OPERATION, MAINTENANCE, AND MONITORING PLAN

For

The Vatrano Road Site Albany, New York

(New York State Department of Environmental Conservation) Inactive Hazardous Waste Site Number 401036

> December 1998 (Revised)

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1.0 INTRODUCTION

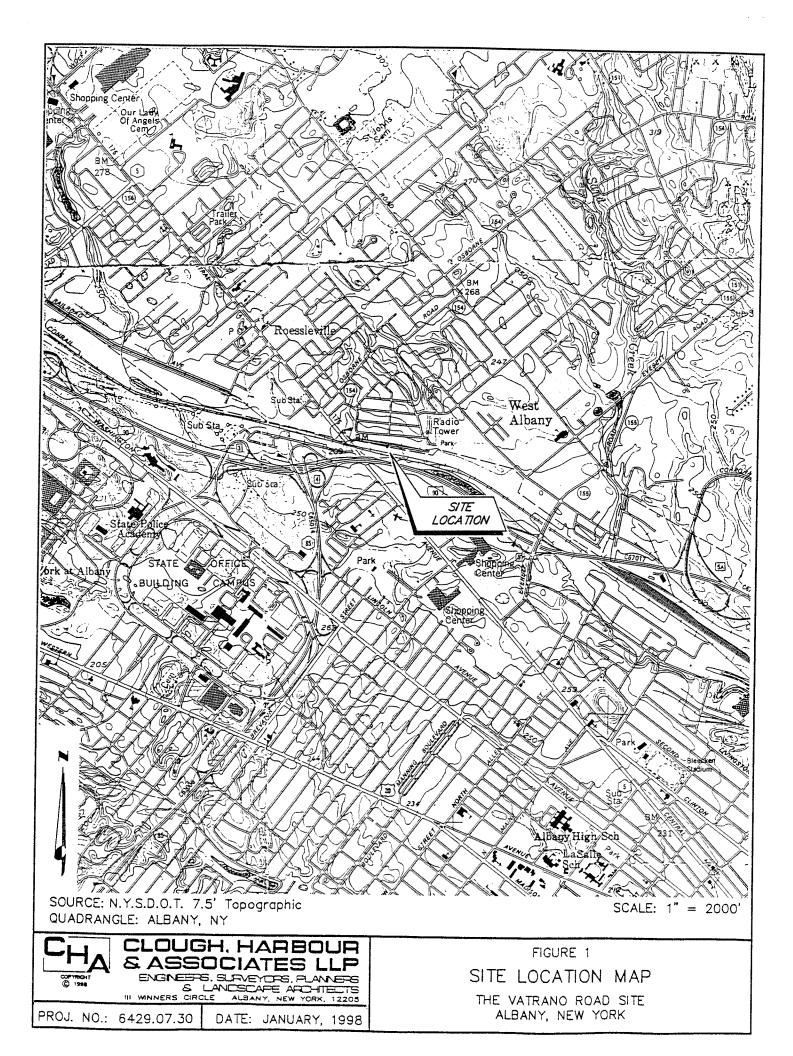
This Operation, Maintenance, and Monitoring Plan for the former General Electric Vatrano Road Service Center has been prepared by Clough, Harbour, & Associates LLP (CHA), Albany, New York to address the documentation requirements put forth by the Order on Consent (Index #A4-0355-9704) between the New York Department of Environmental Conservation (NYSDEC) and the General Electric Company which was issued regarding the remediation of the Vatrano Road Site.

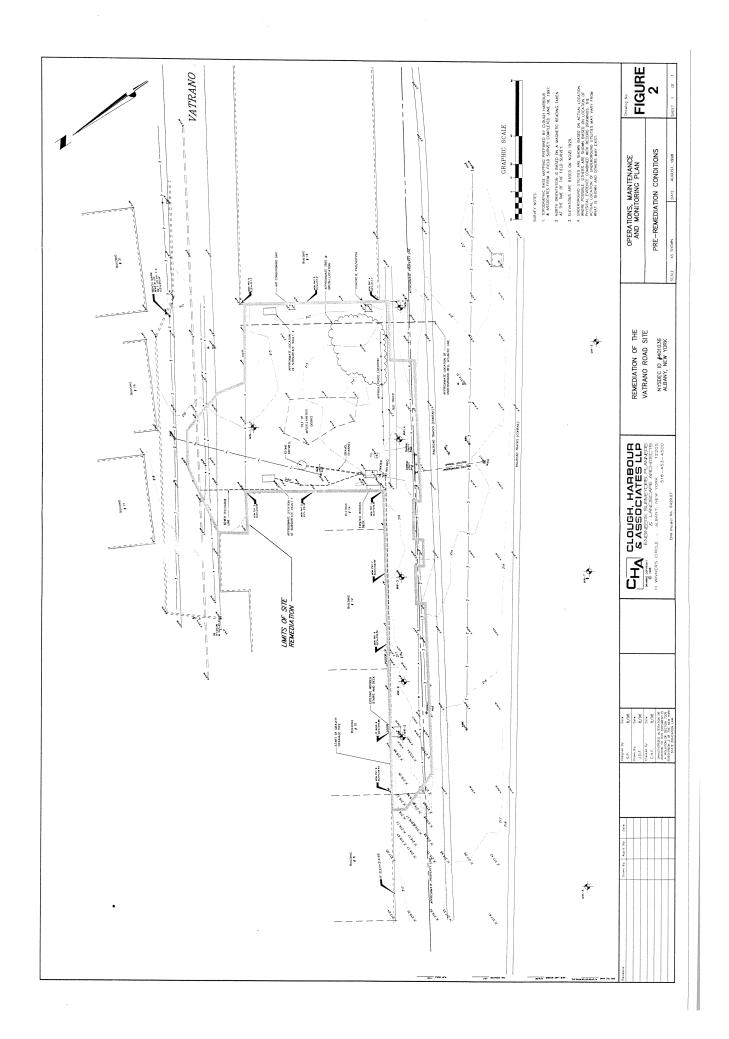
The location of the subject site is illustrated by Figure 1, and a site plan, which illustrates the portion of the property that was remediated in the fall of 1997, is shown on figure 2.

The purpose of this Plan is to ensure the following:

- The site is operated effectively and efficiently
- The site is monitored for performance and effectiveness
- All parties are aware of the specific needs of O&M of the site
- A smoother transition of the site from the Remedial Actions phase to the O&M phase

This report is divided into five sections, with this introduction being the first section. Discussions regarding description of the site, its history, geology, hydrogeology, and the existing ground water monitoring network are provided in Section 2.0. Post remediation site characterization data is presented and discussed in Section 3.0. The proposed monitoring program is discussed in Section 4.0, and site operation and maintenance is discussed in Section 5.0.





2.0 SITE DESCRIPTION

As illustrated by Figures 1 and 2, the subject site is located on Vatrano Road in the City of Albany, New York, just east of Central Avenue near the Town of Colonie border, with a series of railroad tracks owned and operated by Consolidated Rail, Patroon Creek, and Interstate 90 located to the south of the site. The site consists of a vacant lot within the Vatrano Commercial Park that is less than two acres in size. The immediate surrounding area is occupied by commercial and light industrial facilities, with the nearest residential properties located immediately to the north of the Vatrano Road Commercial Park.

2.1 HISTORY

From 1956 through 1981, the General Electric Company leased what is now known as 14 Vatrano Road, the structure immediately to the west of the subject site. This facility was used as an apparatus repair shop by General Electric, and serviced electric motors and transformers which contained polychlorinated biphenyls (PCBs).

The results of a series of preliminary investigations indicated that the subject site's soils were contaminated with PCBs. As a result, the NYSDEC identified the property as an inactive hazardous waste disposal site that constituted a significant threat to the environment. In 1990, the NYSDEC and General Electric entered into an order which required General Electric to conduct a Remedial Investigation/Feasibility Study (RI/FS) of the site which would both identify the nature and extent of the contamination on the property, and identify and evaluate remedial alternatives which would enable General Electric to meet the goal of the remedial program. From the onset of the project, the objective of the remedial program has been to restore the site to predisposal conditions, to the extent feasible, and authorized by law, while eliminating or mitigating all significant threats to public health and the environment.

In early 1997 the property owner asked General Electric to expedite the remediation of the site. General Electric reevaluated the stabilization/solidification alternative and the contingent remedy, the excavation and off site disposal of contaminated soils and found that remediation could be completed in 1997 if the contingent remedy (excavation with off-site disposal) was chosen. Since both the selected remedy and the contingent remedy would achieve the cited remedial objective, the NYSDEC approved the implementation of the contingent remedy.

From October through December of 1997, the site was remediated by Four Seasons Environmental under the supervision of Clough, Harbour and Associates, LLP (CHA). A full description of the remediation can be found in the March 1998 Remediation Engineering Certification Report prepared by CHA. A short description of the remediation is described in Section 3.0 of this report.

2.2 REGIONAL GEOLOGY & HYDROGEOLOGY

The geology of east central New York consists of Ordovician age bedrock overlain by unconsolidated glacial till and outwash deposits and/or glacial lake deposits. The Ordovician bedrock is comprised predominantly of dark-gray to black argillaceous shales with occasional layers of limestone and localized chert. Due to the pliability of the shales and the tectonic history of the area, the bedrock has been intricately folded and crumbled. Glaciation is believed to have eroded and scarred the bedrock leaving an irregular, trough-shaped bedrock surface.

Overlying the bedrock are glacial tills, glacial outwash deposits, and lacustrine (lake) deposits. The tills are comprised of poorly sorted fine to coarse grain sized materials and are generally found in lateral moraines which were deposited by advancing glaciers along the sides of the valleys. The outwash deposits are clean, well sorted sands and gravels found generally throughout the valley floor, having been deposited by streams originating from the melting glaciers during glacier retreats. The lacustrine deposits are comprised of silts and clays deposited in lakes formed during the temporary halts in advancements or retreats of the glaciers and are locally known as the Lake Albany Deposits. The glacial deposits are reportedly up to three hundred and fifty feet thick in some areas. All of the glacial deposits are discontinuous laterally and vary in thickness throughout, thereby producing a complex geologic and hydrogeologic setting.

The regional hydrogeologic feature controlling this area is the Hudson River, which is approximately four miles east of the site. Therefore, groundwater flow in the region is expected to be southeastward, ultimately toward the Hudson.

2.3 SITE SOILS & HYDROGEOLOGY

Borings advanced on site encountered two to ten feet of ash and cinder fill over natural soil. The fill contained wood, brick, cinder blocks, asphalt and metal debris in sand, silt, cinders and ash. Natural soil underlying the fill and debris consists of approximately ten feet of silty sand, with 30 feet of clayey silt below the silty sand. Depth to bedrock is unknown.

The Patroon Creek flows east and passes the site approximately 400 feet to the south. This feature exerts local hydrologic control over the site's ground water flow direction, with ground water flowing south toward the Patroon Creek.

The New York State Bedrock Geologic Map shows the site is underlain with the Ordovician Normanskill Formation which has a relatively low permeability resulting in significantly lower production rates than those associated with the glacial deposits. Permeability within the bedrock is directly related to the extent of fracturing and joints within the rock. Moderate levels of groundwater production may occur in portions of the bedrock where jointing and fracturing are significant. The occasional beds of limestone within the bedrock have been known to yield significant quantities of water. The extent of bedrock joints and fracturing beneath the Vatrano Road site has not been determined.

2.4 GROUNDWATER QUALITY

There are nine groundwater-monitoring wells associated with the Vatrano road site ground water monitoring network. Wells MW-6, 7 & 8 are located off site just to the north of Patroon Creek. The remaining wells (MW-1,2,3,4,5 & 9) are located on the site. During the remediation of the site conducted in October, November, and December of 1997, the six on site groundwater monitoring wells (MW-1-MW-5 & MW-9) were removed and replaced with six new wells. The current location of all of the wells are illustrated by Figure 3. The new wells were installed in similar locations and to similar depths of the original wells, however some changes were made based on contamination discovered during the remediation. Well data and groundwater elevations from the latest monitoring event (April 13, 1998) are shown in Table 1. Appendix A contains copies of monitoring well logs for all nine of the in ground water monitoring wells in the monitoring network.

Based on these water level measurements, groundwater flow has been determined to be to the south towards Patroon Creek. The hydraulic gradient across the site is estimated to be approximately 0.023 feet/foot. The gradient steepens to the south of the site reflecting the influence of Patroon Creek. This data indicates that the shallow overburden aquifer discharges to Patroon Creek. Figure 4 shows the groundwater contours based on the water levels measured on April 13, 1998. The boring logs for the wells included as Appendix A, indicate that the water table aquifer in the unconsolidated silty sands and clayey silts is unconfined.

Two partial rounds of groundwater sampling were conducted by CHA during the summer of 1997 prior to the start of remediation. During a July 8th 1997 sampling event, groundwater-monitoring wells MW-2, MW-3 and MW-9 were sampled, previous investigations indicated the presence of Tetrachloroethane in this area. The wells were analyzed for purgeable halocarbons by EPA Method 601, as well as for Polychlorinated Biphenyls (PCB's) by EPA Method 8080. The laboratory reports for these analyses can be found in Appendix B, and the results are summarized in Table 2.

On July 10 and 11, 1997 groundwater samples were collected from monitoring wells MW-2, MW-7, MW-8 and MW-9. In addition, surface water samples from Patroon Creek were collected upstream and downstream of the site (Sample Numbers SW-1 and SW-2, respectively). The samples were analyzed for PCB's via EPA method 8080, volatile organics via EPA Method 624, and semi-volatile organics via EPA method 625. The PCB analysis performed on the samples were completed on both unfiltered and filtered duplicate samples (0.45 micron glass) to determine if PCB's were present in the dissolved state, or were associated with the sediment in the sample. The results of the filtered versus unfiltered data clearly shows the PCB have not dissolved in the ground water. The only organic compound detected during this event was tetrachloroethene at 20 ppb in the sample from well MW-2. Additional ground water monitoring data is discussed in Section 3.0.

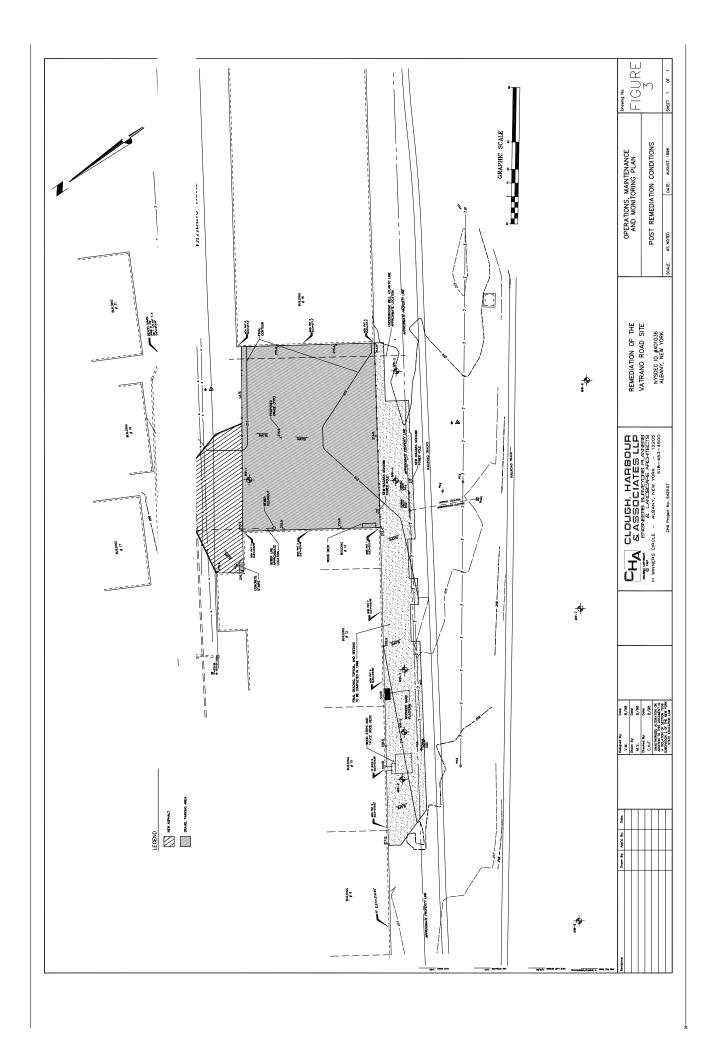


TABLE 1
GROUNDWATER MONITORING WELL DATA and GROUNDWATER ELEVATIONS

Well#	Ground Elevation (MSL)	Elevation of Screened Interval	PVC Stickup (from ground)	4/13/98 Water Elevation (MSL)
MW-1	215.23 ft	200.23-210.23 ft	2.42 ft	210.21 ft
MW-2	216.20 ft	198.70-208.70 ft	2.65 ft	207.91 ft
MW-3	215.53 ft	198.03-208.03 ft	2.24 ft	207.85 ft
MW-4	214.58 ft	198.08-208.08 ft	2.46 ft	207.79 ft
MW-5	214.54 ft	197.54-207.54 ft	2.46 ft	207.64 ft
MW-6	201.86 ft	186.86-196.86 ft	1.61 ft	200.22ft
MW-7	204.03 ft	189.03-199.03 ft	1.83 ft	201.56 ft
MW-8	206.29 ft	191.29-201.29 ft	1.80 ft	202.61 ft
MW-9	215.95 ft	164.95-169.95 ft	1.33 ft	205.08 ft

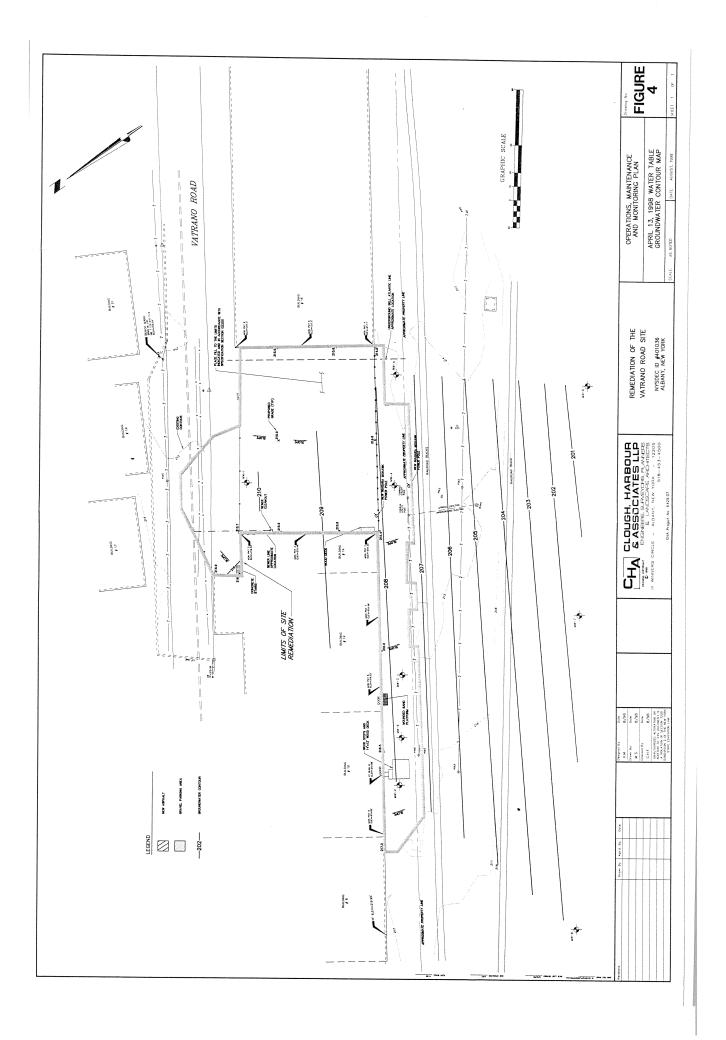


TABLE 2
Pre-Remediation Ground Water Quality Data
(Detected Parameters)

Well # (sample collection date)	Tetrachloroethene (ug/l)	Trichloroethene (ug/l)	Vinyl Chloride (ug/l)	Total I (ug (Standard	/I)
	(Standard=5 ug/l)	(Standard=5 ug/l)	(Standard=5ug/l)	Unfiltered Sample	Filtered Sample
MW-2 (6/25/97)	21.9	3.46	ND	3.44	-
MW-2 (7/10/97)	20	ND	ND	3.186	ND
MW-3 (6/25/97)	ND	ND	3.03	0.681	-
MW-7 (7/10/97)	ND	ND	ND	ND	ND
MW-8 (7/10/97)	ND	ND	ND	ND	ND
MW-9 (6/25/97)	ND	ND	ND	5.291	-
MW-9 (7/10/97)	ND	ND	ND	5.449	ND
SW-1 (7/10/97)	ND	ND	ND	ND	ND
SW-2 (7/10/97)	ND	ND	ND	ND	ND

ND: Below Detection Limits

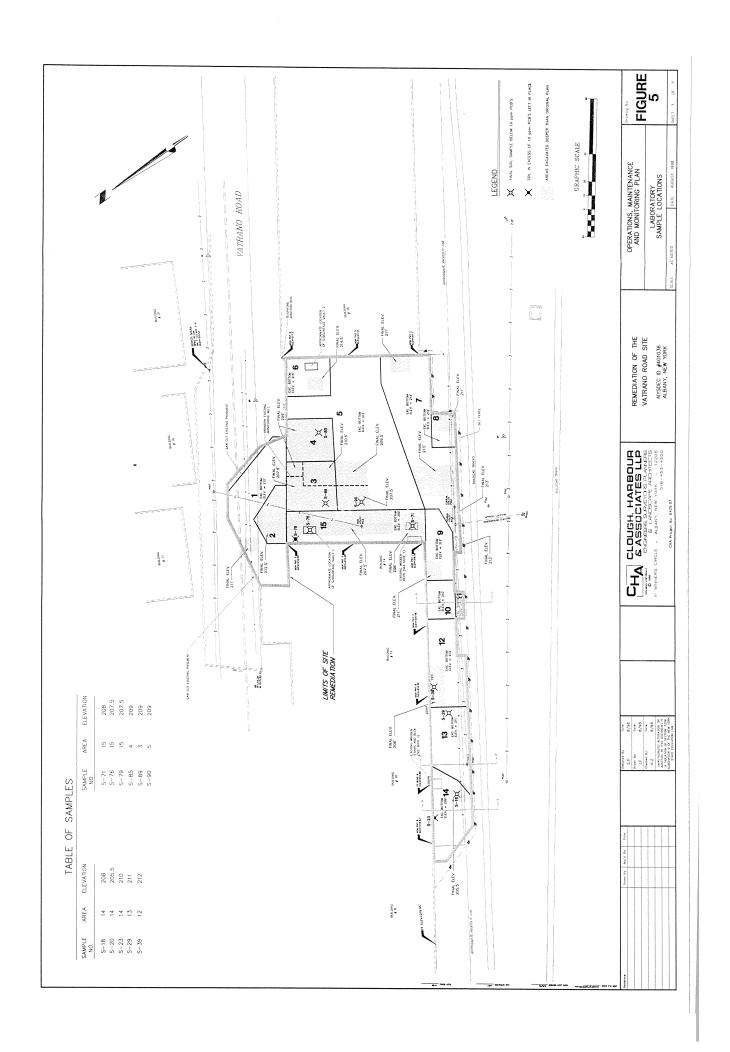
3.0 POST REMEDIATION SITE CHARACTERIZATION

The Vatrano Road site was remediated between October and December of 1997. The remediation consisted of the excavation and proper off-site disposal of soils containing 10 ppm PCB's or more. The lowest excavated elevation was 207.5 ft MSL. All excavated soils were removed from the site and properly disposed. The excavations were back filled with clean sand. A complete description of the remediation can be found in the *Remediation Engineering Certification Report for the Vatrano Road Site*. The limits of the excavation are illustrated by Figure 5.

3.1 SOIL CHARACTERIZATION

Soil samples were field screened for PCB's using an immunoassay test method. A summary of the field screening results is included as Appendix B. In addition, eleven soil samples and one waste collection pipe sample were selected for laboratory analysis for the target compound list parameters. The locations of these samples are illustrated by Figure 5. A summary of the laboratory results for these samples is found in Table 3. All of the samples represent the final excavated elevations prior to backfilling with clean sand, except 3S-89 and 5S-90 which were collected from intermediate soil horizons. Further excavation was performed in the area of these two samples based on the results of field screening analysis as it was not practical to leave the excavation open while waiting for the laboratory results. Sample 14S-23 was taken from the northern slope of the western portion of the excavation, and no further excavation was possible due to slope stability structural concerns. This slope was capped with a 40 mil polyethylene linear prior to backfilling.

As stated in Table 3, the soil sample results indicated slightly elevated levels of Mercury, Arsenic, Tetrachloroethene, Chlorobenzene, total Xylenes and Cis-1, 2 dichloroethene when compared to recommended soil clean up objectives (NYSDEC TAGM, Jan 1994). The presence of these parameters is attributable to this historic industrial use of the area. It should be noted, however, that the conditions of the NYSDEC consent order and record of decision (ROD) were satisfied with the removal of soils contaminated with PCB's at concentrations in excess with 10 ppm. There will be no direct exposure to the identified residual volatile organic and metallic contaminants, as two to seven feet of clean backfill material was placed in the excavation.



CLOSURE PERFORMANCE OF SOIL SAMPLE LABORATORY RESULTS SUMMARY (PPM) TABLE 3

SUEC 1 AGM-Determination of Soil Cleanup Objectives and Cleanup Levels, Jan 1994.

ND: Below Detection Limits

3.2 GROUND WATER QUALITY CHARACTERIZATION

On April 13, 16 & 17 1998, a qualified Clough Harbour Scientist sampled the six on-site and three off-site wells for the purpose of establishing baseline post remediation groundwater quality. The samples from this post remediation sampling were analyzed for the U.S. EPA Target Compound List of chemicals including total cyanide. This data is the basis for the monitoring program discussion found in section 4.0 of this report. The procedures followed during this sampling event are listed below. Copies of the field data sheets for this sampling event are included as Appendix D.

3.2.1 Procedures

Prior to sampling, an HNu photoionization meter was used to document the total volatile organic headspace concentration in each well. The HNu did not detect organic vapors in any well. The water level of each well was measured to the nearest one hundredth of a foot using an electronic water level meter. This data was used to develop a groundwater contour map (Figure 4).

Dedicated plastic Waterra tubing and footvalves were installed in all nine wells. This tubing prevents cross contamination. A portable Waterra pump powered by a generator was used to purge and sample each well.

Purge water from the wells on site were placed in a properly labeled drum and removed and properly disposed of by Clean Harbors Environmental Services, Inc. of Glenmont, NY.

Approximately three well volumes of water were purged from each well prior to sampling. Field parameters such as turbidity, temperature, pH and Eh were measured and recorded on the sampling sheets (Appendix D). Filtered metals were taken only in wells where the turbidity could not be brought below 50 Ntu's (MW-3, MW-4, MW-6 & MW-9).

For QA/QC purposes, a Matrix Spike and Matrix Spike Duplicate sample, a blind duplicate sample, and trip blanks (one for each sampling day) were submitted for analysis.

The samples were labeled, stored in a cooler with ice to maintain proper temperature, and delivered to Adirondack Environmental Services of Albany, NY with the appropriate chain of custody documents.

3.2.2 Laboratory Results

A summary of the filtered and unfiltered metals data is shown in Table 4. Mercury was found to be slightly above the groundwater standards in MW-3 and MW-9 (5.5 ppb and 3.7 ppb respectively). Both of these water samples were very turbid and the dissolved level of mercury in both of these wells were below detection limits. An unfiltered lead concentration of 556 in MW-3 and 143 ppb was found in MW-4. The analysis of filtered samples from both of these wells indicated that these metals were not present at concentrations above method detection limits. The blind duplicate sample from MW-4 had similar results. Based on these results the dissolved concentrations of mercury and lead are within groundwater standards.

TABLE 4
APRIL 1998 GROUNDWATER ANALYSIS SUMMARY TABLE - METALS DATA

Parameter	Groundwater Standard (ug/l)	MW-3 (ug/l)	MW-4 (ug/l)	MW-9 (ug/l)	MW-10 (ug/l)
Mercury (unfiltered)	2	5.5	ND	3.7	ND
Mercury (filtered)	2	ND	ND	ND	ND
Lead (unfiltered)	25	566	143	ND	164
Lead (filtered)*	25	ND	ND	ND	ND

Table 5 shows the post remediation unfiltered groundwater analytical results for PCBs and volatile organics compared to various preremediation results and applicable standards. The post remediation results of wells MW-1 and MW-3 showed no signs of contamination. With the exception of MW-5, any wells that exhibited PCB contamination before the remediation showed either a significant decrease in levels or no analytical evidence of contamination. The sample from well MW-5 contained PCB's at 17 ug/l. This well showed high turbidities, and based on the evidence presented in Table 2, the PCB's are most likely associated with the particulate matter and are not dissolved in the actual groundwater. In addition, the solubility of Aroclor 1260 is 2.7 ug/l at 25° C (Moore & Walker, 1991), therefore, a dissolved value of 17 ug/l is technically not feasible. During the next sampling round a blind duplicate will be taken from this well, as well as a filtered PCB sample. It should be noted that the level of contamination found in MW-2 is still above the drinking water standards

The volatile organic content of the groundwater has either remained stable, or increased slightly. Tetrachloroethene in MW-2 increased from 21.9 ug/l to 270 ug/l. In addition, trichloroethene increased from 3.46 ug/l to 23 ug/l. MW-2 also contained 78 ug/l of 1,2 Dichloroethene. These values exceed groundwater standards. The increase in VOC concentration identified above and in Table 4 may be attributed to the fact that the site soils were disturbed during the remedial program.

The chemical Bis(2-ethylhexyl phthalate) was found in wells MW-6,7,8 and 9. The levels in MW-7 and 8 exceed the groundwater standards. MW-4 and MW-6 contained low levels of Di-n-butyl-phthalate. MW-10 a blind duplicate of well MW-4 contains no Di-n-butyl-phthalate indicating possible laboratory contamination or concentrations are very close to detection limits. These chemicals are known as plasticizers and could originate from laboratory containers. This is the first evidence of the presence of these constituents at this site

Operation, Maintenance and Monitoring Plan for The Vatrano Road Site Albany, New York

TABLE 5 GROUNDWATER ANALYSIS SUMMARY TABLE – VOCs AND PCBs

	Dina	Di-n-butyl- phthalate (ug/l)	halate	Triol	Trichloroethene (ug/l)	ne	Tetrachi	Tetrachloroethene (ug/l)	([/gn)	Tol	Total PCB's (ug/l)		Bis(2 phth	Bis(2-ethylhexyl) phthalate (ug/l)	8.6	1,2 Di	1,2 Dichloroethene (ug/l)	nene
	(Stan	(Standard=50 ug/l)	(l/gn	(Stan	(Standard=5 ug/l)	g/)	(Stan	(Standard=5 ug/l)	g/)	(Stand	(Standard=0.1ug/l)	g/J)	(Stanc	(Standard=50 ug/l)	[g/l)	(Stan	(Standard=5 ug/l)	(l/gi
WELL#	8/91	76/1	4/98	8/91	76/1	4/98	8/91	76/1	4/98	8/91	76/2	4/98	8/91	76/7	4/98	8/91	7/97	4/98
MW-1	NA	NA	QN	QN	NA	ON	QN	NA	QN	5.5	NA	Q	NA	NA	QN	QX	ND	ON
MW-2	NA	NA	QN	24	QN	23	56	20	270	5.8	3.19	0.383	NA	NA	QN	74	QN	78
MW-3	NA	NA	QN	Ω	Q	S	QN	QN	QN	1.2	89'0	QN	NA	NA	QN	4.1	ND	QN
MW-4	NA	NA	10	QN	NA	ON	ND	NA	QN	QN	NA	QN	NA	NA	QN	7	QN	ND
S-WW	NA	NA	QN	ND	NA	QN.	ND	NA	QN ON	QN	NA	17	NA	NA	QN	QN	QN	QN
9-MW	NA	NA	12	ND	NA	ND	ND	NA	<u>R</u>	QN	NA	QN	NA	NA	13	QN	QN	QN
7-WW	NA	NA	ON	ND	ND	ND	ND	Q	QN.	QN	QN	Q.	NA	NA	120	23	QN	QN
MW-8	NA	NA A	NO	Q	ND	QN	ND	QN	ND	ND	ND	QN	NA	NA	84	QN N	Q.	R
MW-9	NA	NA	QN	QN	ON	ND	QN	ND	QN	0.81	5.45	QN	NA	NA	14	QN	QN QN	Q.
MW-10 (Duplicate of MW-4)	NA A	NA	QN	NA	NA	QN	NA	NA	ON.	NA	NA	QN	NA	NA	QN	NA	QN	ND
ND: Not Detected or Below Detection Limits	cted or l	Below I	Detectio	n Limit	S	N	NA: Not Analyzed	nalyzed			J=Semi	-quanti	J=Semi-quantitative value.		oncentr	Concentration below CRQCL	slow Cl	RQCL.

4.0 MONITORING PROGRAM

The latest round of groundwater sampling indicates that, in all but one well (MW-5), the PCB levels in the groundwater have been significantly reduced. Volatile organic compounds lead and mercury were also detected during the first post remediation sampling event.

Based on the results of the latest round of sampling, both on and off site groundwater monitoring wells will be sampled semi-annually for two years and then annually for three subsequent years, at which time a review of the remedial action will take place. The wells will be sampled and the sample collected will be analyzed for unfiltered PCB content (EPA Method 8080) and volatile organics (EPA Method 624). The samples will also be analyzed for the presence of lead and mercury. The NYSDEC will be provided with this data in the form of a report for each monitoring event within 60 days of receipt of the laboratory reports for a given monitoring event. Procedures and protocols, and the specifics associated with this monitoring program are discussed below.

4.1 GROUNDWATER MONITORING WELL SAMPLING PROCEDURES

An photoinoization detector will be used to check the headspace in each well for organic vapors immediately upon opening a well head, and prior to groundwater depth measurement or the initiation of the sampling event. Readings from this meter shall be documented on the field data sheet along with calibration notes.

Prior to the collection of each groundwater sample, the water table elevation in each monitoring well will be measured to the nearest 100th of a foot and recorded. A groundwater sample will be collected from each well for delivery to an analytical laboratory after a minimum of three well volumes have been purged and the field parameters pH, Eh, turbidity, temperature, and conductivity have stabilized. In the event that a well is purged dry, the well will be allowed to recharge and a representative sample will be collected. If turbidities cannot be reduced below 50 NTUs, an additional filtered sample will be collected for analysis.

The upgradient monitoring well (MW-1) will be analyzed first, followed by the downgradient wells, with the monitoring well most likely to have the highest concentration of contaminants (MW-2 & MW-5) being sampled last.

All samples will be stored on ice in a cooler and transported with a completed chain-of-custody form to a NYSDEC approved laboratory for analysis. A trip blank and duplicate sample will also be submitted to the analytical laboratory for quality assurance/quality control purposes.

4.1.1 Prevention of Cross-Contamination

To prevent cross-contamination, wells shall be sampled from the least contaminated well to the most contaminated well, or from upgradient to down gradient, whenever possible.

Cross-contamination will also be prevented through the use of dedicated equipment. For this project, the Waterra Inertial Hydrolift Pump System with dedicated tubing and foot valves will be utilized for well purging and sample collection. In addition, a clean pair of latex disposable gloves will be worn by the sampling technician at each monitoring point sampled.

4.1.2 Monitoring Well Purging

The initial step performed in the sampling program prior to the purging and sampling of a monitoring well is the measurement of the depth from the top of the well casing to the top of the water surface. These measurements shall be taken to 0.01 foot with a water level indicator. The water level measurement equipment shall be decontaminated prior to use in each well. The depth of the well shall also be measured and the volume of water in the well shall be calculated. Generally, three well volumes of water shall be removed from the well. However, evacuation of the well will be performed until replacement of stagnant water in the well and sand pack with fresh water has been accomplished. If the well is completely evacuated during the purge, the well shall be allowed to recharge for a period not greater than twenty-four hours. Evacuation methods utilized will attempt to create the least possible turbidity in the well. Purge water will be containerized, labeled appropriately, removed and disposed of at a permitted disposal facility.

4.1.3 Groundwater Sample Collection

Prior to the actual procurement of a sample, the field measurement of temperature, pH, Eh, turbidity, and conductivity of the groundwater will be performed. These measurements shall be made after each well volume is extracted or at a minimum of every five to ten minutes. These retests are performed as a measure of purging efficiency, and as a means to verify the stability of the water samples over time. Methods such as proper purging techniques and micropurging when sampling will be used to attempt to meet the below 50 NTU turbidity goal. All equipment used in the field shall be calibrated before each use. The date and time of sample collection shall also be recorded, as well as weather conditions (e.g., precipitation), water level, and any other pertinent data. All pertinent data about each sample shall be recorded on Field Data Sheets. Other information that should be designated on a Field Data Sheet include well identification, well evacuation (purging) notes, well sampling sequence, and sample identification numbers.

Groundwater samples shall be delivered from the tubing to the sample bottle in such a way as to avoid aeration of the sample, and when measuring volatile organics, outgassing of the volatile chemical constituents whenever possible. The sample bottle and caps may be rinsed with the final well water as long as there is no preservative in the sample bottle. The sample bottle shall be filled to prevent air bubbles from being contained in the bottle. If there is no preservative in the sample bottle, it may be overfilled to allow any air bubbles to escape. The bottle shall be capped immediately. The sample may then be inverted and firmly tapped to check for air bubbles. If air is contained in the sample it shall be discarded and a fresh sample taken. Samples shall be stored immediately in a cooler under refrigerated conditions.

4.1.4 Sample Containers and Preservation

The sample containers are received from the analytical laboratory and are required to be pre-cleaned and bottles that are certified for a one-time use only, to avoid the potential risk of cross-contamination. Glass and/or Teflon are preferred materials for sample containers. The containers are typically forty milliliter bottles or larger, depending on the amount of sample needed in the laboratory for detection of certain analytes. Glass containers must be used for samples which are to be analyzed for PCBs, as PCBs may be absorbed by the plastic containers. The caps for the sample bottles shall be Teflon disk caps or metal caps lined with Teflon. Procedures specified by the NYSDEC ASP (current edition) shall be followed.

Sample preservation will be carried out by keeping the sample at low temperatures and in the dark during transport to the lab and/or by chemical preservation in the field at the time of sample collection. The analytical laboratory shall add preservative to the sample bottles before pickup at the laboratory so that preservation of the samples other than refrigeration does not have to be performed in the field. USEPA and NYSDEC ASP recommendations for preservation shall be followed closely.

4.1.5 Sample Filtration

Filtration shall be done in the field whenever possible. Filtration is recommended to facilitate extraction procedures for metals and non-volatile organic compounds such as PCBs when turbid (above 50 NTU's) samples are collected. Dissolved metals are defined as constituents that will pass through a 0.45 micron membrane filter.

Preassembled, presterilized, disposable filterware shall be used. Cross-contamination shall be prevented whenever possible during all filtration procedures. An in-line Waterra field filter can also be used to reduce the risk of cross-contamination. The interior of the filter apparatus shall not be touched and care shall be taken when filling sample bottles to avoid aeration of the sample. One or more filters may be used per sample; however, the same filter shall not be used for multiple samples. The filtering apparatus shall be discarded after use.

4.1.6 Field QA/QC Samples

Field QA/QC for the Vatrano Road sampling events shall consist of duplicate and trip blank analyses. Dedicated sampling equipment will be utilized for sample collection eliminating the need to collect field blanks. Field duplicate samples are samples collected at the sample point, at the same time, and in the same manner as a given sample. The duplicate sample is collected to provide statistical significance to the data generated. Field duplicate samples are collected in separate sample containers and submitted for the same analysis as the original sample. Trip blanks consist of reagent water and are used to determine whether contamination has resulted from sample bottle preparation, blank water quality, and/or sample handling procedures. For this project, one trip blank will be analyzed. In addition, in accordance with NYSDEC ASP requirements, a matrix spike/matrix spike

duplicate sample will be collected from one of the monitoring wells to be utilized by the laboratory in determining potential matrix interference problems affecting the laboratory analyses of the samples.

4.1.7 Chain-of-Custody Control

All samples shall be placed in an ice chest and transported to the laboratory performing the analyses as soon as possible after sampling. All labels on the sampling bottle shall be complete with the sampling agency's identification, the laboratory's identification, parameter abbreviations, sample identification number, and date, place, time of collection, and name of collector. Chain-of-custody forms shall also be completed in full for all samples collected and copies shall be retained for CHA records. The chain-of-custody forms will trace sample possession from the time of collection through laboratory analysis. The chain-of-custody forms shall contain sample numbers, signature of collector, date and time of collection, sample type, well identification, number of containers, parameters requested for analysis, signature(s) of the person(s) involved in the chain of possession, and dates of possession. In cases where samples may leave CHA's possession or immediate control, a seal shall be provided on the shipping container to ensure that the samples have not been disturbed during transportation. Once the sample is received in the laboratory, the laboratory personnel shall document the processing steps that are applied to the samples in a laboratory logbook along with the time, date, and name of person performing each step. These processing steps include sample preparation techniques, instrumental methods, and experimental conditions (reagents used. temperatures, reaction times, instrument settings, etc.). Quality control sample results should also be documented.

The Field Data Sheet, sample labels, chain-of-custody records, and laboratory logbook are all essential elements of an effective chain-of-custody program.

4.2 LABORATORY ANALYSIS AND QUALTITY CONTROL

Each ground water sample will be analyzed for the presence of volatile organics via EPA Method 625, PCBs via EPA Method 8080, lead via EPA Method 234.2, and Mercury via EPA Method 245.1.

Analytical procedures will be performed by an environmental laboratory which holds current NYSDEC ASP certification to perform the required analyses as per the New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP). All analytic QA/QC and laboratory procedures will be consistent with the requirements contained in EPA SW-846 and the NYSDEC ASP (current edition).

The certified laboratory performing the analyses shall have a written QA/QC plan addressing laboratory procedures involving receipt, storage and handling of samples, sample scheduling to ensure holding time adherence; reagent/standard preparation; general laboratory procedures such as glassware cleaning, operation of analytical balances, pipetting techniques, and use of volumetric glassware; descriptions of how analytical methods are actually performed; standard operating

deliverable data package will be in accordance with NYSDEC ASP Category A for the first four ground water monitoring events to be conducted under this plan. Depending upon the results of the first four monitoring events, a request may be filed with NYSDEC regarding an exemption from the ASP Category A requirement.

4.3 DATA REDUCTION AND REPORTING

Upon receipt of the laboratory results for a given round of ground water monitoring, the completeness and accuracy will be evaluated and compared to the data generated during previous monitoring events. The data derived from each monitoring event will then be presented and discussed in a report. These reports will include ground water contour maps for each monitoring event, a tabular summary of the monitoring results, and a discussion of the results. Copies of the laboratory report and sampling logs for each monitoring event will be included as appendices. A monitoring report will be submitted within 60 days of receipt of the laboratory data for each monitoring event:

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5.0 SITE OPERATION AND MAINTENANCE

The remediation removed all accessible contaminated soil and backfilled the resulting excavation with clean fill. At the close of the remedial activities, the finished surface was a gravel subbase suitable for receipt of asphalt pavement in the lot between buildings 14 & 16. This finish was designed to require no maintenance. However, it has come to CHA's attention that Vatrano Realty, the site owner, has paved this area. It is CHA's opinion, however, that the placement of pavement in this area will not impact the outcome of the remedial activities conducted to date. It is CHA's understanding that the owner its responsible for the maintenance of the paved surface.

The area behind Buildings 10, 12, and 14 Vatrano Road received topsoil and seed in mid September 1998. No maintenance is required in this area, other than mowing. It is CHA's understanding that the mowing of this area will be the responsibility of the property owner.

All areas of the site which were the subject of the remedial activities will be inspected for evidence of erosion or other forms of degradation during each ground water monitoring event. Conditions noted will be recorded on the sampling logs and discussed in the associated reports. General Electric and NYSDEC will be notified of any required repairs.