DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA750)

Migration of Contaminated Groundwater Under Control

Facility Name: Stauffer Management Co. - Skaneateles Falls
Facility Address: 4512 Jordan Road, Skaneateles, New York
Facility EPA ID #: NYD004859955

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Migration of Contaminated Groundwater Under Control" EI

A positive "Migration of Contaminated Groundwater Under Control" EI determination ("YE" status code) indicates that the migration of "contaminated" groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater" (for all groundwater "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated ground water and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

1. Has **all** available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination? **(Note: This determination addresses contaminated media regulated under New York State's Inactive Hazardous Waste Disposal Site Remedial Program.)**

   X If yes - check here and continue with #2 below.

   _____ if no - re-evaluate existing data, or

   _____ if data are not available, skip to #8 and check the"IN" status code.

Facility Information:

The Stauffer Management Company (SMC) Skaneateles Falls Site is located in central New York State in the Town of Skaneateles Falls, Onondaga County. The property is located at 4512 Jordan Road, approximately three miles north of Skaneateles Lake and approximately twenty miles west of the city of Syracuse. The SMC Skaneateles Falls Site encompasses an area of approximately 120 acres. The property is divided into two unequal portions by the Skaneateles Creek. The SMC Skaneateles Falls site is bounded to the west by a mix of residential and commercial property. The north, east, and south areas of the site are primarily bounded by undeveloped property.

The SMC production facility and former landfill are located on the western side of the property and cover an area of approximately 20 acres. The facility was formerly used to manufacture potassium and sodium silicates, detergents, and organic intermediates from other industries. The principle organic compound manufactured at the site was toluic acid, which used xylene as a raw material. Currently there are no manufacturing activities conducted at the site.

The facility was built in the mid 1920's by Draycott Mills to manufacture felt roofing materials. Cowles Chemical Company bought the property in the mid 1940's and manufactured potassium and sodium silicates and industrial detergents. Organic compounds were manufactured at the facility from the late 1950s to 1981. Stauffer Chemical Company (now SMC) purchased the facility in the late 1960s and continued operations until 1985.

On-site disposal areas include the landfill, former inorganic settling basins, closed sludge disposal area, and the sanitary sewage leachfield. Of the four on-site disposal areas, only the existing landfill is considered an AEC (Area of Environmental Concern). The landfill, located east of the main production building, was used for the disposal of process hazardous wastes such as silicate sludge and general plant refuse. The sludge disposal area, located east of the landfill, received excavated solids from the former settling basins. Only the sanitary leachfield currently receives solid waste.

2. Is **groundwater** known or reasonably suspected to be **"contaminated"**[1] above appropriately protective "levels" (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

__X__ If yes - continue after identifying key contaminants, citing appropriate "levels," and referencing supporting documentation.

____ If no - skip to #8 and enter "YE" status code, after citing appropriate "levels," and referencing supporting documentation to demonstrate that groundwater is not "contaminated."

____ If unknown - skip to #8 and enter "IN" status code.

Rationale:

Site investigations were initiated at the site beginning in 1986 following observations of leachate seeps emanating from the northwest corner of the landfill and within the basement of the production building. An Order of Consent between the New York State Department of Environmental Conservation (NYSDEC) and SMC was executed on March 28, 1991. This Order required completion of a Remedial Investigation and Feasibility Study (RI/FS) to establish site conditions and evaluate options for remediation of any identified contamination. Table 1 (attached) provides a summary of the Areas of Environmental Concern (AEC), key contaminants, and impacted media identified during the RI.

A Record of Decision (ROD) was executed on March 28, 1996. According to the ROD, the Existing Landfill (AEC-1) and the North Plant Area (AEC-2) are the primary sources of contamination at the site, including contaminants detected in overburden and bedrock groundwater in the vicinity of the site. The 1996 ROD called for excavation of the landfill area (AEC-1), the North Plant area (AEC-2), and Skaneateles Creek sediments (AEC-5). Contaminated soil and wastes were to be disposed and treated in a permanent, onsite treatment and containment cell (Corrective Action Management Unit, or CAMU, cell). Included in the 1996 ROD remedy was extraction of contaminated groundwater from overburden and shallow bedrock beneath the site (AEC-3), followed by treatment in an on-site facility. The ROD also provided for the continued monitoring of the deep groundwater aquifer (AEC-4).

After the ROD was issued, the Department and Stauffer entered into a legal order for designing and implementing the selected remedy. An Order on Consent was signed in March 1997 and then Stauffer began the remedial design. Stauffer's design was approved by the Department in December 1998. The wastewater treatment facility was constructed and became operational in 1999 and is currently operating under a State Pollution Discharge Elimination System (SPDES) Permit with the NYSDEC Division of Water.

In 2000, Stauffer approached the Department and proposed to re-evaluate off-site disposal in lieu of on-site treatment and disposal

[1] "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate "levels" (appropriate for the protection of the groundwater resource and its beneficial uses).

in the CAMU cell. An off-site disposal option was originally evaluated in Stauffer's 1995 Feasibility Study and rejected, mainly due to cost considerations. However, because costs for off-site disposal dropped significantly after the 1996 ROD was approved, the Department agreed to amend the ROD and allow for off-site disposal based on a revised FS submitted by SMC. The amended ROD was executed on December 6, 2001 and included an amended remedy based on three newly-identified areas of concern located on the west side of Skaneateles Creek. These include the Main Plant Building (AEC-6), the area in front of the Main Plant Building (AEC-7), and the south plant area (AEC-8). The amended remedy called for the excavation of contaminated soils and wastes from these AECs and from additional locations within AEC-1 and AEC-2. In addition, the excavated soil was to be disposed off-site instead of treated on-site.

Groundwater

Groundwater monitoring wells on-site were sampled during the RI in 1992 and 1993. Figure 1 (attached) shows the locations of monitoring wells and piezometers associated with the site. The wells were located on-site and several produced samples that indicated concentrations of vinyl chloride, 1,2 dichloroethene, benzene, toluene, ethylbenzene, xylene, toluic acid, phenolics, and polycyclic aromatic hydrocarbons (PAHs) at levels approaching or exceeding NYSDEC groundwater Class GA standards. Several of the wells produced samples that displayed an increase in contamination between the first and second sampling events. For example, monitoring well MW-7S showed an increase of 1,2 dichloroethene from 18 to 85 ug/L with the NYSDEC standard being 5 ug/L. MW-6S showed an increase in total PAHs from 17 to 136.5 between the two sampling events. MW-5I showed an apparent increase in xylenes from 110 to 430 ug/L between rounds 1 and 2 and monitoring well MW-12I, located between MW-5I and the facility boundary, indicates a xylenes concentration of 1,700 ug/L during the second sampling event. MW-1I indicated an increase in xylenes from 8 to 290 ug/L and an increase in phenols from 60 to 2,400 ug/L.

Toluic acid concentrations in monitoring well MW-7I increased between the first and second sampling rounds reported in the RI. Monitoring well MW16I, located off-site and down-gradient of MW-7I, also indicated significant levels of toluic acid during the second round of groundwater sampling. Although there were increases in concentration between the first and second round of sampling during the RI/FS, the RI/FS report stated that the increase could have been due to drought conditions during the second round of sampling.

Inorganic analytes such as antimony, arsenic, chromium, cobalt, copper, lead, manganese, nickel, and vanadium, among others, were also detected at concentrations exceeding NYSDEC groundwater standards. Analytical results from monitoring wells sampled in 1999 were presented in the Results of Additional Site Assessment Activities report (IT Corp., 1999). These results also show levels of arsenic, chromium, and lead at concentrations exceeding NYSDEC groundwater standards. At the time, the observed distribution and concentrations of inorganic constituents in the groundwater at the facility indicated that the horizontal and possibly the vertical extent of contamination were not adequately delineated.

In January 2002, groundwater samples from three off-site bedrock monitoring wells (MW-16I, MW-16D, MW-19D) and three private wells

(PW–06, PW-15, PW-19) located southwest and northwest of the facility were collected. Low levels of semivolatile organic compounds were detected in MW-16I, MW-16D, and PW-19. Low levels of volatile organic analytes were detected in samples from MW-16I and MW-16D. An estimated concentration of acetone was detected in the field blank and also in MW-16I, MW-16D and MW-19D results. The acetone was probably a laboratory artifact (EA, January 2002). The Site Plan included in the August 1997 Predesign Hydrogeologic Investigation Report (OBG, 1997) depicts on-site well locations. Off-site well locations are shown on Figure 1. The primary facility volatile and semivolatile site-specific contaminants of concern (xylene, toluene and toluic acid) had not been detected off-site at concentrations above the NYSDEC groundwater standards, with the exception of MW-16I, which showed relatively constant concentrations of these contaminants of concern.

Table 2 (attached) provides a summary of the Groundwater Maximum Detected Concentrations and Comparisons to NYSDEC Ambient Water Quality Standards (Class GA) obtained in 1999 (pre-remediation).

References:

1. O'Brien & Gere Engineers, Inc., Pre-Design Hydrogeologic Investigation Report, August 1997.
2. IT Corporation, Results of Additional Site Assessment Activities, February 1999.
3. SPEC Consulting LLC, Final Focused Feasibility Study For Off-Site Disposal, May 2001.
4. EA Engineering, Science and Technology, Final Remedial Investigation Report, August 1994.
5. EA Engineering, Science and Technology, Final Groundwater Monitoring Report, January 2002 Sampling Event, April 2002.
6. SMC LLC, Groundwater Monitoring Report, February 2005 Report.

3. Has the migration of contaminated groundwater stabilized (such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"[2] as defined by the monitoring locations designated at the time of this determination)?

__X__ If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the horizontal or vertical dimensions of the "existing area of groundwater contamination").

____ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination") - skip to #8 and enter "NO" status code, after providing an explanation.

____ If unknown - skip to #8 and enter "IN" status code.

Rationale:

Soil and landfill material associated with AEC-1 and AEC-2 have been defined as sources of contamination to groundwater. Levels of several organic and inorganic compounds including volatile organic analytes (VOAs), semi-volatile organic compounds (SVOCs), and many metals have been detected in groundwater at levels exceeding NYSDEC class GA standards. Site characterization information (before extensive source removal conducted in 2004 and 2005) indicated that groundwater contamination has expanded vertically from the shallow overburden aquifer to the deep bedrock aquifer. Horizontally, groundwater contamination (on the eastern portion of the facility) has been shown to approach, or in some cases go beyond, the facility's boundaries.

Since 1994 the facility has collected groundwater samples from off-site monitoring wells and private wells to monitor groundwater quality in a westerly direction from the facility. Low levels of semivolatile organic compounds and volatile organic analytes have been detected in these wells. With one exception (MW-16I), these levels were well below NYSDEC Ambient Water Quality Standards (Class GA).

Summary of Remedial Action Completed

In 1999, a portion of the groundwater extraction and treatment system for AEC-3 was constructed, including four of the proposed twelve recovery wells. The remaining wells were installed in 2004 after remediation of soils was essentially completed in AEC-1 and AEC-2. In 2001, a source control Interim Remedial Measure (IRM) was completed in AEC-8. The existing groundwater extraction system for AEC-3 will be operated as long as the Department determines it is necessary. The potential need for extraction and treatment of groundwater from AEC-4 (Deep Groundwater) is based on continued groundwater monitoring.

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[2] "existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all "contaminated" groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

To date, AEC-1 has been excavated and capped and the majority of AEC-2 has been excavated and removed off-site for disposal. Movement of groundwater contamination in the shallow overburden aquifer (AEC-3) to the deep bedrock aquifer (AEC-4) has significantly decreased since the main sources were removed.

In 2003, AEC-6 (Main Plant Building) was demolished, and debris and soil were removed off-site. The sub-basement of AEC-6 was also excavated and disposed off-site. Excavation of contaminated bedrock soil was completed in October 2004. The majority of AEC-7 was excavated in August 2004, and remediation of AEC-8 (broken out into 8A, 8B, and 8C) has been initiated and is expected to be excavated by the end of 2005.

In February 2003, a french drain system was installed within AEC-1 to control the migration of contaminated groundwater toward the creek. Collected groundwater is pumped to the on-site wastewater treatment plant for treatment prior to discharge to Skaneateles Creek.

With regard to AEC-5 (creek and pond sediments), over 10,000 tons of impacted sediments were excavated and disposed of off-site during the summer of 2005. During recent excavation activities, additional areas of contaminated material along the creek bank were exposed. Plans are being developed to remediate these areas. Ongoing groundwater monitoring to evaluate the effectiveness of implemented selected remedies is planned.

Groundwater

With completion of remedial activities at AEC-1, and the initiation of AEC-3 remedial activities in the vicinity of AEC-1 in 2004, xylene and toluic acid concentrations have been substantially reduced to levels at or near NYSDEC groundwater standards.

In February 2005 (post-remediation), groundwater samples were collected from seven wells, five on-site border bedrock wells (including MW-16I), and two private wells. The samples were analyzed for 41 low detection limit (LDL) volatile organic analytes (VOAs) and Target Compound List (TCL) acid extractable analytes (e.g. toluic acid and benzoic acid). The results showed that none of the LDL VOAs detected in the groundwater samples were at concentrations above NYSDEC Class GA groundwater standards and that no TCL acid extractable semivolatile organic compounds (including toluic acid and isomers) were detected in any of the groundwater samples. The results confirmed that once the sources of contamination were removed, concentrations of all contaminants in the groundwater were substantially reduced to below (or at) NYSDEC action levels. The concentration of chloroform (0.6 ug/L), vinyl chloride (2 ug/L), and cis 1,2-dichloroethene (4 ug/L) have fallen to below NYSDEC standards. All wells showed low concentrations of methylene chloride and acetone (laboratory artifacts).

After source removal, contaminants detected previously in off-site groundwater have substantially decreased.

References:

1. O'Brien & Gere Engineers, Inc., Pre-Design Hydrogeologic Investigation Report, August 1997
2. IT Corporation, Results of Additional Site Assessment Activities, February 1999
3. SPEC Consulting LLC, Final Focused Feasibility Study for Off-Site Disposal, May 2001

4. EA Engineering, Science and Technology, Final Remedial Investigation Report, August 1994
5. NYS Department of Environmental Conservation, Amended Record of Decision, December 2001
6. Clough, Harbour & Assoc., SMC Skaneateles Falls Well Sampling Summary Report, 08/2000.
7. EA Science and Technology, Final Groundwater Monitoring Report, April 2002.
8. EA Science & Technology Groundwater Monitoring Report, April 25, 2005.
9. NYS Department of Environmental Conservation, Project Update, April 2005.

4. Does "contaminated" groundwater discharge into surface water bodies?

____ If yes - continue after identifying potentially affected surface water bodies.

__X__ If no - skip to #7 (and enter a "YE" status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater "contamination" does not enter surface water bodies.

____ If unknown - skip to #8 and enter "IN" status code.

Rationale:

In June 2003 Outfall 001 was plugged and eliminated as part of the main building demolition. A french drain system was also installed within AEC-1 in February 2003 which eliminated seeps into the creek.

5. Is the discharge of "contaminated" groundwater into surface water likely to be "insignificant" (i.e., the maximum concentration[3] of each contaminant discharging into surface water is less than 10 times their appropriate groundwater "level," and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

____ If yes - skip to #7 (and enter "YE" status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration[3] of key contaminants discharged above their groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgement/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

____ If no - (the discharge of "contaminated" groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration[3] of each contaminant discharged above its groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations[3] greater than 100 times their appropriate groundwater "levels," the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.

____ If unknown - enter "IN" status code in #8.

Rationale and Reference(s): _____

[3] As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

6. Can the discharge of "contaminated" groundwater into surface water be shown to be "currently acceptable" (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented[4])?

____ If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site's surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR 2) providing or referencing an interim-assessment,[5] appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/ habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment "levels," as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

____ If no - (the discharge of "contaminated" groundwater can not be shown to be "currently acceptable") - skip to #8 and enter "NO" status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.

____ If unknown - skip to 8 and enter "IN" status code.

Rationale and Reference(s): _____

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[4] Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

[5] The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

7. Will groundwater monitoring / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated groundwater?"

__X__ If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the "existing area of groundwater contamination."

____ If no - enter "NO" status code in #8.

____ If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

Continued monitoring of groundwater has been conducted since the completion of the RI/FS, and will be continued in the future on a long-term basis. Monitoring is conducted in accordance with the amended ROD which requires semi-annual groundwater samples from a comprehensive network of monitoring wells across the facility.

Results to date show a decreasing trend in VOA concentrations in the sampled wells, indicating that the plume is being contained and is not migrating.

8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

__X__ YE - Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the Stauffer Management Co. Site, located at 4512 Jordan Road, Skaneateles Falls, NY. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater". This determination will be re-evaluated when the State becomes aware of significant changes at the facility.

____ NO - Unacceptable migration of contaminated groundwater is observed or expected.

____ IN - More information is needed to make a determination.

Completed by _____ Date _____
Eric Hausamann
Environmental Engineer 2

Supervisor _____ Date _____
James B. Harrington
Bureau of Technical Support
Division of Environmental Remediation

Director _____ Date _____
Edwin Dassatti, P.E.
Bureau of Hazardous Waste and Radiation
Division of Solid and Hazardous Materials

Locations where References may be found:

References reviewed to prepare this EI determination are identified after each response. Reference materials are available at the NYSDEC office at 625 Broadway, Albany, NY 12233.

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Table 1. Summary of Media Impacted and Areas of Concern Based on Data Collected During the Remedial Investigation

Area of Concern (AOC or AEC)	Ground-water	Indoor Air	Surface Soil	Surface Water	Sedi-ment	Sub-surf Soil	Outdoor Air	Corrective Action Measure and Status	Key Contaminants
AEC-1 (Existing Landfill)	yes	no	yes	yes	no	yes	no	Soil remediation and disposal of wastes in an offsite disposal facility	toluene, xylene, PAHs, toluic acid, chromium, cobalt, mercury, zinc
AEC-2 (Former Organics Plant Area or North Plant Area)	yes	yes	yes	yes	no	yes	no	Soil remediation and disposal of wastes in an offsite disposal facility	xylene, PAHs, toluicacid, chromium, lead, mercury, nickel, zinc
AEC-3 Shallow Groundwater	yes	no	no	yes	yes	no	no	Constructed a shallow groundwater extraction and treatment system	toluene, xylene, PAHs, toluic acid, 4,4'DDE, arsenic, chromium
AEC-4 Deep Groundwater	yes	no	no	yes	no	no	no	Conduct monitoring.Currently no action proposed for deep groundwater	1,2-dichloroethene, toluene, xylene, phenol, toluic acid,4,4'DDE, arsenic
AEC-5 Skaneateles Creek Sediments	yes	no	yes	yes	yes	yes	no	Excavation of contaminated sediments and disposal of wastes in an off-site disposal facility	tetrachloroethene, toluene, xylenes, 1,2dichloroethene, PAHs, antimony, copper, mercury
AEC-6 Main Plant Building	yes	yes	yes	yes	no	yes	no	Soil remediation and disposal of wastes in an offsite disposal facility	toluene, xylene, PAHs, toluic acid, chromium, cobalt, mercury, zinc
AEC-7 Area in Front of Main Plant Building	yes	no	yes	yes	no	yes	no	Soil remediation and disposal of wastes in an offsite disposal facility	toluene, xylene, PAHs, toluic acid, chromium, cobalt, mercury, zinc
AEC-8 South Plant Area	yes	no	yes	yes	no	yes	no	Soil remediation and disposal of wastes in an offsite disposal facility	toluene, xylene, PAHs, toluic acid, chromium, cobalt, mercury, zinc

Table 2. Summary of Groundwater Maximum Detected Concentrations Pre-Remediation (August 1999)

Contaminant (concentrations in ug/L)	Maximum Detected Concentration Pre-Remediation (1999)	NYSDEC Ambient Water Quality Standards and Guidance Values (Class GA)	Maximum > Cleanup Objectives?
Acetone	130	50	Yes
Aluminum	42,800	100	Yes
Ammonia	38,000	2,000	Yes
Antimony	55.6	3	Yes
Arsenic	910	25	Yes
Barium	653	1,000	
Benzene	4	1	Yes
Benzo(a)anthracene	14	0.002	Yes
Benzo(a)pyrene	10	ND	Yes
Benzo(b)fluoranthene	19	0.002	Yes
Benzo(k)fluoranthene	1	0.002	Yes
Benzoic acid	330	-	-
Benzyl alcohol	26	-	-
Beryllium	2.7	3	
Bis(2-chloroethyl)methane	150	1	Yes
Bis(2-ethylhexyl)phthalate	160	5	Yes
Cadmium	12.1	5	Yes
Calcium	666,000	-	-
Chloride	344,000	250,000	Yes
Chloroethane	49	5	Yes
Chromium	6,870	50	Yes
Chrysene	13	0.002	Yes
Cobalt	992	-	-
Copper	1,320	200	Yes
Cyanide	79	200	
4,4-DDE	0.61	0.2 (SCG: ND)	Yes
1,1-Dichloroethane	150	5	Yes
1,1-Dichloroethene	10	5	Yes
1,2-Dichloroethene (total)	1,500	5	Yes
Ethylbenzene	3	5	
Fluorene	2	50	
Fluoride	32,900	1,500	Yes
Iron	76,200	300	Yes

Table 2. Summary of Groundwater Maximum Detected Concentrations Pre-Remediation (August 1999)

Contaminant (concentrations in ug/L)	Maximum Detected Concentration Pre-Remediation (1999)	NYSDEC Ambient Water Quality Standards and Guidance Values (Class GA)	Maximum > Cleanup Objectives?
Lead	1,370	25	Yes
Magnesium	82,400	35,000	Yes
Manganese	7,460	300	Yes
Naphthalene	9	10	
Nickel	1,090	100	Yes
Nitrate	4,400	10,000	
Nitrobenzene	18	0.4	Yes
Pentachlorophenol	20	1	Yes
4-methyl-2-pentanone	71	-	-
Phenanthrene	1	50	
Phenol	2,400	1	Yes
2,4-Dimethylphenol	320	1	Yes
2-Methylphenol	30	1	Yes
4-Methylphenol	69	1	Yes
Di-n-butyl phthalate	2	50	
Potassium	85,800	-	-
Selenium	6.4	10	
Sodium	4,770,000	20,000	Yes
Sulfate	62,900	250,000	
Tetrachloroethene	2,900	5	Yes
Toluene	1,600	5	Yes
M-toluic acid	450,000	31,000	Yes
O-toluic acid	690,000	31,000	Yes
P-toluic acid	240,000	31,000	Yes
Trichloroethene	180	5	Yes
Vanadium	343	-	-
Vinyl chloride	21	2	Yes
Xylenes (total)	73,000	5	Yes
Zinc	1,140	2,000	

(-) - Water quality standards were not provided for this constituent.
ND - non-detect
References: Tables 4-14, 4-15, 4-16, 4-18, 4-19, 4-20, 4-21, and 4-22 of the Remedial Investigation Report, dated August 1994. Tables 1.3, 1.4, 1.5 and 1.6 of the Final Focused Feasibility Study for Off-Site Disposal, dated May 18, 2001. Tables 1.3, 1.4, 1.5 and 1.6 of 2001 Amended ROD.

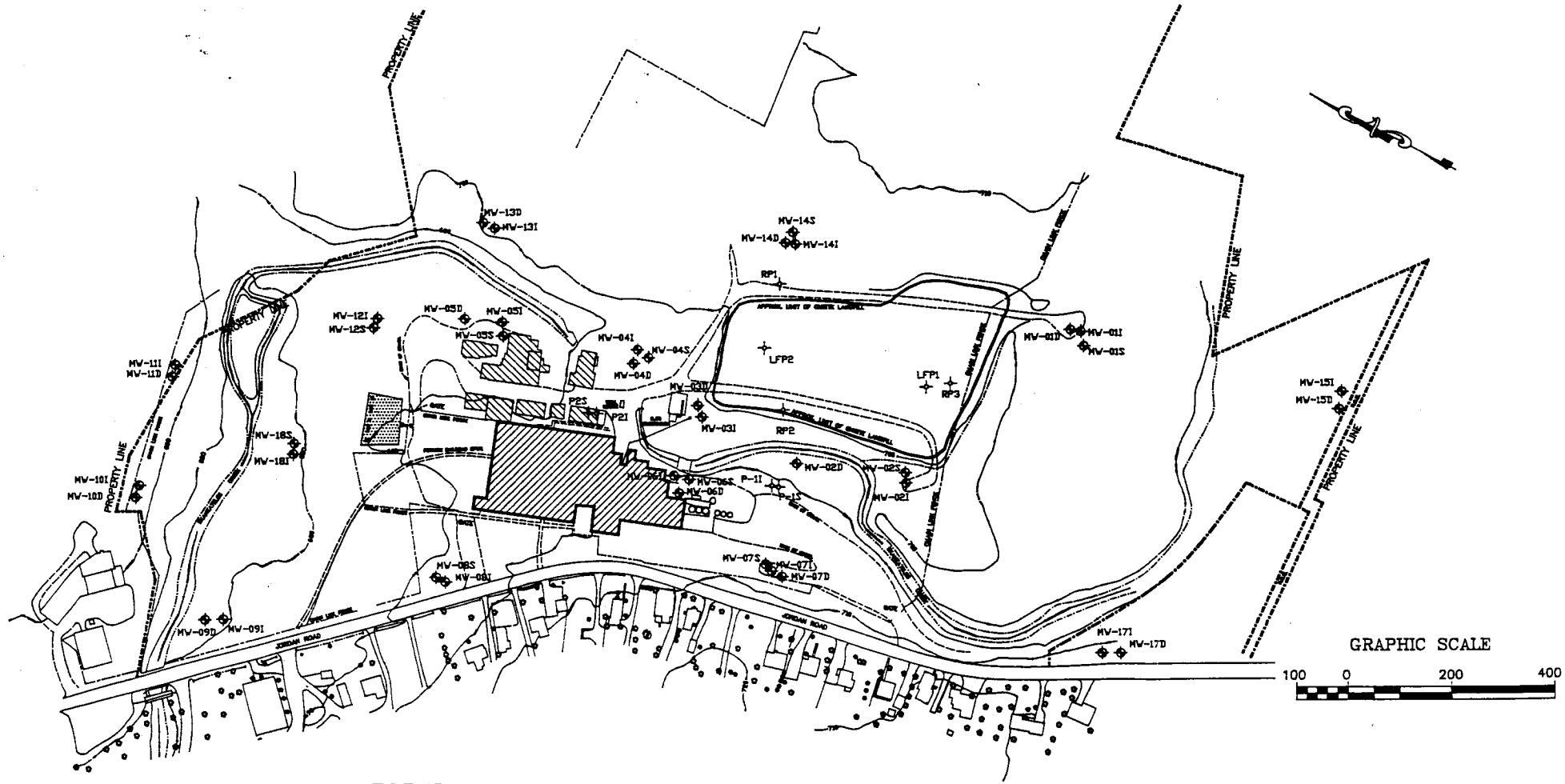

Figure 1

MAP SHOWING PIEZOMETERS AND WELL LOCATIONS

STAUFFER MANAGEMENT COMPANY

SKANEATELES FALLS, NEW YORK

DATE: 18 DECEMBER 1983	EA Engineering, Science, and Technology	PROJECT NUMBER: 11832.01
DESIGNED BY:		SCALE: 1" = 200'
DRAWN BY: TMM		FILE NAME: SURVEY/STAUFFER
CHECKED BY: TWP		DRAWING NUMBER:
PROJECT MANAGER: JHS		SHEET NUMBER:

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