



Department of Environmental Conservation

Division of Hazardous Waste Remediation

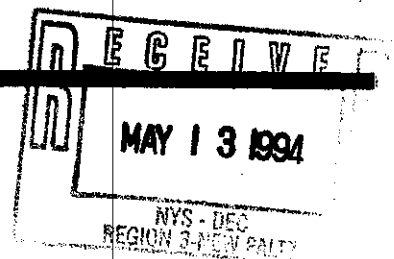
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**Kay-Fries  
Inactive Hazardous Waste Site  
Operable Unit 1**

Site Number 3-44-023  
Stony Point (T)  
Rockland County, New York

**Record of Decision**

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March 1994



New York State Department of Environmental Conservation  
MARIO M. CUOMO, Governor      LANGDON MARSH, Acting Commissioner

**KAY-FRIES**

**INACTIVE HAZARDOUS WASTE SITE**

**OPERABLE UNIT 1**

**STONY POINT (T), ROCKLAND COUNTY, NEW YORK**

**SITE NO. 344023**

**RECORD OF DECISION**

**MARCH 1994**

**PREPARED BY:**

**New York State Department of Environmental Conservation  
Division of Hazardous Waste Remediation**

## DECLARATION STATEMENT - RECORD OF DECISION

**Kay-Fries Inactive Hazardous Waste Site  
Operable Unit 1  
Stony Point, Rockland County, New York  
Site No. 344023**

*Administrative Record or  
Technical program*

### Statement of Purpose and Basis

This Record of Decision (ROD) presents the selected remedial action for the Kay-Fries 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 Kay-Fries 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 A 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 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 Kay-Fries Site and the criteria identified for evaluation of alternatives, the NYSDEC has selected a remedy consisting of the installation of groundwater recovery trenches followed by air stripping of the groundwater. The liquid and vapor contaminant streams will be treated with carbon adsorption. The components of the remedy are as follows:

- **Active Remediation of Groundwater** on site in the Operable Unit 1 Area by collecting contaminated groundwater in three recovery trenches and treating the groundwater on-site by air stripping and carbon adsorption. These trenches will collect all site-related contaminated groundwater emanating from Operable Unit 1.
- **Preventing the Further Spread of Contaminated Groundwater** by locating these recovery trenches at the leading (downgradient) edge of the contaminant plume.
- **An Environmental Monitoring Program** to evaluate the performance of the remedial program.

- An Institutional Control will be implemented that consists of the ROD being inserted into the hazardous waste files at the Rockland County Clerk's Office where the deed is recorded.

**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.

March 28, 1994

Date



Ann Hill DeBarbieri  
Deputy Commissioner

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**RECORD OF DECISION  
KAY-FRIES SITE INACTIVE HAZARDOUS WASTE SITE  
OPERABLE UNIT 1  
STONY POINT, ROCKLAND COUNTY, NEW YORK  
SITE ID NO. 344023  
MARCH 1994**

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**SECTION 1: SITE LOCATION AND DESCRIPTION**

The former Kay-Fries facility is an inactive hazardous waste site (#344023) located in the Town of Stony Point in Rockland County, New York. The site occupies approximately 15 acres to the east of Route 9W at the Town's southern limit. The property is bounded on the north by Cedar Pond Brook and on the east by Minisceongo Creek, both tidally-influenced tributaries of the Hudson River estuary. The surrounding area is generally residential with large industrial complexes both up and down river from the site. Haverstraw Bay and Stony Point State Park are located along this reach of the Hudson and are used for recreational purposes such as fishing and boating. Directly south of the property is a municipal landfill operated by the Town of Haverstraw. A site location map is provided as Figure 1.

Due to the diverging groundwater flow and distinct chemistry of the sites' plume, this site has been separated geographically into two operable units. An Operable Unit represents a discrete portion of the remedy for a site which for technical or administrative reasons can be addressed separately or eliminate or mitigate a release, threat of release or exposure pathway resulting from the contamination present at a site. Operable Unit No. 1 (OU1), which is the subject of this Record of Decision (ROD), consists of the area east of the railroad tracks. The other operable unit for

this site is described in Section 2.1 below.

The OU1 portion of the site is divided by a terrace escarpment into upland and lowland areas. The former plant facilities, including underground storage tanks and production areas, are located within the upland area in the west portion of the site. The lowland areas extend east and northeast from the escarpment to Cedar Pond Brook and Minisceongo Creek.

Hydrogeologically, the site is divided into two water bearing zones by a layer of clay. The upper aquifer (which extends to approximately 10 feet below ground surface) consists of silty clay, has a very low yield, and flows generally to the east. The lower, more sandy aquifer, flows generally to the northeast. The upper zone has been contaminated by site operations while the lower zone appears to be free of contamination.

**SECTION 2: SITE HISTORY**

The facility has been the site of chemical production operations since the 1930s under the name of Kay-Fries, Inc. The site was owned and operated by Charles Tennet, Ltd., a British Holding Corporation, through the late 1970s when it was purchased by Dynamit Nobel of America. Huls America, Inc., then acquired the facility. During 1987, the site was sold to Universal Process Equipment (UPE). UPE sold the central portion of the facility to INSL-X Products Corporation (INSL-X). The sale and subdivision of the Kay-Fries property has

caused a refinement of the site boundaries. It has become evident that the source areas contributing to the groundwater contamination for OU1 are located only on that piece of the former Kay-Fries property purchased by INSL-X Corporation. Therefore, the present site area is now 15.18 acres, as opposed to the 85 acre citation in several previous reports.

Operable Unit 2 (OU2) consists of approximately 7 acres to the west of the railroad tracks. Monitoring wells installed on this parcel in the summer of 1993 revealed tetrachloroethene contamination above groundwater standards and unassociated with the contamination to the east of the railroad tracks at this time. Therefore, another investigation was deemed necessary and will be labelled OU2.

Chemical production operations at the site ceased during 1987 when a majority of the manufacturing was transferred to Mobile, Alabama. Materials produced at the site included chlorosilanes, orthoesters, and phthalates. Materials stored at the site for use in production included toluene, benzene, methyl isobutyl ketone (MIBK), and petroleum fuels.

Open burning occurred from the 1930s until the late 1960s. Trash, fiber containers, paper, wood pallets, and minor amounts of chemical waste were burned. Additionally, chemical spills may have occurred in any part of the plant site where chemicals were used or transported. No spill records exist other than the report in 1984 of underground storage tanks spills of benzene and MIBK. During operations, surface water run off was collected on site and directed to the plant's waste water treatment facility before eventual disposal into surrounding surface water.

### SECTION 3: CURRENT STATUS

#### 3.1 Summary of Remedial Investigations

There have been numerous environmental investigations of the Kay-Fries site to determine the nature and extent of contamination. In general, these investigations are referred to as the Remedial Investigation and Feasibility Study (RI/FS). The main components of the RI included obtaining and analyzing samples of soil, groundwater, air, surface water, sediments, and other physical data needed to establish the extent of contamination. The purpose of the FS is to identify the best alternative to mitigate the negative impacts created by the presence of contamination in the affected media.

The major conclusions from these investigations can be summarized as follows:

- Groundwater in the shallow water bearing zone is contaminated by site related compounds. Contaminated groundwater plumes begin on the upper terrace area and flow approximately 300 feet toward the east southeast. There are no water supply wells within the plume area or on site.
- A shallow benzene plume originates from the area of an underground storage tank removed in 1984. Concentrations of benzene range up to 67,000 parts per billion (ppb). The New York State groundwater standard for benzene is 0.7 ppb.
- A shallow chlorinated organics plume originates from the southern upper terrace area east of the railroad tracks. The exact source of this plume is undefined and is, therefore, presumed to have been caused by minor spills throughout the entire production/storage area of the southern upper tier. The organics consist mainly of 1,1,1-trichloroethane and its degradation

products (1,1-dichloroethane and chloroethane). Concentrations of 1,1,1-trichloroethane and total chlorinated organics range up to 1,700 ppb and 3,400 ppb, respectively. The groundwater standard for Principle Organic Contaminates, which include the above compounds, is 5 ppb of an individual contaminant and 100 ppb total.

The remedial action selected in this plan addresses the former Kay-Fries production facility and areas to the immediate east. As discussed in more detail in the RI/FS reports, the media of concern is the shallow groundwater contaminated with benzene and chlorinated solvents. The information below further defines the risks presented by the site and describes how the selected remedy would minimize these risks.

### 3.2 Interim Remedial Measures

Interim Remedial Measures (IRMs) were conducted at the site based on findings as the RI progressed. An IRM is implemented when a source of contamination or exposure pathway can be effectively addressed before completion of the RI/FS.

The years of chemical production at this site have potentially caused numerous areas of the site soils to be contaminated with various chemicals. Several areas of contaminated soil have been located and removed as IRMs. These measures removed soils which might have caused a public health threat, or which may have continued to act as a source for further groundwater contamination. All identified sources have been removed by these IRMs. Detailed information about the type of contamination and volume of soils removed can be found in the Phase VII Remedial Investigation.

### 3.3 Summary of Human Exposure

#### Pathways

Part of the RI/FS process included evaluating the risks presented to human health and the environment by the site as it exists now. The results of this "baseline risk assessment" were used to help identify applicable remedial alternatives and select a remedy. The components of the baseline risk assessment for this site include:

- a review of the site environmental setting;
- identification of site-related chemicals and media of concern;
- an evaluation of the toxicity of the contaminants of concern;
- identification of the possible exposure routes and pathways;
- estimating the added risk of health effects; and
- an evaluation of the impacts of the site upon the environment.

Exposure routes are the mechanisms by which contaminants enter the body (e.g., inhalation, ingestion, absorption). Exposure pathways are the environmental media (e.g., soil, groundwater, air, etc.) through which contaminants are carried.

The Risk Assessment for this site (Attachment 1 to the Feasibility Study) consists of a human health assessment and a Fish and Wildlife Impact Analysis. The human health assessment identified the possible exposure pathways as being contaminated surface soil, sediments, groundwater, and air. The possible exposure routes identified included incidental ingestion of surface soil, incidental ingestion of sediments, dermal (skin) exposure to surface soil, dermal



exposure to sediments, drinking contaminated groundwater, and breathing contaminated dust. The exposure scenarios evaluated included residential adults and youths exposed to contaminated surface soil/sediments/ water as well as workers exposed to contaminated air.

To estimate risks, it is necessary to establish a set of exposure conditions such as amounts of media consumed or exposed to, contaminant concentrations in the media, frequency and duration of exposures, and so forth. In this case, maximum exposures were estimated based upon generally accepted exposure values and present as well as possible future land use.

The results of the human health assessment indicate that, left unremediated, the greatest risk of an increased incidence of cancer would be under a future residential land use scenario. Under this scenario, one might expect an additional cancer incidence of 15 cases per every 40,000 adults exposed to the contamination. However, it should be noted that this risk is calculated from a series of assumptions regarding future land use that is unlikely to be realized. Specifically, a large portion of the risk comes from lifetime ingestion of on-site contaminated groundwater which, because of the hydrogeology of the area, is an unlikely scenario. The yield (or amount of water that one could extract) from these wells would be so negligible as to prevent use as a water supply.

The risks associated with exposure to noncarcinogenic contaminants are determined using the "Hazard Index" approach. A Hazard Index is the ratio of predicted exposure levels to acceptable exposure levels. A Hazard Index greater than one indicates that adverse noncarcinogenic effects may occur, while a value below one indicates that such effects are unlikely to occur. Again, the scenario

with the highest risk was future on-site adult residents with a hazard index of 7.

In summary, the results of the baseline risk assessment indicate an increased risk of cancer due to exposure to site contaminants. The major environmental medium of concern is contaminated groundwater that could be ingested, or that could result in the release of contaminants to surface water/sediments and the air. Together, these concerns indicate the need to implement a remedy to mitigate these concerns to the extent feasible.

### **3.4 Summary of Environmental Exposure Pathways**

The Fish and Wildlife Impact Analysis identified cadmium and lead as contaminants found in sediments with potential for adverse impacts on biota. Cadmium, found in sediments at levels that ranged from 0.93 to 4.7 ppm, was not found in soils or water on site. Its presence in the tidally influenced creeks can possibly be attributed to other Hudson River sources. The Kay-Fries Site does not appear to be the source of the cadmium.

Lead was found at levels in soils ranging from 2.49 to 59.3 ppm and in groundwater ranging from 8.6 to 152 ppb at the Kay-Fries Site. The levels of lead in groundwater though elevated above what may be considered normal for northeastern U.S. were relatively uniform in concentration and do not exhibit "hot spots."

### **SECTION 4: ENFORCEMENT STATUS**

The NYSDEC and Huls America, Inc. entered into a Consent Order on February 11, 1983. The Order obligates the responsible party to investigate the site and implement a remedial program. The Order Index No. is 367A0217.

## **SECTION 5: SUMMARY OF THE REMEDIATION GOALS**

Goals for the remedial program have been established through the remedy selection process stated in 6NYCRR 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.

The goals selected for this site are:

- Reduce, control, or eliminate the contamination present within the soils on site.
- Reduce, control, or eliminate the contamination present within the shallow groundwater on site.

## **SECTION 6: SUMMARY OF THE EVALUATION OF ALTERNATIVES**

Potential remedial alternatives for the Kay-Fries OU1 portion of the site were identified, screened, and evaluated in a Feasibility Study. This evaluation is presented in the report entitled Feasibility Study Report for the Former Kay Fries Site, Stony Point, New York, Site No. 344023 dated July 13, 1992 and revised November 3, 1992. A summary of the detailed analysis follows.

### **6.1 Description of Remedial Alternatives**

The potential remedies are intended to address the contaminated groundwater at the site.

Other than the No-Action alternative which is carried through the analysis for comparison purposes, the potential alternatives for remediating the Site present different methods for achieving the major goals of preventing the further spread of groundwater contamination (containment), and active treatment of contaminated groundwater. The alternatives vary in their approach to these major goals. Although a large number of possible alternatives could be defined, the Feasibility Study presents seven alternatives that are representative of the possible actions that could be taken.

As presented below, present worth is the amount of money needed (in 1992 dollars and with 5% interest) to fund the construction, operation, and maintenance (O&M) of the alternative for 30 years. Capital cost mainly reflects initial construction costs and annual O&M reflects an average over 30 years of the money needed to operate and maintain the alternative for one year. All costs are estimates. All trenches, slurry walls, and cap areas shown on Figures 2 through 7 are conceptual and preliminary, and exact final placement will be dependent upon Remedial Design work.

### **Alternative 1: No action + Monitoring.**

Capital Cost:	\$ 0
Annual O&M:	\$ 8,250
Present Worth:	\$126,823

For the No Action alternative, groundwater monitoring would be performed and use of the contaminated groundwater would be restricted. Groundwater samples from representative monitoring wells would be obtained annually and analyzed for volatile organic compounds (VOCs). Data would be evaluated to determine contaminant concentrations over time and the areal extent of the contaminant plume. The deeper aquifer would also be monitored to verify

that it has not been impacted by VOCs. An annual report would be provided summarizing the results of the sampling.

**Alternative 2: Containment-Multilayer Cap/Slurry Wall**

Capital Cost: \$1,319,780  
Annual O&M: \$ 57,250  
Present Worth: \$2,199,855

Alternative 2 has been evaluated as representative of a source control and containment option. This alternative involves the construction of a bentonite slurry wall around the source area of the site (considered to be the entire plant production area in the upland portion of the facility) in addition to installation of a multilayer cap. The wall would be of sufficient impermeability to prohibit continued contaminant migration outside of the source area. A wall with a perimeter of approximately 900 feet with an average depth of 17.5 feet would be sufficient in implementing this option. An impermeable clay layer exists beneath the site. Additional soil borings would have to be performed to verify that this clay layer is continuous across the upland portion of the facility. The clay layer ranges in depth from 5 feet to 15 feet below the surface throughout the upland portion of the site. The slurry wall would have to be keyed into this clay layer to be effective.

Volatile organic compounds have been detected in groundwater above action levels as far downgradient from the source area as MW-37. Therefore, this alternative would also include installation of two groundwater recovery trenches to capture contaminated groundwater in the lowland portion of the property. The locations of the proposed slurry wall and the recovery trenches are shown in Figure 2.

**Alternative 3: Groundwater Recovery**

**Trenches/Air Stripping/Carbon Adsorption (Liquid)/Carbon Adsorption(vapor)/Discharge**

Capital Cost: \$1,162,920  
Annual O&M: \$ 37,250  
Present Worth: \$1,735,546

Groundwater in this alternative would be recovered by use of recovery trenches. Recovered groundwater would be treated by air stripping followed by carbon adsorption. Treated groundwater would then be discharged to surrounding surface water.

Three groundwater recovery trenches would be installed to intercept contaminated groundwater in the upper water bearing zone downgradient of the former production area in the southern portion of the site. The trenches would be approximately 10 feet deep. The proposed trench locations are shown on Figure 3.

Alternative 3 involves the use of air stripping followed by carbon adsorption to remove volatile organic compounds from groundwater. Air stripping would effectively remove the majority of organic compounds from contaminated groundwater, and carbon adsorption would adequately remove the remaining contamination (a process known as polishing). As a result of air stripping, a liquid and gaseous phase are formed. Both the liquid and gaseous streams would be treated with carbon adsorption.

Removal efficiency for the above-mentioned process is currently estimated to exceed 95% for the air stripper. The carbon adsorption system would further remediate the effluent stream to meet required discharge limits.

**Alternative 4: Groundwater Recovery Trenches Combined with Slurry Wall/Air Stripping / Carbon**

**Adsorption (liquid) / Carbon  
Adsorption (vapor) / Discharge**

Capital Cost	\$ 832,260
Annual O&M	\$ 37,250
Present Worth	\$1,404,886

This alternative involves installation of a slurry wall in combination with two groundwater recovery trenches (as opposed to three under Alt. 3) and treatment of contaminated groundwater, as described in Alternative 3. The proposed slurry wall and trench locations are shown on Figure 4. The objective of installing a slurry wall would be to direct groundwater flow towards a recovery trench for collection and treatment. Identical considerations, as detailed under Alternative 2, would apply to installation of the slurry wall and considerations discussed under Alternative 3 would apply to installation of the trenches (i.e., selection of appropriate locations and depths).

**Alternative 5: Groundwater Recovery  
Trenches/Carbon Adsorption (liquid)/  
Discharge**

Capital Cost	\$1,173,920
Annual O&M	\$ 247,250
Present Worth	\$4,974,771

This alternative involves installation of groundwater recovery trenches, as described in Alternative 3. However, this alternative uses carbon adsorption in the liquid phase as the primary and only means of removal of contaminants from the groundwater. The activated carbon treatment process is the same as that described under Alternative 3. Concerns about the cost of carbon regeneration or disposal are also applicable in the analysis of this technology. Because air stripping would not be used in conjunction with the carbon, a much higher contaminant load would be placed on the carbon. This would cause more rapid

consumption of the activated carbon, and cause a much higher cost of operation due to carbon replacement.

As a technology on its own, carbon adsorption may not be able to achieve the clean-up levels established for the contaminated groundwater. Liquid phase adsorption of most volatile compounds onto activated carbon is less efficient than gas phase adsorption. Therefore, where volatile organics are involved, it is generally more effective to use a gas phase adsorption.

**Alternative 6: Groundwater Recovery  
Trenches/UV Peroxide-Ozone  
Oxidation/Discharge**

Capital Cost	\$1,487,420
Annual O&M	\$ 49,250
Present Worth	\$2,244,516

In this alternative, the groundwater would also be collected by three recovery trenches, as described in Alternative 3. However, this combination of technologies replaces air stripping and carbon adsorption with the UV-peroxide-ozone process. This process uses UV radiation, hydrogen peroxide ( $H_2O_2$ ), and ozone ( $O_3$ ) to destroy toxic organic compounds in water. The UV energy reacts with the oxidant ( $O_3$ ) to create a hydroxyl radical (an oxidizing agent) which in turn initiates a series of reactions that destroy contaminants. The process oxidizes compounds that are toxic or refractory (resistant to biological oxidation) in concentrations of parts per million (ppm) and parts per billion (ppb). The system consists of a reactor module, an air compressor/ozone generator module, and a hydrogen peroxide feed system.

This process is very effective for the treatment of volatile organic compounds in groundwater. Removal efficiencies for total VOCs have been reported at above 98%. It is anticipated that this treatment technology

would be able to meet groundwater chemical-specific standards, criteria & guidance values (SCGs) for all contaminants. Air emissions from the reactor would meet requirements.

**Alternative 7: Soil Source Removal Combined with Groundwater Recovery Trenches/Air Stripping/Carbon Adsorption (Liquid) Carbon Adsorption (Vapor)/Discharge**

Capital Cost	\$38,595,920
Annual O&M	\$ 37,250
Present Worth	\$39,168,546

This alternative considers removal of soil in the plant production area in combination with groundwater recovery trenches and treatment of contaminated groundwater, as described in Alternative 3. Although Interim Remedial Measures have eliminated all known areas of soil contamination, the potential exists for there to be additional areas of contamination due to minor spills. The nature of the soils at this site (compact) do not allow for feasible investigative techniques, such as a site-wide soil gas survey. The only method to ensure total confidence that all contamination had been removed would be to actually excavate all areas exposed to chemical activity throughout the years of operation.

Based on a worst case estimate that the entire upland portion of the site has been impacted by historical operations, the proposed areas for soil removal and recovery trench locations are shown on Figure 5. This alternative involves the removal of the soil in the plant production area in the upland portion of the site down to the water table (approx. 8 feet). The area would then be backfilled with clean soil and paved over. Due to the location of structures near the edge of the escarpment, extensive geotechnical investigation and shoring would be required to prevent

collapse or structural damage; furthermore, excavation immediately adjacent to load bearing structures may not be possible.

The same considerations previously discussed for Alternative 3 will apply to the groundwater recovery and treatment system components of this alternative.

Removal of soil in the plant production area would be possible, but logistically difficult, based on the present operation of the site and known soil and groundwater conditions of this area. The steep topography adjacent to several structures in the plant production area would cause difficulties during removal of the soil. Extensive shoring would be required to protect the structural integrity of these buildings, as well as the safety of the plant and construction workers. It is noted that the majority of the upper terrace is already paved, as it is an industrial area.

## 6.2 Evaluation of the Remedial Alternatives

The site-specific goal for remediating the Kay-Fries site is to reduce the concentrations of contamination in the shallow groundwater. This could be accomplished by a variety of containment or collection technologies. An additional goal is to locate and eliminate any additional soil contamination which might lead to additional groundwater contamination. During the RI, six potential source areas (e.g., septic tank, contaminated soils, etc.) were located and removed as IRMs (see Figure 6).

The preferred alternative for the site is Alternative 3, groundwater recovery trenches/air stripping/carbon adsorption (liquid)/carbon adsorption (vapor).

Based on available information, this alternative appears to provide the best balance of trade-offs among the alternatives with respect to the evaluation criteria

described below. This section evaluates the expected performance of the preferred alternative against these criteria.

The criteria used to compare the potential remedial alternatives are defined in the regulation that directs the remediation of inactive hazardous waste sites in New York State (6 NYCRR Part 375). For each of the criteria, a brief description is given followed by an evaluation of the preferred alternative against that criterion.

**Threshold Criteria** - The first two criteria should be satisfied in order for an alternative to be eligible for selection.

**1. Protection of Human Health and the Environment** - This criterion is an overall and final evaluation of the health and environmental impacts to assess whether each alternative is protective. This evaluation is based upon a composite of factors assessed under other criteria, especially short/long-term impacts and effectiveness and compliance with SCGs.

All of the alternatives, except Alternative 1, provide adequate protection of human health and the environment by removing contaminants from the aquifer and/or preventing off-site migration of contaminated groundwater.

The selected alternative will control risks to human health and the environment by capturing and treating the contaminated groundwater thereby eliminating its potential migration and release of contaminants to surrounding surface waters. While a short-term risk exists from on-site worker exposure to contaminants during trench construction, these risks can be controlled through use of protective equipment and engineering controls.

**2. Compliance with Standards, Criteria, and Guidance (SCGs)** - Compliance with SCGs addresses whether or not a remedy will meet all of federal and State environmental laws and regulations and, if not, provides grounds for invoking a waiver.

All of the alternatives, except Alternative 1, should result in compliance with all SCGs. The primary SCGs associated with this site are the groundwater quality standards promulgated in 6 NYCRR Part 703. Although contaminants were detected above groundwater standards in wells outside of the proposed groundwater capture area, (e.g., lead), these contaminants are not believed to be site related. Alternatives 3, 4, 5, 6, and 7 would achieve the goal of restoring groundwater to rerelease conditions and mitigating significant threats to human health or the environment.

**Primary Balancing Criteria** - The next five "primary balancing criteria" are used to weigh major trade-offs among the different hazardous waste management strategies.

**3. Short-term Impacts and Effectiveness** The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment is evaluated. The length of time needed to achieve the remedial objectives is estimated and compared with other alternatives.

Alternatives 3, 5, and 6 present the opportunity to achieve a high degree of effectiveness in obtaining the remedial objectives while at the same time minimizing the possibilities for adverse impacts to the community, workers, and the environment. This is made possible by performing the active treatment steps without exposing people or surface habitats to contaminated media. Contaminated groundwater will be extracted from the

ground and piped to a treatment facility. Although workers involved in the construction of the remedy would be exposed to contaminated media, standard precautions required by law can mitigate the exposure concerns. Alternatives 2, 4, and 7 require excavation of contaminated soils to construct the remedy. This would present a greater potential for adverse exposures to the community and the environment.

**4. Long-term Effectiveness and Permanence** - If wastes or residuals will remain at the site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude and nature of the risk presented by the remaining wastes; 2) the adequacy of the controls intended to limit the risk to protective levels; and 3) the reliability of these controls.

Alternatives 1 and 2 do not meet this requirement because they leave the contamination in place.

The goal of implementing Alternatives 3 through 7 would be to remove as much of the contaminants in the groundwater as feasible. Therefore, the need to control residuals will be minimized. Once appropriate long-term monitoring has shown that the remedy has substantially obtained the remedial goals, no active waste management should be needed.

In addition, Alternatives 3 through 7 would be permanent in that contaminants will be removed from the site rather than simply contained or treated and left in place.

**5. Reduction of Toxicity, Mobility, or Volume** - Preference is given to alternatives that permanently, and by treatment, significantly reduce the toxicity, mobility, or volume of the wastes at the site. This includes assessing the fate of the residues generated from treating the wastes at the

site.

Alternatives 1 and 2 do not meet this requirement because they do not reduce the toxicity or volume of the contamination at the site.

Alternatives 3, 4, 5, 6, and 7 would permanently reduce the volume of contaminants at the site by extracting them from the groundwater. Mobility would be reduced in that the areal extent of contaminated groundwater would be maintained at current levels by the installation and operation of collection trenches and would eventually be reduced to nothing.

The fate of the residues generated from the treatment of wastes at the site is dependent upon the treatment process involved. In Alternatives 3, 4, 5, and 7 activated carbon would be used to eliminate the contaminants from the air stripper liquid effluent (a step known as "polishing") and from the air vapor arising from the stripper. The activated carbon used to remove contaminants from both the water and the vapor stream would be sent off-site for regeneration or disposal at an approved facility.

**6. Implementability** - The technical and administrative feasibility of implementing the alternative is evaluated. Technically, this includes the difficulties associated with the construction and operation of the alternative, 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 special permits, rights-of-way for construction, etc.

Alternative 1 requires no further construction and therefore is the easiest to implement.

No significant obstacles can be envisioned for implementing Alternatives 3 and 5. Air stripping and carbon adsorption are readily available and widely used treatment technologies.

Alternatives 2 and 4 become slightly more difficult due to the additional construction of the slurry wall. A disadvantage of Alternate 6 is the limited availability and experience with the UV Peroxide-Ozone Oxidation process. This process is also more sensitive to operate.

The large soil removal required by Alternative 7 will cause great disruption to the current site operator as well as the added difficulty of finding a disposal location for the soil.

**7. Cost** - Capital and operation and maintenance costs are estimated for the alternatives and compared on a present worth basis. Where two or more alternatives have met the requirements of the remaining criteria, cost effectiveness can be used as the basis for final selection.

Of the Alternatives screened, 3 and 6 meet the most criteria. Their present worth costs are \$1,735,546 and \$2,244,516, respectively. Based on cost alone, Alternative 3 is the best one.

**8. Community Acceptance** - Concerns of the community regarding the RI and FS Reports and the PRAP were evaluated prior to finalizing the ROD.

A public meeting was held March 2, 1993 to present the RI/FS Reports and the PRAP. Public comments regarding these documents have been addressed in the Responsiveness Summary which is Appendix B.

#### **SECTION 7: Summary of the Selected Alternative**

The NYSDEC has selected Alternative 3 (groundwater recovery trenches/air stripping/carbon adsorption (liquid)/ carbon adsorption (vapor)). The estimated cost to implement the remedy (present worth) is \$1,735,546. The cost to construct the remedy is estimated to be \$1,162,920 and the average annual operation and maintenance cost is estimated to be \$37,250.

Alternative 3 was selected because it is protective of human health and the environment; it complies with standards, criteria and guidance; it has limited short-term impacts; it will be effective and permanent in the long-term; it will significantly reduce the toxicity, mobility and volume of the contaminants; it is easily implemented; it is cost effective; and it has been reviewed and accepted by the public.

The elements of the selected remedy are as follows:

1. **Active Remediation of Groundwater** on site by collecting contaminated groundwater in three recovery trenches and treating the groundwater on-site by air stripping and carbon adsorption. These trenches will collect all site-related contaminated groundwater emanating from the upper terrace of the site.
2. **Preventing the Further Spread of Contaminated Groundwater** by locating these recovery trenches at the leading (downgradient) edge of the contaminant plume.
3. **An Environmental Monitoring Program** To evaluate the performance of the remedial program.
4. **An Institutional Control** will be implemented that consists of the ROD being inserted into the hazardous waste files at the Rockland County Clerk's



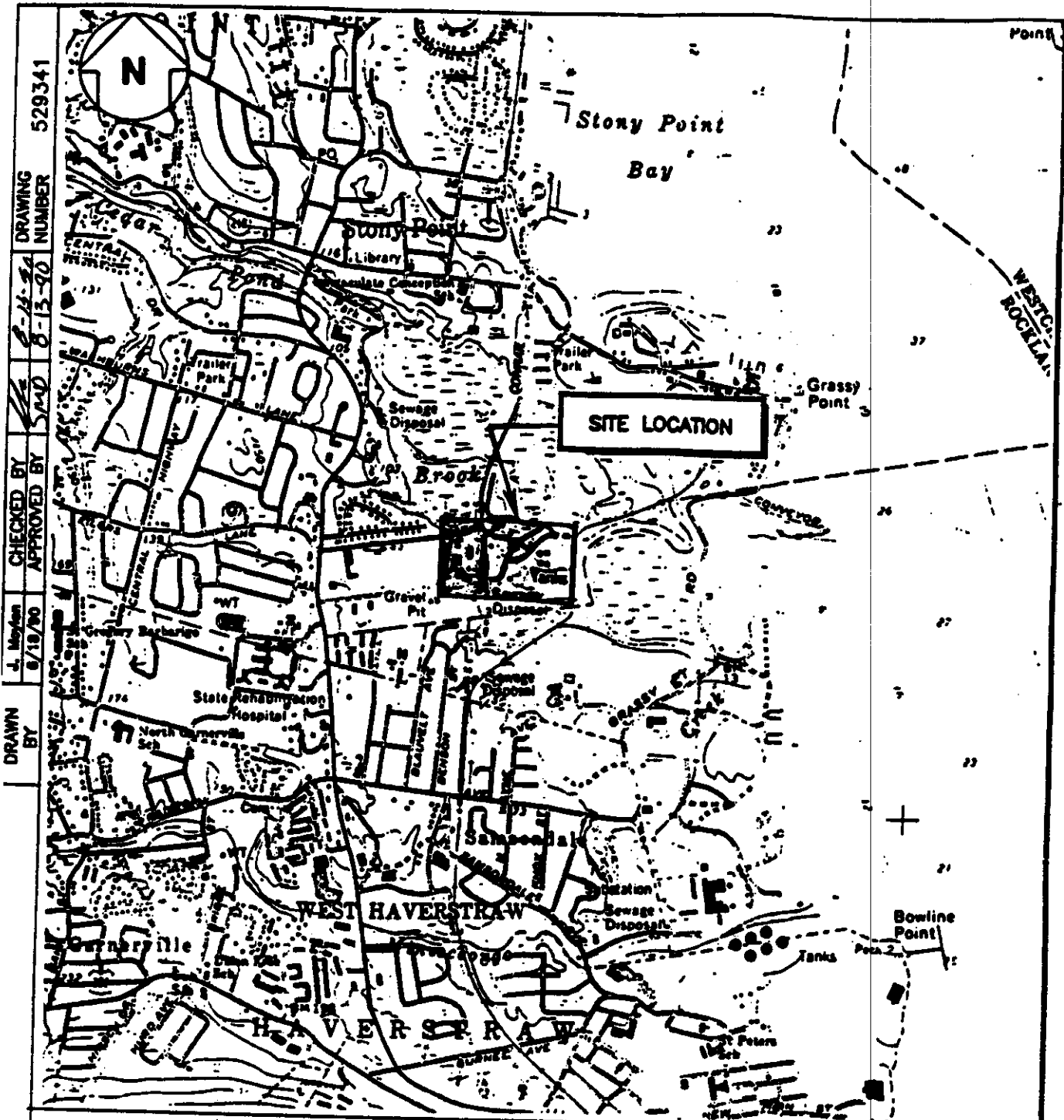
Office where the deed is recorded.

### **SECTION 8: HIGHLIGHTS OF COMMUNITY PARTICIPATION**

To inform the local community and to provide a mechanism for citizens to make the Department aware of their concerns, a citizen participation program has been implemented. In accordance with 6NYCRR Part 375 and the 1988 New York State Citizen Participation Plan developed for remedial projects, the following goals have been accomplished:

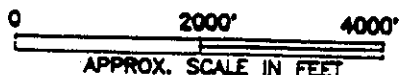
- A draft site-specific citizen participation plan has been created;
- Information repositories have been established at the Stony Point Town Hall, 74 East Main Street, Stony Point; the NYSDEC Region 3 Office, 21 South Putt Corners Road, New Paltz; and the NYSDEC Central Office, 50 Wolf Road, Albany;
- Documents and reports associated with the project have been placed into the repositories;
- A "contact list" of interested parties (e.g., local citizens, media, public interest groups, government agencies, economic agencies, etc.) has been created and maintained;
- A public meeting was held on April 20, 1989 to discuss the status of the site investigation. A fact sheet describing the investigation was prepared for the meeting;
- A public notice describing the results of the remedial investigation was distributed to the contact list in July 1992. The notice also served as an announcement of a public meeting held on August 19, 1992 to the RI;
- A public notice announcing the availability of the RI/FS report and the PRAP was distributed to the contact list in February 1993. The notice also served as an announcement of a public meeting on the PRAP. A public comment period was established from February 10, 1993 to March 16, 1993 and a public meeting was held on March 2, 1993 to discuss the preferred remedial action;
- Based on substantial public interest in the PRAP, the public comment period was extended to April 1, 1993. A notice announcing the extension was distributed to the contact list in March 1993;
- A fact sheet updating the status of the site was prepared and distributed to the contact list in May 1993.

A summary of the comments/questions received during the March 2, 1993 public meeting and the comment period, as well as the responses to those comments, are included in Appendix B. Copies of the ROD, the Responsiveness Summary, and the public meeting transcript will be placed in the local document repositories when complete. A notice announcing the availability of these documents and briefly summarizing the remedial program will be issued to the contact list.



DRAWING NUMBER 529341  
 8-14-90  
 8-13-90  
 CHECKED BY SPAD  
 APPROVED BY  
 J. Moynihan  
 8/19/90  
 DRAWN BY

Source: USGS 7.5 Minute Topographic Series  
Haverstraw, NY Quadrangle



**FIGURE 1**  
**SITE LOCATION MAP**  
**FORMER KAY FRIES PLANT**  
 Prepared For:  
**HULS AMERICA INC.**  
**FORMER KAY FRIES FACILITY**  
**STONY POINT, NEW YORK**  
 PROJECT No. 529341-01  
 JULY 1990

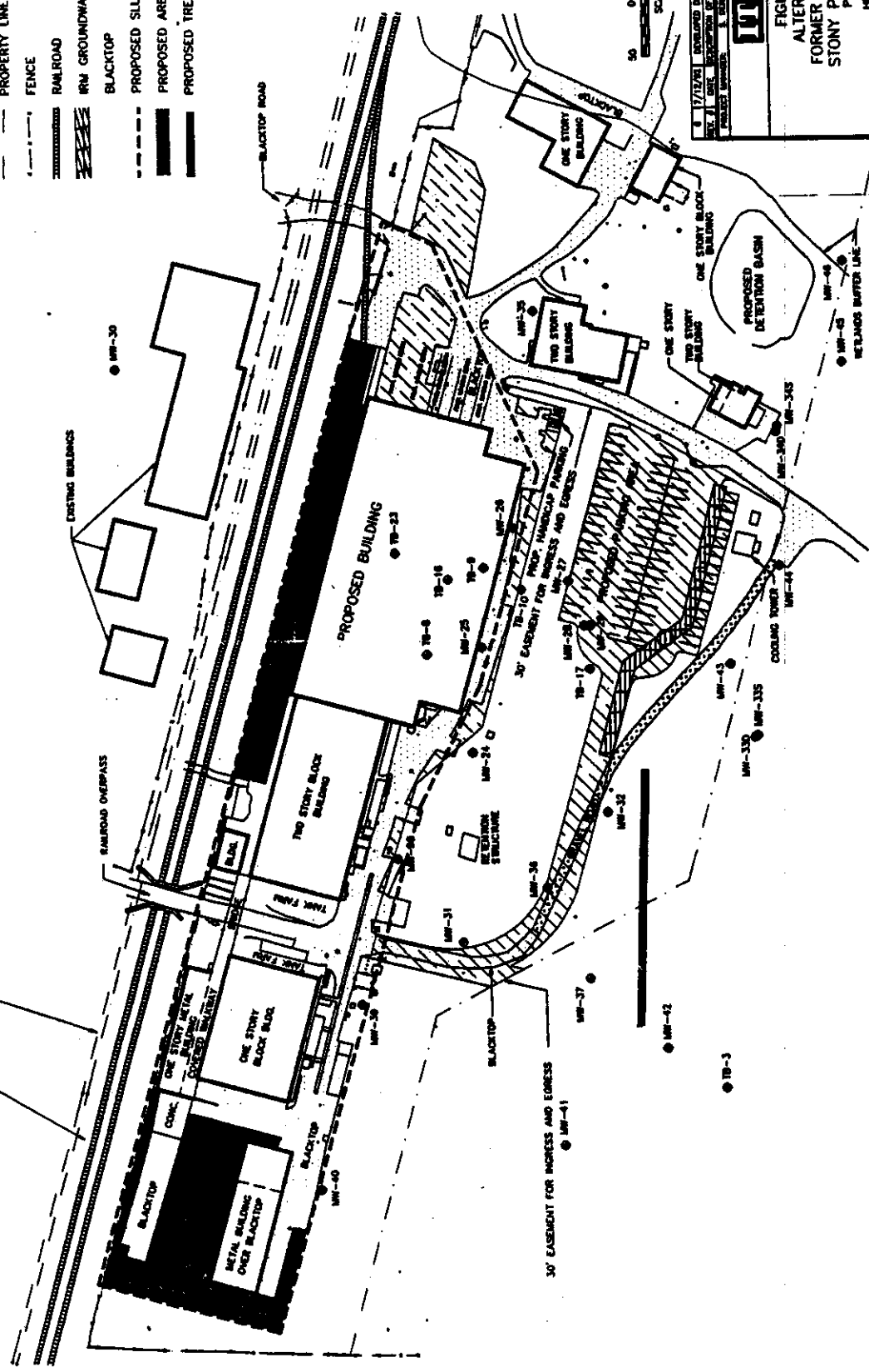


**L.E.G.E.N.D.**

- MW-330 EXISTING MONITOR WELL
- PROPERTY LINE
- - - FENCE
- RAILROAD
- RM GROUNDWATER RECOVERY TRENCH
- BLACKTOP
- - - PROPOSED SLURRY WALL
- PROPOSED AREA TO BE CAPPED
- PROPOSED TRENCH LOCATION

CONRAIL WEST SHORE LINE

OVERHEAD HIGH TENSION LINES



SCALE OF FEET  
0 50 100

17/19/92 REVISED DRAWING  
BY: J. G. [unreadable]  
CHECKED BY: [unreadable]  
DATE: [unreadable]



**FIGURE 2**  
**ALTERNATIVE GW-2**  
**FORMER KAY FRIES SITE**  
**STONY POINT, NEW YORK**  
Prepared For:  
MILLS AMERICA  
PROJECT No. 520341  
JULY 1992

DATE REVISION	DATE	BY

- L.E.G.E.N.D.**
- MW-330 EXISTING MONITOR WELL
  - PROPERTY LINE
  - - - FENCE
  - ==== RAIL ROAD
  - ||||| RIM GROUNDWATER RECOVERY TRENCH
  - ███ BLACKTOP
  - PROPOSED TRENCH LOCATION



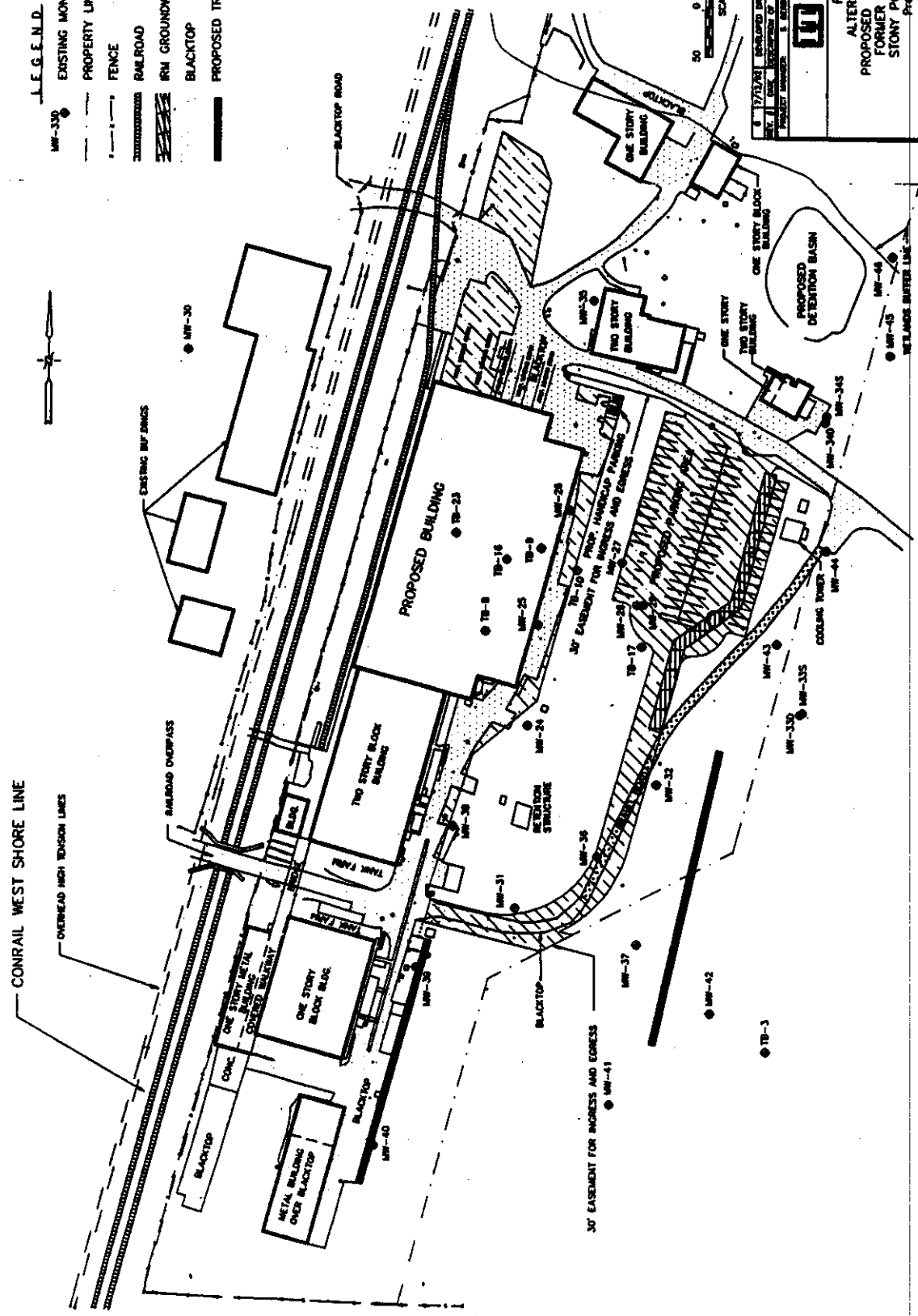
17/13/81  
 DATE OF REVISION  
 PROJECT NUMBER: 528341  
 SHEET NO. 3

**INTERNATIONAL CONSULTANTS**

**FIGURE 3**  
 ALTERNATIVE GW-3  
 PROPOSED TRENCH LOCATIONS  
 FORMER KAY FRIES SITE  
 STONEY POINT, NEW YORK

Prepared For:  
**HILL AMERICA**  
 PROJECT No. 528341  
 JULY 1982

DATE PLOTTED: JULY 15, 1982  
 DRAWN BY: [Signature]  
 CHECKED BY: [Signature]



L.E.G.E.N.D.

- MP-30 ○ EXISTING MONITOR WELL
- ○ PROPERTY LINE
- - - ○ FENCE
- ○ RAILROAD
- ○ IRM GROUNDWATER RECOVERY TRENCH
- ○ BLACKTOP
- ○ PROPOSED SLURRY WALL
- ○ PROPOSED TRENCH LOCATION

CONRAIL WEST SHORE LINE

OVERHEAD HIGH TENSION LINES

EXISTING BUILDINGS

RAILROAD OVERPASS

BLACKTOP ROAD

PROPOSED BUILDING

TWO STORY BLOCK BUILDING

TWO STORY BLOCK BUILDING

ONE STORY BLOCK BUILDING

ONE STORY BLOCK BUILDING

ONE STORY BLOCK BUILDING

ONE STORY BLOCK BUILDING

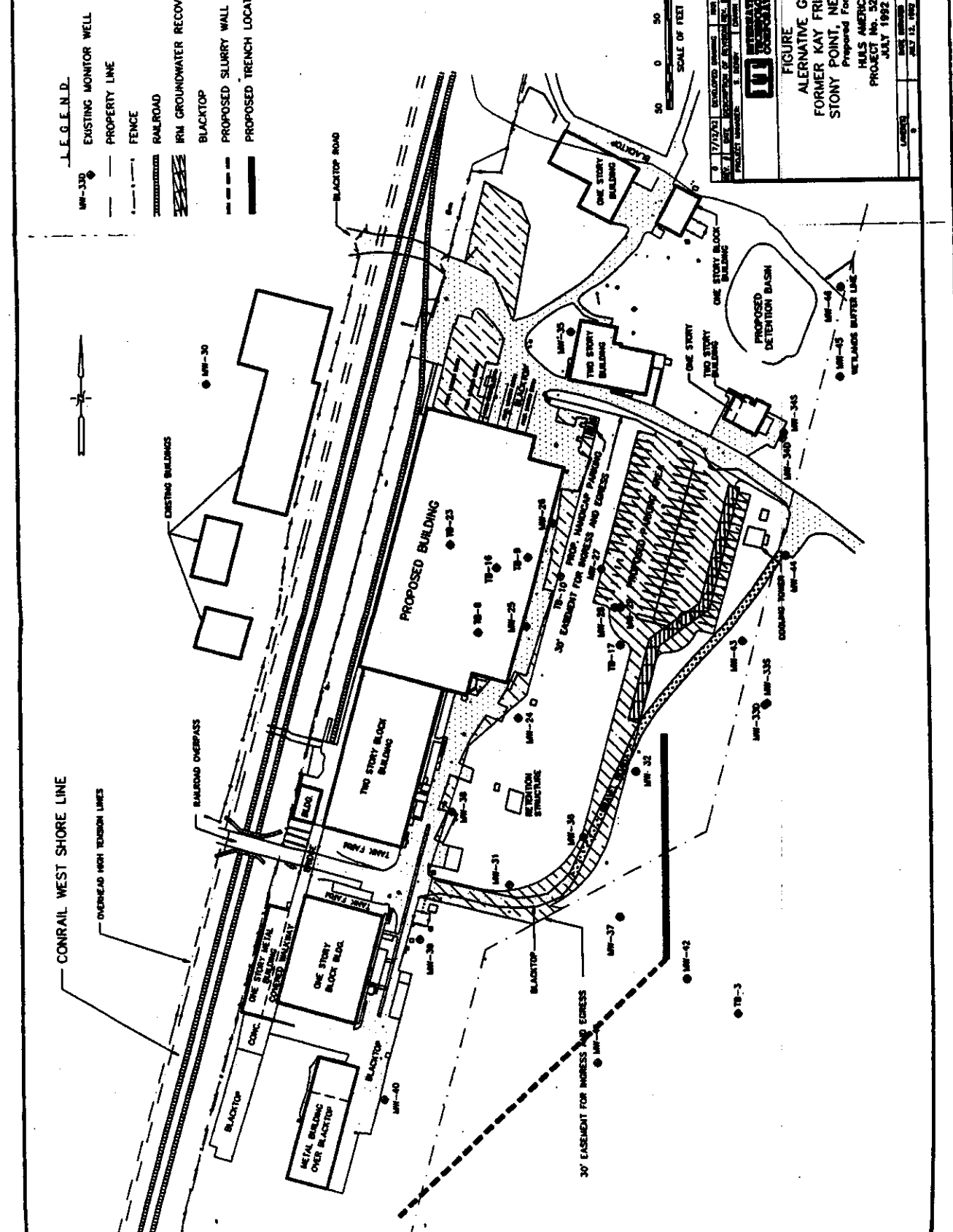
ONE STORY BLOCK BUILDING

ONE STORY BLOCK BUILDING

ONE STORY BLOCK BUILDING

ONE STORY BLOCK BUILDING

ONE STORY BLOCK BUILDING



**FIGURE 4**  
**ALTERNATIVE GW-4**  
**FORMER KAY FRIES SITE**  
**STONY POINT, NEW YORK**  
 Prepared For:  
 HILL AMERICA  
 PROJECT No. 528341  
 JULY 1992

DATE ISSUED	7/17/92
DATE REVISED	JULY 12, 1992
DESIGNED BY	
CHECKED BY	
APPROVED BY	

L.E.G.E.N.D.

- MM-330 ● EXISTING MONITOR WELL
- - - - - PROPERTY LINE
- - - - - FENCE
- RAILROAD
- IRM GROUNDWATER RECOVERY TRENCH
- BLACKTOP
- PROPOSED TRENCH LOCATION
- SOIL TO BE REMOVED

CONRAIL WEST SHORE LINE

OVERHEAD HIGH TENSION LINES

EXISTING BUILDINGS

RAILROAD OVERPASS

ONE STORY METAL COVERED BUILDING

ONE STORY BLOCK BLDG.

METAL BUILDING OVER BLACKTOP

MM-40

MM-39

MM-38

MM-37

MM-36

MM-35

MM-34

MM-33

MM-32

MM-31

MM-30

MM-29

MM-28

MM-27

MM-26

MM-25

MM-24

MM-23

MM-22

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MM-16

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MM-14

MM-13

MM-12

MM-11

MM-10

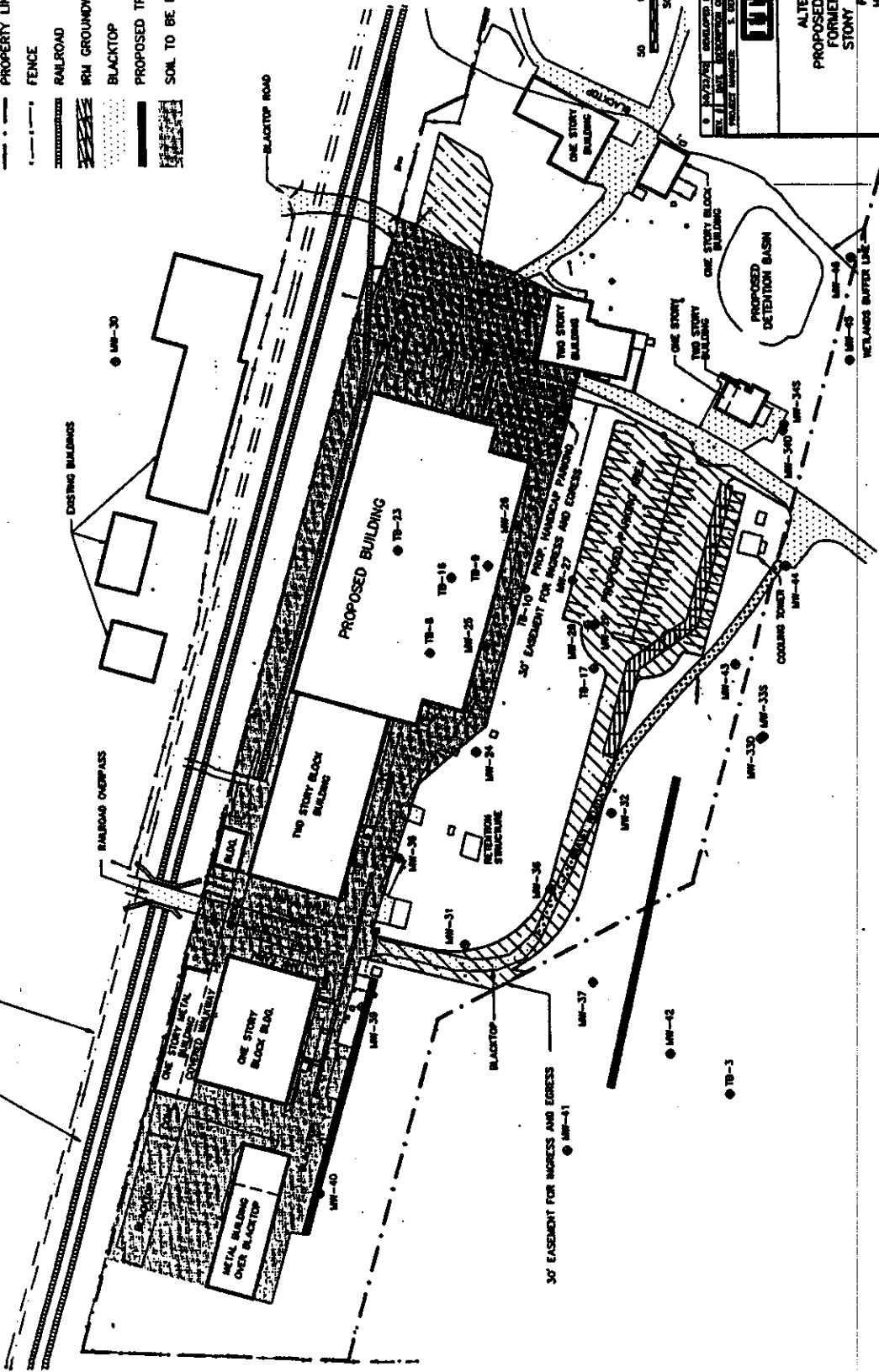
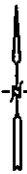
MM-9

MM-8

MM-7

MM-6

MM-5



SCALE OF FEET  
0 20 40 60 80 100

0 10 20 30 40 50 60 70 80 90 100  
 1" = 100'  
 PROJECT NUMBER: 529341  
 DRAWN BY: [Name]  
 CHECKED BY: [Name]



**FIGURE 5**  
**ALTERNATIVE GW-7**  
**PROPOSED TRENCH LOCATIONS**  
**FORMER KAY FRIES SITE**  
**STONEY POINT, NEW YORK**

Prepared For:  
**HALS AMERICA**  
 PROJECT No. 529341  
 OCTOBER 1982

DATE PLOTTED	DATE REVISION	REVISION
JULY 12, 1982		

⊙ = IRM LOCATIONS  
(SOIL REMOVAL)

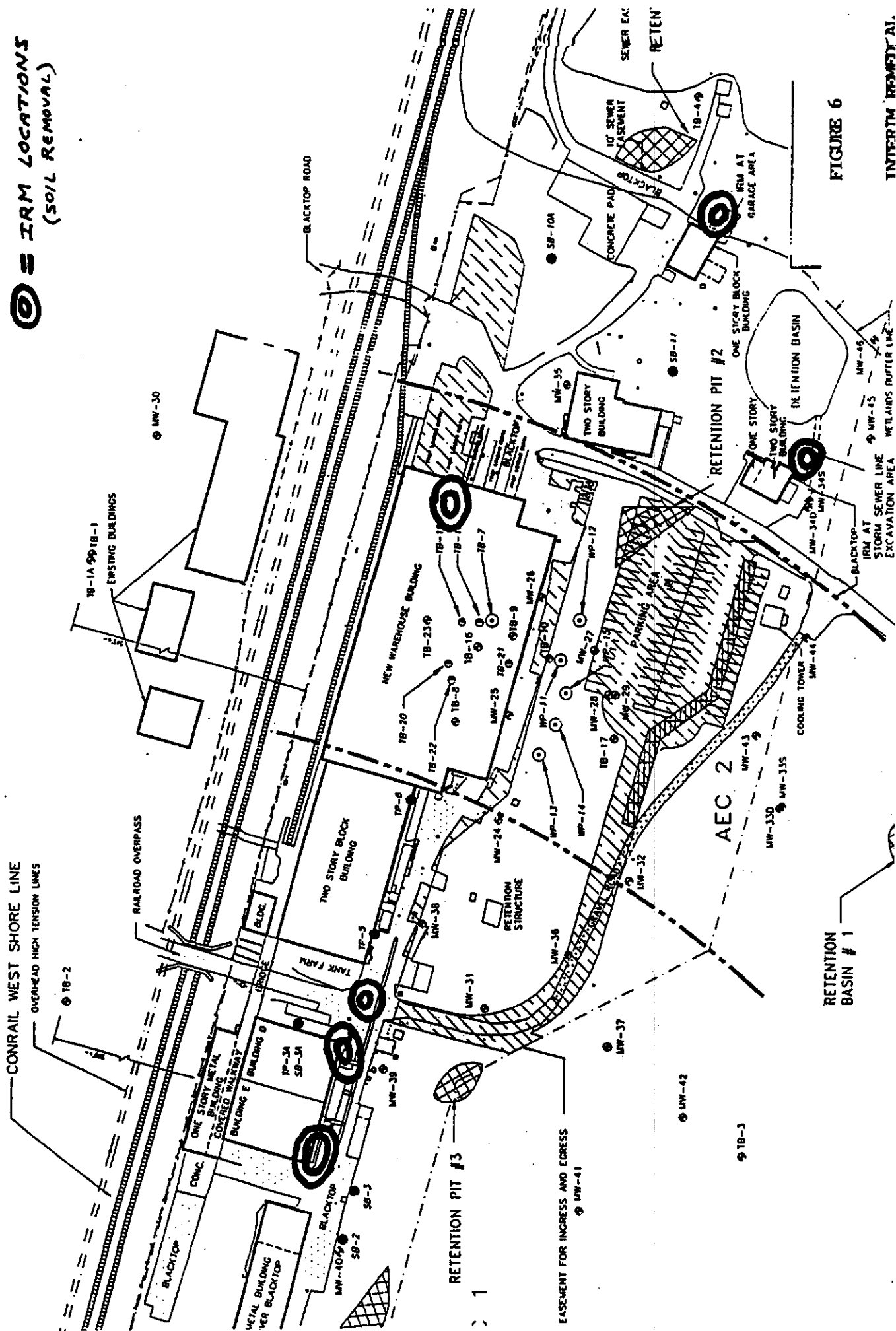


FIGURE 6

INTERIM REMEDIATION





## APPENDIX A

### ADMINISTRATIVE RECORD KAY-FRIES, SITE NO. 344023 OPERABLE UNIT #1

#### A. Reports and Work Plans:

1. LBG, December 1983, "Hydrogeologic Investigation of Groundwater Quality, Kay-Fries, Inc., Stony Point, New York."
2. LBG, April 1986, "Hydrogeologic Investigation of the Former Benzene and MIBK Tank Storage Area, Kay-Fries, Inc., Stony Point, New York."
3. LBG, October 1986, "Addendum to Hydrogeologic Investigation of the Former Benzene and MIBK Tank Storage Area, Kay-Fries, Inc., Stony Point, New York."
4. LBG, November 1988, "Soil Gas Survey of the Former Kay-Fries Facility, Stony Point, New York."
5. LBG, September 1989, "Field Investigation of the Former Tank Storage Areas, Huls America Incorporated, Stony Point Technical Park, Stony Point, New York, Work Plan."
6. LBG, April 1990, "Huls America, Inc., Phase III and IV Field Investigations of the Former Kay-Fries Chemicals, Inc. Site, Stony Point, New York, Volume 1."
7. LBG, April 1990, "Huls America, Inc., Phase III and IV Field Investigations of the Former Kay-Fries Chemicals, Inc. Site, Stony Point, New York, Volume II."
8. IT Corporation, July 1990, "Focused Feasibility Study for Kay-Fries, Inc. Site, Stony Point, New York, Volume I."
9. IT Corporation, July 1990, "Focused Feasibility Study for Kay-Fries, Inc. Site, Stony Point, New York, Volume II."
10. IT Corporation, July 1990, "Attachment 1, Risk Assessment, Former Kay-Fries, Inc. Site, Stony Point, New York." Draft
11. IT Corporation, April 1991, "Revised Phase V Remedial Investigation Report, Former Kay-Fries Site, Stony Point, New York, Site #344023."
12. IT Corporation, September 1991, "Attachment 2, Preliminary Groundwater Treatment System Design Specifications, Former Kay-Fries Site, Stony Point, New York, NYSDEC Site No. 344023."
13. IT Corporation, October 18, 1991, "Phase VI Remedial Investigation Report, Former Kay-Fries Site, Stony Point, New York, Site No. 344023."

14. IT Corporation, October 18, 1991, "Interim Remedial Measure Proposal for Former Kay-Fries, Inc. Site, Stony Point, New York."
15. IT Corporation, February 1992, "Attachment 1, Groundwater Recovery System Design Specifications, Former Kay-Fries Site, Stony Point, New York, NYSDEC Site No. 344023."
16. IT Corporation, July 1992, "Attachment 1, Human Health Risk Assessment for the Former Kay-Fries Site, Stony Point, New York, Site No. 344023."
17. IT Corporation, August 21, 1992, "Phase VII Remedial Investigation Report, Former Kay-Fries Site, Stony Point, New York, Site No. 344023."
18. IT Corporation, November 3, 1992, "Feasibility Study Report for the Former Kay-Fries Site, Stony Point, New York, Site No. 344023."
19. IT Corporation, December 1992, "Fish and Wildlife Impact Analysis for the Former Kay-Fries Site, Stony Point, New York, Site No. 344023."
20. IT Corporation, December 16, 1992, "Phase VII Remedial Investigation Report Addendum, Former Kay-Fries Site, Stony Point, New York, Site #344023."
21. Proposed Remedial Action Plan for the Kay-Fries Site, Site ID No. 344023, Stony Point, New York, dated February 1993, prepared by NYSDEC.
22. IT Corporation, August 9, 1993, "Groundwater Flow Direction Study Report, Former Kay-Fries Site, Stony Point, New York #344023."

**B. Order on Consent:**

1. "In the Matter of the Development and Implementation of a Field Investigation Program and an Inactive Hazardous Waste Disposal Site Remedial Program, Under Article 27, Title 13, of the Environmental Conservation Law of the State of New York (the "ECL") by Kay-Fries, Inc., Respondent, Order on Consent Index #367A0217, dated February 11, 1983.

**C. Citizen Participation:**

1. Fact Sheet for Kay-Fries, Inc. Site, Stony Point, New York, prepared by NYSDEC for a public informational meeting to be held April 20, 1989.
2. Notice of Public Meeting for Kay-Fries Inactive Hazardous Waste Site (#344023), Town of Stony Point, Rockland County, prepared by NYSDEC to announce a meeting to discuss the results of the remedial investigation on August 19, 1992.
3. Notice of Public Meeting on the Proposed Remedial Action Plan for the Kay-Fries Inactive Hazardous Waste Site, prepared by NYSDEC to announce a meeting to discuss the proposed remedy on March 2, 1993.

4. Public Notice: NYSDEC Extends Public Comment Period to April 1, 1993 for Kay-Fries Inactive Hazardous Waste Site (Site Code: 3-44-023) prepared by NYSDEC, March 11, 1993.
5. Transcript of the March 2, 1993 PRAP public meeting prepared by Meister Reporting Services, March 1993.
6. Letter dated March 3, 1993 to J. Quinn, NYSDEC from Brian M. Gibson, Attorney. Re: investigations west of the railroad tracks.
7. Letter dated March 8, 1993 to J. Quinn, NYSDEC from Victor Furmanec, Associate Planner, Manuel S. Emanuel Associates, Inc. Re: investigations of two parcels west of the railroad tracks.
8. Letter dated March 25, 1993 to J. Quinn, NYSDEC from Michael A. Cech, Manager, Department of Solid Waste Management, County of Rockland. Re: Rockland Organics, Inc.'s permit to operate.
9. Letter dated March 28, 1993 to J. Quinn, NYSDEC from Wellington T. Casscles, citizen. Re: location of tanks and disposal areas on Kay-Fries property.
10. Letter dated March 31, 1993 to J. Quinn, NYSDEC from George W. Desmarais, P.E., Assistant Vice President and Martin O. Klein, C.P.G., Section Supervisor of H2M Group, representing the Town of Haverstraw. Re: technical comments on the investigations, feasibility study and PRAP.
11. Update: May 1993 for Kay-Fries Inactive Hazardous Waste Site (#344023), Rockland County prepared by NYSDEC to announce the delay in issuance of the ROD until all the issues raised by the public on the PRAP could be adequately addressed.
12. "Responsiveness Summary" prepared to address public comments on the PRAP and included an Appendix B of the ROD.

**APPENDIX B  
RESPONSIVENESS SUMMARY  
KAY FRIES SITE  
OPERABLE UNIT 1  
SITE ID NO. 344023**

This document summarizes the comments and questions received by the New York State Department of Environmental Conservation (NYSDEC) regarding the Proposed Remedial Action Plan (PRAP) for the subject site. A public comment period was held between February 10, 1993 and April 1, 1993 to receive comments on the proposal. A public meeting was held on March 2, 1993 at the Stony Point Elementary School to present the results of the investigations performed at the site and to describe the PRAP.

As a result of the many technical questions raised at the above public meeting, Huls America (PRP) conducted a Groundwater Flow Direction Study in the summer of 1993. This consisted of the installation of 7 additional monitoring wells. The results are published in a document titled "Groundwater Flow Direction Study Report" dated August 1993, by IT Corporation.

The information below summarizes the comments and questions received and the Department's responses to those comments and questions.

**DESCRIPTION OF THE SELECTED REMEDY**

The major elements of the selected remedy include:

1. **Active Remediation of Groundwater** on site by collecting the groundwater in three recovery trenches, and treating it in an on-site treatment system involving air stripping and carbon adsorption. These trenches will collect all site-related contaminated groundwater emanating from the upper terrace of the site.
2. **Preventing the Further Spread of Contaminated Groundwater** by locating these recovery trenches at the leading (downgradient) edge of the contaminant plume.
3. **An Environmental Monitoring Program** to evaluate the performance of the remedial program.
4. **An Institutional Control** will be implemented that consists of inserting the ROD into the hazardous waste files at the Rockland County Clerk's office where the deed is recorded.

The information given below is summarized from a transcript of the March 2, 1993 meeting and several letters received during the comment period. The issues have been grouped into the following categories:

I. **Questions/Comments Raised During the Public Meeting**

- A. Issues Regarding the Proposed Remedy
- B. Issues Regarding the Current Conditions at the Site
- C. Issues Regarding the Past Conditions at the Site
- D. General Issues

II. Written Comments Received

I. **QUESTIONS/COMMENTS RAISED DURING THE PUBLIC MEETING**

A. **Issues Regarding the Proposed Remedy:**

- A1. **Question:** What plans do the site owners have for the fire pond and the retention basins?

**Answer:** There is no remediation required in these areas and they are not a part of the site as currently listed, therefore the owners are free to use the sites as they wish.

- A2. **Question:** Will the treatment method selected treat the metals in the groundwater?

**Answer:** The effluent discharge is subject to the requirements of a SPDES permit that sets standards for metals in the effluent. These standards must be met or the system will not be allowed to operate. Prior to final approval of the design documents, another public meeting will be held to present the details of the design to the public.

- A3. **Question:** Will there be any discharges into the sanitary sewer system from the groundwater recovery trenches?

**Answer:** No. The effluent, if it meets the discharge standards, will be discharged to surface waters.

- A4. **Question:** Can a road be built in the area to connect Rt. 9W with Grassy Point since it is not an acceptable risk to put a house there?

**Answer:** The risk posed by putting a house on the site comes from installing a drinking water well and drinking from it. A road would not pose this risk.

B. **Issues Regarding the Current Conditions at the Site:**

- B1. **Question:** How thick is the clay layer under the site?

**Answer:** There is approximately 10 feet of sand and silt and then another 10 feet of clay and silt.

- B2. **Question:** Have the shallow groundwater contour lines been

calculated and placed correctly? If not, the locations of the trenches are wrong.

**Answer:** The DEC agreed that these contours were questionable and that the shallow groundwater flow direction could be wrong. (Groundwater flow direction is perpendicular to the contour lines.) The DEC requested the PRP to install additional monitoring wells. In July 1993, seven wells were installed and the new contour map is given in Figure 7. As a result, the trenches are located correctly.

- B3. Question:** Was the deep groundwater contour map developed correctly? The well screens of the wells used were not at the same elevation and therefore you cannot draw a two dimensional surface by plotting a pressure head.

**Answer:** The Department recognizes that Figure 1 of the Phase VII RI addendum is a 2-dimensional representation of a 3-dimensional system. The contour lines plotted on Figure 1 represent the intersection of an isopiestic surface with the plane that is defined by the screen zone elevations for the three monitoring wells between which the lines run. Although this representation does not account for vertical gradients, it is sufficient to define the horizontal component of flow within the confined deeper aquifer in a gross sense.

- B4. Question:** Were there any investigations west of the railroad tracks?

**Answer:** There were 3 additional monitoring wells installed west of the tracks in July 1993. These wells revealed additional contamination not associated with the contamination east of the tracks. Therefore, another investigation has been initiated west of the tracks that will be called Operable Unit 2 and it will commence in the Spring of 1994.

- B5. Question:** The Fish and Wildlife Impact Assessment states that there was a concern for lead and cadmium in the sediments of Minisceongo Creek and Cedar Pond Brook, but argues that there wasn't enough information to make it a serious concern. Does the sparsity of data mean there's no threat? Are you going to take more sediment samples?

**Answer:** The data indicated no significant threat exists and therefore no further data collection is scheduled.

- B6. Question:** Why is the lead high in the deep aquifer? What are the metals levels on site?

**Answer:** The highest lead level recorded in the deep aquifer is in MW TB-5. The high specific conductivity in this well suggests a source other than Kay-Fries. This is commonly found near landfills. The metals levels on-site are delineated on Figure 4 of the August 1992 Phase VII RI Report.

B7. **Question:** Do the shallow groundwater contours also show radial flow to the north? If so, then the area north of the facility needs to be looked at as a possible source area and the remedy may need to be adjusted to ensure capture of the contamination before it reaches Cedar Pond Brook.

**Answer:** Yes, there is diverging flow to the north. Monitoring well TB-4 has shown contamination in the past. However, the latest round of sampling (2/19/92) shows a significant decrease in contaminant levels and should continue to be monitored in the future.

C. Issues Regarding the Past Conditions at the Site:

C1. **Question:** Is the DEC aware of any landfills on the former Kay Fries property? What would you do if there was?

**Answer:** To the best of DEC's knowledge, we do not know of any landfills that may exist. However, if one was discovered, it would be investigated and remediated as appropriate.

C2. **Question:** Regarding all the soil removal IRMs: What was in those soils, how were the excavations handled, were they tested for Toxicity Characteristic Leaching Procedure (TCLP), where are the records of disposition and where were the soils disposed? Was this soil used to backfill retention pits 2 and 3? If not, where did the backfill come from?

**Answer:** The consultant that performed the RI/FS at the Kay-Fries Site grouped the soil removal actions that have taken place there into five IRMs. These IRMs have been numbered, one through five according to the order in which they were undertaken. There are: IRM No. 1 - Soil Removal at the Foundation for the New Warehouse Building 6; IRM No. 2 - Soil removal north of the Product Development Building for the installation of a storm sewer line; IRM No. 3 - soil removal at Building D; IRM No. 4 - soil removal at Building E; and IRM No. 5 - soil removal north of garage.

The soils removed during the IRMs were contaminated with low concentrations of site-related constituents (volatile organic compounds, metals, and petroleum hydrocarbons) as well as debris such as broken pieces of pipe, brick, glass, and concrete. In all five cases, the material was excavated and stockpiled. Samples were taken from the stockpiled material and sent to a laboratory for analysis (including TCLP). The disposition of the soils breaks down as follows:

IRM No. 1 - Analysis by IT Corp. Knoxville, TN and Cincinnati, OH, and Galbraith Laboratories, Inc., Knoxville, TN.

- 200 tons, disposed in bulk
- manifested as nonhazardous July 10, 1991
- sent to American Landfill, Inc., SE Waynesburgh, OH

- transported by Kephart trucking of Bigler, PA

IRM No. 2 - Analysis by IT Analytical Services, Edison, NJ

- 300 cubic yards disposed in bulk
- manifested as nonhazardous February 27, 1992
- sent to American Landfill, Inc., SE Waynesburgh, OH
- transported by Kephart Trucking of Bigler, PA

IRM Nos. 3 & 4 - Analysis by IT Analytical Services of Edison, NJ and Pittsburgh, PA

- 200 tons shipped in bulk
- manifested as nonhazardous October 23, 1992
- sent to Envirosafe Inc., Oregon, OH

IRM No. 5 - Analysis by Bridgeport Environmental and 21st Century Environmental

- 169 cubic yards shipped in bulk
- manifested as nonhazardous November 23, 1992 to November 25, 1992
- sent to Envirosafe Services of Ohio, Inc., Oregon, OH
- transported by Merola Enterprises, Inc.

**C3. Question:** Did Kay-Fries Chemical, Inc. ever respond to the Department's April 7, 1981 letter to them? If so, what was the response? Will the DEC review and comment on the following letters: July 9, 1981 from Michael Tone and Vance Bryant; September 10 (no year) from James Reeve, Division of Solid and Hazardous Waste; and February 10, 1987 from Richard Dana, Division of Environmental Enforcement (no indication of whom these letters were sent to).

**Answer:** There have been numerous letters sent by and to the Department. In the early 1980's there were several letters that went back and forth discussing the site's operational and disposal history. The Department found the responses appropriate at that time.

**C4. Question:** Does the DEC have the 1951 and 1957 aerial photos mentioned in the April 7, 1981 letter above?

**Answer:** No.

**C5. Question:** Was Paragraph 11-B of the Consent Order between Kay-Fries and the Department ever complied with, i.e.: Did Kay-Fries submit to the Department an inventory of all wastes that were handled, manufactured, blended, stored, sold, generated or shipped to or from the site during its operations?



**Answer:** Huls America attempted to comply with Paragraph 11-B in 1992, however, the Kay-Fries operational records could not be located.

C6. **Question:** During the construction of the INSL-X building was there any investigation in that particular area? Was there a removal?

**Answer:** Yes. The area was investigated because a leaking benzene tank and MIBK tank were discovered during the construction. The tanks and contaminated soils were removed and the remaining benzene plume tracked through a series of monitoring well installations. The recovery trenches will capture these plumes.

C7. **Question:** In your investigation, have you had any contact with Kay-Fries former employees or gone through Kay-Fries records of employment?

**Answer:** No.

C8. **Question:** Has the burn area been tested for dioxins or dibenzofurans? Has there been testing for PCB's on site? If so, in what locations and what were the results? Are any of these related to 1,4 dioxane? Is 1,4 dioxane a degradation product of polychlorinated hydrocarbons?

**Answer:** There was no testing for dioxins. Testing was done for dibenzofurans in January of 1992. All samples were non-detect. Testing was done for PCBs during Phase VII of the RI in January 1992. Samples were collected from six soil borings. All results were non-detect for PCBs. The locations are SB-1, SB-2, SB-3, SB-3A, SB-10A and SB-11 (See Table 13 and Figure 5 of the 8/92 Phase VII RI Report). These are not related to 1,4 dioxane. 1,4 dioxane could be a degradation product of polychlorinated hydrocarbons, however, it has not been shown to be at this site.

D. **General Issues:**

D1. **Question:** What are the acceptable levels of benzene, MIBK and acetone?

**Answer:** Per Part 5 of the State Sanitary Code, Drinking Water Supplies, the acceptable levels in groundwater are:

Benzene	=	0.7 ppb
MIBK	=	5 ppb
Acetone	=	50 ppb

D2. **Question:** If further contamination is found on the Kay-Fries site, who will be liable to clean it up? Could the Town's of Stony Point or Haverstraw be liable?

**Answer:** No. Huls America as the responsible party would be liable, or under NYS law, the current property owner or past operators, generators or

disposers can also be held liable. If the Towns do not take title to the property, they cannot be held liable.

- D3. **Question:** Will the DEC require a letter of credit from Huls America to insure their payment for any future remedy needed?

**Answer:** No. Huls America is already under Consent Order to implement the remedy as set forth in the ROD. If the Consent Order is violated, the Environmental Conservation Law calls for penalties and fines to be levied against the company.

- D4. **Question:** Can the DEC maintain an investigation procedure right through remediation?

**Answer:** While Operable Unit 1 is being remedied, Operable Unit 2 will be investigated. If other areas of contamination are found, further investigations will be performed.

- D5. **Question:** What is a burn pit?

**Answer:** An area where old pallets, boxes and other combustibles were burned as a means of disposal.

- D6. **Question:** The Town of Haverstraw demanded a 15 day extension to the public comment period.

**Answer:** The comment period was extended from March 16, 1993 to April 2, 1993 (see notice in Administrative Record).

- D7. **Question:** Was there ever an adequate investigation of the concerns of some of the residents related to their personal health?

**Answer:** Since the March 2, 1993 public meeting, the New York State Department of Health (DOH) has contacted Supervisor Hurley to inform him of the types of health studies that can be performed and the limitations and time frames associated with these studies. The Supervisor was asked to provide the Department with names of individuals with specific health concerns or to have those individuals contact the Health Department directly at the toll free telephone number (1-800-458-1158, ext. 402).

- D8. **Question:** Has there been any attempt by any health officials to go to the Hoke Drive or Slater Drive residential areas and talk to some of the residents about health concerns?

**Answer:** To date, no one has called the State Health Department with specific health concerns. In order to conduct any type of door-to-door health survey, DOH needs to know specific health concerns of the residents in the community. If people do have concerns which they believe are related to this

site and wish to report their concerns to the State Health Department, you or your physician may contact DOH at the toll free telephone number listed in the previous answer.

## II. WRITTEN COMMENTS RECEIVED

The comments given below are taken verbatim from the letters received and are included in their entirety.

### E. Letter Dated March 3, 1993 from Brian M. Gibson, Attorney

E1. "We understand that the proposed remedial action plan does not call for any action to be taken in connection with properties lying to the west of the Railroad Avenue. Although it is our belief that this is because there has been a determination made that no remedial activity is necessary in this area by virtue of the property having not been affected by the hazardous waste at the site, we would like to confirm this belief. Therefore, we would now inquire of you exactly why there is no remedial action planned for the portion of the site owned by Steven Berman in the proposed remedial action plan."

**Response:** As stated in Question B4 above, it has been determined that there is contamination to the west of the railroad tracks. Its source is currently unknown and Operable Unit 2 has been initiated to investigate this.

### F. Letter dated March 8, 1993 from Victor Furmanec, Manuel S. Emanuel Associates, Inc.

F1. "Did any burning or incineration of hazardous waste occur at either of the two sites shown on the attached map? Is there a map which identifies the location of the areas where waste was disposed of by burning and/or permitted incineration?" (The attached map marked parcels #16/174/4.5 and #16/174/4.7 both west of the railroad tracks and south of Kay-Fries Drive.)

**Response:** There is a map attached to the Consent Order as Appendix A which was sent to Mr. Furmanec on March 15, 1993. That map does not indicate any burning areas to the west of the railroad tracks. It does indicate 2 open burning areas east of the tracks and one incinerator area.

F2. "Is there a map which shows the boundaries of the property and location of areas which were utilized by Kay-Fries for industrial activities since the 1930's?"

**Response:** The previously referenced map, Appendix A, shows these areas.

F3. "Has soil testing been conducted in the portion of the former Kay-Fries property located west of the railroad tracks? If so, what were the results of such tests, and is there a map which shows where soil samples were collected?"

**Response:** There has been only one soil sample taken west of the railroad tracks and

that was during the construction of MW-30. The results showed no significant contamination.

**F4.** "It is my understanding that the former Kay-Fries complex extended over an area of about 80-85 acres located on both sides of the railroad tracks. Please identify the areas which were subject to the original consent order, as well as the area subject to the modified consent order referred to in the Inactive Hazardous Waste Disposal Report."

**Response:** The consent order defines the site as "...bordered on the west by various commercial properties and by New York State Route 9W; on the south by privately owned vacant land; on the east by the Minisceongo Creek; and on the north by private residential properties, Cedar Pond Brook and wetlands..." This area is shown on Appendix A. The consent order was never modified, but the site description in the New York State Inactive Hazardous Waste Site Registry was modified. Operable Unit 1 is defined as the 15.18 acres owned by Insul-X east of the railroad tracks.

**F5.** "Does your office have any specific information regarding soil testing conducted at either of the two sites identified on the attached map (see F1)?"

**Response:** No. We do not know of any soil testing done on either of the referenced parcels.

**G. Letter dated March 25, 1993 from Michael A. Cech, County of Rockland, Department of Solid Waste Management**

**G1.** "In light of the significantly high levels of contamination at Kay-Fries, we would like to inquire as to why the Department of Environmental Conservation issued a construction permit for a wood waste processing facility (Rockland Organics, Inc.), in which the wood chips are to have direct contact with the ground in an area that apparently lies within the suspected plume of the contaminated? Secondly, we would like to ask whether DEC intends to issue a Permit to Operate."

**Response:** The area that Rockland Organics, Inc., intends to operate on is not in an area of known contamination, nor is it above the contaminated groundwater plume. It is to the east of the contaminated areas. The DEC has issued a permit to construct the facility. It is currently under construction. If it is built according to DEC requirements, a permit to operate will be issued.

**H. Letter dated March 28, 1993 from Wellington T. Casscles**

**H1.** Mr. Casscles provided a map showing 6 locations of former tanks or disposal areas per his conversations with past Kay-Fries employees.

**Response:** Mr. Casscles letter was forwarded to Huls America. Huls America responded to the DEC that the four tanks did exist above ground and at the approximate locations given by Mr. Casscles. They contained methyl vinyl ether, phthalic anhydride, cyanide and diethyl benzene. The two disposal areas noted by

Mr. Casscles were not confirmed by Huls America or any investigations conducted to date.

**I. Letter dated March 31, 1993 from George W. Desmarais and Martin O. Klein of H2M Group**

Several of the questions or issues raised in this letter have been addressed in IA, B, C, and D of this Responsiveness Summary. They will not be reiterated. The comments/questions in this letter have been paraphrased.

**II. Numerous NYSDEC documents reiterate the same concerns for defining the history of waste disposal on site, the nature of contamination, and areas of concern on the subject property. To date, this information has not been available for public review, and has not been adequately addressed in any documents available in the public record or through FOIL.**

**Response:** The site history can be found in Section 2.4 of the July, 1990 draft Focused Feasibility Study. The nature of contamination and areas of concern have been outlined in the August 21, 1992 Phase VII RI Report and the July, 1992 Attachment 1 Human Health Risk Assessment. These documents can be found in the document repositories and are available through FOIL.

**I2. No geophysical surveys have been done to cover the entire area of the site.**

**Response:** Correct, however, a soil gas survey was done in the area of TB-9. The results are available in the November 1988 LBG Soil Gas Survey of the Former Kay-Fries Facility.

**I3. How can you assure us (H2M) that all obvious sources of contamination (open burn areas, discharges to surface water, the incinerator, the phosphate lagoon, etc.) and the nature of the contamination have been defined for the RI?**

**Response:** Although the Department cannot definitively state that all sources of contamination have been found, the site has been extensively studied. The probable migration pathways have been addressed in the Risk Assessment and the chosen remedy will reduce the threat they pose.

**I4. Since 1,4 dioxane was confirmed in 1986 by numerous split samples, why was it omitted from subsequent analysis?**

**Response:** 1,4 dioxane was included in the July 1992 Risk Assessment. Therefore, the risk posed by the substance has been evaluated.

**I5. Parameters such as total phenols, cyanide, formaldehyde, heavy metals, and semi-VOCs have been detected throughout the site, but have not been defined as a concern for presenting a risk to public health and the environment. Why are the parameters being dismissed as "not a concern" and omitted from further analysis?**

**Response:** Tables 2-4, 2-5 and 2-6 in the July 1992 Risk Assessment list the indicator constituents (compounds) that were evaluated for the purpose of the public health risk assessment. This list of parameters includes those compounds discussed in the above question with the exception of total phenols and formaldehyde. Formaldehyde is not considered a site-related contaminant nor is it included within the laboratory analyses performed on the environmental samples collected for this site.

**I6.** On Figure 3 of the Phase VII Remedial Investigation Report (August 1992) produced by IT Corp. (drawing #529341), the location of monitoring well TB-2 is incorrectly represented with respect to horizontal scale (1" = 40'). Based on this scale and the position of well TB-2 relative to MW-39 and MW-40, the 32', 38' and 44' groundwater contours should curve west instead of south (as shown).

**Response:** Four new monitoring wells were installed in July 1993 just to the North of the Haverstraw landfill. When these data points were included, it becomes evident that groundwater flow in this area is to the east in the shallow aquifer (see Figure 7 of the ROD and the August 1993 Groundwater Flow Direction Confirmation Study).

**I7.** It is reasonable that the paired piezometers TB-1 and TB-1A would indicate a downward flow component, where as TB-5 and TB-5A would indicate an upward flow. However, the difference between the MW-33 and MW-34 pairs are inconsistent and, therefore, inconclusive that could be affected by the Kay-Fries site.

**Response:** The variation in vertical gradients between MW-33 and MW-34 is due to the effects of surficial water bodies and drainage ways on the shallow (water table) aquifer. The shallow aquifer is probably being drawn down in the area of MW-33S by a drain/sewer that runs through the area of MW-43. The deeper aquifer is confined and unaffected by these surficial phenomenon, its distribution and head being controlled by the diverging flow to the east and northeast as shown on Figure 1 of the Phase VII RI Addendum Report.

**I8.** The sampling results for the retention pit, the creek, and the other surface water impoundments on the site are not adequate to characterize the extent or nature of contamination at these locations. The vertical extent of contamination has not been defined (one sample per location). The results were not reproduced and, therefore, are not valid. The data is not appropriate or adequate for use in a Risk Assessment or Fish and Wildlife Impact Assessment. More data is needed to characterize areas of concern cited by DEC in 1981.

**Response:** The targeting of specific locations for a grab sample as described in this comment can be considered Purposive Sampling as described in the Risk Assessment Guidance for Superfund (RAGS), EPA/540/1-89/002 December 1989. This methodology is acceptable in a sampling program designed to identify areas of concern. In the absence of information that would suggest these surface water bodies contained either light or dense phases, the lack of vertical profiling can be overlooked at the discretion of the Department. The author of this comment is correct in the assertion that purposive sample data is not appropriate for inclusion in Risk Assessments (see RAGS Section 4.6.2).

**I9.** The southern and western portions of the site have not been investigated.

**Response:** Subsequent to the date of this comment, the Groundwater Flow Direction Confirmation Study was completed. See Report dated August 9, 1993.

**I10.** IRMs conducted at the site did not remove all of the contaminated material (from the site). How can on-site construction workers be assured of safe working conditions?

**Response:** As long as the site is listed on the NYSDEC Registry of Inactive Hazardous Waste Disposal Sites, all ground invasive work performed on-site must be conducted in accordance with Occupational Safety and Health Administration (OSHA) health and safety regulations regarding such work at a hazardous waste site.

**I11.** How will (the issues raised in I10.) impact future site land use?

**Response:** The Record of Decision will be inserted into the miscellaneous files at the Rockland County Clerk's office where the deed is recorded. This will serve to notify future site owners of the past environmental history.

**I12.** The site history indicates that certain portions of the site have been delisted from the NYSDEC Inactive Hazardous Waste Disposal Site Registry. Please provide copies of any and all delisting petitions that were not available for public review through FOIL.

**Response:** There were no delistings. Site boundaries were redefined by the Department based on information obtained subsequent to the original listing.

**I13.** H2M is concerned with the criteria that was used by NYSDEC to determine the site to be a "significant threat." Please explain, more fully, the rationale and the basis by which significant threat was arrived at for this site and why it took approximately five years for this determination to be made.

**Response:** In 1984 the site was determined to be a significant threat based on groundwater investigations in 1984 of the underground benzene and methyl isobutyl ketone (MIBK) storage tanks. These investigations found groundwater contaminated above New York State groundwater quality standards and, therefore, the site was determined to be a significant threat.

**I14.** Based upon the Risk Assessment, applicable, relevant, and appropriate requirements (ARARs) that should be used for the soils at this site should be based upon the memorandum from NYSDEC dated November 16, 1992 (HWR-92-4046) whereby recommended cleanup goals for soil are identified. It is not clear as to what the site background conditions are, nor which soils have exceeded the recommended cleanup goals (ARARs).

**Response:** According to TAGM HWR-94-4046, when the Director of DHWR determines that cleanup of a site to predisposal conditions is not possible or feasible,

final site-specific soil cleanup levels are established in the Record of Decision based upon the proposed remedial technology (the outcome of the FS). The site background conditions for soils are outlined in a 1984 survey of reference material by E. Carol McGovern, NYSDEC. There are no soil cleanup levels established in the ROD, therefore, no soils have exceeded the recommended cleanup goals (ARARs).

**I15.** With respect to the Risk Assessment, benzene concentrations up to 60 ppm were detected at the site in the groundwater. However, the Risk Assessment only acknowledges an average concentration of 12 parts per billion.

**Response:** Assuming this question is based on the draft July 1990 Risk Assessment (RA), the RA acknowledges a maximum concentration for benzene in groundwater of 67 ppm based on the results of the groundwater sampling conducted in November 1988 (see page 7-3 and Table 4-3). Table 4-3 also provides a concentration range for benzene of <5 to 67,000 ppb and a mean (average) benzene concentration of 11.332 ppb. The calculations in a risk assessment are based upon the 95% upper confidence limit developed from the arithmetic mean of the concentration.

**I16.** (During the RI) no fish were sampled. (Why?)

**Response:** Based upon the December 1992 Fish and Wildlife Impact Analysis, 9 the Department's Division of Fish and Wildlife did not deem this necessary.

**I17.** Has there been a private well survey conducted for the vicinity of the site in order to determine potential groundwater receptors?

**Response:** In December 1993 as part of an investigation to another site, the Rockland County Department of Health conducted a private well survey that included the Kay-Fries site area. No private wells exist that could be affected by the Kay-Fries site.

**I18.** With respect to the Fish and Wildlife Impact Assessment, VOCs sampling was the focus of the 1990 samples by IT Corporation. It is not clear as to why metals, dioxane, phenols, cyanide, phthalates, polycyclic aromatic hydrocarbons (PAHs), and PCBs were not sampled. The fact that samples were not collected, and an insufficient data base exists for the Fish and Wildlife Impact Assessment, does not justify the summary or conclusion that the data is questionable and that there is no risk to the fish and wildlife in the area.

**Response:** The Department's Division of Fish and Wildlife has reviewed the December 1992 Fish and Wildlife Impact Analysis and found it acceptable.

**I19.** Additional data must be obtained from the sediments in both the Minisceongo Creek and Cedar Pond Brook (through coring, not only grab samples) in order to determine the potential for any other contaminants that might be present in the surface water bodies in the nearby area.

**Response:** The portions of Minisceongo Creek and Cedar Pond Brook in question are tidal estuaries. Core samples in these bodies of water would not be conclusive in



evaluating the impact of this site.

**I20.** There appears to be sediment sample data which necessitates remediation at the site. The priority pollutant metals detected in the sediment exceeded NYSDEC ARARs. The treatment facility bermed area, fire pond and large retention basin #1 are located in the eastern portion of the site. The location of these three areas, which will require remediation, are downstream of the location of the groundwater recovery trenches proposed under Alternative 3 of the PRAP. It is recommended that the groundwater recovery trenches be relocated to the east, to interrupt flow from the fire pond, treatment facility bermed area, and large retention basin prior to groundwater being discharged to the Minisceongo Creek and that priority pollutant metals reduction be included as a treatment technology.

**Response:** The groundwater recovery trenches are properly placed to intercept the contaminated groundwater coming from the source areas on-site. Groundwater recovery trenches are not an appropriate technology for remediating contaminated sediments. In addition, the Department's Division of Fish and Wildlife has not determined that these sediments need to be remediated.

**I21.** The summary of the site risks section (page 4) of the PRAP discusses that ... "lead in the soils may be from the local geology or from a disperse wide-spread anthropogenic source(s) in the Stony Point area." The Evaluation of Alternatives section (page 7) of the PRAP discusses that... "contaminants were detected above groundwater standards in wells outside the proposed groundwater capture area (e.g., lead), these contaminants are ubiquitous to the site and are not believed to be site related." Please provide documentation for these two statements.

**Response:** No documentation has been found and the ROD has been modified to reflect this.

**I22.** Is permeability testing data available on the clay liner beneath the site? What extent of testing was conducted to determine the existence of an impermeable liner? To what depth is the clay layer and at what locations on the site were test borings conducted to evaluate the clay layer?

**Response:** There is no liner beneath this site. In all the deep borings at the site, it can be generally stated that at least two water bearing units (aquifers) exist with a confining aquitard unit between them. The lower aquifer usually consists of fine sands and silty sands, the upper aquifer of silty sands and/or fill material and the confining unit between them of clay, silty clay, silt or a combination of two or more of these materials. No triaxial permeameter testing has been done on samples taken from the confining unit, therefore, its properties must be estimated using published ranges of permeability. The thickness of the confining unit(s) generally range from 5 to 40 feet.

**I23.** Appendix A of the February 1983 Order on Consent for the site indicates that existence of a sludge pond, aeration lagoon, open burning areas, phosphate lagoon and incinerator. Why were these areas not sampled during the 1988 sampling

program?

**Response:** These areas were sampled in 1984 and found not to be of significant concern.

**I24.** Is there a site plan drawn to scale which has been drafted and certified by a professional as to the location of areas investigated which have been identified in the site sketch (Appendix A of the 2/83 Order on Consent).

**Response:** No, however, the maps generated were sufficient for the studies conducted.

**I25.** Retention pits #1 and 4, as shown in the Phase VII RI report, are not consistent with the original Appendix A site map as shown in the Consent Order. Please clarify.

**Response:** This is correct, however, for the purposes of the studies conducted, this was of no consequence.

**I26.** Sediment sample testing data for priority pollutant metals was presented in Phase VII RI. Our office has compared the sediment sampling testing data to soil cleanup goals established by NYSDEC. The testing data from Table 2-1E (Appendix A) of the Phase VII RI indicate that the sediment samples exceeded NYSDEC cleanup goals the majority of the time for priority pollutant metals such as beryllium, cadmium, chromium, copper, mercury, nickel, selenium, and zinc. Why were these areas not sampled again or included as part of the remediation plan for the site?

**Response:** It is inappropriate to compare sediment data to soil cleanup goals. In addition, the Department's Division of Fish and Wildlife did not determine that these sediments need to be remediated.

a:kayresp