CORRECTIVE ACTION AND GROUNDWATER MONITORING REPORT UNION PACIFIC RAILROAD LEASED PROPERTY FORMER OLD HUDSON GASOLINE STATION LSP LU #1999 SEDALIA, MISSOURI

PREPARED FOR:
UNION PACIFIC RAILROAD
ENVIRONMENTAL MANAGEMENT
1416 DODGE STREET
OMAHA, NEBRASKA 68179

PREPARED BY:

ENVIRONMENTAL DECISION GROUP, INC.
Innovative Services • Advanced Technology

5665 FLATIRON PARKWAY
BOULDER, COLORADO 80301

SEPTEMBER 7, 1999

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EXECUTIVE SUMMARY

On November 10, 1990, two 12,000 gallon, gasoline USTs were removed from the former Old Hudson Gas Station site at 651 East Broadway Boulevard, Sedalia, Missouri (LSP LU#1999). During excavation, EDG personnel observed gasoline-stained soil in the immediate vicinity of the tanks. The MDNR was notified of the release and approximately 1,731 tons of petroleum hydrocarbon impacted soil was excavated and transported by truck to the Central Missouri landfill in Sedalia, Missouri for offsite disposal.

Initial and supplemental site assessments were conducted at the former UST site in June 1991 and May 1994, respectively. Periodic groundwater monitoring activities were initiated at the site in March 1992. The results of the site assessments and groundwater monitoring activities are summarized in this report.

In May 1998 EDG coordinated the excavation and offsite disposal of approximately 1,817 tons of soil from two separate areas located in the southern and central portions of the site. The main excavation, completed in May 1998, encompassed the area immediately adjacent to, and south of, the initial soil excavation that was completed in November 1990. Following completion of the excavation activities, confirmation soil samples were collected from the bottom and side-walls of the excavations. The confirmation soil samples were laboratory analyzed for Total Petroleum Hydrocarbons (TPH) as gasoline and Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) by EPA Method 8020/OA1, Total Extractable Hydrocarbons (TEPH) by EPA Method 8015/OA2, and Methyl-tert-butyl Ether (MTBE) by EPA Method 8020. The soil sample analytical results were then compared to the site-specific soil cleanup levels in order to determine if the soil remediation efforts were complete. All final confirmation soil samples collected from the two excavations reported TPH, BTEX, and MTBE concentrations below the site cleanup levels.

Since the completion of remedial corrective actions in May 1998, two semi-annual groundwater monitoring events have been conducted at the site. Water samples collected in October 1998 and April 1999 were analyzed for TPH and BTEX constituents. Groundwater quality results for both monitoring events were below the MDNR LUST Non-Potable Groundwater Cleanup Levels (MDNR, March 1996).

In accordance with the findings and conclusions of this report, EDG recommends that no further action is required regarding the petroleum hydrocarbon impacts related to the former USTs.

1. INTRODUCTION

This underground storage tank (UST) corrective measures and groundwater monitoring report presents the results of the soil remediation and groundwater monitoring that was conducted by Environmental Decision Group (EDG) for Union Pacific Railroad (UPRR). The UST site is located at 651 East Broadway Boulevard, Sedalia, Missouri (State ID# R0001999). The corrective measures and groundwater monitoring activities described in this report were conducted in accordance with the corrective action plan (EDG, February 1995) that was approved by the Missouri Department of Natural Resources (MDNR) on March 13, 1995.

1.1. PURPOSE AND SCOPE

The purpose of the corrective measures and groundwater monitoring activities is to fulfill the requirements set forth by the MDNR in order to achieve site closure.

The scope of the corrective measures and groundwater monitoring activities involved the following tasks:

- Review of previous UST removal, site assessment and site remedial actions;
- Over-excavation and off-site disposal of approximately 1,817 tons of petroleum hydrocarbon impacted soil;
- Collection and laboratory analyses of confirmation soil samples from the base and side-walls of the soil excavations;
- Collection and laboratory analyses of groundwater samples on a semi-annual basis following completion of the site soil remedial actions; and
- Preparing a corrective measures and groundwater monitoring report.

All tables and figures for this report are included in the "Tables" and "Figures" sections after the "References" section of this report.

1.2. Background Information

Site Description and History

The former UST site (LSP LU#1999) is located at 651 East Broadway Boulevard, Sedalia, Missouri (Figure 1). The property is located in a commercial/non-residential area, is comparatively flat, and encompasses approximately one acre. The property is owned by UPRR and historically has been leased to various petroleum distributors (Figure 2). Formally a gasoline station was located in the southern portion of the site, bordering Broadway Boulevard. In addition, a bulk fuel distribution facility and automobile and truck repair facility were located in the central and northern portions of the site property. Currently the property is vacant and UPRR is negotiating the sale of the site property following completion of the UST remediation and site closure.

2. TANK REMOVAL AND SITE ASSESSMENT SUMMARY

In October 1990, two 12,000 gallon, steel, gasoline USTs were located on the UPRR lease property. The tanks were previously used in conjunction with the Old Hudson Gasoline Station. The exact age and the date that the tanks were last in use is unknown.

2.1. Tank Excavation and Corrective Action (November 10, 1990)

In October 1990, EDG conducted the necessary agency notification, paid the appropriate permit application fees, and received authorization to remove two gasoline tanks from the site. On November 10, 1990, the USTs were excavated and shipped by truck to Tanks Away, Inc. in Federal Heights, Colorado for offsite disposal. During excavation, EDG personnel observed gasoline-stained soil in the immediate vicinity of the tanks. After excavation, inspection of the tanks revealed that one tank possessed a small (approximate quarter-inch) hole due to corrosion. At this time the MDNR was notified of the release, and corrective actions were initiated.

From November 13 through 15, 1990, approximately 1,731 tons (1,154 cubic yards) of petroleum hydrocarbon impacted soil was excavated and transported by truck to the Central Missouri landfill in Sedalia, Missouri for offsite disposal. The area excavated included the tank berths, the area beneath the associated piping, and the former pump islands. Following excavation, six confirmation soil

samples and two groundwater samples were collected from within the open excavation. Laboratory analyses reported total petroleum hydrocarbon (TPH) and benzene, toluene, ethylbenzene, xylene (BTEX) concentrations in soil at below the MDNR Leaking Underground Storage Tank (LUST) Corrective Action Cleanup Goals. However, one groundwater sample reported a benzene concentration of 0.220 mg/L, which exceeded the MDNR LUST Non-Potable Groundwater Cleanup Guideline of 0.05 mg/L. The results of the UST removal and soil excavation were presented in the *Site Assessment Leaking Underground Storage Tank Closures* report (USPCI/EDG, January 1991).

2.2. INITIAL SITE ASSESSMENT

EDG conducted an initial site assessment of the UPRR lease property in June 1991. The initial assessment included the drilling of six soil borings and installation of three groundwater monitoring wells (Figure 3). The initial assessment also included the collection of eight soil samples and four groundwater samples for laboratory analyses (Table 1). The findings of the initial site assessment indicated that elevated levels of gasoline-range hydrocarbons remained in the shallow soil and groundwater at the site. The results of the site assessment were presented in the *Site Assessment, Leaking Underground Storage Tank Closures* (USPCI/EDG, February 27, 1992).

2.3. SUPPLEMENTAL SITE ASSESSMENT

EDG conducted a supplemental site assessment at the UPRR lease property in May 1994. The supplemental site assessment included the drilling of nine soil borings and the installation of five groundwater monitoring wells (Figure 3). The supplemental assessment also included the collection of 13 soil samples and nine groundwater samples for laboratory analysis (Table 2). The findings of the supplemental site assessment further confirmed that petroleum hydrocarbon impacted soil and groundwater remained at the site.

Additional assessment activities included an evaluation of historical information that was available for the site and surrounding area. A survey of registered wells reported that the closest active water well is approximately one quarter mile southwest of the site. Records indicate that this well was drilled in 1942 and completed to a depth of 1,580 feet. Evaluation of all three wells located within one half mile radius of the site indicates that the local area wells produce water from depths that are significantly below the shallow surface aquifer. The results of the supplemental site assessment are presented in the *Supplemental Site Characterization Report and Feasibility Study* (USPCI/EDG, February 3, 1995).

2.4. GROUNDWATER MONITORING

In June 1991 EDG installed three groundwater monitoring wells at the site. In May 1994 EDG installed an additional five monitoring wells, including two offsite, downgradient wells (MW-5 and MW-6). Periodic groundwater monitoring activities, including water level measurement and groundwater sample collection, were initiated at the site in March 1992. The cumulative groundwater monitoring analytical results are presented in Table 3. The cumulative groundwater elevation measurements are presented in Table 4.

3. CORRECTIVE ACTIONS, MAY 21 – 27, 1998

In May 1998 EDG returned to the site in an attempt to over-excavate the remaining areas of hydrocarbon impacted soils. During this second phase of soil excavation, a total of approximately 1,817 tons (1,211 cubic yards) of soil were removed from two separate areas of excavation located in the southern and central portions of the site (Figure 4). The main excavation encompassed the area immediately adjacent to, and south of, the initial soil excavation that was completed in November 1990. The Product Line Excavation encompassed a small area in the central portion of the site with observed hydrocarbon impacts. Descriptions of the excavation activities, including the results of the conformation soil sampling, are presented below.

3.1. EXCAVATION PROCEDURES AND SAFETY PRECAUTIONS

Prior to excavation, EDG completed a comprehensive underground utility clearance of the site. EDG personnel and contractors reviewed and signed the site-specific EDG Health and Safety Plan. A Missouri Department of Transportation approved traffic control plan was instituted to divert traffic from the right lane on the north side of Highway 50 in close proximity to the site. A flashing diversion sign with intermittent orange safety cones were placed to merge traffic into one lane. The sidewalk around the site was barricaded and pedestrian traffic was detoured. As excavation activities progressed, a temporary orange fence was placed around the open excavation. Excavation equipment was parked overnight on the site such to further block access to the open excavation.

Initial excavation activities included the removal of surface concrete in the area of the Main Excavation. Approximately 100 feet of concrete sidewalk and the remaining portion of the former service station driveway were removed to allow for the excavation of the underlying soils. Photographs of the excavation procedures are presented in Appendix A.

3.2. Main Excavation

The results of the UST removal and soil excavation (November 1990), the initial site assessment (February 1992), and the supplemental site assessment (February 1995), were used to direct the soil excavation activities in May 1998. An EDG geologist was present to direct the soil excavation and to employ field screening techniques to help determine the remaining lateral and vertical extent of petroleum hydrocarbon impacts in soil. Soil screening techniques employed by EDG included:

- Head-space screening using a hand-operated organic vapor monitor (OVM),
- visual and olfactory observations, and
- soil location with respect to the areas of known impact as determined during previous site assessment activities.

The main excavation bordered State Highway 50 to the south and covered a surface area of approximately 4,000 square feet (Figure 5). The excavation dimensions were roughly 100 feet long by 40 feet wide. Depths within the main excavation ranged from 9 to 15 feet below ground surface. Groundwater was not encountered during completion of the main excavation.

3.3. Product Line Excavation

During removal of an abandoned product line, hydrocarbon impacted soils were discovered in a small area in the central portion of the site. The discovery prompted the completion of a second, smaller excavation (Figure 6). The product line excavation was directed by the onsite EDG geologist based upon field screening techniques. The second excavation was completed down to the surface of the underlying bedrock at 12.5 feet. Groundwater was not encountered during completion of the product line excavation.

3.4. Confirmation Soil Sampling and MDNR Soil Cleanup Levels

Following completion of the excavation activities, confirmation soil samples were collected from the bottom and side-walls of the excavations. Side-wall samples were collected one foot above the bottom of the excavation. Soil samples were submitted to Pace Analytical Services,

Inc. in Lenexa, Kansas for laboratory testing. The confirmation soil samples were laboratory analyzed for Total Petroleum Hydrocarbons (TPH) as gasoline and Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) by EPA Method 8020/OA1, Total Extractable Hydrocarbons (TEPH) by EPA Method 8015/OA2, and Methyl-tert-butyl Ether (MTBE) by EPA Method 8020.

The soil cleanup levels for the site were determined following the MDNR Underground Storage Tank Closure Guidance Document (MDNR, March 1996). A MDNR LUST Soil Cleanup Guidelines for Undisturbed Soil score sheet was completed based on site-specific information and recorded a total site score of 95. As determined by the site score, the corresponding soil cleanup levels listed in the MDNR guidance are as follows:

TPH	200 mg/kg
BTEX	1/5/10/10 mg/kg

The MDNR LUST Soil Cleanup Guidelines for Undisturbed Soil score sheet for the site is presented in Appendix B.

3.5. Main Excavation – Conformation Soil Sample Results

The main excavation was considered complete when: 1) laboratory results of the confirmation soil samples were below site cleanup levels, 2) stained soil was no longer visible, 3) gasoline odors were no longer present, and 4) OVM readings were less than 10 ppm in representative samples. To determine the effectiveness of the remedial actions, eight confirmation soil samples were collected from the side-walls and floor of the main excavation and laboratory analyzed on a rush basis (Figure 5). The soil sample analytical results were then compared to the site-specific soil cleanup levels.

One soil sample (SW-W13), taken from the southern wall of the excavation exceeded soil cleanup level for TPH (SW-W13, 590 mg/kg TPH). Following receipt of the soil analytical result, additional soil was removed from the southern wall of the excavation. This area was then re-sampled and the resulting analysis reported TPH concentrations below the soil cleanup levels (SW-2W12, 51 mg/kg TPH). All other confirmation soil samples collected from the main excavation reported TPH and BTEX concentrations below the site cleanup levels. The confirmation soil sample analytical results for the main excavation are presented in Table 5, and the laboratory data sheets and chain of custody records are presented in Appendix C.

3.6. PRODUCT LINE EXCAVATION – CONFIRMATION SOIL SAMPLES

The same evaluation criteria used in the main excavation were used in the product line excavation to determine the effectiveness of the remedial actions. Four confirmation soil samples were collected from the side-walls and floor of the product line excavation. In addition, one soil sample (PL) was collected from 6 inches beneath the ruptured product line, at a depth of approximately three feet. Laboratory analyses reported that TPH concentrations in the shallow product line sample exceeded the site soil cleanup levels (PL, 312 mg/kg TPH). However, an additional sample (soil sample NWL-6) was later collected from approximately the same location as the product line sample, but at a depth of 6 feet, following excavation of impacted soil. Laboratory analyses of soil sample NWL-6 reported a TPH concentration below the site cleanup level of 200 mg/kg (NWL-6, 120 mg/kg TPH). All other confirmation soil samples collected from the product line excavation reported TPH and BTEX concentrations below site cleanup levels. The confirmation soil analytical results for the product line excavation are presented in Table 5 and laboratory data sheets and chain of custody records are presented in Appendix C.

3.7. MONITOR WELL IMPACTS

Four shallow onsite groundwater monitoring wells (MW-1, MW-2, MW-3 and MW-4) were decommissioned during completions of the corrective actions. The former monitoring wells ranged in depth between 12.5 feet and 14.5 feet. At each location, grout, casing and filterpack in each monitoring well was completely removed through over-excavation activities that exceeded the total depth of the well. Figure 3 shows the four former monitoring well locations as well as the four existing monitoring wells locations (MW-5, MW-6, MW-7 and MW-8).

3.8. EXCAVATION CLOSURE

Following receipt of the confirmation soil sample analytical results, the open excavations were backfilled to ground surface. Approximately 1,400 tons of clean backfill was imported and placed in the open excavations. Concrete slabs removed during excavation activities were also used as fill for the Main Excavation. The excavations were then thoroughly compacted. An additional 85 tons of topsoil were imported to aid in the restoration of plant growth on the property. Lastly the concrete sidewalk along the north side of Highway 50 was replaced.

3.9. SOIL DISPOSAL

During the May 1998 soil remediation activities approximately 1,817 tons of hydrocarbon impacted soil was excavated and transferred by truck to the Allied Waste Industries, Inc., Show Me Landfill in Warrensburg, Missouri. The final truck shipment of soil was received by the landfill on May 27, 1998. Copies of the soil disposal documentation including landfill weight tickets and cumulative summary are presented in Appendix D.

4. GROUNDWATER MONITORING

In June 1991 EDG installed three groundwater monitoring wells during completion of the initial site assessment. In May 1994 EDG returned and installed five additional monitoring wells, including two offsite, downgradient wells (MW-5 and MW-6). Groundwater monitoring activities, including collecting water level measurements and groundwater samples, were initiated at the site in March 1992. A cumulative summary of groundwater monitoring activities was presented to the MDNR in the *Groundwater Monitoring Report* (Laidlaw/EDG, June 7, 1995). A brief summary of site hydrology and groundwater impacts is presented below.

4.1. SITE HYDROLOGY AND GROUNDWATER IMPACTS

Shallow groundwater at the site was first encountered during drilling at depths ranging from 8 to 12 feet below ground surface. The groundwater appears to be partially confined by the shallow underlying fine-grained sediments (clay). An increase of approximately 4 to 6 feet was reported between the depth to where groundwater was first encountered during drilling and the static water level elevation measures in the completed monitoring wells. Groundwater elevation measurements recorded over a period of eight years indicate that the shallow groundwater gradient (flow direction) is predominantly to the southeast. In addition, historic elevation measurements indicate that groundwater elevations fluctuate as much as 4 feet at the site.

In June 1991, TPH and BTEX concentrations were detected in two onsite monitoring wells (MW-2 and MW-3). In May 1994, TPH and BTEX concentrations were detected in one offsite, downgradient monitoring well (MW-5). Since the initial sampling events, TPH and

BTEX concentrations in groundwater have decreased at each monitoring well location. Cumulative groundwater analytical results are presented in Table 3.

4.2. Groundwater Monitoring, October 1998 and April 1999

Since the completion of May 1998 soil excavation, two semi-annual groundwater monitoring events were conducted in October 1998 and April 1999. Groundwater samples were collected from all four remaining monitoring well locations and laboratory analyzed for TPH and BTEX constituents. Groundwater analytical results for both monitoring events reported TPH and BTEX concentrations below the MDNR LUST Non-Potable Groundwater Cleanup Levels (MDNR, March 1996, presented in Appendix B). Cumulative groundwater analytical results are presented in Table 3. Laboratory data sheets and chain of custody records for the two most recent groundwater sampling events are presented in Appendix E. Cumulative groundwater elevation measurements are presented in Table 4.

4.3. Natural Attenuation / Biodegradation

Natural attenuation results in decreases in chemical concentrations with time and includes such processes as biodegradation, volatilization, hydrolysis and other chemical reactions. Existing groundwater monitoring data indicates that natural attenuation appears to be ongoing at the former UST site. Groundwater analytical results have reported dramatic reductions in benzene concentrations with time at several well locations across the site (Table 4). Benzene concentrations in monitoring well MW-5 have decreased by nearly an order of magnitude since the initial monitoring event in May 1994.

Gasoline constituents released to the subsurface degrade naturally and comparatively quickly under most field conditions. The effects of natural attenuation will result in rapidly reduced soil and groundwater concentrations of the gasoline constituents at most sites (LLNL, 1995). Recent field and laboratory studies that are documented in scientific literature have identified significant reductions in benzene concentrations due to natural biodegradation in both aerobic (Chiang et al., 1989; Testa and Winegardner, 1991) and anaerobic (Wilson and Rees, 1986) hydrochemical environments. The biological half-life values for benzene in groundwater identified in the scientific literature include the following: 0.20 years (Chiang et al., 1989), 0.02-0.20 years (Gherini et al., 1989), 0.30 years (Davis and Olsen, 1990), and 0.10-2.0 years (Howard et al., 1993).

5. SUMMARY AND CONCLUSIONS

The following summarizes the results of the UST removal, site assessment, soil remediation, and groundwater monitoring activities. Conclusions are presented in accordance with the findings of the site activities.

5.1. SUMMARY

On November 10, 1990, two 12,000 gallon, gasoline USTs were removed from the former Old Hudson Gas Station site in Sedalia, Missouri (LSP LU#1999). During excavation, EDG personnel observed gasoline-stained soil in the immediate vicinity of the tanks. The MDNR was notified of the release and approximately 1,731 tons of petroleum hydrocarbon impacted soil was excavated and transported by truck to the Central Missouri landfill in Sedalia, Missouri for offsite disposal.

An initial and supplemental site assessment was conducted at the former UST site in June 1991 and May 1994, respectively. Periodic groundwater monitoring activities were initiated at the site in March 1992. The results of the site assessments and groundwater monitoring activities are summarized in this report and presented in detail in the *Site Assessment, Leaking Underground Storage Tank Closures* (USPCI/EDG, February 27, 1992), *Supplemental Site Characterization Report and Feasibility Study* (USPCI/EDG, February 3, 1995), and *Groundwater Monitoring Report* (Laidlaw/EDG, June 7, 1995).

In May 1998 EDG coordinated the excavation and offsite disposal of approximately 1,817 tons of soil from two separate areas located in the southern and central portions of the site. Following completion of the excavation activities, confirmation soil samples were collected from the bottom and side-walls of the excavations. The confirmation soil samples were laboratory analyzed for TPH, TEPH, BTEX, and MTBE. The soil sample analytical results were then compared to the site-specific soil cleanup levels in order to determine if the soil remediation efforts were complete. All final confirmation soil samples collected from the two excavations reported TPH, BTEX, and MTBE concentrations below the site cleanup levels.

Since the completion of remedial corrective actions in May 1998, two semi-annual groundwater monitoring events have been conducted at the site. Water samples collected in October 1998 and April 1999 were analyzed for TPH and BTEX constituents. Groundwater analytical results for both monitoring events reported TPH and BTEX concentrations below the MDNR LUST Non-Potable Groundwater Cleanup Levels (MDNR, March 1996).

5.2. CONCLUSIONS

The results of the corrective action and groundwater monitoring activities indicate the following:

1. The source areas of hydrocarbon-impacted soil have been removed. All final confirmation soil samples reported TPH, BTEX and MTBE concentrations below the site cleanup levels. Therefore no further action is necessary for site soils.
2. Groundwater monitoring analytical results for October 1998 and April 1999 monitoring events reported TPH and BTEX concentrations below the MDNR LUST Non-Potable Groundwater Cleanup Levels. Therefore no further remedial actions or groundwater monitoring is necessary.
3. Any remaining minor concentrations of petroleum hydrocarbons in both soil and groundwater will be addressed by natural attenuation.

6. RECOMMENDATIONS

In accordance with the findings and conclusions of this report, EDG recommends that no further remedial or monitoring action be taken regarding the petroleum hydrocarbon impacts related to the former USTs. We recommend that the formal closure process be initiated in accordance with the MDNR guidelines. Closure will include plugging and abandoning the four remaining groundwater monitoring wells.

This recommendation is based on the removal of all USTs from the site, the commercial/non-residential setting, the natural biodegradation potential of petroleum hydrocarbons, and the low potential risk of petroleum hydrocarbons in the shallow subsurface soils at the former UST site. Any remaining hydrocarbon-impacted soil and groundwater is unlikely to pose an unacceptable risk to human health or the environment since both soil and groundwater cleanup levels have been met.

In order to document the proper completion of requirements for closure of the UST site, EDG, on behalf of UPRR, requests that the Missouri Department of Natural Resources issue a closure letter for the site following the decommissioning of the existing wells at the site.

7. REFERENCES

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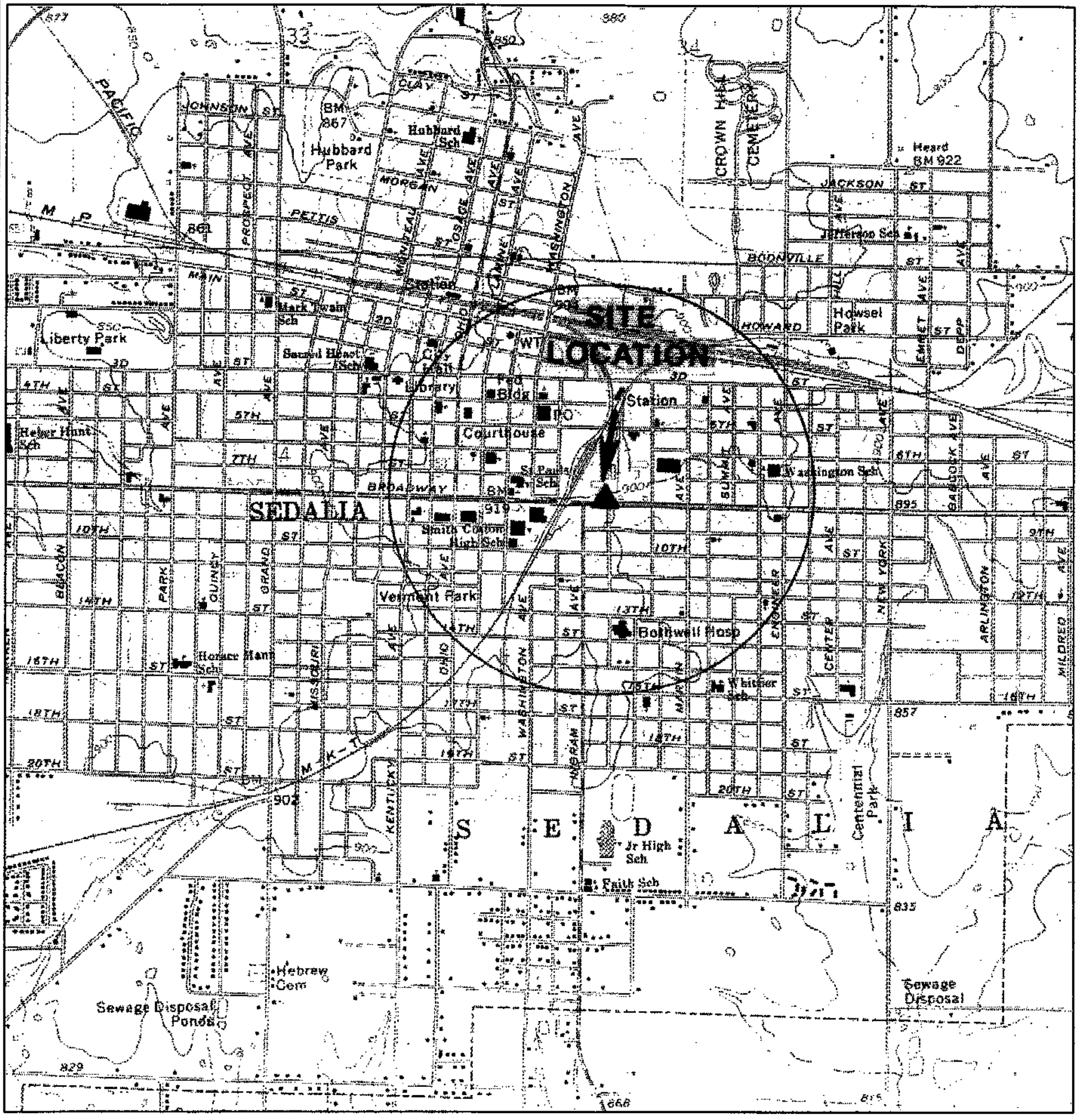
FIGURES



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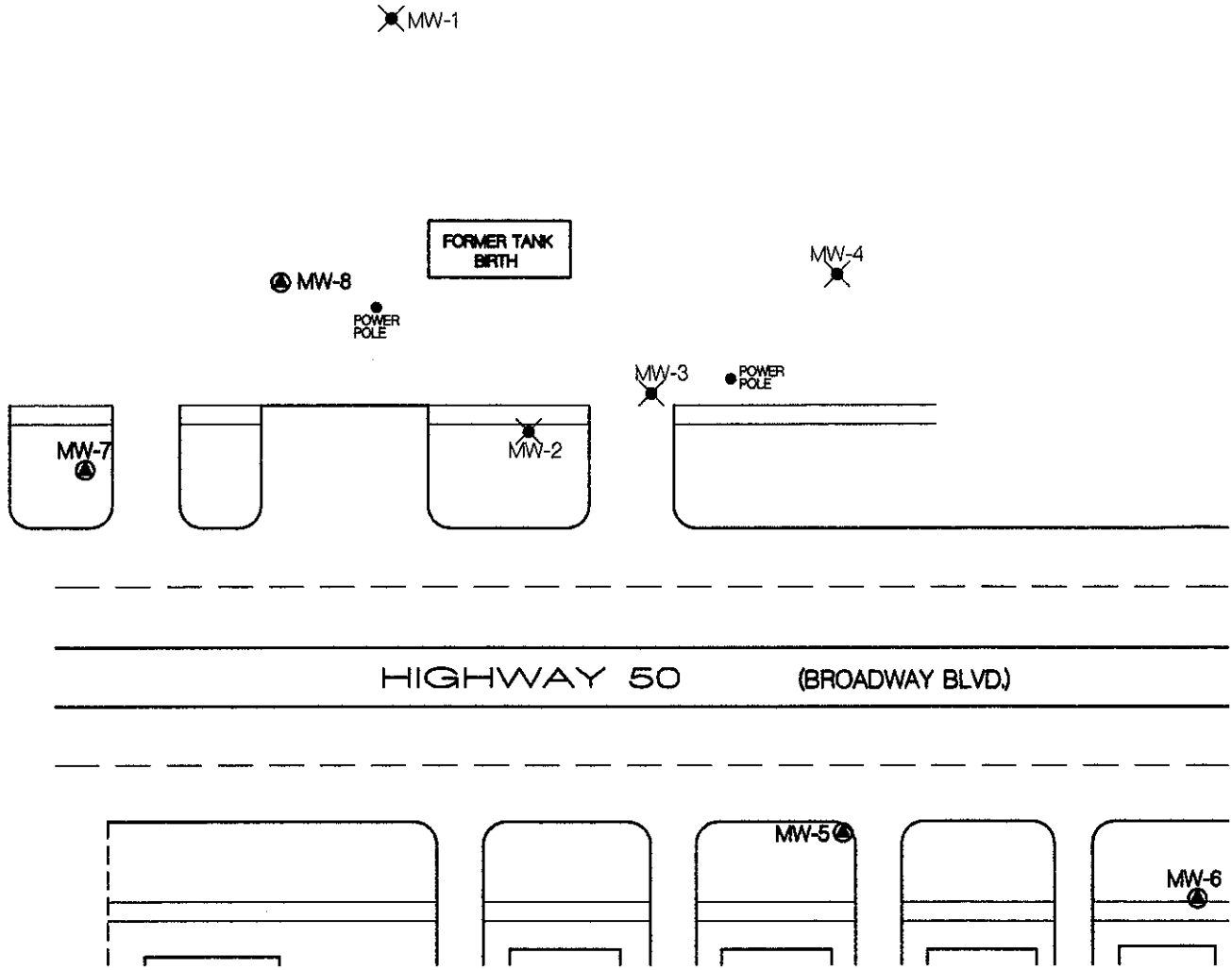
OLD HUDSON STATION - SEDALIA, MISSOURI

FIGURE 1
SITE LOCATION MAP

SCALE 1" = 2000'	DATE 8/10/99

065120-LOCMAP



LEGEND

- EXISTING MONITORING WELL
- ABANDONED MONITORING WELL

North

0 40

FEET

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OLD HUDSON STATION - SEDALIA, MISSOURI

FIGURE 2
SITE MAP

SCALE: 1" = 40'

APPROVED/DATE 8/31/99

605120-01

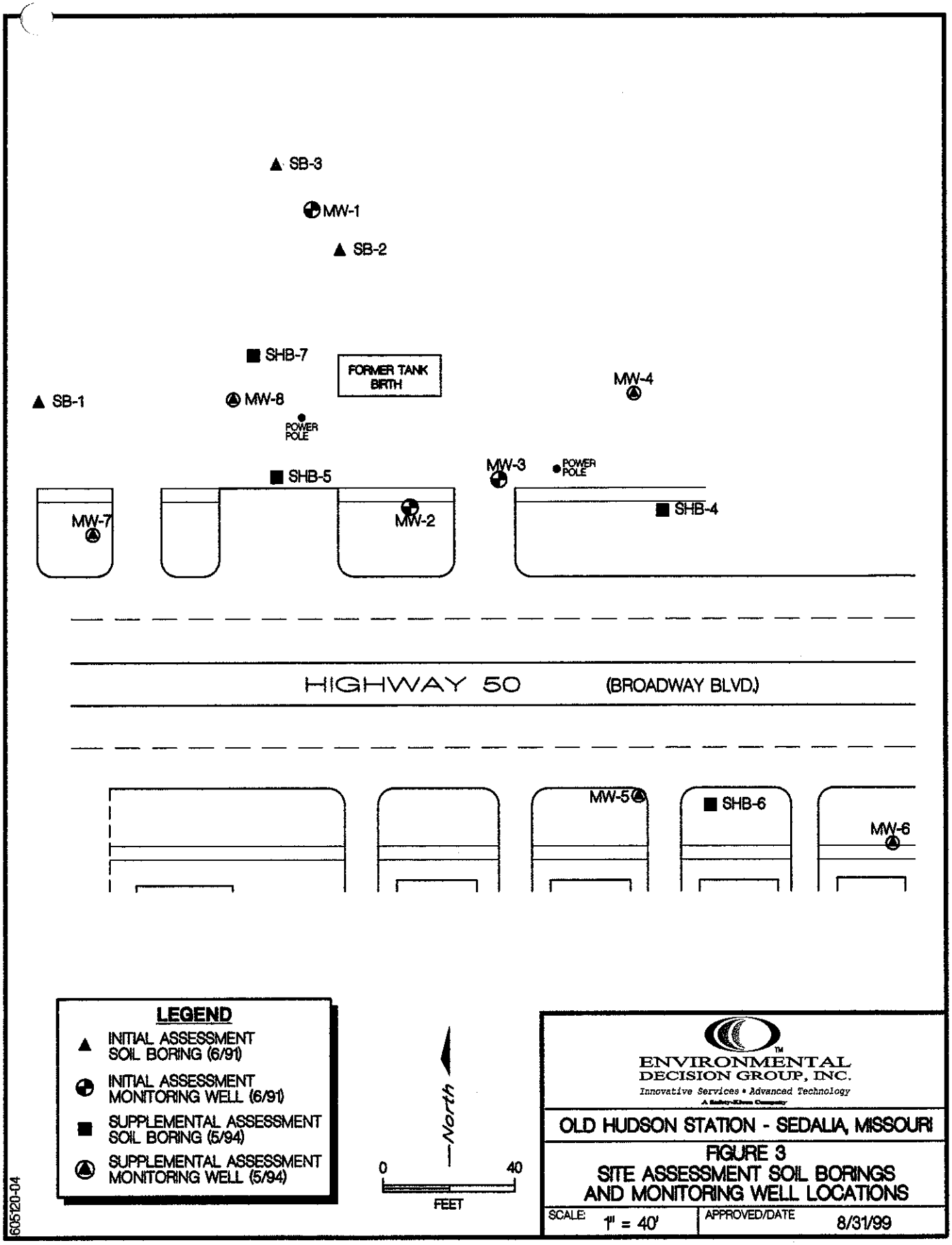
SB-3
MW-1
SB-2
SHB-7
FORMER TANK BIRTH
MW-4
SB-1
MW-8
POWER POLE
MW-3
POWER POLE
SHB-5
MW-7
MW-2
SHB-4
HIGHWAY 50
(BROADWAY BLVD.)
MW-5
SHB-6
MW-6
LEGEND
INITIAL ASSESSMENT SOIL BORING (6/91)
INITIAL ASSESSMENT MONITORING WELL (6/91)
SUPPLEMENTAL ASSESSMENT SOIL BORING (5/94)
SUPPLEMENTAL ASSESSMENT MONITORING WELL (5/94)
North
0
40
FEET
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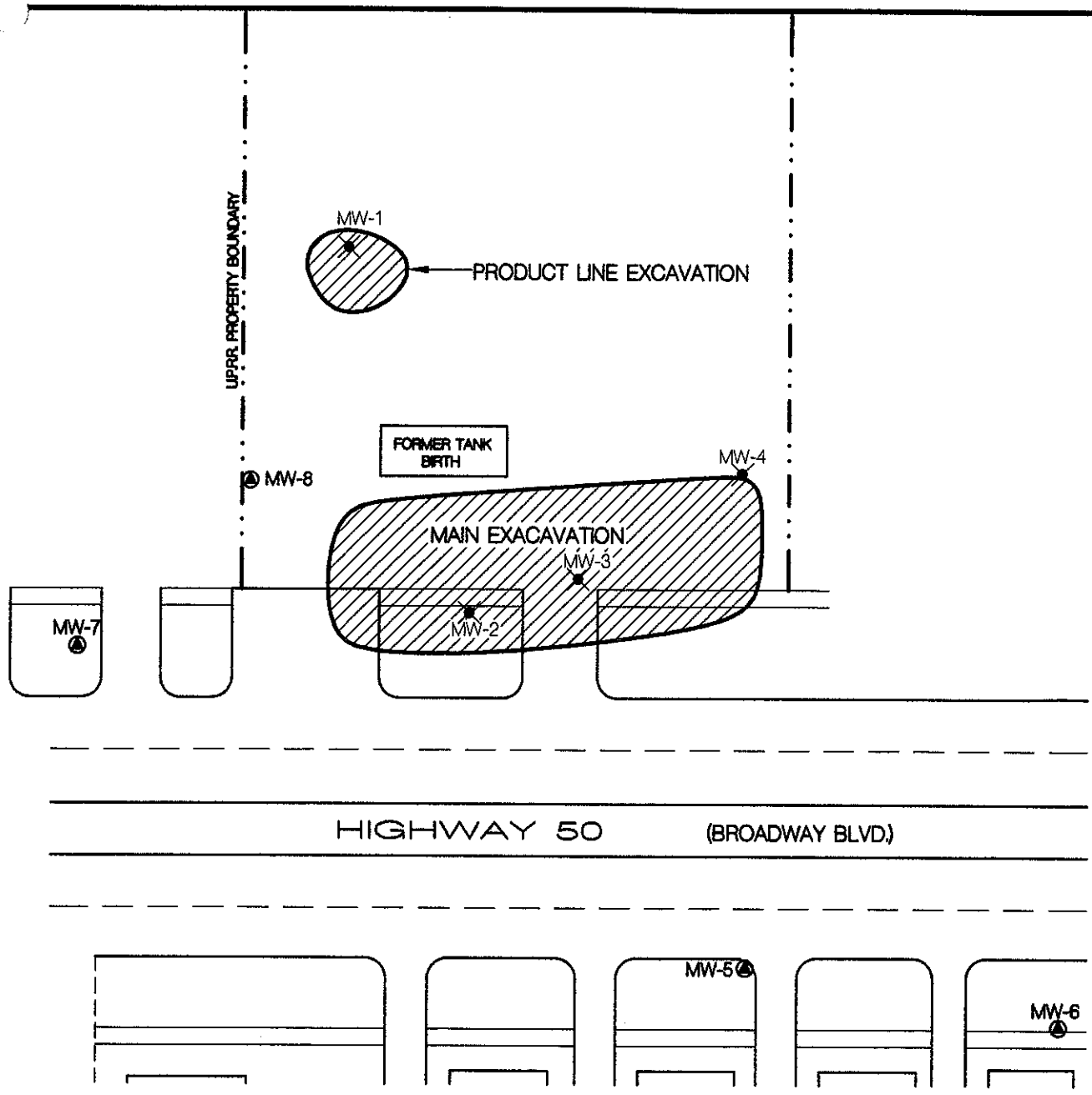
FIGURE 3
SITE ASSESSMENT SOIL BORINGS AND MONITORING WELL LOCATIONS
SCALE: 1" = 40'
APPROVED/DATE: 8/31/99
605120-04



LEGEND

- EXISTING MONITORING WELL
- ABANDONED MONITORING WELL

North

0 40

FEET

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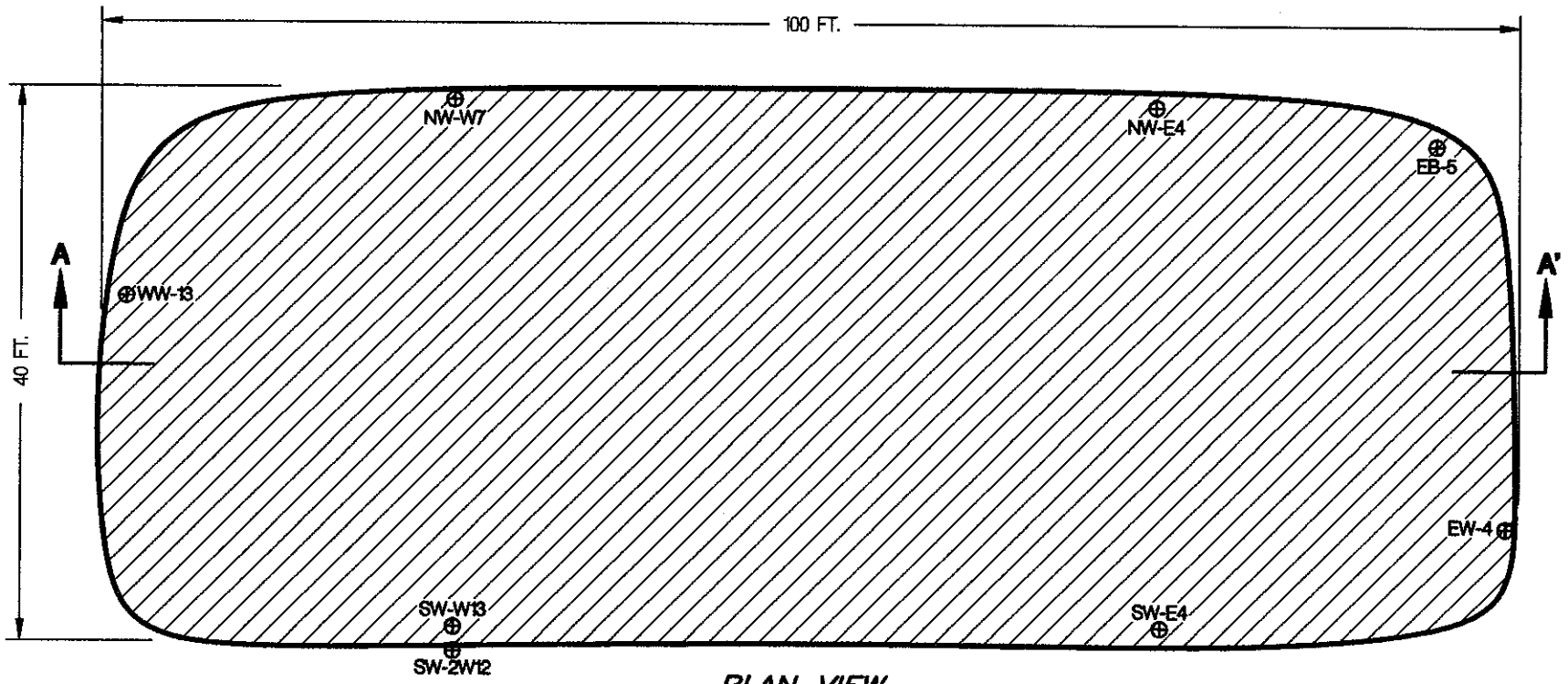
OLD HUDSON STATION - SEDALIA, MISSOURI

FIGURE 4

SOIL REMEDIATION AREAS - MAY 1998

SCALE:	APPROVED/DATE
1" = 40'	8/31/99

605020-05



NOTE: ALL DIMENSIONS ARE APPROXIMATE
DRAWING SCALE APPROXIMATE

LEGEND

⊕ SOIL SAMPLE LOCATIONS

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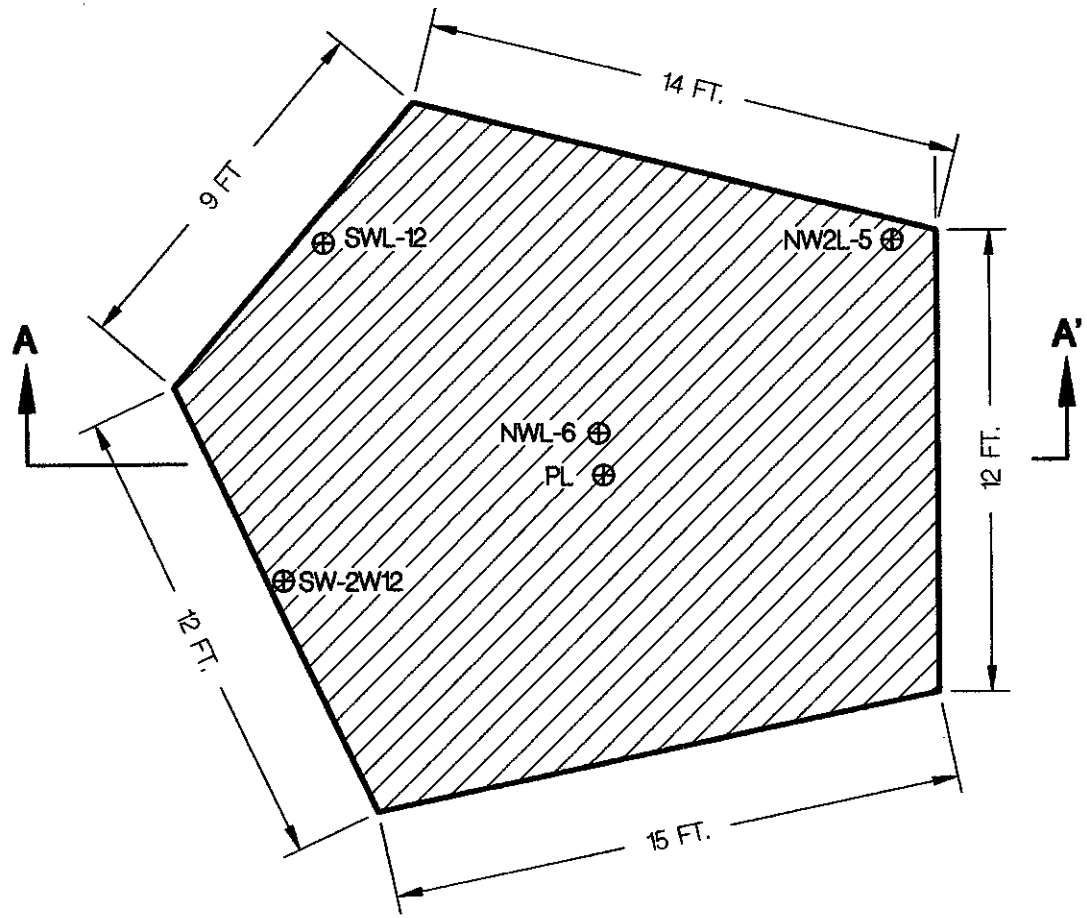
OLD HUDSON STATION - SEDALIA, MISSOURI

FIGURE 5
MAIN EXCAVATION
CORRECTIVE ACTION MAY 1998

SCALE:	DATE:
DIMENSIONED	9/2/99

605120-02



NOTES: ALL DIMENSIONS ARE APPROXIMATE
DRAWING SCALE IS APPROXIMATE

PL-SAMPLE WAS COLLECTED FROM 6" BENEATH PRODUCT LINE PRIOR TO DEEP EXCAVATION

LEGEND

⊕ SOIL SAMPLE LOCATIONS

0 5
FEET

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FIGURE 6
PRODUCT LINE EXCAVATION
CORRECTIVE ACTION MAY 1998

SCALE	DATE
1" = 5'	8/31/99

605120-03

TABLES

Table 1
Initial Site Assessment
Soil and Groundwater Analytical Results
651 East Broadway, Sedalia, MO
June 1991

Soil Samples

Boring/ Monitor Well	Sample ID	Depth (ft)	TPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-Benzene (mg/kg)	Xylene (mg/kg)	Lead (mg/L)
Boring 1	HB3-45	4.0-5.0	<10	<0.005	<0.005	<0.005	<0.005	NA
Well 1	HW17	6.5-7.5	<10	<0.005	<0.005	<0.005	<0.005	NA
Well 1	HW10-11	10.2-11.0	20	0.017	0.03	<0.005	0.15	6.7/6.4
Well 2	HW289	7.2-7.3	170	1.3	0.58	1.5	4.2	25
Well 3	HW3-79	7.2-8.4	190	<0.25	0.77	0.4	0.7	17/16
Well 3	HW3-15	11.5-12.0	18	0.28	0.17	0.34	0.97	NA

Groundwater Samples

Boring/ Monitor Well	Sample ID	TPH (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethyl-Benzene (mg/L)	Xylene Compounds (mg/L)
Well 1	HW-1	NA	<0.001	0.002	<0.001	0.003
Boring 2	HB-1	<1.0	<0.001	<0.001	<0.001	<0.001
Well 2	HW-2	1,500	0.57	0.35	0.88	2.1
Well 3	HW-3	41	3.5	0.12	0.23	0.8
Trip Blank		NA	<0.001	<0.001	<0.001	<0.001

NA - Not Analyzed
#/# = Duplicate analysis

Table 2
Supplemental Site Assessment
Soil and Groundwater Analytical Results
651 East Broadway, Sedalia, MO
May 1994

Soil Samples

Boring/ Monitor Well	Date Collected	Sample ID	Depth (ft)	TPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-Benzene (mg/kg)	Xylene Compounds (mg/kg)
Boring 4	5/4/94	SHB4-15	14.1-15.0	23	<0.001	<0.001	<0.001	<0.001
Boring 5	5/3/94	SHW4-4	3.5-4.5	16	<0.1	<0.1	<0.1	<0.1
Boring 5	5/3/94	SHB5--6	5.9-6.8	16	<0.001	<0.001	<0.001	<0.001
Boring 6	5/3/94	SHB6-11	10.6-11.6	43	<0.001	<0.001	<0.001	<0.001
Well 4	5/5/94	SHW4-5	5.0-5.8	30	<0.001	<0.001	<0.001	<0.001
Well 4	5/5/94	SHW4-13	12.5-13.5	23	<0.001	<0.001	<0.001	<0.001
Well 4	5/5/94	SHW4-23	dup	<10	<0.001	<0.001	<0.001	<0.001
Well 5	5/3/94	SHW5-4	4.5-5.5	<10	<0.001	<0.001	<0.001	<0.001
Well 5	5/3/94	SHW5-9	8.5-9.5	42	<0.500	0.53	<0.500	2.10
Well 6	5/4/94	SHW6-11	10.0-11.1	75	<0.001	<0.001	<0.001	<0.001
Well 7	5/4/94	SHW7-12	12.0-12.5	23	<0.001	<0.001	<0.001	<0.001
Well 8	5/5/94	SHW-11	10.7-12.0	30/29	<0.001	<0.001	<0.001	<0.001

Groundwater Samples

Boring/ Monitor Well	Date Collected	Sample ID	TPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-Benzene (mg/kg)	Xylene Compounds (mg/kg)
Boring 5	5/4/94	SHW-5W	NA	<0.25	<0.25	1.00	1.2
Well 1	5/4/94	MW-1	10	<0.001	<0.001	<0.001	<0.001
Well 3	5/4/94	MW-3	5	0.12	0.0085	0.0059	0.011
Well 4	5/5/94	SHW-4	<1.0	<0.001	<0.001	<0.001	<0.001
Well 5	5/5/94	SHW-5W	2	0.25	0.006	0.021	0.026
Well 6	5/5/94	SHW-6	<1.0	<0.001	<0.001	<0.001	<0.001
Well 7	5/5/94	SHW-7	<1.0	<0.001	<0.001	<0.001	<0.001
Well 8	5/5/94	SHW-8	<1.0	<0.005	<0.005	<0.005	<0.005

NA = Not Analyzed
#/# = Duplicate analysis

Table 3
Cumulative Groundwater Analytical Results
Union Pacific Railroad Property
651 East Broadway, Sedalia, MO

Monitoring Well No.	Date Sampled	TPH (G) (mg/l)	TPH (D) (mg/l)	Benzene (ug/l)	Ethylb. (ug/l)	Toluene (ug/l)	Xylenes (ug/l)
MW-1	6/15/91			<1	<1	2	3
	3/19/92	1		<5	<5	<5	<5
	12/16/93	<0.5		<5	<5	<5	<5
	5/4/94	10		<1	<1	<1	<1
	2/16/95	<1		<1	<1	<1	<1
		Well destroyed in excavation May 1998					
MW-2	6/15/91	1,500		570	880	350	2100
	3/19/92	6,400		360	<300	<300	370
	9/22/95	<0.5	<0.5	<2	<2	<2	<2
	1/26/96	12		400	160	<20	98
		Well destroyed in excavation May 1998					
MW-3	6/15/91	41		3,500	230	120	800
	3/19/92	40		2,210	140	80	260
	5/4/94	5		120	8.5	5.9	11
	2/16/95	6		2,800	440	<50	310
	9/22/95	<5	3	1,780	90	220	320
	1/26/96	11		1300	95	27	100
		Well destroyed in excavation May 1998					
MW-4		Well installed May 1994					
	5/23/94			<1	<5	<5	<5
	2/16/95	4		<1	<1	<1	<1
	8/25/97	<0.1		<1	<1	<1	<1
		Well destroyed in excavation May 1998					
MW-5		Well installed May 1994					
	5/23/94	2		250	6	21	29
	2/16/95	<1		210	<20	<20	<20
	9/22/95	<0.05	0.4	132	4	<2	5
	1/26/96	0.25		18	<1	<1	<1
	10/24/96	<1		13	<1	<1	<1
	8/25/97	0.24		18.6	<1	2.8	5
	10/28/98	1.4	<1.0	28/23	<1	1.9/1.5	3.4/2.6
	4/27/99	1.8	<1.0	27/42	1.2/1.7	1.8/2.9	2.0/3.8
MW-6		Well installed May 1994					
	5/23/94	<1		<1	<1	<1	<1
	2/16/95	<1		<1	<1	<1	<1
	8/25/97	<0.1		<1	<1	<1	<1
	10/28/98	<1	<1	<1	<1	<1	<1
	4/27/99	<1	<1	<1	<1	<1	<1
MW-7		Well installed May 1994					
	5/23/94	<1		<1	<1	<1	<1
	2/16/95	<1		<1	<1	<1	<1
	10/28/98	<1	<1	<1	<1	<1	<1
	4/27/99			<1	<1	<1	<1
MW-8		Well installed May 1994					
	5/17/94	<1		<1	<1	<1	<1
	2/16/95	<1		<1	<1	<1	<1
	10/28/98	<1	<1	<1	<1	<1	<1
	4/27/99	<1	<1	<1	<1	<1	<1

#/# = Duplicate analysis

Table 4
Cumulative Groundwater Elevation Measurements
Union Pacific Railroad Property
651 East Broadway, Sedalia, MO

Monitoring Well No.	Date Sampled	Wellhead Elevation (msl)	Depth to Groundwater (feet)	Groundwater Elevation (msl)
MW-1	6/15/91	893.65	12.45	881.20
	3/17/92	893.65	6.89	886.76
	3/31/93	893.65	4.20	889.45
	6/25/93	893.65	5.28	888.37
	9/29/93	893.65	5.79	887.86
	12/19/93	893.65	4.01	889.64
	5/5/94	893.65	4.10	889.55
	2/16/95	893.65	5.77	887.88
	1/26/96	893.65	9.18	884.47
	8/25/97	893.65	5.76	887.89
	Well abandoned during excavation May 1998			
MW-2	6/15/91	891.79	6.89	884.90
	3/17/92	891.79	6.47	885.32
	3/31/93	891.79	4.90	886.89
	6/25/93	891.79	5.50	886.29
	9/29/93	891.79	4.53	887.26
	12/19/93	891.79	3.49	888.30
	5/5/94	891.79	3.43	888.36
	2/16/95	891.79	5.37	886.42
	9/21/95	891.79	7.60	884.19
	1/26/96	891.79	6.67	885.12
	8/25/97	891.79	4.74	887.05
	Well abandoned during excavation May 1998			
MW-3	6/15/91	891.7	6.08	885.62
	3/17/92	891.7	6.09	885.61
	3/31/93	891.7	5.36	886.34
	6/25/93	891.7	5.80	885.90
	9/29/93	891.7	5.43	886.27
	12/19/93	891.7	6.38	885.32
	5/5/94	891.7	4.16	887.54
	2/16/95	891.7	5.87	885.33
	9/21/95	891.7	7.33	884.37
	1/26/96	891.7	7.25	884.45
	Well abandoned during excavation May 1998			

Table 4
Cumulative Groundwater Elevation Measurements
Union Pacific Railroad Property
651 East Broadway, Sedalia, MO

Monitoring Well No.	Date Sampled	Wellhead Elevation (msl)	Depth to Groundwater (feet)	Groundwater Elevation (msl)
MW-4	Well installed May 1994			
	5/6/94	891.9	2.78	889.12
	2/16/95	891.9	4.81	887.09
	9/21/95	891.9	6.58	885.32
	1/26/96	891.9	7.08	884.82
	8/25/97	891.9	4.96	886.94
	Well abandoned during excavation May 1998			
MW-5	Well installed May 1994			
	5/6/94	890.15	6.30	883.85
	2/16/95	890.15	6.60	883.55
	9/21/95	890.15	6.40	883.75
	1/26/96	890.15	6.76	883.39
	8/25/97	890.15	6.57	883.58
	10/28/98	890.15	6.16	883.99
	4/27/99	890.15	6.28	883.87
MW-6	Well installed May 1994			
	5/6/94	890.02	5.51	884.51
	2/16/95	890.02	6.02	884.00
	9/21/95	890.02	5.95	884.07
	1/26/96	890.02	6.12	883.90
	8/25/97	890.02	5.73	884.29
	10/28/98	890.02	5.77	884.25
	4/27/99	890.02	4.54	885.48
MW-7	Well installed May 1994			
	5/6/94	892.58	4.79	887.79
	2/16/95	892.58	6.60	885.98
	9/21/95	892.58	3.60	888.98
	1/26/96	892.58	7.90	884.68
	8/25/97	892.58	6.14	886.44
	10/28/98	892.58	5.10	887.48
	4/27/99	892.58	4.62	887.96
MW-8	Well installed May 1994			
	5/6/94	893.48	9.40	8884.08
	2/16/95	893.48	6.48	887.00
	9/21/95	893.48	5.20	888.28
	1/26/96	893.48	8.63	884.85
	8/25/97	893.48	5.99	887.49
	10/28/98	893.48	5.27	888.21
	4/27/99	893.48	0.96	892.52

Table 5
Confirmation Soil Samples
Analytical Results
Corrective Action - Main Excavation
651 East Broadway, Sedalia, MO
May 1998

Initial Analytical Results

Sample ID	Location (Wall/Bottom)	Depth (feet)	Extractable HC (mg/kg)	TPH-G (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-Benzene (mg/kg)	Xylene Compounds (mg/kg)	MTBE (mg/kg)	Remarks
NW-E4	North (east side)	4	<10	17	<0.050	<0.050	0.1	<0.130	<0.260	1' above bottom
NW-W7	North (west side)	7	<10	100	<0.120	<0.120	0.49	0.61	<0.620	1' below former clean fill
SW-E4	South (east side)	5	<10	8.5	<0.050	<0.050	<0.050	<0.130	<0.260	1' above bottom
SW-W13	South (east side)	14	<10	590	0.87	<0.440	3.1	<1.100	<2.300	within 1' bedrock
EW-4	East	4	<10	<5	<0.050	<0.050	<0.050	<0.130	<0.260	3' beneath concrete
WW-13	West	13.5	<10	7.9	0.16	0.1	0.13	0.22	<0.260	within 1' bedrock
EB-5	East bottom	5	<10	91	<0.097	<0.097	0.64	<0.250	<0.500	
MDNR Leaking UST Cleanup				200	1	5	10	10	140	

Final Side Wall Analytical Results

Sample ID	Location (Wall/Bottom)	Depth (feet)		TPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-Benzene (mg/kg)	Xylene Compounds (mg/kg)	MTBE (mg/kg)	Remarks
SW-2W12	South (west side)	12		51	<0.083	<0.083	0.19	0.5	<0.430	

< = Not detected above laboratory detection limit

Table 5 (cont)
Confirmation Soil Samples
Analytical Results
Corrective Action - Product Line Excavation
651 East Broadway, Sedalia, MO
May 1998

Initial Analytical Results

Sample ID	Location (Wall/Bottom)	Depth (feet)	Extractable HC (mg/kg)	TPH-G (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-Benzene (mg/kg)	Xylene Compounds (mg/kg)	MTBE (mg/kg)	Remarks
PL	Prod Line Break	2	1100 diesel	320	<0.500	<0.500	2.1	<1.300	<2.600	Prior to excavation
NWL-6	North	6	1100 diesel	120	0.11	<0.097	0.78	1.2	<0.500	
SWL-12	Southwest	12	42 diesel	18	<0.097	0.5	0.055	0.11	<0.510	
MDNR Leaking UST Cleanup				200	1	2	5	5	140	

Final Side Wall Analytical Results

Sample ID	Location (Wall/Bottom)	Depth (feet)	Extractable HC (mg/kg)	TPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-Benzene (mg/kg)	Xylene Compounds (mg/kg)	MTBE (mg/kg)	Remarks
NW2L-5	Northwest	5'	300 diesel	<5	<0.050	<0.050	<0.050	<0.130	<0.260	

< = Not detected above laboratory detection limit

APPENDIX A

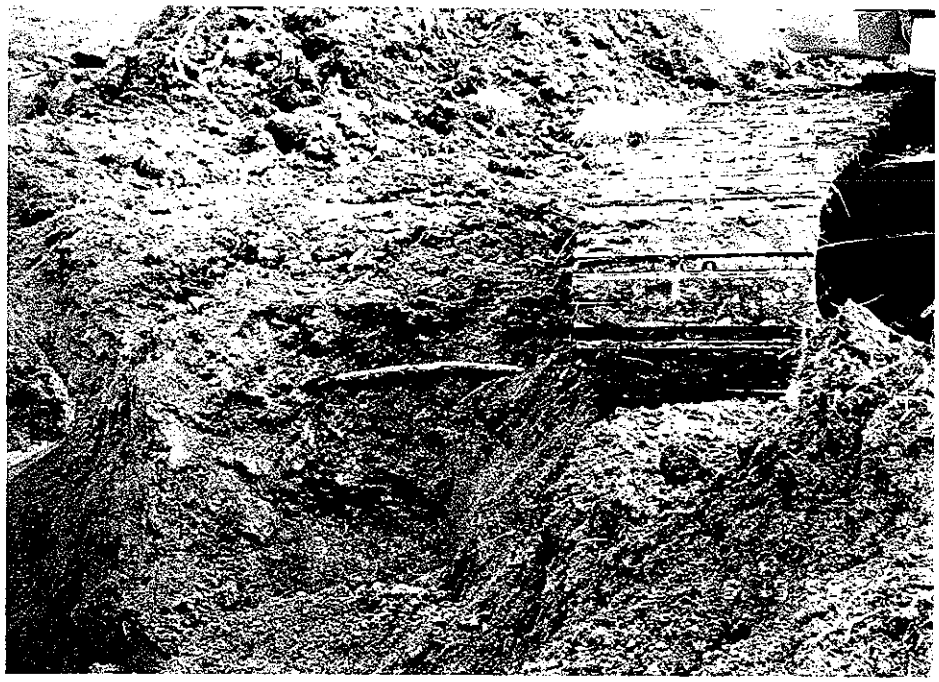
Site Photographs

View looking north prior to commencement of main excavation..
(Old Hudson Station, Sedalia, MO)

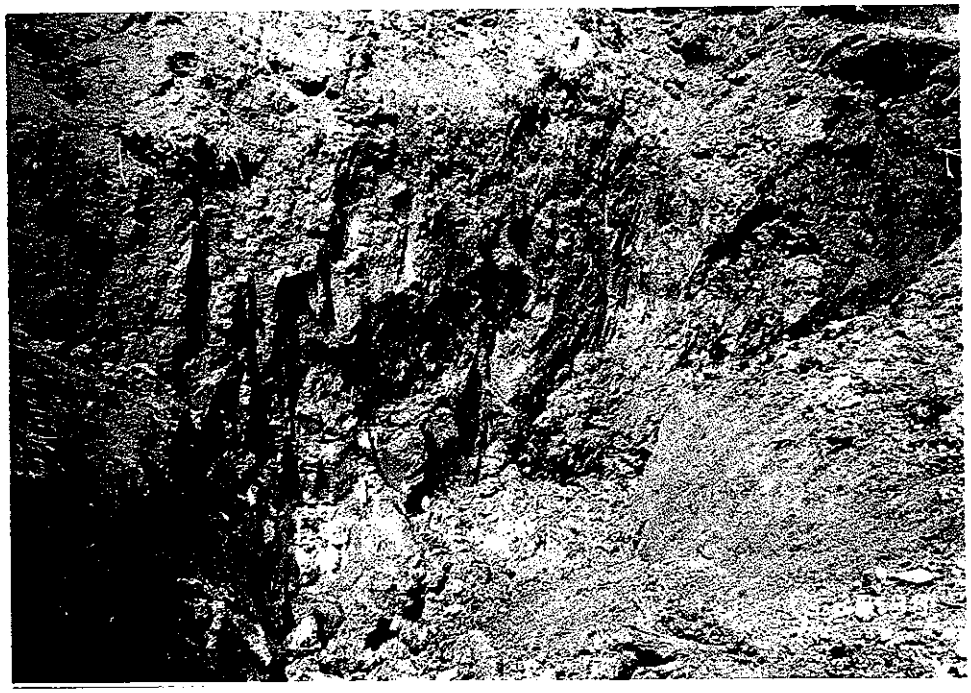
View looking south. Main excavation.
(Old Hudson Station, Sedalia, MO)

View looking east. Main excavation.
(Old Hudson Station, Sedalia, MO)

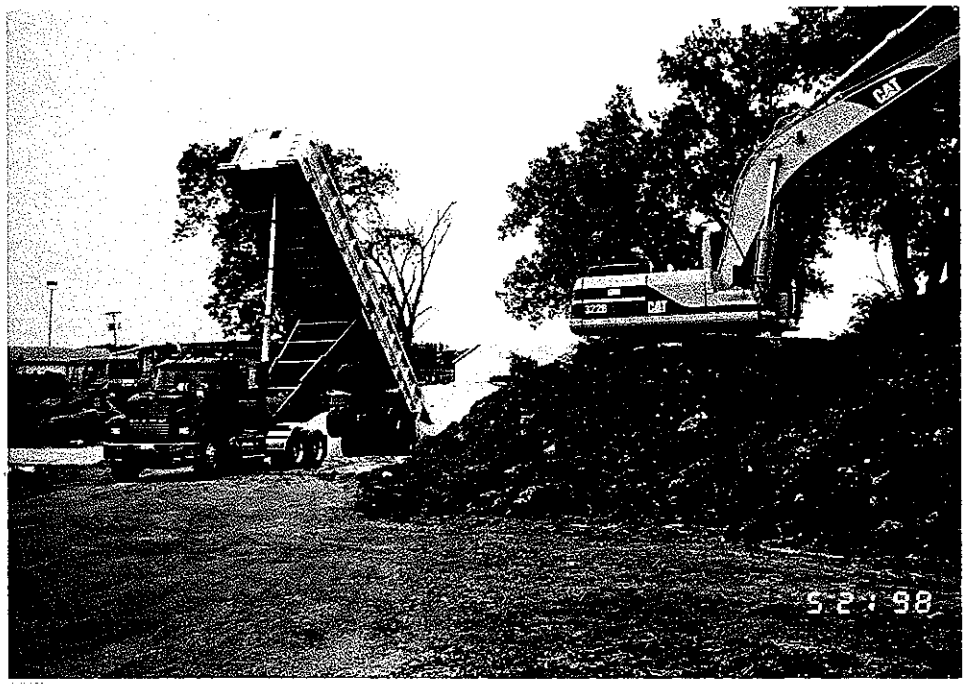
Main excavation.
(Old Hudson Station, Sedalia, MO)



Product line excavation. Soil staining beneath product line.
(Old Hudson Station, Sedalia, MO)



Product line excavation.
(Old Hudson Station, Sedalia, MO)



View looking northwest. Clean soil import.
(Old Hudson Station, Sedalia, MO)

View looking east. Contaminated soil export.
(Old Hudson Station, Sedalia, MO)

APPENDIX B

MDNR Soil Cleanup Guidelines for Undisturbed Soil Score Sheet (MDNR LUST Table 4) and MDNR LUST Non-Potable Groundwater Cleanup Guidelines (MDNR LUST Table 5)

Table 4
LUST Soil Cleanup Guidelines for Undisturbed Soil

Site Features*	Score 15 if True		Score 10 if True		Score 5 if True		Score 0 if True	
Depth to groundwater?	> 100 ft.		100-51 ft.		50-25 ft.		< 25 ft.	X
Groundwater potable?	No	X					Yes	
Drinking water supply proximity?	> 1,000 ft. away	X	1,000-501 ft. away		500-100 ft. away		< 100 ft. away	
Distance to surface waters?	> 5,000 ft.		5,000-2,501 ft.	X	2,500-1,000 ft.		< 1,000 ft.	
Geologic features present?	> 2,000 ft.	X	2,000-1,001 ft.		1,000-500 ft.		< 500 ft.	
Man-made vertical conduits?	> 500 ft.		500-251 ft.		250-100 ft.	X	< 100 ft.	
Man-made horizontal conduits?	> 250 ft.		250-101 ft.		100-50 ft.	X	< 50 ft.	
Soil permeability? (see definitions)	Low		Low-Moderate		Moderate-High	X	High	
Soil thickness? (see overburden map)	> 50 ft		50-41 ft.		40-20 ft.		< 20 ft.	X
Environmentally sensitive receptors?	> 5,000 ft.		5,000-2,501 ft.		2,500-1,000 ft.	X	< 1,000 ft.	
Surrounding land use?	> 1,000 ft. away		1,000-501 ft. away	X	500-100 ft. away		< 100 ft. away	
Future land use?	Industrial		Commercial	X			Residential	
Off-site impact?	No						Yes	X
Subtotals								
						Total Score =	95	

Soil Cleanup Levels (ppm)					
Total Score	195-150	149-120	119-80 95	79-50	49 or less
BTEX	4/20/100/100	2/10/50/50	1/5/10/10	0.5/1/2/2	B+T+E+X < 2
TPH	1000	500	200	100	50
MTBE	280		140		60

* See definitions of site features following this table.

March 1996 MDNR UST Closure Guidance Document

Table 5
LUST Non-Potable Groundwater Cleanup Guidelines

Analyte	Groundwater Cleanup Levels (ppb)
Benzene	50* .05 ppm
Toluene	150 0.15 ppm
Ethylbenzene	320 0.32 ppm
Xylenes	320 0.32 ppm
Total BTEX	750 0.75 ppm
Total Petroleum Hydrocarbons (TPH)	10,000 10 ppm
MTBE	400* 0.4 ppm
PAHs	**See Note.

* If groundwater is potable, the cleanup standard for benzene is 5 ppb and MTBE is 40 ppb.
** Any PAH analytic results above detection limits will be evaluated on a case by case basis.

5.5 Site Characterization

DNR requires that a site characterization be performed if any of the conditions in Table 6 exist and if cleanup goals have not been met. Guidance for conducting a site characterization is provided in the *Missouri Site Characterization Guidance Document*. This document may be ordered from the Hazardous Waste Program.

Table 6
Conditions Requiring a Site Characterization

1.	More than 500 yd^3 of soil excavated per site or facility.
2.	Groundwater contains BTEX, TPH, and MTBE levels above the analytical detection limits (Section 6.8).
3.	Excavation is unable to achieve the cleanup levels within the physical limitations of the site (e.g., buildings, boundaries, utilities).

5.6 Companies Performing UST Closures

DNR does not license or certify companies who perform UST closures and cannot recommend a company.

Table 7 presents a summary of some general information that an owner/operator should obtain from prospective contractors prior to selecting a contractor.

APPENDIX C

Confirmation Soil Sample Laboratory Data Sheets and Chain of Custody Records

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Analytical

May 22, 1998

Mr. BRUCE ZUCCARO
Laidlaw Environmental Services
5665 FLATIRON PKWY
BOULDER, CO 80301-2800

RE: Pace Project Number: 6021806
Client Project ID: 96120-605 OLD HUDSON LEAK UST

Dear Mr. ZUCCARO:

Enclosed are the results of analyses for sample(s) received on May 20, 1998. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Rebecca Wenner
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

DATE: 05/22/98
PAGE: 1

Laidlaw Environmental Services
5665 FLATIRON PKWY
BOULDER, CO 80301-2800

Pace Project Number: 6021806
Client Project ID: 96120-605 OLD HUDSON LEAK UST

Attn: Mr. BRUCE ZUCCARO
Phone: (303)938-5500

Solid results are reported on a wet weight basis

Pace Sample No: 601886153 Date Collected: 05/20/98 Matrix: Soil
Client Sample ID: PL Date Received: 05/20/98

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
GC -- Volatiles							
TPH Gas/BTEX	Method: EPA 8020/OA1				Prep Method: THP Gas/BTEX		
Gasoline Range Hydrocarbons	320	mg/kg	50	05/21/98	MJW		
Benzene	ND	ug/kg	500	05/21/98	MJW	71-43-2	
Toluene	ND	ug/kg	500	05/21/98	MJW	108-88-3	
Ethylbenzene	2100	ug/kg	500	05/21/98	MJW	100-41-4	
Xylene (Total)	ND	ug/kg	1300	05/21/98	MJW	1330-20-7	
Methyl-tert-butyl Ether	ND	ug/kg	2600	05/21/98	MJW	1634-04-4	
a,a,a-Trifluorotoluene (S)	108	%		05/21/98	MJW	2164-17-2	
4-Bromofluorobenzene (S)	93	%		05/21/98	MJW	460-00-4	
GC -- Semi-VOA							
Total Extractable Hydrocarbons	Method: OA2				Prep Method: OA2		
Mineral Spirits	ND	mg/kg	10	05/21/98	CCP		
Jet Fuel	ND	mg/kg	10	05/21/98	CCP		
Kerosene	ND	mg/kg	10	05/21/98	CCP		
Diesel Fuel	1100	mg/kg	10	05/21/98	CCP	11-84-7...	
Fuel Oil	ND	mg/kg	10	05/21/98	CCP		
Motor Oil	ND	mg/kg	10	05/21/98	CCP		
n-Tetracosane (S)	77	%		05/21/98	CCP	646-31-1	
p-Terphenyl (S)	68	%		05/21/98	CCP	92-94-4	
Date Extracted				05/21/98			

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Analytical

Pace Project Number: 6021806
Client Project ID: 96120-605 OLD HUDSON LEAK UST

Pace Sample No: 601886179 Date Collected: 05/20/98 Matrix: Soil
Client Sample ID: NWL-6 Date Received: 05/20/98

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
GC -- Volatiles							
TPH Gas/BTEX	Method: EPA 8020/OA1				Prep Method: THP Gas/BTEX		
Gasoline Range Hydrocarbons	120	mg/kg	9.7	05/21/98	SLC		
Benzene	110	ug/kg	97	05/21/98	SLC	71-43-2	
Toluene	ND	ug/kg	97	05/21/98	SLC	108-88-3	
Ethylbenzene	780	ug/kg	97	05/21/98	SLC	100-41-4	
Xylene (Total)	1200	ug/kg	250	05/21/98	SLC	1330-20-7	
Methyl-tert-butyl Ether	ND	ug/kg	500	05/21/98	SLC	1634-04-4	
a,a,a-Trifluorotoluene (S)	104	%		05/21/98	SLC	2164-17-2	
4-Bromofluorobenzene (S)	98	%		05/21/98	SLC	460-00-4	
GC -- Semi-VOA							
Total Extractable Hydrocarbons	Method: OA2				Prep Method: OA2		
Mineral Spirits	ND	mg/kg	10	05/21/98	CCP		
Jet Fuel	ND	mg/kg	10	05/21/98	CCP		
Kerosene	ND	mg/kg	10	05/21/98	CCP		
Diesel Fuel	1100	mg/kg	10	05/21/98	CCP	11-84-7...	
Fuel Oil	ND	mg/kg	10	05/21/98	CCP		
Motor Oil	ND	mg/kg	10	05/21/98	CCP		
n-Tetracosane (S)	62	%		05/21/98	CCP	646-31-1	
p-Terphenyl (S)	56	%		05/21/98	CCP	92-94-4	
Date Extracted				05/21/98			

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Analytical

Pace Project Number: 6021806
Client Project ID: 96120-605 OLD HUDSON LEAK UST

Pace Sample No: 601886229 Date Collected: 05/20/98 Matrix: Soil
Client Sample ID: SWL-12 Date Received: 05/20/98

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
GC -- Volatiles							
TPH Gas/BTEX	Method: EPA 8020/OA1				Prep Method: THP Gas/BTEX		
Gasoline Range Hydrocarbons	18	mg/kg	9.7	05/22/98	SLC		
Benzene	ND	ug/kg	97	05/22/98	SLC	71-43-2	
Toluene	50	ug/kg	97	05/22/98	SLC	108-88-3	1
Ethylbenzene	55	ug/kg	97	05/22/98	SLC	100-41-4	1
Xylene (Total)	110	ug/kg	250	05/22/98	SLC	1330-20-7	1
Methyl-tert-butyl Ether	ND	ug/kg	510	05/22/98	SLC	1634-04-4	
a,a,a-Trifluorotoluene (S)	112	%		05/22/98	SLC	2164-17-2	
4-Bromofluorobenzene (S)	91	%		05/22/98	SLC	460-00-4	
GC -- Semi-VOA							
Total Extractable Hydrocarbons	Method: OA2				Prep Method: OA2		
Mineral Spirits	ND	mg/kg	10	05/22/98	CCP		
Jet Fuel	ND	mg/kg	10	05/22/98	CCP		
Kerosene	ND	mg/kg	10	05/22/98	CCP		
Diesel Fuel	42	mg/kg	10	05/22/98	CCP	11-84-7...	
Fuel Oil	ND	mg/kg	10	05/22/98	CCP		
Motor Oil	ND	mg/kg	10	05/22/98	CCP		
n-Tetracosane (S)	64	%		05/22/98	CCP	646-31-1	
p-Terphenyl (S)	53	%		05/22/98	CCP	92-94-4	
Date Extracted				05/21/98			

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Project Number: 6021806
Client Project ID: 96120-605 OLD HUDSON LEAK UST

PARAMETER FOOTNOTES

ND	Not Detected
NC	Not Calculable
PRL	Pace Reporting Limit
(S)	Surrogate
[1]	Detected but below the PRL; therefore, result is an estimated concentration (CLP J-Flag).

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Analytical

QUALITY CONTROL DATA

Laidlaw Environmental Services
5665 FLATIRON PKWY
BOULDER, CO 80301-2800

Pace Project Number: 6021806
Client Project ID: 96120-605 OLD HUDSON LEAK UST

Attn: Mr. BRUCE ZUCCARO
Phone: (303)938-5500

QC Batch ID: 45862
QC Batch Method: THP Gas/BTEX
Analysis Method: EPA 8020/OA1
Analysis Description: TPH Gas/BTEX
Associated Pace Samples: 601886153 601886179 601886229

METHOD BLANK: 601886526
Associated Pace Samples:
601886153 601886179 601886229

Parameter	Units	Method Blank Result	PRL	Footnotes
Gasoline Range Hydrocarbons	mg/kg	1.7	0.01	
Benzene	ug/kg	ND	100	
Toluene	ug/kg	ND	100	
Ethylbenzene	ug/kg	ND	100	
Xylene (Total)	ug/kg	ND	260	
Methyl-tert-butyl Ether	ug/kg	ND	520	
a,a,a-Trifluorotoluene (S)	%	113		
4-Bromofluorobenzene (S)	%	96		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 601887979 601887987

Parameter	Units	601885825	Spike Conc.	Matrix Spike Result	Spike % Rec	Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
Gasoline Range Hydrocarbons	mg/kg	1.332	49.93	46.84	91.2	45.68	88.6	3	
Benzene	ug/kg	0	499.3	565.9	113	514.9	103	10	
Toluene	ug/kg	0	499.3	515.2	103	518.3	104	0	
Ethylbenzene	ug/kg	0	499.3	589.4	118	562.9	112	5	
Xylene (Total)	ug/kg	5.679	1498	1766	118	1688	112	5	
a,a,a-Trifluorotoluene (S)					115		115		
4-Bromofluorobenzene (S)					91		93		

REPORT OF LABORATORY ANALYSIS

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9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Analytical

QUALITY CONTROL DATA

Pace Project Number: 6021806
Client Project ID: 96120-605 OLD HUDSON LEAK UST

LABORATORY CONTROL SAMPLE: 601885932

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	Footnotes
Gasoline Range Hydrocarbons	mg/kg	50	51.93	104	
Benzene	ug/kg	500	563.6	113	
Toluene	ug/kg	500	548.8	110	
Ethylbenzene	ug/kg	500	595.8	119	
Xylene (Total)	ug/kg	1500	1771	118	
a,a,a-Trifluorotoluene (S)				101	
4-Bromofluorobenzene (S)				97	

REPORT OF LABORATORY ANALYSIS

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9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

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QUALITY CONTROL DATA

Laidlaw Environmental Services
5665 FLATIRON PKWY
BOULDER, CO 80301-2800

Pace Project Number: 6021806
Client Project ID: 96120-605 OLD HUDSON LEAK UST

Attn: Mr. BRUCE ZUCCARO
Phone: (303)938-5500

QC Batch ID: 45875
QC Batch Method: OA2
Analysis Method: OA2
Analysis Description: Total Extractable Hydrocarbons
Associated Pace Samples: 601886153 601886179 601886229

METHOD BLANK: 601886393
Associated Pace Samples:
601886153 601886179 601886229

Parameter	Units	Method Blank Result	PRL	Footnotes
Mineral Spirits	mg/kg	ND	10	
Jet Fuel	mg/kg	ND	10	
Kerosene	mg/kg	ND	10	
Diesel Fuel	mg/kg	ND	10	
Fuel Oil	mg/kg	ND	10	
Motor Oil	mg/kg	ND	10	
n-Tetracosane (S)	%	59		
p-Terphenyl (S)	%	50		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 601886401 601886419

Parameter	Units	601886047	Spike Conc.	Matrix Spike Result	Spike % Rec	Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
Diesel Fuel	mg/kg	0	500	399.2	79.8	445.3	89.1	11	
n-Tetracosane (S)					59		66		
p-Terphenyl (S)					50		58		

LABORATORY CONTROL SAMPLE: 601886427

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	Footnotes
Diesel Fuel	mg/kg	500	434.8	87.0	
n-Tetracosane (S)				67	

REPORT OF LABORATORY ANALYSIS

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Tel: 913-599-5665
Fax: 913-599-1759

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QUALITY CONTROL DATA

Pace Project Number: 6021806
Client Project ID: 96120-605 OLD HUDSON LEAK UST

LABORATORY CONTROL SAMPLE: 601886427

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	Footnotes
p-Terphenyl (S)				57	

REPORT OF LABORATORY ANALYSIS

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9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Project Number: 6021806
Client Project ID: 96120-605 OLD HUDSON LEAK UST

QUALITY CONTROL DATA PARAMETER FOOTNOTES

Consistent with EPA guidelines unrounded concentrations are displayed and have been used to calculate % Rec and RPD values.

ND	Not Detected
NC	Not Calculable
PRL	Pace Reporting Limit
RPD	Relative Percent Difference
(S)	Surrogate

REPORT OF LABORATORY ANALYSIS

Pace Project #: 6021806

ENVIROKLEAN

CC EnviroKlean, Inc. 25 East Quindaro Blvd. Kansas City KS 66115

1

NAME OF LABORATORY: Pace Analytical
ADDRESS OF LABORATORY: Kansas City, KS
CLIENT NAME: Laidlaw Environmental Svcs
ADDRESS: 5665 Flatiron Pkwy Boulder CO 80301
NAME OF PERSON TO CONTACT: Bruce Zuccaro
CONTACT PERSON'S PHONE: (303) 938-5555

2

PROJECT NO.:	P.O.#	PROJECT NAME:
96120-605		Old Hudson Leaking UST

3 / **4** / **5**

SAMPLE DESCRIPTION:	Pace Sample #	DATE	TIME	MATRIX	TPH-OA2 8015	TPH-OA1 8015	BTEX	MTBE				NUMBER OF CONTAINERS	PRESERVATIONS	REMARKS
PL	601886153	5-20-98	13:45	Soil	1	1	→	→				2	-	50% rush
NWL-6	601886179	5-20	14:20	Soil	1	1	→	→				2	-	50% rush
SWL-12	601886229	5-20	14:38	Soil	1	1	→	→				2	-	50% rush

PARAMETERS FOR ANALYSIS

REMARKS: Turnaround Time: 50% rush

Detection Limits Special Limits Required Yes No
Please circle one, if Yes, please describe berlow or include separate sheet detailing requirements.

6

RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)
[signature]	5-20-98	15:55	[signature]	[signature]	5-20-98	18:45	
METHOD OF SHIPMENT: Personal Delivery			RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)

REVISION DATE 10/93

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Analytical

May 22, 1998

Mr. BRUCE ZUCCARO
Laidlaw Environmental Services
5665 FLATIRON PKWY
BOULDER, CO 80301-2800

RE: Pace Project Number: 6021805
Client Project ID: 96120-605 OLD HUDSON LEAKING

Dear Mr. ZUCCARO:

Enclosed are the results of analyses for sample(s) received on May 20, 1998. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Rebecca Wenner
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Analytical

DATE: 05/22/98
PAGE: 1

Laidlaw Environmental Services
5665 FLATIRON PKWY
BOULDER, CO 80301-2800

Pace Project Number: 6021805
Client Project ID: 96120-605 OLD HUDSON LEAKING

Attn: Mr. BRUCE ZUCCARO
Phone: (303)938-5500

Solid results are reported on a wet weight basis

Pace Sample No: 601885940 Date Collected: 05/20/98 Matrix: Soil
Client Sample ID: SW-W13 Date Received: 05/20/98

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
GC -- Volatiles							
TPH Gas/BTEX	Method: EPA 8020/OA1				Prep Method: THP Gas/BTEX		
Gasoline Range Hydrocarbons	590	mg/kg	44	05/21/98	SLC		
Benzene	870	ug/kg	440	05/21/98	SLC	71-43-2	
Toluene	ND	ug/kg	440	05/21/98	SLC	108-88-3	
Ethylbenzene	3600	ug/kg	440	05/21/98	SLC	100-41-4	
Xylene (Total)	ND	ug/kg	1100	05/21/98	SLC	1330-20-7	
Methyl-tert-butyl Ether	ND	ug/kg	2300	05/21/98	SLC	1634-04-4	
a,a,a-Trifluorotoluene (S)	87	%		05/21/98	SLC	2164-17-2	
4-Bromofluorobenzene (S)	97	%		05/21/98	SLC	460-00-4	
GC -- Semi-VOA							
Total Extractable Hydrocarbons	Method: OA2				Prep Method: OA2		
Mineral Spirits	ND	mg/kg	10	05/22/98	CCP		
Jet Fuel	ND	mg/kg	10	05/22/98	CCP		
Kerosene	ND	mg/kg	10	05/22/98	CCP		
Diesel Fuel	ND	mg/kg	10	05/22/98	CCP	11-84-7...	
Fuel Oil	ND	mg/kg	10	05/22/98	CCP		
Motor Oil	ND	mg/kg	10	05/22/98	CCP		
n-Tetracosane (S)	63	%		05/22/98	CCP	646-31-1	
p-Terphenyl (S)	56	%		05/22/98	CCP	92-94-4	
Date Extracted				05/21/98			

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Analytical

Pace Project Number: 6021805
Client Project ID: 96120-605 OLD HUDSON LEAKING

Pace Sample No: 601885957 Date Collected: 05/20/98 Matrix: Soil
Client Sample ID: WW-13 Date Received: 05/20/98

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
GC -- Volatiles							
TPH Gas/BTEX		Method: EPA 8020/OA1			Prep Method: THP Gas/BTEX		
Gasoline Range Hydrocarbons	7.9	mg/kg	5	05/21/98	MJW		
Benzene	160	ug/kg	50	05/21/98	MJW	71-43-2	
Toluene	100	ug/kg	50	05/21/98	MJW	108-88-3	
Ethylbenzene	130	ug/kg	50	05/21/98	MJW	100-41-4	
Xylene (Total)	220	ug/kg	130	05/21/98	MJW	1330-20-7	
Methyl-tert-butyl Ether	ND	ug/kg	260	05/21/98	MJW	1634-04-4	
a,a,a-Trifluorotoluene (S)	113	%		05/21/98	MJW	2164-17-2	
4-Bromofluorobenzene (S)	93	%		05/21/98	MJW	460-00-4	
GC -- Semi-VOA							
Total Extractable Hydrocarbons		Method: OA2			Prep Method: OA2		
Mineral Spirits	ND	mg/kg	9.9	05/22/98	CCP		
Jet Fuel	ND	mg/kg	9.9	05/22/98	CCP		
Kerosene	ND	mg/kg	9.9	05/22/98	CCP		
Diesel Fuel	ND	mg/kg	9.9	05/22/98	CCP	11-84-7...	
Fuel Oil	ND	mg/kg	9.9	05/22/98	CCP		
Motor Oil	ND	mg/kg	9.9	05/22/98	CCP		
n-Tetracosane (S)	71	%		05/22/98	CCP	646-31-1	
p-Terphenyl (S)	62	%		05/22/98	CCP	92-94-4	
Date Extracted				05/21/98			

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Analytical

Pace Project Number: 6021805
Client Project ID: 96120-605 OLD HUDSON LEAKING

Pace Sample No: 601885965 Date Collected: 05/20/98 Matrix: Soil
Client Sample ID: SW-E4 Date Received: 05/20/98

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
GC -- Volatiles							
TPH Gas/BTEX	Method: EPA 8020/OA1				Prep Method: THP Gas/BTEX		
Gasoline Range Hydrocarbons	8.5	mg/kg	5	05/21/98	SLC		
Benzene	ND	ug/kg	50	05/21/98	SLC	71-43-2	
Toluene	ND	ug/kg	50	05/21/98	SLC	108-88-3	
Ethylbenzene	ND	ug/kg	50	05/21/98	SLC	100-41-4	
Xylene (Total)	ND	ug/kg	130	05/21/98	SLC	1330-20-7	
Methyl-tert-butyl Ether	ND	ug/kg	260	05/21/98	SLC	1634-04-4	
a,a,a-Trifluorotoluene (S)	113	%		05/21/98	SLC	2164-17-2	
4-Bromofluorobenzene (S)	91	%		05/21/98	SLC	460-00-4	
GC -- Semi-VOA							
Total Extractable Hydrocarbons	Method: OA2				Prep Method: OA2		
Mineral Spirits	ND	mg/kg	10	05/22/98	CCP		
Jet Fuel	ND	mg/kg	10	05/22/98	CCP		
Kerosene	ND	mg/kg	10	05/22/98	CCP		
Diesel Fuel	ND	mg/kg	10	05/22/98	CCP	11-84-7...	
Fuel Oil	ND	mg/kg	10	05/22/98	CCP		
Motor Oil	ND	mg/kg	10	05/22/98	CCP		
n-Tetracosane (S)	82	%		05/22/98	CCP	646-31-1	
p-Terphenyl (S)	71	%		05/22/98	CCP	92-94-4	
Date Extracted				05/21/98			

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Analytical

Pace Project Number: 6021805
Client Project ID: 96120-605 OLD HUDSON LEAKING

Pace Sample No: 601885973 Date Collected: 05/20/98 Matrix: Soil
Client Sample ID: EB-5 Date Received: 05/20/98

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
GC -- Volatiles							
TPH Gas/BTEX	Method: EPA 8020/OA1				Prep Method: THP Gas/BTEX		
Gasoline Range Hydrocarbons	91	mg/kg	9.7	05/21/98	SLC		
Benzene	ND	ug/kg	97	05/21/98	SLC	71-43-2	
Toluene	ND	ug/kg	97	05/21/98	SLC	108-88-3	
Ethylbenzene	640	ug/kg	97	05/21/98	SLC	100-41-4	
Xylene (Total)	ND	ug/kg	250	05/21/98	SLC	1330-20-7	
Methyl-tert-butyl Ether	ND	ug/kg	500	05/21/98	SLC	1634-04-4	
a,a,a-Trifluorotoluene (S)	108	%		05/21/98	SLC	2164-17-2	
4-Bromofluorobenzene (S)	106	%		05/21/98	SLC	460-00-4	
GC -- Semi-VOA							
Total Extractable Hydrocarbons	Method: OA2				Prep Method: OA2		
Mineral Spirits	ND	mg/kg	10	05/22/98	CCP		
Jet Fuel	ND	mg/kg	10	05/22/98	CCP		
Kerosene	ND	mg/kg	10	05/22/98	CCP		
Diesel Fuel	ND	mg/kg	10	05/22/98	CCP	11-84-7...	
Fuel Oil	ND	mg/kg	10	05/22/98	CCP		
Motor Oil	ND	mg/kg	10	05/22/98	CCP		
n-Tetracosane (S)	61	%		05/22/98	CCP	646-31-1	
p-Terphenyl (S)	55	%		05/22/98	CCP	92-94-4	
Date Extracted				05/21/98			

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Analytical

Pace Project Number: 6021805
Client Project ID: 96120-605 OLD HUDSON LEAKING

Pace Sample No: 601885981 Date Collected: 05/20/98 Matrix: Soil
Client Sample ID: NW-E4 Date Received: 05/20/98

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
GC -- Volatiles							
TPH Gas/BTEX	Method: EPA 8020/OA1				Prep Method: THP Gas/BTEX		
Gasoline Range Hydrocarbons	17	mg/kg	5	05/22/98	MJW		
Benzene	ND	ug/kg	50	05/22/98	MJW	71-43-2	
Toluene	ND	ug/kg	50	05/22/98	MJW	108-88-3	
Ethylbenzene	100	ug/kg	50	05/22/98	MJW	100-41-4	
Xylene (Total)	ND	ug/kg	130	05/22/98	MJW	1330-20-7	
Methyl-tert-butyl Ether	ND	ug/kg	260	05/22/98	MJW	1634-04-4	
a,a,a-Trifluorotoluene (S)	99	%		05/22/98	MJW	2164-17-2	
4-Bromofluorobenzene (S)	96	%		05/22/98	MJW	460-00-4	
GC -- Semi-VOA							
Total Extractable Hydrocarbons	Method: OA2				Prep Method: OA2		
Mineral Spirits	ND	mg/kg	10	05/21/98	CCP		
Jet Fuel	ND	mg/kg	10	05/21/98	CCP		
Kerosene	ND	mg/kg	10	05/21/98	CCP		
Diesel Fuel	ND	mg/kg	10	05/21/98	CCP	11-84-7...	
Fuel Oil	ND	mg/kg	10	05/21/98	CCP		
Motor Oil	ND	mg/kg	10	05/21/98	CCP		
n-Tetracosane (S)	62	%		05/21/98	CCP	646-31-1	
p-Terphenyl (S)	56	%		05/21/98	CCP	92-94-4	
Date Extracted				05/21/98			

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Analytical

Pace Project Number: 6021805
Client Project ID: 96120-605 OLD HUDSON LEAKING

Pace Sample No: 601885999 Date Collected: 05/20/98 Matrix: Soil
Client Sample ID: NW-W7 Date Received: 05/20/98

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
GC -- Volatiles							
TPH Gas/BTEX	Method: EPA 8020/OA1				Prep Method: THP Gas/BTEX		
Gasoline Range Hydrocarbons	100	mg/kg	12	05/21/98	SLC		
Benzene	ND	ug/kg	120	05/21/98	SLC	71-43-2	
Toluene	ND	ug/kg	120	05/21/98	SLC	108-88-3	
Ethylbenzene	490	ug/kg	120	05/21/98	SLC	100-41-4	
Xylene (Total)	610	ug/kg	310	05/21/98	SLC	1330-20-7	
Methyl-tert-butyl Ether	ND	ug/kg	620	05/21/98	SLC	1634-04-4	
a,a,a-Trifluorotoluene (S)	112	%		05/21/98	SLC	2164-17-2	
4-Bromofluorobenzene (S)	101	%		05/21/98	SLC	460-00-4	
GC -- Semi-VOA							
Total Extractable Hydrocarbons	Method: OA2				Prep Method: OA2		
Mineral Spirits	ND	mg/kg	9.9	05/21/98	CCP		
Jet Fuel	ND	mg/kg	9.9	05/21/98	CCP		
Kerosene	ND	mg/kg	9.9	05/21/98	CCP		
Diesel Fuel	ND	mg/kg	9.9	05/21/98	CCP	11-84-7...	
Fuel Oil	ND	mg/kg	9.9	05/21/98	CCP		
Motor Oil	ND	mg/kg	9.9	05/21/98	CCP		
n-Tetracosane (S)	83	%		05/21/98	CCP	646-31-1	
p-Terphenyl (S)	71	%		05/21/98	CCP	92-94-4	
Date Extracted				05/21/98			

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Analytical

Pace Project Number: 6021805
Client Project ID: 96120-605 OLD HUDSON LEAKING

Pace Sample No: 601886047 Date Collected: 05/18/98 Matrix: Soil
Client Sample ID: EW-4 Date Received: 05/20/98

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
GC -- Volatiles							
TPH Gas/BTEX		Method: EPA 8020/OA1			Prep Method: THP Gas/BTEX		
Gasoline Range Hydrocarbons	ND	mg/kg	5	05/21/98	SLC		
Benzene	ND	ug/kg	50	05/21/98	SLC	71-43-2	
Toluene	ND	ug/kg	50	05/21/98	SLC	108-88-3	
Ethylbenzene	ND	ug/kg	50	05/21/98	SLC	100-41-4	
Xylene (Total)	ND	ug/kg	130	05/21/98	SLC	1330-20-7	
Methyl-tert-butyl Ether	ND	ug/kg	260	05/21/98	SLC	1634-04-4	
a,a,a-Trifluorotoluene (S)	115	%		05/21/98	SLC	2164-17-2	
4-Bromofluorobenzene (S)	93	%		05/21/98	SLC	460-00-4	
GC -- Semi-VOA							
Total Extractable Hydrocarbons		Method: OA2			Prep Method: OA2		
Mineral Spirits	ND	mg/kg	10	05/22/98	CCP		
Jet Fuel	ND	mg/kg	10	05/22/98	CCP		
Kerosene	ND	mg/kg	10	05/22/98	CCP		
Diesel Fuel	ND	mg/kg	10	05/22/98	CCP	11-84-7...	
Fuel Oil	ND	mg/kg	10	05/22/98	CCP		
Motor Oil	ND	mg/kg	10	05/22/98	CCP		
n-Tetracosane (S)	64	%		05/22/98	CCP	646-31-1	
p-Terphenyl (S)	57	%		05/22/98	CCP	92-94-4	
Date Extracted				05/21/98			

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Analytical

Pace Project Number: 6021805
Client Project ID: 96120-605 OLD HUDSON LEAKING

PARAMETER FOOTNOTES

ND	Not Detected
NC	Not Calculable
PRL	Pace Reporting Limit
(S)	Surrogate

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Analytical

QUALITY CONTROL DATA

Laidlaw Environmental Services
5665 FLATIRON PKWY
BOULDER, CO 80301-2800

Pace Project Number: 6021805
Client Project ID: 96120-605 OLD HUDSON LEAKING

Attn: Mr. BRUCE ZUCCARO
Phone: (303)938-5500

QC Batch ID: 45862
QC Batch Method: THP Gas/BTEX
Analysis Method: EPA 8020/OA1
Analysis Description: TPH Gas/BTEX
Associated Pace Samples: 601885940 601885957 601885965 601885973 601885981 601885999 601886047

METHOD BLANK: 601886526
Associated Pace Samples:
601885940 601885957 601885965 601885973 601885981 601885999 601886047

Parameter	Units	Method Blank Result	PRL	Footnotes
Gasoline Range Hydrocarbons	mg/kg	1.7	0.01	
Benzene	ug/kg	ND	100	
Toluene	ug/kg	ND	100	
Ethylbenzene	ug/kg	ND	100	
Xylene (Total)	ug/kg	ND	260	
Methyl-tert-butyl Ether	ug/kg	ND	520	
a,a,a-Trifluorotoluene (S)	%	113		
4-Bromofluorobenzene (S)	%	96		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 601887979 601887987

Parameter	Units	601885825	Spike Conc.	Matrix Spike Result	Spike % Rec	Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
Gasoline Range Hydrocarbons	mg/kg	1.332	49.93	46.84	91.2	45.68	88.6	3	
Benzene	ug/kg	0	499.3	565.9	113	514.9	103	10	
Toluene	ug/kg	0	499.3	515.2	103	518.3	104	0	
Ethylbenzene	ug/kg	0	499.3	589.4	118	562.9	112	5	
Xylene (Total)	ug/kg	5.679	1498	1766	118	1688	112	5	
a,a,a-Trifluorotoluene (S)					115		115		
4-Bromofluorobenzene (S)					91		93		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Analytical

QUALITY CONTROL DATA

Pace Project Number: 6021805
Client Project ID: 96120-605 OLD HUDSON LEAKING

LABORATORY CONTROL SAMPLE: 601885932

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	Footnotes
Gasoline Range Hydrocarbons	mg/kg	50	51.93	104	
Benzene	ug/kg	500	563.6	113	
Toluene	ug/kg	500	548.8	110	
Ethylbenzene	ug/kg	500	595.8	119	
Xylene (Total)	ug/kg	1500	1771	118	
a,a,a-Trifluorotoluene (S)				101	
4-Bromofluorobenzene (S)				97	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Analytical

QUALITY CONTROL DATA

Laidlaw Environmental Services
5665 FLATIRON PKWY
BOULDER, CO 80301-2800

Pace Project Number: 6021805
Client Project ID: 96120-605 OLD HUDSON LEAKING

Attn: Mr. BRUCE ZUCCARO
Phone: (303)938-5500

QC Batch ID: 45875
QC Batch Method: OA2
Analysis Method: OA2
Analysis Description: Total Extractable Hydrocarbons
Associated Pace Samples: 601885940 601885957 601885965 601885973 601885981 601885999 601886047

METHOD BLANK: 601886393
Associated Pace Samples:
601885940 601885957 601885965 601885973 601885981 601885999 601886047

Parameter	Units	Method Blank Result	PRL	Footnotes
Mineral Spirits	mg/kg	ND	10	
Jet Fuel	mg/kg	ND	10	
Kerosene	mg/kg	ND	10	
Diesel Fuel	mg/kg	ND	10	
Fuel Oil	mg/kg	ND	10	
Motor Oil	mg/kg	ND	10	
n-Tetracosane (S)	%	59		
p-Terphenyl (S)	%	50		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 601886401 601886419

Parameter	Units	601886047	Spike Conc.	Matrix Spike Result	Spike % Rec	Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
Diesel Fuel	mg/kg	0	500	399.2	79.8	445.3	89.1	11	
n-Tetracosane (S)					59		66		
p-Terphenyl (S)					50		58		

LABORATORY CONTROL SAMPLE: 601886427

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	Footnotes
Diesel Fuel	mg/kg	500	434.8	87.0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Analytical

QUALITY CONTROL DATA

Pace Project Number: 6021805
Client Project ID: 96120-605 OLD HUDSON LEAKING

LABORATORY CONTROL SAMPLE: 601886427

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	Footnotes
n-Tetracosane (S)				67	
p-Terphenyl (S)				57	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Project Number: 6021805
Client Project ID: 96120-605 OLD HUDSON LEAKING

QUALITY CONTROL DATA PARAMETER FOOTNOTES

Consistent with EPA guidelines unrounded concentrations are displayed and have been used to calculate % Rec and RPD values.

ND	Not Detected
NC	Not Calculable
PRL	Pace Reporting Limit
RPD	Relative Percent Difference
(S)	Surrogate

REPORT OF LABORATORY ANALYSIS

Pace Rush Project #: 6021805
Pace Normal Project #: 6021808

ENVIROKLEAN

CC ENVIROKLEAN, INC. 25 EAST QUINDARO BLVD. KANSAS CITY KS 66115

1

NAME OF LABORATORY: Pace Analytical Laboratories
ADDRESS OF LABORATORY:
CLIENT NAME: Laidlaw Environmental Services
ADDRESS: 5665 Flatiron Parkway Boulder, Co
NAME OF PERSON TO CONTACT: Bruce Zuccaro
CONTACT PERSON'S PHONE: (303) 938-5555

2

PROJECT NO.:	P.O.#	PROJECT NAME:
96120-605		Old Hudson Leaking UST

3 **4**

	SAMPLE DESCRIPTION:	Pace Sample #	DATE	TIME	MATRIX	TPH-GRO 8015 B-GAL	TPH-DRO 8015 B-GAL	MTBE	BTEX				NUMBER OF CONTAINERS	PRESERVATIONS
*3	SW-W13	601885940	5-20-98	9:16	Soil	1	1	→	→				2	
*1	WW-13	601885957	5-20	9:27	Soil	1	1	→	→				2	
	SW-E4	601885965	5-20	9:32	Soil	1	1	→	→				2	
*2	FB-5	601885973	5-20	10:00	Soil	1	1	→	→				2	
	NW-E4	601885981	5-20	10:10	Soil	1	1	→	→				2	
	~~Pbt~~ DW per mark Walther	601886245	5-20	10:20	Soil	1	1	→	→				2	
	SP	601886278	5-20	10:22	Soil	1	1	→	→				2	
	NW-W7	601885999	5-20	11:04	Soil	1	1	→	→				2	
	EW-4	601886047	5-18	16:02	Soil	1	1	→	→				2	

5 REMARKS

Turnaround Time
100% rush or normal turn

Detection Limits
Special Limits Required
Yes
No
Please circle one, if Yes, please describe below or include separate sheet detailing requirements.

*3 100% rush
*1 100% rush
*2 100% rush
100% rush
100% rush
normal turn
normal turn
100% rush
100% rush

6

RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)
Bruce Zuccaro	5-20-98	6:00	Mark Walther	Mark Walther / Bruce Zuccaro	5/20/98	17:45	
METHOD OF SHIPMENT: Personal Delivery			RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)

REVISION DATE 10/93

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Analytical

May 29, 1998

Mr. BRUCE ZUCCARO
Laidlaw Environmental Services
5665 FLATIRON PKWY
BOULDER, CO 80301-2800

RE: Pace Project Number: 6021808
Client Project ID: 96120-605 OLD HUDSON LEAK UST

Dear Mr. ZUCCARO:

Enclosed are the results of analyses for sample(s) received on May 20, 1998. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Rebecca Wenner

Rebecca Wenner
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

DATE: 05/29/98
PAGE: 1

Laidlaw Environmental Services
5665 FLATIRON PKWY
BOULDER, CO 80301-2800

Pace Project Number: 6021808
Client Project ID: 96120-605 OLD HUDSON LEAK UST

Attn: Mr. BRUCE ZUCCARO
Phone: (303)938-5500

Solid results are reported on a wet weight basis

Pace Sample No: 601886245 Date Collected: 05/20/98 Matrix: Soil
Client Sample ID: DW Date Received: 05/20/98

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
GC -- Volatiles							
TPH Gas/BTEX	Method: EPA 8020/OA1				Prep Method: THP Gas/BTEX		
Gasoline Range Hydrocarbons	11	mg/kg	5	05/22/98	SLC		
Benzene	ND	ug/kg	50	05/22/98	SLC	71-43-2	
Toluene	ND	ug/kg	50	05/22/98	SLC	108-88-3	
Ethylbenzene	80	ug/kg	50	05/22/98	SLC	100-41-4	
Xylene (Total)	ND	ug/kg	130	05/22/98	SLC	1330-20-7	
Methyl-tert-butyl Ether	ND	ug/kg	260	05/22/98	SLC	1634-04-4	
a,a,a-Trifluorotoluene (S)	106	%		05/22/98	SLC	2164-17-2	
4-Bromofluorobenzene (S)	91	%		05/22/98	SLC	460-00-4	
GC -- Semi-VOA							
Total Extractable Hydrocarbons	Method: OA2				Prep Method: OA2		
Mineral Spirits	ND	mg/kg	9.9	05/21/98	CCP		
Jet Fuel	ND	mg/kg	9.9	05/21/98	CCP		
Kerosene	ND	mg/kg	9.9	05/21/98	CCP		
Diesel Fuel	ND	mg/kg	9.9	05/21/98	CCP	11-84-7...	
Fuel Oil	ND	mg/kg	9.9	05/21/98	CCP		
Motor Oil	ND	mg/kg	9.9	05/21/98	CCP		
n-Tetracosane (S)	77	%		05/21/98	CCP	646-31-1	
p-Terphenyl (S)	68	%		05/21/98	CCP	92-94-4	
Date Extracted				05/21/98			

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Analytical

Pace Project Number: 6021808
Client Project ID: 96120-605 OLD HUDSON LEAK UST

Pace Sample No: 601886278 Date Collected: 05/20/98 Matrix: Soil
Client Sample ID: SP Date Received: 05/20/98

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
GC -- Volatiles							
TPH Gas/BTEX	Method: EPA 8020/OA1				Prep Method: THP Gas/BTEX		
Gasoline Range Hydrocarbons	34	mg/kg	5	05/27/98	MJW		
Benzene	ND	ug/kg	50	05/27/98	MJW	71-43-2	
Toluene	ND	ug/kg	50	05/27/98	MJW	108-88-3	
Ethylbenzene	190	ug/kg	50	05/27/98	MJW	100-41-4	
Xylene (Total)	ND	ug/kg	130	05/27/98	MJW	1330-20-7	
Methyl-tert-butyl Ether	ND	ug/kg	260	05/27/98	MJW	1634-04-4	
a,a,a-Trifluorotoluene (S)	113	%		05/27/98	MJW	2164-17-2	
4-Bromofluorobenzene (S)	109	%		05/27/98	MJW	460-00-4	
GC -- Semi-VOA							
Total Extractable Hydrocarbons	Method: OA2				Prep Method: OA2		
Mineral Spirits	ND	mg/kg	10	05/21/98	CCP		
Jet Fuel	ND	mg/kg	10	05/21/98	CCP		
Kerosene	ND	mg/kg	10	05/21/98	CCP		
Diesel Fuel	ND	mg/kg	10	05/21/98	CCP	11-84-7...	
Fuel Oil	ND	mg/kg	10	05/21/98	CCP		
Motor Oil	ND	mg/kg	10	05/21/98	CCP		
n-Tetracosane (S)	71	%		05/21/98	CCP	646-31-1	
p-Terphenyl (S)	61	%		05/21/98	CCP	92-94-4	
Date Extracted				05/21/98			

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Project Number: 6021808
Client Project ID: 96120-605 OLD HUDSON LEAK UST

PARAMETER FOOTNOTES

ND	Not Detected
NC	Not Calculable
PRL	Pace Reporting Limit
(S)	Surrogate

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Analytical

QUALITY CONTROL DATA

Laidlaw Environmental Services
5665 FLATIRON PKWY
BOULDER, CO 80301-2800

Pace Project Number: 6021808
Client Project ID: 96120-605 OLD HUDSON LEAK UST

Attn: Mr. BRUCE ZUCCARO
Phone: (303)938-5500

QC Batch ID: 45862
QC Batch Method: THP Gas/BTEX
Analysis Method: EPA 8020/OA1
Analysis Description: TPH Gas/BTEX
Associated Pace Samples: 601886245

METHOD BLANK: 601886526
Associated Pace Samples:
601886245

Parameter	Units	Method Blank Result	PRL	Footnotes
Gasoline Range Hydrocarbons	mg/kg	1.7	0.01	
Benzene	ug/kg	ND	100	
Toluene	ug/kg	ND	100	
Ethylbenzene	ug/kg	ND	100	
Xylene (Total)	ug/kg	ND	260	
Methyl-tert-butyl Ether	ug/kg	ND	520	
a,a,a-Trifluorotoluene (S)	%	113		
4-Bromofluorobenzene (S)	%	96		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 601887979 601887987

Parameter	Units	601885825	Spike Conc.	Matrix Spike Result	Spike % Rec	Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
Gasoline Range Hydrocarbons	mg/kg	1.332	49.93	46.84	91.2	45.68	88.6	3	
Benzene	ug/kg	0	499.3	565.9	113	514.9	103	10	
Toluene	ug/kg	0	499.3	515.2	103	518.3	104	0	
Ethylbenzene	ug/kg	0	499.3	589.4	118	562.9	112	5	
Xylene (Total)	ug/kg	5.679	1498	1766	118	1688	112	5	
a,a,a-Trifluorotoluene (S)					115		115		
4-Bromofluorobenzene (S)					91		93		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Analytical

QUALITY CONTROL DATA

Pace Project Number: 6021808
Client Project ID: 96120-605 OLD HUDSON LEAK UST

LABORATORY CONTROL SAMPLE: 601885932

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	Footnotes
Gasoline Range Hydrocarbons	mg/kg	50	51.93	104	
Benzene	ug/kg	500	563.6	113	
Toluene	ug/kg	500	548.8	110	
Ethylbenzene	ug/kg	500	595.8	119	
Xylene (Total)	ug/kg	1500	1771	118	
a,a,a-Trifluorotoluene (S)				101	
4-Bromofluorobenzene (S)				97	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Analytical

QUALITY CONTROL DATA

Laidlaw Environmental Services
5665 FLATIRON PKWY
BOULDER, CO 80301-2800

Pace Project Number: 6021808
Client Project ID: 96120-605 OLD HUDSON LEAK UST

Attn: Mr. BRUCE ZUCCARO
Phone: (303)938-5500

QC Batch ID: 45875
QC Batch Method: OA2
Analysis Method: OA2
Analysis Description: Total Extractable Hydrocarbons
Associated Pace Samples: 601886245 601886278

METHOD BLANK: 601886393
Associated Pace Samples:
601886245 601886278

Parameter	Units	Method Blank Result	PRL	Footnotes
Mineral Spirits	mg/kg	ND	10	
Jet Fuel	mg/kg	ND	10	
Kerosene	mg/kg	ND	10	
Diesel Fuel	mg/kg	ND	10	
Fuel Oil	mg/kg	ND	10	
Motor Oil	mg/kg	ND	10	
n-Tetracosane (S)	%	59		
p-Terphenyl (S)	%	50		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 601886401 601886419

Parameter	Units	601886047	Spike Conc.	Matrix Spike Result	Spike % Rec	Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
Diesel Fuel	mg/kg	0	500	399.2	79.8	445.3	89.1	11	
n-Tetracosane (S)					59		66		
p-Terphenyl (S)					50		58		

LABORATORY CONTROL SAMPLE: 601886427

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	Footnotes
Diesel Fuel	mg/kg	500	434.8	87.0	
n-Tetracosane (S)				67	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
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Tel: 913-599-5665
Fax: 913-599-1759

Pace Analytical

QUALITY CONTROL DATA

Pace Project Number: 6021808
Client Project ID: 96120-605 OLD HUDSON LEAK UST

LABORATORY CONTROL SAMPLE: 601886427

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	Footnotes
p-Terphenyl (S)				57	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Analytical

QUALITY CONTROL DATA

DATE: 05/29/98

Laidlaw Environmental Services
5665 FLATIRON PKWY
BOULDER, CO 80301-2800

Pace Project Number: 6021808
Client Project ID: 96120-605 OLD HUDSON LEAK UST

Attn: Mr. BRUCE ZUCCARO
Phone: (303)938-5500

QC Batch ID: 45954
Analysis Method: EPA 8020/OA1
Associated Pace Samples: 601886278

QC Batch Method: THP Gas/BTEX
Analysis Description: TPH Gas/BTEX

METHOD BLANK: 601890148
Associated Pace Samples:
601886278

Parameter	Units	Method Blank Result	PRL	Footnotes
Gasoline Range Hydrocarbons	mg/kg	0.60	0.005	
Benzene	ug/kg	ND	50	
Toluene	ug/kg	ND	50	
Ethylbenzene	ug/kg	ND	50	
Xylene (Total)	ug/kg	ND	130	
Methyl-tert-butyl Ether	ug/kg	ND	260	
a,a,a-Trifluorotoluene (S)	%	101		
4-Bromofluorobenzene (S)	%	96		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 601892557 601892565

Parameter	Units	601886914	Spike Conc.	Matrix Spike Result	Spike % Rec	Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
Gasoline Range Hydrocarbons	mg/kg	1.040	48.24	49.03	99.5	52.00	104	4	
Benzene	ug/kg	12.05	482.4	509.4	103	510.7	101	2	
Toluene	ug/kg	0	482.4	522.3	108	534.6	109	0	
Ethylbenzene	ug/kg	15.29	482.4	551.8	111	550.8	109	2	
Xylene (Total)	ug/kg	40.33	1447	1682	113	1686	112	2	
a,a,a-Trifluorotoluene (S)					116		116		
4-Bromofluorobenzene (S)					95		99		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Analytical

QUALITY CONTROL DATA

Pace Project Number: 6021808
Client Project ID: 96120-605 OLD HUDSON LEAK UST

LABORATORY CONTROL SAMPLE: 601890171

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	Footnotes
Gasoline Range Hydrocarbons	mg/kg	50	49.98	100	
Benzene	ug/kg	500	511.2	102	
Toluene	ug/kg	500	520.2	104	
Ethylbenzene	ug/kg	500	542.5	109	
Xylene (Total)	ug/kg	1500	1636	109	
a,a,a-Trifluorotoluene (S)				117	
4-Bromofluorobenzene (S)				92	

REPORT OF LABORATORY ANALYSIS

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Pace Project Number: 6021808
Client Project ID: 96120-605 OLD HUDSON LEAK UST

QUALITY CONTROL DATA PARAMETER FOOTNOTES

Consistent with EPA guidelines unrounded concentrations are displayed and have been used to calculate % Rec and RPD values.

ND	Not Detected
NC	Not Calculable
PRL	Pace Reporting Limit
RPD	Relative Percent Difference
(S)	Surrogate

REPORT OF LABORATORY ANALYSIS

Pace Rush Project #: 6021805
Pace Normal Project #: 6021808

ENVIROKLEAN

CC ENVIROKLEAN, INC. 25 EAST QUINDARO BLVD. KANSAS CITY KS 66115

1

NAME OF LABORATORY: Pace Analytical Laboratories
ADDRESS OF LABORATORY:
CLIENT NAME: Laidlaw Environmental Services
ADDRESS: 5665 Flatiron Parkway Boulder, Co
NAME OF PERSON TO CONTACT: Bruce Zuccaro
CONTACT PERSON'S PHONE: (303) 938-5555

2

PROJECT NO.:	P.O.#	PROJECT NAME:
96120-605		Old Hudson Leaking UST

3 / **4** / **5**

SAMPLE DESCRIPTION:	Pace Sample #	DATE	TIME	MATRIX	TPH-8015-0A1	TPH-8015-0A2	MTBE	BTEX					NUMBER OF CONTAINERS	PRESERVATIONS	REMARKS
SW-W13	601885940	5-20-98	9:16	Soil	1	1							2		Turnaround Time: 100% rush; normal turn. Detection Limits Special Limits Required Yes No. Please circle one, if Yes, please describe berlow or include separate sheet detailing requirements. 100% rush
WW-13	601885957	5-20	9:27	Soil	1	1							2		100% rush
SW-E4	601885965	5-20	9:32	Soil	1	1							2		100% rush
EB-5	601885973	5-20	10:00	Soil	1	1							2		100% rush
NW-E4	601885981	5-20	10:10	Soil	1	1							2		100% rush
~~PW~~ DW per mark watterson	601886245	5-20	10:20	Soil	1	1							2		normal turn
SP	601886278	5-20	10:22	Soil	1	1							2		normal turn
NW-W7	601885999	5-20	11:04	Soil	1	1							2		100% rush
EW-4	601886047	5-18	16:02	Soil	1	1							2		100% rush

6

RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)
[signature]	5-20-98	6:00	[signature]	[signature]	5/20/98	12:45	[signature]

METHOD OF SHIPMENT: Personal Delivery

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

REVISION DATE 10/93

Pace Analytical

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

June 05, 1998

Mr. BRUCE ZUCCARO
Laidlaw Environmental Services
5665 FLATIRON PKWY
BOULDER, CO 80301-2800

RE: Pace Project Number: 6021933
Client Project ID: 96120-605 OLD HUDSON LEAK UST

Dear Mr. ZUCCARO:

Enclosed are the results of analyses for sample(s) received on May 27, 1998. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Rebecca Wenner

Rebecca Wenner
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

DATE: 06/05/98
PAGE: 1

Laidlaw Environmental Services
5665 FLATIRON PKWY
BOULDER, CO 80301-2800

Pace Project Number: 6021933
Client Project ID: 96120-605 OLD HUDSON LEAK UST

Attn: Mr. BRUCE ZUCCARO
Phone: (303)938-5500

Solid results are reported on a wet weight basis

Pace Sample No: 601896509 Date Collected: 05/27/98 Matrix: Soil
Client Sample ID: SW-2W12 Date Received: 05/27/98

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
GC -- Volatiles							
TPH Gas/BTEX	Method: EPA 8020/OA1				Prep Method: THP Gas/BTEX		
Gasoline Range Hydrocarbons	51	mg/kg	8.3	06/02/98	SLC		
Benzene	ND	ug/kg	83	06/02/98	SLC	71-43-2	
Toluene	ND	ug/kg	83	06/02/98	SLC	108-88-3	
Ethylbenzene	190	ug/kg	83	06/02/98	SLC	100-41-4	
Xylene (Total)	500	ug/kg	210	06/02/98	SLC	1330-20-7	
Methyl-tert-butyl Ether	ND	ug/kg	430	06/02/98	SLC	1634-04-4	
a,a,a-Trifluorotoluene (S)	118	%		06/02/98	SLC	2164-17-2	
4-Bromofluorobenzene (S)	83	%		06/02/98	SLC	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Tel: 913-599-5665
Fax: 913-599-1759

Pace Analytical

Pace Project Number: 6021933
Client Project ID: 96120-605 OLD HUDSON LEAK UST

Pace Sample No: 601896517 Date Collected: 05/27/98 Matrix: Soil
Client Sample ID: NW2L-5 Date Received: 05/27/98

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
GC -- Volatiles							
TPH Gas/BTEX	Method: EPA 8020/OA1				Prep Method: THP Gas/BTEX		
Gasoline Range Hydrocarbons	ND	mg/kg	5	06/02/98	SLC		
Benzene	ND	ug/kg	50	06/02/98	SLC	71-43-2	
Toluene	ND	ug/kg	50	06/02/98	SLC	108-88-3	
Ethylbenzene	ND	ug/kg	50	06/02/98	SLC	100-41-4	
Xylene (Total)	ND	ug/kg	130	06/02/98	SLC	1330-20-7	
Methyl-tert-butyl Ether	ND	ug/kg	260	06/02/98	SLC	1634-04-4	
a,a,a-Trifluorotoluene (S)	119	%		06/02/98	SLC	2164-17-2	
4-Bromofluorobenzene (S)	85	%		06/02/98	SLC	460-00-4	
GC -- Semi-VOA							
Total Extractable Hydrocarbons	Method: OA2				Prep Method: OA2		
Mineral Spirits	ND	mg/kg	10	06/02/98	EMA		
Jet Fuel	ND	mg/kg	10	06/02/98	EMA		
Kerosene	ND	mg/kg	10	06/02/98	EMA		
Diesel Fuel	300	mg/kg	10	06/02/98	EMA	11-84-7...	
Fuel Oil	ND	mg/kg	10	06/02/98	EMA		
Motor Oil	ND	mg/kg	10	06/02/98	EMA		
n-Tetracosane (S)	97	%		06/02/98	EMA	646-31-1	
p-Terphenyl (S)	88	%		06/02/98	EMA	92-94-4	
Date Extracted				05/29/98			

REPORT OF LABORATORY ANALYSIS