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12-14-1999

HSI GEOTRANS
A TETRA TECH COMPANY

175 N. Corporate Drive
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Brookfield, Wisconsin
53045

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November 17, 1999
(N734/101)

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Mr. John Sager
Wisconsin Department of Natural Resources
625 E. County Road Y, Suite 700
Oshkosh, WI 54901-9731

RE: 1999 Semi-Annual Status Report, FF/NN Landfill, Ripon, Wisconsin

Dear John:

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.

Judy L. Fassbender
Senior Hydrogeologist

JLF:rmg

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

Fall 1999

SITE NAME/ACTIVITY:

FF/NN Landfill
Ripon, Wisconsin
Remedial Action

File Ref. No.: 02-20-000915

PREPARED BY:

Ms. Judy Fassbender
HSI GeoTrans, Inc.
175 N. Corporate Drive, Suite 100
Brookfield, Wisconsin 53045

PREPARED FOR:

Mr. John Sager
Wisconsin Department of Natural Resources
625 E. County Road Y, Suite 700
Oshkosh, WI 54901-9731 (1 copy)

DATE:

November 1999

PERIOD:

May 2, 1999 through November 30, 1999

PROGRESS MADE THIS REPORTING PERIOD:

- Groundwater and leachate samples were collected on October 5 and 6, 1999. Gas Screening was completed and an inspection of the landfill cap was conducted.
- The analytical results from the sampling of four private wells located near the landfill were sent to the respective homeowners.

DATA TRANSMITTED WITH REPORT:

- Groundwater Volatile Organic Compound (VOC) Sampling Results for Monitor Wells and Leachate Summary Tables.
- 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.

UPCOMING ACTIVITIES PLANNED:

- The next semi-annual groundwater, leachate, and landfill gas sampling will be conducted in April, 2000.

PERSONNEL/SUBCONTRACTORS:

- Judy Fassbender coordinates the groundwater monitoring activities. Todd Thomson and Brian Taylor 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 in groundwater continue to decline as measured in the monitor wells included in the sampling plan. Trichloroethene and its breakdown products, including cis-1,2-dichloroethene and vinyl chloride, are at or near the lowest levels ever measured. This is 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 four off-site residential well samples. Adequate leachate for sample collection was present only at LC-2 and VOC concentrations at this location were up slightly from the previous sampling events. Groundwater flow direction is toward the southwest and has remained unchanged. Methane was detected at concentrations of greater than 1% at the three leachate wells, two monitor wells, and 4 of the gas vents. Methane measurements ranged from 23 to 32% at the leachate wells and were below 10% in the two wells and 4 gas vents where it was detected. The landfill cap is in excellent condition. Some brushy vegetation was noted and will be reevaluated next spring to determine if mowing is warranted.

Table 2. Volatile Organic Compounds Detected in Leachate

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

PARAMETER	LC-2										WDNR NR140	
	1993		1996		1997		1998		1999			
	5/12	6/24	5/10	10/31	5/13	10/28	4/14	10/14	4/7/99	10/28	PAL	ES
Chloromethane	<4	<3	<2	<1.0	<3.8	<0.38	<19	<0.76	<1.0	<2.5	0.3	3
Vinyl Chloride	<4	<3	<2	<1.0	<4.6	<0.46	<23	<0.92	<1.0	<2.5	0.02	0.2
Chloroethane	<4	<3	5	8.1	<12	6.4	<60	<2.4	<1.0	<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	85	850
cis-1,2-Dichloroethene	<4	<3	<2	3.1	<2.3	<0.23	<12	<0.46	<1.0	<2.5	7	70
Trichloroethene	<4	<3	<2	0.56 J	<4.9	<0.49	<24	<0.98	<1.0	<2.5	0.5	5
Benzene	5	10	4	6.6	5.8	7.0	<16	4.0	6.2	8.0	0.5	5
Tetrachloroethene	<4	<3	<2	2.7	<6.3	<0.63	<32	<1.3	<1.0	<2.5	0.5	5
4-Methyl-2 Pentanone	<18	<16	<12	<5.0	<3.7	<0.37	<18	NA	NA	<2.5	50	500
Toluene	71	27	0.6J	6.8	<3.9	1.4	<20	<0.78	<0.40	<1.0	68.6	343
Chlorobenzene	18	20	10	24	17	25	25	91	44	45	20	100
Ethylbenzene	49	54	<2	42	<3.8	18	<19	45	150	280	140	700
Xylenes (Total)	160 D	180	20	140	34	40	<55	39	380	750	124	620
1,2-Dichlorobenzene	<4	<3	NA	<5	<2	0.59	<10	<0.44	<1.0	<2.5	60	600
1,3-Dichlorobenzene	<4	<3	NA	<5	<2.2	0.23	<11	<0.44	<1.0	<2.5	125	1,250
1,4-Dichlorobenzene	380 D	170 D	<2	11	8.3	8.2	<18	18	28	30	15	75
Tetrahydrofuran	NA	NA	NA	NA	<19	240 J	200	NA	NA	240	10	50
Naphthalene	NA	NA	NA	NA	4.4	8.9	<18	7.1	7.1	12	8	40
Methyl-t-butyl ether	NA	NA	NA	NA	<1.4	1.6	<7	1.3	<1.0	<2.5	12	60
Carbon Disulfide	<4	<3	<2	<1	<10	<1.0	<50	NA	NA	NA	200	1,000
2-Butanone (MEK)	<18	<16	<12	<5	<20	2.3	<100	NA	NA	<2.5	90	1,000
Di-isopropyl ether	NA	NA	NA	NA	<1.3	1.2	<6.5	0.94	<1.0	<2.5	NL	NL
Isopropylbenzene	NA	NA	NA	NA	<3.6	0.64	<18	1.4	3.9	6.7	NL	NL

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

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	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							0.5	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	PAL	ES
PARAMETER														
Chloromethane					9J	1.1							0.3	3
Vinyl Chloride	75	440	410	170	180	98 E	230	220J		45	47	48	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	7	70
trans-1,2-Dichloroethene				9J	10J	5	4.7	5.2		3.3	2.4	2.6	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		0.5	5
Chlorobenzene				7J	8J	8.1 J	8.5	7.9		5.7	4.7	5.2	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	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	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	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	7	70
trans-1,2-Dichloroethene			0.3 J	0.22 J			0.67				20	100
Toluene	31		0.2 J				0.46				68.6	343
Benzene	2	1	6	0.64 J	4.8	0.63	1.2	1.7	3.2	3.5	0.5	5
Chlorobenzene	2	1	5	1.1	4.5	1.3			1.4	5.4	20	100
Ethylbenzene			0.1J	0.80 J							140	700
1,4-dichlorobenzene	2	1			0.91	0.85		0.76		0.92	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	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	0.5	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	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	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:	1993	1994		1996			1997				1998				1999				
	10/27	4/12	4/12 DUP	5/9	10/23	10/23 DUP	5/14	5/14 DUP	10/27	10/27 DUP	4/14	4/14 DUP	10/14	10/14 DUP	4/6	10/27	10/27 DUP	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	1.8	1.8	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	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	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

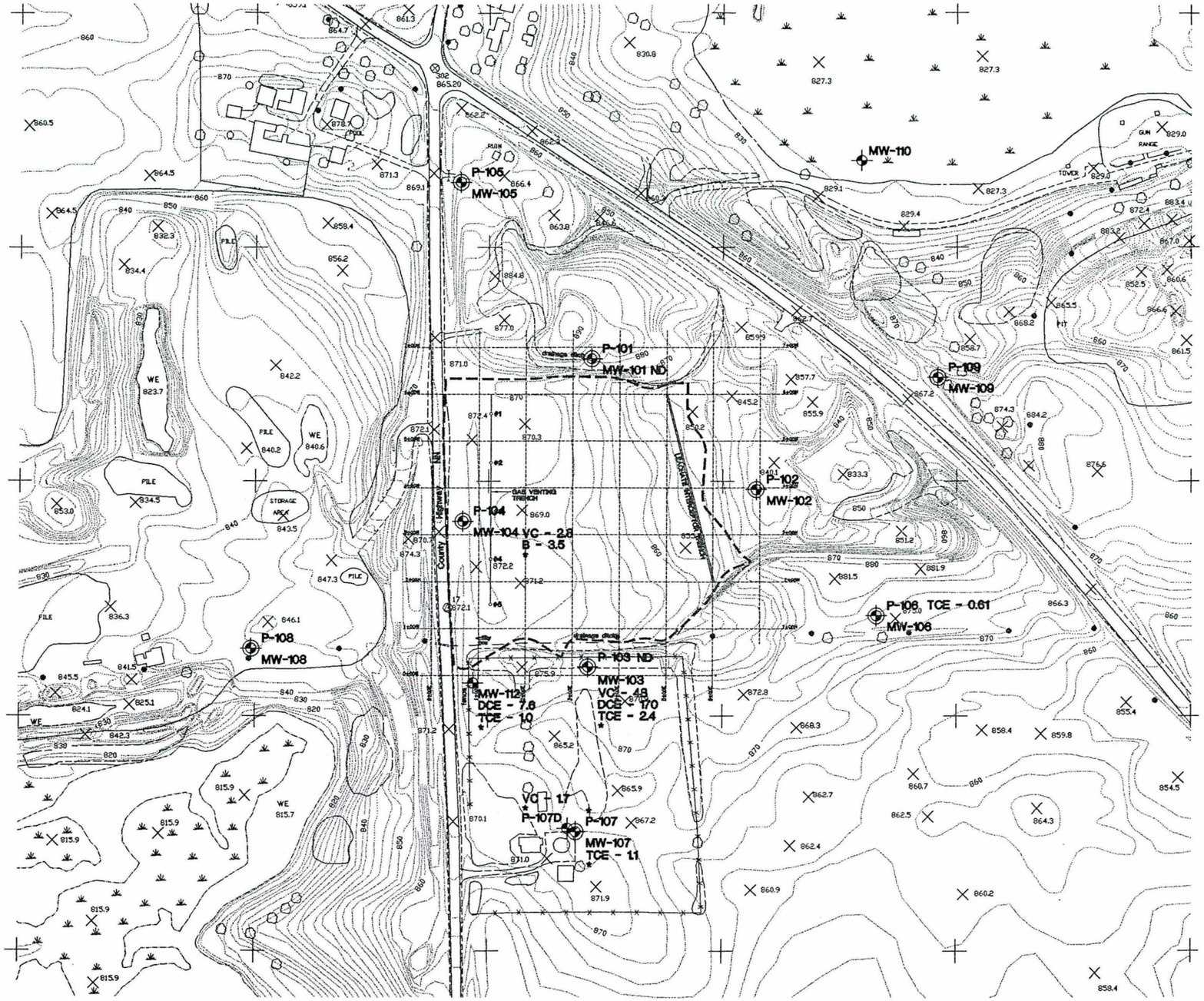
MW-108 was removed from the monitoring program in May 1998

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	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	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		0.5	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	0.5	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

— — — — 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 October But No Detects Above PALs

* - Other Compounds Detected Below PALs

N

SCALE

0 500

Feet

RIPON FF/NN LANDFILL RIPON, WISCONSIN	DATE: 11/29/99
OCTOBER 1999 VOCs DETECTED IN GROUNDWATER ABOVE PALs	DESIGNED: BOB CHECKED: JLF APPROVED: JLF DRAWN: BOB PROJ.: N734
HSI GEOTRANS A TETRA TECH COMPANY	Figure 1

/cad/ripon/n734/n734-b3

To: Dave Carper → WCR 43 5-12-1999

HSI GEOTRANS
A TETRA TECH COMPANY
175 N. Corporate Drive
Suite 100
Brookfield, Wisconsin
53045
414-792-1282 FAX 414-792-1310

May 12, 1999
(N734/101)

Mr. Dave Carper, Engineer
Wisconsin Department of Natural Resources
RR/3
P.O. Box 7921
Madison, WI 53707-7921

RE: 1999 Semi-Annual Status Report, FF/NN Landfill, Ripon, Wisconsin

Dear Mr. Carper:

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.

Judy L. Fassbender
Senior Hydrogeologist

JLF:gf
Enc.

cc: Jane Lemke - Environmental Response and Repair Section (SW/3), WDNR (1 copy)
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)

W:\WPDATA\PROJECT\NEW\N734\N734-APR.RPT

CONTRACT SF-92-01

SEMI-ANNUAL STATUS REPORT

Spring 1999

SITE NAME/ACTIVITY:

FF/NN Landfill
Ripon, Wisconsin
Remedial Action

File Ref. No.: 02-20-000915

PREPARED BY:

Ms. Judy Fassbender
HSI GeoTrans, Inc.
175 N. Corporate Drive, Suite 100
Brookfield, Wisconsin 53045

PREPARED FOR:

Ms. Jane Lemke
Standards Team Leader
Environmental Repair and
Response Section (SW/3)
Wisconsin Department of
Natural Resources
P.O. Box 7921
Madison, Wisconsin 53707 (1 copy)

Mr. Dave Carper
Engineer
Bureau of Remediation and Redevelopment
RR/3
Wisconsin Department of Natural
Resources
P.O. Box 7921
Madison, Wisconsin 53707 (1 copy)

DATE:

May 1999

PERIOD:

December 10, 1998 - May 1, 1999

PROGRESS MADE THIS REPORTING PERIOD:

- Groundwater and leachate samples were collected on April 6 and 7, 1999.
- 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 requested.

UPCOMING ACTIVITIES PLANNED:

- The next semi-annual groundwater, leachate, and landfill gas sampling will be conducted in October, 1999.

PERSONNEL/SUBCONTRACTORS:

- Judy Fassbender coordinates the groundwater monitoring activities. David Conner 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 overall down in the measured groundwater monitor wells. Trichloroethene and its breakdown products, including cis-1,2-dichloroethene and vinyl chloride, are at or near the lowest levels ever measured. This is 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 off-site three residential well samples. Groundwater flow direction is toward the southwest and has remained unchanged.

Table 3. Groundwater VOC Sampling Results

Sampling Point:	MW-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	PAL	ES
PARAMETER											
Chloromethane				0.89 J						0.3	3
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	0.7 J	0.6J	0.6J	0.72 J		0.70				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-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	PAL	ES
PARAMETER													
Chloromethane					9J	1.1						0.3	3
Vinyl Chloride	75	440	410	170	180	98 E	230	220J		45	47	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	7	70
trans-1,2-Dichloroethene				9J	10J	5	4.7	5.2		3.3	2.4	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	0.5	5
Chlorobenzene				7J	8J	8.1 J	8.5	7.9		5.7	4.7	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	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:	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	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	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	7	70
trans-1,2-Dichloroethene			0.3 J	0.22 J			0.67			20	100
Toluene	31		0.2 J				0.46			68.6	343
Benzene	2	1	6	0.64 J	4.8	0.63	1.2	1.7	3.2	0.5	5
Chlorobenzene	2	1	5	1.1	4.5	1.3			1.4	20	100
Ethylbenzene			0.1J	0.80 J						140	700
1,4-dichlorobenzene	2	1			0.91	0.85		0.76		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

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Sampling Point:	P-106									WDNR NR140	
Collection Date:	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	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										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	0.5	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	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		1.8	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

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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	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	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-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	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	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	0.5	5
Chlorobenzene			0.27	0.29				20	100
1,4-dichlorobenzene								15	75
Trichloroethene	3 J	4 J			1.9	1.2	1.7	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

Table 2. **Volatile Organic Compounds Detected in Leachate**

PARAMETER	LC-1										WDNR NR140	
	5/12/93	5/12/93 DUP	6/24/93	6/24/93 DUP	5/10/96	10/31/96	5/13/97	10/28/97	4/14/98	10/14/98	PAL	ES
Chloromethane	<25	<36	<1	<2	4 J	<1	<19	<0.38	<3.8	<3.8	0.3	3
Vinyl Chloride	76	71	6	7 D	<25	<1	<23	<0.46	<4.6	<4.6	0.02	0.2
Chloroethane	<25	<36	5	6 D	<25	1.5	<60	9.4	35	<12	80	400
1,1-Dichloroethane	<25	<36	<1	<2	<25	<1	<12	<0.25	<2.5	<2.5	85	850
cis-1,2-Dichloroethene	410	550	13	13 D	3 J	0.46 J	<12	<0.23	<2.3	<2.3	7	70
Trichloroethene	18 J	<36	<1	<2	<25	<1	<24	<0.49	<4.9	<4.9	0.5	5
Benzene	<25	<36	1 J	1 DJ	<25	2.2	<16	1.7	3.6	3.8	0.5	5
Tetrachloroethene	<25	<36	<1	<2	<25	<1	<32	<0.63	<6.3	<6.3	0.5	5
4-Methyl-2 Pentanone	<120	<180	<7	<8	<120	23	<18	0.80	<3.7	NA	50	500
Toluene	170	290	20	23 D	<25	4.7	<20	1.2	<3.9	<3.9	68.6	343
Chlorobenzene	<25	<36	<1	<2	<25	0.58 J	<11	0.23	<2.2	<2.2	20	100
Ethylbenzene	92	110	12	11 D	4J	8.3	<19	3.6	<3.8	19	140	700
Xylenes (Total)	320	410	85	82 D	86	280	<55	29	50	100	124	620
1,4-Dichlorobenzene	<25	43	0.8 J	1 DJ	<25	<1	<18	0.87	<3.5	<3.5	15	75
Tetrahydrofuran	NA	NA	NA	NA	NA	NA	<95	97	110	NA	10	50
Naphthalene	NA	NA	NA	NA	NA	NA	<18	6.8	13	18	8	40
Methyl-t-butyl ether	NA	NA	NA	NA	NA	NA	<7.0	1.1	<1.4	<1.4	12	60
Carbon Disulfide	<25	<36	<1	<2	<25	<1	90	<1.0	<10	NA	200	1,000
2-Butanone (MEK)	<120	<180	<7	<8	<120	<5	<100	5.9	<20	NA	90	460
Di-isopropyl ether	NA	NA	NA	NA	NA	NA	<6.5	0.49	<1.3	<1.3	NL	NL
P-isopropyl toluene	NA	NA	NA	NA	NA	NA	<18	1.7	<3.5	6.3	NL	NL
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	<16	9.6	14	37	96	480
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	<16	8.7	12	22	96	480

Table 2. **Volatile Organic Compounds Detected in Leachate**

PARAMETER	LC-2									WDNR NR140	
	5/12/93	6/24/93	5/10/96	10/31/96	5/13/97	10/28/97	4/14/98	10/14/98	4/7/99	PAL	ES
Chloromethane	<4	<3	<2	<1.0	<3.8	<0.38	<19	<0.76	<1.0	0.3	3
Vinyl Chloride	<4	<3	<2	<1.0	<4.6	<0.46	<23	<0.92	<1.0	0.02	0.2
Chloroethane	<4	<3	5	8.1	<12	6.4	<60	<2.4	<1.0	80	400
1,1-Dichloroethane	<4	<3	0.2J	0.22 J	<2.5	<0.20	<12	<0.50	<1.0	85	850
cis-1,2-Dichloroethene	<4	<3	<2	3.1	<2.3	<0.23	<12	<0.46	<1.0	7	70
Trichloroethene	<4	<3	<2	0.56 J	<4.9	<0.49	<24	<0.98	<1.0	0.5	5
Benzene	5	10	4	6.6	5.8	7.0	<16	4.0	6.2	0.5	5
Tetrachloroethene	<4	<3	<2	2.7	<6.3	<0.63	<32	<1.3	<1.0	0.5	5
4-Methyl-2 Pentanone	<18	<16	<12	<5.0	<3.7	<0.37	<18	NA	NA	50	500
Toluene	71	27	0.6J	6.8	<3.9	1.4	<20	<0.78	<0.40	68.6	343
Chlorobenzene	18	20	10	24	17	25	25	91	44	20	100
Ethylbenzene	49	54	<2	42	<3.8	18	<19	45	150	140	700
Xylenes (Total)	160 D	180	20	140	34	40	<55	39	380	124	620
1,2-Dichlorobenzene	<4	<3	NA	<5	<2	0.59	<10	<0.44	<1.0	60	600
1,3-Dichlorobenzene	<4	<3	NA	<5	<2.2	0.23	<11	<0.44	<1.0	125	1,250
1,4-Dichlorobenzene	380 D	170 D	<2	11	8.3	8.2	<18	18	28	15	75

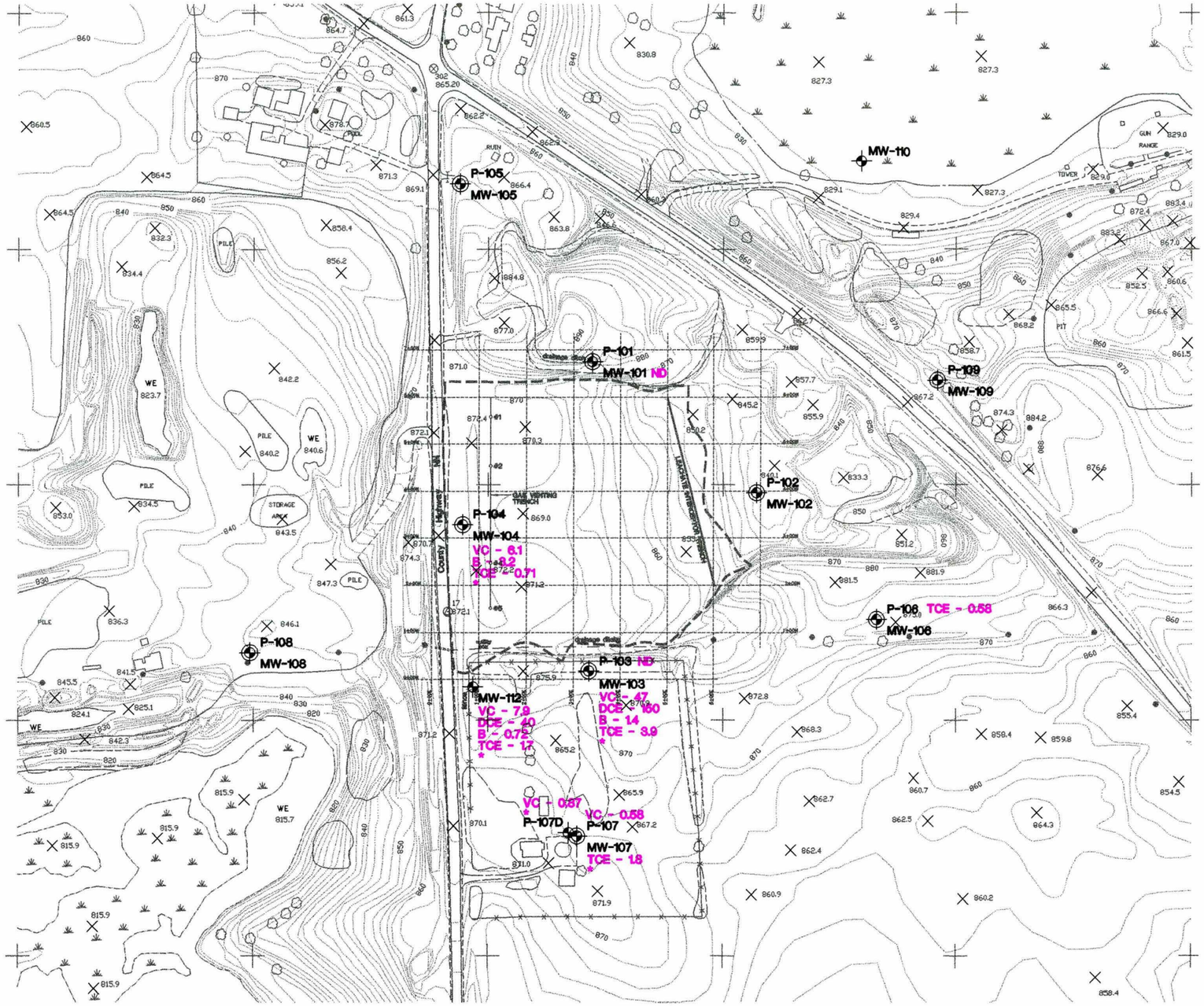
Table 2. **Volatile Organic Compounds Detected in Leachate**

PARAMETER	LC-2									WDNR NR140	
	5/12/93	6/24/93	5/10/96	10/31/96	5/13/97	10/28/97	4/14/98	10/14/98	4/7/99	PAL	ES
Tetrahydrofuran	NA	NA	NA	NA	<19	240 J	200	NA	NA	10	50
Naphthalene	NA	NA	NA	NA	4.4	8.9	<18	7.1	7.1	8	40
Methyl-t-butyl ether	NA	NA	NA	NA	<1.4	1.6	<7	1.3	<1.0	12	60
Carbon Disulfide	<4	<3	<2	<1	<10	<1.0	<50	NA	NA	200	1,000
2-Butanone (MEK)	<18	<16	<12	<5	<20	2.3	<100	NA	NA	90	1,000
Di-isopropyl ether	NA	NA	NA	NA	<1.3	1.2	<6.5	0.94	<1.0	NL	NL
Isopropylbenzene	NA	NA	NA	NA	<3.6	0.64	<18	1.4	3.9	NL	NL
n-Propylbenzene	NA	NA	NA	NA	<4.6	<0.46	<23	<0.92	2.8	NL	NL
P-isopropyl toluene	NA	NA	NA	NA	<3.5	1.1	<18	<0.70	<1.0	NL	NL
1,2,4-Trichlorobenzene	NA	NA	NA	NA	<1.8	0.18	<9.0	<0.36	<1.0	14	70
1,2,4-Trimethylbenzene	NA	NA	NA	NA	6.9	17	<16	17	26	96	480
1,3,5-Trimethylbenzene	NA	NA	NA	NA	5.5	6.5	<16	3.5	9.0	96	480

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
= Exceeds WDNR ES and/or PAL
NA = Not analyzed
NL = No standard listed



EXPLANATION

P-104
MW-104 — MONITOR WELL, PIEZOMETER 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

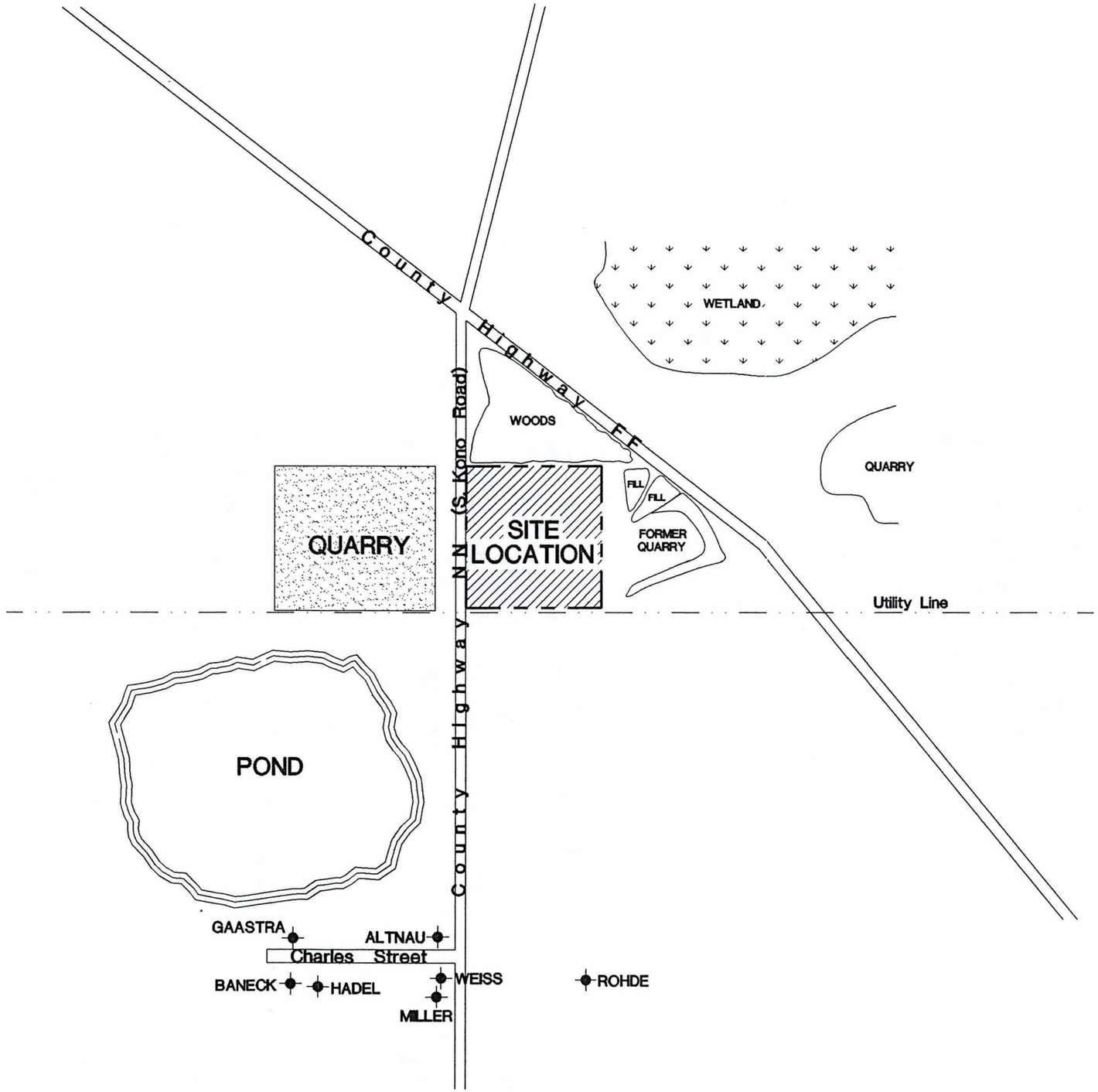
SCALE

0 500

Feet

RIPON FF/NN LANDFILL RIPON, WISCONSIN	DATE: 05/06/99 DESIGNED: BOB CHECKED: JLF APPROVED: JLF DRAWN: BOB PROJ.: N734
APRIL 1999 VOCs DETECTED IN GROUNDWATER ABOVE PALs	Figure 1
HSI GEOTRANS A TETRA TECH COMPANY	

/cad/ripon/n734/n734-b2



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

/cad/ripon/n734/n734-b1

HSI GEOTRANS
A TETRA TECH COMPANY

175 N. Corporate Drive
Suite 100
Brookfield, Wisconsin
53045

414-792-1282 FAX 414-792-1310

May 12, 1999
(N734-101)

Mr. Dave Carper
Wisconsin Department of Natural Resources
RR/3
P.O. Box 7921
Madison, WI 53707-7921

Mr. Charles Warzecha
WI Division of Health & Social Services
1414 E. Washington Avenue
Room 96, Division of Health
Madison, WI 53703

RE: Ripon FF/NN Landfill Private Well Sampling Results

Dear Dave and Chuck:

Enclosed please find copies of the letters sent to the residents and the laboratory analytical results from the private well sampling conducted at three wells adjacent to the FF/NN Landfill in Ripon, Wisconsin in April 1999.

The well water was tested for the presence of volatile organic compounds (VOCs). As you can see from the enclosed laboratory sheets, no VOCs were detected in the water samples analyzed by Test America, Inc. (f.k.a. National Environmental Testing, Inc.).

Should you have any questions concerning the water quality results, please feel free to call me at 414-792-1282.

Sincerely,

HSI GEOTRANS

Judy L. Fassbender, P.G.
Senior Hydrogeologist

JLF/gf

W:\WPDATA\PROJECT\NEW\N734\N734CARP.APR

HSI GEOTRANS
A TETRA TECH COMPANY

175 N. Corporate Drive
Suite 100
Brookfield, Wisconsin
53045

414-792-1282 FAX 414-792-1310

May 12, 1999
(N734-101)

Mr. Jeff Gaastra
W14297 Charles Street
Ripon, WI 54971

RE: Results of Well Water Testing Conducted April 1999

Dear Mr. Gaastra:

A water sample was collected from your home in April 1999 by HSI GeoTrans, Inc. and submitted for laboratory analysis. This testing was performed as part of the groundwater monitoring being conducted in cooperation with the Wisconsin Department of Natural Resources at the FF/NN Landfill in Ripon.

Your well water was tested for the presence of volatile organic compounds (VOCs). No VOCs were detected in the water sample from your well. Neither the FF/NN Landfill nor any other contaminant source has impacted your well with VOCs. A copy of the laboratory results is attached. Note that the "<" in the results column means that a compound was undetected.

Should you have any questions concerning your water quality results, please feel free to call me collect at 414-792-1282, or call Chuck Warzecha at the Wisconsin Division of Health at 608-267-3732. Dave Carper, the project manager at the WDNR, can also assist you with any questions at 608-267-6723.

Sincerely,

HSI GEOTRANS

Judy L. Fassbender
Senior Hydrogeologist

JLF:gf

cc: Dave Carper, WDNR
Chuck Warzecha, DHSS

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TestAmerica
INCORPORATED

ANALYTICAL REPORT

Ms. Judy Fassbender
HYDRO-SEARCH/GEO TRANS
175 N. Corporate Drive
Suite 100
Brookfield, WI 53045

04/14/1999
Job No: 99.02916
Sample No: 345579
Account No: 39150

JOB DESCRIPTION: N734 Ripon Landfill
PROJECT DESCRIPTION: Groundwater Analysis
SAMPLE DESCRIPTION: 00467201 Gaastra N734 Ripon LF
Rec'd at 4 degrees C

Date/Time Taken: 04/06/1999 11:00 Date Received: 04/08/1999

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
VOC - AQUEOUS - EPA 8260B							
Benzene	<0.10	ug/L	0.10	0.33	SW 8260B	04/13/1999	1527
Bromobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Bromochloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Bromodichloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Bromoform	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Bromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
n-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
sec-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
tert-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Carbon Tetrachloride	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Chlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Chlorodibromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Chloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Chloroform	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Chloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
2-Chlorotoluene	<0.10	ug/L	0.10	0.33	SW 8260B	04/13/1999	1527
4-Chlorotoluene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2-Dibromo-3-Chloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2-Dibromoethane (EDB)	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Dibromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,3-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,4-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Dichlorodifluoromethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,1-Dichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2-Dichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,1-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
cis-1,2-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
trans-1,2-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,3-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
2,2-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,1-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
cis-1,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
trans-1,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Di-isopropyl ether	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Ethylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Hexachlorobutadiene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527

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INCORPORATED

ANALYTICAL REPORT

Ms. Judy Fassbender
HYDRO-SEARCH/GEO TRANS
175 N. Corporate Drive
Suite 100
Brookfield, WI 53045

04/14/1999
Job No: 99.02916
Sample No: 345579
Account No: 39150

JOB DESCRIPTION: N734 Ripon Landfill
PROJECT DESCRIPTION: Groundwater Analysis
SAMPLE DESCRIPTION: 00467201 Gaastra N734 Ripon LF
Rec'd at 4 degrees C

Date/Time Taken: 04/06/1999 11:00 Date Received: 04/08/1999

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Isopropylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
p-Isopropyltoluene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Methylene Chloride	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Methyl-t-butyl ether	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Naphthalene	<0.10	ug/L	0.10	0.33	SW 8260B	04/13/1999	1527
n-Propylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Styrene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,1,1,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,1,2,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Tetrachloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Toluene	<0.10	ug/L	0.10	0.33	SW 8260B	04/13/1999	1527
1,2,3-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2,4-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,1,1-Trichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,1,2-Trichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Trichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Trichlorofluoromethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2,3-Trichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2,4-Trimethylbenzene	<0.10	ug/L	0.10	0.33	SW 8260B	04/13/1999	1527
1,3,5-Trimethylbenzene	<0.10	ug/L	0.10	0.33	SW 8260B	04/13/1999	1527
Vinyl Chloride	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Xylenes, Total	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Surr: Dibromofluoromethane	101.6	%	n/a	n/a	SW 8260B	04/13/1999	1527
Surr: Toluene-d8	94.8	%	n/a	n/a	SW 8260B	04/13/1999	1527
Surr: Bromofluorobenzene	98.0	%	n/a	n/a	SW 8260B	04/13/1999	1527

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ANALYTICAL REPORT

Ms. Judy Fassbender
HYDRO-SEARCH/GEO TRANS
175 N. Corporate Drive
Suite 100
Brookfield, WI 53045

04/14/1999
Job No: 99.02916
Sample No: 345580
Account No: 39150

JOB DESCRIPTION: N734 Ripon Landfill
PROJECT DESCRIPTION: Groundwater Analysis
SAMPLE DESCRIPTION: 00467201 Gaastra Dup N734 Ripon LF
Rec'd at 4 degrees C

Date/Time Taken: 04/06/1999 11:05 Date Received: 04/08/1999

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
VOC - AQUEOUS - EPA 8260B							
Benzene	<0.10	ug/L	0.10	0.33	SW 8260B	04/13/1999	1527
Bromobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Bromochloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Bromodichloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Bromoform	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Bromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
n-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
sec-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
tert-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Carbon Tetrachloride	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Chlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Chlorodibromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Chloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Chloroform	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Chloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
2-Chlorotoluene	<0.10	ug/L	0.10	0.33	SW 8260B	04/13/1999	1527
4-Chlorotoluene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2-Dibromo-3-Chloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2-Dibromoethane (EDB)	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Dibromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,3-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,4-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Dichlorodifluoromethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,1-Dichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2-Dichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,1-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
cis-1,2-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
trans-1,2-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,3-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
2,2-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,1-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
cis-1,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
trans-1,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Di-isopropyl ether	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Ethylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Hexachlorobutadiene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527

TestAmerica
INCORPORATED

ANALYTICAL REPORT

Ms. Judy Fassbender
HYDRO-SEARCH/GEO TRANS
175 N. Corporate Drive
Suite 100
Brookfield, WI 53045

04/14/1999
Job No: 99.02916
Sample No: 345580
Account No: 39150

JOB DESCRIPTION: N734 Ripon Landfill
PROJECT DESCRIPTION: Groundwater Analysis
SAMPLE DESCRIPTION: 00467201 Gaastra Dup N734 Ripon LF
Rec'd at 4 degrees C

Date/Time Taken: 04/06/1999 11:05 Date Received: 04/08/1999

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Isopropylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
p-Isopropyltoluene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Methylene Chloride	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Methyl-t-butyl ether	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Naphthalene	<0.10	ug/L	0.10	0.33	SW 8260B	04/13/1999	1527
n-Propylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Styrene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,1,1,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,1,2,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Tetrachloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Toluene	<0.10	ug/L	0.10	0.33	SW 8260B	04/13/1999	1527
1,2,3-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2,4-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,1,1-Trichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,1,2-Trichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Trichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Trichlorofluoromethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2,3-Trichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2,4-Trimethylbenzene	<0.10	ug/L	0.10	0.33	SW 8260B	04/13/1999	1527
1,3,5-Trimethylbenzene	<0.10	ug/L	0.10	0.33	SW 8260B	04/13/1999	1527
Vinyl Chloride	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Xylenes, Total	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Surr: Dibromofluoromethane	101.8	%	n/a	n/a	SW 8260B	04/13/1999	1527
Surr: Toluene-d8	94.2	%	n/a	n/a	SW 8260B	04/13/1999	1527
Surr: Bromofluorobenzene	98.8	%	n/a	n/a	SW 8260B	04/13/1999	1527

HSI
GEOTRANS
A TETRA TECH COMPANY

175 N. Corporate Drive
Suite 100
Brookfield, Wisconsin
53045

414-792-1282 FAX 414-792-1310

May 12, 1999
(N734-101)

Mr. William Miller
N8756 S. Koro Road
Ripon, WI 54971

RE: Results of Well Water Testing Conducted April 1999

Dear Mr. Miller:

A water sample was collected from your home in April 1999 by HSI GeoTrans, Inc. and submitted for laboratory analysis. This testing was performed as part of the groundwater monitoring being conducted in cooperation with the Wisconsin Department of Natural Resources at the FF/NN Landfill in Ripon.

Your well water was tested for the presence of volatile organic compounds (VOCs). No VOCs were detected in the water sample from your well. Neither the FF/NN Landfill nor any other contaminant source has impacted your well with VOCs. A copy of the laboratory results is attached. Note that the "<" in the results column means that a compound was undetected.

Should you have any questions concerning your water quality results, please feel free to call me collect at 414-792-1282, or call Chuck Warzecha at the Wisconsin Division of Health at 608-267-3732. Dave Carper, the project manager at the WDNR, can also assist you with any questions at 608-267-6723.

Sincerely,

HSI GEOTRANS

Judy L. Fassbender
Senior Hydrogeologist

JLF:gf

cc: Dave Carper, WDNR
Chuck Warzecha, DHSS

W:\WPDATA\PROJECT\NEW\N734\N734-SPR.LTR

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ANALYTICAL REPORT

Ms. Judy Fassbender
HYDRO-SEARCH/GEO TRANS
175 N. Corporate Drive
Suite 100
Brookfield, WI 53045

04/14/1999
Job No: 99.02916
Sample No: 345578
Account No: 39150

JOB DESCRIPTION: N734 Ripon Landfill
PROJECT DESCRIPTION: Groundwater Analysis
SAMPLE DESCRIPTION: 00467206 Miller N734 Ripon LF
Rec'd at 4 degrees C

Date/Time Taken: 04/06/1999 10:45 Date Received: 04/08/1999

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
VOC - AQUEOUS - EPA 8260B							
Benzene	<0.10	ug/L	0.10	0.33	SW 8260B	04/13/1999	1527
Bromobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Bromochloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Bromodichloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Bromoform	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Bromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
n-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
sec-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
tert-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Carbon Tetrachloride	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Chlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Chlorodibromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Chloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Chloroform	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Chloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
2-Chlorotoluene	<0.10	ug/L	0.10	0.33	SW 8260B	04/13/1999	1527
4-Chlorotoluene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2-Dibromo-3-Chloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2-Dibromoethane (EDB)	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Dibromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,3-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,4-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Dichlorodifluoromethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,1-Dichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2-Dichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,1-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
cis-1,2-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
trans-1,2-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,3-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
2,2-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,1-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
cis-1,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
trans-1,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Di-isopropyl ether	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Ethylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Hexachlorobutadiene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527

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ANALYTICAL REPORT

Ms. Judy Fassbender
HYDRO-SEARCH/GEO TRANS
175 N. Corporate Drive
Suite 100
Brookfield, WI 53045

04/14/1999
Job No: 99.02916
Sample No: 345578
Account No: 39150

JOB DESCRIPTION: N734 Ripon Landfill
PROJECT DESCRIPTION: Groundwater Analysis
SAMPLE DESCRIPTION: 00467206 Miller N734 Ripon LF
Rec'd at 4 degrees C

Date/Time Taken: 04/06/1999 10:45 Date Received: 04/08/1999

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Isopropylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
p-Isopropyltoluene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Methylene Chloride	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Methyl-t-butyl ether	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Naphthalene	<0.10	ug/L	0.10	0.33	SW 8260B	04/13/1999	1527
n-Propylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Styrene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,1,1,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,1,2,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Tetrachloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Toluene	<0.10	ug/L	0.10	0.33	SW 8260B	04/13/1999	1527
1,2,3-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2,4-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,1,1-Trichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,1,2-Trichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Trichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Trichlorofluoromethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2,3-Trichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2,4-Trimethylbenzene	<0.10	ug/L	0.10	0.33	SW 8260B	04/13/1999	1527
1,3,5-Trimethylbenzene	<0.10	ug/L	0.10	0.33	SW 8260B	04/13/1999	1527
Vinyl Chloride	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Xylenes, Total	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Surr: Dibromofluoromethane	101.6	%	n/a	n/a	SW 8260B	04/13/1999	1527
Surr: Toluene-d8	93.8	%	n/a	n/a	SW 8260B	04/13/1999	1527
Surr: Bromofluorobenzene	99.2	%	n/a	n/a	SW 8260B	04/13/1999	1527

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GEOTRANS
A TETRA TECH COMPANY

175 N. Corporate Drive
Suite 100
Brookfield, Wisconsin
53045

414-792-1282 FAX 414-792-1310

May 12, 1999
(N734-101)

Mr. Greg Baneck
W14298 Charles Street
Ripon, WI 54971

RE: Results of Well Water Testing Conducted April 1999

Dear Mr. Baneck:

A water sample was collected from your home in April 1999 by HSI GeoTrans, Inc. and submitted for laboratory analysis. This testing was performed as part of the groundwater monitoring being conducted in cooperation with the Wisconsin Department of Natural Resources at the FF/NN Landfill in Ripon.

Your well water was tested for the presence of volatile organic compounds (VOCs). No VOCs were detected in the water sample from your well. Neither the FF/NN Landfill nor any other contaminant source has impacted your well with VOCs. A copy of the laboratory results is attached. Note that the "<" in the results column means that a compound was undetected.

Should you have any questions concerning your water quality results, please feel free to call me collect at 414-792-1282, or call Chuck Warzecha at the Wisconsin Division of Health at 608-267-3732. Dave Carper, the project manager at the WDNR, can also assist you with any questions at 608-267-6723.

Sincerely,

HSI GEOTRANS

Judy L. Fassbender
Senior Hydrogeologist

JLF:gf

cc: Dave Carper, WDNR
Chuck Warzecha, DHSS

W:\WPDATA\PROJECT\NEW\N734\N734-SPR.LTR

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ANALYTICAL REPORT

Ms. Judy Fassbender
HYDRO-SEARCH/GEO TRANS
175 N. Corporate Drive
Suite 100
Brookfield, WI 53045

04/14/1999
Job No: 99.02916
Sample No: 345581
Account No: 39150

JOB DESCRIPTION: N734 Ripon Landfill
PROJECT DESCRIPTION: Groundwater Analysis
SAMPLE DESCRIPTION: 00467203 Baneck N734 Ripon LF
Rec'd at 4 degrees C

Date/Time Taken: 04/06/1999 11:15 Date Received: 04/08/1999

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
VOC - AQUEOUS - EPA 8260B							
Benzene	<0.10	ug/L	0.10	0.33	SW 8260B	04/13/1999	1527
Bromobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Bromochloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Bromodichloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Bromoform	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Bromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
n-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
sec-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
tert-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Carbon Tetrachloride	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Chlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Chlorodibromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Chloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Chloroform	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Chloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
2-Chlorotoluene	<0.10	ug/L	0.10	0.33	SW 8260B	04/13/1999	1527
4-Chlorotoluene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2-Dibromo-3-Chloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2-Dibromoethane (EDB)	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Dibromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,3-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,4-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Dichlorodifluoromethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,1-Dichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2-Dichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,1-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
cis-1,2-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
trans-1,2-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,3-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
2,2-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,1-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
cis-1,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
trans-1,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Di-isopropyl ether	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Ethylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Hexachlorobutadiene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527

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INCORPORATED

ANALYTICAL REPORT

Ms. Judy Fassbender
HYDRO-SEARCH/GEO TRANS
175 N. Corporate Drive
Suite 100
Brookfield, WI 53045

04/14/1999
Job No: 99.02916
Sample No: 345581
Account No: 39150

JOB DESCRIPTION: N734 Ripon Landfill
PROJECT DESCRIPTION: Groundwater Analysis
SAMPLE DESCRIPTION: 00467203 Baneck N734 Ripon LF
Rec'd at 4 degrees C

Date/Time Taken: 04/06/1999 11:15 Date Received: 04/08/1999

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Isopropylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
p-Isopropyltoluene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Methylene Chloride	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Methyl-t-butyl ether	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Naphthalene	<0.10	ug/L	0.10	0.33	SW 8260B	04/13/1999	1527
n-Propylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Styrene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,1,1,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,1,2,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Tetrachloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Toluene	<0.10	ug/L	0.10	0.33	SW 8260B	04/13/1999	1527
1,2,3-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2,4-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,1,1-Trichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,1,2-Trichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Trichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Trichlorofluoromethane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2,3-Trichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
1,2,4-Trimethylbenzene	<0.10	ug/L	0.10	0.33	SW 8260B	04/13/1999	1527
1,3,5-Trimethylbenzene	<0.10	ug/L	0.10	0.33	SW 8260B	04/13/1999	1527
Vinyl Chloride	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Xylenes, Total	<0.25	ug/L	0.25	0.83	SW 8260B	04/13/1999	1527
Surr: Dibromofluoromethane	101.8	%	n/a	n/a	SW 8260B	04/13/1999	1527
Surr: Toluene-d8	94.6	%	n/a	n/a	SW 8260B	04/13/1999	1527
Surr: Bromofluorobenzene	99.4	%	n/a	n/a	SW 8260B	04/13/1999	1527