SITE CHARACTERIZATION REPORT
FORMER COIN-OPERATED DRY CLEANING SITE
LAKE FOREST PARK TOWN CENTER
SEATTLE, WASHINGTON

For

SEATTLE LFP ASSOCIATES, L.P.
D&M JOB NO.: 28171-299-005
January 11, 1996

DAMES & MOORE

DAMES & MOORE
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Privileged and Confidential

January 11, 1996

Mr. Mark Knapp
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Los Angles, CA 90067

Site Characterization Report
Former Coin-Operated Dry Cleaning Site
Lake Forest Park Town Center
Seattle, Washington
D&M Job No.: 28171-299-005

Dear Mr. Knapp:

This report presents the results of Dames & Moore's site characterization of the former coin-operated dry cleaning site at Lake Forest Park Town Center, located at the intersection of Bothell Way N.E. and Ballinger Way in Seattle, Washington. Dames & Moore's services were provided in general accordance with our proposals dated October 17 and November 16, 1995.

Dames & Moore appreciates the opportunity to assist Seattle LFP Associates, L.P. on this project. We trust this report meets your requirements. Please contact us if you have any questions or require additional information.

Very truly yours,

DAMES & MOORE, INC.

Richard R. Langendoen
Senior Geologist

David Raubvogel
Senior Geologist

Copy: Rebecca Coles

Enclosure

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28171-299-005

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FORMER COIN-OPERATED DRY CLEANING SITE
(MAGIC CLEANERS)
LAKE FOREST PARK TOWN CENTER
BOTHELL WAY N.E.
SEATTLE, WASHINGTON

1.0 INTRODUCTION

Presented in this report are the results of Dames & Moore's site characterization at the former coin-operated dry cleaning site at Lake Forest Park Town Center, located along Bothell Way N.E., in Seattle, Washington (Figure 1). The dry cleaning facility was operated by Magic Cleaners. This facility was located where the Payless store is located today. Dames & Moore prepared this report on behalf of Seattle LFP Associates, L.P. The investigation was performed in general accordance with our proposals dated October 17 and November 16, 1995..

This report includes background information regarding the former coin-operated dry cleaner, a summary of field procedures and analytical methods, a description of the field program and analytical results, and an evaluation of the findings regarding the subsurface soil and groundwater quality at the subject property.

2.0 BACKGROUND

2.1 PHYSICAL SETTING

The subject property is located at the intersection of Bothell Way NE and Ballinger Way NE in Lake Forest Park, King County, Washington (Figure 1). The site consists of an 18.2 acre property occupied by a shopping center comprised of a main mall building and four detached buildings. The main building is leased to numerous tenants including Albertsons and Payless. The four detached buildings include a professional building, two restaurants, and a bank (Figure 2).

Lyons Creek flows in an open channel along the western property boundary and traverses the southwestern corner of the subject property through a culvert and emerges again to flow along the southern property boundary (Figure 2). Lyons Creek was rerouted during site development and formerly traversed the site in a northwest to southeast direction in the areas now occupied by the central portion of the main mall building. The subject property lies at an approximate elevation of 30 feet above mean sea level (msl). The ground surface gently slopes to the southeast towards Lake Washington which lies approximately 0.25 mile east of the site.

The site is underlain by undifferentiated stratified drift designated as Vashon Drift (Liesch, 1963). The drift in the site area consists of recessional outwash deposit sand and gravels. The surrounding hills to the north and south consist of dense glacial till (Vashon Till). The surficial soils in the site vicinity also likely consist of recent alluvial material deposited by Lyons Creek. In addition, during site development, some fill material may have been imported to the site.

2.2 PREVIOUS SITE REMEDIATION AT FORMER COIN-OPERATED DRY CLEANER

A release of solvent associated with a former coin-operated dry cleaning machine resulted in a cleanup operation initiated in 1989. The following information on the initial release and response was provided in a report titled "Report of Findings at Lake Forest Park Town Center, Remedial Investigation," dated October 23, 1989, which was produced for Birtcher Construction Seattle by Ecova Corporation.

During construction activities in 1989 associated with upgrading the former laundromat for occupation by the current Payless facility, solvent odors were noted beneath the location of the former laundromat which reportedly contained a coin-operated dry cleaning machine. A leaking floor sump was suspected as the source of the subsurface discharge(s). In a test pit excavated adjacent to the suspected discharge location, a soil sample was collected and found to contain tetrachloroethene (PCE) at a concentration of 3,800 µg/kg at a depth of 5 feet below the concrete floor slab. Flowing sands prevented further excavation of the test pit to greater depths. A groundwater sample collected from this test pit contained PCE at a concentration of 26,000 µg/l. Trichloroethene (TCE) was also detected in the soil (40 µg/kg) and groundwater (160 µg/kg) in these samples. The affected soils adjacent to the suspected discharge area were excavated and the extent of the excavation was determined through field screening of the soils (Ecova, 1989). The resulting excavation was estimated to be 20 feet by 10 feet by 8 feet in depth. Groundwater was reportedly present at a depth of 2 feet below the floor slab, therefore, the remediation extended approximately 6 feet below the water table.

The excavation was backfilled with imported coarse aggregate and a groundwater collection system was installed within the excavation backfill. The groundwater collection system serves the dual purpose of physical dewatering in the Payless space and impacted groundwater control. The sump system consists of a sump approximately 1.5 feet in diameter by 4.5 feet deep which is equipped with a sump pump (Ecova, 1989). The pump discharges directly to the sanitary sewer. The zone of influence of the sump system is not known. The Ecova report indicated that a representative (later identified as Mr. Ron David) of the Washington Department of Ecology (Ecology) was on site during the remediation and approved of the project implementation. On December 7, 1995, Dames & Moore verbally confirmed Ecology's involvement on the project with Mr. David. Ecology has not been involved in the project since approximately 1989.

Based on information provided by historical reports and property management, it is estimated that the coin-operated dry cleaning tenant was in operation for at least five years during the 1980s. The space is currently occupied by a Payless drug store and the groundwater recovery sump system is still in operation.

3.0 OBJECTIVES AND SCOPE

A soil and groundwater investigation was conducted in order to assess the current vertical and horizontal extent of impacted soil and groundwater. The investigation consisted of the following scope:

- Drilling of four soil borings (SP-5 through SP-8) on October 18th and 13 soil borings (SP-11 through SP-23) on November 22 and December 6, 1995 using StrataProbe techniques
- Collection of groundwater samples for chemical analysis from these borings
- Collection of a water sample for chemical analysis from the sump located in the Payless loading dock area (Sump 1)
- Analysis of the data obtained and the preparation of this report documenting the field and laboratory methods and the results of the investigation

The following sections present a description of the field procedures and detail the specific approach to assessing the respective potential source areas outlined above.

4.0 METHODS OF INVESTIGATION

Prior to implementing the subsurface sampling, Dames & Moore contacted a service which notifies public and private utilities of the proposed subsurface investigation. Underground utility locations along public right-of-ways and easements at the subject property were identified by the responsible utilities. In addition, an on-site survey by a utility locate service was conducted. In accordance with OSHA and state regulations, a site specific health and safety plan was developed for this project and implemented during the field investigation. The sampling procedures and methods are summarized below.

4.1 SOIL AND GROUNDWATER SAMPLING PROCEDURES

The initial StrataProbe investigation was completed on October 18, 1995. The results of the initial investigation were assessed and additional groundwater and soil characterization was conducted on November 22nd and December 6, 1995. Dames & Moore subcontracted Transglobal Environmental

Geosciences Northwest, Inc. (TEG) of Lacey, Washington to complete the borings using truck-mounted StrataProbe equipment.

Monitoring of the drilling and sampling was performed by a qualified Dames & Moore field technician. A detailed log of the subsurface materials was maintained and an organic vapor monitor (OVM) was used to screen the soils and borehole for organic vapors. Soils samples collected for stratigraphic control were placed in a plastic bag and then mixed to volatilize any organic compounds present in the sample. The OVM was then inserted into the bag to measure the organic vapor levels which were recorded on the boring logs. The OVM was calibrated prior to use each day. The soils were classified in general accordance with the Unified Soil Classification System. The logs of the borings are presented in Appendix A.

Soil samples were also collected at selected intervals for classification of the soils. The soil samples were generally collected at intervals of 5 feet or less. More frequent samples were collected when changes in soil conditions were noted by the driller. Due to the shallow water table (2 to 5 feet bgs), soil samples were not collected for laboratory analysis. However, soil samples were collected for stratigraphic control and field screening as mentioned above.

Groundwater samples were collected by driving the StrataProbe sampler to the desired sampling zone and then extracting the sampler approximately two feet to expose a screened tube to allow water to infiltrate into the sampler. Clean dedicated polyethylene tubing was inserted into the probe and water was collected by withdrawing the necessary volume with a disposable syringe. The water sample was then transferred to a laboratory prepared glass 40-mil vial containing a hydrochloric acid preservative. All samples were transferred under strict chain of custody protocols.

The sampling equipment and any other down hole equipment was decontaminated by washing with a dilute Alconox solution, triple rinsed with tap water, and then double rinsed with distilled water after the completion of each sampling location. The decontaminated equipment was disposed as municipal waste. One 55-gallon drum of decontamination rinsate is on site pending appropriate disposal. The holes were backfilled with bentonite chips hydrated with distilled water. In paved areas the top 4 inches of the boring were finished with cold patch asphalt. The top 4 inches of borings SP-5, SP-23, and SP-22 were finished with concrete.

A water sample was collected by Dames & Moore from the catch basin (Sump 1)) within the Payless loading dock area (Figure 2). The water sample was filled directly into laboratory supplied 40-mil vials. Disposable nitrile gloves were worn during sampling locations to prevent against cross contamination.

4.2 ANALYTICAL METHODS

Selected groundwater samples were submitted for analysis to Ecology-accredited laboratories: North Creek Analytical (NCA) in Bothell, Washington and TEG in Lacey, Washington. The water samples were analyzed for volatile organic compounds (VOCs) by NCA using EPA method 8260 during the initial sampling phase and by TEG using method 8021 during the additional groundwater characterization. These two analytical methods provide results which can be compared.

The samples were accompanied by a trip blank (Trip Blank-1) prepared by the analytical laboratory. In addition, a rinseate blank (Rinseate-1) was conducted following decontamination of the sampling equipment. These samples were analyzed for VOCs. The laboratory data was validated by a Dames & Moore chemist. The validation reports along with the analytical reports are presented in Appendix B.

4.3 SAMPLING LOCATION RATIONALE

Borings SP-5, SP-6, SP-7A, and SP-8 were installed on October 18, 1995; SP-11 through SP-21 were installed on November 22, 1995; and SP-22 and SP-23 were installed on December 6, 1995. Groundwater samples were collected near the top of the water table, approximately 5 to 7 feet within the water table and at a selected number of locations from above the interface of a lower permeability silty clay layer. StrataProbe boring SP-5, was located approximately 10 feet southeast of the dewatering sump located within the current Payless store, which was installed in 1989 (Figure 2). Two additional borings, SP-22 and SP-23 were located within the Payless store farther downgradient of the sump. The StrataProbe samples within the building were hand driven with an electric compression hammer. An offset boring SP-7A, was driven 1.5 feet from boring location SP-7 to collect an undisturbed water sample from above a low permeability silty clay layer (SP-7A-1).

StrataProbe borings SP-11 through SP-14 (Figure 2) were driven as close to the southern property boundary as could be achieved based upon the location of underground utilities along Bothell Way and traffic flow issues. The remaining boring locations were driven to define the extent of the VOCs.

A water sample, SL-1, was collected at the sump/catch basin (Sump 1) located within the loading dock of the Payless store (Figure 2) and tested for VOCs.

5.0 INVESTIGATION RESULTS

5.1 HYDROGEOLOGY

The StrataProbe borings were completed to depths ranging from 12 feet (SP-15) to 30 feet bgs (SP-7). The soils in the area of the former dry cleaner (Payless store) generally consist of brown, fine to medium

sands to a depth of approximately 17 feet bgs to 18 feet bgs (Appendix A). Interbeds of brown to gray silty clays and gray silt were encountered from 18 feet to 29 feet bgs. Groundwater was encountered in this area at depths ranging from 3 feet to 5 feet bgs, and a confining layer below the aquifer was not confirmed.

A north to south geologic cross section across the site is shown on Figure 3. The upper portion of the saturated zone primarily consists of sandy material, designated as SP using the Unified Soil Classification (USC). The deeper borings confirmed the presence of lower permeability silts (ML) and clays (CL) at depths of between 26 feet to 29 feet bgs (Figure 3).

Although the groundwater flow direction and gradient could not be determined within the scope of the current investigation, the shallow groundwater flow direction is inferred to be southeasterly to easterly towards Lake Washington, based on data obtained from the gasoline station remediation projects and topographic maps.

5.2 GROUNDWATER ANALYTICAL RESULTS

Groundwater and the sump water sample location are shown on Figure 2 and the analytical results are summarized on Table 1. The applicable Washington Model Toxics Control Act (MTCA) method A groundwater cleanup levels for the compounds detected are also provided on Table 1. For comparison purposes, both MTCA method A (residential) and MTCA method B (industrial) action levels are presented on Table 1.

1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene were detected in groundwater sample SPW-5-1 collected from a depth of 4 ft bgs at concentrations of 3.5 μg/l and 2 μg/l, respectively. No MTCA cleanup levels have been established for these compounds. Additional groundwater samples were collected at SP-5 at depths of 9 feet bgs (SPW-5-2) and 16.5 feet bgs (SPW-5-3) and no detectable concentrations of VOCs were identified. Only one VOC was detected in the groundwater samples collected at SP-22 and SP-23, located directly downgradient of SP-5 (Figure 4). 1,1,2-trichloroethane was detected at a concentration of 7 μg/l in SP-23-4 collected at a depth of 4 feet bgs (Table 1), but not at the depth of 8 feet bgs.

The highest concentrations of PCE, TCE and cis-1,2-dichloroethene (DCE) were detected in the groundwater at SP-7. PCE was detected in sample SPW-7-1 (4 feet bgs) at a concentration of 230 μg/l. PCE concentrations in this sample exceed the MTCA method A cleanup level of 5 μg/l. TCE and DCE were also detected in this sample at concentrations of 2.4 μg/l and 1.2 μg/l, respectively. Neither of these compounds exceeded the MTCA method A cleanup levels (Table 1). Two additional groundwater samples were collected from boring SP-7 at depths of 9 feet bgs (SPW-7-2) and 29 feet bgs (SPW-7-3). PCE was

detected at a concentration of 1.4 µg/l in sample SPW-7-2, which is below the MTCA cleanup level. No additional VOCs were detected in this sample or the deeper water sample, SPW-7-3.

Detectable levels of DCE, TCE and PCE were identified in the groundwater samples from boring SP-8. Sample SPW-8-1 collected from a depth of 4.5 feet bgs had DCE, TCE and PCE concentrations of 3.1 µg/l, 2.6 µg/l and 1.8 µg/l, respectively. None of these concentrations exceeded the MTCA cleanup levels. Additional groundwater samples from this boring were collected at depths of 10 feet bgs (SPW-8-2) and 28 feet bgs (SPW-8-3). PCE was detected in SPW-8-2 at a concentration of 18 µg/l, which exceeds the MTCA method A cleanup level of 5 µg/l. No detectable levels of VOC were identified in the deeper water sample, SPW-8-3.

Groundwater samples were collected from boring locations SP-11 through SP-21 at approximately 5 feet and 10 feet bgs. PCE was detected at a concentration of 16 µg/l in the 10 foot sample at boring SP-13 located approximately 50 feet north of the property boundary (Figure 4). PCE was also detected in borings SP-16 (1.7 µg/l), SP-18 (3.4 µg/l), and SP-20 (7.7 µg/l) at the five foot sample depth. PCE was not detected in the 10 foot samples from these borings.

The distribution of PCE in the site groundwater is shown on Figure 4. The highest concentrations of PCE are situated in the groundwater in the vicinity of SP-7. The vertical distribution of PCE in the groundwater is depicted on Figure 3. Some vertical migration of PCE within the water table is evident.

The water sample, SL-1, collected in the sump/catch basin (Sump 1) within the loading dock area of the current Payless store did not detect VOCs.

The QA/QC samples collected during the field investigation included a trip blank (Trip Blank-1) and a rinseate blank (Rinseate-1). Both of these samples were analyzed for VOCs and no detectable levels of VOCs were identified in the samples (Appendix B). The laboratory QA/QC samples were assessed during Dames & Moore's validation of the data packages and no data quality issues were identified.

6.0 CONCLUSIONS

Dames & Moore's soil and groundwater investigation conducted at the Lake Forest Park Town Center in Seattle, Washington was intended to assess the current vertical and horizontal extent of impacted soil and groundwater associated with a release previously identified at the site during site remedial activities at the

former coin operated dry cleaner. Based upon the findings of our investigation, Dames & Moore has drawn the following conclusions:

- Figure 4 depicts the distribution of PCE in the site groundwater. The highest concentration of PCE (230 μg/l) was detected in the groundwater at boring SP-7 at a depth of 4 feet, which exceeds the MTCA method A cleanup level of 5 μg/l.

- Other chlorinated organic compounds (TCE and DCE) detected are degradation products of PCE and their distribution suggests this presence is associated with the PCE release. The groundwater analytical results for boring SP-5 indicated 2.0 to 3.5 μg/l trimethylbenzene within the groundwater downgradient of the former coin operated dry cleaners. This compound may also be associated with a cleaning compound utilized at the former dry cleaners.

- Based on the groundwater analytical results, the northern, eastern and western limits of PCE in groundwater appear to have been established (Figure 4). PCE was detected at a concentration of 16 μg/l at boring SP-13, located approximately 50 feet from the south property boundary. The PCE concentration downgradient from SP-13 is not known; however, PCE was not detected in the groundwater samples southwest (SP-12 and SP-11), and northeast (SP-14) of sample SP-13. In addition, the PCE concentrations can be expected to further attenuate at locations to the south of SP-13. The linear extent of the PCE distribution in the groundwater may indicate that a preferential pathway exists in the former Lyons Creek stream channel that historically bisected the site.

- The PCE occurrence in the groundwater appears to exist primarily within the upper 5 feet of the water table.

- The results of the water sample collected from the sump/catch basin in the loading dock area of the current Payless store (Sump 1) indicate that compounds of concern in groundwater previously existing in 1989 are either absent or do not appear to be infiltrating into Sump 1.

- Based upon the highest concentration of PCE detected in the groundwater (e.g., 230 μg/l), and on field observations, free-phase PCE does not appear to be present at the site. The PCE concentrations in the groundwater are considerably less than the solubility limits for PCE in water (e.g., 100,000 to 200,000 μg/l) and the concentrations of PCE generally decline or were not detected at depth within the water table.

- PCE was not detected in the groundwater samples collected closest to the former source area (i.e., SP-5, SP-22 and SP-23), suggesting that the affected soils have been remediated.

- The distribution of VOCs detected in the groundwater south of the Payless building indicates that while previous remediation efforts appear not to have reduced the levels of VOCs in the groundwater at all locations to below MTCA cleanup levels, the currently detected concentrations are significantly lower than previously reported concentrations.

7.0 REFERENCES

Ecova, 1989; Report of Findings Lake Forest Park Town Center Remedial Investigation. October 23, 1989

Liesch, B.A., et al., 1963; Geology and Ground-Water Resources of Northwestern King County, Washington. U.S. Geological Survey, Water Supply Bulletin No. 20.

Merck, 1989; The Merck Index. Eleventh Edition, Merck & Co., Inc.

TABLE 1
SUMMARY GROUNDWATER ANALYTICAL DATA
LAKE FOREST PARK TOWN CENTER

Sample I.D. Sample Date Sample Depth (ft)	SP-5-1 10/18/95 4	SP-5-2 10/18/95 9	SP-5-3 10/18/95 16.5	SP-6-1 10/18/95 6	SP-6-2 10/18/95 11	SP-6-3 10/18/95 17	SP-7-1 10/18/95 4	SP-7-2 10/18/95 9	SP-7-3 10/18/95 29	SP-7A-1 10/18/95 25	SP-8-1 10/18/95 4.5	SP-8-2 10/18/95 10	SP-8-3 10/18/95 26	SL-1 10/18/95 N/A	MTCA Groundwater Cleanup Level	
															Method A	Method B
VOC (8260) (ug/l)																
1,2,4-Trimethylbenzene	3.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE
1,3,5-Trimethylbenzene	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	1.2	ND	ND	ND	3.1	ND	ND	ND	NE	80.0
Tetrachloroethene	ND	ND	ND	ND	ND	ND	230	1.4	ND	ND	1.8	18	ND	ND	5.0	0.858
Trichloroethene	ND	ND	ND	ND	ND	ND	2.4	ND	ND	ND	2.6	ND	ND	ND	5.0	3.98

NOTE:
ND = Not detected at reporting limits
NE = Limit not established
NA = Not Applicable

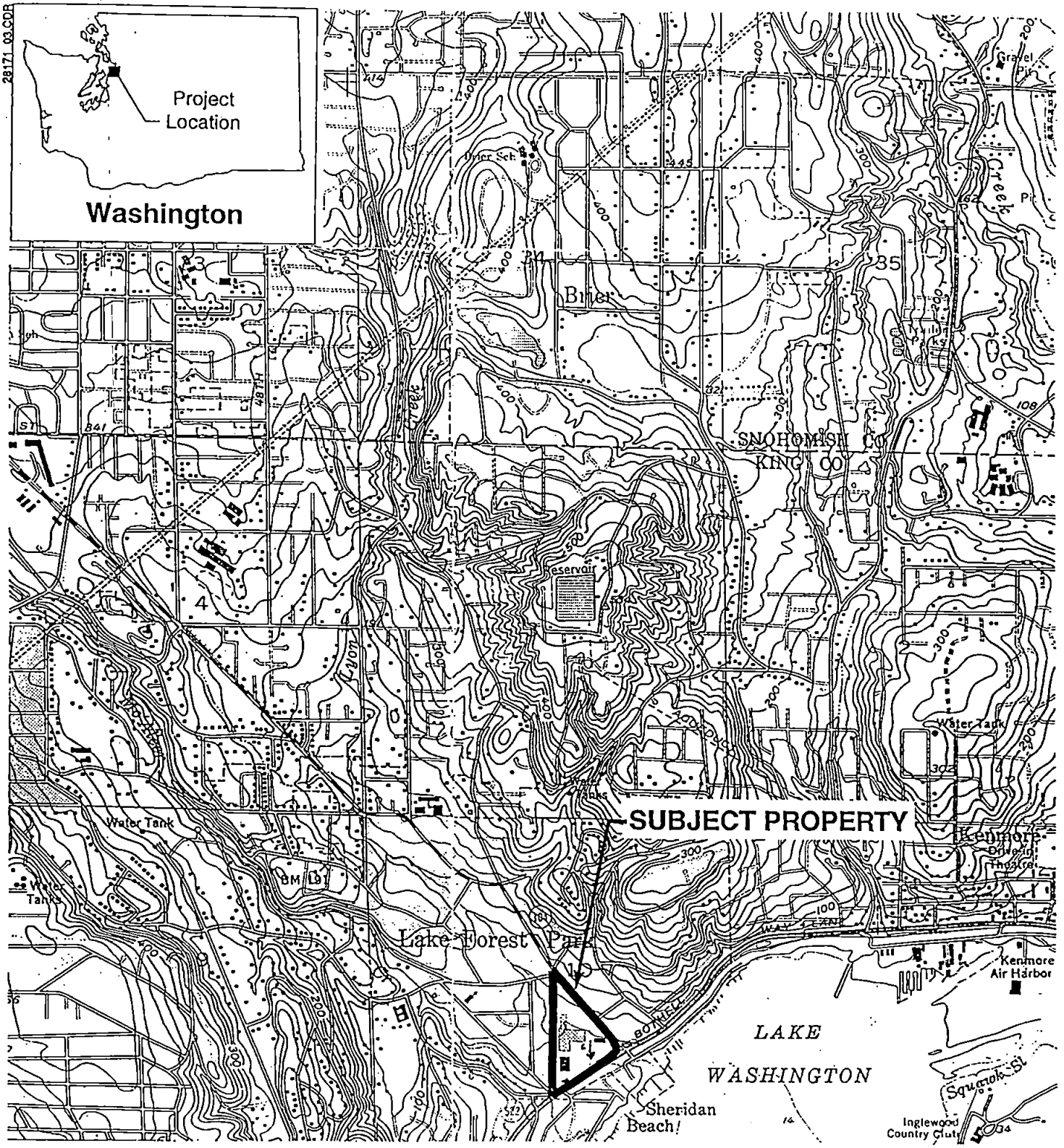
Sample I.D. Sample Date Sample Depth (ft)	SP-11-5 11-21-95 5	SP-11-10 11/21/95 10	SP-12-5 11/21/95 5	SP-12-10 11/21/95 10	SP-13-5 11/21/95 5	SP-13-10 11/21/95 10	SP-14-5 11/21/95 5	SP-14-10 11/21/95 10	SP-15-5 11/21/95 5	SP-15-10 11/21/95 10	Rinseate (10-18-95) NA	TB 10-18-95	MTCA Groundwater Cleanup Level	
													Method A	Method B
VOC (8260) (ug/l)														
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	80.0
Tetrachloroethene	ND	ND	ND	ND	ND	16	ND	ND	ND	ND	ND	ND	5.0	0.858
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0	3.98

NOTE:
ND = Not detected at reporting limits
NE = Limit not established
NA = Not Applicable
TB = Trip Blanks

TABLE 1 (CONTINUED)
SUMMARY GROUNDWATER ANALYTICAL DATA
LAKE FOREST PARK TOWN CENTER

Sample I.D. Sample Date Sample Depth (ft)	SP-16-5 11/22/95 5	SP-16-10 11/22/95 10	SP-17-5 11/22/95 5	SP-17-10 11/22/95 10	SP-18-5 11/22/95 5	SP-18-10 11/22/95 10	SP-19-5 11/22/95 5	SP-19-10 11/22/95 10	SP-20-5 11/22/95 5	SP-20-10 11/22/95 10	SP-21-5 11/22/95 5	SP-21-10 11/22/95 10	SP-22-4 12/6/95 4	SP-22-9 12/6/95 9	SP-23-4 12/6/95 4	SP-23-8 12/6/95 8	MTCA Groundwater Cleanup Level	
																	Method A	Method B
VOC (8260) (ug/l)																		
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	80.0
Tetrachloroethene	1.7	ND	ND	ND	3.4	ND	ND	ND	7.7	ND	ND	ND	ND	ND	ND	ND	5.0	0.858
Trichloroethene	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0	3.98
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.0	ND	200	--

NOTE:
ND = Not detected at reporting limits
NE = Limit not established
NA = Not Applicable



SOURCE: USGS 7.5-minute topographic map; Edmonds East, Washington; dated 1953, photorevised 1981

SITE LOCATION MAP

Job No. 28171-291-148

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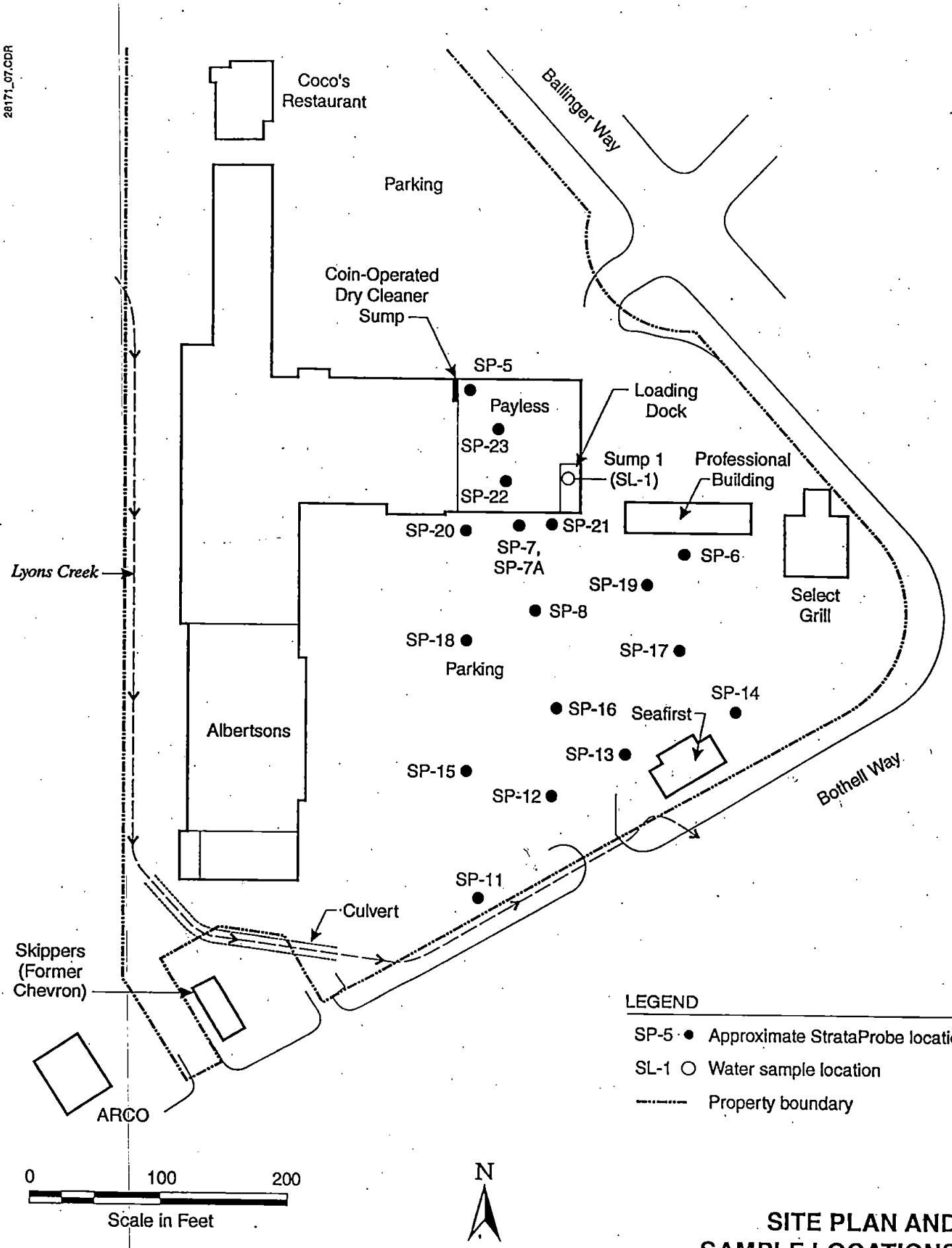
Lake Forest Park Town Center
Seattle, Washington
FIGURE 1



SITE PLAN AND SAMPLE LOCATIONS

Job No. 28171-299-005

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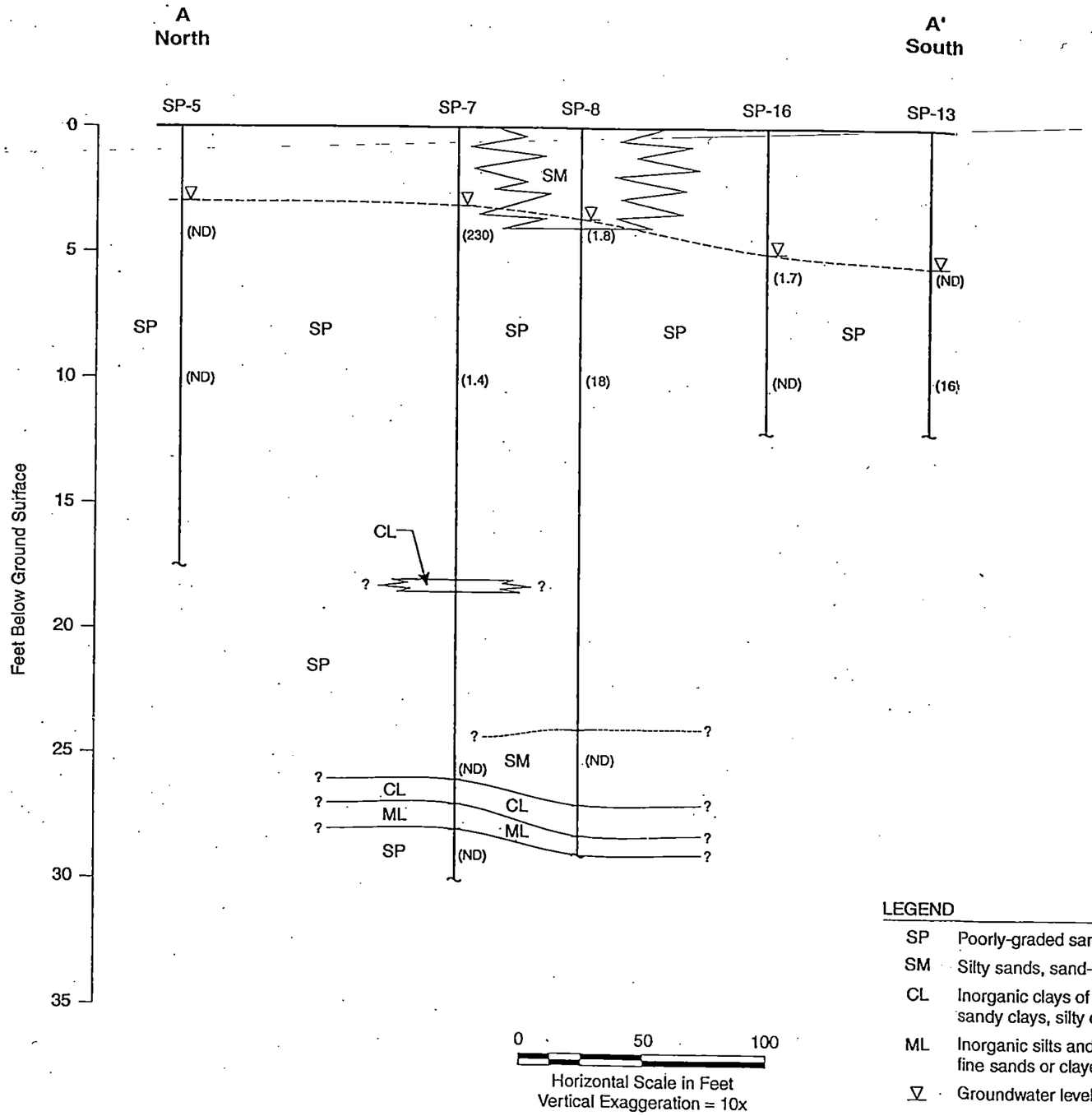
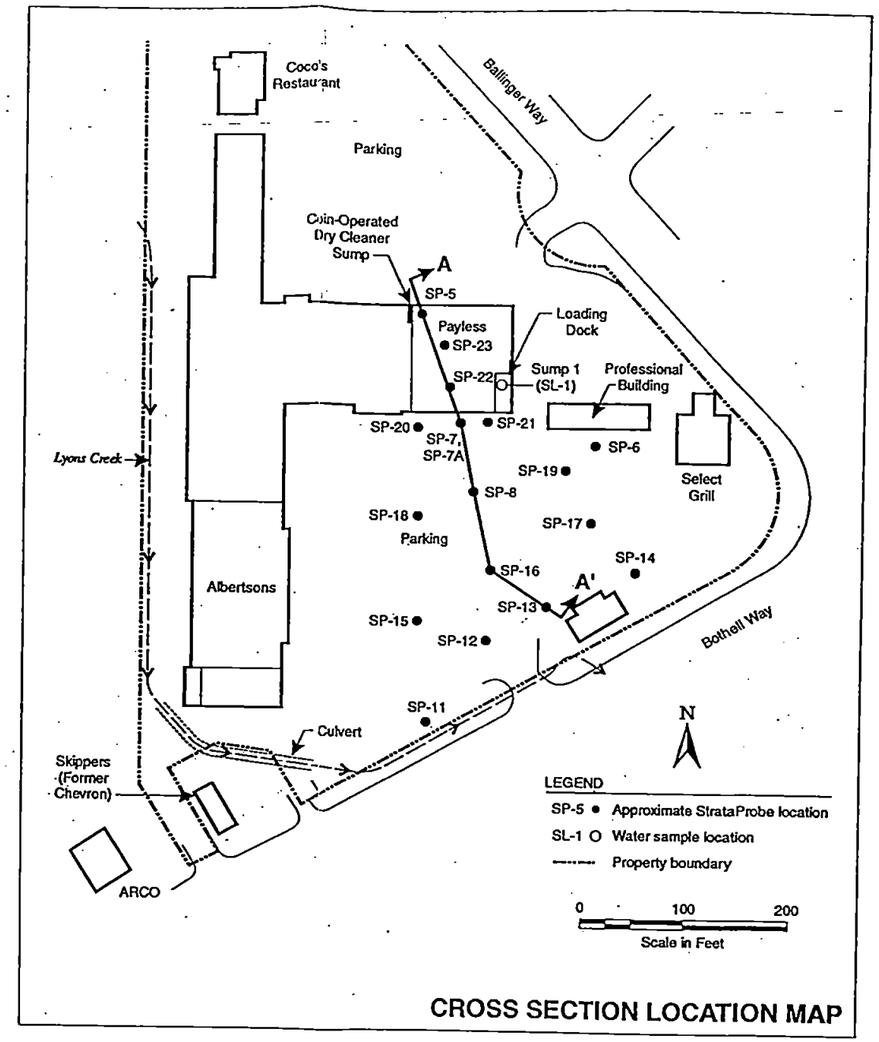
Lake Forest Park Town Center
Seattle, Washington
FIGURE 2

28171_08.CDR





CROSS SECTION LOCATION MAP

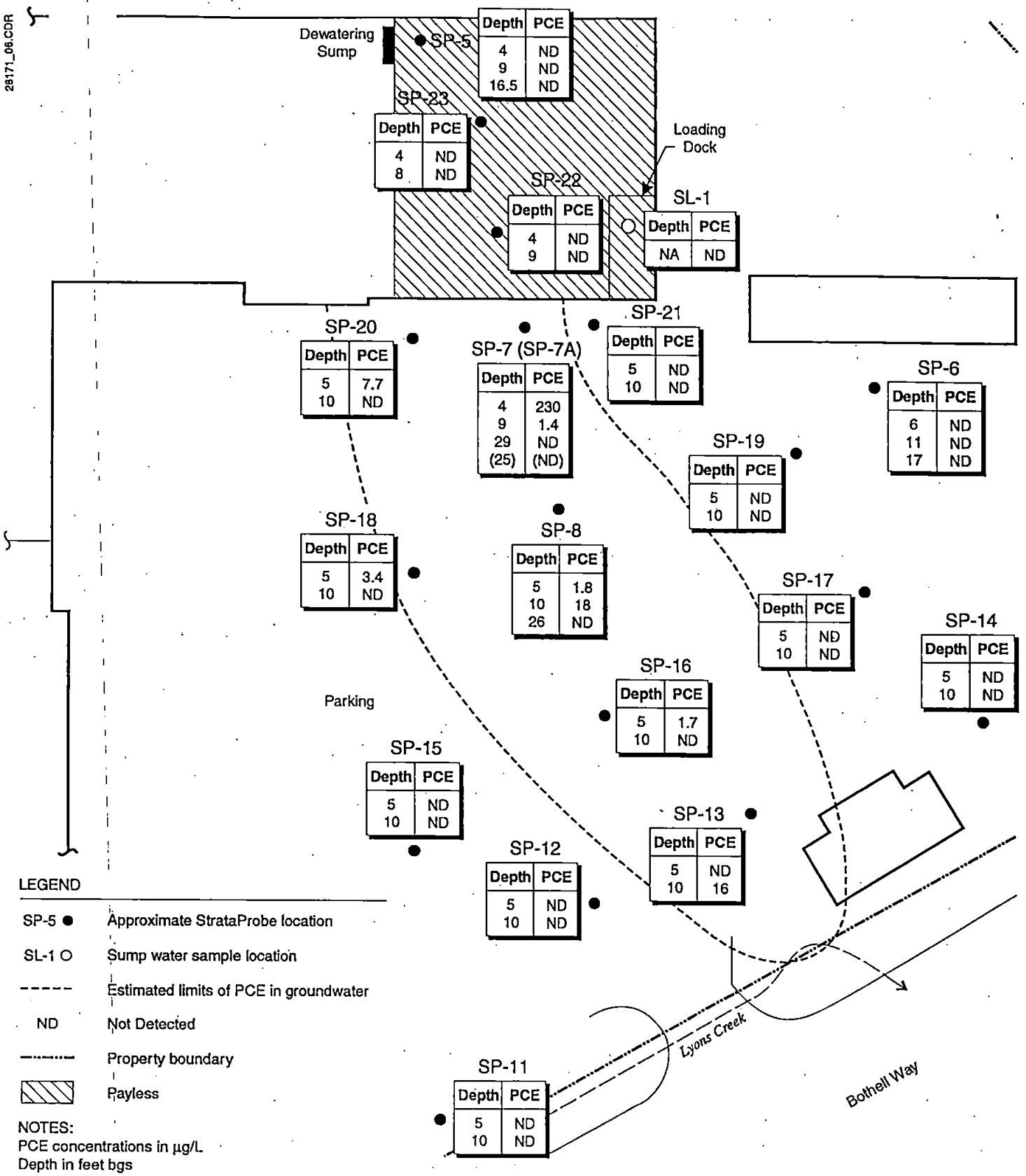
LEGEND

SP	Poorly-graded sands, gravely sands, little or no fines
SM	Silty sands, sand-silt mixtures
CL	Inorganic clays of low to medium plasticity, gravely clays, sandy clays, silty clays, lean clays
ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
∇	Groundwater level encountered during drilling
(18)	PCE concentration in µg/l
(ND)	Not detected

NORTH TO SOUTH GEOLOGIC CROSS SECTION

Lake Forest Park Town Center
Seattle, Washington
FIGURE 3

Job No. 28171-299-005
DAMES & MOORE



PCE GROUNDWATER CONCENTRATIONS (OCTOBER-DECEMBER 1995)

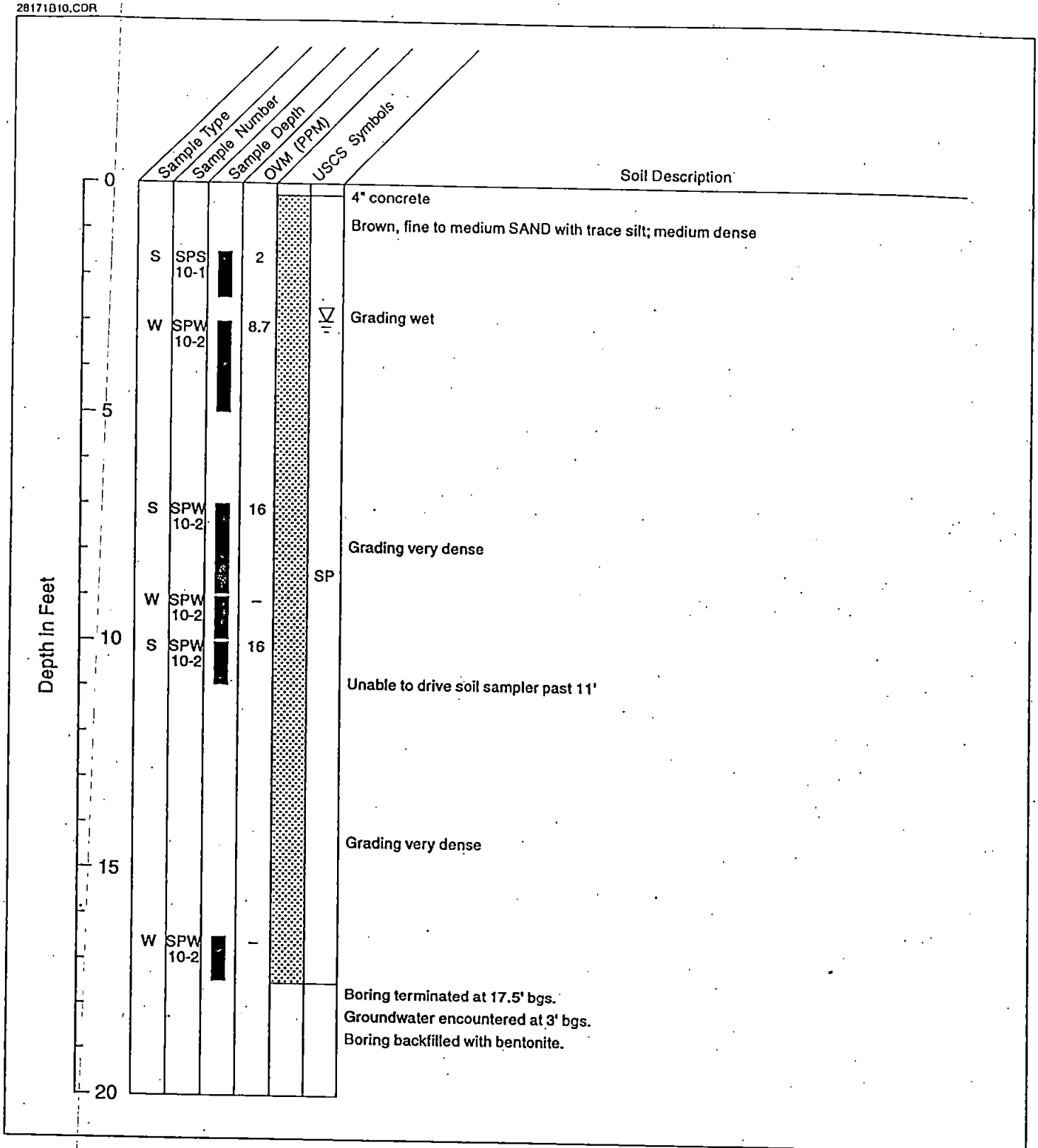
Job No. 28171-299-005
DAMES & MOORE

Lake Forest Park Town Center
Seattle, Washington
FIGURE 4

APPENDIX A

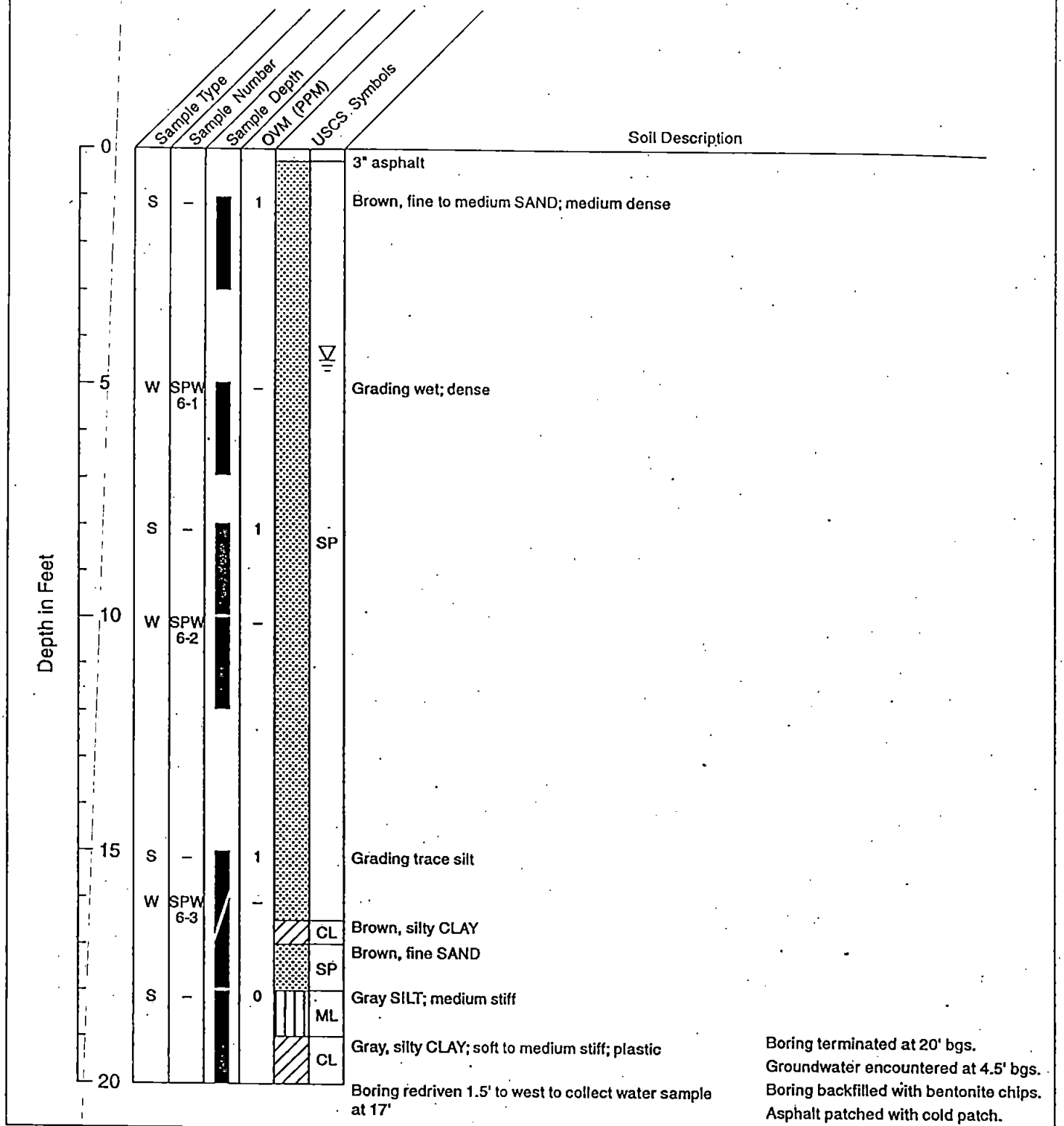
STRATAPROBE BORING LOGS

28171B10.CDR



Geologist: MPU
Drilling method: Hand Driven
Sampling method: StrataProbe Sampler
Drill contractor: TEG
Drill date: 10/18/95

28171B11.CDR



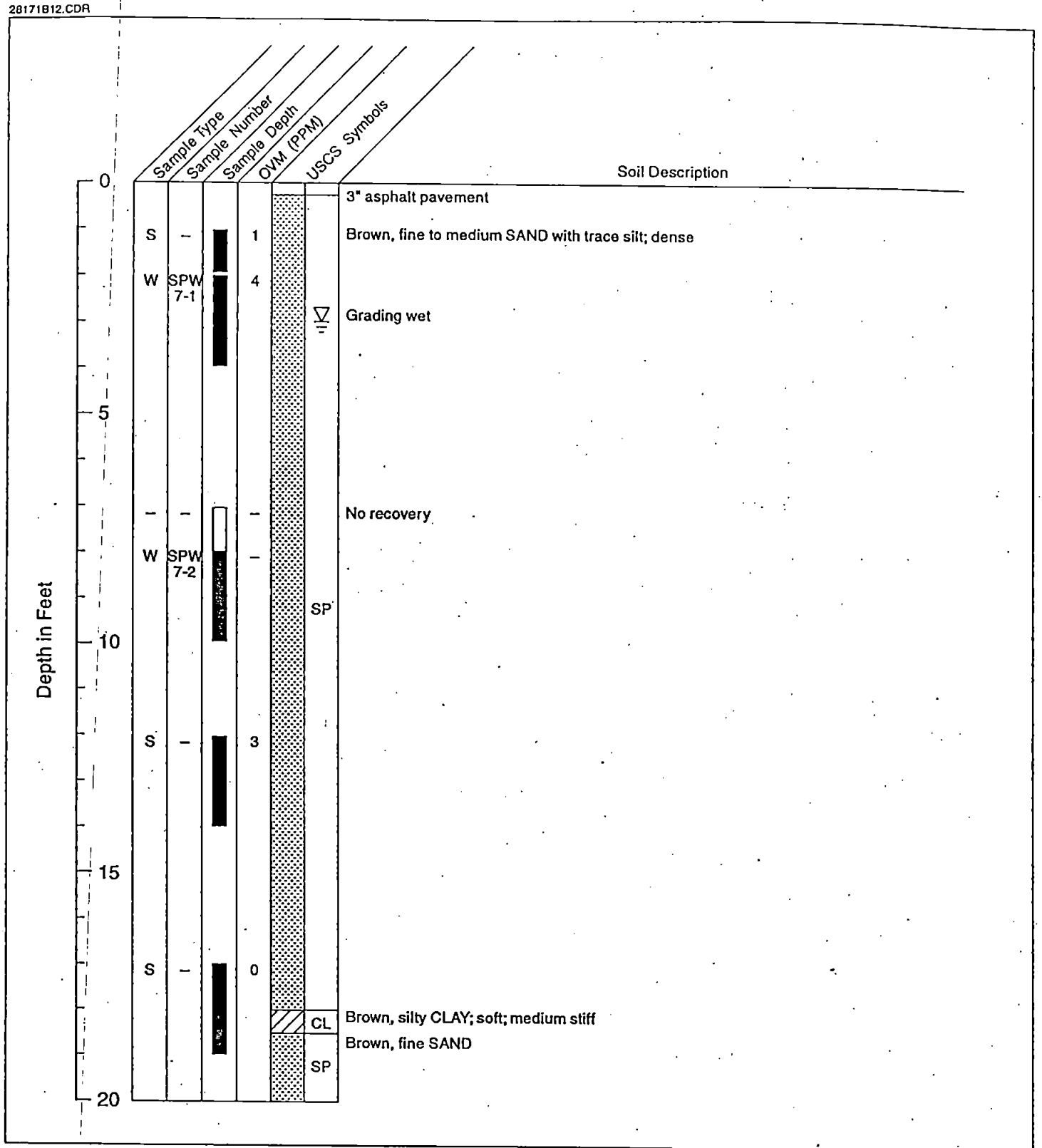
Geologist: MPU
Drilling method: StrataProbe Hydraulic Driver
Sampling method: StrataProbe Sampler
Drill contractor: TEG
Drill date: 10/18/95

SP-6

Job No. 28171-299-005
DAMES & MOORE

Lake Forest Park Town Center
Seattle, Washington

28171B12.CDR



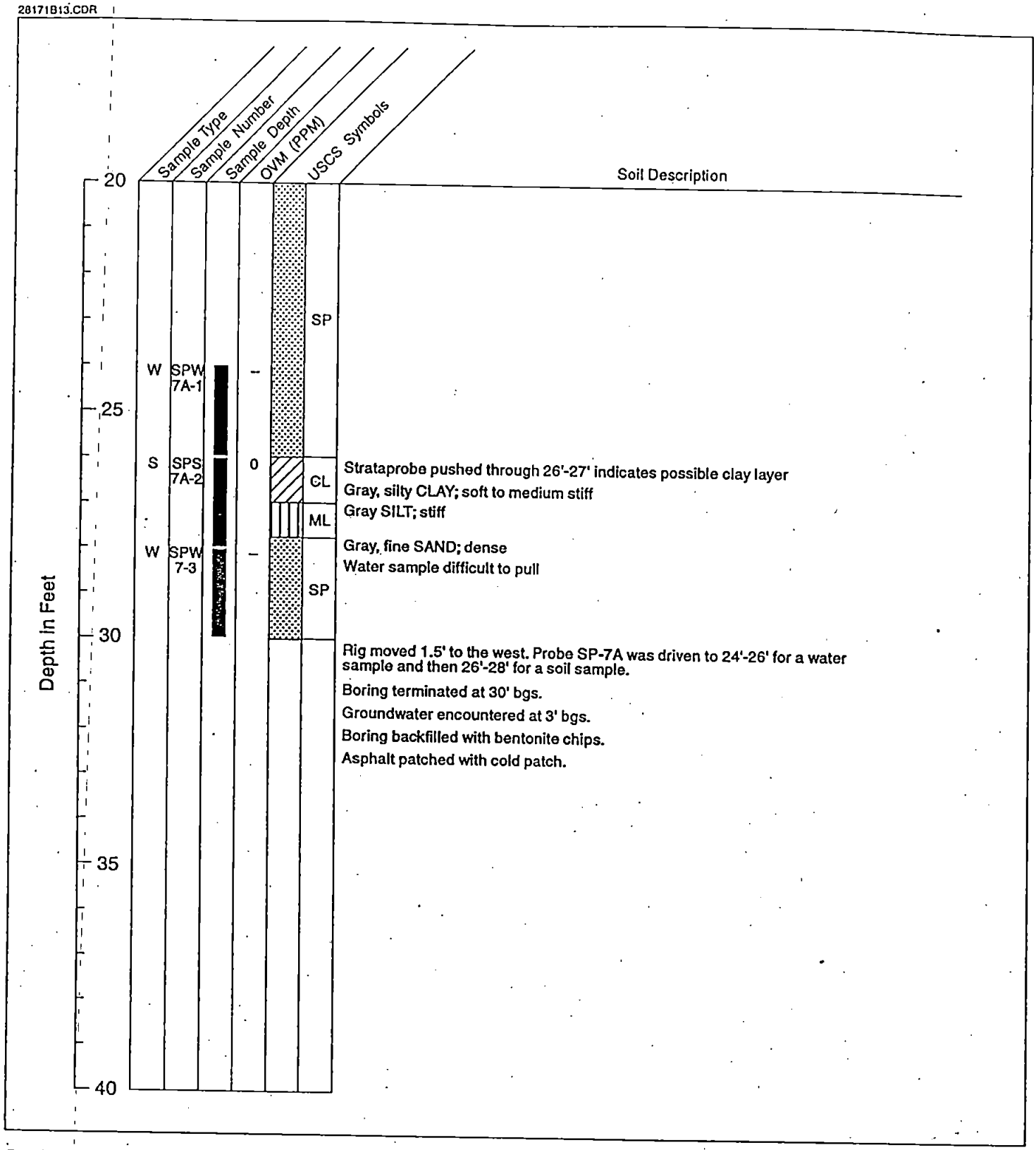
Geologist: MPU
Drilling method: StrataProbe Hydraulic Driver
Sampling method: StrataProbe Sampler
Drill contractor: TEG
Drill date: 10/18/95

SP-7, SHEET 1 OF 2

Job No. 28171-299-005
DAMES & MOORE

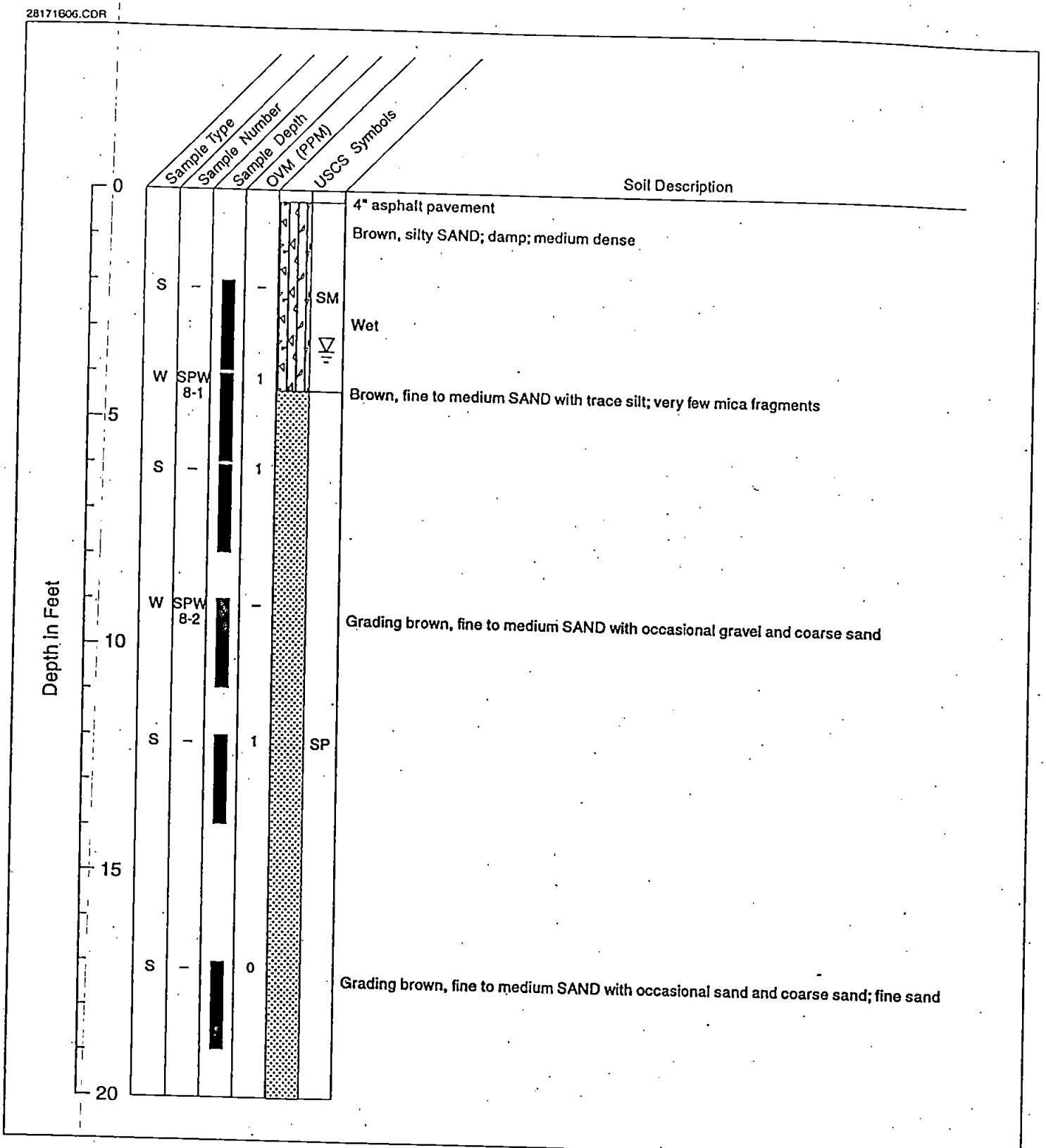
Lake Forest Park Town Center
Seattle, Washington

28171B13.CDR



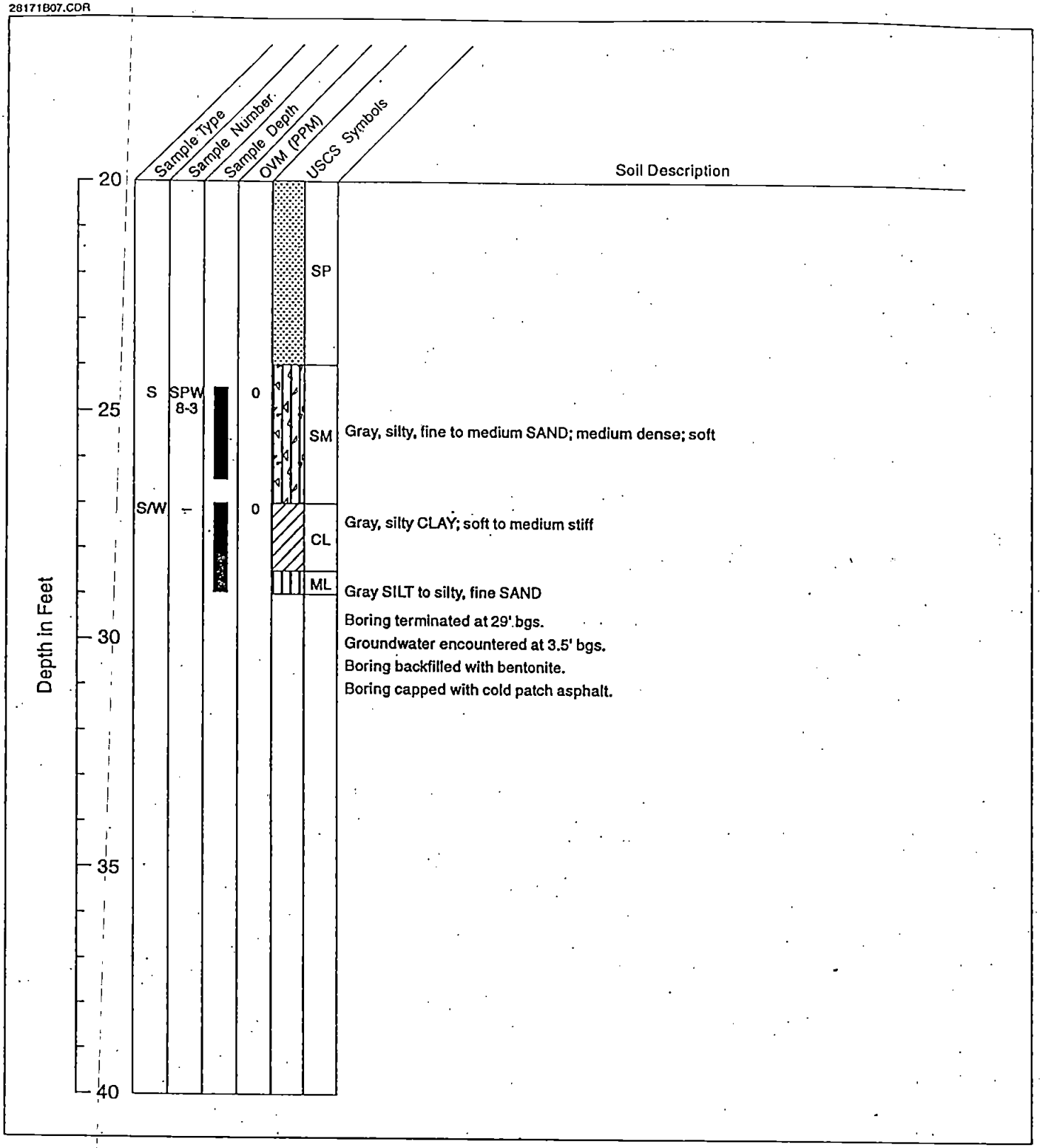
Geologist: MPU
Drilling method: StrataProbe Hydraulic Driver
Sampling method: StrataProbe Sampler
Drill contractor: TEG
Drill date: 10/18/95

28171606.CDR



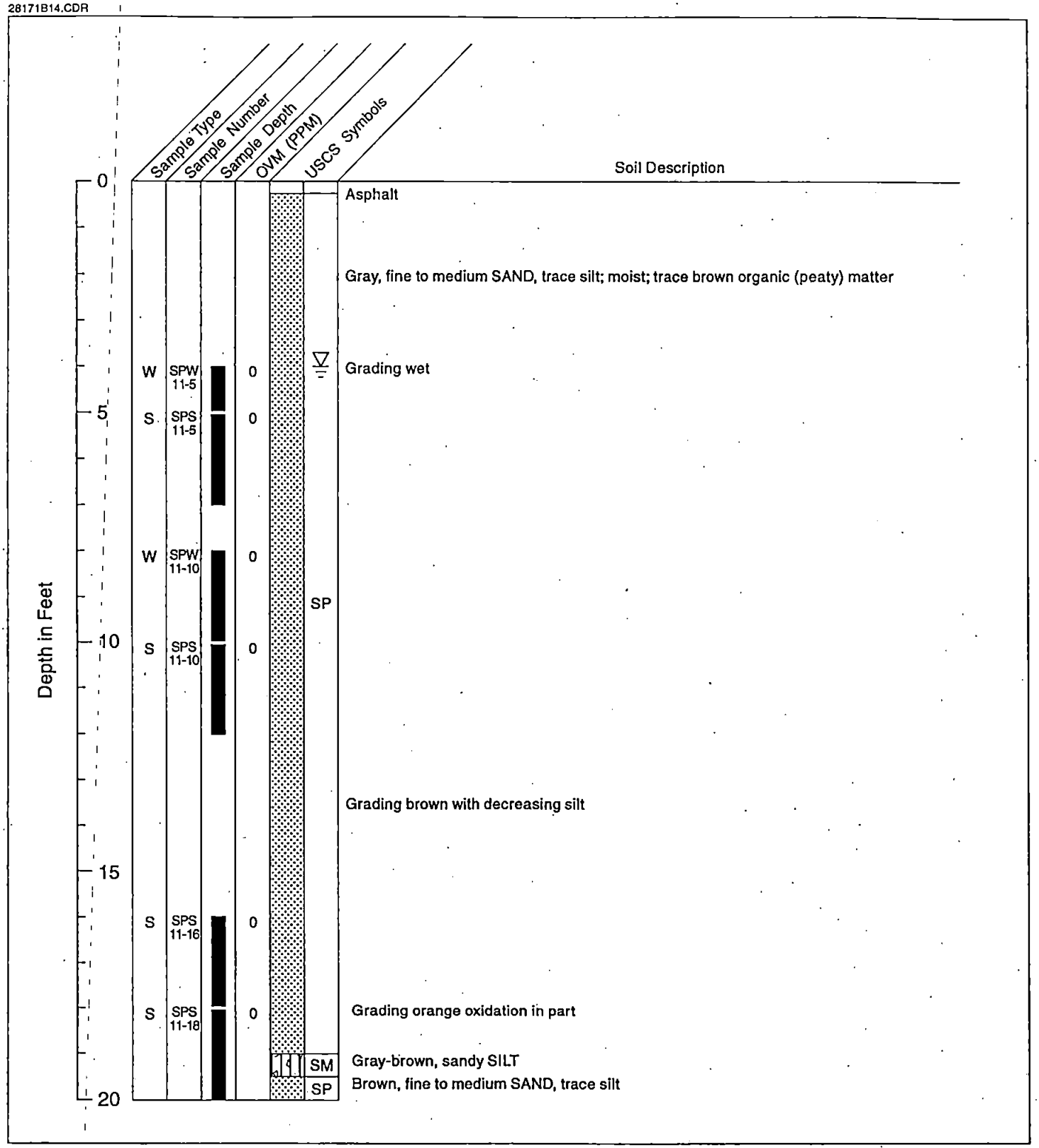
Geologist: MPU
Drilling method: StrataProbe Hydraulic Driver
Sampling method: StrataProbe Sampler
Drill contractor: TEG
Drill date: 10/20/95

28171B07.COR



Geologist: MPU
Drilling method: StrataProbe Hydraulic Driver
Sampling method: StrataProbe Sampler
Drill contractor: TEG
Drill date: 10/20/95

28171B14.CDR



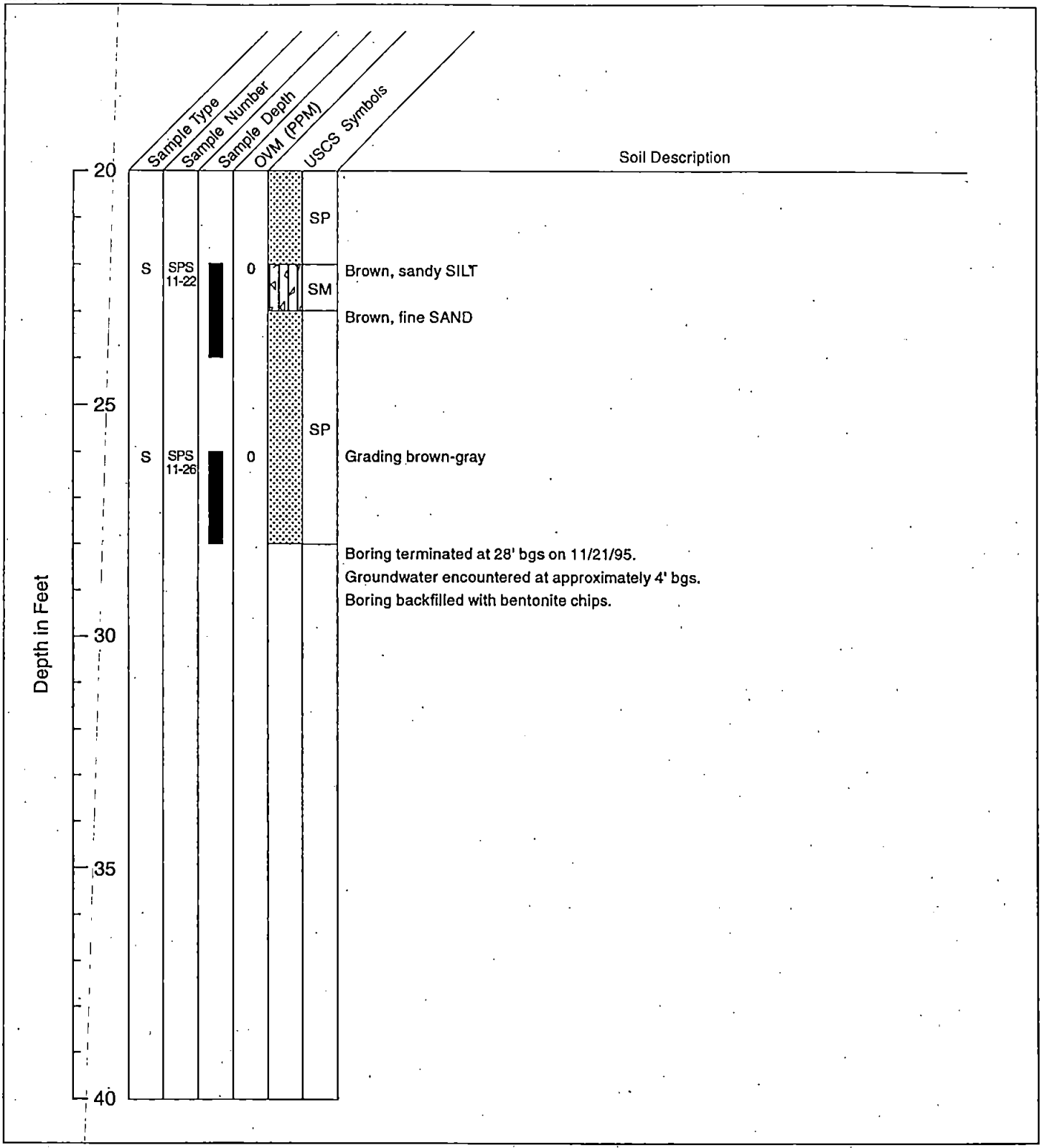
Geologist: JED
Drilling method: StrataProbe
Sampling method: Hydraulic Driver, StrataProbe Sampler
Drill contractor: TEG
Drill date: 11/21/95

SP-11, SHEET 1 OF 2

Job No. 28171-299-005
DAMES & MOORE

Lake Forest Park Town Center
Seattle, Washington

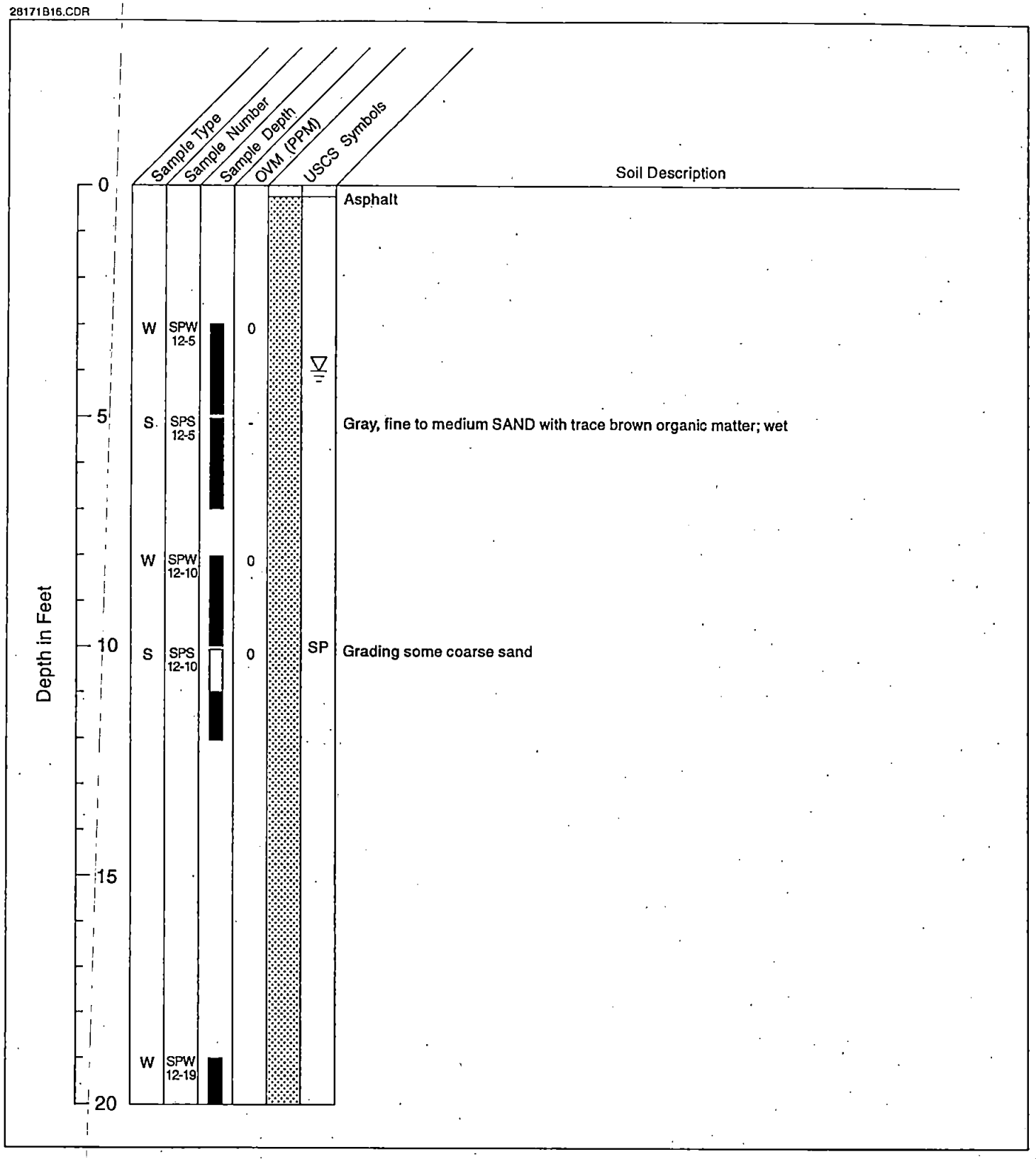
28171B15.CDR



Geologist: JED
Drilling method: StrataProbe
Sampling method: Hydraulic Driver, StrataProbe Sampler
Drill contractor: TEG
Drill date: 11/21/95

SP-11, SHEET 2 OF 2

28171B16.CDR



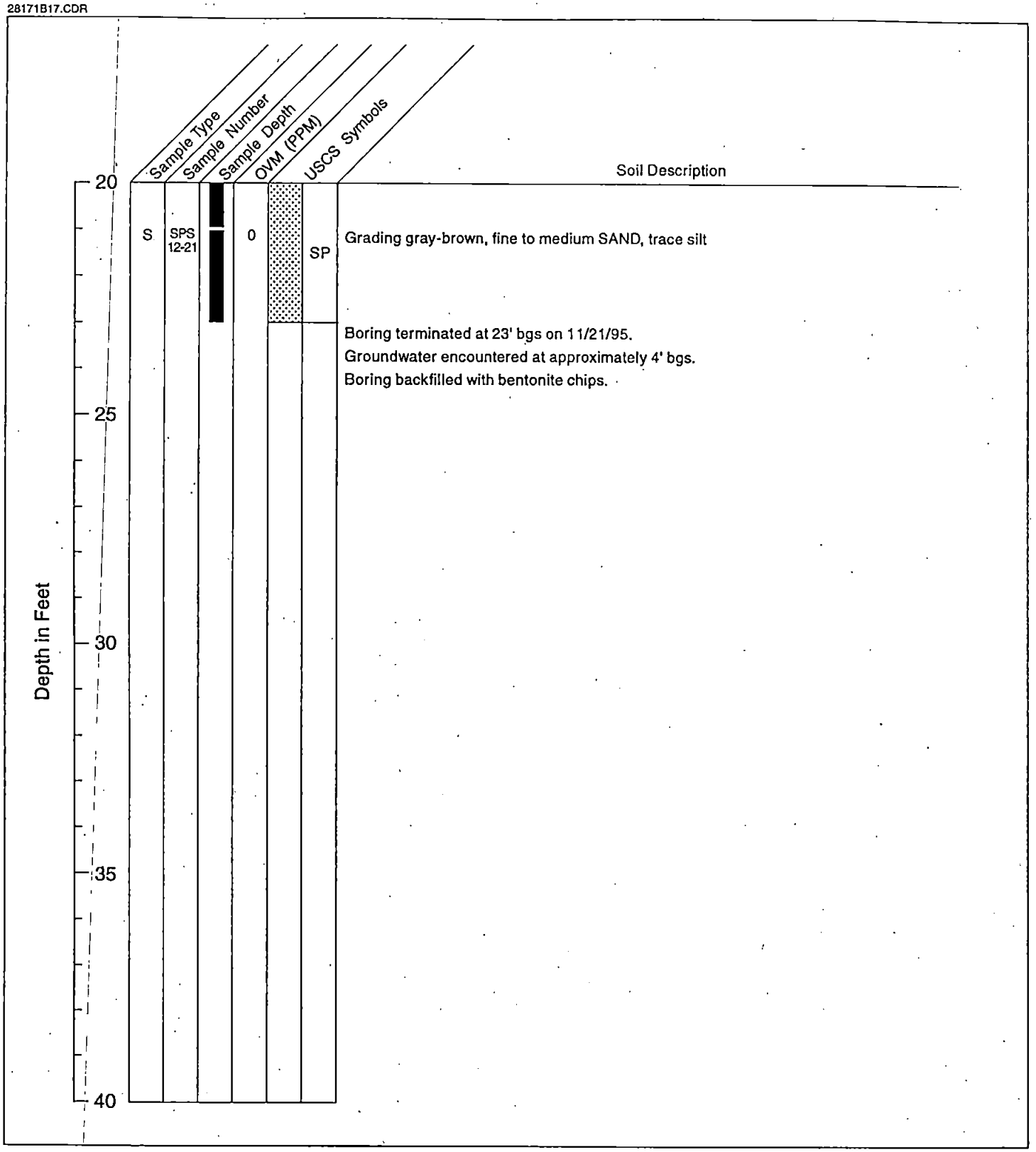
Geologist: JED
Drilling method: StrataProbe
Sampling method: Hydraulic Driver, StrataProbe Sampler
Drill contractor: TEG
Drill date: 11/21/95

SP-12, SHEET 1 OF 2

Job No. 28171-299-005
DAMES & MOORE

Lake Forest Park Town Center
Seattle, Washington

28171B17.CDR



Geologist: JED
Drilling method: StrataProbe
Sampling method: Hydraulic Driver, StrataProbe Sampler
Drill contractor: TEG
Drill date: 11/21/95

SP-12, SHEET 2 OF 2

Job No. 28171-299-005
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Lake Forest Park Town Center
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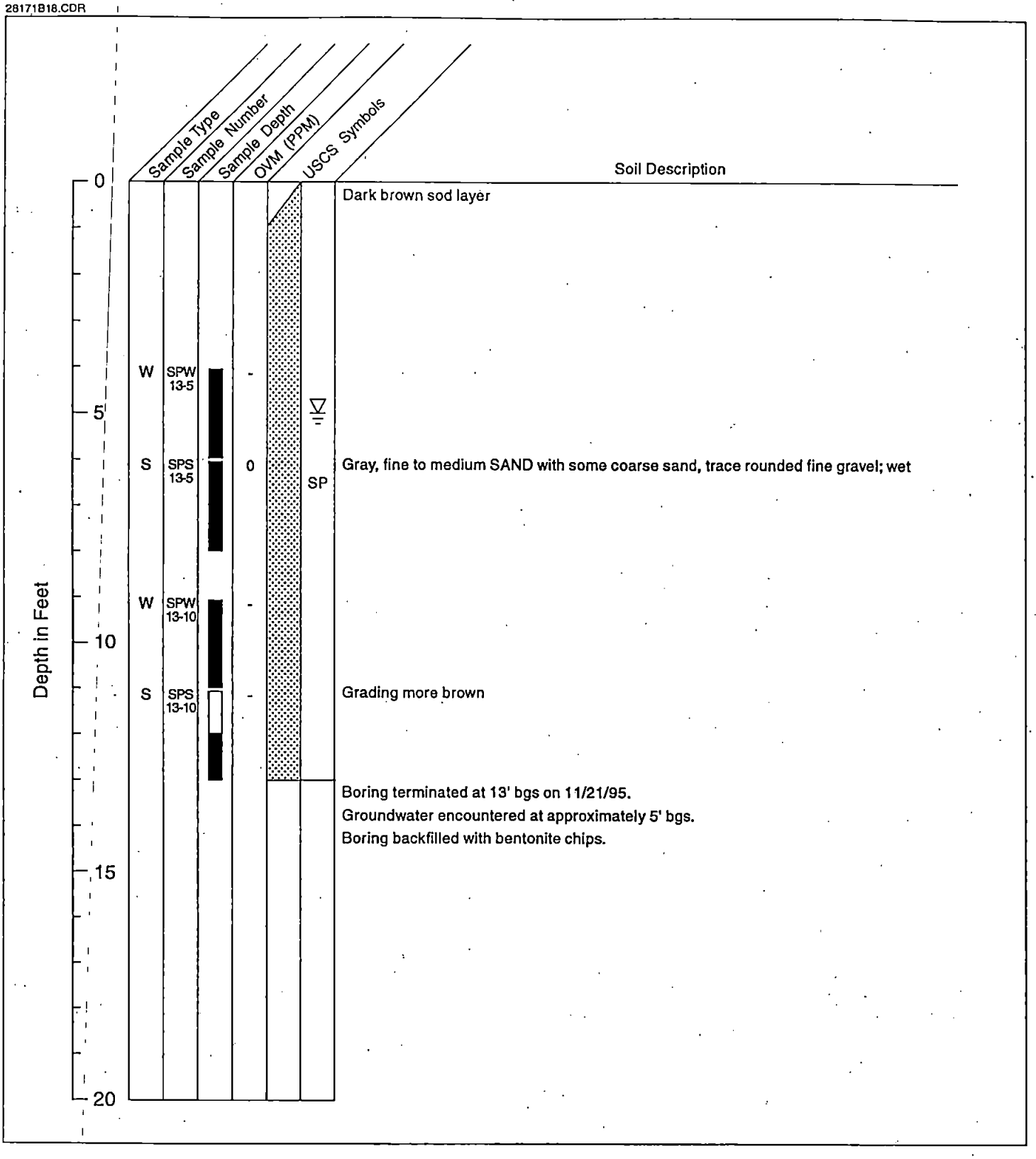
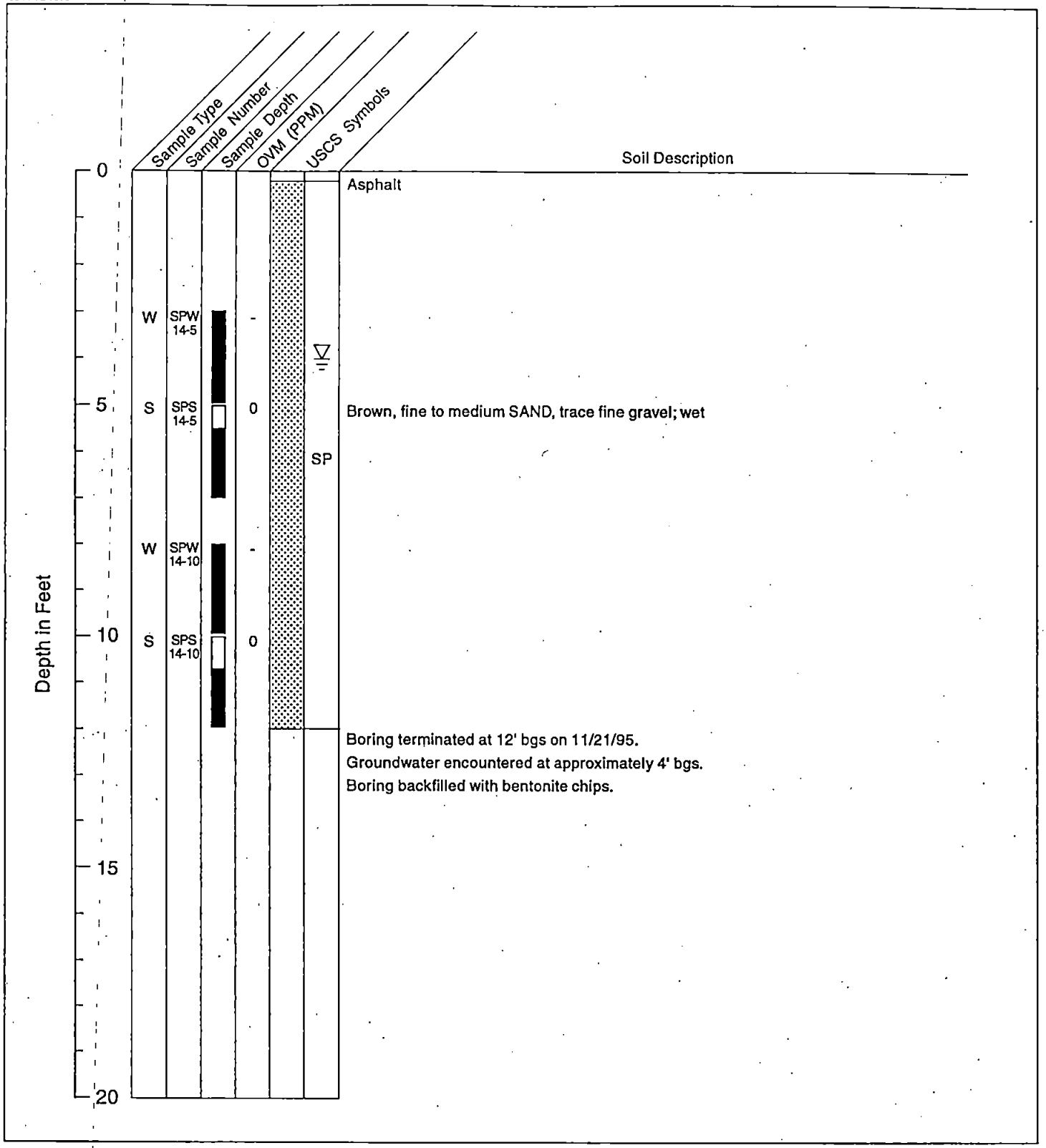
28171B18.CDR



Geologist: JED
Drilling method: StrataProbe
Sampling method: Hydraulic Driver, StrataProbe Sampler
Drill contractor: TEG
Drill date: 11/21/95

SP-13

28171B19.CDR



Geologist: JED
Drilling method: StrataProbe
Sampling method: Hydraulic Driver, StrataProbe Sampler
Drill contractor: TEG
Drill date: 11/21/95

SP-14

Job No. 28171-299-005
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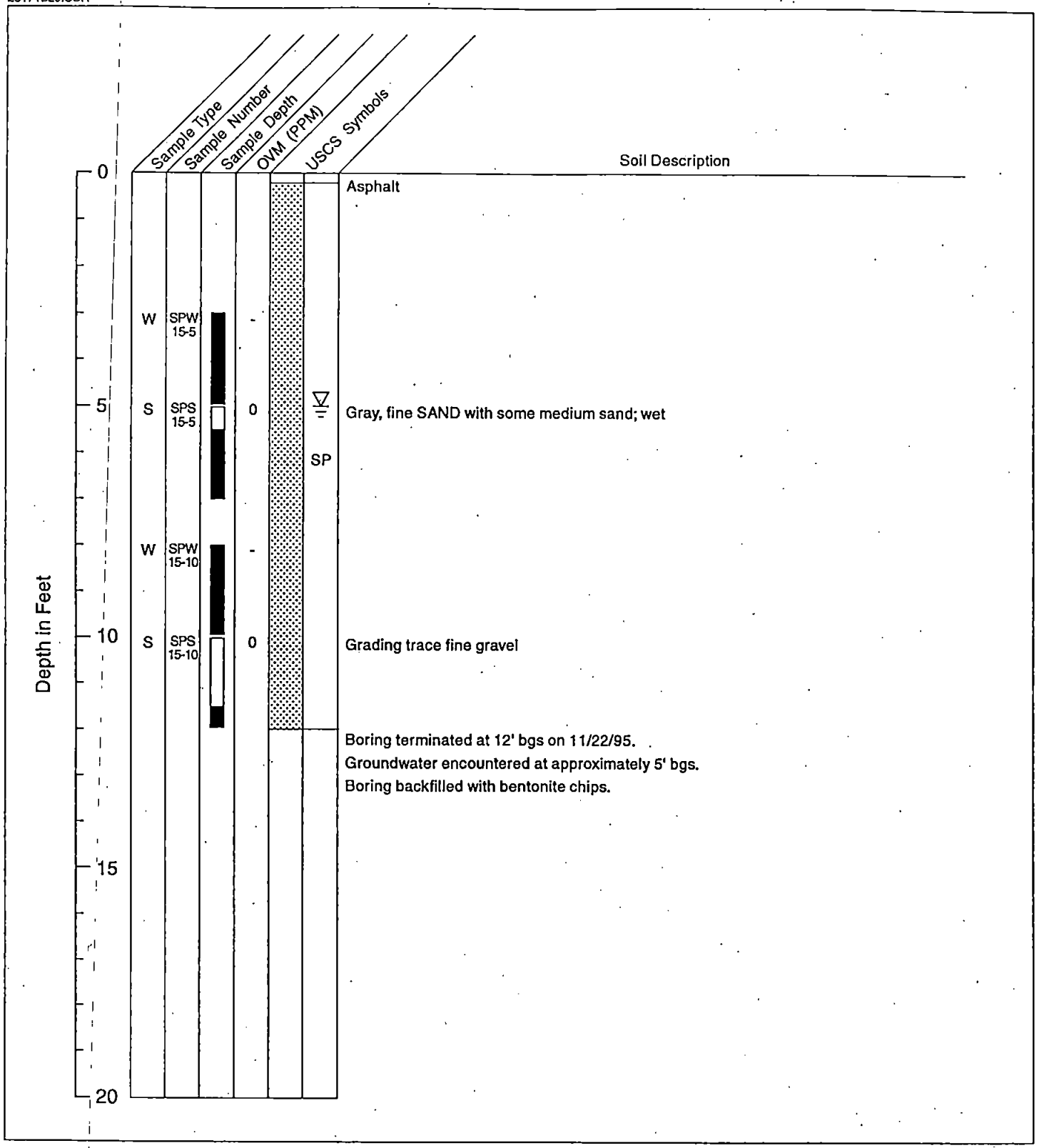
Lake Forest Park Town Center
Seattle, Washington

28171B20.CDR



Geologist: JED

Drilling method: StrataProbe

Sampling method: Hydraulic Driver, StrataProbe Sampler

Drill contractor: TEG

Drill date: 11/22/95

SP-15

Job No. 28171-299-005

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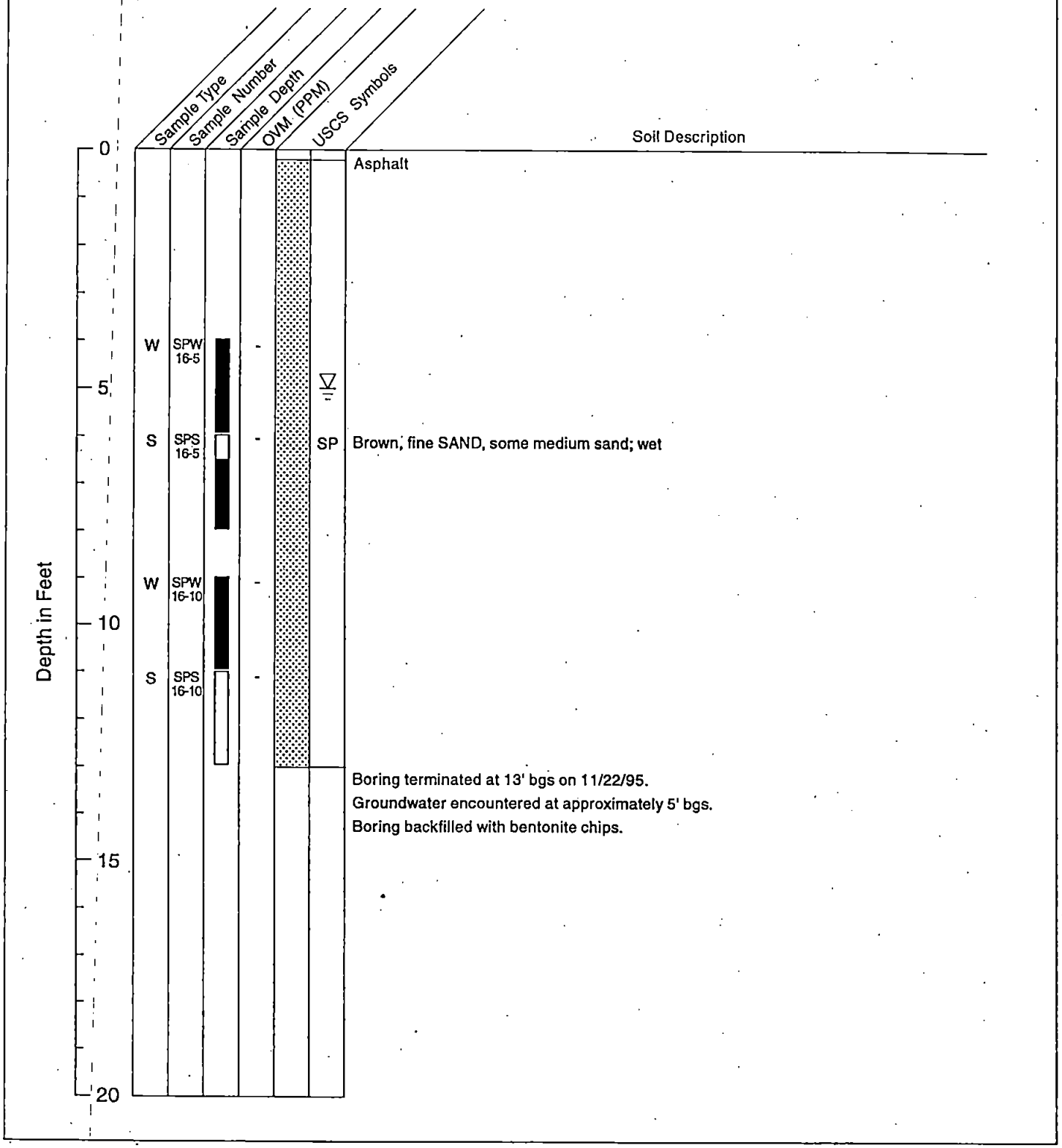
28171B21.CDR



Geologist: JED
Drilling method: StrataProbe
Sampling method: Hydraulic Driver, StrataProbe Sampler
Drill contractor: TEG
Drill date: 11/22/95

SP-16

Job No. 28171-299-005
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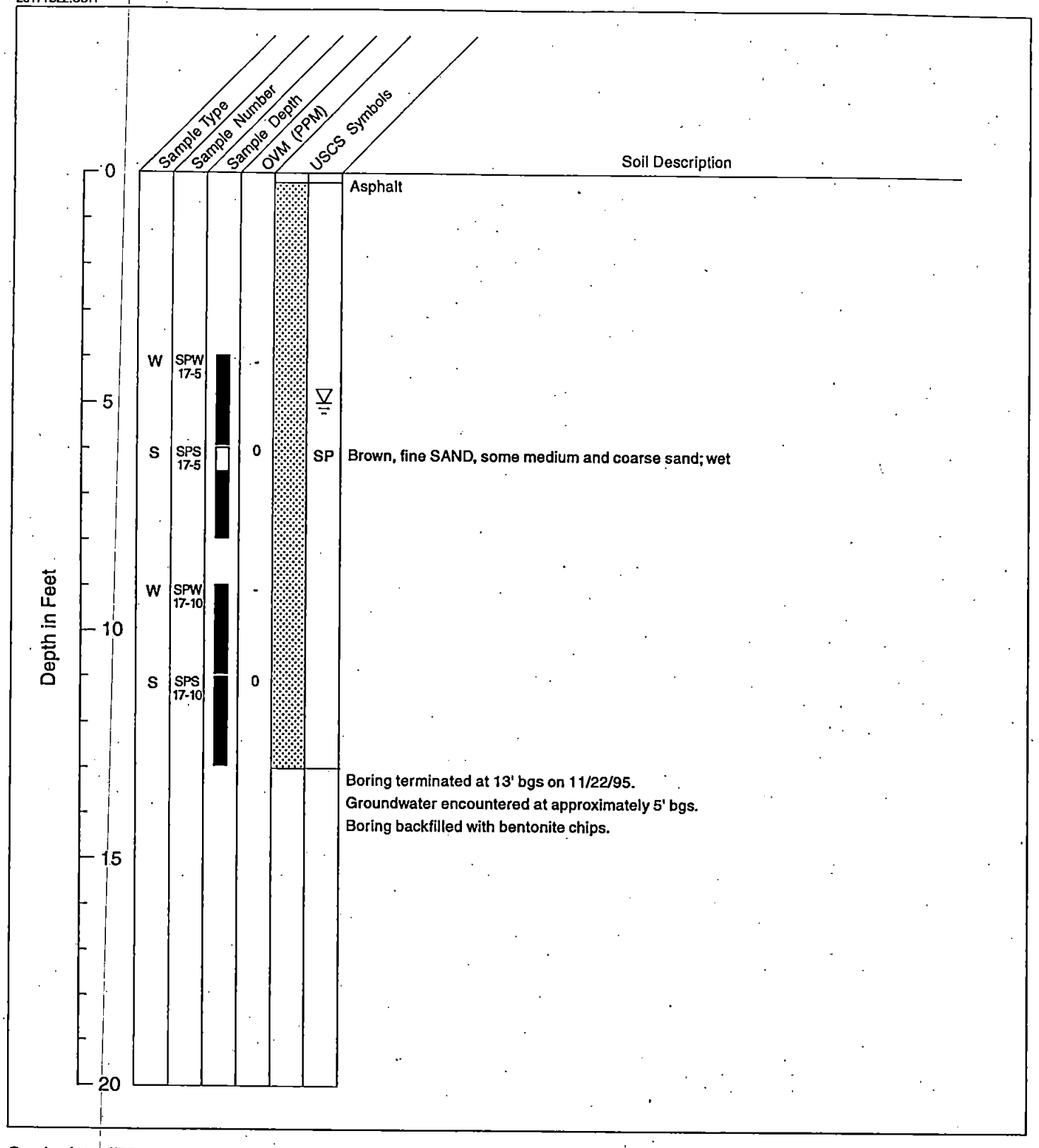
28171B22.CDR



Geologist: JED
Drilling method: StrataProbe
Sampling method: Hydraulic Driver, StrataProbe Sampler
Drill contractor: TEG
Drill date: 11/22/95

SP-17

Job No. 28171-299-005
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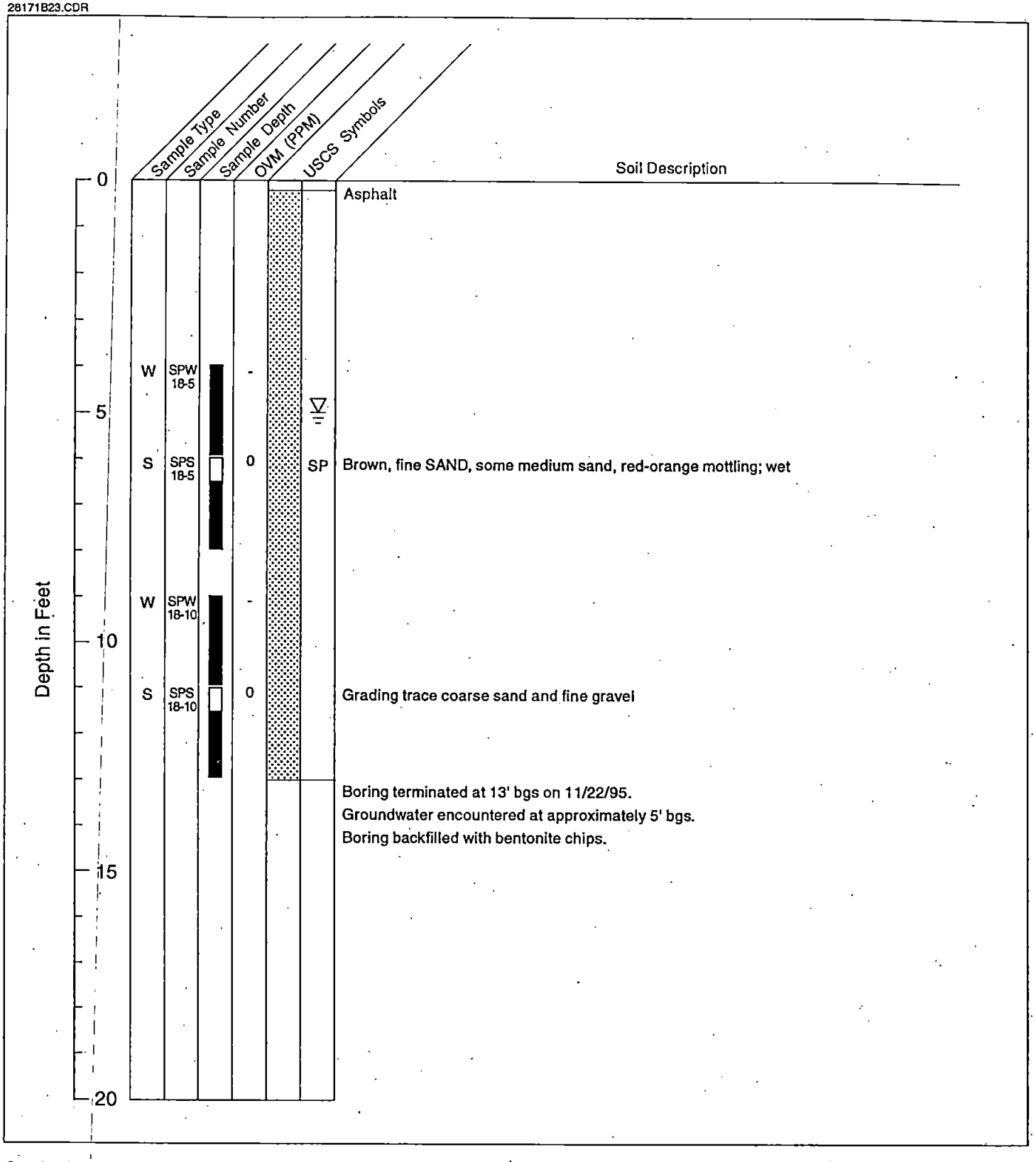
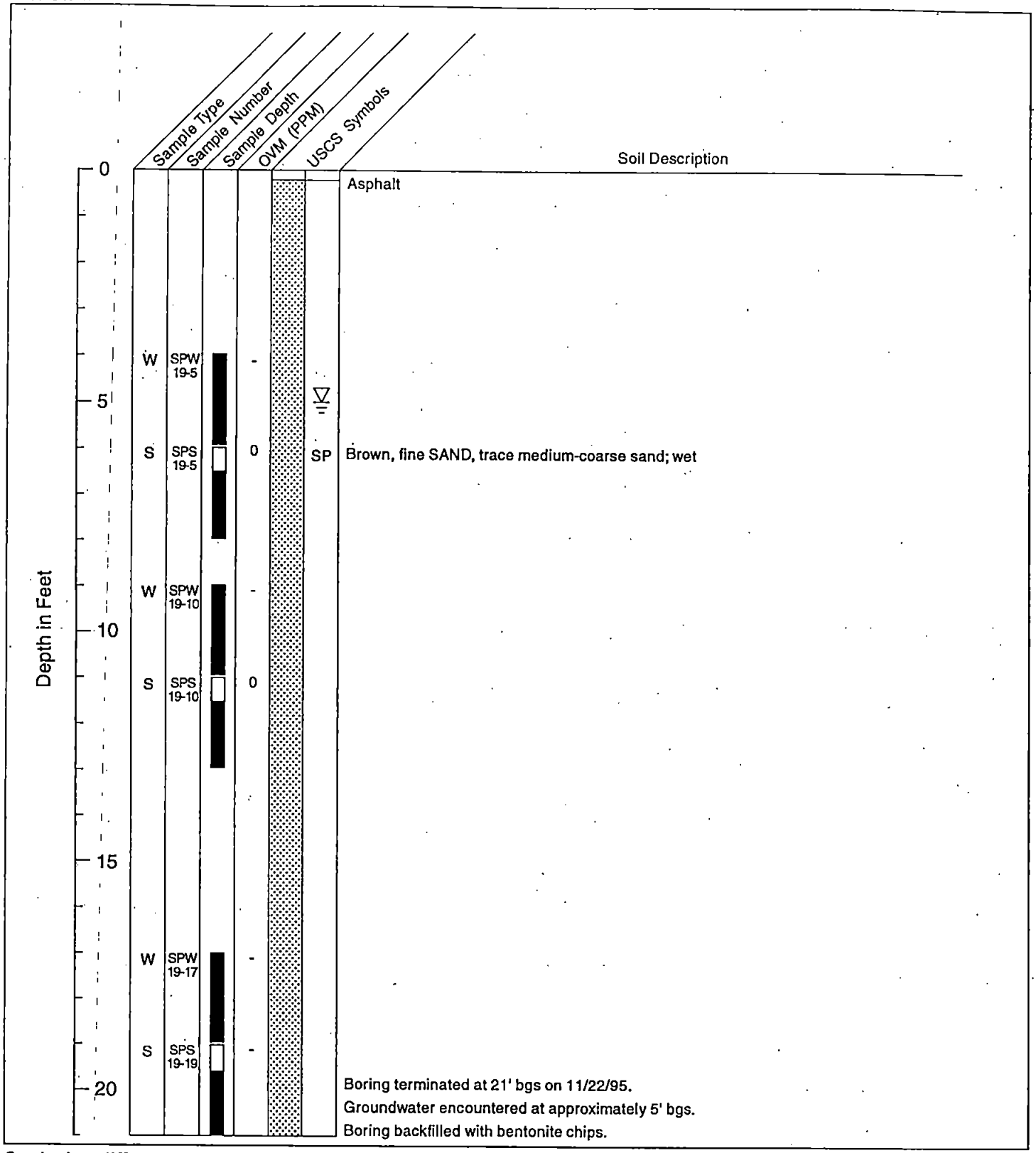
28171B23.CDR



Geologist: JED
Drilling method: StrataProbe
Sampling method: Hydraulic Driver, StrataProbe Sampler
Drill contractor: TEG
Drill date: 11/22/95

SP-18

28171B24.CDR



Geologist: JED

Drilling method: StrataProbe

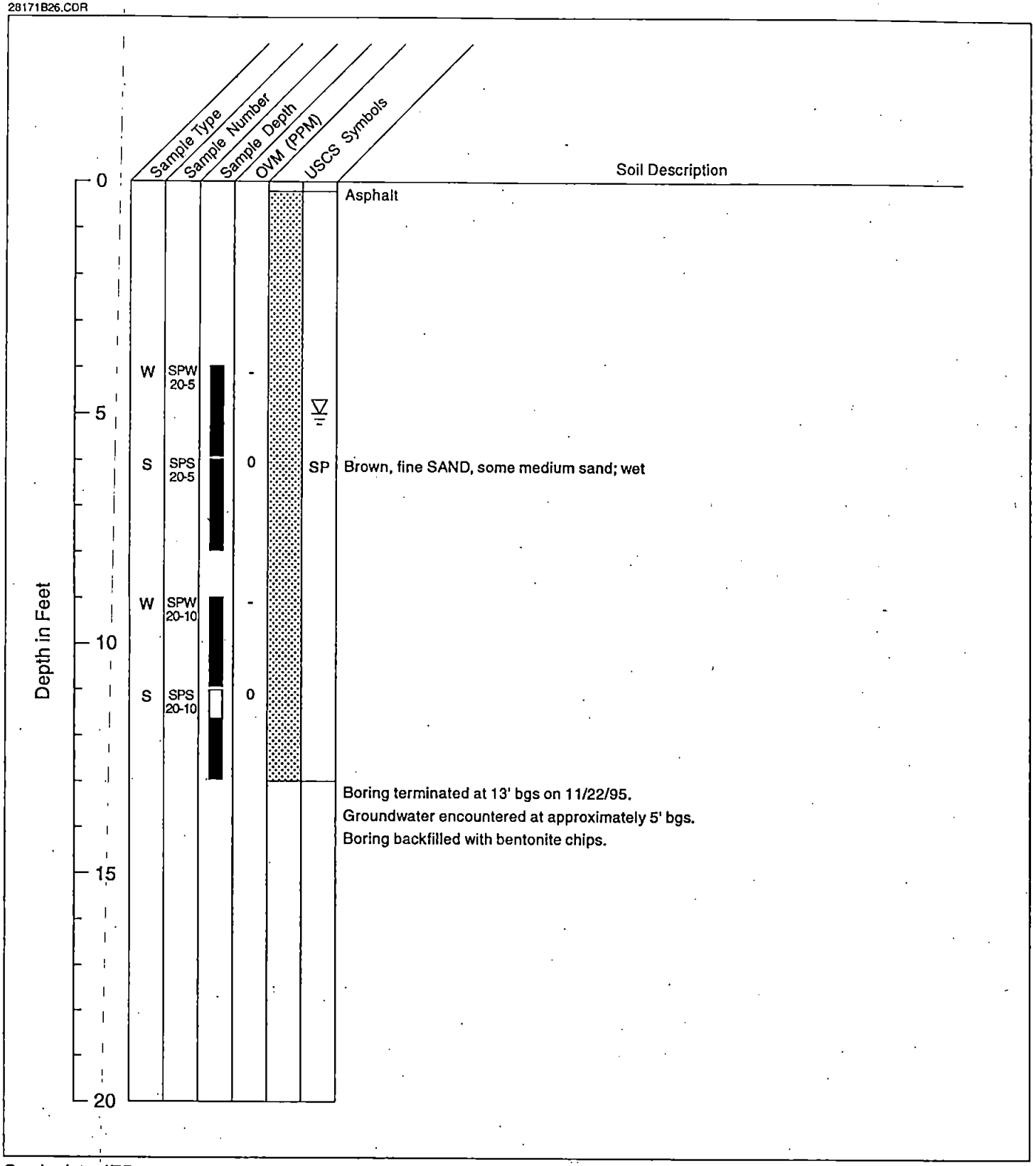
Sampling method: Hydraulic Driver, StrataProbe Sampler

Drill contractor: TEG

Drill date: 11/22/95

SP-19

28171B26.CDR



Geologist: JED
Drilling method: StrataProbe
Sampling method: Hydraulic Driver, StrataProbe Sampler
Drill contractor: TEG
Drill date: 11/22/95

SP-20

Job No. 28171-299-005
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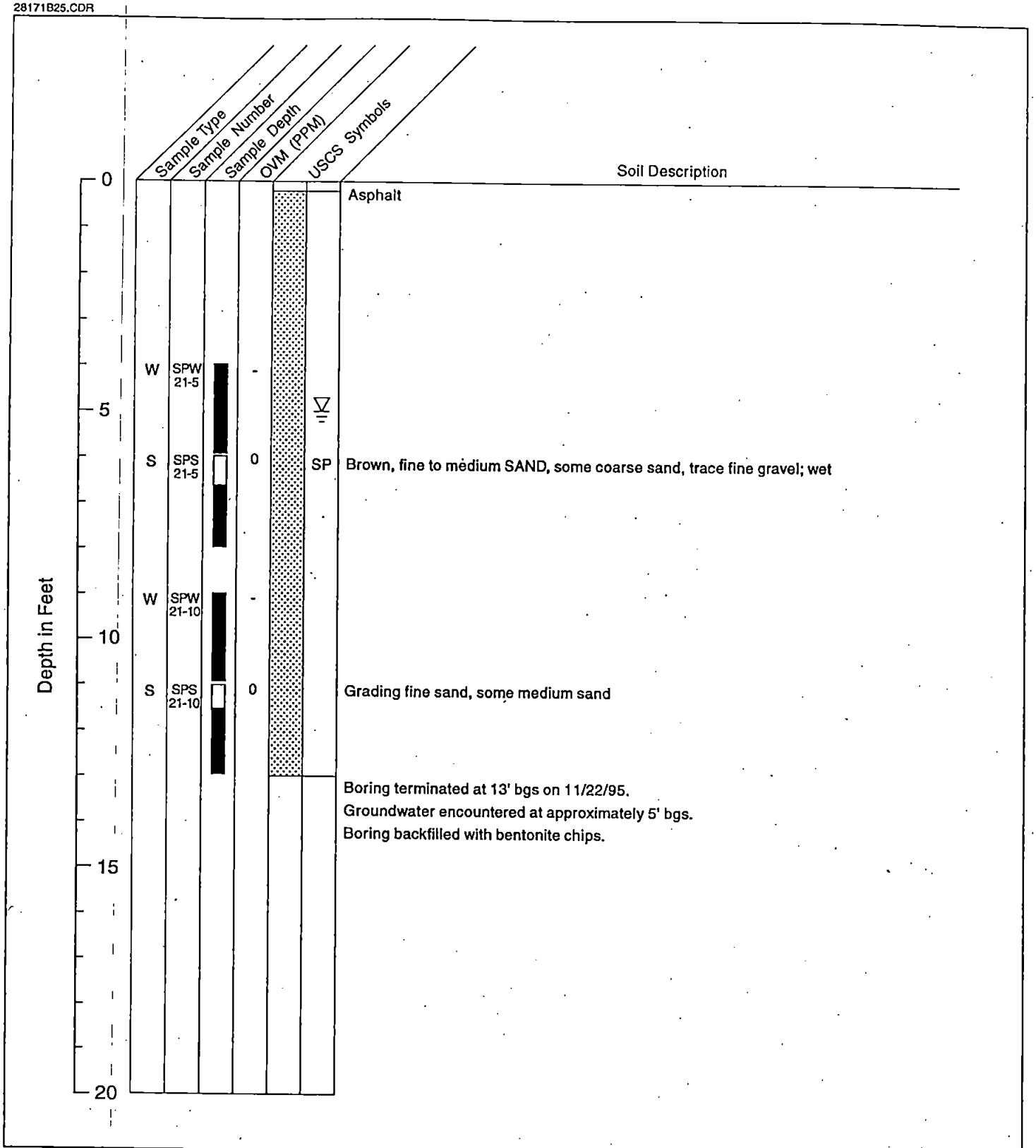
Seattle, Washington

28171B25.CDR



Geologist: JED

Drilling method: StrataProbe

Sampling method: Hydraulic Driver, StrataProbe Sampler

Drill contractor: TEG

Drill date: 11/22/95

SP-21

Job No. 28171-299-005

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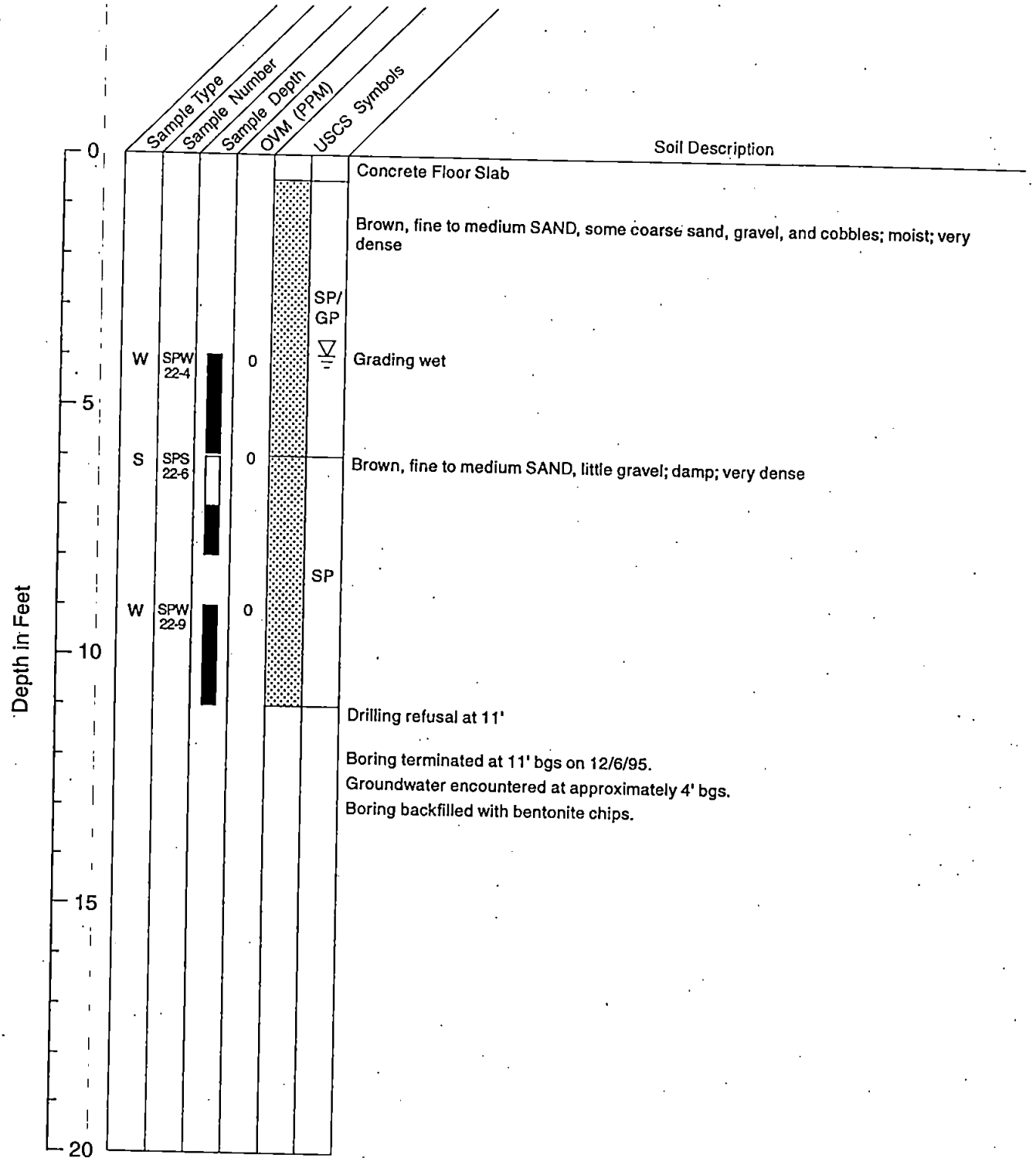
28171B26.CDR

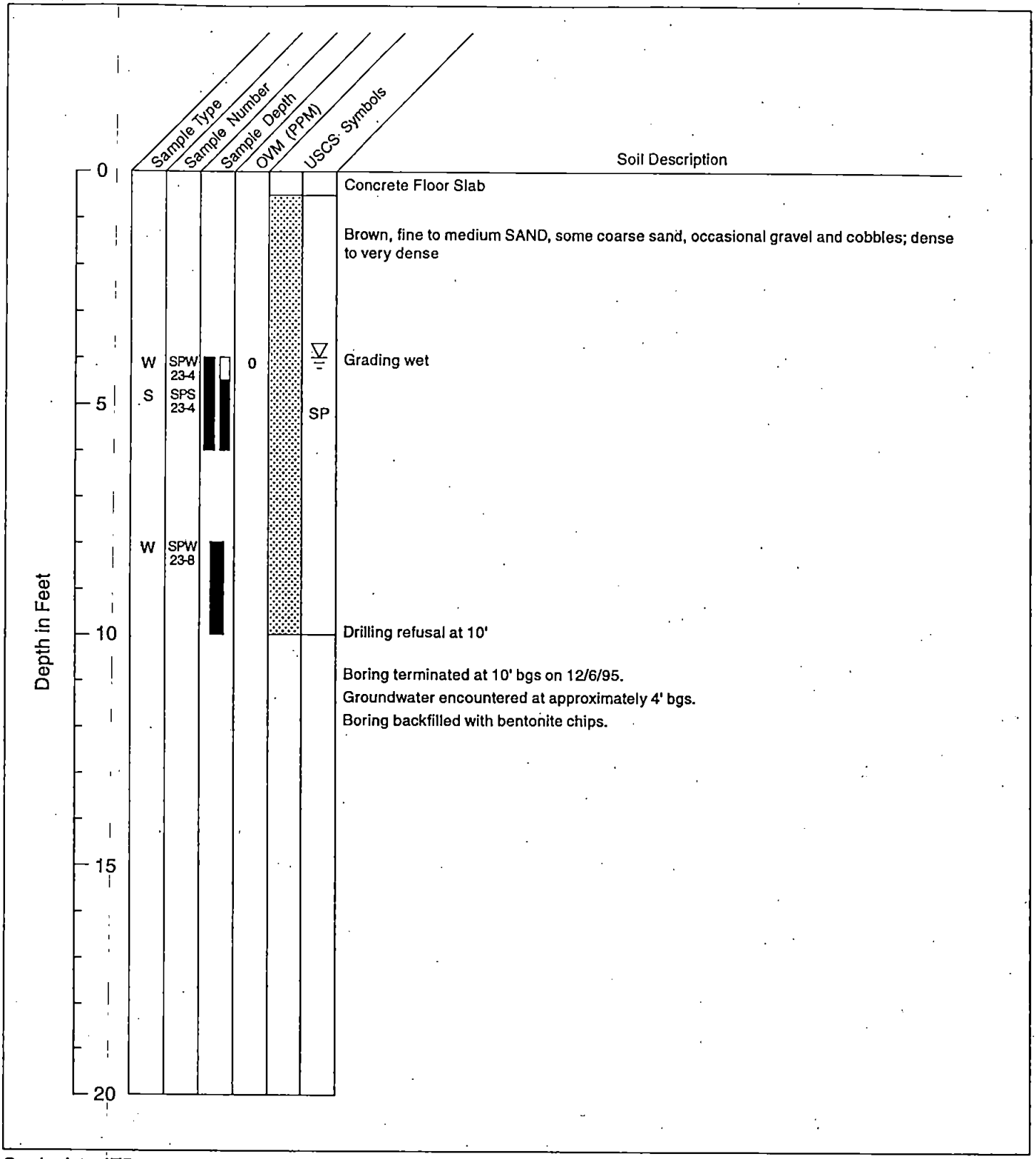


Geologist: JED
Drilling method: GeoProbe
Sampling method: Hydraulic Driver, StrataProbe Sampler
Drill contractor: TEG
Drill date: 12/6/95

Job No. 28171-299-005
DAMES & MOORE

SP-22
Lake Forest Park Town Center
Seattle, Washington

28171B28.CDR



Geologist: JED

Drilling method: GeoProbe

Sampling method: Hydraulic Driver, StrataProbe Sampler

Drill contractor: TEG

Drill date: 12/6/95

SP-23

Job No. 28171-299-005

DAMES & MOORE

Lake Forest Park Town Center
Seattle, Washington

APPENDIX B

LABORATORY ANALYTICAL REPORTS

MEMORANDUM

Date: November 8, 1995

To: David Raubvogel, Project Manager

From: Johnna Moore, Staff Chemist

Subject: Data Validation Review
Water and Soil Organic Data
Lake Forest Park 28171-299-005

The data quality review of 5 water and 1 trip blank samples, collected on October 18, 1995 has been completed. The samples were analyzed at Northcreek Analytical (Northcreek) in Bothell, Washington for volatile organic compounds (VOC's) by EPA Method 8260. The analyses were performed in accordance with the methods specified in EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, January, 1995. Sample results, method blanks, surrogate spikes, matrix spikes/matrix spike duplicates and field duplicates were received from the laboratory. The following samples are associated with laboratory case number (or accession number) B510415:

Sample	Matrix
SPW-8-1@4.5	Water
SPW-8-2@10	Water
SPW-8-3@26	Water
SPW-8-3@26 Dup	Water
Rinsate-1	Water
Trip Blank	Water

The following comments refer to Northcreek's performance in meeting the quality control specifications described in the EPA documents "EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", January 1995 and "USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review", February, 1994.

1. Holding Time - Acceptable

2. Blanks - Acceptable

3. Surrogates - Acceptable

4. Matrix Spikes - Acceptable

5. Field Duplicates - Acceptable

6. Type of Review - Summary

7. Overall Assessment of Data

The usefulness of the data is based on the EPA guidance documents listed above. Upon consideration of the information presented above, the data are acceptable except where flagged with data qualifiers that modify the

usefulness of the individual values.

Data Qualifiers

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

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9405 S.W. Nimbus Avenue • Beaverton, OR 97008-7132 (503) 643-9200 • FAX 644-2202

Dames & Moore	Project Name:	#28171-291-148	
2025 First Avenue, #500	Client Project :	Not Provided	
Seattle, WA 98119			Received: Oct 20, 1995
Attention: Rik Langendoen	NCA Project #:	B510415	Reported: Oct 24, 1995

PROJECT SUMMARY PAGE

Laboratory Sample Number	Sample Description	Sample Matrix	Date Sampled
B510415-06	SPW-8-1 @ 4.5'	Water	10/20/95
B510415-07	SPW-8-2 @ 10'	Water	10/20/95
B510415-08	SPW-8-3 @ 26'	Water	10/20/95
B510415-10	SPW-8-3 @ 26' DUP	Water	10/20/95
B510415-11	RINSEATE-1	Water	10/20/95
B510415-12	TRIP BLANK-1	Water	10/20/95

The results in this report apply to the samples analyzed in accordance with the chain of custody document.
This analytical report must be reproduced in its entirety.

NORTH CREEK ANALYTICAL Inc.

Emily Carfioli
Project Manager

Please Note:
Report was amended on December 15, 1995.

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9405 S.W. Nimbus Avenue • Beaverton, OR 97008-7132 (503) 643-9200 • FAX 644-2202

Dames & Moore	Client Project ID:	#28171-291-148	Sampled:	Oct 20, 1995
2025 First Avenue, #500	Sample Descript:	Water, SPW-8-1 @ 4.5'	Received:	Oct 20, 1995
Seattle, WA 98119	Analysis Method:	EPA 8260	Analyzed:	Oct 23, 1995
Attention: Rik Langendoen	Sample Number:	B510415-06	Reported:	Oct 24, 1995

VOLATILE ORGANIC COMPOUNDS

Analyte	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Benzene	1.0	N.D.
Bromobenzene	1.0	N.D.
Bromochloromethane	1.0	N.D.
Bromodichloromethane	1.0	N.D.
Bromoform	1.0	N.D.
Bromomethane	1.0	N.D.
n-Butylbenzene	1.0	N.D.
sec-Butylbenzene	1.0	N.D.
tert-Butylbenzene	1.0	N.D.
Carbon tetrachloride	1.0	N.D.
Chlorobenzene	1.0	N.D.
Chloroethane	1.0	N.D.
Chloroform	1.0	N.D.
Chloromethane	1.0	N.D.
2-Chlorotoluene	1.0	N.D.
4-Chlorotoluene	1.0	N.D.
Dibromochloromethane	1.0	N.D.
1,2-Dibromo-3-chloropropane	1.0	N.D.
1,2-Dibromoethane	1.0	N.D.
Dibromomethane	1.0	N.D.
1,2-Dichlorobenzene	1.0	N.D.
1,3-Dichlorobenzene	1.0	N.D.
1,4-Dichlorobenzene	1.0	N.D.
Dichlorodifluoromethane	1.0	N.D.
1,1-Dichloroethane	1.0	N.D.
1,2-Dichloroethane	1.0	N.D.
1,1-Dichloroethene	1.0	N.D.
cis-1,2-Dichloroethene	**1.0**	**3.1**
trans-1,2-Dichloroethene	1.0	N.D.
1,2-Dichloropropane	1.0	N.D.
1,3-Dichloropropane	1.0	N.D.
2,2-Dichloropropane	1.0	N.D.
1,1-Dichloropropene	1.0	N.D.
Ethyl Benzene	1.0	N.D.
Hexachlorobutadiene	1.0	N.D.
Isopropylbenzene	1.0	N.D.
p-Isopropyltoluene	1.0	N.D.
Methylene chloride	5.0	N.D.

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Dames & Moore	Client Project ID:	#28171-291-148	Sampled:	Oct 20, 1995
2025 First Avenue, #500	Sample Descript:	Water, SPW-8-1 @ 4.5'	Received:	Oct 20, 1995
Seattle, WA 98119	Analysis Method:	EPA 8260	Analyzed:	Oct 23, 1995
Attention: Rik Langendoen	Sample Number:	B510415-06	Reported:	Oct 24, 1995

VOLATILE ORGANIC COMPOUNDS

Analyte	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Naphthalene	1.0	N.D.
n-Propylbenzene	1.0	N.D.
Styrene	1.0	N.D.
1,1,1,2-Tetrachloroethane	1.0	N.D.
1,1,2,2-Tetrachloroethane	1.0	N.D.
Tetrachloroethene	**1.0**	**1.8**
Toluene	1.0	N.D.
1,2,3-Trichlorobenzene	1.0	N.D.
1,2,4-Trichlorobenzene	1.0	N.D.
1,1,1-Trichloroethane	1.0	N.D.
1,1,2-Trichloroethane	1.0	N.D.
Trichloroethene	**1.0**	**2.6**
Trichlorofluoromethane	1.0	N.D.
1,2,3-Trichloropropane	1.0	N.D.
1,2,4-Trimethylbenzene	1.0	N.D.
1,3,5-Trimethylbenzene	1.0	N.D.
Vinyl chloride	1.0	N.D.
o-Xylene	1.0	N.D.
m,p-Xylene	1.0	N.D.

Surrogate Standards Percent Recovery:		Control Limits
1,2-Dichloroethane-d4	105	76-114
Toluene-d8	100	88-110
4-Bromofluorobenzene	97	86-115

Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Please Note:
Report was amended on December 15, 1995.

Emily Carfioli
Project Manager

NORTH CREEK ANALYTICAL

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9405 S.W. Nimbus Avenue • Beaverton, OR 97008-7132 (503) 643-9200 • FAX 644-2202

Dames & Moore	Client Project ID:	#28171-291-148	Sampled:	Oct 20, 1995
2025 First Avenue, #500	Sample Descript:	Water, SPW-8-2 @ 10'	Received:	Oct 20, 1995
Seattle, WA 98119	Analysis Method:	EPA 8260	Analyzed:	Oct 23, 1995
Attention: Rik Langendoen	Sample Number:	B510415-07	Reported:	Oct 24, 1995

VOLATILE ORGANIC COMPOUNDS

Analyte	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Benzene	1.0	N.D.
Bromobenzene	1.0	N.D.
Bromochloromethane	1.0	N.D.
Bromodichloromethane	1.0	N.D.
Bromoform	1.0	N.D.
Bromomethane	1.0	N.D.
n-Butylbenzene	1.0	N.D.
sec-Butylbenzene	1.0	N.D.
tert-Butylbenzene	1.0	N.D.
Carbon tetrachloride	1.0	N.D.
Chlorobenzene	1.0	N.D.
Chloroethane	1.0	N.D.
Chloroform	1.0	N.D.
Chloromethane	1.0	N.D.
2-Chlorotoluene	1.0	N.D.
4-Chlorotoluene	1.0	N.D.
Dibromochloromethane	1.0	N.D.
1,2-Dibromo-3-chloropropane	1.0	N.D.
1,2-Dibromoethane	1.0	N.D.
Dibromomethane	1.0	N.D.
1,2-Dichlorobenzene	1.0	N.D.
1,3-Dichlorobenzene	1.0	N.D.
1,4-Dichlorobenzene	1.0	N.D.
Dichlorodifluoromethane	1.0	N.D.
1,1-Dichloroethane	1.0	N.D.
1,2-Dichloroethane	1.0	N.D.
1,1-Dichloroethene	1.0	N.D.
cis-1,2-Dichloroethene	1.0	N.D.
trans-1,2-Dichloroethene	1.0	N.D.
1,2-Dichloropropane	1.0	N.D.
1,3-Dichloropropane	1.0	N.D.
2,2-Dichloropropane	1.0	N.D.
1,1-Dichloropropene	1.0	N.D.
Ethyl Benzene	1.0	N.D.
Hexachlorobutadiene	1.0	N.D.
Isopropylbenzene	1.0	N.D.
p-Isopropyltoluene	1.0	N.D.
Methylene chloride	5.0	N.D.

NORTH CREEK ANALYTICAL

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9405 S.W. Nimbus Avenue • Beaverton, OR 97008-7132 (503) 643-9200 • FAX 644-2202

Dames & Moore	Client Project ID:	#28171-291-148	Sampled:	Oct 20, 1995
2025 First Avenue, #500	Sample Descript:	Water, SPW-8-2 @ 10'	Received:	Oct 20, 1995
Seattle, WA 98119	Analysis Method:	EPA 8260	Analyzed:	Oct 23, 1995
Attention: Rik Langendoen	Sample Number:	B510415-07	Reported:	Oct 24, 1995

VOLATILE ORGANIC COMPOUNDS

Analyte	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Naphthalene	1.0	N.D.
n-Propylbenzene	1.0	N.D.
Styrene	1.0	N.D.
1,1,1,2-Tetrachloroethane	1.0	N.D.
1,1,2,2-Tetrachloroethane	1.0	N.D.
Tetrachloroethene	**1.0**	**18**
Toluene	1.0	N.D.
1,2,3-Trichlorobenzene	1.0	N.D.
1,2,4-Trichlorobenzene	1.0	N.D.
1,1,1-Trichloroethane	1.0	N.D.
1,1,2-Trichloroethane	1.0	N.D.
Trichloroethene	1.0	N.D.
Trichlorofluoromethane	1.0	N.D.
1,2,3-Trichloropropane	1.0	N.D.
1,2,4-Trimethylbenzene	1.0	N.D.
1,3,5-Trimethylbenzene	1.0	N.D.
Vinyl chloride	1.0	N.D.
o-Xylene	1.0	N.D.
m,p-Xylene	1.0	N.D.

Surrogate Standards Percent Recovery:		Control Limits
1,2-Dichloroethane-d4	104	76-114
Toluene-d8	100	88-110
4-Bromofluorobenzene	96	86-115

Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Please Note:
Report was amended on December 15, 1995.

Emily Carfioli
Project Manager

NORTH CREEK ANALYTICAL

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Dames & Moore	Client Project ID:	#28171-291-148	Sampled:	Oct 20, 1995
2025 First Avenue, #500	Sample Descript:	Water, SPW-8-3 @ 26'	Received:	Oct 20, 1995
Seattle, WA 98119	Analysis Method:	EPA 8260	Analyzed:	Oct 23, 1995
Attention: Rik Langendoen	Sample Number:	B510415-08	Reported:	Oct 24, 1995

VOLATILE ORGANIC COMPOUNDS

Analyte	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Benzene	1.0	N.D.
Bromobenzene	1.0	N.D.
Bromochloromethane	1.0	N.D.
Bromodichloromethane	1.0	N.D.
Bromoform	1.0	N.D.
Bromomethane	1.0	N.D.
n-Butylbenzene	1.0	N.D.
sec-Butylbenzene	1.0	N.D.
tert-Butylbenzene	1.0	N.D.
Carbon tetrachloride	1.0	N.D.
Chlorobenzene	1.0	N.D.
Chloroethane	1.0	N.D.
Chloroform	1.0	N.D.
Chloromethane	1.0	N.D.
2-Chlorotoluene	1.0	N.D.
4-Chlorotoluene	1.0	N.D.
Dibromochloromethane	1.0	N.D.
1,2-Dibromo-3-chloropropane	1.0	N.D.
1,2-Dibromoethane	1.0	N.D.
Dibromomethane	1.0	N.D.
1,2-Dichlorobenzene	1.0	N.D.
1,3-Dichlorobenzene	1.0	N.D.
1,4-Dichlorobenzene	1.0	N.D.
Dichlorodifluoromethane	1.0	N.D.
1,1-Dichloroethane	1.0	N.D.
1,2-Dichloroethane	1.0	N.D.
1,1-Dichloroethene	1.0	N.D.
cis-1,2-Dichloroethene	1.0	N.D.
trans-1,2-Dichloroethene	1.0	N.D.
1,2-Dichloropropane	1.0	N.D.
1,3-Dichloropropane	1.0	N.D.
2,2-Dichloropropane	1.0	N.D.
1,1-Dichloropropene	1.0	N.D.
Ethyl Benzene	1.0	N.D.
Hexachlorobutadiene	1.0	N.D.
Isopropylbenzene	1.0	N.D.
p-Isopropyltoluene	1.0	N.D.
Methylene chloride	5.0	N.D.

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Dames & Moore	Client Project ID:	#28171-291-148	Sampled:	Oct 20, 1995
2025 First Avenue, #500	Sample Descript:	Water, SPW-8-3 @ 26'	Received:	Oct 20, 1995
Seattle, WA 98119	Analysis Method:	EPA 8260	Analyzed:	Oct 23, 1995
Attention: Rik Langendoen	Sample Number:	B510415-08	Reported:	Oct 24, 1995

VOLATILE ORGANIC COMPOUNDS

Analyte	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Naphthalene	1.0	N.D.
n-Propylbenzene	1.0	N.D.
Styrene	1.0	N.D.
1,1,1,2-Tetrachloroethane	1.0	N.D.
1,1,2,2-Tetrachloroethane	1.0	N.D.
Tetrachloroethene	1.0	N.D.
Toluene	1.0	N.D.
1,2,3-Trichlorobenzene	1.0	N.D.
1,2,4-Trichlorobenzene	1.0	N.D.
1,1,1-Trichloroethane	1.0	N.D.
1,1,2-Trichloroethane	1.0	N.D.
Trichloroethene	1.0	N.D.
Trichlorofluoromethane	1.0	N.D.
1,2,3-Trichloropropane	1.0	N.D.
1,2,4-Trimethylbenzene	1.0	N.D.
1,3,5-Trimethylbenzene	1.0	N.D.
Vinyl chloride	1.0	N.D.
o-Xylene	1.0	N.D.
m,p-Xylene	1.0	N.D.

Surrogate Standards Percent Recovery:		Control Limits
1,2-Dichloroethane-d4	101	76-114
Toluene-d8	100	88-110
4-Bromofluorobenzene	95	86-115

Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Please Note:
Report was amended on December 15, 1995.

Emily Carfioli
Project Manager

NORTH CREEK ANALYTICAL

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Dames & Moore	Client Project ID:	#28171-291-148	Sampled:	Oct 20, 1995
2025 First Avenue, #500	Sample Descript:	Water, SPW-8-3 @ 26', DUP	Received:	Oct 20, 1995
Seattle, WA 98119	Analysis Method:	EPA 8260	Analyzed:	Oct 23, 1995
Attention: Rik Langendoen	Sample Number:	B510415-10	Reported:	Oct 24, 1995

VOLATILE ORGANIC COMPOUNDS

Analyte	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Benzene	1.0	N.D.
Bromobenzene	1.0	N.D.
Bromochloromethane	1.0	N.D.
Bromodichloromethane	1.0	N.D.
Bromoform	1.0	N.D.
Bromomethane	1.0	N.D.
n-Butylbenzene	1.0	N.D.
sec-Butylbenzene	1.0	N.D.
tert-Butylbenzene	1.0	N.D.
Carbon tetrachloride	1.0	N.D.
Chlorobenzene	1.0	N.D.
Chloroethane	1.0	N.D.
Chloroform	1.0	N.D.
Chloromethane	1.0	N.D.
2-Chlorotoluene	1.0	N.D.
4-Chlorotoluene	1.0	N.D.
Dibromochloromethane	1.0	N.D.
1,2-Dibromo-3-chloropropane	1.0	N.D.
1,2-Dibromoethane	1.0	N.D.
Dibromomethane	1.0	N.D.
1,2-Dichlorobenzene	1.0	N.D.
1,3-Dichlorobenzene	1.0	N.D.
1,4-Dichlorobenzene	1.0	N.D.
Dichlorodifluoromethane	1.0	N.D.
1,1-Dichloroethane	1.0	N.D.
1,2-Dichloroethane	1.0	N.D.
1,1-Dichloroethene	1.0	N.D.
cis-1,2-Dichloroethene	1.0	N.D.
trans-1,2-Dichloroethene	1.0	N.D.
1,2-Dichloropropane	1.0	N.D.
1,3-Dichloropropane	1.0	N.D.
2,2-Dichloropropane	1.0	N.D.
1,1-Dichloropropene	1.0	N.D.
Ethyl Benzene	1.0	N.D.
Hexachlorobutadiene	1.0	N.D.
Isopropylbenzene	1.0	N.D.
p-Isopropyltoluene	1.0	N.D.
Methylene chloride	5.0	N.D.

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Dames & Moore	Client Project ID:	#28171-291-148	Sampled:	Oct 20, 1995
2025 First Avenue, #500	Sample Descript:	Water, SPW-8-3 @ 26', DUP	Received:	Oct 20, 1995
Seattle, WA 98119	Analysis Method:	EPA 8260	Analyzed:	Oct 23, 1995
Attention: Rik Langendoen	Sample Number:	B510415-10	Reported:	Oct 24, 1995

VOLATILE ORGANIC COMPOUNDS

Analyte	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Naphthalene	1.0	N.D.
n-Propylbenzene	1.0	N.D.
Styrene	1.0	N.D.
1,1,1,2-Tetrachloroethane	1.0	N.D.
1,1,2,2-Tetrachloroethane	1.0	N.D.
Tetrachloroethene	1.0	N.D.
Toluene	1.0	N.D.
1,2,3-Trichlorobenzene	1.0	N.D.
1,2,4-Trichlorobenzene	1.0	N.D.
1,1,1-Trichloroethane	1.0	N.D.
1,1,2-Trichloroethane	1.0	N.D.
Trichloroethene	1.0	N.D.
Trichlorofluoromethane	1.0	N.D.
1,2,3-Trichloropropane	1.0	N.D.
1,2,4-Trimethylbenzene	1.0	N.D.
1,3,5-Trimethylbenzene	1.0	N.D.
Vinyl chloride	1.0	N.D.
o-Xylene	1.0	N.D.
m,p-Xylene	1.0	N.D.

Surrogate Standards Percent Recovery:		Control Limits
1,2-Dichloroethane-d4	104	76-114
Toluene-d8	100	88-110
4-Bromofluorobenzene	95	86-115

Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Emily Carfioli
Project Manager

Please Note:
Report was amended on December 15, 1995.

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Dames & Moore	Client Project ID:	#28171-291-148	Sampled:	Oct 20, 1995
2025 First Avenue, #500	Sample Descript:	Water, RINSEATE-1	Received:	Oct 20, 1995
Seattle, WA 98119	Analysis Method:	EPA 8260	Analyzed:	Oct 23, 1995
Attention: Rik Langendoen	Sample Number:	B510415-11	Reported:	Oct 24, 1995

VOLATILE ORGANIC COMPOUNDS

Analyte	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Benzene	1.0	N.D.
Bromobenzene	1.0	N.D.
Bromochloromethane	1.0	N.D.
Bromodichloromethane	1.0	N.D.
Bromoform	1.0	N.D.
Bromomethane	1.0	N.D.
n-Butylbenzene	1.0	N.D.
sec-Butylbenzene	1.0	N.D.
tert-Butylbenzene	1.0	N.D.
Carbon tetrachloride	1.0	N.D.
Chlorobenzene	1.0	N.D.
Chloroethane	1.0	N.D.
Chloroform	1.0	N.D.
Chloromethane	1.0	N.D.
2-Chlorotoluene	1.0	N.D.
4-Chlorotoluene	1.0	N.D.
Dibromochloromethane	1.0	N.D.
1,2-Dibromo-3-chloropropane	1.0	N.D.
1,2-Dibromoethane	1.0	N.D.
Dibromomethane	1.0	N.D.
1,2-Dichlorobenzene	1.0	N.D.
1,3-Dichlorobenzene	1.0	N.D.
1,4-Dichlorobenzene	1.0	N.D.
Dichlorodifluoromethane	1.0	N.D.
1,1-Dichloroethane	1.0	N.D.
1,2-Dichloroethane	1.0	N.D.
1,1-Dichloroethene	1.0	N.D.
cis-1,2-Dichloroethene	1.0	N.D.
trans-1,2-Dichloroethene	1.0	N.D.
1,2-Dichloropropane	1.0	N.D.
1,3-Dichloropropane	1.0	N.D.
2,2-Dichloropropane	1.0	N.D.
1,1-Dichloropropene	1.0	N.D.
Ethyl Benzene	1.0	N.D.
Hexachlorobutadiene	1.0	N.D.
Isopropylbenzene	1.0	N.D.
p-Isopropyltoluene	1.0	N.D.
Methylene chloride	5.0	N.D.

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Dames & Moore	Client Project ID:	#28171-291-148	Sampled:	Oct 20, 1995
2025 First Avenue, #500	Sample Descript:	Water, RINSEATE-1	Received:	Oct 20, 1995
Seattle, WA 98119	Analysis Method:	EPA 8260	Analyzed:	Oct 23, 1995
Attention: Rik Langendoen	Sample Number:	B510415-11	Reported:	Oct 24, 1995

VOLATILE ORGANIC COMPOUNDS

Analyte	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Naphthalene	1.0	N.D.
n-Propylbenzene	1.0	N.D.
Styrene	1.0	N.D.
1,1,1,2-Tetrachloroethane	1.0	N.D.
1,1,2,2-Tetrachloroethane	1.0	N.D.
Tetrachloroethene	1.0	N.D.
Toluene	1.0	N.D.
1,2,3-Trichlorobenzene	1.0	N.D.
1,2,4-Trichlorobenzene	1.0	N.D.
1,1,1-Trichloroethane	1.0	N.D.
1,1,2-Trichloroethane	1.0	N.D.
Trichloroethene	1.0	N.D.
Trichlorofluoromethane	1.0	N.D.
1,2,3-Trichloropropane	1.0	N.D.
1,2,4-Trimethylbenzene	1.0	N.D.
1,3,5-Trimethylbenzene	1.0	N.D.
Vinyl chloride	1.0	N.D.
o-Xylene	1.0	N.D.
m,p-Xylene	1.0	N.D.

Surrogate Standards Percent Recovery:		Control Limits
1,2-Dichloroethane-d4	99	76-114
Toluene-d8	98	88-110
4-Bromofluorobenzene	94	86-115

Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Emily Carfioli
Project Manager

Please Note:
Report was amended on December 15, 1995.

NORTH CREEK ANALYTICAL

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Dames & Moore	Client Project ID:	#28171-291-148	Sampled:	Oct 20, 1995
2025 First Avenue, #500	Sample Descript:	Water, TRIP BLANK-1	Received:	Oct 20, 1995
Seattle, WA 98119	Analysis Method:	EPA 8260	Analyzed:	Oct 23, 1995
Attention: Rik Langendoen	Sample Number:	B510415-12	Reported:	Oct 24, 1995

VOLATILE ORGANIC COMPOUNDS

Analyte	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Benzene	1.0	N.D.
Bromobenzene	1.0	N.D.
Bromochloromethane	1.0	N.D.
Bromodichloromethane	1.0	N.D.
Bromoform	1.0	N.D.
Bromomethane	1.0	N.D.
n-Butylbenzene	1.0	N.D.
sec-Butylbenzene	1.0	N.D.
tert-Butylbenzene	1.0	N.D.
Carbon tetrachloride	1.0	N.D.
Chlorobenzene	1.0	N.D.
Chloroethane	1.0	N.D.
Chloroform	1.0	N.D.
Chloromethane	1.0	N.D.
2-Chlorotoluene	1.0	N.D.
4-Chlorotoluene	1.0	N.D.
Dibromochloromethane	1.0	N.D.
1,2-Dibromo-3-chloropropane	1.0	N.D.
1,2-Dibromoethane	1.0	N.D.
Dibromomethane	1.0	N.D.
1,2-Dichlorobenzene	1.0	N.D.
1,3-Dichlorobenzene	1.0	N.D.
1,4-Dichlorobenzene	1.0	N.D.
Dichlorodifluoromethane	1.0	N.D.
1,1-Dichloroethane	1.0	N.D.
1,2-Dichloroethane	1.0	N.D.
1,1-Dichloroethene	1.0	N.D.
cis-1,2-Dichloroethene	1.0	N.D.
trans-1,2-Dichloroethene	1.0	N.D.
1,2-Dichloropropane	1.0	N.D.
1,3-Dichloropropane	1.0	N.D.
2,2-Dichloropropane	1.0	N.D.
1,1-Dichloropropene	1.0	N.D.
Ethyl Benzene	1.0	N.D.
Hexachlorobutadiene	1.0	N.D.
Isopropylbenzene	1.0	N.D.
p-Isopropyltoluene	1.0	N.D.
Methylene chloride	5.0	N.D.

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Dames & Moore	Client Project ID:	#28171-291-148	Sampled:	Oct 20, 1995
2025 First Avenue, #500	Sample Descript:	Water, TRIP BLANK-1	Received:	Oct 20, 1995
Seattle, WA 98119	Analysis Method:	EPA 8260	Analyzed:	Oct 23, 1995
Attention: Rik Langendoen	Sample Number:	B510415-12	Reported:	Oct 24, 1995

VOLATILE ORGANIC COMPOUNDS

Analyte	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Naphthalene	1.0	N.D.
n-Propylbenzene	1.0	N.D.
Styrene	1.0	N.D.
1,1,1,2-Tetrachloroethane	1.0	N.D.
1,1,2,2-Tetrachloroethane	1.0	N.D.
Tetrachloroethene	1.0	N.D.
Toluene	1.0	N.D.
1,2,3-Trichlorobenzene	1.0	N.D.
1,2,4-Trichlorobenzene	1.0	N.D.
1,1,1-Trichloroethane	1.0	N.D.
1,1,2-Trichloroethane	1.0	N.D.
Trichloroethene	1.0	N.D.
Trichlorofluoromethane	1.0	N.D.
1,2,3-Trichloropropane	1.0	N.D.
1,2,4-Trimethylbenzene	1.0	N.D.
1,3,5-Trimethylbenzene	1.0	N.D.
Vinyl chloride	1.0	N.D.
o-Xylene	1.0	N.D.
m,p-Xylene	1.0	N.D.

Surrogate Standards Percent Recovery:		Control Limits
1,2-Dichloroethane-d4	107	76-114
Toluene-d8	100	88-110
4-Bromofluorobenzene	94	86-115

Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Please Note:
Report was amended on December 15, 1995.

Emily Carfioli
Project Manager

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NORTH CREEK ANALYTICAL

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Dames & Moore
2025 First Avenue, #500
Seattle, WA 98119
Attention: Rik Langendoen

Client Project ID: #28171-291-148
Sample Descript: Method Blank
Analysis Method: EPA 8260
Sample Number: BLK102395

Analyzed: Oct 23, 1995
Reported: Oct 24, 1995

VOLATILE ORGANIC COMPOUNDS

Analyte	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Benzene	1.0	N.D.
Bromobenzene	1.0	N.D.
Bromochloromethane	1.0	N.D.
Bromodichloromethane	1.0	N.D.
Bromoform	1.0	N.D.
Bromomethane	1.0	N.D.
n-Butylbenzene	1.0	N.D.
sec-Butylbenzene	1.0	N.D.
tert-Butylbenzene	1.0	N.D.
Carbon tetrachloride	1.0	N.D.
Chlorobenzene	1.0	N.D.
Chloroethane	1.0	N.D.
Chloroform	1.0	N.D.
Chloromethane	1.0	N.D.
2-Chlorotoluene	1.0	N.D.
4-Chlorotoluene	1.0	N.D.
Dibromochloromethane	1.0	N.D.
1,2-Dibromo-3-chloropropane	1.0	N.D.
1,2-Dibromoethane	1.0	N.D.
Dibromomethane	1.0	N.D.
1,2-Dichlorobenzene	1.0	N.D.
1,3-Dichlorobenzene	1.0	N.D.
1,4-Dichlorobenzene	1.0	N.D.
Dichlorodifluoromethane	1.0	N.D.
1,1-Dichloroethane	1.0	N.D.
1,2-Dichloroethane	1.0	N.D.
1,1-Dichloroethene	1.0	N.D.
cis-1,2-Dichloroethene	1.0	N.D.
trans-1,2-Dichloroethene	1.0	N.D.
1,2-Dichloropropane	1.0	N.D.
1,3-Dichloropropane	1.0	N.D.
2,2-Dichloropropane	1.0	N.D.
1,1-Dichloropropene	1.0	N.D.
Ethyl Benzene	1.0	N.D.
Hexachlorobutadiene	1.0	N.D.
Isopropylbenzene	1.0	N.D.
p-Isopropyltoluene	1.0	N.D.
Methylene chloride	5.0	N.D.

NORTH CREEK ANALYTICAL

18939 120th Avenue N.E., Suite 101 • Bothell, WA 98011-9508 (206) 481-9200 • FAX 485-2992
East 11115 Montgomery, Suite B • Spokane, WA 99206-4776 (509) 924-9200 • FAX 924-9290
9405 S.W. Nimbus Avenue • Beaverton, OR 97008-7132 (503) 643-9200 • FAX 644-2202

Dames & Moore
2025 First Avenue, #500
Seattle, WA 98119
Attention: Rik Langendoen

Client Project ID: #28171-291-148
Sample Descript: Method Blank
Analysis Method: EPA 8260
Sample Number: BLK102395

Analyzed: Oct 23, 1995
Reported: Oct 24, 1995

VOLATILE ORGANIC COMPOUNDS

Analyte	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Naphthalene	1.0	N.D.
n-Propylbenzene	1.0	N.D.
Styrene	1.0	N.D.
1,1,1,2-Tetrachloroethane	1.0	N.D.
1,1,2,2-Tetrachloroethane	1.0	N.D.
Tetrachloroethene	1.0	N.D.
Toluene	1.0	N.D.
1,2,3-Trichlorobenzene	1.0	N.D.
1,2,4-Trichlorobenzene	1.0	N.D.
1,1,1-Trichloroethane	1.0	N.D.
1,1,2-Trichloroethane	1.0	N.D.
Trichloroethene	1.0	N.D.
Trichlorofluoromethane	1.0	N.D.
1,2,3-Trichloropropane	1.0	N.D.
1,2,4-Trimethylbenzene	1.0	N.D.
1,3,5-Trimethylbenzene	1.0	N.D.
Vinyl chloride	1.0	N.D.
o-Xylene	1.0	N.D.
m,p-Xylene	1.0	N.D.

Surrogate Standards Percent Recovery:		Control Limits
1,2-Dichloroethane-d4	91	76-114
Toluene-d8	98	88-110
4-Bromofluorobenzene	89	86-115

Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Emily Carfioli
Project Manager

Please Note:
Report was amended on December 15, 1995.

510415.DDD <15>

NORTH CREEK ANALYTICAL

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Dames & Moore
2025 First Avenue, #500
Seattle, WA 98119
Attention: Rik Langendoen

Client Project ID: #28171-291-148
Sample Matrix: Water
Analysis Method: EPA 8260
Units: µg/L (ppb)
QC Sample #: B510415-10

Analyst: R. Lister
Analyzed: Oct 23, 1995
Reported: Oct 24, 1995

MATRIX SPIKE QUALITY CONTROL DATA REPORT

ANALYTE	1,1-DCE	Benzene	TCE	Toluene	Chloro-benzene
Sample Result:	N.D.	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	10.0	10.0	10.0	10.0	10.0
Spike Result:	9.2	9.8	9.9	9.9	9.9
Spike % Recovery:	92%	98%	99%	99%	99%
Spike Dup. Result:	8.8	9.9	10.0	9.9	10.0
Spike Duplicate % Recovery:	88%	99%	100%	99%	100%
Upper Control Limit %:	140	125	114	117	112
Lower Control Limit %:	30	76	79	89	91
Relative % Difference:	4.4%	1.0%	1.0%	0.0%	1.0%
Maximum RPD:	10	10	10	10	10

NORTH CREEK ANALYTICAL Inc.

Emily Carfioli
Project Manager

$$\text{\% Recovery:} \quad \frac{\text{Spike Result - Sample Result}}{\text{Spike Conc. Added}} \times 100$$

$$\text{Relative \% Difference:} \quad \frac{\text{Spike Result - Spike Dup. Result}}{(\text{Spike Result + Spike Dup. Result}) / 2} \times 100$$

MEMORANDUM

Date: December 7, 1995

To: David Raubvogel, Project Manager

From: Johnna Moore, Staff Chemist

Subject: Summary Data Validation Review
Water and Soil Organic Data
Lake Forest Park 28171-299-005

The data quality review of 22 water samples, collected on November 22, 1995 has been completed. The samples were analyzed by Transglobal Environmental Geochemistry (TEG) in Lacey, Washington for halogenated hydrocarbons and BTEX constituents by EPA Method 8021. The analyses were performed in accordance with the methods specified in EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, January, 1995. Sample results, method blanks, surrogate spikes, matrix spikes/matrix spike duplicates and field duplicates were received from the laboratory. The following samples are associated with laboratory case number (or accession number) 28171-299-005:

Sample	Matrix
SP-11-W-5	Water
SP-11-W10	Water
SP-12-W5	Water
SP-12-W10	Water
SP-13-W5	Water
SP-13-W10	Water
SP-14-W5	Water
SP-14-W10	Water
SP-15-W5	Water
SP-15-W10	Water
SP-16-W5	Water
SP-16-W10	Water
SP-20-W5	Water
SP-20-W10	Water
SP-21-W5	Water
SP-21-W10	Water
SP-18-W5	Water
SP-18-W10	Water
SP-17-W5	Water
SP-17-W10	Water
SP-19-W5	Water
SP-19-W10	Water

The following comments refer to TEG's performance in meeting the quality control specifications described in the EPA documents "EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", January 1995 and "USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review", February, 1994.

1. Holding Time - Acceptable

2. Blanks - Acceptable

3. Surrogates - Acceptable

4. Matrix Spikes/Matrix Spike Duplicate - Acceptable

5. Field Duplicates - Acceptable

6. Type of Review - Summary

7. Overall Assessment of Data

The usefulness of the data is based on the EPA guidance documents listed above. Upon consideration of the information presented above, the data are acceptable except where flagged with data qualifiers that modify the usefulness of the individual values.

Data Qualifiers

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

QA/QC FOR ANALYTICAL METHODS

GENERAL

The TEG Northwest Laboratory quality assurance and quality control (QA/QC) procedures are conducted following the guidelines and objectives which meet or exceed certification/-accreditation requirements of California DOHS, Washington DOE, and Oregon DEQ. The Quality Control Program is a consistent set of procedures which assures data quality through the use of appropriate blanks, replicate analyses, surrogate spikes, and matrix spikes, and with the use of reference standards that meet or exceed EPA standards.

When analyses are taking place on-site with the mobile lab, the need for Field Blanks or Travel/Trip Blanks is eliminated. If there is going to be a delay before sample preparation for analysis, the sample is stored at 4° C.

ANALYTICAL METHODS

TEG Northwest Labs use analytical methodologies which are in conformity with U. S. Environmental Protection Agency (EPA), Washington DOE, and Oregon DEQ methodologies. When necessary and appropriate due to the nature or composition of the sample, TEG may use variations of the methods which are consistent with recognized standards or variations used by the industry and government laboratories.

Purgeable Volatile Aromatics
(BTEX, EPA 602/8020)

A blank and a calibration standard are run at the beginning of the day. The standard must be within 15% of the continuing calibration curve value. The standard is rerun at the end of the day if more than 10 samples have been run. All samples are prepared with a surrogate spike, and the recovery must be between 65% and 135%. At least 1 method blank is run per day.

Purgeable Volatile Halocarbons
(Chlorinated Hydrocarbons, EPA 601/8010,8021)

A blank and a calibration standard are run at the beginning of the day. The standard must be within 15% of the continuing calibration curve value. The standard is rerun at the end of the day if more than 10 samples have been run. All samples are prepared with a surrogate spike, and the recovery must be between 65% and 135%. At least 1 method blank is run per day.

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST INC.

LAKE FOREST PROJECT
Seattle, Washington
Dames & Moore, Inc.
Project No. 28171-299-005

Specific Halogenated Hydrocarbons and BTEX (EPA 8010/8020) in Water

Sample-Number	MDL	Method Blank	SP-11 W5	SP-11 W10	SP-12 W5	SP-12 W10	SP-13 W5	SP-13 W10
Date	ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l
Dichloromethane	1	nd	nd	nd	nd	nd	nd	nd
1,1 Dichloroethene	1	nd	nd	nd	nd	nd	nd	nd
Cis-1,2 Dichloroethene	1	nd	nd	nd	nd	nd	nd	nd
Trans-1,2 Dichloroethene	1	nd	nd	nd	nd	nd	nd	nd
Benzene	1	nd	nd	nd	nd	nd	nd	nd
Trichloroethene	1	nd	nd	nd	nd	nd	nd	nd
Toluene	1	nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene	1	nd	nd	nd	nd	nd	nd	16
Ethylbenzene	1	nd	nd	nd	nd	nd	nd	nd
Total Xylenes	1	nd	nd	nd	nd	nd	nd	nd
1,1 Dichloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,2 Dichloroethane	1	nd	nd	nd	nd	nd	nd	nd
Chloroform	1	nd	nd	nd	nd	nd	nd	nd
Carbon Tetrachloride	1	nd	nd	nd	nd	nd	nd	nd
1,1,1 Trichloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,1,2 Trichloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,1,1,2 Tetrachloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,1,2,2 Tetrachloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,2,4 Trimethylbenzene	1	nd	nd	nd	nd	nd	nd	nd
1,3,5 Trimethylbenzene	1	nd	nd	nd	nd	nd	nd	nd
Recovery (%)		113	110	104	93	96	102	104

"nd" Indicates Not Detected at the listed detection limit.
"int" Indicates that interference peaks prevent determination.

LAKE FOREST PROJECT
Seattle, Washington
Dames & Moore, Inc.
Project No. 28171-299-005

Specific Halogenated Hydrocarbons and BTEX (EPA 8010/8020) in Water

Sample-Number	MDL	SP-14 W5	SP-14 W10	SP-15 W5	SP-15 W5 Dup	SP-15 W10	SP-16 W5	SP-16 W10
Date	ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l
Dichloromethane	1	nd	nd	nd	nd	nd	nd	nd
1,1 Dichloroethene	1	nd	nd	nd	nd	nd	nd	nd
Cis-1,2 Dichloroethene	1	nd	nd	nd	nd	nd	nd	nd
Trans-1,2 Dichloroethene	1	nd	nd	nd	nd	nd	nd	nd
Benzene	1	nd	nd	nd	nd	nd	nd	nd
Trichloroethene	1	nd	nd	nd	nd	nd	1.0	nd
Toluene	1	nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene	1	nd	nd	nd	nd	nd	1.7	nd
Ethylbenzene	1	nd	nd	nd	nd	nd	nd	nd
Total Xylenes	1	nd	nd	nd	nd	nd	nd	nd
1,1 Dichloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,2 Dichloroethane	1	nd	nd	nd	nd	nd	nd	nd
Chloroform	1	nd	nd	nd	nd	nd	nd	nd
Carbon Tetrachloride	1	nd	nd	nd	nd	nd	nd	nd
1,1,1 Trichloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,1,2 Trichloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,1,1,2 Tetrachloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,1,2,2 Tetrachloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,2,4 Trimethylbenzene	1	nd	nd	nd	nd	nd	nd	nd
1,3,5 Trimethylbenzene	1	nd	nd	nd	nd	nd	nd	nd
Recovery (%)		93	103	111	114	100	94	116

"nd" Indicates Not Detected at the listed detection limit.
"int" Indicates that interference peaks prevent determination.

LAKE FOREST PROJECT
Seattle, Washington
Dames & Moore, Inc.
Project No. 28171-299-005

Specific Halogenated Hydrocarbons and BTEX (EPA 8010/8020) in Water

Sample-Number	MDL	SP-17 W5	SP-17 W10	SP-17 W10 Dup	SP-18 W5	SP-18 W10	SP-19 W5	SP-19 W10
Date	ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l
Dichloromethane	1	nd	nd	nd	nd	nd	nd	nd
1,1 Dichloroethene	1	nd	nd	nd	nd	nd	nd	nd
Cis-1,2 Dichloroethene	1	nd	nd	nd	nd	nd	nd	nd
Trans-1,2 Dichloroethene	1	nd	nd	nd	nd	nd	nd	nd
Benzene	1	nd	nd	nd	nd	nd	nd	nd
Trichloroethene	1	nd	nd	nd	nd	nd	nd	nd
Toluene	1	nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene	1	nd	nd	nd	3.4	nd	nd	nd
Ethylbenzene	1	nd	nd	nd	nd	nd	nd	nd
Total Xylenes	1	nd	nd	nd	nd	nd	nd	nd
1,1 Dichloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,2 Dichloroethane	1	nd	nd	nd	nd	nd	nd	nd
Chloroform	1	nd	nd	nd	nd	nd	nd	nd
Carbon Tetrachloride	1	nd	nd	nd	nd	nd	nd	nd
1,1,1 Trichloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,1,2 Trichloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,1,1,2 Tetrachloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,1,2,2 Tetrachloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,2,4 Trimethylbenzene	1	nd	nd	nd	nd	nd	nd	nd
1,3,5 Trimethylbenzene	1	nd	nd	nd	nd	nd	nd	nd
Recovery (%)		103	93	100	83	103	83	103

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"int" Indicates that interference peaks prevent determination.

LAKE FOREST PROJECT
Seattle, Washington
Dames & Moore, Inc.
Project No. 28171-299-005

Specific Halogenated Hydrocarbons and BTEX (EPA 8010/8020) in Water

Sample-Number	MDL	SP-20 W5	SP-20 W10	SP-21 W5	SP-21 W10
Date		11/27/95	11/27/95	11/27/95	11/27/95
	ug/l	ug/l	ug/l	ug/l	ug/l
Dichloromethane	1	nd	nd	nd	nd
1,1 Dichloroethene	1	nd	nd	nd	nd
Cis-1,2 Dichloroethene	1	nd	nd	nd	nd
Trans-1,2 Dichloroethene	1	nd	nd	nd	nd
Benzene	1	nd	nd	nd	nd
Trichloroethene	1	nd	nd	nd	nd
Toluene	1	nd	nd	nd	nd
Tetrachloroethene	1	7.7	nd	nd	nd
Ethylbenzene	1	nd	nd	nd	nd
Total Xylenes	1	nd	nd	nd	nd
1,1 Dichloroethane	1	nd	nd	nd	nd
1,2 Dichloroethane	1	nd	nd	nd	nd
Chloroform	1	nd	nd	nd	nd
Carbon Tetrachloride	1	nd	nd	nd	nd
1,1,1 Trichloroethane	1	nd	nd	nd	nd
1,1,2 Trichloroethane	1	nd	nd	nd	nd
1,1,1,2 Tetrachloroethane	1	nd	nd	nd	nd
1,1,2,2 Tetrachloroethane	1	nd	nd	nd	nd
1,2,4 Trimethylbenzene	1	nd	nd	nd	nd
1,3,5 Trimethylbenzene	1	nd	nd	nd	nd
Recovery (%)		86	87	85	88

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LAKE FOREST PROJECT
Seattle, Washington
Dames & Moore, Inc.
Project No. 28171-299-005

Specific Halogenated Hydrocarbons and BTEX (EPA 8010/8020) in Water

Sample-Number	MDL	100 PPB MS	100 PPB MSD	100 PPB MS	100 PPB MSD			
Date	ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l			
Dichloromethane	1	104	95	86	92			
1,1 Dichloroethene	1	115	91	104	90			
Cis-1,2 Dichloroethene	1	107	97	94	91			
Trans-1,2 Dichloroethene	1	102	96	88	94			
Benzene	1	104	96	97	99			
Trichloroethene	1	88	95	100	86			
Toluene	1	91	89	99	106			
Tetrachloroethene	1	105	106	96	85			
Ethylbenzene	1	100	99	102	105			
Total Xylenes	1	279	279	294	295			
1,1 Dichloroethane	1	98	96	83	88			
1,2 Dichloroethane	1	88	102	87	99			
Chloroform	1	107	97	92	88			
Carbon Tetrachloride	1	103	95	96	100			
1,1,1 Trichloroethane	1	102	93	93	87			
1,1,2 Trichloroethane	1	104	91	82	86			
1,1,1,2 Tetrachloroethane	1	108	112	118	84			
1,1,2,2 Tetrachloroethane	1	103	129	107	121			
1,2,4 Trimethylbenzene	1	--	--	--	--			
1,3,5 Trimethylbenzene	1	--	--	--	--			
Recovery (%)		96	115	90	95			

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TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST INC.

LAKE FOREST PROJECT
Seattle, Washington
Dames & Moore, Inc.
Project No. 28171-299-005

Specific Halogenated Hydrocarbons and BTEX (EPA 8010/8020) in Water

Sample-Number	MDL	Method Blank	SP-11 W5	SP-11 W10	SP-12 W5	SP-12 W10	SP-13 W5	SP-13 W10
Date	ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l
Dichloromethane	1	nd	nd	nd	nd	nd	nd	nd
1,1 Dichloroethene	1	nd	nd	nd	nd	nd	nd	nd
Cis-1,2 Dichloroethene	1	nd	nd	nd	nd	nd	nd	nd
Trans-1,2 Dichloroethene	1	nd	nd	nd	nd	nd	nd	nd
Benzene	1	nd	nd	nd	nd	nd	nd	nd
Trichloroethene	1	nd	nd	nd	nd	nd	nd	nd
Toluene	1	nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene	1	nd	nd	nd	nd	nd	nd	16
Ethylbenzene	1	nd	nd	nd	nd	nd	nd	nd
Total Xylenes	1	nd	nd	nd	nd	nd	nd	nd
1,1 Dichloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,2 Dichloroethane	1	nd	nd	nd	nd	nd	nd	nd
Chloroform	1	nd	nd	nd	nd	nd	nd	nd
Carbon Tetrachloride	1	nd	nd	nd	nd	nd	nd	nd
1,1,1 Trichloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,1,2 Trichloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,1,1,2 Tetrachloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,1,2,2 Tetrachloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,2,4 Trimethylbenzene	1	nd	nd	nd	nd	nd	nd	nd
1,3,5 Trimethylbenzene	1	nd	nd	nd	nd	nd	nd	nd
Recovery (%)		113	110	104	93	96	102	104

"nd" Indicates Not Detected at the listed detection limit.
"int" Indicates that interference peaks prevent determination.

LAKE FOREST PROJECT
Seattle, Washington
Dames & Moore, Inc.
Project No. 28171-299-005

Specific Halogenated Hydrocarbons and BTEX (EPA 8010/8020) in Water

Sample-Number	MDL	SP-14 W5	SP-14 W10	SP-15 W5	SP-15 W5 Dup	SP-15 W10	SP-16 W5	SP-16 W10
Date	ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l
Dichloromethane	1	nd	nd	nd	nd	nd	nd	nd
1,1 Dichloroethene	1	nd	nd	nd	nd	nd	nd	nd
Cis-1,2 Dichloroethene	1	nd	nd	nd	nd	nd	nd	nd
Trans-1,2 Dichloroethene	1	nd	nd	nd	nd	nd	nd	nd
Benzene	1	nd	nd	nd	nd	nd	nd	nd
Trichloroethene	1	nd	nd	nd	nd	nd	1.0	nd
Toluene	1	nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene	1	nd	nd	nd	nd	nd	1.7	nd
Ethylbenzene	1	nd	nd	nd	nd	nd	nd	nd
Total Xylenes	1	nd	nd	nd	nd	nd	nd	nd
1,1 Dichloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,2 Dichloroethane	1	nd	nd	nd	nd	nd	nd	nd
Chloroform	1	nd	nd	nd	nd	nd	nd	nd
Carbon Tetrachloride	1	nd	nd	nd	nd	nd	nd	nd
1,1,1 Trichloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,1,2 Trichloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,1,1,2 Tetrachloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,1,2,2 Tetrachloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,2,4 Trimethylbenzene	1	nd	nd	nd	nd	nd	nd	nd
1,3,5 Trimethylbenzene	1	nd	nd	nd	nd	nd	nd	nd
Recovery (%)		93	103	111	114	100	94	116

"nd" Indicates Not Detected at the listed detection limit.
"int" Indicates that interference peaks prevent determination.

LAKE FOREST PROJECT
Seattle, Washington
Dames & Moore, Inc.
Project No. 28171-299-005

Specific Halogenated Hydrocarbons and BTEX (EPA 8010/8020) in Water

Sample-Number	MDL	SP-17 W5	SP-17 W10	SP-17 W10 Dup	SP-18 W5	SP-18 W10	SP-19 W5	SP-19 W10
Date	ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l
Dichloromethane	1	nd	nd	nd	nd	nd	nd	nd
1,1 Dichloroethene	1	nd	nd	nd	nd	nd	nd	nd
Cis-1,2 Dichloroethene	1	nd	nd	nd	nd	nd	nd	nd
Trans-1,2 Dichloroethene	1	nd	nd	nd	nd	nd	nd	nd
Benzene	1	nd	nd	nd	nd	nd	nd	nd
Trichloroethene	1	nd	nd	nd	nd	nd	nd	nd
Toluene	1	nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene	1	nd	nd	nd	3.4	nd	nd	nd
Ethylbenzene	1	nd	nd	nd	nd	nd	nd	nd
Total Xylenes	1	nd	nd	nd	nd	nd	nd	nd
1,1 Dichloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,2 Dichloroethane	1	nd	nd	nd	nd	nd	nd	nd
Chloroform	1	nd	nd	nd	nd	nd	nd	nd
Carbon Tetrachloride	1	nd	nd	nd	nd	nd	nd	nd
1,1,1 Trichloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,1,2 Trichloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,1,1,2 Tetrachloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,1,2,2 Tetrachloroethane	1	nd	nd	nd	nd	nd	nd	nd
1,2,4 Trimethylbenzene	1	nd	nd	nd	nd	nd	nd	nd
1,3,5 Trimethylbenzene	1	nd	nd	nd	nd	nd	nd	nd
Recovery (%)		103	93	100	83	103	83	103

"nd" Indicates Not Detected at the listed detection limit.
"int" Indicates that interference peaks prevent determination.

LAKE FOREST PROJECT
Seattle, Washington
Dames & Moore, Inc.
Project No. 28171-299-005

Specific Halogenated Hydrocarbons and BTEX (EPA 8010/8020) in Water

Sample-Number	MDL	SP-20 W5	SP-20 W10	SP-21 W5	SP-21 W10
Date	ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l
Dichloromethane	1	nd	nd	nd	nd
1,1 Dichloroethene	1	nd	nd	nd	nd
Cis-1,2 Dichloroethene	1	nd	nd	nd	nd
Trans-1,2 Dichloroethene	1	nd	nd	nd	nd
Benzene	1	nd	nd	nd	nd
Trichloroethene	1	nd	nd	nd	nd
Toluene	1	nd	nd	nd	nd
Tetrachloroethene	1	7.7	nd	nd	nd
Ethylbenzene	1	nd	nd	nd	nd
Total Xylenes	1	nd	nd	nd	nd
1,1 Dichloroethane	1	nd	nd	nd	nd
1,2 Dichloroethane	1	nd	nd	nd	nd
Chloroform	1	nd	nd	nd	nd
Carbon Tetrachloride	1	nd	nd	nd	nd
1,1,1 Trichloroethane	1	nd	nd	nd	nd
1,1,2 Trichloroethane	1	nd	nd	nd	nd
1,1,1,2 Tetrachloroethane	1	nd	nd	nd	nd
1,1,2,2 Tetrachloroethane	1	nd	nd	nd	nd
1,2,4 Trimethylbenzene	1	nd	nd	nd	nd
1,3,5 Trimethylbenzene	1	nd	nd	nd	nd
Recovery (%)		86	87	85	88

"nd" Indicates Not Detected at the listed detection limit.
"int" Indicates that interference peaks prevent determination.

LAKE FOREST PROJECT
Seattle, Washington
Dames & Moore, Inc.
Project No. 28171-299-005

Specific Halogenated Hydrocarbons and BTEX (EPA 8010/8020) in Water

Sample-Number	MDL	100 PPB MS	100 PPB MSD	100 PPB MS	100 PPB MSD
Date	ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l	11/27/95 ug/l
Dichloromethane	1	104	95	86	92
1,1 Dichloroethene	1	115	91	104	90
Cis-1,2 Dichloroethene	1	107	97	94	91
Trans-1,2 Dichloroethene	1	102	96	88	94
Benzene	1	104	96	97	99
Trichloroethene	1	88	95	100	86
Toluene	1	91	89	99	106
Tetrachloroethene	1	105	106	96	85
Ethylbenzene	1	100	99	102	105
Total Xylenes	1	279	279	294	295
1,1 Dichloroethane	1	98	96	83	88
1,2 Dichloroethane	1	88	102	87	99
Chloroform	1	107	97	92	88
Carbon Tetrachloride	1	103	95	96	100
1,1,1 Trichloroethane	1	102	93	93	87
1,1,2 Trichloroethane	1	104	91	82	86
1,1,1,2 Tetrachloroethane	1	108	112	118	84
1,1,2,2 Tetrachloroethane	1	103	129	107	121
1,2,4 Trimethylbenzene	1	--	--	--	--
1,3,5 Trimethylbenzene	1	--	--	--	--
Recovery (%)		96	115	90	95

"nd" Indicates Not Detected at the listed detection limit.
"int" Indicates that interference peaks prevent determination.

TRANSGLOBAL ENVIRONMENTAL GEOCHEMISTRY

CHAIN-OF-CUSTODY RECORD

P.O. #: _____

CLIENT: Trammell Crow (Dames + Moore job)

ADDRESS: (D+M) 2025 1st Ave Seattle WA

PHONE: 728-0744 FAX: 1

CLIENT PROJECT #: 28171-299-005 PROJECT MANAGER: Dave Ranbvogel

DATE: 11-22-95 PAGE 1 OF 3

TEG PROJECT #: _____

LOCATION: Lake Forest Park Shopping Center, WA

COLLECTOR: Jeanne Dorn DATE OF COLLECTION: 11/21/95

Sample Number	Depth	Time	Sample Type	Container Type	VOA 601/8010	VOA 602/8020/8021	VOA 624/8240	Semi Vol 625/8270	TPH 418.1	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (g & d)	PNA 610/8100	PEST/PCBs 8080	HEX CHROME	ORGANIC LEAD	TOTAL LEAD	pH	ASBESTOS	FIELD NOTES	Total Number Of Containers	Laboratory Note Number
11/21/95																						
SP-11-W-5	3'	815	Water	2 glass vials	X																2	
SP-11-S5	5'	830	SOIL	1 6" ring																	1	
SP-11-W10	8'	900	Water	2 glass vials	X																2	
SP-11-S10	10'	920	SOIL	1 6" ring																	1	
SP-11-W19	19'	1145	Water	2 glass vials																	2	
SP-12-W5	3'	1225	Water	2 glass vials	X																2	
SP-12-S5	5'	1240	SOIL	1 6" ring																	1	
SP-12-W10	8'	1255	Water	2 glass vials	X																2	
SP-12-S10	10'	1315	SOIL	1 6" ring																	1	
SP-12-W19	19'	1330	Water	2 glass vials																	2	
SP-12-S21	21'	1345	SOIL	1 6" ~~ring~~ jar																	1	
SP-13-W5	4'	1445	Water	2 glass vials	X																2	
SP-13-S5	6'	1500	Soil	1 6" ring																	#1	
SP-13-W10	9'	1530	Water	2 glass vials	X																2	
SP-13-S10	11'	1535	Soil	1 6" ring																	1	
SP-14-W5	3'	1600	Water	2 glass vials	X																2	
SP-14-S5	5'	1625	Soil	1 6" ring																	1	
SP-14-W10	8'	1640	Water	2 glass vials	X																2	

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Jeanne Dorn	11/22/95 1800	Eric Jacus	11/22/95 1500
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ TEG DISPOSAL @ $2.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

→ See last page of COC

teg TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES

CHAIN-OF-CUSTODY RECORD

CLIENT: Dames + Moore (Truewell Cross site)
ADDRESS: D&M: 2025 - 1st Ave - Seattle WA
PHONE 728-0744 FAX:
CLIENT PROJECT #: 28171-299-005 PROJECT MANAGER: Dave Raubvogel

DATE: 11-22-95 PAGE 2 OF 3
PROJECT NAME:
LOCATION:
COLLECTOR: Jeanne Dorn DATE OF COLLECTION 11/21-22/95

Sample Number	Depth	Time	Sample Type	Container Type	VOA 601/8010	VOA 602/8020 (8021)	VOA 624/8240	Semi Vol 625/8270	TPH 418.1	TPH 8015 (gasoline)	TPH (8015 (diesel)	TPH 8015 (g & d)	PAH 610/8100	PEST/PCBs 8080	HEX CHROME	ORGANIC LEAD	TOTAL LEAD	pH	ASBESTOS	FIELD NOTES	Total Number of Containers	Laboratory Note Number
11/21/95 SP-14-S10	10'	1645	Soil	1 6" ring																	1	
11/22 SP-15-W5	4'	820	Water	2 vials		X															2	
SP-15-S5	5'	845	Soil	1 ring																	1	
SP-15-W10	8'	855	Water	2 vials		X															2	
SP-15-S10	10'	915	Soil	1 ring		-															1	
SP-16-W5	5'	940	Water	2 vials		X															2	
SP-16-S5	6'	1005	Soil	1 ring																	1	
SP-16-W10	9'	1015	Water	2 vials		X															2	
SP-20-W5	5	1055	Water	2 vials		X															2	
SP-20-S5	6	1110	Soil	1 ring																	1	
SP-20-W10	9	1135	Water	2 vials		X															2	
SP-20-S10	11	1155	Soil	1 ring																	1	
SP-21-W5	5	1225	Water	2 vials		X															2	
SP-21-S5	6	1240	Soil	1 ring																	1	
SP-21-W10	9	1250	Water	2 vials		X															2	
SP-21-S10	11	1310	Soil	1 ring																	1	
SP-18-W5	5	1340	Water	2 vials		X															2	
SP-18-S5	6	1405	Soil	1 ring																	1	

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
Jeanne E Dorn	11/22/95/1800	Eric Hann	11/22/95 1800
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS
☐ TEG DISPOSAL @ $2.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	—
CHAIN OF CUSTODY SEALS Y/N/NA	N
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:
→ See last page of C.O.C.

teg

TRILOBITE ENVIRONMENTAL GEOCHEMISTRY

CHAIN-OF-CUSTODY RECORD

P.O. #: _____

CLIENT: Dames & Moore

ADDRESS: _____

PHONE: 728-0744 FAX: _____

CLIENT PROJECT #: 28171-299-005 PROJECT MANAGER: Dave Raubvogel

DATE: 11-22-95 PAGE 3 OF 3

TEG PROJECT #: _____

LOCATION: _____

COLLECTOR: _____ DATE OF COLLECTION: _____

Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES: VOA 601/8010	VOA 602/8020 BTEX	VOA 624/8240	Semi Vol 625/8270	TPH 418.1	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (g & d)	PNA 610/8100	PEST/PCBs 8080	HEX CHROME	ORGANIC LEAD	TOTAL LEAD	pH	ASBESTOS	FIELD NOTES	Total Number Of Containers	Laboratory Note Number
SP-18-W10	9	1420	~~WATER~~ SOIL	~~1 6" ring~~ 2 VIALS	X																2	
SP-18-S10	11	1435	Soil	1 6" ring																	1	
SP-17-W5	45	1505	Water	2 vials	X																2	
SP-17-S5	6	1515	Soil	1 ring																	1	
SP-17-W10	9	1525	Wate	2 vials	X																2	
SP-17-S10	11	1545	Soil	1 ring																	1	
SP-19-W5	5	1610	Wate	2 vials	X																2	
SP-19-S5	6	1620	Soil	1 RING																	1	
SP-19-W10	9	1625	Wate	2 vials	X																2	
SP-19-S10	11	1655	Soil	1 ring																	1	
SP-19-W17	17	1710	Wate	2 vials																	2	
SP-19-S19	19	1740	Soil	1 jar																	1	
																					-	

RELINQUISHED BY: (Signature) Lennel Dow DATE/TIME 1800 11-22-95 RECEIVED BY: (Signature) Eric Nam DATE/TIME 11/22/95 1800

RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature) DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ TEG DISPOSAL @ $2.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	73
CHAIN OF CUSTODY SEALS Y/N/NA	N
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

MEMORANDUM

Date: December 18, 1995

To: David Raubvogel, Project Manager

From: Johnna Moore, Staff Chemist

Subject: Summary Data Validation Review
Water and Soil Organic Data
Lake Forest Park 28171-299-005

The data quality review of 4 water samples, collected on December 6, 1995 has been completed. The samples were analyzed by Transglobal Environmental Geochemistry (TEG) in Lacey, Washington for halogenated hydrocarbons and BTEX constituents by EPA Method 8021. The analyses were performed in accordance with the methods specified in EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, January, 1995. Sample results, method blanks, surrogate spikes, matrix spikes/matrix spike duplicates and field duplicates were received from the laboratory. The following samples are associated with laboratory case number (or accession number) 28171-299-005:

Sample	Matrix
SP-22-W4	Water
SP-22-W9	Water
SP-23-W4	Water
SP-23-W8	Water

The following comments refer to TEG's performance in meeting the quality control specifications described in the EPA documents "EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", January 1995 and "USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review", February, 1994.

1. Holding Time - Acceptable

2. Blanks - Acceptable

3. Surrogates - Acceptable

4. Matrix Spikes/Matrix Spike Duplicate - Acceptable

5. Field Duplicates - Acceptable

6. Type of Review - Summary

7. Overall Assessment of Data

The usefulness of the data is based on the EPA guidance documents listed above. Upon consideration of the information presented above, the data are acceptable except where flagged with data qualifiers that modify the usefulness of the individual values.

Data Qualifiers

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

QA/QC FOR ANALYTICAL METHODS

GENERAL

The TEG Northwest Laboratory quality assurance and quality control (QA/QC) procedures are conducted following the guidelines and objectives which meet or exceed certification/-accreditation requirements of California DOHS, Washington DOE, and Oregon DEQ. The Quality Control Program is a consistent set of procedures which assures data quality through the use of appropriate blanks, replicate analyses, surrogate spikes, and matrix spikes, and with the use of reference standards that meet or exceed EPA standards.

When analyses are taking place on-site with the mobile lab, the need for Field Blanks or Travel/Trip Blanks is eliminated. If there is going to be a delay before sample preparation for analysis, the sample is stored at 4° C.

ANALYTICAL METHODS

TEG Northwest Labs use analytical methodologies which are in conformity with U. S. Environmental Protection Agency (EPA), Washington DOE, and Oregon DEQ methodologies. When necessary and appropriate due to the nature or composition of the sample, TEG may use variations of the methods which are consistent with recognized standards or variations used by the industry and government laboratories.

Purgeable Volatile Aromatics
(BTEX, EPA 602/8020)

A blank and a calibration standard are run at the beginning of the day. The standard must be within 15% of the continuing calibration curve value. The standard is rerun at the end of the day if more than 10 samples have been run. All samples are prepared with a surrogate spike, and the recovery must be between 65% and 135%. At least 1 method blank is run per day.

Purgeable Volatile Halocarbons
(Chlorinated Hydrocarbons, EPA 601/8010,8021)

A blank and a calibration standard are run at the beginning of the day. The standard must be within 15% of the continuing calibration curve value. The standard is rerun at the end of the day if more than 10 samples have been run. All samples are prepared with a surrogate spike, and the recovery must be between 65% and 135%. At least 1 method blank is run per day.

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST INC.

LAKE FOREST PARK PROJECT
Seattle, Washington
Dames & Moore, Inc.
Project No.: 28171-299-005

Specific Halogenated Hydrocarbons and BTEX (Mod. EPA 8010/8020) in Water

Sample-Number	MDL	Method Blank	SP-22-W4	SP-22-W9	SP-23-W4	SP-23-W8	SP-23-W8 Dup
Date	ug/l	12/08/95 ug/l	12/08/95 ug/l	12/08/95 ug/l	12/08/95 ug/l	12/08/95 ug/l	12/08/95 ug/l
1,1 Dichloroethene	1	nd	nd	nd	nd	nd	nd
Trans-1,2 Dichloroethene	1	nd	nd	nd	nd	nd	nd
Cis-1,2 Dichloroethene	1	nd	nd	nd	nd	nd	nd
Benzene	1	nd	nd	nd	nd	nd	nd
Trichloroethene	1	nd	nd	nd	nd	nd	nd
Toluene	1	nd	nd	nd	nd	nd	nd
Tetrachloroethene	1	nd	nd	nd	nd	nd	nd
Ethylbenzene	1	nd	nd	nd	nd	nd	nd
m,p-Xylene	1	nd	nd	nd	nd	nd	nd
o-Xylene	1	nd	nd	nd	nd	nd	nd
Dichloromethane	1	nd	nd	nd	nd	nd	nd
1,1 Dichloroethane	1	nd	nd	nd	nd	nd	nd
1,2 Dichloroethane	1	nd	nd	nd	nd	nd	nd
Chloroform	1	nd	nd	nd	nd	nd	nd
Carbon Tetrachloride	1	nd	nd	nd	nd	nd	nd
1,1,1 Trichloroethane	1	nd	nd	nd	nd	nd	nd
1,1,2 Trichloroethane	1	nd	nd	nd	7	nd	nd
1,1,1,2-Tetrachloroethane	1	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	1	nd	nd	nd	nd	nd	nd
Spike Recovery (%)		101	106	113	110	87	86

"nd" Indicates Not Detected at the listed detection limit.
"int" Indicates that interference peaks prevent determination.

LAKE FOREST PARK PROJECT
Seattle, Washington
Dames & Moore, Inc.
Project No.: 28171-299-005

Specific Halogenated Hydrocarbons and BTEX (Mod. EPA 8010/8020) in Water

Sample-Number	MDL	400 PPB MS	400 PPB MSD				
Date		12/08/95	12/08/95				
	ug/l	ug/l	ug/l				
1,1 Dichloroethene	1	416	394				
Trans-1,2 Dichloroethene	1	402	366				
Cis-1,2 Dichloroethene	1	381	343				
Benzene	1	394	369				
Trichloroethene	1	382	370				
Toluene	1	359	368				
Tetrachloroethene	1	362	392				
Ethylbenzene	1	341	348				
m,p-Xylene	1	701	861				
o-Xylene	1	401	432				
Dichloromethane	1	356	347				
1,1 Dichloroethane	1	393	359				
1,2 Dichloroethane	1	365	385				
Chloroform	1	398	364				
Carbon Tetrachloride	1	434	420				
1,1,1 Trichloroethane	1	419	345				
1,1,2 Trichloroethane	1	382	370				
1,1,1,2-Tetrachloroethane	1	385	391				
1,1,2,2-Tetrachloroethane	1	417	381				
Spike Recovery (%)		96	98				

"nd" Indicates Not Detected at the listed detection limit.

"int" Indicates that interference peaks prevent determination.

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST INC.

LAKE FOREST PARK PROJECT
Seattle, Washington
Dames & Moore, Inc.
Project No.: 28171-299-005

Specific Halogenated Hydrocarbons and BTEX (Mod. EPA 8010/8020) in Water

Sample-Number	MDL	Method Blank	SP-22-W4	SP-22-W9	SP-23-W4	SP-23-W8	SP-23-W8 Dup
Date		12/08/95	12/08/95	12/08/95	12/08/95	12/08/95	12/08/95
	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
1,1 Dichloroethene	1	nd	nd	nd	nd	nd	nd
Trans-1,2 Dichloroethene	1	nd	nd	nd	nd	nd	nd
Cis-1,2 Dichloroethene	1	nd	nd	nd	nd	nd	nd
Benzene	1	nd	nd	nd	nd	nd	nd
Trichloroethene	1	nd	nd	nd	nd	nd	nd
Toluene	1	nd	nd	nd	nd	nd	nd
Tetrachloroethene	1	nd	nd	nd	nd	nd	nd
Ethylbenzene	1	nd	nd	nd	nd	nd	nd
m,p-Xylene	1	nd	nd	nd	nd	nd	nd
o-Xylene	1	nd	nd	nd	nd	nd	nd
Dichloromethane	1	nd	nd	nd	nd	nd	nd
1,1 Dichloroethane	1	nd	nd	nd	nd	nd	nd
1,2 Dichloroethane	1	nd	nd	nd	nd	nd	nd
Chloroform	1	nd	nd	nd	nd	nd	nd
Carbon Tetrachloride	1	nd	nd	nd	nd	nd	nd
1,1,1 Trichloroethane	1	nd	nd	nd	nd	nd	nd
1,1,2 Trichloroethane	1	nd	nd	nd	7	nd	nd
1,1,1,2-Tetrachloroethane	1	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	1	nd	nd	nd	nd	nd	nd
Spike Recovery (%)		101	106	113	110	87	86

"nd" Indicates Not Detected at the listed detection limit.

"int" Indicates that interference peaks prevent determination.

LAKE FOREST PARK PROJECT
Seattle, Washington
Dames & Moore, Inc.
Project No.: 28171-299-005

Specific Halogenated Hydrocarbons and BTEX (Mod. EPA 8010/8020) in Water

Sample-Number	MDL	400 PPB MS	400 PPB MSD				
Date		12/08/95	12/08/95				
	ug/l	ug/l	ug/l				
1,1 Dichloroethene	1	416	394				
Trans-1,2 Dichloroethene	1	402	366				
Cis-1,2 Dichloroethene	1	381	343				
Benzene	1	394	369				
Trichloroethene	1	382	370				
Toluene	1	359	368				
Tetrachloroethene	1	362	392				
Ethylbenzene	1	341	348				
m,p-Xylene	1	701	861				
o-Xylene	1	401	432				
Dichloromethane	1	356	347				
1,1 Dichloroethane	1	393	359				
1,2 Dichloroethane	1	365	385				
Chloroform	1	398	364				
Carbon Tetrachloride	1	434	420				
1,1,1 Trichloroethane	1	419	345				
1,1,2 Trichloroethane	1	382	370				
1,1,1,2-Tetrachloroethane	1	385	391				
1,1,2,2-Tetrachloroethane	1	417	381				
Spike Recovery (%)		96	98				

"nd" Indicates Not Detected at the listed detection limit.
"int" Indicates that interference peaks prevent determination.

DAMES & MOORE

500 Market Place Tower • 2025 First Avenue • Seattle, Washington 98121 • (206) 728-0744

Chain of Custody

Date 12/6/95 Page 1 of 1

Project Number: 28171-299-005
Project Manager: David Rambvogel
Laboratory:
Turn around time:

Sampler's Initials: JED
Sampler's Signature: Jeanne Dorn

Analysis Request

Sample ID	Date	Time	Matrix	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Aromatic Volatiles 602/8020 (8021)	Base/Neutral/Acids 625/8270 (GC/MS)	BTX 602/8015	Polycyclic Aromatic Hydrocarbons 610/8310	Pesticides/PCBs 608/8080				Priority Pollutant Metals (13)	EP TOX Metals (8)			Comments/ Instructions	Number of Containers
SP-22-W4	12/6/95	1000 pm	Water			X													2
SP-22-S4		1030 pm	Soil															Hold	1
SP-22-W9		1040 pm	Water			X													2
SP-23-W4		1110 pm	Water			X													2
SP-23-S4		1145 pm	Soil															Hold	1
SP-23-W8		1155 pm	Water			X													2

Special Instructions/Comments:
Lake Forest Park Project.

Relinquished by:
(Sig) Jeanne E Dorn
(Printed) JEANNE DORN
(Company) DAMES & MOORE
(Time) 12:45 AM (Date) 12/6/95

Received by (lab):
(Sig)
(Printed) KARIS VANDEHEY
(Company) TEG
(Time) 12:45 AM (Date) 12/6/95

Sample Receipt

Total no. of containers: 10
Chain of custody seals:
Rec'd good condition/cold:
Conforms to record:
Lab number: