Department of Environmental Conservation

Division of Hazardous Waste Remediation

Philmar Electronics Site

Site Number 5-10-008
Clinton County, New York

Record of Decision

March, 1993

New York State Department of Environmental Conservation
MARIO M. CUOMO, *Governor* THOMAS C. JORLING, *Commissioner*

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Philmar Electronics Site, Mason Street, Morrisonville, Town of Schuyler Falls, Clinton County, New York - Site ID #510008

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the Philmar Electronics Site, developed in accordance with the New York State Environmental Conservation Law (ECL), and is not inconsistent with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) 42 USL Section 9601, et. seq., as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). Appendix D of this record lists the documents that comprise the Administrative Record for the Philmar Electronics Site. The documents in the Administrative Record are the basis for the selected remedial action.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this Record of Decision, present a current or potential threat to public health, welfare or the environment.

DESCRIPTION OF THE SELECTED REMEDY

The selected remedy for the Philmar Electronics Site is Alternative 4-B, Groundwater Recovery Trench, On-site Treatment (granular activated carbon) and, Reinjection. The major components of the selected remedy are as follows:

* Extraction of contaminated groundwater from a groundwater collection trench and treatment of the contaminated groundwater through a granular activated carbon filter. This alternative will also serve to control migration of contaminants off-site. The performance of this groundwater extraction and treatment system will be evaluated yearly with the goal of removing a significant portion of the contaminant mass. The treated groundwater will be discharged to a leachfield upgradient of the disposal area to facilitate further soil flushing and increase contaminant recovery rates.

* Confirmatory sampling will follow the completion of the USEPA removal action. In-situ vacuum extraction will be given further consideration, if it is determined that additional active soil remediation is required.

- Long-term monitoring will be carried out to gauge the effectiveness of the selected alternative and monitor groundwater quality.

DECLARATION

The selected remedy is designed to be protective of human health and the environment, is designed to comply with applicable State environmental quality standards and is cost-effective. This remedy satisfies the Department's preference for treatment that reduces the toxicity, mobility or volume of hazardous substances, pollutants or contaminants as the principal goal.

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Date

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Ann DeBarbieri
Deputy Commissioner
Office of Environmental Remediation

TABLE OF CONTENTS

LIST OF TABLES

APPENDICES

I. SITE LOCATION AND DESCRIPTION

The Philmar Electronics Site is located on Mason Street in Morrisonville, which is in the township of Schuyler Falls, Clinton County, New York. The 7.2 acre site houses an active scrap/salvage yard. The western and southern portions of the site consist of various piles of metal scrap and debris, while the northeastern portion of the site contained the drum burial area. A number of 55 gallon drums containing liquid wastes were buried at the site, some of which had their contents emptied on the ground prior to burial. The site is surrounded by an apple orchard to the north, a gravel pit and wooded areas to the east and farmlands to the south and west. Residential areas exist immediately to the north, south, and west of the site. The Saranac River is approximately 3,000 feet north and east of the site.

II. SITE HISTORY

In August,1989, a Phase I investigation was completed by Lawler, Matusty and Skelly Engineers (NYDEC,1989) for the NYSDEC. This investigation was a compilation of existing information relating to past operations and disposal practices at the site. It also included the results of past environmental sampling performed on and around the site. A historical perspective gained from this report indicated that, for a period of time dating back approximately 20 years, the site owner purchased several hundred 55-gallon drums containing waste products. Most of these drums were purchased and removed from the site, but approximately 200 to 400 drums remained unprotected on-site.

Witness testimony indicated that approximately 50 full drums were punctured and their contents emptied onto the ground. The remaining drums were reportedly buried. Eighty-one drums were excavated and overpacked by the site owner in February 1988, under the supervision of the NYSDEC. Laboratory analyses of the wastes from the excavated drums characterized it as jet fuel, lubricating oil, gasoline, kerosene, and unidentified petroleum products. Various organic compounds, metals and PCBs were also identified.

In March 1988, twelve groundwater monitoring wells were installed by Groundwater Technologies, Inc. under NYSDEC supervision. Groundwater samples taken from these wells contained vinyl chloride, trichlorethylene, benzene and other organic compounds. Surface water samples were also taken from an area of ponded water near the drum disposal area. Various organic compounds were detected.

The site was scored under the USEPA Hazard Ranking System (HRS) utilizing the available analytical data as well as site information gathered during a detailed inspection. The score given to the site was 44.46. The site was nominated for inclusion on the National Priority List of Inactive Hazardous Waste Sites on December 3, 1990. A decision on its inclusion to the list is pending.

III. CURRENT SITE STATUS

In September 1988, the NYSDEC requested the USEPA to conduct a removal action at the Philmar Electronics Site. The USEPA agreed to the request in September 1989 and divided the removal action into two parts. The first part was called a Site Stabilization Action. The 81 drums previously excavated were staged, overpacked, sampled and the wastes were removed from the site for disposal. This action also included the sampling of four residential wells and the existing monitoring wells on-site. In May 1992, the USEPA completed the first part of the removal action.

In September 1992, approval was given to begin the second part of the removal action. This phase of the removal action included the excavation and disposal of any remaining drums of wastes and any visibly contaminated soils. Mobilization occurred in October 1992 and an additional 230 drums were excavated along with the visibly contaminated soils. After a review of the confirmatory sampling results, the USEPA remobilized to excavate more contaminated soil.

In August 1990 a contract between NYSDEC and Dunn Geoscience Engineering Company, P.C. (Dunn), was approved to conduct a Remedial Investigation / Feasibility Study (RI/FS) on the Philmar Electronics Site. Guidelines for the investigation were established based upon the draft October 1988 United States Environmental Protection Agency (EPA) document, Guidance for conducting Remedial Investigations and Feasibility Studies Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The primary objectives of this study were:

Remedial Investigation :

- Assess the nature, extent and the source of contamination.
- Evaluate the groundwater flow conditions and groundwater quality at the site.
- Gather the data required to evaluate the alternatives to remediate the site.
- Assess the risk to public health and to the environment.

Feasibility Study :

- Develop and select a cost-effective, environmentally sound, remedial action to correct the problems.

Fieldwork for the remedial investigation began in May 1991 and was completed in June 1992. The remedial investigation included a magnetometer survey, test borings, monitoring well installation, aerial photography and mapping, wetlands delineation, a habitat-based assessment, a health risk assessment and environmental sampling and analysis. Extensive sampling was performed and included groundwater, surface water, sediment and soil. The results of the RI identified the contamination of groundwater and soils as being limited to the vicinity near the drum disposal area.

Table 1 (below) is a list of contamination levels for the primary contaminants or indicator chemicals (those contaminants which pose the greatest public health and environmental concern for a particular site) in groundwater samples at the Philmar Electronics site along with the associated SCG's (Standards, Criteria and Guidelines).

Table 1

Contaminant	Groundwater Concentrations (ppb)		Cleanup Standards (ppb)
	Maximum	Mean	(a)
Vinyl chloride	1200	55	2
1,1-Dichloroethane	37	2	5
1,2-Dichloroethane	16	1	5
1,2-Dichloroethene	1800	130	5
Trichloroethene	3600	396	5
Chlorobenzene	35	2	5
Toluene	170	8	5
Xylenes	41	2	5
Benzene	28	3	0.7
Polychlorinated biphenyls	ND	ND	0.1

(a) - based on 10 NYCRR Part 5 and 6 NYCRR Part 703.5 groundwater quality standards

ND - non-detectable

Public Health and Environmental Assessment

A baseline risk assessment was conducted to determine whether the contaminants found at the Philmar Electronics Site could pose a significant threat to human health or the environment if the site were not remediated. Carrying out a risk assessment requires identification of the following:

* Contaminants of potential concern at the site

* Potential pathways of exposure and potentially exposed populations

The primary contaminants of concern, along with their concentrations, are presented in Table 1. A detailed description of all contaminants present at this site can be found in the RI/FS. Potential pathways of exposure and associated cancer risks, have been identified as follows:

1. Ingestion of groundwater by future on-site workers and future residents.

The estimated potential cancer risk associated with ingestion of groundwater from the contaminant plume for future on-site workers was calculated as 5.4x10-4. The estimated potential cancer risk from groundwater ingestion for future residents was calculated as 2.5x10-3. These values represent an excess upper bound lifetime cancer risk to an individual of between 10-4 and 10-6. The 10-6 risk (1 in one million chance of developing cancer as a result of exposure) level is used as the point of departure for determining remediation goals. Therefore, the contaminant plume could pose a significant threat of adverse health effects to future groundwater users downgradient of the site. Private wells upgradient of the site have been sampled and have been found to be uncontaminated.

2. On-site soil contact

Under this pathway of exposure, exposure routes would include dermal contact for on-site workers, future residents and trespassers. The estimated cancer risk associated with exposure to on-site soils for on-site workers was calculated as 9.3x10-8. The risk for future residents was calculated as 2x10-7. The risk for site trespassers was calculated as 9.2x10-9. The risks for these pathways do not exceed the range of 10-4 to 10-6. The risk posed by on-site soil contact is now even lower since the USEPA has excavated the contaminated soils via their removal action.

3. On-site surface water contact

This exposure route would include dermal contact and ingestion of contaminated surface water ponded on-site. While there are no surface water bodies on-site, water does pond after significant rainfall events. The risk analysis performed on this route of exposure calculated a risk of 2.3x10-7 for site trespassers. This risk is below the 10-4 to 10-6 range.

IV. ENFORCEMENT STATUS

The USEPA and the United States Air Force (USAF) have agreed to an Administrative Cost Recovery Agreement for reimbursement of past response costs incurred by the USEPA as of March 31, 1992. The amount of this agreement is $396,398.09. The RI/FS is currently funded by the 1986 EQBA.

V. GOALS FOR REMEDIATION

One of the goals of a RI/FS is to identify remedial action objectives for the site which are protective of human health and the environment and are consistent with the Superfund Amendments and Reauthorization act (SARA) and NYS SCG's. The remedial action objectives identified for the Philmar Electronics Site are as follows:

1. Minimize the potential for human exposure to the site-related contaminants;

2. Minimize the potential for off-site migration of site-related contaminants;

3. Removal of all buried drums containing hazardous wastes as well as contaminated soils from leaking drums; and

4. Permanently contain, treat and/or dispose of contaminated media in a manner consistent with State and Federal regulations.

The removal of the buried drums and contaminated soils is currently being addressed by the removal actions being preformed by the USEPA. The focus of the RI/FS was to address the remaining remedial action objectives. The alternatives developed during the feasibility study are focused on the potential for off-site migration of contaminated groundwater (the greatest potential for human exposure) and the various treatment options for the contaminants. The remaining residual soil contamination within the drum disposal area will be delineated via a confirmatory sampling program following the completion of the removal action.

The alternatives under consideration for remediation of the Philmar Electronics Site, including the NYSDEC preferred alternative, are in accordance with the New York State Environmental Conservation Law (ECL) and are consistent with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), 42 USL Section 9601, et.seq., and as amended by the Superfund Amendment and Reauthorization Act of 1986 (SARA). The alternatives that were retained after the initial screening had to meet the following two screening criteria:

Effectiveness. This criterion addresses both the potential effectiveness of the technologies in handling the estimated areas or volumes of each media and in meeting the remediation goals identified in the remedial action objectives as well as the potential impacts to human health and the environment during the construction and implementation phase. Furthermore, it considers how proven and reliable the process is in remediating the contaminants of concern.

Implementability. This criterion encompasses both the technical and administrative feasibility of implementing a remedial technology.

Following the individual analyses, the alternatives remaining are compared and contrasted, and a preferred remedy is recommended.

VI. SUMMARY OF THE EVALUATION OF ALTERNATIVES

A. Selection of Initial Alternatives

Five remedial alternatives were developed for groundwater at the Philmar Electronics site in the RI/FS. An additional five alternatives were developed in the Supplemental Report in the event additional remediation is required for any contaminated soils remaining after completion of the removal action. The initial screening used the two above-described criteria and is presented below. This list excludes technologies which were considered inappropriate and infeasible at the onset of the screening process. The reasons for eliminating these technologies are covered in the Feasibility Study.

The five groundwater alternatives developed for consideration are numbered to correspond with the RI/FS report and are as follows:

1. No Action;
2. Groundwater containment;
3. Groundwater recovery wells, treatment;
4. Groundwater recovery trench, treatment;
5. Groundwater containment, recovery, treatment.

Those wishing to learn more about the initial screening process and development the above alternatives are encouraged to review the RI/FS.

Five alternatives were developed for soils in the event that the proposed confirmatory sampling program demonstrates the need for additional remedial measures to be undertaken at the disposal area. The alternatives are as follows:

1. Off-site thermal treatment;
2. Off-site fixation;
3. In-situ vacuum extraction;
4. In-situ biodegration;
5. On-site soil washing.

The initial screening performed in the Supplemental Report indicates that in-situ vacuum extraction would be the prefered alternative for any additional soil remediation.

B. <u>Description of Groundwater Alternatives Retained For Initial Screening</u>

Alternative 1 - No Action

NYSDEC has evaluated the "no action" alternative. Under this alternative, NYSDEC would take no further action at the site to remediate contaminants in the groundwater. A long-term groundwater monitoring program would be implemented to evaluate the effectiveness of this alternative.

Alternative 2 - Groundwater containment

The drum disposal area would be contained on-site by installing a low permeability cut-off wall (i.e., slurry wall) around it. This would retard further groundwater flow into the area and to retard further migration of contamination from the disposal area. The slurry wall would be keyed into the unweathered glacial till layer. Long-term monitoring of groundwater quality and piezometric levels would be carried out to ensure that groundwater contamination is not leaving the cell or that groundwater is not building up within the containment cell. A long-term groundwater monitoring program would be implemented to evaluate the effectiveness of this alternative.

Alternative 3 - Groundwater recovery wells, treatment

This alternative would include drilling a series of groundwater extraction wells (wells used to extract contaminated groundwater) for the purpose of groundwater treatment and contaminant migration control. This alternative would only be applicable to the upper overburden aquifer. The lower till layer in the overburden aquifer, because of its extremely low permeability, would not yield enough water to make this alternative feasible. Groundwater pumping is proven and effective in controlling migration of groundwater. The contaminated groundwater would require treatment using one or more of the following treatment methods:

Treatment method A:

Air stripping transfers volatile organic contaminants from the water phase into the air phase. Treatment of the air phase (e.g., carbon adsorption) may be required to remove the organic contaminants. This technology is well-established for removal of VOCs found in the groundwater. Iron concentrations in the groundwater may require pretreatment to prevent plugging or fouling of the air stripping apparatus. However, this treatment is not effective on semi-volatile organic contaminants. This is a conventional treatment technique that is commercially available.

Treatment method B:

Carbon adsorption is well demonstrated as an effective and reliable means of removing low-solubility organics from water over a broad concentration range. This conventional treatment method is easily implemented. Treatability testing may be recommended prior to implementation to estimate carbon usage and any pretreatment requirements. The spent carbon would require treatment before disposal or reuse.

Treatment method C:

Off-site treatment(POTW) would include the pre-treatment and transport of contaminated groundwater via tank truck to a local POTW for ultimate treatment and disposal. After recovery, the contaminated groundwater water would then be stored in an on-site storage tank until there was sufficient volume for treatment.

If on-site treatment was used, the treated water would be reinjected via a leachfield system upgradient of the former drum disposal area to facilitate further soil flushing and increase contaminant recovery rates. A long-term groundwater monitoring program would be implemented to evaluate the effectiveness of this alternative.

Alternative 4 - Groundwater recovery trench, treatment

This alternative would include the installation of a groundwater recovery trench at the seasonal low water table on the downgradient side of the former drum disposal area. The trench would extend approximately 300 feet in length and be approximately 25 feet deep. The extracted groundwater would then be stored in an on-site storage tank until there was sufficient volume for treatment. The method of treatment would be one of the three treatment methods described above. If on-site treatment was used then the treated water would be reinjected via a leachfield system upgradient of the former drum disposal area to facilitate further soil flushing and increase contaminant recovery rates. A long-term groundwater monitoring program would be implemented to evaluate the effectiveness of this alternative.

Alternative 5 - Groundwater containment, recovery, treatment

This alternative would require that a containment cell/cutoff wall be constructed around the drum disposal area with a groundwater collection trench installed at the downgradient side of the containment cell. Groundwater would then be extracted from this trench in order to maintain an inward gradient across the cell walls. The extracted water would then be treated via one of the above treatment methods. Monitoring and recovery data would be evaluated continuously to determine the necessity of continued system operation.

C. <u>Initial Screening of Alternatives</u>

The initial screening process is intended to eliminate ineffective alternatives and focus on the feasible alternatives suitable for further evaluation in the detailed analysis.

Alternative 1. No Action

The no action alternative as described above would be easily implemented. However, the effectiveness of this alternative is low. It does nothing to minimize off-site migration of the contaminant plume and does nothing to reduce or remove the contaminants from the environment. Though it is not the most favored alternative, it is used as a baseline for comparison with other alternatives, therefore it was retained for detailed analysis.

Alternative 2. Groundwater Containment

This alternative provides long-term control of subsurface migration from the disposal area through the use of a low permeability barrier. However, no provisions are included to reduce the degree of groundwater contamination. Contaminant concentrations outside the containment cell would be reduced only by natural degradation and flushing. Also, the drums and the bulk of the contaminated soil have been excavated. Due to the low degree of effectiveness provided by this alternative and the fact that most of the contaminated material has been excavated, groundwater containment was removed from further consideration.

Alternative 3. Groundwater Recovery Wells, Treatment

This alternative involves the installation of groundwater recovery wells and the treatment of the extracted water. The installation of recovery wells is technically feasible, but would not be practical given the nature of the subsurface geology of the site. Well yields would be under one gallon per minute based on the hydraulic conductivity tests conducted during the RI. Given the low yield of a recovery well, several would be required to effectively capture the plume of contaminated groundwater. Once the groundwater is recovered, it could be effectively treated using one of the three treatment options under consideration. Due to the low degree of effectiveness and difficulty in recovering sufficient groundwater to capture the plume using extraction wells, as well as the low degree of implementability with respect to well installation and well efficiency, this alternative will not be retained for further evaluation.

Alternative 4. Groundwater Recovery Trench, Treatment

This alternative involves the installation of a groundwater recovery trench and treatment system. The potential for off-site migration would be minimized while the contaminants in the groundwater would be effectively removed. The installation of the recovery trench is technically feasible. The proposed trench would be approximately 300 feet in length and 25 feet deep and would be located downgradient of the former drum disposal area. Preliminary estimates indicate that this trench would capture up to 1,000 gallons per day of groundwater. Once the groundwater is recovered, it could be effectively treated using one of the three treatment options under consideration. If on-site treatment was used then the treated water would be reinjected via a leachfield system upgradient of the former drum disposal area to facilitate further soil flushing and increase contaminant recovery rates. A long-term groundwater monitoring program would be implemented to evaluate the effectiveness of this alternative. This alternative is considered highly implementable and would be very effective in achieving the remedial objectives for this site. The groundwater recovery trench, treatment alternative was retained for further evaluation.

Alternative 5. Groundwater containment, Recovery, Treatment

This alternative provides long-term control of subsurface migration through the use of a low permeability barrier as in alternative 2. However, this alternative includes a groundwater recovery system to control the level of groundwater within the containment cell. While provisions are included to increase the effectiveness of the containment cell, contaminant concentrations outside the cell would be reduced only by natural degradation and flushing. Also, the drums and the bulk of the contaminated soil have been excavated. Due to the low degree of effectiveness provided by this alternative and the fact that most of the contaminated material has been excavated, groundwater containment was removed from further consideration.

D. Final Screening of Alternatives

In this section, the relevant information for the selection of a remedy is presented. Each of the alternatives retained by the screening process is analyzed with respect to the seven criteria specified by the NYSDEC in its Technical and Administrative Guidance Memorandum (TAGM) #4030 Selection of Remedial Actions at Inactive Hazardous Waste Sites. These criteria encompass statutory requirements and include other gauges of the overall feasibility and acceptability of remedial alternatives. Each criterion is examined both qualitatively in the text and tables as well as quantitatively in the NYSDEC alternative evaluation scoring sheets. The goal of a Feasibility Study is to select alternatives which meet the following seven screening criteria:

Overall Protection of Human Health and the Environment

This criterion will provide a final check to assess whether each alternative provides adequate protection of human health and the environment. The overall assessment of protection draws on the assessments conducted under other evaluation criteria, especially long-term effectiveness and permanence, short-term effectiveness and compliance with applicable standards.

Evaluation of the overall protectiveness of an alternative will focus on whether a specific alternative achieves adequate protection and will describe how site risks posed through each pathway being addressed by the FS are eliminated, reduced, or controlled through treatment, engineering, or institutional controls. This evaluation will allow for consideration of whether an alternative poses any unacceptable short-term or cross media impacts.

Compliance with SCG's

This evaluation criterion will be used to determine whether each alternative will meet all of its identified federal and state requirements. The detailed analysis will summarize which requirements are applicable, relevant, and appropriate to an alternative and describe how the alternative meets these requirements.

Long-Term Effectiveness and Permanence

The evaluation of alternatives under this criterion will address the results of the remedial action in terms of the risk remaining at the facility after response objectives have been met. The primary focus of this evaluation will be the extent and effectiveness of the controls that may be required to manage the risk posed by treatment residuals and/or untreated wastes. Such an evaluation is particularly important to all alternatives.

Reduction of Toxicity, Mobility, or Volume through Treatment

This evaluation criterion will address the regulatory preference for selecting remedial actions that employ treatment technologies permanently and significantly reducing the toxicity, mobility, or volume of the contaminants. This preference is satisfied when treatment is used to reduce the principal risks at a site through destruction of contaminants, for a reduction of total mass or contaminants, to attain irreversible reduction in mobility, or to achieve reduction of the total volume of contaminated media.

Short-Term Effectiveness

This evaluation criterion will address the effects of the alternatives during the construction and implementation phase until remedial response objectives are met. Under this criterion, alternatives will be evaluated with respect to their effects on human health and the environment during implementation of the remedial action.

Implementability

The implementability criterion will address the technical and administrative feasibility of implementing an alternative and availability of various services and materials required during its implementation.

Cost

Detailed cost analysis of the selected remedial alternatives will include the following steps:

* Estimation of capital, operations and maintenance (O&M), and institutional costs; and

* Present worth analysis.

Costs developed during the FS are expected to provide an accuracy of +50% to -30%

E. Description of Remedial Alternatives

The Feasibility Study identified four groundwater remedial alternatives for final screening. Three of these four alternatives are based on combining the treatment options described previously with the groundwater recovery trench alternative retained from the preliminary screening. The no action alternative was also retained following the initial screening process. Table 2 identifies these alternatives along with their associated costs.

All alternatives include implementation of a long-term groundwater monitoring program to gauge the effectiveness of the alternative.

The proposed confirmatory sampling program in the disposal area will delineate the extent of residual soil contamination. This sampling program would be considered part of a design phase investigation. Table 4 contains the preliminary cost estimates for the five treatment alternatives proposed, if additional soil treatment is required. These costs will depend on the actual volumes of soil which will require treatment. These cost estimates should be considered for comparison purposes only. In-situ vacuum extraction is the most cost effective of the five remedial alternatives evaluated.

F. Selection of the Preferred Alternative

The preferred groundwater remedial action for the Philmar Electronics Site is Alternative 4-B, Groundwater Recovery Trench, On-site Treatment (GAC), Reinjection. A detailed assessment of the costs associated with Alternative 4-B is presented in Table 3. Based on an evaluation of existing data, this remedial alternative best meets the response objectives as outlined in the RI/FS and best satisfies the seven screening criteria, meeting the NYS Superfund objective of protecting human health and the environment.

The results of the confirmatory sampling following the completion of the USEPA removal actions will be used to evaluate the need for any further soil remediation. The preliminary screening performed in the RI/FS Supplemental Report recommended in-situ vacuum extraction as the preferred alternative, if additional soil remediation is required.

Table 2

Remedial Alternative	Present Worth (Including Capital Cost, Operation and Maintenance Expenses).*
1. No Action	$ 357,700
4-A. Groundwater Recovery Trench, On-site Treatment(air stripper) Reinjection	743,210
4-B. Groundwater Recovery Trench, On-site Treatment (GAC) Reinjection	793,660
4-C. Groundwater Recovery Trench, Off-site Treatment and Disposal (POTW)	1,245,160

* Figures are based on a 30-year period, at a discount rate of 5%.

Table 3

Alternative 4-B: Groundwater Recovery Trench, On-site Treatment (GAC), Reinjection

Direct Capital Costs:	Costs ($)
1. Mobilization/Demobilization	5,000
2. Site clearing and Grading	16,500
3. Collection Trench Excavation	14,400
4. Gravel Backfill	20,000
5. Submersible Pump and controls	7,200
6. Piping and Appurtenances	6,000
7. Equalization Tank	3,000
8. 1000 Gallon Storage Tank	3,000
9. Carbon Canisters	1,500
10. Prefabricated Enclosure	10,000
11. Fencing	1,600
Total Direct Costs	$88,200
Indirect Capital Costs:	
1. Engineering (20% of total direct costs)	17,640
2. Contingency (10% of total direct costs)	8,820
Total Indirect Costs	$26,460
TOTAL CAPITAL COSTS:	**$114,660**
Annual O&M Costs:	
1. Treatment System Operation	1,000
2. Treatment System Maintenance	3,000
3. Replacement Canisters	3,000
4. Carbon Disposal	2,800
5. Influent/effluent Monitoring	
a. Sampling	2,400
b. Analysis	14,400
6. Groundwater Monitoring	
a. Sampling	9,600
b. Analysis	3,000
c. Annual Report	5,000
Total Annual O&M Costs	**$44,200**
Present Worth	
1. Present Worth of O&M Costs (5% discount rate, 30 years)	679,000
2. Total Capital Costs	114,660
TOTAL PRESENT WORTH	**$793,660**

Table 4

Preliminary Cost Estimate for Soil Treatment Alternatives

treatment process	unit cost	quantity	estimated cost
1. off-site thermal treatment			
treatment	$2,000/ton	2,800 tons	$5,600,000
excavation	$45/cy	1,850 cy	$83,250
mob/demob.	-	-	$20,000
			$5,703,250
2. off-site fixation			
treatment	$1,000/ton	2,800 tons	$2,800,000
excavation	$45/cy	1,850 cy	$83,250
mob/demob.	-	-	$20,000
			$2,903,250
3. in situ vacuum extraction			
treatment	$120/cy	1,850 cy	$222,000
mob/demob.	-	-	$40,000
			$262,000
4. in situ biodegradation			
treatment	$220/cy	1,850 cy	$407,000
mob/demob.	-	-	$50,000
			$457,000
5. on-site soil washing			
treatment	$200/cy	1,850 cy	$370,000
excavation	$45/cy	1,850 cy	$83,250
mob/demob.	-	-	$100,000
			$553,250

G. Detailed Assessment of the Preferred Alternative

As part of the Final Screening of Alternatives, each groundwater remedial alternative was assessed based on the seven previously described criteria including:

1. Overall protection of human health and the environment;
2. Compliance with SCG's;
3. Long-term effectiveness and permanence;
4. Reduction of toxicity, mobility, or volume through treatment;
5. Short-term effectiveness;
6. Implementability; and
7. Cost.

The following section provides an assessment of the preferred alternative (4-B) with respect to these seven screening criteria. Those wishing to learn more about how each of the four remedial alternatives compared based on these screening criteria are encouraged to refer to the RI/FS report.

Overall Protection of Human Health and the Environment

Alternatives 4-A, and 4-B both provide adequate protection of human health and the environment through on-site collection and treatment of the contaminated groundwater. By removing the contaminated groundwater, further migration of contaminants in the groundwater downgradient of the site would be prevented. However, alternative 4-B uses activated carbon in it's treatment system which will also remove any semi-volatile contaminants present within the contaminant plume. Groundwater monitoring will be performed to ensure the effectiveness of the remedy.

Compliance with SCG's

The treatment and disposal of the contaminated groundwater will be in compliance with federal and State hazardous waste requirements. Action and location SCG's will also have to be addressed and satisfied.

Long-Term Effectiveness and Permanence

This alternative provides the highest level of long-term effectiveness and permanence through contaminant removal and treatment. Long-term effectiveness monitoring will verify that the remedial goals are achieved.

Reduction of Toxicity, Mobility or Volume Through Treatment

This alternative provides for the reduction of toxicity and volume by removing the organic contaminants contained in the groundwater. Activated carbon would effectively remove both volatile and semi-volatile contaminants.

Short-Term Effectiveness

There are no significant short-term risks associated with this alternative. The minor risks that do exist, such as fugitive dust emissions during excavation activities, can easily be controlled with proper construction techniques. Short-term implementation risks are negligible and would be adequately controlled through proper construction practices and an appropriate health and safety plan.

Implementability

This alternative will use equipment and construction techniques that are routinely used and readily available. The operation of the GAC system will require periodic monitoring to ensure that the system is operating correctly. Groundwater extraction via a recovery trench and treatment via GAC is a proven and reliable means of treating groundwater. The GAC will remove both volatiles and semi-volatiles from the groundwater. Long-term monitoring will be performed to ensure the effectiveness of the remedy.

Cost

The capital costs for implementation of this alternative are estimated to be $114,660. The estimated cost for operation and maintenance would be approximately $44,200 annually. The present worth is $793,660.

Costs used in the Feasibility Study are expected to provide an accuracy of +50% to -30% and are based on the following:

* Estimation of capital and operation and maintenance (O&M) costs.
* Present worth analysis using a 5% discount rate.

Operation and Maintenance (O&M) costs are based on a 30-year implementation period.

VII. SUMMARY OF THE GOVERNMENT'S DECISION

The preferred remedial alternative, alternative 4-B, a groundwater collection trench with on-site GAC treatment includes proven remedial technologies. The recommended alternative together with the USEPA removal actions will effectively eliminate contaminants through the collection and treatment of contaminated groundwater thus eliminating further migration. The collection system will be designed with the goal of removing a significant portion of the contaminant mass within the contaminant plume.

The use of a carbon adsorption treatment system will effectively treat groundwater contaminants to below NYS Groundwater Quality Standards.

The remedy selected represents a sound balance of cost considerations with the need to protect public health and the environment by eliminating, reducing or controlling risk through the collection and treatment of the contaminants remaining on-site. Confirmatory sampling following the completion of the USEPA removal action will determine if any additional remedial measures will be required to enhance contaminant removal. Long-term monitoring will ensure the performance of the remedial action performed at the site.

VIII. Public Participation

As part of the RI/FS, a Citizen Participation Plan was prepared in September, 1990. Citizen participation promotes public understanding of the Department's responsibilities, planning activities and remedial activities at inactive hazardous waste sites. It provides an opportunity for the Department to learn from the public and enables the Department to develop a comprehensive remedial program which is protective to both public health and the environment.

The following public participation activities were carried out:

1. Document repositories were established at the Schuyler Falls Town Hall and the Plattsburgh Public Library. Pertinent reports and documents related to the RI/FS have been placed there during the project.

2. A public meeting was held in May, 1991 to discuss the proposed work plan for the RI.

3. Six mailings have been sent to the public providing updates since the site was added to the registry.

4. On March 9, 1993, a public meeting was held to review the findings of the RI, present the Proposed Remedial Action Plan and solicit public comments on the NYSDEC's chosen remedial alternative. Questions and answers from this meeting and comments received during the thirty day comment period (February 24, 1993 to March 26, 1993) were used to develop the Responsiveness Summary, presented in this document.

APPENDICES

APPENDIX A FIGURES

APPENDIX B CONCEPTUAL DESIGN

APPENDIX C RESPONSIVENESS SUMMARY

APPENDIX D ADMINISTRATIVE RECORD

APPENDIX A

FIGURES

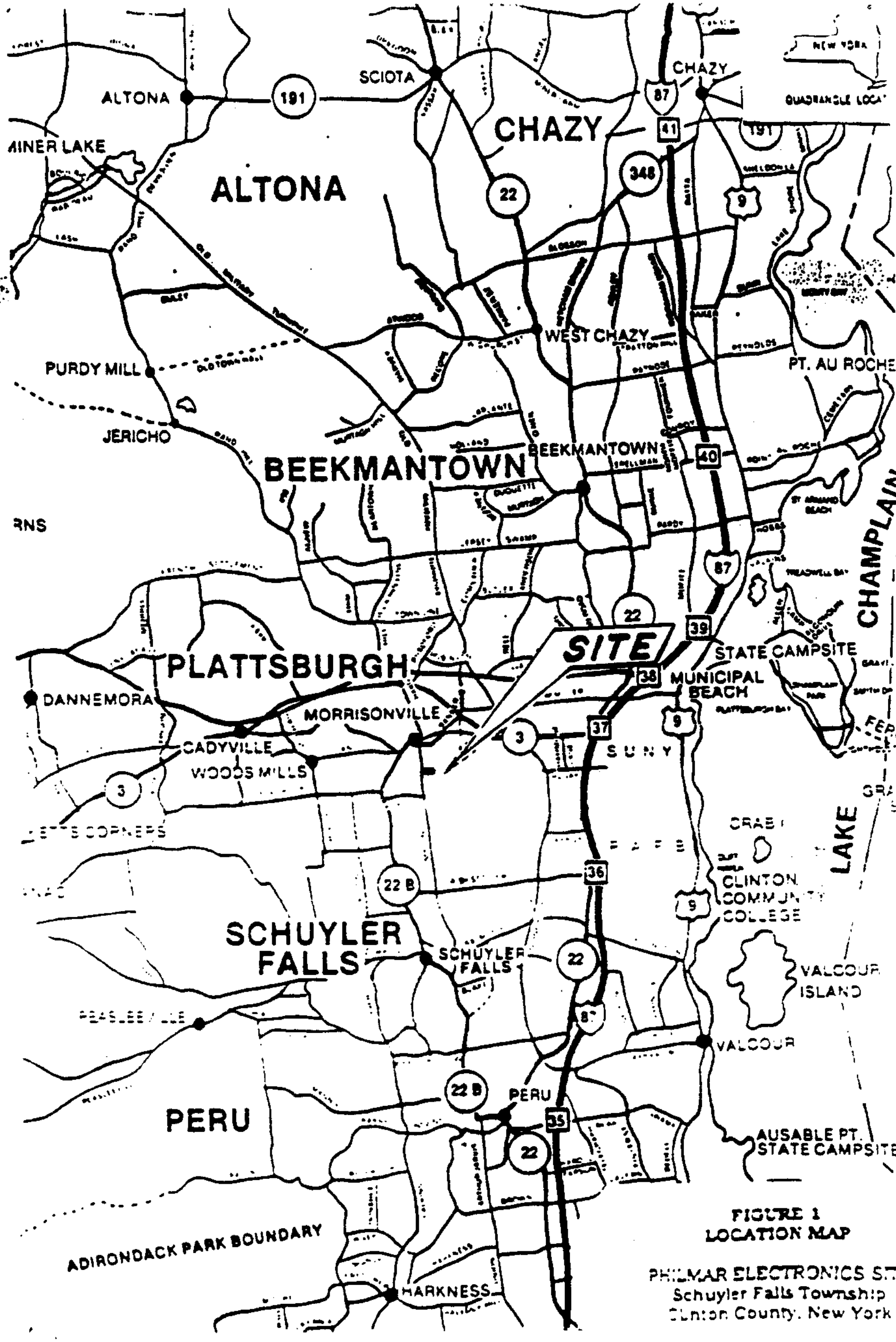
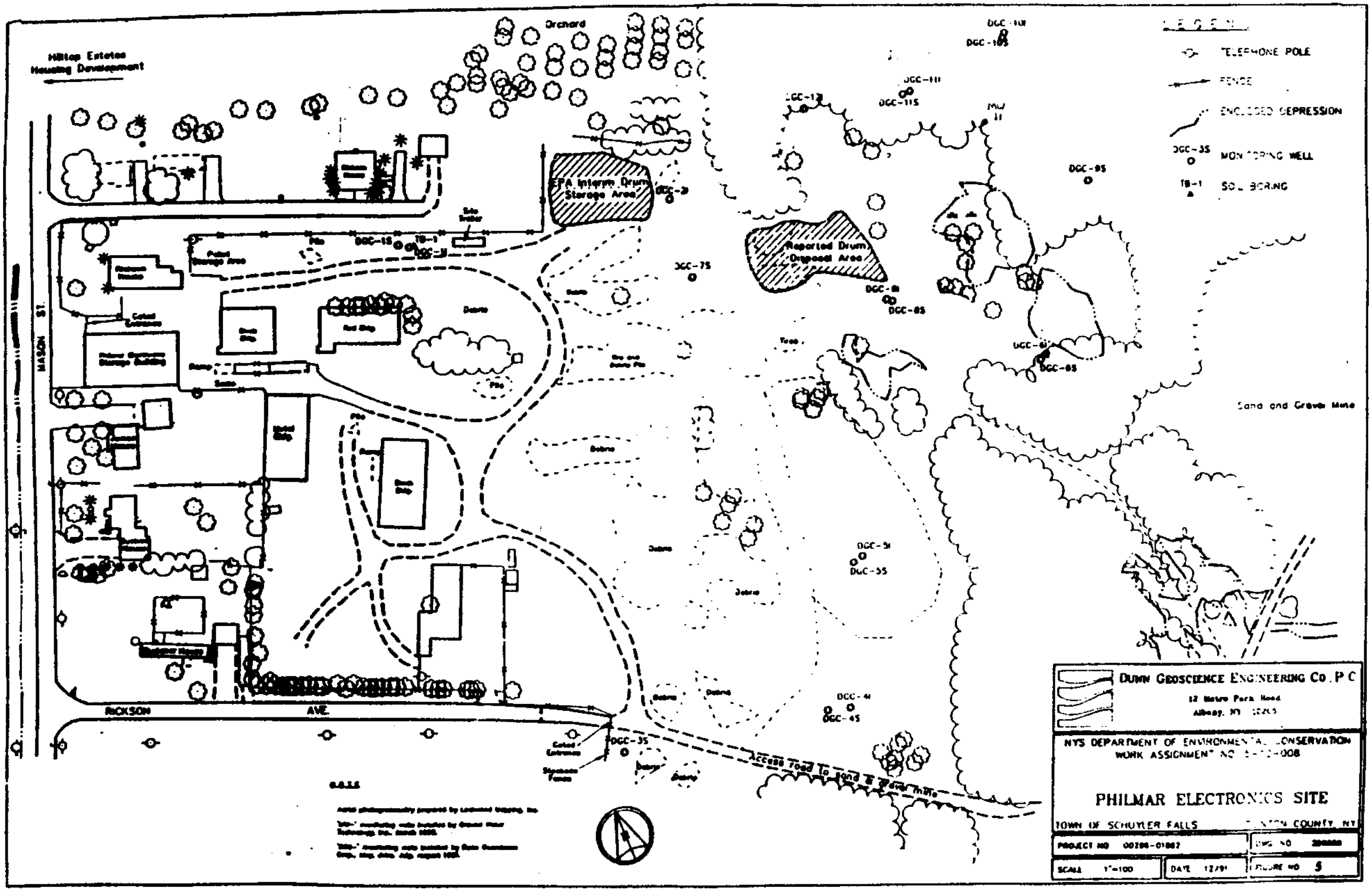


FIGURE 1
LOCATION MAP

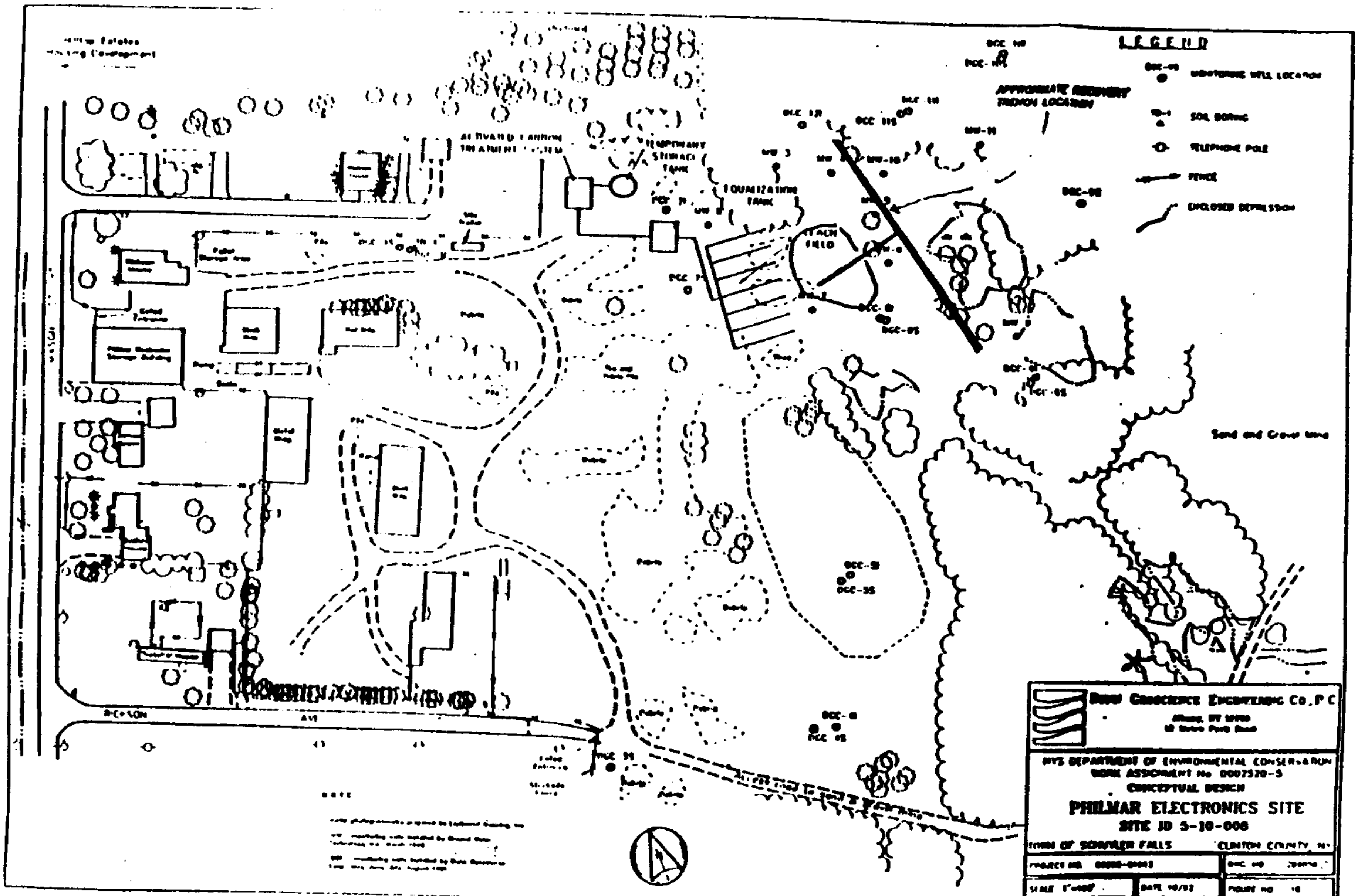
PHILMAR ELECTRONICS SITE
Schuyler Falls Township
Clinton County, New York



Hilltop Estates Housing Development
Orchard
MASON ST.
RICKSON AVE.
EPA Interim Drum Storage Area
Reported Drum Disposal Area
Access Road To Sand & Gravel Mine
Sand and Gravel Mine
DGC-1S
TB-1
DGC-2
DGC-3S
DGC-4I
DGC-4S
DGC-5I
DGC-5S
DGC-7S
DGC-8I
DGC-8S
DGC-11I
DGC-11S
DGC-12
DGC-10I
DGC-10S
DGC-9S
MW 11
LEGEND
TELEPHONE POLE
FENCE
ENCLOSED DEPRESSION
MONITORING WELL
SOIL BORING
DUNN GEOSCIENCE ENGINEERING CO. P.C.
12 Metro Park Road
Albany, NY 12205
NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WORK ASSIGNMENT NO
PHILMAR ELECTRONICS SITE
TOWN OF SCHUYLER FALLS
COUNTY, NY
PROJECT NO 00286-01882
SCALE 1"=100
DATE 12/91
FIGURE NO 5

APPENDIX B

CONCEPTUAL DESIGN


LEGEND
MONITORING WELL LOCATION
SOIL BORING
TELEPHONE POLE
FENCE
ENCLOSED DEPRESSION
APPROXIMATE RECOVERY TRENCH LOCATION
ACTIVATED CARBON TREATMENT SYSTEM
TEMPORARY STORAGE TANK
EQUALIZATION TANK
LEACH FIELD
Sand and Gravel Mine
DICKSON AVE
NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WORK ASSIGNMENT No. D002520-5
CONCEPTUAL DESIGN
PHILMAR ELECTRONICS SITE
SITE ID 5-10-006
TOWN OF SCHUYLER FALLS
CLINTON COUNTY, NY

APPENDIX C

RESPONSIVENESS SUMMARY

Philmar Electronics Site
(# 5-10-008)
Town of Schuyler Falls, Clinton County, New York

RESPONSIVENESS SUMMARY

This Responsiveness Summary was prepared to answer the public's comments about the New York State Department of Environmental Conservation's (NYSDEC's) Proposed Remedial Action Plan (PRAP) to deal with the contaminated groundwater and soils at the Philmar Electronics Site.

NYSDEC invited the public to comment about the proposal through a mailing to the site's contact list and at a public meeting held on March 9, 1993. This Responsiveness Summary addresses the significant comments received at the public meeting and during the public comment period which ran from February 24, 1993 through March 26, 1993.

COMMENT: Does the State rank sites on the degree of danger the site presents to the area? Some sites are more hazardous than others. Do they get priority?

RESPONSE: The Department of Environmental Conservation maintains a Registry of Inactive Hazardous Waste Disposal Sites in New York State. The registry contains information about each site and all sites included in the registry are assigned to one of five classifications. The five classifications are:

Classification 1- causing or presenting an imminent danger of causing irreversible or irreparable damage to the public health or the environment -- immediate action is required;

Classification 2- Significant threat to the public health or the environment -- action required;

Classification 3- Does not present a significant threat to the environment or public health -- action may be deferred;

Classification 4- Site properly closed -- requires continued management;

Classification 5 - Site properly closed, no evidence of present or potential adverse impact -- no further action required.

In addition to the preceding five statutory classifications, the NYSDEC has developed a temporary administrative classification, Class 2a.

Classification 2a - This temporary classification has been assigned to sites where there is inadequate data to assign them to the five classifications above.

All class 2 sites for which the remedial process has not yet begun are priority ranked using a system which helps direct remedial actions to the highest priority sites first. This ranking system incorporates environmental, natural resource and public health concerns. This priority list helps the Department:

- select sites for enforcement
- select which sites will recieve oversight when technical resources are scarce
- select which State-funded sites will be funded should backlogs develop.

In addition to this piority system, if the NYSDEC identifies an obvious problem that can be controlled, the NYSDEC may perform an Interim Remedial Measure (IRM). Often, an IRM can be initiated before the RI\FS has been completed. Examples of IRM's include; drum removals, excavation of contaminated soils, installing leachate collection systems and installing water filters in residences.

COMMENT: How deep were the first monitoring wells drilled on-site? How deep were the wells installed during the RI?

RESPONSE: Twelve monitoring wells were installed during 1988. These monitoring wells were between 13 and 19 feet deep. Nineteen monitoring wells were installed during the RI. There were ten shallow wells and nine intermediate wells installed. A deep soil boring was also performed, however, no monitoring well was installed in this boring. This boring was 96 feet deep and its purpose was to provide site-specific stratigraphic information. The deepest monitoring well installed on-site was 41 feet deep.

COMMENT: Were any streams tested during the RI?

RESPONSE: No. The Saranac River and Riley Brook are the closest major surface water bodies to the site. They would have been sampled if the investigation indicated that there was a potential they could be impacted from site contaminants. There were three areas of ponded water on-site during June, 1992. These areas were sampled. The water ponded on the drum disposal area did contain site contaminants. The results of the groundwater investigation indicate that the contaminants have not migrated off the site and that the contamination is limited to the shallow till layer.

COMMENT: Were the wells on Rickson Avenue monitored? Were any contaminants found in the residential wells?

RESPONSE: The wells of homes adjacent to the Philmar site were sampled in 1987 and 1988 by the NYSDOH. They were sampled in 1990 by the USEPA. No site contaminants were detected in any of these sampling events. This sampling was performed as a precaution, because at that time, the direction of groundwater flow and the site stratigraphy were not well defined. The residential wells do contain iron. However, the iron is at levels which naturally occur and is commonly found in the groundwater of much of New York State.

COMMENT: It seems odd that the contaminants did not travel very far given the many gravel pits in the area. This gives the impression that the soils are not so dense.

RESPONSE: There are extensive sand and gravel pits between the site and the Saranac River. The Remedial Investigation concluded that the sand and gravel deposits in the area of the site are only 10 to 20 feet thick. The sand and gravel is underlain by over 70 feet of a dense glacial till. Also, most of the sand and gravel on-site has been excavated. Groundwater flow velocities in the upper soil layer have been calculated to average between 10 and 40 feet per year.

COMMENT: How deep will the groundwater collection trench be?

RESPONSE: The groundwater collection trench will be approximately 25 feet deep. It will be excavated to the base of the upper till layer, downgradient of the drum disposal area.

COMMENT: Will the contaminated groundwater actually move through the soils to the trench for collection?

RESPONSE: Yes. The contaminated groundwater adjacent to the collection trench will drain into the trench. This water will then be pumped from the collection trench to a holding tank. When there is sufficient volume in the tank, the water will be treated. The treated water will be reinjected via a leachfield upgradient of the disposal area to facilitate soil flushing and increase contaminant recovery rates.

COMMENT: Will this treatment system be waterproof?

RESPONSE: The treatment system will be located inside of a building constructed on-site.

COMMENT: Will the treatment system be operational all year?

RESPONSE: The treatment system will be designed for year-round operation.

COMMENT: How long will this system need to be in operation?

RESPONSE: The time period that the treatment system will be in operation depends on the amount of contaminated soil remaining in the disposal area at the conclusion of the removal actions. Once the system is operational and system performance data is collected, then accurate clean-up times will be calculated.

COMMENT: How often will monitoring at the site be done? Will the monitoring wells be sampled after the collection trench is installed?

RESPONSE: Monitoring of the treatment system will depend on the amount of groundwater treated and the concentration of contaminants in the water. Sampling of the groundwater monitoring wells will be a minimum of once a year. A long-term monitoring plan will be developed during design and will be in effect for the duration of the project.

COMMENT: Will there be any monitoring after the system is turned off?

RESPONSE: Yes. The performance of the groundwater collection and treatment system will be reviewed at a minimum of every five years during its operation. There will be a period of time that groundwater monitoring will continue after the system is turned off to insure that the remedial action is completed.

COMMENT: Is the Department of Health going to do the monitoring?

RESPONSE: No. The Long-term Monitoring Program and the performance monitoring of the groundwater collection and treatment system will be performed by the NYSDEC or one of it's contractors. The NYSDOH is involved in reviewing every aspect of this project, including the review of monitoring well analyses.

COMMENT: How do we know that the State will not end up selecting the "No Action" alternative for this site?

RESPONSE: The Proposed Remedial Action Plan presents the preferred remedial alternative recommended by the NYSDEC. The preferred remedial alternative for the Philmar Electronics Site is a groundwater recovery trench with on-site treatment using carbon adsorption and the reinjection of the treated water via a leachfield.

COMMENT: Where were the drums excavated from the site shipped to?

RESPONSE: All of the materials excavated during the USEPA removal action including soils, drums, liquids and contaminated water were divided into different compatible wastestreams. Liquids and soils contaminated with high concentrations of PCB have been staged and are awaiting disposal. Seventeen loads of contaminated soils were sent to Envirosafe Services in Oregon, Ohio. The flammable liquid wastestream was sent to Clean Harbors in Braintree, Massachusetts. The contaminated water was sent to Clean Harbors in Cleveland, Ohio. The empty drums were crushed on-site and shipped to Mays Landing, New Jersey for processing as scrap metal.

COMMENT: What would be the proper agency to address questions regarding property values around the site? Local residents have had difficulty obtaining home mortgages.

RESPONSE: Specific questions regarding the Philmar Electronics Site can be directed to the NYSDOH or the NYSDEC. The project personnel will answer any questions or explain the findings of the Remedial Investigation and the planned remedial actions for the site. Any bank or lending institution which would like further information should be encouraged to contant the NYSDOH or NYSDEC Questions concerning lending practices can be discussed with the NYS Banking Department (1-800-522-3330) or the NYSDOL Consumer Protection Bureau.

DEPARTMENT OF THE AIR FORCE
REGIONAL COUNSEL, EASTERN REGION (JACE)
77 FORSYTH STREET SW, SUITE 295
ATLANTA, GA 30335-6801
OFFICE: (404) 331-0049
TELEX: 331-2537

19 March 1993

Bob Edwards, Project Manager
NYS Department of Environmental Conservation
Division of Hazardous Waste Remediation
50 Wolf Road
Albany, NY 12233-7010

MAR 2 2 1993

Re: Philmar Electronics Site, Morrisonville, NY

Dear Mr. Edwards:

This letter responds to your request for comments on the Department's Proposed Remedial Action Plan for the Philmar Electronics site and the USAF position on payment of the estimated cost of $793,660. The USAF was not notified sufficiently early to facilitate attendance at the 9 March 93 public meeting on this topic. Moreover, the USAF has not, heretofore, had the opportunity to review the RI/FS or the Proposed Remedial Action Plan (PRAP); accordingly, neither I nor the Regional Compliance Office are able to make responsive comments to the same at this time.

Regarding the USAF payment of the Department's remedial costs I will reiterate what I assume were Major Whittington's statement that the USAF tries, to the maximum extent possible, to bear responsibility for its CERCLA liability. The USAF has already paid almost $400,000.00 to EPA for costs it has borne at this site, and I anticipate that EPA will seek to collect substantially more money from the USAF in the near future. In response to your request, I am unable to tell you presently that the USAF will pay the Department for any or all future remediation costs. However, it appears to the USAF that there has been little or no effort by EPA or NYSDEC to obtain contribution from other PRPs (Philmar Electronics and the Ricksons), a matter which will of be significant consequence to any consideration of payment by the USAF. I do not intend hereby to foreclose discussion of USAF reimbursement for some remediation costs.

I would appreciate it if you could forward to me the RI/FS and PRAP and the draft Record of Decision when it becomes available, and alert me to any future public meetings about this site. If you have any questions please contact me at (404) 331-0049 or Mr. John Gordon, P.E., Remedial Program Manager, at (404) 331-6935.

Sincerely,

P. Michael Cunningham

P. MICHAEL CUNNINGHAM, Lt Col, USAF
Regional Counsel

cc: Mr. Juan Fajardo
EPA, Region II

APPENDIX D

ADMINISTRATIVE RECORD

Administrative Record
Philmar Electronics Site
5-10-008

The following documents are included in the administrative record:

1. **Engineering Investigations at Inactive Hazardous Waste Sites Phase I Investigation. Philmar Electronics Site, Site No.: 510008, Lawler, Matusky and Skelly Engineers, 1989**

2. **Work Plan Philmar Electronics Site, Site No.: 510008, Dunn Geoscience Engineering Co., P.C., 1991**

3. **Data Validation Summary Philmar Electronics Site, Site No.: 510008, Dunn Geoscience Engineering Co., P.C., 1992**

4. **Remedial Investigation/Feasibility Study Philmar Electronics Site (3 volumes), Dunn Geoscience Engineering Co., P.C., 1992**

5. Philmar Electronics Site Removal Action Work Plan, Phase II, USEPA, 1992

6. Remedial Investigation/Feasibility Study Volume IV - Supplemental Report Philmar Electronics Site, Dunn Geoscience Engineering Co., P.C. 1993

7. Philmar Electronics Site Proposed Remedial Action Plan, New York State Department of Environmental Conservation, 1993