TECHNICAL MEMORANDUM

LANDAU ASSOCIATES
ENVIRONMENTAL | GEOTECHNICAL | NATURAL RESOURCES

TO: Jing Liu, Washington State Department of Ecology

CC: Sonia Fernandez, Washington State Department of Ecology
Mike Stoner, Port of Bellingham

FROM: Jeremy Davis, P.E., C.H.M.M., and Larry Beard, P.E., L.G.

DATE: February 21, 2013

RE: REMEDIAL INVESTIGATION UPLAND DATA SUMMARY
BLAINE MARINA INC. SITE
BLAINE, WASHINGTON

INTRODUCTION

This technical memorandum presents the results of upland groundwater, soil, and soil vapor sampling at the Blaine Marina Inc. site (Site) in Blaine, Washington. Upland sampling was conducted as part of the remedial investigation (RI) being conducted at the Site under Agreed Order No. DE 9000 (AO) between the Port of Bellingham (Port) and the Washington State Department of Ecology (Ecology). The AO Scope of Work (Exhibit B to the AO) requires that an RI data summary technical memorandum be submitted to Ecology (Task 6). The RI sediment data summary technical memorandum was submitted previously because a decision regarding additional sediment quality testing was time-sensitive (Landau Associates 2012a).

This technical memorandum describes the RI groundwater, soil, and soil vapor sample collection activities and presents the validated analytical results. As described in the Remedial Investigation Work Plan (Landau Associates 2012b; Work Plan), this document presents proposed locations for the installation of groundwater monitoring wells based on the results of the upland investigation. Additionally, RI data are evaluated to identify whether additional investigation is required to delineate the nature and extent of contamination at the Site sufficient to develop and evaluate cleanup alternatives.

SAMPLE COLLECTION AND ANALYSIS

Sampling was conducted in accordance with the RI Sampling and Analysis Plan (Appendix D of the Work Plan; Landau Associates 2012b). Groundwater, soil, and soil vapor sampling was completed between October 29 and November 1, 2012 using a direct-push drilling rig, except for one sub-slab soil vapor sample that was collected from beneath the floor of the Blaine Marina Inc. furniture and appliance retail building using hand tools. Sample collection locations are shown on Figure 1 and a summary of upland investigation samples submitted for analysis is provided in Table 1.

Soil

Soil samples were collected from the 20 boring locations (BMI-GP-1 to BMI-GP-20) specified in the Work Plan and 2 additional locations (BMI-GP-21 and BMI-GP-22) that were added based on the field-screening results. Some sampling locations were adjusted from the proposed upland investigation sampling locations presented in the Work Plan to accommodate underground utilities and other Site features. Figure 1 presents the sampling locations, and provides the originally proposed locations in gray for reference.

The additional borings (BMI-GP-21 and BMI-GP-22) were advanced to evaluate the lateral extent of contamination extending beyond BMI-GP-5 and BMI-GP-9 where non-aqueous phase liquid (NAPL) sheen and strong petroleum odor were observed. Field screening at the other boring locations did not indicate the need for additional borings to delineate the lateral extent of contamination. Based on field screening, the RI sampling locations extended beyond the lateral limits of observable contamination. However, based on the analytical results discussed below, additional soil sampling is planned to confirm the Site boundary in the vicinity of BMI-GP-8. Field-screening observations and classification of soils from each sampling location will be presented in the RI report.

Soil samples were collected from two to five discrete depth intervals to evaluate the vertical extent of contamination at each location. The depths of sampled intervals at each location were determined by field screening for observable indications of potential contamination, such as the presence of sheen or detectable volatile organic compounds (VOCs) using a photoionization detector (PID), as described in the Work Plan. Seventy-seven soil samples were collected from above, within, and below the potentially contaminated vertical intervals from the 22 borings. All soil samples were submitted to Analytical Resources, Inc. laboratory (ARI) located in Tukwila, Washington. Fifty-four of the 77 soil samples were analyzed, including some requested as follow-up analyses after reviewing the results for vertically adjacent samples. In accordance with the Work Plan, soil samples were analyzed for motor oil-range total petroleum hydrocarbons (TPH), diesel-range TPH, (TPH-D), gasoline-range TPH (TPH-G), volatile organic compounds (VOCs) associated with gasoline releases [benzene, toluene, ethylbenzene, and xylenes (BTEX), 1,2-dichloroethane, ethylene dibromide, and methyl-tert butyl ether (MTBE)], naphthalenes, and lead. For follow-up analyses, samples were selected based on whether the results for adjacent soil samples were above the preliminary screening levels (PSLs) developed in the Work Plan. Table 1 provides a summary of analyses and Table 2 presents the soil analytical results.

Groundwater

Groundwater grab samples were collected from 11 soil boring locations. Table 1 provides a summary of groundwater analyses and Table 3 presents the groundwater analytical results. Nine of the

locations were selected in the Work Plan and two additional locations (BMI-GP-21 and BMI-GP-22) were added to evaluate the lateral extent of groundwater contamination beyond BMI-GP-5 and BMI-GP-9. Groundwater samples were collected in accordance with the Work Plan. Groundwater samples were not collected from monitoring wells MW-1, MW-2, and MW-3 based on the presence of NAPL or sheen at the time of sampling. Groundwater at these locations is assumed to contain petroleum hydrocarbons at concentrations greater than the PSLs.

Depth to groundwater at the monitoring wells ranged from 8.0 to 8.5 feet (ft) surface (BGS). Saturated conditions were observed at similar depths during drilling of the soil borings, except at BMI-GP-13 through BMI-GP-15, where saturated conditions were observed at much shallower depths, due to the presence of a perched groundwater zone above a layer of clay. At locations BMI-GP-14 and BMI-GP-15, the soil was saturated with water almost to the ground surface and a clay layer was encountered at about 1.5 ft BGS. At BMI-GP-13, the perched groundwater was observed at about 5 ft BGS, just above the clay layer at this location. The clay layer observed at these three locations ranges from 9 to 13 ft thick. The perched groundwater is not present in other borings at the Site; the clay layer was encountered within the hydraulic fill and not found consistently in other borings. For these reasons, the perched groundwater is not believed to be contiguous throughout the Site and does not likely play a prominent role in contaminant fate and transport outside of this area. This topic will be discussed further in the RI report.

Groundwater samples were submitted to ARI for analysis for TPH-D, TPH-G, VOCs associated with gasoline releases (BTEX, 1,2-dichloroethane, ethylene dibromide, and MTBE), naphthalenes, and lead. One blind field duplicate and one matrix spike sample were collected in accordance with the Work Plan.

Soil Vapor

Soil vapor samples were collected in accordance with the procedures presented in the Work Plan from two soil boring locations (BMI-GP-9 and BM-GP-13), one alternate location (BMI-GP-6, which replaced BMI-GP-14), and one location from beneath the floor slab in the Blaine Marina Inc. furniture and appliance retail building through a temporary Vapor Pin™ installed in the floor slab (BMI-SVSS-1). Soil vapor samples from boring locations were collected from a temporary 6-inch stainless steel screen exposed from 4.5 to 5 ft BGS. The sub-slab vapor sample was collected from approximately 4 to 6 inches below the 8-inch-thick concrete building floor slab. Soil vapor samples were collected in 6-liter Summa canisters submitted to Columbia Analytical Services laboratory in Simi Valley, California for analysis for 75 VOCs using U.S. Environmental Protection Agency (EPA) Method TO-15. In accordance with the

work plan, one blind field duplicate sample was collected at sample location BMI-SVSS-1. Table 4 presents the soil vapor analytical results and the sampling locations are shown on Figure 1.

DEVIATIONS FROM REMEDIAL INVESTIGATION WORK PLAN

The uplands investigation was completed according to the Work Plan with the following exceptions:

- The depth of borings was increased from the anticipated 16 ft BGS for BMI-GP-5 and 12 ft BGS for the remaining borings to 20 and 15 ft BGS, respectively. The additional boring depth facilitated the use of the longer than anticipated Geoprobe™ drill rods and hammer-driven sampler (5 ft vs. 4 ft). The greater drilling depth also provided additional characterization of the vertical extent of soil and groundwater contamination.
- Soil boring locations were shifted at several locations to accommodate underground utilities and aboveground Site features (i.e., active loading ramps, stored equipment, inaccessible areas, and rain awnings). Relocated borings were advanced as near to the intended location as possible. Boring locations and the originally proposed locations are shown on Figure 1.
- A soil vapor sample was collected from BMI-GP-6 instead of BMI-GP-14 specified in the Work Plan because saturated conditions were encountered at 0.5 ft BGS at BMI-GP-14, as discussed above. The saturated conditions prevented sampling of soil vapor from the intended depth of approximately 5 ft BGS. BMI-GP-6 was selected as an alternate location based on its similar proximity to the source area.

ANALYTICAL RESULTS

A data quality evaluation was conducted on all of the analytical data. No data were rejected and the data were determined to be acceptable for use. A data validation summary report will be included as an appendix to the RI report.

The results of the upland investigation were used to characterize the extent of petroleum hydrocarbon contamination originating in the area of the aboveground fuel storage tanks and associated conveyance pipelines. Detections of some constituents of potential concern (COPCs) exceed the PSLs developed in the Work Plan. Tables 2, 3, and 4 present a summary of the analytical results for soil, groundwater, and soil vapor, respectively, and indicate exceedances of the PSLs. Figure 2 shows the soil analytical results, Figure 3 shows the groundwater analytical results, and Figure 4 shows the soil vapor analytical results . The estimated Site boundary presented in each figure is interpreted from the results of the investigation and encompasses locations where soil or groundwater grab samples had concentrations of COPCs in excess of the PSLs. Analytical results for soil, groundwater, and soil vapor samples are summarized below. Figures in this technical memorandum are oriented with northwest to the top of the page, which will be used as "project north" for descriptions of direction in this document.

Soil

Analytical testing indicates COPC concentrations in soil exceed the PSLs at 3 boring locations for TPH-D, 13 locations for TPH-G, 10 locations for naphthalenes , and 5 locations for VOCs (Figure 2). Exceedances of TPH and VOCs were noted in soil samples collected from geotechnical borings B-1-12, B-2-12, and B-3-12 (Landau Associates 2012c) and are presented in Table 2 and on Figure 2. The PSLs for lead and the fuel additive MTBE were not exceeded in any soil samples.

The lateral extent of COPCs that were above PSLs extends as far north as BMI-GP-5 and BMI-GP-9; as far east as BMI-GP-7; as far south as BMI-GP-8 in the eastern portion of the Site and as far south as B-3-12 in the western portion of the Site; and as far west as the bulkhead vicinity. The Site boundary presented on the figures in the vicinity of BMI-GP-8 is inferred from the results of BMI-GP-16 and BMI-GP-4. As indicated on the figures, there is less certainty regarding the Site boundary in this vicinity. As discussed later in this technical memorandum, additional soil sampling is planned in this area during the installation of groundwater monitoring wells to better delineate the extent of contamination in this area. PSLs were not exceeded at the southernmost borings along the Blaine Marina Inc. storefront, the northernmost borings, or in the easternmost boring, BMI-GP-16.

The vertical extent of soil contamination encountered during the investigation is consistent with the conceptual Site model discussed in the Work Plan, which indicates that petroleum hydrocarbon contamination (and related COPCs) originated near the aboveground storage tanks (ASTs) or process piping, migrated down to the water table, and spread laterally across the Site. In the area just west of the ASTs and secondary containment, COPC concentrations exceed PSLs from near the ground surface to approximately 15 ft BGS at locations BMI-GP-14, BMI-GP-15, BMI-GP-17, and BMI-GP-20. East and west of this area, the depth interval of contaminated soil generally ranges from 7 to 15 ft BGS, which is likely the result of contamination being distributed within the zone of groundwater fluctuation.

At several locations within, and east and west of, the source area, the concentrations of COPCs (most frequently, naphthalenes) exceed the PSLs at the maximum depth of the boring. In each of these instances, the COPC concentrations at depth were significantly lower than in the shallower samples. Based on the decreasing COPC concentration with depth and the lack of visual evidence of contamination, it is likely that the samples were collected from close to the bottom of the contaminated zone. As discussed below, additional soil samples will be collected during the installation of the groundwater monitoring wells, which will be used to confirm the depth of contamination in these areas.

Groundwater

Analytical results indicate that groundwater PSLs were exceeded at three locations, as shown on Figure 3 and in Table 3. COPC concentrations exceeded PSLs in two groundwater grab samples

collected in the northwest corner of the Site, one for TPH-G and TPH-D (BMI-GP-9) and the other for total lead (BMI-GP-22). Note that the dissolved lead concentration at BMI-GP-22 was below the laboratory reporting limit of 1 microgram per liter, so the total lead PSL exceedance appears to be related to sample turbidity. In the northwestern portion of the Site, TPH-D exceeded the PSL in the groundwater grab sample collected from BMI-GP-5.

Soil Vapor

Analytical results from each of the three soil vapor samples collected from borings and the soil vapor sample collected from beneath the slab of the Blaine Marina Inc. furniture and appliance retail building are presented in Table 4 and shown on Figure 4. The soil vapor PSLs identified in Table 4 were calculated based the Model Toxics Control Act Method C indoor air cleanup levels and a vapor attenuation factor of 0.03, based on recent guidance and direction from the EPA (2012) and Ecology (2009). Although PSLs for other media at the Site were based on Method B cleanup levels, the PSLs for soil vapor are based on establishing a soil vapor concentration protective of the vapor intrusion pathway to indoor air in an industrial setting. Method B indoor cleanup levels are also provided in Table 4 for comparison purposes. The development of PSLs for soil vapor will be discussed further in the RI report.

The analytical results indicate that 1,3-butadiene, an analyte related to gasoline-range petroleum hydrocarbons, was the only analyte that exceeded its soil vapor PSL. The 1,3-butadiene soil vapor PSL was exceeded in the three soil borings where samples of soil vapor were collected, but was not exceeded in the sub-slab sample collected from beneath the Blaine Marina retail building. Based on these results, soil vapor does not appear to pose an unacceptable risk to workers in the Blaine Marina Inc. building.

PROPOSED MONITORING WELL LOCATIONS AND ADDITIONAL REMEDIAL INVESTIGATION ACTIVITIES

As discussed in the Work Plan, groundwater grab samples collected during the direct-push investigation were used for screening purposes, and groundwater monitoring wells will be installed at the Site to provide more representative groundwater quality data. Based on the soil and groundwater grab sample results summarized above, we propose to install seven groundwater monitoring wells at the Site in the locations shown on Figure 3. Three monitoring wells locations are proposed along Sigurdson Avenue to monitor groundwater near its anticipated conditional point of compliance where groundwater discharges to marine surface water. Four additional wells are proposed to provide groundwater quality data from the estimated limits of the Site to the north, northeast, east, and southeast of the ASTs. These seven monitoring wells, in addition to the existing three monitoring wells, will provide an effective monitoring network to assess the nature and extent of Site groundwater contamination.

In addition to these seven groundwater monitoring wells, we also propose to install a pilot NAPL recovery well in the vicinity of the ASTs at the location shown on Figure 3. The purpose of the pilot recovery well will be to evaluate the recoverability of pooled NAPL present in the source area. The pilot recovery well will be constructed with 4-inch-diameter PVC casing and well screen using a well design intended to promote entry of NAPL into the well casing, if present. The recoverability of NAPL would be evaluated through well bail-down tests, or similar methods. A Work Plan addendum will be prepared to identify the procedures that will be used for pilot recovery well installation and for evaluating NAPL recovery potential.

Soil sampling will be conducted during the installation of the proposed groundwater monitoring wells and the pilot NAPL recovery well shown on Figure 3. The sample results will be used to confirm the Site boundary near BMI-GP-8, and to confirm the depth of contamination within, west and east of the source area.

Except as noted for the additional soil samples discussed above, the RI data indicate that soil quality and soil vapor quality have been adequately delineated. As a result, no further characterization of these media is proposed for the RI. Upon approval from Ecology, the Port will submit a brief Work Plan addendum regarding the proposed pilot recovery well. Upon Ecology approval of the Work Plan addendum, installation, development, and sampling of groundwater monitoring wells will be conducted in accordance with the Work Plan and Work Plan addendum at the locations shown on Figure 3. Groundwater samples will be collected from the wells for each of the COPCs detected at concentrations greater than the PSLs in the groundwater grab samples, as presented in Table 3.

USE OF THIS TECHNICAL MEMORANDUM

This document has been prepared for the use of the Port of Bellingham and the Washington State Department of Ecology for specific application to the Blaine Marina Inc. Site. None of the information, conclusions, and recommendations included in this document can be used for any other project without the express written consent of Landau Associates. Further, the reuse of information, conclusions, and recommendations provided herein for extensions of the project or for any other project, without review and authorization by Landau Associates, shall be at the user's sole risk. Landau Associates warrants that within the limitations of scope, schedule, and budget, our services have been provided in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the Pacific Northwest under similar conditions as this project. We make no other warranty, either express or implied.

REFERENCES

Ecology. 2009. Review Draft: *Guidance for Evaluation Soil Vapor Intrusion in Washington State: Investigation and Remedial Action*. Publication No. 09-09-047. Toxics Cleanup Program, Washington State Department of Ecology. October.

EPA. 2012. *EPA's Vapor Intrusion Database: Evaluation and Characterization of Attenuation Factors for Chlorinated Volatile Organic Compounds and Residential Buildings*. EPA 530-R-10-002. Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency. Washington, D.C. March 16.

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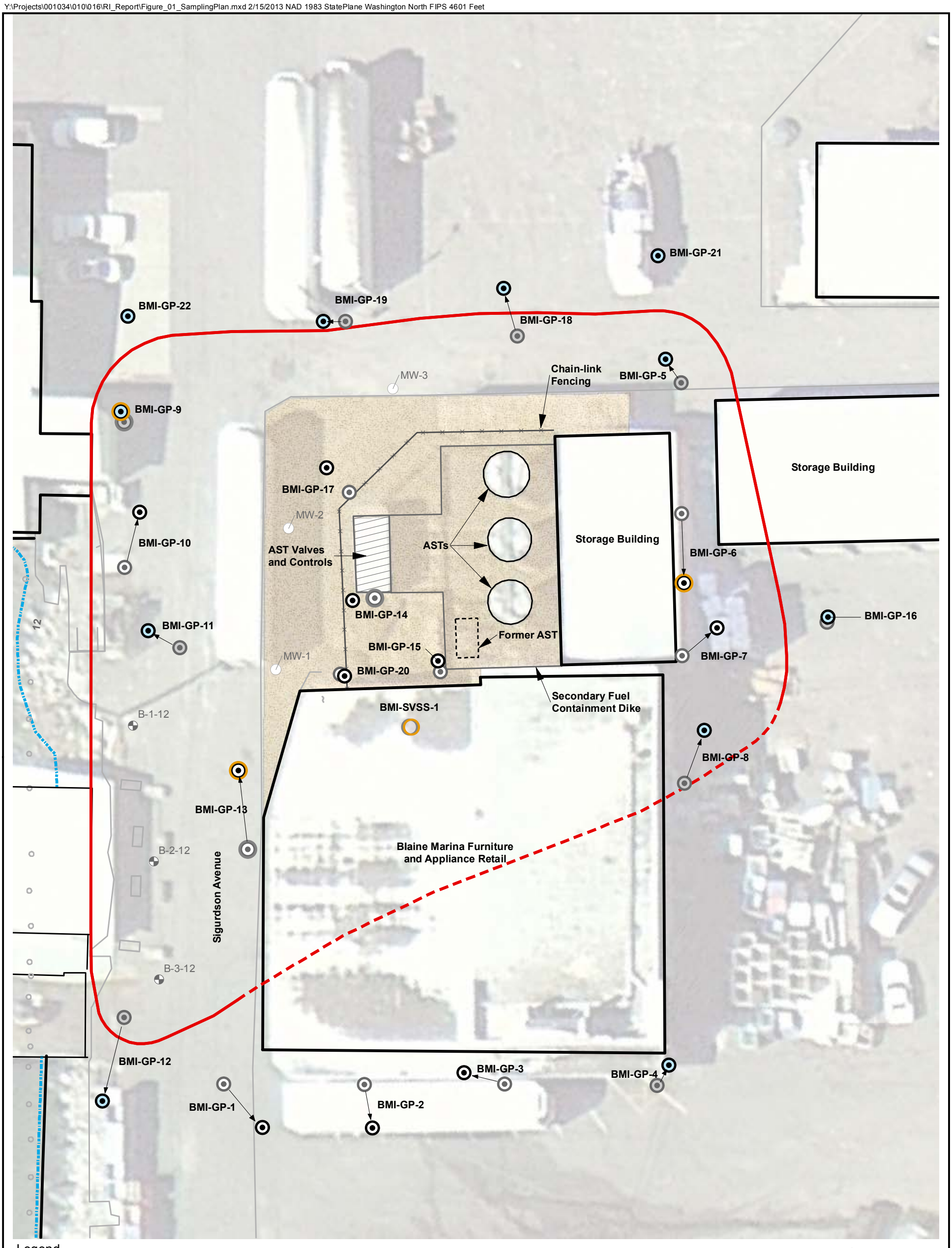
SEACOR. 1990. Letter Report: *Your Letter of May 8, 1990 on Blaine Marina*. From Lee Dorigan to Douglas L. Jones, Port of Bellingham. July 11.

ATTACHMENTS

Figure 1: Site Plan and Sampling Locations
Figure 2: Constituents of Potential Concern in Soil
Figure 3: Constituents of Potential Concern in Groundwater
Figure 4: Volatile Organic Compounds in Soil Vapor
Table 1: Summary of Analyses
Table 2: Soil Analytical Results
Table 3: Groundwater Analytical Results
Table 4: Soil Vapor Analytical Results

Y:\Projects\001034\010\016\RI_Report\Figure_01_SamplingPlan.mxd 2/15/2013 NAD 1983 StatePlane Washington North FIPS 4601 Feet



Legend

- Soil Sample Location
- Groundwater Sample Location
- Soil Vapor Sample Location
- Originally Proposed Soil Sample Location
- Originally Proposed Groundwater Sample Location
- Originally Proposed Soil Vapor Sample Location
- Geotechnical Boring Location (Soil Sampling, Landau Associates 2012c)
- Existing Groundwater Monitoring Well Location
- Approximate Site Boundary
- MHHW - 9.5 ft
- Gravel Area
- Boring Location Adjustments

Project North

0 20 40

Scale in Feet

Source: Wilson Engineering 2011, Port of Bellingham 2011, Walker and Associates, Inc.

Note

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

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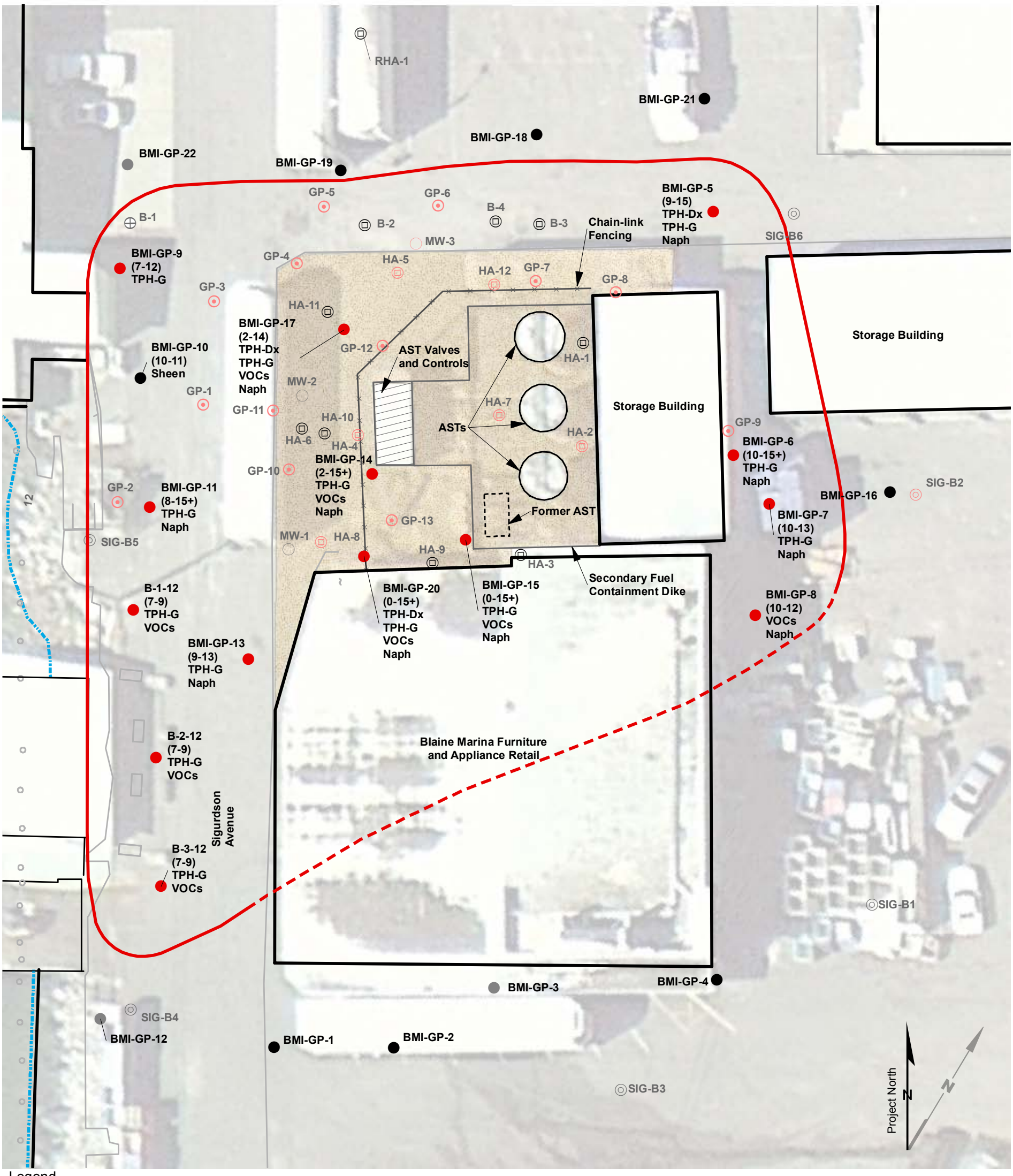
Blaine Marina Inc. Site
Blaine Harbor
Blaine, Washington

Site Plan and Sampling Locations

Figure 1

Y:\Projects\001034\010\016\RI_Report\Figure_02_Soil_Contaminates.mxd 2/15/2013 NAD 1983 StatePlane Washington North FIPS 4601 Feet



Legend

2012 Remedial Investigation

- Concentration Exceeds PSL; Depth of Contamination based on Field-Screening and Analytical Results (ft BGS)
- Soil Sample with Detection
- Soil Sample without Detection
- Geotechnical Boring Location (Soil Sampling, Landau Associates 2012c)

Historical Investigations

- Boring Location
- Groundwater Monitoring Well Location
- Hand Auger Location (Soil Sampling, SEACOR 1990)
- Geoprobe Location (Groundwater Sampling and Sheen Testing, RETEC 1996)
- Geoprobe Location (Soil Sampling, Farallon Consulting 2008)

- Approximate Site Boundary
- MHHW - 9.5 ft
- Gravel Area

Abbreviations

TPH-Dx = Diesel
TPH-G = Gasoline
VOCs = Volatile Organic Compounds
Naph = Naphthalenes
PSL = Preliminary Screening Level
ft = Feet
BGS = Below Ground Surface
MHHW = Mean Higher High Water

0 20 40
Scale in Feet

Source: Wilson Engineering 2011, Port of Bellingham 2011, Walker and Associates, Inc.

Note

1. Explorations shown in red indicate concentrations exceed the PSL.
2. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

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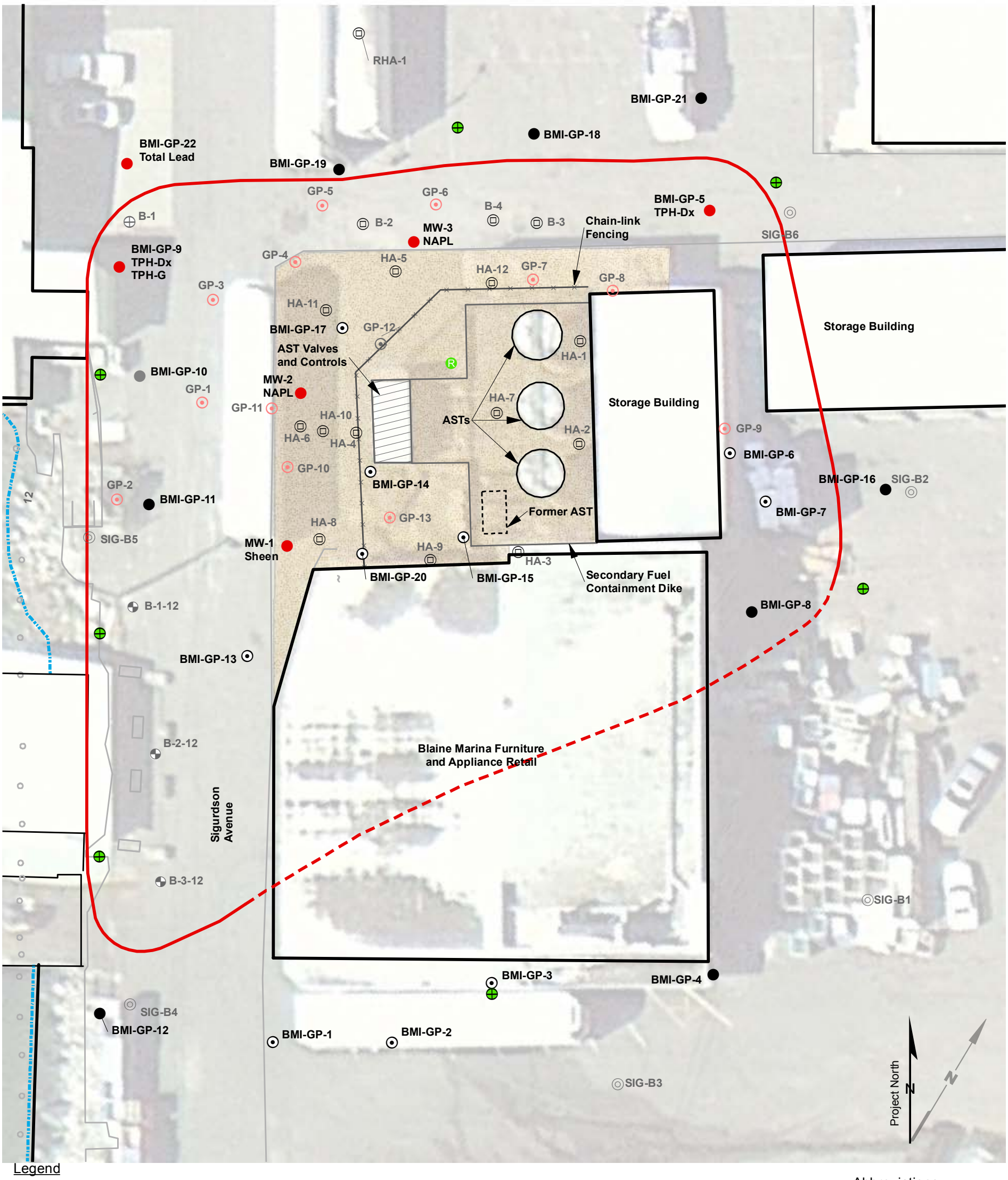
Blaine Marina Inc. Site
Blaine Harbor
Blaine, Washington

Constituents of Potential Concern in Soil

Figure 2

Y:\Projects\001034\010\016\RI_Report\Figure_03_GW_Contaminates.mxd 2/21/2013 NAD 1983 StatePlane Washington North FIPS 4601 Feet



Legend

2012 Remedial Investigation

- Concentration Exceeds PSL
- Groundwater Sample with Detection
- Groundwater Sample without Detection
- Soil Sample Location (Groundwater not Sampled)
- Geotechnical Boring Location (Soil Sampling, Landau Associates 2012c)
- Proposed Groundwater Monitoring Well Location
- Proposed Pilot NAPL Recovery Well

Historical Investigations

- Boring Location
- Groundwater Monitoring Well Location
- Hand Auger Location (Soil Sampling, SEACOR 1990)
- Geoprobe Location (Groundwater Sampling and Sheen Testing, RETEC 1996)
- Geoprobe Location (Soil Sampling, Farallon Consulting 2008)

- Approximate Site Boundary
- MHHW - 9.5 ft
- Gravel Area

Abbreviations

TPH-Dx = Diesel
TPH-G = Gasoline
NAPL = Non-Aqueous Phase Liquid
MHHW = Mean Higher High Water
PSL = Preliminary Screening Level

0 20 40
Scale in Feet

Source: Wilson Engineering 2011, Port of Bellingham 2011, Walker and Associates, Inc.

Note

1. Explorations shown in red indicate concentrations exceed the PSL.
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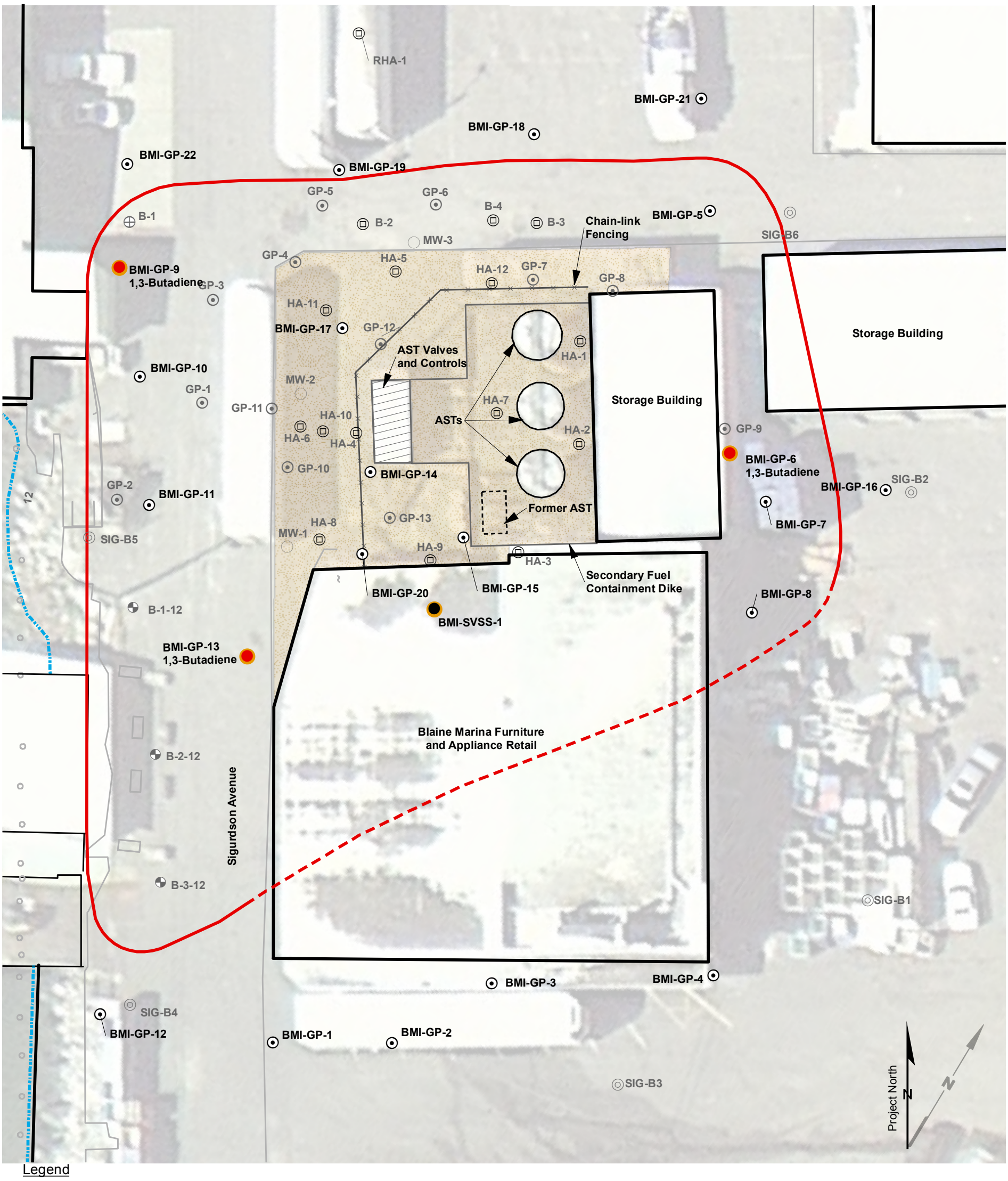
Blaine Marina Inc. Site
Blaine Harbor
Blaine, Washington

Constituents of Potential Concern in Groundwater

Figure 3

Y:\Projects\001034\010\016\RI_Report\Figure_04_SoilVapor_Volatiles.mxd 2/21/2013 NAD 1983 StatePlane Washington North FIPS 4601 Feet



Legend

2012 Remedial Investigation

- Soil Vapor Sample Location
- Concentration Exceeds PSL
- Soil Vapor Sample with Detection
- Soil Vapor Sample without Detection
- Soil Sample Location (Soil Vapor not Collected)
- Geotechnical Boring Location (Soil Sampling, Landau Associates 2012c; Soil Vapor not Collected)

Historical Investigations (Soil Vapor Not Collected)

- Boring Location
- Groundwater Monitoring Well Location
- Hand Auger Location (Soil Sampling, SEACOR 1990)
- Geoprobe Location (Groundwater Sampling and Sheen Testing, RETEC 1996)
- Geoprobe Location (Soil Sampling, Farallon Consulting 2008)

- Approximate Site Boundary; Determined by Sample Results
- MHHW - 9.5 ft
- Gravel Area

Abbreviations

PSL = Preliminary Screening Level
MHHW = Mean Higher High Water

0 20 40
Scale in Feet

Source: Wilson Engineering 2011, Port of Bellingham 2011, Walker and Associates, Inc.

Note
1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

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Blaine Marina Inc. Site
Blaine Harbor
Blaine, Washington

Volatile Organic Compounds in Soil Vapor

Figure 4

TABLE 1
SUMMARY OF ANALYSES
BLAINE MARINA, INC. SITE
BLAINE, WASHINGTON

Sample Location	Sample Type (a)	Depth Interval (ft BGS)	Analyses Peformed				
			TPH-D (b)	TPH-G (c)	VOCs (d)	Lead (e)	SVOCs (f)
SVSS-1	SV	0.75			x		x
BMI-GP-1	S	9-11	x	x	x	x	x
BMI-GP-2	S	9-11	x	x	x	x	x
BMI-GP-3	S	9-11	x	x	x	x	x
BMI-GP-4	S	9-11	x	x	x	x	x
	GW	11-15	x	x	x	x	
BMI-GP-5	S	2-3		x	x		
	S	4-5	x	x	x	x	x
	S	9-11	x	x	x	x	x
	S	15-16	x	x	x	x	x
	GW	15-19	x	x	x	x	x
	S	19-20		x	x		
BMI-GP-6	S	2-3		x			
	SV	4.5-5			x		
	S	10-12	x	x	x	x	x
	S	14-15		x			
BMI-GP-8	S	3-4			x		x
	S	10-12	x	x	x	x	x
	S	14-15			x		
	GW	11-15	x	x	x	x	x
BMI-GP-7	S	2.5-3.5					x
	S	5-6	x	x	x	x	x
	S	10-12	x	x	x	x	x
	S	13-14	x	x	x	x	x
BMI-GP-9	SV	4.5-5			x		
	S	6.5-7.5	x	x	x	x	x
	S	10-12	x	x	x	x	x
	S	13-14	x	x	x	x	x
	GW	11-15	x	x	x	x	x
BMI-GP-10	S	9-11	x	x	x	x	x
	GW	11-15	x	x	x	x	x
BMI-GP-11	S	2-3		x			
	S	8-10	x	x	x	x	x
	S	14-15		x			
	GW	11-15	x	x	x	x	x
BMI-GP-12	S	10-12	x	x	x	x	x
	GW	11-15	x	x	x	x	x
BMI-GP-13	SV	4.5-5			x		
	S	6.5-7.5		x			
	S	11.5-12.5	x	x	x	x	x
	S	14-15		x			
BMI-GP-15	S	1-3	x	x	x	x	x
	S	8.5-9.5	x	x	x	x	x
	S	14-15		x	x		
BMI-GP-14	S	2-3		x	x		
	S	5-7	x	x	x	x	x
	S	10-11	x	x	x	x	x
	S	14-15		x	x		
BMI-GP-16	S	11-13	x	x	x	x	x
	GW	11-15	x	x	x	x	x

TABLE 1
SUMMARY OF ANALYSES
BLAINE MARINA, INC. SITE
BLAINE, WASHINGTON

Sample Location	Sample Type (a)	Depth Interval (ft BGS)	Analyses Peformed				
			TPH-D (b)	TPH-G (c)	VOCs (d)	Lead (e)	SVOCs (f)
BMI-GP-17	S	2-3		x	x		
	S	5-6	x	x	x	x	x
	S	9-11	x	x	x	x	x
	S	12-13	x	x	x	x	x
	S	14-15		x	x		
BMI-GP-18	S	4-5		x	x		
	S	9-11	x	x	x	x	x
	S	14-15		x	x		
	GW	11-15	x	x	x	x	x
BMI-GP-19	S	4-5		x	x		
	S	9-11	x	x	x	x	x
	S	14-15		x	x		
	GW	11-15	x	x	x	x	x
BMI-GP-20	S	1-2		x	x		
	S	7-9	x	x	x	x	x
	S	11-12	x	x	x	x	x
	S	14-15		x	x		
BMI-GP-21	S	4-5		x	x		
	S	9-11	x	x	x	x	x
	S	15-16		x	x		
	GW	15-19	x	x	x	x	x
BMI-GP-22	S	10-12	x	x	x	x	x
	GW	11-15	x	x	x	x	x

Total Soil Analyses:	**33**	**54**	**50**	**33**	**35**
Total Groundwater Analyses:	**12**	**12**	**12**	**12**	**12**
Total Soil Vapor Analyses:			**4**		

(a) Sample types: Soil (S), Groundwater (GW), or Soil Vapor (SV).
(b) TPH-D analyzed by Method NWTPH-Dx with acid/silical gel cleanup.
(c) TPH-Gx analyzed by Method NWTPH-G.
(d) Volatile Organic Compounds (VOCs) analyzed by EPA Method 8260C for soil and groundwater and EPA Method TO-15 for soil vapor samples.
(e) Lead analyzed by EPA Method 200.8.
(f) Semivolatile Organic Compounds (SVOCs) analyzed by EPA Method 8270D.

TABLE 2
SOIL ANALYTICAL RESULTS
BLAINE MARINA, INC. SITE
BLAINE, WASHINGTON

	Preliminary Screening Levels (a)	B-1 S-3 7.5' 1201032-01 01/05/2012	B-2 S-3 7.5' 1201032-02 01/05/2012	B-3 S-3 7.5' 1201032-03 01/05/2012	BMI-GP-1 9-11 VQ78AJ 10/30/2012	BMI-GP-2 9-11 VQ78AA 10/30/2012	BMI-GP-3 9-11 VQ78X 10/30/2012	BMI-GP-4 9-11 VQ78U 10/30/2012	BMI-GP-5 2-3 VQ78A 10/29/2012	BMI-GP-5 4-5 VQ78B 10/29/2012	BMI-GP-5 9-11 VQ78C 10/29/2012	BMI-GP-5 15-16 VQ78D 10/29/2012	BMI-GP-5 19-20 VQ78E 10/29/2012	BMI-GP-6 2-3 VR91J/VV57I 10/31/2012	BMI-GP-6 10-12 VQ79X 10/31/2012	BMI-GP-6 14-15 VR91KVV57M 10/31/2012	BMI-GP-7 2.5-3.5 VV57O 11/01/2012	BMI-GP-7 5-6 VQ79AD 11/01/2012	BMI-GP-7 10-12 VQ79AE 11/01/2012
TOTAL PETROLEUM HYDROCARBONS (mg/kg)																			
NWTPH-Dx																			
Diesel Range Organics	2,000/2,000 (b)	**140**	**510**	**330**	**21**	6.0 U	6.4 U	**26**		**33**	**3,900**	**12**			**1,500**			**52**	**1,700**
Lube Oil	2,000/2,000 (b)	50 U	50 U	**150**	**80**	**18**	13 U	**190**		**170**	**390**	13 U			**180**			**91**	**33**
NWTPH-Gx																			
Gasoline Range Organics	30/100 (c)	**680**	**6,100**	**1,800**	8.1 U	**15**	5.4 U	6.7 U	**10**	6.1 U	**1,400**	11 U	8.2 U	6.4 U	**340**	**23**		6.3 U	**1,800**
VOLATILES (µg/kg) Method SW8260C/8021																			
1,2-Dichloroethane	20/5 (b)				1.3 UJ	2.1 U	1.2 U	2.6 U	1.5 U	1.2 U	240 U	1.6 U	1.2 U		1.2 U			1.1 U	290 U
Benzene	14/5 (b)	300 U	3,400 U	3,000	1.3 U	2.1 U	**2.1**	2.6 U	1.5 U	1.2 U	240 U	1.6 U	**2.8**		**2.7**			1.1 U	290 U
Toluene	110,000/6,400 (b)	**890**	5,700 U	5,000	1.3 UJ	2.1 U	1.2 U	2.6 U	1.5 U	1.2 U	240 U	1.6 U	1.2 U		1.2 U			1.1 U	290 U
Ethylbenzene	18,000/1,000 (b)	**1,600**	**120,000**	**31,000**	1.3 UJ	2.1 U	1.2 U	2.6 U	1.5 U	1.2 U	240 U	1.6 U	1.2 U		1.2 U			1.1 U	290 U
m, p-Xylene	9,100/520 (b,d)				1.3 UJ	2.1 U	1.2 U	2.6 U	1.5 U	1.2 U	240 U	1.6 U	1.2 U		1.2 U			1.1 U	290 U
o-Xylene	9,100/520 (b,d)				1.3 UJ	2.1 U	1.2 U	2.6 U	1.5 U	1.2 U	240 U	1.6 U	1.2 U		1.2 U			1.1 U	290 U
Ethylene Dibromide	20/20 (b)	2,000 U	**120,000**	**42,000**	1.3 UJ	2.1 U	1.2 U	2.6 U	1.5 U	1.2 U	240 U	1.6 U	1.2 U		1.2 U			1.1 U	290 U
Methyl tert-Butyl Ether	190,000/240 (b)				1.3 U	2.1 U	1.2 U	2.6 U	1.5 U	1.2 U	240 U	1.6 U	1.2 U		1.2 U			1.1 U	290 U
TOTAL METALS (mg/kg) Method EPA200.8/6020																			
Lead	250/81 (b)				**6.0**	**3.0**	**3.3**	**2.0**		**4.8**	**11.6**	**3.2**			**8.5**			**8.0**	**3.6**
SEMIVOLATILES (µg/kg) Methods SW8270D/SW8270D-SIM																			
1-Methylnaphthalene	---				60 U	64 U	64 U	60 U		60 U	**6,400**	64 U		4.6 U	**990**	**60**	4.7 U	**130**	**4,300**
2-Methylnaphthalene	---				60 U	64 U	64 U	60 U		60 U	**3,300**	64 U		4.6 U	**780**	**78**	4.7 U	**240**	**3,900**
Naphthalene	---				60 U	64 U	64 U	60 U		60 U	**1,200**	64 U		4.6 U	**130**	**210**	4.7 U	**66**	**250**
Total Naphthalenes	2,300/120 (b)				ND	ND	ND	ND		ND	**10,900**	ND		ND	**1,900**	**348**	ND	**436**	**8,450**

TABLE 2
SOIL ANALYTICAL RESULTS
BLAINE MARINA, INC. SITE
BLAINE, WASHINGTON

	Preliminary Screening Levels (a)	BMI-GP-7 13-14 VQ79AF 11/01/2012	BMI-GP-8 3-4 VR91LVV57N 11/01/2012	BMI-GP-8 10-12 VQ79AA 11/01/2012	BMI-GP-8 14-15 VR91M 11/01/2012	BMI-GP-9 6.5-7.5 VQ79P 10/31/2012	BMI-GP-9 10-12 VQ79Q 10/31/2012	BMI-GP-9 13-14 VQ79R 10/31/2012	BMI-GP-10 9-11 VQ78AG 10/30/2012	BMI-GP-11 2-3 VR91H/VV57J 10/31/2012	BMI-GP-11 8-10 VQ79U 10/31/2012	BMI-GP-11 14-15 VR91I/VV57K 10/31/2012	BMI-GP-12 10-12 VQ78AD 10/30/2012	BMI-GP-13 6.5-7.5 VR91C/VV57E 10/30/2012	BMI-GP-13 11.5-12.5 VQ79F 10/30/2012	BMI-GP-13 14-15 VR91D/VV57F 10/30/2012	BMI-GP-14 2-3 VR91F/VV57H 10/31/2012	BMI-GP-14 5-7 VQ79L 10/31/2012	BMI-GP-14 10-11 VQ79M 10/31/2012
TOTAL PETROLEUM HYDROCARBONS (mg/kg)																			
NWTPH-Dx																			
Diesel Range Organics	2,000/2,000 (b)	6.0 U		**10**		**6.1**	**360** J	6.1 U	6.2 U		**9.5**		6.1 U		**18**			**1,400**	**880**
Lube Oil	2,000/2,000 (b)	12 U		13 U		**60**	12 U	12 U	**32**		13 U		12 U		**71**			**32**	**27**
NWTPH-Gx																			
Gasoline Range Organics	30/100 (c)	7.3 U		10 U		18 U	**160** J	7.0 U	7.2 U	7.4 U	**170**	7.1 U	7.4 U	**10**	**140**	**20**	**7,200**	**1,100**	**1,300**
VOLATILES (µg/kg) Method SW8260C/8021																			
1,2-Dichloroethane	20/5 (b)	1.2 U	1.1 U	1.4 U	1.6 U	1.5 U	1.4 U	1.1 U	1.5 U		1.3 U		1.5 U		1.6 U		72 U	84 U	89 U
Benzene	14/5 (b)	1.2 U	1.1 U	**10**	1.6 U	**1.7**	**1.7**	1.1 U	**2.9**		**3.6**		1.2 J		**1.9**		**670**	**620**	**360**
Toluene	110,000/6,400 (b)	1.2 U	1.1 U	1.4 U	1.6 U	1.5 U	1.4 U	1.1 U	**0.8** J		**1.8**		1.5 U		**3.4**		72 U	84 U	89 U
Ethylbenzene	18,000/1,000 (b)	1.2 U	1.1 U	1.4 U	1.6 U	1.5 U	1.4 U	1.1 U	1.5 U		**5.6**		1.5 U		**3.3**		**2,000**	**1,000**	**790**
m, p-Xylene	9,100/520 (b,d)	1.2 U	1.1 U	1.4 U	1.6 U	1.5 U	1.4 U	1.1 U	1.5 U		**6.1**		1.5 U		**6.4**		**150**	**210**	**400**
o-Xylene	9,100/520 (b,d)	1.2 U	1.1 U	1.4 U	1.6 U	1.5 U	1.4 U	1.1 U	1.5 U		**2.7**		1.5 U		1.6 U		72 U	84 U	89 U
Ethylene Dibromide	20/20 (b)	1.2 U	1.1 U	1.4 U	1.6 U	1.5 U	1.4 U	1.1 U	1.5 U		1.3 U		1.5 U		1.6 U		72 U	84 U	89 U
Methyl tert-Butyl Ether	190,000/240 (b)	1.2 U	1.1 U	1.4 U	1.6 U	1.5 U	1.4 U	1.1 U	1.5 U		1.3 U		1.5 U		1.6 U		72 U	84 U	89 U
TOTAL METALS (mg/kg) Method EPA200.8/6020																			
Lead	250/81 (b)	**2.5**		**4.3**		**5.5**	**2.1**	**1.7**	**3.2**		**7.3**		**1.8**		**6.3**			**8.4**	**7.5**
SEMIVOLATILES (µg/kg) Methods SW8270D/SW8270D-SIM																			
1-Methylnaphthalene	---	64 U	4.8 U	**410**		63 U	62 U	61 U	60 U	4.9 U	**260**	**43**	64 U	**6.4**	**590**	**39**	**1,900**	**2,200**	**1,300**
2-Methylnaphthalene	---	64 U	4.8 U	**640**		63 U	62 U	61 U	60 U	4.9 U	**180**	**53**	64 U	**8.8**	**140**	**40**	**2,800**	**2,500**	**1,500**
Naphthalene	---	64 U	**5.5**	**110**		63 U	62 U	61 U	60 U	4.9 U	**200**	**92**	64 U	**5.1**	**200**	**120**	**730**	**810**	**510**
Total Naphthalenes	2,300/120 (b)	ND	**5.5**	**1,160**		ND	ND	ND	ND	ND	**640**	**188**	ND	**20.3**	**930**	**199**	**5,430**	**5,510**	**3,310**

TABLE 2
SOIL ANALYTICAL RESULTS
BLAINE MARINA, INC. SITE
BLAINE, WASHINGTON

	Preliminary Screening Levels (a)	BMI-GP-14 14-15 VR91G/VV57I 10/31/2012	BMI-GP-15 1-3 VQ79H 10/31/2012	BMI-GP-15 8.5-9.5 VQ79I 10/31/2012	BMI-GP-15 14-15 VR91E/VV57G 10/31/2012	BMI-GP-16 11-13 VQ79AI 11/01/2012	BMI-GP-17 2-3 VQ78L/VV57A 10/29/2012	BMI-GP-17 5-6 VQ78M 10/29/2012	BMI-GP-17 9-11 VQ78N 10/29/2012	BMI-GP-17 12-13 VQ78O 10/29/2012	BMI-GP-17 14-15 VQ78P/VV57B 10/29/2012	BMI-GP-18 4-5 VQ78I 10/29/2012	BMI-GP-18 9-11 VQ78J 10/29/2012	BMI-GP-18 14-15 VQ78K 10/29/2012	BMI-GP-19 4-5 VQ78Q 10/29/2012	BMI-GP-19 9-11 VQ78R 10/29/2012	BMI-GP-19 14-15 VQ78S 10/29/2012	BMI-GP-20 1-2 VR91A/VV57C 10/30/2012	BMI-GP-20 7-9 VQ79C 10/30/2012
TOTAL PETROLEUM HYDROCARBONS (mg/kg)																			
NWTPH-Dx																			
Diesel Range Organics	2,000/2,000 (b)		**1,500**	**640**		**240**	**6200**	**5,100**	**4,800**	**580**			**18**			**48**		**5300**	**3,800**
Lube Oil	2,000/2,000 (b)		**220**	**200**		12 U	**93**	**68**	**99**	**15**			**59**			**200**		**1700**	**120**
NWTPH-Gx																			
Gasoline Range Organics	30/100 (c)	**20**	**1,200**	**130**	**28**	7.3 U	**17,000**	**650**	**5,800**	**510**	7.0 U	**14**	8.0 U	8.2 U	**8.7**	4.6 U	4.7 U	**7,000**	**6,300**
VOLATILES (µg/kg) Method SW8260C/8021																			
1,2-Dichloroethane	20/5 (b)	1.6 U	240 U	1.6 U	1.2 U	1.4 U	640 U	620 U	820 U	120 U	1.2 U	1.2 U	1.4 U	1.5 U	1.5 U	0.6 U	0.7 U	84 U	1,100 U
Benzene	14/5 (b)	**69**	**480**	**47**	1.2 U	1.4 U	400 J	320 J	**3,200**	**450**	**5.3**	1.2 U	**3.3**	1.5 U	1.5 U	0.6 U	0.7 U	84 U	**3,500**
Toluene	110,000/6,400 (b)	1.6 U	**300**	**8.6**	1.2 U	1.4 U	640 U	620 U	610 J	120 U	1.2 U	0.7 J	1.4 U	1.5 UJ	1.5 U	0.6 U	0.7 U	84 U	1,100 U
Ethylbenzene	18,000/1,000 (b)	1.6 U	**970**	**270**	1.2 U	1.4 U	**4,900**	**1,500**	**10,000**	**620**	1.2 U	1.2 U	1.4 U	1.5 UJ	1.5 U	0.6 U	0.7 U	84 U	**3,200**
m, p-Xylene	9,100/520 (b,d)	1.6 U	**3,900**	**310**	1.2 U	1.4 U	**24,000**	**5,300**	**21,000**	**270**	1.2 U	1.2 U	1.4 U	1.5 UJ	1.5 U	0.6 U	0.7 U	84 U	1,100 U
o-Xylene	9,100/520 (b,d)	1.6 U	**2,000**	**64**	1.2 U	1.4 U	**7,600**	**1,400**	**2,600**	62 J	1.2 U	1.2 U	1.4 U	1.5 UJ	1.5 U	0.6 U	0.7 U	84 U	1,100 U
Ethylene Dibromide	20/20 (b)	1.6 U	240 U	1.6 U	1.2 U	1.4 U	640 U	620 U	820 U	120 U	1.2 U	1.2 U	1.4 U	1.5 UJ	1.5 U	0.6 U	0.7 U	84 U	1,100 U
Methyl tert-Butyl Ether	190,000/240 (b)	**6.1**	240 U	1.6 U	1.2 U	1.4 U	640 U	620 U	820 U	120 U	1.0 J	1.2 U	1.4 U	1.5 U	1.5 U	0.6 U	0.7 U	84 U	1,100 U
TOTAL METALS (mg/kg) Method EPA200.8/6020																			
Lead	250/81 (b)		**7.0**	**6.5**		**3.2**		**8.4**	**8.3**	**5.8**			**4.9**			**8.7**			**6.1**
SEMIVOLATILES (µg/kg) Methods SW8270D/SW8270D-SIM																			
1-Methylnaphthalene	---	**24**	**2,800**	**1,300**	**49**	63 U	**4,400**	**5,400**	**8,800**	**1,000**	**26**	63 U			**100**			**240**	**9,300**
2-Methylnaphthalene	---	**18**	**3,000**	**1,600**	**40**	63 U	**5,400**	**2,800**	**9,400**	**1,000**	**20**	63 U			62 U			47 U	**9,800**
Naphthalene	---	**15**	**770**	**380**	**96**	63 U	**1,500**	80 U	**3,600**	**310**	**25**	63 U			62 U			**200**	**870**
Total Naphthalenes	2,300/120 (b)	**57**	**6,570**	**3,280**	**185**	ND	**11,300**	**8,200**	**21,800**	**2,310**	**71**	ND			**100**			**440**	**19,970**

TABLE 2
SOIL ANALYTICAL RESULTS
BLAINE MARINA, INC. SITE
BLAINE, WASHINGTON

	Preliminary Screening Levels (a)	BMI-GP-20 11-12 VR29A 10/30/2012	BMI-GP-20 14-15 VR91B/VV57D 10/30/2012	BMI-GP-21 4-5 VQ78F 10/29/2012	BMI-GP-21 9-11 VQ78G 10/29/2012	BMI-GP-21 15-16 VQ78H 10/29/2012	BMI-GP-22 10-12 VQ79AL 11/01/2012
TOTAL PETROLEUM HYDROCARBONS (mg/kg)							
NWTPH-Dx							
Diesel Range Organics	2,000/2,000 (b)	**830**			**43**		6.2 U
Lube Oil	2,000/2,000 (b)	**49**			**180**		12 U
NWTPH-Gx							
Gasoline Range Organics	30/100 (c)	**710**	**31**	8.3 U	8.0 U	8.5 U	7.5 U
VOLATILES (µg/kg) Method SW8260C/8021							
1,2-Dichloroethane	20/5 (b)	82 U	1.6 U	1.2 U	1.0 U	1.3 U	1.3 U
Benzene	14/5 (b)	**310**	**33**	1.2 U	1.0 U	1.3 U	1.3 U
Toluene	110,000/6,400 (b)	82 U	1.6 U	1.2 U	1.0 U	1.3 U	1.3 U
Ethylbenzene	18,000/1,000 (b)	**1,100**	1.6 U	1.2 U	1.0 U	1.3 U	1.3 U
m, p-Xylene	9,100/520 (b,d)	**120**	1.6 U	1.2 U	1.0 U	1.3 U	1.3 U
o-Xylene	9,100/520 (b,d)	82 U	1.6 U	1.2 U	1.0 U	1.3 U	1.3 U
Ethylene Dibromide	20/20 (b)	82 U	1.6 U	1.2 U	1.0 U	1.3 U	1.3 U
Methyl tert-Butyl Ether	190,000/240 (b)	82 U	1.6 U	1.2 U	1.0 U	1.3 U	1.3 U
TOTAL METALS (mg/kg) Method EPA200.8/6020							
Lead	250/81 (b)	**5.8**			**5.9**		**6.3**
SEMIVOLATILES (µg/kg) Methods SW8270D/SW8270D-SIM							
1-Methylnaphthalene	---	**1,200**	**220**		63 U		64 U
2-Methylnaphthalene	---	**1,400**	**250**		63 U		64 U
Naphthalene	---	**370**	**41**		63 U		64 U
Total Naphthalenes	2,300/120 (b)	**2,970**	**511**		ND		ND

Notes:
(a) Preliminary screening levels for soil.
(b) First value is for unsaturated soil; second value is for saturated soil.
(c) For gasoline, the soil screening level is 30 when benzene is present, and 100 when benzene is not present.
(d) Value is for total xylenes.
U = Indicates the compound was not detected at the reported concentration.
UJ = The analyte was not detected in the sample; the reported sample reporting limit is an estimate.
J = Indicates the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
Box = Exceedance of preliminary screening level.

TABLE 3
GROUNDWATER ANALYTICAL RESULTS
BLAINE MARINA, INC. SITE
BLAINE, WASHINGTON

	Preliminary Screening Levels (a)	BMI-GP-4 VQ82E VQ67F VQ67R 10/30/2012	BMI-GP-5 VQ82A VQ67B VQ67N 10/29/2012	BMI-GP-8 VQ82I VQ67J VQ67V 11/01/2012	BMI-GP-9 VQ82G VQ67H VQ67T 10/31/2012	BMI-GP-10 VQ82N 10/30/2012	BMI-GP-11 VQ82H VQ67I VQ67U 10/31/2012	BMI-GP-12 VQ82F VQ67G VQ67S 10/30/2012	BMI-GP-16 VQ82J VQ67K VQ67W 11/01/2012	BMI-GP-18 VQ82C VQ67D VQ67P 10/29/2012	BMI-GP-19 VQ82D VQ67E VQ67Q 10/29/2012	Dup of BMI-GP-19 BMI-GP-DUP VQ82L VQ67A VQ67M 10/29/2012	BMI-GP-21 VQ82B VQ67C VQ67O 10/29/2012	BMI-GP-22 VQ82K VQ67L VQ67X 11/01/2012
TOTAL PETROLEUM HYDROCARBONS (mg/L)														
NWTPH-Dx														
Diesel Range Organics	0.5	0.10 U	**5.3**	0.10 U	**34**	NA	**0.12**	0.10 U	**0.23**	0.10 U	0.10 U	0.10 U	**0.18**	0.10 U
Lube Oil	---	0.20 U	1.0 U	0.20 U	**0.43**	NA	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
NWTPH-Gx														
Gasoline Range Organics	0.8/1.0 (b)	0.25 U	**0.30**	0.25 U	**1.2**	0.25 U	**0.30**	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
VOLATILES (µg/L)														
Method SW8260C														
1,2-Dichloroethane	4.2	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Benzene	2.4	0.20 U	0.20 U	**1.8**	0.20 U	0.20 U	**0.21**	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Toluene	15,000	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Ethylbenzene	2,100	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
m, p-Xylene	1,000 (c)	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U
o-Xylene	440	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Ethylene Dibromide	2	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Methyl tert-Butyl Ether	610	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	**1.7**	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
METALS (µg/L)														
Method EPA 200.8/6020														
Lead, Dissolved	8.1	0.1 U	0.1 U	0.1 U	1 U	NA	1 U	1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	1 U
Lead, Total	8.1	**1.5**	**0.5**	0.1 U	**2**	NA	1 U	**2**	**0.3**	**2.1** J	**6.0**	**6.7**	**0.9**	**19**
SEMIVOLATILES (µg/L)														
Method SW8270D														
1-Methylnaphthalene	---	1.0 U	**14**	**2.6**	1.0 U	NA	1.0 U	1.0 U	**1.4**	1.0 U	**1.2**	**1.5**	**2.2**	1.0 U
2-Methylnaphthalene	---	1.0 U	**3.8**	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Naphthalene	---	1.0 U	**5.0**	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Naphthalenes	83	ND	**22.8**	**2.6**	ND	NA	ND	ND	**1.4**	ND	**1.2**	**1.5**	**2.2**	ND

Notes:
(a) Preliminary screening levels for groundwater are used for surface water samples.
(b) For gasoline, the groundwater screening level is 0.8 when benzene is present, and 1.0 when benzene is not present.
(c) Value is for total xylenes.
NA = Not analyzed.
ND = Not detected.
U = Indicates the compound was not detected at the reported concentration.
UJ = The analyte was not detected in the sample; the reported sample reporting limit is an estimate.
J = Indicates the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
Box = Exceedance of preliminary screening level.

TABLE 4
SOIL VAPOR ANALYTICAL RESULTS
BLAINE MARINA, INC. SITE
BLAINE, WASHINGTON

	Preliminary Soil Vapor Screening Levels		BMI-GP-06	BMI-GP-09	BMI-GP-13	BMI-SVSS-1	Duplicate of BMI-SVSS-1 BMI-GP-DUP
	MTCA Method B	MTCA Method C	P1204604-003	P1204604-002	P1204604-001	P1204604-005	P1204604-004
			10/31/2012	10/31/2012	10/30/2012	10/31/2012	10/31/2012
VOLATILES (µg/m^3)							
Method EPA-TO-15							
Propene	--	--	**360**	**120**	**140**	**18** J	**9.8** J
Dichlorodifluoromethane (CFC-12)	3,000	6,700	**17**	**1.8**	**2.2**	**2.2**	**1.9**
Chloromethane	1,400	3,000	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC-114)	--	--	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
Vinyl Chloride	9.3	93	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
1,3-Butadiene	2.8	28	**73**	**44**	**60**	1.2 U	0.80 U
Bromomethane	77	170	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
Chloroethane	150,000	330,000	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
Ethanol	--	--	**14**	12 U	12 U	**30**	**24**
Acetonitrile	900	2,000	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
Acrolein	0.30	0.67	3.4 U	4.8 U	4.7 U	4.6 U	3.2 U
Acetone	--	--	**21**	**13**	**29**	**28** J	**240** J
Trichlorofluoromethane	11,000	23,000	**0.94**	**1.5**	**1.3**	1.2 U	0.80 U
2-Propanol (Isopropyl Alcohol)	--	--	**11**	12 U	12 U	**24**	**21**
Acrylonitrile	1.2	12	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
1,1-Dichloroethene	3,000	6,700	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
Methylene Chloride	180	1,800	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
3-Chloro-1-propene (Allyl Chloride)	15	33	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
Trichlorotrifluoroethane	470,000	1,000,000	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
Carbon Disulfide	11,000	23,000	8.5 U	**29**	**46**	12 U	8.0 U
Trans-1,2-Dichloroethene	900	2,000	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
1,1-Dichloroethane	--	--	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
Methyl tert-Butyl Ether	47,000	100,000	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
Vinyl Acetate	3,000	6,700	8.5 U	12 U	12 U	12 U	8.0 U
2-Butanone (MEK)	77,000	170,000	8.5 U	12 U	12 U	12 U	8.0 U
cis-1,2-Dichloroethene	--	--	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
Ethyl Acetate	--	--	1.7 U	2.4 U	2.3 U	2.3 U	1.6 U
n-Hexane	11,000	23,000	**32**	**52**	**110**	**230** J	**180** J
Chloroform	3.7	37	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
Tetrahydrofuran (THF)	--	--	**2.9**	1.2 U	**2.1**	**3.7**	**3.2**
1,2-Dichloroethane	3.2	32	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
1,1,1-Trichloroethane	77,000	170,000	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
Benzene	11	110	**21**	**25**	**17**	**35**	**30**
Carbon Tetrachloride	14	140	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
Cyclohexane	90,000	200,000	**20**	**16**	**13**	**150**	**130**
1,2-Dichloropropane	60	130	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
Bromodichloromethane	--	--	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
Trichloroethene	12	67	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
1,4-Dioxane	--	--	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
Methyl Methacrylate	11,000	23,000	1.7 U	2.4 U	2.3 U	2.3 U	1.6 U
n-Heptane	--	--	**17**	**18**	**3.4**	**81**	**70**
cis-1,3-Dichloropropene	--	--	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
4-Methyl-2-pentanone	47,000	100,000	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
trans-1,3-Dichloropropene	--	--	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
1,1,2-Trichloroethane	5.3	53	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
Toluene	77,000	170,000	**14**	**13**	1.2 U	**7.2** J	**44** J
2-Hexanone	--	--	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
Dibromochloromethane	--	--	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
1,2-Dibromoethane	0.14	1.4	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
n-Butyl Acetate	--	--	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
n-Octane	--	--	**7.2**	**7.6**	1.2 U	**6.1** J	**6.6** J
Tetrachloroethene	320	1,300	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
Chlorobenzene	770	1,700	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
Ethylbenzene	15,000	200,000	**2.4**	**1.7**	1.2 U	**3.2** J	**11** J
m, p-Xylenes	--	--	**6.5**	**4.7**	**3.5**	**54**	**63**
Bromoform	77	7,700	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
Styrene	15,000	33,000	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U

TABLE 4
SOIL VAPOR ANALYTICAL RESULTS
BLAINE MARINA, INC. SITE
BLAINE, WASHINGTON

	Preliminary Soil Vapor Screening Levels		BMI-GP-06 P1204604-003	BMI-GP-09 P1204604-002	BMI-GP-13 P1204604-001	BMI-SVSS-1 P1204604-005	Duplicate of BMI-SVSS-1 BMI-GP-DUP P1204604-004
	MTCA Method B	MTCA Method C	10/31/2012	10/31/2012	10/30/2012	10/31/2012	10/31/2012
o-Xylene	--	--	**2.0**	**1.6**	**2.1**	**3.2** J	**8.4** J
n-Nonane	--	--	0.85 U	**3.1**	1.2 U	1.2 U	0.80 U
1,1,2,2-Tetrachloroethane	--	--	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
Cumene	6,000	13,000	**2.1**	1.2 U	**1.3**	**14** J	**11** J
alpha-Pinene	--	--	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
n-Propylbenzene	15,000	33,000	**2.7**	1.2 U	1.2 U	**24** J	**19** J
4-Ethyltoluene	--	--	**0.89**	1.2 U	1.2 U	**24**	**22**
1,3,5-Trimethylbenzene	--	--	**1.5**	1.2 U	1.2 U	**34**	**28**
1,2,4-Trimethylbenzene	110	230	**4.8**	1.2 U	1.2 U	**83**	**67**
Benzyl Chloride	15	33	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
1,3-Dichlorobenzene	--	--	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
1,4-Dichlorobenzene	12,000	27,000	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
1,2-Dichlorobenzene	3,000	6,700	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
d-Limonene	--	--	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
1,2-Dibromo-3-chloropropane	0.014	0.14	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
1,2,4-Trichlorobenzene	30	67	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U
Naphthalene	47	100	**3.4**	1.2 U	1.2 U	**1.8** J	**2.0** J
Hexachlorobutadiene	3.7	37	0.85 U	1.2 U	1.2 U	1.2 U	0.80 U

Notes:
U = Indicates the compound was not detected at the reported concentration.
UJ = The analyte was not detected in the sample; the reported sample reporting limit is an estimate.
J = Indicates the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
Box = Exceedance of MTCA Method B Screening Level.
Shaded and Boxed = Exceedance of MTCA Method C Screening Level.