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6-26-2000

HSI GEOTRANS
A TETRA TECH COMPANY

175 North Corporate Drive
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Brookfield, Wisconsin
53045

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June 23, 2000
(N734/101)

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Ms. Jennifer Tobias
Wisconsin Department of Natural Resources
625 E. County Road Y, Suite 700
Oshkosh, WI 54901-9731

RE: 2000 Semi-Annual Status Report, FF/NN Landfill, Ripon, Wisconsin
02-20-000915

Dear Ms. Tobias:

Enclosed please find one copy of the Semi-Annual Status Report for the Remedial Action work at the FF/NN Landfill in Ripon, Wisconsin. Should you have any questions or comments, please do not hesitate to call.

Sincerely,

HSI GEOTRANS, INC.

Gerald L. DeMers

Gerald L. DeMers
Senior Engineer

GLD:jf
Enc.

cc: Raymond M. Roder - Reinhart, Boerner, Van Deuren, Norris, Rieselbach, S.C. (1 copy)
Phil Hoopman - City of Ripon, Department of Public Works (1 copy)
Nelson Olavarria - Cooper Industries (1 copy)

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CONTRACT SF-92-01

SEMI-ANNUAL STATUS REPORT

Spring 2000

SITE NAME/ACTIVITY:

FF/NN Landfill
Ripon, Wisconsin
Remedial Action

File Ref. No.: 02-20-000915

PREPARED BY:

Mr. Gerald DeMers
HSI GeoTrans, Inc.
175 N. Corporate Drive, Suite 100
Brookfield, Wisconsin 53045

PREPARED FOR:

Ms. Jennifer Tobias
Hydrogeologist
Bureau for Remediation & Redevelopment
Wisconsin Department of Natural Resources - NER
625 E. County Road Y, Suite 700
Oshkosh, WI 54901-9731 (1 copy)

DATE:

June 2000

PERIOD:

December 1, 1999 - May 31, 2000

PROGRESS MADE THIS REPORTING PERIOD:

- Groundwater and leachate samples were collected on May 2 and 3, 2000.
- Gas screening was completed and an inspection of the landfill cap was conducted.
- The analytical results from the sampling of three private wells located near the landfill were sent to the respective homeowners.

DATA TRANSMITTED WITH REPORT:

- Groundwater Volatile Organic Compound (VOC) Sampling Results Summary Table.
- Site maps showing the locations of the closed landfill, private wells and monitor wells adjacent to the closed landfill.

ANTICIPATED PROBLEMS AND RECOMMENDED SOLUTIONS:

- No problems are anticipated at this time.

DOCUMENTS SUBMITTED:

- Groundwater monitor well data and private well data were submitted to the WDNR in disk format, as required.

when (?) not received.

UPCOMING ACTIVITIES PLANNED:

- The next semi-annual groundwater, leachate, and landfill gas sampling will be conducted in October, 2000.
- Preparation of the 5-year review report will begin. The report is due in July, 2001.

PERSONNEL/SUBCONTRACTORS:

- Gerald DeMers is the project manager. Judy Fassbender of Applied Environmental Solutions coordinates the groundwater monitoring and reporting activities for HSI GeoTrans. Todd Thomson conducted the field sampling. The laboratory analyses were completed by Test America, Inc. (f.k.a. NET) in Watertown, Wisconsin.

CONCLUSIONS:

The VOC concentration levels are very similar to the concentrations measured last fall (1999). Of the eight monitor wells included in the sampling program, three had a slight decrease in VOCs overall (MW-104, P-107D, and MW-112), two had a slight increase (MW-103 and MW-107), and three remained approximately the same as compared to the fall 1999 concentrations (MW-101, P-106 and P-107). The decreasing and stable concentrations are likely the result of the composite cap on the landfill which eliminates infiltration, and subsequently, results in reduced seepage from the landfill, thus improving groundwater quality. No VOC constituents of concern were detected in the three off-site residential well samples. Groundwater flow direction is toward the southwest and has remained unchanged.

Of the three leachate wells, LC-1 did not contain adequate liquid for sample collection, the VOC concentrations measured at LC-2 were about equal to the fall 1999 measurements, and LC-3 was

sampled for the first time. Previously LC-3 did not contain adequate liquid for sample collection. The sample from LC-3 contained four VOCs including cis-1,2-dichloroethene at 5,880 parts per billion (ppb) and vinyl chloride at 330 ppb. The other two compounds were napthalene and toluene, detected at 25 and 65 ppb, respectively.

All of the gas screening results showed methane at less than 10%, except for GV-9 where methane was measured at 23.7%. The cap vegetation and overall landfill surface looked good with no areas requiring repair or maintenance. Mowing to reduce the progress of woody vegetation will be completed in the near future.

Table 2. Volatile Organic Compounds Detected in Leachate

PARAMETER	LC-1													WDNR NR140	
	1993				1996		1997		1998		1999		2000		
	5/12	5/12 DUP	6/24	6/24 DUP	5/10	10/31	5/13	10/28	4/14	10/14	4/99* Dry	10/99* Dry	5/02* Dry	PAL	ES
Chloromethane	<25	<36	<1	<2	4 J	<1	<19	<0.38	<3.8	<3.8	NA	NA	NA	0.3	3
Vinyl Chloride	76	71	6	7 D	<25	<1	<23	<0.46	<4.6	<4.6	NA	NA	NA	0.02	0.2
Chloroethane	<25	<36	5	6 D	<25	1.5	<60	9.4	35	<12	NA	NA	NA	80	400
1,1-Dichloroethane	<25	<36	<1	<2	<25	<1	<12	<0.25	<2.5	<2.5	NA	NA	NA	85	850
cis-1,2-Dichloroethene	410	550	13	13 D	3 J	0.46 J	<12	<0.23	<2.3	<2.3	NA	NA	NA	7	70
Trichloroethene	18 J	<36	<1	<2	<25	<1	<24	<0.49	<4.9	<4.9	NA	NA	NA	0.5	5
Benzene	<25	<36	1 J	1 DJ	<25	2.2	<16	1.7	3.6	3.8	NA	NA	NA	0.5	5
Tetrachloroethene	<25	<36	<1	<2	<25	<1	<32	<0.63	<6.3	<6.3	NA	NA	NA	0.5	5
4-Methyl-2 Pentanone	<120	<180	<7	<8	<120	23	<18	0.80	<3.7	NA	NA	NA	NA	50	500
Toluene	170	290	20	23 D	<25	4.7	<20	1.2	<3.9	<3.9	NA	NA	NA	68.6	343
Chlorobenzene	<25	<36	<1	<2	<25	0.58 J	<11	0.23	<2.2	<2.2	NA	NA	NA	20	100
Ethylbenzene	92	110	12	11 D	4J	8.3	<19	3.6	<3.8	19	NA	NA	NA	140	700
Xylenes (Total)	320	410	85	82 D	86	280	<55	29	50	100	NA	NA	NA	124	620
1,4-Dichlorobenzene	<25	43	0.8 J	1 DJ	<25	<1	<18	0.87	<3.5	<3.5	NA	NA	NA	15	75
Tetrahydrofuran	NA	NA	NA	NA	NA	NA	<95	97	110	NA	NA	NA	NA	10	50
Naphthalene	NA	NA	NA	NA	NA	NA	<18	6.8	13	18	NA	NA	NA	8	40
Methyl-t-butyl ether	NA	NA	NA	NA	NA	NA	<7.0	1.1	<1.4	<1.4	NA	NA	NA	12	60
Carbon Disulfide	<25	<36	<1	<2	<25	<1	90	<1.0	<10	NA	NA	NA	NA	200	1,000
2-Butanone (MEK)	<120	<180	<7	<8	<120	<5	<100	5.9	<20	NA	NA	NA	NA	90	460
Di-isopropyl ether	NA	NA	NA	NA	NA	NA	<6.5	0.49	<1.3	<1.3	NA	NA	NA	NL	NL
P-isopropyl toluene	NA	NA	NA	NA	NA	NA	<18	1.7	<3.5	6.3	NA	NA	NA	NL	NL
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	<16	9.6	14	37	NA	NA	NA	96	480
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	<16	8.7	12	22	NA	NA	NA	96	480

PARAMETER	LC-2											WDNR NR140	
	1993		1996		1997		1998		1999		2000		
	5/12	6/24	5/10	10/31	5/13	10/28	4/14	10/14	4/7/99	10/28	5/02	PAL	ES
Chloromethane	<4	<3	<2	<1.0	<3.8	<0.38	<19	<0.76	<1.0	<2.5	<2.5	0.3	3
Vinyl Chloride	<4	<3	<2	<1.0	<4.6	<0.46	<23	<0.92	<1.0	<2.5	<2.5	0.02	0.2
Chloroethane	<4	<3	5	8.1	<12	6.4	<60	<2.4	<1.0	<2.5	<2.5	80	400
1,1-Dichloroethane	<4	<3	0.2J	0.22 J	<2.5	<0.20	<12	<0.50	<1.0	<2.5	<2.5	85	850
cis-1,2-Dichloroethene	<4	<3	<2	3.1	<2.3	<0.23	<12	<0.46	<1.0	<2.5	<2.5	7	70
Trichloroethene	<4	<3	<2	0.56 J	<4.9	<0.49	<24	<0.98	<1.0	<2.5	<2.5	0.5	5
Benzene	5	10	4	6.6	5.8	7.0	<16	4.0	6.2	8.0	8.1	0.5	5
Tetrachloroethene	<4	<3	<2	2.7	<6.3	<0.63	<32	<1.3	<1.0	<2.5	<2.5	0.5	5
4-Methyl-2 Pentanone	<18	<16	<12	<5.0	<3.7	<0.37	<18	NA	NA	<2.5	<2.5	50	500
Toluene	71	27	0.6J	6.8	<3.9	1.4	<20	<0.78	<0.40	<1.0	<1.0	68.6	343
Chlorobenzene	18	20	10	24	17	25	25	91	44	45	45	20	100
Ethylbenzene	49	54	<2	42	<3.8	18	<19	45	150	280	190	140	700
Xylenes (Total)	160 D	180	20	140	34	40	<55	39	380	750	670	124	620
1,2-Dichlorobenzene	<4	<3	NA	<5	<2	0.59	<10	<0.44	<1.0	<2.5	<2.5	60	600
1,3-Dichlorobenzene	<4	<3	NA	<5	<2.2	0.23	<11	<0.44	<1.0	<2.5	<2.5	125	1,250
1,4-Dichlorobenzene	380 D	170 D	<2	11	8.3	8.2	<18	18	28	30	30	15	75
Tetrahydrofuran	NA	NA	NA	NA	<19	240 J	200	NA	NA	240	190	10	50
Naphthalene	NA	NA	NA	NA	4.4	8.9	<18	7.1	7.1	12	3.6	8	40
Methyl-t-butyl ether	NA	NA	NA	NA	<1.4	1.6	<7	1.3	<1.0	<2.5	<2.5	12	60
Carbon Disulfide	<4	<3	<2	<1	<10	<1.0	<50	NA	NA	NA	<2.5	200	1,000
2-Butanone (MEK)	<18	<16	<12	<5	<20	2.3	<100	NA	NA	<2.5	<2.5	90	1,000
Di-isopropyl ether	NA	NA	NA	NA	<1.3	1.2	<6.5	0.94	<1.0	<2.5	<2.5	NL	NL

PARAMETER	LC-2											WDNR NR140	
	1993		1996		1997		1998		1999		2000		
	5/12	6/24	5/10	10/31	5/13	10/28	4/14	10/14	4/7/99	10/28	5/02	PAL	ES
Isopropylbenzene	NA	NA	NA	NA	<3.6	0.64	<18	1.4	3.9	6.7	<2.5	NL	NL
n-Propylbenzene	NA	NA	NA	NA	<4.6	<0.46	<23	<0.92	2.8	<2.5	<2.5	NL	NL
P-isopropyl toluene	NA	NA	NA	NA	<3.5	1.1	<18	<0.70	<1.0	<2.5	<2.5	NL	NL
1,2,4-Trichlorobenzene	NA	NA	NA	NA	<1.8	0.18	<9.0	<0.36	<1.0	<2.5	<2.5	14	70
1,2,4-Trimethylbenzene	NA	NA	NA	NA	6.9	17	<16	17	26	42	42	96	480
1,3,5-Trimethylbenzene	NA	NA	NA	NA	5.5	6.5	<16	3.5	9.0	11	15	96	480

Table 2. Volatile Organic Compounds Detected in Leachate

Dry until this time.

PARAMETER	LC-3 2000 5/02	WDNR NR140 PAL	WDNR NR140 ES
cis-1,2-Dichloroethene	5800	7	70
Naphthalene	25	8	40
Toluene	65	68.6	343
Vinyl Chloride	330	0.02	.02

Notes: Many sample results indicated the presence of methylene chloride and/or acetone. Validation of the data indicated that these compounds were not actually present in the water from the leachate wells. These and other compounds not detected in the samples are not included on the summary table.

All concentrations are in parts per billion (ppb)

D	=	Analyte was identified in an analysis at a secondary dilution factor
J	=	Estimated Value; Below the Quantitation Limit
PAL	=	WDNR NR140 Preventive Action Limit
ES	=	WDNR NR140 Enforcement Standard
Number shaded	=	Exceeds WDNR PAL
Box shaded	=	Exceeds WDNR ES
NA	=	Not analyzed
NL	=	No standard listed
*	=	Insufficient water for sample collection

Table 3. Groundwater VOC Sampling Results

Sampling Point:	MW-101											P-101		WDNR NR140	
Collection Date:	10/15/93	4/19/94	5/8/96	10/30/96	5/12/97	10/26/97	4/13/98*	10/13/98	4/7/99	10/27/99	05/02/00	10/15/93	4/19/94	PAL	ES
PARAMETER															
Chloromethane				0.89 J										0.3	3
Vinyl Chloride														0.02	0.2
cis-1,2-dichloroethene														7	70
Toluene													0.5J	68.6	343
Benzene														0.5	5
Chlorobenzene														20	100
1,4-dichlorobenzene														15	75
Trichloroethene														0.5	5
Tetrachloroethene	0.7 J	0.6J	0.6J	0.72 J		0.70				0.70	0.32			0.5	5

Results in µg/ℓ
B = analyte found in method blank as well as sample
E = exceeds calibration range
J = estimated value
PAL = Preventive Action Limit
ES = Enforcement Standard
Partial Shading = Exceeds WDNR NR140 PAL
Total Shading = Exceeds WDNR NR140 ES
Blank = Not detected
* Not available due to inadequate water for sample collection

Sampling Point:	MW-102							P-102		WDNR NR140	
Collection Date:	10/26/93	4/11/94	5/8/96	10/30/96	5/12/97	10/26/97	4/13/98	10/26/93	4/11/94	PAL	ES
PARAMETER											
Chloromethane				0.99 J						0.3	3
Vinyl Chloride										0.02	0.2
cis-1,2-dichloroethene							0.46			7	70
Toluene		3	0.4J							68.6	343
Benzene										0.5	5
Chlorobenzene										20	100
1,4-dichlorobenzene										15	75
Trichloroethene										0.5	5
Tetrachloroethene				0.30 J						0.5	5

Results in µg/ℓ
B = analyte found in method blank as well as sample
E = exceeds calibration range
J = estimated value
PAL = Preventive Action Limit
ES = Enforcement Standard
Partial Shading = Exceeds WDNR NR140 PAL
Total Shading = Exceeds WDNR NR140 ES
Blank = Not detected

MW-102 was removed from the monitoring program in May 1998.

Sampling Point:	MW-103													WDNR NR140	
Collection Date:	10/27/93	4/11/94	4/11/94 DUP	5/9/96	5/9/96 DUP	10/30/96	5/13/97	10/26/97	4/13/98*	10/13/98	4/7/99	10/27/99	5/02/00	PAL	ES
PARAMETER									Dry						
Chloromethane					9J	1.1								0.3	3
Vinyl Chloride	75	440	410	170	180	98 E	230	220J		45	47	48	60	0.02	0.2
Chloroethane						1.9	2.7	2.4						80	400
1,1-Dichloroethane						.99 J	1.2	0.89						85	850
1,1-Dichloroethene						0.30 J	0.75							0.7	7
cis-1,2-dichloroethene	410	1100	970	740	840	520 E	790	550J		260	150	170	170	7	70
trans-1,2-Dichloroethene				9J	10J	5	4.7	5.2		3.3	2.4	2.6	3.4	20	100
1,2-dichloropropane						1.9	1.6	1.5						0.5	5
Benzene						3.3	4.3	4.2		2.0	1.4		1.8	0.5	5
Chlorobenzene				7J	8J	8.1 J	8.5	7.9		5.7	4.7	5.2	6.5	20	100
1,4-dichlorobenzene						0.76 J	0.98	1.4						15	75
Trichloroethene				10J	11J	4.7	5.6	6.6		5.8	3.9	2.4	4.1	0.5	5
Tetrachloroethene														0.5	5
1,2-dichloroethane							0.52	0.38						0.5	5
MTBE							0.27	0.38						12	60
DisIsopropyl Ether								0.57						NS	NS
Tetrahydrofuran								3.1						10	50

Results in µg/ℓ
B = analyte found in method blank as well as sample
E = exceeds calibration range
J = estimated value
PAL = Preventive Action Limit
ES = Enforcement Standard
Partial Shading = Exceeds WDNR NR140 PAL
Total Shading = Exceeds WDNR NR140 ES
Blank = Not detected
* Not available due to inadequate water for sample collection

Sampling Point:	P-103							WDNR NR140	
Collection Date:	10/27/93	4/12/94	5/9/96	10/31/96	5/13/97	10/27/97	4/13/98	PAL	ES
PARAMETER									
Chloromethane				0.84 J				0.3	3
Vinyl Chloride			0.1J					0.02	0.2
Chloroethane								80	400
1,1-Dichloroethane								85	850
cis-1,2-dichloroethene			0.1J					7	70
trans-1,2-Dichloroethene								20	100
Toluene			0.1J					68.6	343
Benzene								0.5	5
Chlorobenzene								20	100
1,4-dichlorobenzene								15	75
Trichloroethene								0.5	5
Tetrachloroethene								0.5	5

Results in µg/ℓ
B = analyte found in method blank as well as sample
E = exceeds calibration range
J = estimated value
PAL = Preventive Action Limit
ES = Enforcement Standard
Partial Shading = Exceeds WDNR NR140 PAL
Total Shading = Exceeds WDNR NR140 ES
Blank = Not detected

P-103 was removed from the monitoring program in May 1998.

Sampling Point:	MW-104											WDNR NR140	
Collection Date:	10/27/93	4/19/94	5/9/96	10/30/96	5/12/97	10/27/97	4/13/98	10/13/98	4/7/99	10/27/99	5/02/00	PAL	ES
PARAMETER													
Chloromethane			0.3J	0.46 J								0.3	3
Vinyl Chloride		6	10	4.3	4.5	18	17	15	6.1	2.8	1.1	0.02	0.2
Chloroethane			1	0.34 J	1.5							80	400
1,1-Dichloroethane			0.2 J									85	850
cis-1,2-dichloroethene	1 JB	10	6	3.6	1.1	7.3	74	3.3	6.6	4.5	0.70	7	70
trans-1,2-Dichloroethene			0.3 J	0.22 J			0.67					20	100
Toluene	31		0.2 J				0.46				0.13	68.6	343
Benzene	2	1	6	0.64 J	4.8	0.63	1.2	1.7	3.2	3.5	3.0	0.5	5
Chlorobenzene	2	1	5	1.1	4.5	1.3			1.4	5.4	5.7	20	100
Ethylbenzene			0.1J	0.80 J								140	700
1,4-dichlorobenzene	2	1			0.91	0.85		0.76		0.92	1.5	15	75
Trichloroethene		0.8J	0.5J	0.31 J			3.5		0.71			0.5	5
Tetrachloroethene												0.5	5
Total Xylenes				0.77 J				4.1				124	620
MTBE					0.32							12	60

Results in µg/ℓ
B = analyte found in method blank as well as sample
E = exceeds calibration range
J = estimated value
PAL = Preventive Action Limit
ES = Enforcement Standard
Partial Shading = Exceeds WDNR NR140 PAL
Total Shading = Exceeds WDNR NR140 ES
Blank = Not detected

Sampling Point:	P-104							WDNR NR140	
Collection Date:	10/27/94	4/19/94	5/9/96	10/30/96	5/12/97	10/27/97	4/13/98	PAL	ES
PARAMETER									
Chloromethane				0.20 J				0.3	3
Vinyl Chloride								0.02	0.2
Chloroethane								80	400
1,1-Dichloroethane								85	850
cis-1,2-dichloroethene								7	70
trans-1,2-Dichloroethene								20	100
Toluene								68.6	343
Benzene								0.5	5
Chlorobenzene								20	100
Ethylbenzene								140	700
1,4-dichlorobenzene								15	75
Trichloroethene								0.5	5
Tetrachloroethene								0.5	5
Total Xylenes								124	620
MTBE								12	60

Results in µg/ℓ
B = analyte found in method blank as well as sample
E = exceeds calibration range
J = estimated value
PAL = Preventive Action Limit
ES = Enforcement Standard
Partial Shading = Exceeds WDNR NR140 PAL
Total Shading = Exceeds WDNR NR140 ES
Blank = Not detected

P-104 was removed from the monitoring program in May 1998.

Sampling Point:	MW-105		P-105		WDNR NR140	
Collection Date:	10/26/93	4/13/94	10/26/94	4/13/94	PAL	ES
PARAMETER						
Vinyl Chloride					0.02	0.2
cis-1,2-dichloroethene					7	70
Toluene					68.6	343
Benzene					0.5	5
Chlorobenzene					20	100
1,4-dichlorobenzene					15	75
Trichloroethene					0.5	5
Tetrachloroethene					0.5	5
TOTAL VOCs	ND	ND	ND	ND		

Results in µg/ℓ
B = analyte found in method blank as well as sample
E = exceeds calibration range
J = estimated value
PAL = Preventive Action Limit
ES = Enforcement Standard
Partial Shading = Exceeds WDNR NR140 PAL
Total Shading = Exceeds WDNR NR140 ES
Blank = Not detected

Sampling Point:	MW-106		P-106											WDNR NR140	
Collection Date:	10/26/93	4/19/94	10/26/93	4/19/94	5/8/96	10/31/96	5/12/97	10/26/97	4/13/98	10/13/98	4/7/99	10/27/99	5/02/00	PAL	ES
PARAMETER															
Vinyl Chloride														0.02	0.2
Chloromethane						0.62 J								0.3	3
cis-1,2-dichloroethene					0.2 J									7	70
Toluene		11												68.6	343
Benzene														0.5	5
Chlorobenzene														20	100
1,4-dichlorobenzene														15	75
Trichloroethene			0.6 J	0.8 J	0.8 J	0.22 J	0.65	0.67	0.61	0.71	0.58	0.61	0.56	0.5	5
Tetrachloroethene														0.5	5

Results in µg/ℓ
B = analyte found in method blank as well as sample
E = exceeds calibration range
J = estimated value
PAL = Preventive Action Limit
ES = Enforcement Standard
Partial Shading = Exceeds WDNR NR140 PAL
Total Shading = Exceeds WDNR NR140 ES
Blank = Not detected

Sampling Point:	MW-107											WDNR NR140	
Collection Date:	10/27/93	4/12/94	5/9/96	10/21/96	5/13/97	10/27/97	4/14/98	10/13/98*	4/6/99	10/27/99	5/02/00	PAL	ES
PARAMETER													
Chloromethane				0.80 J								0.3	3
Vinyl Chloride												0.02	0.2
Chloroethane												80	400
cis-1,2-dichloroethene												7	70
Toluene												68.6	343
Benzene												0.5	5
Chlorobenzene												20	100
1,4-dichlorobenzene												15	75
Trichloroethene	2	2	2	2.2	2.6	2.0	2.1	NA	1.8	1.1	1.6	0.5	5
Tetrachloroethene												0.5	5
Dichlorodifluoromethane					0.9	0.7						200	1000

Results in µg/ℓ
B = analyte found in method blank as well as sample
E = exceeds calibration range
J = estimated value
PAL = Preventive Action Limit
ES = Enforcement Standard
Partial Shading = Exceeds WDNR NR140 PAL
Total Shading = Exceeds WDNR NR140 ES
Blank = Not detected
* Not available due to inadequate water for sample collection.

Sampling Point:	P-107															WDNR NR140	
Collection Date:	10/27/93	4/12/94	4/12/94 DUP	5/9/96	10/23/96	10/23/96 DUP	5/14/97	5/14/97 DUP	10/27/97	10/27/97 DUP	4/14/98	4/14/98 DUP	10/14/98	10/14/98 DUP	4/6/99	PAL	ES
PARAMETER																	
Chloromethane					0.79 J	0.49 J										0.3	3
Vinyl Chloride	6	3	3	2	2.3	2.7	2.0	1.7	2.6 .	2.3	2.2	2.4	1.5	1.7	0.58	0.02	0.2
Chloroethane				0.2 J	0.19	0.21										80	400
cis-1,2-dichloroethene	4	2	2	2	1.9	2.1	1.3	1.1	2.2	1.8	2.3	2.3	2.1	2.4	1.5	7	70
Toluene		0.7J	0.7J	0.1 J												68.6	343
Benzene				0.1 J												0.5	5
Chlorobenzene																20	100
1,4-dichlorobenzene																15	75
Trichloroethene				0.1 J												0.5	5
Tetrachloroethene																0.5	5
1,2,4-Trichlorobenzene													0.20			14	70

Results in µg/ℓ
B = analyte found in method blank as well as sample
E = exceeds calibration range
J = estimated value
PAL = Preventive Action Limit
ES = Enforcement Standard
Partial Shading = Exceeds WDNR NR140 PAL
Total Shading = Exceeds WDNR NR140 ES
Blank = Not detected

Sampling Point:	P-107D											WDNR NR140	
Collection Date:	10/27/93	4/13/94	5/9/96	10/23/96	5/14/97	10/27/97	4/14/98	10/14/98	4/6/99	10/27/99	5/02/00	PAL	ES
PARAMETER													
Chloromethane			0.3J	0.44 J								0.3	3
Vinyl Chloride	6		0.6J	3.9	2.4	5.1	4.1	2.2	0.87	1.7	1.3	0.02	0.2
Chloroethane												80	400
cis-1,2-dichloroethene	2B		0.2J		0.49	1.7	1.0		0.34			7	70
Toluene			0.3J									68.6	343
Benzene			0.1J									0.5	5
Chlorobenzene												20	100
1,4-dichlorobenzene												15	75
Trichloroethene												0.5	5
Tetrachloroethene												0.5	5

Results in µg/ℓ
B = analyte found in method blank as well as sample
E = exceeds calibration range
J = estimated value
PAL = Preventive Action Limit
ES = Enforcement Standard
Partial Shading = Exceeds WDNR NR140 PAL
Total Shading = Exceeds WDNR NR140 ES
Blank = Not detected

Sampling Point:	MW-108							P-108				WDNR NR140	
Collection Date:	10/18/93	4/13/94	5/8/96	10/23/96	5/12/97	10/27/97	4/14/98	10/25/93	10/25/93 DUP	4/13/94	4/13/94 DUP	PAL	ES
PARAMETER													
Chloromethane				0.85 J								0.3	3
Vinyl Chloride												0.02	0.2
cis-1,2-dichloroethene			0.2 J									7	70
Toluene	11	2	0.2 J									68.6	343
Benzene												0.5	5
Chlorobenzene												20	100
1,4-dichlorobenzene												15	75
Trichloroethene												0.5	5
Tetrachloroethene												0.5	5

Results in µg/ℓ
B = analyte found in method blank as well as sample
E = exceeds calibration range
J = estimated value
PAL = Preventive Action Limit
ES = Enforcement Standard
Partial Shading = Exceeds WDNR NR140 PAL
Total Shading = Exceeds WDNR NR140 ES
Blank = Not detected

MW-108 was removed from the monitoring program in May 1998

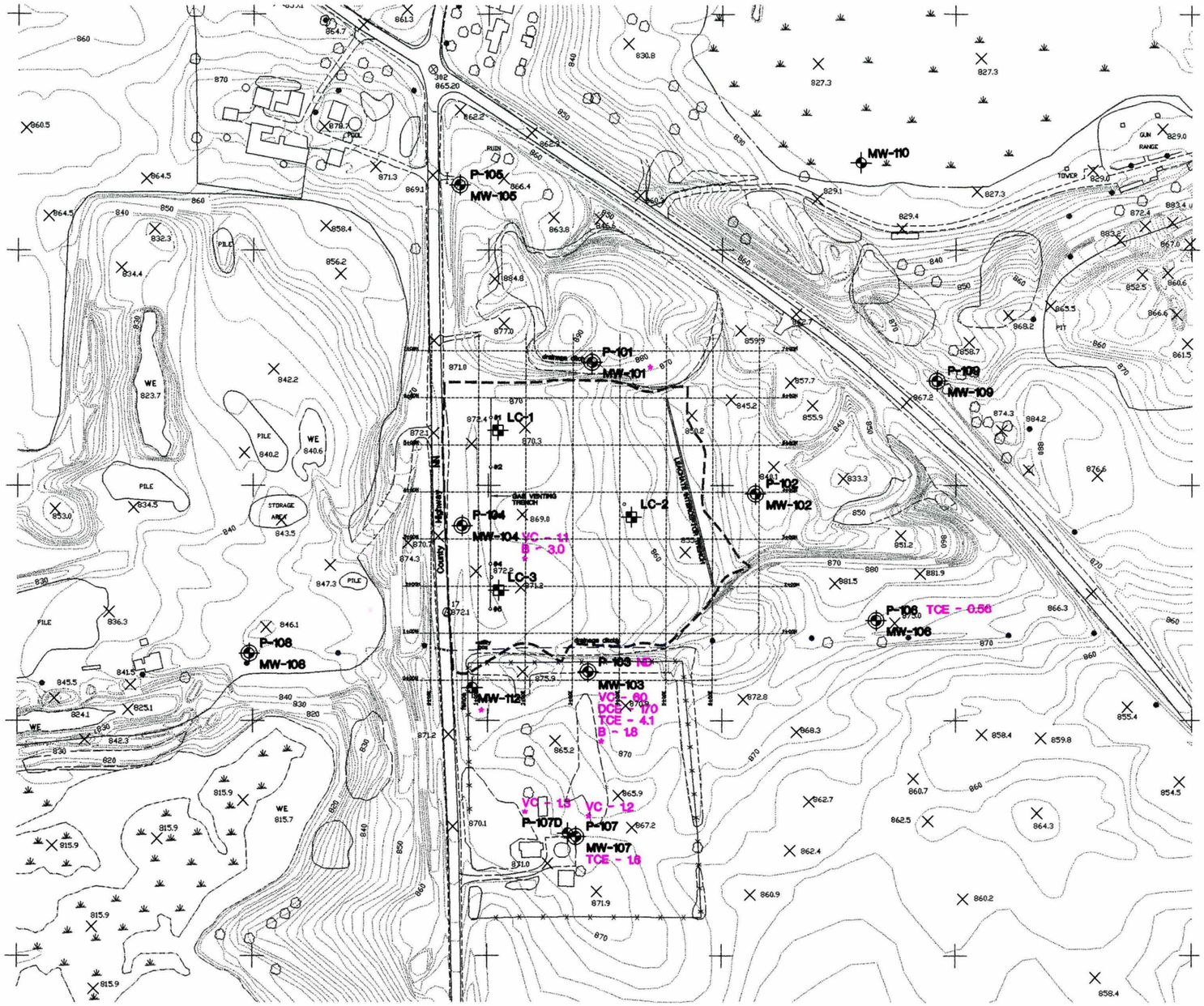
Removed 5-22-98

Sampling Point:	P-109		MW-110		MW-111	P-111	WDNR NR140	
Collection Date:	10/21/93	4/13/94	10/19/93	4/13/94	4/19/94	4/19/94	PAL	ES
PARAMETER								
Vinyl Chloride							0.02	0.2
cis-1,2-dichloroethene							7	70
Toluene				6		2	68.6	343
Benzene							0.5	5
Chlorobenzene							20	100
1,4-dichlorobenzene							15	75
Trichloroethene							0.5	5
Tetrachloroethene							0.5	5

Results in µg/ℓ
B = analyte found in method blank as well as sample
E = exceeds calibration range
J = estimated value
PAL = Preventive Action Limit
ES = Enforcement Standard
Partial Shading = Exceeds WDNR NR140 PAL
Total Shading = Exceeds WDNR NR140 ES
Blank = Not detected

Sampling Point:	MW-112									WDNR NR140	
Collection Date:	11/27/96	11/27/96 DUP	5/12/97	10/26/97	4/13/98	10/13/98	4/6/99	10/27/99	5/02/00	PAL	ES
PARAMETER											
Chloroethane	2 J	2 J			1.4		1.4			80	400
Chloromethane										0.3	3
Vinyl Chloride	15	16	2.2		12	25	7.9			0.02	0.2
cis-1,2-dichloroethene	59	58	5.4	1.3	57	80	40	7.6	3.4	7	70
Trans-1,2-Dichloroethene	1 J	1 J			1.3		0.56			20	100
Toluene										68.6	343
Benzene	0.6 J	0.7 J	0.59	0.5	0.69	0.76	0.72		0.46	0.5	5
Chlorobenzene			0.27	0.29						20	100
1,4-dichlorobenzene										15	75
Trichloroethene	3 J	4 J			1.9	1.2	1.7	1.0	0.39	0.5	5
Tetrachloroethene										0.5	5

Results in µg/ℓ
B = analyte found in method blank as well as sample
E = exceeds calibration range
J = estimated value
PAL = Preventive Action Limit
ES = Enforcement Standard
Partial Shading = Exceeds WDNR NR140 PAL
Total Shading = Exceeds WDNR NR140 ES
Blank = Not detected



EXPLANATION

P-104 / MW-104 — MONITOR WELL, PIEZOMETER LOCATION, DESIGNATION

LC-2 — LEACHATE HEAD WELL LOCATION, DESIGNATION

– – – – – OUTLINE OF CLOSED LANDFILL

VC - Vinyl Chloride Concentration (ppb)

TCE - Trichloroethene Concentration (ppb)

DCE - cis-1,2-Dichloroethene Concentration (ppb)

B - Benzene Concentration (ppb)

ND - Sampled in April But No Detects Above PALs

* - Other Compounds Detected Below PALs

N

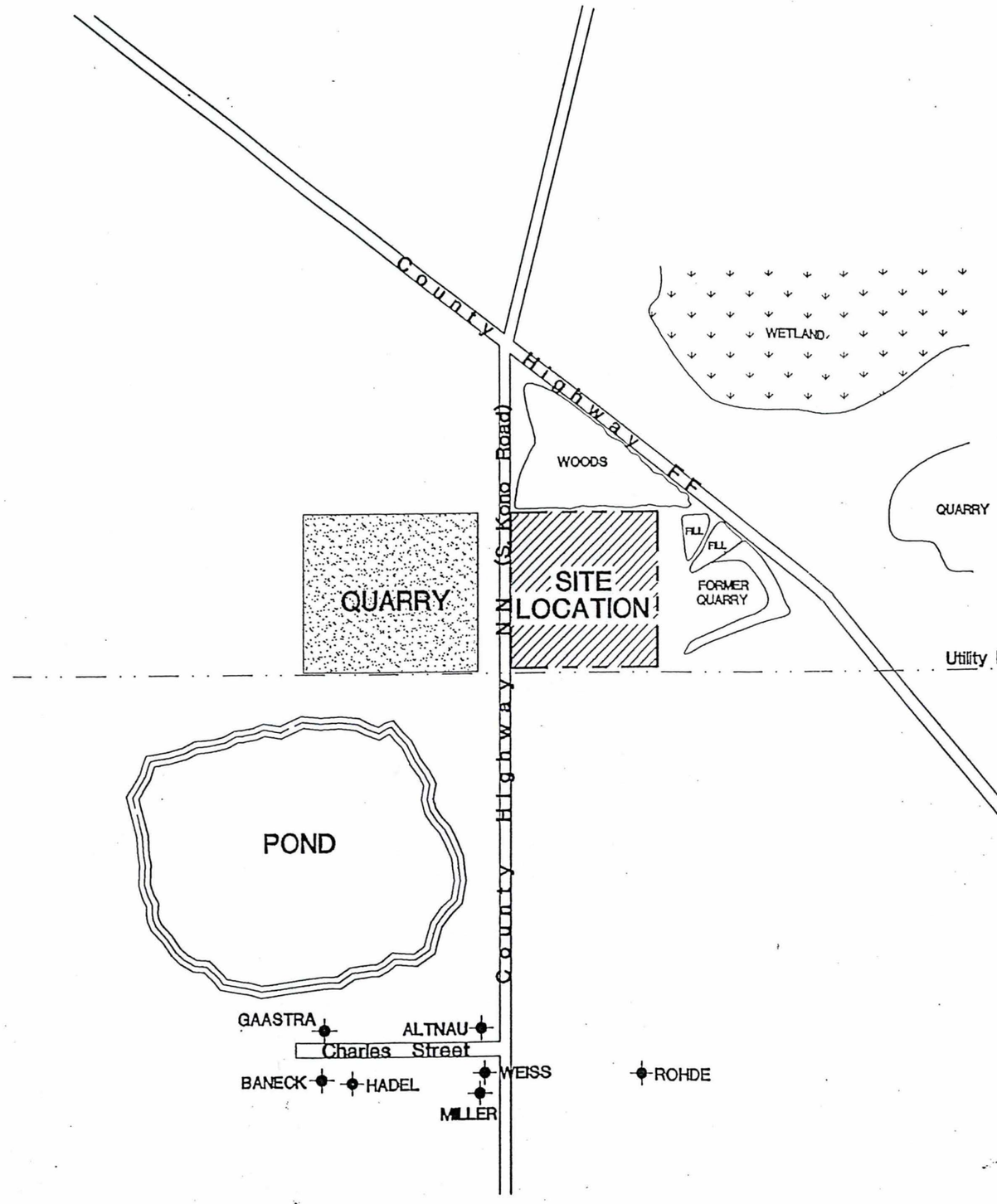
SCALE

0 500

Feet

RIPON FF/NN LANDFILL RIPON, WISCONSIN	DATE: 6/5/00
	DESIGNED: BOB
MAY 2000 VOCs DETECTED IN GROUNDWATER ABOVE PALs	CHECKED: JLF
	APPROVED: JLF
	DRAWN: BOB
	PROJ.: N734
HSI GEOTRANS A TETRA TECH COMPANY	Figure 1

/cad/ripon/n734/n734-b4



EXPLANATION

ROHDE ⊕ PRIVATE WELL LOCATION AND DESIGNATION

N

NOT TO SCALE

Well information from City of Ripon files.

RIPON FF/NN LANDFILL RIPON, WISCONSIN	DATE: 05/06/99 DESIGNED: BOB CHECKED: JLF APPROVED: JLF DRAWN: BOB PROJ.: N734
PRIVATE WELL LOCATIONS	
HSI GEOTRANS A TETRA TECH COMPANY	Figure RI 4-12