

December 13, 1994

Mr. James A. Hosch, Hydrogeologist
Wisconsin Department of Natural Resources
1341 Second Avenue
P.O. Box 397
Cumberland, WI 54829

Re: Work Plan Addendum
Bob's Service Station
Falun, WI
NWD ID No. 148

RECEIVED
DEC 14 1994
CUMBERLAND
AREA HQ.

Dear Mr. Hosch:

This status report, covering the period from April 1994 to the present time, documents the completion of the work proposed in our original work plan dated April 26, 1994, with the exception of the remedial investigation report preparation. Results to date are presented in this letter report, along with a proposed work plan for additional investigation site work.

SOIL SAMPLING

A total of five test pits have been installed at the site as part of the remedial investigation. Figure 1, "Site Plan," shows the location of the test pits. On-site soils were found to be consistent with previous reports: brown fine sands with shallow layers of gray clay. Soil layers varied significantly and were classified according to the Unified Soil Classification System (USCS) as SW, SM, SP, and ML in the upper five feet and ML from five feet to the terminus of each boring.

Soil samples were collected at 2.5 foot vertical intervals in each test pit and screened in the field with a Photo Ionization Detector (PID). Selected soil samples were analyzed for Gasoline Range Organics (GRO), Volatile Organic Compounds (VOCs), and total lead. Field screening and laboratory results are summarized in Table 1, "Remedial Investigation Analytical Results." For a historical perspective of contamination at this site, Table 2 "Previous Analytical Results", and Table 3, "Tank Closure Analytical Results", are attached.

CONCLUSIONS

The soil sampling conducted to date has not determined the full extent of petroleum contamination at the site. Elevated levels of GRO and/or benzene were detected in the five to nine foot range of soil samples TP-1 through TP-3. Numerous VOCs were detected in these

samples, as well. TP-4 and TP-5 were determined to be clean, except for a small detection of dichloromethane in the lower sample of TP-4. The proposed work plan for the additional site investigation is presented below.

WORK PLAN

The following tasks outline the continued remedial investigation activities proposed for the site:

TASK 1 - NON-CONSULTING SERVICES BID PREPARATION

Ayres Associates will assist Bob's Service Station in obtaining bids for non-consulting services needed to complete the remedial investigation. These services include boring hole installation and laboratory analysis. ILHR 47.33 requires that the lowest cost provider be selected from bids obtained.

TASK 2 - SOIL BORING INSTALLATION

As shown on Figure 1, Ayres Associates proposes the installation of five soil borings. The intent is to further define the vertical and horizontal degree of soil and potential ground water contamination near the former underground gasoline tank area. Contamination to the east has been defined. The additional borings should define the extent of soil contamination for the remainder of this site.

The soil borings will be installed to an estimated depth of approximately 15 feet each. During installation, a representative of Ayres Associates will be on site to collect and classify soil samples, log the soil borings, collect a single ground water sample from the southwest boring, and conduct organic vapor screening. Soil samples will be qualitatively screened for organic vapors using either a Photo Ionization Detector (PID) or a Flame Ionization Detector (FID).

If elevated levels of petroleum contamination are found at the proposed locations, additional borings and/or monitoring wells may be necessary to identify contamination limits. All soil cuttings will be containerized in a 55-gallon drum and properly labeled in accordance with state regulation.

TASK 3 - GROUND WATER SAMPLING

To verify ground water flow direction, and pending owner's approval, the three monitoring wells surrounding Hedlund's abandoned gas station will be monitored for water depth. A single ground water sample will be collected and analyzed from the proposed soil boring upon installation along the southwest edge of Bob's Service Station site. All water samples will be collected, handled, and analyzed in accordance with procedures specified in chapter NR 809.

If ground water is determined to flow into Bob's Service Station's property from the Hedlund property, additional monitoring wells and sampling may be necessary.

TASK 4 - LABORATORY ANALYSIS OF SOIL AND GROUND WATER SAMPLES

Preliminary field screenings with the FID or PID will aid in selecting soil and ground water samples that will be submitted to a WDNR certified laboratory for qualitative analysis. Soil and ground water samples will be analyzed for GRO, VOCs, and lead.

TASK 5 - REMEDIAL INVESTIGATION REPORT PREPARATION

The remedial investigation report will be completed as proposed in the original work plan. This will include the alternatives analysis.

If you have any questions or concerns, please contact either me at 715-831-7652 or Jan Smit at 715-831-7656. We will not proceed with the additional site investigation services until we receive your concurrence on the above work plan.

Sincerely,

Owen Ayres & Associates, Inc.



Joseph F. Hoeme, E.I.T.
Environmental Engineer

JFH:cal

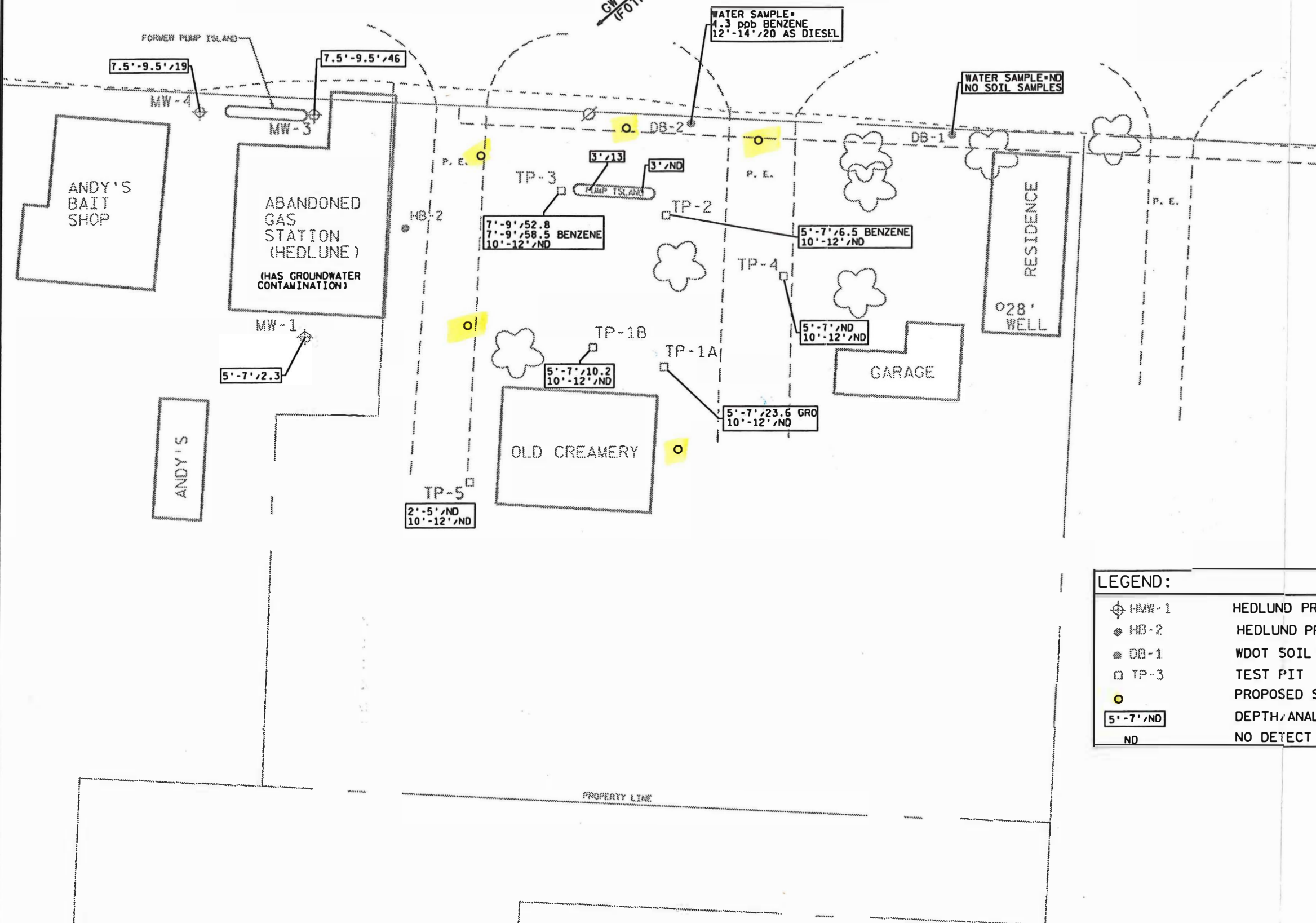
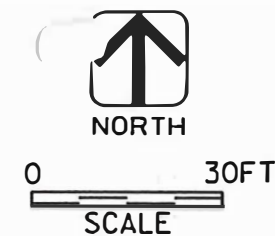
Enclosures

cc: Robert P. Anderson

PEN TABLE = mike.tbl
DATE OF PLOT = 11/21/94
DESIGN FILE IS kuzwaste1002325r.dgn
DGN LEVELS ON = 1-63

1002325L.DGN ON = 1-63

1002325L.DGN ON = 2-63



LEGEND:	
	HEDLUND PROPERTY MONITORING WELL
	HEDLUND PROPERTY SOIL BORING
	WDOT SOIL BORING
	TEST PIT
	PROPOSED SOIL BORING
5'-7'/ND	DEPTH/ANALYSIS IN ppm
ND	NO DETECT

SITE PLAN

DRN. BY: MLE
CHK. BY: JH
DATE: DEC. 1994
AVRES ASSOCIATES

REMEDIAL INVESTIGATION
BOB'S SERVICE STATION
SIREN, WISCONSIN

FIGURE

Table 1
Remedial Investigation Analytical Results
Bob's Garage RI

SOIL ANALYTICAL RESULTS						
Sample Date	Sample Location	Sample Depth (ft)	PID Response (i.u.)	GRO (ppm)	VOC (ppb)	Lead (ppm)
Installed by Ayres Associates - Analyzed by CWEL 7/25/94	TP-1a	5' - 7'	113.5	23.6	193 n-Butylbenzene	3.49
					70.4 sec-Butylbenzene	
					6.9 Isopropylbenzene	
					133 p-Isopropyltoluene	
					28 n-Propylbenzene	
					79.7 1,2,4-Trimethylbenzene	
					282 1,3,5-Trimethylbenzene	
					7.4 Xylenes	
7/25/94	TP-1a	10' - 12'	NR	< 5.8	ND	3.22
7/25/94	TP-1b	5' - 7'	1176	10.2	13.8 Benzene	5.90
					22.5 Ethylbenzene	
					55 Napthalene	
					10.8 n-Propylbenzene	
					45.5 Toluene	
					156 1,2,4-Trimethylbenzene	
					38.7 1,3,5-Trimethylbenzene	
					293 Xylenes	
7/25/94	TP-1b	10' - 12'	NR	< 6.9	ND	14.60
7/25/94	TP-2	5' - 7'	NR	< 6.4	6.5 Benzene	13.80
					2.8 Xylenes	
7/25/94	TP-2	10' - 12'	NR	< 6.8	ND	16.10
7/25/94	TP-3	7.5' - 9.5'	44.6	52.8	58.5 Benzene	12.90
					213 n-Butylbenzene	
					86.8 sec-Butylbenzene	
					147 Ethylbenzene	
					130 Isopropylbenzene	
					14.7 Napthalene	
					306 n-Propylbenzene	
					8.3 1,3,5-Trimethylbenzene	
7/25/94	TP-3	10' - 12'	1.5	< 7.1	ND	14.80
7/25/94	TP-4	5' - 7'	NR	< 7.4	ND	15.60
7/25/94	TP-4	10' - 12'	NR	< 7.6	3.3 Dichloromethane	15.00
7/25/94	TP-5	2.5' - 4.5'	NR	< 5.8	ND	4.45
7/25/94	TP-5	10' - 12'	NR	< 6.9	ND	13.40
7/25/94	Methanol Blank			< 2.5	NA	NA

☐ = Exceeds WDNR Enforcement Standard

ppm = Parts Per Million (mg/kg)

ppb = Parts Per Billion (µg/kg)

i.u. = Instrument Units

NR = No Reading

NA = Not Analyzed

ND = No Detection

Table 2
Previous Analytical Results
Bob's Garage RI

GROUND WATER ANALYTICAL RESULTS								
Date Sampled	Sample Location	Lead (ppm)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)	Total Hydrocarbons as Gasoline (ppm)	MTBE (ppb)
Installed by WDOT.								
Analyzed by NET Midwest, Inc., Rockford, IL								
11/07/89	WB-1	NA	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA
11/07/89	WB-1	NA	4.3	< 1.0	5.2	5.0	NA	NA
Installed by Foth & Van Dyke & Associates.								
Analyzed by Pace Incorporated, Minneapolis, MN								
12/20/90	MW-1	20	< 1	1	< 1	< 3	0.06	< 4
3/21/91	MW-1	< 0.001	< 1.0	< 1.0	1.0	9.3	0.078	< 4.0
12/20/90	MW-3	< 0.10	6	26	9	49	0.87	< 4
3/21/91	MW-3	< 0.001	1700	890	450	1600	27	88
12/20/90	MW-4	0.40	< 1	< 1	< 1	< 3	0.07	< 4
3/21/91	MW-4	0.040	6900	12000	1600	7800	120	< 80
12/20/90	Blank	NA	< 1	< 1	< 1	< 3	< 0.01	< 4
3/21/91	Blank	NA	< 1.0	< 1.0	< 1.0	< 2.0	< 0.010	NA

= Exceeds WDNR Enforcement Standard

SOIL ANALYTICAL RESULTS											
Date Sampled	Sample Location	Sample Depth (ft)	PID Reading (ppm)	Lead (ppm)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)	MTBE (ppb)	Total Hydrocarbons as Diesel (ppm)	Total Hydrocarbons as Gasoline (ppm)
Installed by WDOT.											
Analyzed by NET Midwest, Inc., Rockford, IL											
11/07/89	B-1		NR	NA	NA	NA	NA	NA	NA	NA	NA
11/07/89	B-2	12' - 14'	2	NA	NA	NA	NA	NA	NA	20	NA
Installed by Foth & Van Dyke & Associates.											
Analyzed by Pace Incorporated, Minneapolis											
12/19/90	B-1	5' - 7'	NA	17	< 120	< 120	< 120	< 120	< 120	NA	2.3
12/19/90	B-2	7.5' - 9.5'	NA	18	< 120	< 120	< 120	< 120	< 120	NA	< 1.0
12/19/90	B-3	7.5' - 9.5'	NA	18	1,200	5,300	1,500	3,500	< 120	NA	46
12/20/90	B-4	7.5' - 9.5'	NA	15	2,200	400	170	950	160	NA	19

= Exceeds WDNR Enforcement Standard

ppm = mg / L

NR = No Reading

ppb = µg / L

NA = Not Analyzed

Table 3
Tank Closure Analytical Results
Bob's Garage RI

SOIL AND GROUND WATER ANALYTICAL RESULTS									
Date Sampled	Time Collected	Soil Sample	Sample Location	Sample Depth	Soil Type	Sample Odor?	Analysis Performed	PVOC (ppb)	GRO Results
Installed by Cooper Engineering. Analyzed by SERCO Labs, St. Paul, MN									
SOIL									
7/16/93	3:00 pm	# 6	West Pump	3	silty sand	None	GRO		ND
7/16/93	3:10 pm	# 7	East Pump	3	silty sand	None	GRO		13,000 ppb
GROUND WATER									
7/16/93	12:48 pm	# 1	Water in Excavation	2.5	N/A	Strong	GRO		300,000 ppb
7/16/93	1:00 pm	# 1A	Water Drum on Site	N/A	N/A	Yes	GRO / PVOC	25,000 Benzene	78,000 ppb
								2,300 Ethylbenzene	
								< 100 MTBE	
								1,600 1,3,4-Trimethylbenzene	
								360 1,3,5-Trimethylbenzene	
								11,000 Xylenes	

= Exceeds WDNR Enforcement Standard

N/A = Not Applicable

ND = No Detection