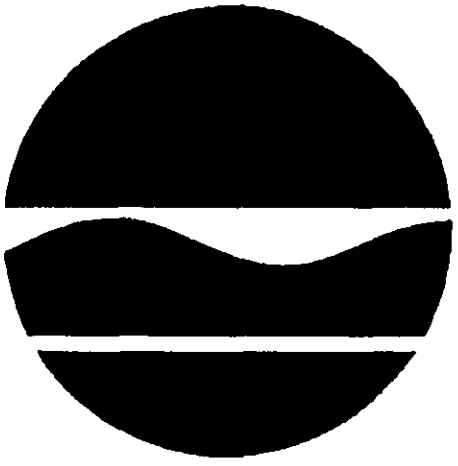

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DIVISION OF HAZARDOUS WASTE REMEDIATION

RECORD OF DECISION

SWEDEN-3; CHAPMAN SITE

SITE #8-28-040-A

TOWN OF SWEDEN, MONROE COUNTY

MARCH 1994

DECLARATION STATEMENT - RECORD OF DECISION

Sweden-3, Chapman Inactive Hazardous Waste Site
Town of Sweden, Monroe County, New York
Site No. 8-28-040-A

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedial action for the Sweden-3, Chapman site inactive hazardous waste disposal site which was chosen in accordance with the New York State Environmental Conservation Law (ECL). The remedial program selected is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300).

This decision is based upon the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the Sweden-3, Chapman Inactive Hazardous Waste Site and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A bibliography of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

Actual or threatened release of hazardous waste constituents from this site, if not addressed by implementing the response action selected in this ROD, presents a current or potential threat to public health and the environment.

Description of Selected Remedy

Based upon the results of the Remedial Investigation/Feasibility Study (RI/FS) for the Sweden-3, Chapman Site and the criteria identified for evaluation of alternatives the NYSDEC has selected soil excavation and low temperature thermal treatment and limited groundwater remediation. The components of the remedy are as follows:

- Install a groundwater interceptor trench perpendicular to the TCE groundwater plume near monitoring well MW-4S and a recovery well near MW-3I to capture the PCE plume. The trench and well will be used for dewatering during the landfill excavation as well as local groundwater remediation. The groundwater collected by the trench will be treated by an air stripper and reinjected on-site.

  After one year, the trench system will be evaluated with respect to its continued effectiveness in collecting source area contaminated groundwater. If deemed necessary the trench will continue operating and other remedial actions to mitigate the groundwater could be developed and implemented.

- Separate debris from staged IRM stockpiled soils using vibrating screens and grizzlies within the separation building. Larger debris not appropriate for the treatment system will be decontaminated and placed back on site. Excavated soils will require separation and reduction of particle size in the separator building prior to treatment.

- Soils will be treated by low temperature thermal stripping. The off-gas from the process will be treated by carbon adsorption before discharge to the atmosphere.

- Soils, once treated and contaminant levels reduced to below cleanup objectives for the site contaminants (subject to verification sampling), will be placed back in the excavation and capped.

- Long term monitoring program and site restoration.

- The NYSDEC has chosen the Sweden 3 Site for a Multi-Vendor Treatability Demonstration of Bioremediation Technology Study. This study is to demonstrate the viability of bioremediation for the Sweden 3 site contaminants. Should any of the bioremediation technologies appear effective at addressing the Sweden-3 site contamination, the Department will consider implementing the alternative technology and the public will be notified.

New York State Department of Health Acceptance

The New York State Department of Health concurs with the remedy selected for this site as being protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

Although the limited groundwater remediation may not restore the groundwater to pre-contaminant release conditions, the selected remedy will be protective of human health and the environment. Groundwater modelling has shown that the selected groundwater treatment system will remove and treat a significant quantity of contaminated groundwater beneath the site.

March 21, 1994
Date

Ann Hill DeBarbieri
Deputy Commissioner

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APPENDICES

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Appendix B: Administrative Record

RECORD OF DECISION

SWEDEN 3, CHAPMAN
Sweden, Monroe County, New York
Site No.8-28-040 A
MARCH 1994

SECTION 1: SITE LOCATION AND DESCRIPTION

The Sweden-3, Chapman site is listed on the New York State Registry of Inactive Hazardous Waste Disposal Sites as a class 2. A class 2 designation indicates that the site poses a potential threat to the environment and/or public health and action is required. The New York State Department of Environmental Conservation (NYSDEC) and Health (NYSDOH) work together to implement remedial programs for sites listed on the registry.

The Sweden 3 landfill is approximately two acres in size located in the Town of Sweden about three miles south of the Village of Brockport in Monroe County, Town of Sweden (Figures 1 and 2). The site, ownership of which is now divided between two adjacent property owners, was once used for the disposal of construction and demolition debris and numerous drums containing chemical and hazardous waste. The site is located in a sparsely populated residential/rural area. Approximately twenty residences are located within 1/2 mile of the site. All of the houses utilize private well water. The closest residents live approximately 200 feet from the landfill edge and their well is only 100 feet from the landfill boundary.

The site is located in the Erie-Ontario lowland physiographic province. This area is characterized by broad flat plains with relatively little relief. Prior to the Interim Remedial Measure (IRM) conducted in 1991 which removed over two thousand drums and 2400 tons of hazardous soil and debris, the site was fairly level and was extensively vegetated. There was a slope between the northern edge of the landfill and the adjacent New York State regulated wetland which delineated the edge of the fill area. Site drainage is to the north into a state registered wetland. A series of unnamed tributaries drain the wetland to the east towards Salmon Creek.

Presently, post IRM, the site is fenced and the former landfill has been graded and covered with soil. Two soil storage areas are located on-site. The soil was excavated during the Interim Remedial Measure and is contaminated with site related constituents. The soil storage piles are on concrete pads and covered with polyethylene sheets. There are some structures remaining on-site and groundwater monitoring wells surround the former landfill. The site is fenced and an Operation and Maintenance Plan is in effect which includes site inspection and environmental sampling.

SECTION 2: SITE HISTORY

2.1: Operational/Disposal History

Information regarding the site history is limited, but based on aerial photography analysis and interviews with former employees, it appears that disposal activities started at the Sweden-3 site in the early 1960s. The dump was owned and operated by Mr. Webster Chapman, Sr., who operated a construction business and reportedly used the landfill for disposal of construction and demolition debris. Mr. Chapman gave the business to his son, Webster Chapman, Jr. in the early 1970s. Based on aerial photography analysis, the drums appear to have been disposed at the site between 1974 and 1976. Mr. Chapman, Jr. closed the landfill around 1979 in response to concerns from the Monroe County Department of Health. Mr.

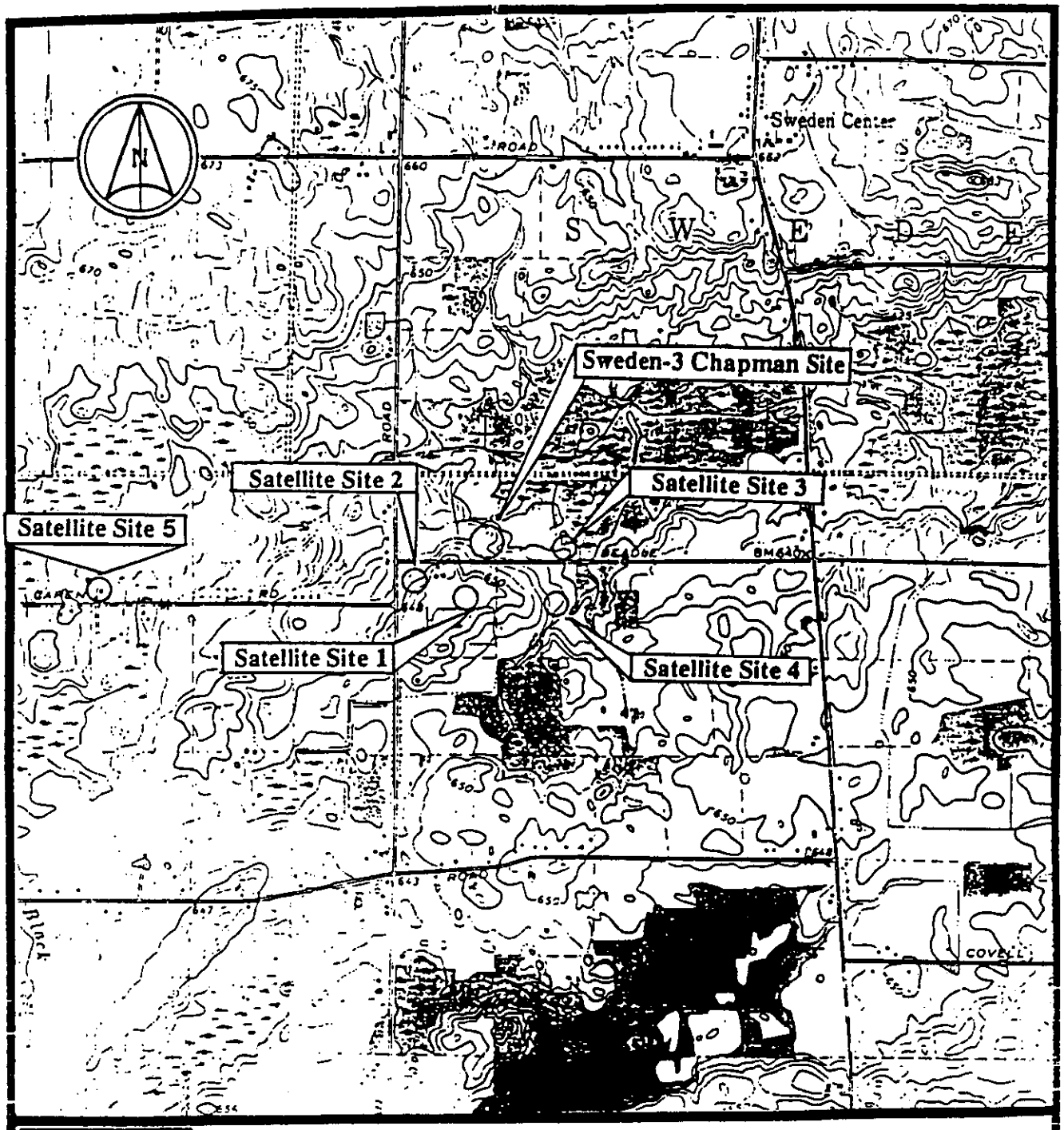


FIGURE 1

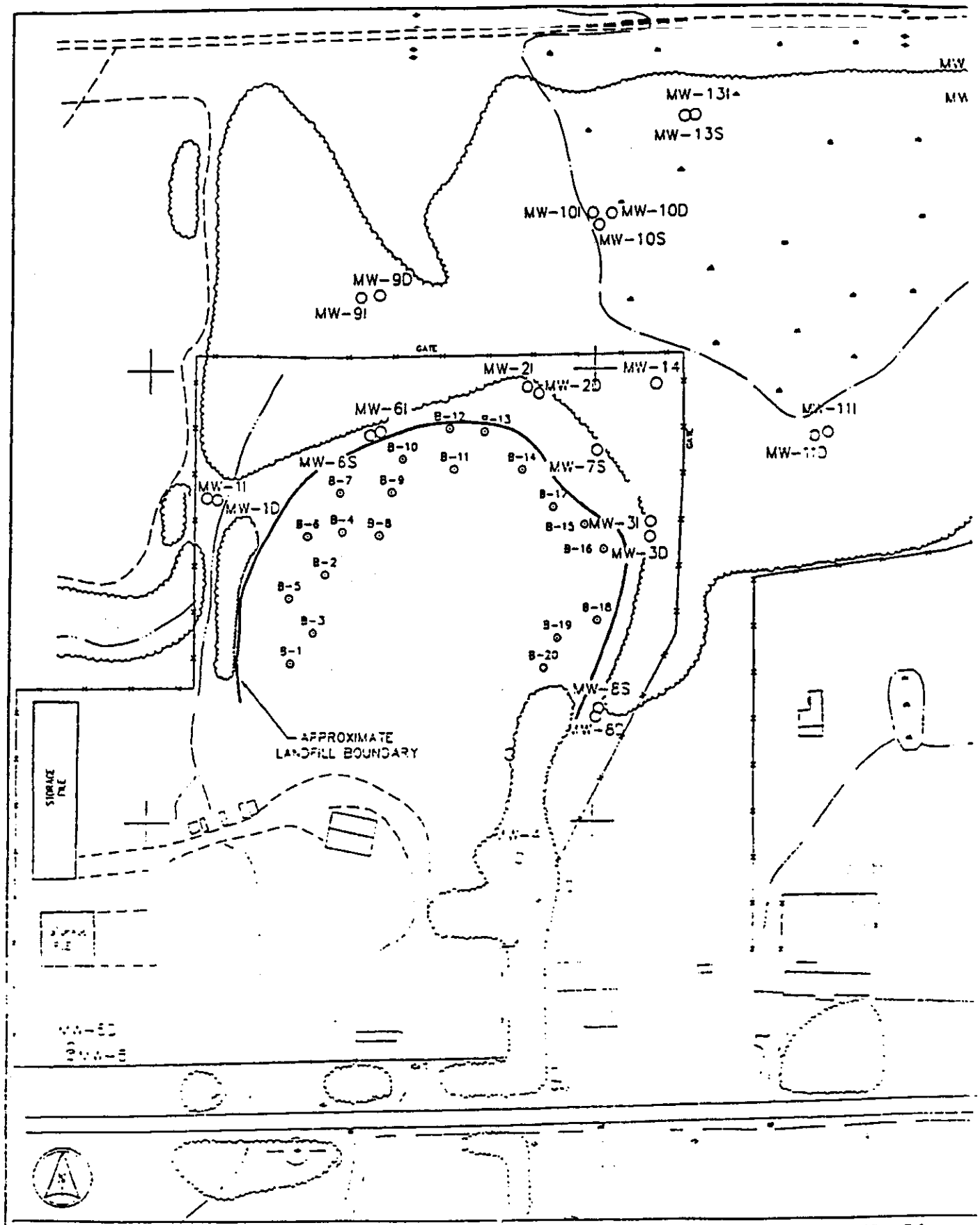
SITE AND SATELLITE SITES LOCATION MAP

BROCKPORT QUADRANGLE
NEW YORK
7.5 MINUTE SERIES (TOPOGRAPHIC)

SCALE 1:24,000

1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER

CONTOUR INTERVAL 5 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929



DUNN GEOSCIENCE ENGINEERING Co.
12 Metro Park Road
Albany, NY 12205

NYS DEPT OF ENVIRONMENTAL CONSERVATION
WORK ASSIGNMENT No. D-2520-14

MONITORING WELL AND SOIL BORING
LOCATION MAP
SWEDEN-3 - CHAPMAN SITE

PROJECT NO	DATE	DWG. NO	SCALE	FIGURE NO
40296-150	Dec.,1992	R9182_9	1"=150'	2

Chapman, Jr. then sold the property and left the Rochester area.

2.2: Remedial History

In 1982, based on the recommendation from the Monroe County Department of Health, the site was listed on the New York State Registry of Inactive Hazardous Waste Sites. In February 1983, a Preliminary Investigation Phase I Report was prepared for the site. The report documented the presence of approximately sixty-five 55-gallon drums on the surface of the site. Several of the drums were labelled "Trichloroethelene" and "Cyanide Waste". Based on observations made during the preliminary investigation, it was suspected that more than one thousand drums could be buried within the debris of the main fill area of the site.

During October of 1987 and March of 1989, the NYSDEC collected several surface soil and drum samples at the site. The analytical results of the sampling program indicated the presence of acetone, trichloroethelene, tetrachloroethene, 4,4-DDT, chromium, silver and zinc. Sampling of a residential well near the site was performed in October 1989 by the NYSDOH; these results showed no evidence of private well contamination from the site.

Based on this information, the NYSDEC concluded that hazardous waste detected at the site could potentially contaminate an adjacent wetland and the underlying aquifer. Further, the site had drums both on the landfill surface and partially buried which contained chemical wastes and presented a direct contact threat to people using the site. Acting on this information, in July of 1989, the site was reclassified as a Class 2. This classification defines the site as a significant threat to the public health or the environment and requires action.

The need to perform an Interim Remedial Measure (IRM) was based upon the imminent threat to public health and the surrounding environment posed by the exposed drums and the potential spread of contaminants into an adjacent wetland and underlying aquifer. Therefore, on March 8, 1991, the NYSDEC contracted with Tricil Environmental Response, Inc. to remove and dispose of the apparent source of contamination at the site (i.e., drums, grossly contaminated soil and debris). All remedial activities required under the IRM contract were completed by May 1992. The IRM resulted in the removal and disposal of 2,383 drums, and 1,710 tons of non-hazardous soil and debris and 486 bottles containing toxic laboratory materials. Approximately 2,400 tons of contaminated soil and debris remain stored on-site.

Following the drum removal action, the NYSDEC contracted the services of Dunn Geoscience Engineering Company, P.C. to conduct a Remedial Investigation/Feasibility Study (RI/FS). Field work for the Remedial Investigation (RI) was conducted in 1992 and 1993 and the Feasibility Study (FS) was conducted in the summer of 1993.

SECTION 3: CURRENT STATUS

The NYSDEC, under the State Superfund Program, initiated a Remedial Investigation/ Feasibility Study (RI/FS) in November 1991 to address the contamination at the site.

3.1: Summary of the Remedial Investigation

During the IRM the Department excavated the leaking drums of chemical wastes and the soil/ debris which was obviously contaminated by the hazardous waste. The IRM effectively reduced the direct threat to the public health posed by the exposed drums however, additional work was deemed necessary to complete the remediation.

The purpose of the Remedial Investigation (RI) was to define the nature and extent of contamination remaining after the IRM. The RI was conducted in three phases. The first phase was conducted between March 1992 and June 1992, the second phase between July and October 1992 and the third phase was conducted between March and May 1993. A report entitled Remedial Investigation/Feasibility Study Report, Volumes 1, 2 and 3, dated December 1993 has been prepared describing in detail the field activities and findings of the RI and FS.

The RI activities consisted of the following:

- Detailed evaluation of the IRM data
- Interviews and surveys of local residents and former employees
- Hydrogeologic Investigation
- Environmental testing of the soils, surface water and groundwater
- Satellite Site Investigation
- Ecological Assessment
- Health Based Risk Assessment

The analytical data obtained from the RI were compared to Applicable Standards, Criteria, and Guidance (SCGs) in determining remedial alternatives. Groundwater, drinking water and surface water SCGs identified for the Sweden-3 site were based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part 5 of NYS Sanitary Code. For the evaluation and interpretation of soil and sediment analytical results, NYSDEC soil cleanup guidelines for the protection of groundwater, background conditions, and risk-based remediation criteria were used to develop remediation goals for soil.

The following is a summary of the activities and findings of the RI.

3.2 Satellite Sites

From information gathered during surveys and interviews, five satellite disposal sites were identified from the activities of the Chapman's operation (see Figure 1). Acting on the information, the Department investigated these satellite sites. Surface soils, test pit soils and drum samples were collected from Satellite Sites 1, 2, 3 and 4 for chemical analysis. In addition, geophysical magnetic surveys were conducted on Satellite Sites 2 and 3. Satellite Site 5 was investigated through residential interviews and a site inspection that confirmed no hazardous wastes present on the Satellite Site #5.

Two drums were overpacked, sampled and analyzed from Satellite Site 1. The material in the drums was characterized as non-hazardous materials. In addition, at the Satellite Site 1, a small area of low level PCB soil contamination was excavated and placed in five new 55-gallon drums. All drums were staged on the existing decontamination pad at the Sweden-3 Chapman site. Disposal of these drums will take place during site remediation. Confirmatory samples collected after the soil removal indicated soil clean up to non-detectable levels of PCBs.

Other than the drums removed from Satellite Site 1, the investigation **did not find any evidence of any hazardous waste and indicated no environmental or public health threat.** No further action is proposed for Satellite Sites 1, 2, 3, 4 and 5.

3.3 Contaminant Assessment

Three source areas of heavily contaminated soils have been identified at the Sweden-3 site (refer to Figure 3). These contamination sources are primarily located in areas where drums were removed during IRM operations. During the IRM, numerous leaking partially filled drums were removed along with visually contaminated soils, however, test trenching during the IRM revealed soil contamination remained beneath the landfill. The extent of contamination was unknown and the material was left in place for future study under the RI/FS.

The northwestern source area depicted in Figure 3 contains elevated concentrations of volatile organic compounds at levels exceeding NYS Guidance Values. The majority of the contamination is located within the upper subsurface soils as evidenced by both field observations and analytical results. Contamination appears to have migrated from the source area both horizontally (to the northeast) and vertically (downward). Contaminants migrating from this source were identified by the presence of volatile and semi-volatile organic compounds in soil (see Table 1). The primary chemical compounds present were TCE and associated compounds, acetone, and 2-butanone. In addition, analytical results of

groundwater samples collected from monitoring well MW-6S further documented the presence of volatile organics in groundwater (see Table 2). The estimated volume of contaminated soil in the northwestern source area is approximately 12,800 cubic yards.

Two source areas are located to the northeast of the landfill (see Figure 3). These two areas are considerably smaller than the previously discussed northwestern source area. Analytical results indicate localized "hot spots" of contamination. One of the areas is predominantly contaminated with TCE and xylene and the other is contaminated by PCE (see Table I). The estimated volume of the two contaminated zones are approximately 120 and 185 cubic yards. These areas are a remaining potential source of contamination to the local groundwater (see Table II). The extent of the groundwater contamination has been estimated based on field measurements and groundwater modelling. Figure 3 depicts what the Department believes to be the extent of the plume from the Sweden-3 site.

The RI confirms that contamination exists in the soils and groundwater at the Sweden-3 Chapman Site as a result of improper disposal of hazardous waste. Based on the results of the RI and in comparison to the SCGs, the three areas previously discussed and groundwater require remediation. Furthermore, the stockpiled soil remaining from the IRM and the small amount of PCB soil excavated from Satellite Site 1 require remediation.

3.4 Summary of Human Exposure Pathways:

Prior to the IRM the Sweden 3 Site posed a significant threat to public health because of the potential for direct contact with uncovered waste at the surface of the landfill. The IRM effectively eliminated this direct contact exposure pathway. However, information gathered during the IRM indicated contamination of both groundwater and subsurface soils which required further investigation. This ROD reflects final actions necessary to properly complete the remediation.

A qualitative baseline human health evaluation has been prepared as part of the RI/FS process at the Sweden-3 Chapman Site. The goal is to gather sufficient information to adequately characterize the potential health risk from the site and provide a basis to evaluate remedial alternatives. It includes an evaluation of organic and inorganic chemical levels detected in soil, sediment, surface water and groundwater resulting from the disposal of drums and hazardous materials at the site. This qualitative health assessment evaluates the potential for human exposure and possible effects associated with chemical exposure at the site.

Based on the results of evaluations conducted in the health risk assessment the existing conditions at the site do not provide exposure pathways which may pose a potential human health risk. However, there are three future residential use considerations which may pose human health risks if the site were not remediated:

1. The future ingestion and use of groundwater by residents;

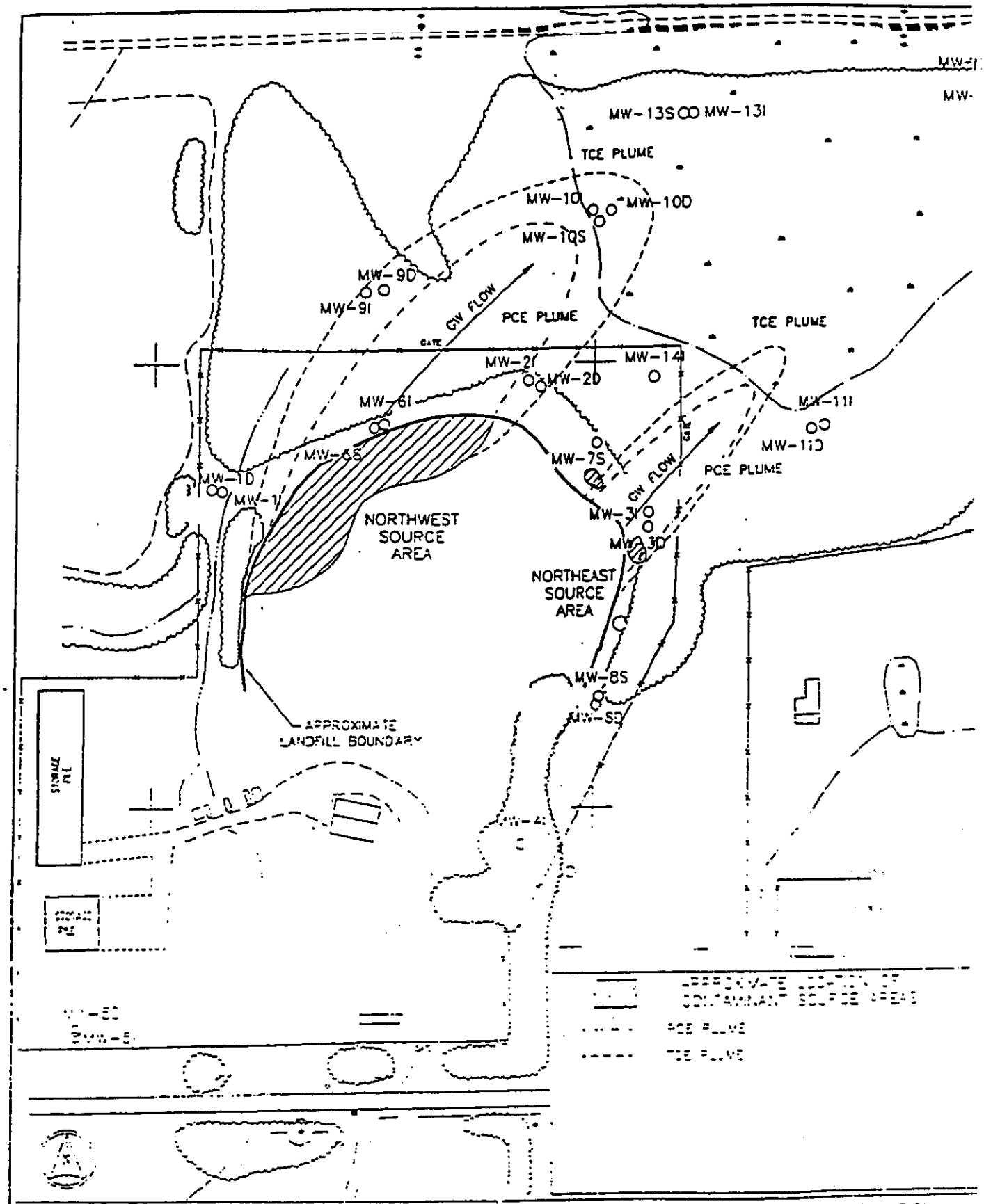
2. The existing levels of chemicals in subsurface soils since they may contaminate groundwater in the future, and

3) The inhalation of ambient and subsurface air by future site residents.

The human health hazards related to future groundwater ingestion and use are expected to be primarily attributed to trichloroethene, 1,2-dichloroethene and tetrachloroethene. The risk assessment concludes that to minimize these potential future exposure concerns remediation of the sites soils and groundwater are necessary.

3.5 Summary of Environmental Exposure Pathways:

Prior to the IRM the Sweden 3 Site posed a significant threat to the environment because of the potential direct release of hazardous waste into the adjacent wetland. The IRM effectively reduced the potential for direct releases of waste into the wetland. However, information gathered during the IRM indicated contamination



DUNN GEOSCIENCE ENGINEERING Co.
12 Metro Park Road
Albany, NY 12205

U.S. DEPT. OF ENVIRONMENTAL CONSERVATION
WORK ASSIGNMENT No. D-000000-00

APPROXIMATE LIMIT OF TCE AND PCE PLUMES BASED ON RETARDATION MODELING
SWEDEN-3 - CHAPMAN SITE

PROJECT NO. 40296-150	DATE Dec. 1992	DWG NO. R9182_9	SCALE 1"=150'	FIGURE NO. 3

of both groundwater and subsurface soils which required further investigation. The RI/FS was conducted to fully investigate the site and define the extent of contamination. This PRAP relects final actions necessary to properly complete the remediation.

The objective of the environmental exposure pathway analysis is to identify the fish and wildlife resources that exist in the vicinity of the site which could be affected by site related contaminants. This baseline analysis includes descriptions of the vegetative habitats, land use, fish and wildlife resources, value of the habitats to fish and wildlife, and the value of the resources to humans.

The analysis conducted during the RI/FS identified a significant quantity of undeveloped natural habitat located within one-half mile of the site. The types of habitats/vegetative communities includes deciduous forest, coniferous forest, mixed deciduous and coniferous forest, forested wetlands, successional old fields and riparian habitat. A New York State regulated wetland is directly adjacent to the site.

Contamination at the site is limited to the subsurface environment, primarily overburden groundwater and subsurface soils. The potential for wildlife exposure to contaminated media on the site itself is very limited considering that contamination on the site is limited to soils below the surface. However, if the site were not remediated there may be future impacts to the regulated wetlands.

3.6 Multi-Vendor Treatability Demonstration:

The site was recently chosen by NYSDEC to be the site of a twelve month pilot program entitled, Multi-Vendor Treatability Demonstration of Bioremediation Technology. The intent of this program is to promote and utilize alternative treatment technologies wherever those methods are more efficient and cost effective to permanently remedate inactive hazardous waste sites.

The demonstration is jointly sponsored by the NYSDEC, United States Environmental Protection Agency Risk Reduction Engineering Laboratory and the New York State Center for Hazardous Waste Management. This is a pilot scale demonstration only and will not interfere with the on-going remediation at the site.

The Request for Proposals was advertised on November 18, 1993; technical proposals were received on December 31, 1993. Vendors that submit acceptable proposals will be invited to submit cost proposals. Four contractors will be selected and field work is scheduled to begin in April 1994.

It is the position of the Department to go forward with the remedial selection process as described in this ROD. However, should any of the bioremediation technologies appear effective at addressing the Sweden-3 site contamination, the Department will consider implementation of the alternative technology and the public will be notified.

SECTION 4: ENFORCEMENT STATUS

Prior to implementation of the IRM, the Commissioner made a finding that hazardous waste disposal at the Sweden-3 site constituted a significant threat to the environment and that immediate action was required. The IRM actions were implemented to protect the public interest.

The Potentially Responsible Parties (PRPs) identified for the RI/FS included General Motors Corporation, Schenectady Chemical, White Mop Ringer, ICI Americas, Inc. and Eastman Kodak Co. The PRPs failed to implement the RI/FS at the site when requested by the NYSDEC. After the remedy is selected, the PRPs will again be contacted to assume responsibility for the remedial program. If an agreement cannot be reached with the PRPs, the NYSDEC will evaluate the site for further action under the State Superfund. The PRPs are subject to legal action by the State for recovery of all remedial costs the State has incurred.

SECTION 5: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR 375-1.10. These goals are established under the guideline of meeting all standards, criteria, and guidance (SCGs) and protecting human health and the environment.

At a minimum, the remedy selected should eliminate or mitigate all significant threats to the public health and to the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles. These include:

- Reduce, control, or eliminate the contamination present within the soils/waste on site to levels which are protective of the groundwater resources.
- Eliminate the potential for direct human or animal contact with the contaminated subsurface soils.
- Mitigate the impacts of contaminated groundwater to the environment and public health.
- Provide for attainment of SCGs for groundwater quality at the limits of the area of concern.

The proposed cleanup objectives for the site's soil and groundwater are presented in Table 3.

SECTION 6: SUMMARY OF THE EVALUATION OF ALTERNATIVES

Potential remedial alternatives for the Sweden-3, Chapman site were identified, screened and evaluated in a two phase Feasibility Study. This evaluation is presented in the report entitled Remedial Investigation Feasibility Study Report, Volume 3, dated December 1993. A summary of the detailed analysis follows.

6.1: Description of Alternatives

The potential remedies are intended to address the subsurface soil and groundwater contamination at the site.

Note: Alternatives 4, 5, 6, and 7 were also evaluated in the FS with groundwater treatment via carbon absorption. In the FS these alternatives were #'s 4b, 5b, 6b and 7a. However, the evaluation in the FS concluded that air stripping of collected groundwater to be more appropriate and cost effective. As such, the final alternatives presented in the ROD include air stripping for treatment of extracted groundwater.

1. No Action: The "No Action" alternative is evaluated as a procedural requirement and as a basis for comparison. It requires continued monitoring only, allowing the site to remain in an unremediated state.

2. Limited Action: This action includes only administrative controls such as site fencing and monitoring. This alternative was removed from consideration during the Preliminary Screening of the Feasibility Study.

3. Excavation with Off-Site Landfill Disposal with Limited Groundwater Recovery: This alternative consists of excavation, transportation and disposal of contaminated soils and stockpiled soils to an off-site RCRA landfill facility. Also included is the installation of a temporary groundwater interceptor trench which would provide partial groundwater remediation and dewatering during the soil excavation. Treatment of the extracted groundwater would be by air stripping.

Present Worth:	$ 7,119,400
Capital Cost:	$ 6,669,669
Annual O&M:	$ 24,800

Time to Implement: One to two years for soil remediation, two

to five years for groundwater remediation.

4. Excavation with On-Site Separation, Aeration and On-Site Disposal with Limited Groundwater Recovery: This alternative consists of excavation, separation and aeration of contaminated soils with on-site disposal of treated non-hazardous soils. Staged stockpile soils would require solidification after treatment. Also included is the installation of a temporary groundwater interceptor trench which would provide partial groundwater remediation and dewatering during the soil excavation. Treatment of the extracted groundwater would be by air stripping.

Present Worth:	$ 4,054,100
Capital Cost:	$ 3,604,369
Annual O&M:	$ 24,800

Time to Implement: 1-2 years for soil remediation, 2-5 years for partial groundwater remediation.

4a. Alternative 4 with Long-Term Groundwater Pump and Treat System: This alternative is the same as #4, but instead of a groundwater interceptor trench, an extensive groundwater pump and treat system would be installed downgradient of the site.

Present Worth:	$ 5,142,500
Capital Cost:	$ 3,749,124
Annual O&M:	$ 75,300

Time to Implement 1-2 years for soil remediation, 20 years for groundwater remediation.

5. Excavation with Separation, Low-Temperature Thermal Stripping, On-Site Disposal and Limited Groundwater Recovery: This alternative consists of excavation, separation and low temperature thermal stripping of contaminated soils and IRM stockpiled soils. Treated soils would be backfilled on-site. Also included is the installation of a temporary groundwater interceptor trench which would provide partial groundwater remediation and dewatering during the soil excavation. Treatment of the extracted groundwater would be by air stripping.

Present Worth:	$ 5,367,000
Capital Cost:	$ 4,917,269
Annual O&M:	$ 24,800

Time to Implement: 1-2 years for soil remediation, 2-5 years for partial groundwater remediation.

5a. Alternative 5 with Long-Term Groundwater Pump and Treat System: This alternative is the same as #5, but includes an extensive groundwater pump and treat system downgradient of the site.

Present Worth:	$ 6,006,900
Capital Cost:	$ 4,613,525
Annual O&M:	$ 75,300

Time to Implement: 1-2 years for soil remediation, 20 years for groundwater remediation.

6. Excavation, Separation, Rotary Kiln Incinerator, On-Site Treatment and Groundwater Recovery: This alternative consists of excavation, separation and on-site rotary kiln incineration of contaminated soils and IRM stockpiled soils. Treated soils would be backfilled on-site. Also included is the installation of a temporary groundwater interceptor trench which would provide partial groundwater remediation and dewatering during the soil excavation. Treatment of the extracted groundwater would be by air stripping.

Present Worth:	$12,732,000
Capital Cost:	$12,282,269
Annual O&M:	$ 24,800

Time to Implement: 1-2 years for soil remediation, 3-5 years for partial groundwater remediation.

6a. Alternative 6 with Long-Term Groundwater Pump and Treat System: This alternative is the same as 6, but includes an extensive groundwater pump and treatment system downgradient of the site.

Present Worth:	$14,134,900
Capital Cost:	$12,741,525
Annual O&M:	$ 75,300

Time to Implement: 1-2 years for soil remediation, 20 years for groundwater remediation.

7. On-Site Soil Flushing with Groundwater Recovery: This alternative consists of separation, aeration and stabilization of IRM stockpile soils. Landfill soils would be treated on-site by soil flushing. For groundwater extraction, wells would be installed in the source area and the water would be treated by air stripping. The groundwater contamination in the wetland would not be addressed by this alternative.

Present Worth:	$ 3,193,400
Capital Cost:	$ 1,840,870
Annual O&M:	$ 56,400

Time to Implement: 20 years

8. On-Site Vacuum Extraction: This alternative consists of in-situ treatment of contaminated landfill soils by vacuum extraction. Source area soil vapor and groundwater would be withdrawn by vacuum, separated from the waste stream and treated by air stripping. The stockpiled soils would be separated and treated by vacuum extraction. The groundwater contamination on the wetland would not be addressed by this alternative.

Present Worth:	$ 4,437,200
Capital Cost:	$ 3,428,000
Annual O&M:	$ 121,000

Time to Implement: 10 years for soil and groundwater remediation.

9. In-Situ Biodegradation:

This alternative consists of separation, aeration and stabilization of staged stockpiled soils. Landfill soils would be treated in-situ by biodegradation. Source area groundwater would be treated by enhanced in-situ biodegradation simultaneously with landfill soils. The groundwater contamination in the wetland would not be addressed by this alternative.

Present Worth:	$ 3,533,700
Capital Cost:	$ 3,253,883
Annual O&M:	$ 25,800

Time to Implement: 2 years for soil remediation, 20 years for groundwater monitoring.

6.2 Evaluation of Remedial Alternatives

The criteria used to compare the potential remedial alternatives as defined in the 6NYCRR Part 375 directs the remediation of inactive hazardous waste sites in New York State. For each of the criteria, a brief description is provided followed by an evaluation of the alternatives against that criterion. A detailed discussion of the evaluation criteria and comparative analysis is contained in the Feasibility Study.

The first two evaluation criteria are termed threshold criteria and must be satisfied in order for an alternative to be considered for selection.

1. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether or not a remedy will meet applicable environmental laws, regulations, standards, and guidance.

The no action alternative (1) does not meet the criteria. Soil flushing (7), vapor extraction (8) and biodegradation (9) only partially meet the criteria because they do not fully address the groundwater concerns. All of the other alternatives meet this criteria.

2. Protection of Human Health and the Environment. This criterion is an overall evaluation of the health and environmental impacts to assess whether each alternative is protective.

The no action alternative (1) does not meet the criteria. Soil flushing (7), vapor extraction (8) and biodegradation (9) only partially meet the criteria because they do not fully address the groundwater concerns. All of the other alternatives meet this criteria.

The no action alternative (1) fail to meet the threshold criteria and were not considered further.

3. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of alternatives after implementation of the response actions. If wastes or treated residuals remain on the site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the controls intended to limit the risk, and 3) the reliability of these controls.

Soil flushing (7), vapor extraction (4 & 4a) and biodegradation (9) only partially meet the criteria because there are concerns with the ability of the technologies to treat the contaminanted soil to clean up objectives because of the tight nature of the site's soils. The other alternatives provide long term effectiveness and permanence to meet this criteria.

4. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

All the alternatives meet this criteria.

5. Short-term Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared with the other alternatives.

The alternatives which include extensive groundwater pump and treat have adverse short term concerns because of the extensive dewatering of the wetland. Alternatives 3, 4, 5 and 6 have the greatest degree of short term effectiveness.

6. Feasibility. The technical and administrative feasibility of implementing each alternative is evaluated. Technically, this includes the difficulties associated with the construction, the reliability of the technology, and the ability to monitor the effectiveness of the remedy. Administratively, the availability of the necessary personnel and material is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc..

All the alternatives are considered feasible.

7. Cost. Capital and operation and maintenance costs are estimated for each alternative and compared on a present worth basis. Although cost is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the remaining criteria, cost effectiveness can be used as the basis for the final decision. The costs for each alternative are presented in Table 4.

This final criterion is considered a modifying criterion and is taken into account after evaluating those above. It is focused upon after public comments on the Proposed Remedial Action Plan have been received.

8. Community Acceptance - Concerns of the community regarding the RI/FS reports and the Proposed Remedial Action Plan are evaluated. A " Responsiveness Summary" was prepared that describes public comments received and how the Department addressed the concerns raised. It is the position of the Department that the comments received during the public comment period do not indicate a need to change the selected remedy. If the Mulitvendor Biological Treatability Demonstration indicates

that one of the bioremediation technologies is effective at remediating the site's contamination the public will be notified.

SECTION 7: SUMMARY OF THE SELECTED REMEDY

Based upon the results of the RI/FS, and the evaluation presented in Section 7, the NYSDEC has selected Alternative 5, Excavation and On-Site Low Temperature Stripping with Partial Groundwater Recovery and Treatment. The remedy was selected for the following reasons:

Alternative 1 (no action) does not meet the threshold criteria to protect public health and the environment and was not considered further. Limited Action (2) was dropped during the Preliminary Screening of the FS.

Alternatives 7, soil flushing and 8, vacuum extraction have concerns with there long term effectiveness because of the tight nature of the site's soil may hinder effective remediation utilizing these technologies.

Alternative 9 (biodegradation) was not selected because applications of biotreatment technologies have not demonstrated effectiveness at treating the types of contamination at the Sweden-3 site. Recent literature indicates bioremediation of chlorinated organics may be a viable technology. The purpose of the Multivendor Biological Treatability Demonstration is to allow vendors to demonstrate viability.

Alternatives 4 and 4a (on-site aeration) may not be as reliable in meeting soil cleanup goals. Alternatives which involve groundwater remediation of the entire contaminant plume (4a, 5a and 6a) have short term concerns with extensive dewatering of a wetland habitat. That leaves alternatives 3, 5 and 6 in the final evaluation.

Alternatives 3 (off-site disposal), 5 (thermal desorption) and 6 (incineration) will provide equal performance in remediating the site's contamination. However, as presented on table 4, alternative 6 (incineration) is over twice as expensive as alternative 5. Further, alternative 3 (off-site disposal) is almost $2 million more then alternative 5. Therefore, based on comparable performance at less cost Low Temperature Thermal Desorption, Alternative 5, is selected as the remedial action.

The estimated present worth cost to implement the remedy (Alternative 5) is $5,367,000. The cost to construct the remedy is estimated to be $4,917,269 and the estimated average annual operation and maintenance cost for 5 years is $24,800.

7.1 Conceptual Design

The elements of the selected remedy are as follows:

1. Remedial Design Program: Following the Record of Decision, a remedial design program will be implemented to verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program.

2. Remedial Action: This alternative is estimated to take approximately 1-2 years to complete the soil remediation and 2-5 years for the partial groundwater remediation. The proposed plan is as follows.

- Install a groundwater interceptor trench perpendicular to the TCE groundwater plume near monitoring well MW-4S and a recovery well near MW-3I to capture the PCE plume. The trench and well will be used for dewatering during the landfill excavation as well as local groundwater remediation. The groundwater collected by the trench will be treated by an air stripper and reinjected on-site. The trench system will be installed prior to the excavation of the landfill soils so that the trench will collect any contamination migration caused by the action. The trench will then be operational for a minimum of one year following the end of the excavation. After one year, the trench system will be evaluated with respect to

its continued effectiveness in collecting source area contaminated groundwater. This evaluation will take into account the mass of contaminants removed, the contamination levels in site monitoring wells, the fate of the plume in the wetland and any disturbance the trench has caused to the wetland (i.e., dewatering). If deemed necessary the trench will continue operating and other remedial actions to mitigate the groundwater could be developed and implemented.

- Erect a temporary building on-site for soil/debris separation and size reduction. The building will be equipped with an air collection system to capture emissions from the processes with subsequent treatment by carbon adsorption before discharge to the atmosphere.

- Separate debris from staged IRM stockpiled soils using vibrating screens and grizzlies within the separation building. Larger debris not appropriate for the treatment system will be decontaminated and placed back on site.

- Excavated soils will require separation and reduction of particle size in the separator building prior to treatment.

- Soils will be treated by low temperature thermal stripping. The off-gas from the process will be treated by carbon adsorption before discharge to the atmosphere.

- Soils, once treated and contaminant levels reduced to site cleanup objectives for the site contaminants (subject to verification sampling), will be placed back in the excavation, as per the RCRA Corrective Action Management Unit regulations, 40 CFR 264 Subpart S, as published in the 2/16/93 Federal Register. The final cover system will consist of a cap consistent with the appropriate requirements of 6 NYCRR Part 360-7.3(b)(5) construction requirements for Construction and Demolition Debris landfills three acres or less . Although not anticipated, soils which do not meet the clean up goals will be evaluated for proper disposal.

- Long term monitoring program and site restoration.

The Department has chosen the Sweden-3 Site for a Multivendor Treatability Demonstration of Bioremediation Technology Study. Should any of the bioremediation technologies appear effective at addressing the Sweden-3 site contamination, the Department will consider implementing the alternative technology and the public will be notified.

A more detailed conceptual design is presented in the Remedial Investigation Feasibility Study Report dated December 1993.

TABLE #1
Sweden-3, Chapman Site
Summary of Soil Volatile Organic Contamination
(all results in ppb[1])

Northwest Source Area

	Maximum	Guidance Value[2]
TCE	19,000	1,134
2-Butanone	15,000	405
Acetone	13,000	198
MIBK	10,000	1,710
Total Volatiles	33,400	NS

Northeast Source Areas

	Maximum	Guidance Value
Tetrachloroethene	450	3,276
TCE	1,000	1,134
Xylene	3,900	3,600
Total Volatiles	3,920	NS

1 ppb - Parts per billion

2 Soil guidance values based on NYSDEC TAGM-4046 and are based on the protection of groundwater

TCE - Trichloroethene

MIBK - 2-Methyl-2-pentanone

PCE - Tetrachloroethene

TABLE #2
Sweden-3, Chapman Site
Summary of Groundwater Contamination
(all results in ppb[1])

Northwest Source Area (MW-6S)

	Maximum	Guidance Value[2]
TCE	78,000	5
1,2-DCE (total)	100,000	5
1,1-DCE	110	5
Acetone	110	5
Total Volatiles	178,800	NS

Northeast Source Area (MW-3I)

	Maximum	Guidance Value[2]
PCE	4,300	5
TCE	72	5
1,2-DCE (total)	21	5
Total Volatiles	4,530	NS

[1] ppb - Parts per billion

[2] Guidance values are based on 6 NYCRR Part 700 series - Groundwater Quality Regulations

TCE - Trichloroethene

DCE - Dichloroethene

PCE - Tetrachloroethene

TABLE #3
Sweden-3, Chapman Site
Proposed Cleanup Objectives
(All Objectives in Parts Per Billion, ppb)

Indicator Chemical	Groundwater	
	Maximum Concentration	Cleanup Objective[1]
Vinyl chloride	79	2
1,1 DCE	110	5
1,2 DCE (total)	100,000	5
Trichloroethene	78,000	5
Tetrachloroethene	4,300	5

Indicator Chemical	Soils	
	Maximum Concentration	Cleanup Objective[2]
Acetone	8,900	198
2-Butanone	15,000	405
Trichloroethene	19,000	1,134
4-Methyl-2-Pentanone	10,000	1,710
Tetrachloroethene	4,500	3,276
1,2 DCE (total)	4,900	438

1 Groundwater objectives are based on 6 NYCRR Part 700 et seq.

2 Soil objectives are based on DHWR-TAGM 4046

DCE - Dichloroethene

TABLE #4
Sweden-3, Chapman Site
Summary of Alternatives
Present Worth Cost

Alternative	Present Worth $
1 (no action)	NA
2 (limited action)	NA
3 (off-site disposal)	7,119,400
4 (aeration/partial GW)	4,054,100
4a (aeration/GW)	5,142,500
5 (LTTD/partial GW)	5,367,000
5a (LTTD/GW)	6,006,900
6 (incineration/partial GW)	12,732,000
6a (incineration/GW)	14,134,900
7 (soil flushing)	3,193,400
8 (vacuum extraction)	4,437,200
9 (biodegradation)	3,533,700

NA - Not applicable, because these alternative are not practical for the site and are not protective of public health and the environment.

Partial GW - Alternatives include a groundwater interceptor trench for partial groundwater recovery and treatment.

GW - Alternatives include an extensive groundwater water recovery system.

LTTD - Low Temperature Thermal Desorption.

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SWEDEN-3, CHAPMAN PROPERTIES
SITE #8-28-040A
MONROE COUNTY

RESPONSIVENESS SUMMARY
for
RECORD OF DECISION

Public Meeting

January 26, 1994

Brockport Middle, School, Brockport, NY.

This responsiveness summary responds to oral comments received during the January 26, 1994 public meeting. The public comment period opened on January 10, 1994 and closed on February 20, 1994. No written comments were received during the comment period.

Q: Groundwater contamination, as presented, is far reaching into the wetlands. Residential water supplies seem to be threatened. Property values of the local residents have been effected. One more step needs to be taken as a final precaution. Can NYSDEC support a public water supply extension to the affected surrounding community?

A: Contaminated groundwater, as presented and defined in the RI Report, does not currently affect the surrounding residences. Furthermore, groundwater from selected surrounding residential wells is sampled every six months and analytical results have documented that no Site related contamination has been detected in any private well. Without documented impact to the local private wells the Department does not have authority to utilize Superfund dollars to install a water line extension.

Q: What are the dimensions and design of the groundwater interceptor trench and will it be covered?

A: The dimensions of the proposed groundwater interceptor trench are approximately 5'W x 300'L x 20'D. The trench will be excavated into the top of rock in to which a perforated pipe will be installed to collect the groundwater. The extracted groundwater will be treated by an air stripper and discharged back into the subsurface at the site. The trench will be covered with clean soil to prevent surface water from entering the system.

Q: How will groundwater levels be lowered? Will it effect the wetland and the local area?

A: The groundwater interceptor trench will act as a sump by continuously pumping groundwater that has entered it. The action of the trench will cause a localized depression in the groundwater table or a lowering of the groundwater table. We do expect the wetland in the immediate area of the groundwater interceptor trench to be effected by the dewatering. However, the extent of the effect should be minimized to the area of the immediate site.

Q: How will lowered groundwater levels affect the surrounding residential wells.

A: The Department had the consultant conduct computer modelling of the impacts of the groundwater extraction trench. The results of the computer groundwater modelling indicate a groundwater capture zone (or lowering of the water table) only in the immediate area of the proposed groundwater interceptor trench. Only groundwater in the source areas identified on-site will only be affected. Selected local private wells will be monitored throughout the remediation process, and should impact be noted, corrective measures would be evaluated.

Q: Where will treated groundwater that has been collected from the interceptor trench be discharged and what will happen to the vapors?

A: Treated groundwater is expected to be discharged to the subsurface on site. The location of the reinjection well will be determined in the design phase of the project. The vapor discharge will be monitored and compared to the appropriate air regulations and guidance criteria. If the vapors are found to be at a level of concern, the Department will evaluate carbon treatment for the vapors.

Q: Will the Bioremediation project that is scheduled for this summer affect the groundwater contaminant plume and will the groundwater trench be installed prior to the vendor study?

A: The possibility exists that when the contaminated soil is excavated for the MVTDBT that the disturbance could affect the groundwater contaminant plume. This plume is currently being tracked through a series of monitoring wells. Groundwater is periodically sampled from these monitoring wells to detect the plume's movement and chemical concentrations. The monitoring well system will be sampled during the MVTDBT to determine the possible impacts of the soil disturbance.

The groundwater interceptor trench will not be installed until after the bio-vendor demonstration.

Q: When will the Bioremediation Project start?

A: The Bio-Support Services contractor will start in early April, 1994. The Bioremediation work will start in May, 1994 unless delayed by high spring surface water. It is expected that the project will last until November of 1994.

Q: If the bio-study does not work what will happen to the material generated?

A: The material would be safely stored on-site and be treated by the Low Temperature Thermal unit. If none of the bio-demonstrations appear effective the Department intends to go forward with the Low Temperature Desorption remedy.

Q: Does the Bioremediation project require taxpayers funds?

A: The Bioremediation project will be funded from three sources including the 1986 Environmental Quality Bond Act (New York State Superfunds), the USEPA SITE program and the New York State Center for Hazardous Waste Management. However, we expect the cost of the project to be very close to contractor's actual costs. We are providing the vendors an opportunity to demonstrate their technologies and the benefit to the vendors for future application is great should their technologies prove effective.

Q: What happens if and when the waste has been completely consumed?

A: If in-situ or ex-situ bioremediation is effective, both technically and economically, then the selected remedy will be modified. With regards to the remaining bacteria, all bacteria utilized under this bioremediation project will be naturally occurring bacteria. If all the waste has been completely consumed by the bacteria, the organisms will then not have enough food to survive and will shortly die.

Q: Why does the bioremediation project include two ex-situ and two in-situ methods?

A: The various vendors have different methods on implementing bioremediation. For this demonstration the Department has selected four categories and will attempt to fund a vendor for each category. With this method we hope to evaluate four different bioremediation techniques.

Q: Can bioremediation be used on contaminated groundwater?

A: This demonstration will only evaluate soil remediation utilizing bioremediation. However, bioremediation can be used for groundwater treatment and has been used effectively at other hazardous waste sites.

Q: If the bioremediation is effective for the subsurface soil contamination will biological treatment be utilized for the staged stock piled soils?

A: The staged stock piled soils contain inorganic (heavy metal) contamination which may make the use of biological treatment inappropriate for these stockpiled soils. However, should one of the bio-vendors technologies appear effective, the Department will consider allowing the vendor to conduct bench scale testing on the stockpiled soils to see if the technology is possible.

Q: What is the low temperature thermal process?

A: The low temperature thermal unit is like a large rotary dryer which tumbles the contaminated soil in a moderate temperature chamber. The soil is first excavated and transported into the unit by conveyor belt. The process involves heating the contaminated soil to a temperature of approximately 700° F which drives off the volatile organic chemicals from the soil. Residual treated soils will be tested to confirm whether project cleanup goals have been achieved. Treated soils that pass the confirmatory testing will then be backfilled on Site. All volatile organic chemicals driven off by the heating process will be captured by a carbon treatment system. The carbon is then sent off-site to an approved disposal firm.

Q: What are the health and environmental hazards posed by the site?

A: There are currently no exposure pathways existing at the site which would pose a potential health or environmental risk. The contamination exists in subsurface soils so there is no direct exposure through dermal contact or ingestion and the contaminated groundwater has not been observed in any private wells surrounding the site. Further the RI indicates that contaminated groundwater is flowing into the wetland and away from the private residences. There are some future potential health and environmental risk scenarios which could cause concerns if the site is not remediated. These could include future residential development on the site or the spread of the groundwater contamination plume to a private well. Prior to the implementation of any remedial process the Department will continue to monitor selected private wells and the site conditions to assure no exposure to the site's contamination occurs.

Q: Was the type of soil that underlies the waste helpful in containing the migration of contaminants?

A: Yes, the lacustrine soils under the site consist of a red silty clay that slowed the migration of contaminants.

Q: Will the search for PRPs effect the cleanup schedule and when do you expect to implement the proposed plan.

A: New York State law mandates that the NYSDEC must make a reasonable effort to pursue PRPs for the implementation of the remedial plan. This time period will be approximately 6 to 8 months. Given the likelihood of multiple PRPs, the time for negotiation with a group of PRPs could be longer. The tentative schedule for the site is to start the design of the remedial program late in 1994 and implementation of the remedial action in 1996.

Q: Are there any plans to sample groundwater to monitor the quality of groundwater in the deep bedrock aquifer during groundwater interceptor trench operations?

A: The groundwater will be monitored and sampled in both residential and monitoring wells. It is expected that extra monitoring points will be added during the remediation. It is not foreseen that groundwater contamination will penetrate into the deep bedrock aquifer from the operation of the interceptor trench. The RI indicated an upward hydraulic gradient (or upward flow of groundwater) exists between the bedrock aquifer to the contaminated Interface Zone (top of rock). This upward groundwater movement hinders any downward migration of contaminants. In addition, the RI indicated that the bedrock is not greatly fractured and competent unfractured rock exists under the Interface Zone.

Q: How many structures or buildings will be on Site during remediation?

A: The bioremediation project will consist of field trailers and vendor equipment. The Site remediation will consists of a temporary building (sprung structure), field trailers, air stripping tower, heavy equipment and the low temperature thermal unit. The remediation is expected to take one construction season. During that construction season extensive site activities should be expected. A site health and safety plan will be developed to protect the local community from possible releases of contaminated materials.

Q: Will the Department of Health conduct some additional sampling of private wells in the area of the Sweden 3 site? Some of the private residential well have not been sampled. Who determines which private wells are sampled.

A: The NYSDEC has conducted an extensive hydrogeological survey of the area and have sampled the private wells that are most likely to be impacted from the Sweden 3 Site. The sampling has found no site related contamination in any private wells. At this time the DOH has no plans to sample other private wells in the area unless site conditions change. The NYSDOH in consultation with the Monroe County DOH and the NYSDEC determines which private wells are sampled.

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APPENDIX B
Administrative Record
Sweden-3, Chapman Properties
Site #8-28-040-A, Monroe

- Record of Decision, Sweden-3, Chapman Site, Site #8-28-040-A, Town of Sweden, Monroe County, March 1994.

- Proposed Remedial Action Plan, Sweden-3, Chapman Site, Site #8-28-040-A, Town of Sweden, Monroe County, January 1994.

- News Release, NYSDEC, Region 8, Public Meeting to announce Clean Up Plan Alternatives for Sweden-3, Chapman Inactive Hazardous Waste Disposal Site, dated January 19, 1994.

- Letter, G. Anders Carlson, PhD, NYSDOH to Michael J. O'Toole, P.E., NYSDEC, Sub: Proposed Remedial Action Plan, Sweden 3-Chapman, ID #828040, Sweden, Monroe County, December 20, 1993.

- Remedial Investigation Feasibility Study Report, Volumes 1,2 and 3, prepared for the NYSDEC by DUNN Geoscience Engineering Company, P.C., October 1993.

- Letter, John B. Berry, P.E., Dunn Geoscience Company, P.C., to David Crosby, NYSDEC, Subject: Sweden-3, Chapman RI/FS, FS Addendum, Work Assignment #D002520-14, dated September 27, 1993.

- Final Feasibility Study, Sweden-3 Chapman Site, Site No. 8-28-040, Dunn Geoscience Engineering Company, P.C., August 1993.

- Supplemental Phase III Remedial Investigation Report, Sweden-3 Chapman Site, NYS Site No. 8-28-040, Dunn Geoscience Engineering Company, P.C., May 1993.

- First Phase Feasibility Study, Sweden-3 Chapman Site, Dunn Geoscience Engineering Company, P.C., April 1993.

- Final Feasibility Study, Sweden-3 Chapman Site, Dunn Geoscience Engineering Company, P.C., April 1993.

- NYSDEC, Fact Sheet, Sweden-3, Chapman Properties Inactive Hazardous Waste Site, dated April 7, 1993.

- Remedial Investigation Report, Sweden Chapman Site, NYS Site No. 8-28-040A, Volume 1 and 2, Dunn Geoscience Engineering Company, P.C., February 1993.

- Operations and Maintenance Manual, Sweden-3 Chapman Site, NYS Site Number 8-28-040, prepared by Dunn Geoscience Engineering Company, P.C., dated December 1992.

- NYSDEC, Meeting Announcement/Fact Sheet, Sweden-3, Chapman Properties Inactive Hazardous Waste Disposal Site, dated October 23, 1992.

- Letter, David Crosby, NYSDEC to John Berry, Dunn Geoscience Engineering Company, P.C., Subject: Comments on the Phase I Remedial Investigation Report, dated October 9, 1992

- Interim Remedial Measures, Final Interim Remedial Measures Report, Sweden-3 Chapman Site, Site No. 8-28-040, Dunn Geoscience Engineering Company, P.C., September 1992.

- Work Plan, Sweden-3 Chapman Site, Site No. 8-28-040, Dunn Geoscience Engineering Company, P.C., April 1992.

- Quality Assurance Project Plan for Engineering Investigations at Inactive Hazardous Waste Sites in the State of New York, Sweden-3 Chapman Site, NYS Site No. 8-28-0404, Dunn Geoscience Engineering Company, P.C., April 1992.

- Health and Safety Plan for Engineering Investigation at Inactive Hazardous Waste Sites in the State of New York, Sweden-3 Chapman, NYS Site No. 8-28-040A, Dunn Geoscience Engineering, P.C., April 1992

- Access Notice Letter, from Michael J. O'Toole, P.E., to Mr. Ron Polle, Subject: Sweden-3 Chapman, New York State Inactive Hazardous Waste Disposal Site, #828040A, Beadle Road, Sweden, NY: Remedial Investigation /Feasibility study, dated April 2, 1992.

- Access Notice Letter, from Michael J. O'Toole, P.E., to Mr George Luce, Subject: Sweden-3 Chapman, New York State Inactive Hazardous Waste Disposal Site, #828040A, Beadle Road, Sweden, NY: Remedial Investigation/Feasibility Study, dated April 2, 1992.

- Citizen Participation Plan for Sweden 3 - Chapman, Site Number 8-28-040, Town of Sweden, Monroe County, New York, dated March 1992.

- Project Scoping Plan, Sweden-3 Chapman Site, Site No. 8-28-040, Dunn Geoscience Engineering Company, P.C., January 1992.

- NYSDEC, Fact Sheet, Sweden-3 Chapman, New York State Inactive Hazardous Waste Site, dated November 1991.

- NYSDEC, Memorandum, from George Harris through Edward Belmore to Michael J. O'Toole, P.E., Subject: Work Assignment Conceptual Approval under the State Superfund Standby Contracts, dated October 1991.

- NYSDOH, Fact Sheet, Sweden 3 - Chapman, Well Sampling Results, dated April 1991.

- Additions/Changes to Registry of Inactive Hazardous Waste Disposal Site, Site Name - Sweden-3, Chapman, DEC ID Number 828040a, Reclassification from a Class 2a to a Class 2 dated May 23, 1989.

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