



**PERIODIC REVIEW REPORT  
DRAFT**

**Tetra Pak  
Facility Site ID#: 34822454  
Cleanup Site ID#: 2615**

**3125 Thompson Avenue  
Vancouver, Washington 98860**

**Southwest Regional Office**

**TOXICS CLEANUP PROGRAM**

**July 2018**

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## 1.0 INTRODUCTION

This document is a review by the Washington State Department of Ecology (Ecology) of post-cleanup conditions and monitoring data to ensure that human health and the environment continue being protected at the Tetra Pak Materials LP (Tetra Pak) site (Site). Cleanup at this Site was implemented under the Model Toxics Control Act (MTCA) regulations, Chapter 173-340 Washington Administrative Code (WAC).

Cleanup activities at this Site were completed under the Voluntary Cleanup Program (VCP). The cleanup actions resulted in concentrations of dioxins in soil and pentachlorophenol (PCP) in groundwater exceeding MTCA Method B cleanup levels remaining at the Site. The MTCA Method B cleanup levels for soil and groundwater are established under WAC 173-340-740 and WAC 173-340-720, respectively. WAC 173-340-420 (2) requires that Ecology conduct a periodic review of a site every five years under the following conditions:

- (a) Whenever the department conducts a cleanup action.
- (b) Whenever the department approves a cleanup action under an order, agreed order or consent decree.
- (c) Or, as resources permit, whenever the department issues a no further action (NFA) opinion.
- (d) And one of the following conditions exists:
  - 1. Institutional controls or financial assurance are required as part of the cleanup.
  - 2. Where the cleanup level is based on a practical quantitation limit.
  - 3. Where, in the department's judgment, modifications to the default equations or assumptions using site-specific information would significantly increase the concentration of hazardous substances remaining at the site after cleanup or the uncertainty in the ecological evaluation or the reliability of the cleanup action is such that additional review is necessary to assure long-term protection of human health and the environment.

When evaluating whether human health and the environment are being protected, the factors the department shall consider include [WAC 173-340-420(4)]:

- (a) The effectiveness of ongoing or completed cleanup actions, including the effectiveness of engineered controls and institutional controls in limiting exposure to hazardous substances remaining at the Site.
- (b) New scientific information for individual hazardous substances or mixtures present at the Site.
- (c) New applicable state and federal laws for hazardous substances present at the Site.
- (d) Current and projected Site use.
- (e) Availability and practicability of higher preference technologies.
- (f) The availability of improved analytical techniques to evaluate compliance with cleanup levels.

The department shall publish a notice of all periodic reviews in the Site Register and provide an opportunity for public comment.

## **2.0 SUMMARY OF SITE CONDITIONS**

### **2.1 Site History**

The Site is located at 3125 Thompson Avenue in the City of Vancouver in Clark County, Washington (Vicinity Map - Appendix 6.1). The Site is located on approximately 3.7 acres in the Columbia River lowland area at about one mile north of the Columbia River at an elevation of approximately 50 feet above mean sea level (msl). The Site encompasses a single tax parcel (Clark County Parcel #50000), which is adjacent to another parcel owned by Tetra Pak. The Site is zoned commercial/industrial. The land use in the vicinity of the Site is commercial, industrial and residential. There is one structure on the Site, a 14,000-square foot (approximate) building constructed in 1974 currently known as West Warehouse Building, that is being used by Tetra Pak for office space, maintenance activities, storage of parts and equipment and certain photolithographic (label making) processes. A former tank farm area, located on the north side of the existing building, is paved and used as a temporary storage area for pallets and miscellaneous equipment and employee parking. A Site Plan is available as Appendix 6.2.

Prior to 1974, the Site was undeveloped rural land and was owned by the former Burlington Northern Railroad, now the BNSF Railway Company. Roberts Consolidated Industries (Roberts) constructed a facility in 1974 to formulate and store wood treatment products. The Roberts facility (later Strebor/Beecham) included a 14,000-square foot building, a railroad spur and thirteen 10,000-gallon underground storage tanks (USTs). The building included offices, a mixing room, a filling room, and a product storage area. The Roberts facility was closed in 1986. At the close of closure, the two USTs located under the mixing room were abandoned in-place by filling with cement grout following cleaning. The other eleven USTs were removed and transported off-site for disposal. It was understood that some contaminated soil associated with the tank farm USTs might have been removed; however, there was no documentation available that discusses specific soil removal activities. Following the Roberts facility close-out and USTs removal, the property was purchased by Tetra Pak in 1989.

Until 1986, Site operations comprised primarily of receiving raw material, and mixing, packaging, and sorting of wood-treating solutions. The raw materials were delivered to the site by trucks, tanker trucks, and rail tanker cars. A former railroad spur on the east side of the building was primarily used for receiving bulk shipments of petroleum-hydrocarbon based raw materials such as naphtha and mineral spirits used as carriers for the wood preservatives. The wood-treating solutions mixture consisted of 91% naphtha, 6.4% water repellents and inert material, approximately 2% pentachlorophenol, 0.2% other chlorinated phenols, and 0.3% bis tributyltin oxide.

## **2.2 Site Investigations**

### Known and Suspected Releases

Based on the historical records, several spills of PCP and other organic compounds have occurred at the Site which impacted the soil and groundwater. The following known or suspected spills were documented in the reports and correspondences:

- Spill of 100 to 200 gallons of wood-treating solution in 1980. A tank was reportedly overfilled and the solution was released to an unsealed earthen sump below the tank. Based on the available information, it was not known if the tank was underground or above ground. Additionally, information regarding the tank and the sump location was not available.
- Spill of 40 to 100 gallons of wood-treating solution containing at an unknown location in March 1983.
- Spill of approximately 17 gallons of wood-treating solution containing PCP in the tank farm in February 1984.
- Spill of 40 to 50 gallons of wood-treating solution containing PCP when a tanker truck was overfilled in June 1984. The product reportedly flowed into one of the catch basins west of the tank farm area.
- Spill of 40 gallons of wood-treating solution containing PCP in the tank farm in March 1985.
- Spill of 15 gallons of wood-treating solution containing PCP in the tank farm in October 1985.
- A spill of up to 5,000 gallons of wood-treating solution reportedly occurred sometime prior to 1987. Much of the spill apparently flowed into the dry wells located in the parking lot.

As a result of above spills, several rounds of soil and groundwater investigations were conducted at the Site from 1985 through 1990. The results of these investigations indicated the presence of detectable concentrations of PCP, aromatic and aliphatic hydrocarbons, octachlorodibenzodioxin (OCDD) in soil and chlorinated volatile organic compounds (CVOCs), arsenic, chromium, and lead in groundwater.

#### **2.2.1 1985 - March and October**

As a result of PCP spill, Ecology and Beecham Home Improvement Products (BHIP) conducted soil investigations in the tank farm. A total of ten shallow soil samples were collected near one

of the tank farm USTs and from a topographic low spot along the railroad spur and analyzed for PCP. The PCP results in the soil samples were ranged from 0.62 milligrams per kilogram (mg/kg) to 330 mg/kg. The PCP concentrations at some of the locations exceeded the Model Toxics Control Act (MTCA) Method B cleanup level of 2.5 mg/kg. USTs locations, soil sampling locations and sample results are available as Appendix 6.3.

### **2.2.2 1987 – Payne Reimer Group**

A total of seven soil borings were drilled, one through the flooring of the mixing room and seven outside the building including one in the tank farm. Soil and groundwater samples were collected for the laboratory analysis. Total aliphatic and aromatic hydrocarbons (590 mg/kg to 2,800 mg/kg and 300 mg/kg to 1,070 mg/kg, respectively) were detected in the soil sample collected in the tank farm boring. PCP and OCDD were also detected at concentrations of 15,200 mg/kg and 0.05 mg/kg, respectively, in a soil sample collected at approximately 7 feet below ground surface from the same boring.

Two of the borings were completed as groundwater monitoring wells (MW-5-16 and MW-5) and the groundwater was sampled for VOCs and PCP analysis. Perchloroethylene (PCE), trichloroethylene (TCE), and dichloroethylene (DCE) were detected in the groundwater sample collected from MW-5-16 at concentrations of 11 micrograms per liter (µg/l), 11 µg/l, and 26 µg/l, respectively. Since there was no indications that PCE or TCE was used at the Site, it was concluded that the detections of PCE and TCE were from an off-Site source, potentially from the nearby Cadet Manufacturing Company PCE/TCE plume which has similar PCE and TCE concentrations. PCP was not detected above the laboratory detection limit of 10 µg/l. Soil boring locations and soil and groundwater sample results are available as Appendix 6.4.

### **2.2.3 1988 - Bay West Environmental Services**

A total of seven soil borings were completed at the Site, five borings through the floor of the mixing room and two borings in the tank farm. Also, three groundwater monitoring wells (MW-1, MW-2 and MW-3) were installed. Soil samples were collected from the borings and the groundwater monitoring wells were sampled for laboratory analysis. Only PCP was detected at concentrations up to 890 mg/kg in the boring samples collected from the two borings completed in the tank farm. No VOCs were detected in any of the soil samples.

Groundwater samples collected from well MW-1, MW-2 and MW-3 were analyzed for PCP and VOCs. PCP was not detected in any of the groundwater samples. PCE (1.1 µg/l to 4.1 µg/l), TCE (3.2 µg/l to 16 µg/l), 1,2-DCE (1.2 µg/l to 5.3 µg/l), 1,1,1-trichloroethane (1.5 µg/l to 5 µg/l), and 1,2-dichloropropane (1.8 µg/l) were detected in the groundwater samples. Soil boring and groundwater monitoring well locations and results are available as Appendix 6.5.

#### **2.2.4 February 2002 and February 2003 – Kennedy/Jenks Consultants**

To better define the lateral and vertical extent of soil and groundwater contamination, a number of soil borings were drilled along the former railroad spur, in the former tank farm area and in the dry wells/catch basins area. Two additional groundwater monitoring wells (MW-6 and MW-7) were also installed. Soil and groundwater samples were analyzed for semivolatile organic compounds (SVOCs), volatile organic compounds (VOCs), total metals and hexavalent chromium. Details of these investigations are summarized below:

##### Former Railroad Spur

A rail spur on the east side of the building was formerly used for receiving bulk shipments of petroleum-hydrocarbons-based raw materials such as naphtha and mineral spirits. Eight reconnaissance-level exploration borings (RS-1 through RS-8) were completed along the railroad spur at locations corresponding with stained areas and areas of PCP spills near the former tank farm for collecting surface and subsurface soil samples. The detected dioxins/furans concentrations [7.5 picograms per gram (pg/g) to 1971.3 pg/g; toxicity equivalent (TEQ) concentration] exceeded the preliminary screening criteria of 6.7 pg/g. Concentrations of all other chemicals were either below the laboratory detection limits or below the preliminary screening levels.

##### Former Tank Farm

This area was located outside the former mixing room on the north side of the building. In this area, eleven 10,000-gallon USTs were located to store products and raw materials. The USTs were removed in February 1986. Nine reconnaissance-level exploratory borings (TF-1 through TF-9) were completed in and around the former tank farm area. All the soil samples were field screened and selected samples were submitted for laboratory analysis. Results of the soil samples indicated that contaminants were either not detected or detected at concentrations less than the preliminary screening criteria.

##### Dry Well/Catch Basin Locations

There were four catch basins located on the west side of the building in a paved parking area. These catch basins were connected to the individual dry wells located adjacent to each catch basin. Three soil borings (DW-1, DW-2 and DW-4) were advanced adjacent to each of the three catch basins and associated dry wells. However, two borings (DW-3A and DW-3B) were drilled at the catch basin/dry well located near the former UST area and the mixing room. Soil samples were collected from each borings for laboratory analysis. In addition, four catch basin sediment samples (one sample from each of the catch basin; SED-1 through SED-4) were collected for laboratory analysis. Results of soil samples showed that only dioxins/furans concentrations (TEQ) were exceeded the preliminary screening level of 6.7 pg/g. All other contaminant concentrations either below the laboratory detection limits or below the MTCA Method A or Method B cleanup levels.



One or more of SVOCs, including PCP, were detected at elevated concentrations in sediment samples (SED-1, SED-2, and SED-3) from dry wells DW-1, DW-2, and DW-3. Soil and catch basins sediment sampling locations and sample results are available as Appendix 6.6.

### **2.2.5 Groundwater Investigations**

Following the reconnaissance groundwater investigation, a total of eight groundwater monitoring wells (MW-1 through MW-8) were installed during the various stages of the investigation at the Site. A total of nine rounds of groundwater monitoring were conducted at the Site which included four rounds of quarterly monitoring from April 2002 through February 2003 and five rounds of semiannual monitoring from July 2006 through March 2012. The PCP (0.78 µg/L to 1.67 µg/L) was detected above the MTCA Method B cleanup level of 0.22 µg/L. Groundwater monitoring well locations and monitoring results are available as Appendix 6.8.

Other contaminants detected in groundwater during the four rounds of quarterly monitoring from April 2002 through February 2003, included PCE and TCE. PCE was historically detected in MW-3 (6 µg/L) and MW-5 (11 µg/L), and TCE was historically detected in MW-3 (up to 8.7 µg/L), MW-5 (up to 26 µg/L), and MW-6 (up to 9.69 µg/L). The MTCA Method A cleanup level for both PCE and TCE is 5 µg/L. However, there was no indications that PCE and TCE was used at the Site and it was concluded that the on-Site detections may likely from an off-Site source. These PCE and TCE concentrations were similar to those seen in off-Site wells installed for the investigation of the nearby Cadet Manufacturing Company PCE/TCE and results of the area wide studies conducted by Ecology and others. Regardless, the subsequent monitoring of groundwater from these wells has seen a drop in concentration of PCE and TCE below cleanup levels, and they were no longer considered as contaminants of concern at the Site.

### **2.2.6 Feasibility Study**

Following the remedial investigation (RI), a feasibility study (FS) was conducted to evaluate the remedial technologies and to develop appropriate remedial alternatives for the Site. The screening process resulted in the following four potential remedial alternatives:

1. Institutional Controls / Groundwater Monitoring.
2. Asphalt Cap / Institutional Controls / Groundwater Monitoring.
3. Excavation and off-site Disposal of Contaminated Soils / Asphalt Cap / Institutional Controls / Groundwater Monitoring.
4. In-Situ Chemical Oxidation / Institutional Controls / Groundwater Monitoring.

After detailed evaluation of the above remedial alternatives, alternative 3 was selected as the preferred alternative for the Site. This alternative included the excavation and off-site disposal of majority of dioxins/furans contaminated soils, engineered cap over the residual contaminated soils, institutional controls and long term groundwater monitoring.

## **2.3 Remedial Activities**

In 1986, eleven USTs in the tank farm were removed. Some contaminated soil was reportedly also removed from the former tank farm and the clean soil was used to backfill the excavation although there was no specific documentation of the soil removal activities. The other two USTs were beneath the building were decommissioned in-place by rinsing with mineral spirits and filling with a cement grout.

In October 2002, as an interim action, Tetra Pak contracted with West Coast Marine Cleaning to remove and properly dispose of the contaminated sediment materials from each of the four catch basins.

In September 2006, excavation and removal of railroad spur were conducted. Approximately 320 lineal feet of rail spur was removed. Soil excavation was conducted beneath and in and around the rail spur to remove the contaminated soil. Approximately 104 tons of contaminated soil and debris were transported to Hillsboro Landfill in Hillsboro, Oregon for disposal. A total of four confirmation soil samples were collected from the excavation and analyzed for dioxins and PCP. Dioxins/furans TEQ concentrations [14.22 picogram per gram (pg/g) to 597.57 pg/g] exceeded the MTCA Method B cleanup level of (11 pg/g, TEQ) in all four confirmation soil samples. Additional contaminated soil could not be removed because of proximity to the building foundation. Approximate location and extent of soil excavation, confirmation soil sample locations and results are available as Appendix 6.7.

In May 2008, additional soil investigation was conducted to delineate the extent of residual dioxin in soil in the former rail spur area. In February 2011, an engineered asphalt cap was installed over the rail spur area, covering areas where dioxin-impacted soils preventing exposure to the soil via direct contact. While the cap is also likely to prevent leaching to groundwater, dioxin has not been detected in groundwater beneath the Site to date and it is highly unlikely to impact groundwater in the future given its low solubility.

## **2.4 Long Term Groundwater Monitoring**

Following the remedial activities, a Restrictive Covenant (RC) was recorded for the Site on August 7, 2012 and an NFA determination letter was issued on December 27, 2012. As per the requirements of NFA letter and RC, post NFA groundwater monitoring is being conducted at the Site on an 18-months frequency since October 2013. Groundwater samples are being analyzed for PCP, tetrachlorophenol, and trichlorophenol. Results are all below the laboratory detection limits. However, the laboratory detection limits used for the PCP analysis was higher than its MTCA Method B cleanup level of 0.22 µg/L during the 2012, 2013, and 2015 rounds of monitoring (<0.472 µg/L to <0.935 µg/L). The laboratory detection limit for PCP analysis was less than the MTCA Method B cleanup level in the samples collected during the most recent monitoring event (January 2017). Ecology will review all the groundwater monitoring results and coordinate with Kennedy/Jenks Consultants and/or laboratory to continue to achieve the lower detection limits for the PCP analysis in the future. In addition, the long term groundwater

monitoring will continue and Ecology may also consider making any necessary changes to the groundwater sampling frequency. Approximate groundwater monitoring well locations and monitoring results are available as Appendix 6.8.

## **2.5 Restrictive Covenant**

Following remedial activities, a Restrictive Covenant (RC) was recorded for the property on August 7, 2012 and the Site received an NFA determination on December 27, 2012.

The RC imposes the following limitations:

### Section 1.

A portion of the Property contains COC-impacted soil located beneath the area labeled as “Former Mixing Room” on Figure 1 in the west warehouse building and under an engineered asphalt cap. Figure 1 illustrates the locations of the west warehouse building and the engineered asphalt cap. The Owner shall not alter, modify, or remove the existing west warehouse building or engineered asphalt cap in any manner that may result in the release or exposure to the environment of that contaminated soil or create an exposure pathway without prior written approval from Ecology.

- a. Any activity in the area labeled as “Former Mixing Room” on Figure 1 in the west warehouse building or the engineered cap area that results in the release or exposure to the environment of the contaminated soil that remains on the Property, or creates an exposure pathway, is prohibited without prior written approval from Ecology. Some examples of activities that are prohibited include: drilling, digging, piercing the surface with a rod, spike or similar item, bulldozing or earthwork, or use of any equipment which compromises the integrity of these areas.
- b. No groundwater may be taken from the Property for drinking water purposes.

Section 2: Any activity in the area labeled as “Former Mixing Room” on Figure 1 in the west warehouse building or engineered asphalt cap area that interferes with the integrity of these features and continued protection of human health and the environment is prohibited.

Section 3: The Owner of the Property must give thirty (30) day advance written notice to Ecology of the Owner’s intent to convey any interest in the Property. No conveyance of title, easement, lease, or other interest in the Property shall be consummated by the Owner without adequate and complete provision for continued monitoring, operation, and maintenance of the Remedial Action.

Section 4: The Owner must restrict leases to uses and activities consistent with this Covenant and notify all lessees of the restrictions on the use of the Property.

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Section 5: The Owner must notify and obtain approval from Ecology prior to any use of the Property that is inconsistent with the terms of this Covenant. Ecology may approve any inconsistent use only after public notice and comment.

Section 6: The Owner shall allow authorized representatives of Ecology the right to enter the Property at reasonable times and with reasonable advance written notice (at least seven working days) for the purpose of evaluating the Remedial Action, to take samples, to inspect remedial actions conducted at the Property, to determine compliance with this Covenant, and to inspect records that are related to the Remedial Action.

Section 7: The Owner of the Property reserves the right under WAC 273-340-440 to record an instrument that provides that this Covenant shall no longer limit use of the Property or be of any further force or effect. However, such an instrument may be recorded only if Ecology, after public notice and opportunity for comment, concurs.

The RC is available as Appendix 6.9.

## **3.0 PERIODIC REVIEW**

### **3.1 Effectiveness of completed cleanup actions**

Based upon the Site visit conducted on September 11, 2017 the Site is currently occupied by the Tetra Pak facility. The engineered asphalt cap covering the residual dioxin/furan contaminated soils is in satisfactory condition and no repair, maintenance, or contingency actions are required at this time. A photo log is available as Appendix 6.10.

The RC for the Site was recorded and is in place. This RC prohibits activities that will result in the release of contaminants at the Site without Ecology's approval, and prohibits any use of the property that is inconsistent with the Covenant. This RC serves to ensure the long term integrity of the cap.

### **3.2 New scientific information for individual hazardous substances for mixtures present at the Site**

There is no new relevant scientific information for the contaminants related to the Site.

### **3.3 New applicable state and federal laws for hazardous substances present at the Site**

MTCA Method A and/or Method B cleanup levels for contaminants of concern at the Site have not changed since the NFA determination was issued on December 27, 2012. These cleanup levels remain protective of human health and the environment.

### **3.4 Current and projected site use**

The Site is being used for commercial purposes. There have been no changes in current or projected future Site or resource uses.

### **3.5 Availability and practicability of higher preference technologies**

The remedy implemented included the excavation of approximately 104 tons of contaminated soils and containment of a small quantity of dioxin/furan contaminated soils below an engineered asphalt cap, and it continues to be protective of human health and the environment. While higher preference cleanup technologies may be available, they are still not practicable at this Site.

### **3.6 Availability of improved analytical techniques to evaluate compliance with cleanup levels**

The analytical methods used at the time of the remedial action were capable of detection below selected site cleanup levels except for PCP in groundwater. The necessary modifications to the groundwater analytical method will be adopted to achieve the lower detection limits for PCP in

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the future analysis. However, the presence of improved analytical techniques would not affect decisions or recommendations made for the Site.

## **4.0 CONCLUSIONS**

The following conclusions have been made as a result of this periodic review:

- The cleanup actions completed at the Site continue to be protective of human health and the environment.
- Soil cleanup levels have not been met at the Site; however, the cleanup action has been determined to comply with cleanup standards since the long-term integrity of the isolation or containment system is ensured, and the requirements for isolation or containment technologies are being met.
- The RC for the property is in place and continues to be effective in protecting public health and the environment from exposure to hazardous substances and protecting the integrity of the cleanup action.

Based on this periodic review, Ecology has determined that remedial actions conducted at the Site continue to be protective of the human health and the environment. The requirements of the RC are satisfactorily met and no additional cleanup actions are required by the property owner at this time. It is the property owner's responsibility to continue to inspect the Site to assure that the integrity of the surface cover is maintained.

### **4.1 Next Review**

The next review for the Site will be scheduled five years from the date of this periodic review. In the event that additional cleanup actions or institutional controls are required, the next periodic review will be scheduled five years from the completion of those activities.

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## 5.0 REFERENCES

Kennedy/Jenks Consultants. Long Term Groundwater Monitoring Reports. Former Strebor Property, Tetra Pak, Vancouver, Washington. July 20, 2012 through October 29, 2015.

Kennedy/Jenks Consultants. Request for No Further Action and Transmittal of the Draft Environmental Covenant, Former Strebor Property, Tetra Pak, Vancouver, Washington. September 2, 2011.

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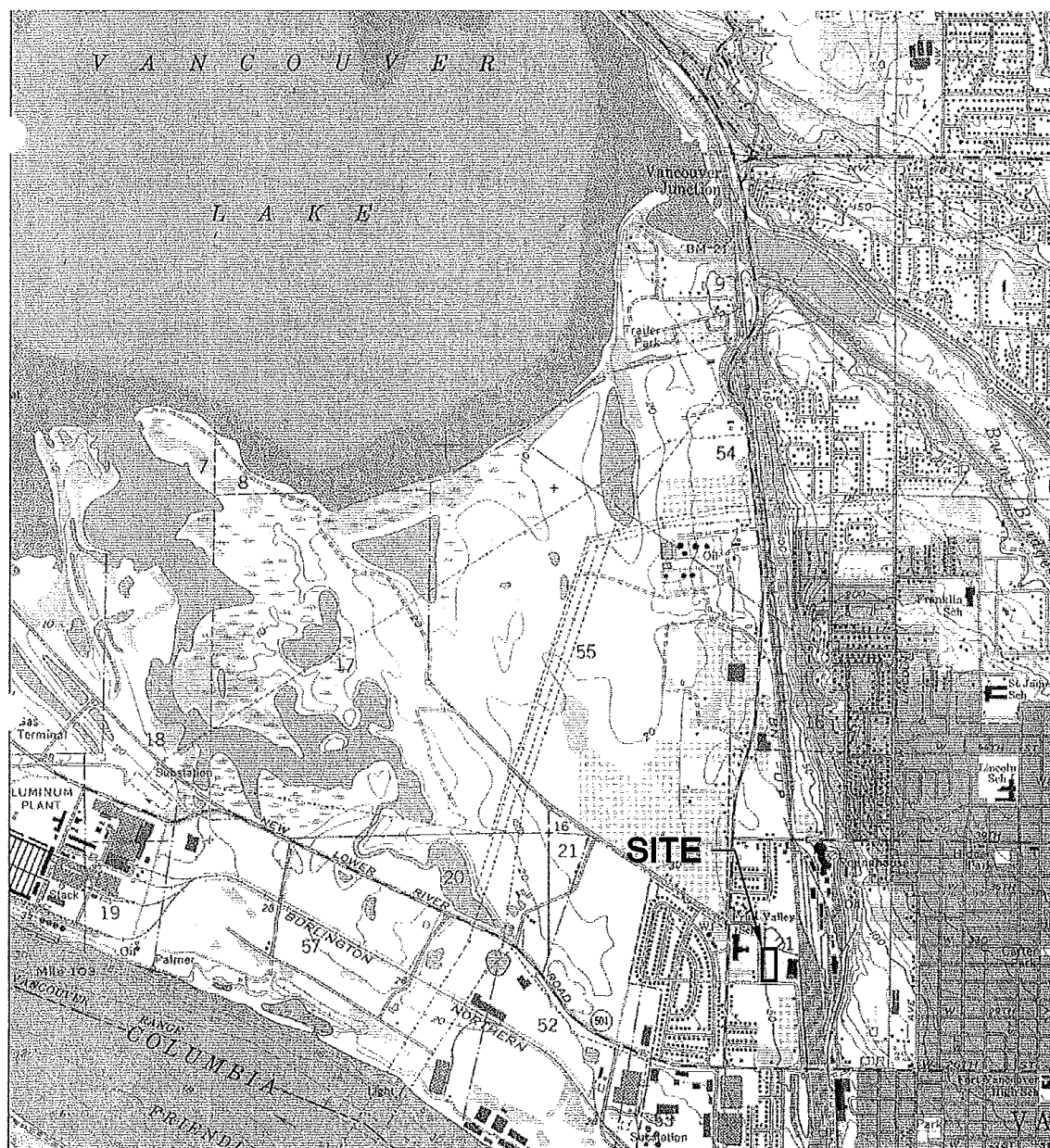
Ecology. Site Visit. September 11, 2017.



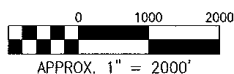
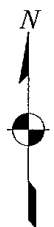
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## **6.0 APPENDICES**

## 6.1 Vicinity Map



QUADRANGLE LOCATION



Kennedy/Jenks Consultants

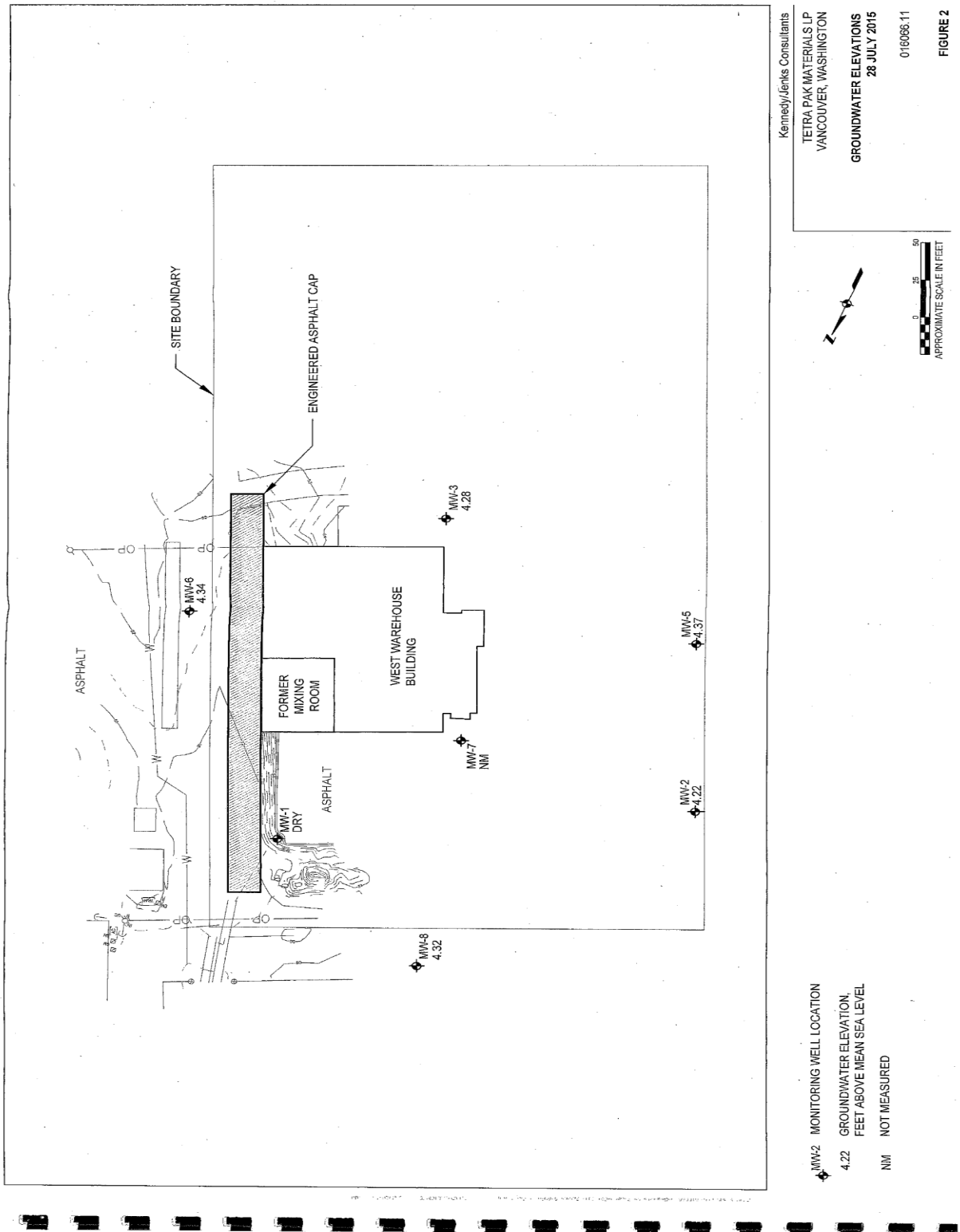
TETRA PAK  
FORMER STREBOR SITE

VICINITY MAP

K/J 016066.11/P01SK001

FIGURE 1

## 6.2 Site Plan



**Figure 2**  
**UST Locations in Former Tank Farm**  
**and PCP Soil Sampling Results**

## 6.4 1987 Investigation - Soil Sampling Locations and Sample Results

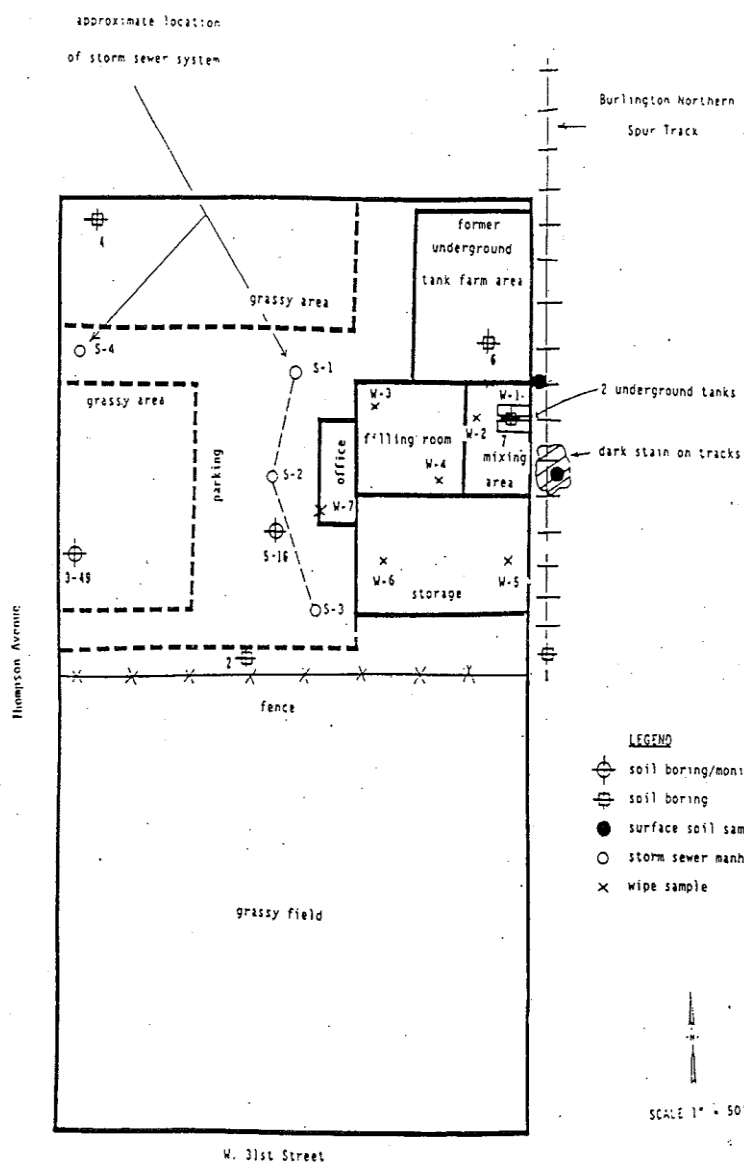


Figure 3  
1987 Site Assessment Sampling Locations

## 1987 Investigation - Soil Sample Results

**Table 1: Historical Soil Analytical Results**

Sample Designation <sup>(a)</sup>	General Location <sup>(b)</sup>	Sample Depth <sup>(c)</sup>	Pentachlorophenol ( $\mu\text{g/kg}$ ) <sup>(d)</sup>	Dioxin <sup>(e)</sup> ( $\mu\text{g/kg}$ )
<b>Payne Reimer Group - 1987</b>				
B1 No. 1	End of rail spur	0 to 1.5 ft	<4000	NA
B1 No. 8	End of rail spur	14.2 to 14.8 ft	<4000	NA
B2 No. 1	Immediately north of grassy area	0 to 1.5 ft	<4000	NA
B2 No. 8	Immediately north of grassy area	13.5 to 14.1	<4000	NA
B3 No. 1	Grassy area, west side of site	0 to 1.5 ft	<4000	NA
B3 No. 10	Grassy area, west side of site	14.3 to 14.8 ft	<4000	NA
B4 No. 1	Grassy area, northwest corner	0 to 1.5 ft	<4000	NA
B4 No. 7	Grassy area, northwest corner	12.7 to 13.5 ft	<4000	NA
B5 No. 1	Parking lot	0 to 1.5 ft	<4000	NA
B5 No. 10	Parking lot	13.5 to 15 ft	<4000	NA
B6 No. 1	Tank Farm	0 to 1.5 ft	<4000	<10
B6 No. 7	Tank Farm	9.0 to 9.7 ft	<4000	<10
B6 No. 11	Tank Farm	15.6 to 16.4 ft	<4000	<10
B7 No. 6	Mixing room - between tanks	6.5 to 7.0 ft	15200000	50
Q-1	NE corner of building	surface	<4000	NA
RR-1	Stain on railroad tracks	surface	<4000	NA

**Notes:**

- (a) Soil sample ID as designated in past reports.
- (b) General location of sample, if specified in report.
- (c) Sample depth - as specified, in either inches (in) or feet (ft).
- (d) Results are reported in micrograms per kilogram ( $\mu\text{g/kg}$ ).
- (e) Octachlorodibenzodioxin (OCDD).
- (f) Unk - unknown.
- (g) NA - not analyzed.

August 2004

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**Figure 5**  
**1988 Site Assessment Sampling Locations**

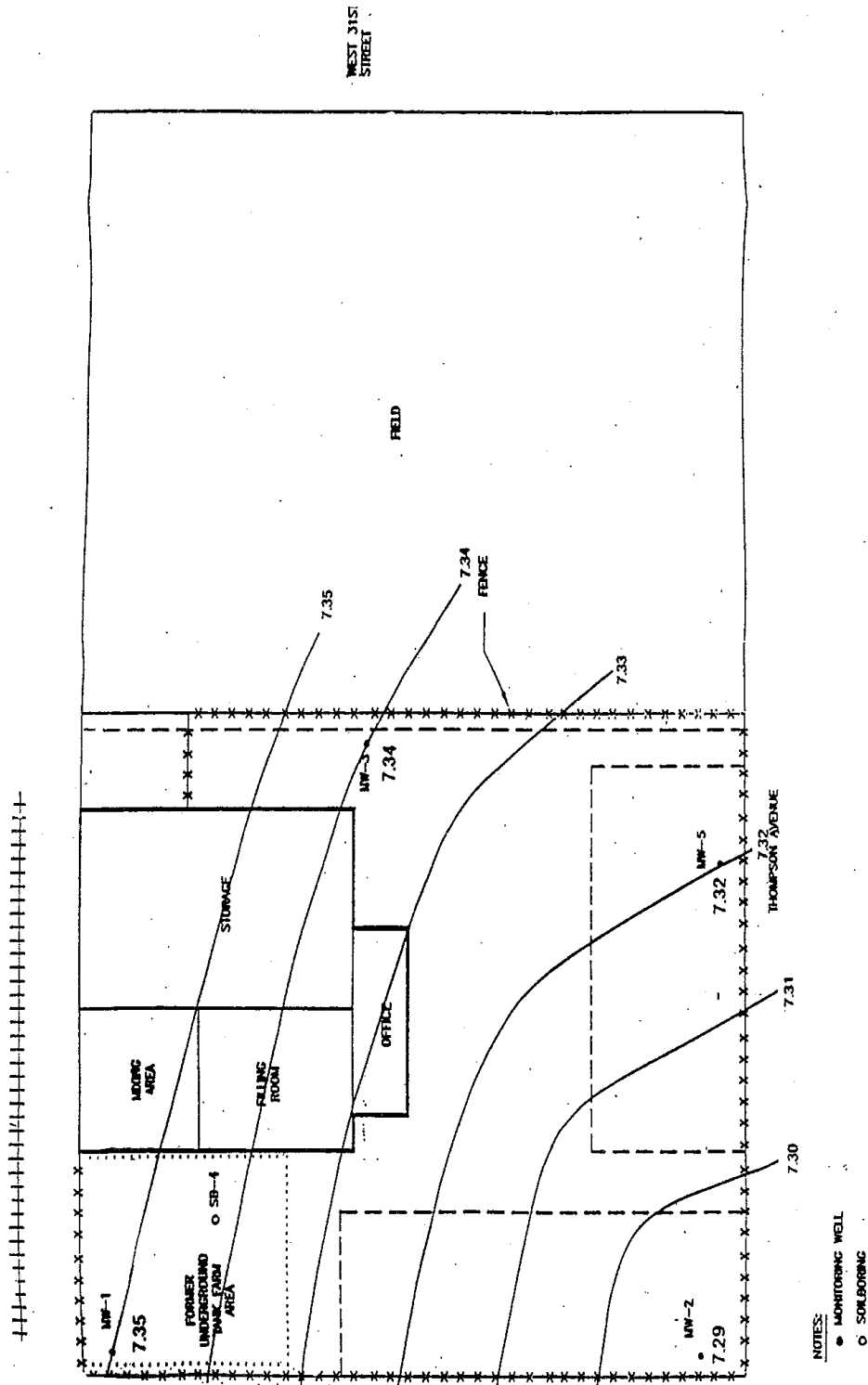


Figure 4  
1988 Site Assessment Soil Boring  
and Monitoring Well Locations



## 1988 Investigation Soil Sample Results

**Table 1: Historical Soil Analytical Results**

Sample Designation <sup>(a)</sup>	General Location <sup>(b)</sup>	Sample Depth <sup>(c)</sup>	Pentachlorophenol ( $\mu\text{g/kg}$ ) <sup>(d)</sup>	Dioxin <sup>(e)</sup> ( $\mu\text{g/kg}$ )
<b>Bay West Environmental - 1988</b>				
BW-1	Tank Farm	9 ft	<18000	NA
SB-4	Tank Farm	8.5 ft	<18000	NA
SB-4	Tank Farm	14 ft	<18000	NA
ISB-1	Mixing room	12.5 ft	890000	NA
ISB-1	Mixing room	16.5 ft	<18000	NA
ISB-2	Mixing room - between tanks	5.5 ft	690000	NA
ISB-2	Mixing room - between tanks	10.5 ft	490000	NA
ISB-2	Mixing room - between tanks	15.5 ft	720000	NA
ISB-2	Mixing room - between tanks	21 ft	<18000	NA
ISB-3	Mixing room	10.5 ft	400000	NA
ISB-3	Mixing room	15.5 ft	<18000	NA
ISB-4	Mixing room	NO data presented for ISB-4		NA
ISB-5	Mixing room	10.5 ft	<18000	NA

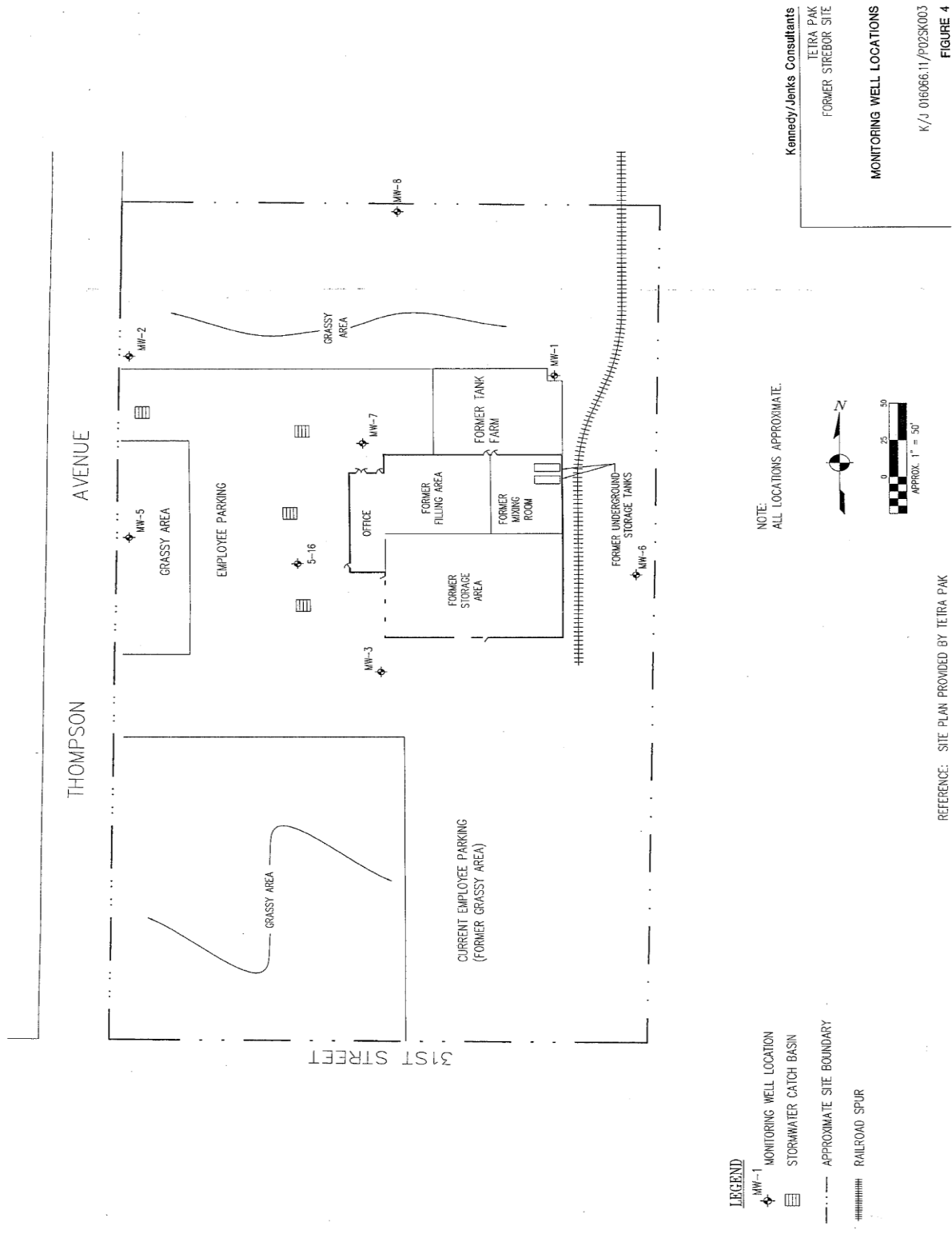
**Notes:**

- (a) Soil sample ID as designated in past reports.
- (b) General location of sample, if specified in report.
- (c) Sample depth - as specified, in either inches (in) or feet (ft).
- (d) Results are reported in micrograms per kilogram ( $\mu\text{g/kg}$ ).
- (e) Octachlorodibenzodioxin (OCDD).
- (f) Unk - unknown.
- (g) NA - not analyzed.

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**Table 2: Summary of Groundwater Analytical Results for Monitoring Wells**

Monitoring Well Number	Sample Date	Volatile Organic Compounds <sup>(b)</sup> (µg/l) <sup>(b)</sup>										Semi-Volatile Organic Compounds <sup>(b)</sup> (µg/l) <sup>(b)</sup>				Metals (µg/l) <sup>(g)</sup>				Total Zinc	Total Thallium					
		dis-1,2-Dichloroethane		1,2-Dichloropropane	Trichloroethene	Tetrachloroethene	1,1,1-Trichloroethene	1,1,1-Trichloroethane	Toluene	Benzoic Acid	Pentachlorophenol	Arsenic	Chromium	Total Lead	Total Copper											
		NA <sup>(f)</sup>	NA <sup>(f)</sup>	<1	<1 <sup>(b)</sup>	<1	<1	<1	<1	<1	<1	Dissolved	Total			Dissolved	Total									
MW-1	09/16/08 <sup>(a)</sup>		1.8																							
	04/19/02	0.672 J <sup>(h)</sup>	<1	2.73	1.12	<1	<1	<1	<1	<1	1.17 J	<0.8	1.65	1.89	1.83	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	<0.5	
	08/21/02	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.48	NA	NA	14.7	8.81	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	11/19/02	<1	<1	0.514 J	<1	<1	<1	<1	<1	<1	1.97	NA	NA	12.2	8.65	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	02/25/03	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	NA	23.8	1.61	NA	NA	NA	NA	NA	NA	NA	NA	NA		
MW-2	09/16/08 <sup>(a)</sup>	NA	<1	3.2	1.1	<1	<1	<1	<1	1.2	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	04/19/02	1.46	<1	3.77	1.19	<1	<1	<1	<1	<1	<1	<1	1.09	2.06	1.18	5.02	<0.5	NA	NA	NA	NA	NA	NA	<0.5		
	08/21/02	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	NA	6.36	5.02	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	11/19/02	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	NA	4.06	3.21	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	02/25/03	<1	<1	1.03	<1	<1	<1	<1	<1	<1	0.522 J	NA	<1	29.3	1.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
MW-3	09/16/08 <sup>(a)</sup>	NA	<1	1.8	2.1	<1	<1	<1	<1	<1	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	04/19/02	NA	<1	6	2 J	<1	<1	<1	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	04/19/02 <sup>(b)</sup>	200	<10	<10	6	NA	<10	<10	<10	<10	<50	NA	13	84	NA	10	96	218	5	NA	NA	NA	NA	NA		
	04/19/02	5.24	<1	8.7	3.47	0.525 J	<1	<1	<1	<1	<1	<1	<1	2.92	4.32	0.757	NA	NA	NA	NA	NA	NA	NA	<0.5		
	06/20/02	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	8.56	2.8	NA	NA	NA	NA	NA	NA	NA	NA	NA		
MW-4	11/19/02	0.831 J	<1	2.89	1.37	<1	<1	<1	<1	<1	<1	<1	NA	<1	1.85	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	02/24/03	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.254	NA	1.42	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	06/25/07 <sup>(h)</sup>	11	<1	16	11	<1	<1	<1	<1	<1	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	09/16/08 <sup>(a)</sup>	NA	<1	6.87	3.61	<1	<1	<1	<1	<1	NA	<1	1.64	1.73	1.68	1.77	<0.5	NA	NA	NA	NA	NA	NA	<0.5		
	04/19/02	3.44	<1	2.32	1.23	<1	<1	<1	<1	<1	NA	<1	NA	6.32	4.59	NA	NA	NA	NA	NA	NA	NA	NA	NA		
MW-5	06/21/02	1.34	<1	3.77	1.19	<1	<1	<1	<1	<1	<1	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA		
	02/25/03	0.837 J	<1	3.52	1.73	<1	<1	<1	<1	<1	<1	<1	NA	<1	4.19	1.54	NA	NA	NA	NA	NA	NA	NA	NA		
	04/19/02	5.35	<1	9.69	3.63	0.691 J	0.834 J	<1	<1	<1	<1	<1	NA	<1	3.21	4.02	<0.5	NA	NA	NA	NA	NA	NA	<0.5		
	06/20/02	<1	<1	2.46	1.09	<1	<1	<1	<1	<1	NA	<1	NA	8.21	4.41	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	11/19/02	0.883 J	<1	3.53	1.47	<1	<1	<1	<1	<1	NA	<1	NA	<1	2.94	NA	NA	NA	NA	NA	NA	NA	NA	NA		
MW-7	02/24/03	1.02	<1	3.08	1.42	<1	<1	<1	<1	<1	<1	<1	NA	1.16	4.18	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	08/07/02	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.62	0.472 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	06/20/02	<1	<1	2.18	1.25	<1	<1	<1	<1	<1	<1	<1	NA	6.31	4.39	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	11/19/02	<1	<1	0.759 J	<1	<1	<1	<1	<1	<1	<1	<1	7.98	<1	2.68	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	02/25/03	<1	<1	0.703 J	<1	<1	<1	<1	<1	<1	0.533 J	NA	NA	13.6	0.66	NA	NA	NA	NA	NA	NA	NA	NA	NA		
MW-8	02/25/03	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.599 J	NA	<1	9.31	1.47	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	Screening Values																									
	Maximum Contaminant Level (MCL) <sup>(i)</sup>	70	5	5	5	5	5	5	5	5	1	50	100	100	100	100	100	100	100	100	100	100	100	100	NL	
	MTSJA Method A <sup>(b)</sup>	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NL
	MTSJA Method B <sup>(b)</sup>	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.40E-04	0.729	0.058	50	592	4800	4800	4800	4800	4800	4800	4800	4800	4800	NL

Notes:

(a) Samples were analyzed for VOCs by EPA Method 8260. Only detected analytes are summarized in this table. Refer to the laboratory reports in Appendix G for a complete list of analytes and laboratory reporting limits.

(b) Results are reported in micrograms per liter (µg/l).

(c) Samples were analyzed for SVOCs by EPA Method 8270. Only detected analytes are summarized in this table. Refer to the laboratory reports in Appendix G for a complete list of analytes and laboratory reporting limits.

(d) Samples were analyzed for arsenic, chromium, chromium VI, lead, thallium using EPA Method 6020 (chromium VI by Method 7195). Only detected analytes are summarized in this table. Refer to the laboratory reports in Appendix G for a complete list of analytes and laboratory reporting limits.

(e) Samples collected by Bay West, Inc. Some analytes were detected in travel and equipment blanks.

(f) NA = not analyzed.

(g) <1 = detection limit.

(h) J denotes positive identification, but numerical value is an estimated quantity.

(i) Sample obtained by CCM HPL.

(j) Sample obtained by Ecolab.

(k) Sample obtained by Payne Reimer Group.

(l) USEPA Maximum Contaminant Level (MCL), CLAPC Version 3.1.

(m) NL = not listed.

(n) MCLA Method A Groundwater CLAPC Version 3.1.

(o) MCLA Method B Groundwater CLAPC Version 3.1. Carcinogenic values used if available.

Bold values indicate positive laboratory detection.



**Table 5: Summary of Soil Analytical Results - Semivolatile Organic Compounds**

Sample Depth (m) <sup>1</sup>	Sample Designation <sup>1</sup>	Semivolatile Organic Compounds <sup>2</sup> (µg/kg) <sup>3</sup>													Benzylalcohol phthalate	Benzylalcohol phthalate	4-Chloroaniline
		Phenol	Pentachlorophenol	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Fluoranthene	Pyrene	Benz(a)anthracene	Pyrene	Indeno(1,2,3-cd)			
Rail Spur																	
2	04/08/02	316	109 <sup>10</sup>	15.8	<13.8	<13 <sup>10</sup>	<13.8	<27.7	<27.7	<13.8	<13.8	<13.8	<861	<138	<138	<138	
5	04/08/02	434	<153	<15.3	<15.3	<15.3	<15.3	<30.6	<30.6	<15.3	<15.3	<15.3	<861	<138	<138	<138	
10	04/08/02	693	6.2 J	47.4 J	<17.1	13.1 J	<17.1	<34.6	<34.6	<17.1	<17.1	<17.1	<861	<138	<138	<138	
10	04/08/02	3330	<171	13.1 J	<17.1	13.1 J	<17.1	<34.1	<34.1	<17.1	<17.1	<17.1	<861	<138	<138	<138	
2	04/08/02	278	609	44.7	9.1 J	43.9	38.2	10.3 J	8.9 J	9.9 J	14.5	14.5	<725	<145	<145	<145	
2	04/08/02	676	472	<15.8	<15.8	<15.8	<15.8	<31.7	<31.7	<15.8	<15.8	<15.8	<725	<145	<145	<145	
15	04/10/02	1830	<183	<18.3	<18.3	<18.3	<18.3	<36.3	<36.3	<18.3	<18.3	<18.3	<915	<183	<183	<183	
15	04/10/02	1830	<183	<18.3	<18.3	<18.3	<18.3	<36.3	<36.3	<18.3	<18.3	<18.3	<915	<183	<183	<183	
0-1	04/08/02	185	2960 D <sup>10</sup>	16.7	7.4 J	22.2	24.2	16.4 J	13.5 J	24.6 J	3.9 J	3.9 J	<722	<144	<144	<144	
2	04/08/02	143 J	3180 D	6.6 J	4.4 J	6.8 J	7.2 J	<28.7	11.4 J	<28.7	<14.4	<14.4	24.4	<144	<144	<144	
5	04/08/02	107 J	3440 D	9.6 J	5.9 J	<15.5	<15.5	<31	<31	<15.5	<15.5	<15.5	<775	<155	<155	<155	
10	04/08/02	419	192	5.3 J	<17.4	<17.4	<17.4	<34.8	<34.8	<17.4	<17.4	<17.4	<775	<155	<155	<155	
0-1	04/08/02	<145	77	5.2 J	5.1 J	<14.5	<14.5	<28.1	10.5 J	<28.1	<14.5	<14.5	<775	<155	<155	<155	
2	04/08/02	<145	192	5.3 J	<14.5	<14.5	<14.5	<31.8	<31.8	<14.5	<14.5	<14.5	<775	<155	<155	<155	
2	04/08/02	271	<159	4.1 J	<15.9	<15.9	<15.9	<27.9	<27.9	<14	<14	<14	<727	<151	<151	<151	
0-1	04/08/02	<140	5810 D	<14	<14	<14	<14	<27.9	<27.9	<14	<14	<14	<727	<151	<151	<151	
2	04/10/02	819	<151	24	<15.1	<15.1	<15.1	<30.3	<30.3	<15.1	<15.1	<15.1	<727	<151	<151	<151	
2	04/10/02	2350	<152	6.2 J	<15.2	<15.2	<15.2	<30.3	<30.3	<15.2	<15.2	<15.2	<727	<151	<151	<151	
5	04/10/02	2350	<152	6.2 J	<15.2	<15.2	<15.2	<30.3	<30.3	<15.2	<15.2	<15.2	<727	<151	<151	<151	
10	04/10/02	1720	<168	<16.8	<16.8	<16.8	<16.8	<33.6	<33.6	<16.8	<16.8	<16.8	<841	<168	<168	<168	
Tank Farm																	
15	04/03/02	2210	<171	14 J	<17.1	<17.1	<17.1	<34.2	<34.2	<17.1	<17.1	<17.1	<866	<171	<171	<171	
20	04/03/02	879	41.4 J	23.5	<14.8	11.9 J	<11.9	9.49 J	22.2 J	<29.6	<14.8	<14.8	<739	<148	<148	<148	
15	04/08/02	2270	<161	<16.1	<16.1	<16.1	<16.1	<32.1	<32.1	<16.1	<16.1	<16.1	308 J	<161	<161	<161	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
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15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
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15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
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15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
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15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02	405	<160	<16	<16	<16	<16	<32	<32	<16	<16	<16	<801	<160	<160	<160	
15	04/08/02</																

Notes: Values in parentheses above the detection limit or nullified by the laboratory. Refer to the laboratory reports in

(e) Soil samples were analyzed for semivolatile organic compounds by EPA Method 8270. Only detected analytes are summarized in this table. Only detected analytes are summarized in this table.

(b) Results are reported in micrograms per kilogram ( $\mu\text{g}/\text{kg}$ ).

(c) The first portion of the sample identification is the boring number; the second portion is the sample depth. For example, sample RS-6-2 was obtained from boring RS-6 at a depth of 2 feet bgs.

(d) Sample depths recorded at feet below ground surface.

(f) " $<$ " denotes analyte was not detected at the indicated detection limit.

(g) D denotes sample calculated on a 10 times dilution factor.

(f) NL - not listed.

(j) MTCA Method B Direct Contact Pathway. CLARC Version 3.1. Carcinogenic values used if available.

**Table 6: Summary of Soil Analytical Results - Metals**

Sample Designation <sup>(c)</sup>	Sample Depth (ft) <sup>(d)</sup>	Sample Date	Metals <sup>(a)</sup> (mg/kg) <sup>(b)</sup>			
			Chromium VI	Chromium	Arsenic	Lead
Rail Spur						
RS-1-2	2	04/08/02	0.245	17.9	5.62	11.3
RS-1-5	5	04/08/02	<0.109 <sup>(a)</sup>	22.9	10.4	12.4
RS-2-10	10	04/08/02	<0.132	12.2	10.4	17.4
RS-3-10	10	04/08/02	<0.126	11.9	7.87	13.5
RS-4-2	2	04/08/02	0.267	9.67	1.34	3.99
RS-4-10	10	04/08/02	0.112	12.8	3.87	9.56
RS-4-15	15	04/10/02	<0.135	13.3	6.28	9.8
RS-5-0-1	0-1	04/08/02	0.263	10.1	3.17	7.44
RS-5-2	2	04/08/02	0.553	14	4.43	13.5
RS-5-5	5	04/08/02	<0.115	12.7	4.69	8.41
RS-5-10	10	04/08/02	<0.128	12.2	8.62	12.9
RS-6-0-1	0-1	04/08/02	0.282	10.4	2.68	7.33
RS-6-2	2	04/08/02	<0.190	21.4	11.8	16.9
RS-7-0-1	0-1	04/10/02	0.127	12.5	5.21	7.13
RS-7-2	2	04/10/02	<0.115	25	9	13
RS-7-5	5	04/10/02	<0.118	21.1	8.07	11.3
RS-8-10	10	04/10/02	<0.121	15.5	7.75	10.9
Tank Farm						
TF-1-15	15	04/08/02	<0.119	10.1	7.44	13.3
TF-1-20	20	04/08/02	<0.107	11.6	3.18	6.09
TF-2-15	15	04/08/02	<0.126	13.8	8.01	13.1
TF-3-15	15	04/09/02	<0.127	12.7	8.14	12.9
TF-5-5	5	04/10/02	<0.121	24.9	10	12.9
TF-5-22	22	04/10/02	<0.119	18.8	1.66	3.78
TF-6-10	10	04/09/02	<0.12	14	7.26	11.9
TF-6-15	15	04/09/02	<0.136	14	4.16	8.85
TF-7-15	15	04/10/02	0.121	11.5	6.23	10.6
TF-8-25	25	04/09/02	0.106	4.18	1.21	2.35
TF-9-23	23	04/10/02	<0.108	8.01	1.38	3.03
Dry Wells						
DW-1-20	20	04/10/02	0.0952	7.93	1.46	2.44
DW-1-23	23	04/10/02	<0.0999	7.73	1.17	1.91
DW-2-23	23	04/09/02	<0.0972	5.56	1.29	2.83
DW-3A-20	20	04/09/02	0.282	14.4	1.78	3.23
DW-3A-23	23	04/09/02	<0.102	7.99	1.45	2.97
DW-3B-23	23	04/09/02	<0.101	3.8	1.13	2.67
DW-4-23	23	04/09/02	<0.105	4.05	<0.106	3.28
Background Samples						
Background	1	04/11/02	NA <sup>(f)</sup>	18.7	7.5	14.3
Background-2	2	04/12/02	NA	24.6	11.2	14.6
Screening Criteria						
Natural Background Concentration <sup>(g)</sup>			NL <sup>(h)</sup>	27	6	17
MTCA Method A - Unrestricted Land Use <sup>(i)</sup>			19	2000	20	250
MTCA Method B - Unrestricted Land Use <sup>(j)</sup>			240	1.20E+05	0.67	NL

**Notes:**

- (a) Soil samples were analyzed for semivolatile organic compounds by EPA Method 6020. Only detected analytes are summarized in this table. Refer to the laboratory reports in Appendix G for a complete list of analytes and laboratory reporting limits.
- (b) Results are reported in milligrams per kilogram (mg/kg).
- (c) The first portion of the sample identification is the boring number; the second portion is the sample depth. For example, sample RS-6-2 was obtained from boring RS-6 at a depth of 2 feet bgs.
- (d) Sample depths recorded at feet below ground surface.
- (e) "<" denotes analyte was not detected at the indicated detection limit.
- (f) Not analyzed.
- (g) Natural Background Soil Metals Concentrations in Washington State Publication #94-115.
- (h) NL - Not listed.
- (i) MTCA Method A Unrestricted Land Use. CLARK Version 3.1.
- (j) MTCA Method B Direct Contact Pathway. CLARK Version 3.1. Carcinogenic values used if given.

**Table 7: Summary of Soil Analytical Results Dioxin -  
Toxic Equivalency Factors**

Sample Designation <sup>(a)</sup>	Sample Depth (ft) <sup>(b)</sup>	Sample Date	TEQ <sup>(c)</sup> (pg/g) <sup>(d)</sup>
<b>Rail Spur</b>			
RS-1-2	2	04/08/02	90.3
RS-4-2	2	04/08/02	122.2
RS-4-10	10	04/08/02	5.8
RS-5-0-1	0-1	04/08/02	413.8
RS-5-2	2	04/08/02	76.9
RS-5-5	5	04/08/02	1398.2
RS-6-0-1	0-1	04/08/02	223.8
RS-7-0-1	0-1	04/10/02	1971.3
RS-7-2	2	04/10/02	7.5
<b>Tank Farm</b>			
TF-1-15	15	04/08/02	0.1
TF-5-5	5	04/10/02	0.1
TF-5-22	22	04/10/02	0.0
TF-6-10	10	04/09/02	7.3
TF-8-25	25	04/09/02	3.3
<b>Dry Wells</b>			
DW-3A-20	20	04/09/02	64.8
DW-3A-23	23	04/09/02	5.5
<b>Screening Criteria</b>			
MTCA Method B - Unrestricted Land Use <sup>(e)</sup>			6.7

**Notes:**

- (a) Sample designations indicate exploration location and sampling depth. For example, sample TF-1-15 was obtained from exploration TF-1 at a depth of 15 feet bgs.
- (b) Sample depths recorded at feet below ground surface.
- (c) Soil samples were analyzed for dioxin compounds by EPA Method 1613. Concentrations are given as toxicity equivalents (TEQ), in accordance with Ecology guidance.
- (d) Results reported in picograms per gram (pg/g)
- (e) MTCA Method B Direct Contact Pathway. CLARC Version 3.1. Carcinogenic values used if available.



**Table 9: Summary of Sediment Analytical Results - Semivolatile**

Sample Designation <sup>(a)</sup>	Sample Date	Semivolatile Organic Compounds <sup>(b)</sup> (µg/kg)														
		Isophorone	Naphthalene	4-Chloroaniline	2-Methyl naphthalene	2,6-Dinitrotoluene	Dibenzofuran	Fluorene	2-Methylphenol	4,6-Dinitro- anthracene	Benzo (a) anthracene	Pentachlorophenol	Phenanthrene	Anthracene	Fluoranthene	Pyrene
Site-1	04/12/02	9450	5700	17200	2850	20100	333 µg <sup>(c)</sup>	1410 µ <sup>(d)</sup>	12500	<413 <sup>(e)</sup>	371000 D <sup>(f)</sup>	2450	3100	3100	3050	3440
Site-2	04/12/02	<1800	<180	<1800	<180	<1800	<1800	<180	<4720	1630	6650	1250	1500	1500	4250	2510
Site-3	04/12/02	<1800	769	<1800	481	<1800	<1800	243	<4190	<335	34400	289	1080	1080	<168	780

Notes: (a) Soil samples were analyzed for semivolatile organic compounds by EPA Method 8270. Only detected analytes are summarized in this table. Refer to the laboratory reports in Appendix C for a complete list of analytes and laboratory reporting limits.

(b) Results are reported in micrograms per kilogram (µg/kg).

(c) Sample locations are shown on Figure 3.

(d) J denotes analyte was not detected at the indicated detection limit.

(e) "µ" denotes analyte was not detected at the indicated detection limit.

(f) D denotes sample calculated on a 10 times dilution factor.

(g) "D 100" denotes sample calculated on a 100 times dilution factor.

(h) B denotes analytes detected in the associated method blank.

**Table 10: Summary of Reconnaissance Groundwater Analytical Results**

Sample Designation <sup>(a)</sup>	Sample Date	Semivolatile Organic Compounds <sup>(b)</sup> (µg/l) <sup>(a)</sup>										Volatile Organic Compounds <sup>(b)</sup> (µg/l)				Metals <sup>(b)</sup> (µg/l)		Petroleum Hydrocarbons	
		Phenol	Pentachlorophenol	Phenanthrene	Anthracene	Di-n-octylphthalate	Benzoic Acid	Dimethyl phthalate	2,6-Dinitrotoluene	Diethylphthalate	Naphthalene	Trichloroethene	Tetrachloroethene	Total	Dissolved	Asenite	Lead		Thallium
RGW1	04/12/02	0.394 µg <sup>(c)</sup>	0.431 J	0.0576 J	0.0788 J	<4.76 <sup>(d)</sup>	<0.952	<0.952	<0.952	<0.952	<0.0552	2.51	1.34 J	876	1.68	92.2	231	4.78	128 J
RGW2	04/11/02	0.75 J	8.73	<0.111	<0.111	3.31 B	0.03	0.231 J	0.79 J	0.79 J	1.51	1.51	<2	1890	3.32	170	465	11.7	216 J
RGW3	04/11/02	0.891 J	1.03	<0.102	<0.102	<5.1	<1.02	<1.02	<1.02	0.616 J	0.106	<2	<2	2640	3.89	315	711	17.7	146 J

Notes: (a) Samples were analyzed for SVOC by EPA Method 8270. Only detected analytes are summarized in this table.

(b) Samples reported in micrograms per liter (µg/l).

(c) Samples were analyzed for VOC by EPA Method 8260. Only detected analytes are summarized in this table.

(d) Samples were analyzed for anionic, chromium, chromium VI, lead, thallium using EPA Method 6020 (chromium VI) by Method 7195. Only detected analytes are summarized in this table. Refer to the laboratory reports in Appendix C for a complete list of analytes and laboratory reporting limits.

(e) Sample designation reflects the reconnaissance exploration number. For example, groundwater sample RGW1 was collected from exploration location RGW1.

(f) Samples were analyzed for diesel-range hydrocarbons by Northwest Method NWTPH-Dx.

(g) J denotes analyte identified, but numerical value is an estimated quantity.

(h) "µ" denotes analyte was not detected at the indicated detection limit.



**Table 1: Dioxin Concentrations and Toxicity Equivalent  
Concentrations in Confirmation Soil Samples**

Sample	Date	Congener	Result	Detection Limit <sup>(a)</sup>	Units	TEF <sup>(b)</sup>	2,3,7,8-TCDD TEC <sup>(c)</sup>	
CF-1-3	9/27/2006	1,2,3,4,6,7,8-HpCDD <sup>(d)</sup>	570		pg/g <sup>(e)</sup>	0.01	5.7	
		1,2,3,4,6,7,8-HpCDF <sup>(d)</sup>	69		pg/g	0.01	0.69	
		1,2,3,4,7,8,9-HpCDF	5.0	J <sup>(a)</sup>	pg/g	0.01	0.05	
		1,2,3,4,7,8-HxCDD <sup>(b)</sup>	ND <sup>(f)</sup>	1.2	pg/g	0.1		
		1,2,3,4,7,8-HxCDF <sup>(f)</sup>	3.5	J	1.2	pg/g	0.1	0.35
		1,2,3,6,7,8-HxCDD	24		pg/g	0.1	2.4	
		1,2,3,6,7,8-HxCDF	ND	1.3	pg/g	0.1		
		1,2,3,7,8,9-HxCDD	ND	2.8	pg/g	0.1		
		1,2,3,7,8,9-HxCDF	ND	5.2	pg/g	0.1		
		1,2,3,7,8-PeCDD <sup>(f)</sup>	ND	1.4	pg/g	0.5		
		1,2,3,7,8-PeCDF <sup>(m)</sup>	ND	1.7	pg/g	0.05		
		2,3,4,6,7,8-HxCDF	ND	1.2	pg/g	0.1		
		2,3,4,7,8-PeCDF	ND	1.2	pg/g	0.5		
		2,3,7,8-TCDD	ND	0.74	pg/g	1		
		2,3,7,8-TCDF <sup>(n)</sup>	0.96	J, JA <sup>(a)</sup>	pg/g	0.1	0.096	
		OCDD <sup>(o)</sup>	5000	E <sup>(a)</sup>	pg/g	0.001	5	
		OCDF <sup>(i)</sup>	470		pg/g	0.001	0.47	
Adjusted Total							14.756	
CF-2-4	9/27/2006	1,2,3,4,6,7,8-HpCDD	440		pg/g	0.01	4.4	
		1,2,3,4,6,7,8-HpCDF	40		pg/g	0.01	0.4	
		1,2,3,4,7,8,9-HpCDF	6.0	J	pg/g	0.01	0.06	
		1,2,3,4,7,8-HxCDD	ND	1.4	pg/g	0.1		
		1,2,3,4,7,8-HxCDF	ND	2.2	pg/g	0.1		
		1,2,3,6,7,8-HxCDD	8.3		pg/g	0.1	0.83	
		1,2,3,6,7,8-HxCDF	ND	1.4	pg/g	0.1		
		1,2,3,7,8,9-HxCDD	ND	2.7	pg/g	0.1		
		1,2,3,7,8,9-HxCDF	ND	0.32	pg/g	0.1		
		1,2,3,7,8-PeCDD	ND	0.67	pg/g	0.5		
		1,2,3,7,8-PeCDF	ND	0.38	pg/g	0.05		
		2,3,4,6,7,8-HxCDF	ND	0.63	pg/g	0.1		
		2,3,4,7,8-PeCDF	ND	0.46	pg/g	0.5		
		2,3,7,8-TCDD	ND	0.35	pg/g	1		
		2,3,7,8-TCDF	ND	0.35	pg/g	0.1		
		OCDD	8200	E	pg/g	0.001	8.2	
		OCDF	330		pg/g	0.001	0.33	
Adjusted Total							14.22	
CF-3-3	9/27/2006	1,2,3,4,6,7,8-HpCDD	26000	D <sup>(a)</sup>	pg/g	0.01	260	
		1,2,3,4,6,7,8-HpCDF	3100	E	pg/g	0.01	31	
		1,2,3,4,7,8,9-HpCDF	290		pg/g	0.01	2.9	
		1,2,3,4,7,8-HxCDD	17		pg/g	0.1	1.7	
		1,2,3,4,7,8-HxCDF	68		pg/g	0.1	6.8	
		1,2,3,6,7,8-HxCDD	640		pg/g	0.1	64	
		1,2,3,6,7,8-HxCDF	28		pg/g	0.1	2.8	
		1,2,3,7,8,9-HxCDD	52		pg/g	0.1	5.2	
		1,2,3,7,8,9-HxCDF	ND	2.3	pg/g	0.1		
		1,2,3,7,8-PeCDD	4.5	J	pg/g	0.5	2.25	
		1,2,3,7,8-PeCDF	11		pg/g	0.05	0.55	
		2,3,4,6,7,8-HxCDF	13		pg/g	0.1	1.3	
		2,3,4,7,8-PeCDF	7.2		pg/g	0.5	3.6	
		2,3,7,8-TCDD	ND	1.0	pg/g	1		
		2,3,7,8-TCDF	4.7		pg/g	0.1	0.47	
		OCDD	190000	D,E	pg/g	0.001	190	
		OCDF	25000	D	pg/g	0.001	25	
Adjusted Total							597.57	

**Table 1: Dioxin Concentrations and Toxicity Equivalent Concentrations in Confirmation Soil Samples**

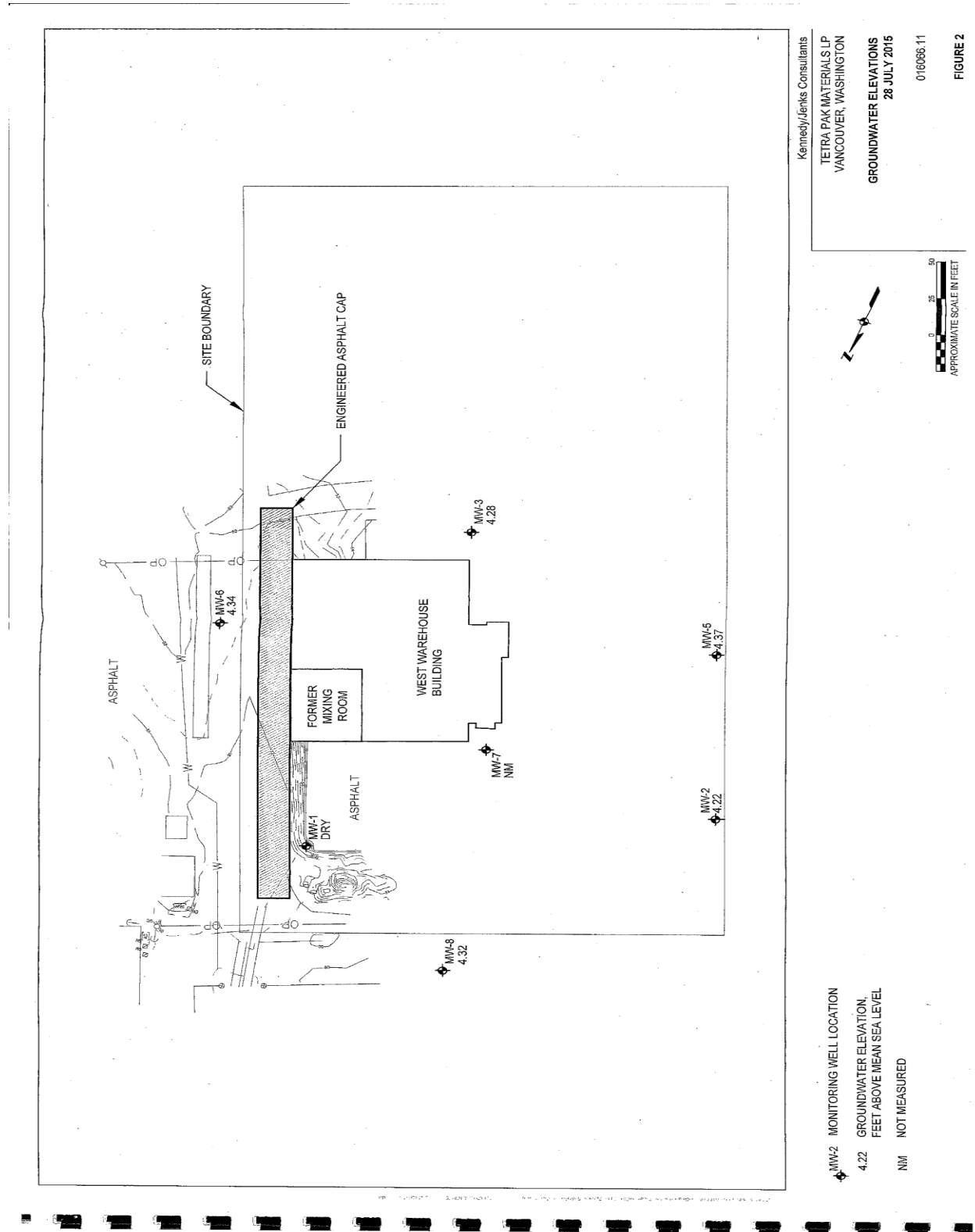
Sample	Date	Congener	Result		Detection Limit <sup>(a)</sup>	Units	TEF <sup>(b)</sup>	2,3,7,8-TCDD
								TEC <sup>(c)</sup>
CS-1-3	9/27/2006	1,2,3,4,6,7,8-HpCDD	7700	E		pg/g	0.01	77
		1,2,3,4,6,7,8-HpCDF	700			pg/g	0.01	7
		1,2,3,4,7,8,9-HpCDF	96			pg/g	0.01	0.96
		1,2,3,4,7,8-HxCDD	10			pg/g	0.1	1
		1,2,3,4,7,8-HxCDF	20			pg/g	0.1	2
		1,2,3,6,7,8-HxCDD	130			pg/g	0.1	13
		1,2,3,6,7,8-HxCDF	13			pg/g	0.1	1.3
		1,2,3,7,8,9-HxCDD	28			pg/g	0.1	2.8
		1,2,3,7,8,9-HxCDF	ND		0.62	pg/g	0.1	
		1,2,3,7,8-PeCDD	ND		3.5	pg/g	0.5	
		1,2,3,7,8-PeCDF	ND		2.0	pg/g	0.05	
		2,3,4,6,7,8-HxCDF	5.3	J		pg/g	0.1	0.53
		2,3,4,7,8-PeCDF	ND		1.3	pg/g	0.5	
		2,3,7,8-TCDD	ND		0.58	pg/g	1	
		2,3,7,8-TCDF	ND		0.33	pg/g	0.1	
		OCDD	70000	D		pg/g	0.001	70
		OCDF	5900	D		pg/g	0.001	5.9
Adjusted Total								181.49
MTCA Method B Cleanup Level <sup>(n)</sup>								6.67

Notes:

- (a) Detection limit listed for congeners reported as non-detect.  
(b) 2,3,7,8-TCDD TEF = 2,3,7,8-Tetrachlorodibenzo-*p*-dioxin (2,3,7,8-TCDD) toxicity equivalency factor (TEF). 2,3,7,8-TCDD TEFs obtained from Washington Department of Ecology (Ecology) Cleanup Levels and Risk Calculations (CLARC) Information System Notes titled "Assessing the Carcinogenic Risk of Mixtures using Toxicity Equivalence Factors" (Ecology 2007).  
(c) TEC = toxicity equivalent concentration.  
(d) HpCDD = Heptachlorodibenzo-*p*-dioxin.  
(e) pg/g = picograms per gram.  
(f) HpCDF = Heptachlorodibenzofuran.  
(g) J = Estimated result. Result is less than reporting limit.  
(h) HxCDD = Hexachlorodibenzo-*p*-dioxin.  
(i) ND = not detected above the PQL.  
(j) HxCDF = Hexachlorodibenzofuran.  
(k) G = Elevated reporting limit. The reporting limit is elevated due to matrix interference.  
(l) PeCDD = Pentachlorodibenzo-*p*-dioxin.  
(m) PeCDF = Pentachlorodibenzofuran.  
(n) TCDF = Tetrachlorodibenzofuran.  
(o) JA = The analyte was positively identified, but the quantitation is an estimate.  
(p) OCDD = Octachlorodibenzo-*p*-dioxin.  
(q) E = Estimated result. Result concentration exceeds the calibration range.  
(r) OCDF = Octachlorodibenzofuran.  
(s) D = Result was obtained from the analysis of dilution.  
(t) Model Toxics Control Act Method B Cleanup Level for unrestricted land use, in accordance with WAC 173-340-703.

Total TECs greater than the MTCA Method B Cleanup Level for 2,3,7,8-TCDD are shown in bold.

## 6.8 Groundwater Monitoring Well Locations and Long Term Monitoring Results



## Long Term Groundwater Monitoring Results

**Table 2: Summary of SVOC Groundwater Analytical Results**

Monitoring		Date	Semivolatile Organic Compounds (µg/l) <sup>(a,b)</sup>				
Well Number	Sampled		Pentachlorophenol µg/l	2,3,4,6 Tetrachlorophenol µg/l	2,3,5,6 Tetrachlorophenol µg/l	2,4,5 Trichlorophenol µg/l	2,4,6 Trichlorophenol µg/l
MW-1	04/19/02		<0.8 <sup>(c)</sup>	NA <sup>(d)</sup>	NA	NA	NA
	08/21/02		1.48	NA	NA	<0.8	<0.8
	11/19/02		1.67	NA	NA	<1.6	<1.6
	02/25/03		<0.19	NA	NA	<0.19	<0.19
	07/06/06		1.2	<0.10	0.078 J <sup>(e)</sup>	<0.051	<0.083
	12/28/06		0.68	0.033 J	0.044 J	<0.0083	<0.0097
	01/06/09		<0.33	<0.33	<0.19	<0.19	<0.29
	04/28/09		<0.36	<0.36	<0.20	<0.20	<0.30
	07/13/10		0.78 B / 1.3 B <sup>(f,g)</sup>	0.046 J / 0.071 J	0.019 J / 0.034 J	<0.0094 / <0.010	<0.013 / <0.014
	03/19/12		<0.943	<0.377	<0.377	<0.472	<0.472
MW-2	09/30/13		NS <sup>(h)</sup>	NS	NS	NS	NS
	07/28/15		NS	NS	NS	NS	NS
	04/18/02		<0.8	NA	NA	NA	NA
	08/21/02		<0.8	NA	NA	<0.8	<0.8
	11/19/02		<0.8	NA	NA	<0.8	<0.8
	02/25/03		<0.19	NA	NA	<0.19	<0.19
	07/06/06		<0.11	<0.11	<0.056	<0.055	<0.089
	12/28/06		0.15 J	<0.0089	<0.019	<0.0091	<0.011
	01/06/09		<0.33	<0.33	<0.19	<0.19	<0.29
	07/13/10		0.055 J B	<0.0083	<0.012	<0.0096	<0.014
MW-3	03/19/12		<0.935	<0.374	<0.374	<0.467	<0.467
	09/30/13		<0.472	<0.189	<0.189	<0.189	<0.189
	07/28/15		<0.476	<0.190	<0.190	<0.190	<0.190
	04/18/02		<0.8	NA	NA	NA	NA
	08/20/02		<0.8	NA	NA	<0.8	<0.8
	11/18/02		<0.8	NA	NA	<1.6	<1.6
	02/24/03		0.254	NA	NA	<0.189	<0.189
	07/06/06		<0.11	<0.11	<0.055	<0.054	<0.087
	12/28/06		0.13 J	<0.0081	<0.018	<0.0083	<0.0098
	01/06/09		<0.34	<0.34	<0.19	<0.19	<0.29
	07/13/10		<0.011	<0.0083	<0.012	<0.0096	<0.014
	03/19/12		<0.943	<0.377	<0.377	<0.472	<0.472
	09/30/13		<0.472 / <0.476 <sup>(i)</sup>	<0.189 / <0.190	<0.189 / <0.190	<0.189 / <0.190	<0.189 / <0.190
	07/28/15		<0.476	<0.190	<0.190	<0.190	<0.190

**Table 2: Summary of SVOC Groundwater Analytical Results**

Monitoring		Semivolatile Organic Compounds (µg/l) <sup>(a,b)</sup>				
Well Number	Date	Pentachlorophenol µg/l	2,3,4,6 Tetrachlorophenol µg/l	2,3,5,6 Tetrachlorophenol µg/l	2,4,5 Trichlorophenol µg/l	2,4,6 Trichlorophenol µg/l
MW-5	04/19/02	<0.8	NA	NA	NA	NA
	08/21/02	<0.8	NA	NA	<0.8	<0.8
	11/19/02	<0.8	NA	NA	<1.6	<1.6
	02/25/03	<0.189	NA	NA	<0.189	<0.189
	07/06/06	<0.11	<0.11	<0.053	<0.052	<0.083
	12/28/06	<0.013	<0.0081	<0.018	<0.0083	<0.0098
	01/06/09	<0.33	<0.33	<0.19	<0.19	<0.29
	07/13/10	<0.011	<0.0082	<0.012	<0.0094	<0.013
	03/19/12	<0.935/<0.935 <sup>(f)</sup>	<0.374/<0.374	<0.374/<0.374	<0.467/<0.467	<0.467/<0.467
	09/30/13	<0.472	<0.189	<0.189	<0.189	<0.189
MW-6	07/28/15	<0.476	<0.190	<0.190	<0.190	<0.190
	04/18/02	<0.8	NA	NA	NA	NA
	08/20/02	<0.813	NA	NA	<0.813	<0.813
	11/18/02	<0.8	NA	NA	<1.6	<1.6
	02/24/03	<0.19	NA	NA	<0.19	<0.19
	07/06/06	0.16 J	<0.12	<0.059	<0.058	<0.092
	12/28/06	0.21 J	<0.0083	<0.018	<0.0085	<0.01
	01/06/09	<0.33	<0.33	<0.19	<0.19	<0.29
	07/13/10	0.074 J B	<0.0082	<0.012	<0.0094	<0.013
	03/19/12	<0.935	<0.374	<0.374	<0.472	<0.472
MW-7	09/30/13	<0.472	<0.189	<0.189	<0.189	<0.189
	07/28/15	<0.476	<0.190	<0.190	<0.190	<0.190
	08/07/02	0.412 J	NA	NA	<0.8	<0.8
	08/20/02	0.347 J	NA	NA	<0.8	<0.8
	11/19/02	7.58	NA	NA	<1.6	<1.6
	02/25/03	<0.191	NA	NA	<0.191	<0.191
	01/06/09	<0.34	<0.34	<0.19	<0.19	<0.29
	09/30/13	<0.481	<0.192	<0.192	<0.192	<0.192

**Table 2: Summary of SVOC Groundwater Analytical Results**

Monitoring		Semivolatile Organic Compounds (µg/l) <sup>(a,b)</sup>					
		Pentachlorophenol	2,3,4,6 Tetrachlorophenol	2,3,5,6 Tetrachlorophenol	2,4,5 Trichlorophenol	2,4,6 Trichlorophenol	
Well Number	Sampled	µg/l	µg/l	µg/l	µg/l	µg/l	
MW-8	02/25/03	<0.189	NA	NA	<0.189	<0.189	
	07/06/06	<0.11	<0.11	<0.055	<0.054	<0.087	
	12/28/06	<b>0.16 J</b>	<0.0081	<0.018	<0.0083	<0.0098	
	01/06/09	<0.34	<0.34	<0.19	<0.19	<0.29	
	07/13/10	<0.011	<0.0083	<0.012	<0.0096	<0.014	
	03/19/12	<0.935	<0.374	<0.374	<0.472	<0.472	
	09/30/13	<0.476	<0.190	<0.190	<0.190	<0.190	
	07/28/15	<0.476/<0.476	<0.190/<0.190	<0.190/<0.190	<0.190/<0.190	<0.190/<0.190	
MTCA Method B Cleanup Level <sup>(f)</sup>		0.22	NL <sup>(j)</sup>	NL	NL	4	

**Notes:**

- (a) Results are reported in micrograms per liter (µg/l).  
 (b) Samples were analyzed for selected semivolatile organic compounds by EPA Method 8270D.  
 (c) "<" denotes analyte was not detected above the indicated detection limit.  
 (d) NA = not analyzed.  
 (e) J denotes positively identified, but numerical value is an estimated quantity.  
 (f) Second value is result from a field duplicate sample.  
 (g) B = pentachlorophenol identified in the laboratory blank sample at an estimated concentration of 0.0735 µg/l.  
 (h) NS = Not sampled, insufficient water available for sampling.  
 (i) MTCA Method B Groundwater CLARC (dated July 2015), the pentachlorophenol Method B cleanup level prior to 2011 was 0.729 µg/l.  
 (j) NL = not listed in the CLARC Information System.  
**Bold values indicate analyte was detected above the indicated laboratory detection limit.**  
**Highlighted values indicate detection above MTCA Method B screening value.**



## 6.9 Restrictive Covenant

**4879836 COV**

RecFee - \$137.00 Pages: 26 - CHICAGO TITLE INSURANCE  
Clark County, WA 08/07/2012 10:22



**RETURN ADDRESS**

Susan T. Alterman  
Kell, Alterman & Runstein, L.L.P.  
520 SW Yamhill, Suite 600  
Portland, OR 97204

**Document Title(s)**

Environmental Covenant

W7212

**Reference Number(s) of related documents:**

None

**Grantor(s)**

Tetra Pak Materials LP

This document is recorded as an accommodation by Chicago Title Insurance and maintains no responsibility as to the effect or provisions of this document.

**Grantee(s)**

State of Washington, Department of Ecology

**Trustee**

None

**Abbreviated Legal Description:**

#69 and #70 David Armstrong DLC 3.14A

**Assessor's Property Tax Parcel/Account Number**

Tax Parcel 50000

The Auditor/Recorder will rely on the information provided on this form. The staff will not read the document to verify the accuracy or completeness of the indexing information provided herein.

I am requesting an emergency nonstandard recording for an additional fee as provided in RCW 36.18.010. I understand that the recording process may cover up or otherwise obscure some part of the text of the original document.

Susan T. Alterman, WSB No. 30623

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### Environmental Covenant

After Recording Return to:  
Scott Rose  
Site Manager  
Department of Ecology – Southwest Regional Office  
P.O. Box 47775  
Olympia, WA 98504-7775

### Environmental Covenant

**Grantor:** Tetra Pak Materials LP  
**Grantee:** State of Washington, Department of Ecology  
**Legal:** Brief legal description: #69 and #70 DAVID ARMSTRONG DLC 3.14A. A detailed legal description is provided in Attachment A.  
**Tax Parcel No.:** 50000  
**Cross Reference:** None

Grantor, Tetra Pak Materials LP, hereby binds Grantor, its successors and assigns to the land use restrictions identified herein and grants other rights as specified under this environmental covenant (hereafter "Covenant") made this 23<sup>rd</sup> day of July, 2012 in favor of the State of Washington Department of Ecology (Ecology). Ecology shall have full right of enforcement of the rights conveyed under this Covenant pursuant to the Model Toxics Control Act, RCW 70.105D.030(1)(g), and the Uniform Environmental Covenants Act, 2007 Wash. Laws ch. 104, sec. 12.

This Environmental Covenant is made pursuant to RCW 70.105D.030(1)(f) and (g) and WAC 173-340-440 by Tetra Pak Materials LP, and Ecology.

The undersigned, Tetra Pak Materials LP, is the fee owner of the real property in the County of Clark, State of Washington, that is subject to this Covenant (hereafter "Property"). A brief legal description of the Property is: #69 and #70 DAVID ARMSTRONG DLC 3.14A, Tax Parcel No. 50000. A detailed legal description of the Property is provided in Attachment A.

A remedial action (hereafter "Remedial Action") is ongoing at the Property that is the subject of this Covenant. The Remedial Action is described in the Request for a No further Action Determination and Transmittal of the Draft Environmental Covenant (Kennedy/Jenks Consultants, 2 September 2011).

Although impacted soil was removed and an engineered asphalt cap has been installed over the impacted area or is covered by the west warehouse building, this Covenant is required because residual concentrations of the contaminants of concern (COCs, pentachlorophenol [PCP] and dioxins) remain in place to a limited extent that exceed the Model Toxics Control Act Method B Cleanup Level for soil established under WAC 173-340-745. Although the land use at the Property is zoned commercial/industrial, the Property does not qualify for the use of soil cleanup levels for industrial properties under MTCA, as defined in WAC 173-340-745. In addition, long-term groundwater monitoring has been and is being implemented at the Property to ensure that the implemented Remedial Action remains protective of groundwater. Groundwater is being monitored for PCP (the COC in groundwater, which has only been detected periodically and currently only in concentrations that slightly exceed the MTCA Method B cleanup level) on a schedule consistent with the Ecology-approved Long Term Groundwater Monitoring Plan (Kennedy/Jenks, 9 January 2009), which is included as Attachment B.

Tetra Pak Materials LP makes the following declaration as to limitations, restrictions, and uses to which the Property may be put and specifies that such declarations shall constitute covenants to run with the land, as provided by law and shall be binding on all parties and all persons claiming under them, including all current and future owners of any portion of or interest in the Property (hereafter "Owner").

Section 1.

1. A portion of the Property contains COC-impacted soil located beneath the area labeled as "Former Mixing Room" on Figure 1 (Attachment C) in the west warehouse building and under an engineered asphalt cap. Figure 1 illustrates the locations of the west warehouse building and the engineered asphalt cap. The Owner shall not alter, modify, or remove the existing west warehouse building or engineered asphalt cap in any manner that may result in

the release or exposure to the environment of that contaminated soil or create an exposure pathway without prior written approval from Ecology.

a. Any activity in the area labeled as "Former Mixing Room" on Figure 1 in the west warehouse building or the engineered asphalt cap area that results in the release or exposure to the environment of the contaminated soil that remains on the Property, or creates an exposure pathway, is prohibited without prior written approval from Ecology. Some examples of activities that are prohibited include: drilling, digging, piercing the surface with a rod, spike or similar item, bulldozing or earthwork, or use of any equipment which compromises the integrity of these areas.

b. No groundwater may be taken from the Property for drinking water purposes.

Section 2. Any activity in the area labeled as "Former Mixing Room" on Figure 1 in the west warehouse building or the engineered asphalt cap area that interferes with the integrity of these features and continued protection of human health and the environment is prohibited.

Section 3. The Owner of the Property must give thirty (30) day advance written notice to Ecology of the Owner's intent to convey any interest in the Property. No conveyance of title, easement, lease, or other interest in the Property shall be consummated by the Owner without adequate and complete provision for continued monitoring, operation, and maintenance of the Remedial Action.

Section 4. The Owner must restrict leases to uses and activities consistent with this Covenant and notify all lessees of the restrictions on the use of the Property.

Section 5. The Owner must notify and obtain approval from Ecology prior to any use of the Property that is inconsistent with the terms of this Covenant. Ecology may approve any inconsistent use only after public notice and comment.


Section 6. The Owner shall allow authorized representatives of Ecology the right to enter the Property at reasonable times and with reasonable advance written notice (at least seven working days) for the purpose of evaluating the Remedial Action, to take samples, to inspect remedial actions conducted at the Property, to determine compliance with this Covenant, and to inspect records that are related to the Remedial Action.

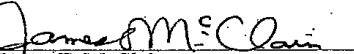
Section 7. The Owner of the Property reserves the right under WAC 173-340-440 to record an instrument that provides that this Covenant shall no longer limit use of the Property or be of

any further force or effect. However, such an instrument may be recorded only if Ecology,  
after public notice and opportunity for comment, concurs.

**Tetra Pak Materials LP**

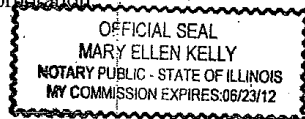
By Tetra Pak Converting GP LLC, Its General Partner

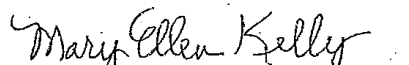
By   
Brian Kennell  
Vice President Finance & CFO

By   
James E. McClain  
Vice President & General Counsel

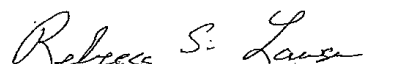
STATE OF ILLINOIS )  
COUNTY OF LAKE )

On this 13<sup>th</sup> day of MARCH, 2012, I certify that Brian Kennell and  
James E. McClain personally appeared before me, acknowledged that they are the Vice  
President Finance & CFO and Vice President & General Counsel, respectively, of the  
corporation that executed the within and foregoing instrument, and signed said instrument by  
free and voluntary act and deed of said corporation, for the uses and purposes therein  
mentioned, and on oath stated that they were authorized to execute said instrument for said  
corporation.



  
Notary Public in and for the State of  
Illinois, residing at INVERNESS, IL  
My appointment expires 6/23/12

STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

  
Rebecca S. Lawson, P.E., LHG  
Section Manager  
Toxics Cleanup Program  
Southwest Regional Office

Dated: 7/23/12

STATE OF WASHINGTON \_\_\_\_\_  
COUNTY OF CLARK \_\_\_\_\_

**Attachment A – Detailed Legal Description  
Tetra Pak Materials LP**

**Tax Parcel 50000 (Parcel I)**

A tract of land located in Section 21, Township 2 North, Range 1 East of the Willamette Meridian, Clark County, Washington.

COMMENCING at the Northwest corner of the Amos Short Donation Land Claim; thence North 0°59'45" East, along the centerline of Fruit Valley Road, a distance of 1837.44 feet; thence South 89°27'15" East 525.096 feet to a point on the Easterly right-of-way line of Thompson Avenue and the TRUE Point of Beginning of this description; thence South 89°27'15" East 272.85 feet; thence South 0°59'45" West 505.89 feet to a point on the North right-of-way line of 31st Street; thence North 89°27'15" West along said Northerly right-of-way line 272.85 feet to a point on the Easterly right-of-way line of Thompson Avenue; thence North 0°59'45" East along said Easterly right-of-way line 505.89 feet to the Point of Beginning.

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## 6.10 Photo Log

**Photo 1: Former Railroad Spur Area, Concrete Cap on the Residual Dioxin Contaminated Soils Left in-Place and the Warehouse Building - From the Northeast**



**Photo 2: Warehouse Building – From the South**





**Photo 3: Former Tank Farm Area and Asphalt Pavement – from the Northeast**



**Photo 4: Former Railroad Spur Area and the Warehouse Building– from the Northeast**





**Photo 5: Flush Mounted Groundwater Monitoring Well**



**Photo 6: Above Ground Extended Groundwater Monitoring Well**

