



Monitoring and Analysis Plan

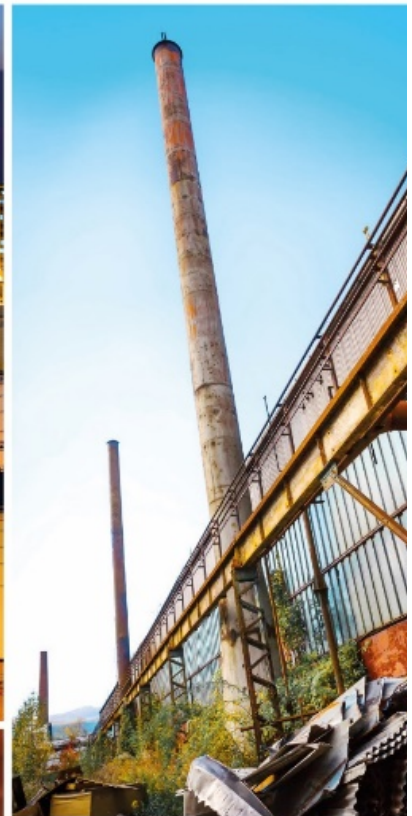
Hydraulic Lift Area Petroleum Release

Frito-Lay – Vancouver Facility

Frito-Lay, Inc.

Draft for Review

This document is in draft form. A final version of this document may differ from this draft. As such, the contents of this draft document shall not be relied upon. GHD disclaims any responsibility or liability arising from decisions made based on this draft document.





Certifications

This Monitoring and Analysis Plan has been prepared in accordance with accepted hydrogeologic practices.

This Monitoring and Analysis Plan has been prepared in accordance with accepted environmental practices.



Table of Contents

1.	Introduction.....	1
1.1	Site Description and Previous Activities	1
1.2	Contaminants of Potential Concern	2
2.	Hydrogeologic Study	3
2.1	Regional Conditions.....	3
2.2	Site Monitoring Wells	3
2.3	Site Lithology	4
2.4	Site Monitoring Well Development.....	4
3.	Groundwater Monitoring.....	4
3.1	Field Parameters.....	4
3.2	Sample Collection	4
3.3	Quality Assurance/Quality Control.....	5
3.4	Analysis.....	5
3.5	Decontamination	5
3.6	Frequency	5
4.	Health and Safety.....	5
5.	Impervious Surface Cover.....	6
6.	Reporting.....	7

Figure Index

Figure 1	Site Location Map
Figure 2	Site Layout

Table Index

Table 1	Summary of Groundwater Monitoring Results
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Appendix Index

Appendix A	Previous Investigation Soil Sample Locations and Results
Appendix B	Groundwater Monitoring Well Construction Logs



1. Introduction

This Monitoring and Analysis Plan (Plan) was prepared for Frito-Lay's Vancouver Facility, located at 4808 NW Fruit Valley Road, Vancouver, Washington (Figure 1), as an element of Frito-Lay's participation in the Washington Department of Ecology's (Ecology) Voluntary Cleanup Program (VCP, Cleanup Site ID 6703, Project Number SW1024) and the Restrictive (Environmental) Covenant (Covenant) emplaced on a portion of the property (Site). The Site is more specifically defined as an approximately 2,400 square foot (approximately 80 feet by 30 feet) portion of the overall property, which is in the vicinity of a hydraulic lift that experienced a failure and resulting release of diesel fuel and hydraulic fluids in 1991.

This Plan outlines requirements for groundwater quality, impervious surface conditions, and monitoring at the Site and has been prepared in general conformance with Chapter 70.105D RCW and Chapter 173-340 WAC of Ecology's Model Toxics Control Act (MTCA).

1.1 Site Description and Previous Activities

The Site is located in southwestern Vancouver, south of Vancouver Lake and north of the Columbia River, on approximately 40 acres of land and is bordered by Northwest Fruit Valley Road to the east, industrial properties to the north and south, and agricultural fields to the west. The Site is relatively flat and at an approximate elevation of 40 feet above mean sea level with the vast majority of its surface consisting of impervious cover, with the exception of the westernmost areas. Frito-Lay's facility produces, warehouses, and distributes various snack products for commercial sale.

The hydraulic lift area is located approximately 13 feet west of the property's main building, with the area between the building and the lift, as well as underneath the lift, consisting of impervious surfaces. The impervious surfaces in the vicinity also extend approximately 40 feet west of the western edge of the lift. The hinge (north) end of the platform and the hydraulic cylinders (south end of the lift) are attached to concrete footings that extend into the soils beneath the area.

Following the lift collapse, Frito-Lay performed an investigation to characterize the magnitude and extent of impacts and remediation of the contaminants released to Site soils (Appendix A). The following is an excerpt from Environmental Health Management, Inc.'s Remedial Investigation Report, dated January 2010, and outlines the series of events related to this release:

"In approximately 1991, the lift collapsed during the off-loading of a shipment of potatoes. The tractor, trailer and platform fell to the west of the lift area, releasing an estimated 150 gallons of hydraulic fluid and 100 gallons of Diesel fuel from the rams and the vehicle. Contamination appeared to have been retained on pavement and was cleaned up.

On December 28, 2004, gray, discolored, silty sand was discovered by Konell Construction while removing pavement west of the lift. Thermo Fluids found Diesel- and oil-range petroleum hydrocarbons in soil samples collected from this area.



Soil analyses did not detect volatile organic compounds, PCBs, PAHs, or pesticides. Extractable barium was found below its dangerous waste threshold. Metals were not remarkable.

247.9 tons of sandy soil were excavated for off-site disposal. At 3 feet below grade, a clay layer was encountered. Contamination attenuated rapidly below this depth. Excavation to the east was restricted by the structural concrete slab and footings bearing the hydraulic lift. Residual contamination was detected beneath the slab. Gasoline was detected beneath the NW corner of the lift. The source of the gasoline is unknown. (A possible explanation may be infiltration of fuel from vehicles or equipment through cracks or joints in the previously-replaced pavement.) Clearance samples from all other locations were below MTCA A criteria.

During repaving, Konell Construction installed a 10" wide bentonite slurry wall along the east wall of the excavation, abutting the lift slab. The wall is inset into the clay layer and extends along the length of the lift slab. The purpose of the wall was to restrict migration of hydrocarbons westward from the residual source beneath the lift slab."

Remaining impacted soils exist in the vicinity of the lift since their removal was not feasible due to concerns over damaging or structurally compromising the lift. The extents of remaining soil impacts occur over an approximately 2,400 square foot area to a presumed depth of approximately 5-10 feet below ground surface (Figure 2).

A total of four historical groundwater sampling events were completed in 2009, 2011, 2012 and 2014 at the Site, the results of which are summarized in Table 1. Currently, three groundwater monitoring wells, MW-1, MW-2, and MW-3, are available to monitor groundwater quality. An additional round of sampling at the three monitoring wells was completed on May 27, 2020 and the analytical results are summarized in Table 1 [To be added once received from Lab].

1.2 Contaminants of Potential Concern

Based on results of the previous investigations conducted on the Site and the fact that the lift collapse resulted in the reported release of diesel fuel and hydraulic oil, diesel and oil range petroleum products and their constituents have been identified as the primary contaminants of potential concern at the Site. Gasoline range petroleum products and their constituents, as well as cadmium, have been identified as secondary contaminants of potential concern for the Site in some referenced reports, but do not appear to be repeated in subsequent analytical results.

The groundwater monitoring event conducted at the Site's three groundwater monitoring wells in May 2020 consisted of analyzing samples for volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), Resource Conservation and Recovery Act (RCRA) 8 metals (total and dissolved samples), NWTPH-Gx (gasoline range organics), and NWTPH-Dx (diesel range organics and heavy oils). The analytes detected during the May 2020 sampling event are proposed to be the contaminants of potential concern that will be analyzed for during future monitoring events conducted at the Site, if any.



2. Hydrogeologic Study

2.1 Regional Conditions

Based on information presented in Environmental Health Management, Inc.'s Remedial Investigation Report (January 22, 2010) and Hydraulic Lift Area Petroleum Release Monitoring Plan (November 30, 2012), the Site is located in the Portland Basin which was formed by Eocene to Miocene volcanic and marine sedimentary rocks. Sediments filling the basin are generally lacustrine and fluvial. Shallow lithology consists of quaternary, mainly marine, stratified sequences. These are generally silty clays or clayey silts overlying well-graded gravels and sands. These strata extend to over 50 feet below ground surface (bgs). Specifically, the upper 15 feet of soil at the Site consists of sandy silt and silt; however, the silts are largely absent within one-quarter mile to the west of the Site due to historical migrations of the Columbia River.

The Willamette Aquifer is found directly beneath the silts, with the upper portions transitioning from the overlying silts to fine to medium sands. Deeper in the aquifer there are interbeds of sands and gravels that are several tens of feet thick. The upper aquifer is reported to be up to 300 feet thick in this area. The Willamette Confining Zone, which consists of clay and low energy sediments, begins at approximately 275 feet below sea level and is reported to be up to 1,200 feet thick. Basalt bedrock is located below the Confining Zone, at a depth of approximately 1,500 feet below sea level.

Groundwater depths below ground surface (bgs) in the three Site monitoring wells during the 2020 monitoring event ranged from 28.61' (MW-1) to 30.82' (MW-2), which corresponds to a water table elevation of 12.74' (MW-2) to 13.31' (MW-1). General groundwater flow in the vicinity of the Site is to the west/northwest, nearly parallel to the Columbia River.

2.2 Site Monitoring Wells

The three Site monitoring wells are installed in the presumed downgradient direction from the spill area and away from areas disturbed by the previous soil excavations performed as part of the initial remedial actions. Borings were completed using direct-push drilling techniques, which allowed for a continuous core of material to be removed from each location. The soil cores were used to create a detailed lithological log for each boring and no soil samples were taken for laboratory analysis during these activities.

Following completion of drilling, 2-inch inside diameter PVC riser with 15-feet of 2-inch inside diameter 0.010 slot PVC well screen at the bottom was inserted through the sampler and rods to the desired depth, 34' bgs for MW-1, 35' bgs for MW-2, and 45' bgs for MW-3 (well completion logs are included as Appendix B). Pre-packed well screen, which used a 10-20 sand, was used and native formation collapse was allowed to backfill any remaining void space. The remainder of the borings above the pre-packed well screen interval were backfilled with bentonite and the wells were completed with flush mount covers set in concrete pads.



2.3 Site Lithology

As discussed previously, soils from the ground surface to a depth of approximately 15-feet bgs consist of silts and are underlain by fine sand, which extends to at least 30-feet bgs. The Site's groundwater monitoring wells are screened in the deeper fine sand unit.

2.4 Site Monitoring Well Development

Following installation and prior to groundwater sample collection, the wells were developed by pumping with a submersible pump until the water was visibly clear or at least 10 well volumes were removed, whichever occurred first. Water was collected and containerized on-Site until off-site disposal could be coordinated.

3. Groundwater Monitoring

3.1 Monitoring Well Purging

During each monitoring event the monitoring wells will be purged prior to sample collection. Purging will be accomplished using a submersible pump and will continue until field parameters stabilize or the well goes dry, whichever occurs first. Groundwater generated during these activities will be containerized and staged on-Site until proper off-site disposal can be coordinated.

3.2 Field Parameters

Each groundwater monitoring well will be opened and allowed to equilibrate with the atmosphere prior to obtaining a depth to groundwater measurement, which will be recorded on a field sheet. Following the depth to water measurement, a decontaminated submersible pump with dedicated tubing will be lowered to the approximate mid-point of the well screen and purging will begin. Pumping rates will be adjusted to minimize drawdown of the water column and flow rates will be physically measured and recorded on the field sheet.

Field parameters, including water temperature, oxidation-reduction potential (ORP), dissolved oxygen, pH, turbidity, and electrical conductivity will be continuously measured using a calibrated multi-parameter water quality meter equipped with a flow-thru cell and readings will be periodically recorded on the field sheet. Purging will continue until these field parameters are considered stabilized, in accordance with Ecology's guidelines, at which point the flow-thru cell will be disconnected and groundwater samples will be taken directly from the dedicated tubing.

3.3 Sample Collection

Groundwater samples will be taken from the wells following stabilization and using the low-flow sampling techniques described above. Care will be taken to avoid agitation of the samples, which could result in volatilization of contaminants, and excessive turbidity, which could bias analytical results for certain analytes, specifically metals. Sample water will be directly pumped from the dedicated tubing into pre-preserved sample containers provided by the laboratory. Each sample container will be clearly labeled with the sample location, collection date and time, and requested



analysis. Sample containers will be immediately placed in coolers on ice and will be shipped to the laboratory following applicable chain of custody procedures.

3.4 Quality Assurance/Quality Control

During each monitoring event, a field blank will be taken prior to purging the first groundwater monitoring well by submerging the pump in distilled water and collecting a sample from its outlet tubing. No blind field duplicate, matrix spike, or matrix spike duplicate samples will be taken or analyzed during groundwater monitoring events.

3.5 Analysis

As mentioned previously, each groundwater sample will be analyzed for the Site contaminants of potential concern, which will be based on the identified detections from the May 2020 monitoring event. Appropriate and current US EPA Methods will be used for all analysis, where available.

If petroleum fractions are found to be detected above MTCA Method A criteria, volatile petroleum hydrocarbon fractions (VPH) and/or extractable petroleum hydrocarbon fractions (EPH) analyses may be performed for comparison with MTCA Method B or C criteria.

3.6 Decontamination

Any non-dedicated or non-single use equipment will be decontaminated prior to sampling the first well at the Site and between each well. Currently, this would include:

1. rinsing off the water level meter with distilled water and allowing to air dry
2. washing the outside of the submersible pump in a bucket of Alconox and distilled water
3. cleaning the inside of the submersible pump by pumping the Alconox and distilled water solution through until it comes out the discharge tubing
4. rinsing the inside and outside of the submersible pump with distilled water until all visible soap residue and bubbles are gone.

Decontamination water will be stored on-Site in a suitable container for appropriate disposal at a later date, following receipt of analytical results.

3.7 Frequency

A total of five (5) groundwater monitoring events have occurred at the Site since 2009. Once laboratory analytical results from the recent May 2020 groundwater monitoring event are received, the need for additional monitoring will be reviewed with Ecology.

3.8 Health and Safety

All sampling personnel will have 40-hour HAZWOPER training with a current 8-hour refresher certificate and be cleared through an employer specific medical monitoring program. Level D personal protective equipment, which will include eye protection, chemical resistant gloves, steel toe



boots, high visibility vests, and hard hats, will be used during sampling events. Splash suits or disposable coveralls are optional and the need for respirator use is not anticipated.

4. Impervious Surface Cover

An existing impervious surface is located in the vicinity of the hydraulic lift and above remaining soil that is known to have residual contamination levels above MTCA Level B. The impervious cover consists of asphalt and concrete pavement that extends from the western wall of the main building to an unpaved area (referred to as “Contractor’s Island” by Frito-Lay personnel) to the west of the hydraulic lift. The curved eastern edge of the Contractor’s Island is between 53 and 120 feet from the edge of the building, with the closest point to the center of the mass of remaining contamination being approximately 55 feet. Existing pavement or the processing plant floor extends farther than 100 feet from the center of remaining contamination in all remaining directions. The limits of the Covenant area where remaining contamination may exist and extents of impervious surfaces are depicted in Figure 2.

Infiltration of stormwater through the impervious surface could mobilize and spread remaining contamination beneath the surface. The primary cause of infiltration at the Site would be due to deterioration of the impervious surfaces or construction activities in the vicinity that would breach the impervious surfaces. The following measures will be taken to minimize infiltration through these impervious surfaces:

1. The hydraulic lift area will be inspected for any signs of damaged or deteriorated pavement at a minimum annually or if construction or maintenance activities are scheduled to occur within the area. The inspection will include a 50 foot diameter area centered between the hydraulic rams of the lift. This includes the area beneath the lift, the process drain catchment to the west of the lift, and all other pavement in this area. Inspection will include examination of any joints between asphalt and concrete areas and other features subject to increased damage or deterioration.
2. Frito-Lay will identify the area of remaining contamination in its Hazard Communication Plan and Training to ensure that personnel are aware of the petroleum contamination that remains in place. Facilities personnel should be made aware of the impervious surface requirement to ensure that future construction in this area includes procedures for managing contaminated soil and maintaining the impervious surface.
3. Prior to any construction in the vicinity of the impervious surfaces, Frito-Lay will review project plans to determine if the existing impervious surfaces will be breached by the work. If pavement will be removed within this impervious surface area, Frito-Lay will specify that the repair will remain impervious. If soil will be excavated in or near the zone of remaining contamination, it will be screened or tested for possible petroleum contamination and appropriately managed. Restoration of the impervious surfaces will be performed and the repair inspected prior to completion of the work.

Should any significant abnormal occurrences or emergency situations be identified during the inspections, the Frito-Lay facilities manager will be immediately notified in order to initiate



appropriate actions. In the event of any emergency or criminal activity, proper local emergency services will be notified.

5. Reporting

Following each monitoring event, analytical results (if any) and field data will be summarized in periodic reports, which will include as appropriate: summary data tables; figures depicting well locations, groundwater elevations and flow, and concentrations or contaminants of concern in groundwater; photographs of the impervious surface cover conditions; and copies of laboratory analytical reports. In addition, if analytical data is generated, it will be entered into Ecology's EIM database. Any repairs or breaches of the cover in the Covenant area will be summarized in the report.

6. Contingency Plan

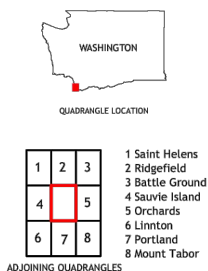
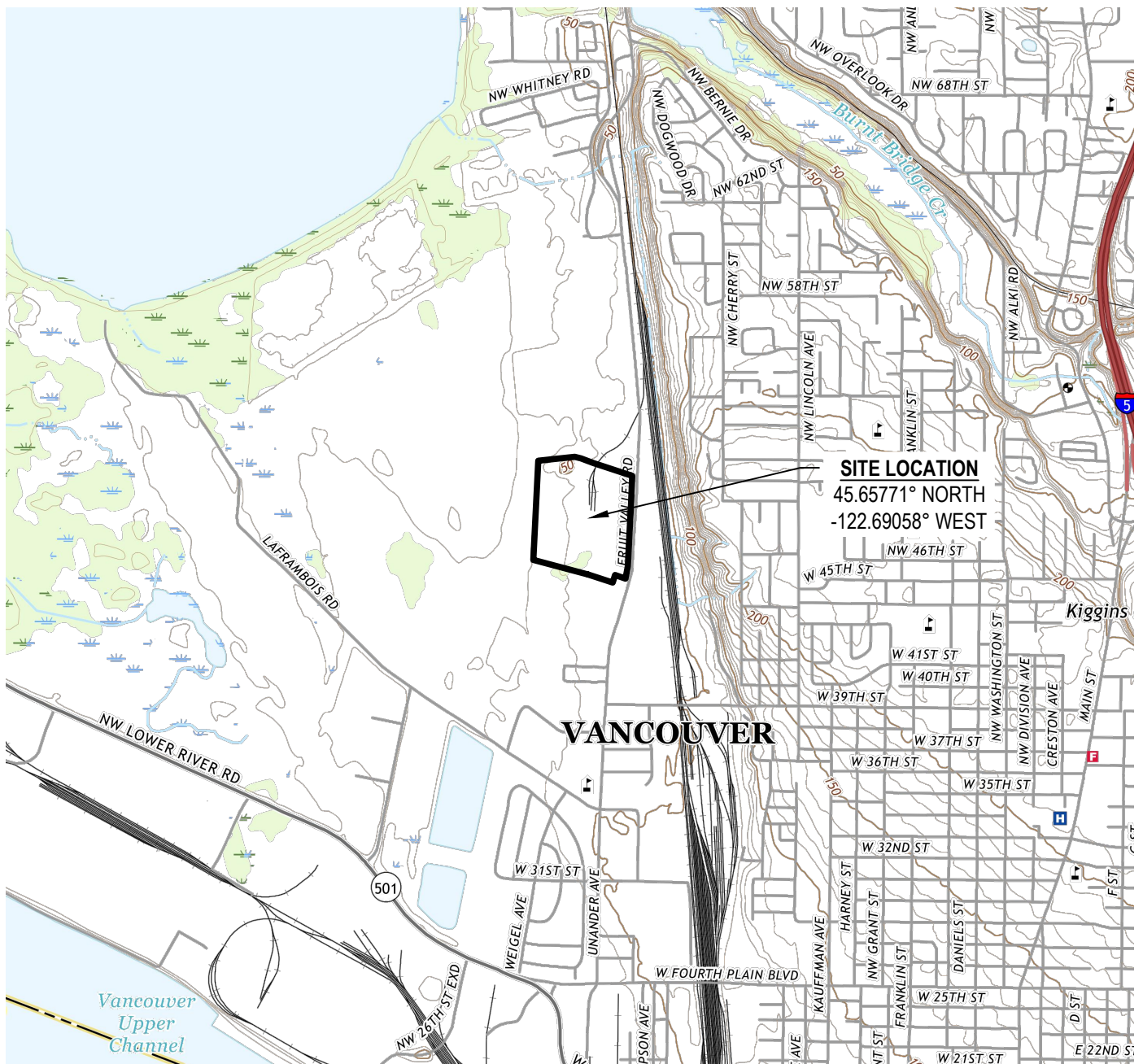
Should monitoring activities outlined in this Plan cause the Site remedy to be deemed ineffective, the following actions will be initiated.

Conditions that may trigger a contingency action include:

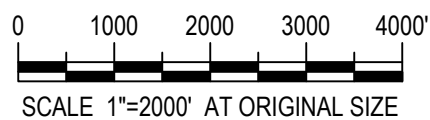
- Measurable free product in an on-Site groundwater monitoring well
- Concentrations of Site contaminants of potential concern exceeding MTCA Method A cleanup standards for groundwater in monitoring wells MW-1, MW-2, or MW-3
- A significant change of the observed westerly/northwesterly groundwater flow pattern beneath the Site
- Significant changes to surface coverings such as a damaged or disturbed impervious surface covering
- Monitoring well damage or vandalism
- Hydraulic lift equipment failure

If any of the above conditions are observed, the Frito-Lay Site representative and the Ecology project manager will be notified. Criteria will be developed to critique the severity of occurrence. Ecology and Frito-Lay will discuss if additional remedial action is necessary at that time.

Figures



Map Taken From: USGS 7.5 Minute Series
 Topographic Quadrangle;
 Vancouver, WA, OR (2020)
 (U.S. Geological Survey)



NOTES:

1. Site boundary is approximate and based on information taken from the Clark County, Washington Maps Online GIS database.



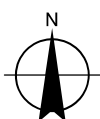
Frito-Lay, Inc.
Monitoring and Analysis Plan
Vancouver, Washington Facility
SITE LOCATION MAP

Project No. 11213086
 Report No. 1
 Date 05.27.2020

FIGURE 1



Paper Size ANSI A
0 40 80 120 160 200
Feet



Map Projection: Lambert Conformal Conic
Horizontal Datum: NAD 1983 2011

Grid: NAD 1983 2011 StatePlane Washington South FIPS 4602 Ft US



FRITO-LAY, INC.
VANCOUVER FACILITY
4808 NW FRUIT VALLEY ROAD, VANCOUVER, WA
MONITORING AND ANALYSIS PLAN

Project No. 11213086
Revision No. -
Date 06/01/2020

SITE LAYOUT

FIGURE 2

Tables



Table 1
Groundwater Sample Analytical Results

		Sample Location	FL-07-W	FL-00-W	FL-MW1	FL-MW1	FL-MW1	FL-MW1	FL-MW2	FL-MW2	FL-MW2	FL-MW2	FL-MW3	FL-MW3	FL-MW3	FL-0	FL-0	FL-0	FL-0
		Sample Date	5/26/2009	5/26/2009	6/29/2011	12/13/2012	6/20/2014	5/27/2020	6/29/2011	12/13/2012	6/20/2014	5/27/2020	12/13/2012	6/20/2014	5/27/2020	6/29/2011	12/13/2012	6/20/2014	5/27/2020
		Sample Type	Hydroprobe Sample	Trip Blank	Low Flow from South MW-1	Low Flow from South MW-1	Low Flow from South MW-1	Low Flow from South MW-1	Low Flow from North MW-2	Low Flow from North MW-2	Low Flow from North MW-2	Low Flow from North MW-2	Low Flow from West MW-3	Low Flow from West MW-3	Low Flow from West MW-3	Trip Blank	Trip Blank	Trip Blank	Trip Blank
		Well Head Elevation (feet)	-	-	41.81	41.81	41.81	41.92	43.45	43.45	43.45	43.56	43.53	43.53	43.63	-	-	-	-
Analyte	Units	MTCA-A																	
Stable Field Parameters																			
Turbidity	NTU		-	-	0.08	1.30	0.42	1.8	0.13	1.32	0.32	4.5	0.96	0.24	4.7	-	-	-	-
pH	SU		-	-	5.35	5.99	5.46	6.25	5.68	5.92	5.47	6.33	6.01	5.46	6.48	-	-	-	-
Temperature	Deg. F		-	-	61.0	55.5	62.6	62.8	61.3	54.6	61.4	69.7	56.6	60.1	71.1	-	-	-	-
Specific Conductance	µs/cm		-	-	2,210	391	232	325	2,640	436	273	402	431	135	279	-	-	-	-
Dissolved Oxygen	ppm		-	-	6.1	4.9	5.9	6.02	6.1	5.0	6.7	5.47	5.1	6.9	4.4	-	-	-	-
Photoionization Detector	ppm		-	-	0	0	0	-	0	0	0	-	0	0	-	-	-	-	-
Oxidation-Reduction Potential	mV		-	-	232	220	195	122	233	251	257	123	239	280	131	-	-	-	-
Depth to Water	ft		-	-	23.87	28.83	29.56	28.61	25.05	30.98	31.34	30.82	30.55	31.61	30.32	-	-	-	-
Water Table Elevation	ft		-	-	17.94	12.98	12.25	13.31	18.40	12.47	12.11	12.74	12.98	11.92	13.31	-	-	-	-
Petroleum Hydrocarbons																			
Gasoline	mg/L	1.0	-	-	<0.100 U	<0.100 U	<0.100 U		<0.100 U	<0.100 U	<0.100 U		<0.100 U	<0.100 U		<0.100 U	<0.100 U	<0.100 U	
Diesel	mg/L	0.5	-	-	<0.0777 U	<0.0758 U	<0.0758 U		<0.0777 U	0.0878	<0.0753 U		<0.0755 U	<0.0758 U		<0.0777 U	0.0799	<0.0757 U	
Lube Oil	mg/L	0.5	-	-	<0.194 U	<0.189 U	<0.189 U		<0.194 U	<0.189 U	<0.188 U		<0.189 U	<0.190 U		<0.194 U	<0.190 U	<0.189 U	
Polycyclic Aromatics																			
1-Methylnaphthalene	µg/L	160.0 ^b	<0.0473 U	<0.0473 U	<0.0475 U	<0.0472 U	<0.0472 U		<0.0475 U	<0.0473 U	<0.0473 U		<0.0472 U	<0.0471 U		-	<0.0474 U	<0.0473 U	
2-Methylnaphthalene	µg/L	160.0 ^b	<0.0473 U	<0.0473 U	<0.0475 U	<0.0472 U	<0.0472 U		<0.0475 U	<0.0473 U	<0.0473 U		<0.0472 U	<0.0471 U		-	<0.0474 U	<0.0473 U	
Acenaphthene	µg/L		<0.0473 U	<0.0473 U	<0.0475 U	<0.0472 U	<0.0472 U		<0.0475 U	<0.0473 U	<0.0473 U		<0.0472 U	<0.0471 U		-	<0.0474 U	<0.0473 U	
Acenaphthylene	µg/L		<0.0473 U	<0.0473 U	<0.0475 U	<0.0472 U	<0.0472 U		<0.0475 U	<0.0473 U	<0.0473 U		<0.0472 U	<0.0471 U		-	<0.0474 U	<0.0473 U	
Anthracene	µg/L		<0.0473 U	<0.0473 U	<0.0475 U	<0.0472 U	<0.0472 U		<0.0475 U	<0.0473 U	<0.0473 U		<0.0472 U	<0.0471 U		-	<0.0474 U	<0.0473 U	
Benzo(a)anthracene	µg/L		<0.0473 U	<0.0473 U	<0.0475 U	<0.0472 U	<0.0472 U		<0.0475 U	<0.0473 U	<0.0473 U		<0.0472 U	<0.0471 U		-	<0.0474 U	<0.0473 U	
Benzo(a)pyrene	µg/L	0.1 ^c	<0.0473 U	<0.0473 U	<0.0475 U	<0.0472 U	<0.0472 U		<0.0475 U	<0.0473 U	<0.0473 U		<0.0472 U	<0.0471 U		-	<0.0474 U	<0.0473 U	
Benzo(b)fluoranthene	µg/L		<0.0473 U	<0.0473 U	0.0570	<0.0472 U	<0.0472 U		<0.0475 U	<0.0473 U	<0.0473 U		<0.0472 U	<0.0471 U		-	<0.0474 U	<0.0473 U	
Benzo(g,h,i)perylene	µg/L		<0.0473 U	<0.0473 U	<0.0475 U	<0.0472 U	<0.0472 U		<0.0475 U	<0.0473 U	<0.0473 U		<0.0472 U	<0.0471 U		-	<0.0474 U	<0.0473 U	
Benzo(k)fluoranthene	µg/L		<0.0473 U	<0.0473 U	0.0570	<0.0472 U	<0.0472 U		<0.0475 U	<0.0473 U	<0.0473 U		<0.0472 U	<0.0471 U		-	<0.0474 U	<0.0473 U	
Chrysene	µg/L		<0.0473 U	<0.0473 U	0.0570	<0.0472 U	<0.0472 U		<0.0475 U	<0.0473 U	<0.0473 U		<0.0472 U	<0.0471 U		-	<0.0474 U	<0.0473 U	
Dibenzo(a,h)anthracene	µg/L		<0.0473 U	<0.0473 U	<0.0475 U	<0.0472 U	<0.0472 U		<0.0475 U	<0.0473 U	<0.0473 U		<0.0472 U	<0.0471 U		-	<0.0474 U	<0.0473 U	
Fluoranthene	µg/L		<0.0473 U	<0.0473 U	<0.0475 U	<0.0472 U	<0.0472 U		<0.0475 U	<0.0473 U	<0.0473 U		<0.0472 U	<0.0471 U		-	<0.0474 U	<0.0473 U	
Fluorene	µg/L		<0.0473 U	<0.0473 U	<0.0475 U	<0.0472 U	<0.0472 U		<0.0475 U	<0.0473 U	<0.0473 U		<0.0472 U	<0.0471 U		-	<0.0474 U	<0.0473 U	
Indeno(1,2,3-cd)pyrene	µg/L		<0.0473 U	<0.0473 U	<0.0475 U	<0.0472 U	<0.0472 U		<0.0475 U	<0.0473 U	<0.0473 U		<0.0472 U	<0.0471 U		-	<0.0474 U	<0.0473 U	
Naphthalene	µg/L	160.0 ^b	<0.0473 U	<0.0473 U	<0.0475 U	<0.0472 U	<0.0472 U		<0.0475 U	<0.0473 U	<0.0473 U		<0.0472 U	<0.0471 U		-	<0.0474 U	0.0573	
Phenanthrene	µg/L		<0.0473 U	<0.0473 U	<0.0475 U	<0.0472 U	<0.0472 U		<0.0475 U	<0.0473 U	<0.0473 U		<0.0472 U	<0.0471 U		-	<0.0474 U	<0.0473 U	
Pyrene	µg/L		<0.0473 U	<0.0473 U	<0.0475 U	<0.0472 U	<0.0472 U		<0.0475 U	<0.0473 U	<0.0473 U		<0.0472 U	<0.0471 U		-	<0.0474 U	<0.0473 U	
Metals (total)																			
Arsenic	µg/L	5	-	-	1.77	<20.00 U	<20.00 U		1.17	<20.00 U	<20.00 U		<20.00 U	<20.00 U		-	<20.00 U	<20.00 U	
Barium	µg/L	N/E	-	-	33.6	45.80	45.80		34.1	81.40	37.90		46.60	21.20		-	<10.00 U	<10.00 U	
Cadmium	µg/L	5	-	-	<1.00 U	<1.000 U	<1.000 U		<1.00 U	<1.000 U	<1.000 U		<1.000 U	<1.000 U		-	<1.000 U	<1.000 U	
Chromium (total)	µg/L	50	-	-	9.80	9.400	9.400		8.30	9.400	7.800		9.100	6.800		-	<5.00 U	<5.00 U	
Lead	µg/L	15	-	-	<0.100 U	<20.00 U	<20.00 U		<0.100 U	<20.00 U	<20.00 U		<20.00 U	<20.00 U		-	<20.00 U	<20.00 U	
Selenium	µg/L	N/E	-	-	<1.00 U	<20.00 U	<20.00 U		<1.00 U	<20.00 U	<20.00 U		<20.00 U	<20.00 U		-	<20.00 U	<20.00 U	
Silver	µg/L	N/E	-	-	<0.0100 U	<10.00 U	<10.00 U		<0.0100 U	<10.00 U	<10.00 U		<10.00 U	<10.00 U		-	<10.00 U	<10.00 U	
Mercury	µg/L	2	-	-	<0.10 U	<0.100 U	<0.100 U		<0.10 U	<0.100 U	<0.100 U		<0.100 U	<0.100 U		-	<0.100 U	<0.100 U	
Extractable Petroleum Hydrocarbons (EPH)																			
>nC8-nC10 Aliphatic	µg/L		<95 U	<95 U	-	-	-		-	-	-		-	-		-	-	-	
>nC10-nC12 Aliphatic	µg/L		<95 U	<95 U	-	-	-		-	-	-		-	-		-	-	-	
>nC10-nC12 Aromatic	µg/L		<95 U	<95 U	-	-	-		-	-	-		-	-		-	-	-	
>nC12-nC16 Aliphatic	µg/L		<95 U	<95 U	-	-	-		-	-	-		-	-		-	-	-	
>nC12-nC16 Aromatic	µg/L		<95 U	<95 U	-	-	-		-	-	-		-	-		-	-	-	
>nC16-nC21 Aliphatic	µg/L		<95 U	<95 U	-	-	-		-	-	-		-	-		-	-	-	
>nC16-nC21 Aromatic	µg/L		<95 U	<95 U	-	-	-		-	-	-		-	-		-	-	-	
>nC21-nC34 Aliphatic	µg/L	1,400	600	-	-	-	-		-	-	-		-	-		-	-	-	
>nC21-nC34 Aromatic	µg/L		<95 U	<95 U	-	-	-		-	-	-		-	-		-	-	-	
Volatile Petroleum Hydrocarbons (VPH)																			
n-Hexane	µg/L		<5.0 U	<5.0 U	-	-	-		-	-	-		-	-		-	-	-	
C5-C6 Aliphatic	µg/L		<25 U	<25 U	-	-	-		-	-	-		-	-		-	-	-	
>C6-C8 Aliphatic	µg/L		<25 U	<25 U	-	-	-		-	-	-		-	-		-	-	-	
>C8-C10 Aliphatic	µg/L		<25 U	<25 U	-	-	-		-	-	-		-	-		-	-	-	
>C8-C10 Aromatic	µg/L		<25 U	<25 U	-	-	-		-	-	-		-	-		-	-	-	
>C10-C12 Aliphatic	µg/L		<25 U	<25 U	-	-	-		-	-	-		-	-		-	-	-	
>C10-C12 Aromatic	µg/L		<25 U	<25 U	-	-	-		-	-	-		-	-		-	-	-	
>C12-C13 Aromatic	µg/L		<25 U	<25 U	-	-	-		-	-	-		-	-		-	-	-	



Table 1
Groundwater Sample Analytical Results

Frito-Lay Inc.
Vancouver, WA Facility
Monitoring and Analysis Plan

		Sample Location	FL-07-W	FL-00-W	FL-MW1	FL-MW1	FL-MW1	FL-MW1	FL-MW2	FL-MW2	FL-MW2	FL-MW2	FL-MW3	FL-MW3	FL-MW3	FL-0	FL-0	FL-0	FL-0
		Sample Date	5/26/2009	5/26/2009	6/29/2011	12/13/2012	6/20/2014	5/27/2020	6/29/2011	12/13/2012	6/20/2014	5/27/2020	12/13/2012	6/20/2014	5/27/2020	6/29/2011	12/13/2012	6/20/2014	5/27/2020
		Sample Type	Hydroprobe Sample	Trip Blank	Low Flow from South MW-1	Low Flow from South MW-1	Low Flow from South MW-1	Low Flow from South MW-1	Low Flow from North MW-2	Low Flow from North MW-2	Low Flow from North MW-2	Low Flow from North MW-2	Low Flow from West MW-3	Low Flow from West MW-3	Low Flow from West MW-3	Trip Blank	Trip Blank	Trip Blank	Trip Blank
		Well Head Elevation (feet)	-	-	41.81	41.81	41.81	41.92	43.45	43.45	43.45	43.56	43.53	43.53	43.63	-	-	-	-
Analyte	Units	MTCA-A																	
Volatile Organics																			
Benzene	µg/L	5	<1.0 U	<1.0 U	<0.300 U	<0.300 U	<0.300 U		<0.300 U	<0.300 U	<0.300 U		<0.300 U	<0.300 U		<0.300 U	<0.300 U	<0.300 U	
Toluene	µg/L	1,000	<1.0 U	<1.0 U	<1.00 U	<1.00 U	<1.00 U		<1.00 U	<1.00 U	<1.00 U		<1.00 U	<1.00 U		<1.00 U	<1.00 U	<1.00 U	
Ethylbenzene	µg/L	700	<1.0 U	<1.0 U	<1.00 U	<1.00 U	<1.00 U		<1.00 U	<1.00 U	<1.00 U		<1.00 U	<1.00 U		<1.00 U	<1.00 U	<1.00 U	
m-,p-Xylene	µg/L	1,000 ^a	-	-	<2.00 U	<2.00 U	<2.00 U		<2.00 U	<2.00 U	<2.00 U		<2.00 U	<2.00 U		<2.00 U	<2.00 U	<2.00 U	
o-Xylene	µg/L	1,000 ^a	-	-	<1.00 U	<1.00 U	<1.00 U		<1.00 U	<1.00 U	<1.00 U		<1.00 U	<1.00 U		<1.00 U	<1.00 U	<1.00 U	
Xylenes, Total	µg/L	1,000 ^a	<1.0 U	<1.0 U	-	-	-		-	-	-		-	-		-	-	-	
Methyl tert-butyl ether	µg/L	20	-	-	<1.00 U	<1.00 U	<1.00 U		<1.00 U	<1.00 U	<1.00 U		<1.00 U	<1.00 U		<1.00 U	<1.00 U	<1.00 U	
1,2-Dibromoethane (EDB)	µg/L	0.01	-	-	<1.00 U	<0.0228 U	<0.00286 U		<1.00 U	<0.0228 U	<0.00286 U		<0.0228 U	<0.00286 U		<1.00 U	<0.0228 U	<0.00286 U	
1,2-Dichloroethane (EDC)	µg/L	5	-	-	<1.00 U	<0.300 U	<0.300 U		<1.00 U	<0.300 U	<0.300 U		<0.300 U	<0.300 U		<1.00 U	<0.300 U	<0.300 U	
Naphthalene	µg/L	160	-	-	<1.00 U	<1.00 U	<1.00 U		<1.00 U	<1.00 U	<1.00 U		<1.00 U	<1.00 U		<1.00 U	<1.00 U	<1.00 U	
1,1,1,2-Tetrachloroethane	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
1,1,1-Trichloroethane	µg/L	200	-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
1,1,1,2,2-Tetrachloroethane	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
1,1,2-Trichloroethane	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
1,1-Dichloroethane	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
1,1-Dichloroethene	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
1,1-Dichloropropene	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
1,2,3-Trichlorobenzene	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
1,2,3-Trichloropropane	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
1,2,4-Trimethylbenzene	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
1,2-Dibromo-3-chloropropane	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
1,2-Dichlorobenzene	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
1,2-Dichloropropane	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
1,3,5-Trimethylbenzene	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
1,3-Dichlorobenzene	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
1,3-Dichloropropane	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
1,4-Dichlorobenzene	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
2,2-Dichloropropane	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
2-Butanone (MEK)	µg/L		-	-	-	<10.0 U	<10.0 U		-	<10.0 U	<10.0 U		<10.0 U	<10.0 U		-	<10.0 U	<10.0 U	
2-Chlorotoluene (ortho)	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
2-Hexanone	µg/L		-	-	-	<10.0 U	<10.0 U		-	<10.0 U	<10.0 U		<10.0 U	<10.0 U		-	<10.0 U	<10.0 U	
4-Chlorotoluene (para)	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
4-Isopropyltoluene (Cymene)	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
4-Methyl-2-pentanone (MIBK)	µg/L		-	-	-	<20.0 U	<20.0 U		-	<20.0 U	<20.0 U		<20.0 U	<20.0 U		-	<20.0 U	<20.0 U	
Acetone	µg/L		-	-	-	<50.0 U	<50.0 U		-	<50.0 U	<50.0 U		<50.0 U	<50.0 U		-	<50.0 U	<50.0 U	
Acrylonitrile	µg/L		-	-	-	<5.0 U	<5.0 U		-	<5.0 U	<5.0 U		<5.0 U	<5.0 U		-	<5.0 U	<5.0 U	
Bromobenzene	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
Bromochloromethane	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
Bromodichloromethane	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	1.86		<1.00 U	4.34		-	<1.00 U	<1.00 U	
Bromoform (Tribromomethane)	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
Bromomethane	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
Carbon disulfide	µg/L		-	-	-	<2.00 U	<2.00 U		-	<2.00 U	<2.00 U		<2.00 U	<2.00 U		-	<2.00 U	<2.00 U	
Carbon tetrachloride	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
Chlorobenzene	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
Chloroethane (Ethyl Chloride)	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
Chloroform	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	6.95		<1.00 U	15.1		-	<1.00 U	<1.00 U	
Chloromethane	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
cis-1,2-Dichloroethene	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
cis-1,3-Dichloropropene	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
Dibromochloromethane	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
Dibromomethane (Methylene Bromide)	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
Dichlorodifluoromethane	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
Hexachlorobutadiene	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
Isopropylbenzene (Cumene)	µg/L		-	-	-	<1.00 U	<1.00 U		-	<1.00 U	<1.00 U		<1.00 U	<1.00 U		-	<1.00 U	<1.00 U	
Methylene Chloride (Dichloromethane)	µg/L	5	-	-	-	<20.0 U	<20.0 U		-	<20.0 U	<20.0 U		<20.0 U	<20.0 U		-	<20.0 U	<20.0 U	
n-Butylbenzene	µg/L		-	-</															

NOTES:
<## U - Analyzed for but not detected above laboratory method detection limit noted
N/E - Not Established
a - total of m-, p-, and o-Xylenes
b - total of 1-Methylnaphthalene, 2-Methylnaphthalene, and Naphthalene
c - total of all carcinogenic PAHs adjusted by individual toxicity equivalency factors
-- Not analyzed for during monitoring event

Appendices

Appendix A

Previous Investigation Soil Sample Locations and Results

TABLE 1:

FRITO-LAY
Hydraulic Lift Area Soil Cleanup Project
Site Characterization Results

Sample ID:		S-1	S-2	S-3	Rainwater	
Sample Date:	Units	12/28/2004	12/28/2004	12/28/2004	Units	12/28/2004
Metals, TCLP						
Arsenic	mg/L	0.500 U	N/A	N/A		N/A
Barium	mg/L	0.504	N/A	N/A		N/A
Cadmium	mg/L	0.100 U	N/A	N/A		N/A
Chromium	mg/L	0.150 U	N/A	N/A		N/A
Lead	mg/L	0.390 U	N/A	N/A		N/A
Mercury	mg/L	0.170 U	N/A	N/A		N/A
Selenium	mg/L	0.630 U	N/A	N/A		N/A
Silver	mg/L	0.130 U	N/A	N/A		N/A
Metals, Total						
Arsenic	mg/Kg	N/A	N/A	N/A		N/A
Cadmium	mg/Kg	N/A	N/A	N/A		N/A
Chromium	mg/Kg	N/A	N/A	N/A		N/A
Lead	mg/Kg	N/A	N/A	N/A		N/A
Mercury	mg/Kg	N/A	N/A	N/A		N/A
Chromium VI	mg/Kg	N/A	N/A	N/A		N/A
Petroleum						
NWTPH-Gx	mg/Kg	N/A	N/A	N/A		N/A
NWTPH-Dx Diesel	mg/Kg	N/A	N/A	N/A		N/A
NWTPH-Dx Oil	mg/Kg	N/A	N/A	N/A		N/A
NC6-12 Gas	mg/Kg	N/A	N/A	N/A		N/A
NC>12-22 Diesel	mg/Kg	N/A	N/A	N/A		N/A
NC>22-35 Lube Oil	mg/Kg	N/A	N/A	N/A		N/A
NC>35-40 Heavy Oil	mg/Kg	N/A	N/A	N/A		N/A
Total HC (418.1)	mg/Kg	4,700	235.1	265.4		N/A
PAHs						
Acenaphthene	mg/Kg	50 U	N/A	N/A		N/A
Acenaphthylene	mg/Kg	50 U	N/A	N/A		N/A
Anthracene	mg/Kg	50 U	N/A	N/A		N/A
Benzo(a)anthracene	mg/Kg	50 U	N/A	N/A		N/A
Benzo(a)pyrene	mg/Kg	50 U	N/A	N/A		N/A
Benzo(b)fluoranthene	mg/Kg	50 U	N/A	N/A		N/A
Benzo(g,h,i)perylene	mg/Kg	50 U	N/A	N/A		N/A
Benzo(k)fluoranthene	mg/Kg	50 U	N/A	N/A		N/A
Chrysene	mg/Kg	50 U	N/A	N/A		N/A
Dibenzo(a,h)anthracene	mg/Kg	50 U	N/A	N/A		N/A
Fluoranthene	mg/Kg	50 U	N/A	N/A		N/A
Fluorene	mg/Kg	50 U	N/A	N/A		N/A
Indeno(1,2,3-c,d)pyrene	mg/Kg	50 U	N/A	N/A		N/A
Naphthalene	mg/Kg	50 U	N/A	N/A		N/A
Phenanthrene	mg/Kg	50 U	N/A	N/A		N/A
Pyrene	mg/Kg	50 U	N/A	N/A		N/A
Volatile Organics						
EDB	mg/Kg ⁽¹⁾	0.003 U	N/A	N/A		N/A
Other	mg/Kg ⁽¹⁾	0.01 U	N/A	N/A	mg/L	0.100 U
Pesticides						
Lindane	mg/Kg	0.01 U	N/A	N/A		N/A
DDT	mg/Kg	0.01 U	N/A	N/A		N/A
PCBs						
Total PCBs	mg/Kg	0.05 U	N/A	N/A		N/A
Solids						
Total Solids	% (w/w)	N/A	N/A	N/A		N/A

Notes: 1) EDB and Volatile Organics incorrectly reported in mg/L by laboratory for sample S-1.

U = not detected at the limit of detection shown

N/A = Not analyzed for this analyte

TABLE 2:

FRITO-LAY
Hydraulic Lift Area Soil Cleanup Project
Confirmation Samples
Metals and Petroleum Hydrocarbon Results

Sample ID:		EPA PRG ^a		Ecology Human Health ^b			1	2	2-2	3	4	6
Sample Date:	Units	Residential	Industrial	Method A	Method B	B Industrial	12/30/2004	12/30/2004	1/7/2005	12/30/2004	12/30/2004	12/30/2004
Metals, TCLP												
Arsenic	mg/L	N/E	N/E	N/E	N/E	N/E	N/A	N/A	0.500 U	N/A	N/A	N/A
Barium	mg/L	N/E	N/E	N/E	N/E	N/E	N/A	N/A	2.106	N/A	N/A	N/A
Cadmium	mg/L	N/E	N/E	N/E	N/E	N/E	N/A	N/A	0.100 U	N/A	N/A	N/A
Chromium	mg/L	N/E	N/E	N/E	N/E	N/E	N/A	N/A	0.300	N/A	N/A	N/A
Lead	mg/L	N/E	N/E	N/E	N/E	N/E	N/A	N/A	0.390 U	N/A	N/A	N/A
Mercury	mg/L	N/E	N/E	N/E	N/E	N/E	N/A	N/A	0.170 U	N/A	N/A	N/A
Selenium	mg/L	N/E	N/E	N/E	N/E	N/E	N/A	N/A	0.630 U	N/A	N/A	N/A
Silver	mg/L	N/E	N/E	N/E	N/E	N/E	N/A	N/A	0.130 U	N/A	N/A	N/A
Metals, Total												
Arsenic ^c	mg/Kg	0.39	1.6	20	20	0.67	N/A	N/A	6.786	N/A	N/A	N/A
Barium	mg/Kg	5,400	67,000	N/E	N/E	5,600	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium	mg/Kg	37	450	2	2	80	N/A	N/A	1.501	N/A	N/A	N/A
Chromium ^d	mg/Kg	100,000	10,000	2,000	2,000	120,000	N/A	N/A	20.084	N/A	N/A	N/A
Lead	mg/Kg	400	800	250	1,000	N/E	N/A	N/A	10.548	N/A	N/A	N/A
Mercury	mg/Kg	23	310	2.0	2.0	24	N/A	N/A	0.170 U	N/A	N/A	N/A
Selenium	mg/Kg	390	5,100	N/E	N/E	400	N/A	N/A	N/A	N/A	N/A	N/A
Silver	mg/Kg	390	5,100	N/E	N/E	400	N/A	N/A	N/A	N/A	N/A	N/A
Chromium (VI)	mg/Kg	30	64	19	19	240	N/A	N/A	0.20 U	N/A	N/A	N/A
Petroleum												
NWTPH-Gx	mg/Kg	N/E	N/E	30/100	30/100	N/E	N/A	N/A	N/A	N/A	N/A	N/A
NWTPH-Dx Diesel	mg/Kg	N/E	N/E	2,000	2,000	N/E	25.0 U	25.0 U	N/A	25.0 U	158	56.9
NWTPH-Dx Oil	mg/Kg	N/E	N/E	2,000	2,000	N/E	50.0 U	72.4	N/A	50.0 U	565	245
NC8-12 Gas	mg/Kg	N/E	N/E	30/100	30/100	N/E	N/A	N/A	50 U	N/A	N/A	N/A
NC>12-22 Diesel	mg/Kg	N/E	N/E	2,000	2,000	N/E	N/A	N/A	50 U	N/A	N/A	N/A
NC>22-35 Lube Oil	mg/Kg	N/E	N/E	2,000	2,000	N/E	N/A	N/A	50 U	N/A	N/A	N/A
NC>35-40 Heavy Oil	mg/Kg	N/E	N/E	2,000	2,000	N/E	N/A	N/A	50 U	N/A	N/A	N/A
NC8-40 Total HC	mg/Kg	N/E	N/E	N/E	N/E	N/E	N/A	N/A	50 U	N/A	N/A	N/A

Notes:^a EPA Region IX 2004 Preliminary Remedial Goals (PRGs)^b CLARC Version 3.1 Spreadsheet Soil Values^c Arsenic background concentrations in Vancouver are typically > Human health risk-based criteria but generally less than 8.0 mg/Kg.^d Total chromium oxidation states not determined. PRGs and MTCA values are for Cr (III)

U = not detected at the limit of detection shown

N/E = Criterion not established for this analyte

N/A = Not analyzed for this analyte

Analytes exceeding one or more MTCA criterion are highlighted in RED.

TABLE 2:

FRITO-LAY
Hydraulic Lift Area Soil Cleanup Project
Confirmation Samples
Metals and Petroleum Hydrocarbon Results

Sample ID:	7	7-2	8	9	9-2	18
Sample Date:	1/3/2005	1/7/2005	1/3/2005	1/3/2005	1/7/2005	1/12/2005
Metals, TCLP						
Arsenic	N/A	0.500 U	N/A	N/A	0.500 U	0.500 U
Barium	N/A	1.442	N/A	N/A	0.300	0.100 U
Cadmium	N/A	0.100 U	N/A	N/A	0.100 U	0.100 U
Chromium	N/A	0.216	N/A	N/A	0.180	0.150 U
Lead	N/A	0.390 U	N/A	N/A	0.390 U	0.390 U
Mercury	N/A	0.170 U	N/A	N/A	0.170 U	0.170 U
Selenium	N/A	0.630 U	N/A	N/A	0.630 U	0.630 U
Silver	N/A	0.130 U	N/A	N/A	0.130 U	0.130 U
Metals, Total						
Arsenic ^c	N/A	0.500 U	N/A	N/A	3.080	0.50 U
Barium	N/A	N/A	N/A	N/A	N/A	151.51
Cadmium	N/A	1.396	N/A	N/A	1.112	1.065
Chromium ^d	N/A	7.968	N/A	N/A	14.007	14.401
Lead	N/A	3.554	N/A	N/A	5.872	12.548
Mercury	N/A	0.170 U	N/A	N/A	0.170 U	0.17 U
Selenium	N/A	N/A	N/A	N/A	N/A	0.63 U
Silver	N/A	N/A	N/A	N/A	N/A	0.346
Chromium (VI)	N/A	N/A	N/A	N/A	N/A	N/A
Petroleum						
NWTPH-Gx	4.00 U	N/A	N/A	4.00 U	N/A	4.0 U
NWTPH-Dx Diesel	55.1	N/A	25.0 U	54.5	N/A	41.4 U
NWTPH-Dx Oil	124.0	N/A	83.2	257.0	N/A	82.9 U
NC6-12 Gas	N/A	50 U	N/A	N/A	50 U	50 U
NC>12-22 Diesel	N/A	50 U	N/A	N/A	50 U	50 U
NC>22-35 Lube Oil	N/A	50 U	N/A	N/A	1,360	50 U
NC>35-40 Heavy Oil	N/A	50 U	N/A	N/A	110	50 U
NC6-40 Total HC	N/A	50 U	N/A	N/A	1,470	50 U

TABLE 4:

FRITO-LAY
Hydraulic Lift Area Soil Cleanup Project
Residual Contamination Samples
Analytical Results

Sample ID:		EPA PRG ^a		Ecology Human Health ^b			12@6	13@12	14@24	15@38	15-2	16@24	17@38	5	4-7	6-2
Sample Date:	Units	Residential	Industrial	A Unrestricted	A Industrial	B Unrestricted	1/6/2005	1/8/2005	1/8/2005	1/8/2005	1/7/2005	1/6/2005	1/6/2005	12/30/2004	1/7/2005	1/7/2005
Metals, TCLP																
Arsenic	mg/L	N/E	N/E	N/E	N/E	N/E	N/A	N/A	N/A	N/A	0.500 U	N/A	N/A	N/A	0.500 U	0.500 U
Barium	mg/L	N/E	N/E	N/E	N/E	N/E	N/A	N/A	N/A	N/A	1.442	N/A	N/A	N/A	1.442	1.442
Cadmium	mg/L	N/E	N/E	N/E	N/E	N/E	N/A	N/A	N/A	N/A	0.100 U	N/A	N/A	N/A	0.100 U	0.100 U
Chromium	mg/L	N/E	N/E	N/E	N/E	N/E	N/A	N/A	N/A	N/A	0.216	N/A	N/A	N/A	0.216	0.216
Lead	mg/L	N/E	N/E	N/E	N/E	N/E	N/A	N/A	N/A	N/A	0.380 U	N/A	N/A	N/A	0.380 U	0.380 U
Mercury	mg/L	N/E	N/E	N/E	N/E	N/E	N/A	N/A	N/A	N/A	0.170 U	N/A	N/A	N/A	0.170 U	0.170 U
Selenium	mg/L	N/E	N/E	N/E	N/E	N/E	N/A	N/A	N/A	N/A	0.830 U	N/A	N/A	N/A	0.830 U	0.830 U
Silver	mg/L	N/E	N/E	N/E	N/E	N/E	N/A	N/A	N/A	N/A	0.130 U	N/A	N/A	N/A	0.130 U	0.130 U
Metals, Total																
Arsenic	mg/Kg	0.39	1.8	20	20	0.67	N/A	N/A	N/A	N/A	0.520	N/A	N/A	N/A	0.500 U	2.851
Cadmium	mg/Kg	37	450	2	2	60	N/A	N/A	N/A	N/A	1.984	N/A	N/A	N/A	2.317	2.532
Chromium	mg/Kg	100,000	100,000	2,000	2,000	120,000	N/A	N/A	N/A	N/A	30.016	N/A	N/A	N/A	9.846	20.865
Lead	mg/Kg	400	800	250	1,000	N/E	N/A	N/A	N/A	N/A	10.555	N/A	N/A	N/A	3.118	10.226
Mercury	mg/Kg	23	310	2.0	2.0	24	N/A	N/A	N/A	N/A	0.170 U	N/A	N/A	N/A	0.170 U	0.170 U
Chromium VI	mg/Kg	30	64	19	19	240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Petroleum																
NWTPH-Gx	mg/Kg	N/E	N/E	30/100	30/100	N/E	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NWTPH-Dx Diesel	mg/Kg	N/E	N/E	2,000	2,000	N/E	1,150	4,780	3,380	4,860	N/A	2,740	4,010	2,910	N/A	N/A
NWTPH-Dx Oil	mg/Kg	N/E	N/E	2,000	2,000	N/E	2,740	9,850	7,910	12,700	N/A	10,800	16,800	6,750	N/A	N/A
NC8-12 Gas	mg/Kg	N/E	N/E	30/100	30/100	N/E	N/A	N/A	N/A	N/A	50 U	N/A	N/A	N/A	455	50 U
NC>12-22 Diesel	mg/Kg	N/E	N/E	2,000	2,000	N/E	N/A	N/A	N/A	N/A	135	N/A	N/A	N/A	3,880	68
NC>22-35 Lube Oil	mg/Kg	N/E	N/E	2,000	2,000	N/E	N/A	N/A	N/A	N/A	8,455	N/A	N/A	N/A	125	1,979
NC>35-48 Heavy Oil	mg/Kg	N/E	N/E	2,000	2,000	N/E	N/A	N/A	N/A	N/A	480	N/A	N/A	N/A	50 U	205
NC8-40 Total HC	mg/Kg	N/E	N/E	N/E	N/E	N/E	N/A	N/A	N/A	N/A	9,080	N/A	N/A	N/A	4,580	2,270
PAHs																
Acenaphthene	mg/Kg	3,700	28,000	N/E	N/E	4,800	N/A	N/A	N/A	N/A	50 U	N/A	N/A	N/A	50 U	50 U
Acenaphthylene	mg/Kg	N/E	N/E	N/E	N/E	N/E	N/A	N/A	N/A	N/A	50 U	N/A	N/A	N/A	50 U	50 U
Anthracene	mg/Kg	22,000	100,000	N/E	N/E	24,000	N/A	N/A	N/A	N/A	50 U	N/A	N/A	N/A	50 U	50 U
Benzo(a)anthracene	mg/Kg	0.82	2.10	N/E	N/E	0.137	N/A	N/A	N/A	N/A	50 U	N/A	N/A	N/A	50 U	50 U
Benzo(a)pyrene	mg/Kg	0.082	0.210	0.1	2.0	0.137	N/A	N/A	N/A	N/A	50 U	N/A	N/A	N/A	50 U	50 U
Benzo(b)fluoranthene	mg/Kg	0.82	2.10	N/E	N/E	0.137	N/A	N/A	N/A	N/A	50 U	N/A	N/A	N/A	50 U	50 U
Benzo(f)fluoranthene	mg/Kg	N/E	N/E	N/E	N/E	N/E	N/A	N/A	N/A	N/A	50 U	N/A	N/A	N/A	50 U	50 U
Benzo(k)fluoranthene	mg/Kg	6.2	21	N/E	N/E	0.137	N/A	N/A	N/A	N/A	50 U	N/A	N/A	N/A	50 U	50 U
Benzo(g,h,i)perylene	mg/Kg	N/E	N/E	N/E	N/E	N/E	N/A	N/A	N/A	N/A	50 U	N/A	N/A	N/A	50 U	50 U
Chrysene	mg/Kg	0.082	0.210	N/E	N/E	0.137	N/A	N/A	N/A	N/A	50 U	N/A	N/A	N/A	50 U	50 U
Dibenz(a,h)acridine	mg/Kg	N/E	N/E	N/E	N/E	N/E	N/A	N/A	N/A	N/A	50 U	N/A	N/A	N/A	50 U	50 U
Dibenz(a,h)acridine	mg/Kg	N/E	N/E	N/E	N/E	N/E	N/A	N/A	N/A	N/A	50 U	N/A	N/A	N/A	50 U	50 U
Dibenz(a,h)anthracene	mg/Kg	0	0	N/E	N/E	0.137	N/A	N/A	N/A	N/A	50 U	N/A	N/A	N/A	50 U	50 U
7H-Dibenz(c,g)carbazole	mg/Kg	N/E	N/E	N/E	N/E	N/E	N/A	N/A	N/A	N/A	50 U	N/A	N/A	N/A	50 U	50 U
Dibenz(a,e)pyrene	mg/Kg	N/E	N/E	N/E	N/E	N/E	N/A	N/A	N/A	N/A	50 U	N/A	N/A	N/A	50 U	50 U
Dibenz(a,h)pyrene	mg/Kg	N/E	N/E	N/E	N/E	N/E	N/A	N/A	N/A	N/A	50 U	N/A	N/A	N/A	50 U	50 U
Dibenz(a,i)pyrene	mg/Kg	N/E	N/E	N/E	N/E	N/E	N/A	N/A	N/A	N/A	50 U	N/A	N/A	N/A	50 U	50 U
Fluoranthene	mg/Kg	2,300	22,000	N/E	N/E	3,200	N/A	N/A	N/A	N/A	50 U	N/A	N/A	N/A	50 U	50 U
Fluorene	mg/Kg	2,700	28,000	N/E	N/E	3,200	N/A	N/A	N/A	N/A	50 U	N/A	N/A	N/A	50 U	50 U
Indeno(1,2,3-c,d)pyrene	mg/Kg	0.82	2.10	N/E	N/E	0.137	N/A	N/A	N/A	N/A	50 U	N/A	N/A	N/A	50 U	50 U
3-methylcholanthrene	mg/Kg	N/E	N/E	N/E	N/E	N/E	N/A	N/A	N/A	N/A	50 U	N/A	N/A	N/A	50 U	50 U
Naphthalene	mg/Kg	58	180	5	5	1,600	N/A	N/A	N/A	N/A	50 U	N/A	N/A	N/A	50 U	50 U
Phenanthrene	mg/Kg	N/E	N/E	N/E	N/E	N/E	N/A	N/A	N/A	N/A	50 U	N/A	N/A	N/A	50 U	50 U
Pyrene	mg/Kg	2,300	28,000	N/E	N/E	2,400	N/A	N/A	N/A	N/A	50 U	N/A	N/A	N/A	50 U	50 U
Volatile Organics																
EDB	mg/Kg	0.032	0.073	0.005	0.005	0.0118	N/A	N/A	0.001 U	N/A	0.001 U	N/A	N/A	N/A	0.001 U	0.001 U
Other	mg/Kg	Varies	Varies	Varies	Varies	Varies	N/A	N/A	0.10 U	N/A	0.100 U	N/A	N/A	N/A	3.126 ¹⁰	0.100 U
Pesticides																
Lindane	mg/Kg	0.44	1.70	0.01	0.01	0.768	N/A	N/A	0.010 U	N/A	0.010 U	N/A	N/A	N/A	0.010 U	0.010 U
DDT	mg/Kg	1.7	7.0	3	4	2.94	N/A	N/A	0.010 U	N/A	0.010 U	N/A	N/A	N/A	0.010 U	0.010 U
PCBs																
Total PCBs	mg/Kg	3.6/0.22	21/0.74	1	10	N/E	N/A	N/A	0.05 U	N/A	0.05 U	N/A	N/A	N/A	0.05 U	0.05 U
Solids																
Total Solids	% (w/w)	N/E	N/E	N/E	N/E	N/E	61.1	86.5	86.5	89.5	N/A	90.3	81.8	84.7	N/A	N/A

NOTES: a: Total 8260 volatiles. Detected analytes are: benzene - 0.728 mg/Kg, ethylbenzene - 0.180 mg/Kg, toluene - 1.604 mg/Kg, xylenes - 0.618 mg/Kg.

U = not detected at the limit of detection shown

N/A = Not analyzed for this analyte

N/E = Criterion not established for this analyte

Analytes exceeding one or more MTCA criterion are highlighted in RED.

TABLE 1:
Frito-Lay Vancouver
Sample Information

Sample Number	Collection Date	Sample Type	Description
FL-01	5/26/2009	Geoprobe Soil	5 feet bgs. NW of hyd lift. Dk brn fine SILT (ML). SI plast. sl damp. No odor, no staining, no sheen. PID 0.1.
FL-02	5/26/2009	Geoprobe Soil	5 feet bgs. NE of hyd lift. Dk brn fine SILT (ML). SI plast. sl damp. No odor, no staining, no sheen. PID 0.1.
FL-03	5/26/2009	Geoprobe Soil	Not Sampled. Refusal at 1 foot bgs. NE corner of lift near bldg.
FL-04	5/26/2009	Geoprobe Soil	2 feet bgs. E of north part of lift. Brn sandy SILT (ML) below gray sandy gravel FILL. Damp. SI HC odor, no sheen. PID 0.1.
FL-04-5	5/26/2009	Geoprobe Soil	5 feet bgs. E of north part of lift. Brn SILT (ML) trace gray mottle. No odor, no staining, no sheen. PID 0.1.
FL-05	5/26/2009	Geoprobe Soil	5 feet bgs. E of lift N of rams. Brn sandy silt (ML). No odor, no staining, no sheen. PID 0.1.
FL-05-1	5/26/2009	Geoprobe Soil	1 foot bgs. E of lift N of rams. Blk silty gravel FILL (GM) trace wood. damp. Heavy HC odor, staining, cl globular sheen. PID 0.2.
FL-06	5/26/2009	Geoprobe Soil	5 feet bgs. E of lift adjacent to rams. Brn sandy SILT (ML). sl damp. No odor, no staining, no sheen. PID 0.4.
FL-07	5/26/2009	Geoprobe Soil	5 feet bgs. E of lift S of rams. Brn sandy SILT (ML). SI damp. No odor, no staining, no sheen. PID 0.1.
FL-07-2	5/26/2009	Geoprobe Soil	2 feet bgs. E of lift S of rams. Blk sandy gravel FILL (GM) trace wood. damp. Heavy HC odor, staining, cl globular sheen. PID 0.7.
FL-07-12	5/26/2009	Geoprobe Soil	12 feet bgs. E of lift S of rams. Brn sandy SILT (ML). SI damp. No odor, no staining, no sheen. PID 0.1.
FL-07-WT30	5/26/2009	Geoprobe Soil	30 feet bgs. E of lift S of rams. Gray med SAND (SW). Sat'd. No odor, no staining, no sheen. PID 0.1.
FL-07-W	5/26/2009	Water	SWL approx 28.6 ft bgs. Clear, colorless, odorless, no sheen. pH-6.7, T-59.0 F, SC-225 μ S/cm - stable after 2L purge.
FL-08	5/26/2009	Geoprobe Soil	8 feet bgs (gs is 3.0 feet above gs at FL-07). W of lift on ramp. Brn sandy SILT (ML) Damp. No odor, staining or sheen. PID 0.2.
FL-08-2	5/26/2009	Geoprobe Soil	2 feet bgs (see above). W of lift on ramp. Gray silt FILL trace wood. damp. No odor, staining or sheen. PID 0.4.
FL-00-W	5/26/2009	Trip Blank (Water)	DDI water trip blank

TABLE 2a:
Frito-Lay Vancouver
Soil Analytical Results
(mg/Kg)

Sample ID:	FL-01	FL-02	FL-04	FL-04-5	FL-05-1	FL-05	FL-06	FL-07-2	FL-07	FL-08-2	FL-08
Sample Date:	5/26/2009	5/26/2009	5/26/2009	5/26/2009	5/26/2009	5/26/2009	5/26/2009	5/26/2009	5/26/2009	5/26/2009	5/26/2009
Sample Depth (Feet below ground surface):	5.0	5.0	2.0	5.0	1.0	5.0	5.0	2.0	5.0	2.0 c	8.0 c
NWTPH Petroleum Hydrocarbons (mg/Kg)											
Gasoline	3.09 U	3.10 U	3.04 U	3.03 U	-	-	-	-	-	-	-
Diesel ^b	6.1	11.7	12.0	6.6	22.6	9.3	11.0	266	10.3	18.9 U	18.8 U
Lube Oil	61.7 U	62.0 U	60.8 U	60.6 U	80.4	61.7 U	63.1 U	957	60.9 U	63.1 U	62.5 U
Extractable Petroleum Hydrocarbons (EPH)											
>nC8-nC10 Aliphatic	-	-	-	-	-	-	-	6.20 U	-	-	-
>nC10-nC12 Aliphatic	-	-	-	-	-	-	-	6.20 U	-	-	-
>nC10-nC12 Aromatic	-	-	-	-	-	-	-	6.20 U	-	-	-
>nC12-nC16 Aliphatic	-	-	-	-	-	-	-	59.8	-	-	-
>nC12-nC16 Aromatic	-	-	-	-	-	-	-	6.20 U	-	-	-
>nC16-nC21 Aliphatic	-	-	-	-	-	-	-	170	-	-	-
>nC16-nC21 Aromatic	-	-	-	-	-	-	-	46.3	-	-	-
>nC21-nC34 Aliphatic	-	-	-	-	-	-	-	1,780	-	-	-
>nC21-nC34 Aromatic	-	-	-	-	-	-	-	120	-	-	-
Volatile Petroleum Hydrocarbons (VPH)											
Benzene	-	-	-	-	-	-	-	0.062 U	-	-	-
Toluene	-	-	-	-	-	-	-	0.062 U	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	0.062 U	-	-	-
Xylenes, Total	-	-	-	-	-	-	-	0.062 U	-	-	-
n-Hexane	-	-	-	-	-	-	-	0.31 U	-	-	-
C5-C6 Aliphatic	-	-	-	-	-	-	-	1.5 U	-	-	-
>C6-C8 Aliphatic	-	-	-	-	-	-	-	1.5 U	-	-	-
>C8-C10 Aliphatic	-	-	-	-	-	-	-	1.5 U	-	-	-
>C8-C10 Aromatic	-	-	-	-	-	-	-	1.5 U	-	-	-
>C10-C12 Aliphatic	-	-	-	-	-	-	-	1.5 U	-	-	-
>C10-C12 Aromatic	-	-	-	-	-	-	-	5.2	-	-	-
>C12-C13 Aromatic	-	-	-	-	-	-	-	6.7	-	-	-
Sheen Test	Neg	Neg	Neg	Neg	Pos	Neg	Neg	Pos	Neg	Neg	Neg
Color/Odor	None/None	None/None	None/None	None/None	Gray/HC	None/None	None/None	Gray/HC	None/None	Gray/None	None/None
Headspace by PID (ppmv) ^a	0.1	0.1	0.1	0.1	0.2	0.1	0.4	0.7	0.1	0.4	0.2

^a Headspace vapor concentration - parts per million by volume as isobutylene

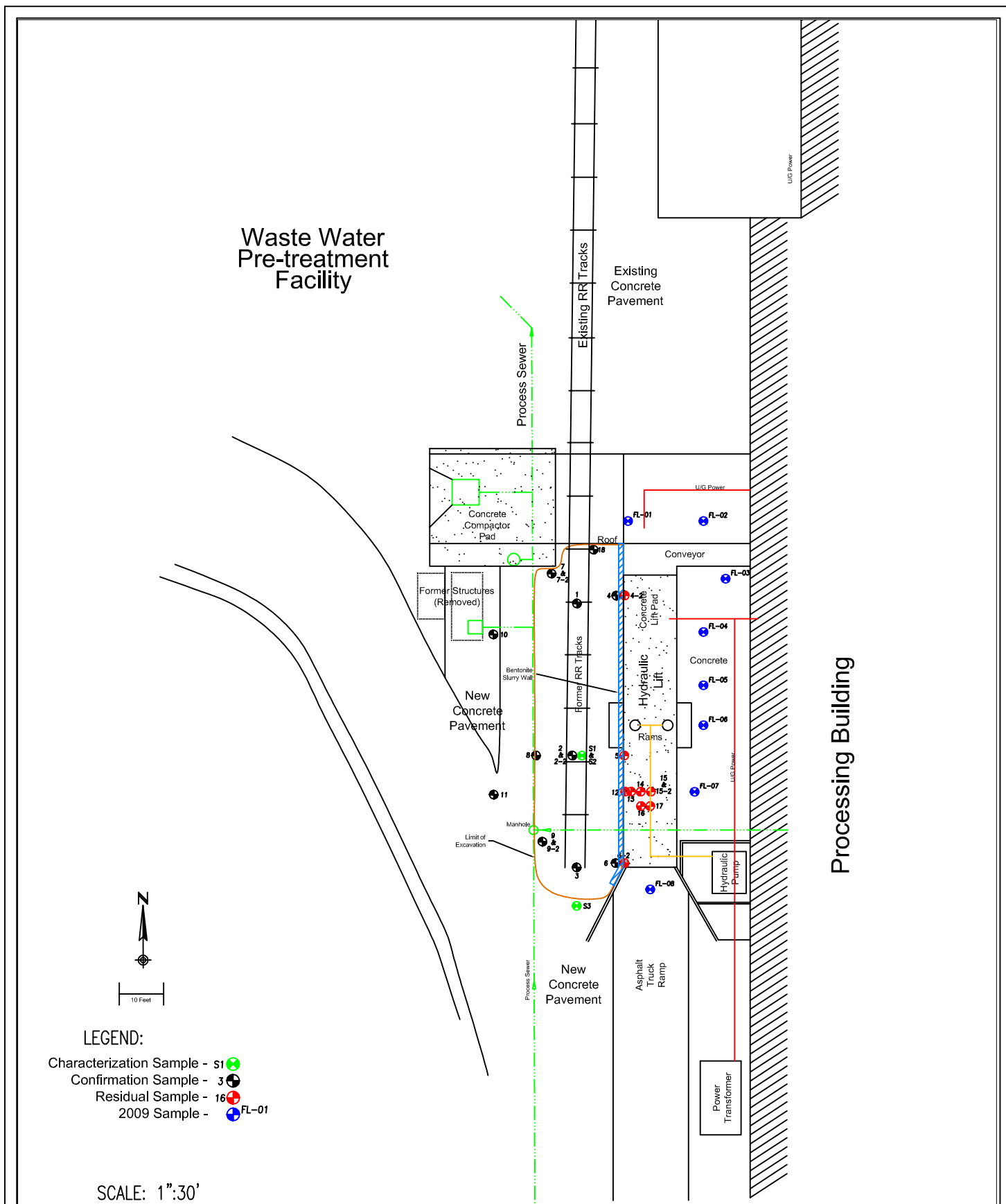
^b Diesel concentrations are adjusted for 20.2 mg/Kg Diesel detected in the laboratory method blank

TABLE 2b:
Frito-Lay Vancouver
Soil Analytical Results
(mg/Kg)

Sample ID:	FL-07-2	
Sample Date:	5/26/2009	
Polycyclic Aromatics		
1-Methylnaphthalene	0.0504	
2-Methylnaphthalene	0.0620	
Acenaphthene	0.00827	U
Acenaphthylene	0.00827	U
Anthracene	0.00827	U
Benzo(a)anthracene	0.00827	U
Benzo(a)pyrene	0.00827	U
Benzo(b)fluoranthene	0.00827	U
Benzo(g,h,i)perylene	0.00827	U
Benzo(k)fluoranthene	0.00827	U
Chrysene	0.00827	U
Dibenzo(a,h)anthracene	0.00827	U
Fluoranthene	0.00827	U
Fluorene	0.0107	
Indeno(1,2,3-cd)pyrene	0.00827	U
Naphthalene	0.0173	
Phenanthrene	0.0553	
Pyrene	0.0116	
Volatile Organics		
1,2,4-Trimethylbenzene	0.0124	U
1,2-Dibromoethane	0.0124	U
1,2-Dichloroethane	0.0124	U
1,3,5-Trimethylbenzene	0.0124	U
Benzene	0.0124	U
Ethylbenzene	0.0124	U
Isopropylbenzene	0.0124	U
m,p-Xylenes	0.0248	U
Methyl tert-butyl ether	0.0124	U
n-Propylbenzene	0.0124	U
Naphthalene	0.0261	
o-Xylene	0.0124	U
Toluene	0.0124	U

U = Not found at the limit of detection shown

PAHs shown in **RED** are carcinogenic

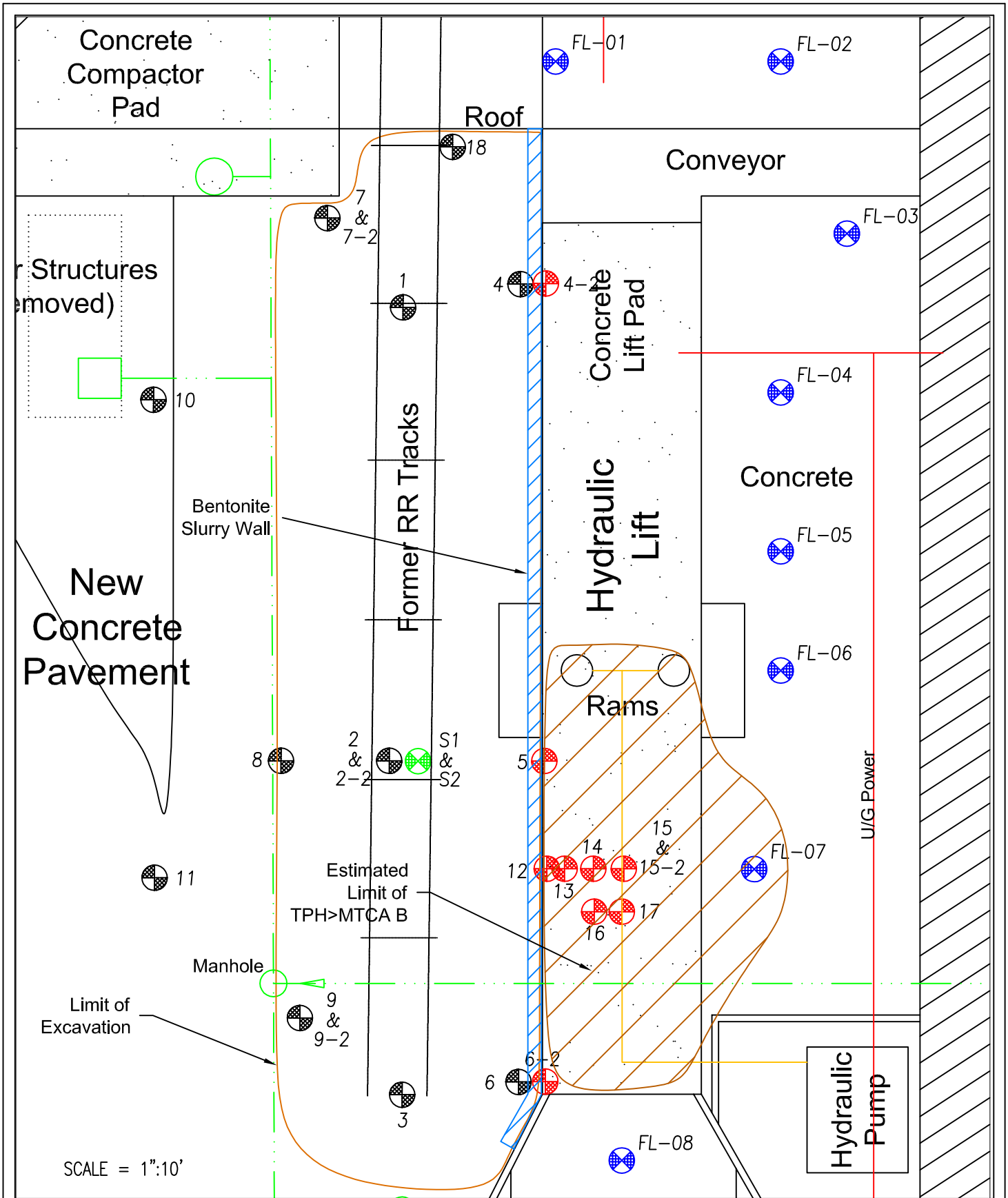


**ENVIRONMENTAL
HEALTH
MANAGEMENT, INC.**
PO Box 1746
Lake Oswego, Oregon 97035
(503) 287-4620

DRAWN BY: **KIM**
APPROVED BY: **JHR**
DATE: **7/2/09**
JOB NO.: **13002**

FRITO-LAY - VANCOUVER WA
Hydraulic Lift Area Investigation
Location Details

FIGURE
2

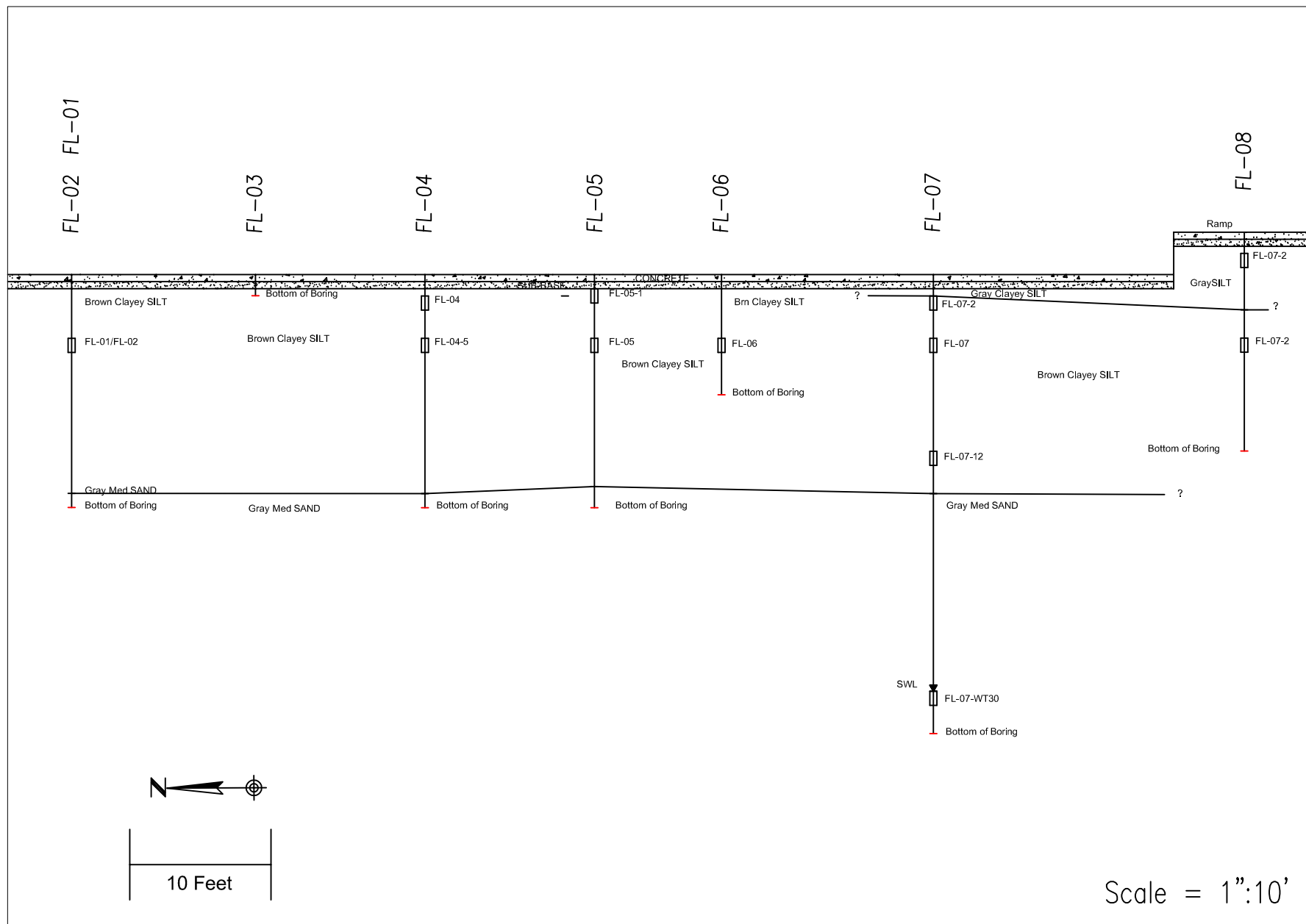


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FRITO-LAY, VANCOUVER, WA
Hydraulic Lift Area Investigation
Sample Location Detail

FIGURE
3



Appendix B

Groundwater Monitoring Well Construction Logs

BORING LOG

Drill Rig:

Date Drilled:

6-10-11

Logged By:

Boring Dia:

Inches

Boring Number:

MW-1

Tim O'Gara, Lg, LHg

Sample	Blow Counts	Completion	OVA (ppm)	Depth Feet	Lithology	Description
				0	Gravel and fill	
				5	CL - Silty Clay, stiff, tan	
				10	ML - Silt and very fine Sand, tan	
				15		
				20	SP - Medium Sand, grey/black	
				25	SP - Fine Sand, grey	
				30		
				35		

Completion Notes:

Boring is Flush mount

Site:

Frito Lay, Vancouver

Project No.:

Page

1

			BORING LOG			
			Drill Rig:		Date Drilled: 6-10-11	Logged By:
			Boring Dia: Inches		Boring Number: MW-2	Tim O'Gara, Lg, LHg
Sample	Blow Counts	Completion	OVA (ppm)	Depth Feet	Lithology	Description
				5	Gravel and fill	ML - Silt with fine Sand, tan
				10	ML - Silt, no sand, tan	
				15		
				20	SP - Fine to Medium Sand, grey	
				25		
				30		
				35		
Completion Notes: Flush mount completion					Site: Frito Lay, Vancouver	
					Project No.:	Page 1

			BORING LOG		
			Drill Rig:	Date Drilled: 9-13-12	Logged By:
			Boring Dia: Inches	Boring Number: MW-3	Tim O'Gara, LG, LHC
Sample	Blow Counts	Completion	Depth Feet	Lithology	Description
			0	Gravel and fill	ML - Sandy Silt, tan
			5		
			10	SW - Sand, very fine	
			15		
			20	SP - Sand, medium to coarse	
			25	SW - Sand, medium	
			30		
			35		
Completion Notes: Built as usual, but used foam bentonite bridge sleeve from top of screen @ 30 feet to 27.5 feet before bentonite grout was installed				Site: Frito Lay - Vancouver	
				Project No.:	Page. 1

			BORING LOG		
			Drill Rig:	Date Drilled: 9-13-12	Logged By:
			Boring Dia: Inches	Boring Number: MW-3	Tim O'Gara, LG, LHg
Sample	Blow Counts	Completion	Depth Feet	Lithology	Description
			45		
			50		
			55		
			60		
			65		
			70		
			75		
Completion Notes: Built as usual, but used foam bentonite bridge sleeve from top of screen @ 30 feet to 27.5 feet before bentonite grout was installed				Site: Frito Lay - Vancouver	
				Project No.:	Page 2



about GHD

GHD is one of the world's leading professional services companies operating in the global markets of water, energy and resources, environment, property and buildings, and transportation. We provide engineering, environmental, and construction services to private and public sector clients.

Damian Vanetti
damian.vanetti@ghd.com
315.802.0340

Ian McNamara
ian.mcnamara@ghd.com
315.802.0312

www.ghd.com