Summary Report: Moose Junction Lounge Site Investigation

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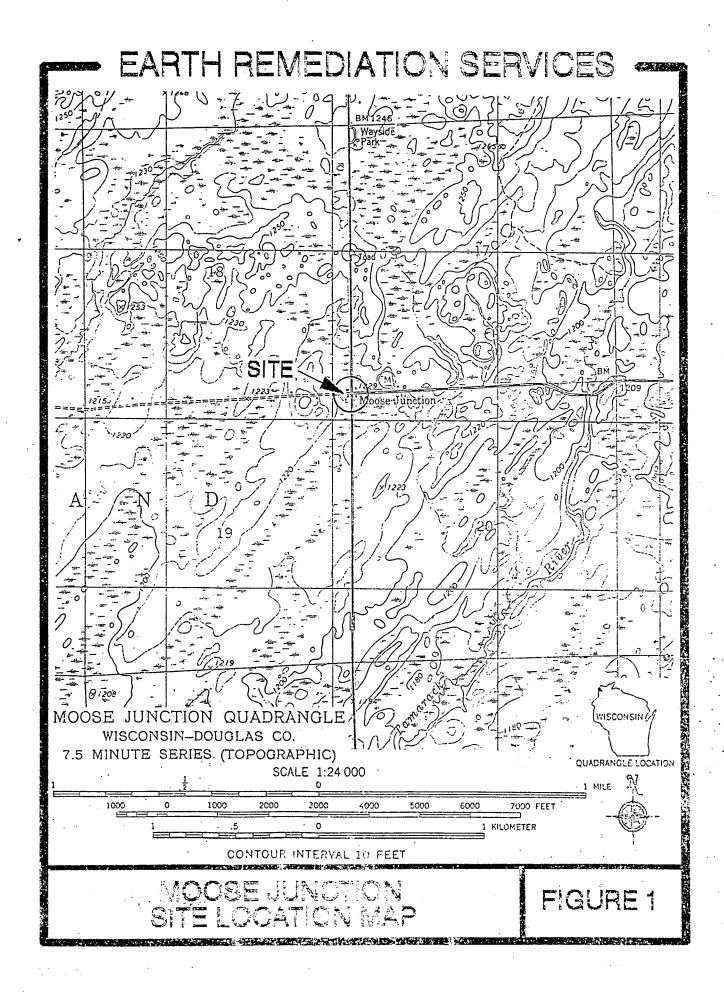
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1.0 INTRODUCTION

Earth Remediation Services (ERS) presents this summary to update involved parties of the site investigation at a former Underground Storage Tank (UST) site at the present Moose Junction Lounge in Dairyland, Wisconsin (Figure 1). borings and monitoring wells were installed in an attempt to define the horizontal and vertical extent of petroleum fuel ERS through Earth Burners Inc. (EBI) was contamination. contracted by Dale Schultz to accomplish a Site Investigation on his property. Evidence that petroleum contamination had migrated off site prompted ERS to seek access agreements with four surrounding property owners to place environmental borings on their properties. Copies of the access agreements are located in Appendix G of this report. Installation of wells and borings occurred between May 17 and May 19, 1993. sampling was performed on May Groundwater 27, Groundwater elevations were surveyed and calculated on June 14, 1993. Groundwater flow direction may be influenced by a possible bedrock ridge which strikes southwest and is directly under the Moose Junction Lounge. General groundwater flow direction is towards the south. Petroleum contamination was found in the groundwater in three of the four monitoring wells, however monitoring well MW-4, which has low levels of petroleum groundwater contamination, may have a source other than the Moose Junction Lounge UST.

EBI conducted an interim action on June 15, 1993 by excavating the existing UST and grossly contaminated soils as specified in the workplan. Approximately 560 cubic yards of soils were excavated and stockpiled 100 yards north of the Lounge. Soil volume was larger than ERS had anticipated as evidence of another former UST and associated pump island were found during the excavation. On June 21, 1993 EBI contracted Dean's Trucking of Superior, a licensed solid waste transport company to move the petroleum contaminated soils to EBI's thermal treatment unit located on Hallet Dock #7 in Duluth, Minnesota. Soils were stockpiled awaiting treatment. Analysis results from the soil stockpile have not been received from the laboratory at this time.

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2.0 BACKGROUND

2.1 Topography/Geology/Hydrology

The Moose Junction Lounge UST site is located in Douglas County as follows: SE 1 of the SE 1 of the SE 1 of Section 18, Township 44N, Range 14W. The local topography is dominated by a hummocky ground moraine overlying igneous bedrock comprised of flood basalts and rhyolites. The glacial till is typically unstratified clay, with boulders, and is often interbedded with sand and gravel lenses or channels. This is indicative of a complex glacial history. According to Hydrologic Atlas HA-451, soil permeability is recorded as occurring between 0.8 to 2.5 inches per hour. Topography is influenced by the Superior glacial lobe which deposited linear features striking northeast to Topographically the Moose Junction area is dominated by swampy lowland.

Depth to bedrock has been generalized for the area as being less than 100 feet below grade, however, bedrock was encountered approximately 10 to 12 feet below grade during the excavation and in soil borings by the lounge and on the Margaret Dickman residence (Figure 3-1). Soil borings to the east and west of the lounge were drilled to 16 feet without encountering bedrock. Well logs from the Wisconsin Geological And Natural Survey indicate the Moose Junction Lounge may enter bedrock 12 feet below grade. An unused well on the Mary McKelvey property is only 150 feet southeast of the tank basin and is 32 feet in depth below grade, but does not enter bedrock. The Margaret Dickman well log is not included in the well logs in Appendix F, but is reported to enter bedrock at 12 feet below grade.

Regional groundwater flow is in an easterly direction according to Hydrologic Atlas HA-451. Groundwater flow in the Moose Junction Lounge immediate vicinity is determined to be in a southerly direction.

Annual precipitation in the Moose Junction area is 30.5 inches with 65% of the rainfall expended by evapotranspiration and 35% towards surface runoff. Long term groundwater storage change is assumed to be near zero.

2.2 OTHER POSSIBLE SOURCES

Reports from local residents indicate the location of a former tavern/gas station on the present Mary McKelvey property. A gasoline UST was supposedly excavated in the near vicinity of SB-12 during 1985 or 1986. Data collected by ERS supports

this information by the high soil vapor readings and analytical results from SB-12. It is quite possible that a former UST leaked causing a second contaminant plume. MW-4 may be at the southern down gradient boundary of this plume as shown by the very low concentration of Benzene in the soil and groundwater there. The second source may explain the higher benzene concentration at the previous RMI soil boring B-4 which is higher than the concentration of AquaTec's boring MJ-2, even though MJ-2 is closer to the Moose Junction UST.

Another source that either contributed to or is responsible for the contamination is what appeared to be another UST basin on the northeast corner of the Moose Junction Lounge. During the interim action soil excavation, a former pump island was located directly in front of the Lounge. Supply pipes from the former pump island led to a contaminated soil area on the northeast corner of the lounge. Analytical soil sample 9308-B2(4) characterizes the sidewall of this area and B1(12) is indicative of the soils at the bottom of the excavation.

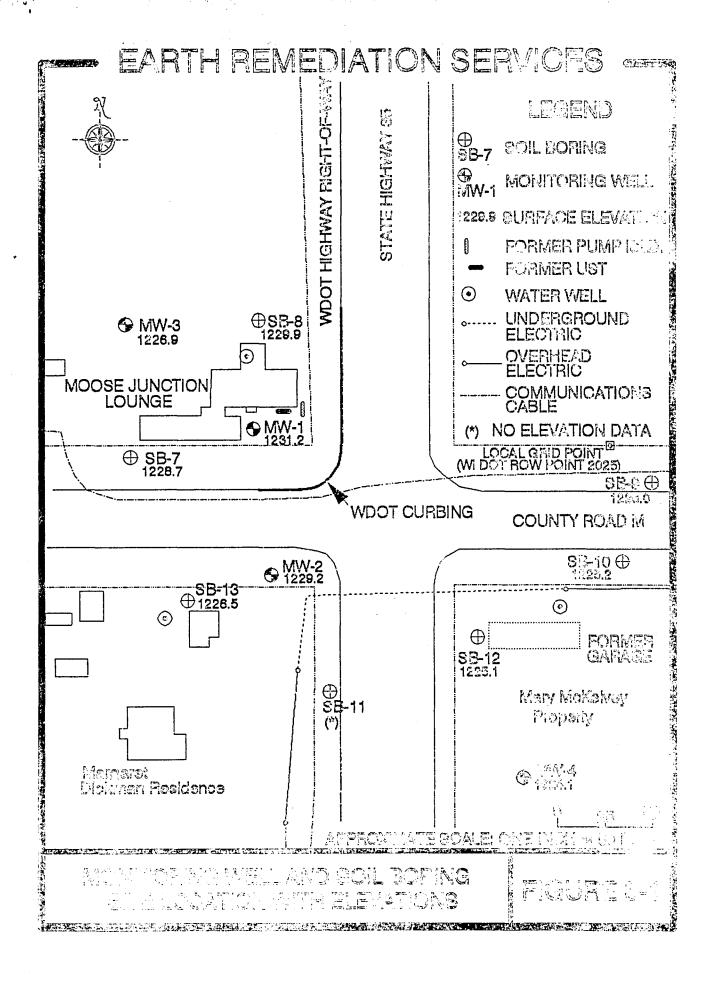
3.0 WORK SUMMARY

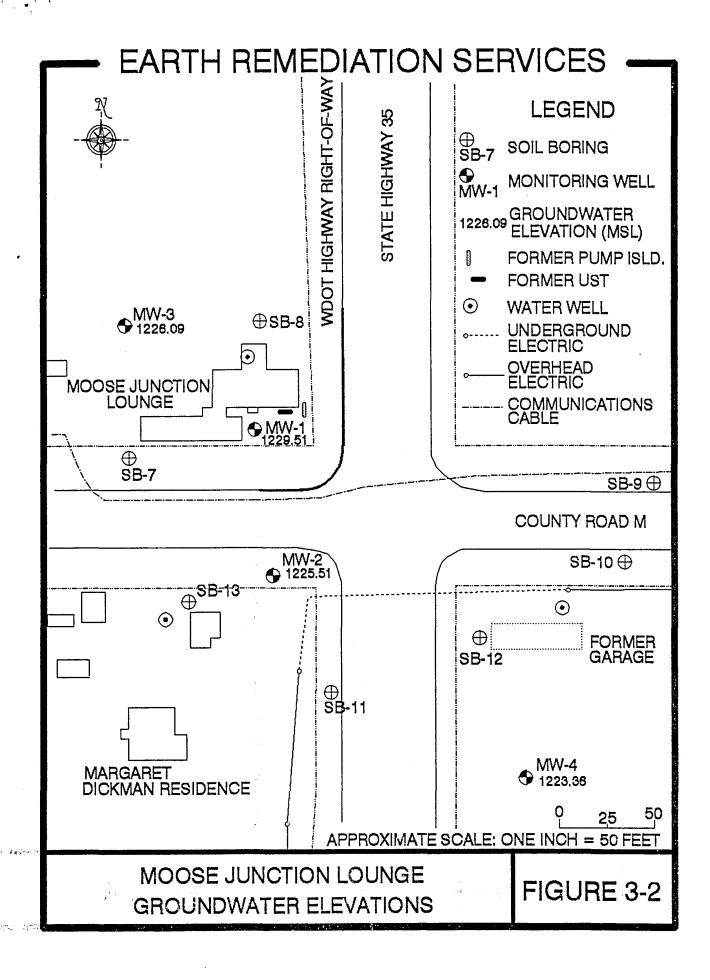
3.1 SOIL BORING/MONITORING WELL INSTALLATION

ERS and Stevens Well Drilling were scheduled to begin field work at Moose Junction Lounge on April 16, 1993; however road restrictions on Wisconsin highway 35 delayed the field work to May 17, 1993. Only SB-12 of the seven soil borings had any significant soil contamination. Monitoring wells MW-1, MW-2, MW-3, and MW-4 are water table observation wells. ERS and Stevens Well Drilling completed grouting the monitoring wells on May 19, 1993. Locations and corresponding elevations can be viewed in Figure 3-1. ERS field notes and pictures are available upon request. Soil boring and the appropriate abandonment logs are shown in Appendix A. Monitoring well logs are shown in Appendix B.

3.2 GROUNDWATER SAMPLING

Groundwater sampling was accomplished on May 27, 1993. Prior to sampling, well volumes and groundwater levels were determined. Groundwater elevations were calculated using WDOT ROW point 2025 near the highway 35/county M intersection. Elevations for the May 27, 1993 sampling event can be viewed in Figure 3-2. At least four well volumes were purged while testing for temperature, conductivity, and pH. After these field parameters stabilized, groundwater samples were collected with a dedicated bailer. No free product was seen in any of the wells, however, a noticeable petroleum odor emanated from MW-1 and MW-2. Groundwater sampling forms can be viewed in Appendix C.





3.3 VAPOR RISK ASSESSMENT

An initial phase of a vapor risk assessment was completed by ERS to assure potential explosive conditions did not exist. Because of the proximity of the Moose Junction Lounge foundation to the former UST(s), ERS tested the lounge area for petroleum vapors with an HNu DL101-2 photoionizer and a Gas Pro Plus explosimeter. The explosimeter gave no indication of an explosive atmosphere. Vapor readings indicated very low concentrations of vapors in both the lounge and the Schultz residence. Results can be viewed in Figure 3-3.

3.4 INTERIM ACTION EXCAVATION

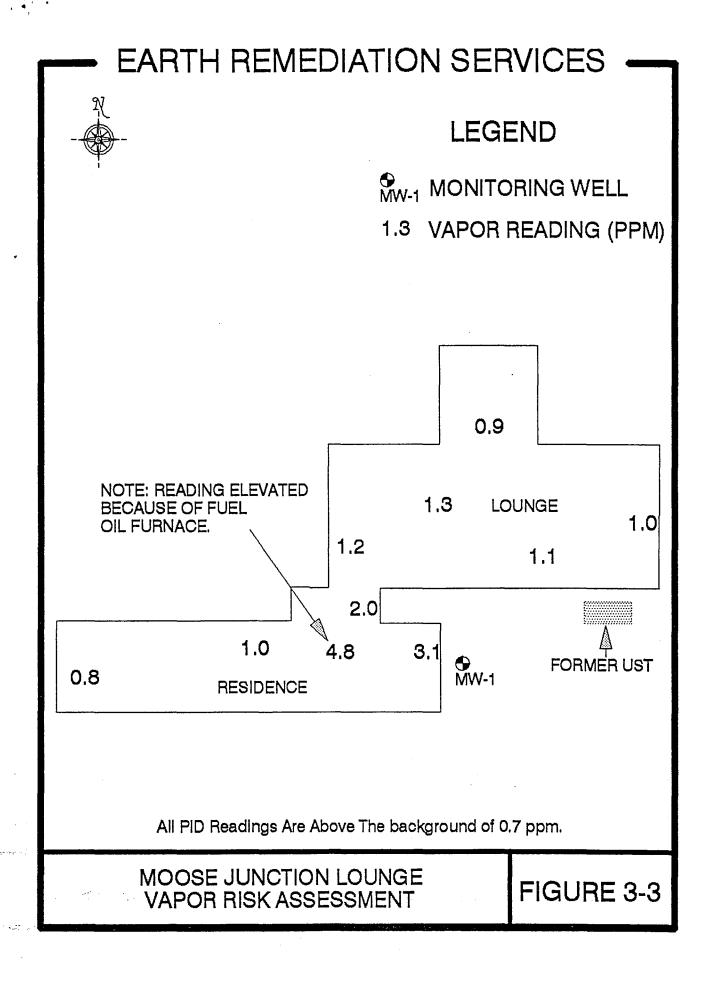
Contaminated soils were separated from clean soils using jar headspace analysis and an HNu DL-101-2 photoionization detector with a 10.2 electron volt lamp. At least one sample was analyzed for each 10 cubic yards of soil excavated. Soil vapor analysis logs can be viewed in Appendix D. It should be noted that many PID soil vapor readings were lower than the probable actual value. Soils were very contaminated and affected the 10.2 eV lamp. There was no lamp cleaning compound available during the excavation which could be a cause for the low readings. ERS feels the PID values under 100 PPM are accurate based on visual and olfactory evidence.

The UST was in good condition, however the supply pipes appeared to have been leaking. Pipes which led to a former tank basin and pump island (shown on figure 3-4) also appeared to have leaked. The former tank basin on the northeast corner of the lounge had contaminated soils to 12 feet below grade which is very near the bedrock surface.

4.0 ANALYTICAL SUMMARY

4.1 SOIL BORING ANALYSIS

Laboratory Analytics of Gasoline Range Organics (GRO's) for all environmental borings ranged from <10.0 to 4,220 PPM. Soil borings SB-12, and Monitoring Wells MW-1, and MW-2 were found to have olfactory and soil vapor evidence of petroleum contamination. Total lead values in the soil ranged from 3.38 to 12.90 PPM and are low enough to not be of a concern. Lead analytics show no spikes in concentrations as did a previous soil boring analytic which may have been either an anomaly or laboratory error. Low levels of Methyl Tertiary Butyl Ether (MTBE) were found in borings MW-1 and MW-2 indicating unleaded gasoline did have a part in the contamination. Soil boring analytics can be viewed in Table 4-1. Laboratory analysis by Twin Ports Testing (TPT) can be found in Appendix



EARTH REMEDIATIONS • MW-2 COUNTY RD. M B7(6) R66 △R71 R72 △ Δ R77/ Δ^{R68} DALE SCHULTZ'S HOUSE $^{\Delta}_{R73}$ $^{\Delta}_{R67}$ R17 Δ ∆ R20 R61 R65 Δ R63 Δ R19 R12 R60 R59 R57 R6 Δ _R55 △ A R50 R53 B5(8) A MOOSE JUNCTION LOUNGE A51 B4(9) 15 APPROX. SCALE IN FEET A ■ A R47 R34 R R44 LEGEND R45
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R35 REMOVAL SAMPLE LOCATION BOTTOM ANALYTICAL SAMPLE EXCAVATION BOUNDARY EXCAVATED UST FORMER PUMP ISLAND R40 \---B3(7) FOR FR LIST EXCAVATED PUMP ISLAND PUMP LINE MONITORING WELLS VAPOR AND ANALYTICAL SAMPLE ION: UST EXCAVATION, MOOSE JUNCTION

E. Soil vapor headspace results from the soil borings are recorded on the Soil Boring Logs in Appendix A.

4.2 GROUNDWATER ANALYSIS

Groundwater samples were obtained from the four monitoring wells, the Margaret Dickman residence, and the Moose Junction Lounge. No chemical contaminants were found in the Moose Junction Lounge well indicating it is probably drawing water below the vertical extent of contamination. The Dickman well was sampled for only GRO. No contaminants were found in that range. Benzene and GRO concentrations for each groundwater sample are listed in Figure 4-1. Highest concentrations were found in MW-2 which is a water table observation well installed directly down gradient of the former UST basin. Total lead concentrations ranged from 0.002 to 0.406 PPM and should not be an environmental problem. Selected groundwater laboratory analytics can be viewed in Table 4-2. Complete analysis can be viewed in Appendix E.

4.3 EXCAVATION ANALYSIS

Eight sidewall and bottom samples were collected to characterize the remaining soils. Additionally, three grab samples were collected 18 inches into the contaminated stockpile shortly after the excavation was completed. Laboratory analytical samples were placed in an iced cooler to be preserved at four degrees centigrade before being transported to Lake Superior Labs. The excavation samples were analyzed for GRO, BTEX, and total lead. Soil vapor results from the UST excavation can be viewed in Appendix D. Bottom and sidewall analytics can be seen in Table 4-3 with the laboratory report in Appendix E.

5.0 CONCLUSIONS

ERS believes the high soil vapor readings and the analytical results from the SB-12 location are inconsistent with the concentration gradation from the Moose Junction Lounge. This fact, plus local population reports lead to a possible former UST in the SB-12 vicinity. It is improbable that the concentrations found at the Moose Junction Lounge could be the source of petroleum contamination found at the Mary Mckelvey property. Dispersion, diffusion, advection, and to some degree biodegradation would have reduced the concentrations of petroleum contaminants.

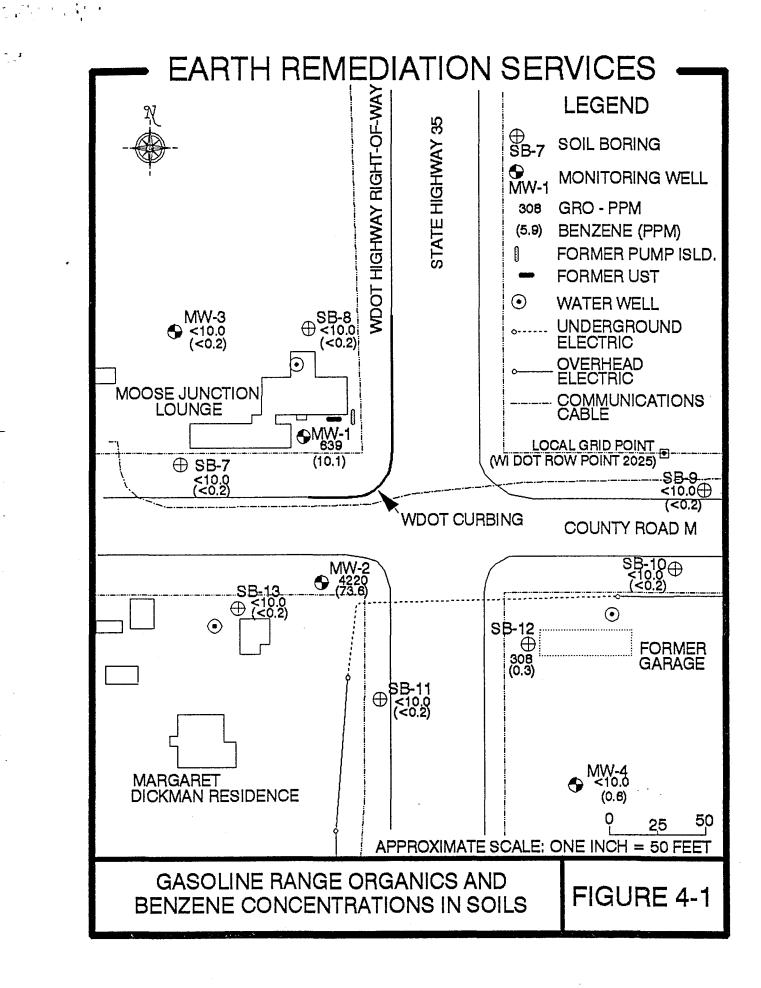
The contaminants found in MW-2 are impacted to the bedrock but do not seem to have migrated toward the nearby Dickman water

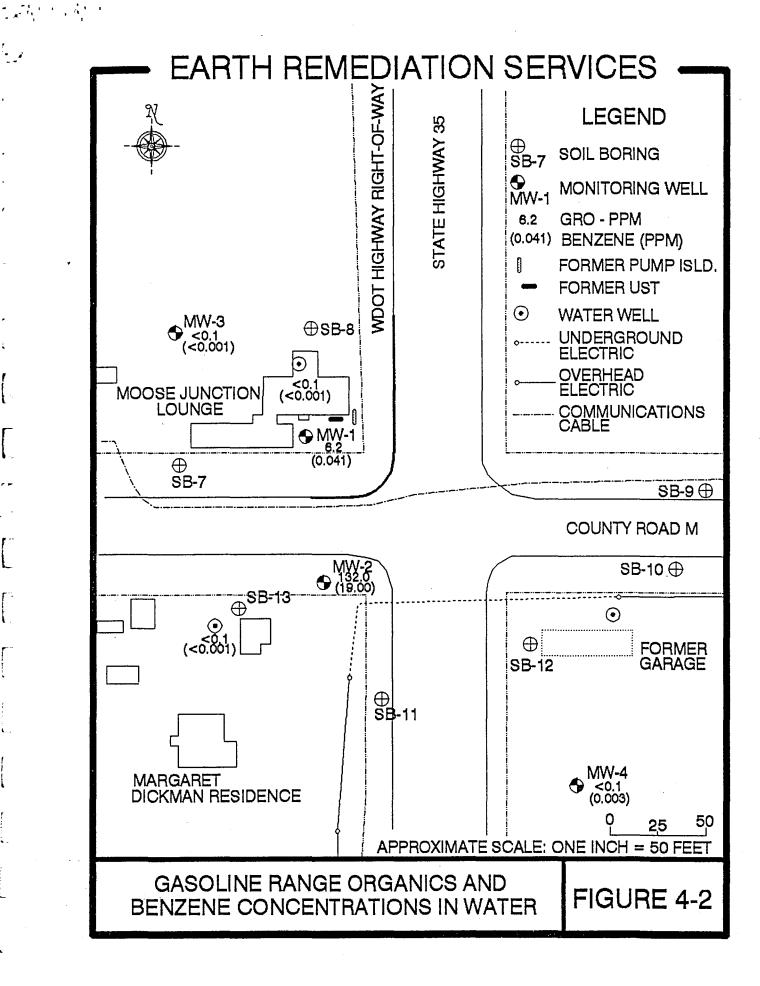
well as proven by SB-13 soil analytics. Coarser soils and possible utility lines may have created a preferential path for the impacted groundwater.

Although lab results indicate some very contaminated soils still remain on the south side of the excavation and under the Moose Junction Lounge, ERS believes the majority of the grossly contaminated soils were excavated. The excavation of soils may serve a double purpose:

- 1) Eliminate the source of the plume thereby stopping the contamination before it encounters Margaret Dickman's water well.
- 2) Lower the petroleum vapors which may be entering the Moose Junction Lounge and the Dale Schultz residence.

Groundwater flow may be affected by a probable bedrock ridge underlying the Moose Junction Lounge. Groundwater flow on the east side of the ridge is toward the south. The groundwater flow on the west side of the ridge is inconclusive, however, the flow may follow the glacial lineation to the southwest.





Moose Junction Lounge Soil Analytics Table 4-1

Compounds in PPM						Sampl									
					(Depth	in f	eet bel								
	SB-7	SB-8	SB-9	SB-10	SB-11	SB-12	SB-12	SB-13	SB-13	MW-1	MW-2	MW-2	MW-3	MW-4	MW-4
	(8-10)	(6-8)	(4-6)	(8-10)	(6-8)	(4-6)	(14–16)	(2-4)	(12–14)	(4-6)	(4-6)	(12–13)	(14–16)	(8–10)	(14–16)
GRO	<10.0	<10.0	<10.0	<10.0	<10.0	308	<10.0	<10.0	<10.0	639	4220	51.5	<10.0	<10.0	<10.0
Benzene	<.200	<.200	<.200	<.200	<.200	0.28	<.200	<.200	<.200	10.1	73.6	5.9	<.200	<.200	0.57
Toluene	<.200	<.200	<.200	<.200	<.200	1.19	<.200	<.200	<.200	12.7	164	5.81	<.200	<.200	0.384
Ethylbenzene	<.200	<.200	<.200	<.200	<.200	2.51	<.200	<.200	<.200	8.77	30.7	0.846	<.200	<.200	<.200
Total Xylenes	<.200	<.200	<.200	<.200	<.200	8.25	<.200	<.200	<.200	39.7	358	3.78	<.200	<.200	0.64
MTBE	<.200	<.200	<.200	<.200	<.200	<.200	<.200	<.200	<.200	5.67	13.9	<.200	<.200	<.200	<.200
1,2,4-Trimethylbenzene	<.200	<.200	<.200	<.200	<.200	3.95	<.200	<.200	<.200	9.57	112	0.472	<.200	<.200	<.200
1,3,5-Trimethylbenzene	<.200	<.200	<.200	<.200	<.200	9.73	<.200	<.200	<.200	23.7	192	1.39	<.200	<.200	0.247
Total Lead	12.8	8.64	10.3	7.18	9.48	12.9	11.1	12	6.81	9.99	3.38	5.72	6.31	5.95	5.93

Moose Junction Lounge Selected Groundwater Analytics Table 4-2

Monitoring Well

Components in PPB	May 1993					
	MW-1	MW-2	MW-3	MW-4	MD-WW	DS-WW
GRO	6160	132000	<100	<100	<100	<100
Benzene	41	19000	<1	3	<1	<1
P3						
Touluene	210	29000	<1	<1	N/A	<1
Ethylbenzene	22	1600	<1	<1	N/A	<1
m and/or p-Xylene	290	12000	<1	<1	N/A	<1
o-Xylene	530	4500	<1	<1	N/A	<1
Dibromochloromethane	<1	130	<1	<1	N/A	<1
n-Propylbenzene	6	1300	<1	<1	N/A	<1
Isopropylbenzene	3	53	<1	<1	N/A	<1
tert-Butylbenzene	<1	270	<1	<1	N/A	<1
n-Butylbenzene	<1	53	<1	<1	N/A	<1
p-Isopropytoluene	6	. <1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	96	390	<1	<1	N/A	<1
1,3,5-Trimethylbenzene	190	470	<1	<1	N/A	<1
Total Lead	406	131	118	18	7	2

Moose Junction Lounge Soil Excavation Analysis Table 4-3

Bottom Soil Sample (feet below grade)

			Doctonic	on ourn	pio (ioce i	bolow gre	440)	
Compounds in PPM	B1(12)	B2(4)	B3(7)	B4(9)	B5(8)	B6(9)	B7(6)	B8(7)
GRO	< 10.00	769	< 10.00	61.6	577	640	324000	12.1
Benzene	<.200	6.61	<.200	0.644	1.57	11.6	7240	1.39
Ethylbenzene	<.200	7.98	<.200	1.25	5.7	6.72	4200	<.200
Toluene	<.200	12.4	<.200	2.25	5.72	19.8	10500	1.01
Total Xylenes	<.200	9.56	<.200	5.82	24.9	30	18400	0.448
Lead	7.03	9.53	7.62	9.73	7.65	9.55	12.4	7.91

APPENDIX A

SOIL BORING LOGS/Barchite floardon ment Logs

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This form is authorized by Chapters 144.147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than \$10 nor more than \$5,000 for each violation. Fined not less than \$10 or more than \$100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

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This form is authorized by Chapters 144.147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than \$10 nor more than \$5,000 for each violation. Fined not less than \$10 or more than \$100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

Page 2 of 2

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'All abandonment work shall be performed in accordance with the provisions of Chapters NR 111, NR 112 or NR 141, Wis. Admin. Code, whichever is applicable. Also, see instructions on back. GENERAL INFORMATION **FACILITY NAME** Original Well Owner (If Known) Well/Drillhole/Borehole Doublas Location SB-Present Well Owner SCHULTZ 1/4 of Sec. 18 Street or Route BOX 334 Rt. 3 City, State, Zip Code Grid Location <u>252,0</u> ft. □ E. 🛭 W. DAIRYLAND, WI _ft. 🔲 N. 💢 S., Facility Well No. and/or Name (If Applicable) Civil Town Name WI Unique Well No. MOOSE JUNGTION LOUNGE DAIRY LAND Reason For Abandonment Street Address of Well Route Box JORE HOLE Date of Abandonment City, Village MOOSE JUNCTION WELL/DRILLHOLE/BOREHOLE INFORMATION (3) Original Well/Drillhole/Borehole Construction Completed On Depth to Water (Feet) NNK Yes No Not Applicable (Date) Pump & Piping Removed? Liner(s) Removed? □ No 🔀 Not Applicable Screen Removed? Yes No Construction Report Available? Monitoring Well Not Applicable.] No Casing Left in Place? Yes Water Well ∐ Yes Drillhole If No, Explain Borchole Was Casing Cut Off Below Surface? Yes No Did Sealing Material Rise to Surface? Yes No Construction Type: ☐ Dug | Drilled Did Material Settle After 24 Hours? ☐ Yes ☐ No Driven (Sandpoint) If Yes, Was Hole Retopped? Other (Specify) Yes \ No (5) Required Method of Placing Sealing Material Formation Type: Conductor Pipe-Gravity Conductor Pipe-Pumped ▼ Unconsolidated Formation ☐ Bedrock Other (Explain) (Tavity Dump Bailer Casing Diameter (ins.) N/A (6) Sealing Materials For monitoring wells and Total Well Depth (ft.) ☐ Neat Cement Grout (From groundsurface) monitoring well boreholes only Sand-Cement (Concrete) Grout Casing Depth (ft.) Concrete Bentonite Pellets Clay-Sand Slurry Granular Bentonite Yes No Unknown Bentonite-Sand Slurry Bentonite - Cement Grout Was Well Annular Space Grouted? If Yes, To What Depth? Chipped Bentonite No. Yards, Sacks Sealant (7) (Circle One) Mix Ratio or Mud Weight From (Ft.) To (Ft.) Sealing Material Used Surface bentonite 0,5 ĺδ inch Comments: Name of Person or Firm Doing Scaling Work FOR DNR OR COUNTY USE ONLY Date Received/Inspected District/County Wel. D^T evens Date Signed Signature of Person Doing Work 6/30 Reviewer/Inspector Complying Work Street or Route Telephone Number Noncomplying Work 6240 Hwy 12 West (612)4 Follow-up Necessary City, State, Zip Code *5*5359 PL AIN, MN

	all be performed in accordance with the sapplicable. Also, see instructions or	•	of Chapte	rs NR 111, N	R 112	or NR 141, Wis.
· (I) GENERAL INFORMA	TION	(2) FACILI	TY NAME			
Well/Drillhole Borehole Location SB-8	County		Well Owner	(If Known)		
SE 1/4 of SE 1/4 of	Scc. 18; T. 44 N; R. 14 W W	DA	Vell Owner S	CHULTZ		
(If applicable)Gov't	Lot Grid Number	Rt.		Box 331	1	
Grid Location 7.2 ft. N. Civil Town Name	□ S., <u>18b.1</u> ft. □ E. ☑ W.	City, Sta	RY LAND Well No. and	or Name (It App	54	WI Unique Well No.
DAIRYLAND	it t	W002	E JUNG	TION LOUI		<u> </u>
Street Address of Well Route 3	Box 334	SEA	or Abandoni L ODRE	HOLE		
City, Village MOOSE		Date of A	Abandonment	5/17/0	3	
WELL/DRILLHOLE/BOR		I(t) Death to	Water (East)	i. A1)/		
(Date) 5/ Monitoring Well Water Well Drillhole	Construction Report Available?	Pump & Liner(s) Screen R	Water (Feet) Piping Remo Removed? emoved? eft in Place? splain	oved? Y	'ස □ 1 'ස □ 1	Not Applicable Not Applicable Not Applicable Not Applicable
Borehole Construction Type: Drilled Other (Specify)	Driven (Sandpoint) Dug	Did Seal Did Mat If Yes,	ing Material l erial Settle At Was Hole R			Yes No Yes No Yes No Yes No
Formation Type: Unconsolidated Format Total Well Depth (ft.)		Cond Dum (6) Sealing	luctor Pipe-G p Bailer Materials	X C	onductor Other (Exp For mo	Pipe-Pumped plain) (7 ravity ponitoring wells and
(From groundsurface) Casing Depth (ft.) Was Well Annular Space C If Yes, To What Depth		Sand Conc Clay	•	ncrete) Grout	☐ Ber	oring well boreholes on ntonite Pellets mular Bentonite ntonite - Cement Grout
(7) Scalin	ng Material Used	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume	(Circle One)	Mix Ratio or Mud Weight
3/8 inch	chipped bentonite	Surface	8	0.5		
					:	
:			: :	·	:	
			·			
(8) Comments:						
Street or Route 6240 Hwy 12	Well Dr. 11/6 Work Date Signed (A) 6/30/93 Telephone Number (612) 479-2591	Date Revi	FOF Received/Instead	pected or		USE ONLY trict/County Complying Work Noncomplying Worl
City, State, Zip Code PLE PL	AW, MN 55359					

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All abandonment work shall be performed in accordance with the provisions of Chapters NR 111, NR 112 or NR 141, Wis. Admin. Code, whichever is applicable. Also, see instructions on back. (I) GENERAL INFORMATION (2) FACILITY NAME Original Well Owner (If Known) County Well/Drillhole/Borehole Doublas Location SB-19 Present Well Owner SW 1/4 of SW 1/4 of Sec. 17; T. 44 N; R. SCHULTZ))ALF Street or Route 🦟 BOX 334 Gov't Lot City, State, Zip Code Grid Location ft. N. X S., ft. 🔀 E. 🗌 W. DAIRYLAND, WI Facility Well No. and/or Name (It Applicable) WI Unique Well No. MOOSE JUNCTION LOUNGE JAIRYLAND Reason For Abandonment
SEAL OBRE NOLE Street Address of Well Route 334 Date of Abandonment City, Village WOORE JUNCTION WELL/DRILLHOLE/BOREHOLE INFORMATION Original Well/Drillhole/Borehole Construction Completed On (4) Depth to Water (Fect) UNK 18/93 Yes No X Not Applicable Pump & Piping Removed? Liner(s) Removed? Yes 🖂 No 🔀 Not Applicable Screen Removed? Construction Report Available? Not Applicable Monitoring Well Casing Left in Place? Yes □ No □ N₀ Water Well ☐ Yes If No, Explain Drillhole **Borchole** Was Casing Cut Off Below Surface? Yes No Did Sealing Material Rise to Surface? Yes \ \ \ No Construction Type: ☐ Dug Yes | No | Drilled Did Material Settle After 24 Hours? Driven (Sandpoint) If Yes, Was Hole Retopped? Yes \ \ No Other (Specify) (5) Required Method of Placing Sealing Material Formation Type: Conductor Pipe-Gravity Conductor Pipe-Pumped Unconsolidated Formation Bedrock 🛛 Other (Explain) (Travity Dump Bailer Casing Diameter (ins.) N/A For monitoring wells and Sealing Materials Total Well Depth (ft.) (From groundsurface) Neat Cement Grout monitoring well boreholes only Sand-Cement (Concrete) Grout Bentonite Pellets Casing Depth (ft.) Concrete Clay-Sand Slurry Granular Bentonite Bentonite-Sand Slurry Bentonite - Cement Grout Unknown Was Well Annular Space Grouted? ☐ Yes ☐ No If Yes, To What Depth? Chipped Bentonite No. Yards, Sacks Sealant or Volume Mix Ratio or Mud Weight \overline{O} (Circle Sealing Material Used From (Ft.) To (Ft.) One) 6 Surface 0.3 inch bentonite Comments: (10) FOR DNR OR COUNTY USE ONLY Name of Person or Firm Doing Scaling Work Date Received/Inspected District/County Wel Date Signed Signature of Person Doing Work Reviewer/Inspector Complying Work w Kich Telephone Number Noncomplying Work 240 Hwy 12 west (612)479 Follow-up Necessary City, State, Zip Code

City, State, Zip Code

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All abandonment work shall be performed in accordance with the provisions of Chapters NR 111, NR 112 or NR 141, Wis. Admin. Code, whichever is applicable. Also, see instructions on back. GENERAL INFORMATION FACILITY NAME Original Well Owner (If Known) Well/Drillhole,Borehole Doublas Location SB-10 Present Well Owner NW 1/4 of NW 1/4 of Sec. 20: T. 44 N; R.))ALF SCHULTZ Street or Route (If applicable) BOX 334 Gov't Lot City, State, Zip, Code Grid Location 54830 <u>57.4</u> ft. □ N. 🛭 S., MAIRYLAND, WI ft. TE. NW. Facility Well No. and/or Name (It Applicable) WI Unique Well No. MOOSE JUNGTION LOUNGE JAIRY LAND: Street Address of Well Reason For Abandonment JORE HOLE Route SEAL City, Village Date of Abandonment Moose JUNCTION WELL/DRILLHOLE/BOREHOLE INFORMATION Original Well/Drillhole/Borehole Construction Completed On Depth to Water (Feet) 18/93 Pump & Piping Removed? Yes No Not Applicable Liner(s) Removed? Yes No Not Applicable Screen Removed? Construction Report Available? Ycs No Monitoring Well Not Applicable Casing Left in Place? Yes ПΝο Water Well ☐ Yes \square No If No, Explain Drillhole N Borehole Was Casing Cut Off Below Surface? Yes No Did Sealing Material Rise to Surface? Yes \ \ \ No Construction Type: Dug Did Material Settle After 24 Hours? Yes | No | Drilled Driven (Sandpoint) If Yes, Was Hole Retopped? ☐ Yes ☐ No Under (Specify) (5) Required Method of Placing Sealing Material Formation Type: Conductor Pipe-Gravity Conductor Pipe-Pumped Unconsolidated Formation ☐ Bedrock Dump Bailer Other (Explain) (Travity Casing Diameter (ins.) N/A For monitoring wells and Sealing Materials Total Well Depth (ft.) (From groundsurface) Neat Cement Grout monitoring well boreholes only Sand-Cement (Concrete) Grout Concrete Bentonite Pellets Casing Depth (ft.) Clay-Sand Slurry Granular Bentonite Yes No Unknown Bentonite-Sand Slurry Bentonite - Cement Grout Was Well Annular Space Grouted? Chipped Bentonite If Yes, To What Depth? No. Yards, Sacks Sealant or Volume $\overline{(7)}$ (Circle Mix Ratio From (Ft.) To (Ft.) Sealing Material Used or Mud Weight Surface 0.5 bentonite. ס ו inch Comments: (10) FOR DNR OR COUNTY USE ONLY Name of Person or Firm Doing Scaling Work Date Received/Inspected District/County Tevens Wel Signature of Person Doing Work Date Signed Reviewer/Inspector Complying Work Telephone Number Noncomplying Work 6240 Hwy 12 west (b12) H Follow-up Necessary

All abandonment work shall be performed in accordance with the provisions of Chapters NR 111, NR 112 or NR 141, Wis. Admin. Code, whichever is applicable. Also, see instructions on back.

Addition. Code, whichever is applicable. Also, see instructions off	Dack.
	(2) FACILITY NAME
Well/Drillhole Borehole Location & B-III County Doubles	Original Well Owner (If Known)
NE 1/4 of NE 1/4 of Sec. 19 ; T. 44 N; R. 14 \approx w	Present Well Owner SCHULTZ
(If applicable) Gov't Lot Grid Number	Rt. 3 Box 334
Grid Location 125 ft. N. S., 150 ft. E. W.	City, State, Zip Code DAIRYLAND, WI 54830
Civil Town Name DAIRY LAND	Facility Well No. and/or Name (If Applicable) WI Unique Well No. MOOSE JUNGTION LOUNGE
Street Address of Well Rowte 3 Box 334	Reason For Abandonment SEAL OBRE HOLE
City, Village MOOSE JUNCTION	Date of Abandonment 5/18/93
WELL/DRILLHOLE/BOREHOLE INFORMATION	
(3) Original Well/Drillhole/Borehole Construction Completed On	(4) Depth to Water (Fect) WNK
(Date) 5/18/93 Monitoring Well Construction Report Available?	Pump & Piping Removed? Liner(s) Removed? Screen Removed? Yes No Not Applicable Yes No Not Applicable Yes No Not Applicable
Water Well Yes No	Casing Left in Place? Yes No
⊠ Borchole	Was Casing Cut Off Below Surface? Yes No
Construction Type: Drilled Driven (Sandpoint) Dug Other (Specify)	Did Sealing Material Rise to Surface? Did Material Settle After 24 Hours? If Yes, Was Hole Retopped? Yes No
Formation Type:	(5) Required Method of Placing Sealing Material Conductor Pipe-Gravity Conductor Pipe-Pumped
☐ Bedrock	Dump Bailer Other (Explain) (gravity
Total Well Depth (ft.) Casing Diameter (ins.) N/A (From groundsurface)	(6) Sealing Materials For monitoring wells and Neat Cement Grout monitoring well boreholes only
Casing Depth (ft.) NA	Sand-Cement (Concrete) Grout Concrete Bentonite Pellets Clay-Sand Slurry Granular Bentonite
Was Well Annular Space Grouted? . Yes No Unknown If Yes, To What Depth? Feet	☐ Bentonite-Sand Slurry ☐ Bentonite - Cement Grout ☐ Chipped Bentonite
(7) Scaling Material Used	From (Ft.) To (Ft.) No. Yards, (Circle One) or Mud Weight
3/8 inch chipped bentonite	Surface 8 0.5
(8) Comments:	
(8) Comments:	
(9) Name of Person or Firm Doing Scaling Work Stevens Well Orilling	(10) FOR DNR OR COUNTY USE ONLY Date Received/Inspected District/County
Signature of Person Doing Work Date Signed	Reviewer/Inspector Complying Work
Street or Route Telephone Number	Noncomplying Work
6240 Hwy 12 West (612) 479-2591 City, State, Zip Code On any 657-54	Follow-up Necessary
MAPLE PLAN, MN 55359	

City, State, Zip Code

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Department of Natural Resources Form 3300-5B Rev. 12-91 'Alt abandonment work shall be performed in accordance with the provisions of Chapters NR 111, NR 112 or NR 141, Wis. Admin. Code, whichever is applicable. Also, see instructions on back. (2) FACILITY NAME (I) GENERAL INFORMATION County Original Well Owner (If Known) Well/Drillhole/Borehole DOUGLAS Location SB-Present Well Owner NW 1/4 of NW 1/4 of Sec. 20 SCHULTZ))ALF (If applicable) Street or Route 🍕 BOX 334 Gov't Lot Grid Number City, State, Zip Code Grid Location <u> 1,2 № п Н.Р</u>Р DAIRYLAND, WI 5483n ft. | E. | W. Facility Well No. and/or Name (If Applicable) WI Unique Well No. Civil Town Name MOOSE JUNCTION LOUNGE UAIRY LAND: Reason For Abandonment Street Address of Well Route 334 SEAL UDRE HOLE Date of Abandonment MOOSE JUNCTION WELL/DRILLHOLE/BOREHOLE INFORMATION Original Well/Drillhole/Borehole Construction Completed On (4) Depth to Water (Feet) MNK 18/93 Pump & Piping Removed? Yes No Not Applicable Liner(s) Removed? □ № 🗷 Not Applicable Screen Removed? Construction Report Available? No Monitoring Well Not Applicable Casing Left in Place? Yes ΓNο Water Well ☐ Yes ☐ No If No, Explain Drillhole **B**orchole Was Casing Cut Off Below Surface? Yes No Did Sealing Material Rise to Surface? Yes ☐ No Construction Type: ☐ Dug Did Material Settle After 24 Hours? Yes | No | Drilled Driven (Sandpoint) If Yes, Was Hole Retopped? Yes No Other (Specify) (5) Required Method of Placing Sealing Material Formation Type: Conductor Pipe-Gravity Conductor Pipe-Pumped ▼ Unconsolidated Formation ☐ Bedrock Dump Bailer 🛛 Other (Explain) (Travity Casing Diameter (ins.) N/A For monitoring wells and Sealing Materials Total Well Depth (ft.) (From groundsurface) Neat Cement Grout monitoring well boreholes only Sand-Cement (Concrete) Grout Concrete Bentonite Pellets Casing Depth (ft.) Clay-Sand Slurry Granular Bentonite Was Well Annular Space Grouted? Yes No Unknown Bentonite-Sand Slurry Bentonite - Cement Grout Chipped Bentonite If Yes, To What Depth? No. Yards, Sacks Sealant (Circle Mix Ratio From (Ft.) To (Ft.) Sealing Material Used One) or Mud Weight Surface bentonite 16 inch Comments: FOR DNR OR COUNTY USE ONLY Name of Person or Firm Doing Scaling Work Date Received/Inspected District/County Tevens Date Signed Signature of Person Doing Work Reviewer/Inspector Complying Work Telephone Number Noncomplying Work 6240 Hwy 12 West (b12) H

Follow-up Necessary

All abandonment work shall be performed in accordance with the provisions of Chapters NR 111, NR 112 or NR 141, Wis. Admin. Code, whichever is applicable. Also, see instructions on back.

Addition Code, whichever is applicable. Also, see instructions on	Dack.			
		TY NAME		
Well/Drillhole Borehole Location 7.5 B - 13 The County Doubles		Well Owner ((If Known)	
NE 1/4 of NE 1/4 of Sec. 19; T. 44 N; R. 14 W	Present V	Vell Owner	(WILL T 7	
(If applicable)		Route 🎻	CHULTZ	
Gov't Lot Grid Number	Rt.		BOX 334	
Grid Location 78.2 ft. □ N. ☒ S., 218.8 ft. □ E. ☒ W.		ite, Zip Code		1830
	Facility	Well No. and/	or Name (If Applicable)	
Street Address of Well			TION LOUNGE	
Street Address of Well Route 3 Box 334		or Abandonn L- Obre		
City, Village	Date of A	Abandonment	C / 5 / 5	
MOOSE JUNETION			5/19/93	
WELL/DRILLHOLE/BOREHOLE INFORMATION (3) Original Well/Drillhole/Borehole Construction Completed On	(4) Depth to	Water (Feet)	Vilabl	
$= \frac{1}{100} \frac{1}{100}$	1, ,	Piping Remo		No 🔀 Not Applicable
(Date) 5/14/43		Removed?	Yes 🗍	No Not Applicable
Monitoring Well Construction Report Available?	1	emoved?	Ycs	No Not Applicable
☐ Water Well ☐ Yes ☐ No ☐ Drillhole	If No, Ex	eft in Place?	☐ Yes ☐	No The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second se
Borehole	1110, 2			
-	1	_	Below Surface?	Yes No
Construction Type: Driven (Sandpoint) Dug		•	Rise to Surface?	Yes No Yes No
☐ Driven (Sandpoint) ☐ Dug ☐ Other (Specify)		Was Hole Re	l-r-d	Yes No
	(5) Required	Method of P	lacing Sealing Material	
Formation Type: Unconsolidated Formation Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock Bedrock		- .	ravity Conducto	
	(6) Sealing I	p Bailer		oplain) (Tavity onitoring wells and
Total Well Depth (ft.) Casing Diameter (ins.) [V/A] (From groundsurface)		Cement Grou		oring well boreholes only
	☐ Sand	-Cement (Cor	ncrete) Grout	
Casing Depth (ft.) NA		rete -Sand Slurry		entonite Pellets anular Bentonite
Was Well Annular Space Grouted? Yes No Unknown		onite-Sand SI		entonite - Cement Grout
If Yes, To What Depth? Feet		ped Bentonite	· · ·	
(7) Sealing Material Used	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant One)	Mix Ratio or Mud Weight
3/8 inch chipped bentonite	Surface	14	1.0	
		:		
(8) Comments:				
(9) Name of Person or Firm Doing Scaling Work	(10)	FOR	DNR OR COUNTY	Y USE ONLY
Stevens Well Orilling	Date	Received/Insp	pected Di	strict/County
Signature of Person Doing Work Date Signed	Revi	ewer/Inspecto	ır 📗	Complying Work
Street or Route Telephone Number				Noncomplying Work
6240 Hwy 12 West (612) 479-2591	Follo	w-up Necess	ary	
City, State, Zip Code PLAIN 55359				

APPENDIX B

MONITORING WELL LOGS

State of Wisconsin Route to: Solid Wa	. П и . и . П и		MONTEODING WELL CONCERNICATION
D	uste 🗌 Haz, Waste 🗀 W epair 🗖 Underground T		MONITORING WELL CONSTRUCTION Form 4400-113A Rev. 4-90
	Grid Location of Well		Well Name Ap . 1 1
MOOSE JUNCTION LOUNGE _	5fr. AX	183.6 ft. DE.	/NW-1
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Lat	46° 17' 20" Long	s. <u>92°09'20"</u> or	
M	lane ft. N		Date Well Installed 05, 10, 63
Piezometer 12 Secti	on Location of Waste/Son		$\frac{D}{m}\frac{J}{m}\frac{I}{d}\frac{I}{d}\frac{I}{v}\frac{J}{v}$
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1.2 It. 1000	tion of Well Relative to V		KANDY JOHNSON
Is Well A Point of Enforcement Std. Application?] Sidegradient	STEVENS WELL DRILLING
		Not Known	
A. Protective pipe, top elevation 123338 ft. MS		1. Cap and lock?	•
B. Well casing, top elevation 1233.23 ft. MS	ᢑᢆ᠘᠊᠆᠆᠆᠆᠆ᡰᡰᠸᢇ᠆ᡰᡛᡕ	2. Protective cov	11.5
13313	. 17	a. Inside diame b. Length:	
C. Land surface elevation L231.2 ft. MS		c. Material:	Steel KO 04
D. Surface seal, bottom 1231 D ft. MSL or	ft. (\$35:11 15	C. Maleria.	Other D
12. USCS classification of soil near screen:		d. Additional p	protection?
GP GM GC GW SW SP I		If yes, descri	ribe: Birmoer Posts
SM N SC D MLD MHD CL D CH			Bentonite 30
Bedrock □		3. Surface seal:	Concrete 🌣 01
13. Sieve analysis attached? Yes No.			Other 🛘 🚉
14. Drilling method used: Rotary 50		4. Material between	een well casing and protective pipe:
Hollow Stem Auger E 41			Bentonite D 30
Other 🗆 🚟		•	Annular space seal 🙎
15. Drilling fluid used: Water □ 02 Air □ 01			Other 🗆 💆
Drilling Mud 03 None 299		5. Annular space	
			al mud weight Bentonite-sand slurry D 35 al mud weight Bentonite slurry D 31
16. Drilling additives used? ☐ Yes ☐ No			at mind weight Bentonite sturry 5 1
			Ft 3 volume added for any of the above
Describe	- ! 🐰 🐰	f. How install	
17. Source of water (attach analysis):			Tremie pumped 🗀 02
	_		Gravity 😿 08
1771 0	_	6. Bentonite seal	-
E. Bentonite seal, top 131 Oft. MSL or	- ñ~ 💮 🔛	b. □1/4 in.	□3/8 in. □ 1/2 in. Bentonite pellets □ 32
		C	Other 🛘 🧾
F. Fine sand, top ft. MSL or	- ".\ \	/. Fine sand mat	erial: Manufacturer, product name & mesh size
G. Filter pack, top 1229 D ft. MSL or		a	ded — ft ³
G. Filter pack, top	- "'\ ''	b. Volume ad	nterial: Manufacturer, product name and mesh siz
H. Screen joint, top 1228 5 ft. MSL or	f\		Materiels Coro. 45/55 Red Flint
	- t	b. Volume ad	
I. Well bottom 220 5 ft. MSL or	fr. E	9. Well casing:	
12207			Flush threaded PVC schedule 80 🔲 24
J. Filter pack, bottom 12207 ft. MSL or	_ fr	<u> </u>	Other 🔲 🚞
K. Borehole, bottom 12207 ft. MSL or		10. Screen materi	
K. Borehole, bottom 1 200. 1 ft. MSL or	- ft.	a. Screen typ	
			Continuous slot [] 01
L. Borehole, diameter _ § . in.		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Other C
M. O.D. well casing _23/2 in.		b. Manufactur c. Slot size:	0.010 in
M. O.D. well casing $\underline{\alpha} \stackrel{\sim}{\cancel{2}} \frac{\cancel{2}}{\cancel{\xi}}$ in.		d. Slotted len	T_T T_
N. I.D. well casing _ 2 Q D in.		\	ial (below filter pack): None 😾 14
			Other
I hereby certify that the information on this for	m is true and correc	ct to the best of my	
Signature ()	TCiana		
Day W Drew	1 Car 20	Remediation	- Lervico

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis Stats., failure to file this form may result in a forfeiture of not less than \$10, nor more than \$5000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than \$10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.

Env. Response & Rep		ground lanks [Oth		
	ounty Name	1.00	Well Name MW	-1
MOOSE JUNCTION LOUNGE Facility License, Permit or Monitoring Number C		-LAS Wis Unique Well No		ell Number
racinty License, Ferrint of Monthornig Number	16	Wis. Offique Well (4)	———— DIK WE	ar Number
1. Can this well be purged dry?	□ N₀	11. Depth to Water	Before Development	After Development
2. Well development method surged with bailer and bailed surged with bailer and pumped 6 1		(from top of well casing)	a3.72ft.	
surged with block and bailed 42 surged with block and pumped 62 surged with block, bailed and pumped 70			$b \frac{0.5}{m} / \frac{1.8}{d} / \frac{9.3}{y}$	1
compressed air 20 bailed only 10 pumped only 51		Time 12. Sediment in well	c. 17:30 a.m. p.m 0 1 inches	
pumped slowly		bottom 13. Water clarity	Clear 10 10	Clear 20
— — — — — — — — — — — — — — — — — — —	Ď min.		(Describe) Brown	(Describe) Brown
4. Depth of well (from top of well casisng) $\underline{12}$. 5. Inside diameter of well $\underline{20}$		·		
6 Volume of water in filter male and well	. <u>7</u> gal.			
7. Volume of water removed from well	$\frac{0}{2}$ gal.	Fill in if drilling fluid 14. Total suspended	Is were used and well is a	1
8. Volume of water added (if any)	gal.	solids	_	
9. Source of water added	•	15. COD	mg/l	mg/l
10. Analysis performed on water added? (If yes, attach results)	□ No			
16. Additional comments on development: $V_{1} = (3.14) \left(\frac{0.17}{3}\right)^{2} \left(\frac{3}{3}\right)^{2}$	8.7)	; :	1 + 9 = 1.1 ft3 x	7.48 = 6.7 ga)
$V_2 = (.30)(3.14)(8.$	7) [($\left(\frac{0.69}{a}\right)^2 - \left(\frac{0.69}{a}\right)^2$.20')2]	
Well developed by: Person's Name and Firm	MAY.	I hereby certify that of my knowledge.	the above information is t	true and correct to the best
Name: Randy Johnson		Signature:	Jer W Bie	bl
Firm: Stevens Well Orillin	٧		MR Oan Ali	hi. (aas
		Firm: KW	ith islimedia	ition Services

Route to: Solid Waste Haz. Waste Wastewater

Description of Manual Paravirons	Haz. Waste Wastewater	MONITORING WELL CONSTRUCTION Form 4400-113A Rev. 4-90
Env. Response & Repa	ir Underground Tanks Other U	Well Name
MODSE TUNCTION LOUNGE _ 6	4.8 ft. 28. 177,1 ft. 28	1 /hW-2
Crid On	igin Location 6° 17' 26"Long. 92° 09' 20'	Wis. Unique Well Number DNR Well Number
Type of Well Water Table Observation Well 11 St. Plan		
	Location of Waste/Source	m m d d y y Well Installed By: (Person's Name and Firm)
$\nabla D \sim \frac{1-E^{1/4}}{2}$	of <u>I/E</u> 1/4 of Sec. <u>19</u> , T. <u>94</u> N, R. <u>14</u> D. n of Well Relative to Waste/Source	RANDY JOHNSON
Is Well A Point of Enforcement Std. Application?	Upgradient s ☐ Sidegradient	STEVENS WELL DRILLIN
A. Protective pipe, top elevation 1231.29 ft. MSL-	Downgradient n Not Known 1. Cap and locations	
B. Well casing, top elevation 131.18 ft. MSL-	2. Protective	• • • • • • • • • • • • • • • • • • • •
C. Land surface elevation 12292 ft. MSL	b. Length:	
D. Surface scal, bottom / 229 D ft. MSL or ft.	c. Material	: Steel 🔯 0.4 Other 🗆
12. USCS classification of soil near screen:	d. Addition	al protection? Yes No
GP GM GC GW SW SW SP SM SM SC G ML MH GCL G CH G	If yes, d	escribe: Bumpen posts
SM SC C ML MH CL CL CH C	3. Surface sea	l: Bentonite 30
13. Sieve analysis attached?		Concrete D 01
14. Drilling method used: Rotary D 50	4. Material be	tween well casing and protective pipe:
Hollow Stem Auger		Bentonite 🔲 30
OIR D		Annular space seal 🗷 🔻 Other 🗖 🤍
15. Drilling fluid used: Water □ 02 Air □ 01	5. Annular sp	· · · · · · · · · · · · · · · · · · ·
Drilling Mud □ 03 None ☑ 99		s/gal mud weight Bentonite-sand slurry 35
16. Drilling additives used? ☐ Yes ☐ No		s/gal mud weight : Bentonite slurry \Box 3 1 Bentonite Bentonite-cement grout \Box 50
D	e	Ft ³ volume added for any of the above
Describe	f. How ins	
		Tremie pumped ☐ 02 Gravity ☑ 08
	6. Bentonite	: = 00
E. Bentonite seal, top 1229 Oft. MSL or	ft. □1/4	in. M3/8 in. 1/2 in. Bentonite pellets 1 32
F. Fine sand, top ft. MSL or	ft. c	naterial: Manufacturer, product name & mesh size
	ft. b. Volume 8. Filter pack	addedft ³ material: Manufacturer, product name and mesh size
H. Screen joint, top 12265 ft. MSL or	ft. a America	n Moterials Comp. 45/55 Red Flint
I. Well bottom 2161 ft. MSL or	ft. b. Volume 9. Well casin	
		Flush threaded PVC schedule 80 🔲 24
	ft. 10. Screen ma	Other Difference of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of t
K. Borehole, bottom 13150 ft. MSL or	ft. a. Screen	type: Factory cut 11
L. Borehole, diameter $\frac{\xi}{2}$ in.		Continuous slot 🔲 01
M. O.D. well casing $2\frac{3}{2}$ in.	b. Manufa c. Slot siz	
M. O.D. well casing $\underline{Q} \ \underline{\mathcal{I}} \ \underline{\underline{\mathcal{I}}} $ in.	d Slotted	
N. I.D. well casing $2 0 0$ in.	\	aterial (below filter pack): None 🗷 14
I hereby certify that the information on this form	is true and correct to the best of m	Other Other
	im - 1, 1	· <
Please complete both sides of this form and repur to the arm	Earth Kemediat	mas required by the 144 147 and 160 Wis State

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Route to: Solid Waste ☐ Haz. Was Env. Response & Repair ☐ Under	ste Wastewater Wastewater Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Street Stre
Facility/Project Name MOSE JUNCTION LOUNGE County Name Facility License, Permit or Monitoring Number County Code	Well Name OW GLAS Wis Unique Well Number DNR Well Number
1. Can this well be purged dry? 2. Well development method surged with bailer and bailed surged with bailer and pumped surged with block and bailed surged with block and bailed surged with block and pumped compressed air bailed only pumped only pumped slowly Other 3. Time spent developing well	Before Development After Development 11. Depth to Water (from top of well casing) Date b. $\frac{0.5}{m}$, $\frac{1.9}{d}$, $\frac{9.3}{y}$, $\frac{0.5}{m}$, $\frac{1.9}{d}$, $\frac{9.3}{y}$, $\frac{0.5}{m}$, $\frac{1.9}{d}$, $\frac{9.3}{y}$, $\frac{1.9}{m}$, $\frac{1.9}{d}$, $\frac{9.3}{y}$, $\frac{1.9}{m}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $\frac{1.9}{d}$, $$
4. Depth of well (from top of well casisng) 5. Inside diameter of well 6. Volume of water in filter pack and well casing 7. Volume of water removed from well 8. Volume of water added (if any) 9. Source of water added 10. Analysis performed on water added? 11. Let Let Let Let Let Let Let Let Let Let	Fill in if drilling fluids were used and well is at solid waste facility: 14. Total suspended
10. Analysis performed on water added? (If yes, attach results) 16. Additional comments on development: $V_1 = (3.14) \left(\frac{0.17}{2}\right)^2 (9.4)$ $V_2 = (.30)(7.14)(9.4) \left(\frac{0.4}{2}\right)^2$ Well developed by: Person's Name and Firm Name: $RANOY Johnson$ Firm: Stevens Well Driling	$\frac{3}{3} + 97 = 1.18 \times 7.4896 /_{\text{ft}} = 8.850$ $\frac{3}{3} - \left(\frac{3}{2}\right)^2 - \left(\frac{3}{2}\right)^2$ I hereby certify that the above information is true and correct to the best of my knowledge. Signature: Print Initials: $\frac{R}{2} = \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} \cdot $

_ •	State of Wisconsin Department of Natural Resources Route to: So Env. Response	& Repair 🗖	Underground	Tanks 🗆		MONI Form	TORING WELI 4400-113A	L CONSTRUCTION Rev. 4-90	N 0
•	Facility/Project Name	Local Grid Lo	cation of Wel	75;	<i>G</i> . ПЕ.	Well Name	MINI	: 2	_
	MODSE JUNCTION LUNNGE Facility License, Permit or Monitoring Number	C-:10-:-1	ft. S.		9_ft. BE.	Wassimone	Well-Number	DNR Well Numbe	_
	racinty bleense, I crim of mondoring Number	Lat. 46	7' 20"L	ong. 92°	09'20" or	17 B. C.IIQUC	Well Mullion	Divic well is unibe	
	Type of Well Water Table Observation Well 🖾 11	St. Plane		. N,	ft. E.	Date Well Ir	istalled 05/	19,93	
	Piezometer ☐ 12 Distance Well Is From Waste/Source Boundary	Section Locat	ion of Waste/S	Source	lis Min	Wallscool	m m	a d y y s Name and Firm)	_
	Distance well is from wastersource boundary ft.				v, r. <u>円</u> 冒臥		NOY Join		
	Is Well A Point of Enforcement Std. Application?	Location of V u 🔀 Upgra	ell Relative to	o Waste/Sou Sidegra					
	☐ Yes ☑ No	d 🗆 Down		□ Not Kı			WS WE	LL DRILLING	r —
	A. Protective pipe, top elevation 1239.14				 Cap and lock? Protective cov 			⊠ Yes □ No	
	B. Well casing, top elevation 1228.93			1	a. Inside diame			_4.0 in	ı.
	C. Land surface elevation 1226.9	ft. MSL			b. Length:			_5.0ft	
	D. Surface seal, bottom 12263 ft. MSL or _	ft. 🔊			c. Material:			Steel 🔯 04 Other 🗖 🔯	
	12. USCS classification of soil near screen:				d. Additional	protection?		Ø Yes □ No	
		SP 🗆	1	1/	If yes, desc	ribe:	umper Pe		_
	Bedrock [``	# \ \:	3. Surface seal:			Bentonite D 3 Concrete Z 0 1	
	i -	No .		*				Other 🗓 💮	
	14. Drilling method used: Rotary	1		₩	4. Material between	een well casi	ng and protective	T. T	= :
	Hollow Stem Auger Other □						Annula	Bentonite 🔲 3 (r space seal 🔯 💮) ∞.
							2 111111111	Other []	ě
	15. Drilling fluid used: Water 0 0 2 Air Drilling Mud 0 0 3 None 🗷			(A)	5. Annular space			r Bentonite 💢 3	3
	Diming made [1 03 None at			201		_	htBentonite- htBento		
	16. Drilling additives used? ☐ Yes ☐	No					Bentonite-ce		
	Describe	i-e l		₩			added for any of		
	17. Source of water (attach analysis):				f. How instal	led:	Trem	Tremie \Box 0 iie pumped \Box 0	
			₩.					Gravity 🖾 0	
	12763	·		*	6. Bentonite sea			ite granules 🔀 3	
	E. Bentonite seal, top 122b 7 ft. MSL or	n		% /	b. ⊔1/4 m.	[25/8 in.	□ 1/2 in. Bento	onite pellets 🗀 3:	
	F. Fine sand, top ft. MSL or	ft.			7. Fine sand ma	terial: Manu	ufacturer, produc	et name & mesh size	
	G. Filter pack, top 1224 3 ft. MSL or _	ft.			b. Volume ad		ft ³		÷
	H. Screen joint, top 1224 1 ft. MSL or _	fî. —					ufacturer, produc	ct name and mesh si Red Flint	
					b. Volume ac		ft ³	THE PINT 2	<u>~</u>
	I. Well bottom 1214 ft. MSL or	ft.			9. Well casing:		threaded PVC so		
٠.	J. Filter pack, bottom 1913 6 ft. MSL or _	ft				Flush	threaded PVC so	chedule 80 □ 24 Other □ ②	
	K. Borehole, bottom 12109 ft. MSL or	ft.		1	 Screen mater Screen type 		PYC	Factory cut ' 1	<u>©</u> 1
	L. Borehole, diameter 2 3 in.							inuous slot 🔲 0	1
	2.3/4	· ·			b. Manufactu	rer Tim	160	0.010i	
	M. O.D. well casing \underline{d} $\underline{\sqrt{\ell}}$ in.				d. Slotted len	ngth:	-	10.0	
	N. I.D. well casing $2 \cdot 0 \cdot 0$ in.				1. Backfill mate		ter pack):	None D 1/2 Other E	đ.
	I hereby certify that the information on th	is form is tr	ue and cor	rect to the					Ξ.
	Signature Real Signature	Firm	Emil	\wedge	nediati	~ (rvices		
	Please complete both sides of this form and return to	the appropria	e DNR office					and 160. Wis. Stats	_

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis Stats, failure to file this form may result in a forfeiture of not less than \$10,000 for each \$5000 for each day of violation. In accordance with ch. 147, Wis. Stats, failure to file this form may result in a forfeiture of not more than \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,000 for each \$10,

Route to:	Solid Waste	Haz. Waste 🔲	Wastewat	er 🔲		
Env. Resp	onse & Repair 🕻	Underground	i Tanks 🗌	Other 🗆		
	Count	v Name		IWa	Il Name	•

Facility/Project Name (hboSF JUNCTION	County Name	rLAS	Well Name MW	1-3
Facility License, Permit or Monitoring Number		Wis. Unique Well Ni	imber DNR We	Il Number
1. Can this well be purged dry?]Yes ⊠ No	11. Depth to Water	Before Development	After Development
surged with bailer and pumped surged with block and bailed	3 41 3 61 3 42	(from top of well casing)	a. $\frac{2}{2} \cdot \frac{84}{1} \text{ ft.}$ b. $\frac{05}{m} \cdot \frac{14}{1} \cdot \frac{93}{9} \cdot \frac{3}{9}$	_12.20ft.
surged with block, bailed and pumped compressed air bailed only pumped only	□ 62 □ 70 ⊠ 20 □ 10 □ 51		c. 17:00 = a.m.	<u> </u>
pumped slowly Other	3 50 3 <u>3</u>	13. Water clarity	Clear 🔲 10 Turbid 🔀 15	Clear 🛘 20 Turbid 🗗 25
3. Time spent developing well	_ <u>60</u> min. 14.8 ft.		(Describe) Neddish Bronin	(Describe) Reddish Brown
4. Depth of well (from top of well casisng) 5. Inside diameter of well	2.06 in.			
6. Volume of water in filter pack and well casing	1.3 gal.	F:11 *- :6 4:11: G. *		
	<u>Ч</u> <u>о</u> . <u>о</u> gal.	14. Total suspended	ds were used and well is a	
9. Source of water added		15. COD	mg/l	mg/l
10. Analysis performed on water added? (If yes, attach results)	□ Yes □ No			
16. Additional comments on development: $V_1 = (3.14) \left(\frac{0.17}{2}\right)^2$ $V_2 = (30)(3.14)(1)$				ft3 x 7.48541/4=11.0
Well developed by: Person's Name and Firm			_ ,	rue and correct to the best
Name: Randy Johns Firm: Stevens Well C	ion Iniling	Signature: Print Initials:	kogn W Bi	elf (
	V	Firm: <u>Cav</u>	Th Remedias	Ton Jernzes

Denominant of Manual Passuross	id Waste Haz. Waste & Repair Undergroum		MONITORING WELL CONSTRUCTION Form 4400-113A Rev. 4-90
Facility/Project Name	Local Grid Location of We	:11	Well Name
MOOSE JUNCTION LOUNCE	173,6 ft. 28.	ft. ☐ E.	MW-4
Facility License, Permit or Monitoring Number	Grid Origin Location	ong. 92 09 20" or	Wis. Unique Well Number DNR Well Number
Type of Well Water Table Observation Well 11			Date Well Installed 5.6 4.6 0.3
Piezometer 12	St. Plane f Section Location of Waste,		Date Well Installed $\frac{0.5}{m}$, $\frac{1.2}{d}$, $\frac{9.3}{v}$
Distance Well Is From Waste/Source Boundary		20, T.44 N, R.15层影	Well Installed By: (Person's Name and Firm)
150 ft.	Location of Well Relative	to Waste/Source	KANDY JOHNSON
Is Well A Point of Enforcement Std. Application?		s 🗷 Sidegradient n 🗖 Not Known	STEVENS WELL DRILL ING
A. Protective pipe, top elevation 1226.25		1. Cap and lock	
B. Well casing, top elevation 1226.11	ft. MSL	2. Protective co	
1274	ft. MSL	a. Inside diam b. Length:	eter: $\frac{\mathcal{H}}{5}.\frac{\mathfrak{d}}{\mathfrak{d}}$ in.
		c. Material:	Steel 🗷 04
D. Surface seal, bottom 1223.9 ft. MSL or	^{fr} \ 3:11	.X	Other 🔲 💮
12. USCS classification of soil near screen:		d. Additional	protection? Burn Der Posts No
GP GM GC GW SW GSM SW GSM SC ML MH CL G	SP CH	If yes, desc	
Bedrock □		3. Surface seal:	Bentonite
13. Sieve analysis attached?	1 1881	 \	Other 🛚
14. Drilling method used: Rotary	1 1000	34. Material betw	een well casing and protective pipe:
Hollow Stem Auger 🖪 Other 🗖			Bentonite 🔲 30 Annular space seal 🔀
			Other 🗆 📑
15. Drilling fluid used: Water 1 02 Air Drilling Mud 1 03 None 2	1 1000	5. Annular space	a. Granular Bentonite 🗗 33
Drilling Mud 🗖 03 None 🖾	33	DOOR -	al mud weight Bentonite-sand slurry 35
16. Drilling additives used?	No 👹		al mud weight Bentonite slurry 31 ntonite Bentonite-cement grout 50
Describe			Ft 3 volume added for any of the above
Describe		f. How instal	· — —
57, 202 st visit (silen 202) 25,	.		Tremie pumped ☐ 02 Gravity 🗷 08
	 -J	6. Bentonite sea	
E. Benunite seal, top 12239 ft. MSL or	ft		№3/8 in. □ 1/2 in. Bentonite pellets □ 32
E E AMEL -	. 🗎	C	Other 🗆 🧮
F. Fine sand, top ft. MSL or	ft. ft.	//. Fine sand ma	terial: Manufacturer, product name & mesh size
G. Filter pack, top 1221 9 ft. MSL or	ft.	b. Volume ac	
H. Screen joint, top 1221 3 ft. MSL or			aterial: Manufacturer, product name and mesh size
H. Screen joint, top 1221 2 ft. MSL or	"	a Imerican b. Volume a	Naterial Corp. 45/55 Red Flint
I. Well bettern 12113 ft. MSL or	ft		Flush threaded PVC schedule 40 🔀 23
12108			Flush threaded PVC schedule 80 🔲 24
J. Filter pack, bottom 13108 ft. MSL or	ft	10 8	Other D
K. Borehole, bottom 1208 1 ft. MSL or	ft	10. Screen mater	
			Continuous slot \Box 01
L. Borehole, diameter _ 2 2 in.	· · · ·	1 1 1/2	rer TIMCO
M. O.D. well casing $\frac{3}{2}$ in.		c. Slot size:	0. Ø 1 D in.
		d. Slotted let	ngth: $\mathcal{L}\mathcal{Q} \cdot \mathcal{Q}$ ft.
N. I.D. well casing 200 in.			rial (below filter pack): None 14 Notice Material Other 1
I hereby certify that the information on this	s form is true and co		
Signature ()	Firm - 13	Remediation	
Please complete both sides of this form and return to	the appropriate DNR offic		

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis Stats., failure to file this form may result in a forfeiture of not less than \$10, nor more than \$5000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than \$10,000 for each view of DNR use onl. See instructions for more information including where the completed form should be sent.

Env. Response & Repair 🗖	. Underground	Γanks□ Oth	er 🛘		
Facility/Project Name County	/ Name	· · · · · · · · · · · · · · · · · · ·	Well Name	0.1.1.11	
MOOSE TUNCTION LOUNGE !	DONGLAS		/	nW-4	
Facility License, Permit or Monitoring Number County	Code Wis. U	mque Well Ni	ımber DN	R Well Number	
	<u>.b</u>				
1. Can this well be purged dry? ☐ Yes ☐	No		Before Develope	ment After De	velopment
		epth to Water on top of	a. 75	5. 11	+.70ft.
2. Well development method		in top of l casing)	a	2 ft.	<u>I/ </u>
surged with bailer and bailed 4 1	""	r cashing)			
surged with bailer and pumped 61		_	AC 18	a	
surged with block and bailed 42	Dat	E	$b \underbrace{05}_{m m} / \underbrace{18}_{d d} / \underbrace{3}_{3}$		$\frac{1}{d} \frac{1}{y} \frac{1}{y}$
surged with block and pumped 62 surged with block, bailed and pumped 70			_	· 1	• •
	Tim	20	。15:30日	a.m. 16.	0 0 □ p.m.
compressed air Z 20 bailed only 1 10	'"'	ic .	c,	P.II.	in
pumped only	12. Sed	iment in well	$-\underline{0}.\underline{5}_{in}$	chas . C	O inches
pumped slowiy	bott				
Other	13. Wa	ter clarity	Clear 🛮 10	Clear 🗖	20
			Turbid 🔀 15	Turbid 🔼	
3. Time spent developing well3 n mir			(Describe)	(Describe)	
•			Yellowish I		ish Brown
4. Depth of well (from top of well casisng) $-\frac{14}{9}$. $\frac{8}{9}$ ft.					
· · · · · · · · · · · · · · · · · · ·					
5. Inside diameter of well $\frac{2}{0}$ in	L.				
•					
6. Volume of water in filter pack and well	į				
casing -11.3_g	al.				
מרמ	Fill in i	f drilling fluid	is were used and we	ell is at solid waste	facility:
7. Volume of water removed from well 37.0 gs	l l			j	
	1	tal suspended		mg/l	mg/l
8. Volume of water added (if any) ga	al. sol	ids			
9. Source of water added	15. CC	מו			M
9. Source of water added	- 15.00	טיי		. mg/!	mg/l
10. Analysis performed on water added? ☐ Yes ☐	I No			1	
(If yes, attach results)	140				
16. Additional comments on development:		3-1	1 -11	c. (,)	- Cal . 11 7 C
1/ /2 / (0.17) 2 /12 /1		+ [ل	1.24 = 1.	5141 x 1.41	2 3 / 11.3 j
V, = (3.14) (空) ² /12.1))				
	, 		7		
$\Lambda^{5} = (030) (3.14) (19.1)$	F/0.697	(.2	041		
The Control (1811)	口(三)	- C 3			
	(4)				
Well developed by: Person's Name and Firm	I herel	y certify that	the above information	on is true and corre	ect to the best
e e e e	of my	knowledge.			
0 1 7	Signat	ure: ()	94- 1.)	3.1.1	
Name: Kandy Johnson		1124	<u>~~ ~</u>	TWW	
Ctor I was to	Print 1	initials:	v B	•	
Firm: Stevens Well Drilling					
0	Firm:	Eur	th Remen	diation Se	rvice
NOTE: Shaded areas are for DNR use only. See instructions for	or more informati	on including a	list of county code:	s.	

Route to: Solid Waste | Haz. Waste | Wastewater |

GROUNDWATER MONITORING WELL INFORMATION FORM Chapter 144, Wis. Stats.
Form 4400-89 Rev. 1-90

Facility Name MOSE	MV C	CTION LO	UΛ	GE	Fac	ility ID Number	Date	6/3	10/93	Completed B くくり	y (Nan GEA	ne and I W	im) Blegr	. Ef)R	T/+	В	iewed ia t	NOI	SERVI	によら
	DNR		Г	П	T		Well (Casing	Eleva	ions	Refe	cnce						Type of Well (V)		Gradient
Well Name	Well ID Number	Well Location	N	SE	w				Top of Well Casing	Ground Surface	MSL (√)	Site Datum (V)	Screen Length	Well Depth	ZEI	χõ	LYS		Aban- dened		U, S, D or N
MW-1		5,1' 183.6'	X		X	5/18/93	26	PVĊ	1933,23	1231.2	✓		8.0	10.5		V					D
WM-3 WM-3		64.8		×		5/19/93							10.0	13.0		/					D
WM-3		67.8	X		X	5/19/93	2.0	PVC	1728.83	1226.9	V		10.0	13.0		V					W
MW-4		173.6		X.		5/18/93							10.0	13.0		1					S
	:				-	·								·							
			L		T									·							
			F		-																
					\top																
			F	H	+																
					-																
Location Coordi	inates Are:					Remarks:											PSS	Use:			
M Local Gri (prefe	id System ared)	State Plane	ictt	ordins 1	ite											-		ile Maint. Compl	eted:		

INSTRUCTIONS FOR GROUNDWATER MONITORING WELL INFORMATION - FORM 4400-89

This form, when completed provides a record of information for each well that is part of a facility's groundwater monitoring program. It provides the facility or consultant with a means of presenting in a consistent format the well data which the department requires during a site review process. It should be updated as new wells are added to the monitoring program.

Each element of the form is described below. Complete the form with the necessary information, using the description of the elements as a guide.

Facility ID Number: The license number or identification number of the facility, asssigned by the Department.

Date: The date on which the form is filled out.

Completed By: The name and firm of person completing the form.

Facility Name: The name of the site or landfill.

Well Name: The name given to the well by the facility or consultant; e.g. MW-2, OW-5.

DNR Number: The number assigned to the well by the Department, for use by the Department.

Well Location: The location of the well, measured in feet, in relation to a grid system origin established for the

site or state plane coordinate system. (A local grid system is preferred.)

Date Established: The installation date of the well.

Well Casing Diam.: The inside diameter of the pipe used in the well construction, in inches.

Well Casing Type: The type of pipe used: plastic (P), steel (S), or other (O).

Elevations:

Top of Well Casing: The measurement, in feet, of the top of the well casing (not top of protective casing), in feet.

Ground Surface: The measurement, in feet, of the ground surface adjacant to the well.

Reference: Are elevations in reference to Mean Sea Level (MSL) or to a particular site datum established b consultant or facility? Check one or the other.

Screen Length: The length of the screen measured in feet.

Well Depth: The depth of the well from the top of well casing, measured in feet.

Type of Well:

piezometer (sealed below water table)

Abandoned:

Check this box if the well has

PIEZ: OW:

water table observation well

Check this box if enforcement

PVT LYS:

private well

Enf. Stds. Apply:

lysimeter

standards apply (well is outside

OTHER:

not any of the above, e.g. head well,

DMZ or property line).

been abandoned.

_sident: The location of the well in the groundwater flow system relative to the disposal site, spill, etc. Use one of the four letters designated below:

I = up gradient

D = down gradient

S = side gradient

N = not known

Location Coordinates Are:

nobal grid system, established by consultant and submitted to the Department; or State Plane Coordinate System, an established location system for Wisconsin.

ownshis.

Add any comments to help clarify items listed above; e.g. MW-17 was abandoned on 1/24/90 and replaced by MW-17R; LHW-1 and LHW-2 are leachate head wells.

APPENDIX C

GROUNDWATER SAMPLING FORMS

a division of Earth Burners, Inc. 31 West Superior Street, Suite 402 Duluth, Minnesota 55802

(218) 726-1537 office (218) 726-0823 fax

DATE: _ WELL#:	MOOSE JUNCTION 5/27/93 MW-1	WEATHE	CONDITION IR CONDIT ZLE, 45	IONS:	S F
PROJECT#:	9308-0301		D BY:		
	MEASUREMENT AND measuring point	-			
Height of m	easuring point a	boye ground s	surface:	2.0	feet
Total depth	of well below m	easuring poir	nt:	12.44	feet
Depth of wa	ter table from m	easuring poir	nt:	3.72	feet
Length of w	ater column:		·	8.72	feet
Purge metho	od: <u>DEDICATED B</u>	AILER	· · · · · · · · · · · · · · · · · · ·		
Required pu	irge volume: <u>1.</u>	42 GALLONS		· · · · · · · · · · · · · · · · · · ·	
Volume Remo	oved/ pH / o	Cond.(um/cm)	/ т(F) /	Color
1.5 Gallon	is 6.9	2000	45.	1	BROWN
3.0 Gallon	ns 7.1	1940	45.	0	BROWN
4.5 Gallon	ns 7.2	1990	44.	8	BROWN
5.0 Gallon		1980	44.	8	BROWN
SAMPLE COLI Collection	ECTION method: <u>DEDICA</u>	TED BAILER	Ti	me	17:00
Analysis	Containers	;;	Sample Pi	cep./Pr	reservation
voc's	3-40 ML	GLASS	HCL	····	
GRO	3-40 ML	GLASS	HCL	- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	
TOTAL Pb	1-250 M	ML PLASTIC	HN	O ₃	
Chain of Cu	stody Form: []	No [X] Yes,	#1048	37	
	X] No [] Yes,				
	ontainer: <u>COOLE</u>				
	troleum sheen on				
		<u> </u>			

a division of Earth Burners, Inc. 31 West Superior Street, Suite 402 Duluth, Minnesota 55802

(218) 726-1537 office (218) 726-0823 fax

DATE: WELL#:	MOOSE JUNCTION 5/27/93 MW-1A 9308-0301	WEATHER CONDI	TIONS: DEGREES F ROGER BIEBL
	L MEASUREMENT AND WELL f measuring point:TO		
Height of m	measuring point above g	round surface:	feet
Total depth	n of well below measuri	ng point:	feet
Depth of wa	ater table from measuri	ng point:	feet
Length of v	water column:		feet
Purge metho	od: <u>DEDICATED BAILER</u>		
Required pu	urge volume:		
Volume Remo	oved/ pH / Cond.(um/cm) / T	(F) / Color
Gallor	ns	·	
Gallor	ıs		
Gallor	ns		
Gallor			
SAMPLE COLI Collection	ECTION method: <u>DEDICATED BA</u>	ILER T	ime17:10
Analysis	Containers	Sample 1	Prep./Preservation
GRO	3-40 ML GLASS	НС	L
	stody Form: [] No [X		
Shipping Co	ontainer: <u>COOLER WITH</u>	ICE	· · · · · · · · · · · · · · · · · · ·
NOTES: DUE	PLICATE SAMPLE OF MW-1.	<u>-</u>	

a division of Earth Burners, Inc. 31 West Superior Street, Suite 402 Duluth, Minnesota 55802

(218) 726-1537 office (218) 726-0823 fax

DATE: WELL#:		ONCTION	W	ELL CON EATHER DRIZZI	CONDI	TIONS:		
PROJECT#:	9308-03			AMPLED				
WATER LEVE Location o					ING			
Height of	measuring	point	above gro	ound su	rface:	2.0		feet
Total dept	h of well	below	measuring	g point	• <u> </u>	15.10	<u>)</u>	feet
Depth of wa	ater tabl	e from	measuring	g point		5.67	7	<u>feet</u>
Length of	water col	umn:			V _{rp} - ·	9.43	3	<u>feet</u>
Purge meth	od: <u>DE</u> E	CATED	BAILER			······································		
Required p	urge volu	ıme: <u>1</u>	.54 GALLO	ONS				
Volume Rem	oved/	pH /	Cond. (um	n/cm)	/ Т	(F) /	/ Col	or.
1.6 Gallo	ns	6.7_	1250		44	. 6	YELL/	BRN
3.2 Gallo	ns	6.8	1300		44	. 7	YELL/	BRN
4.8 Gallo	ns	6.9	1300		44	. 4	YELL/	BRN
6.4 Gallo		6.9	1300		44	. 3	YELL/	BRN
SAMPLE COL Collection		DEDIC	ATED BAI	LER	T	ime	16:00)
Analysis	Co	ontainer	S	Sa	mple F	Prep./F	reserv	ation
_VOC'S		3-40 M	L GLASS		HC	L		
GRO		3-40 M	L GLASS		HC	L		
TOTAL Pb		1-250	ML PLAST	IC	H	NO ₃		
Chain of C	ustody Fo	orm: []	No [X]	Yes,	#104	187		
COC Tape:	[X] No [] Yes,						
Shipping C	ontainer:	: <u>COOI</u>	ER WITH	ICE		:		
NOTES: _St;	rong petr	oleum o	dor notio	ced whi	le pur	ging t	he well	L
·	 							

a division of Earth Burners, Inc. 31 West Superior Street, Suite 402 Duluth, Minnesota 55802

(218) 726-1537 office (218) 726-0823 fax

DATE: _	5/27/93	BUNCTION		WELL CO	CON	ridi	CIONS:		
WELL#: _ PROJECT#: _	MW-3 9308-03			DRIZZ: SAMPLED					
WATER LEVEL Location of					SING	8.7) 18 18 18			· · · · · · · · · · · · · · · · · · ·
Height of m	easurinç	g point a	lbove gr	ound su	ırfad	ce:	2.0		feet
Total depth	of well	below m	neasurir	ng point	: _	21 C	14.80		feet
Depth of wa	ter tabl	e from m	neasurir	ng point	: _		2.84		feet
Length of w	ater col	Lumn:				*	11.96		feet
Purge metho	od: <u>DEI</u>	DICATED E	BAILER	··		•			·,- ·
Required pu	ırge volu	ıme: <u>1.</u>	.95 GALI	LONS					
Volume Remo	oved/	pH /	Cond. (u	ım/cm)	/	Т ((F) /	Col	.or
2.0 Gallon	ıs	6.7	680			51	.6	RED/	BRN
4.0 Gallon	ıs	6.9	608	· ·		49.	2	RED/E	BRN
6.0 Gallon	ıs	6.9	600			47.	8	RED/E	BRN
8.0 Gallon		6.9	590			47.	5	RED/E	BRN
SAMPLE COLI Collection		DEDICA	ATED BA	CLER		Ti	Lme	14:00)
Analysis	Co	ontainers	3	Sa	ampl	e P	rep./Pr	eserv	ation
_VOC'S		3-40 MI	GLASS			HCI			
GRO		3-40 MI	GLASS			HCI	٠ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ		
TOTAL Pb		1-250	ML PLAS	TIC		HN	1O ₃		···
Chain of Cu	stody Fo	orm: []	No [X] Yes,	#	104	87		
COC Tape: [[X] No	[] Yes,							
Shipping Co	ntainer	COOLE	ER WITH	ICE					
NOTES: Stat									
screen. W	ater car	n be draw	vn down	<u>below t</u>	he t	top	of the	scre	en.

a division of Earth Burners, Inc. 31 West Superior Street, Suite 402 Duluth, Minnesota 55802

(218) 726-1537 office (218) 726-0823 fax

SITE: DATE: WELL#: PROJECT#:	MOOSE JUNCTION 5/27/93 MW-4 9308-0301	WELL CONI WEATHER (DRIZZLE SAMPLED I	CONDITI	ONS: EGREES	
•	L MEASUREMENT AND WELL f measuring point:T		NG		
Height of m	measuring point above	ground sur	face: _	2.0	feet
Total depth	n of well below measur:	ing point:		14.80	feet
Depth of wa	ater table from measur	ing point:		2.75	feet
Length of v	water column:			12.05	feet
Purge metho	od: <u>DEDICATED BAILER</u>				
Required pu	urge volume: <u>1.96 GA</u>	LLONS			· · · · · · · · · · · · · · · · · · ·
Volume Remo	oved/ pH / Cond.	(um/cm)	/ T(F	י) /	Color
2.0 Gallor	ns 7.1 500)	46.7	!	YELL/BRN
4.0 Gallor	ns 7.1 480)	46.3	<u> </u>	YELL/BRN
6.0 Gallor	ns 7.1 480)	46.1		YELL/BRN
8.0 Gallor	······································	0	46.1		YELL/BRN
SAMPLE COLI Collection	method: <u>DEDICATED B.</u>	AILER	Tin	ne	15:00
Analysis	Containers	Sam	ple Pr	ep./Pr	eservation
voc's	3-40 ML GLAS:	<u> </u>	HCL		
GRO	3-40 ML GLAS	S	HCL	<u> </u>	
TOTAL Pb	1-250 ML PLA	STIC	HNC)3	
Chain of Cu	ustody Form: [] No [X] Yes, _	#1048	7	-
COC Tape:	[X] No [] Yes,		· · · · · ·	· ·	-
Shipping Co	ontainer: <u>COOLER WIT</u>	H ICE			
NOTES: WE	ELL WENT DRY BETWEEN 31	RD AND 4TH	PURGE	VOLUME	ß.
		·			

APPENDIX D

EXCAVATION SOIL VAPOR LOGS

a division of Earth Burners, Inc. 31 West Superior Street, Suite 402 Duluth, Minnesota 55802

Notes:

(218) 726-1537 office (218) 726-0823 fax

SOIL VAPOR ANALYSIS

Location: Moose Junction Lounge 9308-0301 Job #: Sample PID Date Code Time Soil Type Reading Comments FILL R1(1)12:00 GRAVEL/SAND 100 12:00 200 R2(1)11 11 R3(1)12:00 200 400* R4(2) 12:00 11 R5(1) 12:00 220* 11 11 1:30 57 R6(1) 11 11 482 1:50 R7(1)1.1 R8(2.5)2:00 44.3 11 11 446 R9(2.5)2:13 11 R10(2.5) 2:16 17.2 11 11 R11(3)2:25 344 R12(8)2:28 SILT 385 240* R13(2.5) 2:32 FILL/SAND 2:38 284 R14(11) SILT R15(2)2:32 427 R16(5)3:10 500* 06/15/93 DARK BROWN 565* R17(4)10:25AM SILTY SAND WITH SOME GRAVEL R18(5)10:30 588* 11 11 R19(8) 10:45 55 TANK BASIN, NORTH 10:50 R20(2)SIDE OF LOUNGE

All readings are above the background level of 1.0

a division of Earth Burners, Inc. 31 West Superior Street, Suite 402 Duluth, Minnesota 55802

(218) 726-1537 office (218) 726-0823 fax

SOIL VAPOR ANALYSIS

Location	: Moose	Junction Lounge		
Job #:	9308-0	0301		
Sample Code	Date Time	Soil Type	PID Reading	Comments
R21(4)	10:55	DARK GREY SAND-CLAY	55	
R22(3)	11:00	11 11	5	SIDEWALL OF BUILDING
R23(4)	11:00	11 11	9	
R24(3)	11:05	RED-BROWN SAND	518	UNDER PIPE JOINT
R25(8)	11:30	11 11	570	
R26(9)	11:40	II II	391_	CENTER OF TANK BASIN
R27(4)	11:42_	GREY-BROWN SANDY SILT	278	
R28(12)	11:45	RED-BROWN SILTY-SAND	141	CENTER OF TANK BASIN
R29(5)	11:55_	11 11	13	
R30(5)	12:00	11 11	145_	
R31(6)	12:10	11 11	250	
R32(5)	12:20	II II	290	
R33(4)	12:25	GREY-BROWN SANDY-SILT	158	
R34(4)	12:35	BROWN SILT-SAND	31	
R35(5)	12:40	11 11 11	303	
R36(2)	12:45	11 11 11	572	
R37(7)	12:55	11 11 11	201	
R38(6)	1:00	11 11 11	385	
R39(7)	1:05	11 11 11	532*	
R40(9) Notes:	1:10 All read	" " " lings are above th	490 ne backgro	

a division of Earth Burners, Inc. 31 West Superior Street, Suite 402 Duluth, Minnesota 55802

(218) 726-1537 office (218) 726-0823 fax

SOIL VAPOR ANALYSIS

Location	1: MOOS	E JUNCI	TION LO	DUNGE		
Job #:	9308	-0301		· · · · · · · · · · · · · · · · · · ·		
Sample	Date	Coda	(T)		PID	Commonto
Code	Time		Type		Reading	Comments
R41(6)	1:20	BROWN	SILTY	SAND	27	
R42(6)	1:25	11	11	**	278_	
R43(6)	1:30	11	ti	11	92	
R44(4)	2:00	11	11	11	428	
R45(4)	2:00	11	11	11	238*	UNDER PUMP ISL.
R46(3)	2:05	11	11	11	410_	UNDER CONCRETE IN FRONT OF LOUNGE
R47(4)	2:10	11	11	11	543	
R48(3)	2:15	11	11	11	529	
R49(7)	2:20	11	11	11	300*	
R50(3)	2:25	11	11	11	249*	
R51(9)	2:35	11	11	11	579	9308-B4(9) UNDER OLD PUMP DISPENC.
R52(3)	2:40	11	11	11	253*	
R53(4)	2:45	11	1f	11	424_	
R54(5)	2:55	REDDIS	SH-BROV	VN SAND	289*	SAND LAYER WITH WATER FLOWING OUT
R55(5)	3:00	11	11	11	285*	ESTIMATED 300 YARDS EXCAVATED
R56(7)	3:10	BROWN	SILTY	SAND	298*	
R57(6)	3:15	11	11	11	319*	
06 <u>R58(14)</u>	3:20	-11	11	11	258*	
R59(6)	3:25	11	11	11	472	
R60(8)	3:35	11	11	11	485	
Notes:	All rea	adings	are ab	ove the	backgro	und level of 1.0 ppm.

a division of Earth Burners, Inc. 31 West Superior Street, Suite 402 Duluth, Minnesota 55802

(218) 726-1537 office (218) 726-0823 fax

SOIL VAPOR ANALYSIS

Locatio	n: MOOS	E JUNCTIO	ON LOUN	GE	· · · · · · · · · · · · · · · · · · ·				
Job #:	9308	-0301							<u> </u>
Sample <u>Code</u>	Date Time	Soil_T	Type		PID Reading	C	omments	5	
R61(5)	3:43	REDDISH-	-BROWN	SAND	540*				
R62(6)	3:50	BROWN SI			309*				
R63(6)_	3:55	"	11 11		489				
									
R64(4)	4:00	11	11 11		460				
R65(5)	4:00	**	11 11		370*				
R66(6)	4:10	11	11 11		362*				
R67(7)	4:20	11	11 11		<u>378*</u>				
R68(4)	4:25	REDDISH	BROWN	SAND	288*				
R69(8)	4:30	BROWN S	CLTY SA	ND	656				
R70(3)	4:45	11	11 11		263*				
R71(6)	5:00	REDDISH	BROWN	SAND			_	RACTERI SAMPLE	
R72(5)	5:10	BROWN SI	LTY SA	ND	287 *				
R73(9)	5:25	11	11 11		486	UST	BOTTOM	SAMPLE	B6(9)
R74(8)	5 : 35	REDDISH-	-BROWN	SAND	297*				
R75(6)	5:45	11 .	11 11		521				
R76(6)	5:55	BROWN SI	LTY SA	ND	411				
R77(6)	6:05	11	11 11		15				
R78(6)	6:10	11	11 11		278				
R79(7)	6:15	11	11 11		51	ANAL	YTICAL	RACTERI: SAMPLE	
Notes: All readings are above the background level of 1.0 ppm.									

Specialist in Petroleum Impacted Soil & Water Remediation

* PID readings are higher than indicated

APPENDIX E

TWIN PORTS TESTING LABORATORY RESULTS





LABORATORY ANALYSIS REPORT

MN (218) 722-1911 ■ FAX (218) 722-3295

A DIVISION OF TWIN PORTS TESTING, INC.

Page

Client Earth Burners, Inc.

Project Moose Junction Lounge Project No. 9308-0301

Earth Burners, Inc. 500 Leisure St. PO Box 16083 Duluth, MN 55816

Collected By Roger Biebl Delivered By Roger Biebl

·				
Chem. Lab ID	1926-93LS	1927-93LS	1928-93LS	1929-93LS
Sample Type	Soil	Soil	Soil	Soil
Collected Received Analyzed Reported	06/15/93 06/16/93 06/28/93 07/01/93	06/15/93 06/16/93 06/28/93 07/01/93	06/15/93 06/16/93 06/28/93 07/01/93	06/15/93 06/16/93 06/28/93 07/01/93
Sample Description	9308-B1 (12)	9308-B2 (4)	9308-B3 (7)	9308-B4 (9)
Analysis Gasoline Range Organics Moisture	<10.000 mg/kg 18.0%	769 mg/kg 11.7%	<10.000 mg/kg 11.4%	61.6 mg/kg 10.5%
Benzene Ethylbenzene Lead Toluene Total Xylenes	<0.200 mg/kg <0.200 mg/kg 7.03 mg/kg <0.200 mg/kg <0.200 mg/kg	6.61 mg/kg 7.98 mg/kg 9.53 mg/kg 12.4 mg/kg 9.56 mg/kg	<0.200 mg/kg <0.200 mg/kg 7.62 mg/kg <0.200 mg/kg <0.200 mg/kg	0.644 mg/kg 1.25 mg/kg 9.73 mg/kg 2.25 mg/kg 5.82 mg/kg
	·			

Remarks

Analyzed By

Date

South Petusin

7/1/93

Reviewed By

Date

Wisconsin DNR Certification Number 816057440

LAKE SA

7

LABORATORY ANALYSIS REPORT

728 GARFIELD AVENUE ■ DULUTH, MINNESOTA 55802 MN (218) 722-1911 ■ FAX (218) 722-3295

A DIVISION OF TWIN PORTS TESTING, INC.

Page 2

Client Earth Burners, Inc. 500 Leisure St. PO Box 16083 Duluth, MN 55816 Project Moose Junction Lounge Project No. 9308-0301

Collected By Roger Biebl Delivered By Roger Biebl

Chem. Lab ID	1930-93LS	1931-93LS	1932-93LS	1933-93LS
Sample Type	Soil	Soil	Soil	Soil
Collected Received Analyzed Reported	06/15/93 06/16/93 06/28/93 07/01/93	06/15/93 06/16/93 06/28/93 07/01/93	06/15/93 06/16/93 06/28/93 07/01/93	06/15/93 06/16/93 06/28/93 07/01/93
Sample Description	9308-B5 (8)	9308-B6 (9)	9308-B7 (6)	9308-B8 (7)
Analysis				
Gasoline Range Organics Moisture Benzene Ethylbenzene Lead Toluene Total Xylenes	577 mg/kg 10.8% 1.57 mg/kg 5.70 mg/kg 7.65 mg/kg 5.72 mg/kg 24.9 mg/kg	640 mg/kg 9.81% 11.6 mg/kg 6.72 mg/kg 9.55 mg/kg 19.8 mg/kg 30.0 mg/kg	324000 mg/kg 12.5% 7240 mg/kg 4200 mg/kg 12.4 mg/kg 10500 mg/kg 18400 mg/kg	12.1 mg/kg 12.0% 1.39 mg/kg <0.200 mg/kg 7.91 mg/kg 1.01 mg/kg 0.448 mg/kg

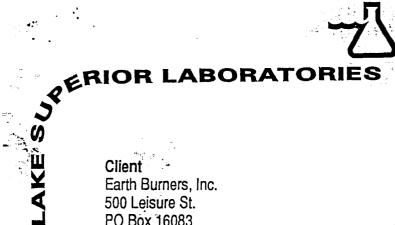
Remarks

Analyzed By Date

Months Reteran

7/1/93

By



A DIVISION OF TWIN PORTS TESTING, INC.

Page \$

PO Box 16083 Duluth, MN 55816

Project Moose Junction Lounge Project No. 9308-0301

Collected By Roger Biebl Delivered By Roger Biebl

		,		
Chem. Lab ID	1934-93LS			:
Sample Type	Soil			
Collected Received Analyzed Reported	06/15/93 06/16/93 06/28/93 07/01/93			a day ay ka
Sample Description	FB			
Analysis				
Gasoline Range Organics Moisture Benzene Ethylbenzene Lead Toluene Total Xylenes	<10.000 mg/kg - - - - - -			
			·	* · ·

Re	m	ar	ks
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Not tested for.

Analyzed By Date

Date

LAKE SUPERIOR LABORATORIES -

SAMPLE CONDITION UPON RECEIPT CHECKLIST

Client:	ESHN BUNNERS		
Project:_	Masse Junction lange		
Date Re	ceived: 41693		
COC #_	10574		
Samples	Received By: Lore Ha Peterson		
	Goetta Reteur		
	(Signature)	Yes	No
1.	Is there a chain of custody (COC) or letter stating information contained on a COC?	<u>X</u>	
2.	Is the date and time relinquished in agreement with that written on the letter or COC?		
3.	Do the samples received agree with the COC or accompanying paperwork (i.e. number of samples, matrices, sample tags, sample containers, analyses, etc.)?		
4.	Are all the samples within the holding times for requested analyses? Communicate any lapse of greater than 4 days beyond date of collection for VOA analysis.		
5.	Are all the sample containers intact (i.e., not broken, leaking, etc.)?		•
6.	Did the samples arrive on ice? a) Are the samples at the proper temperature?	1	
7.	Is there enough sample to do all the analyses?	<u>\</u>	
8.	Are the samples preserved correctly?	1	
9.	Are the VOA vials head-space free?	ASO	-

'NO' Items Explained:



PER	Project Name/No. Moosi	АТО	Z RIES	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	MN (218) '	722-1911 ION OF	FAX•	(218) 722 I PORT	S TEST				. N:	<u>0</u> .ABO		74 IY RE	QUEST AND DY RECORD
LAKE S	Address Pb. Box 19 Duluth MN, 9 Phone (218) 828-	rs, In 083 558) 0452	Repo	ort To <u>F</u>	<u>lo</u> ger)) _{P.O. i}		marks And	Ny.	e.	F.e.	10	Blant 193	< 4. 34.	-93LS
	Sampler Signature Roy Sampler (Print) Roy Sample No/Location		2 Bio	Natrix	Number Of Container	1 6	Analy	rses 1	The San							 	LSL No.
	9308-B1 (12) 9308-B2 (4) 9308-B3(7) 9308-B4(9)	9/5/13	11:45 12:00 14:00 14:30	\frac{1}{\sqrt{2}}	3	(ne of))									1926 1927 1928 1929
	9308-B5(8) 9308-B6(9) 9308-B7(6) 9308-B8(7) 9308-P1		15:30 16:30 16:00	V V V			1)									1931 1932 1933
	9309- P3 Relinguished By Relinguished By Relinguished By	() Date/ib	19:45 19:00 Time /43 14:30	Received E	tta	Pete	Taro		nquished By				ate/Time		Received B		

Turnaround Time: 24 Hour Rush

24 Day_

2 Week

Solo das



LABORATORY ANALYSIS REPORT

728 GARFIELD AVENUE ■ DULUTH, MINNESOTA 55802 -MN (218) 722-1911 ■ FAX (218) 722-3295

A DIVISION OF TWIN PORTS TESTING, INC.

Page 1

RIOR LABORATORIES

Client
Earth Remediation Services
500 Leisure Street
Duluth MN 55816
(218) 628-0248

Project Moose Junction, WI Project No. 9308-0301

Collected By Roger Biebl Delivered By Roger Biebl

	- You (1985 がごとなり) (身下)				
•	Chem. Lab ID	1628-93LS 📲	1629-93LS	1630-93LS ¹	1631-93LS
	Sample Type	Soil	Soil:	Soil	Soil
	Collected Received Analyzed Reported	05/17/93 05/20/93 05/28/93 06/03/93	05/17/93 05/20/93 05/28/93 06/03/93	05/18/93 05/20/93 06/01/93 06/03/93	05/18/93 05/20/93 06/01/93 06/03/93
	Sample Description	SB-8 (6-8)	SB-7 (8-10)	SB-11 (6-8)	SB-9 (4-6)
<u>Aı</u>	nalysis				
Mo 1,2 1,3 Be Et Le	esoline Range Organics ethyl Tertiary Butyl Ether bisture 2,4-Trimethylbenzene 3,5-Trimethylbenzene enzene hylbenzene ead bluene otal Xylenes	<10.000 mg/kg <0.200 mg/kg 16.8% <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg	<10.000 mg/kg <0.200 mg/kg 10.4% <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg 12.8 mg/kg <0.200 mg/kg <0.200 mg/kg	<10.000 mg/kg <0.200 mg/kg 13.4% <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg 9.48 mg/kg <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg	<10.000 mg/kg <0.200 mg/kg 11.7% <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg 10.3 mg/kg <0.200 mg/kg <0.200 mg/kg

Remarks

MTBE QC recovery for samples MW-1 (4-6)-MW-3 (14-16) was 69.8%

Analyzed By

Date

Anetta Peterson Reviewed By

6/9/93°

Date



728,GARFIELD AVENUE ■ DULUTH, MINNESOTA 55802' MN (218) 722-1911 ■ FAX (218) 722-3295

A DIVISION OF TWIN PORTS TESTING, INC.

Client Earth Remediation Services 500 Leisure Street Duluth, MN 55816 (218) 628-0248

ERIOR LABORATORIE

Project Moose Junction, WI Project No. 9308-0301

Collected By Roger Biebland Roger Biebland

, ¹⁹⁷		r <u>t.</u> .	र्वीक्रु⊒्ति लेखीः				
Chem. Lab ID	1632-93LS	1633-93LS	1634-93LS	1635-93LS			
Sample Type	Soil	Soil	Soil	Soil			
Collected Received Analyzed Reported	05/18/93 05/20/93 06/01/93 06/03/93	05/18/93 05/20/93 06/01/93 06/03/93	05/18/93 05/20/93 06/01/93 06/03/93	05/18/93 05/20/93 06/01/93 06/03/93			
Sample Description	SB-10 (8-10)	SB-12 (4-6)	SB-12 (14-16)	MW-4 (8-10)			
Analysis		·					
Gasoline Range Organics Methyl Tertiary Butyl Ether Moisture 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Benzene Ethylbenzene Lead Toluene Total Xylenes	<10.000 mg/kg <0.200 mg/kg 13.4% <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg 7.18 mg/kg <0.200 mg/kg <0.200 mg/kg	308 mg/kg <0.200 mg/kg 18.4% 3.95 mg/kg 9.73 mg/kg 0.277 mg/kg 2.51 mg/kg 12.9 mg/kg 1.19 mg/kg 8.25 mg/kg	<10.000 mg/kg <0.200 mg/kg 10.6% <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg 11.1 mg/kg <0.200 mg/kg <0.200 mg/kg	<10.000 mg/kg <0.200 mg/kg 17.5% <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg 5.95 mg/kg <0.200 mg/kg <0.200 mg/kg			
		* (2) * *5 (6)					

Remarks

MTBE QC recovery for samples MW-1 (4-6)-MW-3 (14-16) was 69.8%

Analyzed By Date

619/93

Reviewed By

Date





LABORATORY ANALYSIS REPORT

728 GARFIELD AVENUE ■ DULUTH, MINNESOTA 55802 MN (218) 722-1911 ■ FAX (218) 722-3295

A DIVISION OF TWIN PORTS TESTING, INC.

Page 3

RIOR LABORATORIES

Client
Earth Remediation Services
500 Leisure Street
Duluth, MN 55816
(218) 628-0248

Project Moose Junction, WI Project No. 9308-0301

Collected By Roger Biebl Delivered By Roger Biebl

54) &		*	44 (**)	A THE WAR LINE TO
Chem. Lab ID	1636-93LS	1637-93LS	1638-93LS	1639-93LS
Sample Type	Soil	Soil	Soil	Soil
Collected Received Analyzed Reported	05/18/93 05/20/93 06/01/93 06/03/93	05/18/93 05/20/93 06/01/93 06/03/93	05/19/93 05/20/93 06/01/93 06/03/93	05/19/93 05/20/93 06/01/93 06/03/93
Sample Description	MW-4 (14-16)	MW-1 (4-6)	MW-2 (4-6)	MW-2 (12-13)
Analysis			to control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the con	A (4)
Gasoline Range Organics Methyl Tertiary Butyl Ether Moisture 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Benzene Ethylbenzene Lead Toluene Total Xylenes	<10.000 mg/kg <0.200 mg/kg 15.2% <0.200 mg/kg 0.247 mg/kg 0.570 mg/kg <0.200 mg/kg 5.93 mg/kg 0.384 mg/kg 0.640 mg/kg	639 mg/kg 5.67 mg/kg 14.9% 9.57 mg/kg 23.7 mg/kg 10.1 mg/kg 8.77 mg/kg 9.99 mg/kg 12.7 mg/kg 39.7 mg/kg	4220 mg/kg 13.9 mg/kg 17.9% 112 mg/kg 192 mg/kg 73.6 mg/kg 30.7 mg/kg 3.38 mg/kg 164 mg/kg 358 mg/kg	51.5 mg/kg <0.200 mg/kg 16.9% 0.472 mg/kg 1.39 mg/kg 5.90 mg/kg 0.846 mg/kg 5.72 mg/kg 5.81 mg/kg 3.78 mg/kg

Remarks

MTBE QC recovery for samples MW-1 (4-6)-MW-3 (14-16) was 69.8%

Sarah Arthur 6/9/93
Analyzed By Date

Goretta Reterson

6/9/93

Reviewed By

Date



LABORATORY ANALYSIS REPORT

728 GARFIELD AVENUE ■ DULUTH, MINNESOTA 55802 MN (218) 722-1911 ■ FAX (218) 722-3295

A DIVISION OF TWIN PORTS TESTING, INC.

Page 4

AKE S

Client
Earth Remediation Services
500 Leisure Street
Duluth, MN 55816
(218) 628-0248

ERIOR LABORATORIES

Project Moose Junction, WI - Project No. 9308-0301

Collected By Roger Biebl Delivered By Roger Biebl

e48.5				
Chem. Lab ID	1640-93LS	1641-93LS	1642-93LS	1643-93LS
Sample Type	Soil	Soil	Soil	Soil
Collected Received Analyzed Reported	05/19/93 - 05/20/93 06/01/93 06/03/93	05/19/93 05/20/93 06/01/93 06/03/93	05/19/93 05/20/93 06/01/93 06/03/93	05/19/93 05/20/93 06/01/93 06/03/93
Sample Description Analysis	Field Blank	SB-13 (2-4)	SB-13A (12-14)	SB-13 (12-14)
Gasoline Range Organics Methyl Tertiary Butyl Ether Moisture 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Benzene Ethylbenzene Lead Toluene Total Xylenes	<10.000 mg/kg <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg	<10.000 mg/kg <0.200 mg/kg 14.2% <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg 12.0 mg/kg <0.200 mg/kg <0.200 mg/kg	<10.000 mg/kg <0.200 mg/kg 13.7% <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg 12.6 mg/kg <0.200 mg/kg <0.200 mg/kg	<10.000 mg/kg

Remarks

- Not tested for.

MTBE QC recovery for samples MW-1 (4-6)-MW-3 (14-16) was 69.8%

Muh Malhur 6/9/9 Analyzed By D

South Reviewed By 19/93

Reviewed By 19/93





LABORATORY ANALYSIS REPORT. 728 GARFIELD AVENUE | DULUTH, MINNESOTA 55802

MN (218) 722-1911 FAX (218) 722-3295

A DIVISION OF TWIN PORTS TESTING, INC

Client Earth Remediation Services 500 Leisure Street Duluth, MN 55816 (218):628-0248

RIOR LABORATORIES

Project Moose Junction, WI Project No. 9308-0301

Collected By Roger Biebl Delivered By Roger Biebl

PARTY CONTRACTOR OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY O				,
Chem. Lab ID	1644-93LS		\$ \$ \$.	en di
Sample Type	Soil	T Salt Marie Ton		
Collected Received Analyzed Reported	05/19/93 05/20/93 06/01/93 06/03/93		1	
Sample Description Analysis	MW-3 (14-16)			3
Gasoline Range Organics Methyl Tertiary Butyl Ether Moisture 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Benzene Ethylbenzene Lead Toluene Total Xylenes	<10.000 mg/kg <0.200 mg/kg 9.63% <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg <0.200 mg/kg 6.31 mg/kg <0.200 mg/kg <0.200 mg/kg			

Remarks

MTBE QC recovery for samples MW-1 (4-6)-MW-3 (14-16) was 69.8%

Analyzed By

Reviewed By

Date

SAMPLE CONDITION UPON RECEIPT CHECKLIST

Client:	Earth Romidation Services	
Project:	Moose Junction	
Date Recei	ived:5-20-93	
COC #	10482 + 10485	
Samples R	eceived By: Love Ha Peterson	
	Acutta Peters	
	(Signature)	Yes No
1.	Is there a chain of custody (COC) or letter stating information contained on a COC?	
· 2.	Is the date and time relinquished in agreement with that written on the letter or COC?	
3.	Do the samples received agree with the COC or accompanying paperwork (i.e. number of samples, matrices, sample tags, sample containers, analyses, etc.)?	\
4.	Are all the samples within the holding times for requested analyses? Communicate any lapse of greater than 4 days beyond date of collection for VOA analysis.	<u>X</u>
5.	Are all the sample containers intact (i.e., not broken, leaking, etc.)?	<u> </u>
6.	Did the samples arrive on ice? a) Are the samples at the proper temperature?	<u> </u>
7.	Is there enough sample to do all the analyses?	
8.	Are the samples preserved correctly?	<u>X</u>
9.	Are the VOA vials head-space free?	NH

'NO' Items Explained:



728 GARFIELD AVENUE • DULUTH, MINNESOTA 55802 MN (218) 722-1911 • FAX (218) 722-3295

SERIAL NUMBER

Nº 10482

LABORATORY REQUEST AND

ON LABOR					A DIVIS					16511	NG, II	VC.			CHA	IN O	F CU	STO	DY RECORI
Project Name/No.	OSE	Ju	NCT	10	N, I	NI 1	38	- 030 P.0) 0.#										
Client Earth Remed	iation	Rep	ort To	.	Roge	ir B	ieb)	\	[Rem	arks		·····			₩,		•	
Address P.o. Box 16	,083																		
o um, Hulua	55816	Rill	To	Εa	At no	Rem	edia	tion											
Phone (218) 628	DDH8		x	vic	. ويز														
Sampler Signature	545	<u>~ ?</u>	<u>Jiel</u>	人 —			Ana	lyses	<u> </u>	/\$\f	7	7	7	/	/	7	7	$\overline{\overline{}}$	///
Sampler (Print)	jer '	w (<u> </u> કે કે કે	<u>p)</u>		tive			Z										
Sample No./Location	Date	Time	Mat Y		Number Of Containers	Preservative	/<		122/2/										LSL No.
SB-8 (6-8)	5/17/93	17:00			7	WEOL)												1628
SB-7(8-10)	5/17/93		4 1	V				7											1629
53-11(6-8)	5/18/93			V)	j											1430
SB-9 (H-6)	ا ــا	10:30	1	1			1	7											1631
SB-10(8-10)	5/18	11:30		V)	1						,					1432
2	ا ، سا	15:00		V			1	1											1433
5 B-12(14-16)		13':30		V			1	1											1634
	5/18	14:00		V			1)											1635
	<u>- </u>	14:30		V			}]											1636
MW-1(4-6)	1 1	16:30		V	1	V	ŧ	1											1637
Rothequished By Breth	Date/T	ime 9:38	Rece	jved E	etta /	Peters.	w		Relinqui	shed By		·		Date/Tim	e	Rec	eived By		
Relinguished BV	Date/T	ime	Rece	ived E	3v				Relinguis	hed By	·····			Date/Tim	e	Rec	eived By		**************************************

Turnaround Time: 24 Hour Rush ___

2-5 Day_

2 Week_



SERIAL NUMBER

Project Name/No.	OSF	TUNG	เวงเว	WI	92	08-1	13D)		0 #								CUS	
Earth Romad				\sim		^		~	υ. # Γ						_			
Client Services		Rep	ort To _	1<	<u>092</u>)1er) }	-	Rem	arks							
Address P.O. Box						<u> </u>	. 15.0			ì	MW	-21	12-	13)	dr	V W	L. E	40L
Duluth, MO			ro_E			len	& Wa	Tlor		I	, , (, ,		•	7		7		J
Phone $\frac{(\lambda 18)}{(\lambda 18)}$			<u>Sev</u>	AICE	-১	, , , , , , , , , , , , , , , , , , , 			[_				· · · · · · · · · · · · · · · · · · ·			=		
	•	N Bre			_		Anal	yses	/5/	/4/	7	7	7	/ /	7	//	$\overline{}$	$\overline{}$
Sampler (Print)	ter)	w B	reb)	_	ve ve			A SUNTIN								/ /	/ /
	<u></u>		Matrix		lumber	Preservative	/		7 2 7		/ /	/ /	/ /	/ /	/ /	/ /		
Sample No./Location	Date	Time	Air	S Co	Of ntainers	Pres	\(\int_{\infty}\)			_	\angle	_	\angle	\angle	\angle			
FATA (8-10)	5/15/7	17.70		\forall	J.	ine on	E		ļ. <u> </u>		ļ		ļ					_=
MW-3 (4-6)	5/19	13:00		4)										
MM-3 (12-13)	5/19	13:30		Υ			}							<u> </u>				
Field Blank	5/19	14:00		<u> </u>	_		}	1		-			ļ		ļ			
	5/19	15:30		<u> </u>			1	1	-				ļ	ļ				/
0 13 1-11(10 11)	5/19	16:25		√		<u> </u>	}		-	-				ļ	ļ			_ /
53-13 (12-14)	5/19	16:30		<u> </u>				1	-	ļ			<u> </u>	ļ	<u> </u>			1
	3/19	18:00		<u> </u>	77	\forall	1			ļ	ļ	<u> </u>			ļ			
MW-3 (14-16)		1 1		İ			İ											
MW-3 (14-16)	<u> </u>						 	!	 	1	1							



LABORATORY ANALYSIS REPORT

728 GARFIELD AVENUE ■ DULUTH, MINNESOTA 55802 MN (218) 722-1911 FAX (218) 722-3295

A DIVISION OF TWIN PORTS TESTING, INC.

Page 1

Client
Earth Remediation

(218) 628-0248

Project Moose Junction, WI Project No. 9308-0301

Collected By Roger Biebl Delivered By Roger Biebl

			·	
, Chem. Lab ID	1740-93LS	1741-93LS	1742-93LS	1743-93LS
Sample Type	Water	Water	Water	Water
Collected Received Analyzed Reported	05/27/93 05/28/93 06/10/93 06/14/93	05/27/93 05/28/93 06/10/93 06/14/93	05/27/93 05/28/93 06/10/93 06/14/93	05/27/93 05/28/93 06/10/93 06/14/93
Sample Description	MD-WW	DS-WW	MW-3	MW-4
Analysis Gasoline Range Organics Lead	<0.100 mg/L 0.007 mg/L	<0.100 mg/L <0.002 mg/L	<0.100 mg/L 0.118 mg/L	<0.100 mg/L 0.018 mg/L

Remarks

Page 2

Client Earth Remediation Services 500 Leisure Street Duluth, MN 55816 (218) 628-0248

Project Moose Junction, WI Project No. 9308-0301

Collected By Roger Biebl Delivered By Roger Biebl

i			i	1
Chem. Lab ID	1744-93LS	1745-93LS	1746-93LS	
Sample Type	Water	Water	Water	
Collected Received Analyzed Reported	05/27/93 05/28/93 06/10/93 06/14/93	05/27/93 05/28/93 06/10/93 06/14/93	05/27/93 05/28/93 06/10/93 06/14/93	
Sample Description	MW-2	MW-1	MW-1A	
Analysis				
Gasoline Range Organics Lead	132 mg/L 0.131 mg/L	6.16 mg/L 0.406 mg/L	6.14 mg/L -	

Remarks

- Not tested for.

Analyzed By

Reviewed By



A DIVISION OF TWIN PORTS TESTING, INC.

Earth Remediation Services
PO Box 16083
Duluth, MN 55816

Attention: Pr

June 16, 1993 Page 1 of 5

Project # 9308-0301 / Moose Junction Lounge

COC # 10487

Date Sampled: 05/27/93 Date Received: 05/28/93

Sample Identification:	DS-WW	MW-3	MW-4	MW-2
Sample Type:	Water	Water	Water	Water
Laboratory Log Number:	1741-93LS	1742-93LS	1743-93LS	

VOC EPA Method 5030/8021

PARAMETER	UNITS				
Benzene	ug/L	<1	<1	3	19000
Bromobenzene	ug/L	<1	<1	<1	<1
Bromochloromethane	ug/L	<1	<1	<1	<1
Bromodichloromethane	ug/L	<1	<1	<1	<1
Bromoform	ug/L	<1	<1	<1	<1
Bromomethane	ug/L	<1	<1	<1	<1
n-Butylbenzene	ug/L	<1	<1	<1	53
sec-Butylbenzene	ug/L	<1	<1	<1	<1
tert-Butylbenzene	ug/L	<1	<1	<1	270
Carbon tetrachloride	ug/L	<1	<1	<1	<1
Chlorobenzene	ug/L	<1	<1	<1	<1
Chloroethane	ug/L	<1	<1	<1	<1
Chloroform	ug/L	<1	<1	<1	<1
Chloromethane	ug/L	<1	<1	<1	<1
2-Chlorotoluene 4-Chlorotoluene Dibromochloromethane 1,2-Dibromo-3-chloro propane 1,2-Dibromoethane	ug/L	<1	<1	<1	<1
	ug/L	<1	<1	<1	<1
	ug/L	<1	<1	<1	130
	ug/L	<1	<1	<1	<1
	ug/L	<1	<1	<1	<1
Dibromomethane	ug/L	<1	<1	<1	<1
1,2-Dichlorobenzene	ug/L	<1	<1	<1	<1
1,3-Dichlorobenzene	ug/L	<1	<1	<1	<1
1,4-Dichlorobenzene	ug/L	<1	<1	<1	<1

Lake Superior Laboratories COC # 10487 Earth Remediation Services

June 16, 1993 Page 2 of 5

Sample Identification:	DS-WW	MW-3	MW-4	MW-2
Sample Type:	Water	Water	Water	Water
Laboratory Log Number:	1741-93LS	1742-93LS	1743-93LS	1744-93LS

VOC EPA Method 5030/8021 (continued)

PARAMETER	UNITS				
Dichlorodifluoromethane	ug/L	<1	<1	<1	<1
1,1-Dichloroethane	ug/L	<1	<1	<1	<1
1,2-Dichloroethane	ug/L	<1	<1	<1	<1
1,1-Dichloroethene	ug/L	<1	<1	<1	<1
cis-1,2-Dichloroethene	ug/L	<1	<1	<1	<1
Trans-1,2-Dichloroethene	ug/L	<1	<1	<1	<1
1,2-Dichloropropane	ug/L	<1	<1	<1	<1
1,3-Dichloropropane	ug/L	<1	<1	<1	<1
2,2-Dichloropropane	ug/L	<1	<1	<1	<1
1,1-Dichloropropene	ug/L	<1	<1	<1	<1
Ethylbenzene Hexachlorobutadiene Isopropylbenzene p-Isopropyltoluene Methylene chloride	ug/L	<1	<1	<1	1600
	ug/L	<1	<1	<1	<1
	ug/L	<1	<1	<1	53
	ug/L	<1	<1	<1	<1
	ug/L	<1	<1	<1	<1
Naphthalene	_	<1	<1	<1	<1
n-Propylbenzene		<1	<1	<1	1300
Styrene		<1	<1	<1	<1
1,1,1,2-Tetrachloroethane		<1	<1	<1	<1
1,1,2,2-Tetrachloroethane		<1	<1	<1	<1
Tetrachloroethene	ug/L	<1	<1	<1	<1
Toluene	ug/L	<1	<1	<1	29000
1,2,3-Trichlorobenzene	ug/L	<1	<1	<1	<1
1,2,4-Trichlorobenzene	ug/L	<1	<1	<1	<1
1,1,1,-Trichloroethane	ug/L	<1	<1	<1	<1
1,1,2-Trichloroethane Trichloroethene Trichlorofluoromethane 1,2,3-Trichloropropane 1,2,4-Trimethylbenzene	ug/L ug/L ug/L ug/L ug/L	<1 <1 <1 <1 <1	<1 <1 <1 <1 <1	<1 <1 <1 <1 <1	<1 <1 <1 <1 <1 390

Lake Superior Laboratories
COC # 10487
Earth Remediation Services

June 16, 1993 Page 3 of 5

Sample Identification:	DS-WW	MW-3	MW-4	MW-2
Sample Type:	Water	Water	Water	Water
Laboratory Log Number:	1741-93LS	1742-93LS	1743-93LS	1744-93LS

VOC EPA Method 5030/8021 (continued)

PARAMETER	UNITS				
1,3,5-Trimethylbenzene	ug/L	<1	<1	<1	470
Vinyl Chloride	ug/L	<1	<1	<1	<1
o-Xylene	ug/L	<1	<1	<1	4500
m- &/or p-Xylene	ug/L	<1	<1	<1	12000

Sample Identification: MW-1
Sample Type: Water
Laboratory Log Number: 1745-93LS

VOC EPA Method 5030/8021

PARAMETER	UNITS	
Benzene Bromobenzene Bromochloromethane Bromodichloromethane Bromoform	ug/L ug/L ug/L ug/L ug/L	41 <1 <1 <1 <1
Bromomethane n-Butylbenzene sec-Butylbenzene tert-Butylbenzene Carbon tetrachloride	ug/L ug/L ug/L ug/L ug/L	<1 <1 <1 <1 <1
Chlorobenzene Chloroethane Chloroform Chloromethane 2-Chlorotoluene	ug/L ug/L ug/L ug/L ug/L	<1 <1 <1 <1 <1
4-Chlorotoluene Dibromochloromethane 1,2-Dibromo-3-chloro propane	ug/L ug/L ug/L	<1 <1 <1

Lake Superior Laboratories COC # 10487 Earth Remediation Services

June 16, 1993 Page 4 of 5

Sample Identification:

Sample Type:

MW-1 Water

Laboratory Log Number:

1745-93LS

VOC EPA Method 5030/8021 (continued)

PARAMETER	UNITS	
1,2-Dibromoethane Dibromomethane 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene	ug/L ug/L ug/L ug/L ug/L	<1 <1 <1 <1 <1
Dichlorodifluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,1-Dichloroethene cis-1,2-Dichloroethene	ug/L ug/L ug/L ug/L ug/L	<1 <1 <1 <1 <1
trans-1,2-Dichloroethene 1,2-Dichloropropane 1,3-Dichloropropane 2,2-Dichloropropane 1,1-Dichloropropene	ug/L ug/L ug/L ug/L ug/L	<1 <1 <1 <1 <1
Ethylbenzene Hexachlorobutadiene Isopropylbenzene p-Isopropyltoluene Methylene chloride	ug/L ug/L ug/L ug/L ug/L	22 <1 3 6 <1
Naphthalene n-Propylbenzene Styrene 1,1,1,2-Tetrachloroethane 1,1,2,2-Tetrachloroethane	ug/L ug/L ug/L ug/L ug/L	<1 6 <1 <1 <1
Tetrachloroethene Toluene 1,2,3-Trichlorobenzene 1,2,4-Trichlorobenzene 1,1,1,-Trichloroethane	ug/L ug/L ug/L ug/L ug/L	<1 210 <1 <1 <1

Lake Superior Laboratories COC # 10487 Earth Remediation Services

June 16, 1993 Page 5 of 5

Sample Identification:

MW-1

Sample Type:

Water

Laboratory Log Number:

1745-93LS

VOC EPA Method 5030/8021 (continued)

PARAMETER	UNITS	
1,1,2-Trichloroethane	ug/L	<1
Trichloroethene	ug/L	<1
Trichlorofluoromethane	ug/L	<1
1,2,3-Trichloropropane	ug/L	<1
1,2,4-Trimethylbenzene	ug/L	96
1,3,5-Trimethylbenzene	ug/L	190
Vinyl Chloride	ug/L	<1
o-Xylene	ug/L	530
m- &/or p-Xylene	ug/L	290

Prepared By:	Diretta Peteran	Date 4/17/93	
	\sim \sim \sim \sim \sim \sim \sim \sim \sim \sim		
Reviewed By:	Saeah Atalhus	Date 6-110-93	

SAMPLE CONDITION UPON RECEIPT CHECKLIST

Client:	zarth Remediation Sprvices		
Project:	Mose Junction Lounge 9308-0301		
Date Receiv	Chala-		
COC #	10487		
Samples Re	eceived By: Loreth Retusin		
	Thretto Oction		÷
	(Signature)	Yes	No
1.	Is there a chain of custody (COC) or letter stating information contained on a COC?	<u> </u>	
2.	Is the date and time relinquished in agreement with that written on the letter or COC?	*	
3.	Do the samples received agree with the COC or accompanying paperwork (i.e. number of samples, matrices, sample tags, sample containers, analyses, etc.)?	<u>X</u> _	
4.	Are all the samples within the holding times for requested analyses? Communicate any lapse of greater than 4 days beyond date of collection for VOA analysis.	<u>r</u>	
5.	Are all the sample containers intact (i.e., not broken, leaking, etc.)?	+	
6.	Did the samples arrive on ice? a) Are the samples at the proper temperature?	<u>X</u>	
7.	Is there enough sample to do all the analyses?	1	• • •
8.	Are the samples preserved correctly?	<u>X</u>	
9.	Are the VOA vials head-space free?	X	

'NO' Items Explained:



SERIAL NUMBER

· ·

A DIVISION OF TWIN PORTS TESTING, INC.

		-	728 GARFIELD A	AVENUE • DULUTH, I	MINNESOTA 55802	Nο	10487
PEF	RIOR LABOR Project Name/No	ATORIES	MN (218) 722-19 A DIVISION (11 • FAX (218) 722-3)F TWIN PORTS	TESTING, INC.		RATORY REQUEST AND OF CUSTODY RECORD
S	Project Name/No	USE JUNCTION	LOUNGE 930	8-030) P.O.#_			
AKE	Client Earth Remed Services Address Po. Box	Repor	t To Royer	Biebl	Remarks		
	Owlath, Mr		ERS				
	Phone 628-03	48					
	Sampler Signature Ro	ger w Bid	7)	Analyses 6			
	Sample No/Location	Date Time ₹		508			LSL No.
	WD-MM	5/27/43 13:00	J 4 HY	1 1 1			1740
	DS-WW	14:30	V 7 (3 3 1			1741
	MM-3	14:00	V 7	3 3 1			1742
	WM-7	15:00	V 7	33			1743
	WM-9	16:00	7 7	3 3 1			1744
	WM-1	17:00	マ マ マ り り り り				1745
	WM-14	V 17:10			7		1740
	Retinguished By Brills	Date/Time 5/28/43 10:50	Received By Atl	hom Relingu	uished By	Date/Time	Received By
	Relinquished By	Date/Time	Received By	Relinqu	uished By	Date/Time	Received By

Turnaround Time: 24 Hour Rush

2-5 Day ____

2 Week_

APPENDIX F

WATER WELL LOGS

WELL CONSTRUCTOR'S REPORT TO WISCONSIN STATE BOARD OF HEALTH See Instructions on Reverse Side

1. County Douglas	Village	X	
\mathcal{A}	(City	_	
2. Location 5-E J. SE T. Se Name of street and number of premis	se or Section, Town and Range numbers	14	W
8. Owner or Agent - Charles S	partnership or firm	***	
4. Mail Address Station B.	Lupliere Wir		***
5. From well to nearest: Buildingf_ft; sewer?	ft; drain ft; septic tank	sar ft	
dry well or filter bedqueft; abandoned well_	•	** ** ** ** ** ** ** ** ** ** ** ** **	
6. Well is intended to supply water for:	elm	· · · · · · · · · · · · · · · · · · ·	
7. DRILLHOLE:	10. FORMATIONS:	•	
Dis. (in.) From (ft.) To (ft.) Dis. (in.) From (ft.) To (ft.)	Kind	From (It.)	To ([2.)
9 0 20	Sarel D boulder	0	12
4 20 1294	kard pan	12	15
8. CASING AND LINER PIPE OR CURBING:	trap rock	18	29/
Dia. (in.) Kind and Weight From (ft.) To (ft.)	,		
4 July gyell			***************************************
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
9. GROUT:			
Kind From (ft.) To (ft.)			
Ruddled Class 0 21			
	Construction of the well was con	npleted or	1:
11. MISCELLANEOUS DATA:	10-29	*****	1955
Yield test: 10 Hrs. at 5 GPM.	The well is terminated		inches
Depth from surface to water-level:ft.	above, below the permaner	it ground	surface.
Water-level when pumping:ft.	Was the well disinfected upon c	ompletion	?
	Yes	No.	
Water sample was sent to the state laboratory at:	Was the well sealed watertight	upon com	pletion?
Superior on Oct 1955	Yes	No_	
Signature M. M. Long Registered Well Driller Please do not wr.	Poplac Was Complete Mail Addi	ress	
Trans no not wi		3 10-1	10-1
Rec'dNo	10 ml 10 ml 10 m	1 10 ml	10 ml
Ans'd	Gas-24 hrs		
Interpretation	48 hrs	-	* ******
	Confirm		-
	B. Coli		

WELL CONSTRUCTOR'S REPORT TO W See Instructions	ISCONSIN STATE BOARD OF HEALTH on Reverse Side
1/)	
1. County Danglas	Village Check one and give name
2. Location Will Name of steport and number of premis	20-446 - (4 e or section, Town and Range numbers
3. Owner or Agent Name of individual	partnership or firm
4. Mail Address And Address Complete add	nn
5. From well to nearest: Buildingft; sewer	ft; drainft; septie tankft;
dry well or filter bedft; abandoned well_	ft
6. Well is intended to supply water for:	Selay
7. DRILLHOLE:	10. FORMATIONS:
Dia. (in.) From (ft.) To (ft.) Dia. (in.) From (ft.) To (ft.)	Kind From To (it.)
4 / 32	Mavel Rock 1 32
8. CASING AND LINER PIPE OR CURBING:	
Dia. (in.) Kind and Weight From (ft.) To (ft.)	
W Stiel	RECEIVED
p. 500 500	OCT 2'5 1957
9. GROUT:	ENVIRONMENTAL SANITATION
Kind From (ft.) To (ft.)	
	Construction of the well was completed on:
11. MISCELLANEOUS DATA:	FOT 1957
Yield test. GPM.	The well is terminatedinches
and the state of the state of the state of the state of the state of the state of the state of the state of the	☑ above, below ☐ the permanent ground surface.
Depth from surface to water-level: ft.	Was the well disinfected upon completion?
Water-level when pumping:ft.	Yes_\(\frac{\lambda}{ \qquad \qq \qua
Water sample was sent to the state laboratory at:	Was the well sealed watertight upon completion?
Madison on 00 23 1957	Yes_X No
Signature Registered Well Driller	Complete Mail Address
	10 ml 10 ml 10 ml 10 ml 10 ml
Rec'dNo	To me To me To me To me
Ans'd	Gas—24 hrs
Interpretation	48 hrs
	Confirm
<u> </u>	B. Coli

APPENDIX G

ACCESS AGREEMENTS

EARTH REMEDIATION SERVICES

a division of Earth Burners, Inc. 31 West Superior Street, Suite 402 Duluth, Minnesota 55802

(218) 726-1537 office (218) 726-0823 fax

ACCESS PERMISSION FORM

I, <u>Mary McKelvey</u>	, hereby give my permission
to Earth Remediation Services (E	CRS), and its employees, duly
authorized representatives, agents	and contractors, to enter upon
and have access at reasonable tim	nes to the following described
property, located in the Town of	Moose Junction, Section 20,
Township <u>44N</u> , Range <u>14W</u> , <u>Douc</u>	county, Wisconsin
(mailing address of this property:	Route 3, Dairyland, Wisconsin
54830) for the following purposes:

- To drill and maintain groundwater monitoring wells, collect soil and water samples, and to abandon monitoring wells according to Wisconsin Administrative Code NR 141 when the wells are no longer needed; and
- 2. To gain access to areas where remedial action or investigative work is to be conducted.

The permission granted herein shall remain in effect until environmental activities have ceased, which is estimated to be on May 31, 1994, when the remedial action that is to be implemented at the site is scheduled to be completed. After May 31, 1994, if the property owner wishes to withdraw permission for continued access, the property owner shall notify Earth Remediation Services (ERS) of that fact. ERS shall, within 90 days after receiving such notice, either abandon any wells that remain on the property or obtain a court order to allow continued access.

If soil or water samples are collected on the property described above, the property owner may request copies of the laboratory analytics of those samples.

If groundwater monitoring wells are installed on the property described above, the property owner agrees not to damage, or interfer with the use of, any monitoring well that is installed as permitted herein, and agrees to notify third parties who have access to the property described above that monitoring wells have been installed on the property.

Earth Remediation Services will be responsible for any damage to your property as a result of their environmental activities.

IN WITNESS WHEREOF:

Mary McKelvey
822 K Street
Eureka, CA 95501

MITNESS WHEREOF:

And 14 1993

Date

(707) 442-0465

EARTH REMEDIATION SERVICES

31 West Superior Street, Suite 402
Duluth, Minnesota 55802

(218) 726-1537 office (218) 726-0823 fax

ACCESS PERMISSION FORM

I, John Dickman	_, hereby give my permission
to Earth Remediation Services (ERS)	, and its employees, duly
authorized representatives, agents an	
and have access at reasonable times	
property, located in the Town of Moo	se Junction, Section <u>17</u> ,
Township <u>44N</u> , Range <u>14W</u> , <u>Douglas</u>	County, Wisconsin
(mailing address of this property: R	<u>oute 3, Dairyland, Wisconsin</u>
54830)	for the following purposes:

- 1. To drill and maintain groundwater monitoring wells, collect soil and water samples, and to abandon monitoring wells according to Wisconsin Administrative Code NR 141 when the wells are no longer needed; and
- To gain access to areas where remedial action or investigative work is to be conducted.

The permission granted herein shall remain in effect until environmental activities have ceased, which is estimated to be on May 31, 1994, when the remedial action that is to be implemented at the site is scheduled to be completed. After May 31, 1994, if the property owner wishes to withdraw permission for continued access, the property owner shall notify Earth Remediation Services (ERS) of that fact. ERS shall, within 90 days after receiving such notice, either abandon any wells that remain on the property or obtain a court order to allow continued access.

If soil or water samples are collected on the property described above, the property owner may request copies of the laboratory analytics of those samples.

If groundwater monitoring wells are installed on the property described above, the property owner agrees not to damage, or interfer with the use of, any monitoring well that is installed as permitted herein, and agrees to notify third parties who have access to the property described above that monitoring wells have been installed on the property.

Earth Remediation Services will be responsible for any damage to your property as a result of their environmental activities.

Signature of Property Owner Date

John & Darlene Dickman 110 First Avenue NE Surrey, ND 58785

(701) 838-0**2**86

EARTH REMEDIATION SERVICES

a division of Earth Burners, Inc.31 West Superior Street, Suite 402Duluth, Minnesota 55802

(218) 726-1537 office (218) 726-0823 fax

ACCESS PERMISSION FORM

I, <u>Margaret Dickman</u>	, hereby give my permission
to Earth Remediation Services (ER	S), and its employees, duly
authorized representatives, agents a	and contractors, to enter upon
and have access at reasonable time	es to the following described
property, located in the Town of Mo	oose Junction, Section 19,
Township 44N , Range 14W , Dougl	as County, Wisconsin
(mailing address of this property:	Route 3, Box 330, Dairyland,
Wisconsin 54830) for the following purposes:

- 1. To drill and maintain groundwater monitoring wells, collect soil and water samples, and to abandon monitoring wells according to Wisconsin Administrative Code NR 141 when the wells are no longer needed; and
- 2. To gain access to areas where remedial action or investigative work is to be conducted.

The permission granted herein shall remain in effect until environmental activities have ceased, which is estimated to be on May 31, 1994, when the remedial action that is to be implemented at the site is scheduled to be completed. After May 31, 1994, if the property owner wishes to withdraw permission for continued access, the property owner shall notify Earth Pemediation Services (ERS) of that fact. ERS shall, within 90 days after receiving such notice, either abandon any wells that remain on the property or obtain a court order to allow continued access.

If soil or water samples are collected on the property described above, the property owner may request copies of the laboratory analytics of those samples.

If groundwater monitoring wells are installed on the property described above, the property owner agrees not to damage, or interfer with the use of, any monitoring well that is installed as permitted herein, and agrees to notify third parties who have access to the property described above that monitoring wells have been installed on the property.

Earth Remediation Services will be responsible for any damage to your property as a result of their environmental activities.

IN WITNESS WHEREOF:

Mardinet Dickoman
Signature of Property Owner

april 3:1993
Date

Margaret Dickman Route 3, Box 330 338

Dairyland, WI 54830

Mailing Address of Property Owner

(715) 244-3364 Telephone Number

- 8. The permitted work shall be co-ordinated, and in no case interfere, with any highway improvement being undertaken at the same time.
- 9. It shall be the responsibility of the applicant to determine the location of, and protect from damage, any facility(s) already in place in the area to be influenced by the permitted work. All notification of others is likewise a responsibility of the applicant.
- 10. All operations shall be performed without obstructing nor closing all or any part of any highway traffic lane unless lane influence is specifically sanctioned by the highway authority and special controls applicable thereto are set forth herein and by such authority. Unless otherwise specified, unobstructed traffic shall be maintained on all constructed highway lanes.
- 11. This permit authorizes only the described work of and for the applicant indicated on the face of the permit. It does not grant authority for the facilities of any other, either by present or future installation.
- 12. Construction methods and restorations shall be in accordance with applicable portions of the Wisconsin Department of Transportation Standard Specifications for Road and Bridge Construction, current edition.
- 13. Highway signing applicable for the proposed-work shall conform to the Wisconsin Department of Transportation Hanual of Traffic Control Devices.
- 14. All highway facilities disturbed by the permitted work or associated operations shall be restored promptly. If restoration is not accomplished voluntarily, without delay, the highway authority may issue a notice setting forth a time-certain by which the restoration must be completed. If the applicant fails to satisfactorily complete all restorations within the time thus established, the highway authority may arrange directly for all needful restorations, and all costs associated with such restorations and the arrangements therefor shall be a cost-obligation of the applicant. The applicant agrees to pay any and all of such costs within 60 calendar days of the state billing.
- 15. Any brush, trash or waste materials resulting from the permitted work shall be removed from the highway right of way. All elm tree cuttings stemming from the work shall be disposed of in accordance with the procedures of the Wisconsin Department of Transportation. Copy of the procedure may be obtained by contacting the Wisconsin Highway Transportation District Office identified on the face of this permit. No tree or shrub of any species shall be cut, trimmed or damaged to facilitate the installation or maintenance of the permitted facility except as authorized by the owner of such tree or shrub. ss/86.03(2)(4), 86.16(3), 182.017(6), Wis. Statutes, and others pertaining.
- 16. Upon completion of the work and restorations, written notice thereof shall be filed with the District Chief Haintenance Engineer of that Wisconsin Highway Transportation District Office indicated on the face of this permit.
- 17. Smooth and finished slopes shall be constructed at those locations where any regraded portion of the highway right-of-way meets the land of an adjacent property owner.
- 18. Any turfed area of the right of way disturbed by the permitted work and operations shall be restored with fine-graded topsoil having a depth of not less than 4 inches, and reseeded to perennial grass or sedded.
- 19. If, in the opinion of the District Chief Haintenance Engineer, the permitted work or facilities obstruct highway drainage, increase the difficulty of highway maintenance unduly, or in any other manner adversely affect a highway interest, the applicant shall, upon notice thereof, cure the fault in the manner directed, and restore the highway facility to the satisfaction of the said highway authority.
- 20. The permittee is responsible to assure that the site of construction is secure against any hazard to the public, both when the site is attended and during off-hours, any holiday, and the hours of night when the site may be unattended.

INDEMNIFICATION

EM775 91

The Applicant shall save and hold the State, its officers, employees, agents, and all private and governmental contractors and subcontractors with the State under Chapter 84 Wisconsin Statutes, harmless from actions of any nature whatsoever (including any by Applicant itself) which arise out of, or are connected with, or are claimed to arise out of or be connected with any of the work done by the Applicant, or the construction or maintenance of facilities by the Applicant, pursuant to this permit or any other permit issued by the State for location of property, lines or facilities on highway right-ofway, (1) while the Applicant is performing its work, or (2) while any of the Applicant's property, equipment, or personnel, are in or about such place or the vicinity thereof, or (3) while any property constructed, placed or operated by or on behalf of Applicant remains on the State's property or right-of-way pursuant to this permit or any other permit issued by the State for location of property, lines or facilities on highway right-ofway; including without limiting the generality of the foregoing, all liability, damages, loss, expense, claims, demands and actions on account of personal injury, death or property loss to the State, its officers, employees, agents, contractors, subcontractors or frequenters; to the Applicant, its employees, agents, contractors, subcontractors, or frequenters; or to any other persons, whether based upon, or claimed to be based upon, statutory (including, without limiting the generality of the foregoing, worker's compensation), contractual, tort, or whether or not caused or claimed to have been caused by active or inactive negligence or other breach of duty by the State, its officers, employees, agents, contractors, subcontractors or frequenters; Applicant, its employees, agents, contractors, subcontractors or frequenters; or any other person. Without limiting the generality of the foregoing, the liability, damage, loss, expense, claims, demands and actions indemnified against shall include all liability, damage, loss, expense, claims, demands and actions for damage to any property, lines or facilities placed by or on behalf of the Applicant pursuant to this permit or any other permit issued by the State for location of property, lines or facilities on highway right-of-way in the past or present, or that are located on any highway or State property or right-of-way with or without a permit issued by the State, for any loss of data, information, or material; for trademark, copyright or patent infringement; for unfair competition or infringement of personal or property rights of any kind whatever. The Applicant shall at its own expense investigate all such claims and demands, attend to their settlement or other disposition, defend all actions based thereon and pay all charges of attorneys and all other costs and expenses of any kind arising from any such liability, damage, loss, claims, demands and actions.

Any transfer, whether voluntary or involuntary, of ownership or control of any property constructed, placed or operated by or on behalf of the Applicant that remains on the State's property or right-of-way pursuant to this permit shall not release Applicant from any of the indemnification requirements of this permit, unless the State is notified of such transfer in writing. Any acceptance by any other person or entity, whether voluntary or involuntary, of ownership or control of any property constructed, placed or operated by or on behalf of the Applicant that remains on the State's property or right-of-way pursuant to this permit, shall include acceptance of all of the indemnification requirements of this permit by the other person or entity receiving ownership or control.

Notwithstanding the foregoing, a private contractor or subcontractor with the State under Chapter 84 Wisconsin Statutes, that fails to comply with sections 66.047 and 182.0175 Wisconsin Statutes (1985-1986), remains subject to the payment to the Applicant of the actual cost of repair of intentional or negligent damage by the contractor or subcontractor to any property, lines or facilities placed by or on behalf of the Applicant pursuant to this permit or any other permit issued by the State for location of property, lines or facilities on highway right-of-way, and remains subject to payment to the Applicant for losses due to personal injury or death resulting from negligence by the contractor or subcontractor.

Notwithstanding the foregoing, if the State, or its officers, employees and agents, fail to comply with sections 66.047 and 182.0175 Wisconsin Statutes (1985-1986), the State or its officers, employees and agents, remain subject to the payment to the Applicant of the actual cost of repair of willful and intentional damage by the State, or its officers, employees and agents, to any property, lines or facilities placed by or on behalf of the Applicant pursuant to this permit or any other permit issued by the State for location of property, lines or facilities on highway right-of-way, and remain subject to payment to the Applicant for losses due to personal injury or death resulting from negligence by the State, its officers, employees and agents.

No indemnification of private contractors or subcontractors with the State under Chapter 84 Wisconsin Statutes, shall apply in the event of willful and intentional damage by such private contractors or subcontractors to the property, lines and facilities of the Applicant located on the highway right-of-way pursuant to this permit or any other permit issued by the State for the location of property, lines or facilities on highway right-of-way.