

**REMEDIAL ACTION REPORT**  
**Limited Soil Removal**  
**& Engineered/Institutional Controls**

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Former Sooper Dry Cleaners  
Normandy Park Shopping Center  
Normandy Park, Washington

*Prepared for:*

Griffin & Jensen DBA  
Normandy Park, Washington

*Prepared by:*

**SCS ENGINEERS**

Bellevue, Washington

**May 2003**

**04202037.00**

**SCS ENGINEERS**

May 15, 2003  
File No. 04202037.00

Mr. Frank Jensen  
Griffin & Jensen DBA- Normandy Park Shopping Center  
22608 Marine View Drive South  
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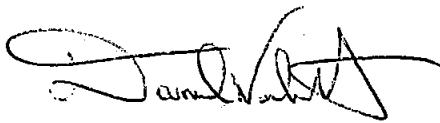
**Subject: Remedial Action Report, Sooper Dry Cleaners, Normandy Park Shopping Center**

Dear Mr. Jensen:

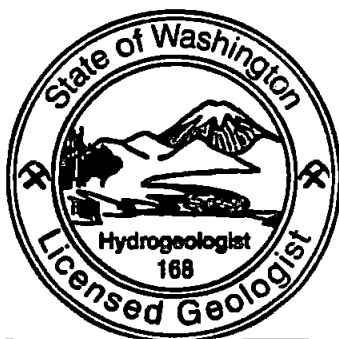
Attached please find two copies of the Remedial Action Report that documents the site cleanup activities completed for the former Sooper Dry Cleaners site located at the Normandy Park Shopping Center, Normandy Park, Washington. The remedial actions included limited soil excavation to remove suspected sources of tetrachloroethene (PCE) soil and groundwater contamination followed by the implementation of engineered and institutional controls to further isolate any remaining residual soil contamination.

Thank you for the opportunity to provide our services. If you have any questions, please do not hesitate to call.

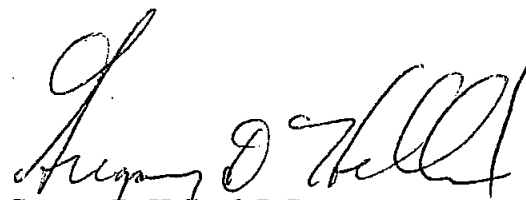
Sincerely,



Daniel A. Venchiarutti, P.G.  
Project Manager  
SCS ENGINEERS



**Daniel A. Venchiarutti**



Gregory D. Helland, P.G.  
Project Director  
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cc: Agnes Griffin, Griffin & Jensen DBA  
Ken Bloch, Wolfstone Panchot and Bloch  
Brad Helland, Washington Department of Ecology



# **REMEDIAL ACTION REPORT**

## **Limited Soil Removal & Engineered/Institutional Controls**

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Sooper Dry Cleaners  
Normandy Park Shopping Center  
17835 First Avenue South  
Normandy Park, Washington 98148

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**May 2003**

**04202037.00**

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## SECTION 1 INTRODUCTION

This Remedial Action Report was prepared by SCS Engineers for Griffin and Jensen DBA- Normandy Park Shopping Center to document the cleanup activities completed at the former Sooper Dry Cleaners site. These remedial actions included limited soil excavation to remove suspected sources of tetrachloroethene (PCE) soil and groundwater contamination followed by the implementation of engineered and institutional controls to further isolate any remaining residual soil contamination. The independent cleanup activities described in this document were completed under the Washington Department of Ecology's Voluntary Cleanup Program (VCP). The site was formerly entered into the VCP in February 2001 (TCP #NW0614).

The Sooper Dry Cleaners business was formerly located in the Normandy Park Shopping Center at 19935 First Avenue South in Normandy Park, Washington. A series of environmental investigations at the site have reported the presence of PCE contaminated soils and groundwater beneath the western portions of the shopping center. The primary point of release has been identified as a former dry well situated immediately behind the dry cleaner tenant space. The conduit formed by the septic line servicing the building, including three out-of-service septic tanks, was also considered to be probable secondary sources of subsurface contamination.

Based on these investigative findings, a feasibility analysis of the remedial alternatives to address contaminated soils and groundwater at the site was completed and a formal site cleanup/management plan was prepared (SCS Engineers, June 2002). The remedial plan was submitted to Ecology for review. Following their technical review, Ecology indicated that proposed cleanup approach (with several minor modifications) was consistent with the goal of achieving a no further action (NFA) determination for the residual soil contamination at the site (Ecology correspondence, dated January 6, 2003). As a result, the proposed site cleanup was initiated in March 2003.

### 1.1 PURPOSE AND SCOPE

The purpose of the remedial program was to mitigate residual PCE soil contamination in the subsurface soils behind the Sooper Dry Cleaners and along the storm and sanitary sewer utilities that formerly served the tenant space. Based on the nature and distribution of the observed soil contamination, the cleanup strategy selected for the site consisted of limited source removal followed by the implementation of engineered and institutional site controls.

These remedial measures are intended to remove the shallowest, most PCE-impacted soils observed at the site, while providing for the secure in-place management of the residual contamination beneath the property. Because there is no apparent onsite or downgradient exposure to site contaminants, the recommended site remedy is anticipated to remain protective of human health and the environment.

The main components of the soil cleanup and engineering controls included:

- Source removal through limited soil excavation of the most highly contaminated zones observed in the shallow subsurface. The soil removal activities focused on the PCE soils associated with a suspected former dry well and the soils/fill materials surrounding nearby sanitary sewer utilities;



- Decommissioning the suspected former dry well and three out-of-service septic tanks present on the property;
- Removal and replacement of the sanitary sewer and stormwater utilities that service the former dry cleaner tenant space to eliminate further infiltration of surface water into areas of residual soil contamination;
- Installation of a french drain along the western property border to route runoff into the improved stormwater system and further isolate any residual soil contamination; and
- Sealing and repaving the entire area behind the main building and all the disturbed portions of the parking areas.

The onsite remedial actions will be supplemented by other supporting measures including the preparation of a soil management plan, the notification of downgradient municipalities and property owners, and additional groundwater monitoring. The soil management plan, which has been prepared as a separate document, will ensure that the site engineered and institutional controls will be properly maintained during future property use and/or redevelopment. In addition, one year of quarterly onsite groundwater monitoring is planned beginning spring/summer 2003. Further offsite assessment and monitoring will also likely be required by Ecology to address groundwater issues at the site.

The line of reasoning for the selected remedial approach, as well as a detailed description of the onsite cleanup, are provided in the following sections of the report.



## SECTION 2 BACKGROUND INFORMATION

The Sooper Dry Cleaners business was formerly situated in a multi-tenant commercial building on the western end of the Normandy Park Shopping Center at 19935 First Avenue South in Normandy Park, Washington (Figure 1). Various dry cleaning businesses have historically operated within this tenant space since approximately the early 1970's. The last dry cleaner business (Sooper Dry Cleaners) vacated the tenant space in February 2000.

A generalized site plan illustrating the layout of the Normandy Park, shopping center and the location of the former Sooper Dry Cleaners is provided in Figure 2.

### 2.1 SUMMARY OF SITE CONDITIONS

Environmental investigations at the former Sooper Dry Cleaners indicate that historical releases of dry cleaning solvents have contaminated the subsurface soils and groundwater beneath the shopping center with chlorinated solvents, primarily PCE. The PCE contaminated soils observed at the site were relatively limited in extent and appeared to be primarily associated with an old dry well behind the dry cleaner tenant space. In turn, the area surrounding the old dry well appears to be the focus for the plume of PCE contaminated groundwater observed beneath the western end of the shopping center. In addition, lower-level PCE soil and groundwater contamination was observed to be associated with three old septic tanks located near the center of the parking area (Figure 2).

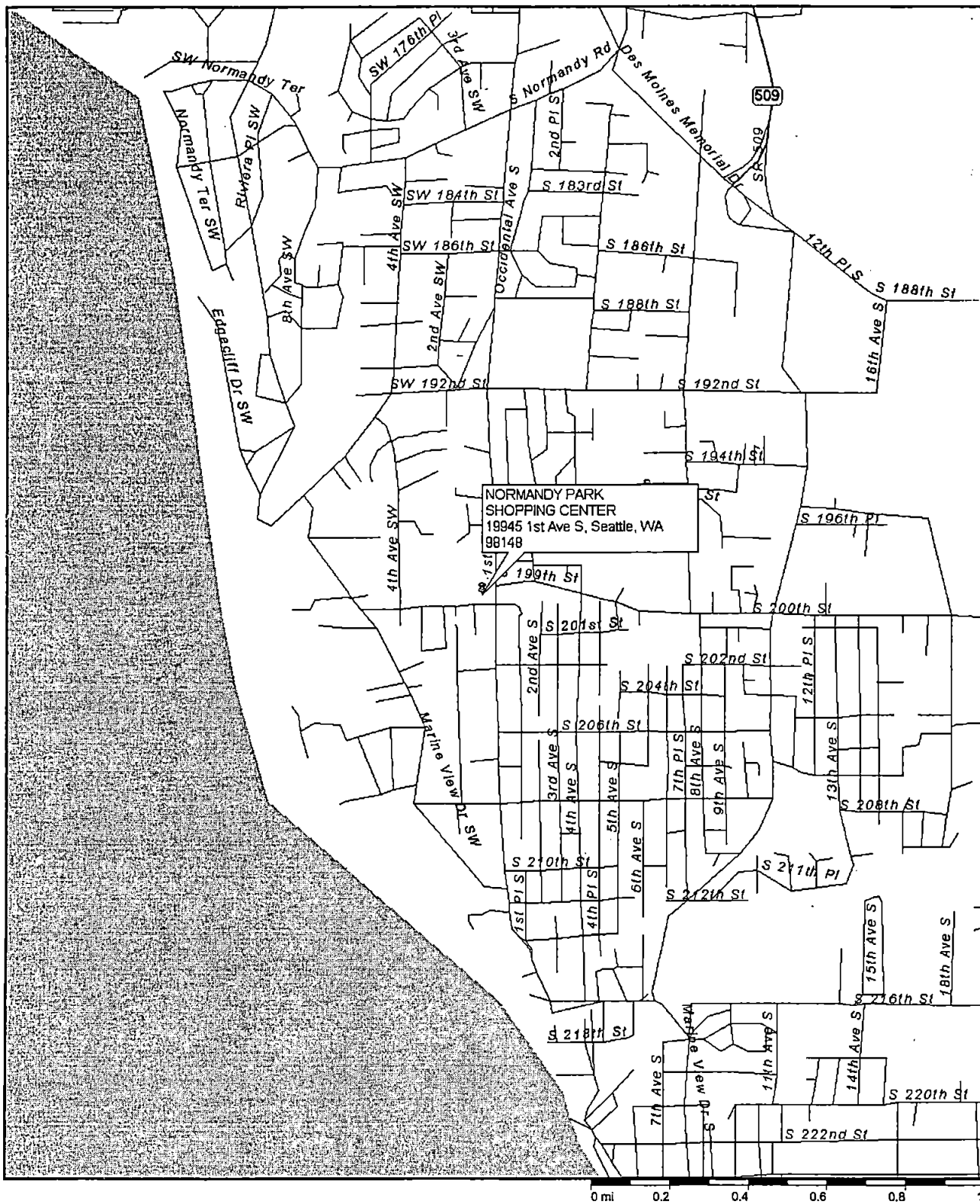
#### 2.1.1 Subsurface Conditions and Hydrogeology

Subsurface soils beneath the shopping center generally consist of compact silts that grade into silty fine sands in the vicinity of the water table. Groundwater occurs approximately 40 feet beneath ground surface (bgs) in fine to medium sand with silty zones.

Groundwater flow is predominantly to the west-southwest with a hydraulic gradient that ranges from approximately 0.004 to 0.02 ft/ft. Aquifer testing data collected at the site derived hydraulic conductivity values ranging between  $5.5 \times 10^{-5}$  to  $2.9 \times 10^{-4}$  ft/sec. Groundwater elevation data measured at a nested well (MW-5A/B) installed on the site show equal head values in both wells, which are vertically separated by 15 feet. These data indicate that the vertical hydraulic gradient at this location is minimal.

The ground surface hydrologically downgradient (towards the west) of the shopping center forms a broad plateau that abruptly rises over 50 feet above the subject property. As a result, the subject aquifer is situated approximately 115 feet bgs on the properties downgradient of the site. In addition, a distinct, shallow water bearing zone was observed to be perched on a till confining layer at 60 feet bgs in an offsite investigative area (at MW-13) situated approximately 1,000 feet southwest of the shopping center. Regional groundwater information suggests that the subject aquifer discharges along the Puget Sound shoreline approximately one half-mile further towards the west.





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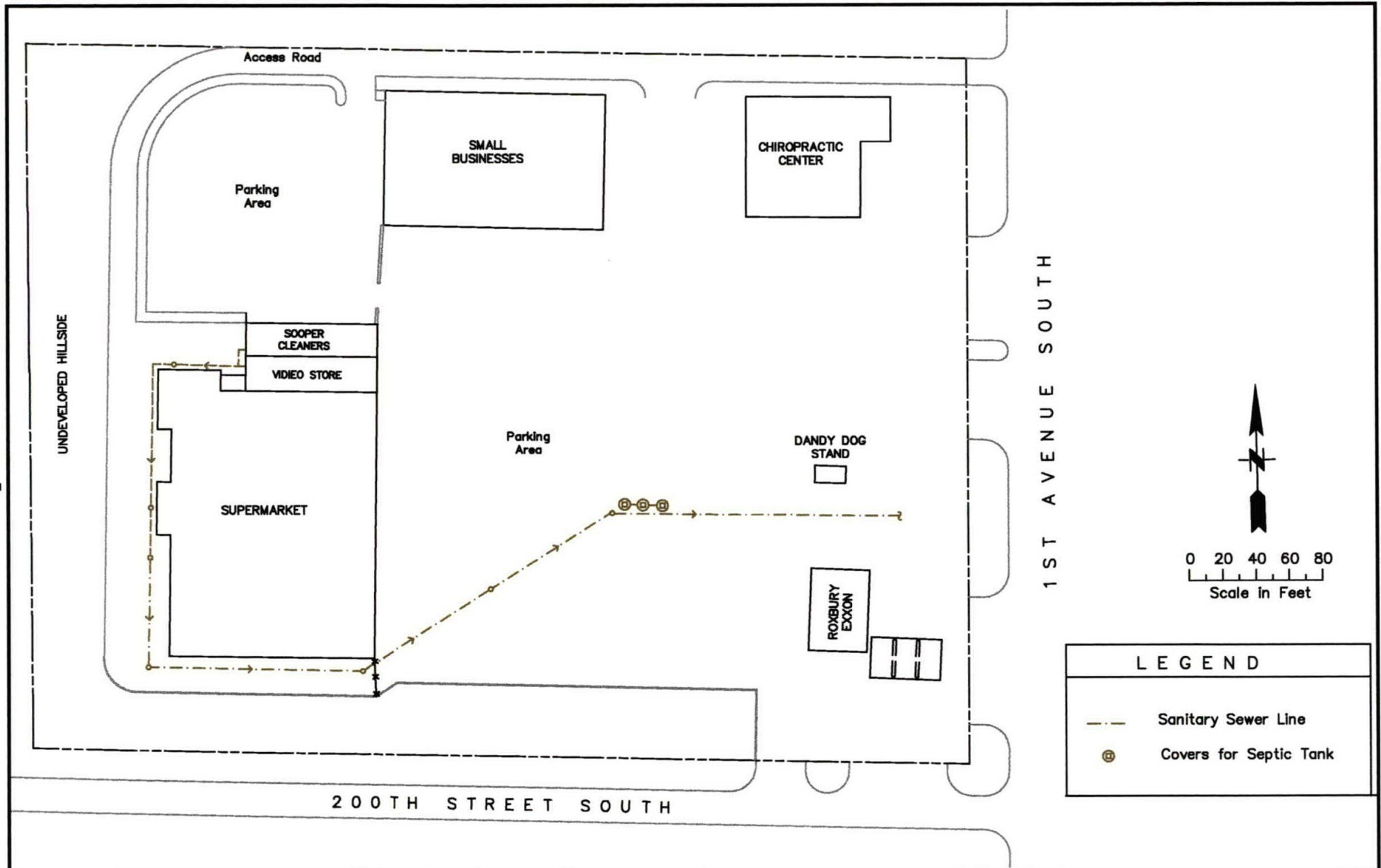
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CAD FILE Figure 1	APP BY G.H.

SITE LOCATION MAP  
NORMANDY PARK SHOPPING CENTER  
SITE REMEDIATION REPORT

DATE  
MAY 2003

FIGURE

1



LEGEND	
	Sanitary Sewer Line
	Covers for Septic Tank

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CAD FILE	Figure 2	APP BY	G.H.

GENERALIZED SITE PLAN  
 SOOPER DRY CLEANERS  
 NORMANDY PARK SHOPPING CENTER

DATE	MAY 2003
FIGURE	2

### 2.1.2 Soil Contamination

Subsurface soil investigations at the Normandy Park shopping center identified the following:

- The most elevated PCE concentration observed at the site (5.1 mg/kg at 5' in MW-7) occurred in the gravelly fill comprising the upper 13 feet of the former dry well. The next highest soil concentrations occurred in the upper saturated zone directly beneath (0.85 mg/kg at 45' in MW-7) and immediately downgradient (0.82 mg/kg at 65' in MW-10) of the dry well. The remaining PCE soil detections at the site ranged from 0.057 to 0.34 mg/kg. With few exceptions, all the detectable contaminant levels were present in samples collected from depths of 10 feet or greater. The estimated areal extent of the soil contamination observed at the subject site is illustrated on Figure 3.
- Low, but detectable levels of PCE and several related compounds (TCE and PCA) were also observed in the subsurface soils immediately to the west of the dry cleaner tenant space and the former septic tanks. These low level detections were sporadically present throughout the vadose and saturated zones. No evidence of any non-aqueous phase liquids (NAPL) was noted in either the vadose or saturated zones during the site investigation.

Neither PCE, nor any related compounds, were detected in any of the soil samples collected from the hand auger borings (HA-1 through HA-4) installed inside the dry cleaner tenant space. With the exception of Strataprobe boring SP-7, which was located beside the former septic tanks, PCE was not detected in any of the soil samples collected from along the sanitary sewer line. In addition, PCE was not detected in any of the soil samples collected from the borings installed on the far north and south ends of the shopping center, or in the offsite monitoring well boring (MW-13) approximately 1,000 feet west-southwest of the subject property.

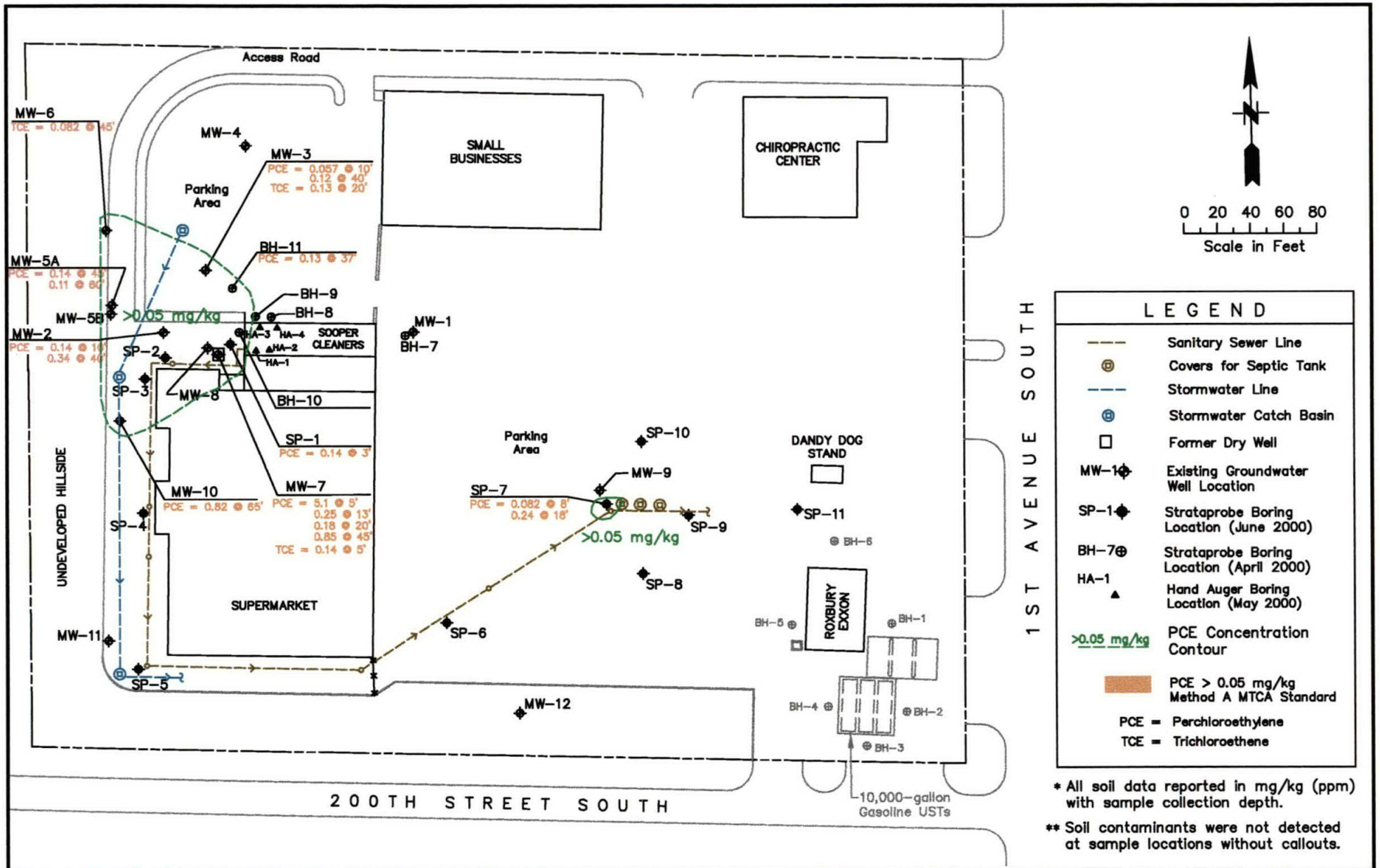
### 2.1.3 Groundwater Contamination

Groundwater PCE concentrations exceeding the 5 µg/L MTCA Method A standard have been detected beneath the western end of the shopping center and immediately downgradient of the old septic tanks. However, neither PCE nor any related contaminants were detected in any of the groundwater samples collected downgradient of the shopping center at offsite well MW-13.

The groundwater investigations at the site indicated the following:

- The highest PCE concentrations (ranging between 2,300 to 8,300 µg/L) at the site were observed in the wells directly within (MW-7) and immediately downgradient (MW-2 and MW-10) of the former dry well. In addition, trichloroethene (TCE) was also present immediately downgradient of the dry well (in MW-2 and MW-7) above its 5 µg/L Method A groundwater standard.
- PCE concentrations (ranging between 580 to 980 µg/L) were detected in several monitoring wells (MW-3, MW-5A and MW-6) slightly west-northwest of the former dry cleaner tenant space. Even through these PCE detections are slightly crossgradient of the former dry well, is believed that this contamination is also associated with this structure.





LEGEND	
	Sanitary Sewer Line
	Covers for Septic Tank
	Stormwater Line
	Stormwater Catch Basin
	Former Dry Well
	Existing Groundwater Well Location
	Strataprobe Boring Location (June 2000)
	Strataprobe Boring Location (April 2000)
	Hand Auger Boring Location (May 2000)
	PCE Concentration Contour
	PCE > 0.05 mg/kg Method A MTCA Standard
	PCE = Perchloroethylene
	TCE = Trichloroethene

\* All soil data reported in mg/kg (ppm) with sample collection depth.  
 \*\* Soil contaminants were not detected at sample locations without callouts.

<b>SCS ENGINEERS</b> STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS 2405 140TH AVE NE, SUITE 107, BELLEVUE, WA 98005 (425) 746-4600	PROJECT NO.	04202037.00	DES BY	D.V.	ESTIMATED EXTENT OF SOIL CONTAMINATION ENVIRONMENTAL INVESTIGATIONS NORMANDY PARK SHOPPING CENTER	DATE	MAY 2003
	SCALE	AS SHOWN	CHK BY	D.V.		FIGURE	3
	CAD FILE	Figure 3	APP BY	G.H.			

- Lower-level PCE groundwater contamination (ranging from 18 to 120 µg/L) was also observed in the vicinity of the old septic tanks and on the southwest corner of the property. The 120 µg/L PCE detection in MW-9 appears to part of a smaller plume of PCE contaminated groundwater originating from the old septic tanks. The lack of PCE or any related compounds in the monitoring well downgradient of the former septic tanks (MW-12) suggests that this latter plume remains limited in extent.

Due to the proximity of the property line, PCE contaminated groundwater is likely migrating beyond the western border of the shopping center. However, neither PCE nor any related contaminants have been detected in offsite well MW-13. The lack of groundwater contamination in MW-13 suggests that the plume of PCE contaminated groundwater observed beneath the shopping center does not extend this far west. As noted in the October 2001 ESA report, changes in the lithological condition of the aquifer (i.e. an increasingly reducing environment and higher organic carbon levels) immediately downgradient of the property may potentially be directly attenuating and/or limiting the migration of the PCE contamination.

## 2.2 REMEDIAL APPROACH

The purpose of the remedial program at the Sooper Dry Cleaners site is to mitigate the PCE soil contamination identified at the site and to minimize future groundwater impacts. However, the analysis of remedial alternatives completed for the site concluded that aggressive remediation of the soil and groundwater contamination at the site is not practical or justified. The main reasons supporting this conclusion included the lack of a well-defined source material to treat, the depth of contamination, the low permeability of the site soils, and the lack of any human or ecological exposure. Considering the current land use and the most likely future development scenarios (i.e. shopping center or other commercial use), the residual contamination observed beneath the site is not likely to present an unacceptable risk to potential receptors on the Normandy Park property. In addition, neighborhood surveys completed by SCS indicated that no residents downgradient of the property are using groundwater.

It has been recognized that the remediation goals for any cleanup actions taken at the site must take into account the lack of existing exposure routes and the technical difficulties associated with the treatment of chlorinated compounds. This is supported by site-specific groundwater modeling and contaminant transport simulations that indicate only a marginal benefit in downgradient water quality would be realized even if the entire mass of contamination on the property (in both the unsaturated and saturated zones) could be effectively removed.

Based on the lack of downgradient receptors, and the observed distribution of the PCE contamination, the cleanup strategy selected for the site consisted of limited soil excavation to remove suspected sources of PCE contamination followed by the implementation of engineered and institutional controls to isolate the remaining residual soil contamination from onsite surface receptors and minimize future contaminant leaching into the underlying groundwater. Ecology has indicated that a minimum of one year of onsite groundwater monitoring will be required upon completion of the soil cleanup activities. In addition, further offsite assessments will likely be required to better evaluate the downgradient extent of the PCE groundwater contamination.



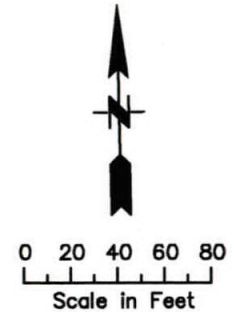
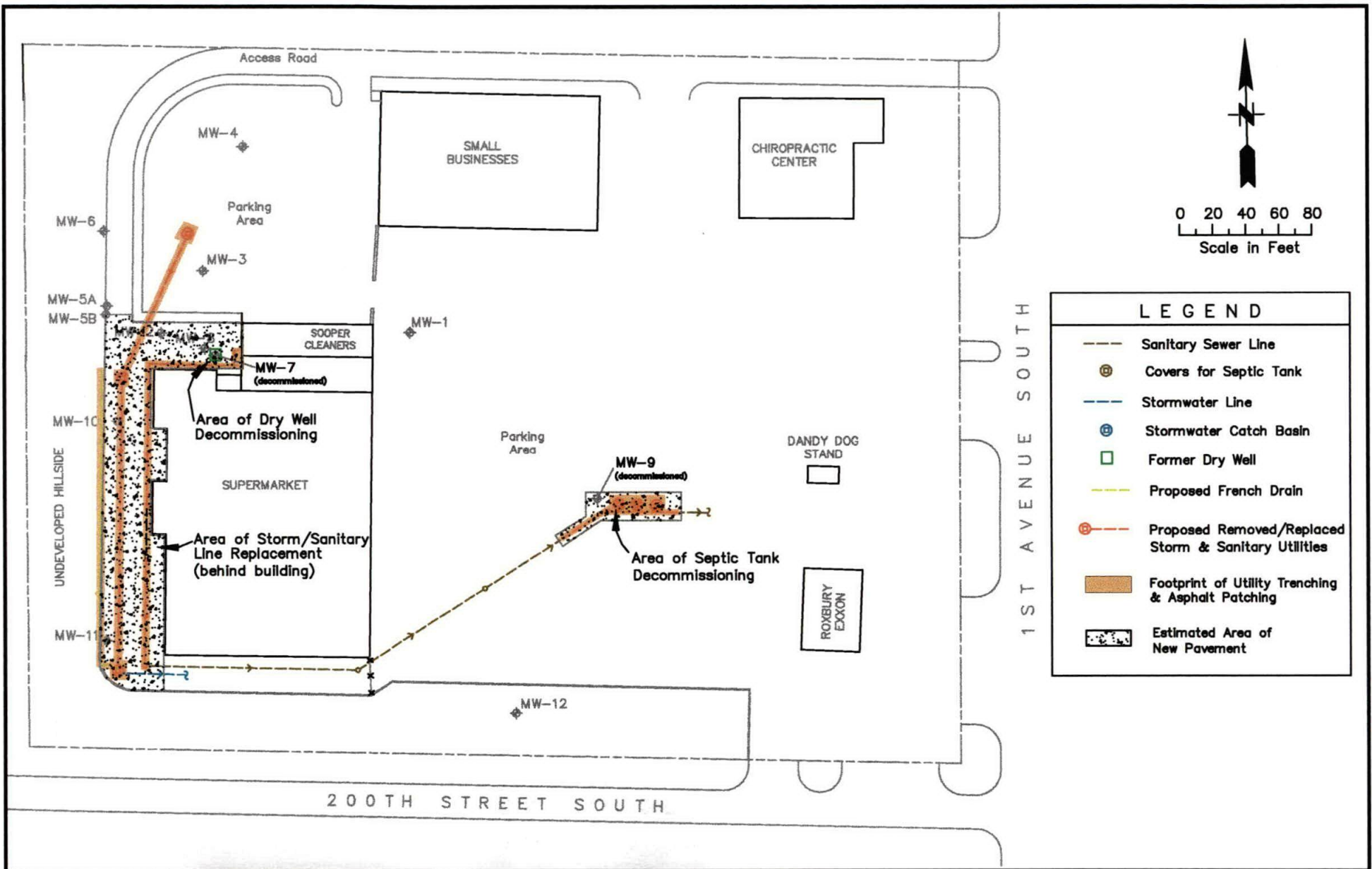
The following primary remediation goals were identified for the soil cleanup:

- Limited source removal of the most highly contaminated PCE soils from the upper 13 to 15 feet of the former dry well, and limited removal of the shallow fill surrounding the sanitary sewer utilities and former septic tanks (an estimated total of approximately 50 cubic yards). Confirmation sampling will be conducted in these areas to document adequate source removal and ensure the proper handling and offsite disposal of PCE soils and any associated waste materials;
- Decommissioning of the dry well and septic tank structures to remove these suspected sources of soil and groundwater contamination;
- Consistent with an unrestricted commercial land use, provide a remedy for all residual PCE soils exceeding the 0.053 mg/kg MTCA Method B standard for protection of groundwater. Engineered measures to isolate the residual PCE soils will consist of replacing approximately 600 linear feet of sanitary sewer and stormwater utilities in the vicinity of the remaining residual PCE soils. The stormwater system will be improved through the installation of 250 linear feet of french drain piping to collect and divert runoff away from the residual contamination. In addition, the alley behind the main building and all the disturbed portions of the adjacent parking area will be repaved with new asphalt to further isolate these PCE soils;
- Provide institutional controls, including a soil management plan and administrative measures (i.e. restricting further use of site groundwater) to address potential exposure pathways and ensure the long-term maintenance of the engineered site controls; and
- Initiate of one year of quarterly groundwater monitoring to assess the effectiveness of the soil remedy.

A generalized overview of the soil remediation program, illustrating the scope of the planned soil excavation and engineered site controls, is provided in Figure 4.



10



LEGEND	
	Sanitary Sewer Line
	Covers for Septic Tank
	Stormwater Line
	Stormwater Catch Basin
	Former Dry Well
	Proposed French Drain
	Proposed Removed/Replaced Storm & Sanitary Utilities
	Footprint of Utility Trenching & Asphalt Patching
	Estimated Area of New Pavement

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	SCALE AS SHOWN	CHK BY D.V.		FIGURE 4
	CAD FILE Figure 4	APP BY G.H.		

### SECTION 3 REMEDIAL ACTIONS

Remedial activities to address the residual soil contamination issues at the Normandy Park Shopping Center were completed during March and April 2003. The source removal and engineering/institutional control actions included the following major components:

- Decommissioning the former dry well and the removal/offsite disposal of the upper 13 to 15 feet of PCE contaminated fill material;
- Removal/replacement of approximately 320 linear feet of the original butt-jointed, concrete, sanitary sewer line that serviced the former dry cleaner tenant space;
- Removal/replacement of approximately 300 linear feet of the original butt-jointed, concrete, stormwater utilities in the vicinity of identified areas of residual soil contamination;
- Construction of a new french drain system along the western property line to divert surface runoff into the stormwater line;
- Decommissioning the former septic tank system and proper treatment/disposal of the accumulated bottom water and sediment;
- Collection and analysis of confirmation soil samples within each work area to ensure the removal of any potential "hot spots" and to document the levels of residual soil contamination to be managed in-place; and,
- Repaving all the work areas with new asphalt pavement.

Before initiating any of the site work, SCS Engineers contacted the City of Normandy Park, King County Health Department and Southwest Suburban Sewer District and obtained all required grading and construction permits or the requisite exemptions. In addition, after reviewing the available site information, the Washington Department of Ecology issued a contained-in determination (dated February 27<sup>th</sup>, 2003) allowing the PCE soils removed/disposed during the site cleanup to be managed as a non-hazardous waste. Ecology's determination required confirmational testing of the excavated soils pending disposal, as well as the separate removal and stockpiling of the fill materials comprising the upper five feet of the old dry well (the zone from which the most elevated PCE soils had been previously reported).

A site-specific health and safety plan addressing worker safety issues associated with the planned engineering/construction site activities was also completed before mobilizing to the site. Work safety/exclusion zones, which utilized perimeter fencing, fixed site features (i.e. building walls), flagging and warning tape, trench/excavation covers and traffic diversion measures, were implemented to manage safety risks and prevent exposure to subsurface contamination.



Detailed descriptions of the cleanup actions completed as part of the soil remedy, including the results of the confirmation soil sampling, are provided in the following sections. Site drawings illustrating the areas of soil excavation, the newly installed site engineering controls, and the confirmation soil sampling locations are provided in Figures 5 through 7. The analytical results for all of the soil, septic tank water and bottom sediment characterized during the remedial action are provided in Tables 1 through 3.

In addition, a series of photographs illustrating the critical phases of the site cleanup are included in Appendix A. Laboratory data packages and sample chain-of-custody records for all the analytical data supporting the cleanup action are attached as Appendix B. Contaminated soil and hazardous waste disposal documentation for the waste materials generated during the soil cleanup are provided in Appendix C. Appendix C also includes a copy of Ecology's contained-in determination letter.

### 3.1 DRY WELL DECOMMISSIONING

The abandoned dry well located immediately behind the former Sooper Dry Cleaners tenant space was decommissioned during March 17<sup>th</sup> through 20<sup>th</sup>, 2003. Before excavation of the dry well was initiated, groundwater monitoring well MW-7 (which had been previously installed through the center of the dry well) was properly decommissioned as required under the Washington Department of Ecology's Minimum Standards for Construction and Maintenance of Wells (WAC 173-160).

A track-mounted excavator was used to remove all of the silty gravelly fill within the upper 13 feet of the dry well. The area of excavation had a dimension of approximately 20' x 15', with the deepest part of the excavation being centered on the 5' x 5' footprint of the dry well structure. Figure 5 illustrates the main areas of soil excavation and the approximate locations of the confirmational soil samples collected from this area.

The subsurface materials encountered in the upper 13 feet of the dry well excavation generally consisted of tan gravelly silt containing 1" to 4" diameter cobbles. The dry well materials were surrounded by a native compact tan silt. The native silt was also encountered at a depth of 13 feet at the bottom of the excavation. A shallow (4" to 12" deep) layer of surface gravel fill was typically present immediately beneath the old asphalt surface. None of these soils exhibited any obvious signs of chemical staining. Field screening with an organic vapor meter (OVM) did not indicate the presence of any chemical vapors.

As previously discussed, the fill excavated from the upper 5 feet of the dry well was stockpiled and characterized separately from the remaining dry well materials to ensure that no potentially hazardous soils (i.e. soils containing leachable levels of contaminants) would be inadvertently mixed with "non-hazardous" PCE soils. Approximately 10 cubic yards of shallow (<5 feet deep) fill were temporarily stockpiled (Stockpile A) from this zone. An additional 15 cubic yards of soil (Stockpile B) were removed from the deeper zones of the dry well (5 to 13 feet deep) and an adjacent sanitary sewer/roof drain trench.

Nine confirmational soil samples were collected and analyzed from the area of the former dry well. In order to better direct the soil removal activities, the samples were rush-analyzed onsite using a mobile laboratory (ESN Northwest, Bellevue, WA). All samples were analyzed for halogenated and aromatic volatile organic compounds (VOCs) using EPA Method 8021B.



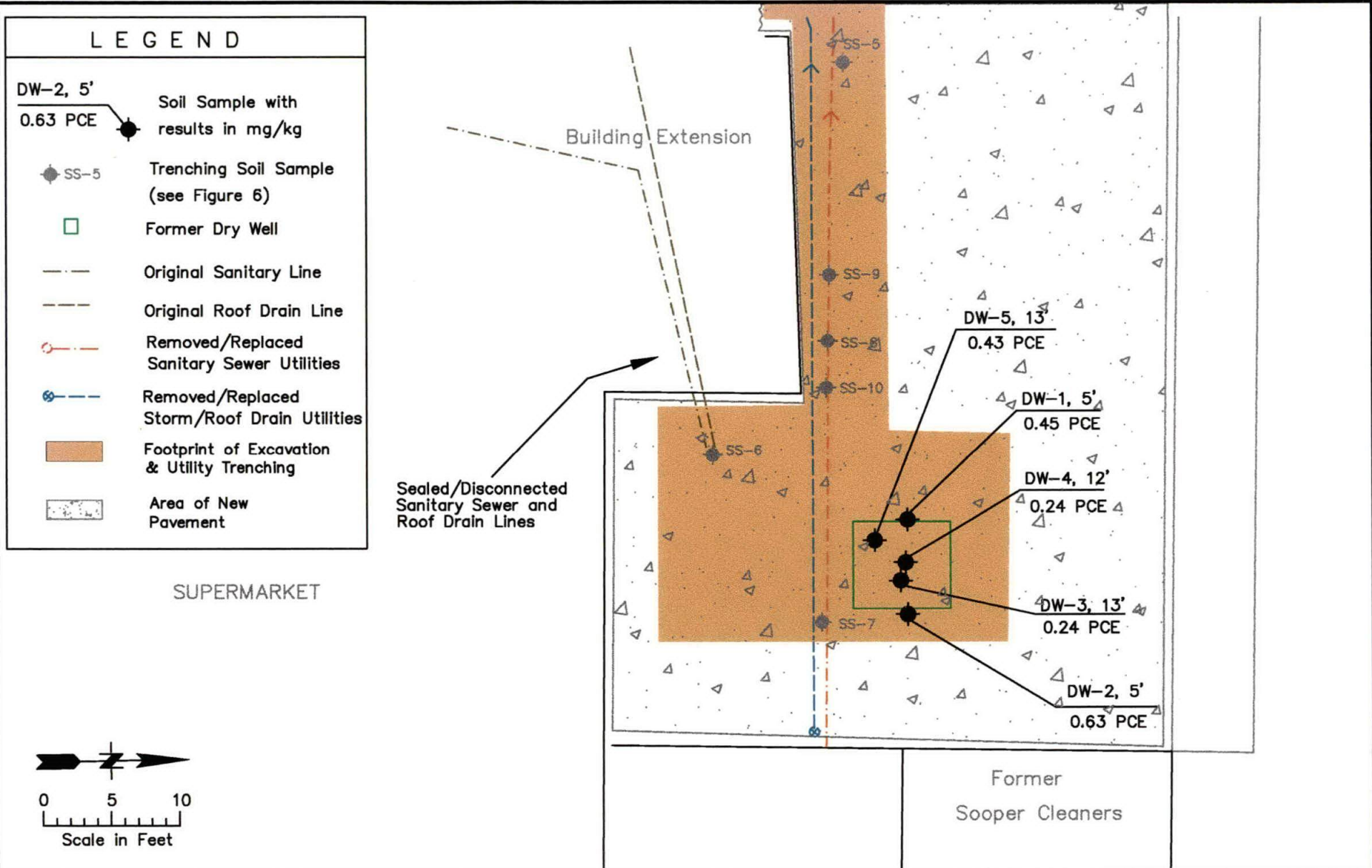
**Table 1: Summary of Analytical Data for Dry Cleaning Volatile Organic Compounds (VOCs) in Soil, Limited Excavation & Engineered/Institutional Controls**

SAMPLE IDENTIFICATION	SAMPLE DATE	SAMPLE DEPTH	SAMPLE LOCATION	EPA 8260/8021B RESULTS (mg/kg)*	
				PCE	TCE
<b>Dry Well Excavation</b>					
DW-1, 5'	3/17/03	5'	West wall	0.45	ND
DW-2, 5'	3/17/03	5'	East wall	0.63	ND
DW-3, 13'	3/17/03	13'	East floor	0.24	ND
DW-4, 12'	3/17/03	12'	1' above center floor	0.45	ND
DW-5, 13'	3/17/03	13'	South-west floor	0.43	ND
SP-A-1	3/17/03	1'	Soil Stockpile A, east end	0.11	ND
SP-A-2	3/17/03	1'	Soil Stockpile A, west end	0.14	ND
SP-B-1	3/18/03	1'	Soil Stockpile B, east end	0.31	ND
SP-B-2	3/18/03	1'	Soil Stockpile B, west end	0.34	ND
<b>Sanitary Sewer Trench</b>					
SS-1	3/18/03	5'	South floor	0.06	ND
SS-2	3/18/03	5'	Center-south floor	ND	ND
SS-3	3/18/03	5'	Center-north floor	ND	ND
SS-4	3/18/03	5'	North floor	0.05	ND
SS-5	3/18/03	5'	North-west building corner, floor	0.66	ND
SS-6	3/18/03	5'	North-west building corner, floor	0.28	ND
SS-7	3/18/03	4'	North-west building corner, south wall	0.26	ND
SS-8	3/18/03	7'	North-west building corner, floor	0.74	0.06
SS-9	3/18/03	4'	North-west building corner, south wall	1.3	ND
SS-10	3/18/03	4'	North-west building corner, south wall	1.5	ND
SS-11	3/26/03	5'	South-west of septic tanks, floor	0.19	ND
SP-C-1	3/18/03	1'	Soil Stockpile C, west end	ND	ND
SP-C-2	3/18/03	1'	Soil Stockpile C, east end	0.07	ND
SP-D-1	3/18/03	1'	Soil Stockpile D, center	23	0.28
SP-D-1 (TCLP)*	3/18/03	1'	Soil Stockpile D, center	3.8	ND
<b>Storm/French Drain Trench</b>					
FD-1	3/17/03	2.5'	French Drain Trench, north floor	0.26	ND
STW-1	3/19/03	5'	Sanitary Sewer Trench, south floor	ND	ND
STW-2	3/19/03	5'	Sanitary Sewer Trench, north floor	0.09	ND
<b>Former Septic Tank Excavation</b>					
STS-1	3/26/03	10'	East chamber, floor	0.06	ND
STS-2	3/26/03	10'	Center chamber, floor	ND	ND
STS-3	3/26/03	10'	West chamber, floor	0.09	ND

\* Soil sample SP-D-1 was also analyzed after the TCLP extraction to determine contaminant leachability. Data reported in mg/L.  
PCE Tetrachloroethylene.  
TCE Trichloroethene.  
ND Analyte not detected.



14



<b>SCS ENGINEERS</b> STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS 2405 140TH AVE NE, SUITE 107, BELLEVUE, WA 98005 (425) 746-4600	PROJECT NO. 04202037.00	DES BY D.V.	EXCAVATION AND CONFIRMATIONAL SOIL SAMPLING RESULTS FORMER DRY WELL	DATE MAY 2003
	SCALE -	CHK BY D.V.		FIGURE 5
	CAD FILE Figure 5	APP BY G.H.		

Five samples (DW-1, 5'; DW-2, 5'; DW-3, 13'; DW-4, 12' and DW-5, 13') were obtained from the walls and floor of the excavation after the removal of the dry well fill materials. As shown on Table 1, levels of residual PCE in these samples ranged between 0.24 and 0.63 mg/kg. The 0.24 mg/kg PCE detection was reported in the soil sample (DW-3, 13') obtained in the native silt at the bottom of the excavation. TCE was not detected in any of the samples.

The remaining four confirmational soil samples were collected from Soil Stockpile A (SP-A-1 and SP-A-2) and Soil Stockpile B (SP-B-1 and SP-B-2). PCE concentrations in Stockpile A ranged from 0.11 to 0.14 mg/kg. Stockpile B contained PCE levels ranging between 0.31 and 0.34 mg/kg. TCE was not detected in any of these samples. Once the analytical testing confirmed that the Stockpile A and B soils were non-hazardous, this material was loaded into 10-ton, plastic-lined, steel storage containers and hauled for offsite disposal at the Columbia Ridge Landfill in Arlington, Oregon.

After all the soil removal activities had been completed, the dry well excavation was backfilled with clean material, compacted, and resurfaced with new asphalt pavement.

### 3.2 SANITARY SEWER REPLACEMENTS

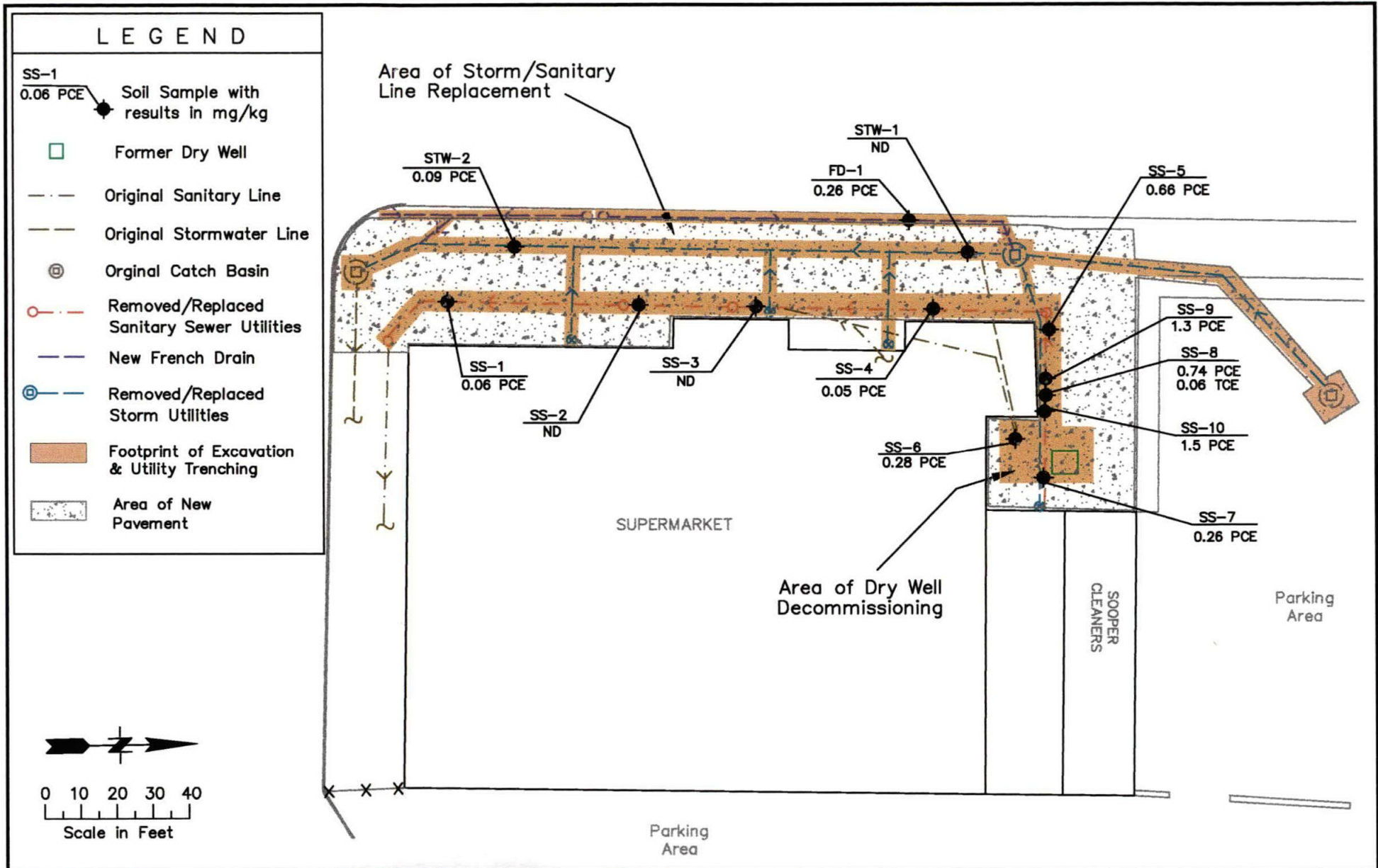
Between March 17<sup>th</sup> and April 4<sup>th</sup> 2003, approximately 320 linear feet of the original sanitary sewer piping that serviced the former dry cleaner tenant space was replaced with new utility piping. The original butt-jointed, concrete piping was removed from the trench excavation and a new, watertight, Schedule 80 PVC line was installed in its place.

Visual examination of the old piping did not reveal any obvious points of breakage. However, approximately 50 feet of the original sanitary line immediately behind the tenant space was discovered to have been covered by a subsequent building extension. The covered portion of the original line was inaccessible, and had to be decommissioned in-place. The upstream terminus of the covered section of piping was sealed with bentonite/concrete grout. This section of sanitary sewer (as well as a parallel roof drain pipe) was then replaced with new PVC piping rerouted around the northwest corner of the building extension. Figure 6 illustrates the layout of both the original and replaced sanitary sewer utilities behind the main building, as well as the confirmational soil sampling locations.

A total of 10 confirmational soil samples (SS-1 through SS-10) were obtained from the utility trenches immediately behind the main building. With the exception of a 25 foot section of the new trenching immediately north of the building extension which exposed compact (possibly reworked) gravelly silt, the subsurface soils surrounding the sanitary lines consisted of compact native silt. The native silt did not exhibit any signs of chemical staining or organic vapors. As shown on Table 1, EPA 8021B analysis of the soil samples (SS-1 through SS-4 and SS-6 and SS-7) obtained from the native silt reported PCE levels ranging between "not detected" to 0.28 mg/kg. TCE was not detected in any of these samples.

However, detectable levels of organic vapors were noted in the gravelly silts exposed in the new trenching along northern end of the building extension. These vapors appeared to be associated with several thin rusty-brown silt lenses that occurred 2 to 5 feet below ground surface. The lenses exposed along the southern wall of the new trench appeared to originate from beneath the building extension, but typically pinched out before reaching the trench's opposite wall. Soil samples (SS-5 and SS-8





<p><b>SCS ENGINEERS</b>          STEARNS, CONRAD AND SCHMIDT          CONSULTING ENGINEERS          2405 140TH AVE NE, SUITE 107, BELLEVUE, WA 98005 (425) 746-4600</p>	PROJECT NO.	04202037.00	DES BY	D.V.	<p>EXCAVATION AND CONFIRMATIONAL          SOIL SAMPLING RESULTS          ENGINEERED &amp; INSTITUTIONAL CONTROLS</p>	DATE	MAY 2003
	SCALE	-	CHK BY	D.V.		FIGURE	6
	CAD FILE	Figure 6	APP BY	G.H.			

through SS-10) analyzed from this area contained PCE concentrations ranging between 0.66 and 1.5 mg/kg. The highest PCE levels were detected at a depth of approximately 4 feet in the rusty silt lenses (1.3 and 1.5 mg/kg in SS-9 and SS-10, respectively). The soil sample (SS-8) obtained after this section of the trench was excavated to a depth of 8 feet contained 0.74 mg/kg PCE and 0.06 mg/kg TCE.

Based on these findings, approximately 32 cubic yards of PCE contaminated soil was removed from the northern section of the sanitary sewer trench. This included approximately 20 cubic yards of "low level" PCE soil removed from the vicinity of samples SS-6, SS-7 and SS-5. This materials was separately accumulated to form Soil Stockpile C. The 20 foot long section of the northern trench which exhibited the rusty lenses was over-excavated to a depth of 8 feet and as much of the material was removed as possible without risking the adjacent structures. Approximately 12 cubic yards of this material was separately accumulated as Soil Stockpile D.

EPA 8021B analysis of the Stockpile C soils (SP-C-1 and SP-C-2) detected PCE levels ranging between "not detected" and 0.07 mg/kg. This material was subsequently disposed of as a non-hazardous PCE soil at the Columbia Ridge Landfill in Arlington, Oregon. However, EPA 8021B analysis of the Stockpile D soils (SP-D-1) detected 23 mg/kg PCE and 0.28 mg/kg TCE. Follow-up testing of the latter soils using the Toxicity Characteristics Leaching Procedure (TCLP) reported 3.8 mg/L of leachable PCE. Based on the latter results, the Stockpile D soils were managed as a hazardous waste. All 12 cubic yards of this latter material was transported by rail for proper disposal at Waste Management's hazardous waste landfill in Arlington, Oregon.

### 3.3 STORMWATER UTILITY IMPROVEMENTS

Between March 19<sup>th</sup> and April 4<sup>th</sup> 2003, approximately 300 linear feet of the original underground stormwater piping located immediately behind the main building was removed and replaced with new utility piping. Four roof drain laterals servicing the west side of the building were also replaced. As previously described for the sanitary sewer, the original butt-jointed, concrete, stormwater piping was replaced with a watertight Schedule 80 PVC line. In addition, one stormwater catch basin was completely replaced, and two other catch basins were refurbished.

The stormwater system was further improved through the installation of a 250 foot long french drain that parallels the western property border. The french drain was installed in two sections, one section connecting to the newly installed center catch basin, the other discharging into the refurbished southern catch basin. The french drain consists of a geomembrane wrapped 4-inch, perforated, PCV pipe covered by approximately 2.5 feet of ¾" to 2" washed round rock. The layout of the new stormwater infrastructure is illustrated in Figure 6.

As noted in the previous section, the original roof drain lateral located immediately behind the former dry cleaner tenant space was partially covered by a building add-on. As a result, the inaccessible portions of the underground piping were decommissioned in-place and sealed with bentonite/concrete grout. The new PVC lateral was subsequently rerouted around the northwest corner of the building extension.



It was interesting to note that in this area the original roof drain lateral was formerly situated about 18" above and immediately to the north of the parallel sanitary sewer line. Furthermore, these lines lay immediately adjacent to the area where the most highly contaminated soils (SS-9 and SS-10) were observed. Chronic leakage of one or both lines could have been a primary source of the observed soil and groundwater contamination. The decommissioning and replacement of both of these lines has mitigated the possibility of future releases from this area.

The subsurface materials encountered in the stormwater/french drain trenches primarily consisted of native compact silt. These soils did not exhibit any signs of chemical staining or organic vapors. As shown on Figure 6, two confirmational soil samples (STW-1 and STW-2) were collected from the stormwater trenches immediately behind the main building. One additional soil sample (FD-1) was obtained from the french drain trench. EPA 8021B analysis of these soil samples detected PCE levels ranging between "not detected" to 0.26 mg/kg (Table 1). TCE was not detected in any of these samples.

A limited volume of soil from the vicinity of FD-1 was subsequently hauled offsite for land disposal as part of Soil Stockpile C. The majority of the remaining soils excavated during replacement of the stormwater system were determined to be suitable for reuse as backfill. Once the new stormwater utilities were installed, the excavation was backfilled, compacted, and resurfaced with a gravel sub-base and new asphalt pavement.

### 3.4 SEPTIC TANK DECOMMISSIONING

The out-of service septic tank that was part of the former sanitary sewer system was decommissioned between March 24<sup>th</sup> and 28<sup>th</sup>, 2003. The tank included three connected, 1,000 gallon, concrete chambers accessed through three concrete ring manholes. The tanks were completely isolated from the existing sanitary sewer line. After the tank decommissioning was completed, the excavation was expanded to allow replacement of approximately 20 feet of old sanitary sewer piping upstream (to the west) of the system. It should be noted that groundwater monitoring well MW-9 was previously decommissioned during sanitary line repairs/upgrades in this area.

Before the tanks could be demolished, the accumulated water (primarily residual stormwater seepage) and bottom sediment inside these structures were characterized to ensure their proper management and disposal. Two samples (SW-1 and SW-2) of the standing septic tank water and one sample of the bottom sediment (SED-1) were collected on February 26, 2003. As shown below in Table 2, the septic tank water contained PCE concentrations ranging between 6.7 and 2,510 µg/L and TCE concentrations ranging between 4.2 and 1,300 µg/L. Lower levels of cis-1,2 dichloroethene and trans-1,2 dichloroethene (chlorinated solvent breakdown products) were also detected.

A sample of the tank bottom sediment (SED-1) was collected from the base of the upstream (westernmost) septic chamber. The remaining two chambers did not contain appreciable accumulations of sediment. EPA 8260 analysis of SED-1 detected 25,100 mg/kg PCE and 1,060 mg/kg TCE. Follow-up TCLP analysis of SED-1 reported 111 mg/L of leachable PCE and 12.7 mg/L of leachable TCE. In addition, biological testing detected low levels (1 CFU) of fecal coliform bacteria in water sample SW-1. Fecal coliform were not detected in sediment sample SED-1. These data indicated that both the tank water and sediment had to be managed as hazardous waste.



**Table 2: Summary of Analytical Data for Dry Cleaning Volatile Organic Compounds (VOCs) in Septic Tank Water and Bottom Sediment**

SAMPLE IDENTIFICATION	SAMPLE DATE	SAMPLE LOCATION	EPA 8260/8021B RESULTS (µg/L)			
			PCE	TCE	cis 1,2 DCE	trans 1,2 DCE
SW-1	2/26/03	West tank chamber	2510	1300	846	20.7
SW-2	2/26/03	East tank chamber	6.7	4.2	5.5	ND
TSW-1 <sup>1</sup>	3/26/03	Carbon treated water	1.8	ND	ND	ND
SED-1 <sup>2</sup>	2/26/03	West tank chamber	25,100	1060	<1160 <sup>3</sup>	<1160 <sup>3</sup>
SED-1 (TCLP) <sup>4</sup>	2/26/03	West tank chamber	111	12.7	ND	ND

<sup>1</sup> Water sample collected after carbon treatment. Treated water was accepted for discharge by METRO water treatment plant.

<sup>2</sup> Sample SED-1. All data for this sample reported in mg/kg.

<sup>3</sup> Elevated detection limits were reported by laboratory for DCE due to sample dilution.

<sup>4</sup> Sample SED-1 was also analyzed after the TCLP extraction to determine contaminant leachability. Data reported in mg/L.

PCE Tetrachloroethylene.

TCE Trichloroethene.

DCE Dichloroethene.

ND Analyte not detected.

After conferring with Ecology, SCS Engineers obtained permission to remove and treat the accumulated septic tank water to reduce the total volume of hazardous waste to be generated at the site. Between March 24<sup>th</sup> and 25<sup>th</sup>, 2003, approximately 2,500 gallons of accumulated water were pumped out of the three septic tank chambers, passed through a 220 pound activated carbon water treatment unit, and temporarily stored in a 9,000 gallon capacity Baker tank. The water was pumped at a rate of approximately three gallons per minute, which allowed for sufficient residence time in the carbon unit to ensure adequate treatment.





EPA 8021B analysis of the treated water (TSW-1) collected directly from the Baker tank reported 1.8 µg/L PCE and < 0.5 µg/L TCE. The treated septic tank water was then pumped into a tanker truck, transported offsite, and accepted by METRO for final disposal at their water treatment plant. The spent carbon from the treatment unit was hauled offsite by Clean Environmental Concepts (Vancouver, WA) for regeneration/recycling.

On March 26, 2003, Rivers Edge Vector Services (Kent, WA) pressure washed each chamber of the septic tank system and removed the remaining water and bottom sediment. This material was pumped out using a vector truck suction system. After it was removed, all of the accumulated material was transferred into 55-gallon drums. All the rinsate generated during the pressure washing and subsequent equipment decontamination was also placed into 55-gallon drums. A total of 14 drums of mixed sediment and water were removed from the septic tank. The drummed material was labeled and managed as a hazardous waste. On April 16<sup>th</sup> 2003, Emerald Services (Seattle, WA) removed the 14 drums (an estimated 6,800 pounds) of hazardous material for offsite treatment/disposal at Pollution Control Industries (Chicago, IL). A copy of the hazardous waste transportation/disposal manifest is attached in Appendix C.

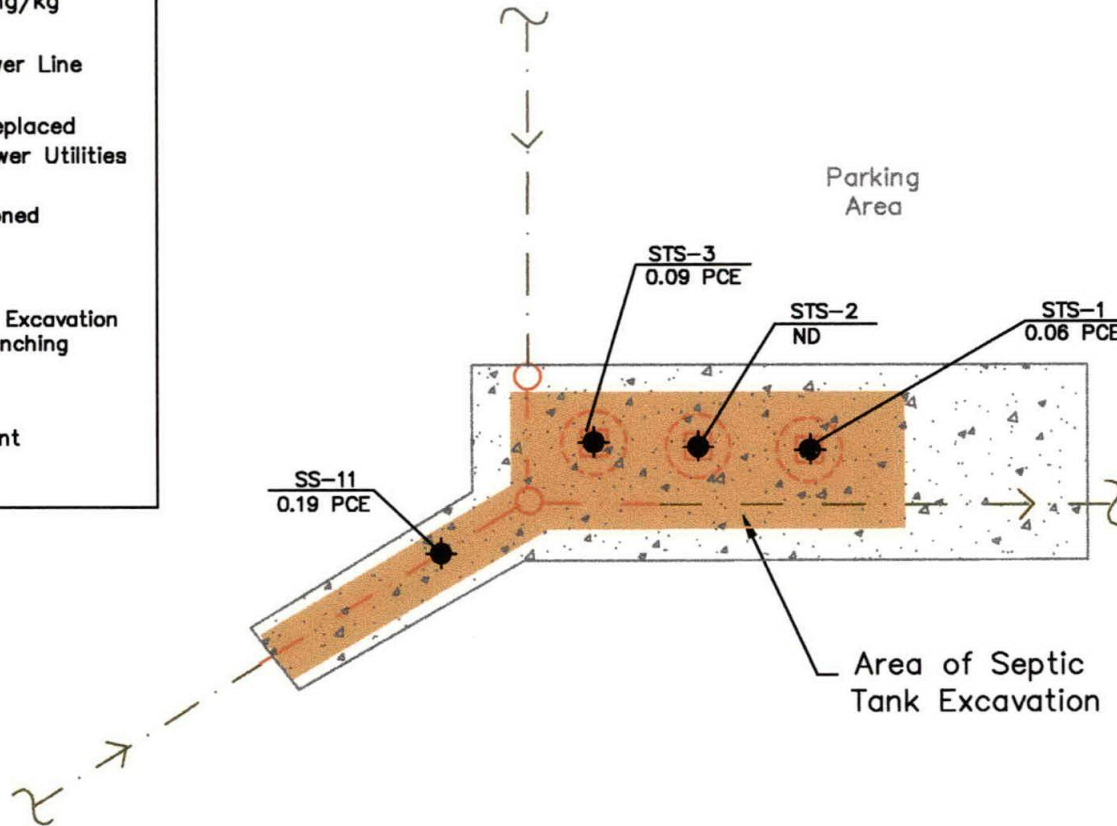
The rinsed septic tank was decommissioned between March 26<sup>th</sup> and 28<sup>th</sup>, 2003. A track-mounted excavator was used to demolish and remove the concrete structure. The septic tank excavation was cleared of all tank debris and the cleaned concrete was broken up and hauled offsite for recycling. The concrete chambers appeared to be in good condition, and the surrounding soils did not show any



# LEGEND

- 
STS-1  
0.06 PCE
 Soil Sample with results in mg/kg
- 
 Sanitary Sewer Line
- 
 Removed/Replaced Sanitary Sewer Utilities
- 
 Decommissioned Septic Tank
- 
 Footprint of Excavation & Utility Trenching
- 
 Area of New Pavement

20



0 5 10 15 20  
Scale in Feet

## SCS ENGINEERS

STEARNS, CONRAD AND SCHMIDT  
CONSULTING ENGINEERS

2405 140TH AVE NE, SUITE 107, BELLEVUE, WA 98005 (425) 746-4600

PROJECT NO.	04202037.00	DES BY	D.V.
SCALE	-	CHK BY	D.V.
GAD FILE	Figure 7	APP BY	G.H.

EXCAVATION AND CONFIRMATIONAL  
SOIL SAMPLING RESULTS  
FORMER SEPTIC TANK AREA

DATE MAY 2003

FIGURE  
7

indication of tank leakage. The underlying soils consisted of compact tan sandy silt. None of these soils exhibited any obvious signs of chemical staining. Field screening with an organic vapor meter (OVM) did not indicate the presence of any chemical vapors. Figure 7 illustrates the area of soil excavation and the approximate locations of the confirmational soil samples collected from this area.

Three confirmational soil samples (STS-1 through STS-3; one from beneath each concrete chamber) were collected from the septic tank excavation and rush-analyzed using EPA Method 8021B by ESN's onsite mobile laboratory. As shown on Table 1, PCE concentrations in these samples ranged between "not detected" and 0.09 mg/kg. TCE was not detected in any of the samples.

In addition, a 20 foot section of the original sanitary sewer piping was replaced with new PVC piping in the immediately vicinity of the septic tank excavation. The replacement focused on the junction of two lines (one from the main building, the other from the northern structures). Analysis of the confirmational soil sample (S-11) collected immediately beneath the replace line detected 0.19 mg/kg PCE. TCE was not detected in the sample.

After the septic tank removal was completed and the adjacent sanitary sewer section was replaced, the excavation was backfilled with clean material, compacted to grade, and resurfaced with new asphalt pavement.



## SECTION 4 CONCLUSIONS AND RECOMMENDATIONS

Limited soil removal and engineered/institutional control measures were completed to address residual PCE and TCE contamination associated with the former Sooper Dry Cleaners during March and April 2003. The cleanup actions included the formal decommissioning of an old dry well and an out-of-service septic tank; the removal and replacement of over 600 linear feet of original sanitary sewer and stormwater utilities; the installation of a french drain system; and a general repaving of the western end of the property. As a result of these remedial efforts, the remaining residual PCE soil contamination has been isolated from onsite surface receptors and can be effectively managed in place to minimize any future contaminant leaching to the underlying groundwater.

Targeted limited source removal was an integral component of the remedial approach. Approximately 50 cubic yards of PCE contaminated soil was excavated and transported for offsite land disposal as a non-hazardous waste. An additional 12 cubic yards of contaminated soil containing leachable levels of PCE was removed from the property for offsite land disposal as a hazardous waste. As part of the septic tank decommissioning, approximately 6,800 pounds of PCE contaminated bottom sediment was containerized into 55-gallon drums and hauled offsite to a permitted hazardous waste treatment/disposal facility. In addition, an estimated 2,500 gallons of PCE contaminated septic tank water was successfully treated onsite by carbon filtration and hauled off for discharge at a METRO water treatment plant.

Implementation of these remedial measures has succeeded in removing the shallowest, most PCE-impacted media observed at the site, while providing the infrastructure to enable the secure in place management of the residual contamination beneath the property. To ensure that these measures remain effective throughout the foreseeable future, a soil management plan has been prepared under a separate cover. The soil management plan, which can be appended to the property deed, identifies the areal extent of the residual soil contamination and details maintenance and post-remediation care measures to ensure that the engineered controls will remain in place and protective of human health and the environment.

Further, institutional and administrative controls are recommended to support the soil cleanup, including imposing a deed restriction on the shopping center property to prevent the future use of contaminated groundwater, and the notification of downgradient municipalities and property owners. As requested by Ecology, it is also recommended that four quarters of post-remedial groundwater monitoring be initiated at the shopping center to evaluate the effectiveness of the site control measures. In addition, Ecology will likely require further offsite groundwater assessment to ensure no downgradient exposure to PCE contaminated groundwater.



## SECTION 5 REFERENCES

- 1) Dames & Moore. Hydrogeological Study. Final Environmental Impact Statement: Seattle-Tacoma International Airport South Aviation Support Facility, Port of Seattle. Volume 2. September 1992.
- 2) SCS Engineers. Phase I/II Environmental Site Assessment, Normandy Park Shopping Center, Normandy Park, Washington. April 2000.
- 3) SCS Engineers. Voluntary Cleanup Program Application for the Sooper Dry Cleaners Site, Normandy Park shopping Center, Normandy Park, Washington. February 2000.
- 4) SCS Engineers. Environmental Site Assessment Report, Sooper Dry Cleaners, Normandy Park Shopping Center, Normandy Park, Washington. October 2001.
- 5) SCS Engineers. Focused Alternative Analysis and Remedial Plan, Sooper Dry Cleaners, Normandy Park Shopping Center, Normandy Park, Washington. June 2002.
- 6) Washington State Department of Ecology - Toxics Cleanup Program. The Model Toxics Control Act Cleanup Regulation; Chapter 173-340 WAC. Publication 94-06. Amended February 12, 2001.
- 7) Washington State Department of Ecology. VCP Correspondence Letter: Groundwater and Soil Remediation at Normandy Park Shopping Center, January 6, 2003.



## APPENDIX A

### SITE PHOTOGRAPHS





**Photo 1.** View looking south into initial dry well excavation. Decommissioned monitoring well MW-7 and the removed/replaced roof drain line are visible in the excavation.



**Photo 2.** View towards south behind the supermarket building of the sanitary sewer trench immediately prior to installation of new PVC sewer line.



**Photo 3.** View looking north of the french drain installed along the western border of the property. The drain discharges into the stormwater catch basin located besides the rear gate.



**Photo 4.** View of soil stockpiles. Excavated materials were stockpiled separately pending analytical testing. PCE soils were loaded into plastic lined steel containers for landfill disposal.



**Photo 5.** View towards the southeast behind the former dry cleaner. Note the new sewer line (which bypasses its former route beneath the building extension). The roof drain piping was subsequently rerouted in a similar manner.



**Photo 6.** View towards the west showing the new sewer and roof drain lines being run around the building extension. The highest PCE soil levels encountered during the remedial activities occurred in the shallow materials excavated from along north side of the building extension.



**Photo 7.** View towards the east during the pumping and carbon treatment of PCE contaminated water from the three 1,000 gallon septic tanks formerly located in the main parking area. The treated water was hauled to METRO water treatment plant.



**Photo 8.** Exposed view of the three concrete septic tank chambers. Bottom sediment was drummed for disposal as a hazardous waste. The structures were washed, rinsed and removed from the excavation. Rinse water was carbon treated prior to METRO disposal.



**Photo 9.** Temporary onsite storage of 55-gallon drums containing septic tank sediment awaiting transport to a hazardous waste incinerator.



**Photo 10.** View towards southeast of showing the rear of the former Sooper Cleaners after completion of the remedial activities.

## APPENDIX B

# LABORATORY DATA REPORTS AND CHAIN OF CUSTODY DOCUMENTATION





Environmental  
Services Network

March 31, 2003

Dan Venchiarutti  
SCS Engineers  
2405 140<sup>th</sup> Ave. NE, #107  
Bellevue, WA 98005

Dear Mr. Venchiarutti:

Please find enclosed the analytical data report for the Normandy Park Shopping Center Project in Normandy Park, Washington. Mobile Lab services were conducted on March 18 & 26, 2003. Soil and water samples were analyzed on and off site for VOC's by Method 8021B and TCLP VOC's by Method 8260.

The results of these analyses are summarized in the attached table. All soil values are reported on a dry weight basis. Applicable detection limits and QA/QC data are included. An invoice for this analytical work is also enclosed.

ESN Northwest appreciates the opportunity to have provided analytical services to SCS Engineers for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Michael A. Korosec  
*President*

ESN NORTHWEST CHEMISTRY LABORATORY

NORMANDY PARK SHOPPING CENTER PROJECT  
 Normandy Park, Washington  
 SCS Engineers  
 Client Project #4202037

Specific Halogenated and Aromatic Hydrocarbons (EPA 8021B) in Soil

Sample Description	Method		SPA-1	SPA-2	DW3-13'	DW5-13'	SS-1	SS-1 Dup.	SS-2	SS-3	SS-4	
Date Sampled			3/17/03	3/17/03	3/17/03	3/17/03	3/18/03	3/18/03	3/18/03	3/18/03	3/18/03	
Date Analyzed			3/18/03	3/18/03	3/18/03	3/18/03	3/18/03	3/18/03	3/18/03	3/18/03	3/18/03	
	MDL (mg/kg)	MDL (mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	
Vinyl chloride	0.25	0.25	nd	nd	nd	nd	nd	nd	nd	nd	nd	
Benzene	0.02	0.03	nd	nd	nd	nd	nd	nd	nd	nd	nd	
Toluene	0.05	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	
Ethylbenzene	0.05	0.05	nd	nd	0.22	nd	nd	nd	nd	nd	nd	
Total Xylenes	0.05	0.05	nd	0.05	0.05	nd	nd	nd	nd	0.05	nd	
1,1-Dichloroethene	0.05	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	
Methylene chloride	0.01	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	
<i>trans</i> -1,2-Dichloroethene	0.05	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	
1,1-Dichloroethane	0.05	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	
<i>cis</i> -1,2-Dichloroethene	0.05	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	
Chloroform	0.05	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	
1,1,1-Trichloroethane (TCA)	0.05	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	
Carbon tetrachloride	0.05	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	
1,2-Dichloroethane	0.05	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	
Trichloroethene (TCE)	0.02	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	
1,1,2-Trichloroethane	0.05	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	
Tetrachloroethene (PCE)	0.02	0.05	nd	0.11	0.14	0.24	0.45	0.06	nd	nd	0.05	
1,1,1,2-Tetrachloroethane	0.05	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	
1,1,2,2-Tetrachloroethane	0.05	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	
Surrogate Recovery (%)			98	98	102	106	113	102	108	100	102	117

"nd" Indicates not detected at listed detection limit.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Chlorobenzene): 65%- 135%

ANALYSES PERFORMED BY:

Marilyn Farmer

ESN NORTHWEST CHEMISTRY LABORATORY

NORMANDY PARK SHOPPING CENTER PROJECT  
 Normandy Park, Washington  
 SCS Engineers  
 Client Project #4202037

Specific Halogenated and Aromatic Hydrocarbons (EPA 8021B) in Soil

Sample Description		SPC-1	SPC-2	SPB-1	SPB-2	DW4-12'	DW1-5'	DW2-5'	SS-6	SS-7
Date Sampled		3/18/03	3/18/03	3/18/03	3/18/03	3/18/03	3/18/03	3/18/03	3/18/03	3/18/03
Date Analyzed		3/18/03	3/18/03	3/18/03	3/18/03	3/18/03	3/18/03	3/18/03	3/18/03	3/18/03
	MDL (mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Vinyl chloride	0.25	nd	nd	nd	nd	nd	nd	nd	nd	nd
Benzene	0.03	nd	nd	nd	nd	nd	nd	nd	nd	nd
Toluene	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd
Ethylbenzene	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd
Total Xylenes	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethene	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd
Methylene chloride	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd
<i>trans</i> -1,2-Dichloroethene	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd
<i>cis</i> -1,2-Dichloroethene	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd
Chloroform	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane (TCA)	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd
Carbon tetrachloride	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd
Trichloroethene (TCE)	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene (PCE)	0.05	nd	0.07	0.31	0.34	0.24	0.43	0.63	0.28	0.26
1,1,1,2-Tetrachloroethane	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd
Surrogate Recovery (%)		108	102	112	101	100	102	104	106	104

"nd" Indicates not detected at listed detection limit.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Chlorobenzene): 65%- 135%

ANALYSES PERFORMED BY:

Marilyn Farmer

ESN NORTHWEST CHEMISTRY LABORATORY

NORMANDY PARK SHOPPING CENTER PROJECT  
 Normandy Park, Washington  
 SCS Engineers  
 Client Project #4202037

QA/QC Data - EPA 8021B Analyses

Sample Description:							
Matrix Spike			Matrix Spike Duplicate			RPD	
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	(%)
Benzene	2.00	1.59	80	2.00	1.65	83	3.70
Toluene	2.00	1.65	83	2.00	1.66	83	0.60
1,1-Dichloroethene	2.00	1.75	88	2.00	1.64	82	6.49
Trichloroethene (TCE)	2.00	1.64	82	2.00	1.61	81	1.85
Surrogate Spike			116			117	0.86

Laboratory Control Sample			
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)
Benzene	2.00	1.83	92
Toluene	2.00	1.86	93
1,1-Dichloroethene	2.00	2.04	102
Trichloroethene (TCE)	2.00	1.81	91
Surrogate Spike			87

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%  
 ACCEPTABLE RPD IS 35%

ANALYSES PERFORMED BY: Marilyn Farmer

ESN NORTHWEST CHEMISTRY LABORATORY

NORMANDY PARK SHOPPING CENTER PROJECT  
 Normandy Park, Washington  
 SCS Engineers, Inc.  
 Client Project ##04202037.00  
 #REF!

Specific Halogenated and Aromatic Hydrocarbons (EPA 8021B) in Soil

Sample Description	Method Blank	FD-1	STW-1,5'	STW-2,5'	STS-1,10'	STS-1,10' Dup.	STS-2,10'	STS-3,10'	SS-11,5'	
Date Sampled		3/17/03	3/17/03	3/17/03	3/26/03	3/26/03	3/26/03	3/26/03	3/26/03	
Date Analyzed	3/26/03	3/26/03	3/26/03	3/26/03	3/26/03	3/26/03	3/26/03	3/26/03	3/26/03	
	MDL (mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	
Vinyl chloride	0.25	nd	nd	nd	nd	nd	nd	nd	nd	
Benzene	0.03	nd	nd	nd	nd	nd	nd	nd	nd	
Toluene	0.05	nd	nd	nd	nd	nd	nd	nd	nd	
Ethylbenzene	0.05	nd	nd	nd	nd	nd	nd	nd	nd	
Total Xylenes	0.05	nd	nd	nd	nd	nd	nd	nd	nd	
1,1-Dichloroethene	0.05	nd	nd	nd	nd	nd	nd	nd	nd	
Methylene chloride	0.05	nd	nd	nd	nd	nd	nd	nd	nd	
<i>trans</i> -1,2-Dichloroethene	0.05	nd	nd	nd	nd	nd	nd	nd	nd	
1,1-Dichloroethane	0.05	nd	nd	nd	nd	nd	nd	nd	nd	
<i>cis</i> -1,2-Dichloroethene	0.05	nd	nd	nd	nd	nd	nd	nd	nd	
Chloroform	0.05	nd	nd	nd	nd	nd	nd	nd	nd	
1,1,1-Trichloroethane (TCA)	0.05	nd	nd	nd	nd	nd	nd	nd	nd	
Carbon tetrachloride	0.05	nd	nd	nd	nd	nd	nd	nd	nd	
1,2-Dichloroethane	0.05	nd	nd	nd	nd	nd	nd	nd	nd	
Trichloroethene (TCE)	0.05	nd	nd	nd	nd	nd	nd	nd	nd	
1,1,2-Trichloroethane	0.05	nd	nd	nd	nd	nd	nd	nd	nd	
Tetrachloroethene (PCE)	0.05	nd	0.26	nd	0.09	0.06	0.08	nd	0.09	0.19
1,1,1,2-Tetrachloroethane	0.05	nd	nd	nd	nd	nd	nd	nd	nd	
1,1,2,2-Tetrachloroethane	0.05	nd	nd	nd	nd	nd	nd	nd	nd	
<b>Surrogate Recovery (%)</b>		112	98	90	103	101	95	98	107	109

"nd" Indicates not detected at listed detection limit.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Chlorobenzene): 65%- 135%

ANALYSES PERFORMED BY:

Marilyn Farmer

ESN NORTHWEST CHEMISTRY LABORATORY

NORMANDY PARK SHOPPING CENTER PROJECT  
 Normandy Park, Washington  
 SCS Engineers, Inc.  
 Client Project ##04202037.00  
 #REF!

QA/QC Data - EPA 8021B Analyses

Sample Description: FD-1			
Matrix Spike			
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)
Benzene	2.00	1.57	79
Toluene	2.00	1.43	72
1,1-Dichloroethene	2.00	1.78	89
Trichloroethene (TCE)	2.00	1.65	83
Surrogate Spike			112

Laboratory Control Sample			
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)
Benzene	2.00	1.93	97
Toluene	2.00	1.69	85
1,1-Dichloroethene	2.00	1.99	100
Trichloroethene (TCE)	2.00	1.64	82
Surrogate Spike			132

ACCEPTABLE RECOVERY LIMITS FOR LCS & MATRIX SPIKES: 65%-135%  
 ACCEPTABLE RPD IS 35%

ANALYSES PERFORMED BY: Marilyn Farmer

ESN NORTHWEST CHEMISTRY LABORATORY

NORMANDY PARK SHOPPING CENTER PROJECT  
 Normandy Park, Washington  
 SCS Engineers, Inc.  
 Client Project ##04202037.00

Specific Halogenated and Aromatic Hydrocarbons (EPA 8021B) in Water

Sample Description	Method Blank	TSW-1
Date Sampled		3/26/03
Date Analyzed	3/26/03	3/26/03
	MDL (ug/l)	(ug/l)
Vinyl chloride	5.0	nd
Benzene	1.0	nd
Toluene	1.0	nd
Ethylbenzene	1.0	nd
Total Xylenes	1.0	nd
1,1-Dichloroethene	1.0	nd
Methylene chloride	1.0	nd
<i>trans</i> -1,2-Dichloroethene	1.0	nd
1,1-Dichloroethane	1.0	nd
<i>cis</i> -1,2-Dichloroethene	1.0	nd
Chloroform	1.0	nd
1,1,1-Trichloroethane (TCA)	1.0	nd
Carbon tetrachloride	1.0	nd
1,2-Dichloroethane	1.0	nd
Trichloroethene (TCE)	1.0	nd
1,1,2-Trichloroethane	1.0	nd
Tetrachloroethene (PCE)	1.0	1.8
1,1,1,2-Tetrachloroethane	1.0	nd
1,1,2,2-Tetrachloroethane	1.0	nd
Surrogate Recovery (%)	108	92

"nd" Indicates not detected at listed detection limit.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Chlorobenzene): 65%- 135%

ANALYSES PERFORMED BY: Marilyn Farmer

ESN Job Number: S30321-1  
 Client: SCS ENGINEERS, INC.  
 Client Job Name: NORMANDY PARK SHOPPING CENTER  
 Client Job Number: 04202037.00

Analytical Results

TCLP-8260, µg/kg		MTH BLK	LCS	SP-D-1	MS	MSD	RPD
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	%
Date extracted	Reporting	03/21/03	03/21/03	03/21/03	03/21/03	03/21/03	
Date analyzed	Limits	03/21/03	03/21/03	03/21/03	03/21/03	03/21/03	
Dichlorodifluoromethane	50	nd		nd			
Chloromethane	50	nd		nd			
Vinyl chloride	50	nd		nd			
Bromomethane	50	nd		nd			
Chloroethane	50	nd		nd			
Trichlorofluoromethane	50	nd		nd			
1,1-Dichloroethene	50	nd	80%	nd	107%	111%	4%
Methylene chloride	20	nd		nd			
trans-1,2-Dichloroethene	50	nd		nd			
1,1-Dichloroethane	50	nd		nd			
cis-1,2-Dichloroethene	50	nd		nd			
2,2-Dichloropropane	50	nd		nd			
Chloroform	50	nd		nd			
Bromochloromethane	50	nd		nd			
1,1,1-Trichloroethane	50	nd		nd			
1,2-Dichloroethane	50	nd		nd			
1,1-Dichloropropene	50	nd		nd			
Carbon tetrachloride	50	nd		nd			
Benzene	20	nd	97%	nd	93%	103%	10%
Trichloroethene	20	nd	96%	nd	93%	102%	9%
1,2-Dichloropropane	50	nd		nd			
Dibromomethane	50	nd		nd			
Bromodichloromethane	50	nd		nd			
cis-1,3-Dichloropropene	50	nd		nd			
Toluene	50	nd	94%	24	90%	100%	11%
trans-1,3-Dichloropropene	50	nd		nd			
1,1,2-Trichloroethane	50	nd		nd			
1,3-Dichloropropane	50	nd		nd			
Dibromochloromethane	50	nd		nd			
Tetrachloroethene	20	nd		3,800			
1,2-Dibromoethane (EDB)(*)	5	nd		nd			
Chlorobenzene	50	nd	94%	nd	93%	100%	7%
1,1,1,2-Tetrachloroethane	50	nd		nd			
Ethylbenzene	50	nd		nd			
Xylenes	50	nd		41			
Styrene	50	nd		nd			
Bromoform	50	nd		nd			
1,1,2,2-Tetrachloroethane	50	nd		nd			
Isopropylbenzene	50	nd		nd			
1,2,3-Trichloropropane	50	nd		nd			
Bromobenzene	50	nd		nd			
n-Propylbenzene	50	nd		nd			
2-Chlorotoluene	50	nd		nd			
4-Chlorotoluene	50	nd		nd			
1,3,5-Trimethylbenzene	50	nd		nd			
tert-Butylbenzene	50	nd		nd			
1,2,4-Trimethylbenzene	50	nd		nd			
sec-Butylbenzene	50	nd		nd			
1,3-Dichlorobenzene	50	nd		nd			
1,4-Dichlorobenzene	50	nd		nd			
Isopropyltoluene	50	nd		nd			
1,2-Dichlorobenzene	50	nd		nd			
n-Butylbenzene	50	nd		nd			
1,2-Dibromo-3-Chloropropane	50	nd		nd			
1,2,4-Trichlorobenzene	50	nd		nd			
Naphthalene	50	nd		nd			
Hexachloro-1,3-butadiene	50	nd		nd			
1,2,3-Trichlorobenzene	50	nd		nd			

\*-instrument detection limits

ESN SEATTLE CHEMISTRY LABORATORY  
(425) 957-9872, fax (425) 957-9904

ESN Job Number: S30321-1  
Client: SCS ENGINEERS, INC.  
Client Job Name: NORMANDY PARK SHOPPING CENTER  
Client Job Number: 04202037.00

Analytical Results

TCLP-8260, µg/kg		MTH BLK	LCS	SP-D-1	MS	MSD	RPD
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	%
Date extracted	Reporting	03/21/03	03/21/03	03/21/03	03/21/03	03/21/03	
Date analyzed	Limits	03/21/03	03/21/03	03/21/03	03/21/03	03/21/03	

Surrogate recoveries

Dibromofluoromethane	102%	101%	99%	101%	102%
Toluene-d8	97%	95%	96%	95%	96%
4-Bromofluorobenzene	106%	98%	101%	102%	104%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits  
Acceptable Recovery limits: 65% TO 135%  
Acceptable RPD limit: 35%









Environmental  
Services Network

April 4, 2003

Dan Venchiarutti  
SCS Engineers  
2405 140<sup>th</sup> Ave. NE, #107  
Bellevue, WA 98005

Dear Mr. Venchiarutti:

Please find enclosed the analytical data report for the Normandy Park Shopping Center Project in Normandy Park, Washington. One soil sample was analyzed for VOC's by Method 8260 on March 27, 2003.

The results of these analyses are summarized in the attached table. All soil values are reported on a dry weight basis. Applicable detection limits and QA/QC data are included. An invoice for this analytical work is also enclosed.

ESN Northwest appreciates the opportunity to have provided analytical services to SCS Engineers for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Michael A. Korosec  
President

RECEIVED

APR - 8 2003

ENGINEER

ESN SEATTLE CHEMISTRY LABORATORY  
 (425) 957-9872, fax (425) 957-9904

ESN Job Number: S30327-2  
 Client: SCS ENGINEERS  
 Client Job Name: NORMANDY PARK CENTER  
 Client Job Number: 04202037.00

Analytical Results

8260, µg/kg		MTH BLK	LCS	CARBON #1	MS	MSD	RPD
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	%
Date extracted	Reporting	03/27/03	03/27/03	03/27/03	03/27/03	03/27/03	
Date analyzed	Limits	03/27/03	03/27/03	03/27/03	03/27/03	03/27/03	
Dichlorodifluoromethane	50	nd		nd			
Chloromethane	50	nd		nd			
Vinyl chloride	50	nd		nd			
Bromomethane	50	nd		nd			
Chloroethane	50	nd		nd			
Trichlorofluoromethane	50	nd		nd			
1,1-Dichloroethene	50	nd	90%	nd	73%	83%	13%
Methylene chloride	20	nd		nd			
trans-1,2-Dichloroethene	50	nd		nd			
1,1-Dichloroethane	50	nd		nd			
cis-1,2-Dichloroethene	50	nd		nd			
2,2-Dichloropropane	50	nd		nd			
Chloroform	50	nd		nd			
Bromochloromethane	50	nd		nd			
1,1,1-Trichloroethane	50	nd		nd			
1,2-Dichloroethane	50	nd		nd			
1,1-Dichloropropene	50	nd		nd			
Carbon tetrachloride	50	nd		nd			
Benzene	20	nd	90%	nd	80%	95%	17%
Trichloroethene	20	nd	98%	nd	80%	95%	17%
1,2-Dichloropropane	50	nd		nd			
Dibromomethane	50	nd		nd			
Bromodichloromethane	50	nd		nd			
cis-1,3-Dichloropropene	50	nd		nd			
Toluene	50	nd	115%	nd	83%	98%	17%
trans-1,3-Dichloropropene	50	nd		nd			
1,1,2-Trichloroethane	50	nd		nd			
1,3-Dichloropropane	50	nd		nd			
Dibromochloromethane	50	nd		nd			
Tetrachloroethene	20	nd		130			
1,2-Dibromoethane (EDB)(*)	5	nd		nd			
Chlorobenzene	50	nd	100%	nd	83%	98%	17%
1,1,1,2-Tetrachloroethane	50	nd		nd			
Ethylbenzene	50	nd		nd			
Xylenes	50	nd		nd			
Styrene	50	nd		nd			
Bromoform	50	nd		nd			
1,1,2,2-Tetrachloroethane	50	nd		nd			
Isopropylbenzene	50	nd		nd			
1,2,3-Trichloropropane	50	nd		nd			
Bromobenzene	50	nd		nd			
n-Propylbenzene	50	nd		nd			
2-Chlorotoluene	50	nd		nd			
4-Chlorotoluene	50	nd		nd			
1,3,5-Trimethylbenzene	50	nd		nd			
tert-Butylbenzene	50	nd		nd			
1,2,4-Trimethylbenzene	50	nd		nd			
sec-Butylbenzene	50	nd		nd			
1,3-Dichlorobenzene	50	nd		nd			
1,4-Dichlorobenzene	50	nd		nd			
Isopropyltoluene	50	nd		nd			
1,2-Dichlorobenzene	50	nd		nd			
n-Butylbenzene	50	nd		nd			
1,2-Dibromo-3-Chloropropane	50	nd		nd			
1,2,4-Trichlorobenzene	50	nd		nd			
Naphthalene	50	nd		nd			
Hexachloro-1,3-butadiene	50	nd		nd			
1,2,3-Trichlorobenzene	50	nd		nd			
MTBE	200	nd		3,200			

ESN SEATTLE CHEMISTRY LABORATORY  
 (425) 957-9872, fax (425) 957-9904

ESN Job Number: S30327-2  
 Client: SCS ENGINEERS  
 Client Job Name: NORMANDY PARK CENTER  
 Client Job Number: 04202037.00

**Analytical Results**

B260, µg/kg		MTH BLK	LCS	CARBON #1	MS	MSD	RPD
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	%
Date extracted	Reporting	03/27/03	03/27/03	03/27/03	03/27/03	03/27/03	
Date analyzed	Limits	03/27/03	03/27/03	03/27/03	03/27/03	03/27/03	

\*-instrument detection limits

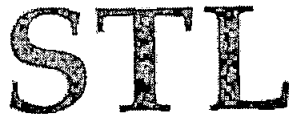
**Surrogate recoveries**

Dibromofluoromethane	98%	79%	93%	98%	99%
Toluene-d8	100%	119%	101%	100%	99%
4-Bromofluorobenzene	105%	114%	100%	100%	103%

**Data Qualifiers and Analytical Comments**

nd - not detected at listed reporting limits  
 Acceptable Recovery limits: 65% TO 135%  
 Acceptable RPD limit: 35%





STL Seattle  
5755 8<sup>th</sup> Street East  
Tacoma, WA 98424

Tel: 253 922 2310  
Fax: 253 922 5047  
[www.stl-inc.com](http://www.stl-inc.com)

**TRANSMITTAL MEMORANDUM**

DATE: March 19, 2003

TO: Daniel Venchiarutti  
SCS Engineers  
2405 140th Ave. N. E., Suite 107  
Bellevue, WA 98005

PROJECT: Normandy Park SC.

REPORT NUMBER: 112153

TOTAL NUMBER OF PAGES: 22

Enclosed are the test results for three samples received at STL Seattle on February 26, 2003.

**Analytical Narrative:** The relative percent difference values in the blank spike/blank spike duplicate for the volatile analyses for 1,1-dichloroethene and benzene were outside of quality control acceptance limits for the sediment sample associated with batch VOA112. Both of the percent recoveries were reported within acceptance ranges. The analytes were not detected in the associated sample.

The percent recovery for fluorobenzene (surrogate) for the method blank associated with sample 112153-3 (batch VOA112) was outside of quality control acceptance limits. All other surrogate recoveries were within quality control limits.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers and analytical narrative when applicable, and a copy of any requested raw data.

Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,



Darla Powell  
Project Manager

---

STL Seattle is a part of Severn Trent Laboratories, Inc.

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# STL Seattle

## Sample Identification:

<u>Lab. No.</u>	<u>Client ID</u>	<u>Date/Time Sampled</u>	<u>Matrix</u>
112153-1	SW-1	02-25-03 *	Liquid
112153-2	SW-2	02-25-03 *	Liquid
112153-3	SED-1	02-25-03 *	solid

\* - Sampling time not specified for this sample

---

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# STL Seattle

**Client Name**  
**Project Name**  
**Date Received**

SCS Engineers  
Normandy Park SC.  
02-26-03

## General Chemistry Parameters

**Client Sample ID**  
**Lab ID**

SED-1  
112153-03

<b>Parameter</b>	<b>Method</b>	<b>Date Analyzed</b>	<b>Units</b>	<b>Result</b>	<b>PQL</b>
Flash Point	EPA 1020	03-04-03	°F	> 200	N/A

# STL Seattle

Client Name	SCS Engineers
Client ID:	SW-1
Lab ID:	112153-01
Date Received:	2/26/2003
Date Prepared:	2/28/2003
Date Analyzed:	2/28/2003
% Solids	-
Dilution Factor	20

## Volatile Organics by USEPA Method 5030/8260B

SMC / Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Dibromofluoromethane	103		80	120
Fluorobenzene	105		80	120
Toluene-D8	97.6		80	120
Ethylbenzene-d10	103		80	120
Bromofluorobenzene	98.8		80	120
Trifluorotoluene	-	X8	80	120

Analyte	Result (ug/L)	PQL	MRL	Flags
Dichlorodifluoromethane	ND	20	10	
Chloromethane	ND	40	20	
Vinyl chloride	ND	8	4	
Bromomethane	ND	50	25	
Chloroethane	ND	20	10	
Trichlorofluoromethane	ND	20	10	
1,1-Dichloroethene	14.1	20	10	J
Methylene chloride	ND	40	20	
trans-1,2-Dichloroethene	20.7	20	10	
1,1-Dichloroethane	ND	20	10	
2,2-Dichloropropane	ND	20	10	
cis-1,2-Dichloroethene	846	20	10	
Bromochloromethane	ND	20	10	
Chloroform	ND	20	10	
1,1,1-Trichloroethane	ND	20	10	
Carbon Tetrachloride	ND	20	10	
1,1-Dichloropropene	ND	20	10	
Benzene	ND	20	10	
1,2-Dichloroethane	ND	20	10	
Trichloroethene	1300	20	10	
1,2-Dichloropropane	ND	20	10	
Dibromomethane	ND	20	10	
Bromodichloromethane	ND	20	10	
cis-1,3-Dichloropropene	ND	20	10	
Toluene	ND	20	10	
trans-1,3-Dichloropropene	ND	20	10	

# STL Seattle

Volatile Organics by USEPA Method 5030/8260B data for 112153-01 continued...

Analyte	Result (ug/L)	PQL	MRL	
1,1,2-Trichloroethane	ND	20	10	
Tetrachloroethene	2510	20	10	D5
1,3-Dichloropropane	ND	20	10	
Dibromochloromethane	ND	20	10	
1,2-Dibromoethane	ND	20	10	
Chlorobenzene	ND	20	10	
Ethylbenzene	ND	20	10	
1,1,1,2-Tetrachloroethane	ND	20	10	
m,p-Xylene	ND	40	20	
o-Xylene	ND	20	10	
Styrene	ND	20	10	
Bromoform	ND	20	10	
Isopropylbenzene	ND	20	10	
Bromobenzene	ND	20	10	
n-Propylbenzene	ND	20	10	
1,1,2,2-Tetrachloroethane	ND	20	10	
1,2,3-Trichloropropane	ND	20	10	
2-Chlorotoluene	ND	20	10	
1,3,5-Trimethylbenzene	ND	20	10	
4-Chlorotoluene	ND	20	10	
t-Butylbenzene	ND	20	10	
1,2,4-Trimethylbenzene	ND	20	10	
sec-Butylbenzene	ND	20	10	
1,3-Dichlorobenzene	ND	20	10	
4-Isopropyltoluene	ND	20	10	
1,4-Dichlorobenzene	ND	20	10	
n-Butylbenzene	ND	20	10	
1,2-Dichlorobenzene	ND	20	10	
1,2-Dibromo-3-chloropropane	ND	20	10	
1,2,4-Trichlorobenzene	ND	20	10	
Hexachlorobutadiene	ND	20	10	
Naphthalene	ND	40	20	
1,2,3-Trichlorobenzene	ND	20	10	

# STL Seattle

Client Name	SCS Engineers
Client ID:	SW-2
Lab ID:	112153-02
Date Received:	2/26/2003
Date Prepared:	2/28/2003
Date Analyzed:	2/28/2003
% Solids	-
Dilution Factor	1

## Volatile Organics by USEPA Method 5030/8260B

SMC / Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Dibromofluoromethane	97.7		80	120
Fluorobenzene	97.1		80	120
Toluene-D8	96.5		80	120
Ethylbenzene-d10	98.5		80	120
Bromofluorobenzene	96.9		80	120
Trifluorotoluene	101		80	120

Analyte	Result (ug/L)	PQL	MRL	Flags
Dichlorodifluoromethane	ND	1	0.5	
Chloromethane	ND	2	1	
Vinyl chloride	ND	0.4	0.2	
Bromomethane	ND	2.5	1.25	
Chloroethane	ND	1	0.5	
Trichlorofluoromethane	ND	1	0.5	
1,1-Dichloroethene	ND	1	0.5	
Methylene chloride	ND	2	1	
trans-1,2-Dichloroethene	ND	1	0.5	
1,1-Dichloroethane	ND	1	0.5	
2,2-Dichloropropane	ND	1	0.5	
cis-1,2-Dichloroethene	5.15	1	0.5	
Bromochloromethane	ND	1	0.5	
Chloroform	ND	1	0.5	
1,1,1-Trichloroethane	ND	1	0.5	
Carbon Tetrachloride	ND	1	0.5	
1,1-Dichloropropene	ND	1	0.5	
Benzene	ND	1	0.5	
1,2-Dichloroethane	ND	1	0.5	
Trichloroethene	4.27	1	0.5	
1,2-Dichloropropane	ND	1	0.5	
Dibromomethane	ND	1	0.5	
Bromodichloromethane	ND	1	0.5	
cis-1,3-Dichloropropene	ND	1	0.5	
Toluene	ND	1	0.5	
trans-1,3-Dichloropropene	ND	1	0.5	

# STL Seattle

Volatile Organics by USEPA Method 5030/8260B data for 112153-02 continued...

Analyte	Result (ug/L)	PQL	MRL
1,1,2-Trichloroethane	ND	1	0.5
Tetrachloroethene	6.72	1	0.5
1,3-Dichloropropane	ND	1	0.5
Dibromochloromethane	ND	1	0.5
1,2-Dibromoethane	ND	1	0.5
Chlorobenzene	ND	1	0.5
Ethylbenzene	ND	1	0.5
1,1,1,2-Tetrachloroethane	ND	1	0.5
m,p-Xylene	ND	2	1
o-Xylene	ND	1	0.5
Styrene	ND	1	0.5
Bromoform	ND	1	0.5
Isopropylbenzene	ND	1	0.5
Bromobenzene	ND	1	0.5
n-Propylbenzene	ND	1	0.5
1,1,2,2-Tetrachloroethane	ND	1	0.5
1,2,3-Trichloropropane	ND	1	0.5
2-Chlorotoluene	ND	1	0.5
1,3,5-Trimethylbenzene	ND	1	0.5
4-Chlorotoluene	ND	1	0.5
t-Butylbenzene	ND	1	0.5
1,2,4-Trimethylbenzene	ND	1	0.5
sec-Butylbenzene	ND	1	0.5
1,3-Dichlorobenzene	ND	1	0.5
4-Isopropyltoluene	ND	1	0.5
1,4-Dichlorobenzene	ND	1	0.5
n-Butylbenzene	ND	1	0.5
1,2-Dichlorobenzene	ND	1	0.5
1,2-Dibromo-3-chloropropane	ND	1	0.5
1,2,4-Trichlorobenzene	ND	1	0.5
Hexachlorobutadiene	ND	1	0.5
Naphthalene	ND	2	1
1,2,3-Trichlorobenzene	ND	1	0.5

# STL Seattle

Client Name	SCS Engineers
Client ID:	SED-1
Lab ID:	112153-03
Date Received:	2/26/2003
Date Prepared:	3/10/2003
Date Analyzed:	3/10/2003
% Solids	33.42
Dilution Factor	1000

## Volatile Organics by USEPA Method 5035\8260B

SMC / Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Dibromofluoromethane	-	X8	75	125
Fluorobenzene	-	X8	75	125
Toluene-D8	-	X8	75	125
Ethylbenzene-d10	-	X8	75	125
Bromofluorobenzene	-	X8	75	125
Trifluorotoluene	94.6		75	125

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MRL	Flags
Dichlorodifluoromethane	ND	1160000	578000	
Chloromethane	ND	2890000	1440000	
Vinyl chloride	ND	1160000	578000	
Bromomethane	ND	2310000	1160000	
Chloroethane	ND	1160000	578000	
Trichlorofluoromethane	ND	1160000	578000	
1,1-Dichloroethene	ND	1160000	578000	
Methylene chloride	ND	1160000	578000	
trans-1,2-Dichloroethene	ND	1160000	578000	
1,1-Dichloroethane	ND	1160000	578000	
2,2-Dichloropropane	ND	1160000	578000	
cis-1,2-Dichloroethene	ND	1160000	578000	
Bromochloromethane	ND	1160000	578000	
Chloroform	ND	1160000	578000	
1,1,1-Trichloroethane	ND	1160000	578000	
Carbon Tetrachloride	ND	1160000	578000	
1,1-Dichloropropene	ND	1160000	578000	
Benzene	ND	1160000	578000	
1,2-Dichloroethane	ND	1160000	578000	
Trichloroethene	1060000	1160000	578000	J
1,2-Dichloropropane	ND	1160000	578000	
Dibromomethane	ND	1160000	578000	
Bromodichloromethane	ND	1160000	578000	
cis-1,3-Dichloropropene	ND	1160000	578000	
Toluene	ND	1160000	578000	
trans-1,3-Dichloropropene	ND	1160000	578000	

# STL Seattle

Volatile Organics by USEPA Method 5035\8260B data for 112153-03 continued...

Analyte	Result (ug/kg)	PQL	MRL
1,1,2-Trichloroethane	ND	1160000	578000
Tetrachloroethene	25100000	1160000	578000
1,3-Dichloropropane	ND	1160000	578000
Dibromochloromethane	ND	1160000	578000
1,2-Dibromoethane	ND	1160000	578000
Chlorobenzene	ND	1160000	578000
Ethylbenzene	ND	1160000	578000
1,1,1,2-Tetrachloroethane	ND	1160000	578000
m,p-Xylene	ND	2310000	1160000
o-Xylene	ND	1160000	578000
Styrene	ND	1160000	578000
Bromoform	ND	1160000	578000
Isopropylbenzene	ND	1160000	578000
Bromobenzene	ND	1160000	578000
n-Propylbenzene	ND	1160000	578000
1,1,2,2-Tetrachloroethane	ND	1160000	578000
1,2,3-Trichloropropane	ND	1160000	578000
2-Chlorotoluene	ND	1160000	578000
1,3,5-Trimethylbenzene	ND	1160000	578000
4-Chlorotoluene	ND	1160000	578000
t-Butylbenzene	ND	1160000	578000
1,2,4-Trimethylbenzene	ND	1160000	578000
sec-Butylbenzene	ND	1160000	578000
1,3-Dichlorobenzene	ND	1160000	578000
4-Isopropyltoluene	ND	1160000	578000
1,4-Dichlorobenzene	ND	1160000	578000
n-Butylbenzene	ND	1160000	578000
1,2-Dichlorobenzene	ND	1160000	578000
1,2-Dibromo-3-chloropropane	ND	2310000	1160000
1,2,4-Trichlorobenzene	ND	1160000	578000
Hexachlorobutadiene	ND	1160000	578000
Naphthalene	ND	1160000	578000
1,2,3-Trichlorobenzene	ND	1160000	578000

# STL Seattle

**Client Name**  
**Project Name**  
**Date Received**

SCS Engineers  
Normandy Park SC.  
02-26-03

## **Sample Preparation Information for Toxicity Characteristic Leaching Procedure (TCLP) EPA Method 1311**

**Client Sample ID**  
**Lab ID**

SED-1  
112153-03

% Solids: 100  
No. of Extractions: 1  
Type of Extraction(s): ZHE  
Extraction Fluid: #1  
Date Filtered: 03-13-03

# STL Seattle

Client Name	SCS Engineers
Client ID:	SED-1
Lab ID:	112153-03
Date Received:	2/26/2003
Date Prepared:	3/17/2003
Date Analyzed:	3/17/2003
% Solids	-
Dilution Factor	5000

## TCLP Volatile Organics List by USEPA Method 5030\8260B

SMC / Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Dibromofluoromethane	103		80	120
Fluorobenzene	104		80	120
Toluene-D8	98.8		80	120
Ethylbenzene-d10	98		80	120
Bromofluorobenzene	97.7		80	120
Trifluorotoluene	-	X8	80	120

Analyte	Result (mg/L)	PQL	MCL	Flags
Vinyl chloride	ND	2	0.2	
1,1-Dichloroethene	ND	2	0.7	
2-Butanone	ND	10	200	
Chloroform	ND	2	6	
Carbon Tetrachloride	ND	2	0.5	
Benzene	ND	2	0.5	
1,2-Dichloroethane	ND	2	0.5	
Trichloroethene	12.7	2	0.5	
Tetrachloroethene	111	2	0.7	
Chlorobenzene	ND	2	100	

# STL Seattle

Lab ID: Method Blank - VOA98  
 Date Received: -  
 Date Prepared: 2/28/2003  
 Date Analyzed: 2/28/2003  
 % Solids: -  
 Dilution Factor: 1

## Volatile Organics by USEPA Method 5030/8260B

SMC / Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Dibromofluoromethane	103		80	120
Fluorobenzene	109		80	120
Toluene-D8	97.2		80	120
Ethylbenzene-d10	98.3		80	120
Bromofluorobenzene	97.2		80	120
Trifluorotoluene	91.7		80	120

Analyte	Result (ug/L)	PQL	MRL	Flags
Dichlorodifluoromethane	ND	1	0.5	
Chloromethane	ND	2	1	
Vinyl chloride	ND	0.4	0.2	
Bromomethane	ND	2.5	1.25	
Chloroethane	ND	1	0.5	
Trichlorofluoromethane	ND	1	0.5	
1,1-Dichloroethene	ND	1	0.5	
Methylene chloride	ND	2	1	
trans-1,2-Dichloroethene	ND	1	0.5	
1,1-Dichloroethane	ND	1	0.5	
2,2-Dichloropropane	ND	1	0.5	
cis-1,2-Dichloroethene	ND	1	0.5	
Bromochloromethane	ND	1	0.5	
Chloroform	ND	1	0.5	
1,1,1-Trichloroethane	ND	1	0.5	
Carbon Tetrachloride	ND	1	0.5	
1,1-Dichloropropene	ND	1	0.5	
Benzene	ND	1	0.5	
1,2-Dichloroethane	ND	1	0.5	
Trichloroethene	ND	1	0.5	
1,2-Dichloropropane	ND	1	0.5	
Dibromomethane	ND	1	0.5	
Bromodichloromethane	ND	1	0.5	
cis-1,3-Dichloropropene	ND	1	0.5	
Toluene	ND	1	0.5	
trans-1,3-Dichloropropene	ND	1	0.5	

# STL Seattle

Volatile Organics by USEPA Method 5030/8260B data for VOA98 continued...

Analyte	Result (ug/L)	PQL	MRL
1,1,2-Trichloroethane	ND	1	0.5
Tetrachloroethene	ND	1	0.5
1,3-Dichloropropane	ND	1	0.5
Dibromochloromethane	ND	1	0.5
1,2-Dibromoethane	ND	1	0.5
Chlorobenzene	ND	1	0.5
Ethylbenzene	ND	1	0.5
1,1,1,2-Tetrachloroethane	ND	1	0.5
m,p-Xylene	ND	2	1
o-Xylene	ND	1	0.5
Styrene	ND	1	0.5
Bromoform	ND	1	0.5
Isopropylbenzene	ND	1	0.5
Bromobenzene	ND	1	0.5
n-Propylbenzene	ND	1	0.5
1,1,2,2-Tetrachloroethane	ND	1	0.5
1,2,3-Trichloropropane	ND	1	0.5
2-Chlorotoluene	ND	1	0.5
1,3,5-Trimethylbenzene	ND	1	0.5
4-Chlorotoluene	ND	1	0.5
t-Butylbenzene	ND	1	0.5
1,2,4-Trimethylbenzene	ND	1	0.5
sec-Butylbenzene	ND	1	0.5
1,3-Dichlorobenzene	ND	1	0.5
4-Isopropyltoluene	ND	1	0.5
1,4-Dichlorobenzene	ND	1	0.5
n-Butylbenzene	ND	1	0.5
1,2-Dichlorobenzene	ND	1	0.5
1,2-Dibromo-3-chloropropane	ND	1	0.5
1,2,4-Trichlorobenzene	ND	1	0.5
Hexachlorobutadiene	ND	1	0.5
Naphthalene	ND	2	1
1,2,3-Trichlorobenzene	ND	1	0.5

# STL Seattle

## Blank Spike/Blank Spike Duplicate Report

Lab ID: VOA98  
Date Prepared: 2/28/2003  
Date Analyzed: 2/28/2003  
QC Batch ID: VOA98

### Volatile Organics by USEPA Method 5030/8260B

Compound Name	Blank Result (ug/L)	Spike Amount (ug/L)	BS Result (ug/L)	BS % Rec.	BSD Result (ug/L)	BSD % Rec.	RPD	Flag
1,1-Dichloroethene	0	5	4.79	95.8	4.57	91.4	-4.7	
Benzene	0	5	5.06	101	5.12	102	0.99	
Trichloroethene	0	5	5.39	108	5.26	105	-2.8	
Toluene	0	5	5.08	102	5.09	102	0	
Chlorobenzene	0	5	5.62	112	5.55	111	-0.9	

# STL Seattle

Lab ID:	Method Blank - VOA 112
Date Received:	-
Date Prepared:	3/10/2003
Date Analyzed:	3/10/2003
% Solids	
Dilution Factor	1

## Volatile Organics by USEPA Method 5035\8260B

SMC / Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Dibromofluoromethane	88.6		75	125
Fluorobenzene	72.4	N	75	125
Toluene-D8	77.3		75	125
Ethylbenzene-d10	86.5		75	125
Bromofluorobenzene	91.4		75	125
Trifluorotoluene	104		75	125

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MRL	Flags
Dichlorodifluoromethane	ND	400	200	
Chloromethane	ND	1000	500	
Vinyl chloride	ND	400	200	
Bromomethane	ND	800	400	
Chloroethane	ND	400	200	
Trichlorofluoromethane	ND	400	200	
1,1-Dichloroethene	ND	400	200	
Methylene chloride	ND	400	200	
trans-1,2-Dichloroethene	ND	400	200	
1,1-Dichloroethane	ND	400	200	
2,2-Dichloropropane	ND	400	200	
cis-1,2-Dichloroethene	ND	400	200	
Bromochloromethane	ND	400	200	
Chloroform	ND	400	200	
1,1,1-Trichloroethane	ND	400	200	
Carbon Tetrachloride	ND	400	200	
1,1-Dichloropropene	ND	400	200	
Benzene	ND	400	200	
1,2-Dichloroethane	ND	400	200	
Trichloroethene	ND	400	200	
1,2-Dichloropropane	ND	400	200	
Dibromomethane	ND	400	200	
Bromodichloromethane	ND	400	200	
cis-1,3-Dichloropropene	ND	400	200	
Toluene	ND	400	200	
trans-1,3-Dichloropropene	ND	400	200	

# STL Seattle

Volatile Organics by USEPA Method 5035\8260B data for VOA 112 continued...

Analyte	Result (ug/kg)	PQL	MRL
1,1,2-Trichloroethane	ND	400	200
Tetrachloroethene	ND	400	200
1,3-Dichloropropane	ND	400	200
Dibromochloromethane	ND	400	200
1,2-Dibromoethane	ND	400	200
Chlorobenzene	ND	400	200
Ethylbenzene	ND	400	200
1,1,1,2-Tetrachloroethane	ND	400	200
m,p-Xylene	ND	800	400
o-Xylene	ND	400	200
Styrene	ND	400	200
Bromoform	ND	400	200
Isopropylbenzene	ND	400	200
Bromobenzene	ND	400	200
n-Propylbenzene	ND	400	200
1,1,2,2-Tetrachloroethane	ND	400	200
1,2,3-Trichloropropane	ND	400	200
2-Chlorotoluene	ND	400	200
1,3,5-Trimethylbenzene	ND	400	200
4-Chlorotoluene	ND	400	200
t-Butylbenzene	ND	400	200
1,2,4-Trimethylbenzene	ND	400	200
sec-Butylbenzene	ND	400	200
1,3-Dichlorobenzene	ND	400	200
4-Isopropyltoluene	ND	400	200
1,4-Dichlorobenzene	ND	400	200
n-Butylbenzene	ND	400	200
1,2-Dichlorobenzene	ND	400	200
1,2-Dibromo-3-chloropropane	ND	800	400
1,2,4-Trichlorobenzene	ND	400	200
Hexachlorobutadiene	ND	400	200
Naphthalene	ND	400	200
1,2,3-Trichlorobenzene	ND	400	200

# STL Seattle

## Blank Spike/Blank Spike Duplicate Report

Lab ID: VOA 112  
Date Prepared: 3/10/2003  
Date Analyzed: 3/10/2003  
QC Batch ID: VOA 112

### Volatile Organics by USEPA Method 5035\8260B

Compound Name	Blank Result (ug/kg)	Spike Amount (ug/kg)	BS Result (ug/kg)	BS % Rec.	BSD Result (ug/kg)	BSD % Rec.	RPD	Flag
1,1-Dichloroethene	0	2000	2190	110	1590	79.3	-32	n
Benzene	0	2000	2040	102	1590	79.3	-25	n
Trichloroethene	0	2000	1940	97.2	1770	88.3	-9.6	
Toluene	0	2000	2000	100	1820	90.9	-9.5	
Chlorobenzene	0	2000	2060	103	1770	88.4	-15	

# STL Seattle

Lab ID:	Method Blank - VOA 122
Date Received:	-
Date Prepared:	3/17/2003
Date Analyzed:	3/17/2003
% Solids	-
Dilution Factor	500

## TCLP Volatile Organics List by USEPA Method 5030\8260B

SMC / Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Dibromofluoromethane	103		80	120
Fluorobenzene	103		80	120
Toluene-D8	100		80	120
Ethylbenzene-d10	98.7		80	120
Bromofluorobenzene	100		80	120
Trifluorotoluene	104		80	120

Analyte	Result (mg/L)	PQL	MCL	Flags
Vinyl chloride	ND	0.2	0.2	
1,1-Dichloroethene	ND	0.2	0.7	
2-Butanone	ND	1	200	
Chloroform	ND	0.2	6	
Carbon Tetrachloride	ND	0.2	0.5	
Benzene	ND	0.2	0.5	
1,2-Dichloroethane	ND	0.2	0.5	
Trichloroethene	ND	0.2	0.5	
Tetrachloroethene	ND	0.2	0.7	
Chlorobenzene	ND	0.2	100	

# STL Seattle

## Blank Spike Report

Lab ID: VOA 122  
Date Prepared: 3/17/2003  
Date Analyzed: 3/17/2003  
QC Batch ID: VOA 122

### Volatile Organics List by USEPA Method 5030\8260B

Compound Name	Blank Result (mg/L)	Spike Amount (mg/L)	BS Result (mg/L)	BS % Rec.	Flag
Methyl chloride	0	2.5	1.74	69.8	
1,1-Dichloroethene	0	2.5	2.71	108	
2-Butanone	0	12.5	11.4	91.3	
Chloroform	0	2.5	2.7	108	
Carbon Tetrachloride	0	2.5	2.54	102	
Benzene	0	2.5	2.68	107	
1,2-Dichloroethane	0	2.5	2.63	105	
Trichloroethene	0	2.5	2.61	104	
Tetrachloroethene	0	2.5	2.49	99.5	
Chlorobenzene	0	2.5	2.6	104	



# STL

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5755 8<sup>th</sup> Street East  
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## DATA QUALIFIERS AND ABBREVIATIONS

- B1: This analyte was detected in the associated method blank. The analyte concentration was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).
- B2: This analyte was detected in the associated method blank. The analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank).
- C1: Second column confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be  $\leq 40\%$ .
- C2: Second column confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be  $> 40\%$ . The higher result was reported unless anomalies were noted.
- V: GC/MS confirmation was performed. The result derived from the original analysis was reported.
- D: The reported result for this analyte was calculated based on a secondary dilution factor.
- E: The concentration of this analyte exceeded the instrument calibration range and should be considered an estimated quantity.
- J: The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.
- MCL: Maximum Contaminant Level
- MDL: Method Detection Limit
- N: See analytical narrative.
- ND: Not Detected
- PQL: Practical Quantitation Limit
- X1: Contaminant does not appear to be "typical" product. Elution pattern suggests it may be \_\_\_\_\_.
- X2: Contaminant does not appear to be "typical" product.
- X3: Identification and quantitation of the analyte or surrogate was complicated by matrix interference.
- X4: RPD for duplicates was outside advisory QC limits. The sample was re-analyzed with similar results. The sample matrix may be nonhomogeneous.
- X4a: RPD for duplicates outside advisory QC limits due to analyte concentration near the method practical quantitation limit/detection limit.
- X5: Matrix spike recovery was not determined due to the required dilution.
- X6: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Sample was re-analyzed with similar results.
- X7: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Matrix interference may be indicated based on acceptable blank spike recovery and/or RPD.
- X7a: Recovery and/or RPD values for this spiked analyte outside advisory QC limits due to high concentration of the analyte in the original sample.
- X8: Surrogate recovery was not determined due to the required dilution.
- X9: Surrogate recovery outside advisory QC limits due to matrix interference.

STL Seattle  
 5755 8<sup>th</sup> Street East  
 Tacoma, WA 98424

Tel: 253 922 2310  
 Fax: 253 922 5047  
[www.stl-inc.com](http://www.stl-inc.com)



TCLP Regulatory Limits

Analyte	Maximum Contaminant Level (mg/L)
<b>METALS</b>	
Arsenic	5.0
Barium	100
Cadmium	1.0
Chromium	5.0
Lead	5.0
Selenium	1.0
Silver	5.0
Mercury	0.2

<b>CHLORINATED PESTICIDES</b>	
gamma-BHC (Lindane)	0.4
Chlordane (technical)	0.03
Endrin	0.02
Heptachlor	0.008
Heptachlor Epoxide	0.008
Methoxychlor	10
Toxaphene	0.5

<b>CHLORINATED HERBICIDES</b>	
2,4-D	10
Silvex (2,4,5-TP)	1.0

Analyte	Maximum Contaminant Level (mg/L)
<b>SEMIVOLATILE ORGANICS</b>	
1,4-Dichlorobenzene	7.5
2-Methylphenol	200
3,4-Methylphenol	200
Hexachloroethane	3.0
Nitrobenzene	2.0
Hexachlorobutadiene	0.5
2,4,6-Trichlorophenol	2.0
2,4,5-Trichlorophenol	400
2,4-Dinitrotoluene	0.13
Hexachlorobenzene	0.13
Pentachlorophenol	100
Pyridine	5.0

<b>VOLATILE ORGANICS</b>	
Vinyl Chloride	0.2
1,1-Dichloroethene	0.7
Chloroform	6.0
1,2-Dichloroethane	0.5
2-Butanone (MEK)	200
Carbon Tetrachloride	0.5
Trichloroethene	0.5
Benzene	0.5
Tetrachloroethene	0.7
Chlorobenzene	100





3/19/03

SCS Engineers  
2405 140th Ave NE  
Suite 107  
Bellevue, WA 98005  
Attention: Dan Venchantti

Dear Dan Venchantti:

Enclosed please find the analytical data for your Norm Pk - Super Clnr project.

The following is a cross correlation of client and laboratory identification for your convenience.

CLIENT ID	MATRIX	AM TEST ID	TEST
SW-1	Water	03-A002739	BACT,

Your sample was received at AM TEST on 3/13/03.

At the time of receipt, the sample was logged in and properly maintained prior to subsequent analysis.

The analytical procedures used in the laboratory are well documented and are typically derived from the protocols of the EPA, USDA, FDA or the Army Corps of Engineers.

If you should have any questions pertaining to the data package, please feel free to contact me.

Sincerely,

Jeremiah Diehl  
Am Test Inc.

Project #: 04202037.00

BACT = Bacteriological  
CONV = Conventionals  
MET = Metals  
ORG = Organics



**ANALYSIS REPORT**

SCS Engineers  
2405 140th Ave NE  
Suite 107  
Bellevue, WA 98005  
Attention: Dan Venchantti

Date Received: 3/13/03  
Date Reported: 3/19/03

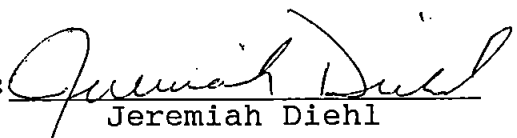
Project Name: Norm Pk - Super Clnr  
Project #: 04202037.00  
Date Sampled: 3/13/03

Water Samples

---

PARAMETER	UNITS	RESULT
03-A002739 Client ID: SW-1 Date Sampled: 3/13/03, 10:50 Fecal Coliforms	CFU/100 ml	1.

---

Reported by:   
Jeremiah Diehl

# AMTEST

LABORATORIES

3/19/03

SCS Engineers  
2405 140th Ave NE  
Suite 107  
Bellevue, WA 98005  
Attention: Dan Venchantti

Dear Dan Venchantti:

Enclosed please find the analytical data for your Norm Pk - Super Clnr project.

The following is a cross correlation of client and laboratory identification for your convenience.

CLIENT ID	MATRIX	AM TEST ID	TEST
SED-1	Soil	03-A002741	BACT,

Your sample was received at AM TEST on 3/13/03.

At the time of receipt, the sample was logged in and properly maintained prior to subsequent analysis.

The analytical procedures used in the laboratory are well documented and are typically derived from the protocols of the EPA, USDA, FDA or the Army Corps of Engineers.

If you should have any questions pertaining to the data package, please feel free to contact me.

Sincerely,



Jeremiah Diehl  
Am Test Inc.

Project #: 04202037.00

BACT = Bacteriological  
CONV = Conventionals  
MET = Metals  
ORG = Organics



**ANALYSIS REPORT**

SCS Engineers  
2405 140th Ave NE  
Suite 107  
Bellevue, WA 98005  
Attention: Dan Venchantti

Date Received: 3/13/03  
Date Reported: 3/19/03

Project Name: Norm Pk - Super Clnr  
Project #: 04202037.00

**SOIL SAMPLES**

AM TEST Identification Number 03-A002741  
Client Identification SED-1  
Sampling Date 3/13/03

---

PARAMETER	RESULT	Q	D.L.
<b>Bacteriological</b>			
Fecal Coliform (MPN/100 gm)	< 2		

---

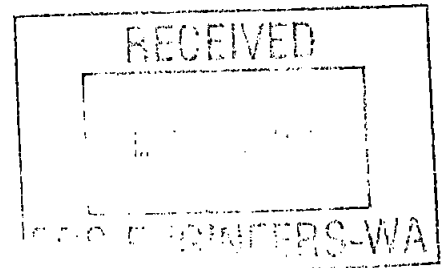
Reported by: Jeremiah Diehl  
Jeremiah Diehl



**APPENDIX C**

**PCE SOIL AND HAZARDOUS WASTE  
DISPOSAL RECORDS**





STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

Northwest Regional Office • 3190 160th Avenue SE • Bellevue, Washington 98008-5452 • (425) 649-7000

February 27, 2003

CERTIFIED MAIL

7002 0510 0003 4125 5809

Griffin and Jensen DBA  
Normandy Park Shopping Center  
Attn: Mr. Frank Jensen  
22608 Marine View Drive South  
Des Moines, Washington 98198

Dear Mr. Jensen:

RE: Disposal of Soils Contaminated with F002-Listed Dangerous  
Waste Constituents

The Department of Ecology (Ecology) has received and reviewed the soil analytical data report dated July 2002, and the accompanying cover letter dated February 17, 2003, from your environmental consultant, SCS Engineers. This information is in regard to subsurface soils contaminated with F002-listed waste. Ecology understands that the soils will be excavated as part of the voluntary cleanup at the former Soopers Dry Cleaners site within the Normandy Park Shopping Center located at 19935 First Avenue South, Normandy Park, Washington 98148.

The analytical data were submitted to Ecology to determine if these contaminated soils, when excavated, should be managed as listed dangerous wastes in accordance with the principles of the RCRA "contained-in" policy. Ecology understands that these specific soils do not designate under Federal characteristics (WAC 173-303-090) or State-only criteria (WAC 173-303-100).

The soils within a 5.0-foot diameter around MW-7 (former dry well area) to a depth of 5.0 feet below ground surface (bgs) should be excavated and separately stockpiled on an impermeable liner. One (1) sample from the middle of the soil pile should be analyzed for tetrachloroethylene (PCE), trichloroethylene (TCE), cis- and trans- 1,2 dichloroethylene (cis/trans 1,2-DCE), and vinyl chloride. Additional chemical analyses (PCE, TCE, cis- and trans- 1,2-DCE, and vinyl chloride) of soil samples directly beneath the sanitary line are required. Ecology recommends one soil sample every 100 feet of pipe. Please send the results and a figure denoting the sample locations to Ecology for further discussion on disposal options of these specific soils. If the sanitary line soils are excavated, Ecology recommends management on a separate impermeable liner until Ecology determines the appropriate disposal procedures.

Ecology has determined that soils to be excavated at the former septic tank and storm water lines (refer to Figure 2 of the July 2002 report) contain listed dangerous waste constituents at concentrations that do not warrant management as dangerous wastes<sup>1</sup>, and Ecology will not require disposal of these soils as listed wastes at a permitted dangerous waste treatment, storage, and disposal (TSD) facility, provided ALL of the conditions below are implemented:

<sup>1</sup>February 19, 1993 Ecology Contained-In Policy Memo



Mr. Jensen  
February 27, 2003  
Page 2

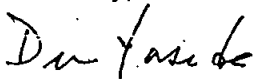
- A. Per your consultant's proposal, these specific contaminated soils shall be disposed of at the Columbia Ridge solid waste landfill, pending their written approval;
- B. If contaminated soils are loaded directly into a truck, the delivery truck shall be plastic-lined, and during transport, all loads must be covered to prevent wind dispersion. During transport, all other adequate measures shall be taken to prevent spills and dispersion due to wind or rain erosion. Measures shall also be taken to prevent unauthorized contact with these soils at all times;
- C. The contaminated soils shall be placed directly in the landfill cell and not to be used for daily, intermediate, or final cover;
- D. These contaminated soils shall not be sent to any incinerator, thermal desorption unit, or recycling facility unless that facility is a RCRA Subtitle C permitted hazardous waste TSD facility; and
- E. Forward copies of all truck bills of lading/weight (scale) tickets and signed solid waste landfill receipt records for these contaminated soils, *within 10 days of your receipt*, to the Ecology-Northwest Regional Office, Attention: Dean Yasuda

Please note that the contents of this letter are specific for the data submitted and reviewed. This written decision does not apply to any other environmental media or other sites. Please also be aware that local solid waste agencies have the authority to impose additional requirements on solid waste streams.

Be advised that failure to comply with the terms of this letter may result in the issuance of an administrative order and/or penalty as provided by the Revised Code of Washington, Sections 70.105.080 and/or .095 (Hazardous Waste Management Act).

I will be on annual leave for the entire month of March 2003. If you have any questions regarding this letter, please feel free to contact Byung Maeng at (425) 649-7253 or by e-mail at [bmae461@ecy.wa.gov](mailto:bmae461@ecy.wa.gov).

Sincerely,



Dean Yasuda, P.E.  
Environmental Engineer  
Hazardous Waste and Toxics Reduction Program

DY:dh

cc: Daniel A. Venchiarutti, SCS Engineers  
Brad Helland, NWRO-TCP  
Byung Maeng, NWRO-HWTR  
Kay Seiler, SWRO-HWTR  
Greg Caron, CRO-HWTR  
Lisa Brown, ERO-HWTR  
HZW 5.4.1

WASTE MANAGEMENT, INC ....NON HAZARDOUS WASTE DISPOSAL SOLUTIONS FOR THE PACIFIC NORTHWEST

# Columbia Ridge Landfill

18177 Cedar Springs Lane, Arlington, Oregon 97812

## Profile # 23279CV

**PERMIT TO DISPOSE OF NON-HAZARDOUS MATERIALS**


**EXPIRES: 03/06/04**

**GENERATOR: NORMANDY PARK SHOPPING CENTER**

<b>DESCRIPTION: CONTAMINATED SOIL F-002</b> <b>LISTED CONTAMINANTS</b>	<b>VOLUME: 35 tons</b>
<input type="checkbox"/> SPECIAL WASTE <input type="checkbox"/> PCS <input checked="" type="checkbox"/> CLEAN-UP MATERIAL	
<b>LOCATION: NORMANDY PARK, WA</b>	<b>COUNTY: *</b>
<b>CONTACT: RIVERS EDGE SERVICES</b>	<b>PHONE: 253-872-8988</b>
<b>Recertification: <input type="checkbox"/> Yes    <input type="checkbox"/> No</b>	

<b>BILLING: RIVERS EDGE SERVICES</b>	<b>PO#: N/A</b>	<b>JOB#: N/A</b>
--------------------------------------	-----------------	------------------

**TYPE OF DISPOSAL/ SPECIAL HANDLING/LOAD TYPE:**  
*bulk, co-mingle*  
 \*\*\*\*\*  
**ALL LOADS MUST BE SCHEDULED 24 HOURS IN ADVANCE.**  
**CONTACT GREG AT 541-454-3220 OR JULIE AT 541-454-3310**  
**SALES PERSON: MK    TT    TyT    BR    MH    KN    FD    MW**

APPROVED:  **KRISTIN CASTNER**    DATE: **03/06/03 4:22:59 PM**

**A COPY OF THIS PERMIT MUST BE SHOWN BY EACH DRIVER**



# WASTE MANAGEMENT



WM Columbia Ridge Landfill  
18177 Cedar Springs Lane  
Arlington, OR 97812  
(541)-454-2030

TICKET: 122167  
DATE: 03/31/2003  
TIME: 08:16 - 08:16  
LOAD DATE: 03/28/2003  
TIP DATE: 03/28/2003

CUSTOMER: RIVERS EDGE SERVICES  
PROFILE: 23279CV / RIVERSEDGE/NORMA  
TRUCK: 818-555 TRAILER: 7133  
ORIGIN: NORM / NORMANDY PARK CONTAINER: 7133  
COMMENT:

P.O.:  
GROSS: 37480 LBS  
TARE: 7780 LBS  
NET: 29700 LBS  
MANIFEST:

WASTE	NET/TONS	UNIT
TRANSUSPW / TRANS BY UNIT SPW - (ST	1.00	U
SPWCM / SPECIAL WASTE COMINGLE (SP2	14.85	T
LOC-U-SPW / LOCAL TRANS BY UNIT SPW	1.00	U
DELSPW / DELIVERY SPECIAL WASTE (SM	1.00	U

Driver: \_\_\_\_\_ Weighmaster: \_\_\_\_\_  
IN: CARRIE BURRESS B: DRARLI01PC OUT: CARRIE BURRESS B: DRARLI01PC

NO 513739



**Oregon Waste Systems**  
A Waste Management Company  
18177 Cedar Springs Lane  
Arlington, Oregon 97812  
(541) 454-2030

DATE/TIME: MAR 28 AM 9:05  
LOAD DATE: \_\_\_\_\_  
CUSTOMER NAME: Rivers Edge / Normandy  
PROFILE NUMBER: 23279CV  
TRUCK NUMBER: 818-555  
TRAILER/CONTAINER NUMBER: 7133  
SEAL NUMBER: \_\_\_\_\_  
CUSTOMER INVOICE NO.: \_\_\_\_\_

GROSS WEIGHT: 37480  
TARE WEIGHT-TRACTOR: \_\_\_\_\_  
TARE WGT.-TRAILER/CONTAINER: 7780  
NET WEIGHT: 29700

GATEHOUSE: \_\_\_\_\_  
DRIVER: Carrie  
TRAIN ID: Usege 27 ORIGIN: OR951  
WASTE TYPE: Combusted Soil/Combustion Res  
DISPOSAL: CM DC BU GRID SEGREGATE

REMARKS: \_\_\_\_\_  
HAULER: \_\_\_\_\_

Columbia Ridge Landfill  
10177 Cedar Springs Lane  
Arlington, OR 97812  
(503)-454-2030

TICKET: 122166  
DATE: 03/31/2003  
TIME: 08:04 - 08:08  
LOAD DATE: 03/28/2003  
TIP DATE: 03/28/2003

CUSTOMER: RIVERS EDGE SERVICES  
PROFILE: 23279CV / RIVERSEDGE/NORMA  
TRUCK: B18-555 TRAILER: 7111  
ORIGIN: NORM / NORMANDY PARK CONTAINER: 7111  
COMMENT:

P.O.:  
GROSS: 30580 LBS  
TARE: 7780 LBS  
NET: 22800 LBS  
MANIFEST:

WASTE	NET/TONS	UNIT
TRANSUSPW / TRANS BY UNIT SPW (ST	1.00	U
SPW / SPECIAL WASTE COMINGLE (SPP	11.40	T
LOC-U-SPW / LOCAL TRANS BY UNIT SPW	1.00	U
DEMSPW / DEMURRAGE SPECIAL WASTE (	0.30	U
DELSPW / DELIVERY SPECIAL WASTE (SM	1.00	U

Driver: \_\_\_\_\_ Weighmaster: \_\_\_\_\_  
IN: CARRIE BURRESS B: DRARLI01PC OUT: CARRIE BURRESS B: DRARLI01PC

No 513738



**Oregon Waste Systems**  
A Waste Management Company  
18177 Cedar Springs Lane  
Arlington, Oregon 97812  
(541) 454-2030

DATE/TIME: MAR 28 AM 8:39  
LOAD DATE:  
CUSTOMER NAME: Rivers Edge / Normandy  
PROFILE NUMBER: 23279CV  
TRUCK NUMBER: B18-555  
TRAILER/CONTAINER NUMBER: 7111  
SEAL NUMBER:  
CUSTOMER INVOICE NO.:

GROSS WEIGHT: 30580  
TARE WEIGHT-TRACTOR: 7780  
TARE WGT-TRAILER/CONTAINER:  
NET WEIGHT: 22800

GATEHOUSE:  
DRIVER: *Carrie Burress*  
TRAIN ID: *0327* ORIGIN: *OR 951*  
WASTE TYPE: *Contaminated Soil/Container*  
DISPOSAL: *COM* DC BU GRID SEGREGATE  
REMARKS:

JM Columbia Ridge Landfill  
18177 Cedar Springs Lane  
Arlington, OR 97812  
(541)-454-2030

TICKET: 122099  
DATE: 03/27/2003  
TIME: 13:53 - 13:53  
LOAD DATE: 03/26/2003  
TIP DATE: 03/26/2003

CUSTOMER: RIVERS EDGE SERVICES  
PROFILE: 23279CV / RIVERSEDGE/NORMA  
TRUCK: E3670 TRAILER: 7177  
ORIGIN: NORM / NORMANDY PARK CONTAINER: 7177  
COMMENT:

P.O.:  
GROSS: 72880 LBS  
TARE: 44940 LBS  
NET: 27940 LBS  
MANIFEST:

WASTE	NET/TONS	UNIT
TRANSUSPW / TRANS BY UNIT SPW (ST	1.00	U
SPWCM / SPECIAL WASTE COMINGLE (SPP	13.97	T
LOC-U-SPW / LOCAL TRANS BY UNIT SPW	1.00	U
DELSPW / DELIVERY SPECIAL WASTE (SM	1.00	U

Driver: \_\_\_\_\_ Weighmaster: \_\_\_\_\_  
IN: CARRIE BURRES B: ORCRL175 OUT: CARRIE BURRES B: ORCRL175

NO 513670



Oregon Waste Systems  
A Waste Management Company

18177 Cedar Springs Lane  
Arlington, Oregon 97812  
(541) 454-2030

DATE/TIME: 02:37PM 03/26/2003

LOAD DATE:

CUSTOMER NAME:

PROFILE NUMBER:

TRUCK NUMBER:

TRAILER/CONTAINER NUMBER:

SEAL NUMBER:

CUSTOMER INVOICE NO.:

GROSS WEIGHT: 72880 lb

TARE WEIGHT-TRACTOR: 44940

TARE WGT.-TRAILER/CONTAINER: 27940

NET WEIGHT:

GATEHOUSE: JK

DRIVER: JKH

TRAIN ID: 2506-25 ORIGIN: 07957

WASTE TYPE: *contaminated soil*

DISPOSAL: CM DC BU GRID SEGREGATE

REMARKS:

HAULER:

367087

VSN

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator's US EPA ID No. WAH000020438		Manifest Document No. 99001		2. Page 1 of 2		Information in the shaded areas is not required by Federal law.		
3. Generator's Name and Mailing Address NORMANDY PARK SHOPPING CENTER 19935 1ST AVE S NORMANDY PARK WA 98148-2403				6. US EPA ID Number WAH000012500		A. State Manifest Document Number		B. State Generator's ID		
4. Generator's Phone (425) 746-4600				7. Transporter 2 Company Name UNION PACIFIC RAILROAD		8. US EPA ID Number NED001792910		D. Transporter's Phone (866) 446-7785		
5. Transporter 1 Company Name PUSET SOUND TRUCK LINES INC				9. Designated Facility Name and Site Address CWMNW, INC. 17629 CEDAR SPRINGS LANE ARLINGTON OR 97812-9709		10. US EPA ID Number ORD089452353		C. State Transporter's ID		
						E. State Transporter's ID		F. Transporter's Phone (800) 346-3488		
						G. State Facility's ID		H. Facility's Phone (541) 454-2643		
11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)					12. Containers		13. Total Quantity		14. Unit Wt/Vol	
a. <input checked="" type="checkbox"/> HM RD, HAZARDOUS WASTE, SOLID, N.O.S., 9, NA3077, III, (PERCHLOROETHYLENE), D039					No. Type 0, 0, 1 CM		29,520		P	
b.							4163			
c.										
d.										
J. Additional Descriptions for Materials Listed Above a. C1445! DIRT WITH PCE, RD=100LBS						K. Handling Codes for Wastes Listed Above L12 29,520P. 14.76T.				
15. Special Handling Instructions and Additional Information a. C1445! 2000 ERG# 171						CONTAINER# CWMU 7179 EMERGENCY CONTACT# (800) 424-9300 (CWI Contract)				
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.										
Printed/Typed Name CRAIG A. MAY				Signature <i>Craig A. May</i>				Month Day Year 03/28/03		
17. Transporter 1 Acknowledgement of Receipt of Materials				Printed/Typed Name DANIEL E. PAGE				Signature <i>Daniel E. Page</i>		
								Month Day Year 03/28/03		
18. Transporter 2 Acknowledgement of Receipt of Materials				Printed/Typed Name PAM CONRAD				Signature <i>Pam Conrad</i>		
								Month Day Year 03/28/03		
19. Discrepancy Indication Space a. <i>Actual Quantity 11. a 13. per Paul Kemp/Rueo Edge 41763</i> <i>2 bags material removed from load/placed in 5 gal bucket for return to generator</i>										
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.				Printed/Typed Name JULIE McAHREN				Signature <i>Julie McAhren</i>		
								Month Day Year 03/28/03		

BMS

3/26/03

LAND DISPOSAL NOTIFICATION AND CERTIFICATION FORM (PHASE II)

ARI-C14451

Generator Name: ROBERTY PARK SHOPPING CENTER

Manifest Doc. No.: 00001

Profile Number: C14451 SOIL

State Manifest No: \_\_\_\_\_

CONT. # QWMM 7179

- Is this waste a non-hazardous or hazardous? (See 40 CFR 268.2) Check UBEI Nonhazardous or Hazardous
- If this waste is subject to any California List restrictions enter the letter from below (either A or B.) next to each restriction that is applicable:  
HUCs, PCBs, Acid, Metals, Cyanides
- Identify ALL USEPA hazardous waste codes that apply to this waste shipment, as defined by 40 CFR 261. For each waste code, identify the corresponding subcategory, or check NONE if the waste code has no subcategory. Spent solvent and California List treatment standards are listed on the following page. If F039, multi-source leachate applies those constituents must be listed and attached by the generator. If D001-D043 requires treatment of the characteristic and meet 268.48 standards, then the underlying hazardous constituent(s) present in the waste must be listed and attached.

REF #	4. US EPA HAZARDOUS WASTE CODE(S)	5. SUBCATEGORY ENTER THE SUBCATEGORY DESCRIPTION. IF NOT APPLICABLE, SIMPLY CHECK NONE		6. HOW MUST THE WASTE BE MANAGED? ENTER LETTER FROM BELOW
		DESCRIPTION	NONE	
1	D039		X	D
2				
3				
4				

To identify F039 or D001-D043 underlying hazardous constituent(s), use the "F039/Underlying Hazardous Constituent Form" provided (CWH-2004) and check here: \_\_\_\_\_  
 If no UBCs are present in the waste upon its initial generation check here: K \_\_\_\_\_  
 To list additional USEPA waste code(s) and subcategory(ies), use the supplemental sheet provided (CWH-2005-B) and check here: \_\_\_\_\_  
 Disposal facility monitors for all UBCs check here \_\_\_\_\_  
 If waste will be managed in a system regulated under the CWA, or a Class 1 injection well under the SDWA check here \_\_\_\_\_

HOW MUST THE WASTE BE MANAGED? In column 6 above, enter the letter (A, B1, B3, B4, B5, C, D, or E) below that describes how the waste must be managed to comply with the land disposal regulations (40 CFR 268.7). Please understand that if you enter the letter B1, B3, B4, B5 or D you are making the appropriate certification as provided below. (States authorized by EPA to manage the LDR program may have regulatory citations different from the 40 CFR citations listed below. Where these regulatory citations differ, your certification will be deemed to refer to those state citations instead of the 40 CFR citations.)

- A. RESTRICTED WASTE REQUIRES TREATMENT  
This waste must be treated to the applicable treatment standards set forth in 40 CFR Part 268 Subpart D, 268.32, or RCRA Section 3004(d).  
For Hazardous Debris: "This hazardous debris is subject to the alternative treatment standards of 40 CFR Part 268.45."
- B.1 RESTRICTED WASTE TREATED TO PERFORMANCE STANDARDS  
"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based upon my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to comply with the performance levels specified in 40 CFR part 268.40 and 268.32 without impermissible dilution of the prohibited waste. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."
- B.3 GOOD FAITH ANALYTICAL CERTIFICATION FOR INCINERATED ORGANICS  
"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based upon my inquiry of those individuals immediately responsible for obtaining this information, I believe that the nonhazardous organic constituents have been treated by incineration in units operated in accordance with 40 CFR Part 264 Subpart O or Part 265 Subpart O, or by combustion in fuel substitution units operating in accordance with applicable technical requirements, and I have been unable to detect the nonhazardous organic constituents despite having used best good faith efforts to analyze for such constituents. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."
- B.4 DECHARACTERIZED WASTE REQUIRES TREATMENT FOR UNDERLYING HAZARDOUS CONSTITUENTS  
"I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.40 or 268.49, to remove the hazardous characteristic. This decharacterized waste contains underlying hazardous constituents that require further treatment to meet treatment standards. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."
- B.6 RESTRICTED DEBRIS TREATED TO ALTERNATE PERFORMANCE STANDARDS  
"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and believe that it has been maintained and operated properly so as to comply with treatment standards specified in 40 CFR 268.45 without impermissible dilution of the prohibited wastes. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."
- C. RESTRICTED WASTE SUBJECT TO A VARIANCE  
This waste is subject to a national capacity variance, a treatability variance, or a case-by-case extension. Enter the effective date of prohibition in column 6 above.  
For Hazardous Debris: "This hazardous debris is subject to the alternative treatment standards of 40 CFR Part 268.45."
- D. RESTRICTED WASTE CAN BE LAND DISPOSED WITHOUT FURTHER TREATMENT  
"I certify under penalty of law that I have personally examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR part 268 subpart D. I believe that the information I submitted is true, accurate and complete. I am aware there are significant penalties for submitting false certification, including the possibility of a fine and imprisonment."
- E. WASTE IS NOT CURRENTLY SUBJECT TO PART 268 RESTRICTIONS  
This waste is a newly identified waste that is not currently subject to any 40 CFR Part 268 restrictions.

I hereby certify that all information submitted in this and all associated documents is complete and accurate, to the best of my knowledge and information.

Signature: [Signature] Title: Operator Date: 03-23-03

SOLVENT AND CALIFORNIA LIST TREATMENT STANDARDS

If the waste identified on the first page of this form is described by any of the following USEPA hazardous waste codes: F001, F002, F003, F004, F005, and all solvent constituents will not be monitored by the treater, and/or this hazardous waste is subject to any prohibitions identified as California List restrictions (40 CFR 268.32 and/or RCRA Section 3004(d)), each constituent MUST be identified below by checking the appropriate box, and this page must accompany the shipment, along with the previous page of this form. If the waste code F005 describes this waste, then the corresponding list of constituents must be attached. If D001-D043 require treatment to 268.40 standards, then the underlying hazardous constituent(s) must also be attached.

SOLVENT WASTE TREATMENT STANDARDS

Table with 4 columns: F001 through F005 spent solvent constituents and their associated USEPA hazardous waste code(s), Treatment Standard (Wastewater / Nonwastewater), F001 through F005 spent solvent constituents and their associated USEPA hazardous waste code(s), Treatment Standard (Wastewater / Nonwastewater).

All spent solvent treatment standards are measured through a total waste analysis (TCA), unless otherwise noted. Wastewater limits are mg/l, nonwastewater are mg/kg.

Table with 3 columns: Restricted Waste Description, Prohibition, Treatment Standard. Includes rows for liquid/nonliquid wastes containing halogenated organic compounds, polyhalogenated biphenyls (PCBs), and liquid wastes containing metals.

- For the definition "liquid" refer to Method 9092, the Paint Filter Liquids Test from EPA manual SW-636

SUBCATEGORY REFERENCE

- Ignitable characteristic wastes, except for the 40 CFR 261.21(a)(1) High TOC subcategory, that are managed in non-CWA/non-CWA equivalent/non-Class I SDWA systems.
Ignitable characteristic wastes, except for the 40 CFR 261.21(a)(1) High TOC subcategory, that are managed in CWA/CWA-equivalent/Class I SDWA systems.
High TOC ignitable characteristic liquids subcategory based on 40 CFR 261.21(a)(1) - Greater than or equal to 10% total organic carbon.
Corrosive characteristic wastes that are managed in non-CWA/non-CWA-equivalent/non-Class I SDWA systems.
Corrosive characteristic wastes that are managed in CWA, CWA-equivalent, or Class I SDWA systems.

5/15/03 14:34 FAX 2193978411

PCI CUSTOMER SVC

EMERGENCY CALL 1-800-424-9300

Please print or type. (Form designed for use on 8 1/2" x 11" paper)

Approved OMB No. 2050-003

# UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. WAH00002043889604  
Manifest Document No. 89604

2. Page 1 of 1  
Information in the shaded area is not required by Federal law.

3. Generator's Name and Mailing Address  
GRIFFIN AND JENSEN  
11945 FIRST AVE S  
NORMANDY PARK, WA 98148  
102683

4. Generator's Phone (425) 746-4600  
5. Transporter 1 Company Name  
EMERALD SERVICES, INC.  
6. US EPA ID Number  
WAD058364647

7. Transporter 2 Company Name  
SLT EXPRESS  
8. US EPA ID Number  
UTD981552425

9. Designated Facility Name and Site Address  
POLLUTION CONTROL IND.  
4343 KENNEDY AVE.  
CAST CHICAGO, IN 46312  
10. US EPA ID Number  
IND000546943

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)

a.	b.	c.	d.	12. Containers		13. Total Quantity	14. Unit Wt/Vol
				No.	Type		
				014	M	6800	P

15. Special Handling Instructions and Additional Information  
REPORT ANY RC DISCHARGE TO NATIONAL RESPONSE CENTER 800-424-8802, AND 911 EMERGENCY NUMBER OR LOCAL OPERATOR. EMERGENCY CONTACT: DAN VENCHIARUTTI (425) 746-4600

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.  
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: Dan Venchiarutti (On behalf of GCSF/W + Johnson DBA) Signature: [Signature] Month Day Year: 10/14/03

17. Transporter 1 Acknowledgement of Receipt of Materials  
Printed/Typed Name: Tim Simon Signature: [Signature] Month Day Year: PH 11/6/03

Printed/Typed Name: Michele Longwell Signature: [Signature] Month Day Year: 10/15/03

8. Discrepancy Indication Space  
Transfer facility signed box #20  
Facility Name of Operator: Waste Management  
Printed/Typed Name: S. Schenck Signature: [Signature] Month Day Year: 10/15/03

ORIGINAL-RETURN TO GENERATOR

05/15/03 14:35 FAX 2193976411

PCI CUSTOMER SVC



**Certificate**

This certificate is to verify that the waste specified will be handled in accordance with all local, state, and federal regulations

Manifest: 89604  
Generator: GRIFFIN & JENSEN DBA

<u>Page/Line</u>	<u>Waste Stream</u>	<u>PCI H CODE</u>	<u>Final H CODE</u>
1 A	246479	H061	H050

Facility Name: Pollution Control Industries  
Facility Address: 4343 Kennedy Avenue  
East Chicago, IN 46312  
Facility EPA ID: IND000646943

Signature:

Typed: Thomas R. McGillis  
Title: Director of Technical Services  
Date: 5/15/2003

Invoice #: 10040668

**Pollution Control Industries**  
4343 Kennedy Avenue, East Chicago, IN 46312  
(719)397-3951 FAX: (219)397-6411  
www.pollutioncontrol.com

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PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
Bureau of Land Recycling and Waste Management

P.O. Box 8550  
Harrisburg, PA 17105-8550

OFFICIAL PENNSYLVANIA MANIFEST FORM

43013-25601071  
449096

Form approved.  
OMB No. 2050-0039

2500-FM-LAWM0051 REV. 7/99

**UNIFORM HAZARDOUS WASTE MANIFEST**

1. Generator's US EPA ID No. **WAH000020438** Manifest Document No. **MP-04-03**

2. Page 1 of 1 Information within the bold red border is not required by Federal law but may be required by State law.

3. Generator's Name and Mailing Address  
**Griffin & Jensen**  
**2405 140th Ave NE, Ste 107**  
**Belleveue, WA 98005**

A. State Manifest Document Number  
**PAG 113556**

4. Generator's Phone ( ) **425 746 4600**

B. State Gen. ID

5. Transporter 1 Company Name **Tn. State Motor Transit** 6. US EPA ID Number **MOD095038998**

C. State Trans. ID  
**PA-AH 0346**

7. Transporter 2 Company Name **Red Rock Inc. DBA TSMC** 8. US EPA ID Number **MDR008505347**

D. Transporter's Phone **(800) 234 8768**

9. Designated Facility Name and Site Address  
**Envirotrol, Inc.**  
**118 Park Rd.**  
**Darlington, PA 16115** 10. US EPA ID Number **PAD987270725**

E. State Trans. ID  
**PA-AH 0697**

F. Transporter's Phone **(908) 234 8768**

G. State Facility's ID

H. Facility's Phone **(412) 827 8181**

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number) HM	12. Containers		13. Total Quantity	14. Unit Wt/Vol	1. Waste No.
	No.	Type			
<b>Hazardous Waste Solid, n.o.s. (spent activated carbon contains ACE) 9, NA3077, PGIII</b>	<b>1</b>	<b>DM</b>	<b>400</b>	<b>P</b>	<b>F002</b>

Additional Descriptions for Materials Listed Above  
**Physical State = Solid**

K. Handling Codes for Wastes Listed Above  
**501, 718 Activated Carbon**  
**Beneficial Reuse**

Special Handling Instructions and Additional Information  
Generator Site Address = **Normandy Park Shopping Center**  
**11945 First Ave South**  
**Normandy Park, WA 98148**  
Generator Representative = **Daniel Venchiarutti**  
Emergency Phone = **(425) 746 4600**

**I, GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name **Daniel Venchiarutti (on behalf of Griffin & Jensen)** Signature *[Signature]* MONTH DAY YEAR **04 10 03**

17. Transporter 1 Acknowledgment of Receipt of Materials  
Printed/Typed Name **Ken Vaughan TSMC** Signature *[Signature]* MONTH DAY YEAR **04 10 03**

18. Transporter 2 Acknowledgment of Receipt of Materials  
Printed/Typed Name **Ronald Lee Trimble TSMC** Signature *[Signature]* MONTH DAY YEAR **04 16 03**

Discrepancy Indication Space  
**NET WT in Pounds 435**

Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.  
Printed/Typed Name **James A Whelan** Signature *[Signature]* MONTH DAY YEAR **04 17 03**

PAG 113556

**<NOTICE>**

**NOTICE FROM GENERATOR TO TREATMENT FACILITY THAT WASTES  
DO NOT MEET LAND PROHIBITION TREATMENT STANDARDS**

The wastes identified on manifest number PAG113536 and bearing the EPA Hazardous Waste Number(s) F002 are subject to the land disposal restrictions of 40 CFR Part 268. The waste do not meet the treatment standards specified in Part 268 Subpart D or do not meet the prohibitions specified in 268.32 or RCRA section 3004(d). The treatment standards or prohibition levels applicable to each waste are identified below:

**COPY**

**Section 1**

EPA Hazardous Waste Number	Subcategory	Treatment Treatability Group	Treatment Standard/Prohibition Treatment Method
<u>F002</u>	<u>Tetrachloroethene</u>	<u>NWW</u>	<u>5.6 mg/kg</u>

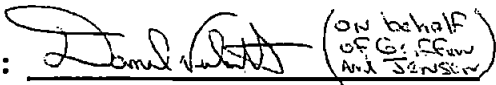
**Section 2**

**Underlying Hazardous Constituents (268.48)**

**Universal Treatment Standards(UTS)**


EPA Hazardous waste numbers can be determined from 40 CFR 261 Subcategory, please list chemical constituents (Technical or IUPAAC names) found in that waste which are subsets of the RCRA Waste Code listed under the EPA Hazardous Waste Number column. Treatability group is either NonWasteWater (NWW) or WasteWater (WW)

A waste analysis for these wastes is attached, where available.

**SIGNED:**  (on behalf of G. G. [unclear] and Jensen)

**COMPANY NAME:** SCS Engineers

**TITLE:** Project Manager

**SITE NAME:** Normandy Park Shopping Center

**DATE:** 04/10/03