Dalton, Olmsted & Fuglevand, Inc. *Environmental Consultants*

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November 12, 1997

Michael Kuntz
Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

Re: IRAP/Park 90/5 Site
2203 Airport Way S.
Seattle, Washington

Dear Mr. Kuntz:

This letter was prepared to supplement the information contained in the Independent Remedial Action Report (herein termed IRAP report) (DOF 1996) that was submitted with the request for a No Further Action (NFA) letter for the referenced site located in Seattle, Washington (Figure 1). The original request for a NFA letter was made in January 1997 with submittal of the IRAP report. In March of 1997, Joe Garcia (City of Seattle - property owner) received a letter from Michael Kuntz of the Washington State Department of Ecology (Ecology) that stated that a NFA letter could not be issued because certain issues were not resolved. The issues included:

1. Groundwater flow (directions)
2. Fate and transport of soil contamination
3. Metallic concentrations in groundwater
4. Delineation of slag and scrap
5. Status of underground storage tanks

Ecology advised that additional data was necessary to resolve items 1 to 3 and that existing data could be used to resolve items 4 and 5.

Matthew Dalton (Dalton, Olmsted & Fuglevand, Inc. - DOF) discussed the issues with Mike Kuntz to determine the scope of additional testing to resolve issues 1 to 3 listed above. DOF submitted a proposed scope of work to Ecology on April 7, 1997. Ecology responded with a letter dated April 15, 1997 that outlined the additional work which is summarized below:

- Install three additional monitor wells at determined locations,
- Survey the well heads and measure water levels in all (site) wells to estimate ground water flow direction,
- Obtain groundwater samples from new and existing wells using low-flow/low turbidity sampling procedures, and
- Analyze the samples for diesel and heavy-oil range hydrocarbons (using Method WTPH-D extended) and for total and dissolved metals (arsenic, barium, chromium and lead).

REQUEST FOR NO FURTHER ACTION LETTER

As requested by Ecology, additional field sampling and data analysis was completed at the Park 90/5 office park. The additional work is discussed below. In our opinion, the additional data resolve the issues raised by Ecology in the March 12, 1997 letter and we request that a No Further Action designation for the site be granted by Ecology.

SUMMARY AND REVIEW OF ADDITIONAL DATA COLLECTION

Well Installation

Three additional wells (MW-5 to MW-7) were installed at the locations shown on Figure 2. The locations of previously drilled/excavated borings, test pits, geoprobes and wells are also shown on this Figure. As requested in Ecology's April 15, 1997 letter, one of the wells (MW-6) was installed at geoprobe location P-4.

The wells were installed using a hollow-stem auger provided by Holt Drilling on August 4, 1997. Terry Olmsted (Sr. Engineering Geologist for DOF) observed and documented the well installations. The wells were drilled to a depth of 15- to 16-feet and well screens were set over the interval of 10 to 11 feet and 15- to 16-feet within near surface fill deposits. The screen depths are similar to those for previously installed wells MW-1 to MW-4. Geologic logs for wells MW-5 to MW-7 are presented in attached Figures 3 to 5. Geologic logs for wells MW-1 to MW-4 are presented in Appendix D of the IRAP report.

Water Level Elevations and Ground-Water Flow Directions

The new wells were surveyed to the same relative datum as the existing wells using an engineering level. The depth to water was measured in all wells on August 21 and 22, 1997, with the exception of well MW-4 that could not be found because of grading

activities along the adjacent railroad tracks. Water level depths ranged between approximately 9 and 10 feet below ground level. Water level and elevation data are summarized in Table 1.

Using the elevation data from the wells, the estimated ground-water flow direction is generally to the east (Figure 6). This direction corresponds to the estimated flow direction discussed in the December 1996 IRAP report. Based on the flow direction estimates, wells MW-2 to MW-4 are upgradient wells and wells MW-1 and MW-5 to MW-7 are downgradient wells.

Ground-Water Sampling

Ground-water samples were collected from the wells (except for MW-4) by Terry Olmsted on August 21 and 22, 1997 using either a small submersible or peristaltic pump. Low flow/low turbidity sampling procedures were used to collect the samples. The purging/sampling pumping rate was approximately 500 ml/min. Samples were placed in containers provided by the receiving laboratory with the appropriate preservatives after the field parameters stabilized. Approximately 2.5 to 3 casing volumes were purged from the wells prior to sampling. Field data is summarized in Table 2.

The samples were analyzed for petroleum hydrocarbons (WTPH-Dextended) and total and dissolved metals (arsenic, barium, chromium and lead). Samples for dissolved metals analysis were field filtered using an in-line 0.45 micron filter made by Gelman Sciences. Tables 3 and 4 summarize the results of previous and current ground-water analyses. Laboratory data sheets are presented in Attachment A.

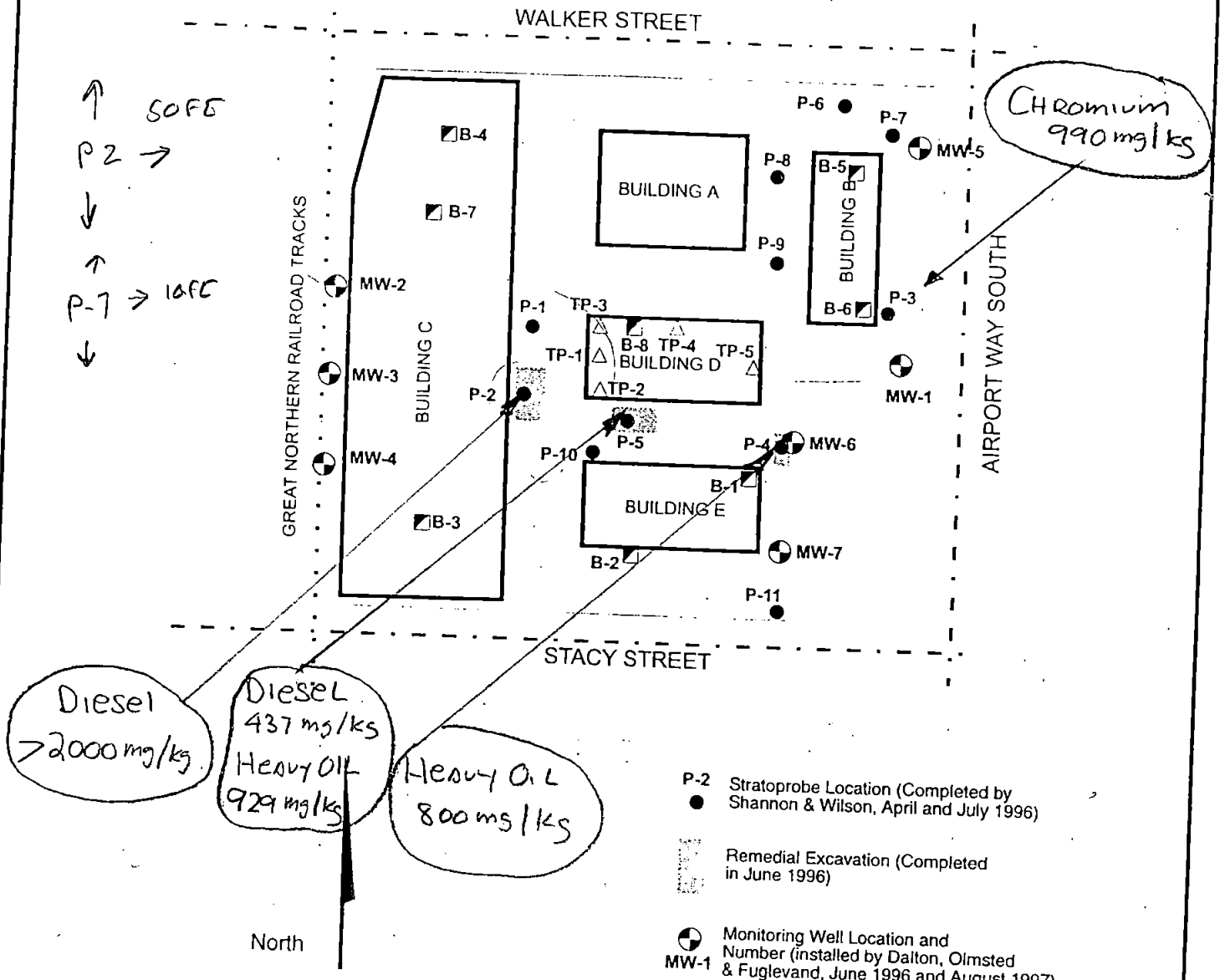
Ground-Water Cleanup Levels. In the following paragraphs, the August 97 ground-water quality data is compared to cleanup levels presented in the December 1996 IRAP report. The cleanup levels are summarized below:

		Ground-Water Cleanup Level (mg/l)	Basis
	Total Petroleum Hydrocarbons	1	MTCA - Method A(a)
58 mg/L	Arsenic	0.036	Surface Water Quality(b)
	Barium	1.1	MTCA - Method B(a)
50	Chromium	0.05	Surface Water Quality(b)
5 mg/L	Lead	0.0058	Surface Water Quality(b)

Notes: (a)- WAC173-340-720; based on drinking water use.
(b)- WAC 173-201A-040; based on marine chronic criteria

Residual Soil Concentrations

Four areas P-2, P-3, P-4 and P-5 contain soil above MTCA cleanup levels



P-2 Stratoprobe Location (Completed by Shannon & Wilson, April and July 1996)

Remedial Excavation (Completed in June 1996)

MW-1 Monitoring Well Location and Number (installed by Dalton, Olmsted & Fuglevand, June 1996 and August 1997)

B-1 Geotechnical Boring Location (By Earth Consultants; 1984 and 1985)

TP-1 Geotechnical Test Pit Location (By Earth Consultants;1987)

MTCA Cleanup Levels

Chromium (Industrial) 500 mg/kg

Diesel, Heavy Oil } Method A 200 mg/kg

Park 90/5
Seattle, Washington

SITE PLAN SHOWING REMEDIAL EXCAVATIONS AND BORING, PROBE AND WELL LOCATIONS

SAB-004 **FIGURE 2** September 1997
Dalton, Olmsted & Fuglevand, Inc.

ref:welpln6.cdr

Petroleum Hydrocarbons (TPH). Diesel and heavy-oil range petroleum hydrocarbons were not detected above reporting limits (0.25 mg/l for diesel; 0.75 mg/l for heavy-oil) in upgradient wells MW-2 and MW-3 or in downgradient wells MW-1 and MW-7. Diesel range hydrocarbons were detected at concentrations of 0.32 mg/l in downgradient well MW-5 and 0.56 mg/l in downgradient well MW-6. No heavy-oil range hydrocarbons were detected in wells MW-5 or MW-6. The reported TPH detections are below the Model Toxics Control Act (MTCA) Method A cleanup level of 1 mg/l for petroleum hydrocarbons.

Total and Dissolved Metals. Arsenic concentrations ranged between not detected (less than 0.004 mg/l) to 0.027 mg/l (dissolved) and 0.029 mg/l (total). The highest arsenic concentrations were measured in upgradient well MW-2. Total and dissolved arsenic concentrations were similar and none of the upgradient or downgradient sample concentrations exceeded the cleanup level of 0.036 mg/l.

Total barium concentrations ranged between 0.07 and 0.22 mg/l, and dissolved barium ranged between 0.09 and 0.26 mg/l. Total and dissolved concentrations were similar and none of the sample results exceeded the cleanup level of 1.1 mg/l.

Chromium was only detected in the sample from upgradient well MW-3 at a total concentration of 0.01 mg/l. Total and dissolved chromium were not detected in any other wells at a reporting limit of 0.01 mg/l. None of the sample concentrations exceeded the cleanup level of 0.05 mg/l.

Total lead was only detected in two well samples; upgradient well MW-2 at 0.006 mg/l and in downgradient well MW-6 at 0.006 mg/l. Samples from the remaining wells had total lead concentrations less than 0.002 mg/l and all the ground-water samples including those from MW-2 and MW-3, had dissolved lead concentrations less than 0.002 mg/l. The two reported total lead detections were only slightly above the cleanup level of 0.0058 mg/l.

Fate and Transport of Soil Contamination

As discussed in the December 1996 IRAP report, soil concentrations of chromium and petroleum hydrocarbons exceeded the MTCA soil cleanup levels after remediation was completed.

- Chromium was measured at a concentration of 990 mg/kg at location P-3 (Figure 2). This chromium concentration exceeds the MTCA industrial cleanup level of 500 mg/kg.

- At location P2, residual diesel-range hydrocarbons greater than 2,000 mg/kg remain in soil. At location P4, residual heavy-oil range hydrocarbons of approximately 800 mg/kg remain in soil and at location P-5, residual diesel-range (437 mg/kg) and heavy-oil range (929 mg/kg) hydrocarbons remain in soil. These concentrations exceed the MTCA Method A soil cleanup level of 200 mg/kg.

The available ground-water quality data indicate that the soil chromium concentration at P-3 and the residual petroleum hydrocarbon concentrations at locations P-2, P-4 and P-5 are not leaching and migrating in ground water at concentrations that exceed cleanup levels.

DELINEATION OF SLAG AND SCRAP

Ecology's concern about slag, scrap iron and other material present in the fill soils is that these materials could serve as a potential source of metallic contamination to ground water. As discussed above and in the IRAP report, the available ground-water quality data indicate the fill materials that contain the slag, cinders and metal debris are not adversely impacting ground-water quality.

The geologic logs of explorations completed on the site were reviewed to identify locations were these materials are present. Table 5 summarizes the locations and depths of where "slag", "cinders" or metal debris were reported on the geologic logs. The extent of these materials is presented on Figure 7.

The source of the slag and scrap materials is not known. Some of the slag-like or cinder-like materials may have originated as ballast for the railroad beds that were historically present on the site. Fill material analyses for arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver were completed during the site characterization and remediation work. This data is summarized in Table 5 of the IRAP report. As discussed, only chromium in one sample (P-3 at 3 to 6 feet) exceeded a soil cleanup level.

STATUS OF UNDERGROUND STORAGE TANKS

The March 1997 Ecology letter recommends that a discrete section be prepared that describes the status of tanks. It is not our intent to revise the IRAP report. The following text was prepared to clarify the status of tanks that formerly resided on the site.

Historical research by Shannon & Wilson (see Appendix B of IRAP report) discovered evidence that five underground fuel storage tanks (USTs) formerly were present on the site. The following table summarizes the evidence, tank sizes and probable locations. The probable locations are also shown on Figure 8.

Supporting Evidence	Size (gallons)	Probable Location
1927 Tax Assessor Card	6,000	Office Bldg. On Northeast Corner
1950 Permit (DCLU)	20,000	Gas Pumps
1979 Permit (DCLU)	4,000	Northeast Portion
1987 Earth Consultants Rpt.	Unknown	Engine and boiler rooms
1985 DCLU Permit and Delta Environmental Consultants Rpt.	300	Building E

Notes: DCLU - Department of Construction and Land Use (City Seattle)

As discussed in the IRAP report, the site was historically used as a slaughterhouse and meat packing plant. In the mid-1980's, facilities on the site were demolished (except for Building A) and new buildings and utilities were constructed on the site. No formal tank removal records are available, except for the 300 gallon waste oil tank.

Environmental assessment and remediation work completed as part of the real estate sale indicates that the tanks were removed. This work included interviews with people familiar with the site, a geophysical survey, excavation/drilling of test pits and borings, the drilling and sampling of eleven geoprobes and the remedial excavation of suspected former tank locations (where petroleum hydrocarbons were ultimately detected in soil).

The geophysical surveys (see Appendix B of IRAP report) included electro-magnetic (EM) and ground penetrating radar (GPR). The surveys were completed generally within the parking areas on the eastern half of the site and the parking area located adjacent to the central portion of Building C. No evidence of underground tanks were discovered by the geophysical surveys.

The status of each tank is briefly discussed below:

- A Tax Assessor card indicates that in 1927 a office building was constructed on the site that had a 6,000 gallon tank associated with it. Shannon & Wilson stated in their report (Appendix B of IRAP report) that it was likely the former office building was located on the northeast corner of the site. DCLU records also indicated that Cudahy Foods installed a 4,000 gallon UST on the northeast portion of the site in 1979. Data was not available to more accurately determine the locations of the tanks. No evidence of these tanks was discovered by the geophysical surveys discussed above or by geoprobes/test pits drilled/excavated in this area (test pits B-5 and B-6; probes P3 and P6 to P9).

- Department of Construction and Land Use (DCLU) records indicate that a permit to install a 20,000 gallon underground fuel storage tank was issued in 1950. Available data indicates this tank was associated with the "Gas Pumps" shown on Figure 8. A representative of Shannon & Wilson spoke with Mr. Al Clow who was on site during most of the site demolition and witnessed UST removals (see Appendix C of IRAP report). Mr. Clow remembers a 20,000 gallon tank being removed from the fuel station area near Building C. This tank was interpreted to be present near geoprobe P-2 where diesel-range hydrocarbons above cleanup levels were detected. This area was remediated as discussed on page 16 of the IRAP report. No tank was discovered during excavation.

- DCLU records indicate that a permit was issued to install a 300 gallon waste oil tank at Building E in 1985. This tank was removed in 1994. The removal activities and soil sampling results are summarized on page 4 of the IRAP report. The removal and sampling were completed by Delta Environmental Consultants.

- A Preliminary Environmental Audit completed by Earth Consultants, Inc. in 1987 (see Appendix A of the IRAP report) indicated that a tank was removed from the south side of the engine and boiler rooms (mechanical building). As noted above, Mr. Clow was onsite during most of the site demolition. He remembers that a tank was removed from the area of the engine and boiler rooms. Geoprobe P-4 was interpreted to be the location of this former UST. This area was remediated as discussed on page 18 of the IRAP report. No tank was discovered during excavation.

REFERENCES

DOF (Dalton, Olmsted & Fuglevand, Inc.), 1996, Independent Remedial Action Report, Park 90/5 Office Park, Seattle, Washington, Prepared for Sabey Corporation and The City of Seattle, December.

CLOSING

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, expressed or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

Dalton, Olmsted & Fuglevand, Inc.

Matthew G. Dalton
Sr. Consulting Hydrogeologist

Attachments

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TABLE 1 - Summary of Ground-Water Elevations in Wells MW-1 to MW-7

Park 90/5
Seattle, Washington

Well No.	Elevation	June 27, 1996		July 2, 1996		Oct. 18, 1996	
	Top PVC	Depth to Water	Elevation	Depth to Water	Elevation	Depth to Water	Elevation
MW-1	13.21	9.95	3.26	9.92	3.29	10.1	3.11
MW-2	13.43	9.7	3.73(1)	9.22	4.21	6.09	7.34
MW-3	12.79	9.15	3.64	9.15	3.64	9.28	3.51
MW-4	12.68	8.55	4.13	8.53	4.15	nm	——

Well No.	Elevation	August 21,22, 1997	
	Top PVC	Depth to Water	Elevation
MW-1	13.21	10.09	3.12
MW-2	13.43	9.7	3.73
MW-3	12.79	9.34	3.45
MW-4	12.68	nm	----
MW-5	12.60	9.49	3.11
MW-6	12.63	9.45	3.18
MW-7	13.17	9.85	3.32

Notes: All measurements in feet

Depth to water measured from top of PVC casing

Elevation - City of Seatle datum

nm - well head was coverd with fill and could not be located

(1) Elevation may be biased low. Because of the finer grained soils encountered at the MW-2 well location, the water level may not have fully stabilized by the time of the measurement on June 27, one day after the well was installed.

TABLE 2 - Summary of Field Ground-Water Sampling Data

Well Number	Date	pH	Electrical Conductivity (uS)	Temperature (C)	Dissolved Oxygen (mg/l)	Turbidity NTU
MW-1	8/21/97	6.7	630	13.5	0.4	2.1
MW-2	8/21/97	6.8	697	15	0.4	68
MW-3	8/21/97	6.5	721	15	0.25	1.5
MW-4	-----	-----	-----	-----	-----	-----
MW-5	8/21/97	6.9	701	14.5	0.3	4
MW-6	8/22/97	8.5	1050	16	0.25	9
MW-7	8/22/97	6.8	1655	16	0.3	28

TABLE 3 - Summary of Petroleum Hydrocarbon Ground-Water Quality Analyses

Park 90/5 Office Park
Seattle, Washington

Sample Location	Screen Interval (ft)	Date Collection	Source	Diesel Range(a)	Heavy-Oil Range(a)	Gasoline Range(b)	Benzene (b)	Toluene (b)	Ethylbenzene (b)	Xylenes (b)	Sampling Method
P-1	6-8.5	4-23-96	S&W	<0.2	<0.4	<0.1	<0.001	<0.001	<0.001	<0.001	Geoprobe
P-2	6.5-9	4-23-96	S&W	**219**	**0.538**	<0.1	<0.001	<0.001	<0.001	<0.001	Geoprobe
P-3	7-9.5	4-23-96	S&W	<0.2	<0.4	<0.1	<0.001	<0.001	<0.001	<0.001	Geoprobe
P-4	9-10.5	4-23-96	S&W	<0.2	<0.4	<0.1	<0.001	<0.001	<0.001	<0.001	Geoprobe
P-5	9-11.5	4-23-96	S&W	**0.23**	<0.4	<0.1	<0.001	0.0018	<0.001	0.0094	Geoprobe
P-6	9-12	6-11-96	S&W	<0.2	<0.4	na	na	na	na	na	Geoprobe
P-7	9-12	6-11-96	S&W	<0.2	<0.4	na	na	na	na	na	Geoprobe
P-8	6-9	6-11-96	S&W	<0.2	<0.4	na	na	na	na	na	Geoprobe
P-9	9-12	6-11-96	S&W	<0.2	<0.4	na	na	na	na	na	Geoprobe
P-10	8.5-11.5	7-5-96	S&W	<0.5	<1	na	na	na	na	na	Geoprobe
P-11	8.5-11.5	7-5-96	S&W	<0.5	<1	na	na	na	na	na	Geoprobe
MW-1	5-15	6-27-96	DOF	<0.2	<0.4	na	na	na	na	na	Low Turbidity
		8-21-97		<0.25	<0.75	na	na	na	na	na	
MW-2	5-15	6-27-96	DOF	<0.2	<0.4	na	na	na	na	na	Low Turbidity
		8-21-97		<0.25	<0.75	na	na	na	na	na	
MW-3	5-15	6-27-96	DOF	<0.2	<0.4	na	na	na	na	na	Low Turbidity
		8-21-97		<0.25	<0.75	na	na	na	na	na	
MW-4	5-15	6-27-96	DOF	<0.2	<0.4	na	na	na	na	na	Low Turbidity
MW-5	10-15	8-21-97	DOF	**0.32**	<0.75	na	na	na	na	na	Low Turbidity
MW-6	11-16	8-22-97	DOF	**0.56**	<0.75	na	na	na	na	na	Low Turbidity
MW-7	10-15	8-22-97	DOF	<0.25	<0.75	na	na	na	na	na	Low Turbidity

Ground-Water Cleanup Levels - MTCA Method A (c)	1	1	1	0.005	0.04	0.03	0.02

Notes: All concentrations in mg/l-ppm
< - less than indicated value
na - not analyzed
S&W - Shannon & Wilson, Inc. (1996b) - Fax dated 7-9-96
DOF - Dalton, Olmsted & Fuglevand, Inc.
(a) - Method WTPH-D(extended)
(b) - Method WTPH-G w/ BTEX distinction
(c) - WAC 173-340-720 (Ecology 1996)
Laboratory analyses by Transglobal Environmental Geosciences Northwest, Inc., Lacey, Washington

TABLE 4 - Summary of Metal Ground-Water Quality Analyses

Park 90/5 Office Park
Seattle, Washington

Total Metals

Sample Location	Screen Interval (ft)	Date Collection	Source	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Sampling Method
P-6(a)	9-12	6-11-96	S&W	**0.012**	**0.94**	<0.001	**0.02**	**0.16**	<0.0004	<0.13	<0.01	Geoprobe
P-7(a)	9-12	6-11-96	S&W	**0.011**	**3.2**	**0.003**	**0.04**	**6.1**	<0.028	<0.15	<0.01	Geoprobe
P-8(a)	6-9	6-11-96	S&W	**0.051**	**5.6**	**0.004**	**0.05**	**1.1**	**0.015**	<0.15	<0.01	Geoprobe
P-9(a)	9-12	6-11-96	S&W	<0.001	**0.36**	<0.001	<0.01	<0.05	<0.0004	<0.15	<0.01	Geoprobe
MW-1	5-15	6-27-96	DOF	<0.004	**0.14**	<0.0001	<0.01	<0.002	<0.001	<0.005	<0.02	Low Turbidity
		8-21-97		<0.004	**0.13**	na	<0.01	<0.002	na	na	na	
MW-2	5-15	6-27-96	DOF	na	na	na	na	na	na	na	na	Low Turbidity
		8-21-97		**0.029**	**0.10**	na	<0.01	**0.006**	na	na	na	
MW-3	5-15	6-27-96	DOF	<0.004	**0.09**	<0.0001	<0.01	<0.002	<0.001	<0.005	<0.02	Low Turbidity
		8-21-97		<0.004	**0.07**	na	**0.01**	<0.002	na	na	na	
MW-4	5-15	6-27-96	DOF	**0.023**	**0.13**	<0.0001	<0.01	<0.002	<0.001	<0.005	<0.02	Low Turbidity
MW-5	10-15	8-21-97	DOF	<0.004	**0.22**	na	<0.01	<0.002	na	na	na	Low Turbidity
MW-6	11-16	8-22-97	DOF	**0.008**	**0.15**	na	<0.01	**0.006**	na	na	na	Low Turbidity
MW-7	10-15	8-22-97	DOF	<0.004	**0.09**	na	<0.01	<0.002	na	na	na	Low Turbidity

Dissolved Metals (b)

Sample Location	Screen Interval (ft)	Date Collection	Source	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Sampling Method
P-2(a)	6.5-9	4-23-96	S&W	**0.003**	**0.19**	<0.0005	<0.01	0.002	<0.0002	<0.2	<0.01	Geoprobe
P-3(a)	7-9.5	4-23-96	S&W	**0.017**	**0.03**	<0.0005	<0.01	<0.0005	<0.0002	<0.2	<0.01	Geoprobe
P-4(a)	9-10.5	4-23-96	S&W	**0.011**	**0.14**	<0.0005	<0.01	0.004	<0.0002	<0.2	<0.01	Geoprobe
P-7(a)	9-12	7-5-96	S&W	<0.0035	**0.15**	<0.005	<0.01	<0.002	<0.0005	<0.0063	<0.01	Geoprobe
MW-1	5-15	6-27-96	DOF	<0.004	**0.16**	<0.0001	<0.01	<0.002	<0.001	<0.005	<0.02	Low Turbidity
		8-21-97		<0.004	**0.15**	na	<0.01	<0.002	na	na	na	
MW-2	5-15	6-27-96	DOF	**0.019**	**0.12**	<0.0001	<0.01	<0.002	<0.001	<0.005	<0.02	Low Turbidity
		8-21-97		**0.027**	**0.08**	na	<0.01	<0.002	na	na	na	
MW-3	5-15	6-27-96	DOF	<0.004	**0.10**	<0.0001	<0.01	<0.002	<0.001	<0.005	<0.02	Low Turbidity
		8-21-97		<0.004	**0.09**	na	<0.01	<0.002	na	na	na	
MW-4	5-15	6-27-96	DOF	**0.021**	**0.16**	<0.0001	<0.01	<0.002	<0.001	<0.005	<0.02	Low Turbidity
MW-5	10-15	8-21-97	DOF	<0.004	**0.26**	na	<0.01	<0.002	na	na	na	Low Turbidity
MW-6	11-16	8-22-97	DOF	**0.007**	**0.16**	na	<0.01	<0.002	na	na	na	Low Turbidity
MW-7	10-15	8-22-97	DOF	<0.004	**0.10**	na	<0.01	<0.002	na	na	na	Low Turbidity

Ground-Water Cleanup Levels	0.036(c)	1.1(d)	0.008(c)	0.05(c)	0.0058(c)	0.0002(c,f)	0.071(c)	0.0012(e)

50 ug/l 5 ug/l 50 ug/l 5 ug/l

P-7

Notes To Table 4:

All concentrations in mg/l-ppm

< - less than indicated value

na - not analyzed

S&W - Shannon & Wilson, Inc. (1996b) - Fax dated 7-9-96

DOF - Dalton, Olmsted & Fuglevand, Inc.

S&W ground-water samples were analyzed by Transglobal Environmental Geosciences Northwest, Inc., Lacey, WA. using the following methods:

Ground-water samples were analyzed for dissolved metals by EPA Methods 200.7 (barium, chromium, selenium and silver); 200.8 (arsenic, cadmium, and lead); and 245.2 (mercury); and total metals by EPA Methods 6010 (barium, chromium, lead, selenium and silver); 200.8 (arsenic and cadmium); and 245.1 (mercury).

DOF ground-water samples were analyzed by North Creek Analytical, Inc., Bothell, WA using EPA 6010/7000 Series Methods

(a) Sample obtained from well point placed in open (undeveloped) probe hole.

(b) S&W samples were filtered in the laboratory using a 0.45 micron filter; DOF samples were field filtered using an in-line 0.45 micron filter by Gelman Sciences.

(c) - Wash. State Surface Water Standards (WAC 173-201A-040 - marine chronic criteria)

(d) - MTCA Method B - WAC 173-340-720 (Ecology 1994)

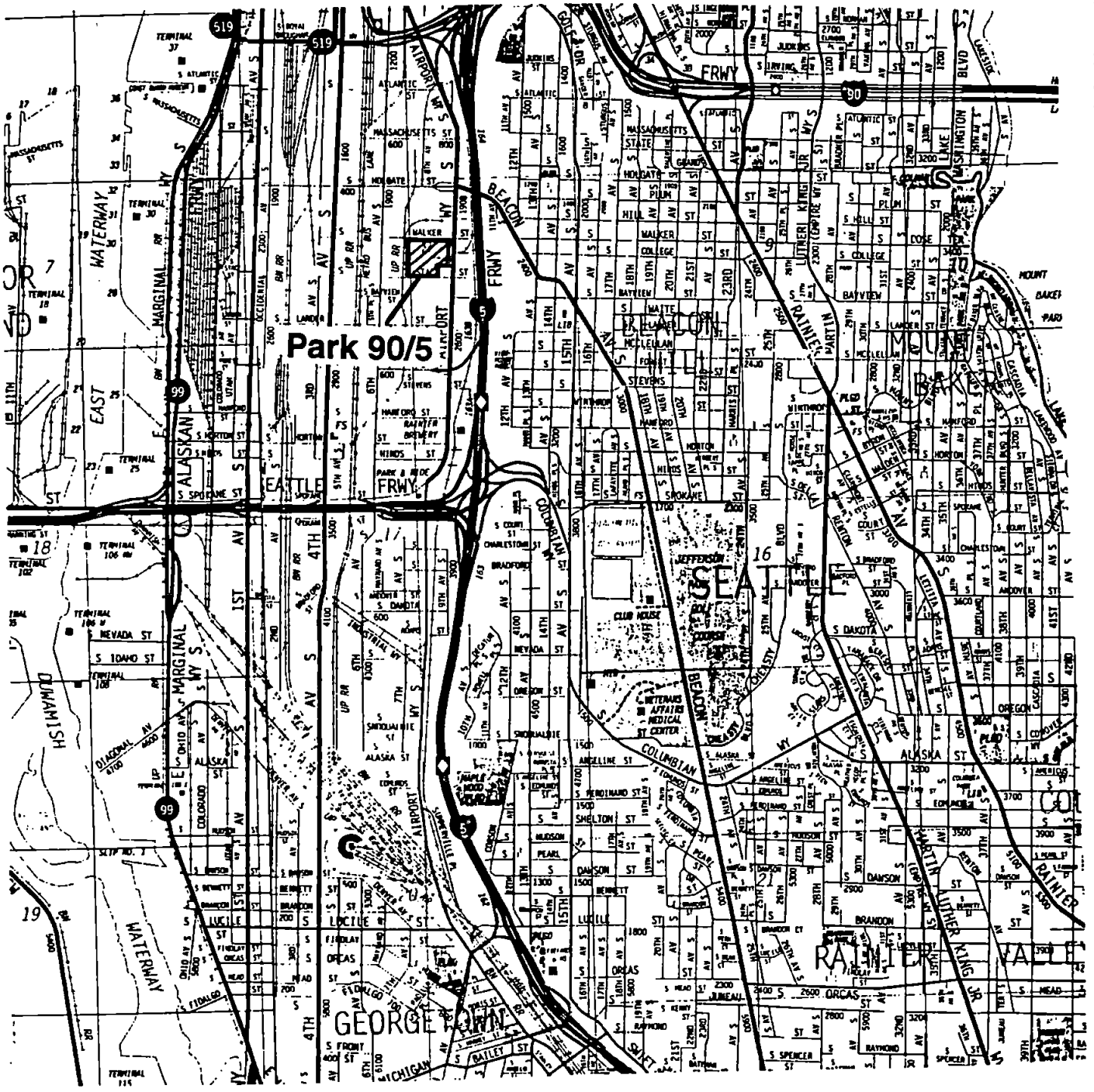
(e) - Wash. State Surface Water Standards (WAC 173-201A-040 - marine acute criteria - marine chronic criteria not available)

(f) - Cleanup level adjusted based on analytical considerations.

TABLE 5 - Summary of Slag, Cinders or Metal on Geologic Logs (1)

Location	Source	Slag-Like or Cinders	Metal Debris
B-1	EC	-----	-----
B-2	EC	-----	-----
B-3	EC	-----	-----
B-4	EC	-----	-----
B-5	EC	-----	-----
B-6	EC	slag (5-9 feet)	
B-7	EC	-----	-----
B-8	EC	-----	-----
TP-1	EC	-----	-----
TP-2	EC	-----	-----
TP-3	EC		angle iron;rebar
TP-4	EC	-----	-----
TP-5	EC	-----	-----
P-1	S&W	-----	-----
P-2	S&W	slag (2-3.5;6-13.5 feet)	-----
P-3	S&W	-----	-----
P-4	S&W	slag (11 feet)	metal (0.5-1.5 feet)
P-5	S&W	-----	metal (8-11 feet)
P-6	S&W	possible slag (10.2-11 feet)	-----
P-7	S&W	-----	-----
P-8	S&W	-----	-----
P-9	S&W	-----	-----
MW-1	DOF	slag (7.5-9 feet)	-----
MW-2	DOF	slag (12.5-14 feet)	-----
MW-3	DOF	-----	-----
MW-4	DOF	slag (5-6.5 feet)	-----
MW-5	DOF	-----	-----
MW-6	DOF	cinders (9.5 feet)	-----
MW-7	DOF	-----	-----

Notes: EC - Earth Consultants
S&W - Shannon & Wilson
DOF - Dalton, Olmsted & Fuglevand
----- - No slag-like fragments or cinders noted on logs
(1) - Logs are presented in Appendix D of the IRAP report, except for wells MW-5 to MW-7. The logs for these wells are presented in Figures 3 to 5 of this report.



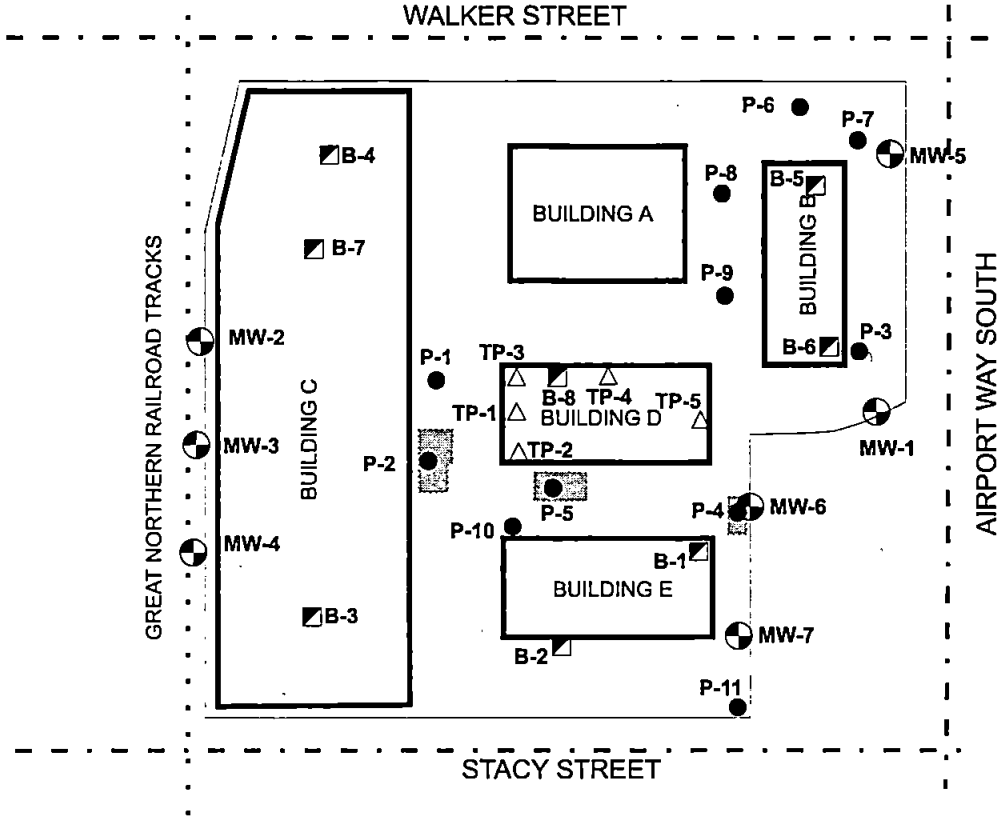
Map Source: Thomas Guide 1997

Park 90/5 Office Park
Seattle, Washington

SITE VICINITY MAP

SAB-004 **FIGURE 1** October 1996

Dalton, Olmsted & Fuglevand, Inc.



North

0 100 200 400

Approx. Scale in Feet

P-2 ● Stratoprobe Location (Completed by Shannon & Wilson, April and July 1996)

Remedial Excavation (Completed in June 1996)

MW-1 ⊕ Monitoring Well Location and Number (installed by Dalton, Olmsted & Fuglevand, June 1996 and August 1997)

B-1 ◩ Geotechnical Boring Location (By Earth Consultants; 1984 and 1985)

TP-1 △ Geotechnical Test Pit Location (By Earth Consultants;1987)

Park 90/5
Seattle, Washington

SITE PLAN SHOWING REMEDIAL EXCAVATIONS AND BORING, PROBE AND WELL LOCATIONS

SAB-004 **FIGURE 2** September 1997

Dalton, Olmsted & Fuglevand, Inc.

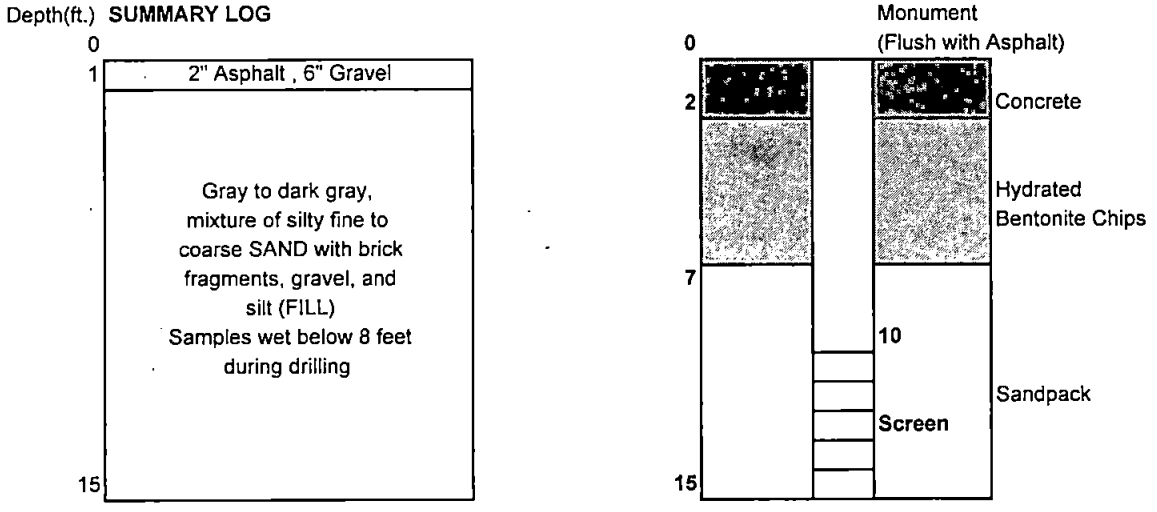
ref:welpln6.cdr

MONITORING WELL NO. MW-5 - DESCRIPTION OF SAMPLES, TESTS, AND INSTALLATION

Field Rep: T. Olmsted — Location:
Drilling Co.: Holt Drilling — Elevation (Ft.)
Driller: Mike Reynolds — Date Completed: 8/4/97
Drill Type: Mobile B59 — Weather: Clear and Warm
Size/Type Casing: 4" I.D. Hollow-Stem Auger

Spl.No.	Type	Drill Action	Spl Depth (Ft.) From - To	Blows/ 6 inches	Spl length inches	Time	Sample Description
2	SPT	Rough	2-3.5	24-22-11	3	0820	Gray, fine to coarse sandy SILT with gravel (looks like fill)
4.5	SPT	Rough zone @ 4' Smooth below	4.5-6	5-7-8	18	0825	Top 6" - Gray, clayey SILT Bot 12" - Dk gray, silty, fine to coarse SAND (looks like fill)
7	SPT	Smooth	7-8.5	3-2-3	12	0830	Gray, silty, fine SAND - wet on tip
9.5	SPT	Smooth	9.5+10	50/4.5"	3	0850	Piece brick
Auger met refusal at 11 feet - moved 3 feet west and redrilled to 12 feet (initial attempt backfilled with hydrated bentonite chips							
12	SPT	Rough Zones to 5' Smooth below	12-13.5	4-3-3	12	0930	Dark gray, silty, fine to coarse SAND - looks like fill

MONITORING WELL DIAGRAM



NOTES:
1. No sheens observed during drilling or sampling.
2. The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

MONITORING WELL INFORMATION (FT.)

Riser Length: 10'	Seal: Bentonite/Concrete
Sandpack: 10-20 Colorado Sand	(top/bot) 0/8
(top/bot) 8/16	Monument: Steel - Flush with asphalt
Screen: PVC/0.010"	
length 5'	
(top/bot) 11/16	

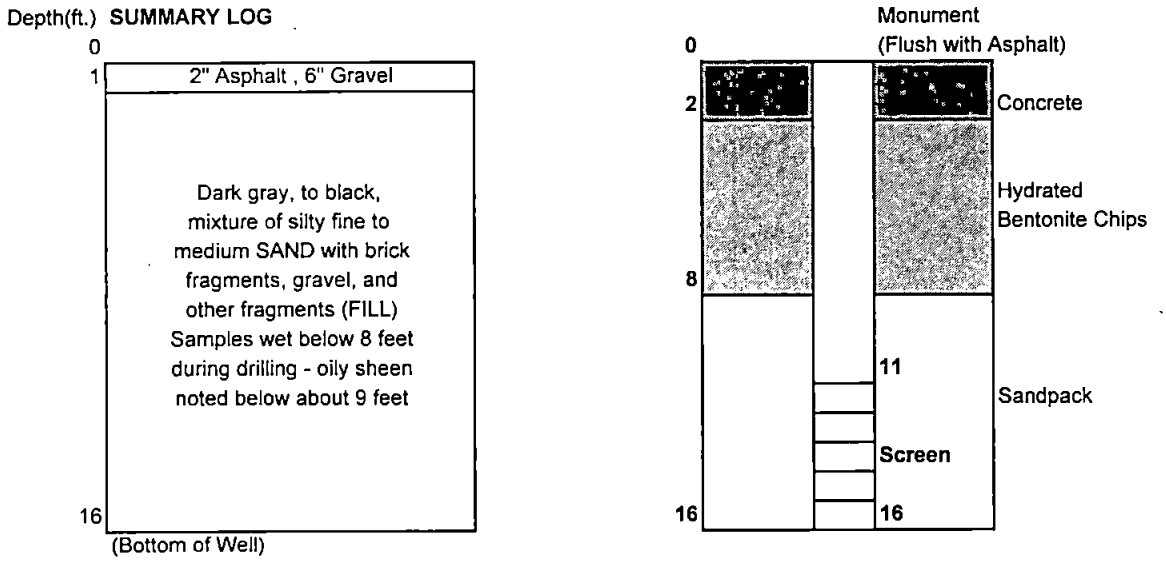
Figure 3 - Log of Well MW-5

MONITORING WELL NO. MW-6 - DESCRIPTION OF SAMPLES, TESTS, AND INSTALLATION

Field Rep: T. Olmsted — Location:
Drilling Co.: Holt Drilling — Elevation (Ft.)
Driller: Mike Reynolds — Date Completed: 8/4/97
Drill Type: Mobile B59 — Weather: Clear and Warm
Size/Type Casing: 4" I.D. Hollow-Stem Auger

Spl.No.	Type	Drill Action	Spl Depth (Ft.) From - To	Blows/ 6 inches	Spl length inches	Time	Sample Description
2	SPT	Rough	2-3.5	7-13-16	10	1045	Dark gray, silty, SAND with wood at base of sample
4.5	SPT	Wood cuttings 3-4.5' Rough	4.5-6	15-9-4	3	1100	Brick fragments and silty, fine to medium SAND (Fill)
7	SPT	Rough Zones	7-8.5	8-7-15	6	1110	Gravelly, fine to medium SAND (looks like fill)
9.5	SPT	Rough Zones	9.5-11	10-10-12	10	1115	Black, fine to coarse SAND (looks like cinders) - Wet - oily sheen, but no odor noticeable
12	SPT	Rough Zones	12-13	5-50	10	1130	Dark gray to black, silty, fine to coarse SAND with brick fragments - oily sheen - no odor

MONITORING WELL DIAGRAM



MONITORING WELL INFORMATION (FT.)

Riser Length: 10.5'	Seal: Bentonite/Concrete
Sandpack: 10-20 Colorado Sand (top/bot) 8/16	(top/bot) 0/8
Screen: PVC/0.010" length 5' (top/bot) 11/16	Monument: Steel - Flush with asphalt

Figure 4 - Log of Well MW-6

Dalton, Olmsted & Fuglevand, Inc.
Environmental Consultants

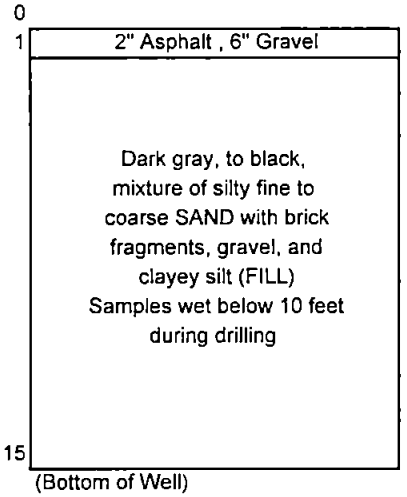
MONITORING WELL NO. MW-7 - DESCRIPTION OF SAMPLES, TESTS, AND INSTALLATION

Field Rep: T. Olmsted	Location:
Drilling Co.: Holt Drilling	Elevation (Ft.)
Driller: Mike Reynolds	Date Completed: 8/4/97
Drill Type: Mobile B59	Weather: Clear and Warm
Size/Type Casing: 4" I.D. Hollow-Stem Auger	

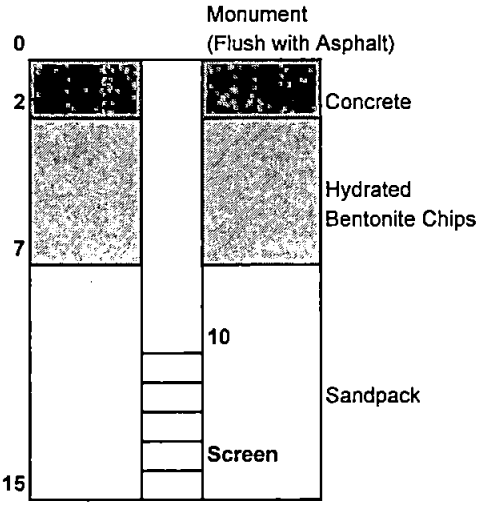
Spl.No.	Type	Drill Action	Spl Depth (Ft.) From - To	Blows/ 6 inches	Spl length inches	Time	Sample Description
2	SPT	Smooth	2-3	15-50	12	1245	Top 6" Dk gray, silty, fine to coarse SAND (fill) Bot 6" Gray, silty, fine to coarse sandy GRAVEL
4.5	SPT	Rough Zones	4.5-6	7-8-15	12	1255	Mixture of wood, brick and dark brown, silty, fine to coarse sand with gravel (fill)
7	SPT	Rough Zones	7-8.5	15-5-6	12	1300	Top 8" - Same as sample above Bot 4" - Gray-brown, silty, fine SAND
9.5	SPT	Rough Zones	9.5-11	2-3-2	12	1310	Top 6" Gray, clayey SILT - mid 5" Gray, silty, fine SAND Bot 1" Dark gray sand with brick fragments - wet
12	SPT	Rough Zones	12-13	3-5-4	16	1315	Dark gray, and green-gray, silty, fine to coarse SAND with wood chips & white fragments (fill)

MONITORING WELL DIAGRAM

Depth(ft.) **SUMMARY LOG**



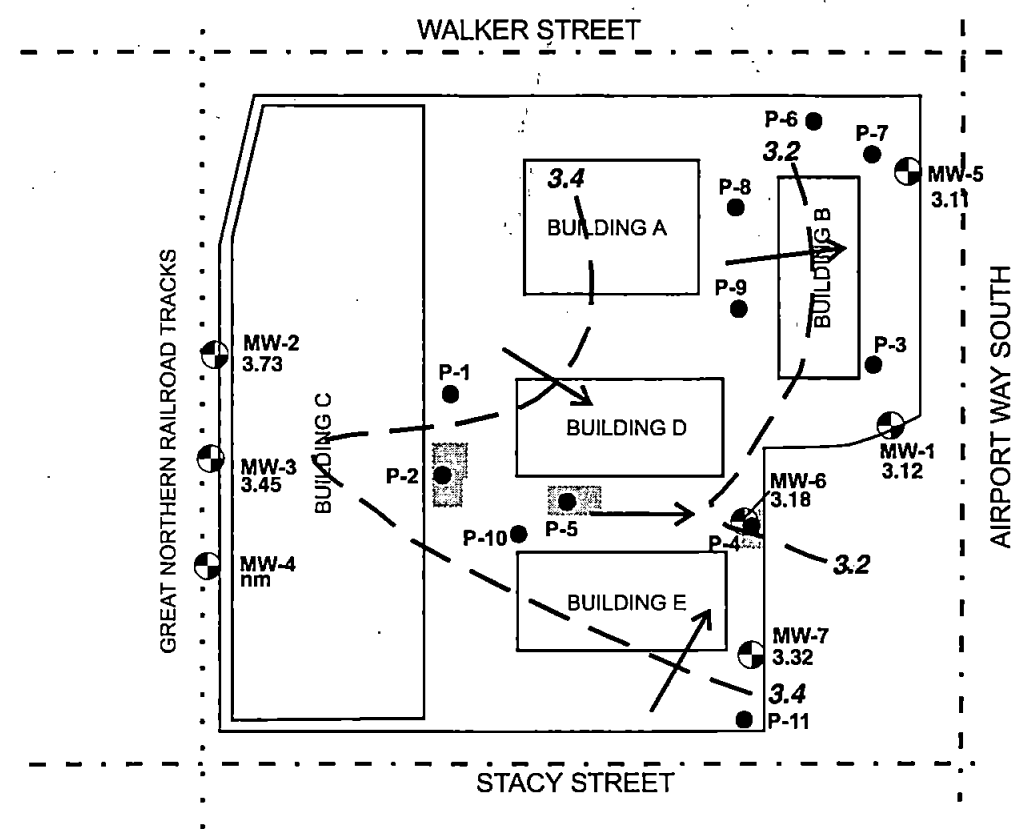
NOTES:
1. No sheens observed during drilling or sampling.
2. The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

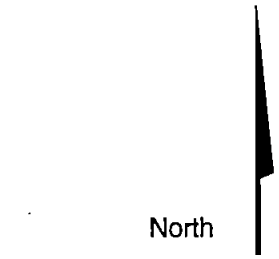


MONITORING WELL INFORMATION (FT.)

Riser Length: 10'	Seal: Bentonite/Concrete
Sandpack: 10-20 Colorado Sand	(top/bot) 0/8
(top/bot) 8/16	Monument: Steel - Flush with asphalt
Screen: PVC/0.010"	
length 5'	
(top/bot) 11/16	

Figure 5 - Log of Well MW-7





P-2 ● Stratoprobe Location (Completed by Shannon & Wilson, April and June/July 1996)

Remedial Excavation (Completed in June 1996)

MW-1 Monitoring Well Location and Number (installed by Dalton, Olmsted & Fuglevand, June 1996 & August 1997)

3.32 Ground-Water Elevation August 21-22, 1997

Estimated Ground-Water Flow Direction

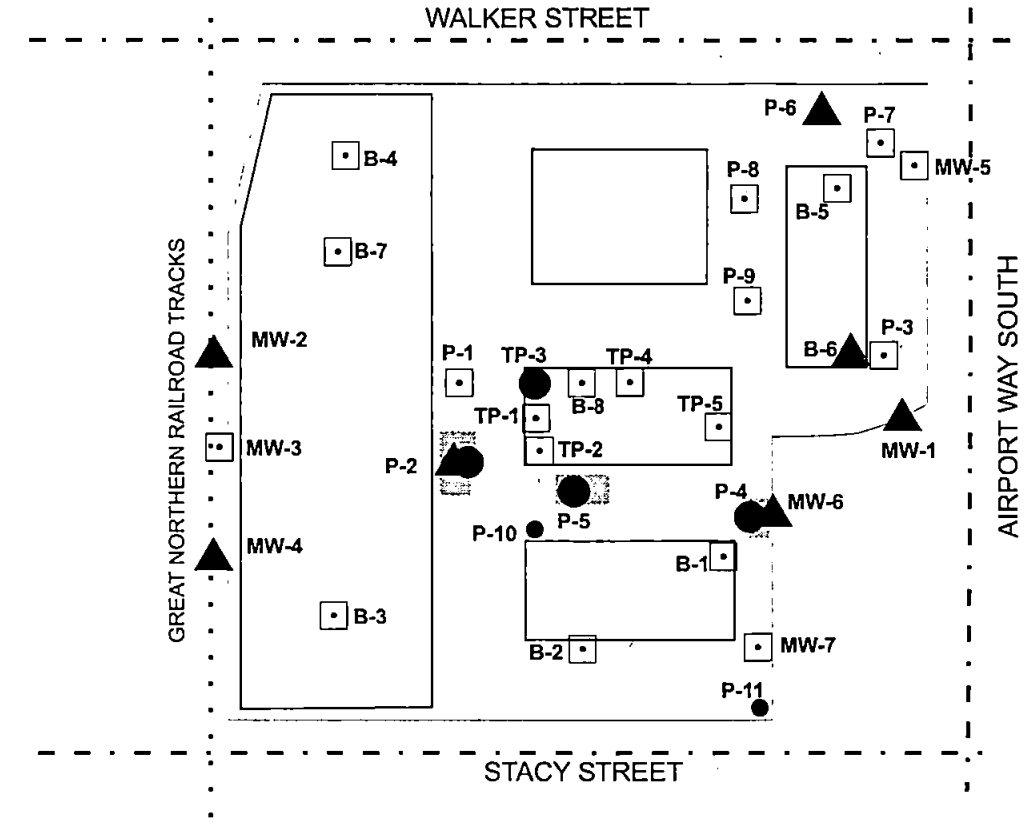
3.4 Estimated Ground-Water Contour

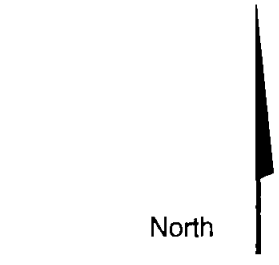
Park 90/5
Seattle, Washington

ESTIMATED GROUND-WATER FLOW DIRECTION - AUGUST 1997

SAB-004 **FIGURE 6** September 1997
Dalton, Olmsted & Fuglevand, Inc.

ref:gwflow2.cdr





0 100 200 400

Approx. Scale in Feet

P-2 Stratoprobe Location (Completed by Shannon & Wilson, April and July 1996)

Remedial Excavation (Completed in June 1996)

Location where slag or cinders noted on log

Location where metal debris noted on log

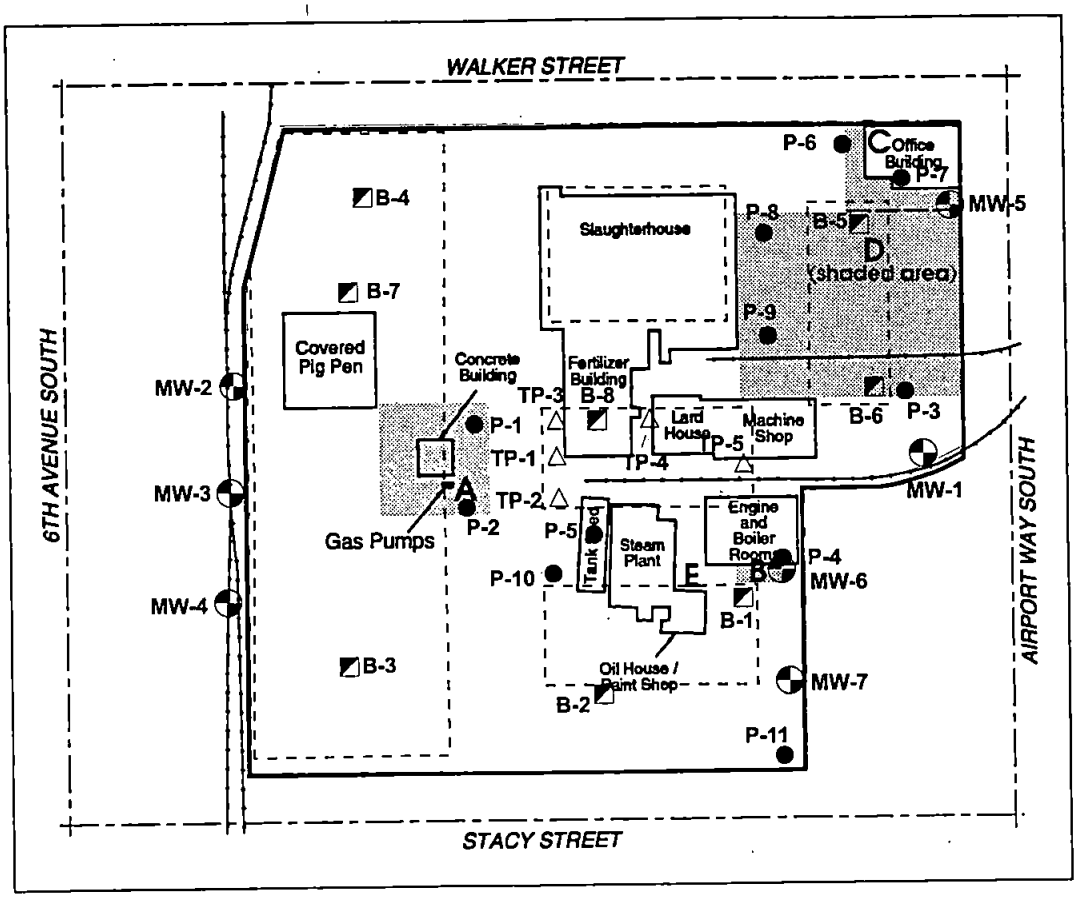
Location where slag, cinders, or metal debris not noted on log

Park 90/5
Seattle, Washington

LOCATION OF SLAG, CINDERS OR METAL DEBRIS

SAB-004 **FIGURE 7** October 1997
Dalton, Olmsted & Fuglevand, Inc.

ref:welpln5.cdr



Suspected Former UST Locations

A - 20,000 gallon
B - unknown size
C - 6,000 gallon
D - 4,000 gallon
E - 300 gallon

Park 90/5 Office Park
Seattle, Washington

HISTORICAL SITE PLAN and Former UST Locations

SAB-004 **FIGURE 8** October 1997
Dalton, Olmsted & Fuglevand, Inc.

ref: oldsite1.cdr Source Map: Shannon & Wilson (Figure 2 - 1996)

ATTACHMENT A
LABORATORY DATA SHEETS

Dalton, Olmsted & Fuglevand, Inc
Environmental Consultants

Contract Laboratory:

CHAIN OF CUSTODY REPORT

B708418

CLIENT: Dalton, Olmsted & Fuglevand
ADDRESS:
11711 Northcreek Parkway S., Suite 101
Bothell, Washington 98011
PHONE: (206) 486-7905 FAX: (206) 486-7651
PROJECT NAME: Park 90/5
PROJECT NUMBER: SAB-004
SAMPLED BY: T. Olmsted

REPORT TO: Matt Dalton
DOF
BILLING TO: DOF
P.O. NUMBER:
QUOTE #: 200 SDG-2

SAME DAY RUSH	(+150%)	
1 BUSINESS DAY RUSH	(+100%)	
2 BUSINESS DAY RUSH	(+80%)	
3 BUSINESS DAY RUSH	(+60%)	
5 BUSINESS DAY RUSH	(+40%)	
10 BUS. DAY STANDARD	(LIST)	X
5 BUS. DAY HYDROCARBON	(LIST)	X

SAMPLE IDENTIFICATION: (NUMBER OR DESCRIPTION)	SAMPLING DATE / TIME	MATRIX (W,S,O)	# OF CONT.	Analysis Request: WTPH-DX w/SG Cleanup	TOTAL As, Ba, Cr, Pb	Dissol. As, Ba, Cr, Pb	COMMENTS & PRESERVATIVES USED	LABORATORY SAMPLE NUMBER
1. MW-1	8/21/97 1530	W	3	X	X	X		B708418-01
2. MW-2	" 1130		3	X	X	X		-02
3. MW-3	" 1300		3	X	X	X		-03
4. MW-5	" 1430		3	X	X	X		-04
5. MW-6	8/22/97 1100		3	X	X	X		-05
6. MW-7	" 1015		3	X	X	X		-06
7.								
8.								
9.								
10.								

RELINQUISHED BY: [signature] DATE: 8/22/97
FIRM: Dalton, Olmsted & Fuglevand, Inc. TIME: 1330
RECEIVED BY: Dana [signature] DATE: 8/22/97
FIRM: D. HEINZ TIME: 1330

RELINQUISHED BY: DATE:
FIRM: TIME:
RECEIVED BY: DATE:
FIRM: TIME:

SAMPLE RECEIPT INFORMATION: CONTAINER CONDITION?: GOOD VIOLATED COOL (4° C)? YES NO
CUSTODY SEALS? GOOD VIOLATED NOT USED HAZARDOUS SAMPLES?: NO YES; DESCRIBE ON BACK

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Dalton, Olmsted and Fuglevand	Project:	Park 95	Sampled:	8/21/97 to 8/22/97
11711 Northcreek Pkwy S, Ste # D101	Project Number:	SAB-004	Received:	8/22/97
Bothell, WA 98011	Project Manager:	Matthew Dalton	Reported:	9/18/97 12:48

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
MW-1	B708418-01	Water	8/21/97
MW-2	B708418-02	Water	8/21/97
MW-3	B708418-03	Water	8/21/97
MW-5	B708418-04	Water	8/21/97
MW-6	B708418-05	Water	8/22/97
MW-7	B708418-06	Water	8/22/97

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Dalton, Olmsted and Fuglevand	Project:	Park 95	Sampled: 8/21/97 to 8/22/97
11711 Northcreek Pkwy S, Ste # D101	Project Number:	SAB-004	Received: 8/22/97
Bothell, WA 98011	Project Manager:	Matthew Dalton	Reported: 9/18/97 12:48

Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) by WTPH-D (extended) with Silica Gel Clean-up
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
MW-1			**B708418-01**				**Water**	
Diesel Range Hydrocarbons	0870697	8/25/97	8/27/97		0.250	ND	mg/l	
Heavy Oil Range Hydrocarbons	"	"	"		0.750	ND	"	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*86.4*	%	
MW-2			**B708418-02**				**Water**	
Diesel Range Hydrocarbons	0870697	8/25/97	8/27/97		0.250	ND	mg/l	
Heavy Oil Range Hydrocarbons	"	"	"		0.750	ND	"	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*91.5*	%	
MW-3			**B708418-03**				**Water**	
Diesel Range Hydrocarbons	0870697	8/25/97	8/27/97		0.250	ND	mg/l	
Heavy Oil Range Hydrocarbons	"	"	"		0.750	ND	"	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*94.3*	%	
MW-5			**B708418-04**				**Water**	
Diesel Range Hydrocarbons	0870697	8/25/97	8/27/97		0.250	**0.316**	mg/l	
Heavy Oil Range Hydrocarbons	"	"	"		0.750	ND	"	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*97.0*	%	
MW-6			**B708418-05**				**Water**	
Diesel Range Hydrocarbons	0870697	8/25/97	8/27/97		0.250	**0.556**	mg/l	
Heavy Oil Range Hydrocarbons	"	"	"		0.750	ND	"	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*92.1*	%	
MW-7			**B708418-06**				**Water**	
Diesel Range Hydrocarbons	0870697	8/25/97	8/27/97		0.250	ND	mg/l	
Heavy Oil Range Hydrocarbons	"	"	"		0.750	ND	"	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*87.6*	%	

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PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Dalton, Olmsted and Fuglevand	Project:	Park 95	Sampled: 8/21/97 to 8/22/97
11711 Northcreek Pkwy S, Ste # D101	Project Number:	SAB-004	Received: 8/22/97
Bothell, WA 98011	Project Manager:	Matthew Dalton	Reported: 9/18/97 12:48

Total Metals by EPA 200 Series Methods
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
MW-1			**B708418-01**				**Water**	
Barium	0970128	9/4/97	9/9/97	EPA 200.7	0.0100	**0.126**	mg/l	
Chromium	"	"	"	EPA 200.7	0.0100	ND	"	
Arsenic	0970462	9/17/97	9/17/97	EPA 206.2	0.00400	ND	"	
Lead	0970112	9/4/97	9/5/97	EPA 239.2	0.00200	ND	"	
MW-2			**B708418-02**				**Water**	
Barium	0970128	9/4/97	9/9/97	EPA 200.7	0.0100	**0.0945**	mg/l	
Chromium	"	"	"	EPA 200.7	0.0100	ND	"	
Arsenic	0970462	9/17/97	9/17/97	EPA 206.2	0.00400	**0.0289**	"	
Lead	0970112	9/4/97	9/5/97	EPA 239.2	0.00200	**0.00577**	"	
MW-3			**B708418-03**				**Water**	
Barium	0970128	9/4/97	9/9/97	EPA 200.7	0.0100	**0.0712**	mg/l	
Chromium	"	"	"	EPA 200.7	0.0100	**0.0105**	"	
Arsenic	0970462	9/17/97	9/17/97	EPA 206.2	0.00400	ND	"	
Lead	0970112	9/4/97	9/5/97	EPA 239.2	0.00200	ND	"	
MW-5			**B708418-04**				**Water**	
Barium	0970128	9/4/97	9/9/97	EPA 200.7	0.0100	**0.221**	mg/l	
Chromium	"	"	"	EPA 200.7	0.0100	ND	"	
Arsenic	0970462	9/17/97	9/17/97	EPA 206.2	0.00400	ND	"	
Lead	0970112	9/4/97	9/5/97	EPA 239.2	0.00200	ND	"	
MW-6			**B708418-05**				**Water**	
Barium	0970128	9/4/97	9/9/97	EPA 200.7	0.0100	**0.148**	mg/l	
Chromium	"	"	"	EPA 200.7	0.0100	ND	"	
Arsenic	0970462	9/17/97	9/17/97	EPA 206.2	0.00400	**0.00840**	"	
Lead	0970112	9/4/97	9/5/97	EPA 239.2	0.00200	**0.00631**	"	
MW-7			**B708418-06**				**Water**	
Barium	0970128	9/4/97	9/9/97	EPA 200.7	0.0100	**0.0892**	mg/l	
Chromium	"	"	"	EPA 200.7	0.0100	ND	"	
Arsenic	0970462	9/17/97	9/17/97	EPA 206.2	0.00400	ND	"	
Lead	0970112	9/4/97	9/5/97	EPA 239.2	0.00200	ND	"	

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SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Dalton, Olmsted and Fuglevand	Project:	Park 95	Sampled: 8/21/97 to 8/22/97
11711 Northcreek Pkwy S, Ste # D101	Project Number:	SAB-004	Received: 8/22/97
Bothell, WA 98011	Project Manager:	Matthew Dalton	Reported: 9/18/97 12:48

Dissolved Metals by EPA 200 Series Methods
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
MW-1			**B708418-01**				**Water**	
Barium	0970213	9/8/97	9/9/97	EPA 200.7	0.0100	**0.146**	mg/l	
Chromium	"	"	"	EPA 200.7	0.0100	ND	"	
Arsenic	0970460	9/17/97	9/17/97	EPA 206.2	0.00400	ND	"	
Lead	0970219	9/8/97	9/8/97	EPA 239.2	0.00200	ND	"	
MW-2			**B708418-02**				**Water**	
Barium	0970213	9/8/97	9/9/97	EPA 200.7	0.0100	**0.0762**	mg/l	
Chromium	"	"	"	EPA 200.7	0.0100	ND	"	
Arsenic	0970460	9/17/97	9/17/97	EPA 206.2	0.00400	**0.0272**	"	
Lead	0970219	9/8/97	9/8/97	EPA 239.2	0.00200	ND	"	
MW-3			**B708418-03**				**Water**	
Barium	0970213	9/8/97	9/9/97	EPA 200.7	0.0100	**0.0862**	mg/l	
Chromium	"	"	"	EPA 200.7	0.0100	ND	"	
Arsenic	0970460	9/17/97	9/17/97	EPA 206.2	0.00400	ND	"	
Lead	0970219	9/8/97	9/8/97	EPA 239.2	0.00200	ND	"	
MW-5			**B708418-04**				**Water**	
Barium	0970213	9/8/97	9/9/97	EPA 200.7	0.0100	**0.257**	mg/l	
Chromium	"	"	"	EPA 200.7	0.0100	ND	"	
Arsenic	0970460	9/17/97	9/17/97	EPA 206.2	0.00400	ND	"	
Lead	0970219	9/8/97	9/8/97	EPA 239.2	0.00200	ND	"	
MW-6			**B708418-05**				**Water**	
Barium	0970213	9/8/97	9/9/97	EPA 200.7	0.0100	**0.158**	mg/l	
Chromium	"	"	"	EPA 200.7	0.0100	ND	"	
Arsenic	0970460	9/17/97	9/17/97	EPA 206.2	0.00400	**0.00730**	"	
Lead	0970219	9/8/97	9/8/97	EPA 239.2	0.00200	ND	"	
MW-7			**B708418-06**				**Water**	
Barium	0970213	9/8/97	9/9/97	EPA 200.7	0.0100	**0.0997**	mg/l	
Chromium	"	"	"	EPA 200.7	0.0100	ND	"	
Arsenic	0970460	9/17/97	9/17/97	EPA 206.2	0.00400	ND	"	
Lead	0970219	9/8/97	9/8/97	EPA 239.2	0.00200	ND	"	

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Dalton, Olmsted and Fuglevand	Project:	Park 95	Sampled: 8/21/97 to 8/22/97
11711 Northcreek Pkwy S, Ste # D101	Project Number:	SAB-004	Received: 8/22/97
Bothell, WA 98011	Project Manager:	Matthew Dalton	Reported: 9/18/97 12:48

Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) by WTPH-D (extended) with Silica Gel Clean-up/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0870697	**Date Prepared: 8/25/97**					**Extraction Method: EPA 3520/600 Series**				
Blank	**0870697-BLK1**									
Diesel Range Hydrocarbons	8/27/97			**ND**	mg/l	**0.250**				
Heavy Oil Range Hydrocarbons	"			**ND**	"	**0.750**				
Surrogate: 2-FBP	"	*0.351*		*0.324*	"	*50.0-150*	*92.3*			
LCS	**0870697-BS1**									
Diesel Range Hydrocarbons	8/27/97	2.00		1.92	mg/l	39.0-121	96.0			
Surrogate: 2-FBP	"	*0.351*		*0.346*	"	*50.0-150*	*98.6*			
Duplicate	**0870697-DUP1**		**B708418-04**							
Diesel Range Hydrocarbons	8/27/97		0.316	0.295	mg/l			44.0	**6.87**	1
Surrogate: 2-FBP	"	*0.662*		*0.659*	"	*50.0-150*	*99.5*			
Duplicate	**0870697-DUP2**		**B708424-01**							
Diesel Range Hydrocarbons	8/27/97		0.387	0.258	mg/l			44.0	**40.0**	1
Surrogate: 2-FBP	"	*0.662*		*0.570*	"	*50.0-150*	*86.1*			

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Dalton, Olmsted and Fuglevand	Project:	Park 95	Sampled: 8/21/97 to 8/22/97
11711 Northcreek Pkwy S, Ste # D101	Project Number:	SAB-004	Received: 8/22/97
Bothell, WA 98011	Project Manager:	Matthew Dalton	Reported: 9/18/97 12:48

Total Metals by EPA 200 Series Methods/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0970112	**Date Prepared: 9/4/97**					**Extraction Method: EPA 3020**				
Blank	**0970112-BLK1**									
Lead	9/5/97			**ND**	mg/l	**0.00200**				
LCS	**0970112-BS1**									
Lead	9/5/97	0.0260		0.0286	mg/l	75.0-125	110			
Duplicate	**0970112-DUP1**		**B708388-04**							
Lead	9/5/97		0.0154	0.0158	mg/l			20.0	**2.56**	
Matrix Spike	**0970112-MS1**		**B708388-04**							
Lead	9/5/97	0.0260	0.0154	0.0430	mg/l	70.0-130	**106**			
Matrix Spike Dup	**0970112-MSD1**		**B708388-04**							
Lead	9/5/97	0.0260	0.0154	0.0433	mg/l	70.0-130	**107**	20.0	**0.939**	
Batch: 0970128	**Date Prepared: 9/4/97**					**Extraction Method: EPA 3010**				
Blank	**0970128-BLK1**									
Barium	9/9/97			**0.0203**	mg/l	**0.0100**				
Chromium	"			**0.0104**	"	**0.0100**				
LCS	**0970128-BS1**									
Barium	9/9/97	1.00		0.926	mg/l	80.0-120	92.6			
Chromium	"	1.00		0.943	"	80.0-120	94.3			
Duplicate	**0970128-DUP1**		**B708418-01**							
Barium	9/9/97		0.126	0.129	mg/l			20.0	**2.35**	
Chromium	"		ND	ND	"			20.0		
Matrix Spike	**0970128-MS1**		**B708418-01**							
Barium	9/9/97	1.00	0.126	0.982	mg/l	80.0-120	**85.6**			
Chromium	"	1.00	ND	0.937	"	80.0-120	**93.7**			
Matrix Spike	**0970128-MS2**		**B708418-01**							
Barium	9/9/97	4.00	0.126	3.97	mg/l	80.0-120	**96.1**			
Chromium	"	4.00	ND	4.01	"	80.0-120	**100**			
Matrix Spike Dup	**0970128-MSD1**		**B708418-01**							
Barium	9/9/97	1.00	0.126	0.994	mg/l	80.0-120	**86.8**	20.0	**1.39**	

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**Refer to end of report for text of notes and definitions.*

Matthew Essig, Project Manager

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Dalton, Olmsted and Fuglevand	Project:	Park 95	Sampled: 8/21/97 to 8/22/97
11711 Northcreek Pkwy S, Ste # D101	Project Number:	SAB-004	Received: 8/22/97
Bothell, WA 98011	Project Manager:	Matthew Dalton	Reported: 9/18/97 12:48

Total Metals by EPA 200 Series Methods/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike Dup (continued)	**0970128-MSD1**		**B708418-01**							
Chromium	9/9/97	1.00	ND	0.909	mg/l	80.0-120	**90.9**	20.0	**3.03**	
Batch: 0970462	**Date Prepared: 9/17/97**					**Extraction Method: EPA 3020**				
Blank	**0970462-BLK1**									
Arsenic	9/17/97			**ND**	mg/l	**0.00400**				
LCS	**0970462-BS1**									
Arsenic	9/17/97	0.0500		0.0466	mg/l	75.0-125	93.2			
Duplicate	**0970462-DUP1**		**B708418-01**							
Arsenic	9/17/97		ND	ND	mg/l			20.0		
Matrix Spike	**0970462-MS1**		**B708418-01**							
Arsenic	9/17/97	0.0500	ND	0.0483	mg/l	70.0-130	**96.6**			
Matrix Spike Dup	**0970462-MSD1**		**B708418-01**							
Arsenic	9/17/97	0.0500	ND	0.0499	mg/l	70.0-130	**99.8**	20.0	**3.26**	

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Dalton, Olmsted and Fuglevand	Project:	Park 95	Sampled: 8/21/97 to 8/22/97
11711 Northcreek Pkwy S, Ste # D101	Project Number:	SAB-004	Received: 8/22/97
Bothell, WA 98011	Project Manager:	Matthew Dalton	Reported: 9/18/97 12:48

Dissolved Metals by EPA 200 Series Methods/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0970213	**Date Prepared: 9/8/97**					**Extraction Method: EPA 3010**				
Blank	**0970213-BLK1**									
Barium	9/9/97			**ND**	mg/l	**0.0100**				
Chromium	"			**ND**	"	**0.0100**				
LCS	**0970213-BS1**									
Barium	9/9/97	1.00		1.01	mg/l	80.0-120	101			
Chromium	"	1.00		1.02	"	80.0-120	102			
Duplicate	**0970213-DUP1**		**B708418-01**							
Barium	9/9/97		0.146	0.146	mg/l			20.0	**0**	
Chromium	"		ND	ND	"			20.0		
Matrix Spike	**0970213-MS1**		**B708418-01**							
Barium	9/9/97	1.00	0.146	1.16	mg/l	80.0-120	**101**			
Chromium	"	1.00	ND	1.06	"	80.0-120	**106**			
Matrix Spike Dup	**0970213-MSD1**		**B708418-01**							
Barium	9/9/97	1.00	0.146	1.15	mg/l	80.0-120	**100**	20.0	**0.995**	
Chromium	"	1.00	ND	1.06	"	80.0-120	**106**	20.0	**0**	
Batch: 0970219	**Date Prepared: 9/8/97**					**Extraction Method: EPA 3020**				
Blank	**0970219-BLK1**									
Lead	9/8/97			**ND**	mg/l	**0.00200**				
LCS	**0970219-BS1**									
Lead	9/8/97	0.0260		0.0268	mg/l	75.0-125	103			
Duplicate	**0970219-DUP1**		**B708418-01**							
Lead	9/8/97		ND	ND	mg/l			20.0		
Matrix Spike	**0970219-MS1**		**B708418-01**							
Lead	9/8/97	0.0260	ND	0.0257	mg/l	70.0-130	**98.8**			
Matrix Spike Dup	**0970219-MSD1**		**B708418-01**							
Lead	9/8/97	0.0260	ND	0.0256	mg/l	70.0-130	**98.5**	20.0	**0.304**	

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Dalton, Olmsted and Fuglevand	Project:	Park 95	Sampled: 8/21/97 to 8/22/97
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Bothell, WA 98011	Project Manager:	Matthew Dalton	Reported: 9/18/97 12:48

Dissolved Metals by EPA 200 Series Methods/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0970460	**Date Prepared: 9/17/97**					**Extraction Method: EPA 3020**				
Blank	**0970460-BLK1**									
Arsenic	9/17/97			**ND**	mg/l	**0.00400**				
LCS	**0970460-BS1**									
Arsenic	9/17/97	0.0500		0.0495	mg/l	75.0-125	99.0			
Duplicate	**0970460-DUP1**		**B708418-01**							
Arsenic	9/17/97		ND	ND	mg/l			20.0		
Matrix Spike	**0970460-MS1**		**B708418-01**							
Arsenic	9/17/97	0.0500	ND	0.0484	mg/l	70.0-130	**96.8**			
Matrix Spike Dup	**0970460-MSD1**		**B708418-01**							
Arsenic	9/17/97	0.0500	ND	0.0475	mg/l	70.0-130	**95.0**	20.0	**1.88**	

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Dalton, Olmsted and Fuglevand	Project:	Park 95	Sampled:	8/21/97 to 8/22/97
11711 Northcreek Pkwy S, Ste # D101	Project Number:	SAB-004	Received:	8/22/97
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Notes and Definitions

#	Note
1	Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical, Inc.

Matthew Essig, Project Manager

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