Additional Phase II Subsurface Soil Characterization
Havers Trust
The Barg French Dry Cleaning Facility
1929 3rd Avenue
Seattle, Washington

Prepared for:

Ms. Cynthia Wagner
Union Bank of California
Hazardous Materials Section
500 south Main Street, Suite 370
Orange, California 92868

Prepared by:

Kleinfelder Inc.
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December 20, 1999

KLEINFELDER
An employee owned company

December 20, 1999
Kleinfelder File Number 60-1996-03

Ms. Cynthia C. Wagner
Vice President
Union Bank of California
Hazardous Materials Section
500 South Main Street, Suite 370
Orange, California 92868

Subject: **Additional Phase II Subsurface Soil Characterization**
Havers Trust
The Barg French Dry Cleaning Facility Not in SIS
1929 3rd Avenue
Seattle, Washington 98101
File ID# E99-1414

Dear Ms. Wagner:

Transmitted with this letter is Kleinfelder's final report summarizing the findings of our additional Phase II Subsurface Soil Characterization performed at the above-referenced property. The characterization work was performed at the request of Union Bank of California to provide additional information concerning the vertical distribution of PCE-impacted shallow soil previously identified on the subject property.

Kleinfelder appreciates the opportunity to be of assistance on this project. Please contact us if you have any questions or require additional information.

Sincerely,

KLEINFELDER, INC.

Dennis J. O'Neill
Senior Project Manager

KLEINFELDER 2405 140th Avenue, NE, Suite A101, Bellevue, WA 98005 (425) 562-4200 (425) 562-4201 fax

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1.0 INTRODUCTION AND BACKGROUND

This report summarizes the findings and presents recommendations developed during Kleinfelder's additional Phase II Subsurface Soil Characterization performed at the Barg French Dry Cleaning Facility in Seattle, Washington (Figure 1). This work was performed to provide additional information concerning the vertical distribution of PCE-impacted shallow soil previously identified beneath the subject property. This additional subsurface information was also used to further assess the potential impact of PCE on the regional groundwater quality, which is suspected to be located at depths ranging from 60 to 70 feet below ground surface (bgs) beneath the subject property.

The first level of the building is subdivided into three main sections. The western portion of the first floor is occupied by a dry cleaning facility (The Barg French Dry Cleaners); the central and eastern portion is occupied by a bookstore (Figure 2). The second and third floors of the building are occupied by commercial businesses. The subject property is bordered to the north by a two-story parking structure, to the east by 3rd Avenue, to the south by a 7-story commercial building, and to the west by an alleyway. Land use in the site vicinity is primarily commercial/retail in character.

As part of the process of assessing the potential environmental impact of the dry cleaning operations on the subject property, three phases of subsurface soil sampling were performed in the dry cleaner's portion of the building (Webster; June 1999, Kleinfelder; September 1999 and November, 1999). The initial phase (conducted by Webster) consisted of completing one hand auger boring (S-1) adjacent to the former and existing dry cleaning machinery. Analytical results revealed the presence of PCE-impacted shallow soil at this location (Figure 3). To assess the potential presence of other chlorinated solvents and halogenated aromatics one sample was analyzed for volatile organic compounds (VOCs) by EPA Method 8260. Analytical results indicated no detectable concentrations of VOCs, except for the reported PCE (Webster 1999).

The second phase of soil sampling (conducted by Kleinfelder) consisted of completing a total of five strataprobe borings (SP-1 through SP-5) in the immediate vicinity of the dry cleaning machinery and an existing floor drain to further assess the presence of PCE-impacted soil. Analytical results confirmed the presence of PCE-impacted soil in the vicinity of the former and current dry-cleaning machinery beneath the western portion of the existing building (Figure 3). A summary of the previous analytical soil results is presented on Table 1. PCE concentrations range

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from 630 to 8,900 ug/kg, which are above the Washington State Department of Ecology (Ecology) Model Toxics Cleanup Act (MTCA) Method A cleanup level of 500 ug/kg, but below the Method B cleanup level of 19,600 ug/kg. The PCE-impacted soil appears to reach the maximum concentration at approximately 7 to 8 feet below ground surface (bgs), or about 1½ feet above the zone where a limited amount of localized perched groundwater was encountered. These previous results suggest that the PCE-impacted soil appears to be limited in vertical extent and has not migrated significantly into the underlying denser glacial till at depths greater than 12 feet bgs. As stated above, the regional groundwater has been reported to be located at approximately 60 to 70 feet bgs in the site vicinity.

A third phase of sampling (conducted by Kleinfelder) consisted of completing a total of seven additional strataprobe borings (SP-6 through SP-12) to further assess the lateral extent of the PCE- impacted soil. The sample locations and detected PCE concentrations are presented on Figure 3. Analytical results indicate PCE concentrations ranging from 82 ug/kg to 3,300 ug/kg, which are well below the MTCA Method B cleanup levels of 19,000 ug/kg. These results suggest that the PCE-impacted soil appears to be limited in vertical extent and has not migrated significantly into the underlying denser glacial till at depths greater than 12 feet bgs. In addition, the distribution of PCE-impacted soil detected in the perimeter borings suggests that the PCE concentrations decrease laterally from the suspected point of release (dry cleaning machinery). We suspect that the lateral migration of the PCE is likely occurring in the vapor phase rather than an immiscible product.

Trace levels of trichloroethene, xylene and dichlorobenzene were detected at concentrations well below the MTCA Methods A and B cleanup levels in several soil samples. The presence of trichloroethene likely reflects a degradation product of the PCE. No evidence of vinyl chloride was detected in the subsurface samples.

To assess the potential release of PCE to the subsurface soil via the underground floor drain and sewer line, a remote video camera system was used to observe the condition of the underground lines and for direct evidence of leakage (i.e., broken lines or corrosion points). The approximate location of the sewer line is shown on Figure 3. The line was inferred to be located at approximately 1½ feet bgs. The sewer line was interpreted to be cast-iron and in good condition with no evidence of cracks or leaks.

On October 15, 1999, Kleinfelder met with Mr. John Lillie and Mr. Joseph Hickey of Ecology's Toxics Cleanup Program to discuss the subsurface findings, applicability of Methods A versus B

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cleanup levels, and potential remediation alternatives. According to Ecology, additional soil and/or groundwater information is required to determine if shallow groundwater quality beneath the subject property has been impacted. Ecology representatives indicated that if groundwater is not encountered within approximately 15 feet of the greatest depth of soil contamination, than an assumption can be made that groundwater has not been affected. Furthermore, if it can be demonstrated that groundwater quality has not been impacted by the on-site release of PCE, than the MTCA Method B cleanup level of 19,600 ug/kg can be used as an applicable cleanup level.

Consequently, the additional work described herein was performed to further assess the vertical distribution of PCE-impacted soil and the potential impact of PCE on the regional groundwater quality beneath the subject property.

Based on the analytical results obtained from the previous subsurface investigations, evidence of PCE-impacted soil was identified in the vicinity of the former and current dry-cleaning machinery beneath the existing building (Figure 2). PCE concentrations range from 630 to 8,900 ug/kg, which is less than the Washington State Department of Ecology (Ecology) Model Toxics Cleanup Act (MTCA) Method B cleanup level of 19,600 ug/kg (Table 1).

The PCE-impacted soil appears to reach a maximum concentration at approximately 7 to 8 feet below ground surface (bgs), or about 1½ feet above the zone where a small amount of localized perched groundwater was encountered. These results suggest that the PCE contamination is limited in vertical extent and has not migrated significantly into the underlying denser glacial till at depths greater than 12 feet bgs or into the shallow groundwater reported to be located at approximately 60 to 70 feet bgs.

On October 15, 1999, Kleinfelder met with Mr. John Lillie and Mr. Joseph Hickey of Ecology's Toxics Cleanup Program to discuss the subsurface findings, applicability of Methods A versus B cleanup levels, and potential remediation alternatives. According to Ecology, additional soil and/or groundwater information was required to determine if shallow groundwater quality beneath the subject property has been impacted. Ecology representatives indicated that if groundwater is not encountered within approximately 15 feet of the greatest depth of soil contamination, than an assumption can be made that groundwater has not been affected. Furthermore, if it can be demonstrated that groundwater quality has not been impacted by the on-site release of PCE, than the higher MTCA Method B cleanup level of 19,600 ug/kg can be used as an applicable cleanup level.

2.0 OBJECTIVE AND SCOPE OF SERVICES

The objective of this additional phase of subsurface soil sampling was to: (1) further assess the vertical extent of the PCE-impacted soil identified in the vicinity of the former and current dry cleaning machinery and (2) demonstrate that the regional groundwater quality has not been affected in the site vicinity.

To accomplish this objective, the additional phase of sampling consisted of completing two deep exploratory soil boring to depths of approximately 30 feet bgs (Figure 2). The borings were completed in the immediate vicinity of the dry cleaning machinery and in the area that previously exhibited relatively shallow PCE-impacted soils.

3.0 FIELD PROCEDURES

The subsurface soil characterization described herein was conducted in general accordance with Ecology's Voluntary Cleanup Program and other applicable local, state and federal guidelines and regulations. In accordance with federal Occupational Safety and Health Administration (OSHA) and state regulations, a revised site specific-Health and Safety Plan was developed to address the additional field activities described herein. All field personnel reviewed the plan and implemented the procedures while conducting the on-site field activities.

On November 19, 1999, the additional subsurface soil sampling was performed on the subject property. To obtain access to soil adjacent to the existing dry cleaning machinery, a concrete coring subcontractor was used complete a 10-inch diameter concrete core in the concrete pad. To penetrate the deeper denser soils, a more powerful limited access drilling rig (CME 75 High Torque Hollow Stem Auger) operated by Cascade Drilling, Inc. of Woodinville, Washington was used.

To provide access for the more powerful drill rig, modifications to the overhead of the entranceway was required. Overall, the door-jam and a small portion of the overhang were removed to provide access. In addition, the wooden service counters located in the front of the building and the several metal hanging racks were temporarily removed to provide a clear path toward the central and rear portions of the building. Following completion of the drilling activities, the doorway was repaired and the service counters and metal hanging racks were replaced. Due to the potential disruption of the on-site business, this work was completed on a Sunday when the business was closed to the public.

Two 8-inch hallow-stem auger soil borings (B-1 and B-2) were completed to depths of approximately 30 feet bgs on the subject property. Soil samples were collected at 5-foot intervals with a stainless steel spilt-spoon sampler. A Kleinfelder geologist (Dennis O'Neill) was present during the drilling activities to observe and document soil conditions. Collected soil was field screened with a PID for contamination, and soil types were classified according to the Unified Soil Classification System. Field sampling protocol, decontamination procedures, and sample handling procedures were performed in general accordance with EPA and Ecology protocol. Copies of the soil boring logs are presented in Attachment A.

The on-site geologist documented soil conditions and visually inspected the soil for staining or discoloration. "Head-space" screening was also performed for the presence of volatile organic compounds by using a photoionization detector (PID). PID readings are shown on Table 1. Selected soil samples were transported to Transglobal Environmental Geosciences (TEG) of Bellevue, Washington for laboratory analysis.

Following collection of the representative soil samples from each bore hole, the bore holes were back filled with bentonite, chips, hydrated and capped with concrete (approximately 4 to 6 inches thick) flush with the surrounding ground surface. At sample locations where sections of the wooden floor were removed, the wooden floor was replaced.

4.0 ANALYTICAL PROGRAM

Selected soil samples were submitted to TEG, a state-certified laboratory. Each sample was analyzed for PCE by EPA Method 8021B. In addition, other chlorinated solvents (i.e., trichloroethene and vinyl chloride) and halogenated aromatics were reported. Quality Assurance/Quality Control (QA/QC) for the presented scope of work included generally accepted procedures for sample collection, storage, tracking, and documentation. All sampling equipment was washed and rinsed prior to the collection of samples. All samples were labeled with a sample number, date, time of collection, and sampler name. The samples were placed in an ice chest for storage and transport to the project laboratory under chain-of-custody documentation. Copies of the laboratory-reported analytical results and completed chain-of custody forms are presented in Appendix B, and summarized in Table 2.

In general, soil samples that were suspected of having the highest potential for being impacted were selected for analytical testing (e.g., exhibited elevated head-space readings, or were collected from depths known to be impacted based on previous investigations). In addition, the

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deeper soil samples were analyzed to assess the vertical extent of the PCE-impacted soil. The sampling depths are presented on Table 2.

5.0 SUBSURFACE FINDINGS AND ANALYTICAL RESULTS

As stated above, two borings were advanced to depths of approximately 30 feet bgs, whereupon the borings were terminated due to refusal of the dense soil. Borings B-1 was terminated a depth of approximately 29 feet bgs due to the drilling rig overheating as a result of the dense soil. Subsurface soil conditions were relatively consistent with the previous subsurface findings. In general, the upper 8 to 9 feet of soil consisted of dense, damp, light gray, poorly graded fine to medium grained sand. This material has been interpreted to be imported fill. At approximately 9 to 10 feet bgs the fill material graded to a very dense silty fine to medium grained sand, which was encountered to the total depth of our exploration (30 feet bgs). This deeper material has been characterized as a till. The majority of the shallow fill material was characterized as damp, except near the contact between fill material and underlying till, which became moist to wet. Earlier attempts to obtain a water sample from this location were not successful due to the limited volume of water available. The deeper samples collected at depths of 15, 20, 25, and 30 feet bgs did not reveal evidence of moist or wet soils. We suspect the limited shallow saturated conditions reflect localized perched groundwater accumulating near the contact between the imported fill material and less permeable underlying till. No evidence of a deeper regional groundwater aquifer was observed during the deeper drilling activities. Consequently, it appears the volume of water associated with the perched groundwater conditions beneath the subject property is minimal.

Analytical results revealed PCE concentrations ranging less than 50 ug/kg to 690 ug/kg, which are well below the MTCA Method B cleanup level of 19,600 ug/kg (Table 2). Soil samples collected at the 25 and 30 foot sample intervals indicated that low PCE concentrations detected in shallow soil decrease to non-detectable concentrations at depth greater than 20 feet bgs. Similar to the previous investigations, the elevated PCE concentrations correlate well with the observed changes in the permeability of the soil at depths ranging from 7 to 9 feet bgs in the vicinity of the existing dry cleaning machinery.

No evidence of trichloroethene (TCE), vinyl chloride or other degradation product of PCE was detected during the recent sampling event. In addition, no evidence of other chlorinated solvents and halogenated aromatics were detected.

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The regional groundwater aquifer beneath the subject property has been reported to be located at a depth of approximately 60 to 70 feet bgs. The exploratory sampling described herein did not encounter groundwater, except for the minor amount of localized perched water at approximately 8 to 9 feet bgs.

Based on the available information, we believe the presence of the higher PCE concentrations and limited localized groundwater reflects changes in the permeability between the fill material and underlying denser till. Consequently, this process appears to have minimized the vertical migration of PCE.

6.0 CONCLUSIONS

Based on the additional subsurface soil analytical results, PCE-impacted soil was not detected at concentrations greater than the MTCA Method B cleanup level of 19,000 ug/kg in the deep soil borings nor in all of the previous samples tested. PCE concentrations decreased to non-detectable levels at depths greater than 20 feet bgs. These results further suggest that the historic release of PCE has not migrated into the less permeable underlying till or deeper into the regional groundwater aquifer.

The overall distribution of PCE-impacted soil detected in the previous borings suggests that the PCE concentrations decrease laterally from the suspected point of release (former and existing dry cleaning machinery). No evidence of an immiscible product or a PCE-residual product was observed during the previous subsurface sampling activities. Consequently, we suspect that the lateral migration of the PCE is likely occurring in the vapor phase rather than an immiscible product.

Based on the available information, PCE concentrations are well below the MTCA Method B cleanup level of 19,000 ug/kg (Tables 1 and 2). No evidence of PCE-impacted soil extending to the regional groundwater surface was observed during the previous investigations. Consequently, we recommend that no additional investigations are warranted at this time. We further recommend that the information obtained on the subsurface soil conditions is forwarded to Ecology for review and a request made for a "No Further Action" designation.

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7.0 LIMITATIONS

Our work was intended to provide a further assessment of the PCE-impacted soil previously detected on the subject property. This work was not designed to identify all potential concerns or to eliminate all risk associated with the subject property. Even the most rigorous of professional assessments may fail to identify all existing conditions. The work will not provide a guarantee regarding site contamination and may not generate sufficient data to accurately define the lateral and vertical extent of contamination.

Property activities and regulations beyond Kleinfelder's control could change at any time after the completion of our investigations. Therefore, Kleinfelder's observations, findings, and opinions can be considered valid only as of the date of the investigations and at the locations where samples were collected and tested. If future site activities result in exposing the subsurface soils, the soil should be handled and disposed of in accordance with applicable Ecology and EPA regulations.

Our report may be used only by the client and only for the purposes stated, within a reasonable time from its issuance. Land use, site conditions (both on site and off site) or other factors may change over time, and additional work may be required with the passage of time. Any party other than the client who wishes to use the generated report shall notify Kleinfelder of such intended use by executing the "Application for Authorization to Use" included as Appendix D to this report. Based on the intended use of the report, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Kleinfelder from any liability resulting from the use of the report by any unauthorized party.

No warranty, express or implied, is made.

8.0 REFERENCES

Websters, Inc. Environmental Consulting Engineers, 1999. Phase I ESA, Limited Phase II ESA, and Asbestos, Good Faith Investigation, Seattle, Washington. June.

Kleinfelder, Inc. 1999. Final Report Environmental Assessment and Phase II Subsurface Soil and Shallow Groundwater Characterization Harvers Trust. The Barg French Dry-Cleaning Facility, Seattle, Washington. September.

Kleinfelder, Inc. 1999. Final Report Addendum Phase II Subsurface Soil Characterization Harvers Trust. The Barg French Dry-Cleaning Facility, Seattle, Washington. November.

TABLE 1

SUMMARY OF PREVIOUS SOIL SAMPLE ANALYTICAL RESULTS
THE BARG FRENCH DRY-CLEANING FACILITY

SAMPLE ID	DEPTH (feet bgs)	PID Reading	PCE (ug/kg)
SP-1	9 ½	ND	2,600
SP-1	12 ½	ND	<50
SP-2	2 ½	ND	3,800
SP-2	7	500	8,900
SP-2	10	TRACE	1,800
SP-3	4 ½	ND	5,200
SP-3	9	ND	3,500
SP-4	3	300	4,400
SP-4	7	80	4,400
SP-4	9	ND	1,300
SP-5	5	ND	630
SP-6	8	200	690
SP-6	10	ND	1,500
SP-7	7 ½	36	1,000
SP-8	8	15	<50
SP-9	8	38	780
SP-9	10½	23	610
SP-10	8	10	1,900
SP-10	10	6	1,400
SP-11	8	80	3,300
SP-11	16½	ND	82
SP-12	8	97	2,300
SP-12	11	ND	1,600
MTCA Method A Cleanup Level	NA	NA	**500**
MTCA Method B Cleanup Level	NA	NA	**19,600**

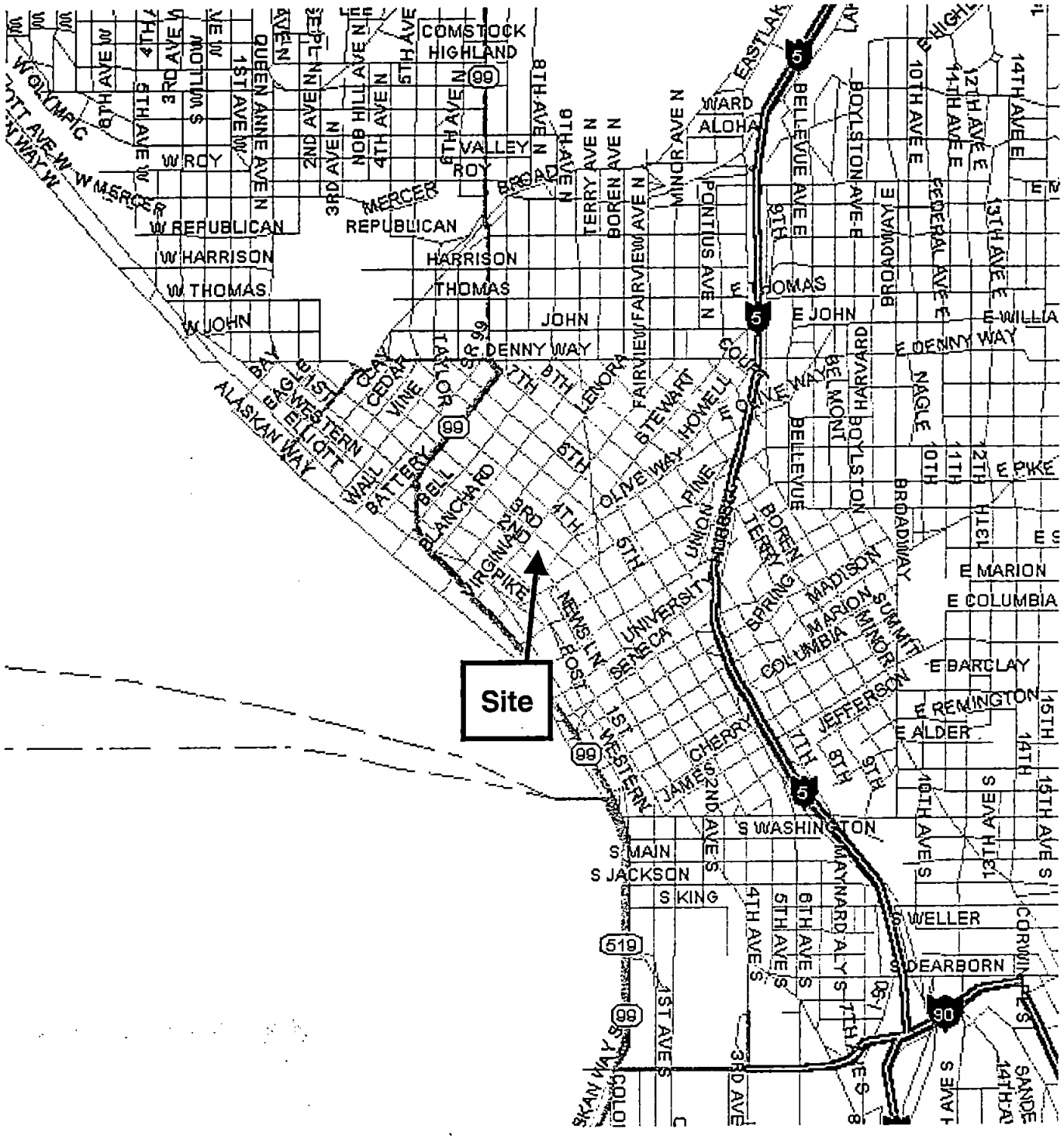
Notes: The Sample ID consists of the boring designation with the depth of a sample.
PCE = perchlorethylene
Ppb = parts per billion (equivalent to ug/kg)
<50 = PCE was not found at a concentration exceeding the reporting limit shown.
ND = Not Detected
NA = Not Applicable

TABLE 2

SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS
THE BARG FRENCH DRY-CLEANING FACILITY

SAMPLE ID	DEPTH (feet bgs)	PID Reading	PCE (ug/kg)
B-1-1	5	56	NA
B-1-2	10	45	540
B-1-3	15	47	690
B-1-4	20	ND	<50
B-1-5	25 (No Recovery)	NA	NA
B-1-5	30	ND	<50
B-2-1	5	5	NA
B-2-2	10	7	280
B-2-3	15	3	<50
B-2-4	20	ND	240
B-2-5	25	ND	<50
B-2-6	30	ND	<50
MTCA Method A Cleanup Level	NA	NA	**500**
MTCA Method B Cleanup Level	NA	NA	**19,600**

Notes: ND = Not Detected
NA = Not Applicable
PCE = perchlorethylene
Ppb = parts per billion (equivalent to ug/kg)
<50 = PCE was not found at a concentration exceeding the reporting limit shown.



Reference: Delorme Street Atlas USA Version 4.0

APPROXIMATE SCALE

0 0.25 0.5

1 inch = 0.5 miles

N

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PROJECT NO. 60-1996-02 October, 1999

Site Location Map

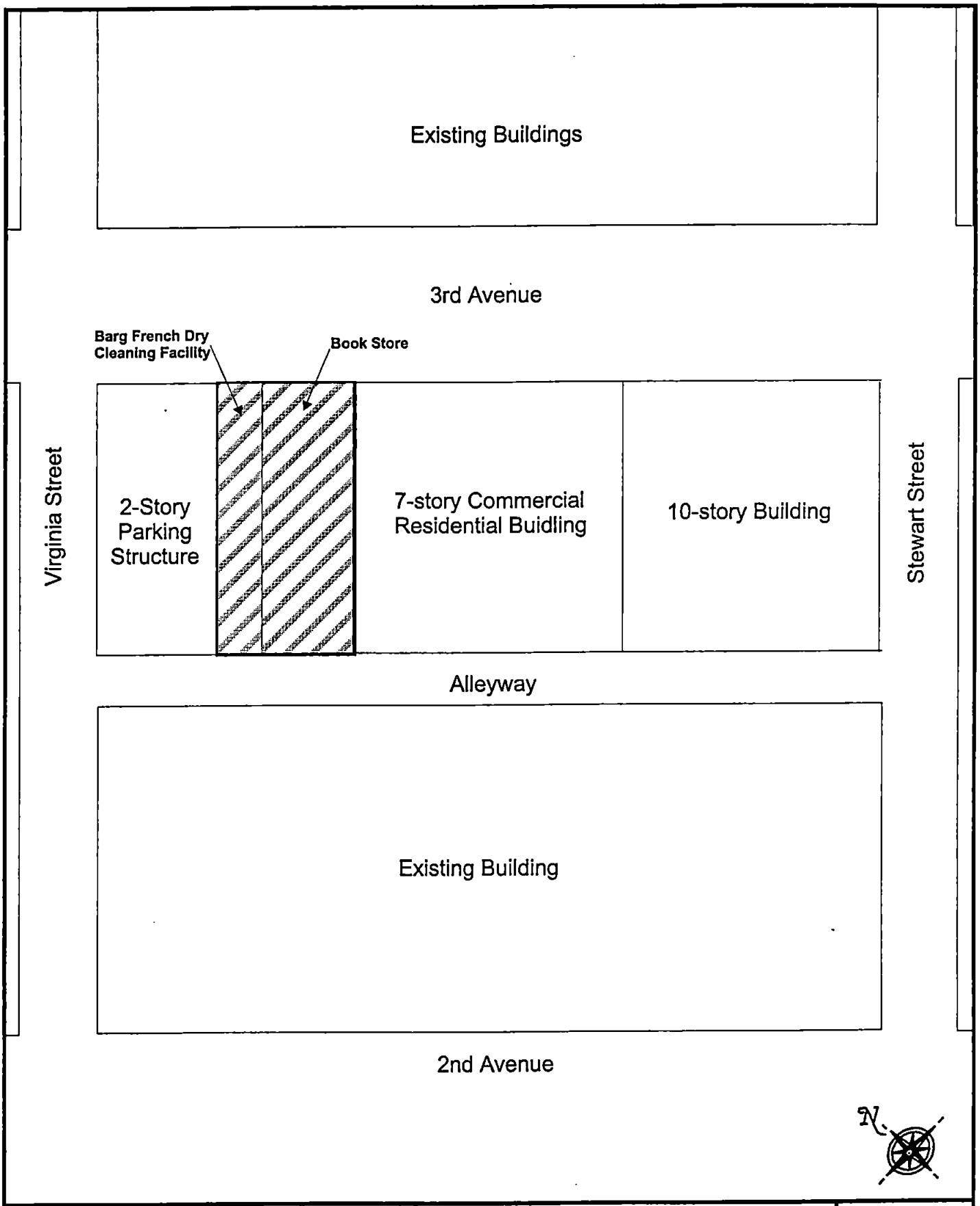
Barg French Dry - Cleaning Facility

1929 3rd Ave

Seattle, Washington

FIGURE

1



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PROJECT NO. 60-1996-02 October, 1999

Plot Plan

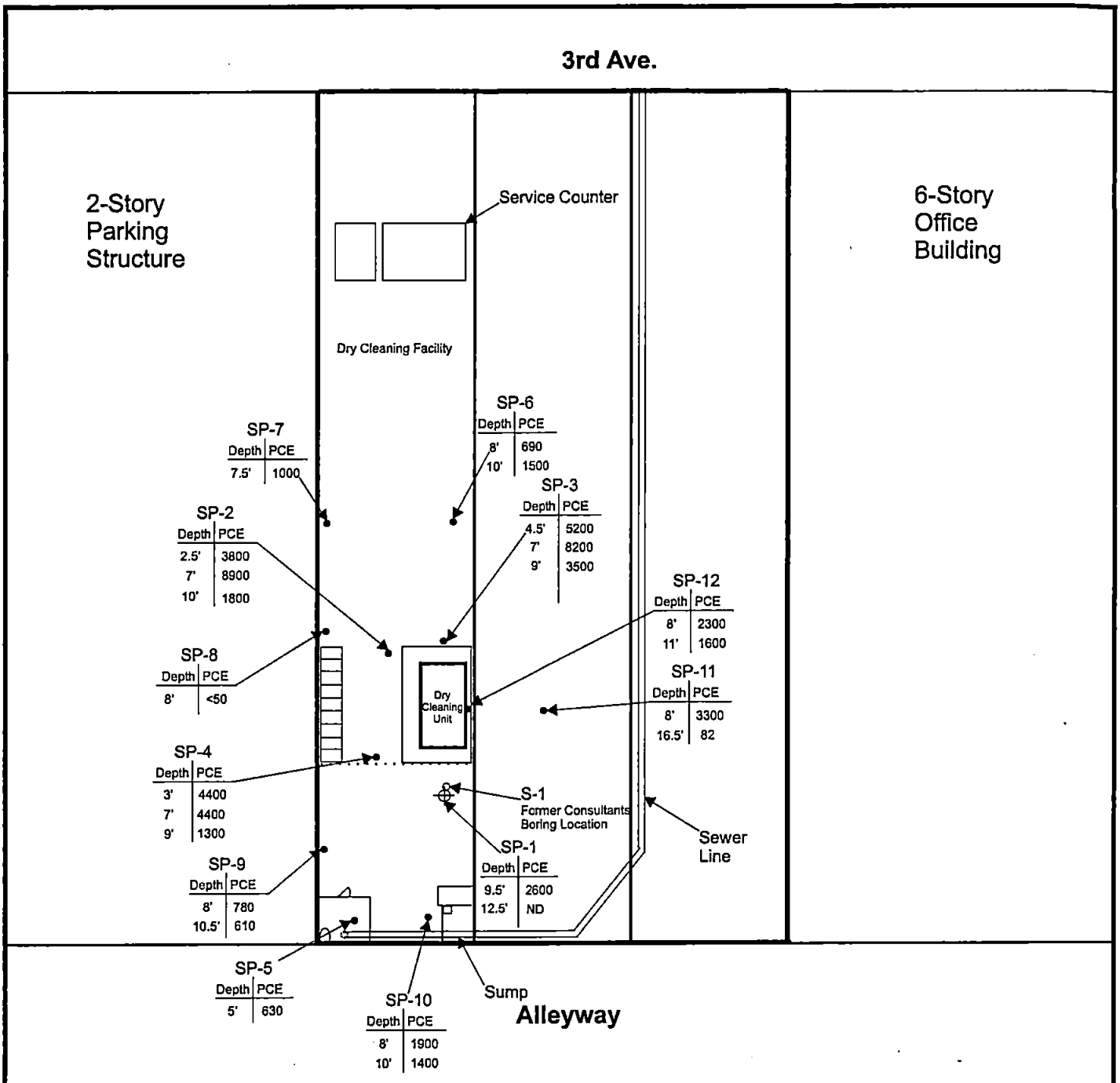
Barg French Dry - Cleaning Facility

1929 3rd Ave

Seattle, Washington

FIGURE

2



Legend

PCE = Perchloroethylene (ppb)
ppb = parts per billion (or ug/kg)
○ S-1 = Hand Auger by Webster, Inc. June, 1999
● SP-6 = Soil Boring by Kleinfelder Inc. October 18-19, 1999
• = Boring Location
⊕ = Monitoring Well Location

0 20

Approximate Scale In Feet

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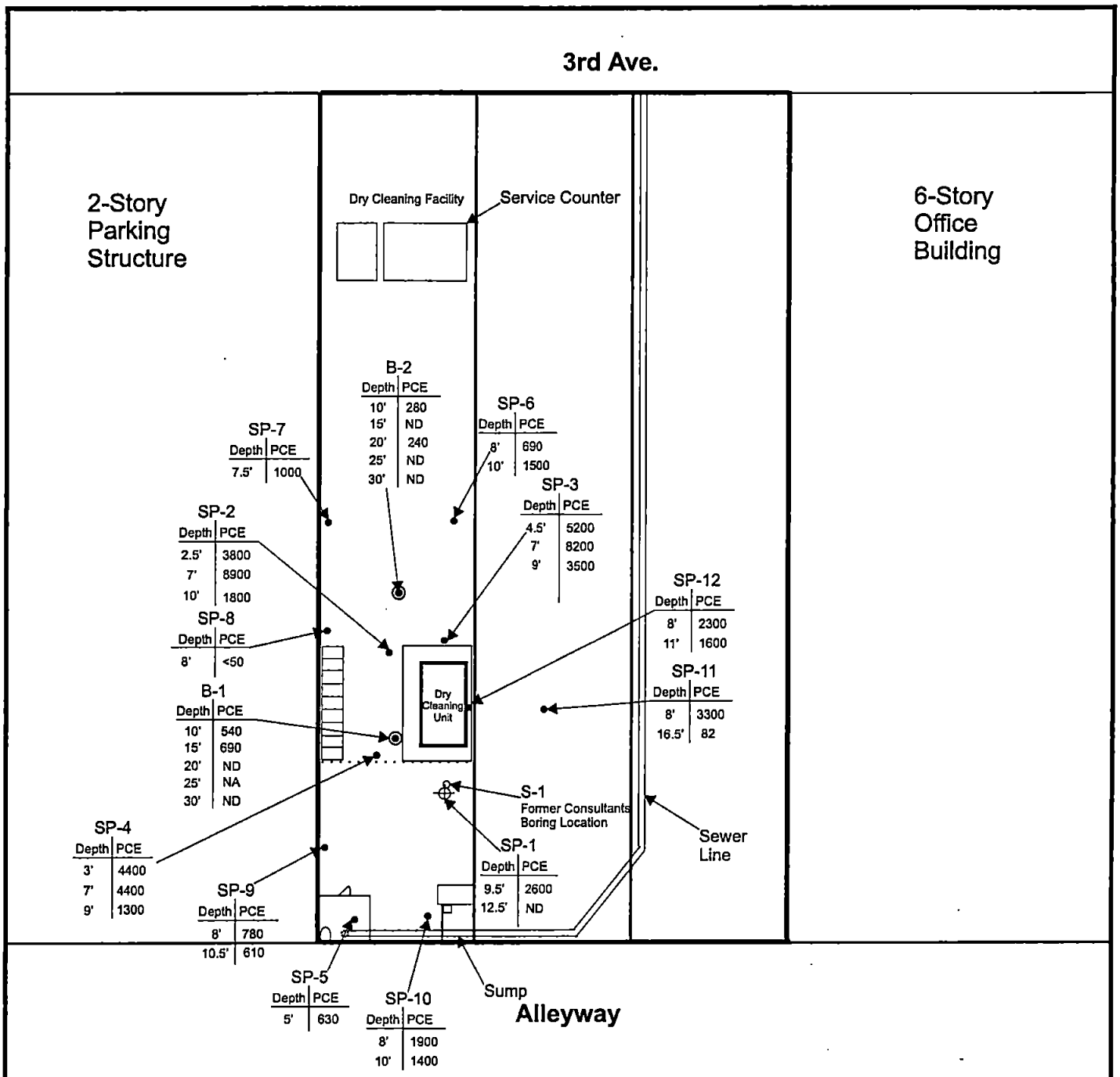
PROJECT NO. 60-1996-01 September, 1999

Previous Soil Sample Locations
Barg French Dry - Cleaning Facility
1929 3rd Ave
Seattle, Washington

FIGURE
3



Legend

PCE = Perchloroethylene (ppb)
ppb = parts per billion (or ug/kg)
○ S-1 = Hand Auger by Webster, Inc. June, 1999
• SP-6 = Soil Boring by Kleinfelder Inc. October, 1999
• = Boring Location
⊕ = Monitoring Well Location
⊗ = Secondary Sample Location

0 20
Approximate Scale In Feet

KLEINFELDER

PROJECT NO: 60-1996-02 December, 1999

Soil Sample Locations

Barg French Dry - Cleaning Facility
1929 3rd Ave
Seattle, Washington

FIGURE
4

DEPTH (feet)	WELL/PIEZO CONSTRUCTION	WATER LEVEL	TESTING PROGRAM: LABORATORY: MOISTURE CONTENT(%)	PLASTIC LIMIT(%)	LIQUID LIMIT(%)	% PASSING No. 200 SIEVE	OTHER TESTS	FIELD: PID (ppm)	BLOWS/6 in** (uncorrected)	SAMPLER *	SAMPLE NUMBER	U.S.C.S. NAME	U.S.C.S. SYMBOL	SOIL DESCRIPTION
														Surface: Concrete Floor
0														6" CONCRETE
												SP		Dry, light gray poorly graded fine SAND, (SP)
5														- becomes dense to very dense (based on operator's observations), noted decrease on core interval due to dense material
												SP		Moist, light gray poorly graded fine SAND with occasional iron rust streaks, (SP)
											B-7'			
		▽									B-9'	ML		Moist, light gray clayey SILT (6" lense), (ML)
10											B-9.5'	SP		Wet, light gray poorly graded fine SAND (6" lense), (SP)
												ML		Moist, gray SILT (4" lense), (ML)
												SP		Moist to wet, light brownish gray fine SAND (4" lense), (SP)
												TILL		Damp, gray SILT, (ML), dense to very dense, (GLACIAL TILL)
15											B-12.5'			
20														

DATE DRILLED: 11-19-99
LOGGED BY: D. O'Neill
REVIEWED BY: Dennis O'Neill

SURFACE ELEVATION (feet):
TOTAL DEPTH (feet): 30.0
DIAMETER OF BORING (in): 8"

DRILLING METHOD: SME 75 Ltd. Access
DRILLER: Cascade Drilling
CASING SIZE:

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

APPROV: _____

BY: _____

KLEINFELDER
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS
SOILS AND MATERIALS TESTING

PROJECT NUMBER: 60-1996-01

Barg French Dry - Cleaning Facility
1929 3rd Avenue
Seattle, Washington
BORING LOG
B-1

FIGURE
A -2a

DEPTH (feet)	WELL/PIEZO CONSTRUCTION	WATER LEVEL	TESTING PROGRAM: LABORATORY — MOISTURE CONTENT(%)	PLASTIC LIMIT(%)	LIQUID LIMIT(%)	% PASSING No. 200 SIEVE	OTHER TESTS	FIELD — PID (ppm)	BLOWS/6 in** (uncorrected)	SAMPLER *	SAMPLE NUMBER	U.S.C.S. NAME	U.S.C.S. SYMBOL	SOIL DESCRIPTION
20														
25														
30														Boring terminated at 30' bgs due to refusal on 11/19/99. Perched groundwater encountered at 9' bgs during drilling.

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

APPROV: _____

BY: _____

* SAMPLER TYPE	Cal. (3"OD) Split Spoon	Cal. Split Spoon (w/ liners)	SPT (2" OD) Split Spoon	Shelby Tube	Grab	No Recovery
**HAMMER WEIGHT	300 lbs (30" Drop)	300 lbs (30" Drop)	140 lbs (30" Drop)			

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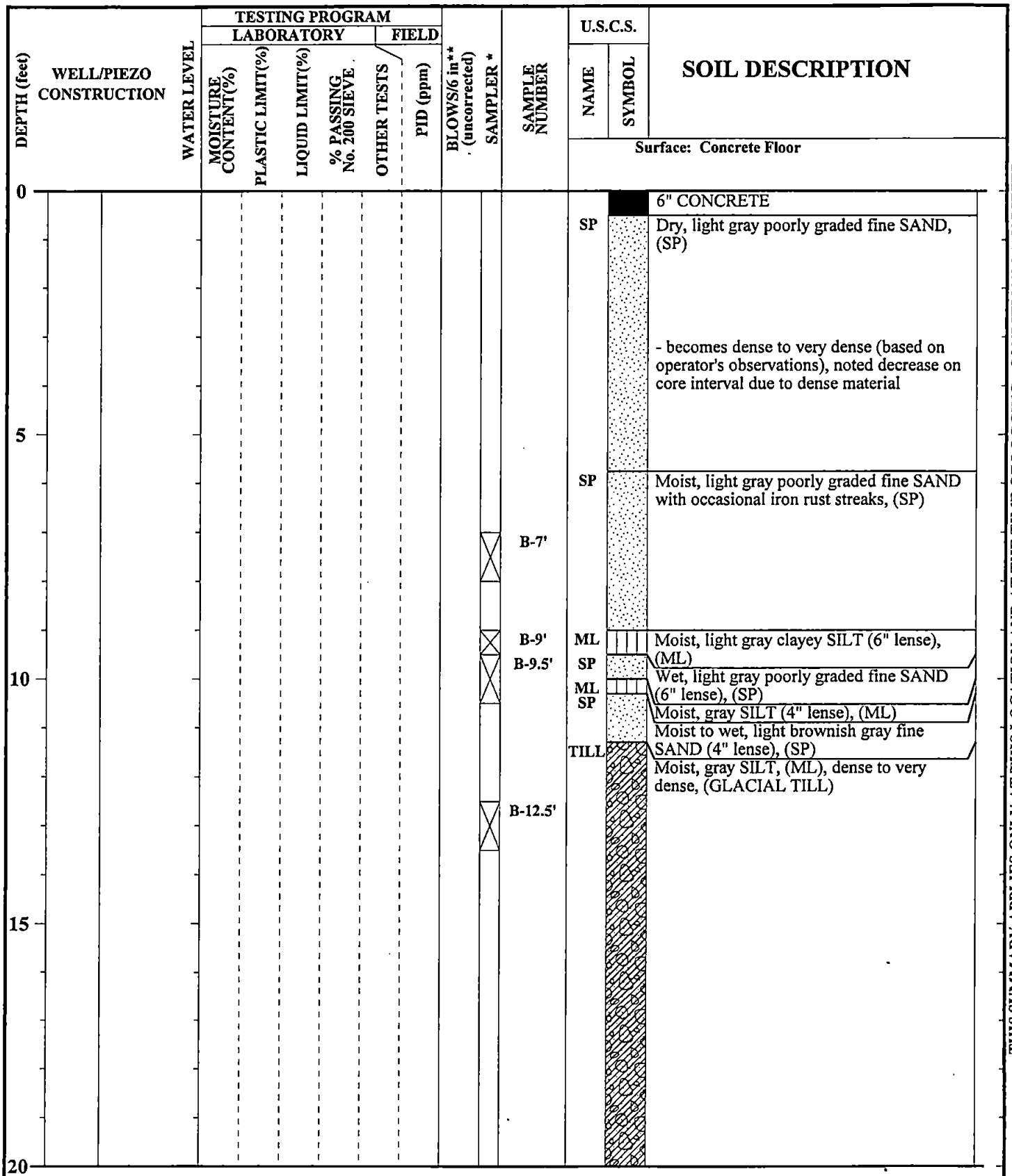
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS
SOILS AND MATERIALS TESTING

PROJECT NUMBER: 60-1996-01

Barg French Dry - Cleaning Facility
1929 3rd Avenue
Seattle, Washington
BORING LOG
B-1

FIGURE
A -2b
PAGE 2 of 2



DATE DRILLED: 11-19-99
LOGGED BY: D. O'Neill
REVIEWED BY: Dennis O'Neill

SURFACE ELEVATION (feet):
TOTAL DEPTH (feet): 30.0
DIAMETER OF BORING (in): 8"

DRILLING METHOD: SME 75 Ltd. Access
DRILLER: Cascade Drilling
CASING SIZE:

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

APPROV: _____

BY: _____

KLEINFELDER
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS
SOILS AND MATERIALS TESTING

PROJECT NUMBER: 60-1996-01

Barg French Dry - Cleaning Facility
1929 3rd Avenue
Seattle, Washington
BORING LOG
B-2

FIGURE
A -3a

DEPTH (feet)	WELL/PIEZO CONSTRUCTION	WATER LEVEL	TESTING PROGRAM: LABORATORY: MOISTURE CONTENT(%)	PLASTIC LIMIT(%)	LIQUID LIMIT(%)	% PASSING No. 200 SIEVE	OTHER TESTS	FIELD: PID (ppm)	BLOWS/6 in** (uncorrected)	SAMPLER *	SAMPLE NUMBER	U.S.C.S.: NAME	U.S.C.S.: SYMBOL	SOIL DESCRIPTION
20														
25														
30														Boring terminated at 30' bgs due to refusal on 11/19/99. No groundwater observed.

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

APPROV: _____

BY: _____

* SAMPLER TYPE	Cal. (3"OD) Split Spoon	Cal. Split Spoon (w/ liners)	SPT (2" OD) Split Spoon	Shelby Tube	Grab	No Recovery
**HAMMER WEIGHT	300 lbs (30" Drop)	300 lbs (30" Drop)	140 lbs (30" Drop)			

KLEINFELDER
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS
SOILS AND MATERIALS TESTING

PROJECT NUMBER: 60-1996-01

Barg French Dry - Cleaning Facility
1929 3rd Avenue
Seattle, Washington
BORING LOG
B-2

FIGURE
A -3b

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

800 Sleater-Kinney SE, PMB #262
Lacey, Washington 98503-1127

Mobile Environmental Laboratories
Environmental Sampling Services

Telephone: **360-459-4670**
Fax: **360-459-3432**

November 23, 1999

Dennis O'Neill
Kleinfelder
2405 140th Ave. NE, #A101
Bellevue, WA 98005-1877

Dear Mr. O'Neill:

Please find enclosed the analytical data report for The Bany Dry Cleaner Project in Washington State. Soil samples were analyzed for Specific Halogenated Hydrocarbons and BTEX by Method 8021B on November 16 & 19, 1999.

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

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

Sincerely,

Sherry L. Chilcutt
Vice President

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^{O} 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 Halocarbons
(Chlorinated Hydrocarbons, EPA 601/8021B)

A calibration standard is 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. 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.

KLEINFELDER

PROJ. NO.	PROJECT NAME
20-1996-03	The Bay Day Cleaner
L.P. NO. (P.O. NO.)	SAMPLERS: (Signature/Number)

DATE MM/DD/YY	SAMPLE I.D. TIME HH:MM:SS	SAMPLE I.D.	NO. OF CONTAINERS	ANALYSIS: PCE by EPA Method 8021B	REMARKS
11/15/99	0905	B-1-1	1		
"	0920	B-1-2	1	✓	
"	0935	B-1-3	1	✓	
"	0945	B-1-4	1	✓	
"	1045	B-1-5	1	✓	
"	1150	B-2-1	1		
"	1200	B-2-2	1	✓	
"	1210	B-2-3	1	✓	
"	1220	B-2-4	1	✓	
"	1235	B-2-5	1		
"	1250	B-2-6	1	✓	

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Remarks	Send Results To
[signature]	11/16/99	[signature] 11/15/99 13:30	*Archive all samples for potential future testing. *Standard Turnaround Time. Same pricing as previous testing program.	KLEINFELDER 1200 - 112TH AVENUE NE SUITE C226 BELLEVUE, WA 98004 (206) 451-2877
Relinquished by: (Signature)	Date/Time	Received by: (Signature)		
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)		

M-60 White - Sampler Canary - Return Copy To Shipper Pink - Lab Copy

No 0702

CHAIN OF CUSTODY

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

TEG Job Number:	S91115-2
Client:	Kleinfelder
Client Job Name:	The Bany Dry Cleaner
Client Job Number:	60-1996-03

Analytical Results

8021B, µg/kg		MTH BLK	LCS	B-1-2	B-1-3	B-1-4	B-1-5	B-2-2
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	11/16/99	11/16/99	11/16/99	11/16/99	11/16/99	11/16/99	11/16/99
Date analyzed	Limits	11/16/99	11/16/99	11/16/99	11/16/99	11/16/99	11/16/99	11/16/99
Moisture, %				23%	22%	20%	18%	20%
Chloromethane	250	nd		nd	nd	nd	nd	nd
Bromomethane	250	nd		nd	nd	nd	nd	nd
Vinyl chloride	250	nd		nd	nd	nd	nd	nd
Chloroethane	250	nd		nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	250	nd		nd	nd	nd	nd	nd
1,1-Dichloroethene	250	nd	102%	nd	nd	nd	nd	nd
Methylene Chloride	250	nd		nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	250	nd		nd	nd	nd	nd	nd
1,1-Dichloroethane	250	nd		nd	nd	nd	nd	nd
Chloroform	50	nd		nd	nd	nd	nd	nd
1,1,1-Trichloroethane	50	nd		nd	nd	nd	nd	nd
Carbontetrachloride	50	nd		nd	nd	nd	nd	nd
1,2-Dichloroethane	250	nd		nd	nd	nd	nd	nd
Trichloroethene	50	nd	108%	nd	nd	nd	nd	nd
1,2-Dichloropropane	250	nd		nd	nd	nd	nd	nd
Bromodichloromethane	250	nd		nd	nd	nd	nd	nd
cis-1,3-Dichloropropene	250	nd		nd	nd	nd	nd	nd
trans-1,3-Dichloropropene	250	nd		nd	nd	nd	nd	nd
Chlorobenzene	250	nd	125%	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	50	nd		nd	nd	nd	nd	nd
Tetrachloroethene	50	nd		540	690	nd	nd	280
Dibromochloromethane	250	nd		nd	nd	nd	nd	nd
Bromoform	250	nd		nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	250	nd		nd	nd	nd	nd	nd
1,1,1,2-Tetrachloroethane	250	nd		nd	nd	nd	nd	nd
Bromobenzene	250	nd		nd	nd	nd	nd	nd
1,2,3-Trichloropropane	250	nd		nd	nd	nd	nd	nd
Dibromomethane	250	nd		nd	nd	nd	nd	nd
m-Dichlorobenzene	50	nd		nd	nd	nd	nd	nd
p-Dichlorobenzene	50	nd		nd	nd	nd	nd	nd
o-Dichlorobenzene	50	nd		nd	nd	nd	nd	nd
Benzene	50	nd	108%	nd	nd	nd	nd	nd
Toluene	50	nd	106%	nd	nd	nd	nd	nd
Ethylbenzene	50	nd		nd	nd	nd	nd	nd
Xylenes	50	nd		nd	nd	nd	nd	nd
Surrogate recoveries:								
Bromochloromethane		111%	109%	116%	113%	117%	118%	116%
1,4-Dichlorobutane		105%	106%	110%	106%	109%	111%	109%
Bromochloropropane		106%	108%	113%	107%	114%	112%	113%
Trifluorotoluene		94%	115%	97%	95%	95%	97%	93%
Bromofluorobenzene		96%	96%	94%	92%	91%	93%	89%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
na - not analyzed
C - coelution with sample peaks
M - matrix interference
J - estimated value
Results reported on dry-weight basis
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

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

TEG Job Number:	S91115-2
Client:	Kleinfelder
Client Job Name:	The Bany Dry Cleaner
Client Job Number:	60-1996-03

Analytical Results

8021B, µg/kg		B-2-3	B-2-4	B-2-6	MTH BLK	LCS	B-2-5	Dup! B-2-5
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	11/16/99	11/16/99	11/16/99	11/19/99	11/19/99	11/19/99	11/19/99
Date analyzed	Limits	11/16/99	11/16/99	11/16/99	11/19/99	11/19/99	11/19/99	11/19/99
Moisture, %		18%	22%	26%			24%	24%
Chloromethane	250	nd	nd	nd	nd		nd	nd
Bromomethane	250	nd	nd	nd	nd		nd	nd
Vinyl chloride	250	nd	nd	nd	nd		nd	nd
Chloroethane	250	nd	nd	nd	nd		nd	nd
cis-1,2-Dichloroethene	250	nd	nd	nd	nd	80%	nd	nd
1,1-Dichloroethene	250	nd	nd	nd	nd		nd	nd
Methylene Chloride	250	nd	nd	nd	nd		nd	nd
trans-1,2-Dichloroethene	250	nd	nd	nd	nd		nd	nd
1,1-Dichloroethane	250	nd	nd	nd	nd		nd	nd
Chloroform	50	nd	nd	nd	nd		nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd	nd		nd	nd
Carbontetrachloride	50	nd	nd	nd	nd		nd	nd
1,2-Dichloroethane	250	nd	nd	nd	nd	103%	nd	nd
Trichloroethene	50	nd	nd	nd	nd		nd	nd
1,2-Dichloropropane	250	nd	nd	nd	nd		nd	nd
Bromodichloromethane	250	nd	nd	nd	nd		nd	nd
cis-1,3-Dichloropropene	250	nd	nd	nd	nd		nd	nd
trans-1,3-Dichloropropene	250	nd	nd	nd	nd	116%	nd	nd
Chlorobenzene	250	nd	nd	nd	nd		nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd	nd		nd	nd
Tetrachloroethene	50	nd	240	nd	nd		nd	nd
Dibromochloromethane	250	nd	nd	nd	nd		nd	nd
Bromoform	250	nd	nd	nd	nd		nd	nd
1,1,2,2-Tetrachloroethane	250	nd	nd	nd	nd		nd	nd
1,1,1,2-Tetrachloroethane	250	nd	nd	nd	nd		nd	nd
Bromobenzene	250	nd	nd	nd	nd		nd	nd
1,2,3-Trichloropropane	250	nd	nd	nd	nd		nd	nd
Dibromomethane	250	nd	nd	nd	nd		nd	nd
m-Dichlorobenzene	50	nd	nd	nd	nd		nd	nd
p-Dichlorobenzene	50	nd	nd	nd	nd		nd	nd
o-Dichlorobenzene	50	nd	nd	nd	nd		nd	nd
Benzene	50	nd	nd	nd	nd	89%	nd	nd
Toluene	50	nd	nd	nd	nd	91%	nd	nd
Ethylbenzene	50	nd	nd	nd	nd		nd	nd
Xylenes	50	nd	nd	nd	nd		nd	nd
Surrogate recoveries:								
Bromochloromethane		114%	111%	115%	116%	111%	108%	111%
1,4-Dichlorobutane		107%	112%	110%	113%	115%	116%	120%
Bromochloropropane		110%	108%	108%	119%	110%	98%	71%
Trifluorotoluene		92%	96%	96%	96%	95%	95%	97%
Bromofluorobenzene		87%	93%	90%	87%	89%	90%	97%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
na - not analyzed
C - coelution with sample peaks
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