Pinnacle Engineering

Pinnacle Engineering, Inc.
11541 95th Avenue North
Maple Grove, Minnesota 55369

Tel: 763 315-4501
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www.pineng.com

RECEIVED
DEC 29 2004

December 28, 2004

Sarah Henderson
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

RE: Bulk Facility Soil Removal
MPCA Leak #15298
Beaudry Oil Bulk Facility
Pinnacle Project No. MN03177.00

Dear Ms. Henderson:

On August 17, 2004, approximately 62 tons of impacted soil was removed from the above referenced site. The soil consisted of petroleum impacted clay liner from the AST basin. Samples from the basin were collected in July 2003 in preparation for an upgrade of the facility. Sampling results were submitted as Appendix A of the Limited Site Investigation Report dated January 27, 2004.

The clay liner was excavated to a depth of approximately two feet, depending on the extent of impacts within the AST basin. The excavation was backfilled with clean sand and a rubber membrane was installed prior to resetting the ASTs. The impacted soil was shipped to the Onyx landfill in Buffalo, MN. Waste manifests are attached.

With the submittal of this information, in conjunction with the previously submitted LSI Report, on behalf of our client, Beaudry Oil, Pinnacle recommends leak site closure. If you have any questions or require additional information, please contact me at 763-315-4501.

Sincerely,

PINNACLE ENGINEERING, INC.

Roy L. Hill
Project Manager

cc: Leon Beaudry, Beaudry Oil

ONYX NON-HAZARDOUS WASTE MANIFEST

Cust. #: _____ Site: _____

GENERATOR

Name BEAUDRY OIL → MAILING ADDRESS 630 PROCTOR AVE ELK RIVER

Address 720 QUINN AVE

ELK RIVER MN 55342

Generating Location SAME

Phone No. 763 441 2383

Profile No. 04-0258-340

CODES:
D – DRUM
B – BAG
C – CARTON
P – POUNDS
Y – YARDS
T – TONS
O – OTHER

WASTE CODE	WASTE DESCRIPTION	QUANTITY	UNITS
N.A.	PETROLEUM IMPACTED SOIL	18	Y

I hereby certify that the above listed material(s), is (are) not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law. That each waste has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Leon Beaudry (PRINT) 8-17-04 DATE Leon Beaudry SIGNATURE

AUTHORIZED AGENT'S NAME

Responsible Agency: MPCA, 5200 Lafayette Road N., St. Paul, MN 55155; Ph. 651-296-7997

CONTRACTOR/CONSULTANT/AGENT

Name _____ Phone No. _____

Address _____

TRANSPORTER

Name Morrell & Morrell Inc Phone No. 763-241-7209

Address Elk River, MN Driver's Name Myron Schliesmann

10752-171st Avenue Vehicle's No. 190/ED2843

I hereby certify that the above named material was picked up at the Generator site listed above and delivered without incident to the disposal facility listed below.

8/17/04 SHIPMENT DATE — M E Schliesmann DRIVER'S SIGNATURE — 8/17/04 DELIVERY DATE — M E Schliesmann DRIVER'S SIGNATURE

DISPOSAL FACILITY

Site Name Onyx FCR Landfill, Inc. Phone No. 800-963-3158

Address 175 Co. Rd. 37 N.E., Buffalo, MN 55313

Permit No. SW60

I hereby certify that the above material has been accepted and that information presented on this document are true and accurate.

NAME — 8/17/04 DATE — SIGNATURE

White Copy – Generator retains at time of loading
Yellow Copy – Hauler retains after delivery to landfill
Pink Copy – Landfill retains
Gold Copy – Facility mails to customer

Ticket No. 136364 Tons 23.27

Yards _____

ONYX NON-HAZARDOUS WASTE MANIFEST

Cust. #: _____ Site: _____

GENERATOR

Name BEAUDRY OIL (Mailing Address 630 Jackson Ave Elk River) Generating Location SAME

Address 720 QUINN AVE

ELK RIVER MN 55342

Phone No. 763-441 2383 Profile No. 04-0258-34D

CODES:
D – DRUM
B – BAG
C – CARTON
P – POUNDS
Y – YARDS
T – TONS
O – OTHER

WASTE CODE	WASTE DESCRIPTION	QUANTITY	UNITS
N.A.	PETROLEUM IMPACTED SOIL	18	Y

I hereby certify that the above listed material(s), is (are) not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law. That each waste has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

X Leon Beaudry AUTHORIZED AGENT'S NAME (PRINT) X 8-17-04 DATE X Leon Beaudry SIGNATURE

Responsible Agency: MPCA, 5200 Lafayette Road N., St. Paul, MN 55155; Ph. 651-296-7997

CONTRACTOR/CONSULTANT/AGENT

Name _____ Phone No. _____

Address _____

TRANSPORTER

Name Morrell & Morrell Inc Phone No. 763-241-7209

Address Elk River 10752-171st Ave Driver's Name Myron Schliesman

Vehicle's No. 190/ED2843

I hereby certify that the above named material was picked up at the Generator site listed above and delivered without incident to the disposal facility listed below.

8/17/04 SHIPMENT DATE M E Schliesman DRIVER'S SIGNATURE 8/17/04 DELIVERY DATE M E Schliesman DRIVER'S SIGNATURE

DISPOSAL FACILITY

Site Name Onyx FCR Landfill, Inc. Phone No. 800-963-3158

Address 175 Co. Rd. 37 N.E., Buffalo, MN 55313

Permit No. SW60

I hereby certify that the above material has been accepted and that information presented on this document are true and accurate.

NAME _____ DATE 8/17/04 SIGNATURE _____

White Copy – Generator retains at time of loading
Yellow Copy – Hauler retains after delivery to landfill
Pink Copy – Landfill retains
Gold Copy – Facility mails to customer

Ticket No. 136404 Tons 20.11

Yards _____

ONYX NON-HAZARDOUS WASTE MANIFEST

Cust. #: _____ Site: _____

GENERATOR

Name BEAUDRY OIL Generating Location SAME

Address 720 QUINN AVE Mailing Address 630 Proctor Ave Elk River

ELK RIVER MN 55342

Phone No. 763 441 2383 Profile No. 04-0258-34D

CODES: D – DRUM, B – BAG, C – CARTON, P – POUNDS, Y – YARDS, T – TONS, O – OTHER

WASTE CODE	WASTE DESCRIPTION	QUANTITY	UNITS
N.A.	PETROLEUM IMPACTED SOIL	18	Y

I hereby certify that the above listed material(s), is (are) not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law. That each waste has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Leon Beaudry (PRINT) 8-17-04 Leon Beaudry

AUTHORIZED AGENT'S NAME DATE SIGNATURE

Responsible Agency: MPCA, 5200 Lafayette Road N., St. Paul, MN 55155; Ph. 651-296-7997

CONTRACTOR/CONSULTANT/AGENT

Name _____ Phone No. _____

Address _____

TRANSPORTER

Name MORRELL & MORRIL INC Phone No. 763-241-7209

Address 10752 - 171st Ave Driver's Name MYRON SCHLICTMAN

ELK RIVER Vehicle's No. A01ED2843

I hereby certify that the above named material was picked up at the Generator site listed above and delivered without incident to the disposal facility listed below.

8/17/04 ME Schlictman 8/17/04 ME Schlictman

SHIPMENT DATE DRIVER'S SIGNATURE DELIVERY DATE DRIVER'S SIGNATURE

DISPOSAL FACILITY

Site Name Onyx FCR Landfill, Inc. Phone No. 800-963-3158

Address 175 Co. Rd. 37 N.E., Buffalo, MN 55313

Permit No. SW60

I hereby certify that the above material has been accepted and that information presented on this document are true and accurate.

NAME DATE 8/17/04 SIGNATURE

White Copy – Generator retains at time of loading
Yellow Copy – Hauler retains after delivery to landfill
Pink Copy – Landfill retains
Gold Copy – Facility mails to _____

Ticket No. 136439 Tons 18.43

Yards _____

Preferred Id: 15298

Interest Name: Beaudry Oil Bulk Facility

Address1: 720 QUINN AVE

City: ELK RIVER

State: MN

Zip: 55330

Interest Remarks Date and Time Printed: 3/8/2005 16:34:29

Bulk facility upgrade. Called consultant because there were several L#s/T#s associated to Beaudry Oil in Elk River with slightly different addresses. According to consultant, this site is NOT related to the former Houle/Beaudry oil sites, close, but unrelated. Also, could not find the associated T# for the 11 ASTs on the site, will e-mail JoAnn. Sand, muni, ground water est at 20', staining and odors, high vapor of 150ppm. (SHV)

7/14/03 SAH: File received.

10/27/03 SAH: Spoke with Mary Christopherson at ProSource regarding further work needed at this site, told her I really didn't have enough information to make any decisions.

6/18/04 SAH: Review of RI req closure. Very low levels of soil impacts found outside the concrete dike area, SB-1, of 60ppm DRO at 9' bgs. All other soil samples around dike were clean ranging from 6.5' bgs to 24' bgs. Water samples taken in the borings returned low levels of DRO contamination in t eh 4 borings to the west, south and southeast of the diked area, with levels of 230, 300, 140 and 110ppb DRO at 12' bgs at the lowest. Site is on muni water as are adjoining properties, and nearest city well is 1/4 mile NW and cased to 201' bgs. REport states that site is to be upgraded in April of 2004, called to confirm this. COnsultant will contact the RP to see if upgrade has occured - if not, will keep site open for an soil removal up to 2' bgs if highly contaminated. Otherwise, site is low risk, low levels of PCS and water contamination, low vapor risk, site could be closed.

7/20/04 SAH: Discussions with Roy Hill at Pinnacle - they will be doing their upgrade this week. Discussed soil removal if needed for upgrade, surface contamination, etc - follow the fact sheet. I will await documentation of the upgrade, and site should then be ready for closure.

9/17/04 SAH: Call from Roy Hill re: the upgrade on site. Work is complete, questions regarding reimbursement for removed soils. Told him to contact Petrofund. Asked him to provide me with letter report summarizing upgrade activities, soil removal and if I need any more info I will let hiim know, but will submit for closure.

3/4/2005 SAL: Review of letter report submitted 12/28/2004. Upgrade has been completed at this site, 62 tons of soil removed. Clay liner was excavated up to 2' depending on extent of impacts, backfilled and lined with rubber membrane prior to resetting tanks. Soil shipped to Onyx landfill. See review above, upgrade now complete, site will be closed. Letter sent to typing. Site is withing a DWSMA, low vulnerability, checked with ACS, can still be closed.

Pinnacle Engineering

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Minneapolis, Minnesota 55369

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March 30, 2004

Sarah Henderson
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

RE: Limited Site Investigation Report
MPCA Leak #15298
Beaudry Oil Bulk Facility
Pinnacle Project No. MN03177.00

Dear Ms. Henderson:

Please find enclosed the Limited Site Investigation Report for the Beaudry Oil Bulk Facility site in Elk River, MN. Pinnacle Engineering is submitting this material on behalf of our client, Beaudry Oil.

If you have any questions or require additional information, please contact me at 763-315-4501.

Sincerely,

PINNACLE ENGINEERING, INC.

Roy L. Hill
Project Manager

Enclosures

Section 2: Site and Release Information

2.1 Attach Table 1 - Tank Information. Describe the status of the other components of the tank system(s), (i.e., piping and dispensers).

All components of the tank system are active. Large ASTs, 12,000-20,000-gallon, are used for bulk storage/shipping. A 1,000-gallon AST (#012) is used to fuel company vehicles. Waste fuel is stored in a 2,000-gallon AST (#013) and a 1,000-gallon UST (#014). This fuel is used in an oil burner to heat the shop at the site.

2.2a Describe the land use and pertinent geographic features within 1,000 feet of the site.

The site is located in a mixed residential and commercial area. A concrete manufacturer and railroad tracks border the site to the west and north, respectively. An apartment complex is beyond the railroad tracks. A gravel lot and drive to the east serve as an entrance to the property. A residential area is south of the site.

2.2b List other potential leak sources within 500 feet of the site.

Former leak site #12389, Houle Oil Co., is located approximately 150-200 feet to the east of the source area. Former leak site #1439, Elk River Concrete Products, borders the site to the southwest.

2.3 Identify and describe the source or suspected source(s) of the release.

Historical usage of eleven ASTs.

2.4 What was the volume of the release? (if known): **unknown** gallons

2.5 When did the release occur? (if known): **unknown**

to Appendix A for the AST Closure Report submitted to the responsible party. This report details the boring locations, headspace vapor readings and soil analytical results.

The Limited Site Investigation (LSI) consisted of six push probe borings placed to surround the diked area of the ASTs and near locations used for loading and unloading of fuel and a waste fuel UST. One boring was placed in the likely down-gradient direction of the bulk facility. Borings were not advanced within the diked area because the facility is active. Also, several inches of rainwater showing petroleum sheen were perched in gravel overlying the clay liner. Drilling through the liner would have released this water to the subsurface, potentially resulting in impacts to the groundwater.

4.6 Attach Table 2 - Results of Soil Headspace Screening, In Appendix C, discuss soil headspace screening method and describe any deviation from recommended and/or required methods and procedures.

4.7 Attach Table 3 - Analytical Results of Soil Samples. Provide analytical results in Appendix B. In Appendix C, discuss soil sampling and analytical methods used and describe any deviation from recommended and/or required methods and procedures

4.8 Describe the vertical and horizontal extent and magnitude of soil contamination. Provide a plan-view map and two cross-sections that illustrate both soil head space and laboratory analytical results. See Section 13.

No soil contamination was detected in any of the push probe borings except for SB-1, where 60 mg/kg DRO was detected in a soil sample collected at the water table.

4.9 Attach Table 4 - Other Contaminants Detected in Soils (Petroleum or Non-petroleum Derived). Discuss the possible sources of these compounds.

No other contaminants were detected in the soil.

4.10 Is contaminated soil in contact with ground water? ☒ *Yes* ☐ *No*

If *YES* or if ground water contamination appears likely, then complete Section 5.

If *NO* (contaminated soil is not in contact with ground water), what is the distance separating the deepest contamination from the surface of the water table? Was this distance measured during site activities, referenced from geologic information, or estimated based on ____ feet

professional opinion during a site visit?

Low-level DRO was detected at the water table in SB-1. The clay liner within the dike is also impacted. The thickness of the clay liner is estimated to be approximately three feet. Field screening and analytical results for samples taken from the clay liner suggest the liner is impacted to at least 2 feet. Groundwater at the site is roughly seven feet below ground surface, so the distance separating the impacted liner and the water table is approximately five feet.

4.10 Describe observations of any evidence of a fluctuating water table and a seasonal high water table (e.g., mottling). Also, from other sources of information describe the range of natural water table fluctuations in the area.

No evidence was observed.

4.12 In your judgment, is there a sufficient distance separating the petroleum contaminated soil (or an impacted non- aquifer) from the underlying aquifer to prevent petroleum contamination of the aquifer? Please explain in detail. In your explanation, consider the data and information of this section as well as the nature of the petroleum release (i.e., volume, when it occurred, petroleum product).

☐ *Yes* ☒ *No*

If *YES,* a ground water contamination assessment is not necessary as part of the LSI.

If *NO*, a ground water contamination assessment is necessary. Complete Section 5.

Given the low levels of DRO detected in groundwater samples, it appears that some contamination may have penetrated the clay liner and/or minor releases associated with bulk facility activities may have reached the groundwater.

5.5 Attach Table 6 - Analytical Results of Water Samples Collected from Borings. Summarize the analytical results of groundwater samples collected as part of an LSI. Discuss the extent and magnitude of groundwater contamination. Also provide a discussion on QA/QC, including information on the samples collected and laboratory analyses performed.

Groundwater samples were analyzed for volatile organic compounds (VOCs), gasoline range organics (GRO) and diesel range organics (DRO). No VOCs or GRO were detected in any of the groundwater samples collected from the borings. Low levels of DRO, ranging from 110 to 300 ug/l, were detected in samples collected from four of the six borings. Analytical results for samples collected from borings completed along the northeast side of the diked area were below method detection limits for DRO. The highest DRO concentration detected (300 ug/l) was in the sample collected from SB-4 that was located immediately down-gradient from the ASTs and next to the load in/out rack. The sample collected from the most down-gradient boring, SB-5, contained 140 ug/l DRO, indicating that only very low impacts may be moving off-site.

Contaminants were not detected in trip and laboratory blanks analyzed at the lab. Additional QA/QC information, including chromatograms, spike and surrogate data is included with the laboratory reports in Appendix B.

5.6 Attach Table 7 - Other Contaminants Detected in Water Samples Collected from Borings (Petroleum or Non-petroleum Derived). Discuss the possible sources of these contaminants and provide a discussion of QA/QC information.

No other contaminants were detected.

5.7 Laboratory certification number: **055-999-334**

Section 11: Discussion

11.1 Discuss the risks associated with the remaining soil contamination:

The risks associated with the identified soil contamination outside the diked area are low. Only very low DRO was detected in one of the soil samples collected from the borings. No vapors were detected during field screening.

11.2 Discuss the risks associated with the impacted ground water:

Risks associated with the groundwater contamination are low. The near surface aquifer is impacted with low levels of DRO. No water wells were identified within 500 feet of the source area. The closest municipal well is approximately 1/4 mile to the northwest. It is cased to 201 feet and produces from the bedrock aquifer from a depth of 201 to 315 feet.

11.3 Discuss other concerns not mentioned above:

The clay liner inside the diked area is impacted; however, it appears only minor contamination may have leached through the clay. With the contaminated clay being covered by six to eight inches of gravel and fully contained within the dike, human contact is unlikely. The clay liner is scheduled to be removed in early April 2004.

Section 12: Conclusions and Recommendations

12.1 Recommendation for site:

- ☒ site closure
- ☐ additional vapor monitoring
- ☐ additional ground water monitoring
- ☐ active remediation

12.2 Base the recommendation above on fact sheet #3.1 *Leaking Underground Storage Tank Program*. Describe below how you applied the policy to support your recommendation. If closure is recommended, please summarize significant site investigative events and describe how site specific risk issues have been adequately addressed or minimized to acceptable low risk levels.

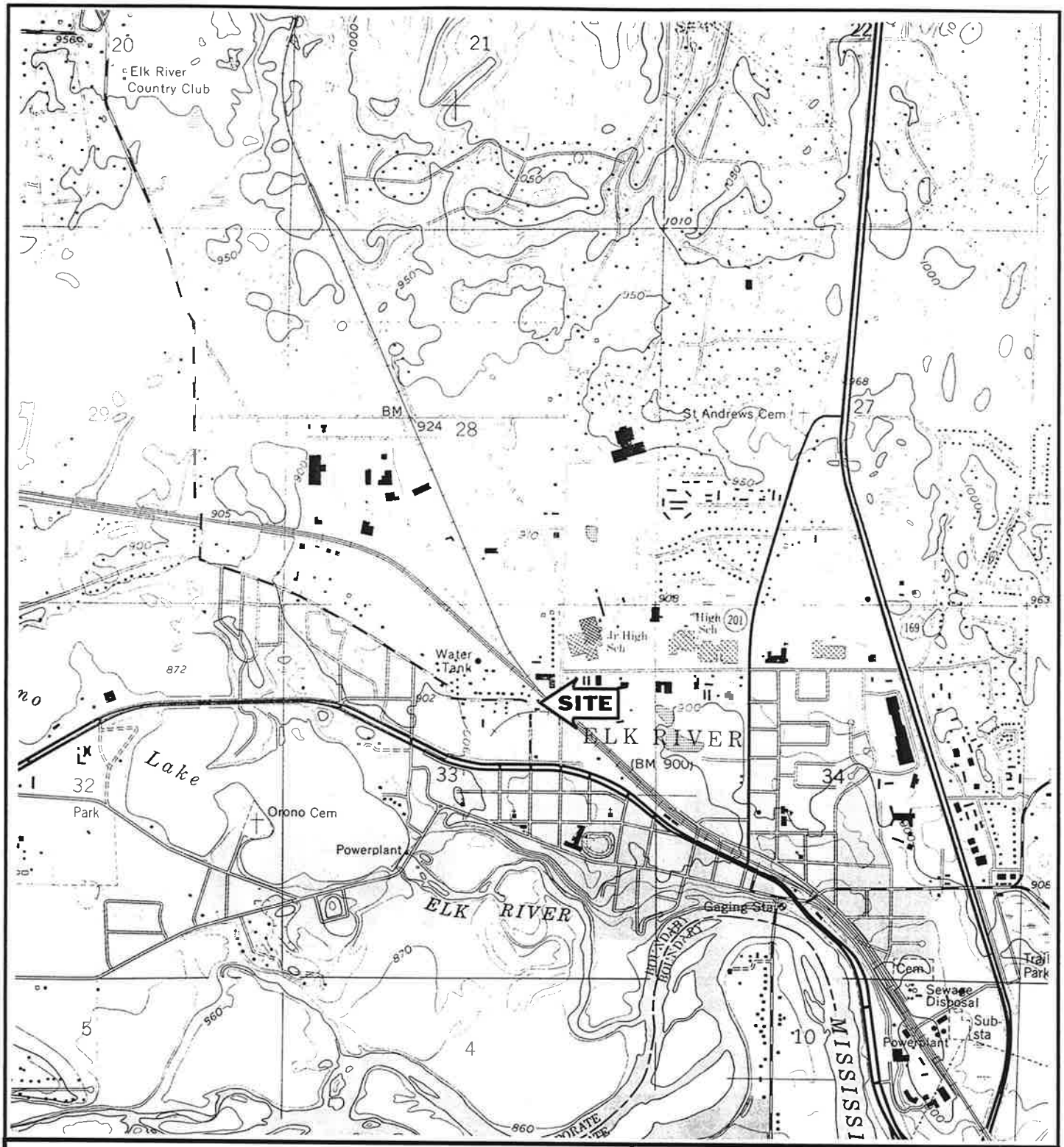
As an initial assessment, seven hand auger borings were completed at the site on July 7, 2003. Samples of the clay liner inside the dike and a near surface sample near loading racks were collected for field screening and laboratory testing. Headspace readings as high as 150 ppm were detected in the clay liner, so a release was reported to the State Duty Officer.

A LSI, consisting of six push probe borings, was completed on October 28, 2003. The borings were placed around the diked area, near loading racks, and down-gradient of the ASTs and loading racks. Very minor DRO impact was detected in one soil sample collected from a boring completed immediately outside the diked area. Groundwater impacts were also minor and limited to DRO, with a maximum of 300 ppb DRO being detected in a boring near the load in/out rack and a waste fuel UST.

Given the low level of contamination and the lack of vapor and groundwater receptors, Pinnacle recommends leak site closure. The clay liner has contained any releases that have occurred from the ASTs and associated piping inside the dike. The limited soil and groundwater impacts outside of the diked area suggest minimal spillage has occurred during fuel transfers.

The impacted clay liner is scheduled for removal in early April 2004. The ASTs will be lifted and the clay liner will be removed and disposed according to MPCA guidelines. The clay liner will likely be replaced with concrete.

12.3 If additional monitoring is recommended, indicate the proposed monitoring schedule and frequency. Conduct quarterly monitoring until the MPCA responds to this report.



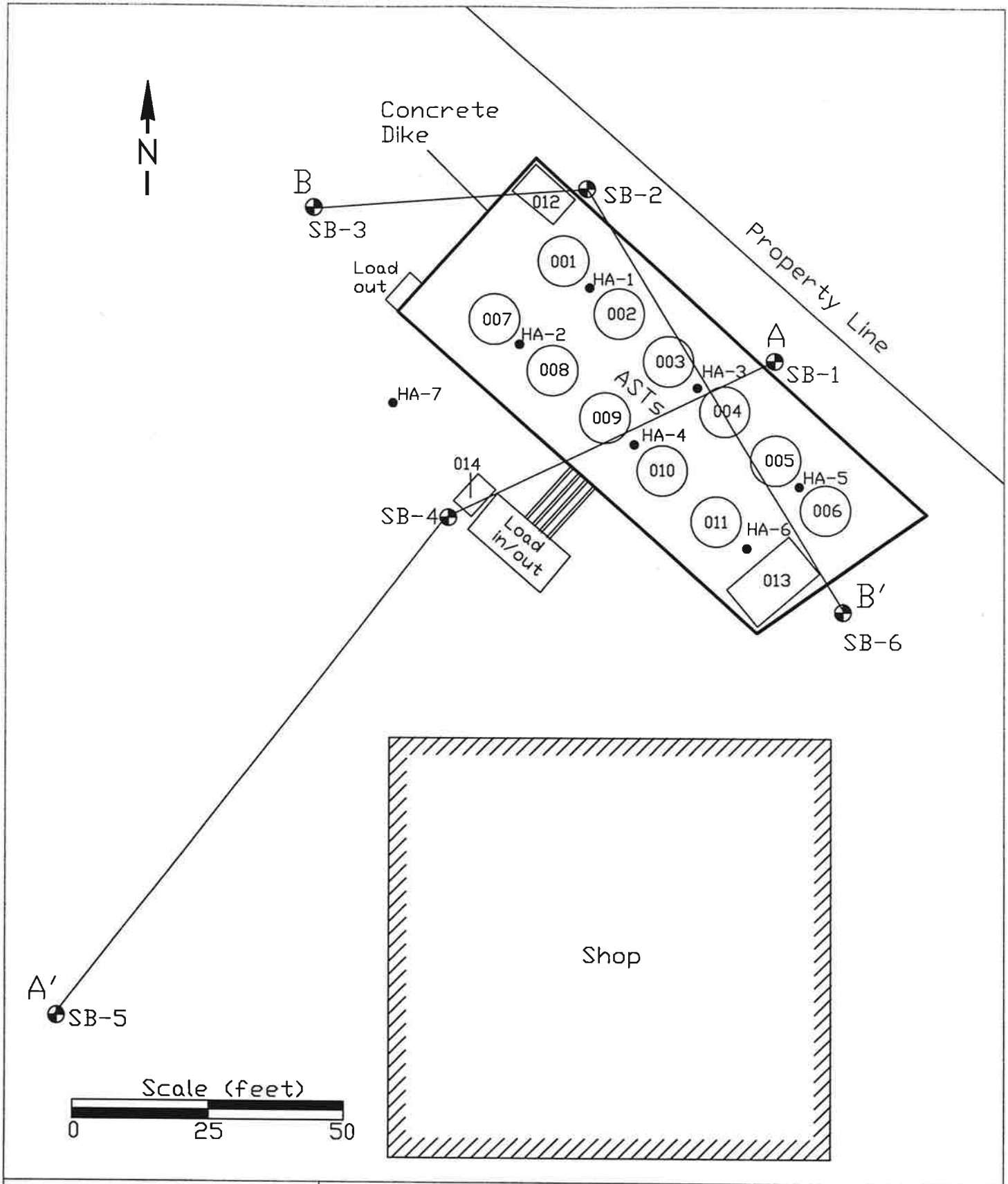
Pinnacle Engineering

Pinnacle Engineering, Inc.
101 Broadway Street West, Suite 100
Osseo, MN 55369
Phone: (763) 315-4501
Fax: (763) 315-4507

Figure 1.

Site Location Map
Beaudry Oil Bulk Facility
720 Quinn Avenue
Elk River, Minnesota

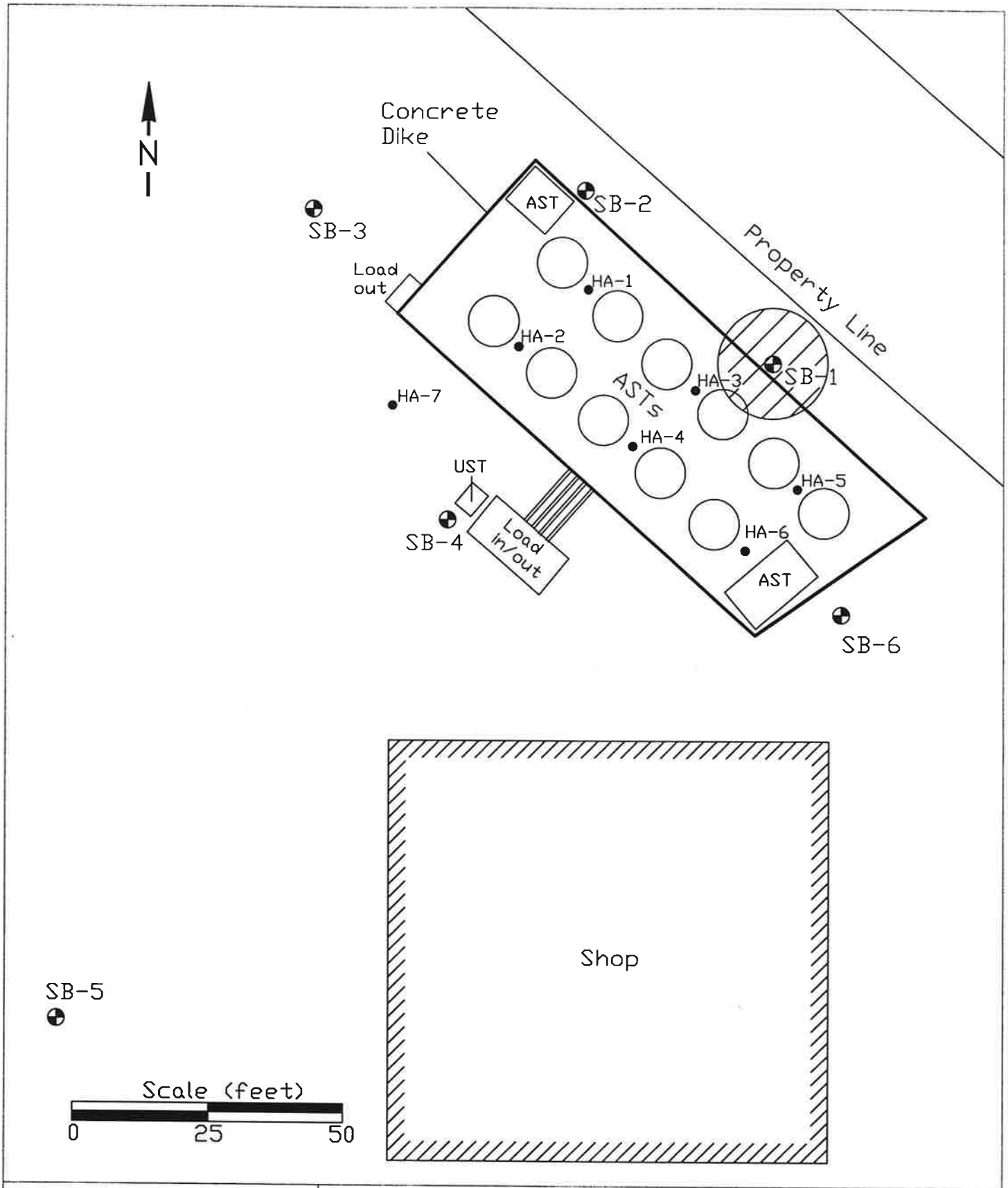
Date:	Prepared By:
January 2, 2004	R. Hill
Scale: 1:24,000	Reviewed By: M. Hultgren



Pinnacle Engineering
101 Broadway Street West
MAINNEAPOLIS, MN 55369
(763) 315-4501

Figure 2
Site Layout
Beaudry Oil Bulk Facility
Elk River, MN

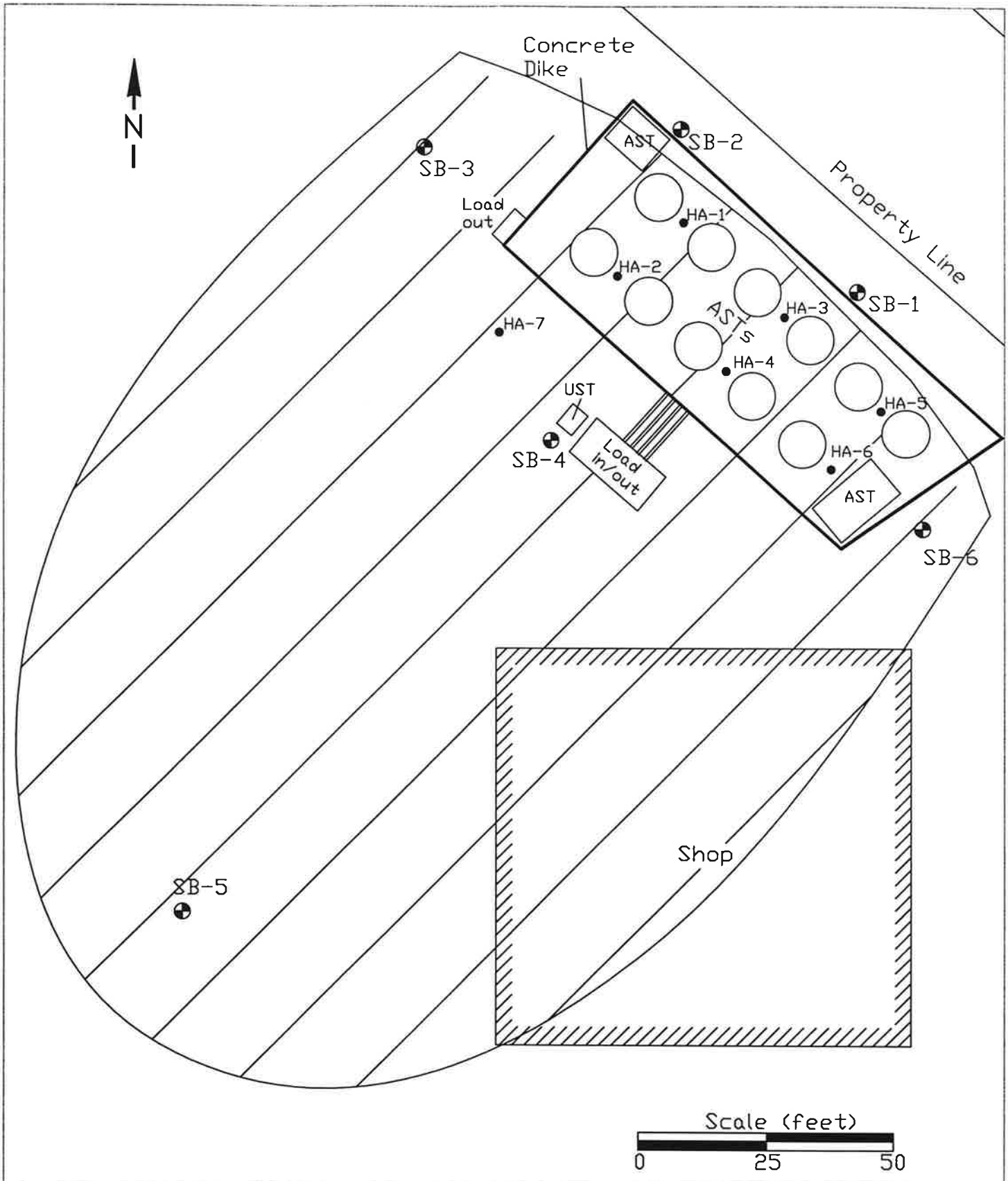
PREPARED BY: RH
DATE: 12/23/03
FILE NAME: site layout



Pinnacle Engineering
101 Broadway Street West
MAINNEAPOLIS, MN 55369
(763) 315-4501

Figure 3
Extent of Native Soil Impacts
Beaudry Oil Bulk Facility
Elk River, MN

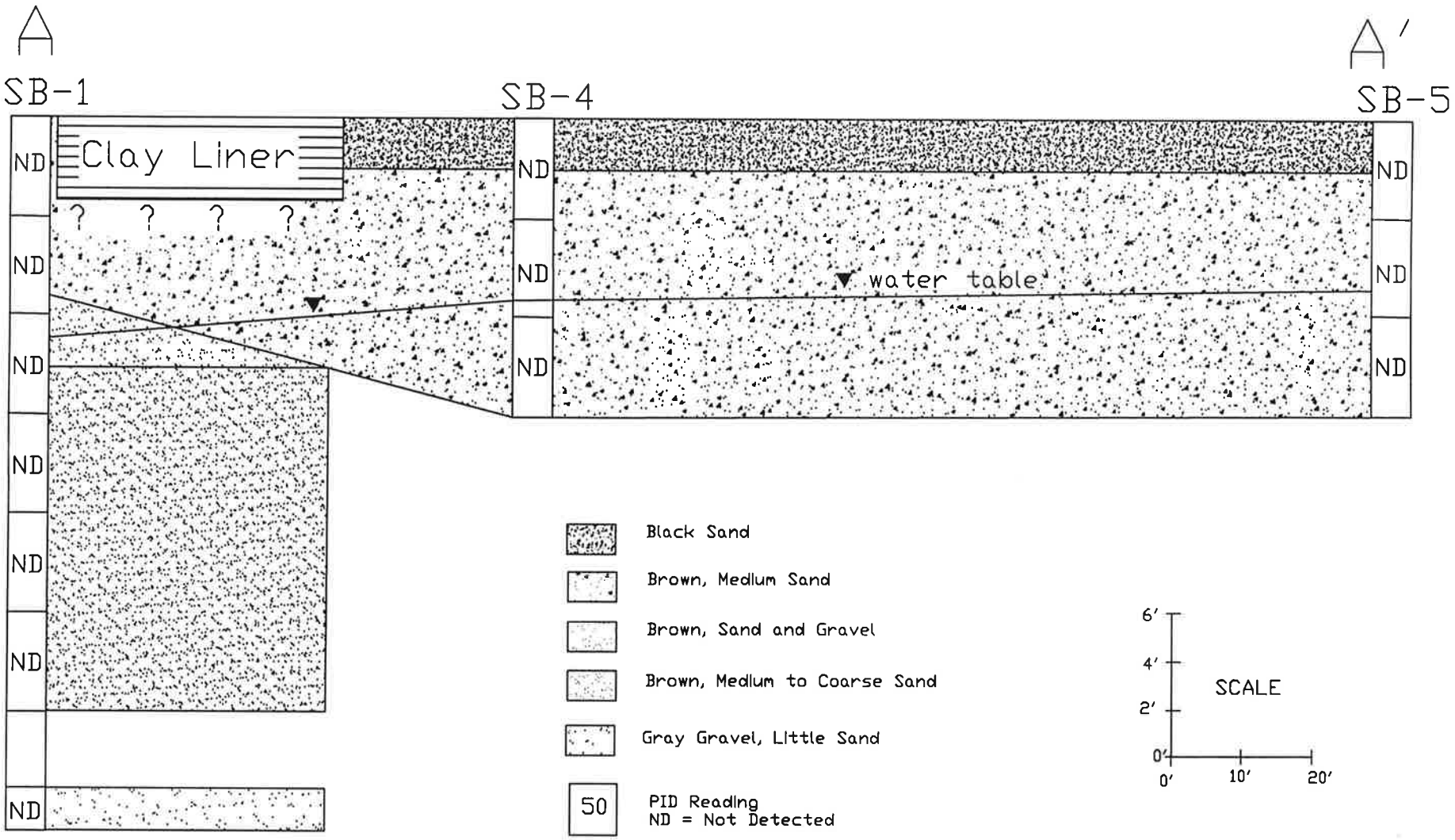
PREPARED BY: RH
DATE: 12/23/03
FILE NAME: site layout



Pinnacle Engineering
101 Broadway Street West
MAINNEAPOLIS, MN 55369
(763) 315-4501

Figure 4
Extent of GW Impacts
Beaudry Oil Bulk Facility
Elk River, MN

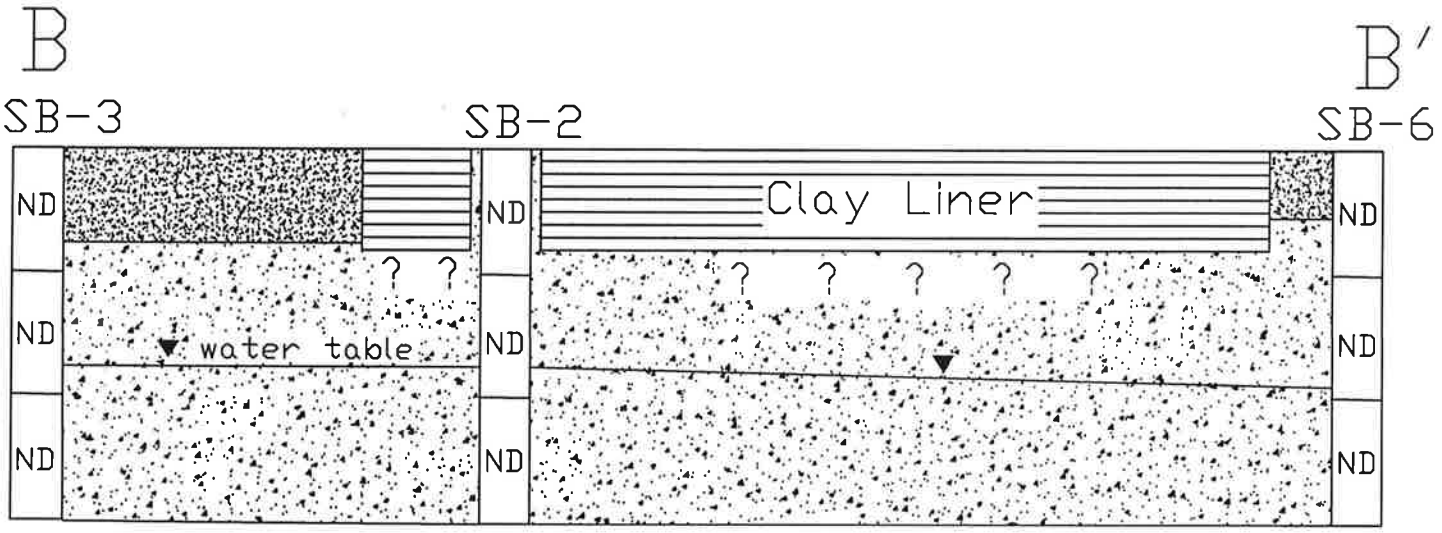
PREPARED BY: RH
DATE: 12/23/03
FILE NAME: GW extent



Pinnacle Engineering
101 BROADWAY STREET WEST
MINNEAPOLIS, MN 55369
(763) 315-4501

FIGURE 5A
CROSS SECTION A-A'
Beaudry Oil Bulk Facility
Elk River, MN

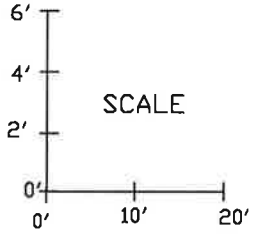
PREPARED BY: RH
DATE: 12/26/03
FILE NAME: xsection A



Black Sand

Brown, Medium Sand

50 PID Reading
ND = Not Detected



Pinnacle Engineering
101 BROADWAY STREET WEST
MINNEAPOLIS, MN 55369
(763) 315-4501

FIGURE 5B
CROSS SECTION B-B'
Beaudry Oil Bulk Facility
Elk River, MN

PREPARED BY: RH
DATE: 12/26/03
FILE NAME: xsection B

Table 2
Results of Soil Headspace Screening

Depth (ft)	Soil Boring 1	2	3	4	5	6	7	8	9
0-4	ND	ND	ND	ND	ND	ND			
4-8	ND	ND	ND	ND	ND	ND			
8-12	ND	ND	ND	ND	ND	ND			
12-16	ND								
16-20	ND								
22-24	ND								
27-29	ND								

List instruments used and discuss field methods and procedures in Appendix C.
Notes:

Table 3
Analytical Results of Soil Samples

Boring, Depth(ft)	Date Sampled	Benzene	Toluene	Ethylbenzene	Xylenes	GRO	DRO	Lab Type
SB-1 (9')	10/28/03	<0.029	<0.029	<0.029	<0.029	<2.9	60	fixed
B-1 (24')	10/28/03	<0.031	<0.031	<0.031	<0.031	<3.1	<2.8	fixed
SB-2 (7')	10/28/03	<0.029	<0.029	<0.029	<0.029	<2.9	<3.8	fixed
SB-3 (7')	10/28/03	<0.028	<0.028	<0.028	<0.028	<2.8	<3.7	fixed
SB-4 (7')	10/28/03	<0.028	<0.028	<0.028	<0.028	<2.8	<3.6	fixed
SB-5 (6.5')	10/28/03	<0.028	<0.028	<0.028	<0.028	<2.8	<3.6	fixed
SB-6 (7.5')	10/28/03	<0.027	<0.027	<0.027	<0.027	<2.7	<3.8	fixed

Report results in mg/kg. Use less than symbols to show detection limit. Indicate mobile or fixed based in the lab type column.
Notes:

Table 4
Other Contaminants Detected in Soils (Petroleum or Non-petroleum Derived)

Boring, Depth (ft)	Date Sampled						Lab Type

Report results in mg/kg. Indicate other contaminants (either petroleum or non-petroleum derived) detected in soil collected from borings.
Notes:

Table 5
Water Level Measurements and Depths of Water Samples Collected from Borings

	Soil Boring									
	1	2	3	4	5	6	7	8	9	10
Static Water level depth (ft)	9	7	7	7	6.5	7.5				
Sampled Depth (ft)	8-12	8-12	8-12	8-12	4-8	8-12				

Describe in Appendix C, the methods and procedures used to measure water levels in borings.
Notes:

Table 6
Analytical Results of Water Samples Collected from Borings

Boring Number	Date Sampled	Sampled Depth	Benzene	Toluene	Ethyl benzene	Xylenes	MTBE	GRO	DRO	Lab Type
SB-1	10/28/03	8-12'	<1.0	<1.0	<1.0	<2.0	<1.0	<50	<100	fixed
SB-2	10/28/03	8-12'	<1.0	<1.0	<1.0	<2.0	<1.0	<50	<100	fixed
SB-3	10/28/03	8-12'	<1.0	<1.0	<1.0	<2.0	<1.0	<50	230	fixed
SB-4	10/28/03	8-12'	<1.0	<1.0	<1.0	<2.0	<1.0	<50	300	fixed
SB-5	10/28/03	4-8'	<1.0	<1.0	<1.0	<2.0	<1.0	<50	140	fixed
SB-6	10/28/03	8-12'	<1.0	<1.0	<1.0	<2.0	<1.0	<50	110	fixed
Trip Blank	10/28/03		<1.0	<1.0	<1.0	<2.0	<1.0	NA	NA	fixed
Field Blank										
Lab Blank										
HRL			10	1000	700	10000				

Report results in ug/L. Use less than symbols to show detection limit. Indicate mobile or fixed based in the lab type column.
Notes

July 22, 2003

Mr. Leon Beaudry
Beaudry Oil
630 Proctor Ave.
Elk River, Minnesota 55342

RE: AST Closure Report
Beaudry Oil Bulk Facility
Pinnacle Project No.: MN03177.00

Dear Leon,

On July 7, 2003, Pinnacle Engineering (Pinnacle) completed seven hand auger soil borings at the Beaudry Oil Bulk Facility located at 720 Quinn Avenue in Elk River, MN. Six of the borings were advanced into the clay liner inside the diked area and one was located between two loading racks. The boring locations are shown on the attached figure. The borings were completed to two feet below the ground surface and field screened for petroleum hydrocarbon vapors using a photoionization detector (PID). The clay liner is estimated to be approximately three feet thick. Representative soil samples of the clay liner and native soil (between loading racks) were collected at a depth of approximately 1.5 feet, and were submitted to En Chem, Inc. of Green Bay, Wisconsin, for laboratory analysis of diesel range organics (DRO), gasoline range organics (GRO) and benzene, toluene, ethylbenzene and xylenes (BTEX).

During field screening, petroleum hydrocarbon vapors were detected in five of the seven borings, with the highest reading of 150 parts per million (ppm) being detected at HA-3. No vapors were detected at HA-2 and HA-7, and vapor concentrations of roughly 100 ppm and less were detected in the other borings.

Analytical laboratory results indicate that five of the seven borings contained petroleum compounds. Analytical results for HA-2 and HA-7 were below detection limits for all targeted compounds and HA-6 contained very minor concentrations of DRO. All other borings contained varying amounts of DRO, GRO and BTEX. Please refer to Table 1 for a summary of the analytical and field vapor screening results. A copy of the analytical laboratory report is also enclosed.

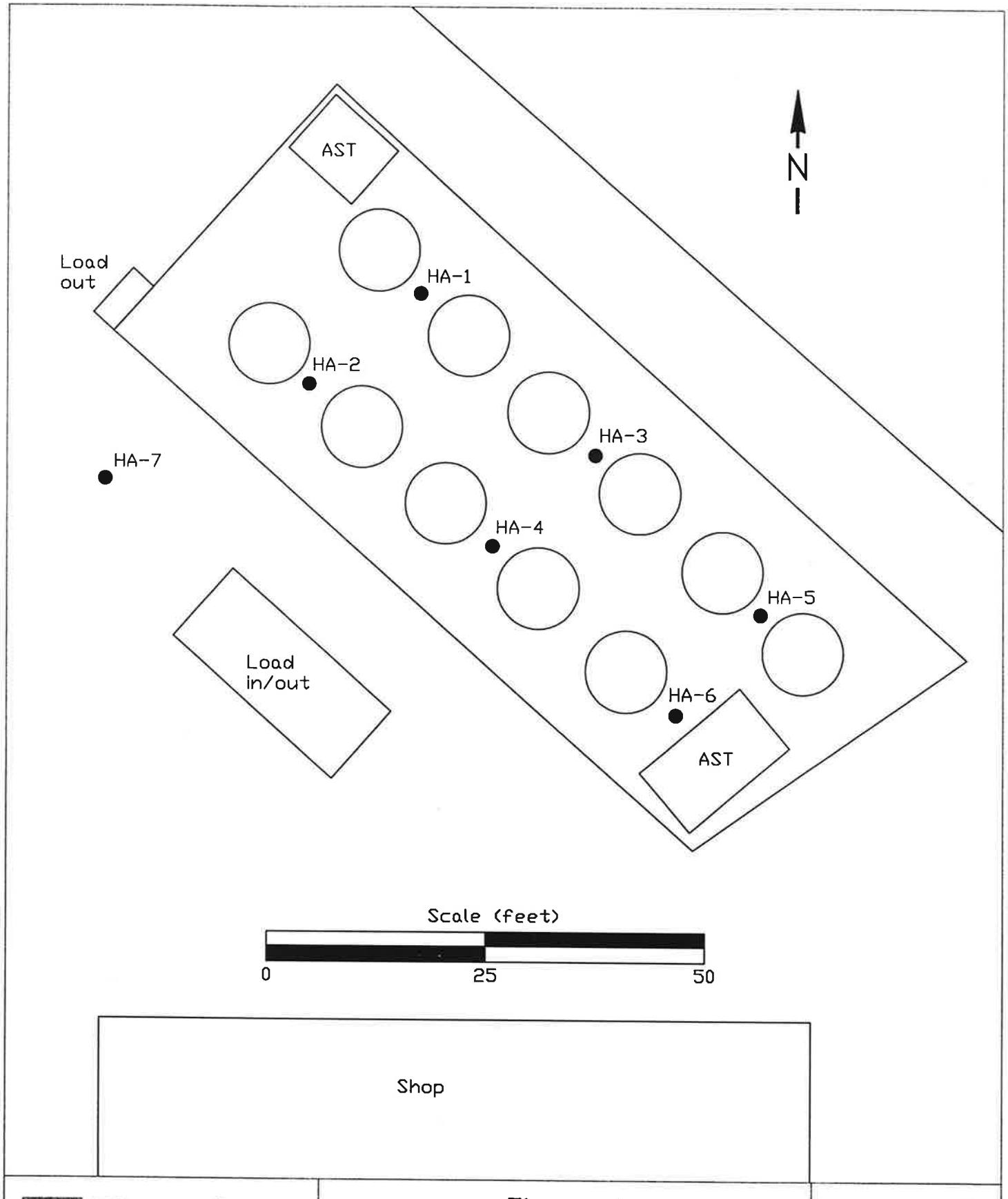
Based on the field-screening results, a release was reported to the Minnesota Duty Officer on July 9, 2003, and leak number 15298 has been assigned to the site. If you have any questions regarding this report or the project in general, please contact me at 763-315-4501.

Sincerely,

PINNACLE ENGINEERING, INC.

Roy L. Hill
Project Manager

Enclosures



Pinnacle Engineering
101 Broadway Street West
MAINNEAPOLIS, MN 55369
(763) 315-4501

Figure 1
Boring Location Map
Beaudry Oil Bulk Facility
Elk River, MN

PREPARED BY: RH
DATE: 7/22/03
FILE NAME: site map

JULY 2003

TABLE 1
Soil Analytical Results

Boring	Benzene	Toluene	Ethylbenzene	Xylenes	GRO	DRO	PID
HA-1	<0.030	<0.030	0.46	0.90	110	170	108
HA-2	<0.030	<0.030	<0.030	<0.030	<3.0	<4.2	ND
HA-3	0.61	6.3	6.0	27.1	750	1800	150
HA-4	1.0	4.0	1.9	7.8	85.0	75.0	106
HA-5	<0.24	1.7	4.5	17.0	650	1500	76
HA-6	<0.030	<0.030	<0.030	<0.030	<3.0	6.8	4
HA-7	<0.027	<0.027	<0.027	<0.027	<2.7	<3.8	ND

All results given in mg/kg, PID = head space vapor concentrations in parts per million

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436
800-7-ENCHEM
Fax: 920-469-8827

Analytical Report Number: 836490

Client : PINNACLE ENGINEERING
Project Name : BEAUDRY OIL-AST
Project Number : MN03177.00
Field ID : HA-1 (1.5')

Matrix Type : SOIL
Collection Date : 07/07/03
Report Date : 07/18/03
Lab Sample Number : 836490-001

INORGANICS

Test	Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Percent Solids	82.9	---	1	%		07/11/03	SM 2540G M	SM 2540G M

DIESEL RANGE ORGANICS

Prep Date: 07/14/03 Preservation Date: 07/14/03

Analyte	Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Diesel Range Organics	170	7.8	2	mg/Kg		07/16/03	WI MOD DRO	WI MOD DRO
DRO Blank	< 5.0	5.0	1	mg/Kg		07/16/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike	87	---	1	%Recov		07/16/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike Duplicate	77	---	1	%Recov		07/16/03	WI MOD DRO	WI MOD DRO

BTEX

Prep Date: 07/14/03

Analyte	Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Benzene	< 30	30	50	ug/kg		07/14/03	5035/5030B	WI MOD GRO
Ethylbenzene	460	30	50	ug/kg		07/14/03	5035/5030B	WI MOD GRO
Toluene	< 30	30	50	ug/kg		07/14/03	5035/5030B	WI MOD GRO
Xylene, o	580	30	50	ug/kg		07/14/03	5035/5030B	WI MOD GRO
Xylenes, m + p	320	30	50	ug/kg		07/14/03	5035/5030B	WI MOD GRO
a,a,a-Trifluorotoluene	105	---	1	%Recov		07/14/03	5035/5030B	WI MOD GRO

BTEX BLANK

Prep Date: 07/14/03

Analyte	Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
BTEX Blank ID	1248-95		1					

GASOLINE RANGE ORGANICS

Prep Date: 07/14/03

Analyte	Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Gasoline Range Organics	110	3.0	50	mg/kg		07/14/03	WI MOD GRO	WI MOD GRO
GRO Blank	< 2.5	2.5	50	mg/kg		07/14/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike	101	---	1	%Recov		07/14/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike Duplicate	90	---	1	%Recov		07/14/03	WI MOD GRO	WI MOD GRO

All soil results are reported on a dry weight basis unless otherwise noted.

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436
800-7-ENCHEM
Fax: 920-469-8827

Analytical Report Number: 836490

Client : PINNACLE ENGINEERING
Project Name : BEAUDRY OIL-AST
Project Number : MN03177.00
Field ID : HA-2 (1.5')

Matrix Type : SOIL
Collection Date : 07/07/03
Report Date : 07/18/03
Lab Sample Number : 836490-002

INORGANICS

Test	Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Percent Solids	83.3	---	1	%		07/11/03	SM 2540G M	SM 2540G M

DIESEL RANGE ORGANICS

Prep Date: 07/14/03 Preservation Date: 07/14/03

Analyte		Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Diesel Range Organics	<	4.2	4.2	1	mg/Kg		07/16/03	WI MOD DRO	WI MOD DRO
DRO Blank	<	5.0	5.0	1	mg/Kg		07/16/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike		87	---	1	%Recov		07/16/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike Duplicate		77	---	1	%Recov		07/16/03	WI MOD DRO	WI MOD DRO

BTEX

Prep Date: 07/14/03

Analyte		Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Benzene	<	30	30	50	ug/kg		07/14/03	5035/5030B	WI MOD GRO
Ethylbenzene	<	30	30	50	ug/kg		07/14/03	5035/5030B	WI MOD GRO
Toluene	<	30	30	50	ug/kg		07/14/03	5035/5030B	WI MOD GRO
Xylene, o	<	30	30	50	ug/kg		07/14/03	5035/5030B	WI MOD GRO
Xylenes, m + p	<	30	30	50	ug/kg		07/14/03	5035/5030B	WI MOD GRO
a,a,a-Trifluorotoluene		103	---	1	%Recov		07/14/03	5035/5030B	WI MOD GRO

BTEX BLANK

Prep Date: 07/14/03

Analyte	Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
BTEX Blank ID	1248-95		1					

GASOLINE RANGE ORGANICS

Prep Date: 07/14/03

Analyte		Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Gasoline Range Organics	<	3.0	3.0	50	mg/kg		07/14/03	WI MOD GRO	WI MOD GRO
GRO Blank	<	2.5	2.5	50	mg/kg		07/14/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike		101	---	1	%Recov		07/14/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike Duplicate		90	---	1	%Recov		07/14/03	WI MOD GRO	WI MOD GRO

All soil results are reported on a dry weight basis unless otherwise noted.

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436
800-7-ENCHEM
Fax: 920-469-8827

Analytical Report Number: 836490

Client : PINNACLE ENGINEERING
Project Name : BEAUDRY OIL-AST
Project Number : MN03177.00
Field ID : HA-3 (1.5')

Matrix Type : SOIL
Collection Date : 07/07/03
Report Date : 07/18/03
Lab Sample Number : 836490-003

INORGANICS

Test	Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Percent Solids	82.6	---	1	%		07/11/03	SM 2540G M	SM 2540G M

DIESEL RANGE ORGANICS

Prep Date: 07/14/03 Preservation Date: 07/14/03

Analyte	Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Diesel Range Organics	1800	74	20	mg/Kg		07/16/03	WI MOD DRO	WI MOD DRO
DRO Blank	< 5.0	5.0	1	mg/Kg		07/16/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike	87	---	1	%Recov		07/16/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike Duplicate	77	---	1	%Recov		07/16/03	WI MOD DRO	WI MOD DRO

BTEX

Prep Date: 07/14/03

Analyte	Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Benzene	610	240	400	ug/kg		07/14/03	5035/5030B	WI MOD GRO
Ethylbenzene	6000	240	400	ug/kg		07/14/03	5035/5030B	WI MOD GRO
Toluene	6300	240	400	ug/kg		07/14/03	5035/5030B	WI MOD GRO
Xylene, o	7100	240	400	ug/kg		07/14/03	5035/5030B	WI MOD GRO
Xylenes, m + p	20000	240	400	ug/kg		07/14/03	5035/5030B	WI MOD GRO
a,a,a-Trifluorotoluene	104	---	1	%Recov		07/14/03	5035/5030B	WI MOD GRO

BTEX BLANK

Prep Date: 07/14/03

Analyte	Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
BTEX Blank ID	1248-95		1					

GASOLINE RANGE ORGANICS

Prep Date: 07/14/03

Analyte	Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Gasoline Range Organics	750	24	400	mg/kg		07/14/03	WI MOD GRO	WI MOD GRO
GRO Blank	< 2.5	2.5	50	mg/kg		07/14/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike	101	---	1	%Recov		07/14/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike Duplicate	90	---	1	%Recov		07/14/03	WI MOD GRO	WI MOD GRO

All soil results are reported on a dry weight basis unless otherwise noted.

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
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800-7-ENCHEM
Fax: 920-469-8827

Analytical Report Number: 836490

Client : PINNACLE ENGINEERING
Project Name : BEAUDRY OIL-AST
Project Number : MN03177.00
Field ID : HA-4 (1.5')

Matrix Type : SOIL
Collection Date : 07/07/03
Report Date : 07/18/03
Lab Sample Number : 836490-004

INORGANICS

Test	Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Percent Solids	82.2	---	1	%		07/11/03	SM 2540G M	SM 2540G M

DIESEL RANGE ORGANICS

Prep Date: 07/14/03 Preservation Date: 07/14/03

Analyte	Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Diesel Range Organics	75	3.9	1	mg/Kg		07/16/03	WI MOD DRO	WI MOD DRO
DRO Blank	< 5.0	5.0	1	mg/Kg		07/16/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike	87	---	1	%Recov		07/16/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike Duplicate	77	---	1	%Recov		07/16/03	WI MOD DRO	WI MOD DRO

BTEX

Prep Date: 07/14/03

Analyte	Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Benzene	1000	30	50	ug/kg		07/14/03	5035/5030B	WI MOD GRO
Ethylbenzene	1900	30	50	ug/kg		07/14/03	5035/5030B	WI MOD GRO
Toluene	4000	30	50	ug/kg		07/14/03	5035/5030B	WI MOD GRO
Xylene, o	1500	30	50	ug/kg		07/14/03	5035/5030B	WI MOD GRO
Xylenes, m + p	6300	30	50	ug/kg		07/14/03	5035/5030B	WI MOD GRO
a,a,a-Trifluorotoluene	110	---	1	%Recov		07/14/03	5035/5030B	WI MOD GRO

BTEX BLANK

Prep Date: 07/14/03

Analyte	Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
BTEX Blank ID	1248-95		1					

GASOLINE RANGE ORGANICS

Prep Date: 07/14/03

Analyte	Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Gasoline Range Organics	85	3.0	50	mg/kg		07/14/03	WI MOD GRO	WI MOD GRO
GRO Blank	< 2.5	2.5	50	mg/kg		07/14/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike	101	---	1	%Recov		07/14/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike Duplicate	90	---	1	%Recov		07/14/03	WI MOD GRO	WI MOD GRO

All soil results are reported on a dry weight basis unless otherwise noted.

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
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Fax: 920-469-8827

Analytical Report Number: 836490

Client : PINNACLE ENGINEERING
Project Name : BEAUDRY OIL-AST
Project Number : MN03177.00
Field ID : HA-5 (1.5')

Matrix Type : SOIL
Collection Date : 07/07/03
Report Date : 07/18/03
Lab Sample Number : 836490-005

INORGANICS

Test	Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Percent Solids	83.3	---	1	%		07/11/03	SM 2540G M	SM 2540G M

DIESEL RANGE ORGANICS

Prep Date: 07/14/03 Preservation Date: 07/14/03

Analyte		Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Diesel Range Organics		1500	59	15	mg/Kg		07/16/03	WI MOD DRO	WI MOD DRO
DRO Blank	<	5.0	5.0	1	mg/Kg		07/16/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike		87	---	1	%Recov		07/16/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike Duplicate		77	---	1	%Recov		07/16/03	WI MOD DRO	WI MOD DRO

BTEX

Prep Date: 07/14/03

Analyte		Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Benzene	<	240	240	400	ug/kg		07/14/03	5035/5030B	WI MOD GRO
Ethylbenzene		4500	240	400	ug/kg		07/14/03	5035/5030B	WI MOD GRO
Toluene		1700	240	400	ug/kg		07/14/03	5035/5030B	WI MOD GRO
Xylene, o		2000	240	400	ug/kg		07/14/03	5035/5030B	WI MOD GRO
Xylenes, m + p		15000	240	400	ug/kg		07/14/03	5035/5030B	WI MOD GRO
a,a,a-Trifluorotoluene		104	---	1	%Recov		07/14/03	5035/5030B	WI MOD GRO

BTEX BLANK

Prep Date: 07/14/03

Analyte	Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
BTEX Blank ID	1248-95		1					

GASOLINE RANGE ORGANICS

Prep Date: 07/14/03

Analyte		Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Gasoline Range Organics		650	24	400	mg/kg		07/14/03	WI MOD GRO	WI MOD GRO
GRO Blank	<	2.5	2.5	50	mg/kg		07/14/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike		101	---	1	%Recov		07/14/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike Duplicate		90	---	1	%Recov		07/14/03	WI MOD GRO	WI MOD GRO

All soil results are reported on a dry weight basis unless otherwise noted.

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436
800-7-ENCHEM
Fax: 920-469-8827

Analytical Report Number: 836490

Client : PINNACLE ENGINEERING
Project Name : BEAUDRY OIL-AST
Project Number : MN03177.00
Field ID : HA-6 (1.5')

Matrix Type : SOIL
Collection Date : 07/07/03
Report Date : 07/18/03
Lab Sample Number : 836490-006

INORGANICS

Test	Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Percent Solids	82.6	---	1	%		07/11/03	SM 2540G M	SM 2540G M

DIESEL RANGE ORGANICS

Prep Date: 07/14/03 Preservation Date: 07/14/03

Analyte		Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Diesel Range Organics		6.8	4.1	1	mg/Kg		07/16/03	WI MOD DRO	WI MOD DRO
DRO Blank	<	5.0	5.0	1	mg/Kg		07/16/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike		87	---	1	%Recov		07/16/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike Duplicate		77	---	1	%Recov		07/16/03	WI MOD DRO	WI MOD DRO

BTEX

Prep Date: 07/14/03

Analyte		Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Benzene	<	30	30	50	ug/kg		07/14/03	5035/5030B	WI MOD GRO
Ethylbenzene	<	30	30	50	ug/kg		07/14/03	5035/5030B	WI MOD GRO
Toluene	<	30	30	50	ug/kg		07/14/03	5035/5030B	WI MOD GRO
Xylene, o	<	30	30	50	ug/kg		07/14/03	5035/5030B	WI MOD GRO
Xylenes, m + p	<	30	30	50	ug/kg		07/14/03	5035/5030B	WI MOD GRO
a,a,a-Trifluorotoluene		103	---	1	%Recov		07/14/03	5035/5030B	WI MOD GRO

BTEX BLANK

Prep Date: 07/14/03

Analyte	Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
BTEX Blank ID	1248-95		1					

GASOLINE RANGE ORGANICS

Prep Date: 07/14/03

Analyte		Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Gasoline Range Organics	<	3.0	3.0	50	mg/kg		07/14/03	WI MOD GRO	WI MOD GRO
GRO Blank	<	2.5	2.5	50	mg/kg		07/14/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike		101	---	1	%Recov		07/14/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike Duplicate		90	---	1	%Recov		07/14/03	WI MOD GRO	WI MOD GRO

All soil results are reported on a dry weight basis unless otherwise noted.

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436
800-7-ENCHEM
Fax: 920-469-8827

Analytical Report Number: 836490

Client : PINNACLE ENGINEERING
Project Name : BEAUDRY OIL-AST
Project Number : MN03177.00
Field ID : HA-7 (1.5')

Matrix Type : SOIL
Collection Date : 07/07/03
Report Date : 07/18/03
Lab Sample Number : 836490-007

INORGANICS

Test	Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Percent Solids	93.4	---	1	%		07/11/03	SM 2540G M	SM 2540G M

DIESEL RANGE ORGANICS

Prep Date: 07/14/03 Preservation Date: 07/14/03

Analyte		Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Diesel Range Organics	<	3.8	3.8	1	mg/Kg		07/16/03	WI MOD DRO	WI MOD DRO
DRO Blank	<	5.0	5.0	1	mg/Kg		07/16/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike		87	---	1	%Recov		07/16/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike Duplicate		77	---	1	%Recov		07/16/03	WI MOD DRO	WI MOD DRO

BTEX

Prep Date: 07/14/03

Analyte		Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Benzene	<	27	27	50	ug/kg		07/14/03	5035/5030B	WI MOD GRO
Ethylbenzene	<	27	27	50	ug/kg		07/14/03	5035/5030B	WI MOD GRO
Toluene	<	27	27	50	ug/kg		07/14/03	5035/5030B	WI MOD GRO
Xylene, o	<	27	27	50	ug/kg		07/14/03	5035/5030B	WI MOD GRO
Xylenes, m + p	<	27	27	50	ug/kg		07/14/03	5035/5030B	WI MOD GRO
a,a,a-Trifluorotoluene		103	---	1	%Recov		07/14/03	5035/5030B	WI MOD GRO

BTEX BLANK

Prep Date: 07/14/03

Analyte	Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
BTEX Blank ID	1248-95		1					

GASOLINE RANGE ORGANICS

Prep Date: 07/14/03

Analyte		Result	EQL	Dilution	Units	Code	Analysis Date	Prep Method	Analysis Method
Gasoline Range Organics	<	2.7	2.7	50	mg/kg		07/14/03	WI MOD GRO	WI MOD GRO
GRO Blank	<	2.5	2.5	50	mg/kg		07/14/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike		101	---	1	%Recov		07/14/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike Duplicate		90	---	1	%Recov		07/14/03	WI MOD GRO	WI MOD GRO

All soil results are reported on a dry weight basis unless otherwise noted.

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436

Analytical Report Number: 840493

Client : PINNACLE ENGINEERING
Project Name : BEAUDRY OIL BULK FACILITY
Project Number : MN03177.01
Field ID : SB-1 (9')

Matrix Type : SOIL
Collection Date : 10/28/03
Report Date : 11/13/03
Lab Sample Number : 840493-001

INORGANICS

Test	Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Percent Solids	84.8	---	1	%		10/31/03	SM 2540G M	SM 2540G M

DIESEL RANGE ORGANICS

Prep Date: 10/31/03 Preservation Date: 10/31/03

Analyte	Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Diesel Range Organics	60	3.7	1	mg/Kg		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank	< 5.0	5.0	1	mg/Kg		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike	84	---	1	%Recov		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike Duplicate	85	---	1	%Recov		11/03/03	WI MOD DRO	WI MOD DRO

BTEX

Prep Date: 11/03/03

Analyte	Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Benzene	< 29	29	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
Ethylbenzene	< 29	29	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
Toluene	< 29	29	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
Xylene, o	< 29	29	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
Xylenes, m + p	< 29	29	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
a,a,a-Trifluorotoluene	106	---	1	%Recov		11/03/03	5035/5030B	WI MOD GRO

BTEX BLANK

Prep Date: 11/03/03

Analyte	Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
BTEX Blank ID	1336-5		1					

GASOLINE RANGE ORGANICS

Prep Date: 11/03/03

Analyte	Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Gasoline Range Organics	< 2.9	2.9	50	mg/Kg		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank	< 2.5	2.5	50	mg/Kg		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike	92	---	1	%Recov		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike Duplicate	95	---	1	%Recov		11/03/03	WI MOD GRO	WI MOD GRO

All soil results are reported on a dry weight basis unless otherwise noted.

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436

Analytical Report Number: 840493

Client : PINNACLE ENGINEERING
Project Name : BEAUDRY OIL BULK FACILITY
Project Number : MN03177.01
Field ID : SB-1 clear

Matrix Type : WATER
Collection Date : 10/28/03
Report Date : 11/13/03
Lab Sample Number : 840493-002

DIESEL RANGE ORGANICS

Prep Date: 10/30/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Diesel Range Organics	<	100	100	1	ug/L		10/31/03	WI MOD DRO	WI MOD DRO
DRO Blank	<	50	50	1	ug/L		10/31/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike		79	---	1	%Recov		10/31/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike Duplicate		76	---	1	%Recov		10/31/03	WI MOD DRO	WI MOD DRO

GASOLINE RANGE ORGANICS

Prep Date: 11/03/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Gasoline Range Organics	<	50	50	1	ug/L		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank	<	50	50	1	ug/L		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike		91	---	1	%Recov		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike Duplicate		91	---	1	%Recov		11/03/03	WI MOD GRO	WI MOD GRO

VOLATILES - MDH 465F/468 LIST

Prep Date: 11/05/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
1,1,1,2-Tetrachloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1,1-Trichloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1,2,2-Tetrachloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1,2-Trichloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1,2-Trichlorotrifluoroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1-Dichloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1-Dichloroethene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1-Dichloropropene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2,3-Trichlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2,3-Trichloropropane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2,4-Trichlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2,4-Trimethylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2-Dibromo-3-chloropropane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2-Dibromoethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2-Dichlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2-Dichloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2-Dichloropropane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,3,5-Trimethylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,3-Dichlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,3-Dichloropropane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,4-Dichlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
2,2-Dichloropropane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
2-Butanone	<	5.0	5.0	1	ug/L	&	11/05/03	SW846 5030B	SW846 8260B
2-Chlorotoluene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
4-Chlorotoluene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
4-Methyl-2-pentanone	<	5.0	5.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Acetone	<	5.0	5.0	1	ug/L	&	11/05/03	SW846 5030B	SW846 8260B
Allyl Chloride	<	5.0	5.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Benzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Bromobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Bromochloromethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Bromodichloromethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Bromoform	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Bromomethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436

Analytical Report Number: 840493

Client : PINNACLE ENGINEERING
Project Name : BEAUDRY OIL BULK FACILITY
Project Number : MN03177.01
Field ID : SB-1

Matrix Type : WATER
Collection Date : 10/28/03
Report Date : 11/13/03
Lab Sample Number : 840493-002

VOLATILES - MDH 465F/468 LIST

Prep Date: 11/05/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Carbon Tetrachloride	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Chlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Chlorodibromomethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Chloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Chloroform	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Chloromethane	<	1.0	1.0	1	ug/L	&	11/05/03	SW846 5030B	SW846 8260B
cis-1,2-Dichloroethene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
cis-1,3-Dichloropropene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Dibromomethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Dichlorodifluoromethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Dichlorofluoromethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Diethyl Ether	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Ethylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Fluorotrichloromethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Hexachlorobutadiene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Isopropylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Methylene Chloride	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Methyl-tert-butyl-ether	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Naphthalene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
n-Butylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
n-Propylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
p-Isopropyltoluene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
sec-Butylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Styrene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
tert-Butylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Tetrachloroethene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Tetrahydrofuran	<	5.0	5.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Toluene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
trans-1,2-Dichloroethene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
trans-1,3-Dichloropropene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Trichloroethene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Vinyl Chloride	<	1.0	1.0	1	ug/L	&	11/05/03	SW846 5030B	SW846 8260B
Xylene, o	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Xylenes, m + p	<	2.0	2.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
4-Bromofluorobenzene		81	---	1	%Recov		11/05/03	SW846 5030B	SW846 8260B
Toluene-d8		92	---	1	%Recov		11/05/03	SW846 5030B	SW846 8260B
Dibromofluoromethane		85	---	1	%Recov		11/05/03	SW846 5030B	SW846 8260B

VOLATILES BLANK

Prep Date:

Analyte	Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
VOC Blank ID	1334-17		1					

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436

Analytical Report Number: 840493

Client : PINNACLE ENGINEERING
Project Name : BEAUDRY OIL BULK FACILITY
Project Number : MN03177.01
Field ID : SB-2 (7')

clean

Matrix Type : SOIL
Collection Date : 10/28/03
Report Date : 11/13/03
Lab Sample Number : 840493-003

INORGANICS

Test	Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Percent Solids	87.0	---	1	%		10/31/03	SM 2540G M	SM 2540G M

DIESEL RANGE ORGANICS

Prep Date: 10/31/03 Preservation Date: 10/31/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Diesel Range Organics	<	3.8	3.8	1	mg/Kg		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank	<	5.0	5.0	1	mg/Kg		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike		84	---	1	%Recov		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike Duplicate		85	---	1	%Recov		11/03/03	WI MOD DRO	WI MOD DRO

BTEX

Prep Date: 11/03/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Benzene	<	29	29	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
Ethylbenzene	<	29	29	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
Toluene	<	29	29	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
Xylene, o	<	29	29	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
Xylenes, m + p	<	29	29	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
a,a,a-Trifluorotoluene		100	---	1	%Recov		11/03/03	5035/5030B	WI MOD GRO

BTEX BLANK

Prep Date: 11/03/03

Analyte	Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
BTEX Blank ID	1336-5		1					

GASOLINE RANGE ORGANICS

Prep Date: 11/03/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Gasoline Range Organics	<	2.9	2.9	50	mg/Kg		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank	<	2.5	2.5	50	mg/Kg		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike		92	---	1	%Recov		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike Duplicate		95	---	1	%Recov		11/03/03	WI MOD GRO	WI MOD GRO

All soil results are reported on a dry weight basis unless otherwise noted.

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436

Analytical Report Number: 840493

Client : PINNACLE ENGINEERING
Project Name : BEAUDRY OIL BULK FACILITY
Project Number : MN03177.01
Field ID : SB-2

clean

Matrix Type : WATER
Collection Date : 10/28/03
Report Date : 11/13/03
Lab Sample Number : 840493-004

DIESEL RANGE ORGANICS

Prep Date: 10/30/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Diesel Range Organics	<	100	100	1	ug/L		10/31/03	WI MOD DRO	WI MOD DRO
DRO Blank	<	50	50	1	ug/L		10/31/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike		79	---	1	%Recov		10/31/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike Duplicate		76	---	1	%Recov		10/31/03	WI MOD DRO	WI MOD DRO

GASOLINE RANGE ORGANICS

Prep Date: 11/03/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Gasoline Range Organics	<	50	50	1	ug/L		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank	<	50	50	1	ug/L		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike		91	---	1	%Recov		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike Duplicate		91	---	1	%Recov		11/03/03	WI MOD GRO	WI MOD GRO

VOLATILES - MDH 465F/468 LIST

Prep Date: 11/03/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
1,1,1,2-Tetrachloroethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,1,1-Trichloroethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,1,2,2-Tetrachloroethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,1,2-Trichloroethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,1,2-Trichlorotrifluoroethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,1-Dichloroethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,1-Dichloroethene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,1-Dichloropropene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,2,3-Trichlorobenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,2,3-Trichloropropane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,2,4-Trichlorobenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,2,4-Trimethylbenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,2-Dibromo-3-chloropropane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,2-Dibromoethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,2-Dichlorobenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,2-Dichloroethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,2-Dichloropropane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,3,5-Trimethylbenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,3-Dichlorobenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,3-Dichloropropane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,4-Dichlorobenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
2,2-Dichloropropane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
2-Butanone	<	5.0	5.0	1	ug/L	&	11/03/03	SW846 5030B	SW846 8260B
2-Chlorotoluene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
4-Chlorotoluene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
4-Methyl-2-pentanone	<	5.0	5.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Acetone	<	5.0	5.0	1	ug/L	&	11/03/03	SW846 5030B	SW846 8260B
Allyl Chloride	<	5.0	5.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Benzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Bromobenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Bromochloromethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Bromodichloromethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Bromoform	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Bromomethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436

Analytical Report Number: 840493

Client : PINNACLE ENGINEERING
Project Name : BEAUDRY OIL BULK FACILITY
Project Number : MN03177.01
Field ID : SB-2

Matrix Type : WATER
Collection Date : 10/28/03
Report Date : 11/13/03
Lab Sample Number : 840493-004

VOLATILES - MDH 465F/468 LIST

Prep Date: 11/03/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Carbon Tetrachloride	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Chlorobenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Chlorodibromomethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Chloroethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Chloroform	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Chloromethane	<	1.0	1.0	1	ug/L	&	11/03/03	SW846 5030B	SW846 8260B
cis-1,2-Dichloroethene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
cis-1,3-Dichloropropene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Dibromomethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Dichlorodifluoromethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Dichlorofluoromethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Diethyl Ether	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Ethylbenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Fluorotrichloromethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Hexachlorobutadiene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Isopropylbenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Methylene Chloride	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Methyl-tert-butyl-ether	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Naphthalene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
n-Butylbenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
n-Propylbenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
p-Isopropyltoluene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
sec-Butylbenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Styrene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
tert-Butylbenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Tetrachloroethene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Tetrahydrofuran	<	5.0	5.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Toluene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
trans-1,2-Dichloroethene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
trans-1,3-Dichloropropene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Trichloroethene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Vinyl Chloride	<	1.0	1.0	1	ug/L	&	11/03/03	SW846 5030B	SW846 8260B
Xylene, o	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Xylenes, m + p	<	2.0	2.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
4-Bromofluorobenzene		85	---	1	%Recov		11/03/03	SW846 5030B	SW846 8260B
Toluene-d8		103	---	1	%Recov		11/03/03	SW846 5030B	SW846 8260B
Dibromofluoromethane		121	---	1	%Recov		11/03/03	SW846 5030B	SW846 8260B

VOLATILES BLANK

Prep Date:

Analyte	Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
VOC Blank ID	1334-17		1					

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436

Analytical Report Number: 840493

Client : PINNACLE ENGINEERING
Project Name : BEAUDRY OIL BULK FACILITY
Project Number : MN03177.01
Field ID : SB-3 (7')

clean

Matrix Type : SOIL
Collection Date : 10/28/03
Report Date : 11/13/03
Lab Sample Number : 840493-005

INORGANICS

Test	Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Percent Solids	88.1	---	1	%		10/31/03	SM 2540G M	SM 2540G M

DIESEL RANGE ORGANICS

Prep Date: 10/31/03 Preservation Date: 10/31/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Diesel Range Organics	<	3.7	3.7	1	mg/Kg		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank	<	5.0	5.0	1	mg/Kg		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike		84	---	1	%Recov		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike Duplicate		85	---	1	%Recov		11/03/03	WI MOD DRO	WI MOD DRO

BTEX

Prep Date: 11/03/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Benzene	<	28	28	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
Ethylbenzene	<	28	28	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
Toluene	<	28	28	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
Xylene, o	<	28	28	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
Xylenes, m + p	<	28	28	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
a,a,a-Trifluorotoluene		106	---	1	%Recov		11/03/03	5035/5030B	WI MOD GRO

BTEX BLANK

Prep Date: 11/03/03

Analyte	Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
BTEX Blank ID	1336-5		1					

GASOLINE RANGE ORGANICS

Prep Date: 11/03/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Gasoline Range Organics	<	2.8	2.8	50	mg/Kg		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank	<	2.5	2.5	50	mg/Kg		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike		92	---	1	%Recov		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike Duplicate		95	---	1	%Recov		11/03/03	WI MOD GRO	WI MOD GRO

All soil results are reported on a dry weight basis unless otherwise noted.

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436

Analytical Report Number: 840493

Client : PINNACLE ENGINEERING
Project Name : BEAUDRY OIL BULK FACILITY
Project Number : MN03177.01
Field ID : SB-3

Matrix Type : WATER
Collection Date : 10/28/03
Report Date : 11/13/03
Lab Sample Number : 840493-006

DIESEL RANGE ORGANICS

Prep Date: 10/31/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Diesel Range Organics		230	110	1	ug/L		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank	<	50	50	1	ug/L		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike		87	---	1	%Recov		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike Duplicate		79	---	1	%Recov		11/03/03	WI MOD DRO	WI MOD DRO

GASOLINE RANGE ORGANICS

Prep Date: 11/03/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Gasoline Range Organics	<	50	50	1	ug/L		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank	<	50	50	1	ug/L		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike		91	---	1	%Recov		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike Duplicate		91	---	1	%Recov		11/03/03	WI MOD GRO	WI MOD GRO

VOLATILES - MDH 465F/468 LIST

Prep Date: 11/05/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
1,1,1,2-Tetrachloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1,1-Trichloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1,2,2-Tetrachloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1,2-Trichloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1,2-Trichlorotrifluoroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1-Dichloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1-Dichloroethene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1-Dichloropropene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2,3-Trichlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2,3-Trichloropropane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2,4-Trichlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2,4-Trimethylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2-Dibromo-3-chloropropane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2-Dibromoethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2-Dichlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2-Dichloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2-Dichloropropane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,3,5-Trimethylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,3-Dichlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,3-Dichloropropane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,4-Dichlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
2,2-Dichloropropane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
2-Butanone	<	5.0	5.0	1	ug/L	&	11/05/03	SW846 5030B	SW846 8260B
2-Chlorotoluene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
4-Chlorotoluene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
4-Methyl-2-pentanone	<	5.0	5.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Acetone	<	5.0	5.0	1	ug/L	&	11/05/03	SW846 5030B	SW846 8260B
Allyl Chloride	<	5.0	5.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Benzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Bromobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Bromochloromethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Bromodichloromethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Bromoform	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Bromomethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436

Analytical Report Number: 840493

Client : PINNACLE ENGINEERING
Project Name : BEAUDRY OIL BULK FACILITY
Project Number : MN03177.01
Field ID : SB-3

Matrix Type : WATER
Collection Date : 10/28/03
Report Date : 11/13/03
Lab Sample Number : 840493-006

VOLATILES - MDH 465F/468 LIST

Prep Date: 11/05/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Carbon Tetrachloride	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Chlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Chlorodibromomethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Chloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Chloroform	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Chloromethane	<	1.0	1.0	1	ug/L	&	11/05/03	SW846 5030B	SW846 8260B
cis-1,2-Dichloroethene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
cis-1,3-Dichloropropene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Dibromomethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Dichlorodifluoromethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Dichlorofluoromethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Diethyl Ether	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Ethylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Fluorotrichloromethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Hexachlorobutadiene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Isopropylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Methylene Chloride	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Methyl-tert-butyl-ether	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Naphthalene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
n-Butylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
n-Propylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
p-Isopropyltoluene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
sec-Butylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Styrene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
tert-Butylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Tetrachloroethene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Tetrahydrofuran	<	5.0	5.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Toluene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
trans-1,2-Dichloroethene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
trans-1,3-Dichloropropene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Trichloroethene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Vinyl Chloride	<	1.0	1.0	1	ug/L	&	11/05/03	SW846 5030B	SW846 8260B
Xylene, o	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Xylenes, m + p	<	2.0	2.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
4-Bromofluorobenzene		78	---	1	%Recov		11/05/03	SW846 5030B	SW846 8260B
Toluene-d8		92	---	1	%Recov		11/05/03	SW846 5030B	SW846 8260B
Dibromofluoromethane		87	---	1	%Recov		11/05/03	SW846 5030B	SW846 8260B

VOLATILES BLANK

Prep Date:

Analyte	Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
VOC Blank ID	1334-17		1					

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436

Analytical Report Number: 840493

Client : PINNACLE ENGINEERING
Project Name : BEAUDRY OIL BULK FACILITY
Project Number : MN03177.01
Field ID : SB-4 (7')

Matrix Type : SOIL
Collection Date : 10/28/03
Report Date : 11/13/03
Lab Sample Number : 840493-007

INORGANICS

Test	Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Percent Solids	88.8	---	1	%		10/31/03	SM 2540G M	SM 2540G M

DIESEL RANGE ORGANICS

Prep Date: 10/31/03 Preservation Date: 10/31/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Diesel Range Organics	<	3.6	3.6	1	mg/Kg		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank	<	5.0	5.0	1	mg/Kg		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike		84	---	1	%Recov		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike Duplicate		85	---	1	%Recov		11/03/03	WI MOD DRO	WI MOD DRO

BTEX

Prep Date: 11/03/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Benzene	<	28	28	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
Ethylbenzene	<	28	28	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
Toluene	<	28	28	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
Xylene, o	<	28	28	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
Xylenes, m + p	<	28	28	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
a,a,a-Trifluorotoluene		99	---	1	%Recov		11/03/03	5035/5030B	WI MOD GRO

BTEX BLANK

Prep Date: 11/03/03

Analyte	Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
BTEX Blank ID	1336-5		1					

GASOLINE RANGE ORGANICS

Prep Date: 11/03/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Gasoline Range Organics	<	2.8	2.8	50	mg/Kg		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank	<	2.5	2.5	50	mg/Kg		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike		92	---	1	%Recov		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike Duplicate		95	---	1	%Recov		11/03/03	WI MOD GRO	WI MOD GRO

All soil results are reported on a dry weight basis unless otherwise noted.

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436

Analytical Report Number: 840493

Client : PINNACLE ENGINEERING
Project Name : BEAUDRY OIL BULK FACILITY
Project Number : MN03177.01
Field ID : SB-4

Matrix Type : WATER
Collection Date : 10/28/03
Report Date : 11/13/03
Lab Sample Number : 840493-008

DIESEL RANGE ORGANICS

Prep Date: 10/31/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Diesel Range Organics		300	100	1	ug/L		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank	<	50	50	1	ug/L		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike		87	---	1	%Recov		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike Duplicate		79	---	1	%Recov		11/03/03	WI MOD DRO	WI MOD DRO

GASOLINE RANGE ORGANICS

Prep Date: 11/03/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Gasoline Range Organics	<	50	50	1	ug/L		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank	<	50	50	1	ug/L		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike		91	---	1	%Recov		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike Duplicate		91	---	1	%Recov		11/03/03	WI MOD GRO	WI MOD GRO

VOLATILES - MDH 465F/468 LIST

Prep Date: 11/05/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
1,1,1,2-Tetrachloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1,1-Trichloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1,2,2-Tetrachloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1,2-Trichloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1,2-Trichlorotrifluoroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1-Dichloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1-Dichloroethene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1-Dichloropropene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2,3-Trichlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2,3-Trichloropropane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2,4-Trichlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2,4-Trimethylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2-Dibromo-3-chloropropane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2-Dibromoethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2-Dichlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2-Dichloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2-Dichloropropane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,3,5-Trimethylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,3-Dichlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,3-Dichloropropane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,4-Dichlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
2,2-Dichloropropane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
2-Butanone	<	5.0	5.0	1	ug/L	&	11/05/03	SW846 5030B	SW846 8260B
2-Chlorotoluene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
4-Chlorotoluene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
4-Methyl-2-pentanone	<	5.0	5.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Acetone	<	5.0	5.0	1	ug/L	&	11/05/03	SW846 5030B	SW846 8260B
Allyl Chloride	<	5.0	5.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Benzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Bromobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Bromochloromethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Bromodichloromethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Bromoform	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Bromomethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436

Analytical Report Number: 840493

Client : PINNACLE ENGINEERING
Project Name : BEAUDRY OIL BULK FACILITY
Project Number : MN03177.01
Field ID : SB-4

Matrix Type : WATER
Collection Date : 10/28/03
Report Date : 11/13/03
Lab Sample Number : 840493-008

VOLATILES - MDH 465F/468 LIST

Prep Date: 11/05/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Carbon Tetrachloride	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Chlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Chlorodibromomethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Chloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Chloroform	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Chloromethane	<	1.0	1.0	1	ug/L	&	11/05/03	SW846 5030B	SW846 8260B
cis-1,2-Dichloroethene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
cis-1,3-Dichloropropene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Dibromomethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Dichlorodifluoromethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Dichlorofluoromethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Diethyl Ether	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Ethylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Fluorotrichloromethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Hexachlorobutadiene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Isopropylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Methylene Chloride	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Methyl-tert-butyl-ether	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Naphthalene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
n-Butylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
n-Propylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
p-Isopropyltoluene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
sec-Butylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Styrene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
tert-Butylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Tetrachloroethene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Tetrahydrofuran	<	5.0	5.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Toluene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
trans-1,2-Dichloroethene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
trans-1,3-Dichloropropene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Trichloroethene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Vinyl Chloride	<	1.0	1.0	1	ug/L	&	11/05/03	SW846 5030B	SW846 8260B
Xylene, o	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Xylenes, m + p	<	2.0	2.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
4-Bromofluorobenzene		80	---	1	%Recov		11/05/03	SW846 5030B	SW846 8260B
Toluene-d8		95	---	1	%Recov		11/05/03	SW846 5030B	SW846 8260B
Dibromofluoromethane		90	---	1	%Recov		11/05/03	SW846 5030B	SW846 8260B

VOLATILES BLANK

Prep Date:

Analyte	Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
VOC Blank ID	1334-17		1					

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436

Analytical Report Number: 840493

Client : PINNACLE ENGINEERING
Project Name : BEAUDRY OIL BULK FACILITY
Project Number : MN03177.01
Field ID : SB-5 (6.5')

Matrix Type : SOIL
Collection Date : 10/28/03
Report Date : 11/13/03
Lab Sample Number : 840493-009

INORGANICS

Test	Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Percent Solids	89.2	---	1	%		10/31/03	SM 2540G M	SM 2540G M

DIESEL RANGE ORGANICS

Prep Date: 10/31/03 Preservation Date: 10/31/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Diesel Range Organics	<	3.6	3.6	1	mg/Kg		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank	<	5.0	5.0	1	mg/Kg		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike		84	---	1	%Recov		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike Duplicate		85	---	1	%Recov		11/03/03	WI MOD DRO	WI MOD DRO

BTEX

Prep Date: 11/03/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Benzene	<	28	28	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
Ethylbenzene	<	28	28	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
Toluene	<	28	28	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
Xylene, o	<	28	28	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
Xylenes, m + p	<	28	28	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
a,a,a-Trifluorotoluene		105	---	1	%Recov		11/03/03	5035/5030B	WI MOD GRO

BTEX BLANK

Prep Date: 11/03/03

Analyte	Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
BTEX Blank ID	1336-5		1					

GASOLINE RANGE ORGANICS

Prep Date: 11/03/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Gasoline Range Organics	<	2.8	2.8	50	mg/Kg		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank	<	2.5	2.5	50	mg/Kg		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike		92	---	1	%Recov		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike Duplicate		95	---	1	%Recov		11/03/03	WI MOD GRO	WI MOD GRO

All soil results are reported on a dry weight basis unless otherwise noted.

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436

Analytical Report Number: 840493

Client : PINNACLE ENGINEERING
Project Name : BEAUDRY OIL BULK FACILITY
Project Number : MN03177.01
Field ID : SB-5

Matrix Type : WATER
Collection Date : 10/28/03
Report Date : 11/13/03
Lab Sample Number : 840493-010

DIESEL RANGE ORGANICS

Prep Date: 10/31/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Diesel Range Organics		140	110	1	ug/L		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank	<	50	50	1	ug/L		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike		87	---	1	%Recov		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike Duplicate		79	---	1	%Recov		11/03/03	WI MOD DRO	WI MOD DRO

GASOLINE RANGE ORGANICS

Prep Date: 11/03/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Gasoline Range Organics	<	50	50	1	ug/L		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank	<	50	50	1	ug/L		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike		91	---	1	%Recov		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike Duplicate		91	---	1	%Recov		11/03/03	WI MOD GRO	WI MOD GRO

VOLATILES - MDH 465F/468 LIST

Prep Date: 11/05/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
1,1,1,2-Tetrachloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1,1-Trichloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1,2,2-Tetrachloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1,2-Trichloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1,2-Trichlorotrifluoroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1-Dichloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1-Dichloroethene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1-Dichloropropene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2,3-Trichlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2,3-Trichloropropane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2,4-Trichlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2,4-Trimethylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2-Dibromo-3-chloropropane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2-Dibromoethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2-Dichlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2-Dichloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2-Dichloropropane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,3,5-Trimethylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,3-Dichlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,3-Dichloropropane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,4-Dichlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
2,2-Dichloropropane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
2-Butanone	<	5.0	5.0	1	ug/L	&	11/05/03	SW846 5030B	SW846 8260B
2-Chlorotoluene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
4-Chlorotoluene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
4-Methyl-2-pentanone	<	5.0	5.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Acetone	<	5.0	5.0	1	ug/L	&	11/05/03	SW846 5030B	SW846 8260B
Allyl Chloride	<	5.0	5.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Benzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Bromobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Bromochloromethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Bromodichloromethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Bromoform	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Bromomethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436

Analytical Report Number: 840493

Client : PINNACLE ENGINEERING
Project Name : BEAUDRY OIL BULK FACILITY
Project Number : MN03177.01
Field ID : SB-5

Matrix Type : WATER
Collection Date : 10/28/03
Report Date : 11/13/03
Lab Sample Number : 840493-010

VOLATILES - MDH 465F/468 LIST

Prep Date: 11/05/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Carbon Tetrachloride	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Chlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Chlorodibromomethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Chloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Chloroform	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Chloromethane	<	1.0	1.0	1	ug/L	&	11/05/03	SW846 5030B	SW846 8260B
cis-1,2-Dichloroethene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
cis-1,3-Dichloropropene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Dibromomethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Dichlorodifluoromethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Dichlorofluoromethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Diethyl Ether	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Ethylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Fluorotrichloromethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Hexachlorobutadiene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Isopropylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Methylene Chloride	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Methyl-tert-butyl-ether	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Naphthalene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
n-Butylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
n-Propylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
p-Isopropyltoluene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
sec-Butylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Styrene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
tert-Butylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Tetrachloroethene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Tetrahydrofuran	<	5.0	5.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Toluene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
trans-1,2-Dichloroethene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
trans-1,3-Dichloropropene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Trichloroethene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Vinyl Chloride	<	1.0	1.0	1	ug/L	&	11/05/03	SW846 5030B	SW846 8260B
Xylene, o	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Xylenes, m + p	<	2.0	2.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
4-Bromofluorobenzene		82	---	1	%Recov		11/05/03	SW846 5030B	SW846 8260B
Toluene-d8		95	---	1	%Recov		11/05/03	SW846 5030B	SW846 8260B
Dibromofluoromethane		92	---	1	%Recov		11/05/03	SW846 5030B	SW846 8260B

VOLATILES BLANK

Prep Date:

Analyte	Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
VOC Blank ID	1334-17		1					

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436

Analytical Report Number: 840493

Client : PINNACLE ENGINEERING
Project Name : BEAUDRY OIL BULK FACILITY
Project Number : MN03177.01
Field ID : SB-6 (7.5')

Matrix Type : SOIL
Collection Date : 10/28/03
Report Date : 11/13/03
Lab Sample Number : 840493-011

INORGANICS

Test	Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Percent Solids	91.1	---	1	%		10/31/03	SM 2540G M	SM 2540G M

DIESEL RANGE ORGANICS

Prep Date: 10/31/03 Preservation Date: 10/31/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Diesel Range Organics	<	3.8	3.8	1	mg/Kg		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank	<	5.0	5.0	1	mg/Kg		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike		84	---	1	%Recov		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike Duplicate		85	---	1	%Recov		11/03/03	WI MOD DRO	WI MOD DRO

BTEX

Prep Date: 11/03/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Benzene	<	27	27	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
Ethylbenzene	<	27	27	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
Toluene	<	27	27	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
Xylene, o	<	27	27	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
Xylenes, m + p	<	27	27	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
a,a,a-Trifluorotoluene		106	---	1	%Recov		11/03/03	5035/5030B	WI MOD GRO

BTEX BLANK

Prep Date: 11/03/03

Analyte	Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
BTEX Blank ID	1336-5		1					

GASOLINE RANGE ORGANICS

Prep Date: 11/03/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Gasoline Range Organics	<	2.7	2.7	50	mg/Kg		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank	<	2.5	2.5	50	mg/Kg		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike		92	---	1	%Recov		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike Duplicate		95	---	1	%Recov		11/03/03	WI MOD GRO	WI MOD GRO

All soil results are reported on a dry weight basis unless otherwise noted.

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436

Analytical Report Number: 840493

Client : PINNACLE ENGINEERING
Project Name : BEAUDRY OIL BULK FACILITY
Project Number : MN03177.01
Field ID : SB-6

Matrix Type : WATER
Collection Date : 10/28/03
Report Date : 11/13/03
Lab Sample Number : 840493-012

DIESEL RANGE ORGANICS

Prep Date: 10/31/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Diesel Range Organics		110	110	1	ug/L		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank	<	50	50	1	ug/L		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike		87	---	1	%Recov		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike Duplicate		79	---	1	%Recov		11/03/03	WI MOD DRO	WI MOD DRO

GASOLINE RANGE ORGANICS

Prep Date: 11/03/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Gasoline Range Organics	<	50	50	1	ug/L		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank	<	50	50	1	ug/L		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike		91	---	1	%Recov		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike Duplicate		91	---	1	%Recov		11/03/03	WI MOD GRO	WI MOD GRO

VOLATILES - MDH 465F/468 LIST

Prep Date: 11/05/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
1,1,1,2-Tetrachloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1,1-Trichloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1,2,2-Tetrachloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1,2-Trichloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1,2-Trichlorotrifluoroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1-Dichloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1-Dichloroethene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,1-Dichloropropene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2,3-Trichlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2,3-Trichloropropane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2,4-Trichlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2,4-Trimethylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2-Dibromo-3-chloropropane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2-Dibromoethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2-Dichlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2-Dichloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,2-Dichloropropane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,3,5-Trimethylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,3-Dichlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,3-Dichloropropane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
1,4-Dichlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
2,2-Dichloropropane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
2-Butanone	<	5.0	5.0	1	ug/L	&	11/05/03	SW846 5030B	SW846 8260B
2-Chlorotoluene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
4-Chlorotoluene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
4-Methyl-2-pentanone	<	5.0	5.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Acetone	<	5.0	5.0	1	ug/L	&	11/05/03	SW846 5030B	SW846 8260B
Allyl Chloride	<	5.0	5.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Benzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Bromobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Bromochloromethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Bromodichloromethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Bromoform	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Bromomethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436

Analytical Report Number: 840493

Client : PINNACLE ENGINEERING
Project Name : BEAUDRY OIL BULK FACILITY
Project Number : MN03177.01
Field ID : SB-6

Matrix Type : WATER
Collection Date : 10/28/03
Report Date : 11/13/03
Lab Sample Number : 840493-012

VOLATILES - MDH 465F/468 LIST

Prep Date: 11/05/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Carbon Tetrachloride	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Chlorobenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Chlorodibromomethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Chloroethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Chloroform	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Chloromethane	<	1.0	1.0	1	ug/L	&	11/05/03	SW846 5030B	SW846 8260B
cis-1,2-Dichloroethene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
cis-1,3-Dichloropropene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Dibromomethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Dichlorodifluoromethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Dichlorofluoromethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Diethyl Ether	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Ethylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Fluorotrichloromethane	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Hexachlorobutadiene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Isopropylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Methylene Chloride	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Methyl-tert-butyl-ether	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Naphthalene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
n-Butylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
n-Propylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
p-Isopropyltoluene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
sec-Butylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Styrene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
tert-Butylbenzene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Tetrachloroethene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Tetrahydrofuran	<	5.0	5.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Toluene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
trans-1,2-Dichloroethene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
trans-1,3-Dichloropropene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Trichloroethene	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Vinyl Chloride	<	1.0	1.0	1	ug/L	&	11/05/03	SW846 5030B	SW846 8260B
Xylene, o	<	1.0	1.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
Xylenes, m + p	<	2.0	2.0	1	ug/L		11/05/03	SW846 5030B	SW846 8260B
4-Bromofluorobenzene		80	---	1	%Recov		11/05/03	SW846 5030B	SW846 8260B
Toluene-d8		93	---	1	%Recov		11/05/03	SW846 5030B	SW846 8260B
Dibromofluoromethane		88	---	1	%Recov		11/05/03	SW846 5030B	SW846 8260B

VOLATILES BLANK

Prep Date:

Analyte	Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
VOC Blank ID	1334-17		1					

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436

Analytical Report Number: 840493

Client : PINNACLE ENGINEERING
Project Name : BEAUDRY OIL BULK FACILITY
Project Number : MN03177.01
Field ID : TRIP BLANK

Matrix Type : WATER
Collection Date : 10/28/03
Report Date : 11/13/03
Lab Sample Number : 840493-013

VOLATILES - MDH 465F/468 LIST

Prep Date: 11/03/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
1,1,1,2-Tetrachloroethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,1,1-Trichloroethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,1,2,2-Tetrachloroethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,1,2-Trichloroethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,1,2-Trichlorotrifluoroethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,1-Dichloroethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,1-Dichloroethene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,1-Dichloropropene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,2,3-Trichlorobenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,2,3-Trichloropropane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,2,4-Trichlorobenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,2,4-Trimethylbenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,2-Dibromo-3-chloropropane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,2-Dibromoethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,2-Dichlorobenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,2-Dichloroethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,2-Dichloropropane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,3,5-Trimethylbenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,3-Dichlorobenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,3-Dichloropropane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
1,4-Dichlorobenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
2,2-Dichloropropane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
2-Butanone	<	5.0	5.0	1	ug/L	&	11/03/03	SW846 5030B	SW846 8260B
2-Chlorotoluene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
4-Chlorotoluene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
4-Methyl-2-pentanone	<	5.0	5.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Acetone	<	5.0	5.0	1	ug/L	&	11/03/03	SW846 5030B	SW846 8260B
Allyl Chloride	<	5.0	5.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Benzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Bromobenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Bromochloromethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Bromodichloromethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Bromoform	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Bromomethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Carbon Tetrachloride	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Chlorobenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Chlorodibromomethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Chloroethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Chloroform	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Chloromethane	<	1.0	1.0	1	ug/L	&	11/03/03	SW846 5030B	SW846 8260B
cis-1,2-Dichloroethene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
cis-1,3-Dichloropropene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Dibromomethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Dichlorodifluoromethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Dichlorofluoromethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Diethyl Ether	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Ethylbenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Fluorotrichloromethane	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436

Analytical Report Number: 840493

Client : PINNACLE ENGINEERING
Project Name : BEAUDRY OIL BULK FACILITY
Project Number : MN03177.01
Field ID : TRIP BLANK

Matrix Type : WATER
Collection Date : 10/28/03
Report Date : 11/13/03
Lab Sample Number : 840493-013

VOLATILES - MDH 465F/468 LIST

Prep Date: 11/03/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Hexachlorobutadiene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Isopropylbenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Methylene Chloride	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Methyl-tert-butyl-ether	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Naphthalene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
n-Butylbenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
n-Propylbenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
p-Isopropyltoluene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
sec-Butylbenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Styrene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
tert-Butylbenzene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Tetrachloroethene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Tetrahydrofuran	<	5.0	5.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Toluene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
trans-1,2-Dichloroethene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
trans-1,3-Dichloropropene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Trichloroethene	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Vinyl Chloride	<	1.0	1.0	1	ug/L	&	11/03/03	SW846 5030B	SW846 8260B
Xylene, o	<	1.0	1.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
Xylenes, m + p	<	2.0	2.0	1	ug/L		11/03/03	SW846 5030B	SW846 8260B
4-Bromofluorobenzene		82	---	1	%Recov		11/03/03	SW846 5030B	SW846 8260B
Toluene-d8		102	---	1	%Recov		11/03/03	SW846 5030B	SW846 8260B
Dibromofluoromethane		112	---	1	%Recov		11/03/03	SW846 5030B	SW846 8260B

VOLATILES BLANK

Prep Date:

Analyte	Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
VOC Blank ID	1334-17		1					

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436

Analytical Report Number: 840493

Client : PINNACLE ENGINEERING
Project Name : BEAUDRY OIL BULK FACILITY
Project Number : MN03177.01
Field ID : B-1 (24')

Matrix Type : SOIL
Collection Date : 10/28/03
Report Date : 11/13/03
Lab Sample Number : 840493-014

INORGANICS

Test	Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Percent Solids	81.1	---	1	%		10/31/03	SM 2540G M	SM 2540G M

DIESEL RANGE ORGANICS

Prep Date: 10/31/03 Preservation Date: 10/31/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Diesel Range Organics	<	3.8	3.8	1	mg/Kg		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank	<	5.0	5.0	1	mg/Kg		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike		84	---	1	%Recov		11/03/03	WI MOD DRO	WI MOD DRO
DRO Blank Spike Duplicate		85	---	1	%Recov		11/03/03	WI MOD DRO	WI MOD DRO

BTEX

Prep Date: 11/03/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Benzene	<	31	31	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
Ethylbenzene	<	31	31	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
Toluene	<	31	31	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
Xylene, o	<	31	31	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
Xylenes, m + p	<	31	31	50	ug/Kg		11/03/03	5035/5030B	WI MOD GRO
a,a,a-Trifluorotoluene		104	---	1	%Recov		11/03/03	5035/5030B	WI MOD GRO

BTEX BLANK

Prep Date: 11/03/03

Analyte	Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
BTEX Blank ID	1336-5		1					

GASOLINE RANGE ORGANICS

Prep Date: 11/03/03

Analyte		Result	EQL	Dilution	Units	Code	Anl Date	Prep Method	Anl Method
Gasoline Range Organics	<	3.1	3.1	50	mg/Kg		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank	<	2.5	2.5	50	mg/Kg		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike		92	---	1	%Recov		11/03/03	WI MOD GRO	WI MOD GRO
GRO Blank Spike Duplicate		95	---	1	%Recov		11/03/03	WI MOD GRO	WI MOD GRO

All soil results are reported on a dry weight basis unless otherwise noted.

Pinnacle Engineering

LOG OF TEST BORING

PROJECT :
Beaudry Oil Bulk Facility
Elk River, MN
Pinnacle Project No. MN03177.01
LOGGED BY: Roy Hill
DRILLING METHOD: Push Probe
DRILLING DATE: October 28, 2003

BORING NAME/LOCATION:
SB-1
See attached site map

SURFACE ELEV: not available
DRILLING CONTRACTOR: Thien

SCALE:
1 in. = 5ft.

Depth	Sample Int.	Graphic log	Description - ASTM D:2488	PID ppm	Water Level	Moist. Content	Soil Sample
			Asphalt				
			Br., Medium Sand	ND			
7'				ND			
			Br., Sand and Gravel		▼		SB-1(9')
10'				ND	9'		
			Br., Medium to Coarse Sand	ND			
				ND			
				ND			
24'							SB-1(24')
			No Sample				
27'							
			Gray Gravel, Little Sand	ND			
29'							

Remarks: Boring was advanced to 29.0 feet below grade. No refusal

Boring was abandoned with bentonite on 10/28/03.

PID is the headspace organic vapor concentration in parts per million.

ND means not detected

Pinnacle Engineering

LOG OF TEST BORING

PROJECT :
Beaudry Oil Bulk Facility
Elk River, MN
Pinnacle Project No. MN03177.01
LOGGED BY: Roy Hill
DRILLING METHOD: Push Probe
DRILLING DATE: October 28, 2003

BORING NAME/LOCATION:
SB-2
See attached site map

SURFACE ELEV: not available
DRILLING CONTRACTOR: Thien

SCALE:
1 in. = 2ft.

Depth / Sample Int.	Graphic log	Description - ASTM D:2488	PID ppm	Water Level	Moist. Content	Soil Sample
		Asphalt				
		Br., Medium Sand	ND			
			ND			
				7'		SB-2(7')
			ND			
12'						

Remarks:
Boring was advanced to 12.0 feet below grade. No refusal
Boring was abandoned with bentonite on 10/28/03.
PID is the headspace organic vapor concentration in parts per million.
ND means not detected

Pinnacle Engineering

LOG OF TEST BORING

PROJECT :
Beaudry Oil Bulk Facility
Elk River, MN
Pinnacle Project No. MN03177.01
LOGGED BY: Roy Hill
DRILLING METHOD: Push Probe
DRILLING DATE: October 28, 2003

BORING NAME/LOCATION:
SB-3
See attached site map

SURFACE ELEV: not available
DRILLING CONTRACTOR: Thien

SCALE:
1 in. = 2ft.

Depth	Sample Int.	Graphic log	Description - ASTM D:2488	PID ppm	Water Level	Moist. Content	Soil Sample
			Blk., Medium Sand	ND			
3'							
			Br., Medium Sand	ND			
					7'		SB-3(7')
				ND			
12'							

Remarks: Boring was advanced to 12.0 feet below grade. No refusal

Boring was abandoned with bentonite on 10/28/03.

PID is the headspace organic vapor concentration in parts per million.

ND means not detected

Pinnacle Engineering

LOG OF TEST BORING

PROJECT :
Beaudry Oil Bulk Facility
Elk River, MN
Pinnacle Project No. MN03177.01
LOGGED BY: Roy Hill
DRILLING METHOD: Push Probe
DRILLING DATE: October 28, 2003

BORING NAME/LOCATION:
SB-4
See attached site map

SURFACE ELEV: not available
DRILLING CONTRACTOR: Thien

SCALE:
1 in. = 2ft.

Depth / Sample Int.	Graphic log	Description - ASTM D:2488	PID ppm	Water Level	Moist. Content	Soil Sample
2'		Blk., Sand and Gravel	ND			
		Br., Medium Sand	ND			
				7'		SB-4(7')
12'			ND			

Remarks:
Boring was advanced to 12.0 feet below grade. No refusal
Boring was abandoned with bentonite on 10/28/03.
PID is the headspace organic vapor concentration in parts per million.
ND means not detected

Pinnacle Engineering

LOG OF TEST BORING

PROJECT :
Beaudry Oil Bulk Facility
Elk River, MN
Pinnacle Project No. MN03177.01
LOGGED BY: Roy Hill
DRILLING METHOD: Push Probe
DRILLING DATE: October 28, 2003

BORING NAME/LOCATION:
SB-5
See attached site map

SURFACE ELEV: not available
DRILLING CONTRACTOR: Thien

SCALE:
1 in. = 2ft.

Depth	Sample Int.	Graphic log	Description - ASTM D:2488	PID ppm	Water Level	Moist. Content	Soil Sample
			Blk., Medium Sand				
2'				ND			
			Br., Medium Sand				
				ND	▼ 6.5'		SB-5(6.5')
				ND			
12'							

Remarks:
Boring was advanced to 12.0 feet below grade. No refusal
Boring was abandoned with bentonite on 10/28/03.
PID is the headspace organic vapor concentration in parts per million.
ND means not detected

Pinnacle Engineering

LOG OF TEST BORING

PROJECT :
Beaudry Oil Bulk Facility
Elk River, MN
Pinnacle Project No. MN03177.01
LOGGED BY: Roy Hill
DRILLING METHOD: Push Probe
DRILLING DATE: October 28, 2003

BORING NAME/LOCATION:
SB-6
See attached site map

SURFACE ELEV: not available
DRILLING CONTRACTOR: Thien

SCALE:
1 in. = 2ft.

Depth	Sample Int.	Graphic log	Description - ASTM D:2488	PID ppm	Water Level	Moist. Content	Soil Sample
			Blk., Sand and Gravel				
2'				ND			
			Br., Medium Sand				
				ND			
					▼ 7.5'		SB-6(7.5')
				ND			
12'							

Remarks: Boring was advanced to 12.0 feet below grade. No refusal

Boring was abandoned with bentonite on 10/28/03.

PID is the headspace organic vapor concentration in parts per million.

ND means not detected

APPENDIX E

COUNTY WELL INDEX

Unique No. 00221176
County Name Sherburne

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 1031

Update Date 2002/02/20
Entry Date 1988/04/17

Township Name	Township	Range	Dir	Section	Subsection
	33	26	W	33	ABCBBD

Well Depth 315 ft. | Depth Completed 315 ft. | Date Well Completed 1974/10/23

Well Name ELK RIVER 3

Drilling Method

Contact's Name ELK RIVER #3

ELK RIVER MN

Drilling Fluid | Well Hydrofractured? ☐ Yes ☐ No | From ft. to ft.

Use Community Supply (municipal)

Casing | Drive Shoe? ☐ Yes ☐ N | Hole Diameter

Casing Diameter | Weight(lbs/ft)
20 in. to 154 ft
16 in. to 201 ft

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
SAND	BROW		0	15
SAND BINDER	BROW		15	34
WATER SAND	GRAY		34	49
SAND & CLAY & STONES	BROW		49	99
SHALE & SANDSTONE	DIRTY		99	124
ST. PETER SHALE	GREE		124	140
SHALE	LIGHT		140	156
SHALE & SANDROCK	GREE		156	200
SANDROCK	WHITE		200	265
SANDROCK	WHITE		265	300
HINCKLEY	REDDI		300	315

Screen N | Open Hole From 201 ft. to 315 ft.

Make | Type

Static Water Level 7 ft. from Land surface | Date 974/10/23

PUMPING LEVEL (below land surface)
69 ft. after | hrs. pumping 1300 g.p.m.

Well Head Completion
Pitless adapter mfr | Model
Casing Protection ☐ 12 in. above grade
☐ At-grade(Environmental Wells and Borings ONLY)

Grouting Information | Well grouted? ☐ Yes ☐ No

Nearest Known Source of Contamination
ft. | direction | type
Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed | Date Installed
Mfr name
Model | HP 0 | Volts
Drop Pipe Length ft. | Capacity g.p.m
Type

Any not in use and not sealed well(s) on property? ☐ Yes ☐ No

Was a variance granted from the MDH for this Well? ☐ Yes ☐ No

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 71015
License Business Name Renner E.h. Well
Name of Driller RENNER WELL

REMARKS, ELEVATION, SOURCE OF DATA, etc.

CASING: 020 TO 0154;016 TO 0201.

M.G.S. 968

USGS Quad: Elk River | Elevation 912
Aquifer: MTPL | Alt Id: 1710004S03

Report Copy

HE-01205-06 (Rev. 9/96)

Appendix F
Grain Size Analysis, Hydraulic Conductivity Measurements, and other Calculations

Grain Size Analysis SB-1 (12 - 16 feet)

A grain-size analysis was done in accordance with ASTM Method D422, with the exception that a column test was not needed due to the lack of fines.

- 43% Gravel (retained on #2 screen)
- 12% Coarse Grained Sand (retained on #10 screen)
- 27% Medium Grained Sand (retained on # 40 screen)
- 14% Fine Grained Sand (retained on # 200 screen)
- 4% Silt and Clay (< #200 screen)

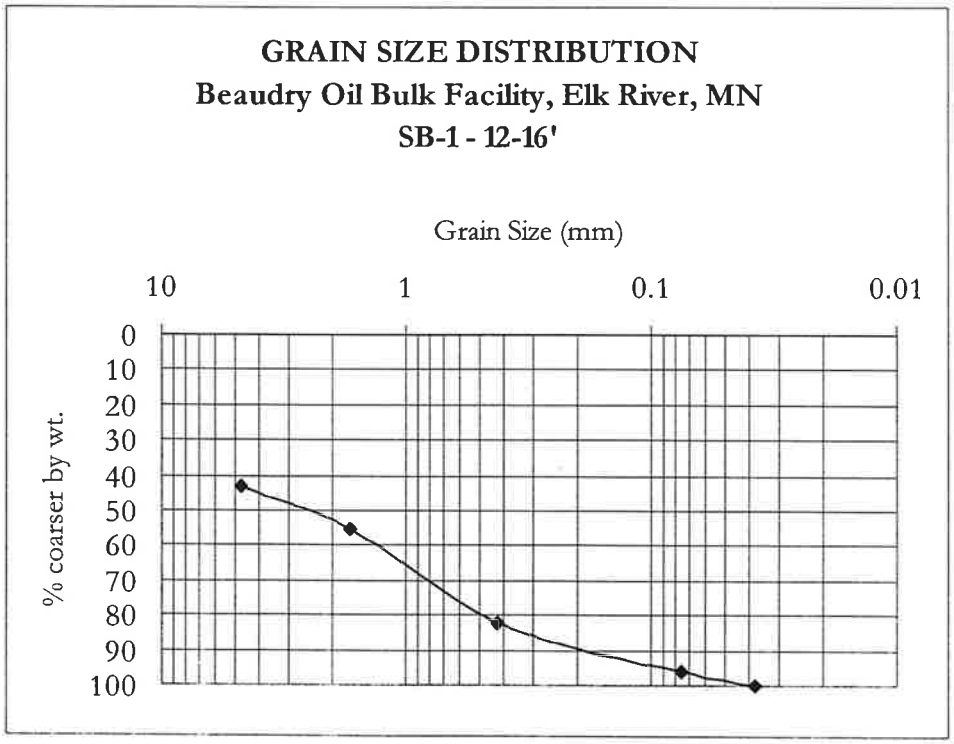
Description: Sand and gravel, trace silt and clay

Hydraulic Conductivity Measurements

The Hazen method was utilized to estimate the hydraulic conductivity of the saturated soils.

$$K = C(D_{10})^2$$

K = **81.87 ft/day**
C = 80 (constant)
D_{10} = 90% coarser by wt. (from graph)
D_{10} = 0.019 cm
1 cm/sec = 2835 ft/day (conversion value)
K = 80 x $(0.019 \text{ cm})^2$ = 0.0289 cm/sec x 2835 ft/day = **81.87 ft/day**



Grain Size Analysis SB-5 (8-12 feet)

A grain-size analysis was done in accordance with ASTM Method D422, with the exception that a column test was not needed due to the lack of fines.

- 9% Gravel (retained on #2 screen)
- 13% Coarse Grained Sand (retained on #10 screen)
- 61% Medium Grained Sand (retained on # 40 screen)
- 14% Fine Grained Sand (retained on # 200 screen)
- 3% Silt and Clay (< #200 screen)

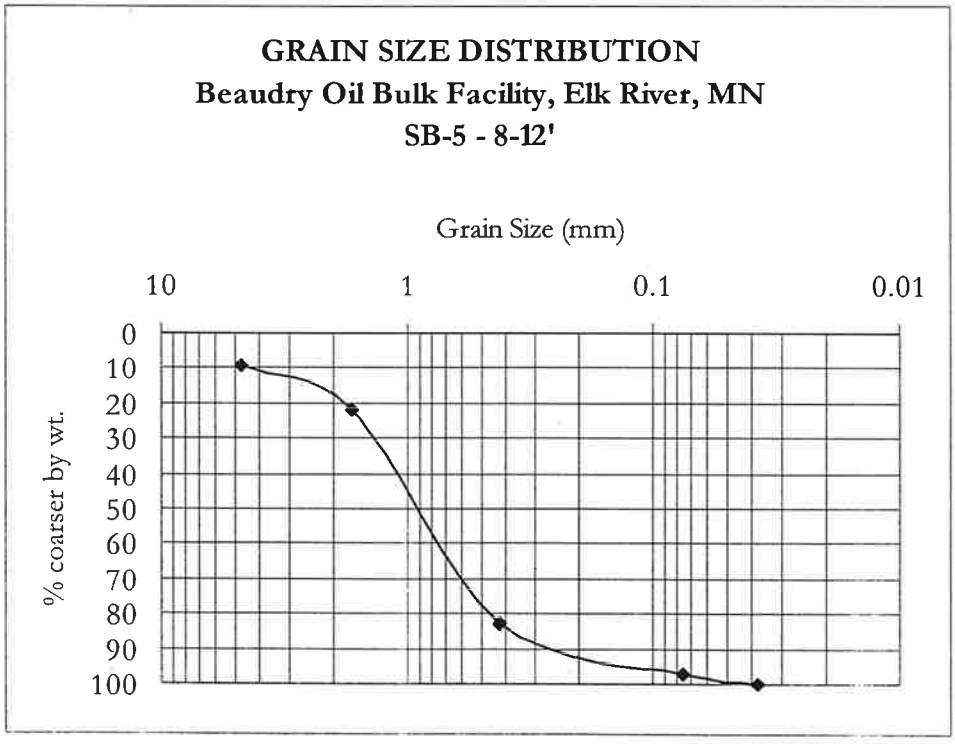
Description: Medium sand, trace gravel, trace silt and clay.

Hydraulic Conductivity Measurements

The Hazen method was utilized to estimate the hydraulic conductivity of the saturated soils.

$$K = C(D_{10})^2$$

K = **153.3 ft/day**
C = 80 (constant)
D_{10} = 90% coarser by wt. (from graph)
D_{10} = 0.0060 cm
1 cm/sec = 2835 ft/day (conversion value)
K = 80 x $(0.026 \text{ cm})^2$ = 0.054 cm/sec x 2835 ft/day = **153.3 ft/day**



Aquifer Transmissivity

$T = Kb$

T = 5,057 (low)
b = 43 feet (aquifer thickness)
K(avg) = 117.6feet/day (hydraulic conductivity)

T = 10,937 (high)
b = 93 feet (aquifer thickness)
K(avg) = 117.6 feet/day (hydraulic conductivity)

Section 16: Consultant (or other) Information

By signing this document, I/we acknowledge that we are submitting this document on behalf of and as agents of the responsible person or volunteer for this leak site. I/we acknowledge that if information in this document is inaccurate or incomplete, it will delay the completion of remediation and may harm the environment and may result in reduction of reimbursement awards. In addition, I/we acknowledge on behalf of the responsible person or volunteer for this leak site that if this document is determined to contain a false material statement, representation, or certification, or if it omits material information, the responsible person or volunteer may be found to be in violation of Minn. Stat. § 115.075 (1994) or Minn. R. 7000.0300 (Duty of Candor), and that the responsible person or volunteer may be liable for civil penalties.

MPCA staff are instructed to reject unsigned investigation reports or if the report form has been altered.

Name and Title:	Signature:	Date signed:
Roy L. Hill **Project Manager**	Roy L Hill	1/27/04
Mike Hultgren, CPG **Manager - Environmental Engineering**	Mike Hultgren	1/27/04

Company and mailing address:

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Phone: **763-315-4501**

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