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DEPT. OF ECOLOGY

Compliance Monitoring Report
Thrasher's Corner
211th Street SE and SR 527
Bothell, Washington

Prepared for:
Fred Meyer, Inc.
3800 SE 22nd Avenue
Portland, Oregon 97202

Prepared by:
Kleinfelder Inc.
2405 140th Avenue, NE
Suite A101
Bellevue, WA 98005

Telephone: (425) 562-4200
Facsimile: (425) 562-4201

February 13, 2001

KLEINFELDER
An employee owned company

February 13, 2001
Kleinfelder Project No: 60-1926-04

Ms. Kimberly Pillon
Fred Meyer, Inc.
Environmental Affairs Manager
3800 SE 22nd Ave.
Portland, OR 97202

SUBJECT: Compliance Monitoring Report
Fred Meyer Thrasher's Corner Facility
211th Street SE & SR 527
Bothell, Washington

Dear Ms. Pillon:

This report presents the fourth quarter 2000 groundwater monitoring results for the above referenced property in Bellevue, Washington. This information is designed to meet the Washington Department of Ecology reporting requirements for the subject property.

Kleinfelder appreciates the opportunity to be of service on this project. Should you require additional information or have any questions regarding this report, please contact this office at your convenience.

Sincerely,

KLEINFELDER, INC.

Dennis J. O'Neill
Associate

John Lillie
Senior Project Geologist

Cc: Ron Timm
Department of Ecology

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1.0 INTRODUCTION

Kleinfelder, Inc. (Kleinfelder), on behalf of Fred Meyer Co. has prepared this report presenting the results of quarterly groundwater monitoring conducted at the Fred Meyer Thrashers Corner facility in, Bothell, Washington (Figure 1). Groundwater monitoring and reporting were conducted as required in the July 1999 Washington Department of Ecology (Ecology) Voluntary Cleanup Program (VCP), opinion letter (Appendix A). The monitoring was required as part of the previous soil remediation program completed at the site.

1.1 Site Location and Description

The site is located approximately 1/2 mile North of Highway 405 on the Everett Bothell Highway (Figure 1). The site is bordered on the north by commercial developments and Maltby Road; on the West by State Route 527; on the south by a electrical power sub-station, and on the east by a green belt consisting of a wet land buffer area, coniferous forest, mixed forest wetland, and shrub wetland. Until 1996 the property and surrounding area were parts of a single-family/agricultural homesite. The western portion of the site is entirely covered by the Fred Meyer building and ancillary asphalt parking lot (Figure 2). The eastern portion of the site is a dedicated open space (Figure 2).

1.2 Background

A remedial action under the Department of Ecology (Ecology) Voluntary Cleanup Program (VCP) was conducted at the site in 1999. The objective of the VCP remedial action was to address environmental issues surrounding smelter slag that was placed on the site by the previous landowner. To that end, the slag and ancillary soil, found to contain arsenic was excavated, stabilized with a mixture of dry Portland Cement and placed under the building footprint. Ecology determined that the shallow groundwater underlying the site required monitoring for dissolved arsenic, dissolved cadmium and pH (Appendix A). The general flow direction for the shallow groundwater was determined to be towards the wetland located east of the site. Three groundwater monitoring wells were installed between the building and the adjacent wetlands for this purpose. The locations of the building, the area of stabilized slag, and the monitoring wells are displayed on Figure 2. Surface water sample locations were also established, to assess the water quality of the intermittent stream located in the adjacent wetland area.

2.0 GROUNDWATER SAMPLING ACTIVITIES

Groundwater samples were collected from the three monitoring wells (MW-1, MW-2 and MW-3) on October 25, 2000. The wells were purged and sampled in accordance with the standard operation procedures contained in Appendix B. All purge water was placed in labeled a 55-gallon drum and is currently being stored on site. Surface water samples were collected from the stream in the adjacent wetland at the locations noted on Figure 2. The samples were submitted to Sound Analytical Services, Inc. of Tacoma, Washington for analysis. All samples were analyzed for dissolved arsenic and cadmium by Method 6020. pH was measured in the field. The laboratory reports and chain-of-custody documentation are presented in Appendix B.

3.0 GROUNDWATER MONITORING RESULTS

The depths to groundwater and summarized analytical results are presented in Table 1. The depth to groundwater in the wells ranged between 6.5 to 9.8 feet below ground surface (bgs). The dissolved arsenic concentrations ranged from 0.0045 mg/L in well MW-1 to 0.0077 mg/L in well MW-3. The concentration of arsenic in MW-3 is slightly above MTCA Method A cleanup level. All three wells had dissolved cadmium concentrations less than the method detection limit of 0.0005 mg/L. These concentrations are an order of magnitude below the cleanup level of 0.005 mg/L. The pH of the groundwater ranged from 6.4 to 6.7.

4.0 SURFACE WATER RESULTS

Two water samples were collected from the stream to determine if the groundwater was influencing it. The dissolved arsenic concentrations for the samples were 0.0018 mg/L and 0.0023 mg/L. These values are well below the MTCA groundwater cleanup of 0.005 mg/L. Both of the dissolved cadmium values were less than the method detection limit of 0.0005 mg/L which is one order of magnitude less than the cleanup level. The concentrations observed indicate that the groundwater does not appear to be impacting the surface water.

5.0 RECOMMENDATIONS

The July 1999 Ecology opinion letter (Appendix A) to Kleinfelder indicated that the groundwater would have to be monitored for one year to assure that there was not a threat to groundwater as a result of the remedial action. The sampling event here constitutes the first quarter of monitoring to occur since the completion of the remedial action. Therefore it is recommended that the monitoring wells should be sampled and analyzed for dissolved arsenic, dissolved cadmium and pH for an additional three quarters.

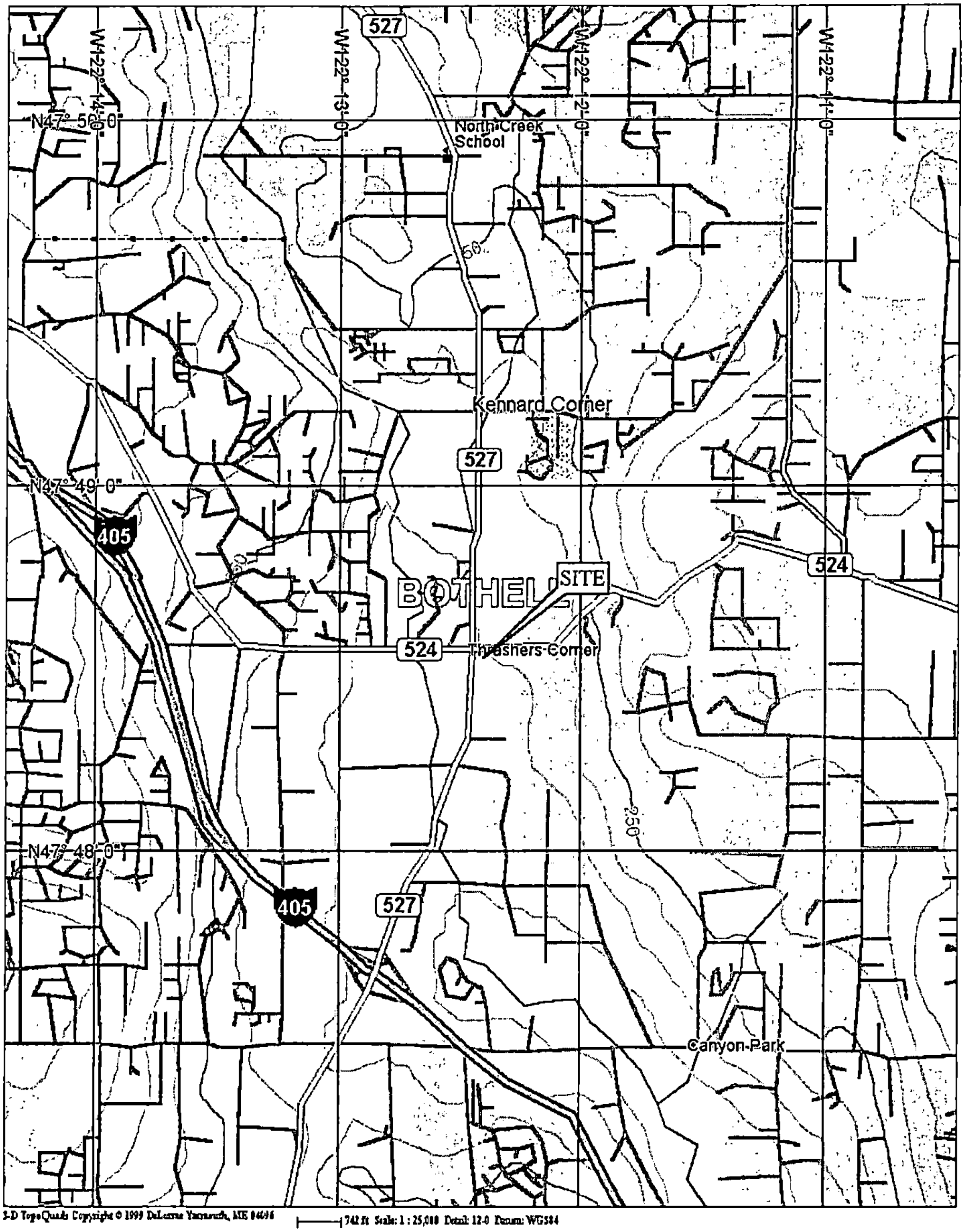
6.0 LIMITATIONS

The scope of services described herein were intended to provide quarterly monitoring of groundwater related to the remediation of the known arsenic impacted soil and slag material found on the site. However, as with any environmental work all potential concerns and risk associated with the subject property cannot be eliminated. Even the most rigorous of professional assessments may fail to identify all existing conditions. This work will not provide a guarantee regarding total contaminant remediation, or monitoring on unknown conditions.

Property activities and regulations beyond Kleinfelder's control could change at any time after the completion of our environmental services. Therefore, Kleinfelder's observations, findings and opinions can be considered valid only as of the date of the sampling and analysis activities and at the locations where samples were collected and tested.

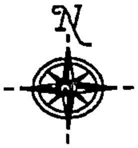
Our generated report may be used only by Fred Meyer and designate legal representatives for the purposes stated, within a reasonable time from its issuance. Land use, site conditions (both on site and off site) or other factors may change over time, and additional work may be required with the passage 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" which will follow the report as Appendix C. 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.



3-D TopoQuads Copyright © 1999 DeLorme Yarmouth, ME 04096

742 ft Scale: 1 : 25,000 Detail: 12-0 Datum: WGS84



KLEINFELDER

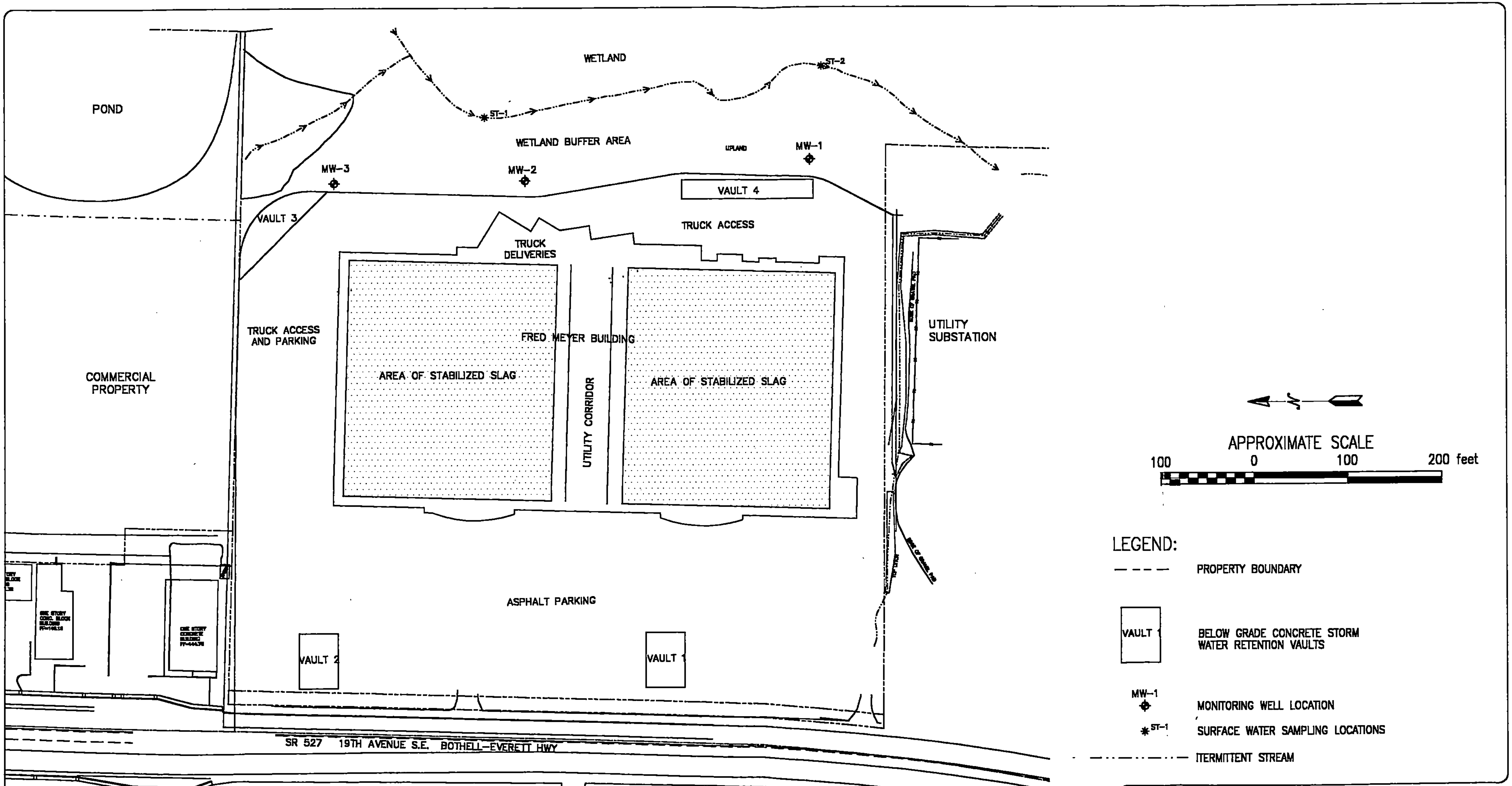
PROJECT NO. 60-1926-04 JANUARY 2001

Site Location Map

Fred Meyer
Thrasher's Corner
211th St. SE & S.R. 527
Bothell, WA

FIGURE

1



KLEINFELDER

Fred Meyer
Fred Meyer – Thrasher's Corner
211th St. SE & S.R. 527
Bothell, Washington

Project: 60-1926-04 JANUARY 2001

AREAS OF STABILIZED SOILS AND GROUNDWATER AND SURFACE WATER SAMPLING LOCATIONS

FIGURE
2

U:DRAFTING/60-1926-04/STABILIZEDSOILS

Table 1
Groundwater Compliance Monitoring Results
Fred Meyer Thrashers Corner Facility
Bothell, Washington

Well	Date	Depth to Groundwater (ft)	Dissolved Arsenic (mg/L)	Dissolved Cadmium (mg/L)	pH
MW-1	10/25/00	6.5	0.0045	<0.0005	6.4
MW-2	10/25/00	7.3	0.005	<0.0005	6.8
MW-3	10/25/00	9.8	**0.0077**	<0.0005	6.7
ST-1	10/25/00	---	0.0018	<0.0005	---
ST-2	10/25/00	---	0.0023	<0.0005	---
MTCA Method A Cleanup level			0.005	0.005	

--- not measured

Bold values are above MTCA Method A cleanup levels

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (425) 649-7000

July 27, 1999

Mr. Dennis O'Neill
Kleinfelder
2405 140th Avenue NE Suite A101
Bellevue, Washington 98005

Dear Mr. O'Neill

Re: Remedial Action Management Plan VCP Proposed Fred Meyer Thrashers Corner Facility, Bothell, WA.

Ecology is the agency with regulatory authority under the Model Toxics Control Act (MTCA), RCW 70.105D, to deal with the contamination issues at this site. I have been assigned to this project and am working with Fred Meyer, and Kleinfelder Consultants.

I have reviewed the above referenced plan relative to the remediation/stabilization of arsenic and cadmium impacted soils located at the site. The actions outlined in the plan, if adhered to, appear to be adequate to address Ecology's concerns about remediation of impacted soils at the site. The City of Bothell has expressed concerns relative to the use of Concrete Kiln Dust (CKD) as a soil additive for stabilization/remediation of the impacted soils.

The pH of the soil stabilization tests indicates that change of PH is not a concern. As the stabilized soil is to be placed above the water table, under the building slab the potential for leaching is minimal. Therefore Ecology does not believe that there is a potential threat to the environment. However, to assure that there is no threat to groundwater, Ecology has determined that Fred Meyer will have to monitor groundwater for one year after completion of the remedial action. The monitoring will include the parameters: dissolved arsenic, dissolved cadmium and pH.

Ecology will also review the final cleanup report to determine if a No Further Action status can be given to the site.

Ecology does not assume any liability for any release, threatened release or other conditions at the site, or for any actions taken or omitted by any person or his/her agents or employees with regard to the release, threatened release, or other conditions at the site. The property owner and/or operator is responsible for reporting any future release(s) to Ecology in accordance with applicable law.

Please feel free to call me any time at (425) 649-4446 should you have any questions regarding this project.

Sincerely,

John T. Lillie
Toxics Cleanup Program

JTL: jtl

cc: Dave Thelts Senior - Civil Engineer - City of Bothell

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (425) 649-7000

March 30, 1999

Mr. Dennis O'Neill
Kleinfelder
2405 140th Avenue NE Suite A101
Bellevue, Washington 98005

Dear Mr. O'Neill

Re: Remedial Action Management Plan VCP Proposed Fred Meyer Thrashers Corner Facility, Bothell, WA.

Ecology is the agency with regulatory authority under the Model Toxics Control Act (MTCA), RCW 70.105D, to deal with the contamination issues at this site. I have been assigned to this project and will be working with Fred Meyer, and Kleinfelder Consultants. It is my understanding that you have requested this letter in order to complete the permitting process for the project.

I have reviewed the above referenced plan relative to the remediation/stabilization of arsenic and cadmium impacted soils located at the site. The actions outlined in the plan, if adhered to, appear to be adequate to address Ecology's concerns about remediation of impacted soils at the site.

Ecology will also review the final cleanup report to determine if a No Further Action status can be given to the site.

Please feel free to call me any time at (425) 649-4446 should you have any questions regarding this project.

Sincerely,

John T. Lillie
Toxics Cleanup Program

JTL:jtl

STANDARD FIELD PROCEDURE

DATE: 6/8/00

FROM: JOHN LILLIE

FIELD WATER QUALITY MEASUREMENTS

- Use a closed flow-through cell. Or, you can use a down well measuring probe; however, well water must be flowing past the probe during measurements (i.e., the probe is near the pump's inlet during purging or is lowered and raised in the screened portion of the well).

- If you do not use a closed flow-through cell or a down-well probe, take in-field measurements immediately, or less preferably, within 30 minutes of collection.

- Avoid exposing instruments and samples to extreme heat or cold.

- Specific conductance, pH, dissolved oxygen and Eh can change rapidly due to aeration, oxidation and the loss or gain of dissolved gasses as you remove groundwater from a well. Minimize atmospheric contact with the sample.

Following are procedures for "***out of the well***" (i.e., closed flow-through cell or sample bottle) water quality measurements. Your equipment's operation manual may deviate from guidelines provided here. Follow the manufacturer's instructions for your instrument and familiarize yourself with the methodology in the most recent version of *Standard Methods for the Examination of Water and Wastewater.*

Temperature

1. Place the thermometer or probe into a closed flow-through cell or sample bottle and allow the purge water to continuously flow past the thermometer or probe. If you use a sample bottle, allow the water to overflow while measuring temperature.

2. Allow the thermometer or probe to equilibrate with the water for a minute or more, then record the temperature. Do not remove the thermometer or probe from the water when taking the reading.

3. Decontaminate the thermometer or probe and store properly.

Specific Conductance (conductivity and electric conductance)

Note: Measure specific conductance ***before*** pH (unless using a flow-through cell). In addition, as specific conductance is a temperature sensitive measurement, adjust readings to 25°C.

1. Calibrate the conductivity instrument and probe against a standard potassium chloride (KCl) solution. Do this in the field, or less preferably, in the laboratory. Calibrate the instrument according to the manufacturer's instructions. Recalibrate at least daily; more often is recommended and prudent. Record calibration data.

2. If required, set the instrument to the anticipated range for measurement (e.g., *x*100 μmhos/cm).

3a. If your instrument ***automatically compensates for temperature***, record the measurement as "field specific conductance at 25°C." Don't forget to multiply the measurement by the range at which the instrument is set.

3b. If your instrument ***does not automatically compensate for temperature***, measure the temperature of the sample and set the instrument's temperature dial to the sample temperature. Record the measurement as the "field specific conductance at 25°C." Don't forget to multiply the measurement by the range at which the instrument is set.

3c. If your instrument cannot compensate for temperature, apply a correction factor as specified in the manufacturer's instructions or by using the following formula:

$$\textbf{specific conductance @ } 25^{\circ}\text{C} = \frac{\textbf{sample conductivity } (\mu\text{mhos/cm})}{1 + 0.0191\, x\,(\textbf{sample temp. in } ^{\circ}\text{C} - 25)}$$

Note: Conductivity meters that do not automatically correct readings to 25°C usually include a conversion table or chart for correcting data to 25°C.

4. Decontaminate the electrode and store properly.

Note: Most problems related to collecting poor conductivity data include: weak batteries; fouling of the electrode (chemical cleaning may be necessary); insufficient submersion of the probe into the sample; allowing the probe to touch the container walls; improper or no instrument calibration; not allowing the probe to equalize with the sample temperature; and improperly or not converting readings to 25°C.

pH

1. Calibrate the pH instrument with pH buffer solutions that span the range of expected groundwater pH values. Two fresh pH buffer solutions (7.00 and 4.00 *or* 7.00 and 10.00) having temperatures within 5°C of the groundwater samples are required for instrument calibration. Properly fill the probe with a salt solution, if required. Follow the manufacturer's instructions for the procedures and frequency of instrument calibration. Calibrate the instrument at least daily; more often is recommended and prudent. Record calibration data.

2a. Place the calibrated pH probe into a closed flow-through cell and allow the purge water to continuously flow past the probe.

2b. If you measure pH from a sample container, fill a container for this measurement ***only.*** Do not insert a pH probe into a sample that will later be analyzed for other parameters.

3. Allow the pH probe to equilibrate with the water for a minute or more, then record pH. Do not remove the pH probe from the water while taking the reading. Read pH measurements to the nearest 0.1 pH units.

4. Rinse the pH probe with reagent grade water and store in the buffer solution or as recommended by the equipment's manufacturer.

Turbidity

Measure the turbidity of a sample the same day you collect it, preferably in the field immediately after collection.

If you cannot measure sample turbidity soon after collection, you may store samples in the dark for up to 24 hours before measuring turbidity. Shake the sample vigorously before measuring. *Standard Methods for the Examination of Water and Wastewater* discusses interferences and procedures for measuring turbidity.

1a. Use a turbidity meter according to the manufacturer's instructions. Read turbidity to the nearest 0.1 Nephelometric Turbidity Unit (NTU) and record your measurement. In addition, provide this measurement to the laboratory if any well samples will be analyzed for metals.

1b. When you do not use a turbidity meter, describe the turbidity (e.g., slight, moderate) and record your observations or have a laboratory determine sample turbidity within 24 hours of sample collection.

Dissolved Oxygen

You can measure dissolved oxygen (DO) with an electrometric method (dissolved oxygen meter), colorimetric method, the Winkler method, or with the iodometric method. (See most recent version of *Standard Methods for the Examination of Water and Wastewater.*) Dissolved oxygen meters usually require calibration before use and a visual check of the probe to verify that the membrane is not damaged.

To function properly, most DO probes require that water continuously flow past the membrane while measurements are being taken. Therefore, for down-well measurements of

DO after purging a well, use either a DO probe equipped with a stirring rod or, less preferably, slowly raise and lower the probe in the water column while taking readings. If you use a DO probe on a water sample removed from the well, either use a probe equipped with a stirring rod or, while purging the well, allow the purge water to overflow from the sample container while taking DO readings. If your DO meter is not responding as expected or is very sluggish, you may need to change the probe's membrane; follow the manufacturer's instructions for doing this. Lowering a probe into a deep well may also result in sluggish performance because signal strength weakens with cable distance.

Color

1. Note the color against a white background. If filtering is required, note the color ***after*** filtering. Document whether you noted sample color for a filtered or nonfiltered sample.

2. Describe the color by common descriptors (e.g., light gray), or use an industry-recognized and standardized color description method (e.g., a color comparison disk for water). Record your observations.

Odor

Important Note: Kleinfleder neither requires nor advocates smelling groundwater samples.

1a. If you do not know the type and approximate concentration of substances in a sample, do ***not*** attempt to smell it. Record sample odor only if you notice it unintentionally.

1b. If the type and concentration of substances are known and below safe values as established by Occupational Safety and Health Association (OSHA) or the National Institute for Occupational Safety and Health (NIOSH) *Pocket Guide to Chemical Hazards*, carefully wave your hand over the sample and note any distinct odor. Do not "stick your nose" in the sample to check for odor. Record any noticeable odor (e.g., pungent, solvent).

Eh (Oxidation-reduction potential)

Eh is usually measured with a noble metal (e.g., platinum) and a reference electrode system using a pH meter that reads millivolts. Take field measurements of Eh in an air-tight flow-through cell or similar air-tight device. Read Eh measurements to the nearest 10 millivolts (mV).

Follow the equipment manufacturer's instructions and refer to the most recent version of *Standard Methods for the Examination of Water and Wastewater.*

Other Water Quality Measurements

Other water quality measurements that may change physically and chemically soon after collection include dissolved carbon dioxide and alkalinity. These parameters are best measured in-field and immediately after collection. Follow the equipment manufacturer's instructions and the most recent version of *Standard Methods for the Examination of Water and Wastewater* for measuring these parameters.

STANDARD FIELD PROCEDURE

DATE: 6/8/00

FROM: JOHN LILLIE

SAMPLE COLLECTION

Sample Collection and Filling Procedures

- Take in-field water quality measurements before or ***immediately*** after sample collection

- Open only one sample container or one set of sample containers immediately before filling. Preserve samples within 15 minutes of collection and immediately place on ice.

- Minimize the contact of extraneous contamination with sample containers and equipment. Common extraneous contaminants include perfumes, cosmetics, bug spray, sun tan lotion, Sharpie®, spray lubricants (e.g., WD-40®) and engine fumes. Sample up wind or remove extraneous contaminants before opening containers and collecting samples.

- Use waterproof labels. Write on them with a permanent, waterproof marking device (e.g., grease pencil). Labels should include:

  ≤A unique sample number (well number and date, or project number and date, or as required by the PM).

  ≤Site/project name and project number.

  ≤Date and time sample collected.

  ≤Sample collector's initials.

  ≤Type of preservation added and analysis required.

- Use extra caution when collecting samples that have a "medium" or "high" potential to volatalize from water.

- **Remember to keep complete and accurate records.** Record all field information before proceeding to the next well.

<u>Order of Filling Sample Containers</u>

Collect sample parameters in the following order:

1. Unfiltered samples for in-field water quality measurements. (This is not necessary if you take down-well or closed flow-through cell measurements.)
2. Volatile organic compounds (VOCs).
3. Non-filtered, non-preserved (e.g., sulfate, total chromium VI, mercury, semi- and non-volatiles, pesticides, PCBs).
4. Non-filtered, preserved (e.g., nitrogen series [ammonia, nitrates, nitrites, etc.], phenolics, total phosphorous, total metals, cyanide, total organic carbon).
5. Filtered, non-preserved (e.g., dissolved chromium VI).
6. Filtered, preserved immediately (e.g., dissolved metals)
7. Miscellaneous parameters.

Note: Collect sulfate samples before sulfuric acid preserved samples (e.g., nitrogen series). Collect nitrogen series samples before nitric acid preserved samples (e.g., boron, dissolved metals).

Procedures for Filling Sample Containers

Note: If a sample container already has preservative in it before you fill it (common for VOC vials), do not rinse the container before filling and take care to minimize sample overflow that may dilute the preservative.

1. Tip the sample container at a slight angle and allow a slow steady stream of water to run down its inner wall. Hold the sampling discharge tube close to the sample container but do not touch it.

2. Immediately after filling a sample container, if not already done, add any required preservative (filter first, if required), replace the cap, add the label, and place the sample in a plastic bag (optional) on ice in a cooler.

3. Record the "time sample collected." To avoid confusion, record sample collection time in military time (e.g., 1300 instead of 1:00 PM, 1845 instead of 6:45 PM, etc.,)

Volatile Organic Compounds (VOCs)

Note: Do ***not*** filter VOC or other organic samples. Turn off any nearby gasoline engines or sample up wind of any engine exhaust. Remember to store one trip blank per cooler when collecting volatile (VOCs, TPH, and SVOCs) samples. Store empty VOC containers on ice to help you reduce VOC volatilization when you fill them.

1. If a laboratory hasn't already done so, add sufficient preservation to the container.

2. Tip the container at a slight angle and allow a slow, steady stream of water to run down its inner wall.

3. Fill the sample container until the water forms a positive meniscus at the brim, then immediately replace the cap.

4. Invert the sample container and tap it lightly to check for bubbles. If bubbles are present, fill a new sample container (containing preservative) and check for bubbles the same way. If bubbles are unavoidable, collect numerous samples and save those with the least amount of bubbles. Do not try to reopen and add more water to samples that have bubbles.

   Refill a ***used*** container only if you again add sufficient preservative ***and*** refill it with water from the same well, to avoid cross-contamination between samples.

5. Label the sample, place it in a plastic bag (optional), then immediately place it on ice in a cooler. Record the "time sample collected."

Semi-volatiles and Pesticides

When collecting semi-volatiles and pesticides, unless project objectives or regulations require otherwise, use similar, but less rigorous, procedures as those described for collecting VOC samples. Use the same equipment decontamination and storage procedures you use for collecting VOC samples.

When collecting semi-volatiles and pesticides, the type of sample container, volume and preservative may be quite different than that required for VOC samples. In addition, leave approximately ½ inch of air space when filling sample bottles to allow for expansion. Otherwise, the bottles may break.

> ***Note:*** The number of sample bottles required depends on the number of different extraction, clean-up, analytical methods and quality control (QC) needed for the project. Remember that laboratories are required to duplicate and spike samples at a set frequency. Collecting insufficient sample volumes may result in higher detection limits, because sample volume must be reduced to accommodate QC requirements.

Inorganics

Inorganic samples (e.g., dissolved metals) are quite susceptible to aeration, oxidation, precipitation, coprecipitation, and extraneous contamination and cross-contamination during sampling, filtering and handling. Therefore, take extra care to avoid sample aeration before filtering (if required) and preserving. Unless Ecology or the PM requires or approves otherwise, ***field filter*** inorganic samples and ***preserve immediately*** after collection. Refer to the filtering procedure for specific on this.

Other Sample Parameters

Other sample parameters subject to rapid change (by aeration and subsequent changes in redox state, or addition or loss of dissolved gasses) once groundwater is removed from a well include: chromium VI, pH, Eh, oxygen, inorganic carbon, alkalinity, TOC, ammonium, nitrate/nitrite, sulfide, cyanide, molybdenum, mercury, selenium, dissolved iron (ferrous iron - FE^{+2}), manganese, zinc, cadmium, lead, vanadium, arsenic and phosphate. Take precautions to avoid altering these parameters during sampling. Add preservative, if required, ***immediately*** and place on ice in a cooler.

For those interested in monitoring indicators of biodegradation that may be occurring in groundwater at a site, use a field test kit (e.g., colorimetric), sensor probe or other field test (e.g., portable gas chromatogram) to quantify pH, dissolved oxygen, nitrate, sulfate, ferrous iron, redox potential and manganese ***in the field*** immediately after sample collection. In addition, alkalinity, methane and carbon dioxide should be measured in the field immediately after collection or less preferably, in the laboratory. Contact a qualified laboratory for specific directions on collecting, preserving and handling samples not discussed in this manual.

Sound Analytical Services, Inc.
ANALYTICAL & ENVIRONMENTAL CHEMISTS
4813 Pacific Hwy East o Tacoma, WA 98424
(253) 922-2310 o FAX (253) 922-5047
e-mail: info@saslab.com

RECEIVED
NOV 22 2000

TRANSMITTAL MEMORANDUM

DATE: November 7, 2000

TO: Dennis O'Neill
Kleinfelder
2405 140th Ave. N. E., Suite A101
Bellevue, WA 98005

PROJECT: 60-1926-04 Fred Meyer Thrasher

REPORT NUMBER: 93684

Enclosed are the test results for six samples received at Sound Analytical Services on October 26, 2000.

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

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

Sincerely,

Darla Powell

Darla Powell
Project Manager

SOUND ANALYTICAL SERVICES, INC.

Client Name	Kleinfelder
Client ID:	MW-1
Lab ID:	93684-01
Date Received:	10/26/00
Date Prepared:	11/2/00
Date Analyzed:	11/2/00
Dilution Factor	1

Dissolved Metals by ICP-MS - USEPA Method 6020

Analyte	**Result (mg/L)**	**PQL**	**Flags**
Arsenic	0.0045	0.001	
Cadmium	ND	0.0005	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Kleinfelder
Client ID:	MW-2
Lab ID:	93684-02
Date Received:	10/26/00
Date Prepared:	11/2/00
Date Analyzed:	11/2/00
Dilution Factor	1

Dissolved Metals by ICP-MS - USEPA Method 6020

Analyte	**Result (mg/L)**	**PQL**	**Flags**
Arsenic	0.005	0.001	
Cadmium	ND	0.0005	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Kleinfelder
Client ID:	MW-3
Lab ID:	93684-03
Date Received:	10/26/00
Date Prepared:	11/2/00
Date Analyzed:	11/2/00
Dilution Factor	1

Dissolved Metals by ICP-MS - USEPA Method 6020

Analyte	**Result (mg/L)**	**PQL**	**Flags**
Arsenic	0.0077	0.001	
Cadmium	ND	0.0005	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Kleinfelder
Client ID:	MW-4
Lab ID:	93684-04
Date Received:	10/26/00
Date Prepared:	11/2/00
Date Analyzed:	11/2/00
Dilution Factor	1

Dissolved Metals by ICP-MS - USEPA Method 6020

Analyte	**Result (mg/L)**	**PQL**	**Flags**
Arsenic	0.0072	0.001	
Cadmium	ND	0.0005	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Kleinfelder
Client ID:	ST-1
Lab ID:	93684-05
Date Received:	10/26/00
Date Prepared:	11/2/00
Date Analyzed:	11/2/00
Dilution Factor	1

Dissolved Metals by ICP-MS - USEPA Method 6020

Analyte	**Result (mg/L)**	**PQL**	**Flags**
Arsenic	0.0018	0.001	
Cadmium	ND	0.0005	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Kleinfelder
Client ID:	ST-2
Lab ID:	93684-06
Date Received:	10/26/00
Date Prepared:	11/2/00
Date Analyzed:	11/2/00
Dilution Factor	1

Dissolved Metals by ICP-MS - USEPA Method 6020

Analyte	**Result (mg/L)**	**PQL**	**Flags**
Arsenic	0.0023	0.001	
Cadmium	ND	0.0005	

Lab ID:	Method Blank - D059
Date Received:	-
Date Prepared:	11/2/00
Date Analyzed:	11/2/00
Dilution Factor	1

Dissolved Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	Flags
Arsenic	ND	0.001	
Cadmium	ND	0.0005	

Matrix Spike Report

Client Sample ID:	CM-18
Lab ID:	93823-01
Date Prepared:	11/2/00
Date Analyzed:	11/2/00
QC Batch ID:	D059

Dissolved Metals by ICP-MS - USEPA Method 6020

Parameter Name	**Sample Result (mg/L)**	**Spike Amount (mg/L)**	**MS Result (mg/L)**	**MS % Rec.**	**Flag**
Arsenic	0	4	4.32	108	
Cadmium	0	0.1	0.107	107	

Duplicate Report

Client Sample ID:	CM-18
Lab ID:	93823-01
Date Prepared:	11/2/00
Date Analyzed:	11/2/00
QC Batch ID:	D059

Dissolved Metals by ICP-MS - USEPA Method 6020

Parameter Name	**Sample Result (mg/L)**	**Duplicate Result (mg/L)**	**RPD %**	**Flag**
Arsenic	0	0	NC	
Cadmium	0	0	NC	

Sound Analytical Services, Inc.
ANALYTICAL & ENVIRONMENTAL CHEMISTS
4813 Pacific Hwy East • Tacoma, WA 98424
(253) 922-2310 • FAX (253) 922-5047
e-mail: info@saslab.com

DATA QUALIFIERS AND ABBREVIATIONS

B1: This analyte was detected in the associated method blank. The analyte concentration was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).

B2: This analyte was detected in the associated method blank. The analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank).

C1: Second column confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be $\leq$ 40%.

C2: Second column confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be > 40%. The higher result was reported unless anomalies were noted.

M: GC/MS confirmation was performed. The result derived from the original analysis was reported.

D: The reported result for this analyte was calculated based on a secondary dilution factor.

E: The concentration of this analyte exceeded the instrument calibration range and should be considered an estimated quantity.

J: The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.

MCL: Maximum Contaminant Level

MDL: Method Detection Limit

N: See analytical narrative.

ND: Not Detected

PQL: Practical Quantitation Limit

X1: Contaminant does not appear to be "typical" product. Elution pattern suggests it may be __________.

X2: Contaminant does not appear to be "typical" product.

X3: Identification and quantitation of the analyte or surrogate was complicated by matrix interference.

X4: RPD for duplicates was outside advisory QC limits. The sample was re-analyzed with similar results. The sample matrix may be nonhomogeneous.

X4a: RPD for duplicates outside advisory QC limits due to analyte concentration near the method practical quantitation limit/detection limit.

X5: Matrix spike recovery was not determined due to the required dilution.

X6: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Sample was re-analyzed with similar results.

X7: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Matrix interference may be indicated based on acceptable blank spike recovery and/or RPD.

X7a: Recovery and/or RPD values for this spiked analyte outside advisory QC limits due to high concentration of the analyte in the original sample.

X8: Surrogate recovery was not determined due to the required dilution.

X9: Surrogate recovery outside advisory QC limits due to matrix interference.

KLEINFELDER 93684 34

PROJECT NO. 60-1926-04	PROJECT NAME Fred Meyer-Thrasher				RECEIVING LAB:
L.P. NO. (P.O. NO.)	SAMPLERS: (Signature/Number) Dennis O'Neill				INSTRUCTIONS/REMARKS

		DATE MM/DD/YY	SAMPLE I.D. TIME HH-MM-SS	SAMPLE I.D.	MATRIX	NO. OF CON-TAINERS	TYPE OF CON-TAINERS	ANALYSIS Arsenic	Cadmium									INSTRUCTIONS/REMARKS
1	1	10/25/00	1330	MW-1	WATER	1	250 ML	✓	✓									Dissolved metals - field filtered preserved per bottle labels
	2						Plastic											
2	3	"	1345	MW-2	"	1	"	✓	✓									
	4						"											
3	5	"	1355	MW-3	"	1	"	✓	✓									
	6																	
4	7	"	1425	MW-4	"	1	"	✓	✓									
	8																	
5	9	"	1435	ST-1	"	1	"	✓	✓									
	10																	
6	11	"	1455	ST-2	"	1	"	✓	✓									
	12																	
	13																	
	14																	
	15																	
	16																	
	17																	
	18																	
	19																	
	20																	

Relinquished by: (Signature) D. O'Neill	Date/Time 10/26/00 10-26 15:35	Received by: (Signature) Joe Palm	Instructions/Remarks: 10/26/00 1155 am
Relinquished by: (Signature) Joe Palm	Date/Time 10-26 11:00	Received by: (Signature) S Ray	
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	

Send Results To:

KLEINFELDER
2405 140TH AVENUE NE
SUITE A101
BELLEVUE, WA 98005
(425) 562-4200

Attn:

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

CHAIN OF CUSTODY

№ 0787

APPLICATION FOR AUTHORIZATION TO USE

Compliance Monitoring Report
Fred Meyer, Thrasher's Corner
Bothell, Washington
Report originally prepared for *Fred Meyer, Inc.*

File Number: 60-1926-04 Report Date:February 13, 2001

KLEINFELDER, INC.
2405 140th Avenue NE
Suite A-101
Bellevue, WA 98005
(425) 562-4200
(425) 562-4201

To Whom It May Concern:

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To be Completed by Applicant

_______________ *(company name)*	By: _______________ *(Print Name)*
_______________ *(address)*	_______________ *(Signature)*
_______________ *(city, state, zip)*	Title: _______________
_______ *(telephone)* _______ *(FAX)*	Date: _______________

To be Completed by Kleinfelder, Inc.

_______ Approved for reuse with applicant agreeing to above terms and concurrence by original client. Additional fees are estimated at $___________.

_______ Disapproved, report needs to be updated.

By: _______________ Date: _______________
Kleinfelder, Inc.

RETURN COMPLETED FORM TO KLEINFELDER