Strategic Environmental Management, Inc.

December 4, 2003

Ms. Christine Rossi
New York State Department of Environmental Conservation
Division of Environmental Remediation-Region 7
615 Erie Boulevard West
Syracuse, New York 13202

Reference: Groundwater Recovery and Treatment System Operation, Monitoring, and Maintenance Summary-October 2003
Former Northeast Environmental Services, Inc. Site
Canal Road, Town of Lenox, New York
NYSDEC Spill No. 01-60024/PIN No. H-0529
SEM File: 3003.050.11.03

Dear Ms. Rossi:

The following provides a summary of operation, monitoring, and maintenance activities conducted by our firm in connection with the above-referenced project since our last monthly summary report dated October 7, 2003. This also serves to present the results of effluent monitoring conducted at Outfall 001A, pursuant to the requirements of the existing State Pollutant Discharge Elimination System (SPDES) Permit.

Maintenance and Repairs

In general, the routine maintenance activities that have been conducted by SEM since the issuance of the last monthly summary report have included weekly system inspection, data collection, and backflushing of the four carbon filters.

The carbon within the four carbon filters was backflushed during each weekly site visit by SEM personnel to remove accumulated mineral deposits and sediments. The backflushed water and mineral deposits were placed in five 55-gallon settling drums. The deposits were allowed to settle out of suspension and the clear liquid was transferred to the air stripper via a portable submersible pump during the following weekly site visit. This liquid is combined with the influent flow to the top tray of the airstripper. This action ensures adequate treatment of the backflushed liquid.

3 Remington Avenue, Suite D, Canton, New York 13617
Telephone: (315) 386-2736 Facsimile: (315) 386-4736
25 1/2 Water Street, Baldwinsville, New York 13027
Telephone: (315) 635-8936 Facsimile: (315) 635-2380

Detectable VOC's were reported in the discharge sample collected from outfall 001A on October 28, 2003. A concentration of 1.7 ppb toluene was observed for the outfall 001A sample. This discharge is slightly above the method detection limit for the compound and does not exceed the limits of 10 ppb toluene stated in the surface water discharge permit for the facility. This concentration projected over the average flow rate of 16.21 gpm for the weekly interval ending October 28, 2003 generates an estimated mass loading of approximately $3.312X10^{-4}$ lbs/day to outfall 001A.

VOC removal efficiency of the air stripper had apparently been compromised due to the fouled condition of the air stripper trays when the sample had been collected on October 28, 2003. This fouling was documented by the increased backpressure registered on the magnehelic gauge monitoring the air stripper sump. The elevated gauge readings can clearly be associated with loss of VOC removal efficiency and historic reports of detectable levels of VOC in the air stripper effluent sample. The sump pressure was @ 14.75 in. w.c. during the sampling visit October 28,2003 and suggested the possibility of VOC breakthrough in the air stripper discharge samples.

As a result of the rise in system air pressure observed, through magnehelic gauge readings recorded over preceding visits, SEM had already contacted Op-Tech to schedule a manual disassembly and cleaning of the air stripper trays to restore VOC removal efficiency. This task was performed by Op-Tech personnel October 28, 2003, immediately following the routine weekly site inspection and sampling performed by SEM personnel. The routine sample and data collection was performed immediately prior to the cleaning event to document the correlation of the system data with the cleaning event. During the subsequent site visit of October 30, 2003, the air stripper sump pressure was observed to have been reduced to 10.75 in. w.c. thus restoring efficient VOC removal.

Although the carbon media had been replaced August 11, 2003 the adsorptive capacity is apparently continuing to be reduced by the iron fouling. This condition has been historically observed during past monitoring visits.

Sampling and Analysis/Operational Monitoring

Weekly monitoring samples are collected from several points of the groundwater recovery and treatment system. Discrete samples are collected from each of the two influent sources (RW-1 and WP5D), post-air stripper/pre-GAC filter, and the treatment system effluent (Outfall 001A).

The samples are submitted to Life Science Laboratories, Inc., of East Syracuse, New York, for analysis via EPA 601/602 methodology for volatile organic compounds (VOC). The data generated from these analyses are used to assess the contaminant level of the influent waters, the operational efficiency of the air stripper, and the VOC removal capacity of the GAC filter backup system.

The sampling was conducted on the following dates:

- Week of October 5 (October 7)
- Week of October 12 (October 14)
- Week of October 19 (October 21)
- Week of October 26 (October 28)

The results of the analyses are summarized in the table included on the following page.

Tabulation of Detected Compounds vs. SPDES Discharge Limitations
System O&M Sampling

Sampling Date	Detected Compound	RW-1 Influent	WP-5D Influent	Air Stripper Discharge	**Final System Discharge (Outfall 01A)**	**SPDES Discharge Limit**
10/07/03	Ethyl Benzene	ND	ND	ND	ND	10
	Toluene	150	ND	ND	ND	10
	Xylenes (total)	23	ND	ND	ND	10
	Chloroethane	ND	13	ND	ND	30
	1,1-Dichloroethane	51	ND	ND	ND	10
	1,1-Dichloroethene	6.0	ND	ND	ND	10
	t-1,2-Dichloroethene	5.2	ND	ND	ND	30
	1,1,1-trichloroethane	57	ND	ND	ND	10
	Trichloroethene	70	ND	ND	ND	10
	Vinyl Chloride	120	58	ND	ND	50
10/13/03	Ethyl Benzene	ND	ND	ND	ND	10
	Toluene	86	ND	ND	ND	10
	Xylenes (total)	9.4	ND	ND	ND	10
	Chloroethane	ND	9.7	ND	ND	30
	1,1-Dichloroethane	61	ND	ND	ND	10
	1,1-Dichloroethene	6.4	ND	ND	ND	10
	t-1,2-Dichloroethene	5.4	ND	ND	ND	30
	1,1,1-trichloroethane	65	ND	ND	ND	10
	Trichloroethene	85	ND	ND	ND	10
	Vinyl Chloride	120	50	ND	ND	50
10/21/03	Ethyl Benzene	ND	ND	ND	ND	10
	Toluene	ND	ND	ND	ND	10
	Xylenes (total)	ND	ND	ND	ND	10
	Chloroethane	ND	14	ND	ND	30
	1,1-Dichloroethane	ND	ND	ND	ND	10
	1,1-Dichloroethene	ND	ND	ND	ND	10
	t-1,2-Dichloroethene	ND	ND	ND	ND	30
	Methylene chloride	ND	ND	ND	ND	5
	1,1,1-trichloroethane	ND	ND	ND	ND	10
	Trichloroethene	ND	ND	ND	ND	10
	Vinyl Chloride	ND	57	ND	ND	50
10/28/03	Ethyl Benzene	ND	ND	ND	ND	10
	Toluene	ND	ND	ND	1.7	10
	Xylenes (total)	ND	ND	ND	ND	10
	Chloroethane	ND	14	ND	ND	30
	1,1-Dichloroethane	ND	ND	ND	ND	10
	1,1-Dichloroethene	ND	ND	ND	ND	10
	t-1,2-Dichloroethene	ND	ND	ND	ND	30
	1,1,1-trichloroethane	ND	ND	ND	ND	10
	Trichloroethene	ND	ND	ND	ND	10
	Vinyl Chloride	ND	56	ND	ND	50

Notes: All values are in ug/L or parts-per-billion (ppb).
**=Laboratory contamination suspected.
The above table reflects only those target compounds that were detected in the various samples; all other target compounds were below the respective method detection limit

In addition to monitoring the groundwater treatment system discharge for VOC's, a sample is submitted approximately monthly for analysis of pH. The results as reported by the lab are tabulated below. The lab reports are included as an attachment (Appendix C).

Tabulation of pH Analyses – Outfall 001A

Date	pH (standard units)
6/19/03	8.2
7/2/03	7.3
7/23/03	7.9
8/13/03	7.8
9/08/03	7.8
10/7/03	8.0

A log of magnehelic readings for the air stripper which have been recorded since the month of June, 2003 is presented below. The magnehelic gauge measures the air pressure in the air stripper sump where the fresh influent air is introduced. As the trays become fouled with mineral deposits, the air pressure has been observed to rise due to the restricted air flow through the diffusion trays. As a point of reference, upon start-up of the system after the physical/manual cleaning event of June 4, 2003, the sump pressure was measured at 9.75 inches of water column (in. w.c.).

Tabulation of Airstripper Sump Magnehelic Readings

Date	Magnehelic Gauge (in. w.c.)
6/5/03*	9.75
6/10/03	10.5
6/12/03	10.5
6/19/03	10.75
6/26/03	11.25
7/2/03	11.25
7/8/03	11.6
7/15/03	12.0
7/22/03	13.0
7/29/03	13.0
8/5/03	13.5
8/13/03**	13.6
8/19/03	14.25
8/26/03	14.5
9/2/03	15.0
9/8/03	15.0
9/10/03*	15.0
9/16/03	10.75
9/22/03	11.25
9/30/03	12.0
10/07/03	13.5
10/13/03	13.75
10/21/03	14.25
10/28/03*	14.75
10/30/03	10.75

*Air Stripper cleaned 6/5, 9/10, 10/28/03
** Carbon media changed 8/11/03

Discussion:

In general, the occurrence of iron deposition in the treatment system has historically resulted in the reduced operational efficiency of the treatment system at the former NES facility site. The use of the air stripper sump magnehelic gauge readings as a tool for scheduling routine cleaning of the diffusion trays of the air stripper should help prevent the occurrence of VOC's in the treatment system discharge.

The limited capacity of the carbon filters to provide adequate backup for VOC removal has prompted SEM to schedule the cleaning events based on the observation of the airstripper sump magnehelic gauge reading. Previous analytical results have shown that the gauge reading is a useful predictive tool and has been effective in preventing discharge of VOC's to the outfall of the treatment system.

Periodic interruption by high water levels in the air stripper sump has again been observed during site visits in October, indicating that pervasive iron precipitation continues to limit the effectiveness of the GAC filters in particular and the GW recovery system in general. The overall hydraulic control of the recovery wells would be increased by maximizing the operation of the recovery well pumps. Currently the recovery well pumps are automatically shut down when the air stripper sump becomes overly full of water. This generally occurs when the GAC filters become clogged with precipitated iron thus lowering the discharge flow rate to the outfall. The recovery pumps automatically restart once the stripper sump volume has been reduced to the optimal operating level. It is expected that this scenario can be best addressed in the short term by increasing the frequency of back flushing to every 3 to 4 days if the GAC filters are to remain in service.

As previously stated the effectiveness of the GAC filters to provide effective backup for VOC removal is limited by the occurrence iron fouling. Any iron coating the carbon granules would limit the adsorptive capacity of the media by removing it from contact with the airstripper effluent. Shortly after the most recent carbon filter media change of August 11, 2003, breakthrough from the airstripper was observed on August 26, 2003. This occurrence was quickly accompanied with the detection of VOCs in the outfall sample collected September 2, 2003. To adequately ensure effective backup, it may be necessary to change the carbon media on a more frequent basis or go to a faster turnaround time on the analysis of the sample collected from the outfall.

Conclusions and Recommendations:

It has been demonstrated that it will be prudent to undertake physical cleaning of the air stripper trays once the sump pressure reaches 13.5 to 14.0 in.w.c. This will ensure restoration of VOC removal efficiency before a discharge could occur. Also, a regimen of increased backflushing frequency of the GAC filters would improve the groundwater recovery volume at the site.

Due to the occurrence of VOC reported for the 001A discharge sample collected October 28, 2003 it may be prudent to change the carbon filtration media to restore backup VOC removal capacity to the air stripper.

To reduce the ongoing expense of laboratory analyses it may be prudent to reduce the frequency of influent sampling to once per month. Historic analytic data reported for the site indicate relatively consistent loading to the treatment system of approximately 500 to 2000 ppb total VOC from RW-1 and 50 to 100 ppb VOC from WP-5D.

A log of operational parameters and maintenance activities (Appendix A), and a tabulation of flow volumes vs. analysis results (Appendix B) are attached to allow convenient reference. Copies of the laboratory analysis results and sample custody documentation associated with the various sampling events are also attached as Appendix C.

The next monthly summary of operation, monitoring and maintenance activities will be submitted in December. Please feel free to contact our office if you have any questions or concerns in the interim.

Respectfully,
STRATEGIC ENVIRONMENTAL MANAGEMENT, Inc.

Mark N. Graves
Project Manager

MNG/mng

Attachments
Cc: David Roth-Op-Tech Environmental Services, Inc., with attachments
Timothy DiGiulio, P.E. -NYSDEC, Solid and Hazardous Materials – Region 7

Attachment A

Groundwater recovery and Treatment System Operations and Maintenance Logs

ATTACHMENT A

Groundwater Recovery and Treatment System Operations and Maintenance Log-2003
Former Northeast Environmental Services, Inc. Site, Canal Road, Town of Lenox, New York
NYSDEC Petroleum Spill No. 01-60024/PIN No. H-0529

October 2003						
10/07/03	0915	2,177,380	10.5	2,406,050	6.1	System operating at high discharge pressure upon arrival, Collected O&M samples and data. Backflushed Carbon filters, transport samples on ice to LSL.
10/13/03	1015	2,246,490	10.1	2,446,290	5.9	System operating at high discharge pressure upon arrival, resticted flow noted at outfall during sampling. Collected O&M samples and data. Backflushed Carbon filters, transport samples on ice to LSL.
10/21/03	0845	2,355,355	10.1	2,509,292	5.9	System operating at high discharge pressure upon arrival, Collected O&M samples and data. Backflushed Carbon filters, transport samples on ice to LSL.
10/28/03	1140	2,461,140	10.0	2,569,600	5.9	System operating at high discharge pressure upon arrival, Collected O&M samples and data. Backflushed Carbon filters, transport samples on ice to LSL. Cleaned airstripper diffusion trays.

Notes: * Influent piping equipped with digital flow meters not capable of totalizing flow until May 15 (WP-5D) and June 6 (RW-1).

Attachment B

Tabulation of Flow Volumes vs. Analysis Results

ATTACHMENT B
Tabulation of Flow Volumes vs. Analysis Results
Groundwater Recovery and Treatment System Operations and Maintenance Monitoring
Former Northeast Environmental Services, Inc. Site, Canal Road, Town of Lenox, New York
NYSDEC Spill No. 01-60024/PIN No. H-0529

		Flow Totalizer Readings						Analysis Results-Total VOC (ppb)				
Date	**Time**	**RW-1**	**Δ**	**AVE Fow rate (gpm)**	**WP-5D**	**Δ**	**AVE Fow rate (gpm)**	**RW-1 Inf.**	**WP-5D Inf.**	**AS Discharge**	**Final Discharge (OUTFALL 001A)**	**Cumulative Gallons (RW-1 and WP-5D)**
10/07/03	0915	2,177,380	81,080	8.08	2,406,050	47,260	4.71	482.2	71	ND	ND	128,340
10/13/03	1015	2,246,490	69,110	7.94	2,446,290	40,240	4.63	438.2	59.7	ND	ND	109,350
10/21/03	0845	2,355,355	108,865	9.53	2,509,292	63,002	5.51	834.9	66.0	ND	ND	171,867
10/28/03	1130	2,461,140	105,785	10.33	2,569,600	60,308	5.89	1150.9	31.3	ND	1.7	166,093

NOTE:

- * = WP5-D flow meter clogged with fine sand
- NC = Not Collected