FOSS
ENVIRONMENTAL & INFRASTRUCTURE
"Always Ready"

Takinci

January 5, 1999

Ms. Wendy LeClair
Bekins Northwest
1201 North 96th Street
Seattle, WA 98103

Re: Draft - Summary of Soil Sampling Activities

Dear Ms. LeClair,

Enclosed is a copy of the above document we received from Geo Engineers. If you have any questions, please call.

Sincerely,

FOSS ENVIRONMENTAL SERVICES

Mark A. Tobin
Manager, Technical Services

Enclosures

PO Box 3535 ▪ Seattle, WA 98124

DRAFT

December 31, 1998

Foss Environmental
200 SW Michigan
Seattle, Washington 98106

Attention: Mark Tobin

Summary of Soil Sampling Activities
Bekins Northwest Facility
Yakima, Washington
File No. 6847-001-00

INTRODUCTION AND BACKGROUND

The purpose of this letter is to summarize the results of our soil sampling activities at the Bekins Northwest (Bekins) facility located at 1891 North First Street in Yakima, Washington. A total of five soil samples were obtained from an on-site landfarm cell in general accordance with our services agreement dated July 24, 1998. We understand that the soil in the landfarm cell was excavated at the site during the removal of a gasoline underground storage tank (UST). The UST was removed and petroleum-contaminated soil was placed in the landfarm cell by Burlington Environmental during 1990 and 1991. The landfarm cell contains approximately 250 cubic yards of soil with gasoline-related contamination. We understand that the results of our sampling activities will be provided to Bekins for their ongoing discussions with the Washington State Department of Ecology (Ecology) regarding site closure.

PURPOSE AND SCOPE OF SERVICES

The purpose of our services was to evaluate the potential presence of gasoline-related soil contamination in the on-site landfarm cell in accordance with Ecology's guidance for UST sites. Our specific scope of services consisted of the following:

1. Visually segregate the landfarm cell into five sampling grids, each grid having approximately the same dimensions. Use field screening techniques to identify areas in which petroleum-related soil contamination is potentially present. Obtain one discrete soil sample from each sampling grid (total of five soil samples) using a decontaminated stainless steel hand auger.

2. Submit the soil samples to a chemical analytical laboratory for analysis of the following: (1) gasoline-range hydrocarbons using Ecology Method WTPH-G, (2) benzene, ethylbenzene, toluene and xylenes (BETX) using EPA Method 8020, and (3) and lead using EPA 6000-Series Methodology.
3. Evaluate the chemical analytical results relative to Model Toxics Control Act (MTCA) Method A cleanup levels.

SOIL SAMPLING RESULTS

A GeoEngineers field representative visited the site on November 10, 1998 to evaluate soil conditions in the landfarm cell and obtain soil samples for chemical analysis of residual gasoline-related contamination. The landfarm cell was divided into five sampling grids. One discrete soil sample was obtained from each sampling grid (total of five samples) using the procedures described in Attachment A. Evidence of petroleum-related contamination was not observed in the soil samples based on field screening results.

The soil samples were submitted for chemical analysis of gasoline-range hydrocarbons, BETX, and lead using the analytical methods identified above. Laboratory reports are presented in Attachment B. Chemical analytical results for the soil samples are presented in Table 1. Gasoline-range hydrocarbons and BETX were not detected in the soil samples. Lead was detected at concentrations ranging from 11.1 to 24.8 milligrams per kilogram (mg/kg), which are less than the MTCA Method A cleanup level (250 mg/kg).

CONCLUSIONS

Five soil samples were obtained from the landfarm cell and analyzed in accordance with Ecology's guidance for UST sites. Chemical analysis of the soil samples obtained from the landfarm cell did not identify the presence of gasoline-related contamination at concentrations exceeding MTCA Method A cleanup levels.

LIMITATIONS

We have prepared this report for use by Foss Environmental, Bekins Northwest and their designated representatives and regulatory agencies. This report is not intended for use by others, and the information contained herein is not applicable to other sites. If a lending agency or other parties intend to place legal reliance on the product of our services, we require that those parties indicate in writing their acknowledgment that the scope of services provided, and the general contractual conditions under which the services were rendered, are understood and accepted by them. This is to provide our firm with reasonable protection against open-end litigation by third parties with whom there would be no contractual limits to their actions.

The soil conditions described in this report are based on our field observations and the chemical analysis of the soil samples described herein. It is always possible that contamination may exist at the site in areas that were not sampled or analyzed.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

Please call if you have questions concerning the results of our soil sampling activities.

Yours very truly,

GeoEngineers, Inc.

Stephen C. Woodward
Project Geologist

Carl R. Kassebaum
Principal

SCW:CRK:pb
P:\00\FINALS\684700100SUMMARY.DOC

Attachments

Two copies submitted

TABLE 1
SOIL CHEMICAL ANALYTICAL DATA [1]
BEKINS LANDFARM CELL
Yakima, Washington

Sample Number [2]	Date Sampled	Field Screening Results [3]		Volatile Organic Compounds [4] (mg/kg)				Gasoline-Range Hydrocarbons [5] (mg/kg)	Total Lead [6] (mg/kg)
		Sheen	Headspace Vapors (ppm)	B	E	T	X		
SP-01-2.0	11/10/98	NS	3.4	<0.0500	<0.0500	<0.0500	<0.100	<5.00	24.1
SP-02-2.0	11/10/98	NS	1.4	<0.0500	<0.0500	<0.0500	<0.100	<5.00	22.5
SP-03-1.5	11/10/98	NS	1.9	<0.0500	<0.0500	<0.0500	<0.100	<5.00	11.1
SP-04-1.5	11/10/98	NS	1.7	<0.0500	<0.0500	<0.0500	<0.100	<5.00	16.1
SP-05-1.5	11/10/98	NS	2.2	<0.0500	<0.0500	<0.0500	<0.100	<5.00	24.8
MTCA Method A Cleanup Level				0.5	20	40	20	100	250

Notes:
[1]Samples analyzed by North Creek Analytical laboratory of Bothell, Washington.
[2]The last number of the sample name indicates the depth (in feet) from which the sample was obtained.
[3]Field screening methods are described in Attachment A.
[4]Volatile organic compounds analyzed using EPA Method 8021B. B=benzene, E=ethylbenzene, T=toluene, X=total xylenes.
[5]Gasoline-range hydrocarbons analyzed using Ecology Method WTPH-G.
[6]Total lead analyzed using EPA 6000/7000 Series Methodology.
NS = no sheen
ppm = parts per million
mg/kg = milligrams per kilogram
MTCA = Model Toxics Control Act

ATTACHMENT A

FIELD PROCEDURES

ATTACHMENT A

FIELD PROCEDURES

SOIL SAMPLING

Soil conditions in the landfarm cell were evaluated by obtaining soil samples with a stainless steel hand auger. The hand auger was decontaminated before each sampling attempt with a Liquinox solution wash and two distilled water rinses. Soil samples were obtained from the greatest possible depth to evaluate conditions beneath the weathered soil surface. The soil samples were obtained from depths of about 1.5 to 2.0 feet below the surface of the landfarm cell. Exploration depth was somewhat limited by the presence of gravel and cobbles in the landfarm cell. The soil samples were kept cool during transport to the laboratory by placing them in a cooler with "blue ice." Chain-of-custody procedures were followed while transporting the soil samples to the laboratory.

FIELD SCREENING OF SOIL SAMPLES

A GeoEngineers representative conducted field screening to evaluate the potential presence of petroleum hydrocarbons in soil samples obtained from the landfarm cell. Field screening results are used as a general guideline to delineate areas of possible petroleum-related contamination in soil and to aid in the selection of soil samples for chemical analysis. The field screening methods used include (1) visual examination, (2) water sheen screening, and (3) headspace vapor screening using a MicroTip. The field screening and chemical analytical results are summarized in Table 1.

Visual screening consists of inspecting the soil for stains indicative of petroleum-related contamination. Visual screening generally is more effective when contamination is related to heavy petroleum hydrocarbons such as motor oil, or when hydrocarbon concentrations are high. Water sheen screening and headspace vapor screening are more sensitive methods that have been effective in detecting contamination at concentrations less than regulatory cleanup guidelines. However, field-screening results are site-specific. The effectiveness of field screening results will vary with temperature, moisture content, organic content, soil type and type and age of contaminant. The presence or absence of a sheen or headspace vapors does not necessarily indicate the presence or absence of petroleum hydrocarbons.

Water sheen screening involves placing soil in water and observing the water surface for signs of sheen. Sheen classifications are as follows:

No Sheen (NS)	No visible sheen on the water surface.
Slight Sheen (SS)	Light, colorless dull sheen; spread is irregular, not rapid; sheen dissipates rapidly.
Moderate Sheen (MS)	Light to heavy sheen; may have some color/iridescence; spread is irregular to flowing, may be rapid; few remaining areas of no sheen on water surface.
Heavy Sheen (HS)	Heavy sheen with color/iridescence; spread is rapid; entire water surface may be covered with sheen.

Headspace vapor screening involves placing a soil sample in a plastic sample bag. Air is captured in the bag and the bag is shaken to expose the soil to the air trapped in the bag. The probe of a MicroTip is inserted in the bag, and the MicroTip measures the concentration of vapors present in the sample bag headspace.

ATTACHMENT B

CHEMICAL ANALYTICAL PROGRAM

ATTACHMENT B

CHEMICAL ANALYTICAL PROGRAM

ANALYTICAL METHODS

Chain-of-custody procedures were followed during the transport of the water and soil samples to North Creek Analytical laboratory in Bothell, Washington. The samples were held in cold storage pending extraction and/or analysis. The analytical results, analytical methods reference and laboratory quality assurance/quality control (QA/QC) records are included in this appendix. The analytical results are also summarized in the text and tables of this report.

ANALYTICAL DATA REVIEW

The laboratory maintains an internal quality assurance program as documented in its laboratory quality assurance manual. The laboratory uses a combination of blanks, surrogate recoveries, duplicates, matrix spike recoveries, matrix spike duplicate recoveries, blank spike recoveries and blank spike duplicate recoveries to evaluate the validity of the analytical results. The laboratory also uses data quality goals for individual chemicals or groups of chemicals based on the long-term performance of the test methods. The data quality goals are included in the laboratory reports. The laboratory compared each group of samples with the existing data quality goals and noted any exceptions in the laboratory report. Data quality exceptions documented by the laboratory in the laboratory reports are reviewed by GeoEngineers using the applicable data validation guidelines from the following documents: "National Functional Guidelines For Organic Data Review" draft dated 1991 and "Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses" dated 1988.

ANALYTICAL DATA REVIEW SUMMARY

There are no data quality exceptions noted in the laboratory report. In our opinion, the analytical data are of acceptable quality for their intended use.