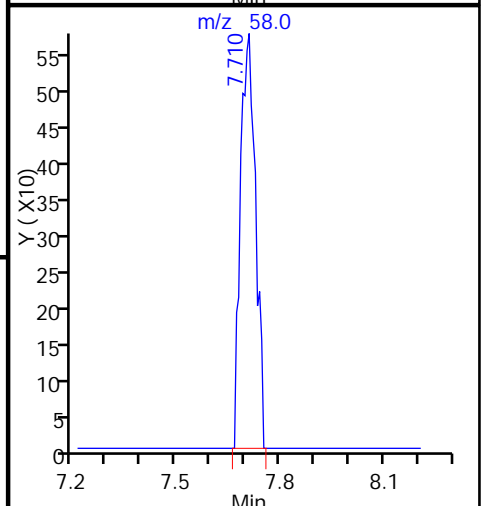
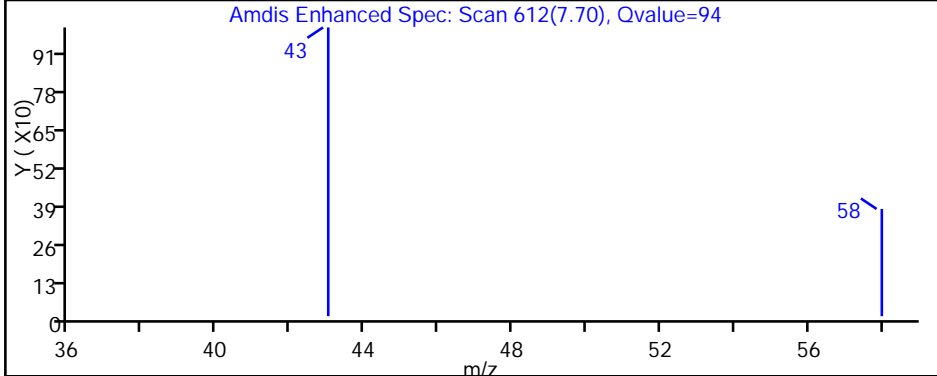
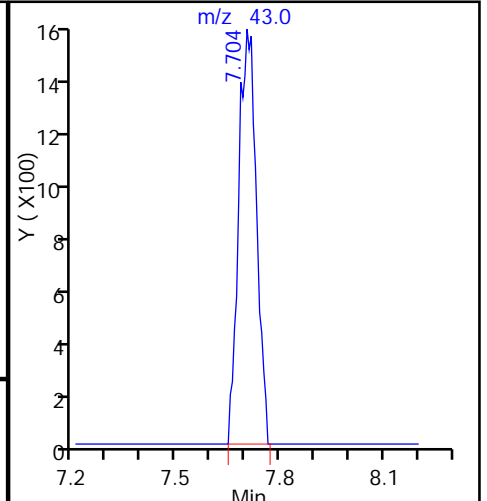
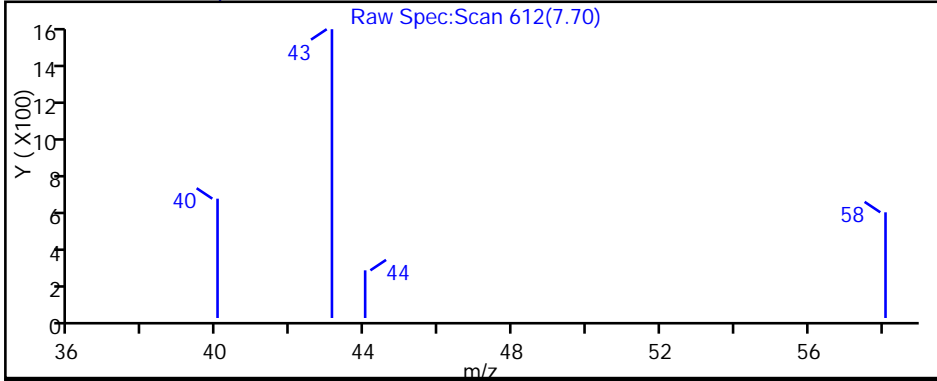
Method: TO15_ATMS9N

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\ATMS9\20160428-30284.b\MS9042821.D

Injection Date: 29-Apr-2016 07:31:30

Instrument ID: ATMS9

Lims ID: 320-18562-A-12

Lab Sample ID: 320-18562-12

Client ID: 34002125

Operator ID: KY

ALS Bottle#: 13 Worklist Smp#: 29

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

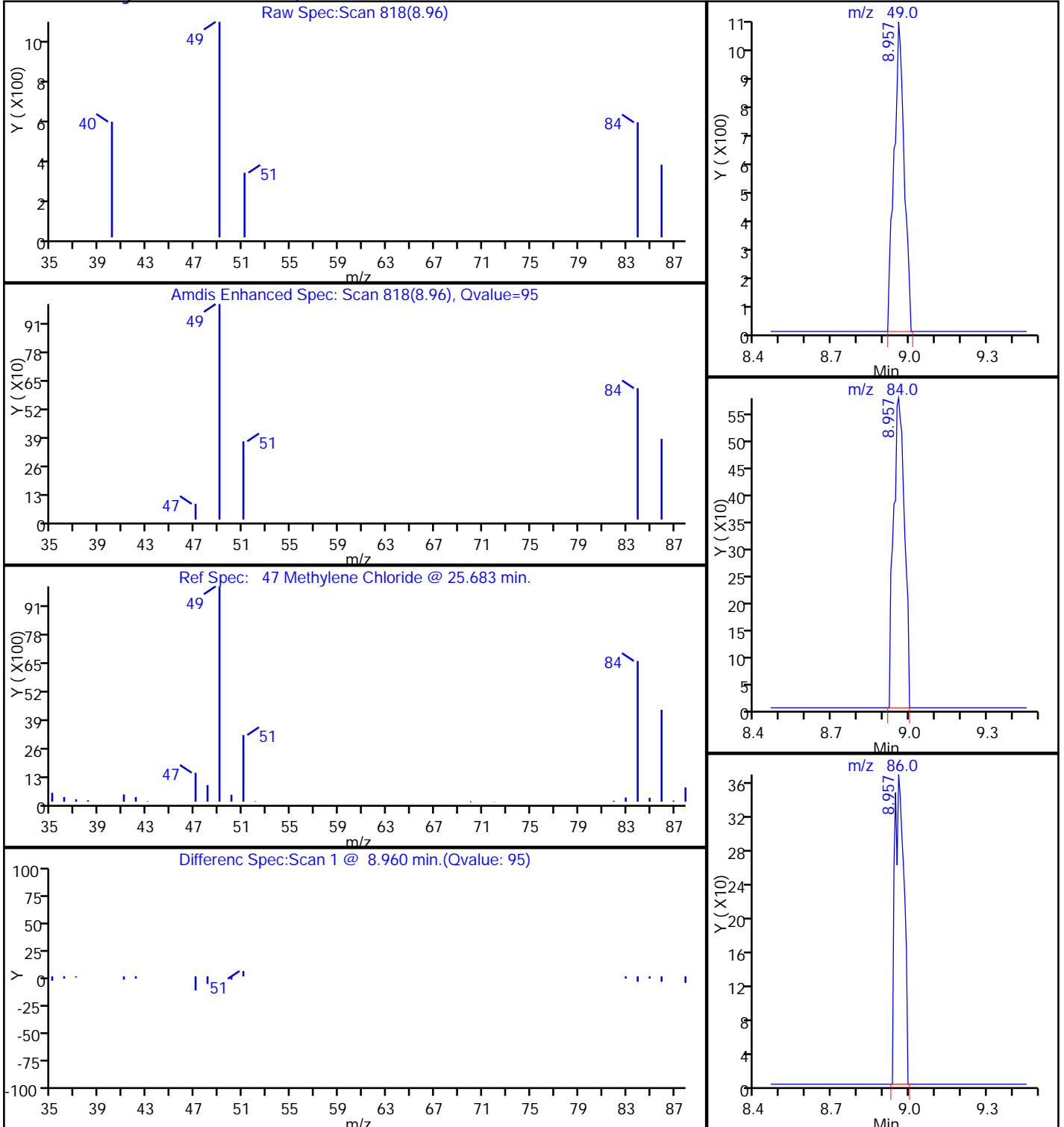
Method: TO15_ATMS9N

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: 320-19972-1
Client Project/Site: NuStar Vapor Testing

For:
Apex Companies LLC
3015 SW 1st Avenue
Portland, Oregon 97201

Attn: Stephanie Salisbury



Authorized for release by:
7/18/2016 4:07:38 PM

Sarah Murphy, Project Manager I
(253)922-2310
sarah.murphy@testamericainc.com



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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: 320-19972-1

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: 320-19972-1

Job ID: 320-19972-1

Laboratory: TestAmerica Sacramento

Narrative

Receipt

The sample was received on 6/30/2016 9:55 AM; the sample 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: 320-19972-1

Client Sample ID: SVE_NORTH_EFFLUENT_62816

Lab Sample ID: 320-19972-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	260		2.8		ppb v/v	6.94		TO-15	Total/NA
Trichloroethene	15		2.8		ppb v/v	6.94		TO-15	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	1800		19		ug/m3 Air	6.94		TO-15	Total/NA
Trichloroethene	83		15		ug/m3 Air	6.94		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: 320-19972-1

Client Sample ID: SVE_NORTH_EFFLUENT_62816

Lab Sample ID: 320-19972-1

Date Collected: 06/28/16 12:03

Matrix: Air

Date Received: 06/30/16 09:55

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			07/11/16 20:03	6.94
Benzene	ND		2.8		ppb v/v			07/11/16 20:03	6.94
Benzyl chloride	ND		5.6		ppb v/v			07/11/16 20:03	6.94
Bromodichloromethane	ND		2.1		ppb v/v			07/11/16 20:03	6.94
Bromoform	ND		2.8		ppb v/v			07/11/16 20:03	6.94
Bromomethane	ND		5.6		ppb v/v			07/11/16 20:03	6.94
2-Butanone (MEK)	ND		5.6		ppb v/v			07/11/16 20:03	6.94
Carbon disulfide	ND		5.6		ppb v/v			07/11/16 20:03	6.94
Carbon tetrachloride	ND		5.6		ppb v/v			07/11/16 20:03	6.94
Chlorobenzene	ND		2.1		ppb v/v			07/11/16 20:03	6.94
Dibromochloromethane	ND		2.8		ppb v/v			07/11/16 20:03	6.94
Chloroethane	ND		5.6		ppb v/v			07/11/16 20:03	6.94
Chloroform	ND		2.1		ppb v/v			07/11/16 20:03	6.94
Chloromethane	ND		5.6		ppb v/v			07/11/16 20:03	6.94
1,2-Dibromoethane (EDB)	ND		5.6		ppb v/v			07/11/16 20:03	6.94
1,2-Dichlorobenzene	ND		2.8		ppb v/v			07/11/16 20:03	6.94
1,3-Dichlorobenzene	ND		2.8		ppb v/v			07/11/16 20:03	6.94
1,4-Dichlorobenzene	ND		2.8		ppb v/v			07/11/16 20:03	6.94
Dichlorodifluoromethane	ND		2.8		ppb v/v			07/11/16 20:03	6.94
1,1-Dichloroethane	ND		2.1		ppb v/v			07/11/16 20:03	6.94
1,2-Dichloroethane	ND		5.6		ppb v/v			07/11/16 20:03	6.94
1,1-Dichloroethene	ND		5.6		ppb v/v			07/11/16 20:03	6.94
cis-1,2-Dichloroethene	ND		2.8		ppb v/v			07/11/16 20:03	6.94
trans-1,2-Dichloroethene	ND		2.8		ppb v/v			07/11/16 20:03	6.94
1,2-Dichloropropane	ND		2.8		ppb v/v			07/11/16 20:03	6.94
cis-1,3-Dichloropropene	ND		2.8		ppb v/v			07/11/16 20:03	6.94
trans-1,3-Dichloropropene	ND		2.8		ppb v/v			07/11/16 20:03	6.94
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.8		ppb v/v			07/11/16 20:03	6.94
Ethylbenzene	ND		2.8		ppb v/v			07/11/16 20:03	6.94
4-Ethyltoluene	ND		2.8		ppb v/v			07/11/16 20:03	6.94
Hexachlorobutadiene	ND		14		ppb v/v			07/11/16 20:03	6.94
2-Hexanone	ND		2.8		ppb v/v			07/11/16 20:03	6.94
Methylene Chloride	ND		2.8		ppb v/v			07/11/16 20:03	6.94
4-Methyl-2-pentanone (MIBK)	ND		2.8		ppb v/v			07/11/16 20:03	6.94
Styrene	ND		2.8		ppb v/v			07/11/16 20:03	6.94
1,1,2,2-Tetrachloroethane	ND		2.8		ppb v/v			07/11/16 20:03	6.94
Tetrachloroethene	260		2.8		ppb v/v			07/11/16 20:03	6.94
Toluene	ND		2.8		ppb v/v			07/11/16 20:03	6.94
1,2,4-Trichlorobenzene	ND		14		ppb v/v			07/11/16 20:03	6.94
1,1,1-Trichloroethane	ND		2.1		ppb v/v			07/11/16 20:03	6.94
1,1,2-Trichloroethane	ND		2.8		ppb v/v			07/11/16 20:03	6.94
Trichloroethene	15		2.8		ppb v/v			07/11/16 20:03	6.94
Trichlorofluoromethane	ND		2.8		ppb v/v			07/11/16 20:03	6.94
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.8		ppb v/v			07/11/16 20:03	6.94
1,2,4-Trimethylbenzene	ND		5.6		ppb v/v			07/11/16 20:03	6.94
1,3,5-Trimethylbenzene	ND		2.8		ppb v/v			07/11/16 20:03	6.94
Vinyl acetate	ND		5.6		ppb v/v			07/11/16 20:03	6.94
Vinyl chloride	ND		2.8		ppb v/v			07/11/16 20:03	6.94

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-19972-1

Client Sample ID: SVE_NORTH_EFFLUENT_62816

Lab Sample ID: 320-19972-1

Date Collected: 06/28/16 12:03

Matrix: Air

Date Received: 06/30/16 09:55

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			07/11/16 20:03	6.94
o-Xylene	ND		2.8		ppb v/v			07/11/16 20:03	6.94
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		82		ug/m3 Air			07/11/16 20:03	6.94
Benzene	ND		8.9		ug/m3 Air			07/11/16 20:03	6.94
Benzyl chloride	ND		29		ug/m3 Air			07/11/16 20:03	6.94
Bromodichloromethane	ND		14		ug/m3 Air			07/11/16 20:03	6.94
Bromoform	ND		29		ug/m3 Air			07/11/16 20:03	6.94
Bromomethane	ND		22		ug/m3 Air			07/11/16 20:03	6.94
2-Butanone (MEK)	ND		16		ug/m3 Air			07/11/16 20:03	6.94
Carbon disulfide	ND		17		ug/m3 Air			07/11/16 20:03	6.94
Carbon tetrachloride	ND		35		ug/m3 Air			07/11/16 20:03	6.94
Chlorobenzene	ND		9.6		ug/m3 Air			07/11/16 20:03	6.94
Dibromochloromethane	ND		24		ug/m3 Air			07/11/16 20:03	6.94
Chloroethane	ND		15		ug/m3 Air			07/11/16 20:03	6.94
Chloroform	ND		10		ug/m3 Air			07/11/16 20:03	6.94
Chloromethane	ND		11		ug/m3 Air			07/11/16 20:03	6.94
1,2-Dibromoethane (EDB)	ND		43		ug/m3 Air			07/11/16 20:03	6.94
1,2-Dichlorobenzene	ND		17		ug/m3 Air			07/11/16 20:03	6.94
1,3-Dichlorobenzene	ND		17		ug/m3 Air			07/11/16 20:03	6.94
1,4-Dichlorobenzene	ND		17		ug/m3 Air			07/11/16 20:03	6.94
Dichlorodifluoromethane	ND		14		ug/m3 Air			07/11/16 20:03	6.94
1,1-Dichloroethane	ND		8.4		ug/m3 Air			07/11/16 20:03	6.94
1,2-Dichloroethane	ND		22		ug/m3 Air			07/11/16 20:03	6.94
1,1-Dichloroethene	ND		22		ug/m3 Air			07/11/16 20:03	6.94
cis-1,2-Dichloroethene	ND		11		ug/m3 Air			07/11/16 20:03	6.94
trans-1,2-Dichloroethene	ND		11		ug/m3 Air			07/11/16 20:03	6.94
1,2-Dichloropropane	ND		13		ug/m3 Air			07/11/16 20:03	6.94
cis-1,3-Dichloropropene	ND		13		ug/m3 Air			07/11/16 20:03	6.94
trans-1,3-Dichloropropene	ND		13		ug/m3 Air			07/11/16 20:03	6.94
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		19		ug/m3 Air			07/11/16 20:03	6.94
Ethylbenzene	ND		12		ug/m3 Air			07/11/16 20:03	6.94
4-Ethyltoluene	ND		14		ug/m3 Air			07/11/16 20:03	6.94
Hexachlorobutadiene	ND		150		ug/m3 Air			07/11/16 20:03	6.94
2-Hexanone	ND		11		ug/m3 Air			07/11/16 20:03	6.94
Methylene Chloride	ND		9.6		ug/m3 Air			07/11/16 20:03	6.94
4-Methyl-2-pentanone (MIBK)	ND		11		ug/m3 Air			07/11/16 20:03	6.94
Styrene	ND		12		ug/m3 Air			07/11/16 20:03	6.94
1,1,2,2-Tetrachloroethane	ND		19		ug/m3 Air			07/11/16 20:03	6.94
Tetrachloroethene	1800		19		ug/m3 Air			07/11/16 20:03	6.94
Toluene	ND		10		ug/m3 Air			07/11/16 20:03	6.94
1,2,4-Trichlorobenzene	ND		100		ug/m3 Air			07/11/16 20:03	6.94
1,1,1-Trichloroethane	ND		11		ug/m3 Air			07/11/16 20:03	6.94
1,1,2-Trichloroethane	ND		15		ug/m3 Air			07/11/16 20:03	6.94
Trichloroethene	83		15		ug/m3 Air			07/11/16 20:03	6.94
Trichlorofluoromethane	ND		16		ug/m3 Air			07/11/16 20:03	6.94
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		21		ug/m3 Air			07/11/16 20:03	6.94
1,2,4-Trimethylbenzene	ND		27		ug/m3 Air			07/11/16 20:03	6.94

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-19972-1

Client Sample ID: SVE_NORTH_EFFLUENT_62816

Lab Sample ID: 320-19972-1

Date Collected: 06/28/16 12:03

Matrix: Air

Date Received: 06/30/16 09:55

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			07/11/16 20:03	6.94
Vinyl acetate	ND		20		ug/m3 Air			07/11/16 20:03	6.94
Vinyl chloride	ND		7.1		ug/m3 Air			07/11/16 20:03	6.94
m,p-Xylene	ND		24		ug/m3 Air			07/11/16 20:03	6.94
o-Xylene	ND		12		ug/m3 Air			07/11/16 20:03	6.94

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		70 - 130		07/11/16 20:03	6.94
1,2-Dichloroethane-d4 (Surr)	100		70 - 130		07/11/16 20:03	6.94
Toluene-d8 (Surr)	97		70 - 130		07/11/16 20:03	6.94

Surrogate Summary

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

TestAmerica Job ID: 320-19972-1

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)
320-19972-1	SVE_NORTH_EFFLUENT_628	102	100	97
LCS 320-117312/3	Lab Control Sample	107	103	99
LCSD 320-117312/4	Lab Control Sample Dup	107	103	100
MB 320-117312/6	Method Blank	100	99	97

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: 320-19972-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Lab Sample ID: MB 320-117312/6

Matrix: Air

Analysis Batch: 117312

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			07/11/16 15:33	1
Benzene	ND		0.40		ppb v/v			07/11/16 15:33	1
Benzyl chloride	ND		0.80		ppb v/v			07/11/16 15:33	1
Bromodichloromethane	ND		0.30		ppb v/v			07/11/16 15:33	1
Bromoform	ND		0.40		ppb v/v			07/11/16 15:33	1
Bromomethane	ND		0.80		ppb v/v			07/11/16 15:33	1
2-Butanone (MEK)	ND		0.80		ppb v/v			07/11/16 15:33	1
Carbon disulfide	ND		0.80		ppb v/v			07/11/16 15:33	1
Carbon tetrachloride	ND		0.80		ppb v/v			07/11/16 15:33	1
Chlorobenzene	ND		0.30		ppb v/v			07/11/16 15:33	1
Dibromochloromethane	ND		0.40		ppb v/v			07/11/16 15:33	1
Chloroethane	ND		0.80		ppb v/v			07/11/16 15:33	1
Chloroform	ND		0.30		ppb v/v			07/11/16 15:33	1
Chloromethane	ND		0.80		ppb v/v			07/11/16 15:33	1
1,2-Dibromoethane (EDB)	ND		0.80		ppb v/v			07/11/16 15:33	1
1,2-Dichlorobenzene	ND		0.40		ppb v/v			07/11/16 15:33	1
1,3-Dichlorobenzene	ND		0.40		ppb v/v			07/11/16 15:33	1
1,4-Dichlorobenzene	ND		0.40		ppb v/v			07/11/16 15:33	1
Dichlorodifluoromethane	ND		0.40		ppb v/v			07/11/16 15:33	1
1,1-Dichloroethane	ND		0.30		ppb v/v			07/11/16 15:33	1
1,2-Dichloroethane	ND		0.80		ppb v/v			07/11/16 15:33	1
1,1-Dichloroethene	ND		0.80		ppb v/v			07/11/16 15:33	1
cis-1,2-Dichloroethene	ND		0.40		ppb v/v			07/11/16 15:33	1
trans-1,2-Dichloroethene	ND		0.40		ppb v/v			07/11/16 15:33	1
1,2-Dichloropropane	ND		0.40		ppb v/v			07/11/16 15:33	1
cis-1,3-Dichloropropene	ND		0.40		ppb v/v			07/11/16 15:33	1
trans-1,3-Dichloropropene	ND		0.40		ppb v/v			07/11/16 15:33	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40		ppb v/v			07/11/16 15:33	1
Ethylbenzene	ND		0.40		ppb v/v			07/11/16 15:33	1
4-Ethyltoluene	ND		0.40		ppb v/v			07/11/16 15:33	1
Hexachlorobutadiene	ND		2.0		ppb v/v			07/11/16 15:33	1
2-Hexanone	ND		0.40		ppb v/v			07/11/16 15:33	1
Methylene Chloride	ND		0.40		ppb v/v			07/11/16 15:33	1
4-Methyl-2-pentanone (MIBK)	ND		0.40		ppb v/v			07/11/16 15:33	1
Styrene	ND		0.40		ppb v/v			07/11/16 15:33	1
1,1,2,2-Tetrachloroethane	ND		0.40		ppb v/v			07/11/16 15:33	1
Tetrachloroethene	ND		0.40		ppb v/v			07/11/16 15:33	1
Toluene	ND		0.40		ppb v/v			07/11/16 15:33	1
1,2,4-Trichlorobenzene	ND		2.0		ppb v/v			07/11/16 15:33	1
1,1,1-Trichloroethane	ND		0.30		ppb v/v			07/11/16 15:33	1
1,1,2-Trichloroethane	ND		0.40		ppb v/v			07/11/16 15:33	1
Trichloroethene	ND		0.40		ppb v/v			07/11/16 15:33	1
Trichlorofluoromethane	ND		0.40		ppb v/v			07/11/16 15:33	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40		ppb v/v			07/11/16 15:33	1
1,2,4-Trimethylbenzene	ND		0.80		ppb v/v			07/11/16 15:33	1
1,3,5-Trimethylbenzene	ND		0.40		ppb v/v			07/11/16 15:33	1
Vinyl acetate	ND		0.80		ppb v/v			07/11/16 15:33	1
Vinyl chloride	ND		0.40		ppb v/v			07/11/16 15:33	1

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-19972-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-117312/6
Matrix: Air
Analysis Batch: 117312

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			07/11/16 15:33	1
o-Xylene	ND		0.40		ppb v/v			07/11/16 15:33	1
Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		12		ug/m3 Air			07/11/16 15:33	1
Benzene	ND		1.3		ug/m3 Air			07/11/16 15:33	1
Benzyl chloride	ND		4.1		ug/m3 Air			07/11/16 15:33	1
Bromodichloromethane	ND		2.0		ug/m3 Air			07/11/16 15:33	1
Bromoform	ND		4.1		ug/m3 Air			07/11/16 15:33	1
Bromomethane	ND		3.1		ug/m3 Air			07/11/16 15:33	1
2-Butanone (MEK)	ND		2.4		ug/m3 Air			07/11/16 15:33	1
Carbon disulfide	ND		2.5		ug/m3 Air			07/11/16 15:33	1
Carbon tetrachloride	ND		5.0		ug/m3 Air			07/11/16 15:33	1
Chlorobenzene	ND		1.4		ug/m3 Air			07/11/16 15:33	1
Dibromochloromethane	ND		3.4		ug/m3 Air			07/11/16 15:33	1
Chloroethane	ND		2.1		ug/m3 Air			07/11/16 15:33	1
Chloroform	ND		1.5		ug/m3 Air			07/11/16 15:33	1
Chloromethane	ND		1.7		ug/m3 Air			07/11/16 15:33	1
1,2-Dibromoethane (EDB)	ND		6.1		ug/m3 Air			07/11/16 15:33	1
1,2-Dichlorobenzene	ND		2.4		ug/m3 Air			07/11/16 15:33	1
1,3-Dichlorobenzene	ND		2.4		ug/m3 Air			07/11/16 15:33	1
1,4-Dichlorobenzene	ND		2.4		ug/m3 Air			07/11/16 15:33	1
Dichlorodifluoromethane	ND		2.0		ug/m3 Air			07/11/16 15:33	1
1,1-Dichloroethane	ND		1.2		ug/m3 Air			07/11/16 15:33	1
1,2-Dichloroethane	ND		3.2		ug/m3 Air			07/11/16 15:33	1
1,1-Dichloroethene	ND		3.2		ug/m3 Air			07/11/16 15:33	1
cis-1,2-Dichloroethene	ND		1.6		ug/m3 Air			07/11/16 15:33	1
trans-1,2-Dichloroethene	ND		1.6		ug/m3 Air			07/11/16 15:33	1
1,2-Dichloropropane	ND		1.8		ug/m3 Air			07/11/16 15:33	1
cis-1,3-Dichloropropene	ND		1.8		ug/m3 Air			07/11/16 15:33	1
trans-1,3-Dichloropropene	ND		1.8		ug/m3 Air			07/11/16 15:33	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.8		ug/m3 Air			07/11/16 15:33	1
Ethylbenzene	ND		1.7		ug/m3 Air			07/11/16 15:33	1
4-Ethyltoluene	ND		2.0		ug/m3 Air			07/11/16 15:33	1
Hexachlorobutadiene	ND		21		ug/m3 Air			07/11/16 15:33	1
2-Hexanone	ND		1.6		ug/m3 Air			07/11/16 15:33	1
Methylene Chloride	ND		1.4		ug/m3 Air			07/11/16 15:33	1
4-Methyl-2-pentanone (MIBK)	ND		1.6		ug/m3 Air			07/11/16 15:33	1
Styrene	ND		1.7		ug/m3 Air			07/11/16 15:33	1
1,1,2,2-Tetrachloroethane	ND		2.7		ug/m3 Air			07/11/16 15:33	1
Tetrachloroethene	ND		2.7		ug/m3 Air			07/11/16 15:33	1
Toluene	ND		1.5		ug/m3 Air			07/11/16 15:33	1
1,2,4-Trichlorobenzene	ND		15		ug/m3 Air			07/11/16 15:33	1
1,1,1-Trichloroethane	ND		1.6		ug/m3 Air			07/11/16 15:33	1
1,1,2-Trichloroethane	ND		2.2		ug/m3 Air			07/11/16 15:33	1
Trichloroethene	ND		2.1		ug/m3 Air			07/11/16 15:33	1
Trichlorofluoromethane	ND		2.2		ug/m3 Air			07/11/16 15:33	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.1		ug/m3 Air			07/11/16 15:33	1

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-19972-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 320-117312/6
Matrix: Air
Analysis Batch: 117312

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			07/11/16 15:33	1
1,3,5-Trimethylbenzene	ND		2.0		ug/m3 Air			07/11/16 15:33	1
Vinyl acetate	ND		2.8		ug/m3 Air			07/11/16 15:33	1
Vinyl chloride	ND		1.0		ug/m3 Air			07/11/16 15:33	1
m,p-Xylene	ND		3.5		ug/m3 Air			07/11/16 15:33	1
o-Xylene	ND		1.7		ug/m3 Air			07/11/16 15:33	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		70 - 130					07/11/16 15:33	1
1,2-Dichloroethane-d4 (Surr)	99		70 - 130					07/11/16 15:33	1
Toluene-d8 (Surr)	97		70 - 130					07/11/16 15:33	1

Lab Sample ID: LCS 320-117312/3
Matrix: Air
Analysis Batch: 117312

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	19.2		ppb v/v		96	71 - 131
Benzene	20.0	18.2		ppb v/v		91	68 - 128
Benzyl chloride	20.0	15.7		ppb v/v		78	58 - 120
Bromodichloromethane	20.0	18.5		ppb v/v		93	65 - 130
Bromoform	20.0	18.0		ppb v/v		90	64 - 144
Bromomethane	20.0	20.2		ppb v/v		101	70 - 131
2-Butanone (MEK)	20.0	17.9		ppb v/v		90	71 - 131
Carbon disulfide	20.0	17.6		ppb v/v		88	63 - 123
Carbon tetrachloride	20.0	18.1		ppb v/v		91	67 - 127
Chlorobenzene	20.0	18.4		ppb v/v		92	70 - 132
Dibromochloromethane	20.0	18.2		ppb v/v		91	68 - 128
Chloroethane	20.0	20.3		ppb v/v		102	70 - 131
Chloroform	20.0	18.3		ppb v/v		91	69 - 129
Chloromethane	20.0	19.5		ppb v/v		97	67 - 127
1,2-Dibromoethane (EDB)	20.0	18.7		ppb v/v		93	68 - 131
1,2-Dichlorobenzene	20.0	19.2		ppb v/v		96	73 - 143
1,3-Dichlorobenzene	20.0	19.8		ppb v/v		99	77 - 136
1,4-Dichlorobenzene	20.0	20.1		ppb v/v		101	73 - 143
Dichlorodifluoromethane	20.0	19.6		ppb v/v		98	69 - 129
1,1-Dichloroethane	20.0	18.2		ppb v/v		91	65 - 125
1,2-Dichloroethane	20.0	19.1		ppb v/v		95	71 - 131
1,1-Dichloroethene	20.0	17.1		ppb v/v		85	53 - 128
cis-1,2-Dichloroethene	20.0	17.8		ppb v/v		89	68 - 128
trans-1,2-Dichloroethene	20.0	18.4		ppb v/v		92	70 - 130
1,2-Dichloropropane	20.0	19.7		ppb v/v		99	74 - 128
cis-1,3-Dichloropropene	20.0	20.0		ppb v/v		100	78 - 132
trans-1,3-Dichloropropene	20.0	17.3		ppb v/v		86	56 - 136
1,2-Dichloro-1,1,2,2-tetrafluoroethane	20.0	18.8		ppb v/v		94	64 - 124
Ethylbenzene	20.0	18.2		ppb v/v		91	76 - 136
4-Ethyltoluene	20.0	17.7		ppb v/v		88	62 - 136

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-19972-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-117312/3

Matrix: Air

Analysis Batch: 117312

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	17.3		ppb v/v		86	42 - 150
2-Hexanone	20.0	18.4		ppb v/v		92	70 - 128
Methylene Chloride	20.0	17.1		ppb v/v		86	65 - 125
4-Methyl-2-pentanone (MIBK)	20.0	18.4		ppb v/v		92	73 - 133
Styrene	20.0	19.7		ppb v/v		99	76 - 144
1,1,2,2-Tetrachloroethane	20.0	18.7		ppb v/v		94	75 - 135
Tetrachloroethene	20.0	18.2		ppb v/v		91	56 - 138
Toluene	20.0	17.3		ppb v/v		87	71 - 132
1,2,4-Trichlorobenzene	20.0	21.4		ppb v/v		107	59 - 150
1,1,1-Trichloroethane	20.0	18.7		ppb v/v		93	65 - 124
1,1,2-Trichloroethane	20.0	18.8		ppb v/v		94	71 - 131
Trichloroethene	20.0	18.3		ppb v/v		92	64 - 127
Trichlorofluoromethane	20.0	19.4		ppb v/v		97	68 - 128
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	16.8		ppb v/v		84	50 - 132
1,2,4-Trimethylbenzene	20.0	18.9		ppb v/v		95	61 - 145
1,3,5-Trimethylbenzene	20.0	18.1		ppb v/v		91	65 - 136
Vinyl acetate	20.0	19.6		ppb v/v		98	77 - 134
Vinyl chloride	20.0	18.8		ppb v/v		94	69 - 129
m,p-Xylene	40.0	37.7		ppb v/v		94	75 - 138
o-Xylene	20.0	18.9		ppb v/v		95	77 - 132

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	48	45.7		ug/m3 Air		96	71 - 131
Benzene	64	58.0		ug/m3 Air		91	68 - 128
Benzyl chloride	100	81.0		ug/m3 Air		78	58 - 120
Bromodichloromethane	130	124		ug/m3 Air		93	65 - 130
Bromoform	210	186		ug/m3 Air		90	64 - 144
Bromomethane	78	78.3		ug/m3 Air		101	70 - 131
2-Butanone (MEK)	59	52.9		ug/m3 Air		90	71 - 131
Carbon disulfide	62	54.7		ug/m3 Air		88	63 - 123
Carbon tetrachloride	130	114		ug/m3 Air		91	67 - 127
Chlorobenzene	92	84.9		ug/m3 Air		92	70 - 132
Dibromochloromethane	170	155		ug/m3 Air		91	68 - 128
Chloroethane	53	53.6		ug/m3 Air		102	70 - 131
Chloroform	98	89.3		ug/m3 Air		91	69 - 129
Chloromethane	41	40.2		ug/m3 Air		97	67 - 127
1,2-Dibromoethane (EDB)	150	144		ug/m3 Air		93	68 - 131
1,2-Dichlorobenzene	120	116		ug/m3 Air		96	73 - 143
1,3-Dichlorobenzene	120	119		ug/m3 Air		99	77 - 136
1,4-Dichlorobenzene	120	121		ug/m3 Air		101	73 - 143
Dichlorodifluoromethane	99	96.9		ug/m3 Air		98	69 - 129
1,1-Dichloroethane	81	73.5		ug/m3 Air		91	65 - 125
1,2-Dichloroethane	81	77.2		ug/m3 Air		95	71 - 131
1,1-Dichloroethene	79	67.6		ug/m3 Air		85	53 - 128
cis-1,2-Dichloroethene	79	70.6		ug/m3 Air		89	68 - 128
trans-1,2-Dichloroethene	79	72.8		ug/m3 Air		92	70 - 130
1,2-Dichloropropane	92	91.2		ug/m3 Air		99	74 - 128

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-19972-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-117312/3

Matrix: Air

Analysis Batch: 117312

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	91.0		ug/m3 Air		100	78 - 132
trans-1,3-Dichloropropene	91	78.4		ug/m3 Air		86	56 - 136
1,2-Dichloro-1,1,2,2-tetrafluoroethane	140	132		ug/m3 Air		94	64 - 124
Ethylbenzene	87	79.2		ug/m3 Air		91	76 - 136
4-Ethyltoluene	98	86.9		ug/m3 Air		88	62 - 136
Hexachlorobutadiene	210	184		ug/m3 Air		86	42 - 150
2-Hexanone	82	75.4		ug/m3 Air		92	70 - 128
Methylene Chloride	69	59.5		ug/m3 Air		86	65 - 125
4-Methyl-2-pentanone (MIBK)	82	75.5		ug/m3 Air		92	73 - 133
Styrene	85	84.0		ug/m3 Air		99	76 - 144
1,1,2,2-Tetrachloroethane	140	129		ug/m3 Air		94	75 - 135
Tetrachloroethene	140	124		ug/m3 Air		91	56 - 138
Toluene	75	65.3		ug/m3 Air		87	71 - 132
1,2,4-Trichlorobenzene	150	159		ug/m3 Air		107	59 - 150
1,1,1-Trichloroethane	110	102		ug/m3 Air		93	65 - 124
1,1,2-Trichloroethane	110	103		ug/m3 Air		94	71 - 131
Trichloroethene	110	98.6		ug/m3 Air		92	64 - 127
Trichlorofluoromethane	110	109		ug/m3 Air		97	68 - 128
1,1,2-Trichloro-1,2,2-trifluoroethane	150	129		ug/m3 Air		84	50 - 132
1,2,4-Trimethylbenzene	98	92.9		ug/m3 Air		95	61 - 145
1,3,5-Trimethylbenzene	98	89.1		ug/m3 Air		91	65 - 136
Vinyl acetate	70	69.0		ug/m3 Air		98	77 - 134
Vinyl chloride	51	48.1		ug/m3 Air		94	69 - 129
m,p-Xylene	170	164		ug/m3 Air		94	75 - 138
o-Xylene	87	82.2		ug/m3 Air		95	77 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	107		70 - 130
1,2-Dichloroethane-d4 (Surr)	103		70 - 130
Toluene-d8 (Surr)	99		70 - 130

Lab Sample ID: LCSD 320-117312/4

Matrix: Air

Analysis Batch: 117312

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	2	25
Benzene	20.0	17.9		ppb v/v		89	68 - 128	2	25
Benzyl chloride	20.0	15.6		ppb v/v		78	58 - 120	0	25
Bromodichloromethane	20.0	18.4		ppb v/v		92	65 - 130	1	25
Bromoform	20.0	18.0		ppb v/v		90	64 - 144	0	25
Bromomethane	20.0	20.1		ppb v/v		101	70 - 131	0	25
2-Butanone (MEK)	20.0	17.9		ppb v/v		90	71 - 131	0	25
Carbon disulfide	20.0	17.5		ppb v/v		88	63 - 123	0	25
Carbon tetrachloride	20.0	18.0		ppb v/v		90	67 - 127	0	25
Chlorobenzene	20.0	18.4		ppb v/v		92	70 - 132	0	25

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-19972-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-117312/4

Matrix: Air

Analysis Batch: 117312

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	18.2		ppb v/v		91	68 - 128	0	25
Chloroethane	20.0	20.0		ppb v/v		100	70 - 131	2	25
Chloroform	20.0	18.2		ppb v/v		91	69 - 129	0	25
Chloromethane	20.0	18.9		ppb v/v		94	67 - 127	3	25
1,2-Dibromoethane (EDB)	20.0	18.6		ppb v/v		93	68 - 131	0	25
1,2-Dichlorobenzene	20.0	19.3		ppb v/v		97	73 - 143	1	25
1,3-Dichlorobenzene	20.0	19.7		ppb v/v		98	77 - 136	0	25
1,4-Dichlorobenzene	20.0	20.1		ppb v/v		100	73 - 143	0	25
Dichlorodifluoromethane	20.0	19.6		ppb v/v		98	69 - 129	0	25
1,1-Dichloroethane	20.0	18.0		ppb v/v		90	65 - 125	1	25
1,2-Dichloroethane	20.0	18.8		ppb v/v		94	71 - 131	2	25
1,1-Dichloroethene	20.0	16.9		ppb v/v		84	53 - 128	1	25
cis-1,2-Dichloroethene	20.0	17.7		ppb v/v		89	68 - 128	1	25
trans-1,2-Dichloroethene	20.0	18.2		ppb v/v		91	70 - 130	1	25
1,2-Dichloropropane	20.0	19.5		ppb v/v		97	74 - 128	1	25
cis-1,3-Dichloropropene	20.0	19.9		ppb v/v		100	78 - 132	1	25
trans-1,3-Dichloropropene	20.0	17.2		ppb v/v		86	56 - 136	1	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	20.0	18.8		ppb v/v		94	64 - 124	0	25
Ethylbenzene	20.0	18.1		ppb v/v		90	76 - 136	1	25
4-Ethyltoluene	20.0	18.3		ppb v/v		91	62 - 136	3	25
Hexachlorobutadiene	20.0	17.3		ppb v/v		86	42 - 150	0	25
2-Hexanone	20.0	18.2		ppb v/v		91	70 - 128	1	25
Methylene Chloride	20.0	16.9		ppb v/v		84	65 - 125	1	25
4-Methyl-2-pentanone (MIBK)	20.0	18.0		ppb v/v		90	73 - 133	2	25
Styrene	20.0	19.8		ppb v/v		99	76 - 144	0	25
1,1,2,2-Tetrachloroethane	20.0	18.7		ppb v/v		94	75 - 135	0	25
Tetrachloroethene	20.0	18.2		ppb v/v		91	56 - 138	0	25
Toluene	20.0	17.2		ppb v/v		86	71 - 132	1	25
1,2,4-Trichlorobenzene	20.0	21.2		ppb v/v		106	59 - 150	1	25
1,1,1-Trichloroethane	20.0	18.6		ppb v/v		93	65 - 124	0	25
1,1,2-Trichloroethane	20.0	18.6		ppb v/v		93	71 - 131	1	25
Trichloroethene	20.0	18.2		ppb v/v		91	64 - 127	1	25
Trichlorofluoromethane	20.0	19.5		ppb v/v		98	68 - 128	0	25
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	16.8		ppb v/v		84	50 - 132	0	25
1,2,4-Trimethylbenzene	20.0	17.1		ppb v/v		85	61 - 145	10	25
1,3,5-Trimethylbenzene	20.0	18.4		ppb v/v		92	65 - 136	1	25
Vinyl acetate	20.0	19.1		ppb v/v		96	77 - 134	2	25
Vinyl chloride	20.0	18.3		ppb v/v		92	69 - 129	2	25
m,p-Xylene	40.0	37.4		ppb v/v		93	75 - 138	1	25
o-Xylene	20.0	18.8		ppb v/v		94	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	2	25
Benzene	64	57.1		ug/m3 Air		89	68 - 128	2	25
Benzyl chloride	100	80.8		ug/m3 Air		78	58 - 120	0	25
Bromodichloromethane	130	123		ug/m3 Air		92	65 - 130	1	25
Bromoform	210	186		ug/m3 Air		90	64 - 144	0	25

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-19972-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-117312/4

Client Sample ID: Lab Control Sample Dup

Matrix: Air

Prep Type: Total/NA

Analysis Batch: 117312

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromomethane	78	78.2		ug/m3 Air		101	70 - 131	0	25
2-Butanone (MEK)	59	52.9		ug/m3 Air		90	71 - 131	0	25
Carbon disulfide	62	54.6		ug/m3 Air		88	63 - 123	0	25
Carbon tetrachloride	130	113		ug/m3 Air		90	67 - 127	0	25
Chlorobenzene	92	84.5		ug/m3 Air		92	70 - 132	0	25
Dibromochloromethane	170	155		ug/m3 Air		91	68 - 128	0	25
Chloroethane	53	52.7		ug/m3 Air		100	70 - 131	2	25
Chloroform	98	89.0		ug/m3 Air		91	69 - 129	0	25
Chloromethane	41	39.0		ug/m3 Air		94	67 - 127	3	25
1,2-Dibromoethane (EDB)	150	143		ug/m3 Air		93	68 - 131	0	25
1,2-Dichlorobenzene	120	116		ug/m3 Air		97	73 - 143	1	25
1,3-Dichlorobenzene	120	118		ug/m3 Air		98	77 - 136	0	25
1,4-Dichlorobenzene	120	121		ug/m3 Air		100	73 - 143	0	25
Dichlorodifluoromethane	99	96.8		ug/m3 Air		98	69 - 129	0	25
1,1-Dichloroethane	81	73.0		ug/m3 Air		90	65 - 125	1	25
1,2-Dichloroethane	81	75.9		ug/m3 Air		94	71 - 131	2	25
1,1-Dichloroethene	79	66.9		ug/m3 Air		84	53 - 128	1	25
cis-1,2-Dichloroethene	79	70.2		ug/m3 Air		89	68 - 128	1	25
trans-1,2-Dichloroethene	79	72.1		ug/m3 Air		91	70 - 130	1	25
1,2-Dichloropropane	92	89.9		ug/m3 Air		97	74 - 128	1	25
cis-1,3-Dichloropropene	91	90.4		ug/m3 Air		100	78 - 132	1	25
trans-1,3-Dichloropropene	91	77.9		ug/m3 Air		86	56 - 136	1	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	140	131		ug/m3 Air		94	64 - 124	0	25
Ethylbenzene	87	78.5		ug/m3 Air		90	76 - 136	1	25
4-Ethyltoluene	98	89.9		ug/m3 Air		91	62 - 136	3	25
Hexachlorobutadiene	210	184		ug/m3 Air		86	42 - 150	0	25
2-Hexanone	82	74.4		ug/m3 Air		91	70 - 128	1	25
Methylene Chloride	69	58.7		ug/m3 Air		84	65 - 125	1	25
4-Methyl-2-pentanone (MIBK)	82	73.8		ug/m3 Air		90	73 - 133	2	25
Styrene	85	84.2		ug/m3 Air		99	76 - 144	0	25
1,1,2,2-Tetrachloroethane	140	129		ug/m3 Air		94	75 - 135	0	25
Tetrachloroethene	140	124		ug/m3 Air		91	56 - 138	0	25
Toluene	75	64.9		ug/m3 Air		86	71 - 132	1	25
1,2,4-Trichlorobenzene	150	157		ug/m3 Air		106	59 - 150	1	25
1,1,1-Trichloroethane	110	102		ug/m3 Air		93	65 - 124	0	25
1,1,2-Trichloroethane	110	101		ug/m3 Air		93	71 - 131	1	25
Trichloroethene	110	98.0		ug/m3 Air		91	64 - 127	1	25
Trichlorofluoromethane	110	110		ug/m3 Air		98	68 - 128	0	25
1,1,2-Trichloro-1,2,2-trifluoroethane	150	129		ug/m3 Air		84	50 - 132	0	25
1,2,4-Trimethylbenzene	98	83.8		ug/m3 Air		85	61 - 145	10	25
1,3,5-Trimethylbenzene	98	90.3		ug/m3 Air		92	65 - 136	1	25
Vinyl acetate	70	67.4		ug/m3 Air		96	77 - 134	2	25
Vinyl chloride	51	46.9		ug/m3 Air		92	69 - 129	2	25
m,p-Xylene	170	162		ug/m3 Air		93	75 - 138	1	25
o-Xylene	87	81.8		ug/m3 Air		94	77 - 132	0	25

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-19972-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCSD 320-117312/4

Matrix: Air

Analysis Batch: 117312

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)	103		70 - 130
Toluene-d8 (Surr)	100		70 - 130

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QC Association Summary

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

TestAmerica Job ID: 320-19972-1

Air - GC/MS VOA

Analysis Batch: 117312

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-19972-1	SVE_NORTH_EFFLUENT_62816	Total/NA	Air	TO-15	
LCS 320-117312/3	Lab Control Sample	Total/NA	Air	TO-15	
LCSD 320-117312/4	Lab Control Sample Dup	Total/NA	Air	TO-15	
MB 320-117312/6	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: 320-19972-1

Client Sample ID: SVE_NORTH_EFFLUENT_62816

Lab Sample ID: 320-19972-1

Date Collected: 06/28/16 12:03

Matrix: Air

Date Received: 06/30/16 09:55

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		6.94	65 mL	250 mL	117312	07/11/16 20:03	AP1	TAL SAC

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

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Certification Summary

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

TestAmerica Job ID: 320-19972-1

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	01-31-17
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	06-17-17
California	State Program	9	2897	01-31-17
Colorado	State Program	8	CA00044	08-31-16
Connecticut	State Program	1	PH-0691	06-30-17
Florida	NELAP	4	E87570	06-30-17
Hawaii	State Program	9	N/A	01-31-17
Illinois	NELAP	5	200060	03-17-17
Kansas	NELAP	7	E-10375	07-31-16 *
Louisiana	NELAP	6	30612	06-30-17
Maine	State Program	1	CA0004	04-18-18
Michigan	State Program	5	9947	01-31-18
Nevada	State Program	9	CA00044	07-31-16 *
New Jersey	NELAP	2	CA005	06-30-17
New York	NELAP	2	11666	04-01-17
Oregon	NELAP	10	4040	01-29-17
Pennsylvania	NELAP	3	68-01272	03-31-17
Texas	NELAP	6	T104704399	07-31-17
US Fish & Wildlife	Federal		LE148388-0	10-31-16
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-16
Utah	NELAP	8	CA00044	02-28-17
Virginia	NELAP	3	460278	03-14-17
Washington	State Program	10	C581	05-05-17
West Virginia (DW)	State Program	3	9930C	12-31-16
Wyoming	State Program	8	8TMS-L	01-29-17

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.

Method Summary

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

TestAmerica Job ID: 320-19972-1

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: 320-19972-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-19972-1	SVE_NORTH_EFFLUENT_62816	Air	06/28/16 12:03	06/30/16 09:55

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Login Sample Receipt Checklist

Client: Apex Companies LLC

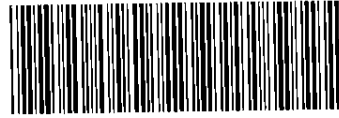
Job Number: 320-19972-1

Login Number: 19972
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.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	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	





320-18877 Chain of Custody

CANISTER QC CERTIFICATION

Certification Type: TO15 Scan

Date Cleaned/Batch ID 5/13/16 320-18877

Date of QC 5/16/2016

Data File Number C:\MSDCHEM\1\DATA\160516\

MS7 051619.d

CANISTER ID NUMBERS

<u>34800457 *</u>	<u>8251</u>	
<u>1521</u>	<u>7762</u>	
<u>1282</u>	<u>8445</u>	
<u>1584</u>	<u>7526</u>	
<u>1660</u>		
<u>0437</u>		
<u>1413</u>		
<u>0809</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:

5/17/16
Date:

[Signature]
2nd level Reviewed By:

5/17/16
Date:



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-18877-1
 SDG No.: _____
 Client Sample ID: 34000457 Lab Sample ID: 320-18877-1
 Matrix: Air Lab File ID: MS7051619.D
 Analysis Method: TO-15 Date Collected: 05/13/2016 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 05/17/2016 02:04
 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.: 110211 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	0.21	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: TestAmerica Sacramento Job No.: 320-18877-1
 SDG No.: _____
 Client Sample ID: 34000457 Lab Sample ID: 320-18877-1
 Matrix: Air Lab File ID: MS7051619.D
 Analysis Method: TO-15 Date Collected: 05/13/2016 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 05/17/2016 02:04
 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.: 110211 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.: 320-18877-1
 SDG No.: _____
 Client Sample ID: 34000457 Lab Sample ID: 320-18877-1
 Matrix: Air Lab File ID: MS7051619.D
 Analysis Method: TO-15 Date Collected: 05/13/2016 00:00
 Sample wt/vol: 500 (mL) Date Analyzed: 05/17/2016 02:04
 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.: 110211 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)	91		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	130		70-130
2037-26-5	Toluene-d8 (Surr)	117		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS7\20160516-30763.b\MS7051619.D
 Lims ID: 320-18877-A-1
 Client ID: 34000457
 Sample Type: Client
 Inject. Date: 17-May-2016 02:04:30 ALS Bottle#: 1 Worklist Smp#: 19
 Purge Vol: 5.000 mL Dil. Factor: 1.0000
 Sample Info: 320-18877-A-1
 Misc. Info.: 500 mL CAN CERT
 Operator ID: LHS Instrument ID: ATMS7
 Method: \\ChromNA\Sacramento\ChromData\ATMS7\20160516-30763.b\TO15_ATMS7N.m
 Limit Group: MSA - TO15 - ICAL
 Last Update: 17-May-2016 10:03:13 Calib Date: 15-Mar-2016 17:30:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS7\20160315-29097.b\MS7031422.D
 Column 1 : RTX Volatiles (0.32 mm) Det: MS SCAN
 Process Host: XAWRK049

First Level Reviewer: phanthasena

Date: 17-May-2016 16:52:42

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	12.378	12.360	0.018	93	49745	4.00	
* 2 1,4-Difluorobenzene	114	14.532	14.513	0.019	97	241348	4.00	
* 3 Chlorobenzene-d5 (IS)	117	21.211	21.187	0.024	93	252237	4.00	
\$ 4 1,2-Dichloroethane-d4 (Surr)	65	13.583	13.564	0.019	98	110625	5.19	
\$ 5 Toluene-d8 (Surr)	100	17.939	17.920	0.019	96	181041	4.67	
\$ 6 4-Bromofluorobenzene (Surr)	95	23.754	23.730	0.024	85	147634	3.62	
11 Propene	41	3.898	3.873	0.025	73	1286	0.0947	
32 Acetone	43	7.493	7.389	0.104	6	5292	0.1627	
39 Methylene Chloride	49	8.789	8.776	0.013	1	1519	0.0668	
40 Carbon disulfide	76	8.862	8.831	0.031	97	9749	0.2089	

Reagents:

VASUISIM_00292 Amount Added: 50.00 Units: mL Run Reagent

Data File: \\ChromNA\Sacramento\ChromData\ATMS7\20160516-30763.b\MS7051619.D

Injection Date: 17-May-2016 02:04:30

Instrument ID: ATMS7

Operator ID: LHS

Lims ID: 320-18877-A-1

Lab Sample ID: 320-18877-1

Worklist Smp#: 19

Client ID: 34000457

Purge Vol: 5.000 mL

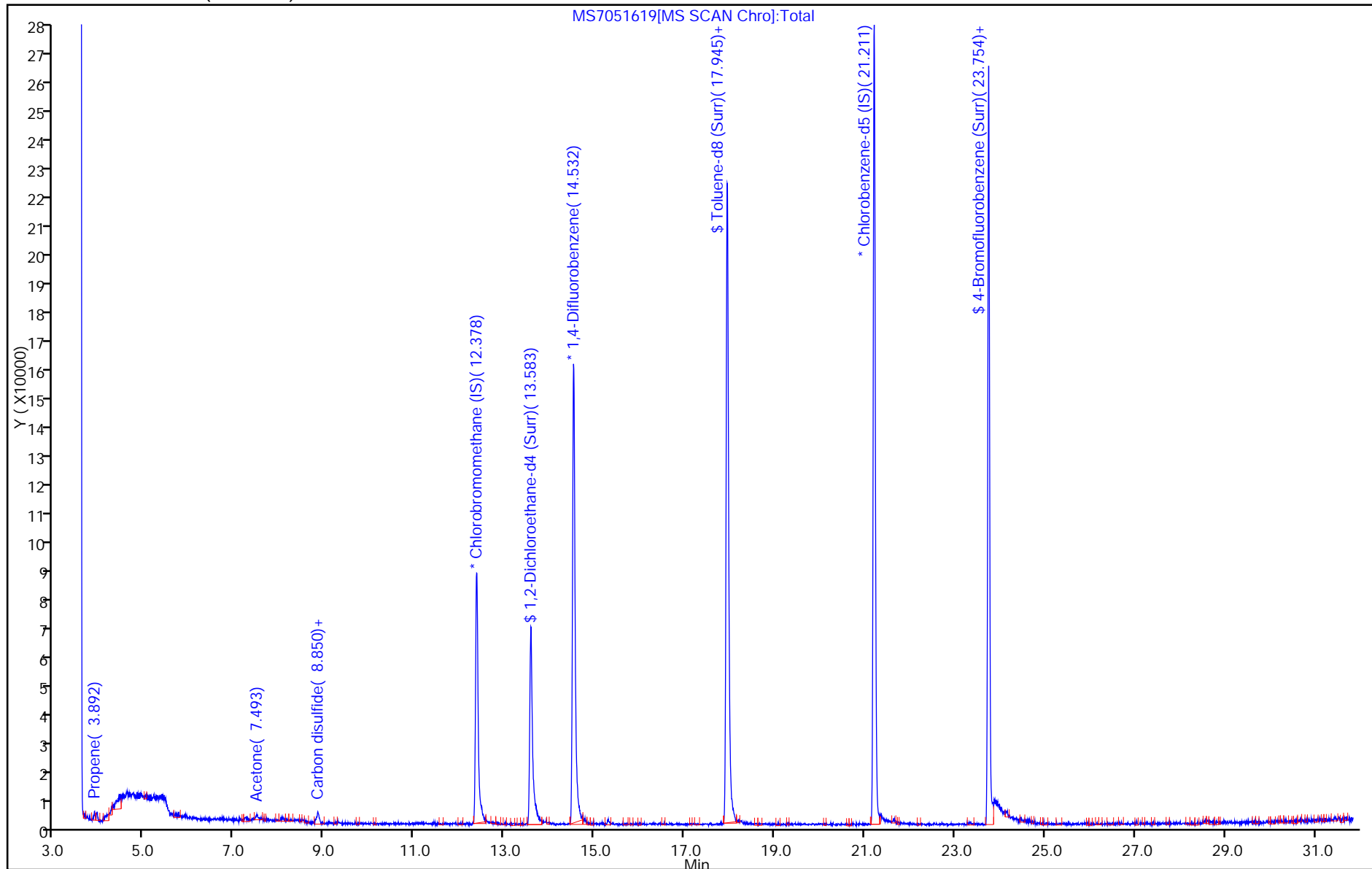
Dil. Factor: 1.0000

ALS Bottle#: 1

Method: TO15_ATMS7N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS7\20160516-30763.b\MS7051619.D

Injection Date: 17-May-2016 02:04:30

Instrument ID: ATMS7

Lims ID: 320-18877-A-1

Lab Sample ID: 320-18877-1

Client ID: 34000457

Operator ID: LHS

ALS Bottle#: 1 Worklist Smp#: 19

Purge Vol: 5.000 mL

Dil. Factor: 1.0000

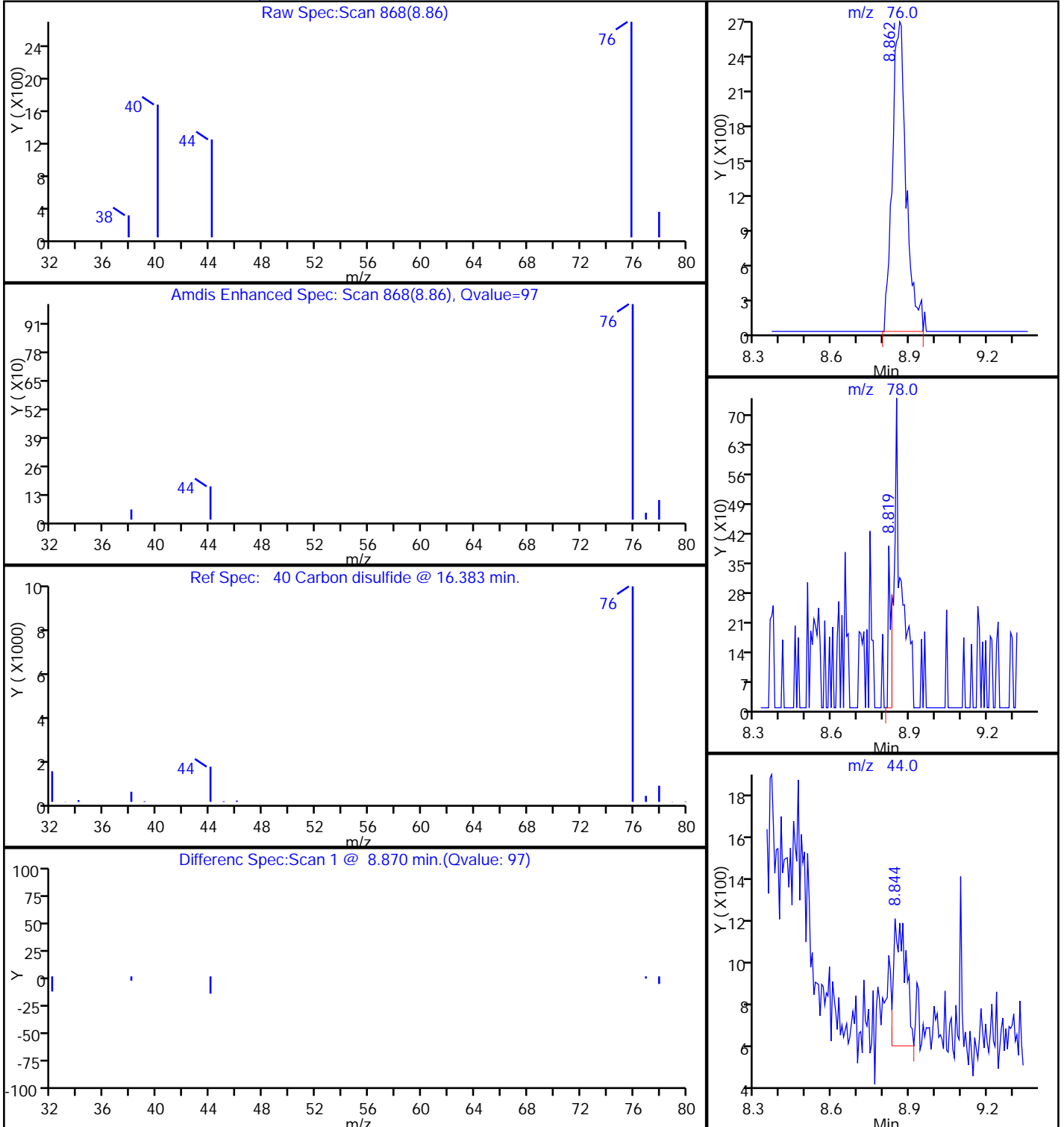
Method: TO15_ATMS7N

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Detector: MS SCAN

40 Carbon disulfide, CAS: 75-15-0



March 22, 2016

Stephanie Bosze-Salisbury
Apex Companies, LLC
3015 SW First Avenue
Portland, OR 97201

RE: Project: NuStar Vancouver GWM
Pace Project No.: 1262435

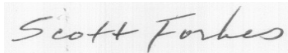
Dear Stephanie Bosze-Salisbury:

Enclosed are the analytical results for sample(s) received by the laboratory on March 11, 2016. 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

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.: 1262435

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414

525 N 8th Street, Salina, KS 67401

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

Virginia/VELAP Certification #: Pace

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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Lab ID	Sample ID	Matrix	Date Collected	Date Received
1262435001	MW-1	Water	03/07/16 13:03	03/11/16 11:45
1262435002	MW-6	Water	03/07/16 13:35	03/11/16 11:45
1262435003	MW-2	Water	03/07/16 13:56	03/11/16 11:45
1262435004	MW-10	Water	03/07/16 14:20	03/11/16 11:45
1262435005	MW-3	Water	03/07/16 14:45	03/11/16 11:45
1262435006	MW-20i	Water	03/08/16 13:55	03/11/16 11:45
1262435007	MW-12	Water	03/08/16 08:00	03/11/16 11:45
1262435008	MW-12 DUP	Water	03/08/16 08:00	03/11/16 11:45
1262435009	MW-19	Water	03/08/16 08:35	03/11/16 11:45
1262435010	MW-19 DUP	Water	03/08/16 08:35	03/11/16 11:45
1262435011	MW-13	Water	03/08/16 09:00	03/11/16 11:45
1262435012	MP-17	Water	03/08/16 12:00	03/11/16 11:45
1262435013	MW-26	Water	03/08/16 09:50	03/11/16 11:45
1262435014	MW-14	Water	03/08/16 10:12	03/11/16 11:45
1262435015	MW-23i	Water	03/08/16 10:32	03/11/16 11:45
1262435016	MW-8	Water	03/08/16 11:05	03/11/16 11:45
1262435017	EW-1	Water	03/08/16 11:25	03/11/16 11:45
1262435018	EX	Water	03/08/16 11:50	03/11/16 11:45
1262435019	MW-9	Water	03/08/16 12:18	03/11/16 11:45
1262435020	MW-5	Water	03/08/16 12:40	03/11/16 11:45
1262435021	MW-15	Water	03/08/16 13:05	03/11/16 11:45
1262435022	MW-19i	Water	03/08/16 13:30	03/11/16 11:45
1262435023	MW-21i-105	Water	03/08/16 14:25	03/11/16 11:45
1262435024	MP-1	Water	03/08/16 14:55	03/11/16 11:45
1262435025	MW-24i	Water	03/08/16 10:54	03/11/16 11:45
1262435026	MW-18i	Water	03/09/16 10:26	03/11/16 11:45
1262435027	MW-22i	Water	03/09/16 09:08	03/11/16 11:45
1262435028	MW-21i-40	Water	03/09/16 09:33	03/11/16 11:45
1262435029	S-1	Water	03/09/16 07:58	03/11/16 11:45
1262435030	MW-25i	Water	03/09/16 08:40	03/11/16 11:45
1262435031	MW-25i DUP	Water	03/09/16 08:40	03/11/16 11:45
1262435032	MGMS3-60	Water	03/09/16 14:25	03/11/16 11:45
1262435033	MGMS3-101	Water	03/09/16 14:10	03/11/16 11:45
1262435034	MGMS3-132	Water	03/09/16 13:56	03/11/16 11:45
1262435035	MGMS2-110	Water	03/09/16 13:30	03/11/16 11:45
1262435036	MGMS2-132	Water	03/09/16 13:18	03/11/16 11:45
1262435037	MGMS2-40	Water	03/09/16 12:57	03/11/16 11:45

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SAMPLE SUMMARY

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Lab ID	Sample ID	Matrix	Date Collected	Date Received
1262435038	MGMS1-60	Water	03/09/16 12:40	03/11/16 11:45
1262435039	MW-24d	Water	03/09/16 11:30	03/11/16 11:45
1262435040	MGMS1-43	Water	03/09/16 12:20	03/11/16 11:45
1262435041	MGMS3-40	Water	03/09/16 14:38	03/11/16 11:45
1262435042	MGMS3-40 DUP	Water	03/09/16 14:38	03/11/16 11:45
1262435043	Field Blank	Water	03/09/16 15:10	03/11/16 11:45
1262435044	Equipment Blank	Water	03/09/16 15:00	03/11/16 11:45
1262435045	PW030316 (Trip Blank)	Water	03/09/16 00:00	03/11/16 11:45

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: NuStar Vancouver GWM
Pace Project No.: 1262435

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
1262435001	MW-1	EPA 8260B	JCP	31	PASI-DAV
1262435002	MW-6	EPA 8260B	JCP	31	PASI-DAV
1262435003	MW-2	EPA 8260B	JCP	31	PASI-DAV
1262435004	MW-10	EPA 8260B	JMB	31	PASI-DAV
1262435005	MW-3	EPA 8260B	JMB	31	PASI-DAV
1262435006	MW-20i	EPA 8260B	JMB	31	PASI-DAV
1262435007	MW-12	RSK 175	MLS	3	PASI-M
		EPA 8260B	JCP	31	PASI-DAV
1262435008	MW-12 DUP	EPA 8260B	JCP	31	PASI-DAV
1262435009	MW-19	EPA 8260B	JCP, JMB	31	PASI-DAV
1262435010	MW-19 DUP	EPA 8260B	JCP, JMB	31	PASI-DAV
1262435011	MW-13	EPA 8260B	JCP, JMB	31	PASI-DAV
1262435012	MP-17	EPA 8260B	JMB	31	PASI-DAV
1262435013	MW-26	EPA 8260B	JMB	31	PASI-DAV
1262435014	MW-14	EPA 8260B	JCP	31	PASI-DAV
1262435015	MW-23i	EPA 8260B	JMB	31	PASI-DAV
1262435016	MW-8	EPA 8260B	JMB	31	PASI-DAV
1262435017	EW-1	EPA 8260B	JMB	31	PASI-DAV
1262435018	EX	RSK 175	MLS	3	PASI-M
		EPA 8260B	JMB	31	PASI-DAV
1262435019	MW-9	EPA 8260B	JMB	31	PASI-DAV
1262435020	MW-5	EPA 8260B	JMB	31	PASI-DAV
1262435021	MW-15	EPA 8260B	JMB	31	PASI-DAV
1262435022	MW-19i	EPA 8260B	JMB	31	PASI-DAV
1262435023	MW-21i-105	EPA 8260B	JMB	31	PASI-DAV
1262435024	MP-1	RSK 175	MLS	3	PASI-M
		EPA 8260B	JMB	31	PASI-DAV
1262435025	MW-24i	RSK 175	MLS	3	PASI-M
		EPA 8260B	JMB	31	PASI-DAV
1262435026	MW-18i	EPA 8260B	JMB	31	PASI-DAV
1262435027	MW-22i	EPA 8260B	JMB	31	PASI-DAV
1262435028	MW-21i-40	EPA 8260B	JMB	31	PASI-DAV
1262435029	S-1	EPA 8260B	JMB	31	PASI-DAV
1262435030	MW-25i	EPA 8260B	JMB	31	PASI-DAV
1262435031	MW-25i DUP	EPA 8260B	JMB	31	PASI-DAV
1262435032	MGMS3-60	EPA 8260B	JMB	31	PASI-DAV
1262435033	MGMS3-101	EPA 8260B	JMB	31	PASI-DAV

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: NuStar Vancouver GWM
Pace Project No.: 1262435

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
1262435034	MGMS3-132	EPA 8260B	JMB	31	PASI-DAV
1262435035	MGMS2-110	EPA 8260B	JMB	31	PASI-DAV
1262435036	MGMS2-132	EPA 8260B	JMB	31	PASI-DAV
1262435037	MGMS2-40	RSK 175	MLS	3	PASI-M
		EPA 8260B	JMB	31	PASI-DAV
1262435038	MGMS1-60	EPA 8260B	JMB	31	PASI-DAV
1262435039	MW-24d	EPA 8260B	JMB	31	PASI-DAV
1262435040	MGMS1-43	EPA 8260B	JMB	31	PASI-DAV
1262435041	MGMS3-40	EPA 8260B	JMB	31	PASI-DAV
1262435042	MGMS3-40 DUP	EPA 8260B	JMB	31	PASI-DAV
1262435043	Field Blank	EPA 8260B	JMB	31	PASI-DAV
1262435044	Equipment Blank	EPA 8260B	JMB	31	PASI-DAV
1262435045	PW030316 (Trip Blank)	EPA 8260B	JMB	31	PASI-DAV

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MW-1	Lab ID: 1262435001	Collected: 03/07/16 13:03	Received: 03/11/16 11:45	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		03/15/16 02:10	75-27-4	
Bromoform	ND	ug/L	0.50	1		03/15/16 02:10	75-25-2	
Bromomethane	ND	ug/L	20.0	1		03/15/16 02:10	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		03/15/16 02:10	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		03/15/16 02:10	108-90-7	
Chloroethane	ND	ug/L	2.0	1		03/15/16 02:10	75-00-3	
Chloroform	ND	ug/L	0.50	1		03/15/16 02:10	67-66-3	
Chloromethane	ND	ug/L	2.0	1		03/15/16 02:10	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		03/15/16 02:10	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 02:10	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 02:10	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 02:10	106-46-7	
1,1-Dichloroethane	4.4	ug/L	0.50	1		03/15/16 02:10	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		03/15/16 02:10	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		03/15/16 02:10	75-35-4	
cis-1,2-Dichloroethene	51.9	ug/L	0.50	1		03/15/16 02:10	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/15/16 02:10	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		03/15/16 02:10	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 02:10	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 02:10	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		03/15/16 02:10	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/15/16 02:10	79-34-5	
Tetrachloroethene	18.0	ug/L	0.50	1		03/15/16 02:10	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		03/15/16 02:10	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/15/16 02:10	79-00-5	
Trichloroethene	10.3	ug/L	0.50	1		03/15/16 02:10	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		03/15/16 02:10	75-69-4	
Vinyl chloride	0.57	ug/L	0.50	1		03/15/16 02:10	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	130	%.	70-130	1		03/15/16 02:10	17060-07-0	
Toluene-d8 (S)	101	%.	70-130	1		03/15/16 02:10	2037-26-5	
4-Bromofluorobenzene (S)	96	%.	70-130	1		03/15/16 02:10	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MW-6	Lab ID: 1262435002	Collected: 03/07/16 13:35	Received: 03/11/16 11:45	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		03/14/16 18:49	75-27-4	
Bromoform	ND	ug/L	0.50	1		03/14/16 18:49	75-25-2	
Bromomethane	ND	ug/L	20.0	1		03/14/16 18:49	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		03/14/16 18:49	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		03/14/16 18:49	108-90-7	
Chloroethane	ND	ug/L	2.0	1		03/14/16 18:49	75-00-3	
Chloroform	ND	ug/L	0.50	1		03/14/16 18:49	67-66-3	
Chloromethane	ND	ug/L	2.0	1		03/14/16 18:49	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		03/14/16 18:49	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/14/16 18:49	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/14/16 18:49	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/14/16 18:49	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		03/14/16 18:49	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		03/14/16 18:49	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		03/14/16 18:49	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		03/14/16 18:49	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/14/16 18:49	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		03/14/16 18:49	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/14/16 18:49	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/14/16 18:49	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		03/14/16 18:49	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/14/16 18:49	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		03/14/16 18:49	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		03/14/16 18:49	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/14/16 18:49	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		03/14/16 18:49	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		03/14/16 18:49	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		03/14/16 18:49	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	109	%.	70-130	1		03/14/16 18:49	17060-07-0	
Toluene-d8 (S)	101	%.	70-130	1		03/14/16 18:49	2037-26-5	
4-Bromofluorobenzene (S)	96	%.	70-130	1		03/14/16 18:49	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MW-2		Lab ID: 1262435003		Collected: 03/07/16 13:56		Received: 03/11/16 11:45		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		03/15/16 02:30	75-27-4		
Bromoform	ND	ug/L	0.50	1		03/15/16 02:30	75-25-2		
Bromomethane	ND	ug/L	20.0	1		03/15/16 02:30	74-83-9		
Carbon tetrachloride	ND	ug/L	0.50	1		03/15/16 02:30	56-23-5		
Chlorobenzene	ND	ug/L	0.50	1		03/15/16 02:30	108-90-7		
Chloroethane	ND	ug/L	2.0	1		03/15/16 02:30	75-00-3		
Chloroform	ND	ug/L	0.50	1		03/15/16 02:30	67-66-3		
Chloromethane	ND	ug/L	2.0	1		03/15/16 02:30	74-87-3		
Dibromochloromethane	ND	ug/L	0.50	1		03/15/16 02:30	124-48-1		
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 02:30	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 02:30	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 02:30	106-46-7		
1,1-Dichloroethane	ND	ug/L	0.50	1		03/15/16 02:30	75-34-3		
1,2-Dichloroethane	ND	ug/L	0.50	1		03/15/16 02:30	107-06-2		
1,1-Dichloroethene	ND	ug/L	0.50	1		03/15/16 02:30	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		03/15/16 02:30	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/15/16 02:30	156-60-5		
1,2-Dichloropropane	ND	ug/L	0.50	1		03/15/16 02:30	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 02:30	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 02:30	10061-02-6		
Methylene Chloride	ND	ug/L	5.0	1		03/15/16 02:30	75-09-2		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/15/16 02:30	79-34-5		
Tetrachloroethene	ND	ug/L	0.50	1		03/15/16 02:30	127-18-4		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		03/15/16 02:30	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/15/16 02:30	79-00-5		
Trichloroethene	ND	ug/L	0.50	1		03/15/16 02:30	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		03/15/16 02:30	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		03/15/16 02:30	75-01-4		
Surrogates									
1,2-Dichloroethane-d4 (S)	128	%.	70-130	1		03/15/16 02:30	17060-07-0		
Toluene-d8 (S)	102	%.	70-130	1		03/15/16 02:30	2037-26-5		
4-Bromofluorobenzene (S)	96	%.	70-130	1		03/15/16 02:30	460-00-4		

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MW-10	Lab ID: 1262435004	Collected: 03/07/16 14:20	Received: 03/11/16 11:45	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		03/15/16 08:32	75-27-4	
Bromoform	ND	ug/L	0.50	1		03/15/16 08:32	75-25-2	
Bromomethane	ND	ug/L	20.0	1		03/15/16 08:32	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		03/15/16 08:32	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		03/15/16 08:32	108-90-7	
Chloroethane	ND	ug/L	2.0	1		03/15/16 08:32	75-00-3	
Chloroform	ND	ug/L	0.50	1		03/15/16 08:32	67-66-3	
Chloromethane	ND	ug/L	0.50	1		03/15/16 08:32	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		03/15/16 08:32	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 08:32	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 08:32	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 08:32	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		03/15/16 08:32	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		03/15/16 08:32	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		03/15/16 08:32	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		03/15/16 08:32	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/15/16 08:32	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		03/15/16 08:32	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 08:32	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 08:32	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		03/15/16 08:32	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/15/16 08:32	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		03/15/16 08:32	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		03/15/16 08:32	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/15/16 08:32	79-00-5	
Trichloroethene	0.98	ug/L	0.50	1		03/15/16 08:32	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		03/15/16 08:32	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		03/15/16 08:32	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	123	%	70-130	1		03/15/16 08:32	17060-07-0	
Toluene-d8 (S)	100	%	70-130	1		03/15/16 08:32	2037-26-5	
4-Bromofluorobenzene (S)	89	%	70-130	1		03/15/16 08:32	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MW-3		Lab ID: 1262435005		Collected: 03/07/16 14:45		Received: 03/11/16 11:45		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		03/15/16 10:11	75-27-4		
Bromoform	ND	ug/L	0.50	1		03/15/16 10:11	75-25-2		
Bromomethane	ND	ug/L	20.0	1		03/15/16 10:11	74-83-9		
Carbon tetrachloride	ND	ug/L	0.50	1		03/15/16 10:11	56-23-5		
Chlorobenzene	ND	ug/L	0.50	1		03/15/16 10:11	108-90-7		
Chloroethane	ND	ug/L	2.0	1		03/15/16 10:11	75-00-3		
Chloroform	0.76	ug/L	0.50	1		03/15/16 10:11	67-66-3		
Chloromethane	ND	ug/L	0.50	1		03/15/16 10:11	74-87-3		
Dibromochloromethane	ND	ug/L	0.50	1		03/15/16 10:11	124-48-1		
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 10:11	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 10:11	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 10:11	106-46-7		
1,1-Dichloroethane	2.2	ug/L	0.50	1		03/15/16 10:11	75-34-3		
1,2-Dichloroethane	ND	ug/L	0.50	1		03/15/16 10:11	107-06-2		
1,1-Dichloroethene	ND	ug/L	0.50	1		03/15/16 10:11	75-35-4		
cis-1,2-Dichloroethene	61.8	ug/L	0.50	1		03/15/16 10:11	156-59-2		
trans-1,2-Dichloroethene	2.5	ug/L	0.50	1		03/15/16 10:11	156-60-5		
1,2-Dichloropropane	1.3	ug/L	0.50	1		03/15/16 10:11	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 10:11	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 10:11	10061-02-6		
Methylene Chloride	ND	ug/L	5.0	1		03/15/16 10:11	75-09-2		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/15/16 10:11	79-34-5		
Tetrachloroethene	199	ug/L	0.50	1		03/15/16 10:11	127-18-4		
1,1,1-Trichloroethane	3.6	ug/L	0.50	1		03/15/16 10:11	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/15/16 10:11	79-00-5		
Trichloroethene	45.1	ug/L	0.50	1		03/15/16 10:11	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		03/15/16 10:11	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		03/15/16 10:11	75-01-4		
Surrogates									
1,2-Dichloroethane-d4 (S)	124	%.	70-130	1		03/15/16 10:11	17060-07-0		
Toluene-d8 (S)	96	%.	70-130	1		03/15/16 10:11	2037-26-5		
4-Bromofluorobenzene (S)	91	%.	70-130	1		03/15/16 10:11	460-00-4		

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MW-20i	Lab ID: 1262435006	Collected: 03/08/16 13:55	Received: 03/11/16 11:45	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		03/15/16 10:36	75-27-4	
Bromoform	ND	ug/L	0.50	1		03/15/16 10:36	75-25-2	
Bromomethane	ND	ug/L	20.0	1		03/15/16 10:36	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		03/15/16 10:36	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		03/15/16 10:36	108-90-7	
Chloroethane	ND	ug/L	2.0	1		03/15/16 10:36	75-00-3	
Chloroform	ND	ug/L	0.50	1		03/15/16 10:36	67-66-3	
Chloromethane	ND	ug/L	0.50	1		03/15/16 10:36	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		03/15/16 10:36	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 10:36	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 10:36	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 10:36	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		03/15/16 10:36	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		03/15/16 10:36	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		03/15/16 10:36	75-35-4	
cis-1,2-Dichloroethene	6.8	ug/L	0.50	1		03/15/16 10:36	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/15/16 10:36	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		03/15/16 10:36	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 10:36	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 10:36	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		03/15/16 10:36	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/15/16 10:36	79-34-5	
Tetrachloroethene	3.4	ug/L	0.50	1		03/15/16 10:36	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		03/15/16 10:36	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/15/16 10:36	79-00-5	
Trichloroethene	1.8	ug/L	0.50	1		03/15/16 10:36	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		03/15/16 10:36	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		03/15/16 10:36	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	126	%.	70-130	1		03/15/16 10:36	17060-07-0	
Toluene-d8 (S)	99	%.	70-130	1		03/15/16 10:36	2037-26-5	
4-Bromofluorobenzene (S)	92	%.	70-130	1		03/15/16 10:36	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MW-12	Lab ID: 1262435007	Collected: 03/08/16 08:00	Received: 03/11/16 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace		Analytical Method: RSK 175						
Ethane	34.2	ug/L	10.0	1		03/14/16 15:31	74-84-0	
Ethene	ND	ug/L	10.0	1		03/14/16 15:31	74-85-1	
Methane	996	ug/L	10.0	1		03/14/16 15:31	74-82-8	
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	3.6	7.14		03/18/16 15:15	75-27-4	
Bromoform	ND	ug/L	3.6	7.14		03/18/16 15:15	75-25-2	
Bromomethane	ND	ug/L	143	7.14		03/18/16 15:15	74-83-9	
Carbon tetrachloride	ND	ug/L	3.6	7.14		03/18/16 15:15	56-23-5	
Chlorobenzene	ND	ug/L	3.6	7.14		03/18/16 15:15	108-90-7	
Chloroethane	ND	ug/L	14.3	7.14		03/18/16 15:15	75-00-3	
Chloroform	ND	ug/L	3.6	7.14		03/18/16 15:15	67-66-3	
Chloromethane	ND	ug/L	14.3	7.14		03/18/16 15:15	74-87-3	
Dibromochloromethane	ND	ug/L	3.6	7.14		03/18/16 15:15	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	3.6	7.14		03/18/16 15:15	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	3.6	7.14		03/18/16 15:15	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	3.6	7.14		03/18/16 15:15	106-46-7	
1,1-Dichloroethane	79.9	ug/L	3.6	7.14		03/18/16 15:15	75-34-3	
1,2-Dichloroethane	ND	ug/L	3.6	7.14		03/18/16 15:15	107-06-2	
1,1-Dichloroethene	15.4	ug/L	3.6	7.14		03/18/16 15:15	75-35-4	
cis-1,2-Dichloroethene	1380	ug/L	3.6	7.14		03/18/16 15:15	156-59-2	
trans-1,2-Dichloroethene	16.2	ug/L	3.6	7.14		03/18/16 15:15	156-60-5	
1,2-Dichloropropane	ND	ug/L	3.6	7.14		03/18/16 15:15	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	3.6	7.14		03/18/16 15:15	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	3.6	7.14		03/18/16 15:15	10061-02-6	
Methylene Chloride	ND	ug/L	35.7	7.14		03/18/16 15:15	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	3.6	7.14		03/18/16 15:15	79-34-5	
Tetrachloroethene	325	ug/L	3.6	7.14		03/18/16 15:15	127-18-4	
1,1,1-Trichloroethane	7.7	ug/L	3.6	7.14		03/18/16 15:15	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	3.6	7.14		03/18/16 15:15	79-00-5	
Trichloroethene	209	ug/L	3.6	7.14		03/18/16 15:15	79-01-6	
Trichlorofluoromethane	ND	ug/L	3.6	7.14		03/18/16 15:15	75-69-4	
Vinyl chloride	21.3	ug/L	3.6	7.14		03/18/16 15:15	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	99	%	70-130	7.14		03/18/16 15:15	17060-07-0	
Toluene-d8 (S)	101	%	70-130	7.14		03/18/16 15:15	2037-26-5	
4-Bromofluorobenzene (S)	98	%	70-130	7.14		03/18/16 15:15	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM
Pace Project No.: 1262435

Sample: MW-12 DUP	Lab ID: 1262435008	Collected: 03/08/16 08:00	Received: 03/11/16 11:45	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	3.6	7.14		03/18/16 15:35	75-27-4	
Bromoform	ND	ug/L	3.6	7.14		03/18/16 15:35	75-25-2	
Bromomethane	ND	ug/L	143	7.14		03/18/16 15:35	74-83-9	
Carbon tetrachloride	ND	ug/L	3.6	7.14		03/18/16 15:35	56-23-5	
Chlorobenzene	ND	ug/L	3.6	7.14		03/18/16 15:35	108-90-7	
Chloroethane	ND	ug/L	14.3	7.14		03/18/16 15:35	75-00-3	
Chloroform	ND	ug/L	3.6	7.14		03/18/16 15:35	67-66-3	
Chloromethane	ND	ug/L	14.3	7.14		03/18/16 15:35	74-87-3	
Dibromochloromethane	ND	ug/L	3.6	7.14		03/18/16 15:35	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	3.6	7.14		03/18/16 15:35	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	3.6	7.14		03/18/16 15:35	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	3.6	7.14		03/18/16 15:35	106-46-7	
1,1-Dichloroethane	82.0	ug/L	3.6	7.14		03/18/16 15:35	75-34-3	
1,2-Dichloroethane	ND	ug/L	3.6	7.14		03/18/16 15:35	107-06-2	
1,1-Dichloroethene	16.6	ug/L	3.6	7.14		03/18/16 15:35	75-35-4	
cis-1,2-Dichloroethene	1390	ug/L	3.6	7.14		03/18/16 15:35	156-59-2	
trans-1,2-Dichloroethene	15.6	ug/L	3.6	7.14		03/18/16 15:35	156-60-5	
1,2-Dichloropropane	ND	ug/L	3.6	7.14		03/18/16 15:35	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	3.6	7.14		03/18/16 15:35	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	3.6	7.14		03/18/16 15:35	10061-02-6	
Methylene Chloride	ND	ug/L	35.7	7.14		03/18/16 15:35	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	3.6	7.14		03/18/16 15:35	79-34-5	
Tetrachloroethene	336	ug/L	3.6	7.14		03/18/16 15:35	127-18-4	
1,1,1-Trichloroethane	7.7	ug/L	3.6	7.14		03/18/16 15:35	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	3.6	7.14		03/18/16 15:35	79-00-5	
Trichloroethene	210	ug/L	3.6	7.14		03/18/16 15:35	79-01-6	
Trichlorofluoromethane	ND	ug/L	3.6	7.14		03/18/16 15:35	75-69-4	
Vinyl chloride	21.2	ug/L	3.6	7.14		03/18/16 15:35	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	100	%	70-130	7.14		03/18/16 15:35	17060-07-0	
Toluene-d8 (S)	100	%	70-130	7.14		03/18/16 15:35	2037-26-5	
4-Bromofluorobenzene (S)	98	%	70-130	7.14		03/18/16 15:35	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MW-19	Lab ID: 1262435009	Collected: 03/08/16 08:35	Received: 03/11/16 11:45	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		03/18/16 15:55	75-27-4	
Bromoform	ND	ug/L	10.0	20		03/18/16 15:55	75-25-2	
Bromomethane	ND	ug/L	400	20		03/18/16 15:55	74-83-9	
Carbon tetrachloride	ND	ug/L	10.0	20		03/18/16 15:55	56-23-5	
Chlorobenzene	ND	ug/L	10.0	20		03/18/16 15:55	108-90-7	
Chloroethane	ND	ug/L	40.0	20		03/18/16 15:55	75-00-3	
Chloroform	ND	ug/L	10.0	20		03/18/16 15:55	67-66-3	
Chloromethane	ND	ug/L	40.0	20		03/18/16 15:55	74-87-3	
Dibromochloromethane	ND	ug/L	10.0	20		03/18/16 15:55	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	10.0	20		03/18/16 15:55	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	10.0	20		03/18/16 15:55	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	10.0	20		03/18/16 15:55	106-46-7	
1,1-Dichloroethane	96.6	ug/L	10.0	20		03/18/16 15:55	75-34-3	
1,2-Dichloroethane	ND	ug/L	10.0	20		03/18/16 15:55	107-06-2	
1,1-Dichloroethene	42.0	ug/L	10.0	20		03/18/16 15:55	75-35-4	
cis-1,2-Dichloroethene	1520	ug/L	10.0	20		03/18/16 15:55	156-59-2	
trans-1,2-Dichloroethene	20.2	ug/L	10.0	20		03/18/16 15:55	156-60-5	
1,2-Dichloropropane	ND	ug/L	10.0	20		03/18/16 15:55	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	10.0	20		03/18/16 15:55	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	10.0	20		03/18/16 15:55	10061-02-6	
Methylene Chloride	ND	ug/L	100	20		03/18/16 15:55	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	10.0	20		03/18/16 15:55	79-34-5	
Tetrachloroethene	4080	ug/L	25.0	50		03/15/16 14:46	127-18-4	
1,1,1-Trichloroethane	40.8	ug/L	10.0	20		03/18/16 15:55	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	10.0	20		03/18/16 15:55	79-00-5	
Trichloroethene	2610	ug/L	10.0	20		03/18/16 15:55	79-01-6	
Trichlorofluoromethane	ND	ug/L	10.0	20		03/18/16 15:55	75-69-4	
Vinyl chloride	64.8	ug/L	10.0	20		03/18/16 15:55	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	102	%	70-130	20		03/18/16 15:55	17060-07-0	
Toluene-d8 (S)	100	%	70-130	20		03/18/16 15:55	2037-26-5	
4-Bromofluorobenzene (S)	98	%	70-130	20		03/18/16 15:55	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MW-19 DUP	Lab ID: 1262435010	Collected: 03/08/16 08:35	Received: 03/11/16 11:45	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		03/18/16 16:15	75-27-4	
Bromoform	ND	ug/L	10.0	20		03/18/16 16:15	75-25-2	
Bromomethane	ND	ug/L	400	20		03/18/16 16:15	74-83-9	
Carbon tetrachloride	ND	ug/L	10.0	20		03/18/16 16:15	56-23-5	
Chlorobenzene	ND	ug/L	10.0	20		03/18/16 16:15	108-90-7	
Chloroethane	ND	ug/L	40.0	20		03/18/16 16:15	75-00-3	
Chloroform	ND	ug/L	10.0	20		03/18/16 16:15	67-66-3	
Chloromethane	ND	ug/L	40.0	20		03/18/16 16:15	74-87-3	
Dibromochloromethane	ND	ug/L	10.0	20		03/18/16 16:15	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	10.0	20		03/18/16 16:15	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	10.0	20		03/18/16 16:15	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	10.0	20		03/18/16 16:15	106-46-7	
1,1-Dichloroethane	93.0	ug/L	10.0	20		03/18/16 16:15	75-34-3	
1,2-Dichloroethane	ND	ug/L	10.0	20		03/18/16 16:15	107-06-2	
1,1-Dichloroethene	42.8	ug/L	10.0	20		03/18/16 16:15	75-35-4	
cis-1,2-Dichloroethene	1460	ug/L	10.0	20		03/18/16 16:15	156-59-2	
trans-1,2-Dichloroethene	18.2	ug/L	10.0	20		03/18/16 16:15	156-60-5	
1,2-Dichloropropane	ND	ug/L	10.0	20		03/18/16 16:15	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	10.0	20		03/18/16 16:15	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	10.0	20		03/18/16 16:15	10061-02-6	
Methylene Chloride	ND	ug/L	100	20		03/18/16 16:15	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	10.0	20		03/18/16 16:15	79-34-5	
Tetrachloroethene	3760	ug/L	25.0	50		03/15/16 15:11	127-18-4	
1,1,1-Trichloroethane	40.4	ug/L	10.0	20		03/18/16 16:15	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	10.0	20		03/18/16 16:15	79-00-5	
Trichloroethene	2560	ug/L	10.0	20		03/18/16 16:15	79-01-6	
Trichlorofluoromethane	ND	ug/L	10.0	20		03/18/16 16:15	75-69-4	
Vinyl chloride	72.4	ug/L	10.0	20		03/18/16 16:15	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	102	%	70-130	20		03/18/16 16:15	17060-07-0	
Toluene-d8 (S)	100	%	70-130	20		03/18/16 16:15	2037-26-5	
4-Bromofluorobenzene (S)	98	%	70-130	20		03/18/16 16:15	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MW-13		Lab ID: 1262435011	Collected: 03/08/16 09:00	Received: 03/11/16 11:45	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	2.5	5		03/18/16 14:55	75-27-4	
Bromoform	ND	ug/L	2.5	5		03/18/16 14:55	75-25-2	
Bromomethane	ND	ug/L	100	5		03/18/16 14:55	74-83-9	
Carbon tetrachloride	ND	ug/L	2.5	5		03/18/16 14:55	56-23-5	
Chlorobenzene	ND	ug/L	2.5	5		03/18/16 14:55	108-90-7	
Chloroethane	ND	ug/L	10.0	5		03/18/16 14:55	75-00-3	
Chloroform	ND	ug/L	2.5	5		03/18/16 14:55	67-66-3	
Chloromethane	ND	ug/L	10.0	5		03/18/16 14:55	74-87-3	
Dibromochloromethane	ND	ug/L	2.5	5		03/18/16 14:55	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	2.5	5		03/18/16 14:55	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	2.5	5		03/18/16 14:55	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	2.5	5		03/18/16 14:55	106-46-7	
1,1-Dichloroethane	14.3	ug/L	2.5	5		03/18/16 14:55	75-34-3	
1,2-Dichloroethane	ND	ug/L	2.5	5		03/18/16 14:55	107-06-2	
1,1-Dichloroethene	6.4	ug/L	2.5	5		03/18/16 14:55	75-35-4	
cis-1,2-Dichloroethene	336	ug/L	2.5	5		03/18/16 14:55	156-59-2	
trans-1,2-Dichloroethene	4.6	ug/L	2.5	5		03/18/16 14:55	156-60-5	
1,2-Dichloropropane	ND	ug/L	2.5	5		03/18/16 14:55	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	2.5	5		03/18/16 14:55	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	2.5	5		03/18/16 14:55	10061-02-6	
Methylene Chloride	ND	ug/L	25.0	5		03/18/16 14:55	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	2.5	5		03/18/16 14:55	79-34-5	
Tetrachloroethene	839	ug/L	8.3	16.67		03/15/16 13:31	127-18-4	
1,1,1-Trichloroethane	3.7	ug/L	2.5	5		03/18/16 14:55	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	2.5	5		03/18/16 14:55	79-00-5	
Trichloroethene	736	ug/L	2.5	5		03/18/16 14:55	79-01-6	
Trichlorofluoromethane	ND	ug/L	2.5	5		03/18/16 14:55	75-69-4	
Vinyl chloride	ND	ug/L	2.5	5		03/18/16 14:55	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	102	%	70-130	5		03/18/16 14:55	17060-07-0	
Toluene-d8 (S)	101	%	70-130	5		03/18/16 14:55	2037-26-5	
4-Bromofluorobenzene (S)	100	%	70-130	5		03/18/16 14:55	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MP-17		Lab ID: 1262435012	Collected: 03/08/16 12:00	Received: 03/11/16 11:45	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		03/15/16 11:01	75-27-4	
Bromoform	ND	ug/L	0.50	1		03/15/16 11:01	75-25-2	
Bromomethane	ND	ug/L	20.0	1		03/15/16 11:01	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		03/15/16 11:01	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		03/15/16 11:01	108-90-7	
Chloroethane	ND	ug/L	2.0	1		03/15/16 11:01	75-00-3	
Chloroform	ND	ug/L	0.50	1		03/15/16 11:01	67-66-3	
Chloromethane	ND	ug/L	0.50	1		03/15/16 11:01	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		03/15/16 11:01	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 11:01	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 11:01	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 11:01	106-46-7	
1,1-Dichloroethane	0.83	ug/L	0.50	1		03/15/16 11:01	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		03/15/16 11:01	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		03/15/16 11:01	75-35-4	
cis-1,2-Dichloroethene	3.3	ug/L	0.50	1		03/15/16 11:01	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/15/16 11:01	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		03/15/16 11:01	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 11:01	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 11:01	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		03/15/16 11:01	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/15/16 11:01	79-34-5	
Tetrachloroethene	9.4	ug/L	0.50	1		03/15/16 11:01	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		03/15/16 11:01	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/15/16 11:01	79-00-5	
Trichloroethene	22.7	ug/L	0.50	1		03/15/16 11:01	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		03/15/16 11:01	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		03/15/16 11:01	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	128	%.	70-130	1		03/15/16 11:01	17060-07-0	
Toluene-d8 (S)	99	%.	70-130	1		03/15/16 11:01	2037-26-5	
4-Bromofluorobenzene (S)	90	%.	70-130	1		03/15/16 11:01	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MW-26		Lab ID: 1262435013		Collected: 03/08/16 09:50		Received: 03/11/16 11:45		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		03/15/16 12:41	75-27-4		
Bromoform	ND	ug/L	1.2	2.5		03/15/16 12:41	75-25-2		
Bromomethane	ND	ug/L	50.0	2.5		03/15/16 12:41	74-83-9		
Carbon tetrachloride	ND	ug/L	1.2	2.5		03/15/16 12:41	56-23-5		
Chlorobenzene	ND	ug/L	1.2	2.5		03/15/16 12:41	108-90-7		
Chloroethane	ND	ug/L	5.0	2.5		03/15/16 12:41	75-00-3		
Chloroform	ND	ug/L	1.2	2.5		03/15/16 12:41	67-66-3		
Chloromethane	ND	ug/L	1.2	2.5		03/15/16 12:41	74-87-3		
Dibromochloromethane	ND	ug/L	1.2	2.5		03/15/16 12:41	124-48-1		
1,2-Dichlorobenzene	ND	ug/L	1.2	2.5		03/15/16 12:41	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.2	2.5		03/15/16 12:41	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.2	2.5		03/15/16 12:41	106-46-7		
1,1-Dichloroethane	8.0	ug/L	1.2	2.5		03/15/16 12:41	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.2	2.5		03/15/16 12:41	107-06-2		
1,1-Dichloroethene	1.5	ug/L	1.2	2.5		03/15/16 12:41	75-35-4		
cis-1,2-Dichloroethene	76.1	ug/L	1.2	2.5		03/15/16 12:41	156-59-2		
trans-1,2-Dichloroethene	1.8	ug/L	1.2	2.5		03/15/16 12:41	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.2	2.5		03/15/16 12:41	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	1.2	2.5		03/15/16 12:41	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.2	2.5		03/15/16 12:41	10061-02-6		
Methylene Chloride	ND	ug/L	12.5	2.5		03/15/16 12:41	75-09-2		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.2	2.5		03/15/16 12:41	79-34-5		
Tetrachloroethene	171	ug/L	1.2	2.5		03/15/16 12:41	127-18-4		
1,1,1-Trichloroethane	3.7	ug/L	1.2	2.5		03/15/16 12:41	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.2	2.5		03/15/16 12:41	79-00-5		
Trichloroethene	370	ug/L	1.2	2.5		03/15/16 12:41	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.2	2.5		03/15/16 12:41	75-69-4		
Vinyl chloride	ND	ug/L	1.2	2.5		03/15/16 12:41	75-01-4		
Surrogates									
1,2-Dichloroethane-d4 (S)	126	%	70-130	2.5		03/15/16 12:41	17060-07-0		
Toluene-d8 (S)	101	%	70-130	2.5		03/15/16 12:41	2037-26-5		
4-Bromofluorobenzene (S)	90	%	70-130	2.5		03/15/16 12:41	460-00-4		

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MW-14	Lab ID: 1262435014	Collected: 03/08/16 10:12	Received: 03/11/16 11:45	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		03/18/16 13:15	75-27-4	
Bromoform	ND	ug/L	0.50	1		03/18/16 13:15	75-25-2	
Bromomethane	ND	ug/L	20.0	1		03/18/16 13:15	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		03/18/16 13:15	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		03/18/16 13:15	108-90-7	
Chloroethane	ND	ug/L	2.0	1		03/18/16 13:15	75-00-3	
Chloroform	ND	ug/L	0.50	1		03/18/16 13:15	67-66-3	
Chloromethane	ND	ug/L	2.0	1		03/18/16 13:15	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		03/18/16 13:15	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/18/16 13:15	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/18/16 13:15	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/18/16 13:15	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		03/18/16 13:15	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		03/18/16 13:15	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		03/18/16 13:15	75-35-4	
cis-1,2-Dichloroethene	4.2	ug/L	0.50	1		03/18/16 13:15	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/18/16 13:15	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		03/18/16 13:15	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/18/16 13:15	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/18/16 13:15	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		03/18/16 13:15	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/18/16 13:15	79-34-5	
Tetrachloroethene	12.5	ug/L	0.50	1		03/18/16 13:15	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		03/18/16 13:15	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/18/16 13:15	79-00-5	
Trichloroethene	29.2	ug/L	0.50	1		03/18/16 13:15	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		03/18/16 13:15	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		03/18/16 13:15	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	102	%.	70-130	1		03/18/16 13:15	17060-07-0	
Toluene-d8 (S)	100	%.	70-130	1		03/18/16 13:15	2037-26-5	
4-Bromofluorobenzene (S)	97	%.	70-130	1		03/18/16 13:15	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MW-23i	Lab ID: 1262435015	Collected: 03/08/16 10:32	Received: 03/11/16 11:45	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		03/15/16 11:26	75-27-4	
Bromoform	ND	ug/L	0.50	1		03/15/16 11:26	75-25-2	
Bromomethane	ND	ug/L	20.0	1		03/15/16 11:26	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		03/15/16 11:26	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		03/15/16 11:26	108-90-7	
Chloroethane	ND	ug/L	2.0	1		03/15/16 11:26	75-00-3	
Chloroform	ND	ug/L	0.50	1		03/15/16 11:26	67-66-3	
Chloromethane	ND	ug/L	0.50	1		03/15/16 11:26	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		03/15/16 11:26	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 11:26	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 11:26	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 11:26	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		03/15/16 11:26	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		03/15/16 11:26	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		03/15/16 11:26	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		03/15/16 11:26	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/15/16 11:26	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		03/15/16 11:26	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 11:26	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 11:26	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		03/15/16 11:26	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/15/16 11:26	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		03/15/16 11:26	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		03/15/16 11:26	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/15/16 11:26	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		03/15/16 11:26	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		03/15/16 11:26	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		03/15/16 11:26	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	128	%.	70-130	1		03/15/16 11:26	17060-07-0	
Toluene-d8 (S)	98	%.	70-130	1		03/15/16 11:26	2037-26-5	
4-Bromofluorobenzene (S)	90	%.	70-130	1		03/15/16 11:26	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MW-8	Lab ID: 1262435016	Collected: 03/08/16 11:05	Received: 03/11/16 11:45	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		03/15/16 11:51	75-27-4	
Bromoform	ND	ug/L	0.50	1		03/15/16 11:51	75-25-2	
Bromomethane	ND	ug/L	20.0	1		03/15/16 11:51	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		03/15/16 11:51	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		03/15/16 11:51	108-90-7	
Chloroethane	ND	ug/L	2.0	1		03/15/16 11:51	75-00-3	
Chloroform	ND	ug/L	0.50	1		03/15/16 11:51	67-66-3	
Chloromethane	ND	ug/L	0.50	1		03/15/16 11:51	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		03/15/16 11:51	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 11:51	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 11:51	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 11:51	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		03/15/16 11:51	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		03/15/16 11:51	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		03/15/16 11:51	75-35-4	
cis-1,2-Dichloroethene	1.3	ug/L	0.50	1		03/15/16 11:51	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/15/16 11:51	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		03/15/16 11:51	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 11:51	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 11:51	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		03/15/16 11:51	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/15/16 11:51	79-34-5	
Tetrachloroethene	6.4	ug/L	0.50	1		03/15/16 11:51	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		03/15/16 11:51	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/15/16 11:51	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		03/15/16 11:51	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		03/15/16 11:51	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		03/15/16 11:51	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	128	%.	70-130	1		03/15/16 11:51	17060-07-0	
Toluene-d8 (S)	99	%.	70-130	1		03/15/16 11:51	2037-26-5	
4-Bromofluorobenzene (S)	91	%.	70-130	1		03/15/16 11:51	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: EW-1		Lab ID: 1262435017	Collected: 03/08/16 11:25	Received: 03/11/16 11:45	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		03/15/16 12:16	75-27-4	
Bromoform	ND	ug/L	0.50	1		03/15/16 12:16	75-25-2	
Bromomethane	ND	ug/L	20.0	1		03/15/16 12:16	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		03/15/16 12:16	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		03/15/16 12:16	108-90-7	
Chloroethane	ND	ug/L	2.0	1		03/15/16 12:16	75-00-3	
Chloroform	2.0	ug/L	0.50	1		03/15/16 12:16	67-66-3	
Chloromethane	ND	ug/L	0.50	1		03/15/16 12:16	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		03/15/16 12:16	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 12:16	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 12:16	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 12:16	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		03/15/16 12:16	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		03/15/16 12:16	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		03/15/16 12:16	75-35-4	
cis-1,2-Dichloroethene	2.9	ug/L	0.50	1		03/15/16 12:16	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/15/16 12:16	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		03/15/16 12:16	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 12:16	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 12:16	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		03/15/16 12:16	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/15/16 12:16	79-34-5	
Tetrachloroethene	62.6	ug/L	0.50	1		03/15/16 12:16	127-18-4	
1,1,1-Trichloroethane	0.83	ug/L	0.50	1		03/15/16 12:16	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/15/16 12:16	79-00-5	
Trichloroethene	14.3	ug/L	0.50	1		03/15/16 12:16	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		03/15/16 12:16	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		03/15/16 12:16	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	127	%.	70-130	1		03/15/16 12:16	17060-07-0	
Toluene-d8 (S)	100	%.	70-130	1		03/15/16 12:16	2037-26-5	
4-Bromofluorobenzene (S)	91	%.	70-130	1		03/15/16 12:16	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: EX	Lab ID: 1262435018	Collected: 03/08/16 11:50	Received: 03/11/16 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace		Analytical Method: RSK 175						
Ethane	11.3	ug/L	10.0	1		03/14/16 15:39	74-84-0	
Ethene	ND	ug/L	10.0	1		03/14/16 15:39	74-85-1	
Methane	1310	ug/L	10.0	1		03/14/16 15:39	74-82-8	
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	1.2	2.5		03/18/16 13:44	75-27-4	
Bromoform	ND	ug/L	1.2	2.5		03/18/16 13:44	75-25-2	
Bromomethane	ND	ug/L	50.0	2.5		03/18/16 13:44	74-83-9	
Carbon tetrachloride	ND	ug/L	1.2	2.5		03/18/16 13:44	56-23-5	
Chlorobenzene	ND	ug/L	1.2	2.5		03/18/16 13:44	108-90-7	
Chloroethane	ND	ug/L	5.0	2.5		03/18/16 13:44	75-00-3	
Chloroform	ND	ug/L	1.2	2.5		03/18/16 13:44	67-66-3	
Chloromethane	ND	ug/L	1.2	2.5		03/18/16 13:44	74-87-3	
Dibromochloromethane	ND	ug/L	1.2	2.5		03/18/16 13:44	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	1.2	2.5		03/18/16 13:44	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.2	2.5		03/18/16 13:44	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.2	2.5		03/18/16 13:44	106-46-7	
1,1-Dichloroethane	4.0	ug/L	1.2	2.5		03/18/16 13:44	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.2	2.5		03/18/16 13:44	107-06-2	
1,1-Dichloroethene	2.9	ug/L	1.2	2.5		03/18/16 13:44	75-35-4	
cis-1,2-Dichloroethene	1160	ug/L	2.5	5		03/16/16 00:54	156-59-2	E
trans-1,2-Dichloroethene	3.6	ug/L	1.2	2.5		03/18/16 13:44	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.2	2.5		03/18/16 13:44	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.2	2.5		03/18/16 13:44	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.2	2.5		03/18/16 13:44	10061-02-6	
Methylene Chloride	ND	ug/L	12.5	2.5		03/18/16 13:44	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.2	2.5		03/18/16 13:44	79-34-5	
Tetrachloroethene	274	ug/L	1.2	2.5		03/18/16 13:44	127-18-4	
1,1,1-Trichloroethane	5.0	ug/L	1.2	2.5		03/18/16 13:44	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.2	2.5		03/18/16 13:44	79-00-5	
Trichloroethene	71.1	ug/L	1.2	2.5		03/18/16 13:44	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.2	2.5		03/18/16 13:44	75-69-4	
Vinyl chloride	13.3	ug/L	1.2	2.5		03/18/16 13:44	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	123	%	70-130	2.5		03/18/16 13:44	17060-07-0	
Toluene-d8 (S)	101	%	70-130	2.5		03/18/16 13:44	2037-26-5	
4-Bromofluorobenzene (S)	91	%	70-130	2.5		03/18/16 13:44	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MW-9		Lab ID: 1262435019		Collected: 03/08/16 12:18		Received: 03/11/16 11:45		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	1.0	2		03/16/16 01:19	75-27-4		
Bromoform	ND	ug/L	1.0	2		03/16/16 01:19	75-25-2		
Bromomethane	ND	ug/L	40.0	2		03/16/16 01:19	74-83-9		
Carbon tetrachloride	ND	ug/L	1.0	2		03/16/16 01:19	56-23-5		
Chlorobenzene	ND	ug/L	1.0	2		03/16/16 01:19	108-90-7		
Chloroethane	ND	ug/L	4.0	2		03/16/16 01:19	75-00-3		
Chloroform	ND	ug/L	1.0	2		03/16/16 01:19	67-66-3		
Chloromethane	ND	ug/L	1.0	2		03/16/16 01:19	74-87-3		
Dibromochloromethane	ND	ug/L	1.0	2		03/16/16 01:19	124-48-1		
1,2-Dichlorobenzene	ND	ug/L	1.0	2		03/16/16 01:19	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	2		03/16/16 01:19	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	2		03/16/16 01:19	106-46-7		
1,1-Dichloroethane	4.1	ug/L	1.0	2		03/16/16 01:19	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	2		03/16/16 01:19	107-06-2		
1,1-Dichloroethene	ND	ug/L	1.0	2		03/16/16 01:19	75-35-4		
cis-1,2-Dichloroethene	117	ug/L	1.0	2		03/16/16 01:19	156-59-2		
trans-1,2-Dichloroethene	3.8	ug/L	1.0	2		03/16/16 01:19	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	2		03/16/16 01:19	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	1.0	2		03/16/16 01:19	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	2		03/16/16 01:19	10061-02-6		
Methylene Chloride	ND	ug/L	10.0	2		03/16/16 01:19	75-09-2		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	2		03/16/16 01:19	79-34-5		
Tetrachloroethene	164	ug/L	1.0	2		03/16/16 01:19	127-18-4		
1,1,1-Trichloroethane	2.3	ug/L	1.0	2		03/16/16 01:19	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	2		03/16/16 01:19	79-00-5		
Trichloroethene	94.6	ug/L	1.0	2		03/16/16 01:19	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	2		03/16/16 01:19	75-69-4		
Vinyl chloride	3.4	ug/L	1.0	2		03/16/16 01:19	75-01-4		
Surrogates									
1,2-Dichloroethane-d4 (S)	130	%.	70-130	2		03/16/16 01:19	17060-07-0		
Toluene-d8 (S)	99	%.	70-130	2		03/16/16 01:19	2037-26-5		
4-Bromofluorobenzene (S)	90	%.	70-130	2		03/16/16 01:19	460-00-4		

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MW-5		Lab ID: 1262435020		Collected: 03/08/16 12:40		Received: 03/11/16 11:45		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		03/15/16 20:17	75-27-4		
Bromoform	ND	ug/L	0.50	1		03/15/16 20:17	75-25-2		
Bromomethane	ND	ug/L	20.0	1		03/15/16 20:17	74-83-9		
Carbon tetrachloride	ND	ug/L	0.50	1		03/15/16 20:17	56-23-5		
Chlorobenzene	ND	ug/L	0.50	1		03/15/16 20:17	108-90-7		
Chloroethane	ND	ug/L	2.0	1		03/15/16 20:17	75-00-3		
Chloroform	ND	ug/L	0.50	1		03/15/16 20:17	67-66-3		
Chloromethane	ND	ug/L	0.50	1		03/15/16 20:17	74-87-3		
Dibromochloromethane	ND	ug/L	0.50	1		03/15/16 20:17	124-48-1		
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 20:17	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 20:17	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 20:17	106-46-7		
1,1-Dichloroethane	ND	ug/L	0.50	1		03/15/16 20:17	75-34-3		
1,2-Dichloroethane	ND	ug/L	0.50	1		03/15/16 20:17	107-06-2		
1,1-Dichloroethene	ND	ug/L	0.50	1		03/15/16 20:17	75-35-4		
cis-1,2-Dichloroethene	4.0	ug/L	0.50	1		03/15/16 20:17	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/15/16 20:17	156-60-5		
1,2-Dichloropropane	ND	ug/L	0.50	1		03/15/16 20:17	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 20:17	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 20:17	10061-02-6		
Methylene Chloride	ND	ug/L	5.0	1		03/15/16 20:17	75-09-2		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/15/16 20:17	79-34-5		
Tetrachloroethene	9.9	ug/L	0.50	1		03/15/16 20:17	127-18-4		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		03/15/16 20:17	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/15/16 20:17	79-00-5		
Trichloroethene	3.1	ug/L	0.50	1		03/15/16 20:17	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		03/15/16 20:17	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		03/15/16 20:17	75-01-4		
Surrogates									
1,2-Dichloroethane-d4 (S)	127	%.	70-130	1		03/15/16 20:17	17060-07-0		
Toluene-d8 (S)	99	%.	70-130	1		03/15/16 20:17	2037-26-5		
4-Bromofluorobenzene (S)	91	%.	70-130	1		03/15/16 20:17	460-00-4		

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MW-15		Lab ID: 1262435021		Collected: 03/08/16 13:05		Received: 03/11/16 11:45		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		03/15/16 20:42	75-27-4		
Bromoform	ND	ug/L	0.50	1		03/15/16 20:42	75-25-2		
Bromomethane	ND	ug/L	20.0	1		03/15/16 20:42	74-83-9		
Carbon tetrachloride	ND	ug/L	0.50	1		03/15/16 20:42	56-23-5		
Chlorobenzene	ND	ug/L	0.50	1		03/15/16 20:42	108-90-7		
Chloroethane	ND	ug/L	2.0	1		03/15/16 20:42	75-00-3		
Chloroform	ND	ug/L	0.50	1		03/15/16 20:42	67-66-3		
Chloromethane	ND	ug/L	0.50	1		03/15/16 20:42	74-87-3		
Dibromochloromethane	ND	ug/L	0.50	1		03/15/16 20:42	124-48-1		
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 20:42	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 20:42	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 20:42	106-46-7		
1,1-Dichloroethane	ND	ug/L	0.50	1		03/15/16 20:42	75-34-3		
1,2-Dichloroethane	ND	ug/L	0.50	1		03/15/16 20:42	107-06-2		
1,1-Dichloroethene	ND	ug/L	0.50	1		03/15/16 20:42	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		03/15/16 20:42	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/15/16 20:42	156-60-5		
1,2-Dichloropropane	ND	ug/L	0.50	1		03/15/16 20:42	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 20:42	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 20:42	10061-02-6		
Methylene Chloride	ND	ug/L	5.0	1		03/15/16 20:42	75-09-2		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/15/16 20:42	79-34-5		
Tetrachloroethene	0.59	ug/L	0.50	1		03/15/16 20:42	127-18-4		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		03/15/16 20:42	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/15/16 20:42	79-00-5		
Trichloroethene	ND	ug/L	0.50	1		03/15/16 20:42	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		03/15/16 20:42	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		03/15/16 20:42	75-01-4		
Surrogates									
1,2-Dichloroethane-d4 (S)	126	%.	70-130	1		03/15/16 20:42	17060-07-0		
Toluene-d8 (S)	100	%.	70-130	1		03/15/16 20:42	2037-26-5		
4-Bromofluorobenzene (S)	91	%.	70-130	1		03/15/16 20:42	460-00-4		

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MW-19i		Lab ID: 1262435022	Collected: 03/08/16 13:30	Received: 03/11/16 11:45	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		03/15/16 21:07	75-27-4	
Bromoform	ND	ug/L	0.50	1		03/15/16 21:07	75-25-2	
Bromomethane	ND	ug/L	20.0	1		03/15/16 21:07	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		03/15/16 21:07	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		03/15/16 21:07	108-90-7	
Chloroethane	ND	ug/L	2.0	1		03/15/16 21:07	75-00-3	
Chloroform	ND	ug/L	0.50	1		03/15/16 21:07	67-66-3	
Chloromethane	ND	ug/L	0.50	1		03/15/16 21:07	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		03/15/16 21:07	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 21:07	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 21:07	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 21:07	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		03/15/16 21:07	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		03/15/16 21:07	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		03/15/16 21:07	75-35-4	
cis-1,2-Dichloroethene	5.4	ug/L	0.50	1		03/15/16 21:07	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/15/16 21:07	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		03/15/16 21:07	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 21:07	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 21:07	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		03/15/16 21:07	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/15/16 21:07	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		03/15/16 21:07	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		03/15/16 21:07	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/15/16 21:07	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		03/15/16 21:07	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		03/15/16 21:07	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		03/15/16 21:07	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	126	%	70-130	1		03/15/16 21:07	17060-07-0	
Toluene-d8 (S)	92	%	70-130	1		03/15/16 21:07	2037-26-5	
4-Bromofluorobenzene (S)	90	%	70-130	1		03/15/16 21:07	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MW-21i-105	Lab ID: 1262435023	Collected: 03/08/16 14:25	Received: 03/11/16 11:45	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		03/15/16 21:32	75-27-4	
Bromoform	ND	ug/L	0.50	1		03/15/16 21:32	75-25-2	
Bromomethane	ND	ug/L	20.0	1		03/15/16 21:32	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		03/15/16 21:32	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		03/15/16 21:32	108-90-7	
Chloroethane	ND	ug/L	2.0	1		03/15/16 21:32	75-00-3	
Chloroform	ND	ug/L	0.50	1		03/15/16 21:32	67-66-3	
Chloromethane	ND	ug/L	0.50	1		03/15/16 21:32	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		03/15/16 21:32	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 21:32	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 21:32	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 21:32	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		03/15/16 21:32	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		03/15/16 21:32	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		03/15/16 21:32	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		03/15/16 21:32	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/15/16 21:32	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		03/15/16 21:32	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 21:32	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 21:32	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		03/15/16 21:32	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/15/16 21:32	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		03/15/16 21:32	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		03/15/16 21:32	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/15/16 21:32	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		03/15/16 21:32	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		03/15/16 21:32	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		03/15/16 21:32	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	125	%.	70-130	1		03/15/16 21:32	17060-07-0	
Toluene-d8 (S)	90	%.	70-130	1		03/15/16 21:32	2037-26-5	
4-Bromofluorobenzene (S)	92	%.	70-130	1		03/15/16 21:32	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MP-1	Lab ID: 1262435024	Collected: 03/08/16 14:55	Received: 03/11/16 11:45	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		03/14/16 15:48	74-84-0	
Ethene	ND	ug/L	10.0	1		03/14/16 15:48	74-85-1	
Methane	496	ug/L	10.0	1		03/14/16 15:48	74-82-8	
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.84	1.67		03/16/16 01:44	75-27-4	
Bromoform	ND	ug/L	0.84	1.67		03/16/16 01:44	75-25-2	
Bromomethane	ND	ug/L	33.4	1.67		03/16/16 01:44	74-83-9	
Carbon tetrachloride	ND	ug/L	0.84	1.67		03/16/16 01:44	56-23-5	
Chlorobenzene	ND	ug/L	0.84	1.67		03/16/16 01:44	108-90-7	
Chloroethane	ND	ug/L	3.3	1.67		03/16/16 01:44	75-00-3	
Chloroform	ND	ug/L	0.84	1.67		03/16/16 01:44	67-66-3	
Chloromethane	ND	ug/L	0.84	1.67		03/16/16 01:44	74-87-3	
Dibromochloromethane	ND	ug/L	0.84	1.67		03/16/16 01:44	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.84	1.67		03/16/16 01:44	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.84	1.67		03/16/16 01:44	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.84	1.67		03/16/16 01:44	106-46-7	
1,1-Dichloroethane	7.5	ug/L	0.84	1.67		03/16/16 01:44	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.84	1.67		03/16/16 01:44	107-06-2	
1,1-Dichloroethene	2.1	ug/L	0.84	1.67		03/16/16 01:44	75-35-4	
cis-1,2-Dichloroethene	148	ug/L	0.84	1.67		03/16/16 01:44	156-59-2	
trans-1,2-Dichloroethene	1.2	ug/L	0.84	1.67		03/16/16 01:44	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.84	1.67		03/16/16 01:44	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.84	1.67		03/16/16 01:44	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.84	1.67		03/16/16 01:44	10061-02-6	
Methylene Chloride	ND	ug/L	8.4	1.67		03/16/16 01:44	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.84	1.67		03/16/16 01:44	79-34-5	
Tetrachloroethene	433	ug/L	1.2	2.5		03/18/16 14:11	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.84	1.67		03/16/16 01:44	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.84	1.67		03/16/16 01:44	79-00-5	
Trichloroethene	100	ug/L	0.84	1.67		03/16/16 01:44	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.84	1.67		03/16/16 01:44	75-69-4	
Vinyl chloride	ND	ug/L	0.84	1.67		03/16/16 01:44	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	125	%	70-130	1.67		03/16/16 01:44	17060-07-0	
Toluene-d8 (S)	99	%	70-130	1.67		03/16/16 01:44	2037-26-5	
4-Bromofluorobenzene (S)	87	%	70-130	1.67		03/16/16 01:44	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MW-24i	Lab ID: 1262435025	Collected: 03/08/16 10:54	Received: 03/11/16 11:45	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		03/14/16 16:12	74-84-0	
Ethene	ND	ug/L	10.0	1		03/14/16 16:12	74-85-1	
Methane	ND	ug/L	10.0	1		03/14/16 16:12	74-82-8	
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		03/16/16 02:09	75-27-4	
Bromoform	ND	ug/L	0.50	1		03/16/16 02:09	75-25-2	
Bromomethane	ND	ug/L	20.0	1		03/16/16 02:09	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		03/16/16 02:09	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		03/16/16 02:09	108-90-7	
Chloroethane	ND	ug/L	2.0	1		03/16/16 02:09	75-00-3	
Chloroform	ND	ug/L	0.50	1		03/16/16 02:09	67-66-3	
Chloromethane	ND	ug/L	0.50	1		03/16/16 02:09	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		03/16/16 02:09	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 02:09	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 02:09	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 02:09	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		03/16/16 02:09	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		03/16/16 02:09	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		03/16/16 02:09	75-35-4	
cis-1,2-Dichloroethene	3.5	ug/L	0.50	1		03/16/16 02:09	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/16/16 02:09	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		03/16/16 02:09	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/16/16 02:09	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/16/16 02:09	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		03/16/16 02:09	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/16/16 02:09	79-34-5	
Tetrachloroethene	4.1	ug/L	0.50	1		03/16/16 02:09	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		03/16/16 02:09	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/16/16 02:09	79-00-5	
Trichloroethene	1.6	ug/L	0.50	1		03/16/16 02:09	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		03/16/16 02:09	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		03/16/16 02:09	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	132	%	70-130	1		03/16/16 02:09	17060-07-0	S0
Toluene-d8 (S)	99	%	70-130	1		03/16/16 02:09	2037-26-5	
4-Bromofluorobenzene (S)	91	%	70-130	1		03/16/16 02:09	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MW-18i		Lab ID: 1262435026		Collected: 03/09/16 10:26	Received: 03/11/16 11:45	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		03/15/16 21:57	75-27-4	
Bromoform	ND	ug/L	0.50	1		03/15/16 21:57	75-25-2	
Bromomethane	ND	ug/L	20.0	1		03/15/16 21:57	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		03/15/16 21:57	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		03/15/16 21:57	108-90-7	
Chloroethane	ND	ug/L	2.0	1		03/15/16 21:57	75-00-3	
Chloroform	ND	ug/L	0.50	1		03/15/16 21:57	67-66-3	
Chloromethane	ND	ug/L	0.50	1		03/15/16 21:57	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		03/15/16 21:57	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 21:57	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 21:57	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 21:57	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		03/15/16 21:57	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		03/15/16 21:57	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		03/15/16 21:57	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		03/15/16 21:57	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/15/16 21:57	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		03/15/16 21:57	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 21:57	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 21:57	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		03/15/16 21:57	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/15/16 21:57	79-34-5	
Tetrachloroethene	1.6	ug/L	0.50	1		03/15/16 21:57	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		03/15/16 21:57	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/15/16 21:57	79-00-5	
Trichloroethene	1.0	ug/L	0.50	1		03/15/16 21:57	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		03/15/16 21:57	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		03/15/16 21:57	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	126	%.	70-130	1		03/15/16 21:57	17060-07-0	
Toluene-d8 (S)	102	%.	70-130	1		03/15/16 21:57	2037-26-5	
4-Bromofluorobenzene (S)	90	%.	70-130	1		03/15/16 21:57	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MW-22i		Lab ID: 1262435027		Collected: 03/09/16 09:08		Received: 03/11/16 11:45		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		03/15/16 18:37	75-27-4		
Bromoform	ND	ug/L	0.50	1		03/15/16 18:37	75-25-2		
Bromomethane	ND	ug/L	20.0	1		03/15/16 18:37	74-83-9		
Carbon tetrachloride	ND	ug/L	0.50	1		03/15/16 18:37	56-23-5		
Chlorobenzene	ND	ug/L	0.50	1		03/15/16 18:37	108-90-7		
Chloroethane	ND	ug/L	2.0	1		03/15/16 18:37	75-00-3		
Chloroform	ND	ug/L	0.50	1		03/15/16 18:37	67-66-3		
Chloromethane	ND	ug/L	0.50	1		03/15/16 18:37	74-87-3		
Dibromochloromethane	ND	ug/L	0.50	1		03/15/16 18:37	124-48-1		
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 18:37	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 18:37	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 18:37	106-46-7		
1,1-Dichloroethane	ND	ug/L	0.50	1		03/15/16 18:37	75-34-3		
1,2-Dichloroethane	ND	ug/L	0.50	1		03/15/16 18:37	107-06-2		
1,1-Dichloroethene	ND	ug/L	0.50	1		03/15/16 18:37	75-35-4		
cis-1,2-Dichloroethene	8.0	ug/L	0.50	1		03/15/16 18:37	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/15/16 18:37	156-60-5		
1,2-Dichloropropane	ND	ug/L	0.50	1		03/15/16 18:37	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 18:37	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 18:37	10061-02-6		
Methylene Chloride	ND	ug/L	5.0	1		03/15/16 18:37	75-09-2		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/15/16 18:37	79-34-5		
Tetrachloroethene	2.2	ug/L	0.50	1		03/15/16 18:37	127-18-4		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		03/15/16 18:37	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/15/16 18:37	79-00-5		
Trichloroethene	12.0	ug/L	0.50	1		03/15/16 18:37	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		03/15/16 18:37	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		03/15/16 18:37	75-01-4		
Surrogates									
1,2-Dichloroethane-d4 (S)	125	%.	70-130	1		03/15/16 18:37	17060-07-0		
Toluene-d8 (S)	95	%.	70-130	1		03/15/16 18:37	2037-26-5		
4-Bromofluorobenzene (S)	89	%.	70-130	1		03/15/16 18:37	460-00-4		

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MW-21i-40	Lab ID: 1262435028	Collected: 03/09/16 09:33	Received: 03/11/16 11:45	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		03/15/16 22:22	75-27-4	
Bromoform	ND	ug/L	0.50	1		03/15/16 22:22	75-25-2	
Bromomethane	ND	ug/L	20.0	1		03/15/16 22:22	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		03/15/16 22:22	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		03/15/16 22:22	108-90-7	
Chloroethane	ND	ug/L	2.0	1		03/15/16 22:22	75-00-3	
Chloroform	ND	ug/L	0.50	1		03/15/16 22:22	67-66-3	
Chloromethane	ND	ug/L	0.50	1		03/15/16 22:22	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		03/15/16 22:22	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 22:22	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 22:22	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 22:22	106-46-7	
1,1-Dichloroethane	2.1	ug/L	0.50	1		03/15/16 22:22	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		03/15/16 22:22	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		03/15/16 22:22	75-35-4	
cis-1,2-Dichloroethene	58.6	ug/L	0.50	1		03/15/16 22:22	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/15/16 22:22	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		03/15/16 22:22	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 22:22	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 22:22	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		03/15/16 22:22	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/15/16 22:22	79-34-5	
Tetrachloroethene	14.2	ug/L	0.50	1		03/15/16 22:22	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		03/15/16 22:22	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/15/16 22:22	79-00-5	
Trichloroethene	15.1	ug/L	0.50	1		03/15/16 22:22	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		03/15/16 22:22	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		03/15/16 22:22	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	122	%	70-130	1		03/15/16 22:22	17060-07-0	
Toluene-d8 (S)	100	%	70-130	1		03/15/16 22:22	2037-26-5	
4-Bromofluorobenzene (S)	88	%	70-130	1		03/15/16 22:22	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: S-1	Lab ID: 1262435029	Collected: 03/09/16 07:58	Received: 03/11/16 11:45	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		03/15/16 22:47	75-27-4	
Bromoform	ND	ug/L	0.50	1		03/15/16 22:47	75-25-2	
Bromomethane	ND	ug/L	20.0	1		03/15/16 22:47	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		03/15/16 22:47	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		03/15/16 22:47	108-90-7	
Chloroethane	ND	ug/L	2.0	1		03/15/16 22:47	75-00-3	
Chloroform	ND	ug/L	0.50	1		03/15/16 22:47	67-66-3	
Chloromethane	ND	ug/L	0.50	1		03/15/16 22:47	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		03/15/16 22:47	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 22:47	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 22:47	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 22:47	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		03/15/16 22:47	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		03/15/16 22:47	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		03/15/16 22:47	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		03/15/16 22:47	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/15/16 22:47	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		03/15/16 22:47	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 22:47	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 22:47	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		03/15/16 22:47	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/15/16 22:47	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		03/15/16 22:47	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		03/15/16 22:47	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/15/16 22:47	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		03/15/16 22:47	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		03/15/16 22:47	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		03/15/16 22:47	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	121	%.	70-130	1		03/15/16 22:47	17060-07-0	
Toluene-d8 (S)	101	%.	70-130	1		03/15/16 22:47	2037-26-5	
4-Bromofluorobenzene (S)	91	%.	70-130	1		03/15/16 22:47	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MW-25i		Lab ID: 1262435030		Collected: 03/09/16 08:40		Received: 03/11/16 11:45		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		03/15/16 23:15	75-27-4		
Bromoform	ND	ug/L	0.50	1		03/15/16 23:15	75-25-2		
Bromomethane	ND	ug/L	20.0	1		03/15/16 23:15	74-83-9		
Carbon tetrachloride	ND	ug/L	0.50	1		03/15/16 23:15	56-23-5		
Chlorobenzene	ND	ug/L	0.50	1		03/15/16 23:15	108-90-7		
Chloroethane	ND	ug/L	2.0	1		03/15/16 23:15	75-00-3		
Chloroform	ND	ug/L	0.50	1		03/15/16 23:15	67-66-3		
Chloromethane	ND	ug/L	0.50	1		03/15/16 23:15	74-87-3		
Dibromochloromethane	ND	ug/L	0.50	1		03/15/16 23:15	124-48-1		
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 23:15	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 23:15	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 23:15	106-46-7		
1,1-Dichloroethane	ND	ug/L	0.50	1		03/15/16 23:15	75-34-3		
1,2-Dichloroethane	ND	ug/L	0.50	1		03/15/16 23:15	107-06-2		
1,1-Dichloroethene	ND	ug/L	0.50	1		03/15/16 23:15	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		03/15/16 23:15	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/15/16 23:15	156-60-5		
1,2-Dichloropropane	ND	ug/L	0.50	1		03/15/16 23:15	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 23:15	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 23:15	10061-02-6		
Methylene Chloride	ND	ug/L	5.0	1		03/15/16 23:15	75-09-2		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/15/16 23:15	79-34-5		
Tetrachloroethene	ND	ug/L	0.50	1		03/15/16 23:15	127-18-4		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		03/15/16 23:15	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/15/16 23:15	79-00-5		
Trichloroethene	ND	ug/L	0.50	1		03/15/16 23:15	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		03/15/16 23:15	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		03/15/16 23:15	75-01-4		
Surrogates									
1,2-Dichloroethane-d4 (S)	119	%.	70-130	1		03/15/16 23:15	17060-07-0		
Toluene-d8 (S)	97	%.	70-130	1		03/15/16 23:15	2037-26-5		
4-Bromofluorobenzene (S)	91	%.	70-130	1		03/15/16 23:15	460-00-4		

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MW-25i DUP		Lab ID: 1262435031	Collected: 03/09/16 08:40	Received: 03/11/16 11:45	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		03/15/16 23:40	75-27-4	
Bromoform	ND	ug/L	0.50	1		03/15/16 23:40	75-25-2	
Bromomethane	ND	ug/L	20.0	1		03/15/16 23:40	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		03/15/16 23:40	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		03/15/16 23:40	108-90-7	
Chloroethane	ND	ug/L	2.0	1		03/15/16 23:40	75-00-3	
Chloroform	ND	ug/L	0.50	1		03/15/16 23:40	67-66-3	
Chloromethane	ND	ug/L	0.50	1		03/15/16 23:40	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		03/15/16 23:40	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 23:40	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 23:40	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/15/16 23:40	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		03/15/16 23:40	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		03/15/16 23:40	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		03/15/16 23:40	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		03/15/16 23:40	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/15/16 23:40	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		03/15/16 23:40	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 23:40	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/15/16 23:40	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		03/15/16 23:40	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/15/16 23:40	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		03/15/16 23:40	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		03/15/16 23:40	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/15/16 23:40	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		03/15/16 23:40	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		03/15/16 23:40	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		03/15/16 23:40	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	121	%.	70-130	1		03/15/16 23:40	17060-07-0	
Toluene-d8 (S)	98	%.	70-130	1		03/15/16 23:40	2037-26-5	
4-Bromofluorobenzene (S)	90	%.	70-130	1		03/15/16 23:40	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MGMS3-60	Lab ID: 1262435032	Collected: 03/09/16 14:25	Received: 03/11/16 11:45	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		03/16/16 00:04	75-27-4	
Bromoform	ND	ug/L	0.50	1		03/16/16 00:04	75-25-2	
Bromomethane	ND	ug/L	20.0	1		03/16/16 00:04	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		03/16/16 00:04	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		03/16/16 00:04	108-90-7	
Chloroethane	ND	ug/L	2.0	1		03/16/16 00:04	75-00-3	
Chloroform	ND	ug/L	0.50	1		03/16/16 00:04	67-66-3	
Chloromethane	ND	ug/L	0.50	1		03/16/16 00:04	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		03/16/16 00:04	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 00:04	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 00:04	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 00:04	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		03/16/16 00:04	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		03/16/16 00:04	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		03/16/16 00:04	75-35-4	
cis-1,2-Dichloroethene	1.4	ug/L	0.50	1		03/16/16 00:04	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/16/16 00:04	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		03/16/16 00:04	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/16/16 00:04	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/16/16 00:04	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		03/16/16 00:04	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/16/16 00:04	79-34-5	
Tetrachloroethene	2.8	ug/L	0.50	1		03/16/16 00:04	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		03/16/16 00:04	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/16/16 00:04	79-00-5	
Trichloroethene	0.78	ug/L	0.50	1		03/16/16 00:04	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		03/16/16 00:04	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		03/16/16 00:04	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	121	%.	70-130	1		03/16/16 00:04	17060-07-0	
Toluene-d8 (S)	98	%.	70-130	1		03/16/16 00:04	2037-26-5	
4-Bromofluorobenzene (S)	89	%.	70-130	1		03/16/16 00:04	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MGMS3-101		Lab ID: 1262435033		Collected: 03/09/16 14:10		Received: 03/11/16 11:45		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		03/16/16 00:29	75-27-4		
Bromoform	ND	ug/L	0.50	1		03/16/16 00:29	75-25-2		
Bromomethane	ND	ug/L	20.0	1		03/16/16 00:29	74-83-9		
Carbon tetrachloride	ND	ug/L	0.50	1		03/16/16 00:29	56-23-5		
Chlorobenzene	ND	ug/L	0.50	1		03/16/16 00:29	108-90-7		
Chloroethane	ND	ug/L	2.0	1		03/16/16 00:29	75-00-3		
Chloroform	ND	ug/L	0.50	1		03/16/16 00:29	67-66-3		
Chloromethane	ND	ug/L	0.50	1		03/16/16 00:29	74-87-3		
Dibromochloromethane	ND	ug/L	0.50	1		03/16/16 00:29	124-48-1		
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 00:29	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 00:29	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 00:29	106-46-7		
1,1-Dichloroethane	ND	ug/L	0.50	1		03/16/16 00:29	75-34-3		
1,2-Dichloroethane	ND	ug/L	0.50	1		03/16/16 00:29	107-06-2		
1,1-Dichloroethene	ND	ug/L	0.50	1		03/16/16 00:29	75-35-4		
cis-1,2-Dichloroethene	7.3	ug/L	0.50	1		03/16/16 00:29	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/16/16 00:29	156-60-5		
1,2-Dichloropropane	ND	ug/L	0.50	1		03/16/16 00:29	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/16/16 00:29	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/16/16 00:29	10061-02-6		
Methylene Chloride	ND	ug/L	5.0	1		03/16/16 00:29	75-09-2		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/16/16 00:29	79-34-5		
Tetrachloroethene	7.5	ug/L	0.50	1		03/16/16 00:29	127-18-4		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		03/16/16 00:29	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/16/16 00:29	79-00-5		
Trichloroethene	6.1	ug/L	0.50	1		03/16/16 00:29	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		03/16/16 00:29	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		03/16/16 00:29	75-01-4		
Surrogates									
1,2-Dichloroethane-d4 (S)	122	%.	70-130	1		03/16/16 00:29	17060-07-0		
Toluene-d8 (S)	102	%.	70-130	1		03/16/16 00:29	2037-26-5		
4-Bromofluorobenzene (S)	91	%.	70-130	1		03/16/16 00:29	460-00-4		

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MGMS3-132	Lab ID: 1262435034	Collected: 03/09/16 13:56	Received: 03/11/16 11:45	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		03/16/16 08:23	75-27-4	
Bromoform	ND	ug/L	0.50	1		03/16/16 08:23	75-25-2	
Bromomethane	ND	ug/L	20.0	1		03/16/16 08:23	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		03/16/16 08:23	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		03/16/16 08:23	108-90-7	
Chloroethane	ND	ug/L	2.0	1		03/16/16 08:23	75-00-3	
Chloroform	ND	ug/L	0.50	1		03/16/16 08:23	67-66-3	
Chloromethane	ND	ug/L	0.50	1		03/16/16 08:23	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		03/16/16 08:23	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 08:23	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 08:23	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 08:23	106-46-7	
1,1-Dichloroethane	1.0	ug/L	0.50	1		03/16/16 08:23	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		03/16/16 08:23	107-06-2	
1,1-Dichloroethene	0.56	ug/L	0.50	1		03/16/16 08:23	75-35-4	
cis-1,2-Dichloroethene	14.4	ug/L	0.50	1		03/16/16 08:23	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/16/16 08:23	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		03/16/16 08:23	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/16/16 08:23	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/16/16 08:23	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		03/16/16 08:23	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/16/16 08:23	79-34-5	
Tetrachloroethene	13.5	ug/L	0.50	1		03/16/16 08:23	127-18-4	
1,1,1-Trichloroethane	0.56	ug/L	0.50	1		03/16/16 08:23	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/16/16 08:23	79-00-5	
Trichloroethene	12.7	ug/L	0.50	1		03/16/16 08:23	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		03/16/16 08:23	75-69-4	
Vinyl chloride	0.80	ug/L	0.50	1		03/16/16 08:23	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	124	%	70-130	1		03/16/16 08:23	17060-07-0	
Toluene-d8 (S)	103	%	70-130	1		03/16/16 08:23	2037-26-5	
4-Bromofluorobenzene (S)	92	%	70-130	1		03/16/16 08:23	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MGMS2-110	Lab ID: 1262435035	Collected: 03/09/16 13:30	Received: 03/11/16 11:45	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		03/16/16 11:17	75-27-4	
Bromoform	ND	ug/L	0.50	1		03/16/16 11:17	75-25-2	
Bromomethane	ND	ug/L	20.0	1		03/16/16 11:17	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		03/16/16 11:17	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		03/16/16 11:17	108-90-7	
Chloroethane	ND	ug/L	2.0	1		03/16/16 11:17	75-00-3	
Chloroform	ND	ug/L	0.50	1		03/16/16 11:17	67-66-3	
Chloromethane	ND	ug/L	0.50	1		03/16/16 11:17	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		03/16/16 11:17	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 11:17	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 11:17	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 11:17	106-46-7	
1,1-Dichloroethane	0.73	ug/L	0.50	1		03/16/16 11:17	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		03/16/16 11:17	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		03/16/16 11:17	75-35-4	
cis-1,2-Dichloroethene	22.6	ug/L	0.50	1		03/16/16 11:17	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/16/16 11:17	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		03/16/16 11:17	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/16/16 11:17	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/16/16 11:17	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		03/16/16 11:17	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/16/16 11:17	79-34-5	
Tetrachloroethene	7.1	ug/L	0.50	1		03/16/16 11:17	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		03/16/16 11:17	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/16/16 11:17	79-00-5	
Trichloroethene	8.0	ug/L	0.50	1		03/16/16 11:17	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		03/16/16 11:17	75-69-4	
Vinyl chloride	10.0	ug/L	0.50	1		03/16/16 11:17	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	130	%.	70-130	1		03/16/16 11:17	17060-07-0	
Toluene-d8 (S)	98	%.	70-130	1		03/16/16 11:17	2037-26-5	
4-Bromofluorobenzene (S)	91	%.	70-130	1		03/16/16 11:17	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MGMS2-132		Lab ID: 1262435036		Collected: 03/09/16 13:18	Received: 03/11/16 11:45	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		03/16/16 21:17	75-27-4	
Bromoform	ND	ug/L	0.50	1		03/16/16 21:17	75-25-2	
Bromomethane	ND	ug/L	20.0	1		03/16/16 21:17	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		03/16/16 21:17	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		03/16/16 21:17	108-90-7	
Chloroethane	ND	ug/L	2.0	1		03/16/16 21:17	75-00-3	
Chloroform	ND	ug/L	0.50	1		03/16/16 21:17	67-66-3	
Chloromethane	ND	ug/L	0.50	1		03/16/16 21:17	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		03/16/16 21:17	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 21:17	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 21:17	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 21:17	106-46-7	
1,1-Dichloroethane	0.86	ug/L	0.50	1		03/16/16 21:17	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		03/16/16 21:17	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		03/16/16 21:17	75-35-4	
cis-1,2-Dichloroethene	36.8	ug/L	0.50	1		03/16/16 21:17	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/16/16 21:17	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		03/16/16 21:17	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/16/16 21:17	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/16/16 21:17	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		03/16/16 21:17	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/16/16 21:17	79-34-5	
Tetrachloroethene	7.9	ug/L	0.50	1		03/16/16 21:17	127-18-4	
1,1,1-Trichloroethane	0.69	ug/L	0.50	1		03/16/16 21:17	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/16/16 21:17	79-00-5	
Trichloroethene	10.7	ug/L	0.50	1		03/16/16 21:17	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		03/16/16 21:17	75-69-4	
Vinyl chloride	12.4	ug/L	0.50	1		03/16/16 21:17	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	130	%.	70-130	1		03/16/16 21:17	17060-07-0	
Toluene-d8 (S)	96	%.	70-130	1		03/16/16 21:17	2037-26-5	
4-Bromofluorobenzene (S)	91	%.	70-130	1		03/16/16 21:17	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MGMS2-40		Lab ID: 1262435037	Collected: 03/09/16 12:57	Received: 03/11/16 11:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace		Analytical Method: RSK 175						
Ethane	107	ug/L	10.0	1		03/14/16 18:24	74-84-0	
Ethene	63.7	ug/L	10.0	1		03/14/16 18:24	74-85-1	
Methane	5310	ug/L	10.0	1		03/14/16 18:24	74-82-8	
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		03/16/16 21:42	75-27-4	
Bromoform	ND	ug/L	0.50	1		03/16/16 21:42	75-25-2	
Bromomethane	ND	ug/L	20.0	1		03/16/16 21:42	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		03/16/16 21:42	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		03/16/16 21:42	108-90-7	
Chloroethane	ND	ug/L	2.0	1		03/16/16 21:42	75-00-3	
Chloroform	ND	ug/L	0.50	1		03/16/16 21:42	67-66-3	
Chloromethane	ND	ug/L	0.50	1		03/16/16 21:42	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		03/16/16 21:42	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 21:42	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 21:42	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 21:42	106-46-7	
1,1-Dichloroethane	20.6	ug/L	0.50	1		03/16/16 21:42	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		03/16/16 21:42	107-06-2	
1,1-Dichloroethene	1.6	ug/L	0.50	1		03/16/16 21:42	75-35-4	
cis-1,2-Dichloroethene	36.0	ug/L	0.50	1		03/16/16 21:42	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/16/16 21:42	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		03/16/16 21:42	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/16/16 21:42	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/16/16 21:42	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		03/16/16 21:42	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/16/16 21:42	79-34-5	
Tetrachloroethene	6.5	ug/L	0.50	1		03/16/16 21:42	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		03/16/16 21:42	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/16/16 21:42	79-00-5	
Trichloroethene	6.2	ug/L	0.50	1		03/16/16 21:42	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		03/16/16 21:42	75-69-4	
Vinyl chloride	36.0	ug/L	0.50	1		03/16/16 21:42	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	134	%	70-130	1		03/16/16 21:42	17060-07-0	S0
Toluene-d8 (S)	89	%	70-130	1		03/16/16 21:42	2037-26-5	
4-Bromofluorobenzene (S)	90	%	70-130	1		03/16/16 21:42	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MGMS1-60		Lab ID: 1262435038	Collected: 03/09/16 12:40	Received: 03/11/16 11:45	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		03/16/16 11:42	75-27-4	
Bromoform	ND	ug/L	0.50	1		03/16/16 11:42	75-25-2	
Bromomethane	ND	ug/L	20.0	1		03/16/16 11:42	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		03/16/16 11:42	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		03/16/16 11:42	108-90-7	
Chloroethane	ND	ug/L	2.0	1		03/16/16 11:42	75-00-3	
Chloroform	ND	ug/L	0.50	1		03/16/16 11:42	67-66-3	
Chloromethane	ND	ug/L	0.50	1		03/16/16 11:42	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		03/16/16 11:42	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 11:42	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 11:42	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 11:42	106-46-7	
1,1-Dichloroethane	0.50	ug/L	0.50	1		03/16/16 11:42	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		03/16/16 11:42	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		03/16/16 11:42	75-35-4	
cis-1,2-Dichloroethene	17.5	ug/L	0.50	1		03/16/16 11:42	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/16/16 11:42	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		03/16/16 11:42	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/16/16 11:42	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/16/16 11:42	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		03/16/16 11:42	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/16/16 11:42	79-34-5	
Tetrachloroethene	16.9	ug/L	0.50	1		03/16/16 11:42	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		03/16/16 11:42	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/16/16 11:42	79-00-5	
Trichloroethene	14.0	ug/L	0.50	1		03/16/16 11:42	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		03/16/16 11:42	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		03/16/16 11:42	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	130	%	70-130	1		03/16/16 11:42	17060-07-0	
Toluene-d8 (S)	100	%	70-130	1		03/16/16 11:42	2037-26-5	
4-Bromofluorobenzene (S)	92	%	70-130	1		03/16/16 11:42	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MW-24d	Lab ID: 1262435039	Collected: 03/09/16 11:30	Received: 03/11/16 11:45	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		03/16/16 12:07	75-27-4	
Bromoform	ND	ug/L	0.50	1		03/16/16 12:07	75-25-2	
Bromomethane	ND	ug/L	20.0	1		03/16/16 12:07	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		03/16/16 12:07	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		03/16/16 12:07	108-90-7	
Chloroethane	ND	ug/L	2.0	1		03/16/16 12:07	75-00-3	
Chloroform	ND	ug/L	0.50	1		03/16/16 12:07	67-66-3	
Chloromethane	ND	ug/L	0.50	1		03/16/16 12:07	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		03/16/16 12:07	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 12:07	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 12:07	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 12:07	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		03/16/16 12:07	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		03/16/16 12:07	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		03/16/16 12:07	75-35-4	
cis-1,2-Dichloroethene	1.4	ug/L	0.50	1		03/16/16 12:07	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/16/16 12:07	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		03/16/16 12:07	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/16/16 12:07	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/16/16 12:07	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		03/16/16 12:07	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/16/16 12:07	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		03/16/16 12:07	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		03/16/16 12:07	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/16/16 12:07	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		03/16/16 12:07	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		03/16/16 12:07	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		03/16/16 12:07	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	131	%.	70-130	1		03/16/16 12:07	17060-07-0	
Toluene-d8 (S)	99	%.	70-130	1		03/16/16 12:07	2037-26-5	
4-Bromofluorobenzene (S)	90	%.	70-130	1		03/16/16 12:07	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MGMS1-43		Lab ID: 1262435040		Collected: 03/09/16 12:20		Received: 03/11/16 11:45		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		03/16/16 15:26	75-27-4		
Bromoform	ND	ug/L	10.0	20		03/16/16 15:26	75-25-2		
Bromomethane	ND	ug/L	400	20		03/16/16 15:26	74-83-9		
Carbon tetrachloride	ND	ug/L	10.0	20		03/16/16 15:26	56-23-5		
Chlorobenzene	ND	ug/L	10.0	20		03/16/16 15:26	108-90-7		
Chloroethane	ND	ug/L	40.0	20		03/16/16 15:26	75-00-3		
Chloroform	ND	ug/L	10.0	20		03/16/16 15:26	67-66-3		
Chloromethane	ND	ug/L	10.0	20		03/16/16 15:26	74-87-3		
Dibromochloromethane	ND	ug/L	10.0	20		03/16/16 15:26	124-48-1		
1,2-Dichlorobenzene	ND	ug/L	10.0	20		03/16/16 15:26	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	10.0	20		03/16/16 15:26	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	10.0	20		03/16/16 15:26	106-46-7		
1,1-Dichloroethane	93.9	ug/L	10.0	20		03/16/16 15:26	75-34-3		
1,2-Dichloroethane	ND	ug/L	10.0	20		03/16/16 15:26	107-06-2		
1,1-Dichloroethene	ND	ug/L	10.0	20		03/16/16 15:26	75-35-4		
cis-1,2-Dichloroethene	1700	ug/L	10.0	20		03/16/16 15:26	156-59-2		
trans-1,2-Dichloroethene	12.4	ug/L	10.0	20		03/16/16 15:26	156-60-5		
1,2-Dichloropropane	ND	ug/L	10.0	20		03/16/16 15:26	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	10.0	20		03/16/16 15:26	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	10.0	20		03/16/16 15:26	10061-02-6		
Methylene Chloride	ND	ug/L	100	20		03/16/16 15:26	75-09-2		
1,1,2,2-Tetrachloroethane	ND	ug/L	10.0	20		03/16/16 15:26	79-34-5		
Tetrachloroethene	24.1	ug/L	10.0	20		03/16/16 15:26	127-18-4		
1,1,1-Trichloroethane	ND	ug/L	10.0	20		03/16/16 15:26	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	10.0	20		03/16/16 15:26	79-00-5		
Trichloroethene	81.9	ug/L	10.0	20		03/16/16 15:26	79-01-6		
Trichlorofluoromethane	ND	ug/L	10.0	20		03/16/16 15:26	75-69-4		
Vinyl chloride	209	ug/L	10.0	20		03/16/16 15:26	75-01-4		
Surrogates									
1,2-Dichloroethane-d4 (S)	123	%	70-130	20		03/16/16 15:26	17060-07-0		
Toluene-d8 (S)	102	%	70-130	20		03/16/16 15:26	2037-26-5		
4-Bromofluorobenzene (S)	88	%	70-130	20		03/16/16 15:26	460-00-4		

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MGMS3-40	Lab ID: 1262435041	Collected: 03/09/16 14:38	Received: 03/11/16 11:45	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	2.5	5		03/16/16 14:36	75-27-4	
Bromoform	ND	ug/L	2.5	5		03/16/16 14:36	75-25-2	
Bromomethane	ND	ug/L	100	5		03/16/16 14:36	74-83-9	
Carbon tetrachloride	ND	ug/L	2.5	5		03/16/16 14:36	56-23-5	
Chlorobenzene	ND	ug/L	2.5	5		03/16/16 14:36	108-90-7	
Chloroethane	ND	ug/L	10.0	5		03/16/16 14:36	75-00-3	
Chloroform	ND	ug/L	2.5	5		03/16/16 14:36	67-66-3	
Chloromethane	ND	ug/L	2.5	5		03/16/16 14:36	74-87-3	
Dibromochloromethane	ND	ug/L	2.5	5		03/16/16 14:36	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	2.5	5		03/16/16 14:36	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	2.5	5		03/16/16 14:36	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	2.5	5		03/16/16 14:36	106-46-7	
1,1-Dichloroethane	11.6	ug/L	2.5	5		03/16/16 14:36	75-34-3	
1,2-Dichloroethane	ND	ug/L	2.5	5		03/16/16 14:36	107-06-2	
1,1-Dichloroethene	ND	ug/L	2.5	5		03/16/16 14:36	75-35-4	
cis-1,2-Dichloroethene	610	ug/L	2.5	5		03/16/16 14:36	156-59-2	
trans-1,2-Dichloroethene	4.0	ug/L	2.5	5		03/16/16 14:36	156-60-5	
1,2-Dichloropropane	ND	ug/L	2.5	5		03/16/16 14:36	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	2.5	5		03/16/16 14:36	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	2.5	5		03/16/16 14:36	10061-02-6	
Methylene Chloride	ND	ug/L	25.0	5		03/16/16 14:36	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	2.5	5		03/16/16 14:36	79-34-5	
Tetrachloroethene	86.7	ug/L	2.5	5		03/16/16 14:36	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	2.5	5		03/16/16 14:36	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	2.5	5		03/16/16 14:36	79-00-5	
Trichloroethene	89.7	ug/L	2.5	5		03/16/16 14:36	79-01-6	
Trichlorofluoromethane	ND	ug/L	2.5	5		03/16/16 14:36	75-69-4	
Vinyl chloride	22.9	ug/L	2.5	5		03/16/16 14:36	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	124	%	70-130	5		03/16/16 14:36	17060-07-0	
Toluene-d8 (S)	102	%	70-130	5		03/16/16 14:36	2037-26-5	
4-Bromofluorobenzene (S)	90	%	70-130	5		03/16/16 14:36	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: MGMS3-40 DUP		Lab ID: 1262435042	Collected: 03/09/16 14:38	Received: 03/11/16 11:45	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	2.5	5		03/16/16 15:01	75-27-4	
Bromoform	ND	ug/L	2.5	5		03/16/16 15:01	75-25-2	
Bromomethane	ND	ug/L	100	5		03/16/16 15:01	74-83-9	
Carbon tetrachloride	ND	ug/L	2.5	5		03/16/16 15:01	56-23-5	
Chlorobenzene	ND	ug/L	2.5	5		03/16/16 15:01	108-90-7	
Chloroethane	ND	ug/L	10.0	5		03/16/16 15:01	75-00-3	
Chloroform	ND	ug/L	2.5	5		03/16/16 15:01	67-66-3	
Chloromethane	ND	ug/L	2.5	5		03/16/16 15:01	74-87-3	
Dibromochloromethane	ND	ug/L	2.5	5		03/16/16 15:01	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	2.5	5		03/16/16 15:01	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	2.5	5		03/16/16 15:01	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	2.5	5		03/16/16 15:01	106-46-7	
1,1-Dichloroethane	12.4	ug/L	2.5	5		03/16/16 15:01	75-34-3	
1,2-Dichloroethane	ND	ug/L	2.5	5		03/16/16 15:01	107-06-2	
1,1-Dichloroethene	ND	ug/L	2.5	5		03/16/16 15:01	75-35-4	
cis-1,2-Dichloroethene	643	ug/L	2.5	5		03/16/16 15:01	156-59-2	
trans-1,2-Dichloroethene	5.4	ug/L	2.5	5		03/16/16 15:01	156-60-5	
1,2-Dichloropropane	ND	ug/L	2.5	5		03/16/16 15:01	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	2.5	5		03/16/16 15:01	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	2.5	5		03/16/16 15:01	10061-02-6	
Methylene Chloride	ND	ug/L	25.0	5		03/16/16 15:01	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	2.5	5		03/16/16 15:01	79-34-5	
Tetrachloroethene	97.4	ug/L	2.5	5		03/16/16 15:01	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	2.5	5		03/16/16 15:01	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	2.5	5		03/16/16 15:01	79-00-5	
Trichloroethene	102	ug/L	2.5	5		03/16/16 15:01	79-01-6	
Trichlorofluoromethane	ND	ug/L	2.5	5		03/16/16 15:01	75-69-4	
Vinyl chloride	28.0	ug/L	2.5	5		03/16/16 15:01	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	122	%.	70-130	5		03/16/16 15:01	17060-07-0	
Toluene-d8 (S)	101	%.	70-130	5		03/16/16 15:01	2037-26-5	
4-Bromofluorobenzene (S)	89	%.	70-130	5		03/16/16 15:01	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: Field Blank		Lab ID: 1262435043	Collected: 03/09/16 15:10	Received: 03/11/16 11:45	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		03/16/16 10:02	75-27-4	
Bromoform	ND	ug/L	0.50	1		03/16/16 10:02	75-25-2	
Bromomethane	ND	ug/L	20.0	1		03/16/16 10:02	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		03/16/16 10:02	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		03/16/16 10:02	108-90-7	
Chloroethane	ND	ug/L	2.0	1		03/16/16 10:02	75-00-3	
Chloroform	ND	ug/L	0.50	1		03/16/16 10:02	67-66-3	
Chloromethane	ND	ug/L	0.50	1		03/16/16 10:02	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		03/16/16 10:02	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 10:02	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 10:02	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 10:02	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		03/16/16 10:02	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		03/16/16 10:02	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		03/16/16 10:02	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		03/16/16 10:02	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/16/16 10:02	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		03/16/16 10:02	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/16/16 10:02	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/16/16 10:02	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		03/16/16 10:02	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/16/16 10:02	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		03/16/16 10:02	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		03/16/16 10:02	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/16/16 10:02	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		03/16/16 10:02	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		03/16/16 10:02	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		03/16/16 10:02	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	129	%.	70-130	1		03/16/16 10:02	17060-07-0	
Toluene-d8 (S)	99	%.	70-130	1		03/16/16 10:02	2037-26-5	
4-Bromofluorobenzene (S)	91	%.	70-130	1		03/16/16 10:02	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: Equipment Blank		Lab ID: 1262435044	Collected: 03/09/16 15:00	Received: 03/11/16 11:45	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		03/16/16 10:27	75-27-4	
Bromoform	ND	ug/L	0.50	1		03/16/16 10:27	75-25-2	
Bromomethane	ND	ug/L	20.0	1		03/16/16 10:27	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		03/16/16 10:27	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		03/16/16 10:27	108-90-7	
Chloroethane	ND	ug/L	2.0	1		03/16/16 10:27	75-00-3	
Chloroform	ND	ug/L	0.50	1		03/16/16 10:27	67-66-3	
Chloromethane	ND	ug/L	0.50	1		03/16/16 10:27	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		03/16/16 10:27	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 10:27	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 10:27	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 10:27	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		03/16/16 10:27	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		03/16/16 10:27	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		03/16/16 10:27	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		03/16/16 10:27	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/16/16 10:27	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		03/16/16 10:27	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/16/16 10:27	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/16/16 10:27	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		03/16/16 10:27	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/16/16 10:27	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		03/16/16 10:27	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		03/16/16 10:27	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/16/16 10:27	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		03/16/16 10:27	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		03/16/16 10:27	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		03/16/16 10:27	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	131	%.	70-130	1		03/16/16 10:27	17060-07-0	
Toluene-d8 (S)	98	%.	70-130	1		03/16/16 10:27	2037-26-5	
4-Bromofluorobenzene (S)	90	%.	70-130	1		03/16/16 10:27	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Sample: PW030316 (Trip Blank)	Lab ID: 1262435045	Collected: 03/09/16 00:00	Received: 03/11/16 11:45	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		03/16/16 10:52	75-27-4	
Bromoform	ND	ug/L	0.50	1		03/16/16 10:52	75-25-2	
Bromomethane	ND	ug/L	20.0	1		03/16/16 10:52	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		03/16/16 10:52	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		03/16/16 10:52	108-90-7	
Chloroethane	ND	ug/L	2.0	1		03/16/16 10:52	75-00-3	
Chloroform	ND	ug/L	0.50	1		03/16/16 10:52	67-66-3	
Chloromethane	ND	ug/L	0.50	1		03/16/16 10:52	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		03/16/16 10:52	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 10:52	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 10:52	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		03/16/16 10:52	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		03/16/16 10:52	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		03/16/16 10:52	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		03/16/16 10:52	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		03/16/16 10:52	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		03/16/16 10:52	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		03/16/16 10:52	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		03/16/16 10:52	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		03/16/16 10:52	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		03/16/16 10:52	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		03/16/16 10:52	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		03/16/16 10:52	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		03/16/16 10:52	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		03/16/16 10:52	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		03/16/16 10:52	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		03/16/16 10:52	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		03/16/16 10:52	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	134	%.	70-130	1		03/16/16 10:52	17060-07-0	
Toluene-d8 (S)	99	%.	70-130	1		03/16/16 10:52	2037-26-5	
4-Bromofluorobenzene (S)	89	%.	70-130	1		03/16/16 10:52	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

QC Batch: AIR/25427 Analysis Method: RSK 175
 QC Batch Method: RSK 175 Analysis Description: RSK 175 AIR HEADSPACE
 Associated Lab Samples: 1262435007, 1262435018, 1262435024

METHOD BLANK: 2208965 Matrix: Water

Associated Lab Samples: 1262435007, 1262435018, 1262435024

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethane	ug/L	ND	10.0	03/14/16 12:06	
Ethene	ug/L	ND	10.0	03/14/16 12:06	
Methane	ug/L	ND	10.0	03/14/16 12:06	

LABORATORY CONTROL SAMPLE & LCSD: 2208966 2208967

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Ethane	ug/L	114	107	107	94	94	85-115	0	20	
Ethene	ug/L	106	101	100	95	95	85-115	0	20	
Methane	ug/L	60.7	56.7	56.5	93	93	85-115	0	20	

SAMPLE DUPLICATE: 2209629

Parameter	Units	60214691002 Result	Dup Result	RPD	Max RPD	Qualifiers
Ethane	ug/L	ND	ND		20	
Ethene	ug/L	ND	ND		20	
Methane	ug/L	1.6J	1.9J		20	

SAMPLE DUPLICATE: 2209630

Parameter	Units	92289587003 Result	Dup Result	RPD	Max RPD	Qualifiers
Ethane	ug/L	ND	ND		20	
Ethene	ug/L	ND	ND		20	
Methane	ug/L	1.5J	1.6J		20	

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

QC Batch: AIR/25428 Analysis Method: RSK 175
 QC Batch Method: RSK 175 Analysis Description: RSK 175 AIR HEADSPACE
 Associated Lab Samples: 1262435025, 1262435037

METHOD BLANK: 2208968 Matrix: Water

Associated Lab Samples: 1262435025, 1262435037

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethane	ug/L	ND	10.0	03/14/16 16:04	
Ethene	ug/L	ND	10.0	03/14/16 16:04	
Methane	ug/L	ND	10.0	03/14/16 16:04	

LABORATORY CONTROL SAMPLE & LCSD: 2208969 2208970

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Ethane	ug/L	114	107	106	94	93	85-115	1	20	
Ethene	ug/L	106	100	98.9	95	93	85-115	2	20	
Methane	ug/L	60.7	56.5	55.8	93	92	85-115	1	20	

SAMPLE DUPLICATE: 2209634

Parameter	Units	1262435025 Result	Dup Result	RPD	Max RPD	Qualifiers
Ethane	ug/L	ND	ND		20	
Ethene	ug/L	ND	ND		20	
Methane	ug/L	ND	1.6J		20	

SAMPLE DUPLICATE: 2209635

Parameter	Units	60214579003 Result	Dup Result	RPD	Max RPD	Qualifiers
Ethane	ug/L	ND	ND		20	
Ethene	ug/L	0.95J	.71J		20	
Methane	ug/L	8430	6320	29	20 R1	

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

QC Batch: DAVM/3287 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV Med Water
Associated Lab Samples: 1262435001, 1262435002, 1262435003

METHOD BLANK: 296616 Matrix: Water

Associated Lab Samples: 1262435001, 1262435002, 1262435003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	03/14/16 18:29	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	03/14/16 18:29	
1,1,2-Trichloroethane	ug/L	ND	0.50	03/14/16 18:29	
1,1-Dichloroethane	ug/L	ND	0.50	03/14/16 18:29	
1,1-Dichloroethene	ug/L	ND	0.50	03/14/16 18:29	
1,2-Dichlorobenzene	ug/L	ND	0.50	03/14/16 18:29	
1,2-Dichloroethane	ug/L	ND	0.50	03/14/16 18:29	
1,2-Dichloropropane	ug/L	ND	0.50	03/14/16 18:29	
1,3-Dichlorobenzene	ug/L	ND	0.50	03/14/16 18:29	
1,4-Dichlorobenzene	ug/L	ND	0.50	03/14/16 18:29	
Bromodichloromethane	ug/L	ND	0.50	03/14/16 18:29	
Bromoform	ug/L	ND	0.50	03/14/16 18:29	
Bromomethane	ug/L	ND	20.0	03/14/16 18:29	
Carbon tetrachloride	ug/L	ND	0.50	03/14/16 18:29	
Chlorobenzene	ug/L	ND	0.50	03/14/16 18:29	
Chloroethane	ug/L	ND	2.0	03/14/16 18:29	
Chloroform	ug/L	ND	0.50	03/14/16 18:29	
Chloromethane	ug/L	ND	2.0	03/14/16 18:29	
cis-1,2-Dichloroethene	ug/L	ND	0.50	03/14/16 18:29	
cis-1,3-Dichloropropene	ug/L	ND	0.50	03/14/16 18:29	
Dibromochloromethane	ug/L	ND	0.50	03/14/16 18:29	
Methylene Chloride	ug/L	ND	5.0	03/14/16 18:29	
Tetrachloroethene	ug/L	ND	0.50	03/14/16 18:29	
trans-1,2-Dichloroethene	ug/L	ND	0.50	03/14/16 18:29	
trans-1,3-Dichloropropene	ug/L	ND	0.50	03/14/16 18:29	
Trichloroethene	ug/L	ND	0.50	03/14/16 18:29	
Trichlorofluoromethane	ug/L	ND	0.50	03/14/16 18:29	
Vinyl chloride	ug/L	ND	0.50	03/14/16 18:29	
1,2-Dichloroethane-d4 (S)	%	108	70-130	03/14/16 18:29	
4-Bromofluorobenzene (S)	%	96	70-130	03/14/16 18:29	
Toluene-d8 (S)	%	99	70-130	03/14/16 18:29	

LABORATORY CONTROL SAMPLE: 296617

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	40	39.2	98	67-138	
1,1,2,2-Tetrachloroethane	ug/L	40	37.2	93	75-125	
1,1,2-Trichloroethane	ug/L	40	36.5	91	75-126	
1,1-Dichloroethane	ug/L	40	35.3	88	71-131	
1,1-Dichloroethene	ug/L	40	34.1	85	74-126	

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

LABORATORY CONTROL SAMPLE: 296617

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichlorobenzene	ug/L	40	37.1	93	75-125	
1,2-Dichloroethane	ug/L	40	38.9	97	64-141	
1,2-Dichloropropane	ug/L	40	35.4	88	73-127	
1,3-Dichlorobenzene	ug/L	40	35.7	89	75-125	
1,4-Dichlorobenzene	ug/L	40	36.0	90	75-125	
Bromodichloromethane	ug/L	40	39.9	100	70-134	
Bromoform	ug/L	40	41.6	104	68-130	
Bromomethane	ug/L	40	49.0	123	30-150	
Carbon tetrachloride	ug/L	40	39.7	99	66-135	
Chlorobenzene	ug/L	40	35.3	88	75-125	
Chloroethane	ug/L	40	31.7	79	55-150	
Chloroform	ug/L	40	37.4	93	72-131	
Chloromethane	ug/L	40	25.9	65	54-132	
cis-1,2-Dichloroethene	ug/L	40	34.6	87	75-125	
cis-1,3-Dichloropropene	ug/L	40	37.8	94	74-130	
Dibromochloromethane	ug/L	40	41.3	103	70-132	
Methylene Chloride	ug/L	40	35.0	87	68-125	
Tetrachloroethene	ug/L	40	36.7	92	75-130	
trans-1,2-Dichloroethene	ug/L	40	35.1	88	75-125	
trans-1,3-Dichloropropene	ug/L	40	38.4	96	69-137	
Trichloroethene	ug/L	40	34.2	86	75-125	
Trichlorofluoromethane	ug/L	40	37.2	93	59-140	
Vinyl chloride	ug/L	40	31.2	78	68-132	
1,2-Dichloroethane-d4 (S)	%			108	70-130	
4-Bromofluorobenzene (S)	%			99	70-130	
Toluene-d8 (S)	%			101	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 296618 296619

Parameter	Units	1262435002		MSD		MSD		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
1,1,1-Trichloroethane	ug/L	ND	40	40	39.1	39.5	98	99	63-142	1	30		
1,1,2,2-Tetrachloroethane	ug/L	ND	40	40	37.4	39.7	93	99	75-125	6	30		
1,1,2-Trichloroethane	ug/L	ND	40	40	36.4	37.9	91	95	75-132	4	30		
1,1-Dichloroethane	ug/L	ND	40	40	35.3	36.4	88	91	75-126	3	30		
1,1-Dichloroethene	ug/L	ND	40	40	32.9	35.0	82	88	75-125	6	30		
1,2-Dichlorobenzene	ug/L	ND	40	40	36.6	38.5	92	96	75-125	5	30		
1,2-Dichloroethane	ug/L	ND	40	40	38.5	39.6	96	99	75-137	3	30		
1,2-Dichloropropane	ug/L	ND	40	40	35.3	35.7	88	89	74-131	1	30		
1,3-Dichlorobenzene	ug/L	ND	40	40	35.5	36.4	89	91	75-126	2	30		
1,4-Dichlorobenzene	ug/L	ND	40	40	36.0	37.1	90	93	73-125	3	30		
Bromodichloromethane	ug/L	ND	40	40	41.1	42.1	103	105	65-137	2	30		
Bromoform	ug/L	ND	40	40	41.9	43.4	105	108	60-147	4	30		
Bromomethane	ug/L	ND	40	40	48.2	50.5	121	126	30-150	5	30		
Carbon tetrachloride	ug/L	ND	40	40	39.4	40.1	98	100	45-150	2	30		

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 296618		296619		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		1262435002 Result	MS Spike Conc.	MSD Spike Conc.									
Chlorobenzene	ug/L	ND	40	40	35.3	36.0	88	90	75-125	2	30		
Chloroethane	ug/L	ND	40	40	35.2	34.9	88	87	66-145	1	30		
Chloroform	ug/L	ND	40	40	37.1	38.0	93	95	74-128	2	30		
Chloromethane	ug/L	ND	40	40	24.4	25.3	61	63	51-150	4	30		
cis-1,2-Dichloroethene	ug/L	ND	40	40	35.7	36.4	89	91	75-125	2	30		
cis-1,3-Dichloropropene	ug/L	ND	40	40	38.0	39.3	95	98	75-129	3	30		
Dibromochloromethane	ug/L	ND	40	40	41.5	43.1	104	108	66-141	4	30		
Methylene Chloride	ug/L	ND	40	40	34.7	36.0	87	90	74-125	4	30		
Tetrachloroethene	ug/L	ND	40	40	36.3	37.6	91	94	75-135	3	30		
trans-1,2-Dichloroethene	ug/L	ND	40	40	34.8	35.4	87	88	75-125	2	30		
trans-1,3-Dichloropropene	ug/L	ND	40	40	38.6	40.3	96	101	67-139	5	30		
Trichloroethene	ug/L	ND	40	40	34.4	35.5	86	89	75-130	3	30		
Trichlorofluoromethane	ug/L	ND	40	40	36.8	36.9	92	92	57-144	0	30		
Vinyl chloride	ug/L	ND	40	40	31.6	32.0	79	80	70-136	1	30		
1,2-Dichloroethane-d4 (S)	%						108	106	70-130				
4-Bromofluorobenzene (S)	%						97	99	70-130				
Toluene-d8 (S)	%						100	100	70-130				

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

QC Batch: DAVM/3292 Analysis Method: EPA 8260B
 QC Batch Method: EPA 8260B Analysis Description: 8260 MSV Med Water
 Associated Lab Samples: 1262435004, 1262435005, 1262435006, 1262435007, 1262435008, 1262435009, 1262435010, 1262435011, 1262435012, 1262435013, 1262435015, 1262435016, 1262435017

METHOD BLANK: 296691 Matrix: Water
 Associated Lab Samples: 1262435004, 1262435005, 1262435006, 1262435007, 1262435008, 1262435009, 1262435010, 1262435011, 1262435012, 1262435013, 1262435015, 1262435016, 1262435017

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	03/15/16 08:07	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	03/15/16 08:07	
1,1,2-Trichloroethane	ug/L	ND	0.50	03/15/16 08:07	
1,1-Dichloroethane	ug/L	ND	0.50	03/15/16 08:07	
1,1-Dichloroethene	ug/L	ND	0.50	03/15/16 08:07	
1,2-Dichlorobenzene	ug/L	ND	0.50	03/15/16 08:07	
1,2-Dichloroethane	ug/L	ND	0.50	03/15/16 08:07	
1,2-Dichloropropane	ug/L	ND	0.50	03/15/16 08:07	
1,3-Dichlorobenzene	ug/L	ND	0.50	03/15/16 08:07	
1,4-Dichlorobenzene	ug/L	ND	0.50	03/15/16 08:07	
Bromodichloromethane	ug/L	ND	0.50	03/15/16 08:07	
Bromoform	ug/L	ND	0.50	03/15/16 08:07	
Bromomethane	ug/L	ND	20.0	03/15/16 08:07	
Carbon tetrachloride	ug/L	ND	0.50	03/15/16 08:07	
Chlorobenzene	ug/L	ND	0.50	03/15/16 08:07	
Chloroethane	ug/L	ND	2.0	03/15/16 08:07	
Chloroform	ug/L	ND	0.50	03/15/16 08:07	
Chloromethane	ug/L	ND	0.50	03/15/16 08:07	
cis-1,2-Dichloroethene	ug/L	ND	0.50	03/15/16 08:07	
cis-1,3-Dichloropropene	ug/L	ND	0.50	03/15/16 08:07	
Dibromochloromethane	ug/L	ND	0.50	03/15/16 08:07	
Methylene Chloride	ug/L	ND	5.0	03/15/16 08:07	
Tetrachloroethene	ug/L	ND	0.50	03/15/16 08:07	
trans-1,2-Dichloroethene	ug/L	ND	0.50	03/15/16 08:07	
trans-1,3-Dichloropropene	ug/L	ND	0.50	03/15/16 08:07	
Trichloroethene	ug/L	ND	0.50	03/15/16 08:07	
Trichlorofluoromethane	ug/L	ND	0.50	03/15/16 08:07	
Vinyl chloride	ug/L	ND	0.50	03/15/16 08:07	
1,2-Dichloroethane-d4 (S)	%	121	70-130	03/15/16 08:07	
4-Bromofluorobenzene (S)	%	93	70-130	03/15/16 08:07	
Toluene-d8 (S)	%	101	70-130	03/15/16 08:07	

LABORATORY CONTROL SAMPLE: 296692

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	40	47.3	118	67-138	
1,1,2,2-Tetrachloroethane	ug/L	40	42.1	105	75-125	
1,1,2-Trichloroethane	ug/L	40	40.5	101	75-126	

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

LABORATORY CONTROL SAMPLE: 296692

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1-Dichloroethane	ug/L	40	44.7	112	71-131	
1,1-Dichloroethene	ug/L	40	38.5	96	74-126	
1,2-Dichlorobenzene	ug/L	40	38.8	97	75-125	
1,2-Dichloroethane	ug/L	40	45.0	113	64-141	
1,2-Dichloropropane	ug/L	40	42.8	107	73-127	
1,3-Dichlorobenzene	ug/L	40	37.4	94	75-125	
1,4-Dichlorobenzene	ug/L	40	39.0	98	75-125	
Bromodichloromethane	ug/L	40	46.4	116	70-134	
Bromoform	ug/L	40	44.1	110	68-130	
Bromomethane	ug/L	40	37.9	95	30-150	
Carbon tetrachloride	ug/L	40	51.2	128	66-135	
Chlorobenzene	ug/L	40	36.8	92	75-125	
Chloroethane	ug/L	40	42.7	107	55-150	
Chloroform	ug/L	40	45.1	113	72-131	
Chloromethane	ug/L	40	45.0	112	54-132	
cis-1,2-Dichloroethene	ug/L	40	41.1	103	75-125	
cis-1,3-Dichloropropene	ug/L	40	44.6	112	74-130	
Dibromochloromethane	ug/L	40	47.1	118	70-132	
Methylene Chloride	ug/L	40	40.5	101	68-125	
Tetrachloroethene	ug/L	40	38.8	97	75-130	
trans-1,2-Dichloroethene	ug/L	40	40.9	102	75-125	
trans-1,3-Dichloropropene	ug/L	40	42.4	106	69-137	
Trichloroethene	ug/L	40	39.0	98	75-125	
Trichlorofluoromethane	ug/L	40	44.5	111	59-140	
Vinyl chloride	ug/L	40	46.7	117	68-132	
1,2-Dichloroethane-d4 (S)	%			124	70-130	
4-Bromofluorobenzene (S)	%			96	70-130	
Toluene-d8 (S)	%			101	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 296693 296694

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		1262435004 Result	Spike Conc.	Spike Conc.	Result							
1,1,1-Trichloroethane	ug/L	ND	40	40	47.6	48.4	119	121	63-142	2	30	
1,1,2,2-Tetrachloroethane	ug/L	ND	40	40	41.3	42.3	103	106	75-125	3	30	
1,1,2-Trichloroethane	ug/L	ND	40	40	41.0	42.2	103	105	75-132	3	30	
1,1-Dichloroethane	ug/L	ND	40	40	44.4	45.6	111	114	75-126	3	30	
1,1-Dichloroethene	ug/L	ND	40	40	39.6	40.3	99	101	75-125	2	30	
1,2-Dichlorobenzene	ug/L	ND	40	40	38.6	39.3	97	98	75-125	2	30	
1,2-Dichloroethane	ug/L	ND	40	40	44.0	45.3	110	113	75-137	3	30	
1,2-Dichloropropane	ug/L	ND	40	40	42.5	43.3	106	108	74-131	2	30	
1,3-Dichlorobenzene	ug/L	ND	40	40	36.7	36.7	92	92	75-126	0	30	
1,4-Dichlorobenzene	ug/L	ND	40	40	38.2	39.2	96	98	73-125	2	30	
Bromodichloromethane	ug/L	ND	40	40	44.8	45.8	112	115	65-137	2	30	
Bromoform	ug/L	ND	40	40	40.0	41.3	100	103	60-147	3	30	

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 296693		296694		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		1262435004 Result	MS Spike Conc.	MSD Spike Conc.									
Bromomethane	ug/L	ND	40	40	34.6	40.4	87	101	30-150	15	30		
Carbon tetrachloride	ug/L	ND	40	40	48.8	49.4	122	124	45-150	1	30		
Chlorobenzene	ug/L	ND	40	40	37.2	37.6	93	94	75-125	1	30		
Chloroethane	ug/L	ND	40	40	46.5	47.6	116	119	66-145	2	30		
Chloroform	ug/L	ND	40	40	44.8	45.7	111	114	74-128	2	30		
Chloromethane	ug/L	ND	40	40	46.5	48.1	116	120	51-150	3	30		
cis-1,2-Dichloroethene	ug/L	ND	40	40	40.3	41.9	101	105	75-125	4	30		
cis-1,3-Dichloropropene	ug/L	ND	40	40	38.8	42.3	97	106	75-129	9	30		
Dibromochloromethane	ug/L	ND	40	40	44.4	46.0	111	115	66-141	4	30		
Methylene Chloride	ug/L	ND	40	40	40.7	41.6	102	104	74-125	2	30		
Tetrachloroethene	ug/L	ND	40	40	40.1	39.7	99	98	75-135	1	30		
trans-1,2-Dichloroethene	ug/L	ND	40	40	40.5	41.2	101	103	75-125	2	30		
trans-1,3-Dichloropropene	ug/L	ND	40	40	36.6	40.1	92	100	67-139	9	30		
Trichloroethene	ug/L	0.98	40	40	40.0	40.7	98	99	75-130	2	30		
Trichlorofluoromethane	ug/L	ND	40	40	46.0	44.4	115	111	57-144	4	30		
Vinyl chloride	ug/L	ND	40	40	46.8	47.4	117	118	70-136	1	30		
1,2-Dichloroethane-d4 (S)	%.						121	122	70-130				
4-Bromofluorobenzene (S)	%.						95	92	70-130				
Toluene-d8 (S)	%.						101	101	70-130				

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

QC Batch: DAVM/3294 Analysis Method: EPA 8260B
 QC Batch Method: EPA 8260B Analysis Description: 8260 MSV Med Water
 Associated Lab Samples: 1262435018, 1262435019, 1262435020, 1262435021, 1262435022, 1262435023, 1262435024, 1262435025,
 1262435026, 1262435027, 1262435028, 1262435029, 1262435030, 1262435031, 1262435032, 1262435033

METHOD BLANK: 297084 Matrix: Water
 Associated Lab Samples: 1262435018, 1262435019, 1262435020, 1262435021, 1262435022, 1262435023, 1262435024, 1262435025,
 1262435026, 1262435027, 1262435028, 1262435029, 1262435030, 1262435031, 1262435032, 1262435033

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	03/15/16 18:12	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	03/15/16 18:12	
1,1,2-Trichloroethane	ug/L	ND	0.50	03/15/16 18:12	
1,1-Dichloroethane	ug/L	ND	0.50	03/15/16 18:12	
1,1-Dichloroethene	ug/L	ND	0.50	03/15/16 18:12	
1,2-Dichlorobenzene	ug/L	ND	0.50	03/15/16 18:12	
1,2-Dichloroethane	ug/L	ND	0.50	03/15/16 18:12	
1,2-Dichloropropane	ug/L	ND	0.50	03/15/16 18:12	
1,3-Dichlorobenzene	ug/L	ND	0.50	03/15/16 18:12	
1,4-Dichlorobenzene	ug/L	ND	0.50	03/15/16 18:12	
Bromodichloromethane	ug/L	ND	0.50	03/15/16 18:12	
Bromoform	ug/L	ND	0.50	03/15/16 18:12	
Bromomethane	ug/L	ND	20.0	03/15/16 18:12	
Carbon tetrachloride	ug/L	ND	0.50	03/15/16 18:12	
Chlorobenzene	ug/L	ND	0.50	03/15/16 18:12	
Chloroethane	ug/L	ND	2.0	03/15/16 18:12	
Chloroform	ug/L	ND	0.50	03/15/16 18:12	
Chloromethane	ug/L	ND	0.50	03/15/16 18:12	
cis-1,2-Dichloroethene	ug/L	ND	0.50	03/15/16 18:12	
cis-1,3-Dichloropropene	ug/L	ND	0.50	03/15/16 18:12	
Dibromochloromethane	ug/L	ND	0.50	03/15/16 18:12	
Methylene Chloride	ug/L	ND	5.0	03/15/16 18:12	
Tetrachloroethene	ug/L	ND	0.50	03/15/16 18:12	
trans-1,2-Dichloroethene	ug/L	ND	0.50	03/15/16 18:12	
trans-1,3-Dichloropropene	ug/L	ND	0.50	03/15/16 18:12	
Trichloroethene	ug/L	ND	0.50	03/15/16 18:12	
Trichlorofluoromethane	ug/L	ND	0.50	03/15/16 18:12	
Vinyl chloride	ug/L	ND	0.50	03/15/16 18:12	
1,2-Dichloroethane-d4 (S)	%	118	70-130	03/15/16 18:12	
4-Bromofluorobenzene (S)	%	90	70-130	03/15/16 18:12	
Toluene-d8 (S)	%	101	70-130	03/15/16 18:12	

LABORATORY CONTROL SAMPLE: 297085

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	40	44.5	111	67-138	
1,1,2,2-Tetrachloroethane	ug/L	40	40.3	101	75-125	
1,1,2-Trichloroethane	ug/L	40	39.8	100	75-126	

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

LABORATORY CONTROL SAMPLE: 297085

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1-Dichloroethane	ug/L	40	40.8	102	71-131	
1,1-Dichloroethene	ug/L	40	37.5	94	74-126	
1,2-Dichlorobenzene	ug/L	40	38.3	96	75-125	
1,2-Dichloroethane	ug/L	40	41.7	104	64-141	
1,2-Dichloropropane	ug/L	40	40.1	100	73-127	
1,3-Dichlorobenzene	ug/L	40	36.6	91	75-125	
1,4-Dichlorobenzene	ug/L	40	38.7	97	75-125	
Bromodichloromethane	ug/L	40	44.2	111	70-134	
Bromoform	ug/L	40	42.8	107	68-130	
Bromomethane	ug/L	40	29.0	72	30-150	
Carbon tetrachloride	ug/L	40	46.4	116	66-135	
Chlorobenzene	ug/L	40	37.0	93	75-125	
Chloroethane	ug/L	40	43.4	108	55-150	
Chloroform	ug/L	40	42.0	105	72-131	
Chloromethane	ug/L	40	46.4	116	54-132	
cis-1,2-Dichloroethene	ug/L	40	38.0	95	75-125	
cis-1,3-Dichloropropene	ug/L	40	38.8	97	74-130	
Dibromochloromethane	ug/L	40	45.2	113	70-132	
Methylene Chloride	ug/L	40	39.5	99	68-125	
Tetrachloroethene	ug/L	40	38.8	97	75-130	
trans-1,2-Dichloroethene	ug/L	40	38.2	95	75-125	
trans-1,3-Dichloropropene	ug/L	40	36.9	92	69-137	
Trichloroethene	ug/L	40	37.4	94	75-125	
Trichlorofluoromethane	ug/L	40	43.9	110	59-140	
Vinyl chloride	ug/L	40	43.4	108	68-132	
1,2-Dichloroethane-d4 (S)	%			116	70-130	
4-Bromofluorobenzene (S)	%			95	70-130	
Toluene-d8 (S)	%			101	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 297089 297090

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		1262435027 Result	Spike Conc.	Spike Conc.	MSD Result							
1,1,1-Trichloroethane	ug/L	ND	40	40	47.9	48.4	119	121	63-142	1	30	
1,1,2,2-Tetrachloroethane	ug/L	ND	40	40	40.4	41.5	101	104	75-125	3	30	
1,1,2-Trichloroethane	ug/L	ND	40	40	41.9	41.4	105	103	75-132	1	30	
1,1-Dichloroethane	ug/L	ND	40	40	45.5	45.4	112	112	75-126	0	30	
1,1-Dichloroethene	ug/L	ND	40	40	36.7	38.2	92	95	75-125	4	30	
1,2-Dichlorobenzene	ug/L	ND	40	40	38.6	39.6	96	99	75-125	3	30	
1,2-Dichloroethane	ug/L	ND	40	40	45.2	45.2	113	113	75-137	0	30	
1,2-Dichloropropane	ug/L	ND	40	40	42.7	42.9	107	107	74-131	0	30	
1,3-Dichlorobenzene	ug/L	ND	40	40	36.9	38.1	92	95	75-126	3	30	
1,4-Dichlorobenzene	ug/L	ND	40	40	38.9	39.9	97	100	73-125	2	30	
Bromodichloromethane	ug/L	ND	40	40	45.5	45.1	114	113	65-137	1	30	
Bromoform	ug/L	ND	40	40	38.8	39.4	97	98	60-147	2	30	

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Parameter	Units	297089		297090		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		1262435027 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
Bromomethane	ug/L	ND	40	40	38.6	40.3	97	101	30-150	4	30	
Carbon tetrachloride	ug/L	ND	40	40	50.0	49.8	125	124	45-150	0	30	
Chlorobenzene	ug/L	ND	40	40	36.4	37.5	91	94	75-125	3	30	
Chloroethane	ug/L	ND	40	40	47.3	46.9	118	117	66-145	1	30	
Chloroform	ug/L	ND	40	40	45.3	45.1	113	113	74-128	0	30	
Chloromethane	ug/L	ND	40	40	45.7	46.7	114	117	51-150	2	30	
cis-1,2-Dichloroethene	ug/L	8.0	40	40	48.5	49.3	101	103	75-125	2	30	
cis-1,3-Dichloropropene	ug/L	ND	40	40	42.6	43.5	106	109	75-129	2	30	
Dibromochloromethane	ug/L	ND	40	40	44.2	44.2	111	110	66-141	0	30	
Methylene Chloride	ug/L	ND	40	40	40.9	40.7	102	102	74-125	1	30	
Tetrachloroethene	ug/L	2.2	40	40	40.7	41.2	96	97	75-135	1	30	
trans-1,2-Dichloroethene	ug/L	ND	40	40	40.6	40.8	101	101	75-125	0	30	
trans-1,3-Dichloropropene	ug/L	ND	40	40	40.9	41.0	102	103	67-139	0	30	
Trichloroethene	ug/L	12.0	40	40	50.8	50.8	97	97	75-130	0	30	
Trichlorofluoromethane	ug/L	ND	40	40	45.1	46.1	113	115	57-144	2	30	
Vinyl chloride	ug/L	ND	40	40	44.6	45.7	111	114	70-136	2	30	
1,2-Dichloroethane-d4 (S)	%.						127	123	70-130			
4-Bromofluorobenzene (S)	%.						93	96	70-130			
Toluene-d8 (S)	%.						97	96	70-130			

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

QC Batch: DAVM/3295 Analysis Method: EPA 8260B
 QC Batch Method: EPA 8260B Analysis Description: 8260 MSV Med Water
 Associated Lab Samples: 1262435034, 1262435035, 1262435038, 1262435039, 1262435040, 1262435041, 1262435042, 1262435043, 1262435044, 1262435045

METHOD BLANK: 297266 Matrix: Water
 Associated Lab Samples: 1262435034, 1262435035, 1262435038, 1262435039, 1262435040, 1262435041, 1262435042, 1262435043, 1262435044, 1262435045

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	03/16/16 07:58	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	03/16/16 07:58	
1,1,2-Trichloroethane	ug/L	ND	0.50	03/16/16 07:58	
1,1-Dichloroethane	ug/L	ND	0.50	03/16/16 07:58	
1,1-Dichloroethene	ug/L	ND	0.50	03/16/16 07:58	
1,2-Dichlorobenzene	ug/L	ND	0.50	03/16/16 07:58	
1,2-Dichloroethane	ug/L	ND	0.50	03/16/16 07:58	
1,2-Dichloropropane	ug/L	ND	0.50	03/16/16 07:58	
1,3-Dichlorobenzene	ug/L	ND	0.50	03/16/16 07:58	
1,4-Dichlorobenzene	ug/L	ND	0.50	03/16/16 07:58	
Bromodichloromethane	ug/L	ND	0.50	03/16/16 07:58	
Bromoform	ug/L	ND	0.50	03/16/16 07:58	
Bromomethane	ug/L	ND	20.0	03/16/16 07:58	
Carbon tetrachloride	ug/L	ND	0.50	03/16/16 07:58	
Chlorobenzene	ug/L	ND	0.50	03/16/16 07:58	
Chloroethane	ug/L	ND	2.0	03/16/16 07:58	
Chloroform	ug/L	ND	0.50	03/16/16 07:58	
Chloromethane	ug/L	ND	0.50	03/16/16 07:58	
cis-1,2-Dichloroethene	ug/L	ND	0.50	03/16/16 07:58	
cis-1,3-Dichloropropene	ug/L	ND	0.50	03/16/16 07:58	
Dibromochloromethane	ug/L	ND	0.50	03/16/16 07:58	
Methylene Chloride	ug/L	ND	5.0	03/16/16 07:58	
Tetrachloroethene	ug/L	ND	0.50	03/16/16 07:58	
trans-1,2-Dichloroethene	ug/L	ND	0.50	03/16/16 07:58	
trans-1,3-Dichloropropene	ug/L	ND	0.50	03/16/16 07:58	
Trichloroethene	ug/L	ND	0.50	03/16/16 07:58	
Trichlorofluoromethane	ug/L	ND	0.50	03/16/16 07:58	
Vinyl chloride	ug/L	ND	0.50	03/16/16 07:58	
1,2-Dichloroethane-d4 (S)	%	120	70-130	03/16/16 07:58	
4-Bromofluorobenzene (S)	%	89	70-130	03/16/16 07:58	
Toluene-d8 (S)	%	101	70-130	03/16/16 07:58	

LABORATORY CONTROL SAMPLE: 297267

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	40	46.6	117	67-138	
1,1,2,2-Tetrachloroethane	ug/L	40	40.6	102	75-125	
1,1,2-Trichloroethane	ug/L	40	41.3	103	75-126	

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

LABORATORY CONTROL SAMPLE: 297267

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1-Dichloroethane	ug/L	40	44.1	110	71-131	
1,1-Dichloroethene	ug/L	40	38.5	96	74-126	
1,2-Dichlorobenzene	ug/L	40	38.5	96	75-125	
1,2-Dichloroethane	ug/L	40	45.3	113	64-141	
1,2-Dichloropropane	ug/L	40	42.8	107	73-127	
1,3-Dichlorobenzene	ug/L	40	36.7	92	75-125	
1,4-Dichlorobenzene	ug/L	40	38.2	96	75-125	
Bromodichloromethane	ug/L	40	46.3	116	70-134	
Bromoform	ug/L	40	43.6	109	68-130	
Bromomethane	ug/L	40	33.4	84	30-150	
Carbon tetrachloride	ug/L	40	48.6	122	66-135	
Chlorobenzene	ug/L	40	36.4	91	75-125	
Chloroethane	ug/L	40	44.4	111	55-150	
Chloroform	ug/L	40	44.6	111	72-131	
Chloromethane	ug/L	40	46.4	116	54-132	
cis-1,2-Dichloroethene	ug/L	40	39.9	100	75-125	
cis-1,3-Dichloropropene	ug/L	40	42.9	107	74-130	
Dibromochloromethane	ug/L	40	47.0	118	70-132	
Methylene Chloride	ug/L	40	41.0	103	68-125	
Tetrachloroethene	ug/L	40	38.6	97	75-130	
trans-1,2-Dichloroethene	ug/L	40	39.9	100	75-125	
trans-1,3-Dichloropropene	ug/L	40	40.3	101	69-137	
Trichloroethene	ug/L	40	38.6	96	75-125	
Trichlorofluoromethane	ug/L	40	45.7	114	59-140	
Vinyl chloride	ug/L	40	45.2	113	68-132	
1,2-Dichloroethane-d4 (S)	%			125	70-130	
4-Bromofluorobenzene (S)	%			98	70-130	
Toluene-d8 (S)	%			102	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 297268 297269

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		1262435034 Result	Spike Conc.	Spike Conc.	Result							
1,1,1-Trichloroethane	ug/L	0.56	40	40	48.5	49.8	120	123	63-142	3	30	
1,1,2,2-Tetrachloroethane	ug/L	ND	40	40	43.1	41.2	108	103	75-125	4	30	
1,1,2-Trichloroethane	ug/L	ND	40	40	41.2	41.8	103	105	75-132	2	30	
1,1-Dichloroethane	ug/L	1.0	40	40	45.5	46.8	111	115	75-126	3	30	
1,1-Dichloroethene	ug/L	0.56	40	40	40.4	41.6	100	103	75-125	3	30	
1,2-Dichlorobenzene	ug/L	ND	40	40	38.4	39.9	96	100	75-125	4	30	
1,2-Dichloroethane	ug/L	ND	40	40	45.5	46.4	113	115	75-137	2	30	
1,2-Dichloropropane	ug/L	ND	40	40	42.4	43.9	106	110	74-131	3	30	
1,3-Dichlorobenzene	ug/L	ND	40	40	37.3	38.1	93	95	75-126	2	30	
1,4-Dichlorobenzene	ug/L	ND	40	40	38.9	40.2	97	100	73-125	3	30	
Bromodichloromethane	ug/L	ND	40	40	45.9	47.1	115	118	65-137	3	30	
Bromoform	ug/L	ND	40	40	41.2	40.8	103	102	60-147	1	30	

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 297268		297269		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		1262435034 Result	MS Spike Conc.	MSD Spike Conc.									
Bromomethane	ug/L	ND	40	40	34.1	40.2	85	100	30-150	16	30		
Carbon tetrachloride	ug/L	ND	40	40	50.4	52.0	126	130	45-150	3	30		
Chlorobenzene	ug/L	ND	40	40	37.1	37.4	93	94	75-125	1	30		
Chloroethane	ug/L	ND	40	40	44.2	48.0	111	120	66-145	8	30		
Chloroform	ug/L	ND	40	40	44.9	46.3	112	116	74-128	3	30		
Chloromethane	ug/L	ND	40	40	47.0	47.8	118	119	51-150	2	30		
cis-1,2-Dichloroethene	ug/L	14.4	40	40	55.1	56.7	102	106	75-125	3	30		
cis-1,3-Dichloropropene	ug/L	ND	40	40	42.2	45.1	106	113	75-129	6	30		
Dibromochloromethane	ug/L	ND	40	40	46.1	46.3	115	116	66-141	0	30		
Methylene Chloride	ug/L	ND	40	40	40.6	41.1	102	103	74-125	1	30		
Tetrachloroethene	ug/L	13.5	40	40	53.6	53.3	100	99	75-135	1	30		
trans-1,2-Dichloroethene	ug/L	ND	40	40	40.5	41.5	101	104	75-125	2	30		
trans-1,3-Dichloropropene	ug/L	ND	40	40	41.2	42.7	103	107	67-139	4	30		
Trichloroethene	ug/L	12.7	40	40	52.4	53.2	99	101	75-130	2	30		
Trichlorofluoromethane	ug/L	ND	40	40	48.8	47.2	122	118	57-144	3	30		
Vinyl chloride	ug/L	0.80	40	40	46.8	47.2	115	116	70-136	1	30		
1,2-Dichloroethane-d4 (S)	%.						124	126	70-130				
4-Bromofluorobenzene (S)	%.						96	96	70-130				
Toluene-d8 (S)	%.						104	101	70-130				

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

QC Batch: DAVM/3304 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV Med Water
Associated Lab Samples: 1262435036, 1262435037

METHOD BLANK: 297547 Matrix: Water

Associated Lab Samples: 1262435036, 1262435037

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	03/16/16 18:47	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	03/16/16 18:47	
1,1,2-Trichloroethane	ug/L	ND	0.50	03/16/16 18:47	
1,1-Dichloroethane	ug/L	ND	0.50	03/16/16 18:47	
1,1-Dichloroethene	ug/L	ND	0.50	03/16/16 18:47	
1,2-Dichlorobenzene	ug/L	ND	0.50	03/16/16 18:47	
1,2-Dichloroethane	ug/L	ND	0.50	03/16/16 18:47	
1,2-Dichloropropane	ug/L	ND	0.50	03/16/16 18:47	
1,3-Dichlorobenzene	ug/L	ND	0.50	03/16/16 18:47	
1,4-Dichlorobenzene	ug/L	ND	0.50	03/16/16 18:47	
Bromodichloromethane	ug/L	ND	0.50	03/16/16 18:47	
Bromoform	ug/L	ND	0.50	03/16/16 18:47	
Bromomethane	ug/L	ND	20.0	03/16/16 18:47	
Carbon tetrachloride	ug/L	ND	0.50	03/16/16 18:47	
Chlorobenzene	ug/L	ND	0.50	03/16/16 18:47	
Chloroethane	ug/L	ND	2.0	03/16/16 18:47	
Chloroform	ug/L	ND	0.50	03/16/16 18:47	
Chloromethane	ug/L	ND	0.50	03/16/16 18:47	
cis-1,2-Dichloroethene	ug/L	ND	0.50	03/16/16 18:47	
cis-1,3-Dichloropropene	ug/L	ND	0.50	03/16/16 18:47	
Dibromochloromethane	ug/L	ND	0.50	03/16/16 18:47	
Methylene Chloride	ug/L	ND	5.0	03/16/16 18:47	
Tetrachloroethene	ug/L	ND	0.50	03/16/16 18:47	
trans-1,2-Dichloroethene	ug/L	ND	0.50	03/16/16 18:47	
trans-1,3-Dichloropropene	ug/L	ND	0.50	03/16/16 18:47	
Trichloroethene	ug/L	ND	0.50	03/16/16 18:47	
Trichlorofluoromethane	ug/L	ND	0.50	03/16/16 18:47	
Vinyl chloride	ug/L	ND	0.50	03/16/16 18:47	
1,2-Dichloroethane-d4 (S)	%	118	70-130	03/16/16 18:47	
4-Bromofluorobenzene (S)	%	92	70-130	03/16/16 18:47	
Toluene-d8 (S)	%	100	70-130	03/16/16 18:47	

LABORATORY CONTROL SAMPLE: 297548

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	40	43.9	110	67-138	
1,1,2,2-Tetrachloroethane	ug/L	40	37.6	94	75-125	
1,1,2-Trichloroethane	ug/L	40	37.5	94	75-126	
1,1-Dichloroethane	ug/L	40	40.0	100	71-131	
1,1-Dichloroethene	ug/L	40	36.6	91	74-126	

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

LABORATORY CONTROL SAMPLE: 297548

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichlorobenzene	ug/L	40	37.4	93	75-125	
1,2-Dichloroethane	ug/L	40	41.3	103	64-141	
1,2-Dichloropropane	ug/L	40	39.6	99	73-127	
1,3-Dichlorobenzene	ug/L	40	35.3	88	75-125	
1,4-Dichlorobenzene	ug/L	40	36.6	91	75-125	
Bromodichloromethane	ug/L	40	42.8	107	70-134	
Bromoform	ug/L	40	41.0	102	68-130	
Bromomethane	ug/L	40	27.2	68	30-150	
Carbon tetrachloride	ug/L	40	46.2	116	66-135	
Chlorobenzene	ug/L	40	35.3	88	75-125	
Chloroethane	ug/L	40	42.4	106	55-150	
Chloroform	ug/L	40	41.2	103	72-131	
Chloromethane	ug/L	40	43.3	108	54-132	
cis-1,2-Dichloroethene	ug/L	40	36.9	92	75-125	
cis-1,3-Dichloropropene	ug/L	40	37.5	94	74-130	
Dibromochloromethane	ug/L	40	43.8	110	70-132	
Methylene Chloride	ug/L	40	37.9	95	68-125	
Tetrachloroethene	ug/L	40	36.3	91	75-130	
trans-1,2-Dichloroethene	ug/L	40	36.6	91	75-125	
trans-1,3-Dichloropropene	ug/L	40	35.3	88	69-137	
Trichloroethene	ug/L	40	36.0	90	75-125	
Trichlorofluoromethane	ug/L	40	42.5	106	59-140	
Vinyl chloride	ug/L	40	42.0	105	68-132	
1,2-Dichloroethane-d4 (S)	%			120	70-130	
4-Bromofluorobenzene (S)	%			97	70-130	
Toluene-d8 (S)	%			102	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 297549 297550

Parameter	Units	1262490002		MSD		MSD		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
1,1,1-Trichloroethane	ug/L	ND	40	40	24.5	30.7	61	77	63-142	23	30	M1	
1,1,2,2-Tetrachloroethane	ug/L	ND	40	40	21.3	26.5	53	66	75-125	22	30	M1	
1,1,2-Trichloroethane	ug/L	ND	40	40	21.2	26.7	53	67	75-132	23	30	M1	
1,1-Dichloroethane	ug/L	ND	40	40	23.9	29.6	60	74	75-126	21	30	M1	
1,1-Dichloroethene	ug/L	ND	40	40	19.9	24.3	50	61	75-125	20	30	M1	
1,2-Dichlorobenzene	ug/L	ND	40	40	19.1	23.6	48	59	75-125	21	30	M1	
1,2-Dichloroethane	ug/L	ND	40	40	25.0	30.3	63	76	75-137	19	30	M1	
1,2-Dichloropropane	ug/L	ND	40	40	23.0	27.8	57	70	74-131	19	30	M1	
1,3-Dichlorobenzene	ug/L	ND	40	40	17.7	22.0	44	55	75-126	22	30	M1	
1,4-Dichlorobenzene	ug/L	ND	40	40	18.7	23.0	47	58	73-125	20	30	M1	
Bromodichloromethane	ug/L	ND	40	40	24.6	30.1	61	75	65-137	20	30	M1	
Bromoform	ug/L	ND	40	40	22.3	27.4	56	69	60-147	21	30	M1	
Bromomethane	ug/L	ND	40	40	18.1J	24.9	45	62	30-150		30		
Carbon tetrachloride	ug/L	1.5	40	40	26.6	32.7	63	78	45-150	21	30		

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Parameter	Units	297549		297550		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		1262490002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Chlorobenzene	ug/L	ND	40	40	18.9	23.1	47	58	75-125	20	30	M1	
Chloroethane	ug/L	ND	40	40	22.7	28.4	57	71	66-145	22	30	M1	
Chloroform	ug/L	1.9	40	40	26.4	32.0	61	75	74-128	19	30	M1	
Chloromethane	ug/L	ND	40	40	24.0	29.6	60	74	51-150	21	30		
cis-1,2-Dichloroethene	ug/L	ND	40	40	21.6	26.6	54	67	75-125	21	30	M1	
cis-1,3-Dichloropropene	ug/L	ND	40	40	19.7	25.2	49	63	75-129	24	30	M1	
Dibromochloromethane	ug/L	ND	40	40	24.4	30.2	61	75	66-141	21	30	M1	
Methylene Chloride	ug/L	ND	40	40	21.7	27.1	54	68	74-125	22	30	M1	
Tetrachloroethene	ug/L	ND	40	40	17.8	22.6	44	56	75-135	24	30	M1	
trans-1,2-Dichloroethene	ug/L	ND	40	40	21.5	26.8	54	67	75-125	22	30	M1	
trans-1,3-Dichloropropene	ug/L	ND	40	40	19.7	24.3	49	61	67-139	21	30	M1	
Trichloroethene	ug/L	ND	40	40	20.1	24.7	50	62	75-130	21	30	M1	
Trichlorofluoromethane	ug/L	ND	40	40	23.4	29.2	59	73	57-144	22	30		
Vinyl chloride	ug/L	ND	40	40	24.5	30.6	61	76	70-136	22	30	M1	
1,2-Dichloroethane-d4 (S)	%						128	129	70-130				
4-Bromofluorobenzene (S)	%						94	96	70-130				
Toluene-d8 (S)	%						101	101	70-130				

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

QC Batch: DAVM/3311 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV Med Water
Associated Lab Samples: 1262435018, 1262435024

METHOD BLANK: 297946 Matrix: Water

Associated Lab Samples: 1262435018, 1262435024

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	03/18/16 09:35	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	03/18/16 09:35	
1,1,2-Trichloroethane	ug/L	ND	0.50	03/18/16 09:35	
1,1-Dichloroethane	ug/L	ND	0.50	03/18/16 09:35	
1,1-Dichloroethene	ug/L	ND	0.50	03/18/16 09:35	
1,2-Dichlorobenzene	ug/L	ND	0.50	03/18/16 09:35	
1,2-Dichloroethane	ug/L	ND	0.50	03/18/16 09:35	
1,2-Dichloropropane	ug/L	ND	0.50	03/18/16 09:35	
1,3-Dichlorobenzene	ug/L	ND	0.50	03/18/16 09:35	
1,4-Dichlorobenzene	ug/L	ND	0.50	03/18/16 09:35	
Bromodichloromethane	ug/L	ND	0.50	03/18/16 09:35	
Bromoform	ug/L	ND	0.50	03/18/16 09:35	
Bromomethane	ug/L	ND	20.0	03/18/16 09:35	
Carbon tetrachloride	ug/L	ND	0.50	03/18/16 09:35	
Chlorobenzene	ug/L	ND	0.50	03/18/16 09:35	
Chloroethane	ug/L	ND	2.0	03/18/16 09:35	
Chloroform	ug/L	ND	0.50	03/18/16 09:35	
Chloromethane	ug/L	ND	0.50	03/18/16 09:35	
cis-1,3-Dichloropropene	ug/L	ND	0.50	03/18/16 09:35	
Dibromochloromethane	ug/L	ND	0.50	03/18/16 09:35	
Methylene Chloride	ug/L	ND	5.0	03/18/16 09:35	
Tetrachloroethene	ug/L	ND	0.50	03/18/16 09:35	
trans-1,2-Dichloroethene	ug/L	ND	0.50	03/18/16 09:35	
trans-1,3-Dichloropropene	ug/L	ND	0.50	03/18/16 09:35	
Trichloroethene	ug/L	ND	0.50	03/18/16 09:35	
Trichlorofluoromethane	ug/L	ND	0.50	03/18/16 09:35	
Vinyl chloride	ug/L	ND	0.50	03/18/16 09:35	
1,2-Dichloroethane-d4 (S)	%	122	70-130	03/18/16 09:35	
4-Bromofluorobenzene (S)	%	91	70-130	03/18/16 09:35	
Toluene-d8 (S)	%	101	70-130	03/18/16 09:35	

LABORATORY CONTROL SAMPLE: 297947

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	40	48.1	120	67-138	
1,1,2,2-Tetrachloroethane	ug/L	40	40.4	101	75-125	
1,1,2-Trichloroethane	ug/L	40	41.1	103	75-126	
1,1-Dichloroethane	ug/L	40	43.7	109	71-131	
1,1-Dichloroethene	ug/L	40	39.4	99	74-126	
1,2-Dichlorobenzene	ug/L	40	39.4	99	75-125	

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

LABORATORY CONTROL SAMPLE: 297947

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	40	44.4	111	64-141	
1,2-Dichloropropane	ug/L	40	41.9	105	73-127	
1,3-Dichlorobenzene	ug/L	40	37.5	94	75-125	
1,4-Dichlorobenzene	ug/L	40	39.9	100	75-125	
Bromodichloromethane	ug/L	40	46.9	117	70-134	
Bromoform	ug/L	40	43.2	108	68-130	
Bromomethane	ug/L	40	36.9	92	30-150	
Carbon tetrachloride	ug/L	40	49.9	125	66-135	
Chlorobenzene	ug/L	40	36.8	92	75-125	
Chloroethane	ug/L	40	45.5	114	55-150	
Chloroform	ug/L	40	44.8	112	72-131	
Chloromethane	ug/L	40	49.2	123	54-132	
cis-1,3-Dichloropropene	ug/L	40	44.4	111	74-130	
Dibromochloromethane	ug/L	40	46.6	117	70-132	
Methylene Chloride	ug/L	40	40.8	102	68-125	
Tetrachloroethene	ug/L	40	39.4	99	75-130	
trans-1,2-Dichloroethene	ug/L	40	40.1	100	75-125	
trans-1,3-Dichloropropene	ug/L	40	41.2	103	69-137	
Trichloroethene	ug/L	40	39.7	99	75-125	
Trichlorofluoromethane	ug/L	40	47.2	118	59-140	
Vinyl chloride	ug/L	40	47.1	118	68-132	
1,2-Dichloroethane-d4 (S)	%			121	70-130	
4-Bromofluorobenzene (S)	%			96	70-130	
Toluene-d8 (S)	%			102	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 297953 297954

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		1262570008	Spike Conc.	Spike Conc.	Result								
1,1,1-Trichloroethane	ug/L	ND	40	40	41.4	41.1	104	103	63-142	1	30		
1,1,2,2-Tetrachloroethane	ug/L	ND	40	40	35.6	35.0	89	88	75-125	2	30		
1,1,2-Trichloroethane	ug/L	ND	40	40	35.5	35.1	89	88	75-132	1	30		
1,1-Dichloroethane	ug/L	ND	40	40	39.1	38.9	98	97	75-126	0	30		
1,1-Dichloroethene	ug/L	ND	40	40	33.0	33.4	83	83	75-125	1	30		
1,2-Dichlorobenzene	ug/L	ND	40	40	31.5	32.0	79	80	75-125	2	30		
1,2-Dichloroethane	ug/L	1.8	40	40	41.6	41.4	100	99	75-137	1	30		
1,2-Dichloropropane	ug/L	3.7	40	40	40.2	40.2	91	91	74-131	0	30		
1,3-Dichlorobenzene	ug/L	ND	40	40	29.9	30.4	75	76	75-126	2	30		
1,4-Dichlorobenzene	ug/L	ND	40	40	30.8	31.9	77	80	73-125	3	30		
Bromodichloromethane	ug/L	ND	40	40	39.8	39.8	99	99	65-137	0	30		
Bromoform	ug/L	ND	40	40	35.7	35.3	89	88	60-147	1	30		
Bromomethane	ug/L	ND	40	40	36.8	41.0	92	102	30-150	11	30		
Carbon tetrachloride	ug/L	107	40	40	150	153	106	115	45-150	2	30		
Chlorobenzene	ug/L	ND	40	40	30.8	31.4	77	78	75-125	2	30		
Chloroethane	ug/L	ND	40	40	41.3	42.0	103	105	66-145	2	30		

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Parameter	Units	297953		297954		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		1262570008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Chloroform	ug/L	21.9	40	40	61.6	61.9	99	100	74-128	0	30
Chloromethane	ug/L	ND	40	40	39.4	39.2	99	98	51-150	0	30
cis-1,3-Dichloropropene	ug/L	ND	40	40	37.4	38.0	94	95	75-129	2	30
Dibromochloromethane	ug/L	ND	40	40	38.8	39.3	97	98	66-141	1	30
Methylene Chloride	ug/L	ND	40	40	40.6	40.4	91	91	74-125	1	30
Tetrachloroethene	ug/L	ND	40	40	30.9	30.8	76	76	75-135	0	30
trans-1,2-Dichloroethene	ug/L	ND	40	40	36.2	35.7	91	89	75-125	2	30
trans-1,3-Dichloropropene	ug/L	ND	40	40	36.6	37.4	92	93	67-139	2	30
Trichloroethene	ug/L	ND	40	40	33.4	32.7	84	82	75-130	2	30
Trichlorofluoromethane	ug/L	ND	40	40	39.2	38.3	98	96	57-144	2	30
Vinyl chloride	ug/L	ND	40	40	40.7	40.8	102	102	70-136	0	30
1,2-Dichloroethane-d4 (S)	%.						129	128	70-130		
4-Bromofluorobenzene (S)	%.						96	97	70-130		
Toluene-d8 (S)	%.						100	99	70-130		

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

QC Batch: DAVM/3317 Analysis Method: EPA 8260B
 QC Batch Method: EPA 8260B Analysis Description: 8260 MSV Med Water
 Associated Lab Samples: 1262435007, 1262435008, 1262435009, 1262435010, 1262435011, 1262435014

METHOD BLANK: 298248 Matrix: Water
 Associated Lab Samples: 1262435007, 1262435008, 1262435009, 1262435010, 1262435011, 1262435014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	03/18/16 12:55	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	03/18/16 12:55	
1,1,2-Trichloroethane	ug/L	ND	0.50	03/18/16 12:55	
1,1-Dichloroethane	ug/L	ND	0.50	03/18/16 12:55	
1,1-Dichloroethene	ug/L	ND	0.50	03/18/16 12:55	
1,2-Dichlorobenzene	ug/L	ND	0.50	03/18/16 12:55	
1,2-Dichloroethane	ug/L	ND	0.50	03/18/16 12:55	
1,2-Dichloropropane	ug/L	ND	0.50	03/18/16 12:55	
1,3-Dichlorobenzene	ug/L	ND	0.50	03/18/16 12:55	
1,4-Dichlorobenzene	ug/L	ND	0.50	03/18/16 12:55	
Bromodichloromethane	ug/L	ND	0.50	03/18/16 12:55	
Bromoform	ug/L	ND	0.50	03/18/16 12:55	
Bromomethane	ug/L	ND	20.0	03/18/16 12:55	
Carbon tetrachloride	ug/L	ND	0.50	03/18/16 12:55	
Chlorobenzene	ug/L	ND	0.50	03/18/16 12:55	
Chloroethane	ug/L	ND	2.0	03/18/16 12:55	
Chloroform	ug/L	ND	0.50	03/18/16 12:55	
Chloromethane	ug/L	ND	2.0	03/18/16 12:55	
cis-1,2-Dichloroethene	ug/L	ND	0.50	03/18/16 12:55	
cis-1,3-Dichloropropene	ug/L	ND	0.50	03/18/16 12:55	
Dibromochloromethane	ug/L	ND	0.50	03/18/16 12:55	
Methylene Chloride	ug/L	ND	5.0	03/18/16 12:55	
Tetrachloroethene	ug/L	ND	0.50	03/18/16 12:55	
trans-1,2-Dichloroethene	ug/L	ND	0.50	03/18/16 12:55	
trans-1,3-Dichloropropene	ug/L	ND	0.50	03/18/16 12:55	
Trichloroethene	ug/L	ND	0.50	03/18/16 12:55	
Trichlorofluoromethane	ug/L	ND	0.50	03/18/16 12:55	
Vinyl chloride	ug/L	ND	0.50	03/18/16 12:55	
1,2-Dichloroethane-d4 (S)	%	100	70-130	03/18/16 12:55	
4-Bromofluorobenzene (S)	%	99	70-130	03/18/16 12:55	
Toluene-d8 (S)	%	100	70-130	03/18/16 12:55	

LABORATORY CONTROL SAMPLE: 298249

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	40	40.1	100	67-138	
1,1,2,2-Tetrachloroethane	ug/L	40	39.1	98	75-125	
1,1,2-Trichloroethane	ug/L	40	39.3	98	75-126	
1,1-Dichloroethane	ug/L	40	39.7	99	71-131	
1,1-Dichloroethene	ug/L	40	40.2	100	74-126	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

LABORATORY CONTROL SAMPLE: 298249

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichlorobenzene	ug/L	40	37.5	94	75-125	
1,2-Dichloroethane	ug/L	40	39.2	98	64-141	
1,2-Dichloropropane	ug/L	40	39.4	98	73-127	
1,3-Dichlorobenzene	ug/L	40	38.4	96	75-125	
1,4-Dichlorobenzene	ug/L	40	37.2	93	75-125	
Bromodichloromethane	ug/L	40	39.8	99	70-134	
Bromoform	ug/L	40	36.3	91	68-130	
Bromomethane	ug/L	40	34.2	85	30-150	
Carbon tetrachloride	ug/L	40	40.6	101	66-135	
Chlorobenzene	ug/L	40	38.5	96	75-125	
Chloroethane	ug/L	40	33.2	83	55-150	
Chloroform	ug/L	40	40.7	102	72-131	
Chloromethane	ug/L	40	37.4	93	54-132	
cis-1,2-Dichloroethene	ug/L	40	38.4	96	75-125	
cis-1,3-Dichloropropene	ug/L	40	40.1	100	74-130	
Dibromochloromethane	ug/L	40	40.3	101	70-132	
Methylene Chloride	ug/L	40	40.0	100	68-125	
Tetrachloroethene	ug/L	40	39.6	99	75-130	
trans-1,2-Dichloroethene	ug/L	40	39.0	98	75-125	
trans-1,3-Dichloropropene	ug/L	40	40.5	101	69-137	
Trichloroethene	ug/L	40	38.7	97	75-125	
Trichlorofluoromethane	ug/L	40	38.5	96	59-140	
Vinyl chloride	ug/L	40	38.4	96	68-132	
1,2-Dichloroethane-d4 (S)	%			98	70-130	
4-Bromofluorobenzene (S)	%			101	70-130	
Toluene-d8 (S)	%			100	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 298254 298255

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		1262435014	Spike Conc.	Spike Conc.	Result							Result
1,1,1-Trichloroethane	ug/L	ND	40	40	40.2	40.5	101	101	63-142	1	30	
1,1,2,2-Tetrachloroethane	ug/L	ND	40	40	37.2	38.1	93	95	75-125	2	30	
1,1,2-Trichloroethane	ug/L	ND	40	40	37.9	39.1	95	98	75-132	3	30	
1,1-Dichloroethane	ug/L	ND	40	40	39.3	39.6	98	99	75-126	1	30	
1,1-Dichloroethene	ug/L	ND	40	40	39.2	39.9	98	100	75-125	2	30	
1,2-Dichlorobenzene	ug/L	ND	40	40	36.7	37.4	92	93	75-125	2	30	
1,2-Dichloroethane	ug/L	ND	40	40	37.5	38.7	93	96	75-137	3	30	
1,2-Dichloropropane	ug/L	ND	40	40	38.7	39.5	97	99	74-131	2	30	
1,3-Dichlorobenzene	ug/L	ND	40	40	37.8	38.1	95	95	75-126	1	30	
1,4-Dichlorobenzene	ug/L	ND	40	40	36.5	37.2	91	93	73-125	2	30	
Bromodichloromethane	ug/L	ND	40	40	39.3	39.9	98	100	65-137	2	30	
Bromoform	ug/L	ND	40	40	35.5	36.3	89	91	60-147	2	30	
Bromomethane	ug/L	ND	40	40	33.2	34.2	83	86	30-150	3	30	
Carbon tetrachloride	ug/L	ND	40	40	39.6	40.5	99	101	45-150	2	30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Parameter	Units	298254		298255		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		1262435014 Result	MS Spike Conc.	MSD Spike Conc.								
Chlorobenzene	ug/L	ND	40	40	37.7	37.6	94	94	75-125	0	30	
Chloroethane	ug/L	ND	40	40	32.0	34.3	80	86	66-145	7	30	
Chloroform	ug/L	ND	40	40	39.3	39.5	98	99	74-128	1	30	
Chloromethane	ug/L	ND	40	40	37.0	37.2	92	93	51-150	1	30	
cis-1,2-Dichloroethene	ug/L	4.2	40	40	42.0	42.8	94	97	75-125	2	30	
cis-1,3-Dichloropropene	ug/L	ND	40	40	39.0	39.6	98	99	75-129	1	30	
Dibromochloromethane	ug/L	ND	40	40	39.9	40.7	100	102	66-141	2	30	
Methylene Chloride	ug/L	ND	40	40	38.6	39.2	96	98	74-125	2	30	
Tetrachloroethene	ug/L	12.5	40	40	50.5	50.0	95	94	75-135	1	30	
trans-1,2-Dichloroethene	ug/L	ND	40	40	38.0	38.5	95	96	75-125	1	30	
trans-1,3-Dichloropropene	ug/L	ND	40	40	39.7	40.5	99	101	67-139	2	30	
Trichloroethene	ug/L	29.2	40	40	66.3	66.3	93	93	75-130	0	30	
Trichlorofluoromethane	ug/L	ND	40	40	38.3	38.0	96	95	57-144	1	30	
Vinyl chloride	ug/L	ND	40	40	38.3	39.1	96	98	70-136	2	30	
1,2-Dichloroethane-d4 (S)	%						98	98	70-130			
4-Bromofluorobenzene (S)	%						100	100	70-130			
Toluene-d8 (S)	%						100	100	70-130			

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QUALIFIERS

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

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

ANALYTE QUALIFIERS

E Analyte concentration exceeded the calibration range. The reported result is estimated.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

R1 RPD value was outside control limits.

S0 Surrogate recovery outside laboratory control limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
1262435007	MW-12	RSK 175	AIR/25427		
1262435018	EX	RSK 175	AIR/25427		
1262435024	MP-1	RSK 175	AIR/25427		
1262435025	MW-24i	RSK 175	AIR/25428		
1262435037	MGMS2-40	RSK 175	AIR/25428		
1262435001	MW-1	EPA 8260B	DAVM/3287		
1262435002	MW-6	EPA 8260B	DAVM/3287		
1262435003	MW-2	EPA 8260B	DAVM/3287		
1262435004	MW-10	EPA 8260B	DAVM/3292		
1262435005	MW-3	EPA 8260B	DAVM/3292		
1262435006	MW-20i	EPA 8260B	DAVM/3292		
1262435007	MW-12	EPA 8260B	DAVM/3292		
1262435007	MW-12	EPA 8260B	DAVM/3317		
1262435008	MW-12 DUP	EPA 8260B	DAVM/3292		
1262435008	MW-12 DUP	EPA 8260B	DAVM/3317		
1262435009	MW-19	EPA 8260B	DAVM/3292		
1262435009	MW-19	EPA 8260B	DAVM/3317		
1262435010	MW-19 DUP	EPA 8260B	DAVM/3292		
1262435010	MW-19 DUP	EPA 8260B	DAVM/3317		
1262435011	MW-13	EPA 8260B	DAVM/3292		
1262435011	MW-13	EPA 8260B	DAVM/3317		
1262435012	MP-17	EPA 8260B	DAVM/3292		
1262435013	MW-26	EPA 8260B	DAVM/3292		
1262435014	MW-14	EPA 8260B	DAVM/3317		
1262435015	MW-23i	EPA 8260B	DAVM/3292		
1262435016	MW-8	EPA 8260B	DAVM/3292		
1262435017	EW-1	EPA 8260B	DAVM/3292		
1262435018	EX	EPA 8260B	DAVM/3294		
1262435018	EX	EPA 8260B	DAVM/3311		
1262435019	MW-9	EPA 8260B	DAVM/3294		
1262435020	MW-5	EPA 8260B	DAVM/3294		
1262435021	MW-15	EPA 8260B	DAVM/3294		
1262435022	MW-19i	EPA 8260B	DAVM/3294		
1262435023	MW-21i-105	EPA 8260B	DAVM/3294		
1262435024	MP-1	EPA 8260B	DAVM/3294		
1262435024	MP-1	EPA 8260B	DAVM/3311		
1262435025	MW-24i	EPA 8260B	DAVM/3294		
1262435026	MW-18i	EPA 8260B	DAVM/3294		
1262435027	MW-22i	EPA 8260B	DAVM/3294		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NuStar Vancouver GWM

Pace Project No.: 1262435

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
1262435028	MW-21i-40	EPA 8260B	DAVM/3294		
1262435029	S-1	EPA 8260B	DAVM/3294		
1262435030	MW-25i	EPA 8260B	DAVM/3294		
1262435031	MW-25i DUP	EPA 8260B	DAVM/3294		
1262435032	MGMS3-60	EPA 8260B	DAVM/3294		
1262435033	MGMS3-101	EPA 8260B	DAVM/3294		
1262435034	MGMS3-132	EPA 8260B	DAVM/3295		
1262435035	MGMS2-110	EPA 8260B	DAVM/3295		
1262435036	MGMS2-132	EPA 8260B	DAVM/3304		
1262435037	MGMS2-40	EPA 8260B	DAVM/3304		
1262435038	MGMS1-60	EPA 8260B	DAVM/3295		
1262435039	MW-24d	EPA 8260B	DAVM/3295		
1262435040	MGMS1-43	EPA 8260B	DAVM/3295		
1262435041	MGMS3-40	EPA 8260B	DAVM/3295		
1262435042	MGMS3-40 DUP	EPA 8260B	DAVM/3295		
1262435043	Field Blank	EPA 8260B	DAVM/3295		
1262435044	Equipment Blank	EPA 8260B	DAVM/3295		
1262435045	PW030316 (Trip Blank)	EPA 8260B	DAVM/3295		

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2795 2nd Street, Suite 300
 Davis, CA 95618
 Lab: 530.297.4800
 Fax: 530.297.4802

SRG # / Lab No. 1262435

Project Contact (Hardcopy or PDF To): Stephanie Bosze Company / Address: Apex Companies 3015 SW 1st Ave., Portland, OR 97201		California EDF Report? CRA EQUIS Required <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No XLS Report Required <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Chain-of-Custody Record and Analysis Request												
Phone Number: 503-924-4704 ext 1925 Fax Number: 503-924-4707		Global ID:		Analysis Request												
Project #: 320001126-18 P.O. #:		EDD Deliverable To (Email Address): Ssalisbury@apexcos.com		Other: Please Specify												
Project Name: NuStar Vancouver GWM		Apex Companies		Methane, Ethane, Ethene												
Project Address:		Sampler Name & Signature: Joel Mattechuck		Volatile Halocarbons (EPA 8260B)												
Sample Designation	Sampling		Container			Preservative			Matrix			TAT				
	Date	Time	40 ml VOA	Gleeve	Poly	250 mL Glass	Tedlar	HCl	HNO ₃	H ₂ SO ₄	None		Water	Soil	Air	
MW-14	03/08/16	1012	3					3				X			X	12 hr
MW-23i	03/08/16	1032	3					3				X			X	24 hr
MW-8	03/08/16	1105	3					3				X			X	48hr
EW-1	03/08/16	1125	3					3				X			X	72hr
EX	03/08/16	1150	6	1				6	1			X	X		X	<input checked="" type="checkbox"/> 1 wk
MW-9	03/08/16	1218	3					3				X			X	
MW-5	03/08/16	1240	3					3				X			X	
MW-15	03/08/16	1305	3					3				X			X	
MW-19i	03/08/16	1330	3					3				X			X	
MW-21+105	03/08/16	1425	3					3				X			X	
MP-1	03/08/16	1455	6	1				6	1			X	X		X	
MW-24i	03/08/16	1054	6	1				6	1			X	X		X	
MW-18i	03/09/16	1026	3					3				X			X	
Relinquished by: <u>Joel Mattechuck</u>		Date	3/16/16		Time	1100		Received by: <u>[Signature]</u>		Remarks: <u>MS/MSD is from well MW-22i (extra bottles labeled as MW-22i MS/MSD)</u>						
Relinquished by:		Date			Time			Received by:								
Relinquished by:		Date			Time			Received by Laboratory:								



2795 2nd Street, Suite 300
 Davis, CA 95618
 Lab: 530.297.4800
 Fax: 530.297.4802

SRG # / Lab No. 1262435

Project Contact (Hardcopy or PDF To): Stephanie Bosze		California EDF Report? CRA EQUIS Required		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		XLS Report Required		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Company / Address: Apex Companies 3015 SW 1st Ave., Portland, OR 97201		Global ID:		EDD Deliverable To (Email Address): Ssalisbury@apexcos.com		Bill to: Apex Companies		Sampler Name & Signature: Joel Matthecheck		Analysis Request		TAT		
Phone Number: 503-924-4704 ext 1925		Project #: 320001126-18		Container		Preservative		Matrix		Other: Please Specify		12 hr <input type="checkbox"/>		
Fax Number: 503-924-4707		P.O. #:		Sleeve		HCl		Water		Methane, Ethane, Ethene		24 hr <input type="checkbox"/>		
Project Name: NuStar Vancouver GWM		Sampling		Poly		HNO ₃		Soil				48hr <input type="checkbox"/>		
Project Address:		Date		250 mL Glass		H ₂ SO ₄		Air				72hr <input type="checkbox"/>		
		Time		Tedlar		None						<input checked="" type="checkbox"/> 1 wk		
MW-22i	3/9/2016	0908	3										X	027
MW-22i MS/MSD	3/9/2016	0908	3										X	↓
MW-21i-40	3/9/2016	933	3										X	028
S-1	3/9/2016	0758	3										X	029
MW-25i	3/9/2016	0840	3										X	030
MW-25i DUP	3/9/2016	0840	3										X	031
MGMS3-60	3/9/2016	1425	3										X	032
MGMS3-101	3/9/2016	1410	3										X	033
MGMS3-132	3/9/2016	1356	3										X	034
MGMS2-110	3/9/2016	1330	3										X	035
MGMS2-132	3/9/2016	1318	3										X	036
MGMS2-40	3/9/2016	1257	6	1			6	1					X	037
Relinquished by: <i>Joel Matthecheck</i>		Date	3/10/16	Time	1100	Received by: <i>Patricia Kuhlstad</i>		03116		Remarks: MS/MSD is from well MW-22i (extra bottles labeled as MW-22i MS/MSD)		TJB 03116		
Relinquished by:		Date		Time		Received by:				Temp °C		Coolant Present		
Relinquished by:		Date		Time		Received by Laboratory:				Initials		Therm. ID #		
		Date		Time						Date		Yes / No		



2795 2nd Street, Suite 300
 Davis, CA 95618
 Lab: 530.297.4800
 Fax: 530.297.4802

SRG # / Lab No. 1262435

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

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
 Project #: 320001126-18
 P.O. #: _____
 Project Name: NuStar Vancouver GWM
 Project Address: _____

Sample Designation	Sampling		Container			Preservative				Matrix			TAT	Other, Please Specify				
	Date	Time	40 ml VOA	Sleeve	Poly	250 mL Glass	Tedlar	1 L	HCl	HNO ₃	H ₂ SO ₄	None			Water	Soil	Air	
MGMS1-60	3/9/2016	1240	3						3				X			X	038	
MW-24d	3/9/2016	1130	3						3				X			X	039	
MGMS1-43	3/9/2016	1220	3						3				X			X	040	
MGMS3-40	3/9/2016	1438	3						3				X			X	041	
MGMS3-40 DUP	3/9/2016	1438	3						3				X			X	042	
Field Blank	3/9/2016	1510	3						3				X			X	043	
Equipment Blank	3/9/2016	1500	3						3				X			X	044	
PW030316 (Trip Blank)	3/9/2016	-							2				X			X	045	

Relinquished by: Joel Mattecheck Date: 3/16/16 Time: 1100

Received by: Stephanie Bosze Date: 3/16/16 Time: 1145

Remarks: MSIMS is from well MW-22i (extra bottles labeled as MW-22i MSIMS)

Temp °C: _____ Initials: _____ Date: _____ Time: _____ Therm. ID #: _____

For Lab Use Only: Sample Receipt

Temp °C: _____ Initials: _____ Date: _____ Time: _____ Therm. ID #: _____

Coolant Present: _____ Yes / No



Document Name:
Sample Condition Upon Receipt Form
 Document No.:
F-DAV-C-002-rev.02

Document Revised: 25Feb2015
 Page 1 of 1
 Issuing Authority:
 Pace Davis, CA Quality Office

Sample Condition Upon Receipt

Client Name: Apex Companies Project #: _____

WO#: 1262435

1262435

Courier: Fed Ex UPS USPS Client
 Commercial Pace OnTrac Other: _____
 Tracking Number: 8071 1280 7135
7113

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): 2.4/2.0 Cooler Temp Corrected(°C): 2.1/1.7 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: 03/11/16 TJB

			Comments:
Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		1. no coc with cooler. The
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		2. coc was in second cooler
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		3. (7113)
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		4. NO sample labeled MP-17
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		5. was received, but 3 HCl
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		6. VOAs labeled MW-17 (date of
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		7. 3/8/16, time of 09:30) were
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		8. received and are not listed
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		9. on the coc. All other samples were accounted for. Per SMF,
-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. SR will tentatively consider
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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		12. these VOAs as sample -012 (MP-17), pending client
-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 Sample # Clarification.
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 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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		15.
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 Schishny Field Data Required? Yes No
 Person Contacted: Stephanie Bosse Date/Time: 3/11/16 1630
 Comments/Resolution: Described the sample situation w/ -012 via email (3/11/16 4:23). Waiting on a reply.

Project Manager Review: Scott Plus Date: 3/11/16
 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



10341267

Workorder: 1262435 Workorder Name: NuStar Vancouver GWM Owner Received Date: 3/11/2016 Results Requested By: 3/18/2016

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-12	PS	3/8/2016 08:00	1262435007	Water	100		001
2	EX	PS	3/8/2016 11:50	1262435018	Water			002
3	MP-1	PS	3/8/2016 14:55	1262435024	Water			003
4	MW-24i	PS	3/8/2016 10:54	1262435025	Water			004
5	MGMS2-40	PS	3/9/2016 12:57	1262435037	Water			005

(Methane, ethane, ethene)
 RSK175

Transfers	Released By	Date/Time	Received By	Date/Time	Received on Ice	Y or N	Samples Intact	or	N
1	SM	3/16 16:00	J. W. P.	3/16 16:00					
2									
3									

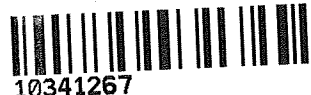
Cooler Temperature on Receipt 3.2 °C Custody Seal or N Received on Ice or N Samples Intact or N

Comments

Sample Condition Upon Receipt

Client Name: Pace Virginia

Project #: **WO# : 10341267**



Courier: Fed Ex UPS USPS Client
 Commercial Pace Speedee Other:
 Tracking Number: 7758 5985 5054

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
 Thermometer 151401163 B88A912167504 B88A0143310098 Type of Ice: Wet Blue None Samples on ice, cooling process has begun
 Used: 151401164 B88A0143310098
 Cooler Temp Read (°C): 3.1 Cooler Temp Corrected (°C): 3.2 Biological Tissue Frozen? Yes No N/A
 Temp should be above freezing to 6°C Correction Factor: 1.01 Date and Initials of Person Examining Contents: JRE 3/12/16
 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 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 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 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 type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes Date/Time/ID/Analysis Matrix: <u>WST</u>		
All containers needing acid/base preservation have been checked?	<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
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , HOI<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	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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	15.
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: 3/14/16

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).



Calscience



WORK ORDER NUMBER: 16-03-1200

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

Approved for release on 03/21/2016 by:
Nicole Scott
Project Manager

ResultLink ▶

Email your PM ▶



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Contents

Client Project Name: NuStar Vancouver GWM
Work Order Number: 16-03-1200

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6	Chain-of-Custody/Sample Receipt Form.	9

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 03/16/16. They were assigned to Work Order 16-03-1200.

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.

Analytical Report

Pace Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 03/16/16
Work Order: 16-03-1200
Preparation: N/A
Method: SM 5310 D
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	16-03-1200-1-A	03/08/16 08:00	Aqueous	TOC 6	03/18/16	03/19/16 09:59	G0318TOCL1
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Carbon, Total Organic		5.5		0.50		1.00	
EX	16-03-1200-2-A	03/08/16 11:50	Aqueous	TOC 6	03/18/16	03/19/16 09:59	G0318TOCL1
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Carbon, Total Organic		22		0.50		1.00	
MP-1	16-03-1200-3-A	03/08/16 14:55	Aqueous	TOC 6	03/18/16	03/19/16 09:59	G0318TOCL1
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Carbon, Total Organic		5.1		0.50		1.00	
MW-24i	16-03-1200-4-A	03/08/16 10:54	Aqueous	TOC 6	03/18/16	03/19/16 09:59	G0318TOCL1
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Carbon, Total Organic		1.0		0.50		1.00	
MGMS2-40	16-03-1200-5-A	03/09/16 12:57	Aqueous	TOC 6	03/18/16	03/19/16 09:59	G0318TOCL1
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Carbon, Total Organic		7.4		0.50		1.00	
Method Blank	099-16-724-132	N/A	Aqueous	TOC 6	03/18/16	03/19/16 09:59	G0318TOCL1
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Carbon, Total Organic		ND		0.50		1.00	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Quality Control - Spike/Spike Duplicate

Pace Analytical
2795 2nd Street, Suite 300
Davis, CA 95618-6505

Date Received: 03/16/16
Work Order: 16-03-1200
Preparation: N/A
Method: SM 5310 D

Project: NuStar Vancouver GWM

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
16-03-0855-2	Sample	Aqueous	TOC 6	03/18/16	03/19/16 09:59	G0318TOCS1
16-03-0855-2	Matrix Spike	Aqueous	TOC 6	03/18/16	03/19/16 09:59	G0318TOCS1
16-03-0855-2	Matrix Spike Duplicate	Aqueous	TOC 6	03/18/16	03/19/16 09:59	G0318TOCS1

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Carbon, Total Organic	8.711	10.00	18.80	101	18.75	100	31-145	0	0-20	

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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: 03/16/16
Work Order: 16-03-1200
Preparation: N/A
Method: SM 5310 D

Project: NuStar Vancouver GWM

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-16-724-132	LCS	Aqueous	TOC 6	03/18/16	03/19/16 09:59	G0318TOCL1			
099-16-724-132	LCSD	Aqueous	TOC 6	03/18/16	03/19/16 09:59	G0318TOCL1			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Carbon, Total Organic	10.00	10.37	104	10.54	105	80-120	2	0-20	

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RPD: Relative Percent Difference. CL: Control Limits



Calscience

Sample Analysis Summary Report

Work Order: 16-03-1200

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<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
SM 5310 D	N/A	735	TOC 6	1


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Glossary of Terms and Qualifiers

Work Order: 16-03-1200

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<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



Rush

16-03-1200

Workorder: 1262435 Workorder Name: NuStar Vancouver GWM

Owner Received Date: 3/11/2016 Results Requested By: 3/18/2016

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

ECTI (CSE)
7440 Lincoln Way
Garden Grove, CA 92841
(714) 895-5494

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers					LAB USE ONLY	
						1	2	3	4	5		
1	MW-12	PS	3/8/2016 08:00	1262435007	Water	1						
2	EX	PS	3/8/2016 11:50	1262435018	Water	1						
3	MP-1	PS	3/8/2016 14:55	1262435024	Water	1						
4	MW-24i	PS	3/8/2016 10:54	1262435025	Water	1						
5	MGMS2-40	PS	3/9/2016 12:57	1262435037	Water	1						

Transfers	Released By	Date/Time	Received By	Date/Time	Received on Ice	Y or N	Samples Intact	Y or N
1	<i>[Signature]</i>	03/14/16 1600	<i>[Signature]</i>					
2	<i>[Signature]</i>	3-15-16 0900	<i>[Signature]</i>	3-15-16				
3	<i>[Signature]</i>	3-15-16 1700	<i>[Signature]</i>	3/16/16 1010				

Comments: Please provide Excel 0900 and EQUIS FOODS

Cooler Temperature on Receipt: 2.3 °C Custody Seal: Y or N Received on Ice: Y or N Samples Intact: Y or N



T200

ORIGIN ID:NEWA (504) 469-0555
SAMPLE RECEIVING
PACE ANALYTICAL-ST ROSE
1000 RIVERBEND DR STE F
ST ROSE, LA 700873022
UNITED STATES US

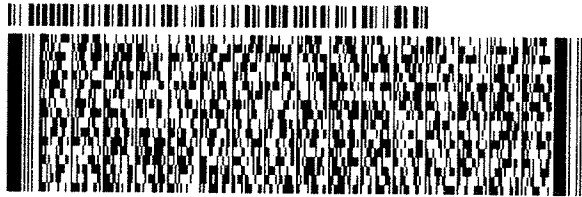
SHIP DATE: 15MAR16
ACTWT: 19.1 LB
CAD: 739502/CAFE2912
DIMS: 18x13x14 IN
BILL THIRD PARTY

TO **SAMPLE RECEIVING**
ECI
7440 LINCOLN WAY

GARDEN GROVE CA 92841

ESR1/CF34/3PAR

INV: REF: DEPT:
PO:



FedEx
Express



JT51500130101

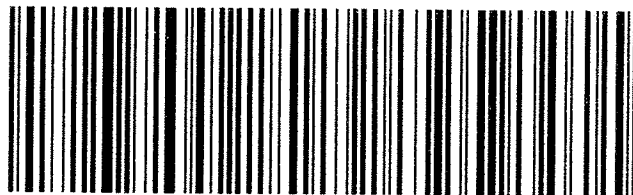
WED - 16 MAR 3:00P
STANDARD OVERNIGHT

TRK# **6344 4048 7252**
0201

XH APVA

92841
CA-US **SNA**

Part # 156148V-434 RIT2 07/15



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SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: Pace

DATE: 03 / 16 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC4B (CF: +0.3°C); Temperature (w/o CF): 3.1 °C (w/ CF): 3.4 °C; 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: 15

CUSTODY SEAL:

Cooler Present and Intact Present but Not Intact Not Present N/A

Checked by: 15

Sample(s) Present and Intact Present but Not Intact Not Present N/A

Checked by: 802

SAMPLE CONDITION:

Chain-of-Custody (COC) document(s) received with samples Yes No N/A

COC document(s) received complete Yes No N/A

Sampling date Sampling time Matrix Number of containers

No analysis requested Not relinquished No relinquished date No relinquished time

Sampler's name indicated on COC Yes No N/A

Sample container label(s) consistent with COC Yes No N/A

Sample container(s) intact and in good condition Yes No N/A

Proper containers for analyses requested Yes No N/A

Sufficient volume/mass for analyses requested Yes No N/A

Samples received within holding time Yes No N/A

Aqueous samples for certain analyses received within 15-minute holding time

pH Residual Chlorine Dissolved Sulfide Dissolved Oxygen Yes No N/A

Proper preservation chemical(s) noted on COC and/or sample container Yes No N/A

Unpreserved aqueous sample(s) received for certain analyses

Volatile Organics Total Metals Dissolved Metals

Container(s) for certain analysis free of headspace Yes No N/A

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 N/A

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: VOA VOA_h VOA_{na2} 100PJ 100PJ_{na2} 125AGB 125AGB_h 125AGB_p 125PB

125PB_{z_{na}} 250AGB 250CGB 250CGB_s 250PB_s 250PB_n 500AGB 500AGJ 500AGJ_s

500PB 1AGB 1AGB_{na2} 1AGB_s 1PB 1PB_{na} _____ _____ _____ _____

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: 802

s = H₂SO₄, u = ultra-pure, z_{na} = Zn(CH₃CO₂)₂ + NaOH

Reviewed by: 802

Return to Contents

June 28, 2016

Stephanie Bosze-Salisbury
Apex Companies, LLC
3015 SW First Avenue
Portland, OR 97201

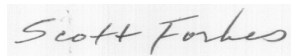
RE: Project: NuStar Vancouver GWM
Pace Project No.: 1268736

Dear Stephanie Bosze-Salisbury:

Enclosed are the analytical results for sample(s) received by the laboratory on June 21, 2016. 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 GWM

Pace Project No.: 1268736

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414

525 N 8th Street, Salina, KS 67401

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

Virginia/VELAP Certification #: Pace

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

Minnesota Department of Health Certification #: 006-999-465

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

Commonwealth of Virginia (TNI): 480246

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Lab ID	Sample ID	Matrix	Date Collected	Date Received
1268736001	MW-8	Water	06/15/16 16:10	06/21/16 09:45
1268736002	MW-26	Water	06/15/16 15:30	06/21/16 09:45
1268736003	MW-25i	Water	06/15/16 14:50	06/21/16 09:45
1268736004	MW-1	Water	06/15/16 14:00	06/21/16 09:45
1268736005	MW-19	Water	06/16/16 16:15	06/21/16 09:45
1268736006	MW-19 DUP	Water	06/16/16 16:15	06/21/16 09:45
1268736007	MW-13	Water	06/16/16 15:45	06/21/16 09:45
1268736008	MW-12	Water	06/16/16 14:55	06/21/16 09:45
1268736009	MW-12 DUP	Water	06/16/16 14:55	06/21/16 09:45
1268736010	MW-19i	Water	06/16/16 14:15	06/21/16 09:45
1268736011	MW-20i	Water	06/16/16 13:45	06/21/16 09:45
1268736012	MW-18i	Water	06/16/16 13:20	06/21/16 09:45
1268736013	MW-3	Water	06/16/16 12:55	06/21/16 09:45
1268736014	MW-21i-105	Water	06/16/16 11:55	06/21/16 09:45
1268736015	MW-21i-40	Water	06/16/16 11:25	06/21/16 09:45
1268736016	MW-32s	Water	06/16/16 10:47	06/21/16 09:45
1268736017	MW-22i	Water	06/16/16 10:10	06/21/16 09:45
1268736018	MW-23i	Water	06/16/16 09:30	06/21/16 09:45
1268736019	S-1	Water	06/16/16 09:00	06/21/16 09:45
1268736020	S-2	Water	06/16/16 08:30	06/21/16 09:45
1268736021	MP-1	Water	06/17/16 13:35	06/21/16 09:45
1268736022	MW-24D	Water	06/17/16 13:15	06/21/16 09:45
1268736023	MW-24i	Water	06/17/16 12:45	06/21/16 09:45
1268736024	EX	Water	06/17/16 12:10	06/21/16 09:45
1268736025	MW-9	Water	06/17/16 11:35	06/21/16 09:45
1268736026	MGMS1-60	Water	06/17/16 09:50	06/21/16 09:45
1268736027	MGMS1-43	Water	06/17/16 09:35	06/21/16 09:45
1268736028	MGMS2-60	Water	06/17/16 09:10	06/21/16 09:45
1268736029	MGMS2-40	Water	06/17/16 08:45	06/21/16 09:45
1268736030	MGMS3-60	Water	06/17/16 08:20	06/21/16 09:45
1268736031	MGMS3-40	Water	06/17/16 07:50	06/21/16 09:45
1268736032	MW-7	Water	06/17/16 11:05	06/21/16 09:45
1268736033	MW-7 DUP	Water	06/17/16 11:05	06/21/16 09:45
1268736034	MW-5	Water	06/17/16 10:25	06/21/16 09:45
1268736035	Trip Blank 1	Water	06/15/16 12:00	06/21/16 09:45
1268736036	Trip Blank 2	Water	06/16/16 08:00	06/21/16 09:45
1268736037	Trip Blank 3	Water	06/17/16 07:35	06/21/16 09:45

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Lab ID	Sample ID	Matrix	Date Collected	Date Received
1268736038	Field Blank 1	Water	06/15/16 12:00	06/21/16 09:45
1268736039	Field Blank 2	Water	06/16/16 08:35	06/21/16 09:45
1268736040	Field Blank 3	Water	06/16/16 07:45	06/21/16 09:45
1268736041	Equipment Blank	Water	06/17/16 08:00	06/21/16 09:45

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: NuStar Vancouver GWM
Pace Project No.: 1268736

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
1268736001	MW-8	EPA 8260B	JCP	31	PASI-DAV
1268736002	MW-26	EPA 8260B	JCP	31	PASI-DAV
1268736003	MW-25i	EPA 8260B	JCP	31	PASI-DAV
1268736004	MW-1	EPA 8260B	JCP	31	PASI-DAV
1268736005	MW-19	EPA 8260B	JCP	31	PASI-DAV
1268736006	MW-19 DUP	EPA 8260B	JCP	31	PASI-DAV
1268736007	MW-13	EPA 8260B	JCP	31	PASI-DAV
1268736008	MW-12	RSK 175	DR1	3	PASI-M
		EPA 8260B	JCP	31	PASI-DAV
		SM 5310B	SMS2	1	PASI-N
1268736009	MW-12 DUP	EPA 8260B	JCP	31	PASI-DAV
1268736010	MW-19i	EPA 8260B	JCP	31	PASI-DAV
1268736011	MW-20i	EPA 8260B	JCP	31	PASI-DAV
1268736012	MW-18i	EPA 8260B	JCP	31	PASI-DAV
1268736013	MW-3	EPA 8260B	JCP	31	PASI-DAV
1268736014	MW-21i-105	EPA 8260B	JCP	31	PASI-DAV
1268736015	MW-21i-40	EPA 8260B	JCP	31	PASI-DAV
1268736016	MW-32s	EPA 8260B	JCP	31	PASI-DAV
1268736017	MW-22i	EPA 8260B	JCP	31	PASI-DAV
1268736018	MW-23i	EPA 8260B	JCP	31	PASI-DAV
1268736019	S-1	EPA 8260B	JCP	31	PASI-DAV
1268736020	S-2	EPA 8260B	JCP	31	PASI-DAV
1268736021	MP-1	RSK 175	DR1	3	PASI-M
		EPA 8260B	JCP	31	PASI-DAV
		SM 5310B	SMS2	1	PASI-N
1268736022	MW-24D	EPA 8260B	JCP	31	PASI-DAV
1268736023	MW-24i	RSK 175	DR1	3	PASI-M
		EPA 8260B	JCP	31	PASI-DAV
		SM 5310B	SMS2	1	PASI-N
1268736024	EX	RSK 175	DR1	3	PASI-M
		EPA 8260B	JCP	31	PASI-DAV
		SM 5310B	SMS2	1	PASI-N
1268736025	MW-9	EPA 8260B	JCP	31	PASI-DAV
1268736026	MGMS1-60	EPA 8260B	JCP	31	PASI-DAV
1268736027	MGMS1-43	EPA 8260B	JCP	31	PASI-DAV
1268736028	MGMS2-60	EPA 8260B	JCP	31	PASI-DAV
1268736029	MGMS2-40	RSK 175	DR1	3	PASI-M

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: NuStar Vancouver GWM
Pace Project No.: 1268736

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 8260B	JCP	31	PASI-DAV
		SM 5310B	SMS2	1	PASI-N
1268736030	MGMS3-60	EPA 8260B	JCP	31	PASI-DAV
1268736031	MGMS3-40	EPA 8260B	JCP	31	PASI-DAV
1268736032	MW-7	RSK 175	DR1	3	PASI-M
		EPA 8260B	JCP	31	PASI-DAV
		SM 5310B	SMS2	1	PASI-N
1268736033	MW-7 DUP	EPA 8260B	JCP	31	PASI-DAV
1268736034	MW-5	EPA 8260B	JCP	31	PASI-DAV
1268736035	Trip Blank 1	EPA 8260B	JCP	31	PASI-DAV
1268736036	Trip Blank 2	EPA 8260B	JCP	31	PASI-DAV
1268736037	Trip Blank 3	EPA 8260B	JCP	31	PASI-DAV
1268736038	Field Blank 1	EPA 8260B	JCP	31	PASI-DAV
1268736039	Field Blank 2	EPA 8260B	JCP	31	PASI-DAV
1268736040	Field Blank 3	EPA 8260B	JCP	31	PASI-DAV
1268736041	Equipment Blank	EPA 8260B	JCP	31	PASI-DAV

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: MW-8		Lab ID: 1268736001		Collected: 06/15/16 16:10		Received: 06/21/16 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		06/22/16 18:31	75-27-4		
Bromoform	ND	ug/L	0.50	1		06/22/16 18:31	75-25-2		
Bromomethane	ND	ug/L	20.0	1		06/22/16 18:31	74-83-9		
Carbon tetrachloride	ND	ug/L	0.50	1		06/22/16 18:31	56-23-5		
Chlorobenzene	ND	ug/L	0.50	1		06/22/16 18:31	108-90-7		
Chloroethane	ND	ug/L	2.0	1		06/22/16 18:31	75-00-3		
Chloroform	ND	ug/L	0.50	1		06/22/16 18:31	67-66-3		
Chloromethane	ND	ug/L	2.0	1		06/22/16 18:31	74-87-3		
Dibromochloromethane	ND	ug/L	0.50	1		06/22/16 18:31	124-48-1		
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 18:31	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 18:31	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 18:31	106-46-7		
1,1-Dichloroethane	ND	ug/L	0.50	1		06/22/16 18:31	75-34-3		
1,2-Dichloroethane	ND	ug/L	0.50	1		06/22/16 18:31	107-06-2		
1,1-Dichloroethene	ND	ug/L	0.50	1		06/22/16 18:31	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		06/22/16 18:31	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/22/16 18:31	156-60-5		
1,2-Dichloropropane	ND	ug/L	0.50	1		06/22/16 18:31	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/22/16 18:31	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/22/16 18:31	10061-02-6		
Methylene Chloride	ND	ug/L	5.0	1		06/22/16 18:31	75-09-2		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/22/16 18:31	79-34-5		
Tetrachloroethene	4.1	ug/L	0.50	1		06/22/16 18:31	127-18-4		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/22/16 18:31	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/22/16 18:31	79-00-5		
Trichloroethene	ND	ug/L	0.50	1		06/22/16 18:31	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		06/22/16 18:31	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		06/22/16 18:31	75-01-4		
Surrogates									
1,2-Dichloroethane-d4 (S)	92	%	70-130	1		06/22/16 18:31	17060-07-0		
Toluene-d8 (S)	100	%	70-130	1		06/22/16 18:31	2037-26-5		
4-Bromofluorobenzene (S)	91	%	70-130	1		06/22/16 18:31	460-00-4		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: MW-26		Lab ID: 1268736002		Collected: 06/15/16 15:30		Received: 06/21/16 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	1.0	2		06/23/16 00:32	75-27-4		
Bromoform	ND	ug/L	1.0	2		06/23/16 00:32	75-25-2		
Bromomethane	ND	ug/L	40.0	2		06/23/16 00:32	74-83-9		
Carbon tetrachloride	ND	ug/L	1.0	2		06/23/16 00:32	56-23-5		
Chlorobenzene	ND	ug/L	1.0	2		06/23/16 00:32	108-90-7		
Chloroethane	ND	ug/L	4.0	2		06/23/16 00:32	75-00-3		
Chloroform	ND	ug/L	1.0	2		06/23/16 00:32	67-66-3		
Chloromethane	ND	ug/L	4.0	2		06/23/16 00:32	74-87-3		
Dibromochloromethane	ND	ug/L	1.0	2		06/23/16 00:32	124-48-1		
1,2-Dichlorobenzene	ND	ug/L	1.0	2		06/23/16 00:32	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	2		06/23/16 00:32	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	2		06/23/16 00:32	106-46-7		
1,1-Dichloroethane	4.6	ug/L	1.0	2		06/23/16 00:32	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	2		06/23/16 00:32	107-06-2		
1,1-Dichloroethene	1.4	ug/L	1.0	2		06/23/16 00:32	75-35-4		
cis-1,2-Dichloroethene	83.1	ug/L	1.0	2		06/23/16 00:32	156-59-2		
trans-1,2-Dichloroethene	2.2	ug/L	1.0	2		06/23/16 00:32	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	2		06/23/16 00:32	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	1.0	2		06/23/16 00:32	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	2		06/23/16 00:32	10061-02-6		
Methylene Chloride	ND	ug/L	10.0	2		06/23/16 00:32	75-09-2		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	2		06/23/16 00:32	79-34-5		
Tetrachloroethene	192	ug/L	1.0	2		06/23/16 00:32	127-18-4		
1,1,1-Trichloroethane	2.2	ug/L	1.0	2		06/23/16 00:32	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	2		06/23/16 00:32	79-00-5		
Trichloroethene	343	ug/L	1.0	2		06/23/16 00:32	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	2		06/23/16 00:32	75-69-4		
Vinyl chloride	ND	ug/L	1.0	2		06/23/16 00:32	75-01-4		
Surrogates									
1,2-Dichloroethane-d4 (S)	97	%	70-130	2		06/23/16 00:32	17060-07-0		
Toluene-d8 (S)	100	%	70-130	2		06/23/16 00:32	2037-26-5		
4-Bromofluorobenzene (S)	92	%	70-130	2		06/23/16 00:32	460-00-4		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: MW-25i		Lab ID: 1268736003		Collected: 06/15/16 14:50		Received: 06/21/16 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		06/22/16 20:12	75-27-4		
Bromoform	ND	ug/L	0.50	1		06/22/16 20:12	75-25-2		
Bromomethane	ND	ug/L	20.0	1		06/22/16 20:12	74-83-9		
Carbon tetrachloride	ND	ug/L	0.50	1		06/22/16 20:12	56-23-5		
Chlorobenzene	ND	ug/L	0.50	1		06/22/16 20:12	108-90-7		
Chloroethane	ND	ug/L	2.0	1		06/22/16 20:12	75-00-3		
Chloroform	ND	ug/L	0.50	1		06/22/16 20:12	67-66-3		
Chloromethane	ND	ug/L	2.0	1		06/22/16 20:12	74-87-3		
Dibromochloromethane	ND	ug/L	0.50	1		06/22/16 20:12	124-48-1		
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 20:12	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 20:12	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 20:12	106-46-7		
1,1-Dichloroethane	ND	ug/L	0.50	1		06/22/16 20:12	75-34-3		
1,2-Dichloroethane	ND	ug/L	0.50	1		06/22/16 20:12	107-06-2		
1,1-Dichloroethene	ND	ug/L	0.50	1		06/22/16 20:12	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		06/22/16 20:12	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/22/16 20:12	156-60-5		
1,2-Dichloropropane	ND	ug/L	0.50	1		06/22/16 20:12	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/22/16 20:12	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/22/16 20:12	10061-02-6		
Methylene Chloride	ND	ug/L	5.0	1		06/22/16 20:12	75-09-2		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/22/16 20:12	79-34-5		
Tetrachloroethene	ND	ug/L	0.50	1		06/22/16 20:12	127-18-4		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/22/16 20:12	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/22/16 20:12	79-00-5		
Trichloroethene	ND	ug/L	0.50	1		06/22/16 20:12	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		06/22/16 20:12	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		06/22/16 20:12	75-01-4		
Surrogates									
1,2-Dichloroethane-d4 (S)	94	%.	70-130	1		06/22/16 20:12	17060-07-0		
Toluene-d8 (S)	100	%.	70-130	1		06/22/16 20:12	2037-26-5		
4-Bromofluorobenzene (S)	93	%.	70-130	1		06/22/16 20:12	460-00-4		

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: MW-1		Lab ID: 1268736004		Collected: 06/15/16 14:00	Received: 06/21/16 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		06/22/16 20:32	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/22/16 20:32	75-25-2	
Bromomethane	ND	ug/L	20.0	1		06/22/16 20:32	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		06/22/16 20:32	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/22/16 20:32	108-90-7	
Chloroethane	ND	ug/L	2.0	1		06/22/16 20:32	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/22/16 20:32	67-66-3	
Chloromethane	ND	ug/L	2.0	1		06/22/16 20:32	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		06/22/16 20:32	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 20:32	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 20:32	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 20:32	106-46-7	
1,1-Dichloroethane	3.7	ug/L	0.50	1		06/22/16 20:32	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/22/16 20:32	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/22/16 20:32	75-35-4	
cis-1,2-Dichloroethene	13.1	ug/L	0.50	1		06/22/16 20:32	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/22/16 20:32	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/22/16 20:32	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/22/16 20:32	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/22/16 20:32	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		06/22/16 20:32	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/22/16 20:32	79-34-5	
Tetrachloroethene	0.67	ug/L	0.50	1		06/22/16 20:32	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/22/16 20:32	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/22/16 20:32	79-00-5	
Trichloroethene	1.2	ug/L	0.50	1		06/22/16 20:32	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/22/16 20:32	75-69-4	
Vinyl chloride	5.3	ug/L	0.50	1		06/22/16 20:32	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	94	%	70-130	1		06/22/16 20:32	17060-07-0	
Toluene-d8 (S)	101	%	70-130	1		06/22/16 20:32	2037-26-5	
4-Bromofluorobenzene (S)	93	%	70-130	1		06/22/16 20:32	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: MW-19	Lab ID: 1268736005	Collected: 06/16/16 16:15	Received: 06/21/16 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		06/23/16 23:07	75-27-4	
Bromoform	ND	ug/L	10.0	20		06/23/16 23:07	75-25-2	
Bromomethane	ND	ug/L	400	20		06/23/16 23:07	74-83-9	
Carbon tetrachloride	ND	ug/L	10.0	20		06/23/16 23:07	56-23-5	
Chlorobenzene	ND	ug/L	10.0	20		06/23/16 23:07	108-90-7	
Chloroethane	ND	ug/L	40.0	20		06/23/16 23:07	75-00-3	
Chloroform	ND	ug/L	10.0	20		06/23/16 23:07	67-66-3	
Chloromethane	ND	ug/L	40.0	20		06/23/16 23:07	74-87-3	
Dibromochloromethane	ND	ug/L	10.0	20		06/23/16 23:07	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	10.0	20		06/23/16 23:07	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	10.0	20		06/23/16 23:07	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	10.0	20		06/23/16 23:07	106-46-7	
1,1-Dichloroethane	ND	ug/L	10.0	20		06/23/16 23:07	75-34-3	
1,2-Dichloroethane	ND	ug/L	10.0	20		06/23/16 23:07	107-06-2	
1,1-Dichloroethene	22.2	ug/L	10.0	20		06/23/16 23:07	75-35-4	
cis-1,2-Dichloroethene	507	ug/L	10.0	20		06/23/16 23:07	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	10.0	20		06/23/16 23:07	156-60-5	
1,2-Dichloropropane	ND	ug/L	10.0	20		06/23/16 23:07	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	10.0	20		06/23/16 23:07	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	10.0	20		06/23/16 23:07	10061-02-6	
Methylene Chloride	ND	ug/L	100	20		06/23/16 23:07	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	10.0	20		06/23/16 23:07	79-34-5	
Tetrachloroethene	3250	ug/L	10.0	20		06/23/16 23:07	127-18-4	
1,1,1-Trichloroethane	29.2	ug/L	10.0	20		06/23/16 23:07	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	10.0	20		06/23/16 23:07	79-00-5	
Trichloroethene	1030	ug/L	10.0	20		06/23/16 23:07	79-01-6	
Trichlorofluoromethane	ND	ug/L	10.0	20		06/23/16 23:07	75-69-4	
Vinyl chloride	18.3	ug/L	10.0	20		06/23/16 23:07	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	97	%	70-130	20		06/23/16 23:07	17060-07-0	
Toluene-d8 (S)	101	%	70-130	20		06/23/16 23:07	2037-26-5	
4-Bromofluorobenzene (S)	93	%	70-130	20		06/23/16 23:07	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: MW-19 DUP		Lab ID: 1268736006		Collected: 06/16/16 16:15		Received: 06/21/16 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	12.5	25		06/23/16 01:52	75-27-4		
Bromoform	ND	ug/L	12.5	25		06/23/16 01:52	75-25-2		
Bromomethane	ND	ug/L	500	25		06/23/16 01:52	74-83-9		
Carbon tetrachloride	ND	ug/L	12.5	25		06/23/16 01:52	56-23-5		
Chlorobenzene	ND	ug/L	12.5	25		06/23/16 01:52	108-90-7		
Chloroethane	ND	ug/L	50.0	25		06/23/16 01:52	75-00-3		
Chloroform	ND	ug/L	12.5	25		06/23/16 01:52	67-66-3		
Chloromethane	ND	ug/L	50.0	25		06/23/16 01:52	74-87-3		
Dibromochloromethane	ND	ug/L	12.5	25		06/23/16 01:52	124-48-1		
1,2-Dichlorobenzene	ND	ug/L	12.5	25		06/23/16 01:52	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	12.5	25		06/23/16 01:52	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	12.5	25		06/23/16 01:52	106-46-7		
1,1-Dichloroethane	19.5	ug/L	12.5	25		06/23/16 01:52	75-34-3		
1,2-Dichloroethane	ND	ug/L	12.5	25		06/23/16 01:52	107-06-2		
1,1-Dichloroethene	23.8	ug/L	12.5	25		06/23/16 01:52	75-35-4		
cis-1,2-Dichloroethene	505	ug/L	12.5	25		06/23/16 01:52	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	12.5	25		06/23/16 01:52	156-60-5		
1,2-Dichloropropane	ND	ug/L	12.5	25		06/23/16 01:52	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	12.5	25		06/23/16 01:52	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	12.5	25		06/23/16 01:52	10061-02-6		
Methylene Chloride	ND	ug/L	12.5	25		06/23/16 01:52	75-09-2		
1,1,2,2-Tetrachloroethane	ND	ug/L	12.5	25		06/23/16 01:52	79-34-5		
Tetrachloroethene	3460	ug/L	12.5	25		06/23/16 01:52	127-18-4		
1,1,1-Trichloroethane	28.1	ug/L	12.5	25		06/23/16 01:52	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	12.5	25		06/23/16 01:52	79-00-5		
Trichloroethene	1020	ug/L	12.5	25		06/23/16 01:52	79-01-6		
Trichlorofluoromethane	ND	ug/L	12.5	25		06/23/16 01:52	75-69-4		
Vinyl chloride	17.6	ug/L	12.5	25		06/23/16 01:52	75-01-4		
Surrogates									
1,2-Dichloroethane-d4 (S)	97	%	70-130	25		06/23/16 01:52	17060-07-0		
Toluene-d8 (S)	99	%	70-130	25		06/23/16 01:52	2037-26-5		
4-Bromofluorobenzene (S)	91	%	70-130	25		06/23/16 01:52	460-00-4		

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: MW-13	Lab ID: 1268736007	Collected: 06/16/16 15:45	Received: 06/21/16 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	8.4	16.7		06/23/16 00:52	75-27-4	
Bromoform	ND	ug/L	8.4	16.7		06/23/16 00:52	75-25-2	
Bromomethane	ND	ug/L	334	16.7		06/23/16 00:52	74-83-9	
Carbon tetrachloride	ND	ug/L	8.4	16.7		06/23/16 00:52	56-23-5	
Chlorobenzene	ND	ug/L	8.4	16.7		06/23/16 00:52	108-90-7	
Chloroethane	ND	ug/L	33.4	16.7		06/23/16 00:52	75-00-3	
Chloroform	ND	ug/L	8.4	16.7		06/23/16 00:52	67-66-3	
Chloromethane	ND	ug/L	33.4	16.7		06/23/16 00:52	74-87-3	
Dibromochloromethane	ND	ug/L	8.4	16.7		06/23/16 00:52	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	8.4	16.7		06/23/16 00:52	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	8.4	16.7		06/23/16 00:52	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	8.4	16.7		06/23/16 00:52	106-46-7	
1,1-Dichloroethane	41.3	ug/L	8.4	16.7		06/23/16 00:52	75-34-3	
1,2-Dichloroethane	ND	ug/L	8.4	16.7		06/23/16 00:52	107-06-2	
1,1-Dichloroethene	17.8	ug/L	8.4	16.7		06/23/16 00:52	75-35-4	
cis-1,2-Dichloroethene	841	ug/L	8.4	16.7		06/23/16 00:52	156-59-2	
trans-1,2-Dichloroethene	19.2	ug/L	8.4	16.7		06/23/16 00:52	156-60-5	
1,2-Dichloropropane	ND	ug/L	8.4	16.7		06/23/16 00:52	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	8.4	16.7		06/23/16 00:52	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	8.4	16.7		06/23/16 00:52	10061-02-6	
Methylene Chloride	ND	ug/L	83.5	16.7		06/23/16 00:52	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	8.4	16.7		06/23/16 00:52	79-34-5	
Tetrachloroethene	2470	ug/L	8.4	16.7		06/23/16 00:52	127-18-4	
1,1,1-Trichloroethane	10.1	ug/L	8.4	16.7		06/23/16 00:52	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	8.4	16.7		06/23/16 00:52	79-00-5	
Trichloroethene	1820	ug/L	8.4	16.7		06/23/16 00:52	79-01-6	
Trichlorofluoromethane	ND	ug/L	8.4	16.7		06/23/16 00:52	75-69-4	
Vinyl chloride	ND	ug/L	8.4	16.7		06/23/16 00:52	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	96	%	70-130	16.7		06/23/16 00:52	17060-07-0	
Toluene-d8 (S)	100	%	70-130	16.7		06/23/16 00:52	2037-26-5	
4-Bromofluorobenzene (S)	92	%	70-130	16.7		06/23/16 00:52	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: MW-12	Lab ID: 1268736008	Collected: 06/16/16 14:55	Received: 06/21/16 09:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace		Analytical Method: RSK 175						
Ethane	50.8	ug/L	10.0	1		06/23/16 10:30	74-84-0	
Ethene	ND	ug/L	10.0	1		06/23/16 10:30	74-85-1	
Methane	1500	ug/L	10.0	1		06/23/16 10:30	74-82-8	
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	8.4	16.7		06/23/16 01:12	75-27-4	
Bromoform	ND	ug/L	8.4	16.7		06/23/16 01:12	75-25-2	
Bromomethane	ND	ug/L	334	16.7		06/23/16 01:12	74-83-9	
Carbon tetrachloride	ND	ug/L	8.4	16.7		06/23/16 01:12	56-23-5	
Chlorobenzene	ND	ug/L	8.4	16.7		06/23/16 01:12	108-90-7	
Chloroethane	ND	ug/L	33.4	16.7		06/23/16 01:12	75-00-3	
Chloroform	ND	ug/L	8.4	16.7		06/23/16 01:12	67-66-3	
Chloromethane	ND	ug/L	33.4	16.7		06/23/16 01:12	74-87-3	
Dibromochloromethane	ND	ug/L	8.4	16.7		06/23/16 01:12	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	8.4	16.7		06/23/16 01:12	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	8.4	16.7		06/23/16 01:12	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	8.4	16.7		06/23/16 01:12	106-46-7	
1,1-Dichloroethane	174	ug/L	8.4	16.7		06/23/16 01:12	75-34-3	
1,2-Dichloroethane	ND	ug/L	8.4	16.7		06/23/16 01:12	107-06-2	
1,1-Dichloroethene	29.9	ug/L	8.4	16.7		06/23/16 01:12	75-35-4	
cis-1,2-Dichloroethene	3310	ug/L	8.4	16.7		06/23/16 01:12	156-59-2	
trans-1,2-Dichloroethene	31.6	ug/L	8.4	16.7		06/23/16 01:12	156-60-5	
1,2-Dichloropropane	ND	ug/L	8.4	16.7		06/23/16 01:12	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	8.4	16.7		06/23/16 01:12	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	8.4	16.7		06/23/16 01:12	10061-02-6	
Methylene Chloride	ND	ug/L	83.5	16.7		06/23/16 01:12	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	8.4	16.7		06/23/16 01:12	79-34-5	
Tetrachloroethene	314	ug/L	8.4	16.7		06/23/16 01:12	127-18-4	
1,1,1-Trichloroethane	12.8	ug/L	8.4	16.7		06/23/16 01:12	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	8.4	16.7		06/23/16 01:12	79-00-5	
Trichloroethene	288	ug/L	8.4	16.7		06/23/16 01:12	79-01-6	
Trichlorofluoromethane	ND	ug/L	8.4	16.7		06/23/16 01:12	75-69-4	
Vinyl chloride	52.3	ug/L	8.4	16.7		06/23/16 01:12	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	98	%	70-130	16.7		06/23/16 01:12	17060-07-0	
Toluene-d8 (S)	99	%	70-130	16.7		06/23/16 01:12	2037-26-5	
4-Bromofluorobenzene (S)	90	%	70-130	16.7		06/23/16 01:12	460-00-4	
5310B TOC		Analytical Method: SM 5310B						
Total Organic Carbon	3.7	mg/L	1.0	1		06/27/16 14:50	7440-44-0	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: MW-12 DUP		Lab ID: 1268736009	Collected: 06/16/16 14:55	Received: 06/21/16 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	8.4	16.7		06/23/16 01:32	75-27-4	
Bromoform	ND	ug/L	8.4	16.7		06/23/16 01:32	75-25-2	
Bromomethane	ND	ug/L	334	16.7		06/23/16 01:32	74-83-9	
Carbon tetrachloride	ND	ug/L	8.4	16.7		06/23/16 01:32	56-23-5	
Chlorobenzene	ND	ug/L	8.4	16.7		06/23/16 01:32	108-90-7	
Chloroethane	ND	ug/L	33.4	16.7		06/23/16 01:32	75-00-3	
Chloroform	ND	ug/L	8.4	16.7		06/23/16 01:32	67-66-3	
Chloromethane	ND	ug/L	33.4	16.7		06/23/16 01:32	74-87-3	
Dibromochloromethane	ND	ug/L	8.4	16.7		06/23/16 01:32	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	8.4	16.7		06/23/16 01:32	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	8.4	16.7		06/23/16 01:32	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	8.4	16.7		06/23/16 01:32	106-46-7	
1,1-Dichloroethane	192	ug/L	8.4	16.7		06/23/16 01:32	75-34-3	
1,2-Dichloroethane	ND	ug/L	8.4	16.7		06/23/16 01:32	107-06-2	
1,1-Dichloroethene	31.9	ug/L	8.4	16.7		06/23/16 01:32	75-35-4	
cis-1,2-Dichloroethene	3420	ug/L	12.5	25		06/23/16 23:27	156-59-2	
trans-1,2-Dichloroethene	37.4	ug/L	8.4	16.7		06/23/16 01:32	156-60-5	
1,2-Dichloropropane	ND	ug/L	8.4	16.7		06/23/16 01:32	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	8.4	16.7		06/23/16 01:32	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	8.4	16.7		06/23/16 01:32	10061-02-6	
Methylene Chloride	ND	ug/L	83.5	16.7		06/23/16 01:32	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	8.4	16.7		06/23/16 01:32	79-34-5	
Tetrachloroethene	367	ug/L	8.4	16.7		06/23/16 01:32	127-18-4	
1,1,1-Trichloroethane	15.4	ug/L	8.4	16.7		06/23/16 01:32	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	8.4	16.7		06/23/16 01:32	79-00-5	
Trichloroethene	311	ug/L	8.4	16.7		06/23/16 01:32	79-01-6	
Trichlorofluoromethane	ND	ug/L	8.4	16.7		06/23/16 01:32	75-69-4	
Vinyl chloride	67.0	ug/L	8.4	16.7		06/23/16 01:32	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	99	%	70-130	16.7		06/23/16 01:32	17060-07-0	
Toluene-d8 (S)	99	%	70-130	16.7		06/23/16 01:32	2037-26-5	
4-Bromofluorobenzene (S)	90	%	70-130	16.7		06/23/16 01:32	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: MW-19i		Lab ID: 1268736010		Collected: 06/16/16 14:15		Received: 06/21/16 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		06/22/16 20:52	75-27-4		
Bromoform	ND	ug/L	0.50	1		06/22/16 20:52	75-25-2		
Bromomethane	ND	ug/L	20.0	1		06/22/16 20:52	74-83-9		
Carbon tetrachloride	ND	ug/L	0.50	1		06/22/16 20:52	56-23-5		
Chlorobenzene	ND	ug/L	0.50	1		06/22/16 20:52	108-90-7		
Chloroethane	ND	ug/L	2.0	1		06/22/16 20:52	75-00-3		
Chloroform	ND	ug/L	0.50	1		06/22/16 20:52	67-66-3		
Chloromethane	ND	ug/L	2.0	1		06/22/16 20:52	74-87-3		
Dibromochloromethane	ND	ug/L	0.50	1		06/22/16 20:52	124-48-1		
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 20:52	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 20:52	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 20:52	106-46-7		
1,1-Dichloroethane	ND	ug/L	0.50	1		06/22/16 20:52	75-34-3		
1,2-Dichloroethane	ND	ug/L	0.50	1		06/22/16 20:52	107-06-2		
1,1-Dichloroethene	ND	ug/L	0.50	1		06/22/16 20:52	75-35-4		
cis-1,2-Dichloroethene	3.2	ug/L	0.50	1		06/22/16 20:52	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/22/16 20:52	156-60-5		
1,2-Dichloropropane	ND	ug/L	0.50	1		06/22/16 20:52	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/22/16 20:52	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/22/16 20:52	10061-02-6		
Methylene Chloride	ND	ug/L	5.0	1		06/22/16 20:52	75-09-2		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/22/16 20:52	79-34-5		
Tetrachloroethene	ND	ug/L	0.50	1		06/22/16 20:52	127-18-4		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/22/16 20:52	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/22/16 20:52	79-00-5		
Trichloroethene	ND	ug/L	0.50	1		06/22/16 20:52	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		06/22/16 20:52	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		06/22/16 20:52	75-01-4		
Surrogates									
1,2-Dichloroethane-d4 (S)	93	%.	70-130	1		06/22/16 20:52	17060-07-0		
Toluene-d8 (S)	99	%.	70-130	1		06/22/16 20:52	2037-26-5		
4-Bromofluorobenzene (S)	94	%.	70-130	1		06/22/16 20:52	460-00-4		

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM
Pace Project No.: 1268736

Sample: MW-20i		Lab ID: 1268736011	Collected: 06/16/16 13:45	Received: 06/21/16 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		06/22/16 21:12	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/22/16 21:12	75-25-2	
Bromomethane	ND	ug/L	20.0	1		06/22/16 21:12	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		06/22/16 21:12	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/22/16 21:12	108-90-7	
Chloroethane	ND	ug/L	2.0	1		06/22/16 21:12	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/22/16 21:12	67-66-3	
Chloromethane	ND	ug/L	2.0	1		06/22/16 21:12	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		06/22/16 21:12	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 21:12	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 21:12	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 21:12	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/22/16 21:12	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/22/16 21:12	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/22/16 21:12	75-35-4	
cis-1,2-Dichloroethene	7.4	ug/L	0.50	1		06/22/16 21:12	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/22/16 21:12	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/22/16 21:12	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/22/16 21:12	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/22/16 21:12	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		06/22/16 21:12	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/22/16 21:12	79-34-5	
Tetrachloroethene	2.1	ug/L	0.50	1		06/22/16 21:12	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/22/16 21:12	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/22/16 21:12	79-00-5	
Trichloroethene	1.5	ug/L	0.50	1		06/22/16 21:12	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/22/16 21:12	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/22/16 21:12	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	95	%	70-130	1		06/22/16 21:12	17060-07-0	
Toluene-d8 (S)	99	%	70-130	1		06/22/16 21:12	2037-26-5	
4-Bromofluorobenzene (S)	92	%	70-130	1		06/22/16 21:12	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: MW-18i		Lab ID: 1268736012	Collected: 06/16/16 13:20	Received: 06/21/16 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		06/22/16 21:32	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/22/16 21:32	75-25-2	
Bromomethane	ND	ug/L	20.0	1		06/22/16 21:32	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		06/22/16 21:32	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/22/16 21:32	108-90-7	
Chloroethane	ND	ug/L	2.0	1		06/22/16 21:32	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/22/16 21:32	67-66-3	
Chloromethane	ND	ug/L	2.0	1		06/22/16 21:32	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		06/22/16 21:32	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 21:32	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 21:32	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 21:32	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/22/16 21:32	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/22/16 21:32	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/22/16 21:32	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		06/22/16 21:32	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/22/16 21:32	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/22/16 21:32	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/22/16 21:32	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/22/16 21:32	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		06/22/16 21:32	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/22/16 21:32	79-34-5	
Tetrachloroethene	0.98	ug/L	0.50	1		06/22/16 21:32	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/22/16 21:32	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/22/16 21:32	79-00-5	
Trichloroethene	0.73	ug/L	0.50	1		06/22/16 21:32	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/22/16 21:32	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/22/16 21:32	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	94	%	70-130	1		06/22/16 21:32	17060-07-0	
Toluene-d8 (S)	99	%	70-130	1		06/22/16 21:32	2037-26-5	
4-Bromofluorobenzene (S)	92	%	70-130	1		06/22/16 21:32	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: MW-3	Lab ID: 1268736013	Collected: 06/16/16 12:55	Received: 06/21/16 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		06/23/16 22:47	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/23/16 22:47	75-25-2	
Bromomethane	ND	ug/L	20.0	1		06/23/16 22:47	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 22:47	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 22:47	108-90-7	
Chloroethane	ND	ug/L	2.0	1		06/23/16 22:47	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/23/16 22:47	67-66-3	
Chloromethane	ND	ug/L	2.0	1		06/23/16 22:47	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 22:47	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 22:47	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 22:47	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 22:47	106-46-7	
1,1-Dichloroethane	1.1	ug/L	0.50	1		06/23/16 22:47	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 22:47	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 22:47	75-35-4	
cis-1,2-Dichloroethene	50.2	ug/L	0.50	1		06/23/16 22:47	156-59-2	
trans-1,2-Dichloroethene	0.82	ug/L	0.50	1		06/23/16 22:47	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 22:47	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 22:47	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 22:47	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		06/23/16 22:47	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 22:47	79-34-5	
Tetrachloroethene	49.5	ug/L	0.50	1		06/23/16 22:47	127-18-4	
1,1,1-Trichloroethane	0.77	ug/L	0.50	1		06/23/16 22:47	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 22:47	79-00-5	
Trichloroethene	17.4	ug/L	0.50	1		06/23/16 22:47	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 22:47	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/23/16 22:47	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	97	%	70-130	1		06/23/16 22:47	17060-07-0	
Toluene-d8 (S)	100	%	70-130	1		06/23/16 22:47	2037-26-5	
4-Bromofluorobenzene (S)	89	%	70-130	1		06/23/16 22:47	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: MW-21i-105		Lab ID: 1268736014		Collected: 06/16/16 11:55		Received: 06/21/16 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		06/22/16 21:51	75-27-4		
Bromoform	ND	ug/L	0.50	1		06/22/16 21:51	75-25-2		
Bromomethane	ND	ug/L	20.0	1		06/22/16 21:51	74-83-9		
Carbon tetrachloride	ND	ug/L	0.50	1		06/22/16 21:51	56-23-5		
Chlorobenzene	ND	ug/L	0.50	1		06/22/16 21:51	108-90-7		
Chloroethane	ND	ug/L	2.0	1		06/22/16 21:51	75-00-3		
Chloroform	ND	ug/L	0.50	1		06/22/16 21:51	67-66-3		
Chloromethane	ND	ug/L	2.0	1		06/22/16 21:51	74-87-3		
Dibromochloromethane	ND	ug/L	0.50	1		06/22/16 21:51	124-48-1		
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 21:51	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 21:51	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 21:51	106-46-7		
1,1-Dichloroethane	ND	ug/L	0.50	1		06/22/16 21:51	75-34-3		
1,2-Dichloroethane	ND	ug/L	0.50	1		06/22/16 21:51	107-06-2		
1,1-Dichloroethene	ND	ug/L	0.50	1		06/22/16 21:51	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		06/22/16 21:51	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/22/16 21:51	156-60-5		
1,2-Dichloropropane	ND	ug/L	0.50	1		06/22/16 21:51	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/22/16 21:51	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/22/16 21:51	10061-02-6		
Methylene Chloride	ND	ug/L	5.0	1		06/22/16 21:51	75-09-2		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/22/16 21:51	79-34-5		
Tetrachloroethene	ND	ug/L	0.50	1		06/22/16 21:51	127-18-4		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/22/16 21:51	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/22/16 21:51	79-00-5		
Trichloroethene	ND	ug/L	0.50	1		06/22/16 21:51	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		06/22/16 21:51	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		06/22/16 21:51	75-01-4		
Surrogates									
1,2-Dichloroethane-d4 (S)	95	%	70-130	1		06/22/16 21:51	17060-07-0		
Toluene-d8 (S)	100	%	70-130	1		06/22/16 21:51	2037-26-5		
4-Bromofluorobenzene (S)	91	%	70-130	1		06/22/16 21:51	460-00-4		

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: MW-21i-40		Lab ID: 1268736015		Collected: 06/16/16 11:25	Received: 06/21/16 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		06/22/16 22:11	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/22/16 22:11	75-25-2	
Bromomethane	ND	ug/L	20.0	1		06/22/16 22:11	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		06/22/16 22:11	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/22/16 22:11	108-90-7	
Chloroethane	ND	ug/L	2.0	1		06/22/16 22:11	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/22/16 22:11	67-66-3	
Chloromethane	ND	ug/L	2.0	1		06/22/16 22:11	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		06/22/16 22:11	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 22:11	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 22:11	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 22:11	106-46-7	
1,1-Dichloroethane	2.3	ug/L	0.50	1		06/22/16 22:11	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/22/16 22:11	107-06-2	
1,1-Dichloroethene	0.80	ug/L	0.50	1		06/22/16 22:11	75-35-4	
cis-1,2-Dichloroethene	67.8	ug/L	0.50	1		06/22/16 22:11	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/22/16 22:11	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/22/16 22:11	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/22/16 22:11	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/22/16 22:11	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		06/22/16 22:11	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/22/16 22:11	79-34-5	
Tetrachloroethene	18.1	ug/L	0.50	1		06/22/16 22:11	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/22/16 22:11	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/22/16 22:11	79-00-5	
Trichloroethene	17.1	ug/L	0.50	1		06/22/16 22:11	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/22/16 22:11	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/22/16 22:11	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	95	%	70-130	1		06/22/16 22:11	17060-07-0	
Toluene-d8 (S)	99	%	70-130	1		06/22/16 22:11	2037-26-5	
4-Bromofluorobenzene (S)	91	%	70-130	1		06/22/16 22:11	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: MW-32s	Lab ID: 1268736016	Collected: 06/16/16 10:47	Received: 06/21/16 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		06/22/16 22:31	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/22/16 22:31	75-25-2	
Bromomethane	ND	ug/L	20.0	1		06/22/16 22:31	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		06/22/16 22:31	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/22/16 22:31	108-90-7	
Chloroethane	ND	ug/L	2.0	1		06/22/16 22:31	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/22/16 22:31	67-66-3	
Chloromethane	ND	ug/L	2.0	1		06/22/16 22:31	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		06/22/16 22:31	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 22:31	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 22:31	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 22:31	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/22/16 22:31	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/22/16 22:31	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/22/16 22:31	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		06/22/16 22:31	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/22/16 22:31	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/22/16 22:31	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/22/16 22:31	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/22/16 22:31	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		06/22/16 22:31	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/22/16 22:31	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/22/16 22:31	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/22/16 22:31	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/22/16 22:31	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/22/16 22:31	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/22/16 22:31	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/22/16 22:31	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	95	%.	70-130	1		06/22/16 22:31	17060-07-0	
Toluene-d8 (S)	100	%.	70-130	1		06/22/16 22:31	2037-26-5	
4-Bromofluorobenzene (S)	93	%.	70-130	1		06/22/16 22:31	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: MW-22i	Lab ID: 1268736017	Collected: 06/16/16 10:10	Received: 06/21/16 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		06/22/16 22:51	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/22/16 22:51	75-25-2	
Bromomethane	ND	ug/L	20.0	1		06/22/16 22:51	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		06/22/16 22:51	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/22/16 22:51	108-90-7	
Chloroethane	ND	ug/L	2.0	1		06/22/16 22:51	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/22/16 22:51	67-66-3	
Chloromethane	ND	ug/L	2.0	1		06/22/16 22:51	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		06/22/16 22:51	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 22:51	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 22:51	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 22:51	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/22/16 22:51	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/22/16 22:51	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/22/16 22:51	75-35-4	
cis-1,2-Dichloroethene	6.5	ug/L	0.50	1		06/22/16 22:51	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/22/16 22:51	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/22/16 22:51	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/22/16 22:51	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/22/16 22:51	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		06/22/16 22:51	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/22/16 22:51	79-34-5	
Tetrachloroethene	1.0	ug/L	0.50	1		06/22/16 22:51	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/22/16 22:51	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/22/16 22:51	79-00-5	
Trichloroethene	7.9	ug/L	0.50	1		06/22/16 22:51	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/22/16 22:51	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/22/16 22:51	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	97	%	70-130	1		06/22/16 22:51	17060-07-0	
Toluene-d8 (S)	101	%	70-130	1		06/22/16 22:51	2037-26-5	
4-Bromofluorobenzene (S)	93	%	70-130	1		06/22/16 22:51	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: MW-23i		Lab ID: 1268736018		Collected: 06/16/16 09:30		Received: 06/21/16 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		06/22/16 23:12	75-27-4		
Bromoform	ND	ug/L	0.50	1		06/22/16 23:12	75-25-2		
Bromomethane	ND	ug/L	20.0	1		06/22/16 23:12	74-83-9		
Carbon tetrachloride	ND	ug/L	0.50	1		06/22/16 23:12	56-23-5		
Chlorobenzene	ND	ug/L	0.50	1		06/22/16 23:12	108-90-7		
Chloroethane	ND	ug/L	2.0	1		06/22/16 23:12	75-00-3		
Chloroform	ND	ug/L	0.50	1		06/22/16 23:12	67-66-3		
Chloromethane	ND	ug/L	2.0	1		06/22/16 23:12	74-87-3		
Dibromochloromethane	ND	ug/L	0.50	1		06/22/16 23:12	124-48-1		
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 23:12	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 23:12	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 23:12	106-46-7		
1,1-Dichloroethane	ND	ug/L	0.50	1		06/22/16 23:12	75-34-3		
1,2-Dichloroethane	ND	ug/L	0.50	1		06/22/16 23:12	107-06-2		
1,1-Dichloroethene	ND	ug/L	0.50	1		06/22/16 23:12	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		06/22/16 23:12	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/22/16 23:12	156-60-5		
1,2-Dichloropropane	ND	ug/L	0.50	1		06/22/16 23:12	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/22/16 23:12	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/22/16 23:12	10061-02-6		
Methylene Chloride	ND	ug/L	5.0	1		06/22/16 23:12	75-09-2		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/22/16 23:12	79-34-5		
Tetrachloroethene	ND	ug/L	0.50	1		06/22/16 23:12	127-18-4		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/22/16 23:12	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/22/16 23:12	79-00-5		
Trichloroethene	ND	ug/L	0.50	1		06/22/16 23:12	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		06/22/16 23:12	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		06/22/16 23:12	75-01-4		
Surrogates									
1,2-Dichloroethane-d4 (S)	95	%.	70-130	1		06/22/16 23:12	17060-07-0		
Toluene-d8 (S)	99	%.	70-130	1		06/22/16 23:12	2037-26-5		
4-Bromofluorobenzene (S)	92	%.	70-130	1		06/22/16 23:12	460-00-4		

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: S-1		Lab ID: 1268736019		Collected: 06/16/16 09:00	Received: 06/21/16 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		06/22/16 23:32	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/22/16 23:32	75-25-2	
Bromomethane	ND	ug/L	20.0	1		06/22/16 23:32	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		06/22/16 23:32	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/22/16 23:32	108-90-7	
Chloroethane	ND	ug/L	2.0	1		06/22/16 23:32	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/22/16 23:32	67-66-3	
Chloromethane	ND	ug/L	2.0	1		06/22/16 23:32	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		06/22/16 23:32	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 23:32	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 23:32	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 23:32	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/22/16 23:32	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/22/16 23:32	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/22/16 23:32	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		06/22/16 23:32	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/22/16 23:32	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/22/16 23:32	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/22/16 23:32	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/22/16 23:32	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		06/22/16 23:32	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/22/16 23:32	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/22/16 23:32	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/22/16 23:32	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/22/16 23:32	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/22/16 23:32	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/22/16 23:32	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/22/16 23:32	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	96	%.	70-130	1		06/22/16 23:32	17060-07-0	
Toluene-d8 (S)	99	%.	70-130	1		06/22/16 23:32	2037-26-5	
4-Bromofluorobenzene (S)	90	%.	70-130	1		06/22/16 23:32	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: S-2	Lab ID: 1268736020	Collected: 06/16/16 08:30	Received: 06/21/16 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		06/22/16 23:52	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/22/16 23:52	75-25-2	
Bromomethane	ND	ug/L	20.0	1		06/22/16 23:52	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		06/22/16 23:52	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/22/16 23:52	108-90-7	
Chloroethane	ND	ug/L	2.0	1		06/22/16 23:52	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/22/16 23:52	67-66-3	
Chloromethane	ND	ug/L	2.0	1		06/22/16 23:52	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		06/22/16 23:52	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 23:52	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 23:52	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/22/16 23:52	106-46-7	
1,1-Dichloroethane	4.3	ug/L	0.50	1		06/22/16 23:52	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/22/16 23:52	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/22/16 23:52	75-35-4	
cis-1,2-Dichloroethene	6.0	ug/L	0.50	1		06/22/16 23:52	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/22/16 23:52	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/22/16 23:52	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/22/16 23:52	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/22/16 23:52	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		06/22/16 23:52	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/22/16 23:52	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/22/16 23:52	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/22/16 23:52	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/22/16 23:52	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/22/16 23:52	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/22/16 23:52	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/22/16 23:52	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	97	%	70-130	1		06/22/16 23:52	17060-07-0	
Toluene-d8 (S)	99	%	70-130	1		06/22/16 23:52	2037-26-5	
4-Bromofluorobenzene (S)	93	%	70-130	1		06/22/16 23:52	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: MP-1	Lab ID: 1268736021	Collected: 06/17/16 13:35	Received: 06/21/16 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		06/24/16 11:33	74-84-0	
Ethene	ND	ug/L	10.0	1		06/24/16 11:33	74-85-1	
Methane	1810	ug/L	10.0	1		06/24/16 11:33	74-82-8	
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		06/23/16 11:41	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/23/16 11:41	75-25-2	
Bromomethane	ND	ug/L	20.0	1		06/23/16 11:41	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 11:41	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 11:41	108-90-7	
Chloroethane	ND	ug/L	2.0	1		06/23/16 11:41	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/23/16 11:41	67-66-3	
Chloromethane	ND	ug/L	2.0	1		06/23/16 11:41	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 11:41	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 11:41	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 11:41	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 11:41	106-46-7	
1,1-Dichloroethane	5.0	ug/L	0.50	1		06/23/16 11:41	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 11:41	107-06-2	
1,1-Dichloroethene	1.5	ug/L	0.50	1		06/23/16 11:41	75-35-4	
cis-1,2-Dichloroethene	125	ug/L	0.50	1		06/23/16 11:41	156-59-2	
trans-1,2-Dichloroethene	0.97	ug/L	0.50	1		06/23/16 11:41	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 11:41	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 11:41	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 11:41	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		06/23/16 11:41	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 11:41	79-34-5	
Tetrachloroethene	206	ug/L	1.0	2		06/27/16 16:00	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 11:41	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 11:41	79-00-5	
Trichloroethene	67.3	ug/L	0.50	1		06/23/16 11:41	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 11:41	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/23/16 11:41	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	98	%	70-130	1		06/23/16 11:41	17060-07-0	
Toluene-d8 (S)	99	%	70-130	1		06/23/16 11:41	2037-26-5	
4-Bromofluorobenzene (S)	92	%	70-130	1		06/23/16 11:41	460-00-4	
5310B TOC		Analytical Method: SM 5310B						
Total Organic Carbon	ND	mg/L	1.0	1		06/27/16 15:47	7440-44-0	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: MW-24D	Lab ID: 1268736022	Collected: 06/17/16 13:15	Received: 06/21/16 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		06/23/16 12:01	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/23/16 12:01	75-25-2	
Bromomethane	ND	ug/L	20.0	1		06/23/16 12:01	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 12:01	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 12:01	108-90-7	
Chloroethane	ND	ug/L	2.0	1		06/23/16 12:01	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/23/16 12:01	67-66-3	
Chloromethane	ND	ug/L	2.0	1		06/23/16 12:01	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 12:01	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 12:01	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 12:01	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 12:01	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/23/16 12:01	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 12:01	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 12:01	75-35-4	
cis-1,2-Dichloroethene	0.87	ug/L	0.50	1		06/23/16 12:01	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 12:01	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 12:01	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 12:01	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 12:01	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		06/23/16 12:01	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 12:01	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/23/16 12:01	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 12:01	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 12:01	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/23/16 12:01	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 12:01	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/23/16 12:01	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	97	%	70-130	1		06/23/16 12:01	17060-07-0	
Toluene-d8 (S)	100	%	70-130	1		06/23/16 12:01	2037-26-5	
4-Bromofluorobenzene (S)	91	%	70-130	1		06/23/16 12:01	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: MW-24i	Lab ID: 1268736023	Collected: 06/17/16 12:45	Received: 06/21/16 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		06/24/16 11:42	74-84-0	
Ethene	ND	ug/L	10.0	1		06/24/16 11:42	74-85-1	
Methane	ND	ug/L	10.0	1		06/24/16 11:42	74-82-8	
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		06/23/16 12:21	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/23/16 12:21	75-25-2	
Bromomethane	ND	ug/L	20.0	1		06/23/16 12:21	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 12:21	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 12:21	108-90-7	
Chloroethane	ND	ug/L	2.0	1		06/23/16 12:21	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/23/16 12:21	67-66-3	
Chloromethane	ND	ug/L	2.0	1		06/23/16 12:21	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 12:21	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 12:21	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 12:21	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 12:21	106-46-7	
1,1-Dichloroethane	0.99	ug/L	0.50	1		06/23/16 12:21	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 12:21	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 12:21	75-35-4	
cis-1,2-Dichloroethene	7.8	ug/L	0.50	1		06/23/16 12:21	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 12:21	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 12:21	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 12:21	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 12:21	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		06/23/16 12:21	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 12:21	79-34-5	
Tetrachloroethene	11.5	ug/L	0.50	1		06/23/16 12:21	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 12:21	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 12:21	79-00-5	
Trichloroethene	6.3	ug/L	0.50	1		06/23/16 12:21	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 12:21	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/23/16 12:21	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	100	%	70-130	1		06/23/16 12:21	17060-07-0	
Toluene-d8 (S)	100	%	70-130	1		06/23/16 12:21	2037-26-5	
4-Bromofluorobenzene (S)	88	%	70-130	1		06/23/16 12:21	460-00-4	
5310B TOC		Analytical Method: SM 5310B						
Total Organic Carbon	ND	mg/L	1.0	1		06/27/16 16:06	7440-44-0	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: EX	Lab ID: 1268736024	Collected: 06/17/16 12:10	Received: 06/21/16 09:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace		Analytical Method: RSK 175						
Ethane	17.8	ug/L	10.0	1		06/24/16 11:50	74-84-0	
Ethene	ND	ug/L	10.0	1		06/24/16 11:50	74-85-1	
Methane	3120	ug/L	10.0	1		06/24/16 11:50	74-82-8	
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	5.0	10		06/23/16 15:23	75-27-4	
Bromoform	ND	ug/L	5.0	10		06/23/16 15:23	75-25-2	
Bromomethane	ND	ug/L	200	10		06/23/16 15:23	74-83-9	
Carbon tetrachloride	ND	ug/L	5.0	10		06/23/16 15:23	56-23-5	
Chlorobenzene	ND	ug/L	5.0	10		06/23/16 15:23	108-90-7	
Chloroethane	ND	ug/L	20.0	10		06/23/16 15:23	75-00-3	
Chloroform	ND	ug/L	5.0	10		06/23/16 15:23	67-66-3	
Chloromethane	ND	ug/L	20.0	10		06/23/16 15:23	74-87-3	
Dibromochloromethane	ND	ug/L	5.0	10		06/23/16 15:23	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	5.0	10		06/23/16 15:23	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	10		06/23/16 15:23	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	10		06/23/16 15:23	106-46-7	
1,1-Dichloroethane	ND	ug/L	5.0	10		06/23/16 15:23	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	10		06/23/16 15:23	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	10		06/23/16 15:23	75-35-4	
cis-1,2-Dichloroethene	1040	ug/L	5.0	10		06/23/16 15:23	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	10		06/23/16 15:23	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	10		06/23/16 15:23	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	5.0	10		06/23/16 15:23	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	10		06/23/16 15:23	10061-02-6	
Methylene Chloride	ND	ug/L	50.0	10		06/23/16 15:23	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	10		06/23/16 15:23	79-34-5	
Tetrachloroethene	592	ug/L	5.0	10		06/23/16 15:23	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	5.0	10		06/23/16 15:23	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	10		06/23/16 15:23	79-00-5	
Trichloroethene	90.8	ug/L	5.0	10		06/23/16 15:23	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	10		06/23/16 15:23	75-69-4	
Vinyl chloride	ND	ug/L	5.0	10		06/23/16 15:23	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	98	%	70-130	10		06/23/16 15:23	17060-07-0	
Toluene-d8 (S)	100	%	70-130	10		06/23/16 15:23	2037-26-5	
4-Bromofluorobenzene (S)	92	%	70-130	10		06/23/16 15:23	460-00-4	
5310B TOC		Analytical Method: SM 5310B						
Total Organic Carbon	1.2	mg/L	1.0	1		06/27/16 16:25	7440-44-0	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM
Pace Project No.: 1268736

Sample: MW-9		Lab ID: 1268736025	Collected: 06/17/16 11:35	Received: 06/21/16 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		06/23/16 12:41	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/23/16 12:41	75-25-2	
Bromomethane	ND	ug/L	20.0	1		06/23/16 12:41	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 12:41	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 12:41	108-90-7	
Chloroethane	ND	ug/L	2.0	1		06/23/16 12:41	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/23/16 12:41	67-66-3	
Chloromethane	ND	ug/L	2.0	1		06/23/16 12:41	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 12:41	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 12:41	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 12:41	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 12:41	106-46-7	
1,1-Dichloroethane	1.8	ug/L	0.50	1		06/23/16 12:41	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 12:41	107-06-2	
1,1-Dichloroethene	0.58	ug/L	0.50	1		06/23/16 12:41	75-35-4	
cis-1,2-Dichloroethene	60.7	ug/L	0.50	1		06/23/16 12:41	156-59-2	
trans-1,2-Dichloroethene	2.4	ug/L	0.50	1		06/23/16 12:41	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 12:41	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 12:41	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 12:41	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		06/23/16 12:41	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 12:41	79-34-5	
Tetrachloroethene	116	ug/L	0.50	1		06/23/16 12:41	127-18-4	
1,1,1-Trichloroethane	1.7	ug/L	0.50	1		06/23/16 12:41	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 12:41	79-00-5	
Trichloroethene	68.3	ug/L	0.50	1		06/23/16 12:41	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 12:41	75-69-4	
Vinyl chloride	0.89	ug/L	0.50	1		06/23/16 12:41	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	98	%	70-130	1		06/23/16 12:41	17060-07-0	
Toluene-d8 (S)	100	%	70-130	1		06/23/16 12:41	2037-26-5	
4-Bromofluorobenzene (S)	93	%	70-130	1		06/23/16 12:41	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: MGMS1-60		Lab ID: 1268736026		Collected: 06/17/16 09:50	Received: 06/21/16 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		06/23/16 13:01	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/23/16 13:01	75-25-2	
Bromomethane	ND	ug/L	20.0	1		06/23/16 13:01	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 13:01	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 13:01	108-90-7	
Chloroethane	ND	ug/L	2.0	1		06/23/16 13:01	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/23/16 13:01	67-66-3	
Chloromethane	ND	ug/L	2.0	1		06/23/16 13:01	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 13:01	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 13:01	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 13:01	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 13:01	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/23/16 13:01	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 13:01	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 13:01	75-35-4	
cis-1,2-Dichloroethene	11.8	ug/L	0.50	1		06/23/16 13:01	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 13:01	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 13:01	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 13:01	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 13:01	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		06/23/16 13:01	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 13:01	79-34-5	
Tetrachloroethene	18.0	ug/L	0.50	1		06/23/16 13:01	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 13:01	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 13:01	79-00-5	
Trichloroethene	11.1	ug/L	0.50	1		06/23/16 13:01	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 13:01	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/23/16 13:01	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	97	%	70-130	1		06/23/16 13:01	17060-07-0	
Toluene-d8 (S)	99	%	70-130	1		06/23/16 13:01	2037-26-5	
4-Bromofluorobenzene (S)	90	%	70-130	1		06/23/16 13:01	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM
Pace Project No.: 1268736

Sample: MGMS1-43	Lab ID: 1268736027	Collected: 06/17/16 09:35	Received: 06/21/16 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	8.3	16.67		06/23/16 15:43	75-27-4	
Bromoform	ND	ug/L	8.3	16.67		06/23/16 15:43	75-25-2	
Bromomethane	ND	ug/L	333	16.67		06/23/16 15:43	74-83-9	
Carbon tetrachloride	ND	ug/L	8.3	16.67		06/23/16 15:43	56-23-5	
Chlorobenzene	ND	ug/L	8.3	16.67		06/23/16 15:43	108-90-7	
Chloroethane	ND	ug/L	33.3	16.67		06/23/16 15:43	75-00-3	
Chloroform	ND	ug/L	8.3	16.67		06/23/16 15:43	67-66-3	
Chloromethane	ND	ug/L	33.3	16.67		06/23/16 15:43	74-87-3	
Dibromochloromethane	ND	ug/L	8.3	16.67		06/23/16 15:43	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	8.3	16.67		06/23/16 15:43	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	8.3	16.67		06/23/16 15:43	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	8.3	16.67		06/23/16 15:43	106-46-7	
1,1-Dichloroethane	163	ug/L	8.3	16.67		06/23/16 15:43	75-34-3	
1,2-Dichloroethane	ND	ug/L	8.3	16.67		06/23/16 15:43	107-06-2	
1,1-Dichloroethene	26.6	ug/L	8.3	16.67		06/23/16 15:43	75-35-4	
cis-1,2-Dichloroethene	3130	ug/L	8.3	16.67		06/23/16 15:43	156-59-2	
trans-1,2-Dichloroethene	36.1	ug/L	8.3	16.67		06/23/16 15:43	156-60-5	
1,2-Dichloropropane	ND	ug/L	8.3	16.67		06/23/16 15:43	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	8.3	16.67		06/23/16 15:43	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	8.3	16.67		06/23/16 15:43	10061-02-6	
Methylene Chloride	ND	ug/L	83.4	16.67		06/23/16 15:43	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	8.3	16.67		06/23/16 15:43	79-34-5	
Tetrachloroethene	64.6	ug/L	8.3	16.67		06/23/16 15:43	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	8.3	16.67		06/23/16 15:43	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	8.3	16.67		06/23/16 15:43	79-00-5	
Trichloroethene	248	ug/L	8.3	16.67		06/23/16 15:43	79-01-6	
Trichlorofluoromethane	ND	ug/L	8.3	16.67		06/23/16 15:43	75-69-4	
Vinyl chloride	288	ug/L	8.3	16.67		06/23/16 15:43	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	98	%	70-130	16.67		06/23/16 15:43	17060-07-0	
Toluene-d8 (S)	100	%	70-130	16.67		06/23/16 15:43	2037-26-5	
4-Bromofluorobenzene (S)	90	%	70-130	16.67		06/23/16 15:43	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: MGMS2-60		Lab ID: 1268736028		Collected: 06/17/16 09:10		Received: 06/21/16 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		06/23/16 13:22	75-27-4		
Bromoform	ND	ug/L	0.50	1		06/23/16 13:22	75-25-2		
Bromomethane	ND	ug/L	20.0	1		06/23/16 13:22	74-83-9		
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 13:22	56-23-5		
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 13:22	108-90-7		
Chloroethane	ND	ug/L	2.0	1		06/23/16 13:22	75-00-3		
Chloroform	ND	ug/L	0.50	1		06/23/16 13:22	67-66-3		
Chloromethane	ND	ug/L	2.0	1		06/23/16 13:22	74-87-3		
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 13:22	124-48-1		
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 13:22	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 13:22	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 13:22	106-46-7		
1,1-Dichloroethane	1.1	ug/L	0.50	1		06/23/16 13:22	75-34-3		
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 13:22	107-06-2		
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 13:22	75-35-4		
cis-1,2-Dichloroethene	19.4	ug/L	0.50	1		06/23/16 13:22	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 13:22	156-60-5		
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 13:22	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 13:22	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 13:22	10061-02-6		
Methylene Chloride	ND	ug/L	5.0	1		06/23/16 13:22	75-09-2		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 13:22	79-34-5		
Tetrachloroethene	17.2	ug/L	0.50	1		06/23/16 13:22	127-18-4		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 13:22	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 13:22	79-00-5		
Trichloroethene	11.8	ug/L	0.50	1		06/23/16 13:22	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 13:22	75-69-4		
Vinyl chloride	3.4	ug/L	0.50	1		06/23/16 13:22	75-01-4		
Surrogates									
1,2-Dichloroethane-d4 (S)	97	%	70-130	1		06/23/16 13:22	17060-07-0		
Toluene-d8 (S)	99	%	70-130	1		06/23/16 13:22	2037-26-5		
4-Bromofluorobenzene (S)	90	%	70-130	1		06/23/16 13:22	460-00-4		

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: MGMS2-40		Lab ID: 1268736029	Collected: 06/17/16 08:45	Received: 06/21/16 09:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
RSK 175 AIR Headspace		Analytical Method: RSK 175						
Ethane	64.8	ug/L	10.0	1		06/24/16 11:58	74-84-0	
Ethene	31.0	ug/L	10.0	1		06/24/16 11:58	74-85-1	
Methane	2900	ug/L	10.0	1		06/24/16 11:58	74-82-8	
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		06/23/16 13:42	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/23/16 13:42	75-25-2	
Bromomethane	ND	ug/L	20.0	1		06/23/16 13:42	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 13:42	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 13:42	108-90-7	
Chloroethane	ND	ug/L	2.0	1		06/23/16 13:42	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/23/16 13:42	67-66-3	
Chloromethane	ND	ug/L	2.0	1		06/23/16 13:42	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 13:42	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 13:42	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 13:42	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 13:42	106-46-7	
1,1-Dichloroethane	24.9	ug/L	0.50	1		06/23/16 13:42	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 13:42	107-06-2	
1,1-Dichloroethene	26.4	ug/L	0.50	1		06/23/16 13:42	75-35-4	
cis-1,2-Dichloroethene	744	ug/L	2.5	5		06/27/16 16:25	156-59-2	
trans-1,2-Dichloroethene	2.8	ug/L	0.50	1		06/23/16 13:42	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 13:42	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 13:42	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 13:42	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		06/23/16 13:42	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 13:42	79-34-5	
Tetrachloroethene	223	ug/L	2.5	5		06/27/16 16:25	127-18-4	
1,1,1-Trichloroethane	3.1	ug/L	0.50	1		06/23/16 13:42	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 13:42	79-00-5	
Trichloroethene	146	ug/L	0.50	1		06/23/16 13:42	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 13:42	75-69-4	
Vinyl chloride	227	ug/L	2.5	5		06/27/16 16:25	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	97	%	70-130	1		06/23/16 13:42	17060-07-0	
Toluene-d8 (S)	99	%	70-130	1		06/23/16 13:42	2037-26-5	
4-Bromofluorobenzene (S)	89	%	70-130	1		06/23/16 13:42	460-00-4	
5310B TOC		Analytical Method: SM 5310B						
Total Organic Carbon	3.8	mg/L	1.0	1		06/27/16 16:44	7440-44-0	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: MGMS3-60		Lab ID: 1268736030		Collected: 06/17/16 08:20		Received: 06/21/16 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		06/27/16 11:51	75-27-4		
Bromoform	ND	ug/L	0.50	1		06/27/16 11:51	75-25-2		
Bromomethane	ND	ug/L	20.0	1		06/27/16 11:51	74-83-9		
Carbon tetrachloride	ND	ug/L	0.50	1		06/27/16 11:51	56-23-5		
Chlorobenzene	ND	ug/L	0.50	1		06/27/16 11:51	108-90-7		
Chloroethane	ND	ug/L	2.0	1		06/27/16 11:51	75-00-3		
Chloroform	ND	ug/L	0.50	1		06/27/16 11:51	67-66-3		
Chloromethane	ND	ug/L	0.50	1		06/27/16 11:51	74-87-3		
Dibromochloromethane	ND	ug/L	0.50	1		06/27/16 11:51	124-48-1		
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/27/16 11:51	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/27/16 11:51	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/27/16 11:51	106-46-7		
1,1-Dichloroethane	ND	ug/L	0.50	1		06/27/16 11:51	75-34-3		
1,2-Dichloroethane	ND	ug/L	0.50	1		06/27/16 11:51	107-06-2		
1,1-Dichloroethene	ND	ug/L	0.50	1		06/27/16 11:51	75-35-4		
cis-1,2-Dichloroethene	17.4	ug/L	0.50	1		06/27/16 11:51	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/27/16 11:51	156-60-5		
1,2-Dichloropropane	ND	ug/L	0.50	1		06/27/16 11:51	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/27/16 11:51	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/27/16 11:51	10061-02-6		
Methylene Chloride	ND	ug/L	5.0	1		06/27/16 11:51	75-09-2		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/27/16 11:51	79-34-5		
Tetrachloroethene	5.8	ug/L	0.50	1		06/27/16 11:51	127-18-4		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/27/16 11:51	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/27/16 11:51	79-00-5		
Trichloroethene	5.0	ug/L	0.50	1		06/27/16 11:51	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		06/27/16 11:51	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		06/27/16 11:51	75-01-4		
Surrogates									
1,2-Dichloroethane-d4 (S)	94	%	70-130	1		06/27/16 11:51	17060-07-0		
Toluene-d8 (S)	96	%	70-130	1		06/27/16 11:51	2037-26-5		
4-Bromofluorobenzene (S)	105	%	70-130	1		06/27/16 11:51	460-00-4		

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: MGMS3-40		Lab ID: 1268736031	Collected: 06/17/16 07:50		Received: 06/21/16 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		06/23/16 15:02	75-27-4	
Bromoform	ND	ug/L	1.2	2.5		06/23/16 15:02	75-25-2	
Bromomethane	ND	ug/L	50.0	2.5		06/23/16 15:02	74-83-9	
Carbon tetrachloride	ND	ug/L	1.2	2.5		06/23/16 15:02	56-23-5	
Chlorobenzene	ND	ug/L	1.2	2.5		06/23/16 15:02	108-90-7	
Chloroethane	ND	ug/L	5.0	2.5		06/23/16 15:02	75-00-3	
Chloroform	ND	ug/L	1.2	2.5		06/23/16 15:02	67-66-3	
Chloromethane	ND	ug/L	5.0	2.5		06/23/16 15:02	74-87-3	
Dibromochloromethane	ND	ug/L	1.2	2.5		06/23/16 15:02	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	1.2	2.5		06/23/16 15:02	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.2	2.5		06/23/16 15:02	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.2	2.5		06/23/16 15:02	106-46-7	
1,1-Dichloroethane	24.5	ug/L	1.2	2.5		06/23/16 15:02	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.2	2.5		06/23/16 15:02	107-06-2	
1,1-Dichloroethene	6.0	ug/L	1.2	2.5		06/23/16 15:02	75-35-4	
cis-1,2-Dichloroethene	955	ug/L	5.0	10		06/27/16 16:50	156-59-2	
trans-1,2-Dichloroethene	9.1	ug/L	1.2	2.5		06/23/16 15:02	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.2	2.5		06/23/16 15:02	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.2	2.5		06/23/16 15:02	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.2	2.5		06/23/16 15:02	10061-02-6	
Methylene Chloride	ND	ug/L	12.5	2.5		06/23/16 15:02	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.2	2.5		06/23/16 15:02	79-34-5	
Tetrachloroethene	232	ug/L	1.2	2.5		06/23/16 15:02	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	1.2	2.5		06/23/16 15:02	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.2	2.5		06/23/16 15:02	79-00-5	
Trichloroethene	209	ug/L	1.2	2.5		06/23/16 15:02	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.2	2.5		06/23/16 15:02	75-69-4	
Vinyl chloride	85.9	ug/L	1.2	2.5		06/23/16 15:02	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	98	%	70-130	2.5		06/23/16 15:02	17060-07-0	
Toluene-d8 (S)	100	%	70-130	2.5		06/23/16 15:02	2037-26-5	
4-Bromofluorobenzene (S)	90	%	70-130	2.5		06/23/16 15:02	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: MW-7	Lab ID: 1268736032	Collected: 06/17/16 11:05	Received: 06/21/16 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		06/24/16 12:23	74-84-0	
Ethene	ND	ug/L	10.0	1		06/24/16 12:23	74-85-1	
Methane	8440	ug/L	10.0	1		06/24/16 12:23	74-82-8	
8260 MSV Med Water		Analytical Method: EPA 8260B						
Bromodichloromethane	ND	ug/L	0.50	1		06/23/16 14:22	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/23/16 14:22	75-25-2	
Bromomethane	ND	ug/L	20.0	1		06/23/16 14:22	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 14:22	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 14:22	108-90-7	
Chloroethane	ND	ug/L	2.0	1		06/23/16 14:22	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/23/16 14:22	67-66-3	
Chloromethane	ND	ug/L	2.0	1		06/23/16 14:22	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 14:22	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 14:22	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 14:22	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 14:22	106-46-7	
1,1-Dichloroethane	0.60	ug/L	0.50	1		06/23/16 14:22	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 14:22	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 14:22	75-35-4	
cis-1,2-Dichloroethene	10.9	ug/L	0.50	1		06/23/16 14:22	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 14:22	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 14:22	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 14:22	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 14:22	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		06/23/16 14:22	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 14:22	79-34-5	
Tetrachloroethene	0.69	ug/L	0.50	1		06/23/16 14:22	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 14:22	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 14:22	79-00-5	
Trichloroethene	2.1	ug/L	0.50	1		06/23/16 14:22	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 14:22	75-69-4	
Vinyl chloride	5.4	ug/L	0.50	1		06/23/16 14:22	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	99	%	70-130	1		06/23/16 14:22	17060-07-0	
Toluene-d8 (S)	100	%	70-130	1		06/23/16 14:22	2037-26-5	
4-Bromofluorobenzene (S)	91	%	70-130	1		06/23/16 14:22	460-00-4	
5310B TOC		Analytical Method: SM 5310B						
Total Organic Carbon	18.9	mg/L	1.0	1		06/27/16 17:03	7440-44-0	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: MW-7 DUP		Lab ID: 1268736033	Collected: 06/17/16 11:05	Received: 06/21/16 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		06/23/16 14:42	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/23/16 14:42	75-25-2	
Bromomethane	ND	ug/L	20.0	1		06/23/16 14:42	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 14:42	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 14:42	108-90-7	
Chloroethane	ND	ug/L	2.0	1		06/23/16 14:42	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/23/16 14:42	67-66-3	
Chloromethane	ND	ug/L	2.0	1		06/23/16 14:42	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 14:42	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 14:42	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 14:42	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 14:42	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/23/16 14:42	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 14:42	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 14:42	75-35-4	
cis-1,2-Dichloroethene	11.0	ug/L	0.50	1		06/23/16 14:42	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 14:42	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 14:42	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 14:42	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 14:42	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		06/23/16 14:42	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 14:42	79-34-5	
Tetrachloroethene	0.62	ug/L	0.50	1		06/23/16 14:42	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 14:42	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 14:42	79-00-5	
Trichloroethene	2.0	ug/L	0.50	1		06/23/16 14:42	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 14:42	75-69-4	
Vinyl chloride	5.4	ug/L	0.50	1		06/23/16 14:42	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	99	%	70-130	1		06/23/16 14:42	17060-07-0	
Toluene-d8 (S)	100	%	70-130	1		06/23/16 14:42	2037-26-5	
4-Bromofluorobenzene (S)	91	%	70-130	1		06/23/16 14:42	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: MW-5	Lab ID: 1268736034	Collected: 06/17/16 10:25	Received: 06/21/16 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		06/23/16 09:20	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/23/16 09:20	75-25-2	
Bromomethane	ND	ug/L	20.0	1		06/23/16 09:20	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 09:20	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 09:20	108-90-7	
Chloroethane	7.5	ug/L	2.0	1		06/23/16 09:20	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/23/16 09:20	67-66-3	
Chloromethane	ND	ug/L	2.0	1		06/23/16 09:20	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 09:20	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 09:20	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 09:20	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 09:20	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/23/16 09:20	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 09:20	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 09:20	75-35-4	
cis-1,2-Dichloroethene	23.3	ug/L	0.50	1		06/23/16 09:20	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 09:20	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 09:20	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 09:20	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 09:20	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		06/23/16 09:20	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 09:20	79-34-5	
Tetrachloroethene	7.3	ug/L	0.50	1		06/23/16 09:20	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 09:20	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 09:20	79-00-5	
Trichloroethene	3.2	ug/L	0.50	1		06/23/16 09:20	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 09:20	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/23/16 09:20	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	99	%	70-130	1		06/23/16 09:20	17060-07-0	
Toluene-d8 (S)	100	%	70-130	1		06/23/16 09:20	2037-26-5	
4-Bromofluorobenzene (S)	91	%	70-130	1		06/23/16 09:20	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: Trip Blank 1		Lab ID: 1268736035		Collected: 06/15/16 12:00		Received: 06/21/16 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		06/23/16 11:01	75-27-4		
Bromoform	ND	ug/L	0.50	1		06/23/16 11:01	75-25-2		
Bromomethane	ND	ug/L	20.0	1		06/23/16 11:01	74-83-9		
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 11:01	56-23-5		
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 11:01	108-90-7		
Chloroethane	ND	ug/L	2.0	1		06/23/16 11:01	75-00-3		
Chloroform	ND	ug/L	0.50	1		06/23/16 11:01	67-66-3		
Chloromethane	ND	ug/L	2.0	1		06/23/16 11:01	74-87-3		
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 11:01	124-48-1		
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 11:01	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 11:01	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 11:01	106-46-7		
1,1-Dichloroethane	ND	ug/L	0.50	1		06/23/16 11:01	75-34-3		
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 11:01	107-06-2		
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 11:01	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 11:01	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 11:01	156-60-5		
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 11:01	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 11:01	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 11:01	10061-02-6		
Methylene Chloride	ND	ug/L	5.0	1		06/23/16 11:01	75-09-2		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 11:01	79-34-5		
Tetrachloroethene	ND	ug/L	0.50	1		06/23/16 11:01	127-18-4		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 11:01	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 11:01	79-00-5		
Trichloroethene	ND	ug/L	0.50	1		06/23/16 11:01	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 11:01	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		06/23/16 11:01	75-01-4		
Surrogates									
1,2-Dichloroethane-d4 (S)	96	%.	70-130	1		06/23/16 11:01	17060-07-0		
Toluene-d8 (S)	99	%.	70-130	1		06/23/16 11:01	2037-26-5		
4-Bromofluorobenzene (S)	91	%.	70-130	1		06/23/16 11:01	460-00-4		

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: Trip Blank 2	Lab ID: 1268736036	Collected: 06/16/16 08:00	Received: 06/21/16 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		06/23/16 21:08	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/23/16 21:08	75-25-2	
Bromomethane	ND	ug/L	20.0	1		06/23/16 21:08	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 21:08	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 21:08	108-90-7	
Chloroethane	ND	ug/L	2.0	1		06/23/16 21:08	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/23/16 21:08	67-66-3	
Chloromethane	ND	ug/L	2.0	1		06/23/16 21:08	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 21:08	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 21:08	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 21:08	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 21:08	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/23/16 21:08	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 21:08	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 21:08	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 21:08	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 21:08	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 21:08	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 21:08	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 21:08	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		06/23/16 21:08	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 21:08	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/23/16 21:08	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 21:08	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 21:08	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/23/16 21:08	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 21:08	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/23/16 21:08	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	98	%.	70-130	1		06/23/16 21:08	17060-07-0	
Toluene-d8 (S)	99	%.	70-130	1		06/23/16 21:08	2037-26-5	
4-Bromofluorobenzene (S)	91	%.	70-130	1		06/23/16 21:08	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: Trip Blank 3		Lab ID: 1268736037	Collected: 06/17/16 07:35	Received: 06/21/16 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		06/23/16 11:21	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/23/16 11:21	75-25-2	
Bromomethane	ND	ug/L	20.0	1		06/23/16 11:21	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 11:21	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 11:21	108-90-7	
Chloroethane	ND	ug/L	2.0	1		06/23/16 11:21	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/23/16 11:21	67-66-3	
Chloromethane	ND	ug/L	2.0	1		06/23/16 11:21	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 11:21	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 11:21	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 11:21	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 11:21	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/23/16 11:21	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 11:21	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 11:21	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 11:21	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 11:21	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 11:21	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 11:21	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 11:21	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		06/23/16 11:21	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 11:21	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/23/16 11:21	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 11:21	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 11:21	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/23/16 11:21	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 11:21	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/23/16 11:21	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	97	%	70-130	1		06/23/16 11:21	17060-07-0	
Toluene-d8 (S)	100	%	70-130	1		06/23/16 11:21	2037-26-5	
4-Bromofluorobenzene (S)	94	%	70-130	1		06/23/16 11:21	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: Field Blank 1		Lab ID: 1268736038		Collected: 06/15/16 12:00		Received: 06/21/16 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		06/23/16 21:28	75-27-4		
Bromoform	ND	ug/L	0.50	1		06/23/16 21:28	75-25-2		
Bromomethane	ND	ug/L	20.0	1		06/23/16 21:28	74-83-9		
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 21:28	56-23-5		
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 21:28	108-90-7		
Chloroethane	ND	ug/L	2.0	1		06/23/16 21:28	75-00-3		
Chloroform	ND	ug/L	0.50	1		06/23/16 21:28	67-66-3		
Chloromethane	ND	ug/L	2.0	1		06/23/16 21:28	74-87-3		
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 21:28	124-48-1		
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 21:28	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 21:28	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 21:28	106-46-7		
1,1-Dichloroethane	ND	ug/L	0.50	1		06/23/16 21:28	75-34-3		
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 21:28	107-06-2		
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 21:28	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 21:28	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 21:28	156-60-5		
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 21:28	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 21:28	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 21:28	10061-02-6		
Methylene Chloride	ND	ug/L	5.0	1		06/23/16 21:28	75-09-2		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 21:28	79-34-5		
Tetrachloroethene	ND	ug/L	0.50	1		06/23/16 21:28	127-18-4		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 21:28	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 21:28	79-00-5		
Trichloroethene	ND	ug/L	0.50	1		06/23/16 21:28	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 21:28	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		06/23/16 21:28	75-01-4		
Surrogates									
1,2-Dichloroethane-d4 (S)	98	%.	70-130	1		06/23/16 21:28	17060-07-0		
Toluene-d8 (S)	100	%.	70-130	1		06/23/16 21:28	2037-26-5		
4-Bromofluorobenzene (S)	91	%.	70-130	1		06/23/16 21:28	460-00-4		

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: Field Blank 2		Lab ID: 1268736039	Collected: 06/16/16 08:35	Received: 06/21/16 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		06/23/16 21:48	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/23/16 21:48	75-25-2	
Bromomethane	ND	ug/L	20.0	1		06/23/16 21:48	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 21:48	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 21:48	108-90-7	
Chloroethane	ND	ug/L	2.0	1		06/23/16 21:48	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/23/16 21:48	67-66-3	
Chloromethane	ND	ug/L	2.0	1		06/23/16 21:48	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 21:48	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 21:48	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 21:48	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 21:48	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/23/16 21:48	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 21:48	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 21:48	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 21:48	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 21:48	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 21:48	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 21:48	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 21:48	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		06/23/16 21:48	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 21:48	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/23/16 21:48	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 21:48	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 21:48	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/23/16 21:48	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 21:48	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/23/16 21:48	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	99	%	70-130	1		06/23/16 21:48	17060-07-0	
Toluene-d8 (S)	100	%	70-130	1		06/23/16 21:48	2037-26-5	
4-Bromofluorobenzene (S)	93	%	70-130	1		06/23/16 21:48	460-00-4	

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: Field Blank 3		Lab ID: 1268736040	Collected: 06/16/16 07:45	Received: 06/21/16 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		06/23/16 22:07	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/23/16 22:07	75-25-2	
Bromomethane	ND	ug/L	20.0	1		06/23/16 22:07	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 22:07	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 22:07	108-90-7	
Chloroethane	ND	ug/L	2.0	1		06/23/16 22:07	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/23/16 22:07	67-66-3	
Chloromethane	ND	ug/L	2.0	1		06/23/16 22:07	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 22:07	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 22:07	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 22:07	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 22:07	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/23/16 22:07	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 22:07	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 22:07	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 22:07	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 22:07	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 22:07	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 22:07	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 22:07	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		06/23/16 22:07	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 22:07	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/23/16 22:07	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 22:07	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 22:07	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/23/16 22:07	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 22:07	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/23/16 22:07	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	99	%.	70-130	1		06/23/16 22:07	17060-07-0	
Toluene-d8 (S)	99	%.	70-130	1		06/23/16 22:07	2037-26-5	
4-Bromofluorobenzene (S)	91	%.	70-130	1		06/23/16 22:07	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Sample: Equipment Blank		Lab ID: 1268736041	Collected: 06/17/16 08:00	Received: 06/21/16 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		06/23/16 22:27	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/23/16 22:27	75-25-2	
Bromomethane	ND	ug/L	20.0	1		06/23/16 22:27	74-83-9	
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 22:27	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 22:27	108-90-7	
Chloroethane	ND	ug/L	2.0	1		06/23/16 22:27	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/23/16 22:27	67-66-3	
Chloromethane	ND	ug/L	2.0	1		06/23/16 22:27	74-87-3	
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 22:27	124-48-1	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 22:27	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 22:27	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/23/16 22:27	106-46-7	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/23/16 22:27	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 22:27	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 22:27	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 22:27	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 22:27	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 22:27	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 22:27	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 22:27	10061-02-6	
Methylene Chloride	ND	ug/L	5.0	1		06/23/16 22:27	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 22:27	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/23/16 22:27	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 22:27	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 22:27	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/23/16 22:27	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 22:27	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/23/16 22:27	75-01-4	
Surrogates								
1,2-Dichloroethane-d4 (S)	99	%.	70-130	1		06/23/16 22:27	17060-07-0	
Toluene-d8 (S)	100	%.	70-130	1		06/23/16 22:27	2037-26-5	
4-Bromofluorobenzene (S)	93	%.	70-130	1		06/23/16 22:27	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM
Pace Project No.: 1268736

QC Batch: AIR/26186 Analysis Method: RSK 175
QC Batch Method: RSK 175 Analysis Description: RSK 175 AIR HEADSPACE
Associated Lab Samples: 1268736008

METHOD BLANK: 2292827 Matrix: Water
Associated Lab Samples: 1268736008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethane	ug/L	ND	10.0	06/23/16 08:44	
Ethene	ug/L	ND	10.0	06/23/16 08:44	
Methane	ug/L	ND	10.0	06/23/16 08:44	

LABORATORY CONTROL SAMPLE & LCSD: 2292828

Parameter	Units	2292828		2292829		% Rec Limits	RPD	Max RPD	Qualifiers
		Spike Conc.	LCS Result	LCSD Result	LCS % Rec				
Ethane	ug/L	114	103	102	90	89	85-115	1	20
Ethene	ug/L	106	96.5	94.9	91	89	85-115	2	20
Methane	ug/L	60.7	54.4	54.1	90	89	85-115	0	20

SAMPLE DUPLICATE: 2295045

Parameter	Units	60221593007 Result	Dup Result	RPD	Max RPD	Qualifiers
Ethane	ug/L	ND	ND		20	
Ethene	ug/L	ND	ND		20	
Methane	ug/L	400	414	3	20	

SAMPLE DUPLICATE: 2295046

Parameter	Units	1268736008 Result	Dup Result	RPD	Max RPD	Qualifiers
Ethane	ug/L	50.8	51.8	2	20	
Ethene	ug/L	ND	ND		20	
Methane	ug/L	1500	1510	1	20	

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

QC Batch: AIR/26192 Analysis Method: RSK 175
 QC Batch Method: RSK 175 Analysis Description: RSK 175 AIR HEADSPACE
 Associated Lab Samples: 1268736021, 1268736023, 1268736024, 1268736029, 1268736032

METHOD BLANK: 2294277 Matrix: Water
 Associated Lab Samples: 1268736021, 1268736023, 1268736024, 1268736029, 1268736032

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethane	ug/L	ND	10.0	06/24/16 10:36	
Ethene	ug/L	ND	10.0	06/24/16 10:36	
Methane	ug/L	ND	10.0	06/24/16 10:36	

LABORATORY CONTROL SAMPLE & LCSD: 2294278

Parameter	Units	2294279								
		Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Ethane	ug/L	114	104	105	92	92	85-115	0	20	
Ethene	ug/L	106	98.2	97.9	93	92	85-115	0	20	
Methane	ug/L	60.7	55.9	55.4	92	91	85-115	1	20	

SAMPLE DUPLICATE: 2296470

Parameter	Units	10352598001		RPD	Max RPD	Qualifiers
		Result	Dup Result			
Ethane	ug/L	ND	ND		20	
Ethene	ug/L	ND	ND		20	
Methane	ug/L	ND	5.3J		20	

SAMPLE DUPLICATE: 2296473

Parameter	Units	1268736032		RPD	Max RPD	Qualifiers
		Result	Dup Result			
Ethane	ug/L	ND	9.4J		20	
Ethene	ug/L	ND	1.3J		20	
Methane	ug/L	8440	8170	3	20	

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

QC Batch: DAVM/3999 Analysis Method: EPA 8260B
 QC Batch Method: EPA 8260B Analysis Description: 8260 MSV Med Water
 Associated Lab Samples: 1268736001, 1268736002, 1268736003, 1268736004, 1268736005, 1268736006, 1268736007, 1268736008,
 1268736009, 1268736010, 1268736011, 1268736012, 1268736014, 1268736015, 1268736016, 1268736017,
 1268736018, 1268736019, 1268736020

METHOD BLANK: 334144 Matrix: Water

Associated Lab Samples: 1268736001, 1268736002, 1268736003, 1268736004, 1268736005, 1268736006, 1268736007, 1268736008,
 1268736009, 1268736010, 1268736011, 1268736012, 1268736014, 1268736015, 1268736016, 1268736017,
 1268736018, 1268736019, 1268736020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	06/22/16 18:11	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	06/22/16 18:11	
1,1,2-Trichloroethane	ug/L	ND	0.50	06/22/16 18:11	
1,1-Dichloroethane	ug/L	ND	0.50	06/22/16 18:11	
1,1-Dichloroethene	ug/L	ND	0.50	06/22/16 18:11	
1,2-Dichlorobenzene	ug/L	ND	0.50	06/22/16 18:11	
1,2-Dichloroethane	ug/L	ND	0.50	06/22/16 18:11	
1,2-Dichloropropane	ug/L	ND	0.50	06/22/16 18:11	
1,3-Dichlorobenzene	ug/L	ND	0.50	06/22/16 18:11	
1,4-Dichlorobenzene	ug/L	ND	0.50	06/22/16 18:11	
Bromodichloromethane	ug/L	ND	0.50	06/22/16 18:11	
Bromoform	ug/L	ND	0.50	06/22/16 18:11	
Bromomethane	ug/L	ND	20.0	06/22/16 18:11	
Carbon tetrachloride	ug/L	ND	0.50	06/22/16 18:11	
Chlorobenzene	ug/L	ND	0.50	06/22/16 18:11	
Chloroethane	ug/L	ND	2.0	06/22/16 18:11	
Chloroform	ug/L	ND	0.50	06/22/16 18:11	
Chloromethane	ug/L	ND	2.0	06/22/16 18:11	
cis-1,2-Dichloroethene	ug/L	ND	0.50	06/22/16 18:11	
cis-1,3-Dichloropropene	ug/L	ND	0.50	06/22/16 18:11	
Dibromochloromethane	ug/L	ND	0.50	06/22/16 18:11	
Methylene Chloride	ug/L	ND	5.0	06/22/16 18:11	
Tetrachloroethene	ug/L	ND	0.50	06/22/16 18:11	
trans-1,2-Dichloroethene	ug/L	ND	0.50	06/22/16 18:11	
trans-1,3-Dichloropropene	ug/L	ND	0.50	06/22/16 18:11	
Trichloroethene	ug/L	ND	0.50	06/22/16 18:11	
Trichlorofluoromethane	ug/L	ND	0.50	06/22/16 18:11	
Vinyl chloride	ug/L	ND	0.50	06/22/16 18:11	
1,2-Dichloroethane-d4 (S)	%	92	70-130	06/22/16 18:11	
4-Bromofluorobenzene (S)	%	91	70-130	06/22/16 18:11	
Toluene-d8 (S)	%	100	70-130	06/22/16 18:11	

LABORATORY CONTROL SAMPLE: 334145

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	40	33.2	83	67-138	

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

LABORATORY CONTROL SAMPLE: 334145

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,2,2-Tetrachloroethane	ug/L	40	41.7	104	75-125	
1,1,2-Trichloroethane	ug/L	40	41.0	102	75-126	
1,1-Dichloroethane	ug/L	40	37.2	93	71-131	
1,1-Dichloroethene	ug/L	40	36.2	91	74-126	
1,2-Dichlorobenzene	ug/L	40	37.4	93	75-125	
1,2-Dichloroethane	ug/L	40	35.1	88	64-141	
1,2-Dichloropropane	ug/L	40	39.6	99	73-127	
1,3-Dichlorobenzene	ug/L	40	34.5	86	75-125	
1,4-Dichlorobenzene	ug/L	40	35.0	88	75-125	
Bromodichloromethane	ug/L	40	37.1	93	70-134	
Bromoform	ug/L	40	38.1	95	68-130	
Bromomethane	ug/L	40	31.1	78	30-150	
Carbon tetrachloride	ug/L	40	33.8	85	66-135	
Chlorobenzene	ug/L	40	36.3	91	75-125	
Chloroethane	ug/L	40	33.8	84	55-150	
Chloroform	ug/L	40	36.8	92	72-131	
Chloromethane	ug/L	40	34.0	85	54-132	
cis-1,2-Dichloroethene	ug/L	40	38.4	96	75-125	
cis-1,3-Dichloropropene	ug/L	40	40.4	101	74-130	
Dibromochloromethane	ug/L	40	39.3	98	70-132	
Methylene Chloride	ug/L	40	38.5	96	68-125	
Tetrachloroethene	ug/L	40	33.5	84	75-130	
trans-1,2-Dichloroethene	ug/L	40	35.6	89	75-125	
trans-1,3-Dichloropropene	ug/L	40	37.4	94	69-137	
Trichloroethene	ug/L	40	34.4	86	75-125	
Trichlorofluoromethane	ug/L	40	31.8	79	59-140	
Vinyl chloride	ug/L	40	34.0	85	68-132	
1,2-Dichloroethane-d4 (S)	%			96	70-130	
4-Bromofluorobenzene (S)	%			97	70-130	
Toluene-d8 (S)	%			99	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 334172 334173

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		1268736001 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
1,1,1-Trichloroethane	ug/L	ND	40	40	33.2	33.2	83	83	63-142	0	30	
1,1,2,2-Tetrachloroethane	ug/L	ND	40	40	38.4	39.4	96	98	75-125	3	30	
1,1,2-Trichloroethane	ug/L	ND	40	40	39.8	39.5	100	99	75-132	1	30	
1,1-Dichloroethane	ug/L	ND	40	40	37.9	37.5	95	94	75-126	1	30	
1,1-Dichloroethene	ug/L	ND	40	40	35.9	35.6	90	89	75-125	1	30	
1,2-Dichlorobenzene	ug/L	ND	40	40	35.9	35.4	90	89	75-125	1	30	
1,2-Dichloroethane	ug/L	ND	40	40	34.4	33.9	86	85	75-137	1	30	
1,2-Dichloropropane	ug/L	ND	40	40	38.9	38.0	97	95	74-131	2	30	
1,3-Dichlorobenzene	ug/L	ND	40	40	34.2	34.3	85	86	75-126	0	30	
1,4-Dichlorobenzene	ug/L	ND	40	40	34.7	34.4	87	86	73-125	1	30	

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Parameter	Units	1268736001		334172		334173		% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec						
Bromodichloromethane	ug/L	ND	40	40	37.2	36.9	93	92	65-137	1	30		
Bromoform	ug/L	ND	40	40	36.2	36.5	91	91	60-147	1	30		
Bromomethane	ug/L	ND	40	40	32.8	32.0	82	80	30-150	2	30		
Carbon tetrachloride	ug/L	ND	40	40	34.2	33.9	86	85	45-150	1	30		
Chlorobenzene	ug/L	ND	40	40	36.3	36.4	91	91	75-125	0	30		
Chloroethane	ug/L	ND	40	40	36.2	36.5	91	91	66-145	1	30		
Chloroform	ug/L	ND	40	40	36.6	36.1	92	90	74-128	1	30		
Chloromethane	ug/L	ND	40	40	34.6	34.5	87	86	51-150	0	30		
cis-1,2-Dichloroethene	ug/L	ND	40	40	37.6	38.1	94	95	75-125	1	30		
cis-1,3-Dichloropropene	ug/L	ND	40	40	40.2	40.3	101	101	75-129	0	30		
Dibromochloromethane	ug/L	ND	40	40	39.0	38.2	97	96	66-141	2	30		
Methylene Chloride	ug/L	ND	40	40	37.1	37.7	93	94	74-125	1	30		
Tetrachloroethene	ug/L	4.1	40	40	37.5	37.5	84	84	75-135	0	30		
trans-1,2-Dichloroethene	ug/L	ND	40	40	36.3	37.1	91	93	75-125	2	30		
trans-1,3-Dichloropropene	ug/L	ND	40	40	37.3	37.2	93	93	67-139	0	30		
Trichloroethene	ug/L	ND	40	40	34.5	35.2	86	88	75-130	2	30		
Trichlorofluoromethane	ug/L	ND	40	40	31.8	31.8	79	80	57-144	0	30		
Vinyl chloride	ug/L	ND	40	40	34.3	34.9	86	87	70-136	2	30		
1,2-Dichloroethane-d4 (S)	%						95	94	70-130				
4-Bromofluorobenzene (S)	%						94	97	70-130				
Toluene-d8 (S)	%						100	100	70-130				

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

QC Batch: DAVM/4002 Analysis Method: EPA 8260B
 QC Batch Method: EPA 8260B Analysis Description: 8260 MSV Med Water
 Associated Lab Samples: 1268736021, 1268736022, 1268736023, 1268736024, 1268736025, 1268736026, 1268736027, 1268736028,
 1268736029, 1268736031, 1268736032, 1268736033, 1268736034, 1268736035, 1268736037

METHOD BLANK: 334449 Matrix: Water
 Associated Lab Samples: 1268736021, 1268736022, 1268736023, 1268736024, 1268736025, 1268736026, 1268736027, 1268736028,
 1268736029, 1268736031, 1268736032, 1268736033, 1268736034, 1268736035, 1268736037

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	06/23/16 09:00	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	06/23/16 09:00	
1,1,2-Trichloroethane	ug/L	ND	0.50	06/23/16 09:00	
1,1-Dichloroethane	ug/L	ND	0.50	06/23/16 09:00	
1,1-Dichloroethene	ug/L	ND	0.50	06/23/16 09:00	
1,2-Dichlorobenzene	ug/L	ND	0.50	06/23/16 09:00	
1,2-Dichloroethane	ug/L	ND	0.50	06/23/16 09:00	
1,2-Dichloropropane	ug/L	ND	0.50	06/23/16 09:00	
1,3-Dichlorobenzene	ug/L	ND	0.50	06/23/16 09:00	
1,4-Dichlorobenzene	ug/L	ND	0.50	06/23/16 09:00	
Bromodichloromethane	ug/L	ND	0.50	06/23/16 09:00	
Bromoform	ug/L	ND	0.50	06/23/16 09:00	
Bromomethane	ug/L	ND	20.0	06/23/16 09:00	
Carbon tetrachloride	ug/L	ND	0.50	06/23/16 09:00	
Chlorobenzene	ug/L	ND	0.50	06/23/16 09:00	
Chloroethane	ug/L	ND	2.0	06/23/16 09:00	
Chloroform	ug/L	ND	0.50	06/23/16 09:00	
Chloromethane	ug/L	ND	2.0	06/23/16 09:00	
cis-1,2-Dichloroethene	ug/L	ND	0.50	06/23/16 09:00	
cis-1,3-Dichloropropene	ug/L	ND	0.50	06/23/16 09:00	
Dibromochloromethane	ug/L	ND	0.50	06/23/16 09:00	
Methylene Chloride	ug/L	ND	5.0	06/23/16 09:00	
Tetrachloroethene	ug/L	ND	0.50	06/23/16 09:00	
trans-1,2-Dichloroethene	ug/L	ND	0.50	06/23/16 09:00	
trans-1,3-Dichloropropene	ug/L	ND	0.50	06/23/16 09:00	
Trichloroethene	ug/L	ND	0.50	06/23/16 09:00	
Trichlorofluoromethane	ug/L	ND	0.50	06/23/16 09:00	
Vinyl chloride	ug/L	ND	0.50	06/23/16 09:00	
1,2-Dichloroethane-d4 (S)	%	98	70-130	06/23/16 09:00	
4-Bromofluorobenzene (S)	%	92	70-130	06/23/16 09:00	
Toluene-d8 (S)	%	99	70-130	06/23/16 09:00	

LABORATORY CONTROL SAMPLE: 334450

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	40	35.0	88	67-138	
1,1,2,2-Tetrachloroethane	ug/L	40	40.1	100	75-125	
1,1,2-Trichloroethane	ug/L	40	41.2	103	75-126	

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

LABORATORY CONTROL SAMPLE: 334450

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1-Dichloroethane	ug/L	40	39.2	98	71-131	
1,1-Dichloroethene	ug/L	40	37.4	94	74-126	
1,2-Dichlorobenzene	ug/L	40	36.2	91	75-125	
1,2-Dichloroethane	ug/L	40	35.6	89	64-141	
1,2-Dichloropropane	ug/L	40	40.6	101	73-127	
1,3-Dichlorobenzene	ug/L	40	35.4	88	75-125	
1,4-Dichlorobenzene	ug/L	40	35.2	88	75-125	
Bromodichloromethane	ug/L	40	37.9	95	70-134	
Bromoform	ug/L	40	37.8	94	68-130	
Bromomethane	ug/L	40	30.8	77	30-150	
Carbon tetrachloride	ug/L	40	36.1	90	66-135	
Chlorobenzene	ug/L	40	36.8	92	75-125	
Chloroethane	ug/L	40	35.4	89	55-150	
Chloroform	ug/L	40	37.2	93	72-131	
Chloromethane	ug/L	40	35.4	89	54-132	
cis-1,2-Dichloroethene	ug/L	40	39.0	97	75-125	
cis-1,3-Dichloropropene	ug/L	40	41.5	104	74-130	
Dibromochloromethane	ug/L	40	39.5	99	70-132	
Methylene Chloride	ug/L	40	38.7	97	68-125	
Tetrachloroethene	ug/L	40	35.6	89	75-130	
trans-1,2-Dichloroethene	ug/L	40	37.6	94	75-125	
trans-1,3-Dichloropropene	ug/L	40	38.5	96	69-137	
Trichloroethene	ug/L	40	35.5	89	75-125	
Trichlorofluoromethane	ug/L	40	33.1	83	59-140	
Vinyl chloride	ug/L	40	34.9	87	68-132	
1,2-Dichloroethane-d4 (S)	%			97	70-130	
4-Bromofluorobenzene (S)	%			94	70-130	
Toluene-d8 (S)	%			101	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 334451 334452

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		1268736034 Result	Spike Conc.	Spike Conc.	Result								
1,1,1-Trichloroethane	ug/L	ND	40	40	35.6	36.0	89	90	63-142	1	30		
1,1,2,2-Tetrachloroethane	ug/L	ND	40	40	40.4	41.0	101	102	75-125	1	30		
1,1,2-Trichloroethane	ug/L	ND	40	40	41.1	41.8	103	105	75-132	2	30		
1,1-Dichloroethane	ug/L	ND	40	40	40.3	40.1	101	100	75-126	1	30		
1,1-Dichloroethene	ug/L	ND	40	40	38.1	37.6	95	94	75-125	1	30		
1,2-Dichlorobenzene	ug/L	ND	40	40	37.6	38.1	94	95	75-125	1	30		
1,2-Dichloroethane	ug/L	ND	40	40	36.7	36.2	92	91	75-137	1	30		
1,2-Dichloropropane	ug/L	ND	40	40	41.1	40.6	103	102	74-131	1	30		
1,3-Dichlorobenzene	ug/L	ND	40	40	36.2	36.0	90	90	75-126	0	30		
1,4-Dichlorobenzene	ug/L	ND	40	40	36.6	36.6	92	92	73-125	0	30		
Bromodichloromethane	ug/L	ND	40	40	38.6	38.5	96	96	65-137	0	30		
Bromoform	ug/L	ND	40	40	37.6	38.5	94	96	60-147	3	30		

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Parameter	Units	1268736034		MS		MSD		334451		334452		% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec								
Bromomethane	ug/L	ND	40	40	33.3	35.2	83	88	30-150	5	30					
Carbon tetrachloride	ug/L	ND	40	40	37.1	36.6	93	91	45-150	1	30					
Chlorobenzene	ug/L	ND	40	40	37.3	37.9	93	95	75-125	1	30					
Chloroethane	ug/L	7.5	40	40	45.2	43.1	94	89	66-145	5	30					
Chloroform	ug/L	ND	40	40	38.3	37.2	96	93	74-128	3	30					
Chloromethane	ug/L	ND	40	40	36.9	37.0	92	92	51-150	0	30					
cis-1,2-Dichloroethene	ug/L	23.3	40	40	60.7	62.2	94	97	75-125	2	30					
cis-1,3-Dichloropropene	ug/L	ND	40	40	42.3	42.7	106	107	75-129	1	30					
Dibromochloromethane	ug/L	ND	40	40	40.4	41.3	101	103	66-141	2	30					
Methylene Chloride	ug/L	ND	40	40	40.2	39.3	100	98	74-125	2	30					
Tetrachloroethene	ug/L	7.3	40	40	42.9	42.9	89	89	75-135	0	30					
trans-1,2-Dichloroethene	ug/L	ND	40	40	38.7	37.9	97	95	75-125	2	30					
trans-1,3-Dichloropropene	ug/L	ND	40	40	39.2	39.7	98	99	67-139	1	30					
Trichloroethene	ug/L	3.2	40	40	38.9	39.1	89	90	75-130	1	30					
Trichlorofluoromethane	ug/L	ND	40	40	34.6	34.3	87	86	57-144	1	30					
Vinyl chloride	ug/L	ND	40	40	37.5	37.3	93	92	70-136	1	30					
1,2-Dichloroethane-d4 (S)	%.						95	95	70-130							
4-Bromofluorobenzene (S)	%.						92	97	70-130							
Toluene-d8 (S)	%.						100	99	70-130							

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

QC Batch: DAVM/4010 Analysis Method: EPA 8260B
 QC Batch Method: EPA 8260B Analysis Description: 8260 MSV Med Water
 Associated Lab Samples: 1268736005, 1268736009, 1268736013, 1268736036, 1268736038, 1268736039, 1268736040, 1268736041

METHOD BLANK: 334901 Matrix: Water
 Associated Lab Samples: 1268736005, 1268736009, 1268736013, 1268736036, 1268736038, 1268736039, 1268736040, 1268736041

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	06/23/16 19:08	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	06/23/16 19:08	
1,1,2-Trichloroethane	ug/L	ND	0.50	06/23/16 19:08	
1,1-Dichloroethane	ug/L	ND	0.50	06/23/16 19:08	
1,1-Dichloroethene	ug/L	ND	0.50	06/23/16 19:08	
1,2-Dichlorobenzene	ug/L	ND	0.50	06/23/16 19:08	
1,2-Dichloroethane	ug/L	ND	0.50	06/23/16 19:08	
1,2-Dichloropropane	ug/L	ND	0.50	06/23/16 19:08	
1,3-Dichlorobenzene	ug/L	ND	0.50	06/23/16 19:08	
1,4-Dichlorobenzene	ug/L	ND	0.50	06/23/16 19:08	
Bromodichloromethane	ug/L	ND	0.50	06/23/16 19:08	
Bromoform	ug/L	ND	0.50	06/23/16 19:08	
Bromomethane	ug/L	ND	20.0	06/23/16 19:08	
Carbon tetrachloride	ug/L	ND	0.50	06/23/16 19:08	
Chlorobenzene	ug/L	ND	0.50	06/23/16 19:08	
Chloroethane	ug/L	ND	2.0	06/23/16 19:08	
Chloroform	ug/L	ND	0.50	06/23/16 19:08	
Chloromethane	ug/L	ND	2.0	06/23/16 19:08	
cis-1,2-Dichloroethene	ug/L	ND	0.50	06/23/16 19:08	
cis-1,3-Dichloropropene	ug/L	ND	0.50	06/23/16 19:08	
Dibromochloromethane	ug/L	ND	0.50	06/23/16 19:08	
Methylene Chloride	ug/L	ND	5.0	06/23/16 19:08	
Tetrachloroethene	ug/L	ND	0.50	06/23/16 19:08	
trans-1,2-Dichloroethene	ug/L	ND	0.50	06/23/16 19:08	
trans-1,3-Dichloropropene	ug/L	ND	0.50	06/23/16 19:08	
Trichloroethene	ug/L	ND	0.50	06/23/16 19:08	
Trichlorofluoromethane	ug/L	ND	0.50	06/23/16 19:08	
Vinyl chloride	ug/L	ND	0.50	06/23/16 19:08	
1,2-Dichloroethane-d4 (S)	%	97	70-130	06/23/16 19:08	
4-Bromofluorobenzene (S)	%	91	70-130	06/23/16 19:08	
Toluene-d8 (S)	%	100	70-130	06/23/16 19:08	

LABORATORY CONTROL SAMPLE: 334902

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	40	33.8	84	67-138	
1,1,2,2-Tetrachloroethane	ug/L	40	39.0	97	75-125	
1,1,2-Trichloroethane	ug/L	40	40.3	101	75-126	
1,1-Dichloroethane	ug/L	40	38.1	95	71-131	
1,1-Dichloroethene	ug/L	40	36.0	90	74-126	

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

LABORATORY CONTROL SAMPLE: 334902

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichlorobenzene	ug/L	40	35.4	88	75-125	
1,2-Dichloroethane	ug/L	40	36.1	90	64-141	
1,2-Dichloropropane	ug/L	40	38.8	97	73-127	
1,3-Dichlorobenzene	ug/L	40	34.3	86	75-125	
1,4-Dichlorobenzene	ug/L	40	34.4	86	75-125	
Bromodichloromethane	ug/L	40	37.9	95	70-134	
Bromoform	ug/L	40	35.8	90	68-130	
Bromomethane	ug/L	40	27.9	70	30-150	
Carbon tetrachloride	ug/L	40	34.7	87	66-135	
Chlorobenzene	ug/L	40	35.9	90	75-125	
Chloroethane	ug/L	40	34.5	86	55-150	
Chloroform	ug/L	40	36.8	92	72-131	
Chloromethane	ug/L	40	34.1	85	54-132	
cis-1,2-Dichloroethene	ug/L	40	37.4	93	75-125	
cis-1,3-Dichloropropene	ug/L	40	40.7	102	74-130	
Dibromochloromethane	ug/L	40	39.1	98	70-132	
Methylene Chloride	ug/L	40	38.2	95	68-125	
Tetrachloroethene	ug/L	40	33.8	85	75-130	
trans-1,2-Dichloroethene	ug/L	40	35.1	88	75-125	
trans-1,3-Dichloropropene	ug/L	40	38.2	95	69-137	
Trichloroethene	ug/L	40	34.3	86	75-125	
Trichlorofluoromethane	ug/L	40	31.8	79	59-140	
Vinyl chloride	ug/L	40	33.9	85	68-132	
1,2-Dichloroethane-d4 (S)	%			98	70-130	
4-Bromofluorobenzene (S)	%			93	70-130	
Toluene-d8 (S)	%			100	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 334903 334904

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		1268902001	Spike Conc.	Spike Conc.	Result								
1,1,1-Trichloroethane	ug/L	ND	40	40	33.2	33.0	83	82	63-142	1	30		
1,1,2,2-Tetrachloroethane	ug/L	ND	40	40	38.4	40.7	96	102	75-125	6	30		
1,1,2-Trichloroethane	ug/L	ND	40	40	40.1	40.1	100	100	75-132	0	30		
1,1-Dichloroethane	ug/L	ND	40	40	37.4	36.9	94	92	75-126	1	30		
1,1-Dichloroethene	ug/L	ND	40	40	35.2	34.3	88	86	75-125	3	30		
1,2-Dichlorobenzene	ug/L	ND	40	40	35.3	35.7	88	89	75-125	1	30		
1,2-Dichloroethane	ug/L	ND	40	40	35.3	35.0	88	87	75-137	1	30		
1,2-Dichloropropane	ug/L	ND	40	40	38.4	38.3	96	96	74-131	0	30		
1,3-Dichlorobenzene	ug/L	ND	40	40	33.7	33.5	84	84	75-126	1	30		
1,4-Dichlorobenzene	ug/L	ND	40	40	34.1	34.0	85	85	73-125	0	30		
Bromodichloromethane	ug/L	ND	40	40	37.4	36.5	94	91	65-137	3	30		
Bromoform	ug/L	ND	40	40	36.5	36.6	91	91	60-147	0	30		
Bromomethane	ug/L	ND	40	40	31.5	30.0	79	75	30-150	5	30		
Carbon tetrachloride	ug/L	ND	40	40	34.6	34.3	87	86	45-150	1	30		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Parameter	Units	1268902001		334903		334904		% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Chlorobenzene	ug/L	ND	40	40	35.4	35.4	88	88	75-125	0	30		
Chloroethane	ug/L	ND	40	40	35.4	33.9	89	85	66-145	4	30		
Chloroform	ug/L	ND	40	40	36.5	36.8	91	92	74-128	1	30		
Chloromethane	ug/L	ND	40	40	34.4	33.8	86	85	51-150	2	30		
cis-1,2-Dichloroethene	ug/L	1.6	40	40	39.5	38.3	95	92	75-125	3	30		
cis-1,3-Dichloropropene	ug/L	ND	40	40	39.3	39.9	98	100	75-129	2	30		
Dibromochloromethane	ug/L	ND	40	40	39.3	38.8	98	97	66-141	1	30		
Methylene Chloride	ug/L	ND	40	40	37.9	37.3	95	93	74-125	1	30		
Tetrachloroethene	ug/L	ND	40	40	33.0	32.6	83	81	75-135	1	30		
trans-1,2-Dichloroethene	ug/L	ND	40	40	35.0	35.2	88	88	75-125	0	30		
trans-1,3-Dichloropropene	ug/L	ND	40	40	38.0	38.2	95	96	67-139	1	30		
Trichloroethene	ug/L	ND	40	40	33.7	32.9	84	82	75-130	2	30		
Trichlorofluoromethane	ug/L	ND	40	40	32.1	31.3	80	78	57-144	2	30		
Vinyl chloride	ug/L	ND	40	40	33.8	33.4	85	84	70-136	1	30		
1,2-Dichloroethane-d4 (S)	%						97	98	70-130				
4-Bromofluorobenzene (S)	%						92	94	70-130				
Toluene-d8 (S)	%						100	100	70-130				

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

QC Batch: DAVM/4027 Analysis Method: EPA 8260B
 QC Batch Method: EPA 8260B Analysis Description: 8260 MSV Med Water
 Associated Lab Samples: 1268736021, 1268736029, 1268736030, 1268736031

METHOD BLANK: 335750 Matrix: Water
 Associated Lab Samples: 1268736021, 1268736029, 1268736030, 1268736031

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	06/27/16 09:21	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	06/27/16 09:21	
1,1,2-Trichloroethane	ug/L	ND	0.50	06/27/16 09:21	
1,1-Dichloroethane	ug/L	ND	0.50	06/27/16 09:21	
1,1-Dichloroethene	ug/L	ND	0.50	06/27/16 09:21	
1,2-Dichlorobenzene	ug/L	ND	0.50	06/27/16 09:21	
1,2-Dichloroethane	ug/L	ND	0.50	06/27/16 09:21	
1,2-Dichloropropane	ug/L	ND	0.50	06/27/16 09:21	
1,3-Dichlorobenzene	ug/L	ND	0.50	06/27/16 09:21	
1,4-Dichlorobenzene	ug/L	ND	0.50	06/27/16 09:21	
Bromodichloromethane	ug/L	ND	0.50	06/27/16 09:21	
Bromoform	ug/L	ND	0.50	06/27/16 09:21	
Bromomethane	ug/L	ND	20.0	06/27/16 09:21	
Carbon tetrachloride	ug/L	ND	0.50	06/27/16 09:21	
Chlorobenzene	ug/L	ND	0.50	06/27/16 09:21	
Chloroethane	ug/L	ND	2.0	06/27/16 09:21	
Chloroform	ug/L	ND	0.50	06/27/16 09:21	
Chloromethane	ug/L	ND	0.50	06/27/16 09:21	
cis-1,2-Dichloroethene	ug/L	ND	0.50	06/27/16 09:21	
cis-1,3-Dichloropropene	ug/L	ND	0.50	06/27/16 09:21	
Dibromochloromethane	ug/L	ND	0.50	06/27/16 09:21	
Methylene Chloride	ug/L	ND	5.0	06/27/16 09:21	
Tetrachloroethene	ug/L	ND	0.50	06/27/16 09:21	
trans-1,2-Dichloroethene	ug/L	ND	0.50	06/27/16 09:21	
trans-1,3-Dichloropropene	ug/L	ND	0.50	06/27/16 09:21	
Trichloroethene	ug/L	ND	0.50	06/27/16 09:21	
Trichlorofluoromethane	ug/L	ND	0.50	06/27/16 09:21	
Vinyl chloride	ug/L	ND	0.50	06/27/16 09:21	
1,2-Dichloroethane-d4 (S)	%	91	70-130	06/27/16 09:21	
4-Bromofluorobenzene (S)	%	105	70-130	06/27/16 09:21	
Toluene-d8 (S)	%	98	70-130	06/27/16 09:21	

LABORATORY CONTROL SAMPLE: 335751

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	40	39.0	97	67-138	
1,1,2,2-Tetrachloroethane	ug/L	40	43.1	108	75-125	
1,1,2-Trichloroethane	ug/L	40	40.7	102	75-126	
1,1-Dichloroethane	ug/L	40	39.5	99	71-131	
1,1-Dichloroethene	ug/L	40	41.9	105	74-126	

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

LABORATORY CONTROL SAMPLE: 335751

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichlorobenzene	ug/L	40	41.5	104	75-125	
1,2-Dichloroethane	ug/L	40	34.3	86	64-141	
1,2-Dichloropropane	ug/L	40	38.9	97	73-127	
1,3-Dichlorobenzene	ug/L	40	43.0	107	75-125	
1,4-Dichlorobenzene	ug/L	40	40.3	101	75-125	
Bromodichloromethane	ug/L	40	38.7	97	70-134	
Bromoform	ug/L	40	46.0	115	68-130	
Bromomethane	ug/L	40	39.4	98	30-150	
Carbon tetrachloride	ug/L	40	41.0	103	66-135	
Chlorobenzene	ug/L	40	41.9	105	75-125	
Chloroethane	ug/L	40	39.1	98	55-150	
Chloroform	ug/L	40	39.4	99	72-131	
Chloromethane	ug/L	40	35.6	89	54-132	
cis-1,2-Dichloroethene	ug/L	40	41.4	104	75-125	
cis-1,3-Dichloropropene	ug/L	40	39.5	99	74-130	
Dibromochloromethane	ug/L	40	42.6	106	70-132	
Methylene Chloride	ug/L	40	42.3	106	68-125	
Tetrachloroethene	ug/L	40	39.8	99	75-130	
trans-1,2-Dichloroethene	ug/L	40	43.0	108	75-125	
trans-1,3-Dichloropropene	ug/L	40	38.8	97	69-137	
Trichloroethene	ug/L	40	40.7	102	75-125	
Trichlorofluoromethane	ug/L	40	37.4	94	59-140	
Vinyl chloride	ug/L	40	37.8	95	68-132	
1,2-Dichloroethane-d4 (S)	%			90	70-130	
4-Bromofluorobenzene (S)	%			107	70-130	
Toluene-d8 (S)	%			100	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 335752 335753

Parameter	Units	335752		335753		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
1,1,1-Trichloroethane	ug/L	ND	40	37.5	38.8	94	97	63-142	3	30	
1,1,2,2-Tetrachloroethane	ug/L	ND	40	42.9	44.5	107	111	75-125	4	30	
1,1,2-Trichloroethane	ug/L	ND	40	39.1	41.1	98	103	75-132	5	30	
1,1-Dichloroethane	ug/L	ND	40	38.2	39.3	96	98	75-126	3	30	
1,1-Dichloroethene	ug/L	ND	40	40.4	42.0	101	105	75-125	4	30	
1,2-Dichlorobenzene	ug/L	ND	40	40.9	41.6	102	104	75-125	2	30	
1,2-Dichloroethane	ug/L	ND	40	33.1	34.0	83	85	75-137	3	30	
1,2-Dichloropropane	ug/L	ND	40	37.9	39.2	95	98	74-131	3	30	
1,3-Dichlorobenzene	ug/L	ND	40	42.8	44.0	107	110	75-126	3	30	
1,4-Dichlorobenzene	ug/L	ND	40	39.7	40.5	99	101	73-125	2	30	
Bromodichloromethane	ug/L	ND	40	36.5	37.3	91	93	65-137	2	30	
Bromoform	ug/L	ND	40	40.9	42.0	102	105	60-147	3	30	
Bromomethane	ug/L	ND	40	33.8	40.0	84	100	30-150	17	30	
Carbon tetrachloride	ug/L	ND	40	37.8	39.9	95	100	45-150	5	30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM
Pace Project No.: 1268736

Parameter	Units	1269070003		335752		335753		% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Chlorobenzene	ug/L	ND	40	40	41.6	43.2	104	108	75-125	4	30		
Chloroethane	ug/L	ND	40	40	37.5	39.2	94	98	66-145	4	30		
Chloroform	ug/L	ND	40	40	38.8	39.6	97	99	74-128	2	30		
Chloromethane	ug/L	ND	40	40	34.7	36.0	87	90	51-150	4	30		
cis-1,2-Dichloroethene	ug/L	0.99	40	40	40.8	42.2	100	103	75-125	3	30		
cis-1,3-Dichloropropene	ug/L	ND	40	40	34.9	37.1	87	93	75-129	6	30		
Dibromochloromethane	ug/L	ND	40	40	38.5	39.6	96	99	66-141	3	30		
Methylene Chloride	ug/L	ND	40	40	41.4	42.4	103	106	74-125	2	30		
Tetrachloroethene	ug/L	0.89	40	40	40.2	41.0	98	100	75-135	2	30		
trans-1,2-Dichloroethene	ug/L	ND	40	40	41.6	43.5	104	109	75-125	4	30		
trans-1,3-Dichloropropene	ug/L	ND	40	40	34.5	36.7	86	92	67-139	6	30		
Trichloroethene	ug/L	1.9	40	40	40.9	42.3	98	101	75-130	3	30		
Trichlorofluoromethane	ug/L	ND	40	40	36.7	38.2	92	96	57-144	4	30		
Vinyl chloride	ug/L	ND	40	40	36.8	37.8	92	94	70-136	3	30		
1,2-Dichloroethane-d4 (S)	%						90	90	70-130				
4-Bromofluorobenzene (S)	%						107	109	70-130				
Toluene-d8 (S)	%						99	99	70-130				

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QUALITY CONTROL DATA

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

QC Batch: WETA/10418 Analysis Method: SM 5310B
 QC Batch Method: SM 5310B Analysis Description: 5310B TOC
 Associated Lab Samples: 1268736008, 1268736021, 1268736023, 1268736024, 1268736029, 1268736032

METHOD BLANK: 237716 Matrix: Water

Associated Lab Samples:

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	06/27/16 11:40	

LABORATORY CONTROL SAMPLE: 237717

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	20.1	19.1	95	90-110	

MATRIX SPIKE SAMPLE: 237719

Parameter	Units	1268590003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	ND	20	21.9	109	75-125	

SAMPLE DUPLICATE: 237718

Parameter	Units	1268590003 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.: 1268736

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
1268736008	MW-12	RSK 175	AIR/26186		
1268736021	MP-1	RSK 175	AIR/26192		
1268736023	MW-24i	RSK 175	AIR/26192		
1268736024	EX	RSK 175	AIR/26192		
1268736029	MGMS2-40	RSK 175	AIR/26192		
1268736032	MW-7	RSK 175	AIR/26192		
1268736001	MW-8	EPA 8260B	DAVM/3999		
1268736002	MW-26	EPA 8260B	DAVM/3999		
1268736003	MW-25i	EPA 8260B	DAVM/3999		
1268736004	MW-1	EPA 8260B	DAVM/3999		
1268736005	MW-19	EPA 8260B	DAVM/3999		
1268736005	MW-19	EPA 8260B	DAVM/4010		
1268736006	MW-19 DUP	EPA 8260B	DAVM/3999		
1268736007	MW-13	EPA 8260B	DAVM/3999		
1268736008	MW-12	EPA 8260B	DAVM/3999		
1268736009	MW-12 DUP	EPA 8260B	DAVM/3999		
1268736009	MW-12 DUP	EPA 8260B	DAVM/4010		
1268736010	MW-19i	EPA 8260B	DAVM/3999		
1268736011	MW-20i	EPA 8260B	DAVM/3999		
1268736012	MW-18i	EPA 8260B	DAVM/3999		
1268736013	MW-3	EPA 8260B	DAVM/4010		
1268736014	MW-21i-105	EPA 8260B	DAVM/3999		
1268736015	MW-21i-40	EPA 8260B	DAVM/3999		
1268736016	MW-32s	EPA 8260B	DAVM/3999		
1268736017	MW-22i	EPA 8260B	DAVM/3999		
1268736018	MW-23i	EPA 8260B	DAVM/3999		
1268736019	S-1	EPA 8260B	DAVM/3999		
1268736020	S-2	EPA 8260B	DAVM/3999		
1268736021	MP-1	EPA 8260B	DAVM/4002		
1268736021	MP-1	EPA 8260B	DAVM/4027		
1268736022	MW-24D	EPA 8260B	DAVM/4002		
1268736023	MW-24i	EPA 8260B	DAVM/4002		
1268736024	EX	EPA 8260B	DAVM/4002		
1268736025	MW-9	EPA 8260B	DAVM/4002		
1268736026	MGMS1-60	EPA 8260B	DAVM/4002		
1268736027	MGMS1-43	EPA 8260B	DAVM/4002		
1268736028	MGMS2-60	EPA 8260B	DAVM/4002		
1268736029	MGMS2-40	EPA 8260B	DAVM/4002		
1268736029	MGMS2-40	EPA 8260B	DAVM/4027		
1268736030	MGMS3-60	EPA 8260B	DAVM/4027		
1268736031	MGMS3-40	EPA 8260B	DAVM/4002		
1268736031	MGMS3-40	EPA 8260B	DAVM/4027		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NuStar Vancouver GWM

Pace Project No.: 1268736

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
1268736032	MW-7	EPA 8260B	DAVM/4002		
1268736033	MW-7 DUP	EPA 8260B	DAVM/4002		
1268736034	MW-5	EPA 8260B	DAVM/4002		
1268736035	Trip Blank 1	EPA 8260B	DAVM/4002		
1268736036	Trip Blank 2	EPA 8260B	DAVM/4010		
1268736037	Trip Blank 3	EPA 8260B	DAVM/4002		
1268736038	Field Blank 1	EPA 8260B	DAVM/4010		
1268736039	Field Blank 2	EPA 8260B	DAVM/4010		
1268736040	Field Blank 3	EPA 8260B	DAVM/4010		
1268736041	Equipment Blank	EPA 8260B	DAVM/4010		
1268736008	MW-12	SM 5310B	WETA/10418		
1268736021	MP-1	SM 5310B	WETA/10418		
1268736023	MW-24i	SM 5310B	WETA/10418		
1268736024	EX	SM 5310B	WETA/10418		
1268736029	MGMS2-40	SM 5310B	WETA/10418		
1268736032	MW-7	SM 5310B	WETA/10418		

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2795 2nd Street, Suite 300
 Davis, CA 95618
 Lab: 530.297.4800
 Fax: 530.297.4802

SRG # / Lab No.

1268736

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF To):
 Stephanie Bosze
 Apex Companies
 3015 SW 1st Ave., Portland, OR 97201
 Phone Number: 503-924-4704 ext 1925
 Fax Number: 503-924-4707
 Project #: 320001126-18
 P.O. #:
 Project Name: NuStar Vancouver GWM
 Project Address:
 Bill to: Apex Companies
 Sampler Name & Signature: Kyle Kline and Chris Clough

Global ID:
 EDD Deliverable To (Email Address): Ssalisbury@apexcos.com
 California EDF Report? Yes No
 CRA EQUIS Required Yes No
 XLS Report Required Yes No

Sample Designation	Sampling		Container			Preservative			Matrix			Analysis Request	TAT	
	Date	Time	40 ml VOA	Poly	250 mL Glass	HCl	HNO ₃	H ₂ SO ₄	None	Water	Soil			Air
MW-21i-105	06/16/16	1155	3			3				X			X	12 hr
MW-21i-40	06/16/16	1125	3			3				X			X	24 hr
MW-32s	06/16/16	1047	3			3				X			X	48hr
MW-22i	06/16/16	1010	3			3				X			X	72hr
MW-23i	06/16/16	0930	3			3				X			X	1 wk
S-1	06/16/16	0900	3			3				X			X	
S-2	06/16/16	0830	3			3				X			X	
MP-1	06/17/16	1335	6	1		6	1			X			X	
MW-24D	06/17/16	1315	3			3				X			X	
MW-24i	06/17/16	1245	6	1		6	1			X			X	
EX	06/17/16	1210	6	1		6	1			X			X	
MW-9	06/17/16	1135	3			3				X			X	
MGMS1-60	06/17/16	0950	3			3				X			X	

Remarks:
 MS/MSD is from well MW-5 (extra bottles labeled as MW-5 MS/MSD)

Relinquished by:	CHAS CLOUGH/APEX	Date:	6/20/16	Time:	1300	Received by:	PAUL DAVIS
Relinquished by:		Date:		Time:		Received by:	
Relinquished by:		Date:		Time:		Received by:	

Other: Please Specify														
Analysis Request														
TAT														

Temp °C	5/2/10	Initials	CAK	Date	06/21/16	Time	0845	Therm. ID #		Coolant Present	(Yes) / No
---------	--------	----------	-----	------	----------	------	------	-------------	--	-----------------	------------

For Lab Use Only: Sample Receipt



2795 2nd Street, Suite 300
 Davis, CA 95618
 Lab: 530.297.4800
 Fax: 530.297.4802

SRG # / Lab No. 1268276

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 #: 320001126-18

P.O. #: Apex Companies

Project Name:
 NuStar Vancouver GWM

Project Address:
 Sampler Name & Signature: Kyle Kline and Chris Clough

Global ID:
 EDD Deliverable To (Email Address):
Ssalisbury@apexcos.com

Bill to:
 Apex Companies

California EDF Report? Yes No

CRA EQUIS Required Yes No

XLS Report Required Yes No

Chain-of-Custody Record and Analysis Request

Sample Designation	Date	Time	Container				Preservative			Matrix			Methane, Ethane, Ethene	TOC	Volatile Halocarbons (EPA 8260B)	TAT	
			40 ml VOA	Sleeve	Poly	250 mL Glass	Tedlar	HCl	HNO ₃	H ₂ SO ₄	None	Water					Soil
MGMS1-43	6/17/2016	0935	3													X	12 hr
MGMS2-60	6/17/2016	0910	3													X	24 hr
MGMS2-40	6/17/2016	0845	6	1					1				X			X	48hr
MGMS3-60	6/17/2016	0820	3													X	72hr
MGMS3-40	6/17/2016	0750	3													X	1 wk
MW-7	6/17/2016	1105	6	1					1				X			X	
MW-7 DUP	6/17/2016	1105	3													X	
MW-5	6/17/2016	1025	3													X	
MW-5 MS	6/17/2016	1025	3													X	
MW-5 MSD	6/17/2016	1025	3													X	

Remarks:
MS/MSD is from well MW-5 (extra bottles labeled as MW-5 MS/MSD)

Received by: PALE DAULS
 Time: 1300

Received by: CAH
 Time: 062116

Received by: 0945

Temp °C: 5.2/1.0 Initials: CAH Date: 062116 Time: 0945

Therm. ID #: 0945 Coolant Present: Yes



2795 2nd Street, Suite 300
 Davis, CA 95618
 Lab: 530.297.4800
 Fax: 530.297.4802

SRG # / Lab No. 1268736

Chain-of-Custody Record and Analysis Request															
Analysis Request															
Other: Please Specify															
TAT															
<input type="checkbox"/> 12 hr <input type="checkbox"/> 24 hr <input type="checkbox"/> 48hr <input type="checkbox"/> 72hr <input checked="" type="checkbox"/> 1 wk															
For Lab Use Only															
California EDF Report? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No CRA EQUIS Required <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No XLS Report Required <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No															
Global ID:															
EDD Deliverable To (Email Address):															
Bill to: <u>Ssalisbun@apexcos.com</u>															
Company / Address: Apex Companies															
3015 SW 1st Ave., Portland, OR 97201															
Phone Number: 503-924-4704 ext 1925															
Fax Number: 503-924-4707															
Project #: 320001126-18															
P.O. #:															
Project Name: NuStar Vancouver GWM															
Sampler Name & Signature: Kyle Kline and Chris Clough															
Project Address:															
Sample Designation	Sampling		Container			Preservative			Matrix						
	Date	Time	40 ml VOA	Sleeve	Poly	250 mL Glass	Tedlar	1 L	HCl	HNO ₃	H ₂ SO ₄	None	Water	Soil	Air
Trip Blank 1	6/15/2016	1200	1						1				X		
Trip Blank 2	6/16/2016	0800	1					1					X		
Trip Blank 3	6/17/2016	0735	1					1					X		
Field Blank 1	6/15/2016	1200	3					3					X		
Field Blank 2	6/16/2016	0835	3					3					X		
Field Blank 3	6/17/2016	0745	3					3					X		
Equipment Blank	6/17/2016	0800	3					3					X		
Volatile Halocarbons (EPA 8260B) X TOC Methane, Ethane, Ethene HOLD 037 076 038 076 039 077 040 078 041 079 042 080 043 041 044 041															
Relinquished by: <u>CHAS CLOUGH/APEX</u> Date: <u>6/20/16</u> Time: <u>1300</u> Received by: <u>PALE DAUB</u> Date: <u>06/21/16</u> Time: <u>0945</u>															
Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____															
Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____															
Remarks: MSMSD is from well MW-5 (extra bottles labeled as MW-5 MSMSD)															
For Lab Use Only: Sample Receipt Temp °C: <u>5.2/6.0</u> Initials: <u>CHL</u> Date: <u>06/21/16</u> Time: <u>0945</u> Therm. ID #: _____ Coolant Present: <u>Yes</u>															

Sample Condition Upon Receipt **Client Name:** APEX **Project #:** **WO#: 1268736**

Courier: Fed Ex UPS USPS Client
 Commercial Pace OnTrac Other: NA

Tracking Number: 7765 6266 1986 / 7765 6267 2641

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 4.8/5.6 DA2285 **Type of Ice:** Wet Blue Dry Ice None Samples on ice, cooling process has begun

Cooler Temp Read(°C): 5.2/6.0 **Cooler Temp Corrected(°C):** 5.2/6.0 **Biological Tissue Frozen?** Yes No N/A

Temp should be above freezing to 6°C **Correction Factor:** ±0.4 **Date and Initials of Person Examining Contents:** CAR 062116

			Comments:
Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.	Sample (001) label and
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.	LOC Times do not match
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.	Sample = 1410, LOC = 1610.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.	S.R. will use the time
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.	listed on the COC.
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.	Sample (003), All 3 vials
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.	have large air bubbles
Correct Containers Used?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.	> 6 mm. plus (009, 020, 040,
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		041, 042)
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	12.	PROJECT ARRIVED IN TWO COOLERS
-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 type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Sample #	
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC	<input type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed:	Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.	
Trip Blank Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	15.	
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: _____

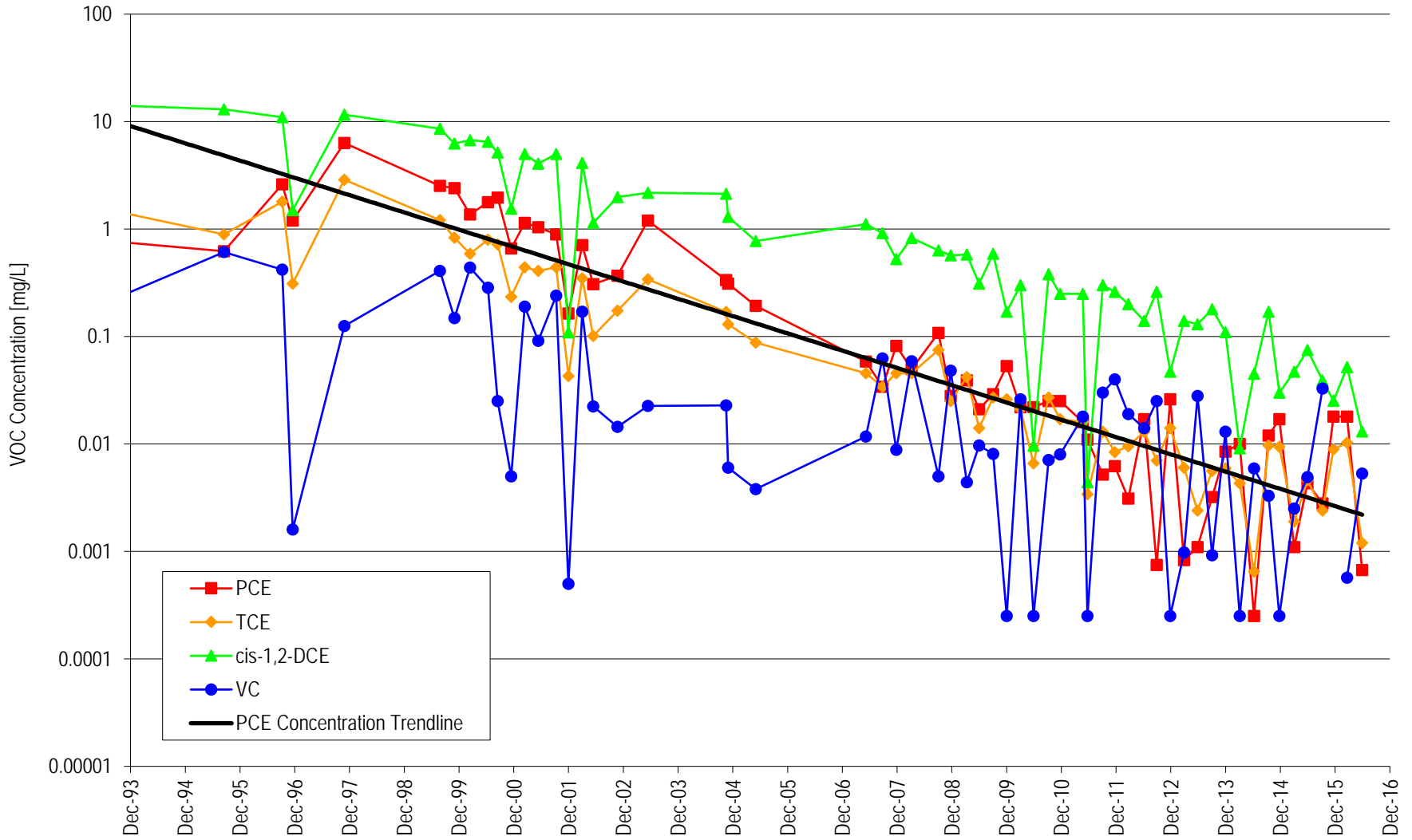
Project Manager Review: Scott Jones **Date:** 6/22/16

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)

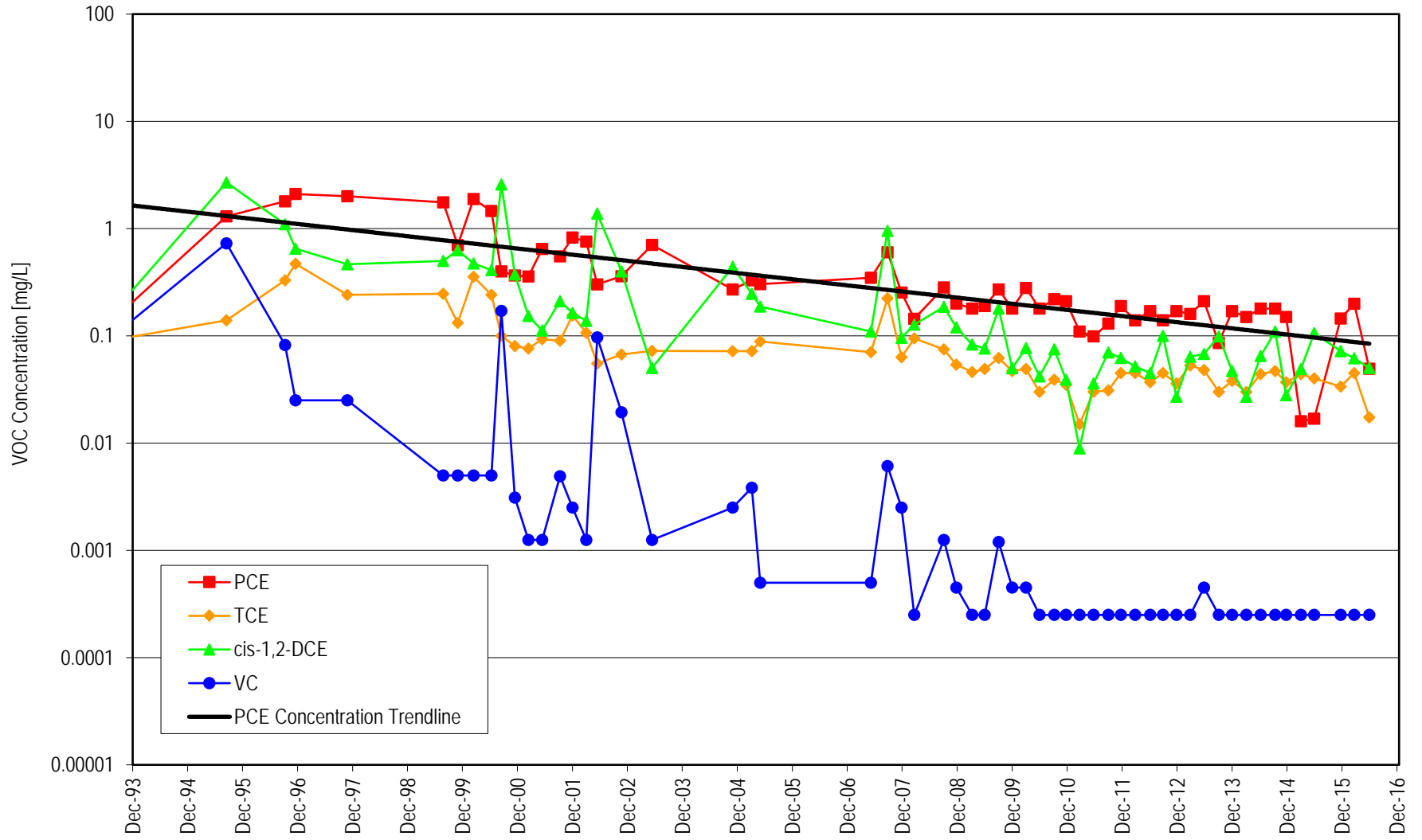
Appendix D

Concentration Trend Plots

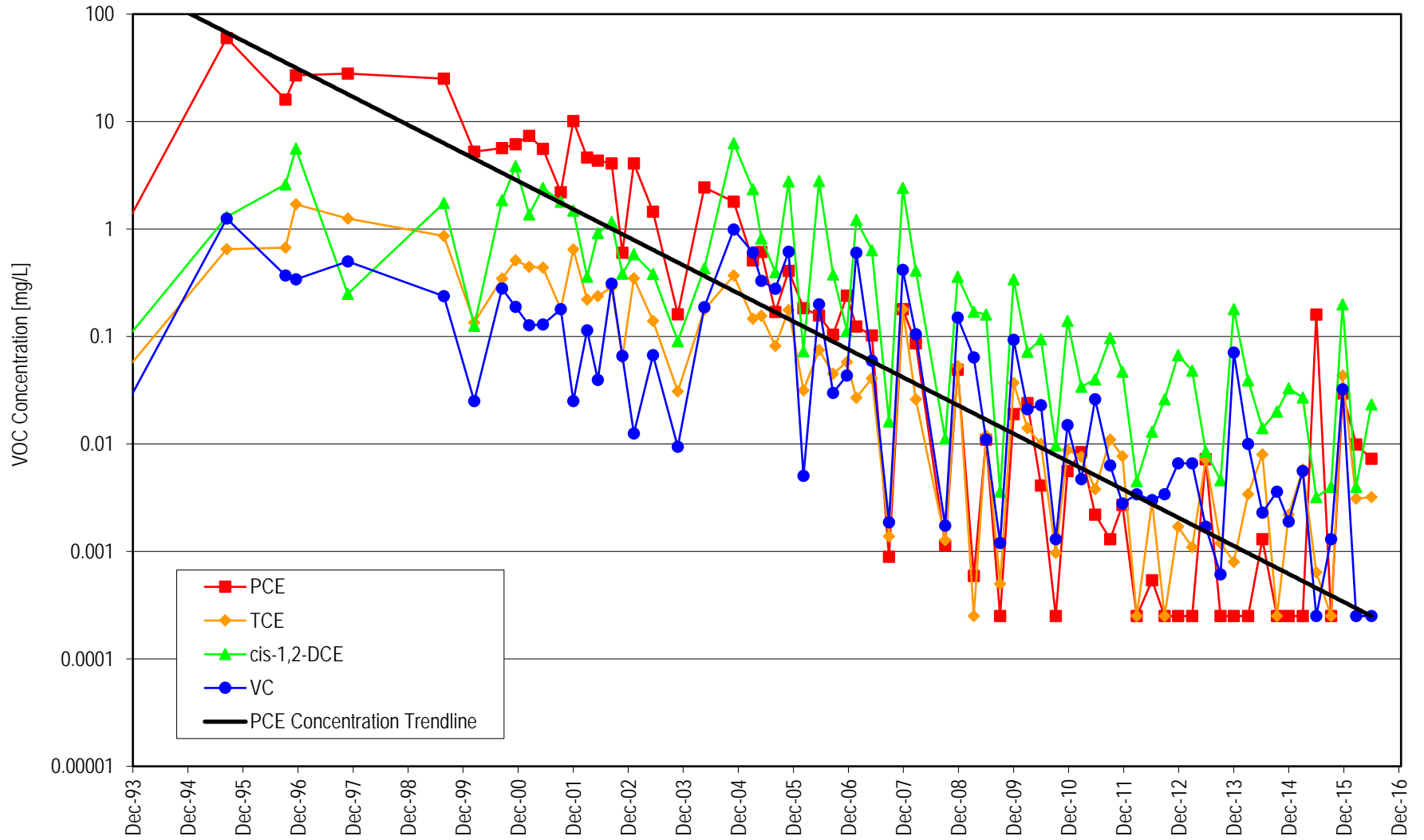
VOC Concentrations in MW-1



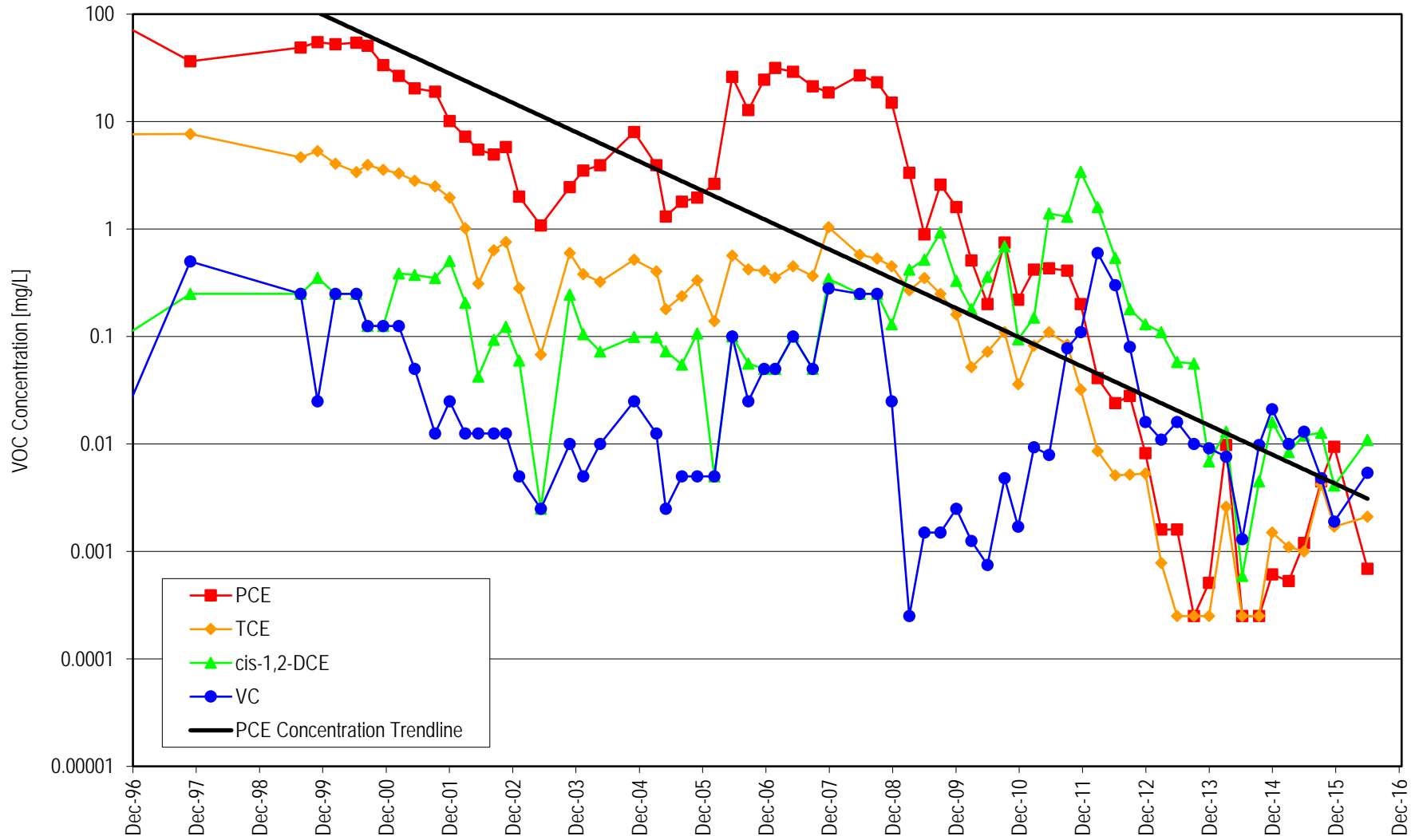
VOC Concentrations in MW-3



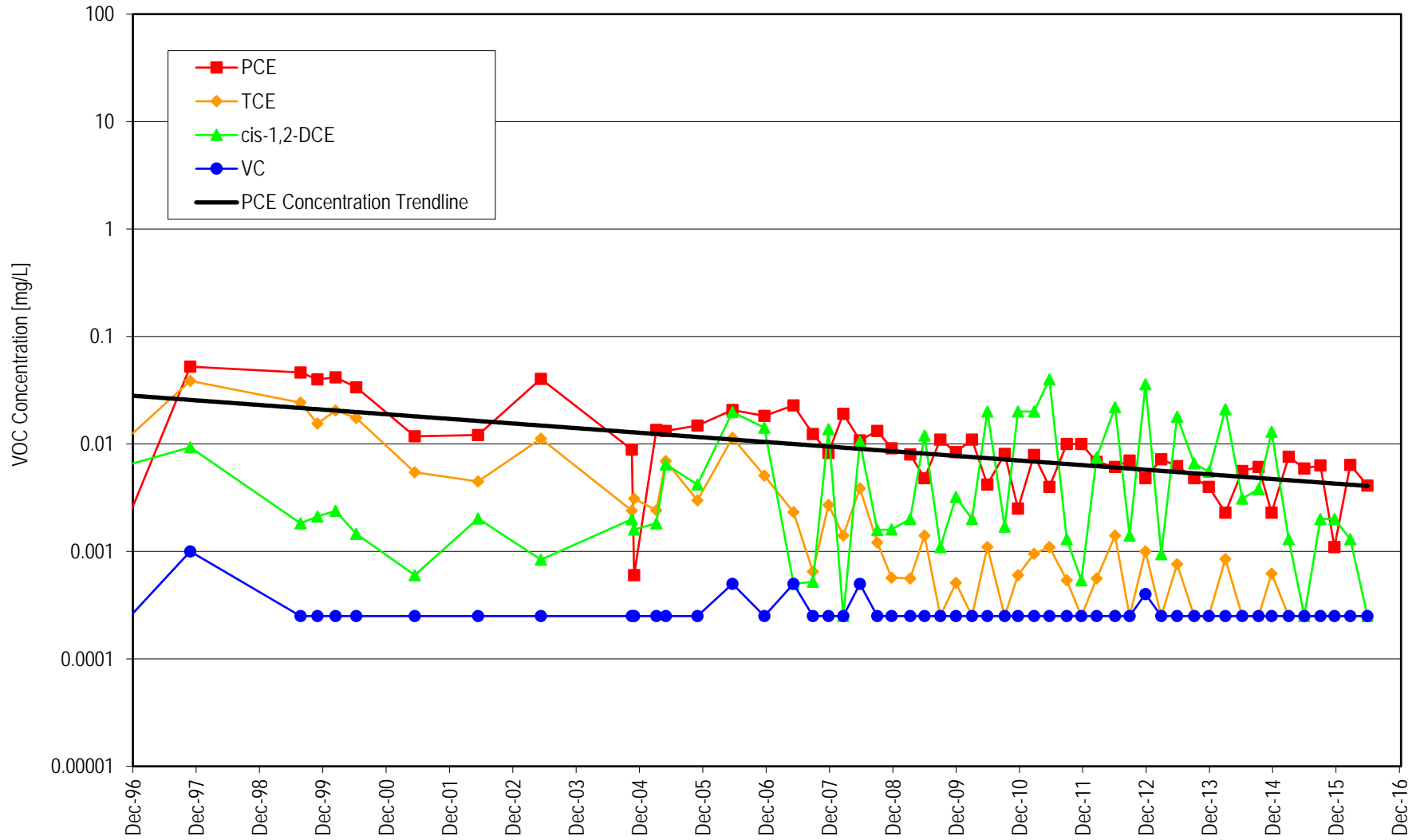
VOC Concentrations in MW-5



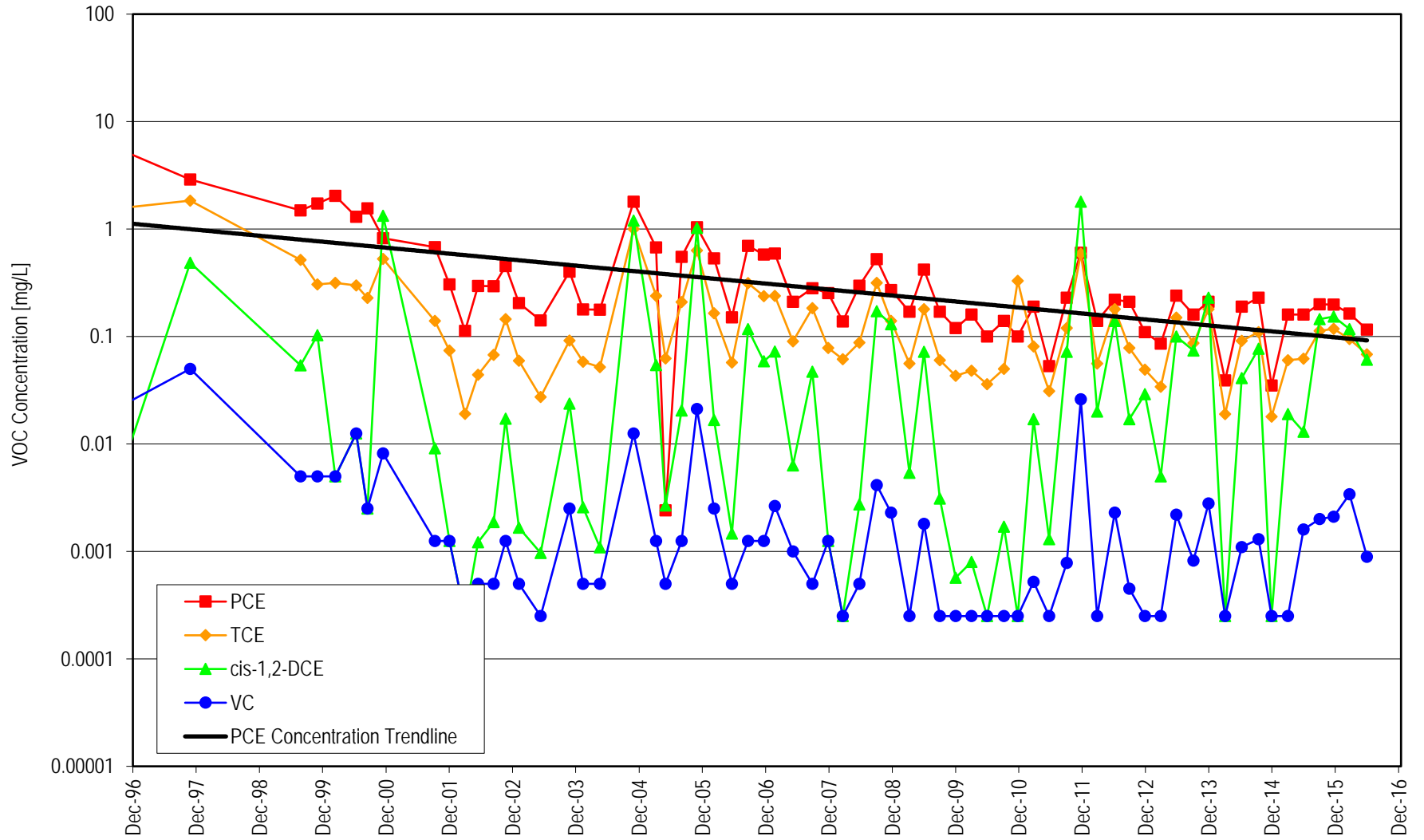
VOC Concentrations in MW-7



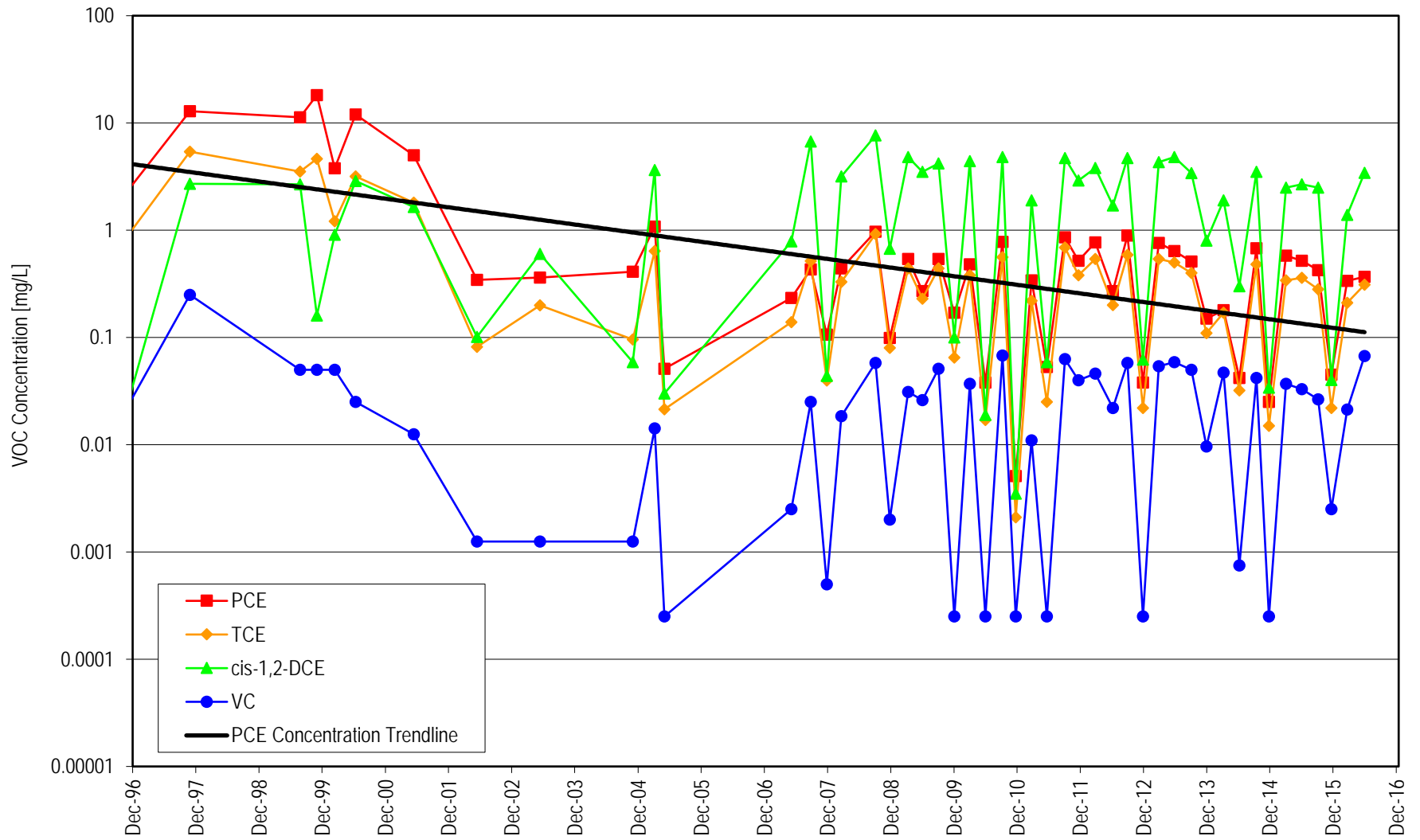
VOC Concentrations in MW-8



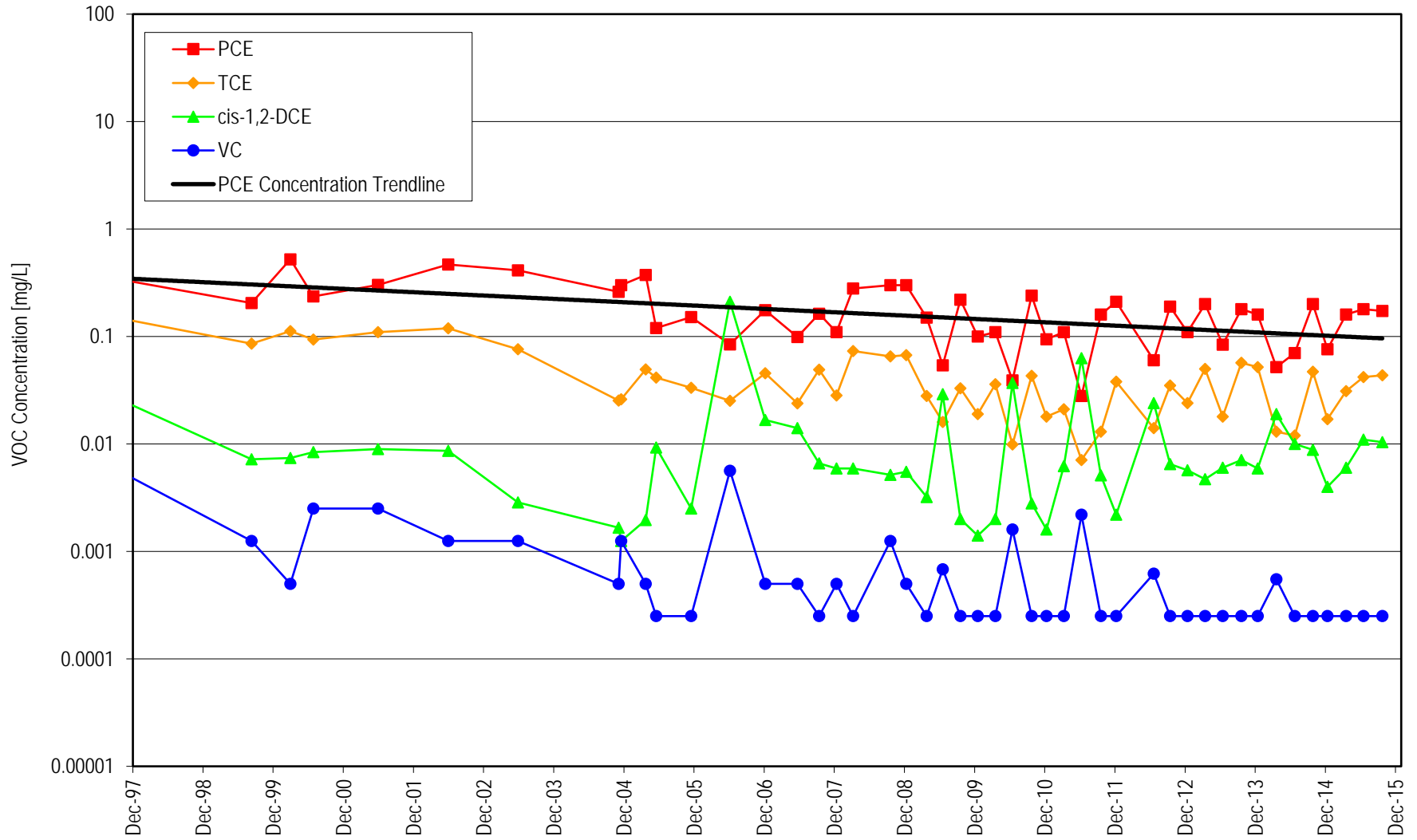
VOC Concentrations in MW-9



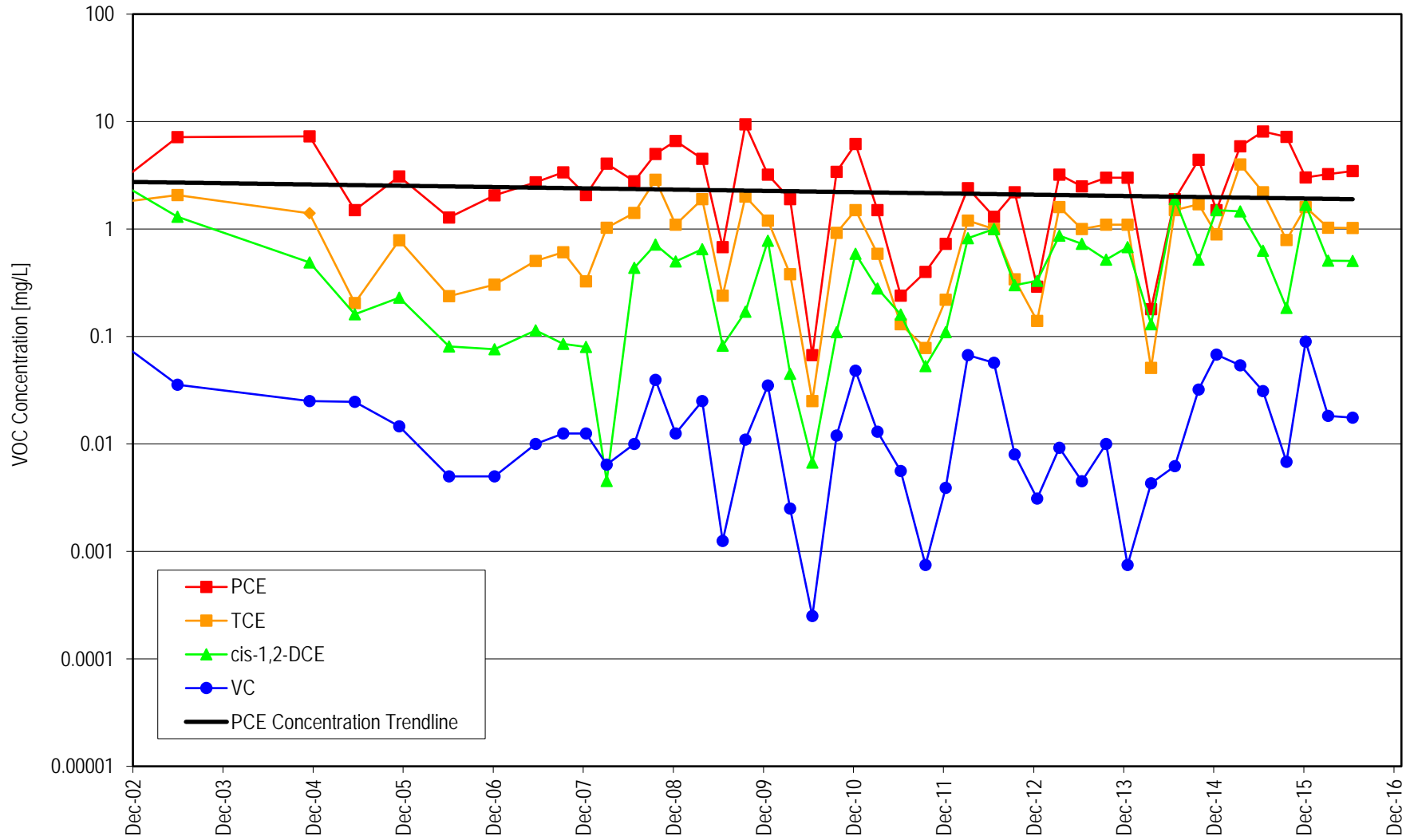
VOC Concentrations in MW-12



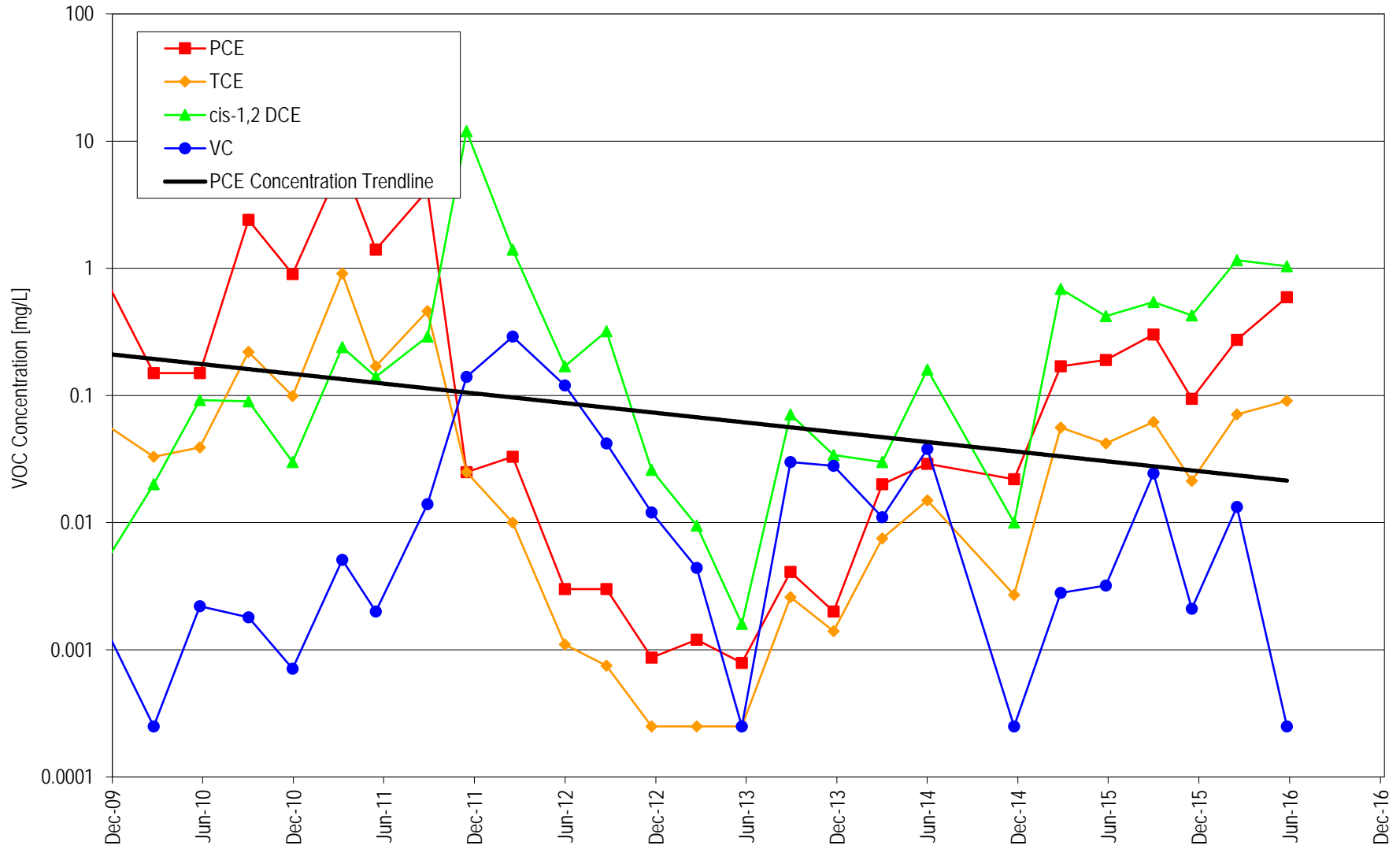
VOC Concentrations in MW-16



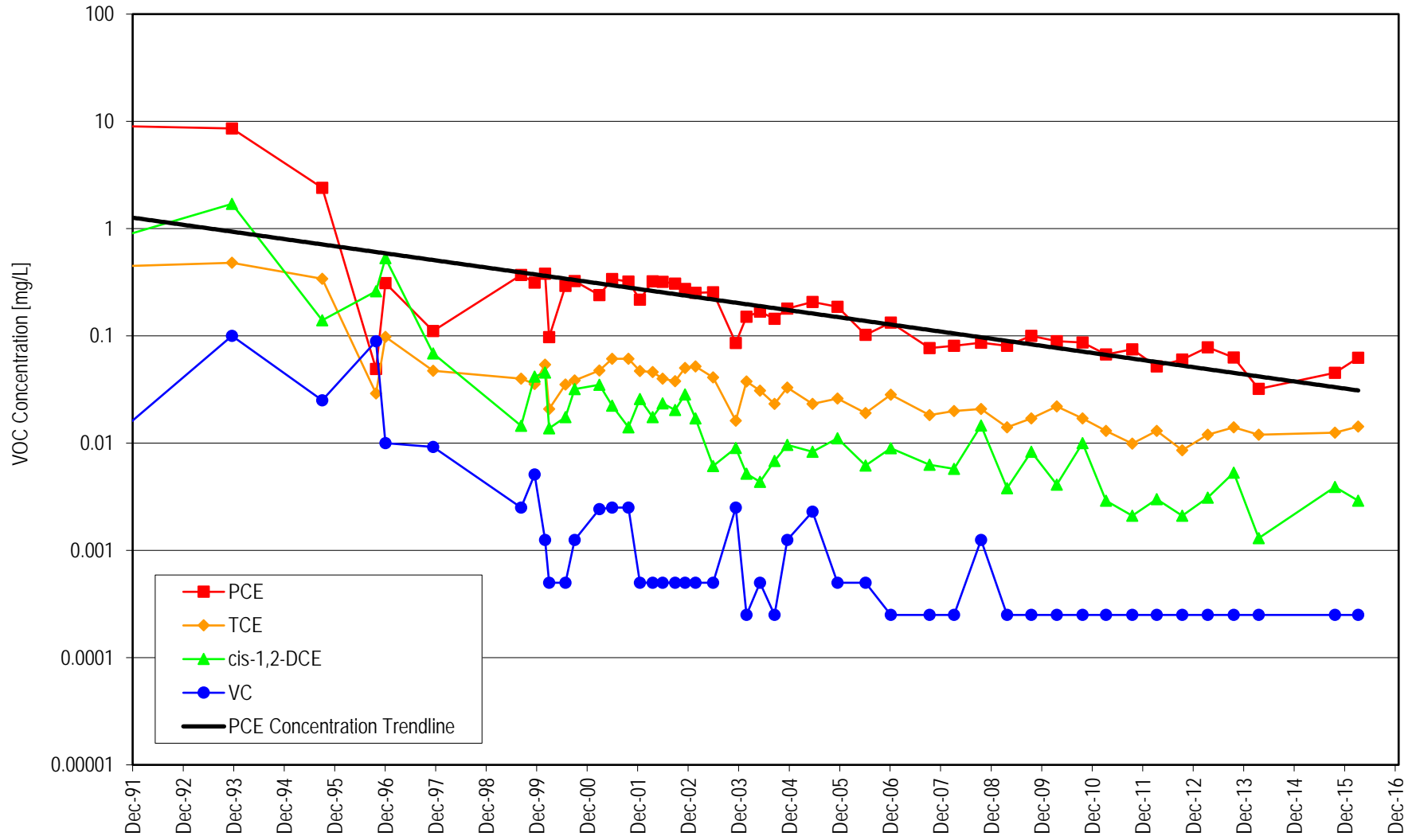
VOC Concentrations in MW-19



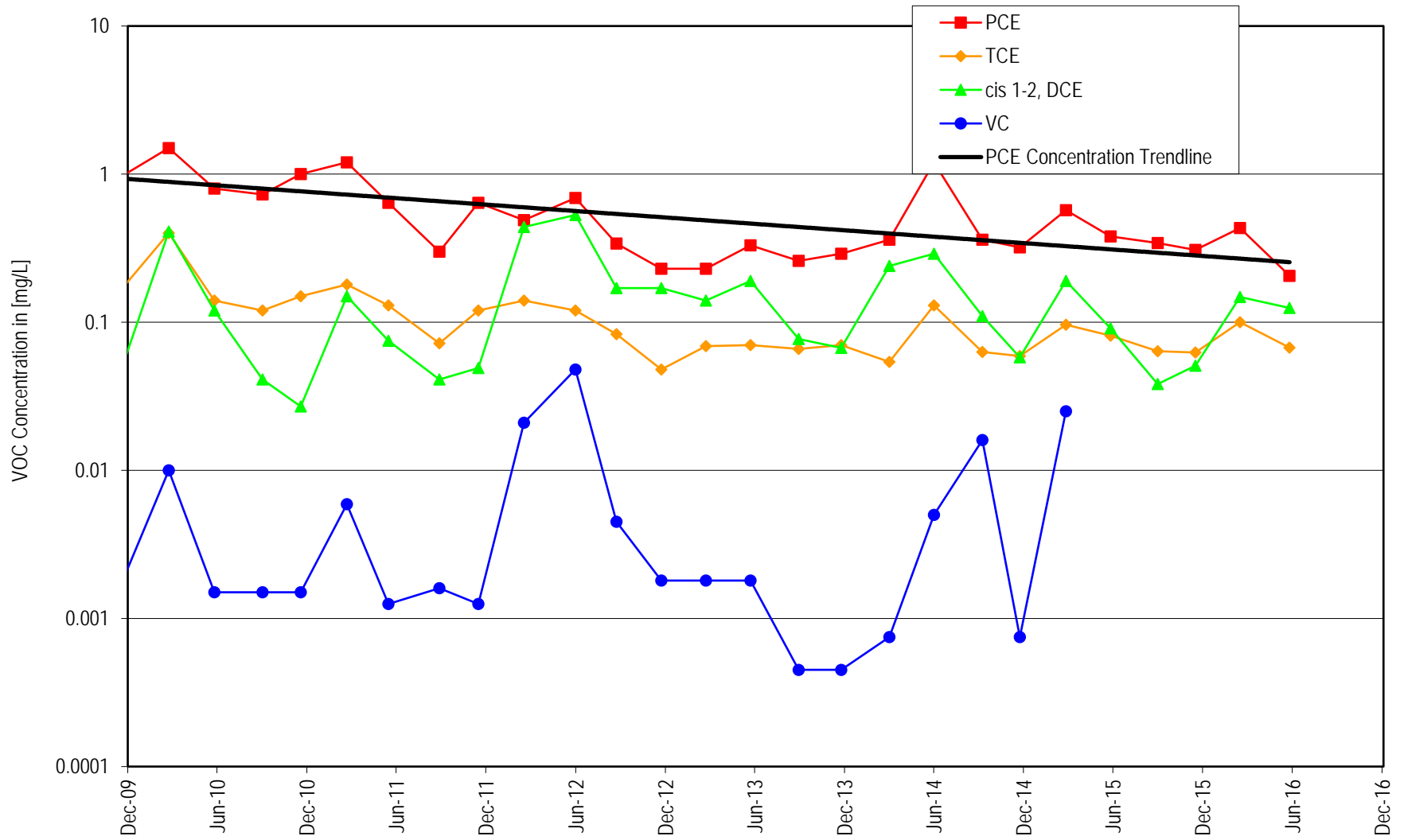
VOC Concentrations in EX



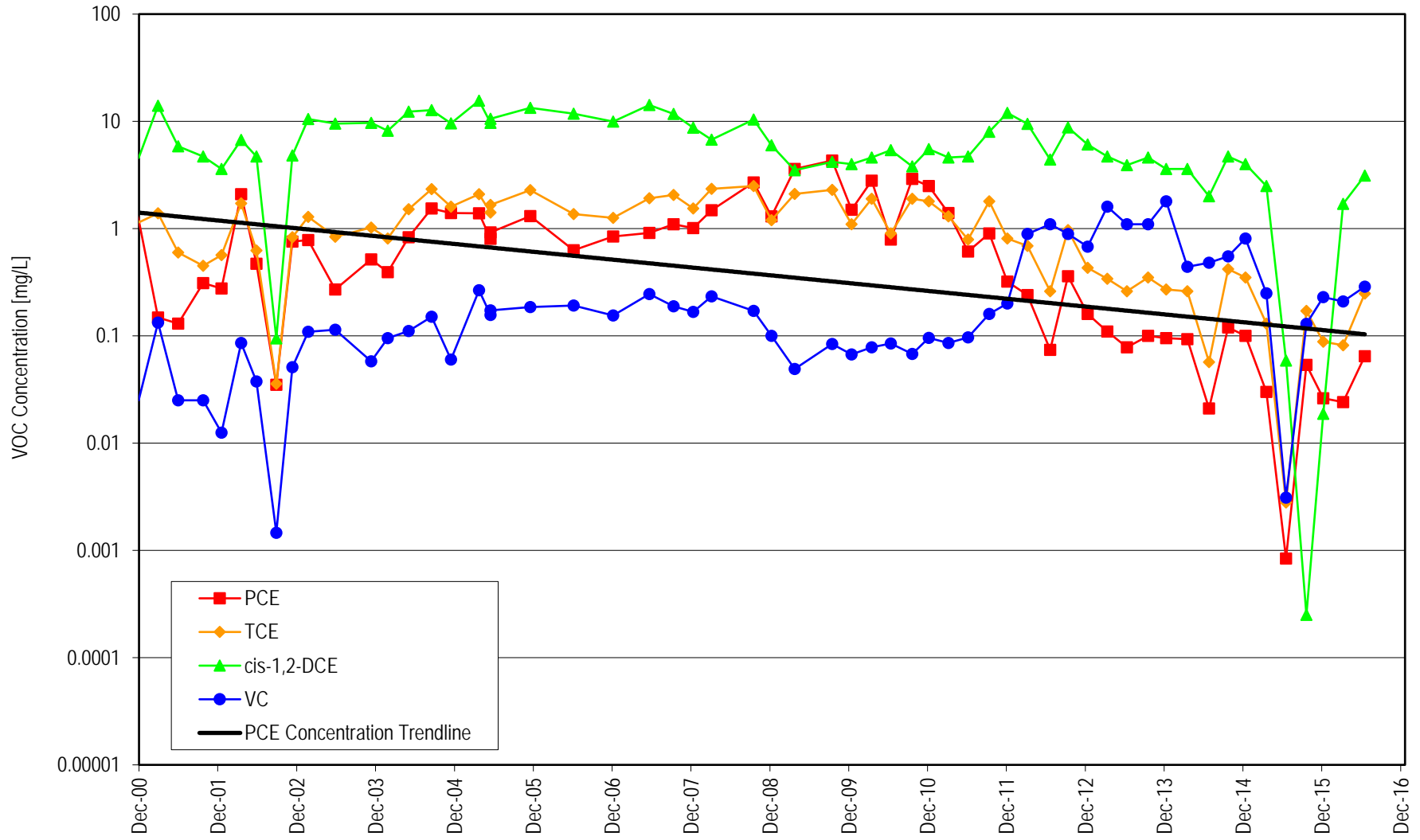
VOC Concentrations in EW-1



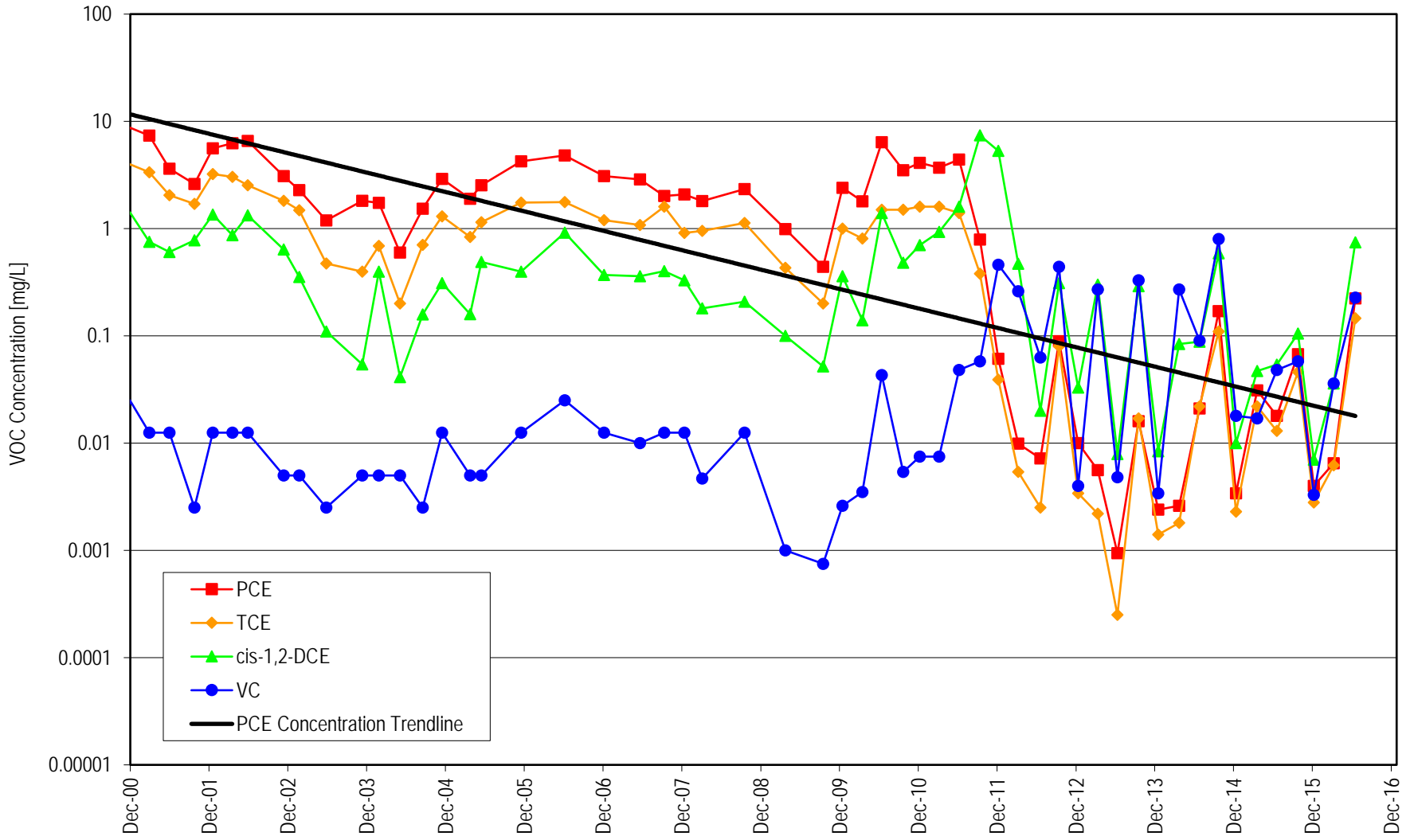
VOC Concentrations in MP-1



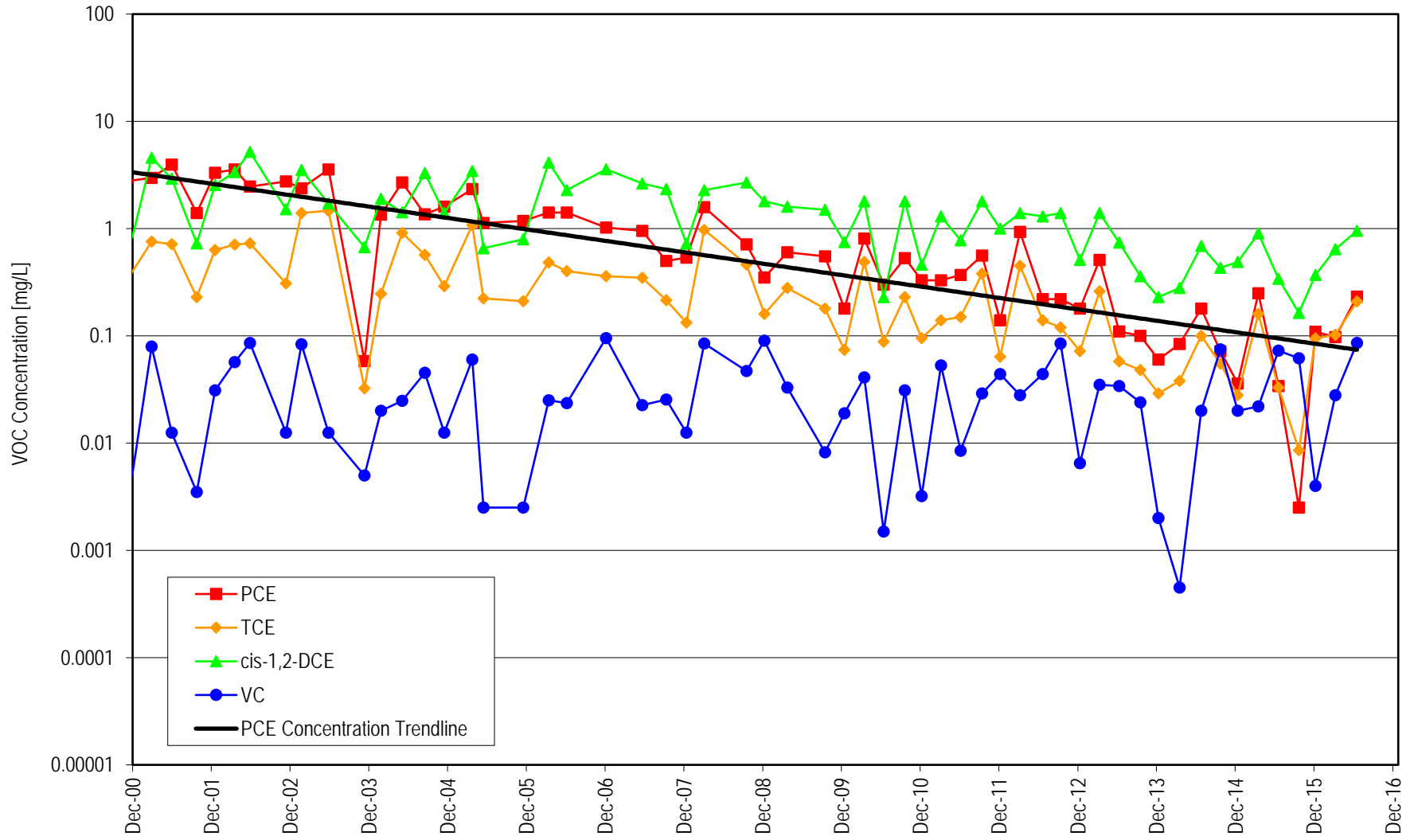
VOC Concentrations in MGMTS1-43



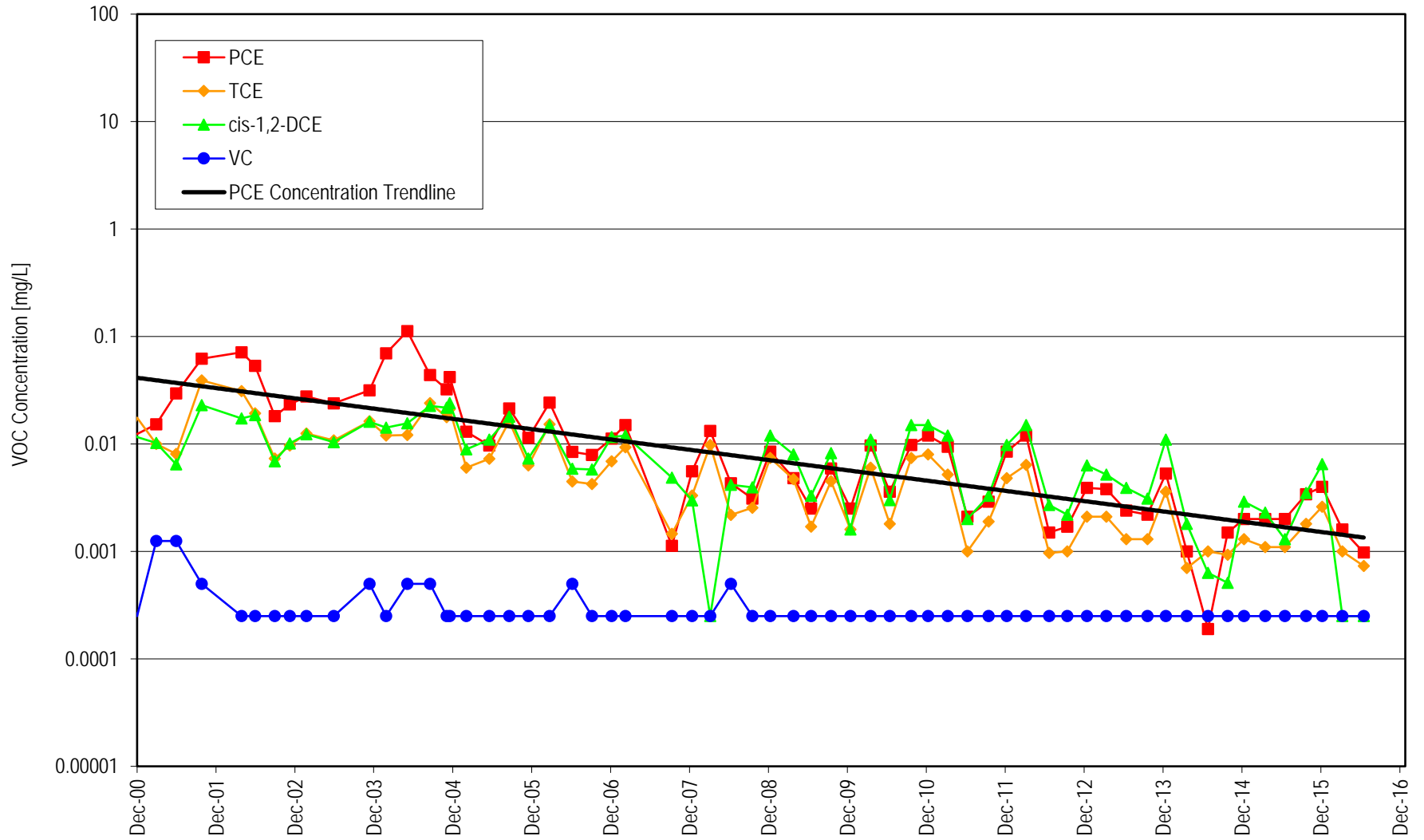
VOC Concentrations in MGMTS2-40



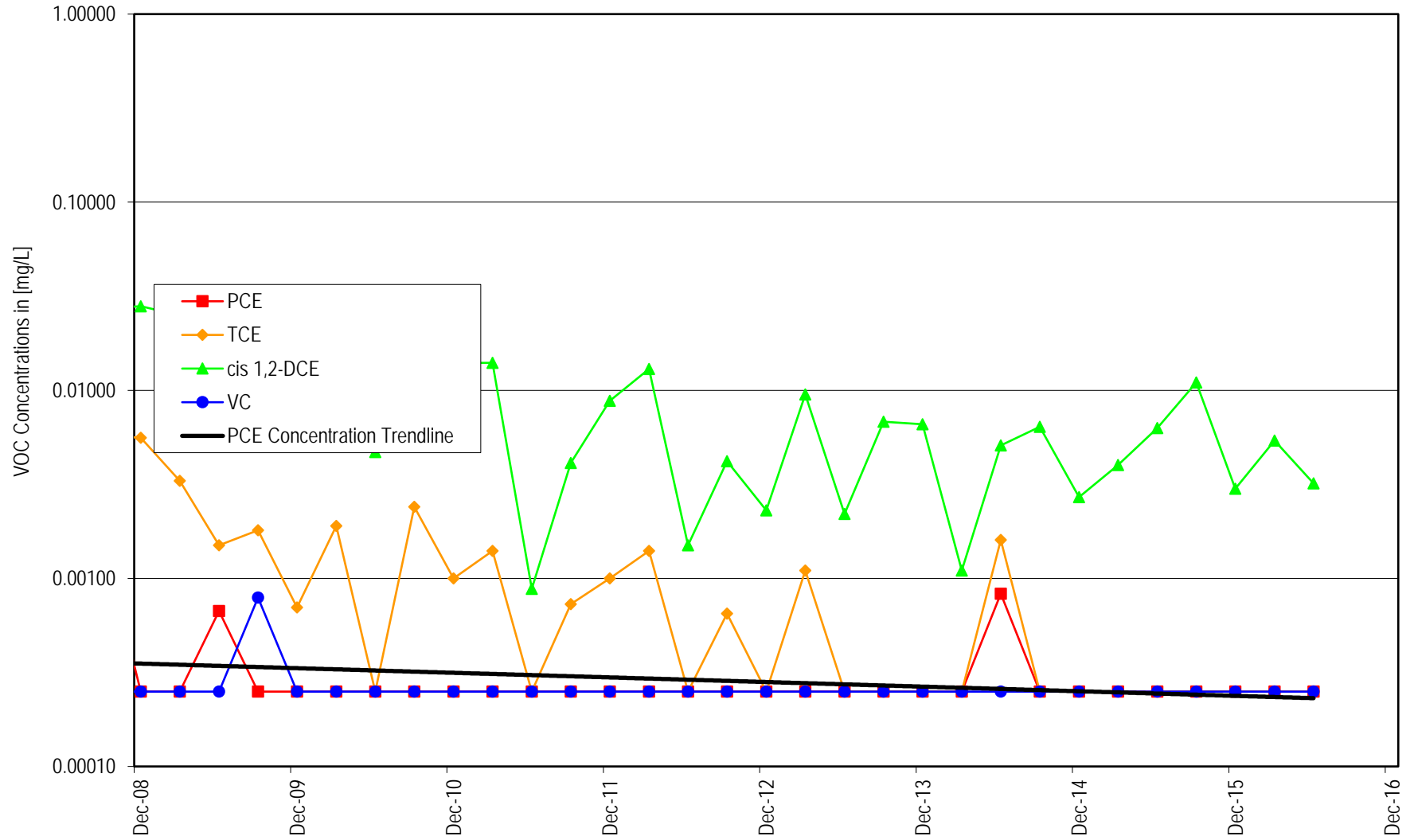
VOC Concentrations in MGMS3-40



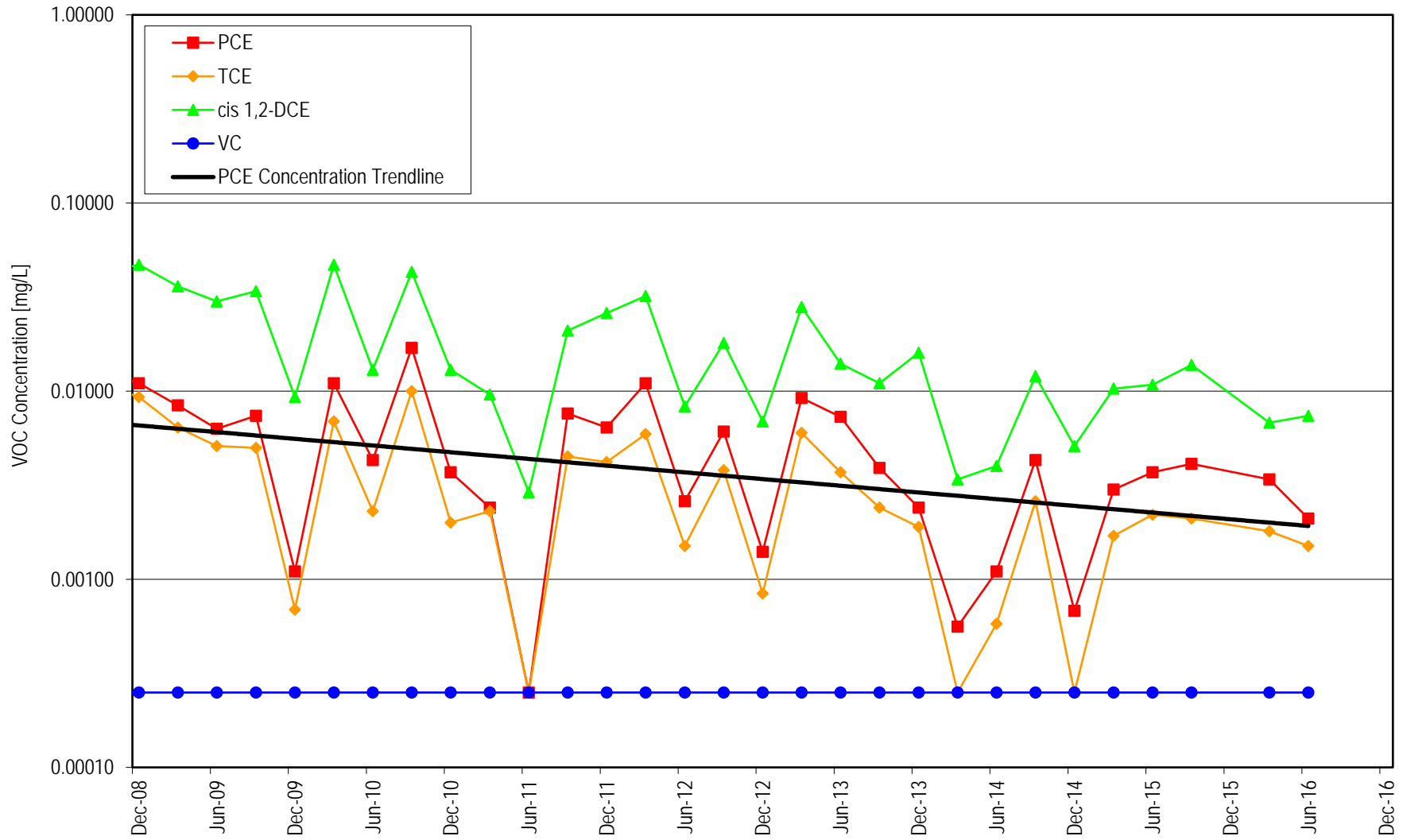
VOC Concentrations in MW-18i



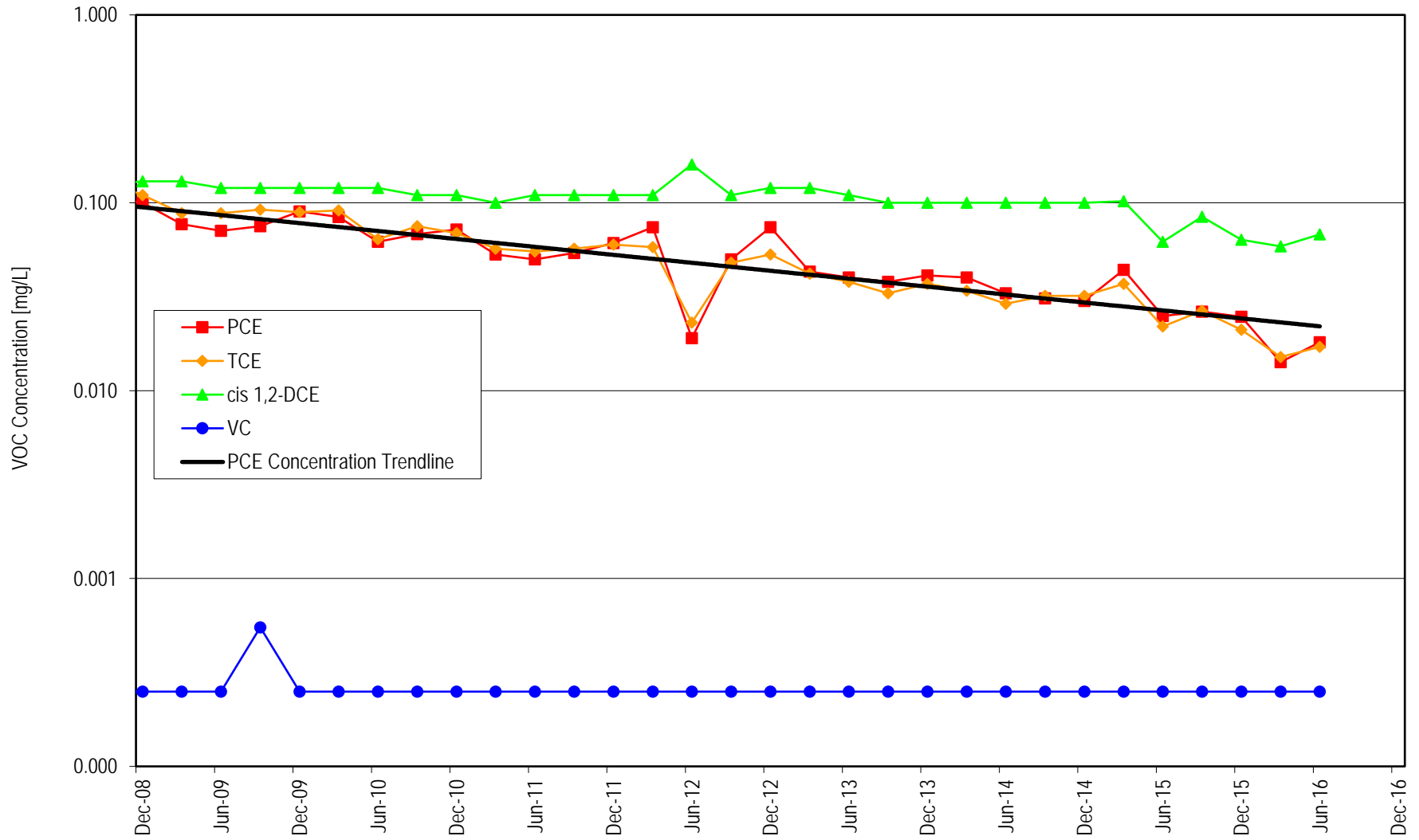
VOC Concentrations in MW-19i



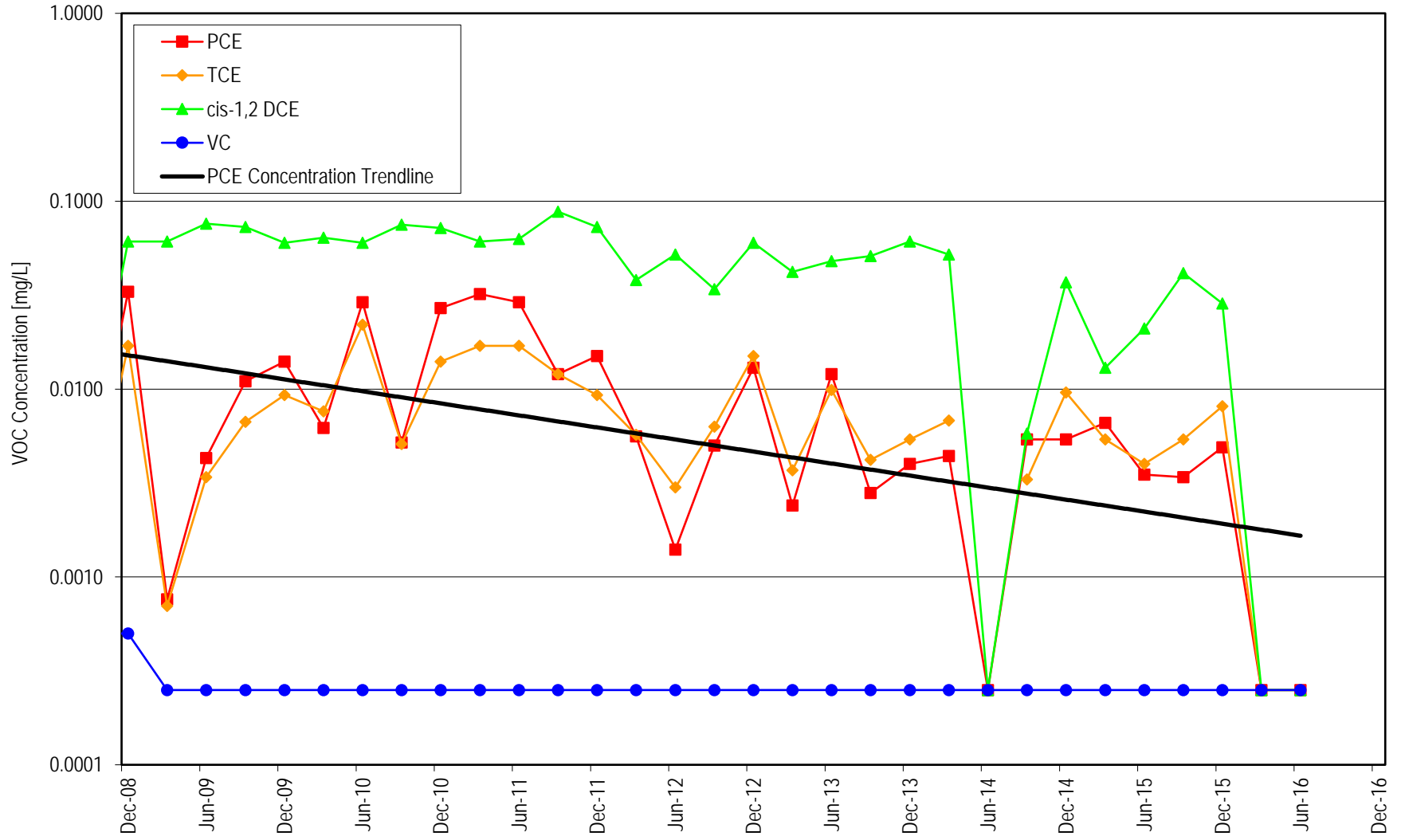
VOC Concentrations in MW-20i



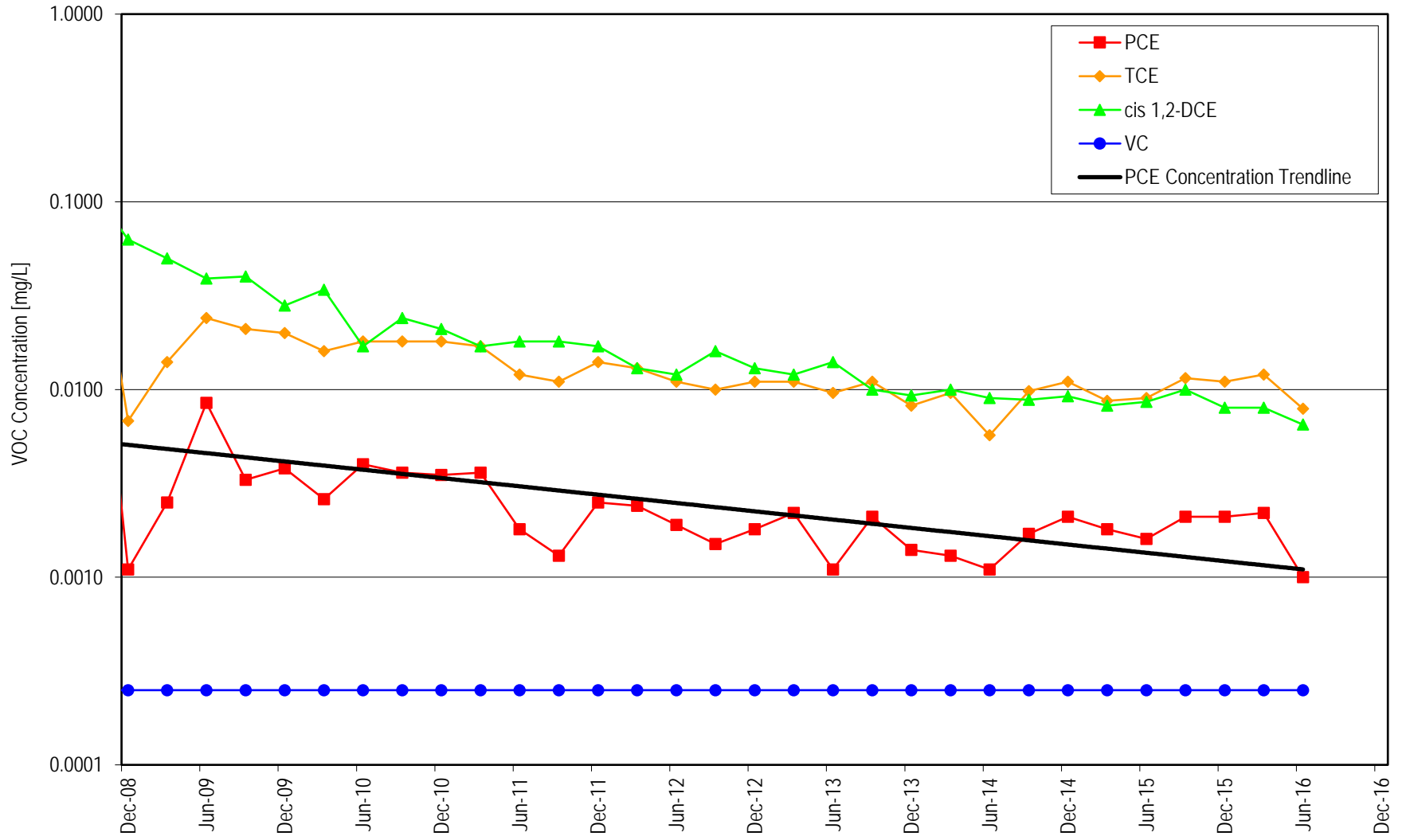
VOC Concentrations in MW-21i-40



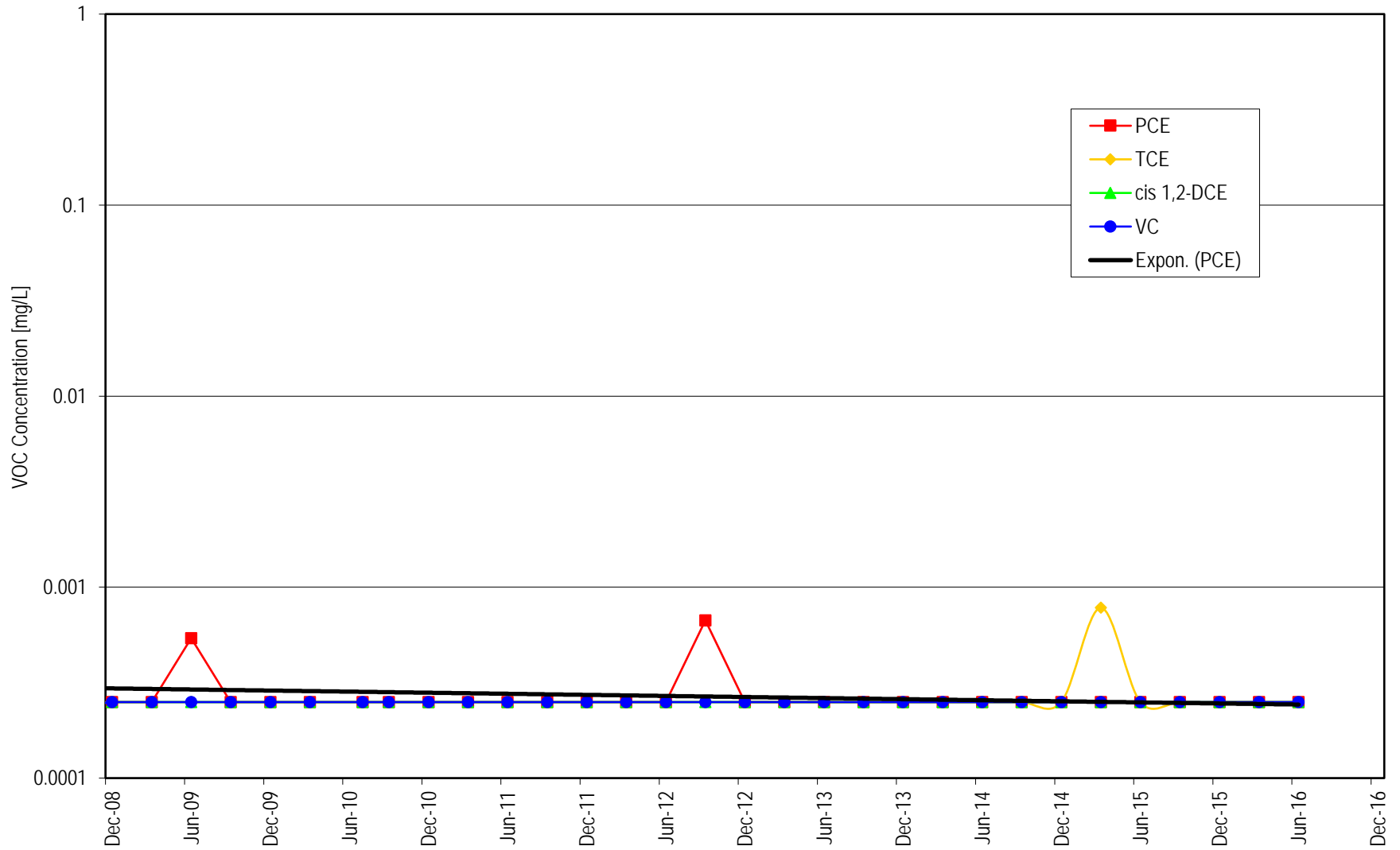
VOC Concentrations in MW-21i-105



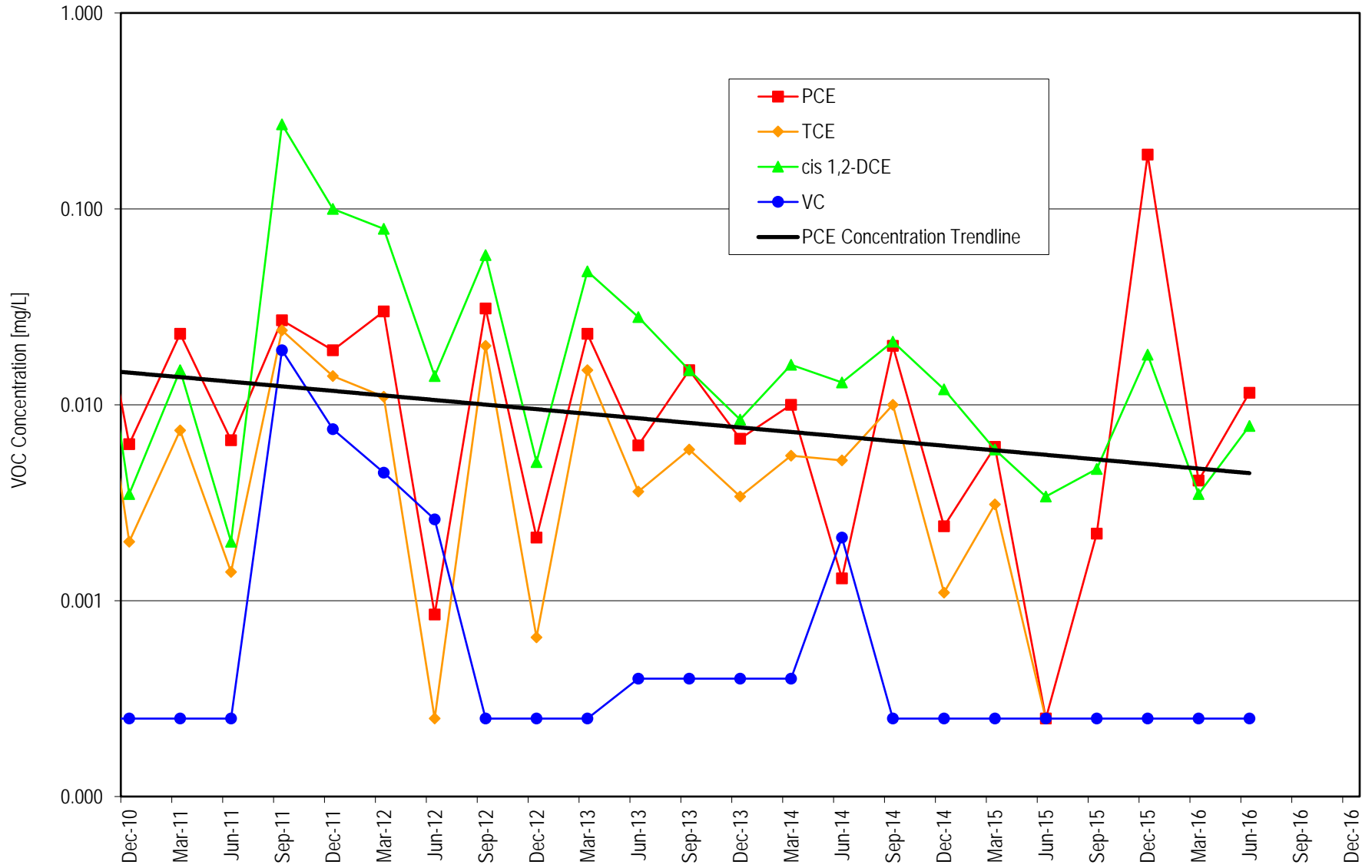
VOC Concentrations in MW-22i



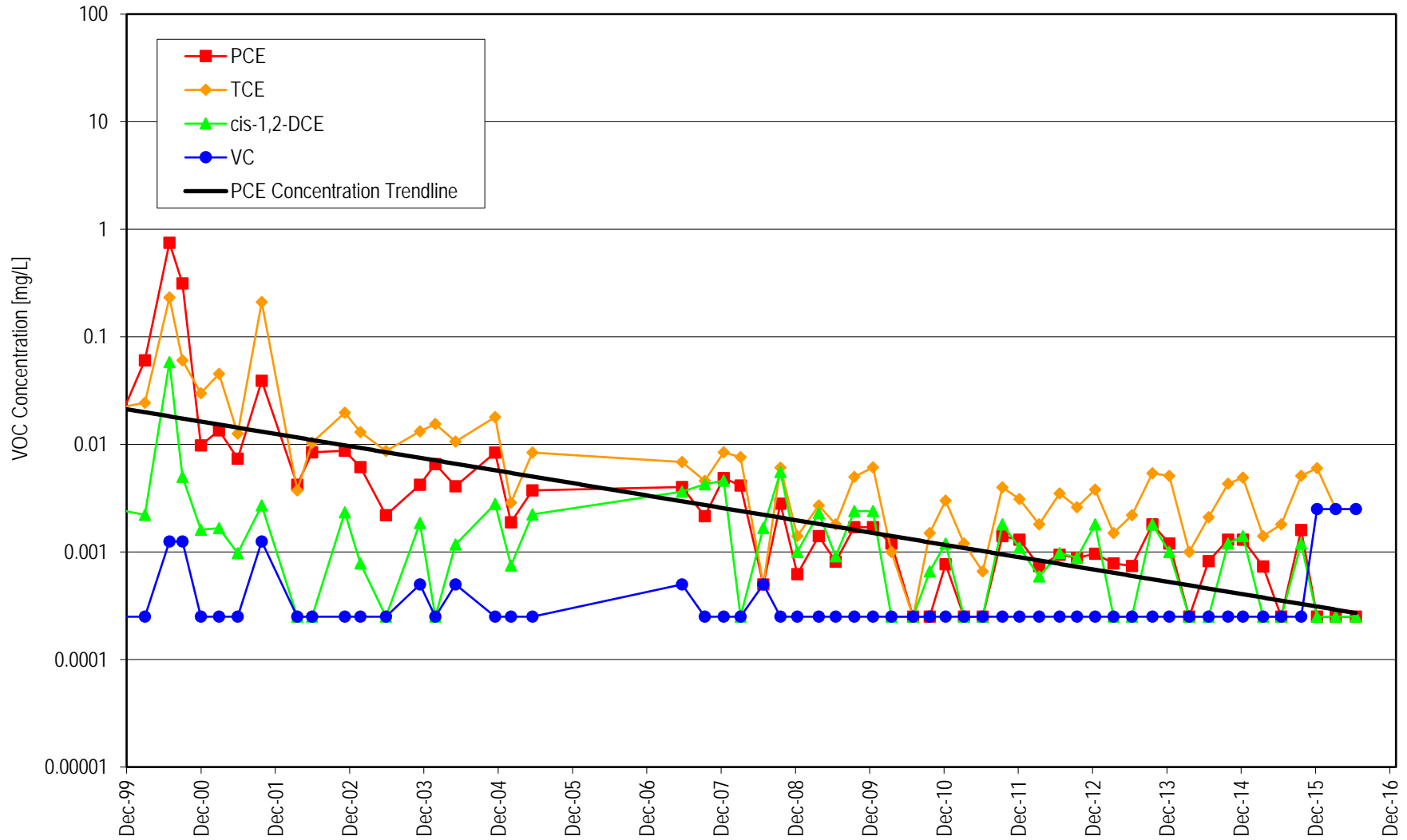
VOC Concentrations in MW-23i



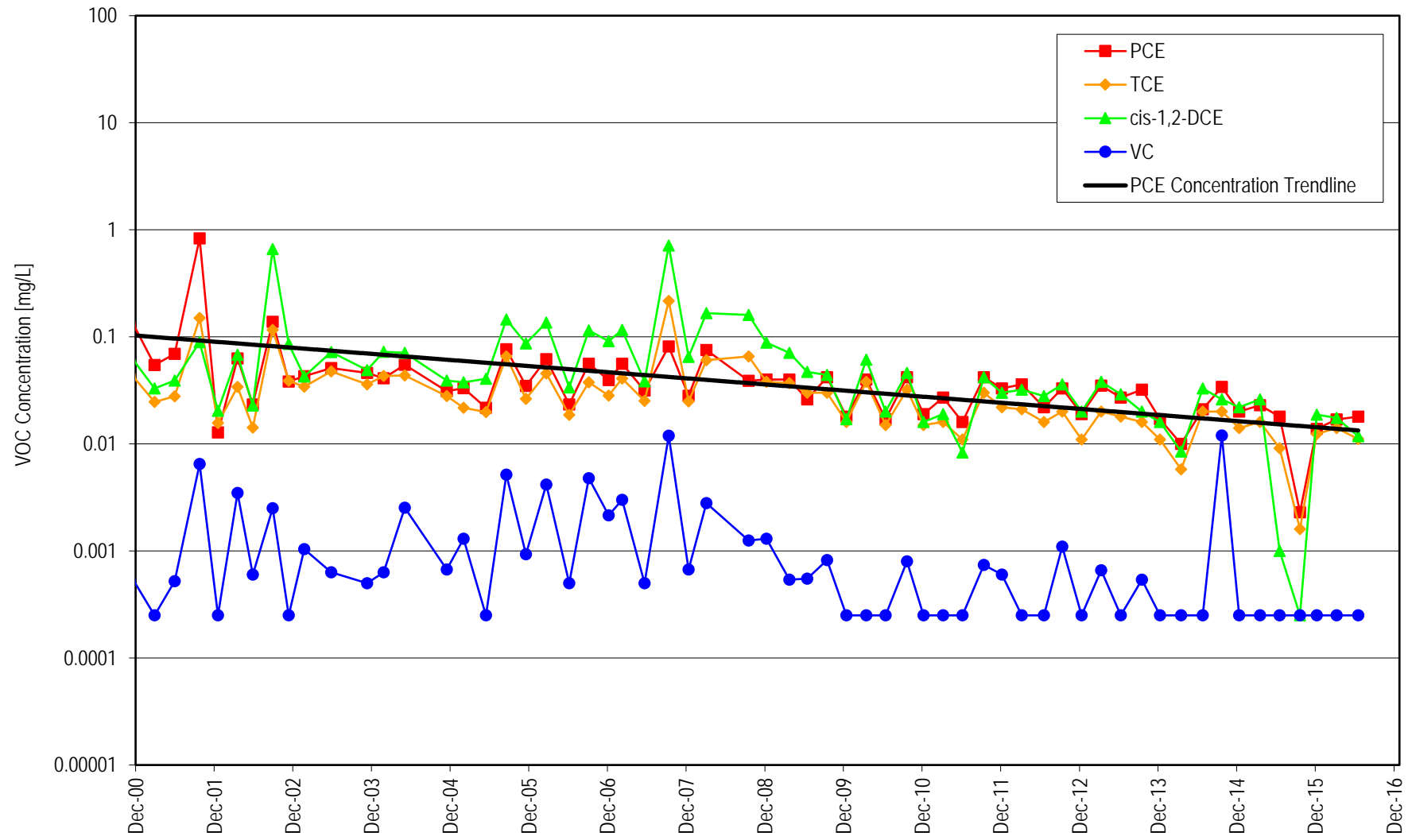
VOC Concentrations in MW-24i



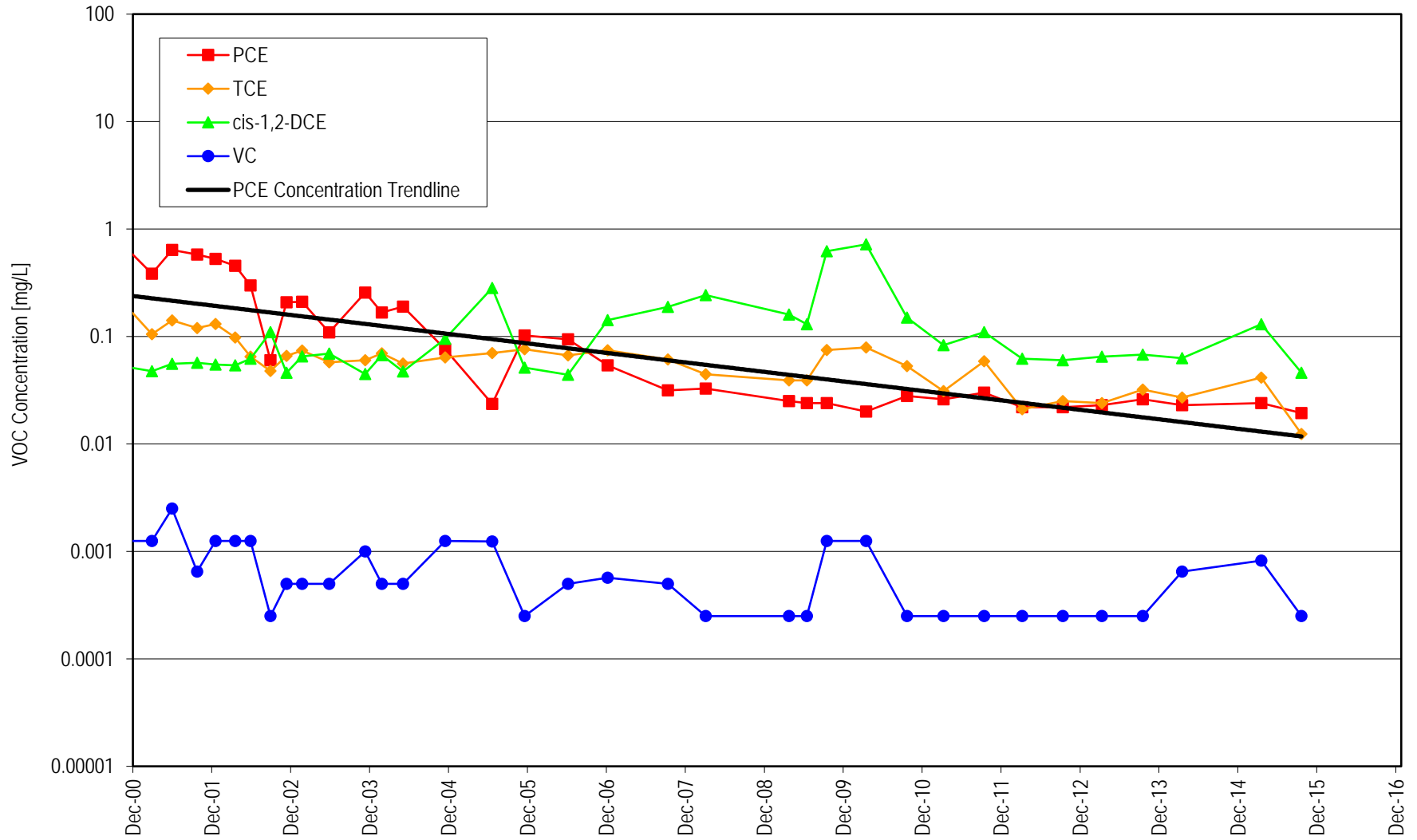
VOC Concentrations in S-1



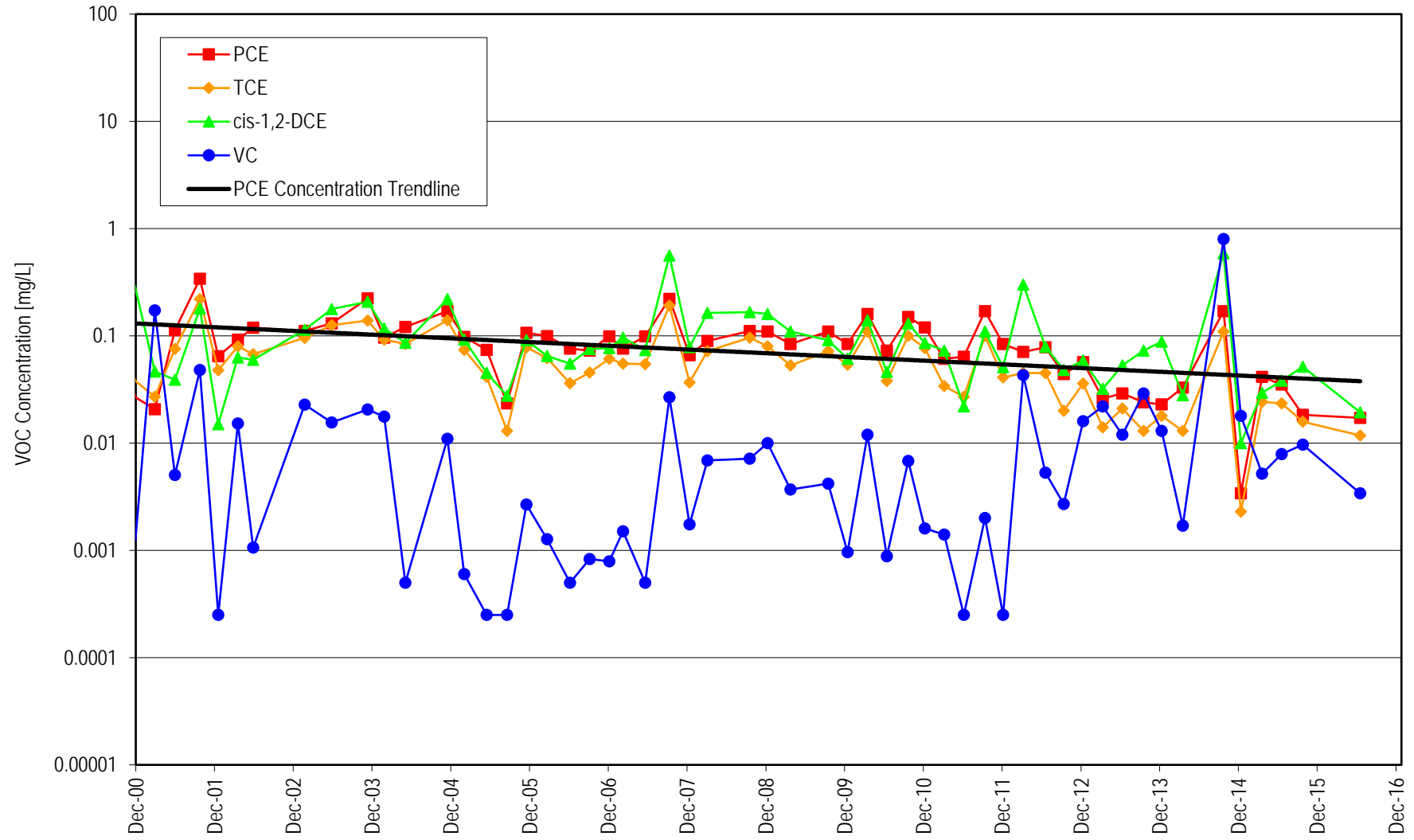
VOC Concentrations in MGMS1-60



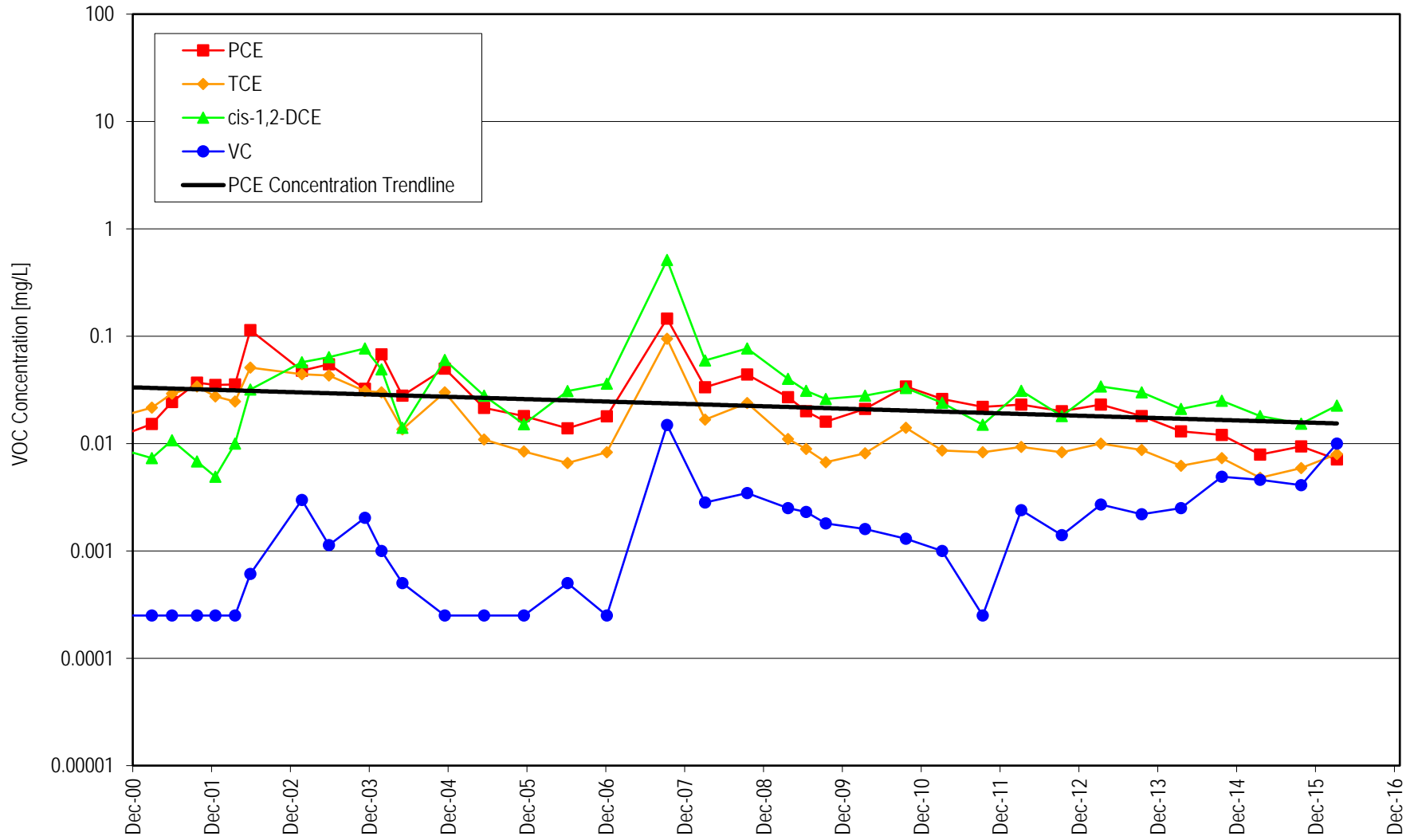
VOC Concentrations in MGMS1-110



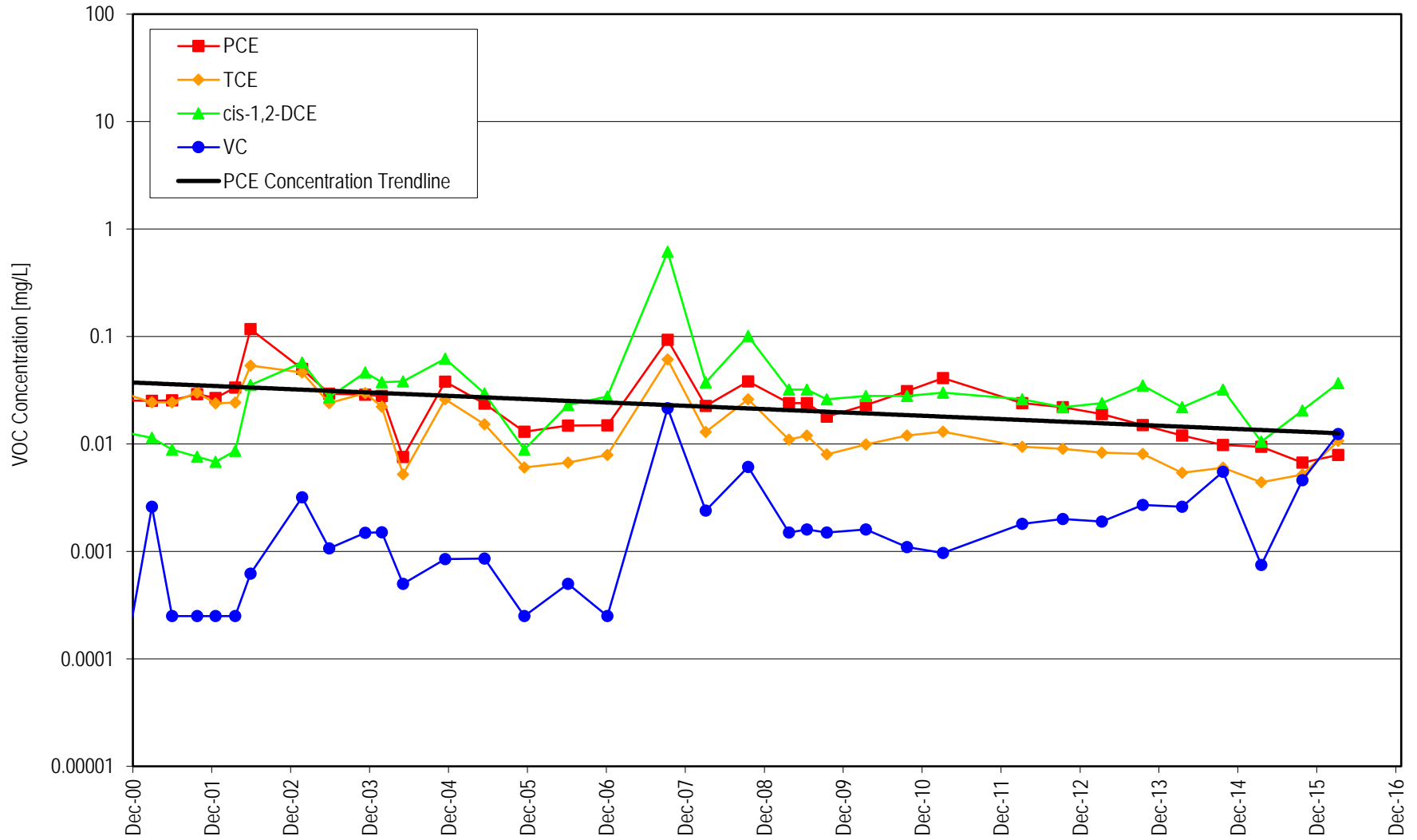
VOC Concentrations in MGMS2-60



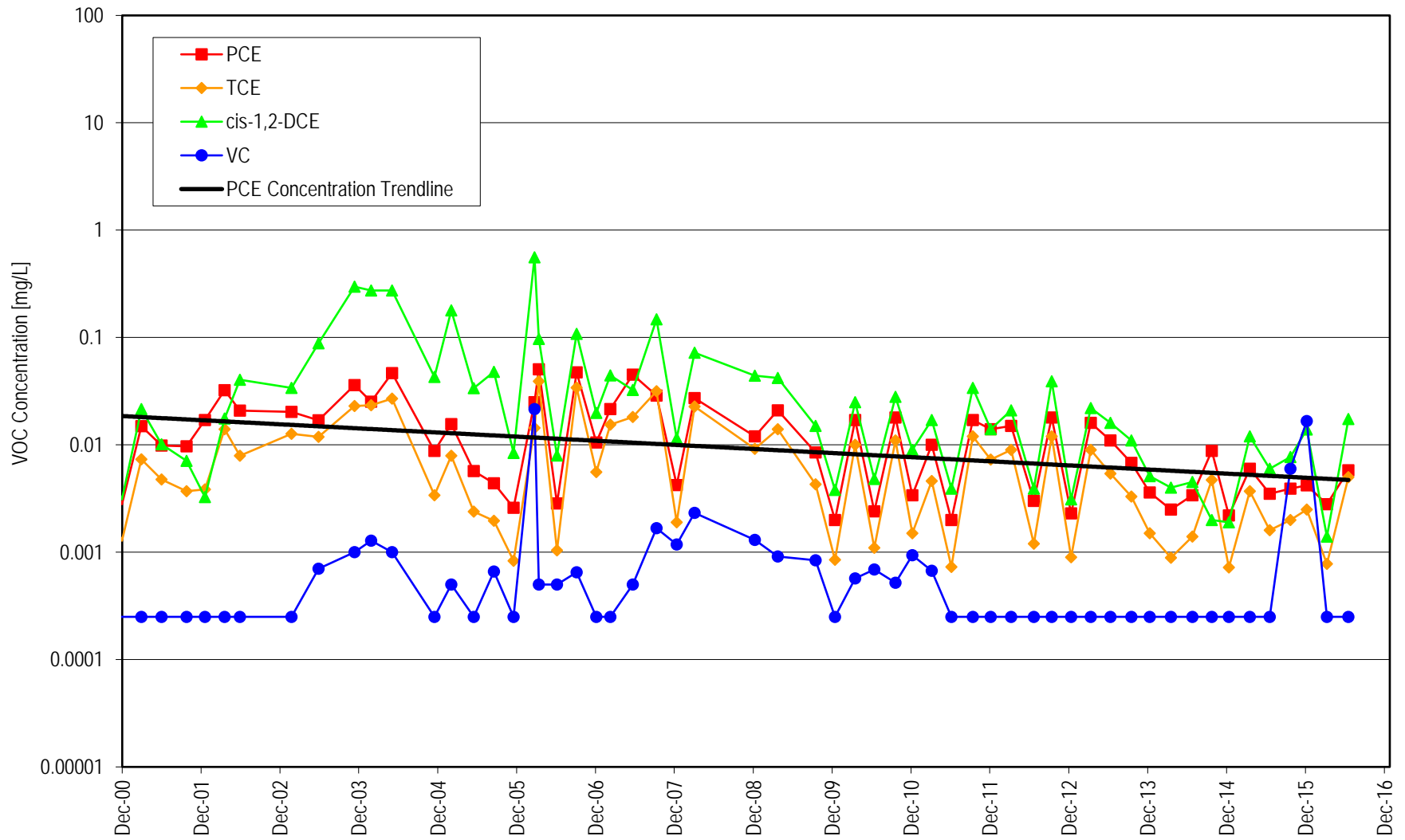
VOC Concentrations in MGMS2-110



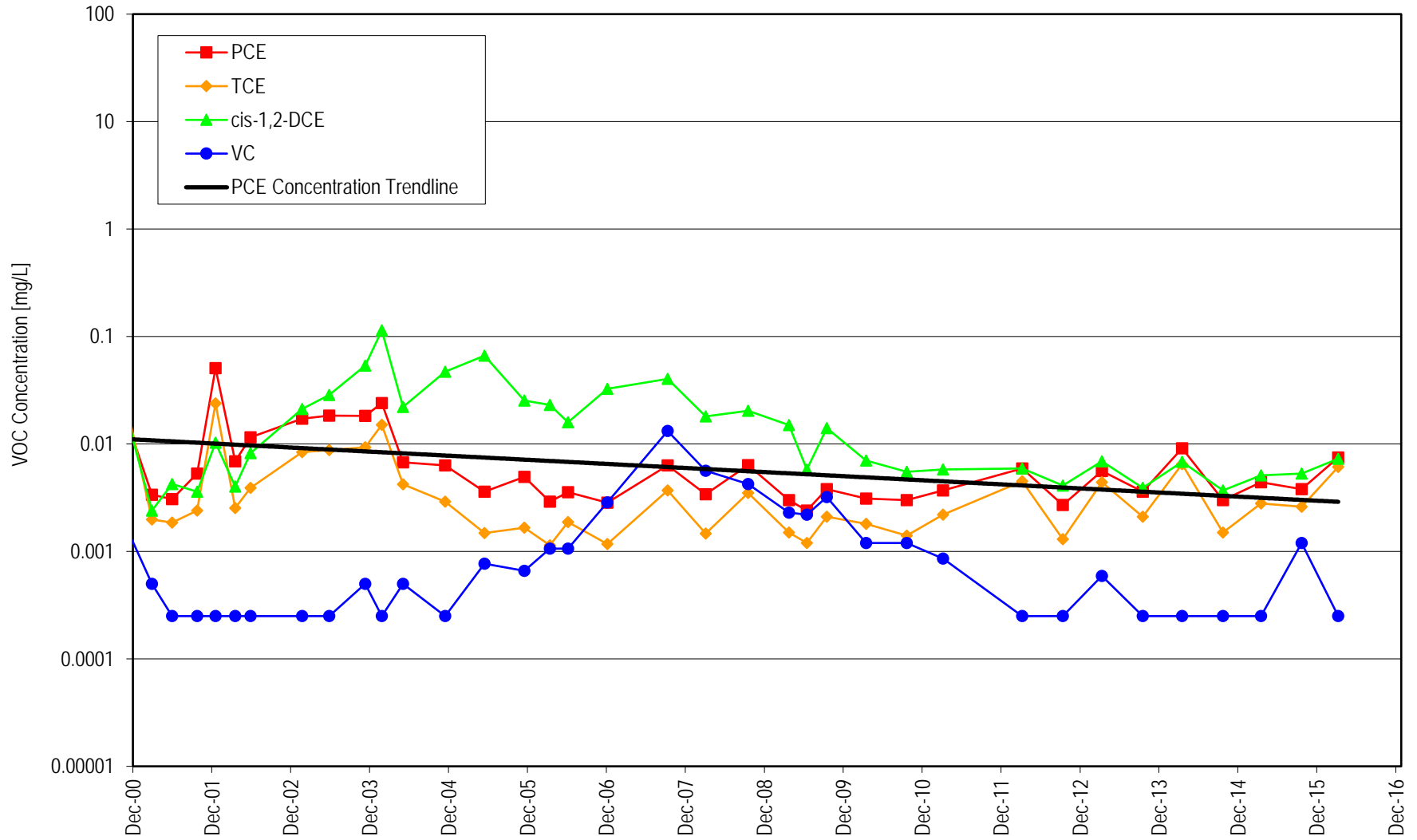
VOC Concentrations in MGMS2-132



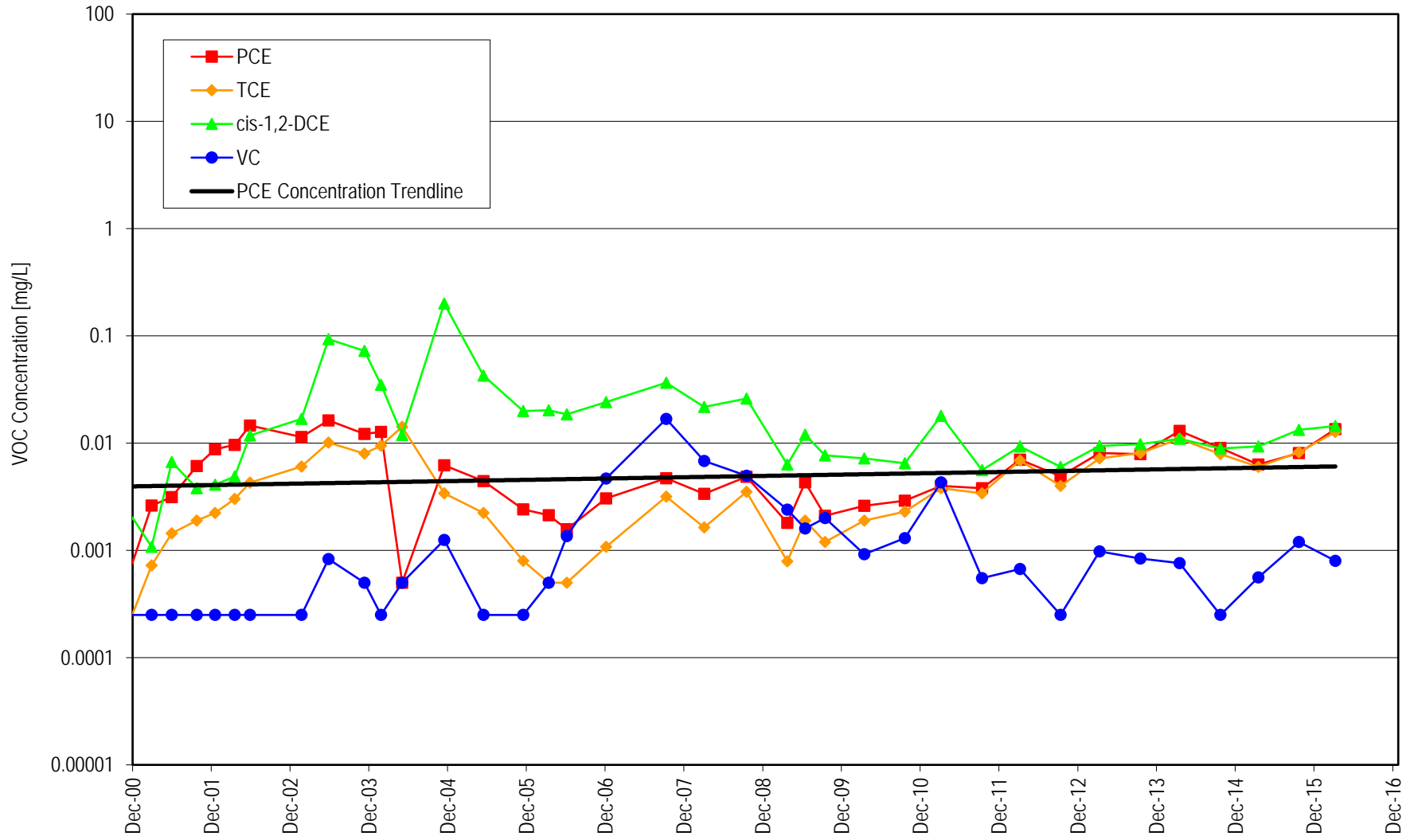
VOC Concentrations in MGMTS3-60



VOC Concentrations in MGMS3-101

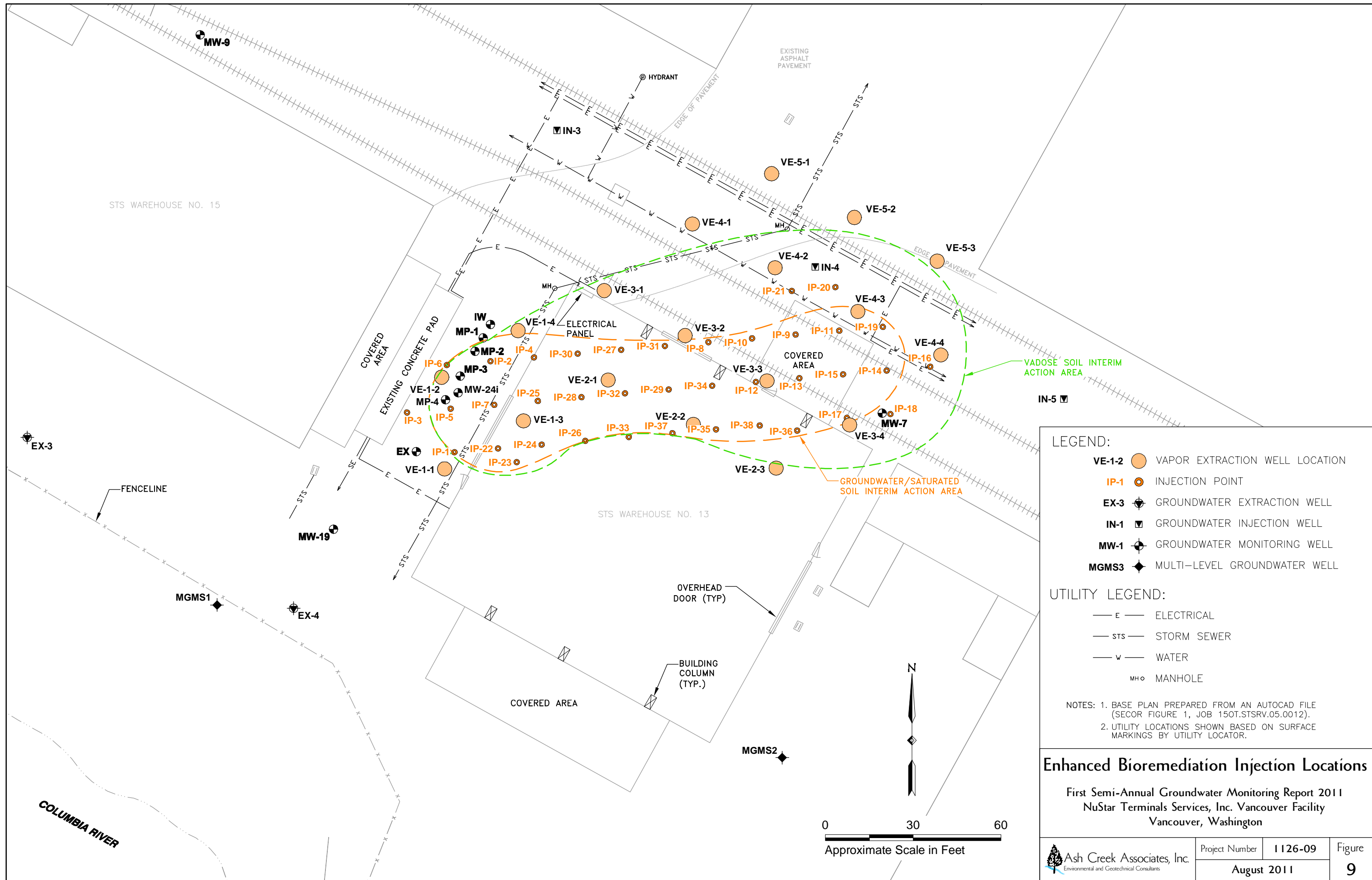


VOC Concentrations in MGMS3-132



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:

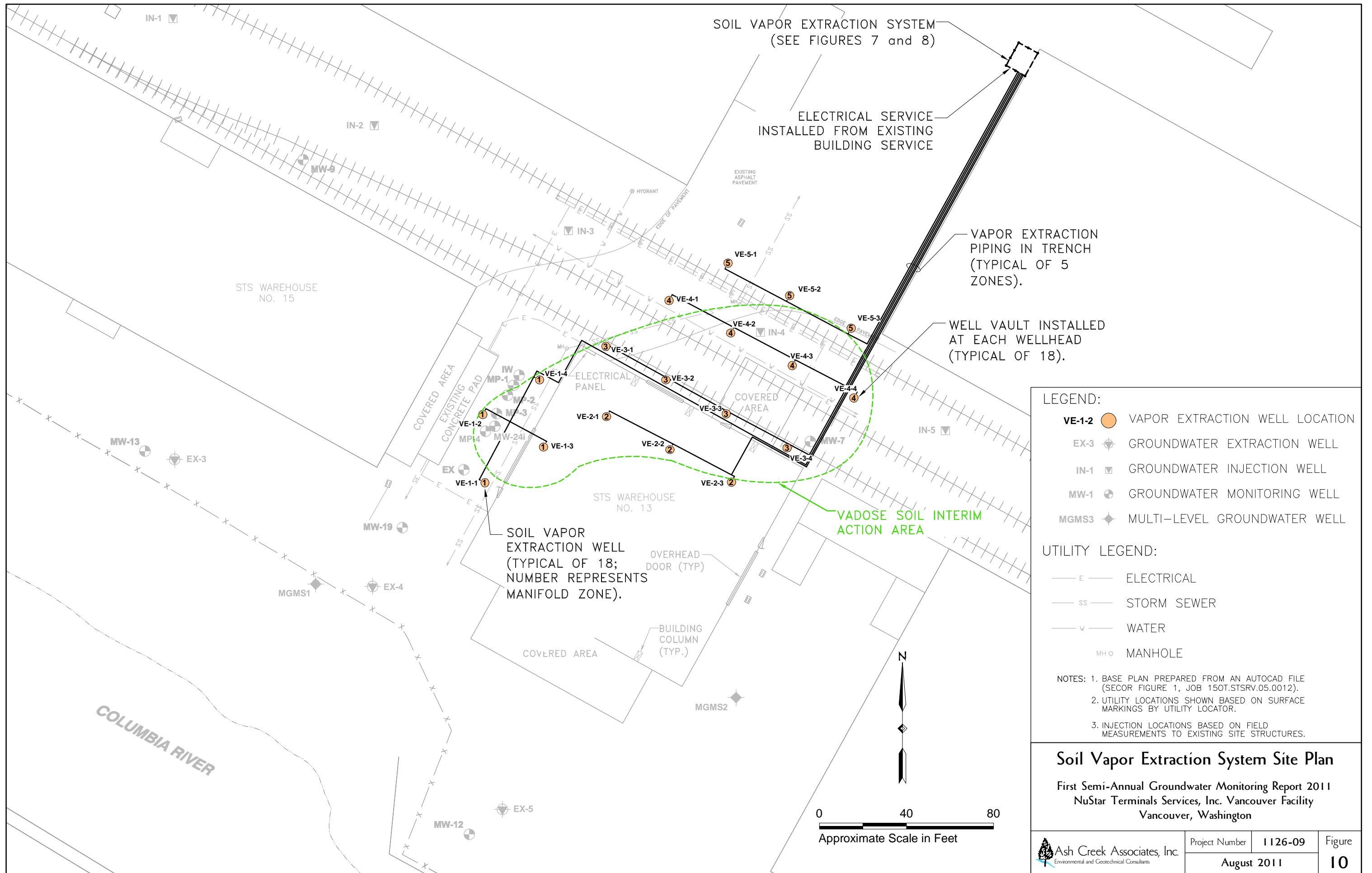
- E — ELECTRICAL
- STS — STORM SEWER
- W — WATER
- MH ⊕ MANHOLE

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

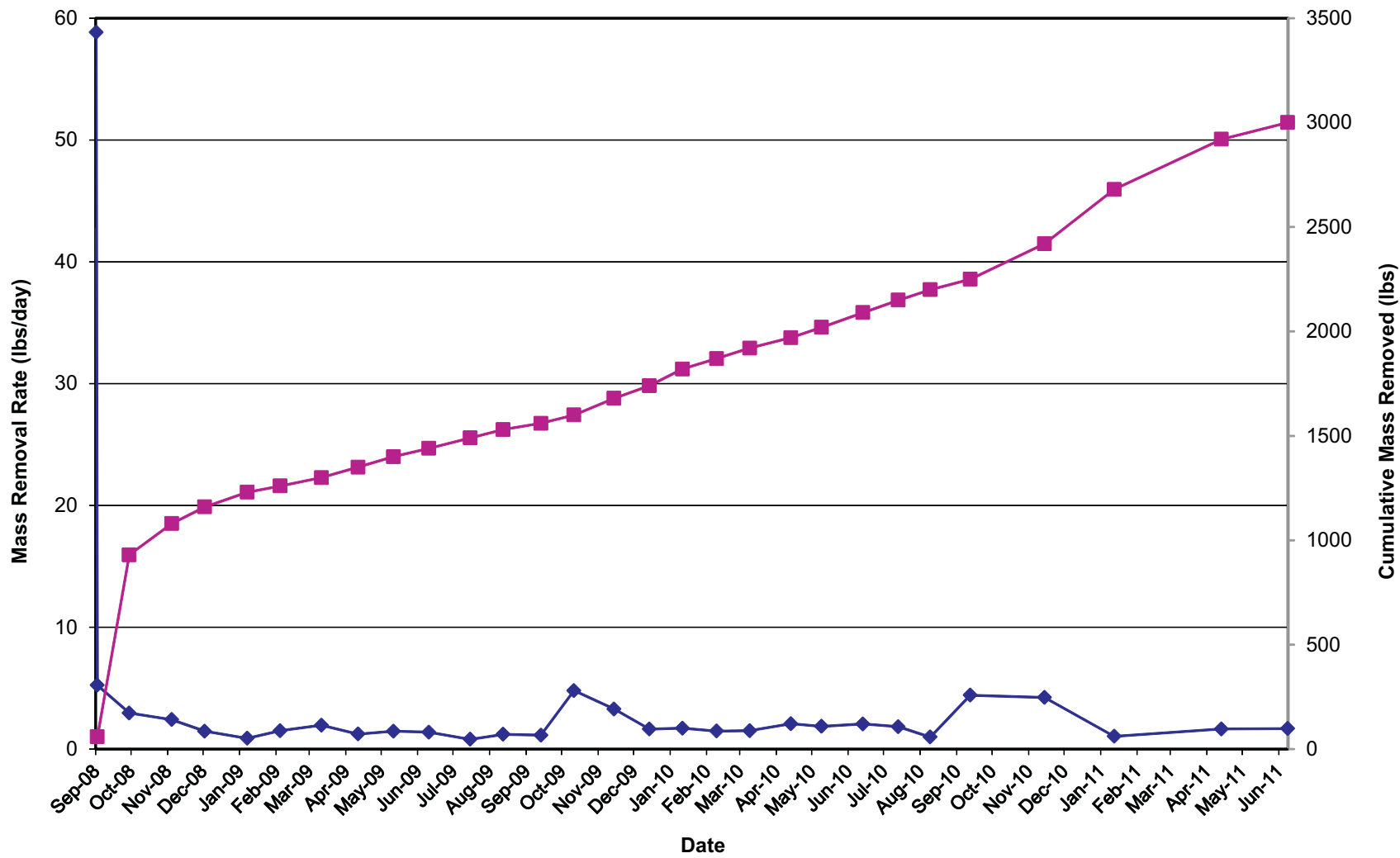
UTILITY LEGEND:

- E — ELECTRICAL
- SS — 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.
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



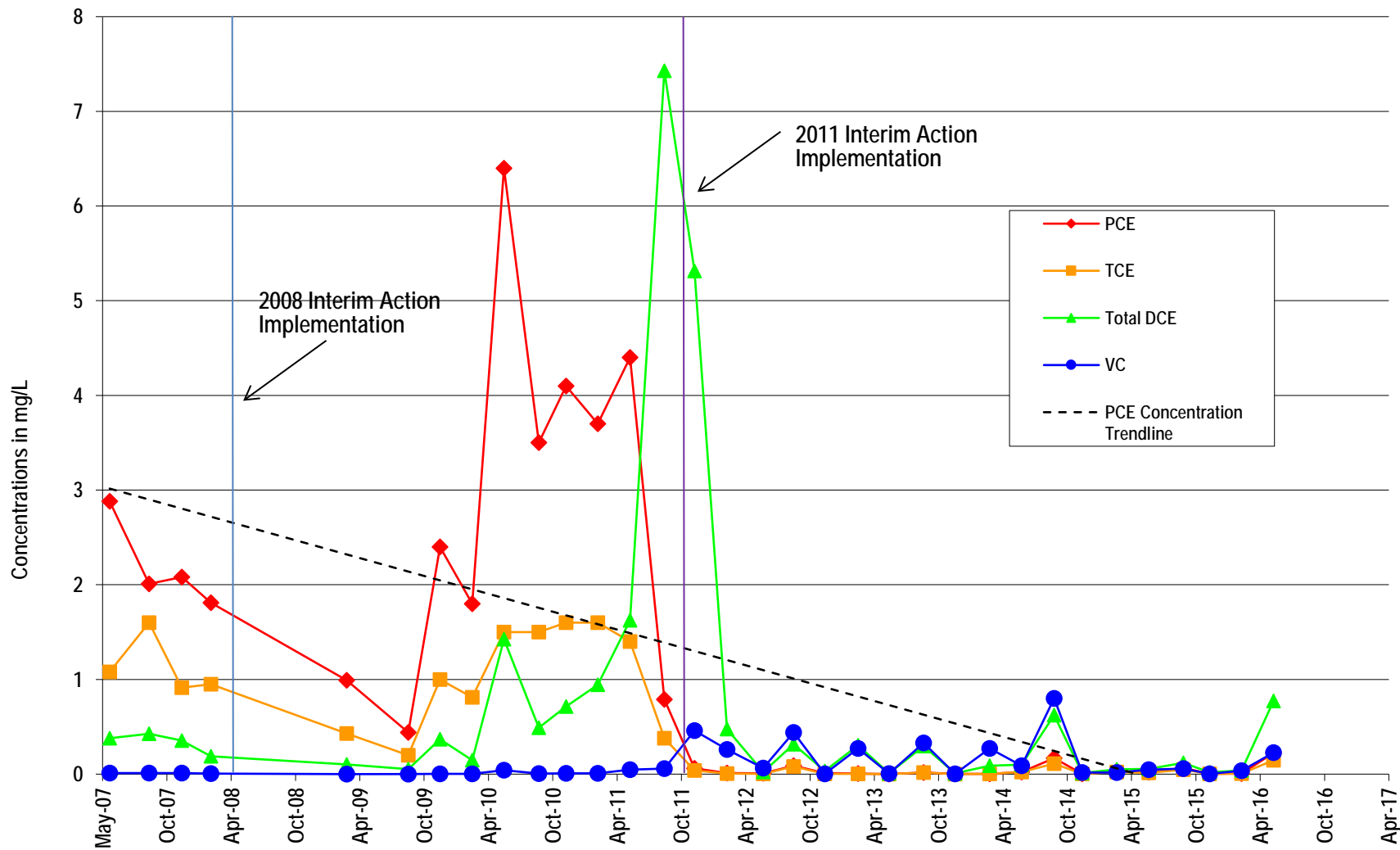
Project Number	1126-09
January 2012	

Figure
11

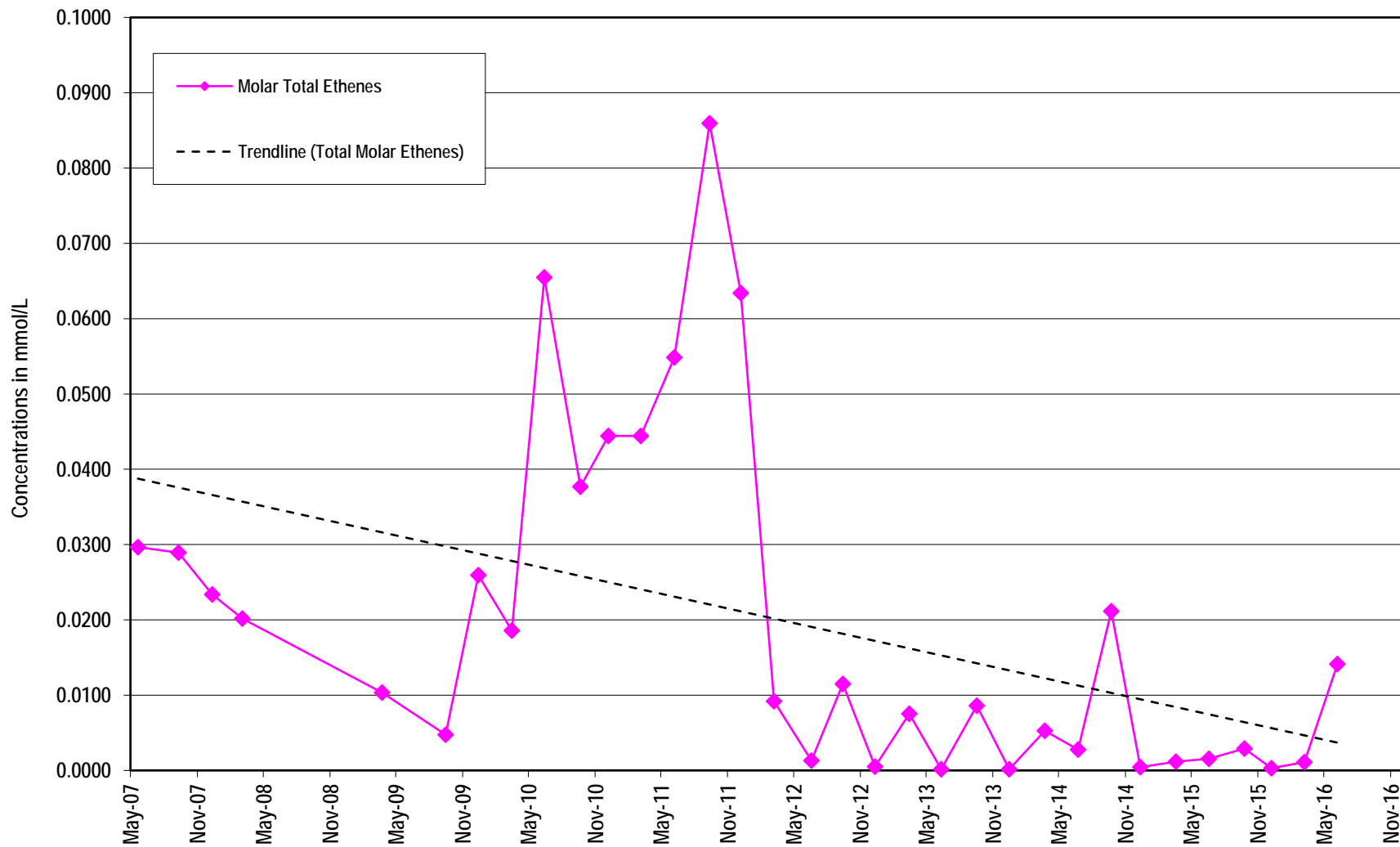
Appendix F

Molar Concentration Trend Plots – Interim Action Wells

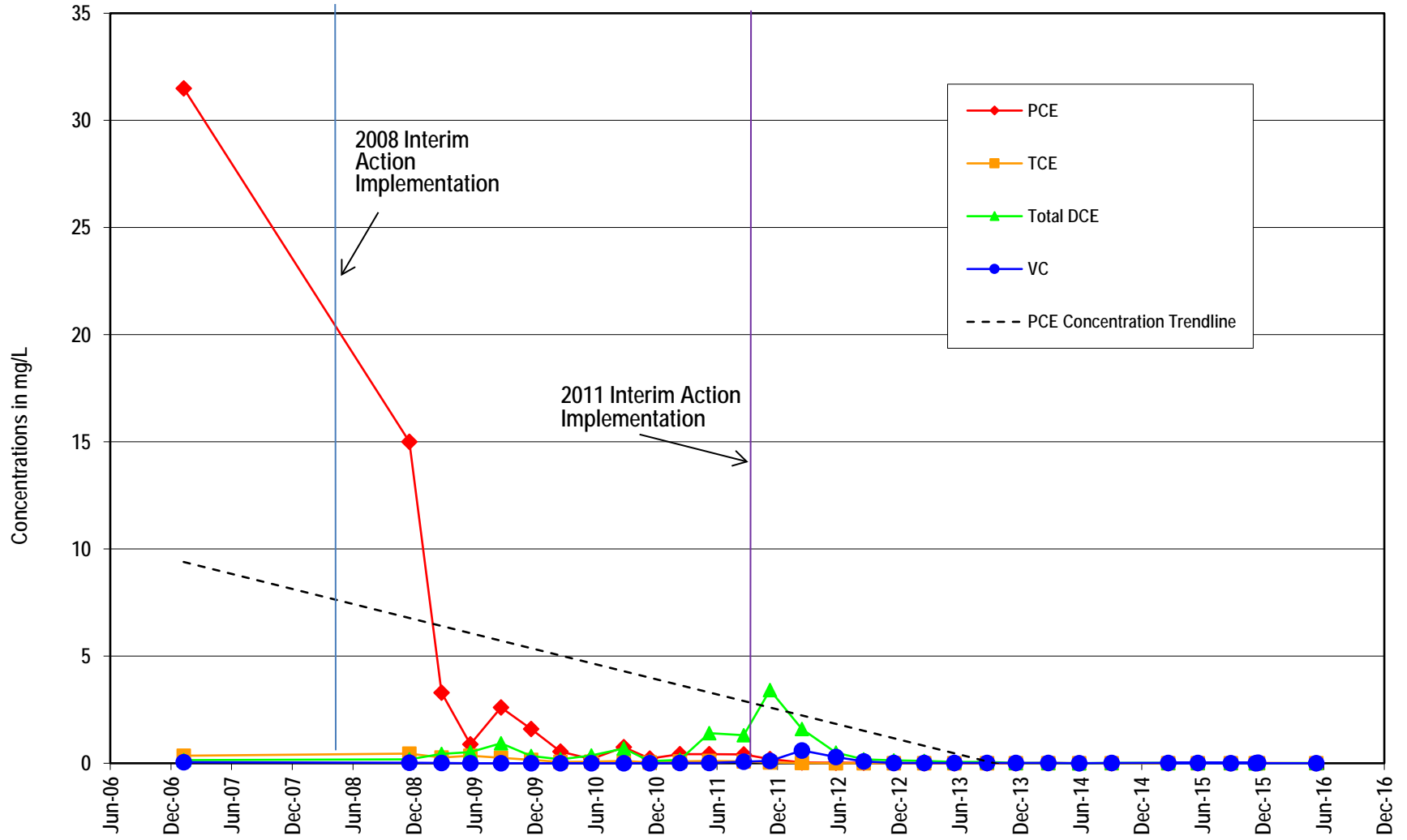
Interim Action Area - VOC Trends: MGMS2-40



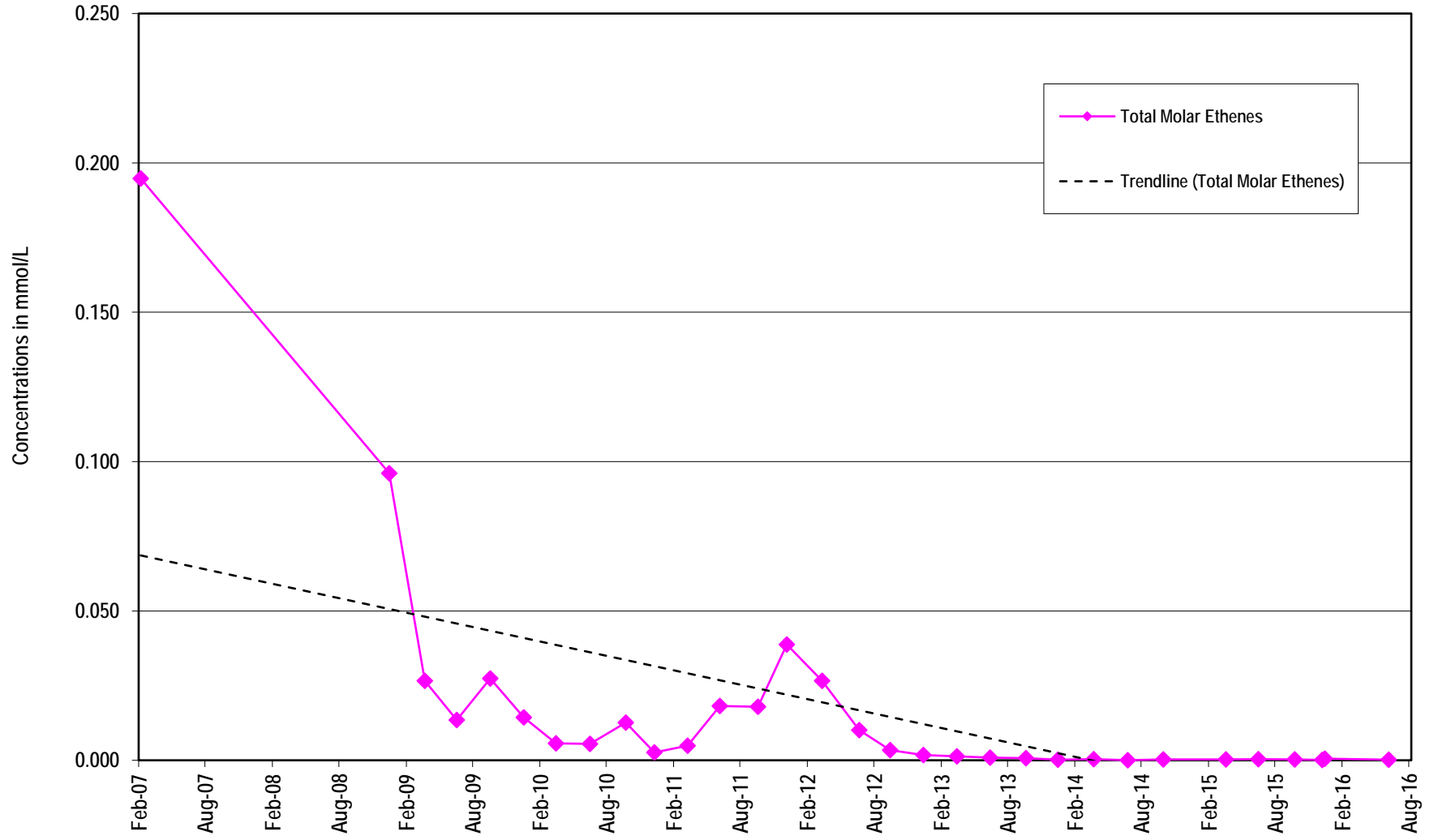
Total Molar Ethenes in MGMS2-40



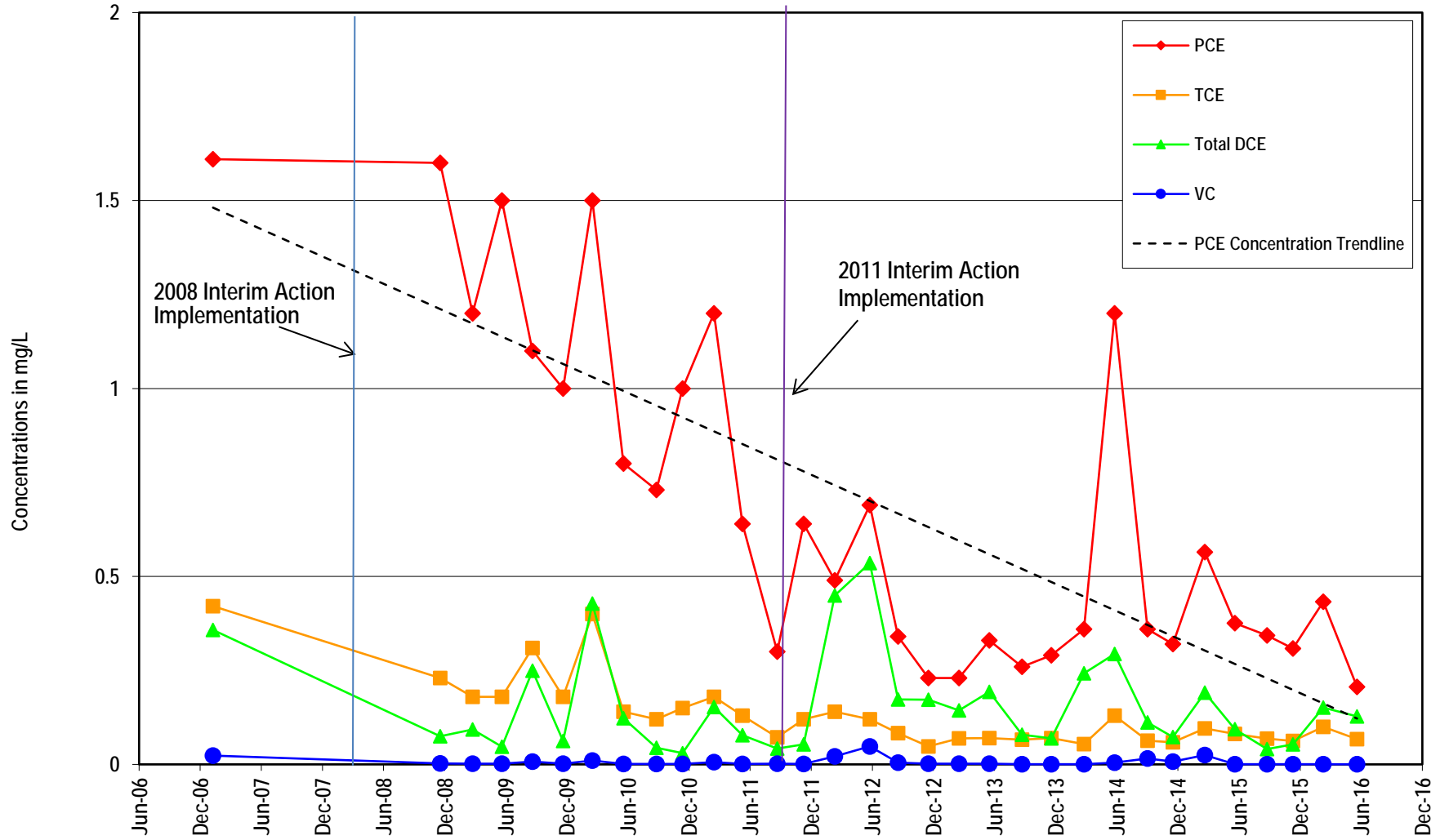
Interim Action Area - VOC Trends: MW-7



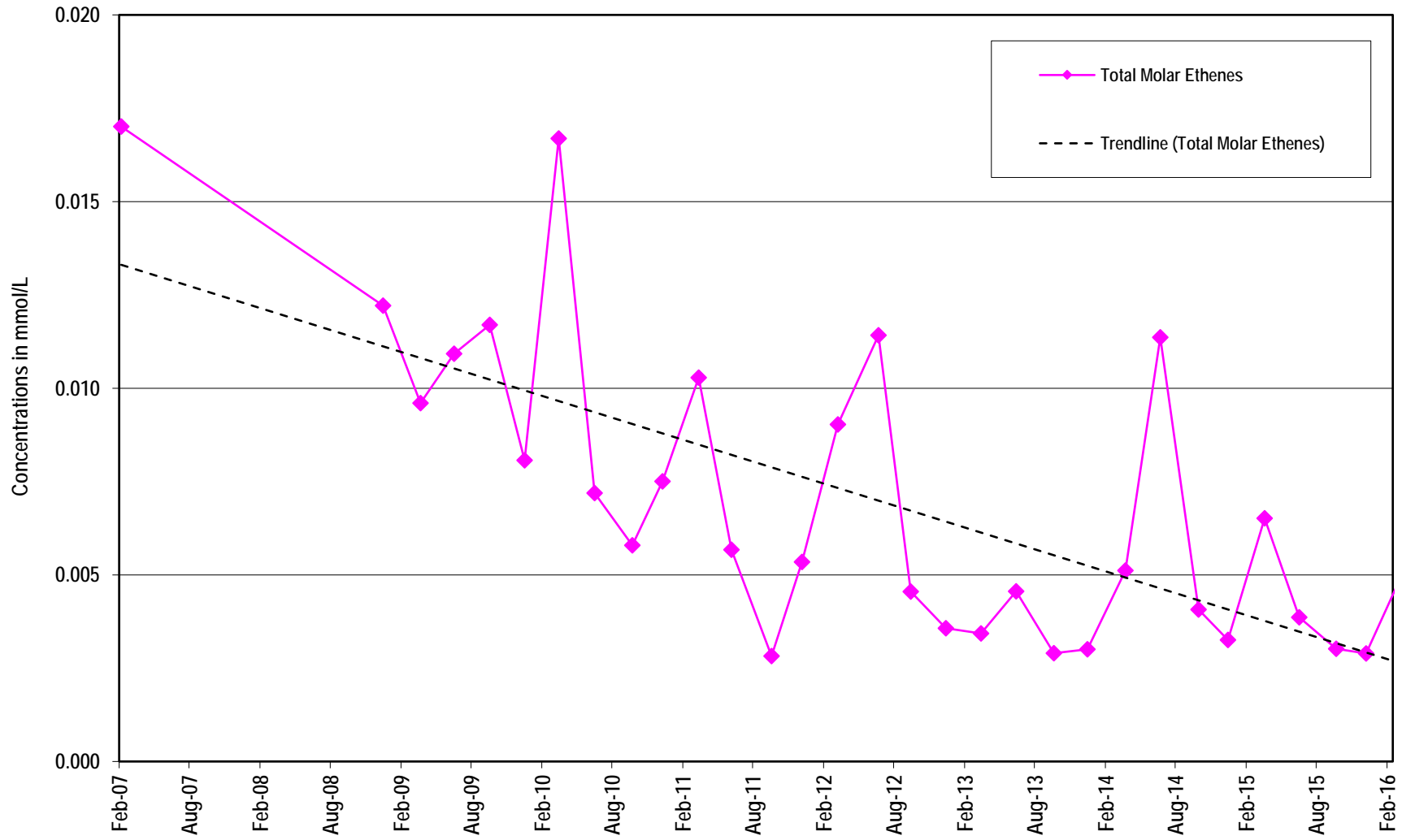
Total Molar Ethenes in MW-7



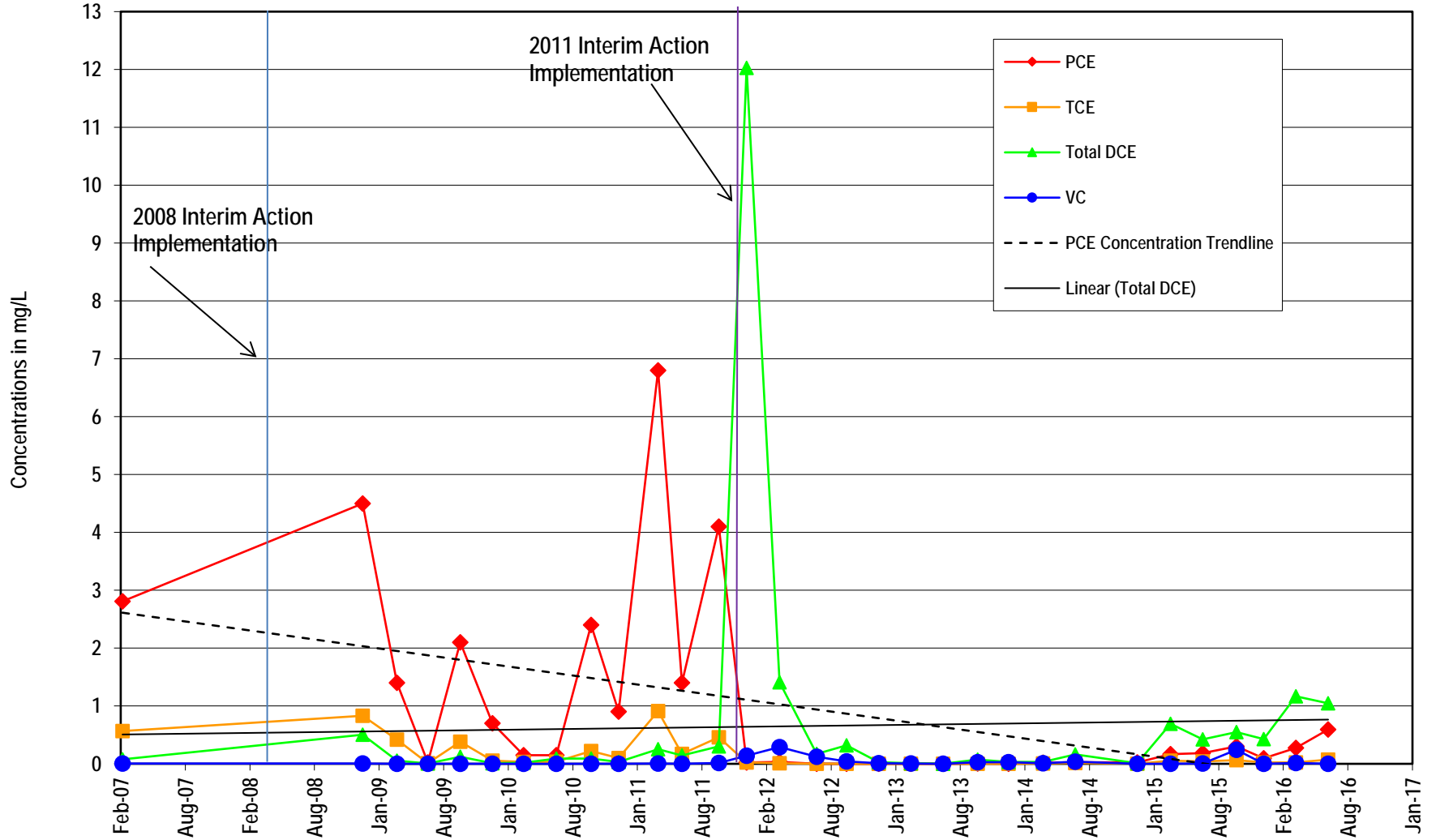
Interim Action Area - VOC Trends: MP-1



Total Molar Ethenes in MP-1



Interim Action Area - VOC Trends: EX



Total Molar Ethenes in EX

