Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision
EG&G Rotron-Olive Site
Town of Olive, Ulster County
Site Number 3-56-008

March 1998

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* JOHN P. CAHILL, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

EG&G Rotron-Olive Inactive Hazardous Waste Site
Town of Olive, Ulster County, New York
Site No. 356008

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedial action for the EG&G Rotron-Olive 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 EG&G Rotron-Olive Inactive Hazardous Waste Disposal Site and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A bibliography of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

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

Description of Selected Remedy

Based upon the results of the Remedial Investigation (RI) for the EG&G Rotron-Olive Site and the Interim Remedial Measures (IRMs) either complete or currently underway, the NYSDEC has selected no further action other than the continued operation, maintenance and monitoring of the remedial systems currently in place, as the remedy for the site. The components of the remedy are as follows:

Continuation of the IRMs which includes:

The soil vapor extraction (SVE) treatment system(s) and the groundwater pump and treat remedial system will be monitored in accordance with the NYSDEC approved Operation, Maintenance & Monitoring (O,M&M) Plans. The plans specify what criteria must be achieved to terminate the operation of the remedial systems.

The SVE system(s) influent and effluent will be monitored monthly. The data will be evaluated yearly to determine if further vapor extraction is warranted. Confirmatory sampling will be taken to verify that the site specific soil cleanup objectives have been met.

The bedrock groundwater recovery well PW-1 will continue to be operated for plume control and groundwater remediation purposes until such time that EG&G Rotron, Inc. related volatile organic compounds (VOC) contamination in the bedrock groundwater have reached Class GA groundwater standards, to the extent feasible. If asymptotic, or steady state, concentration levels above Class GA groundwater standards are reached, Rotron, Inc. and the NYSDEC will jointly decide when to terminate further pumping. It is anticipated that PW-1 will require approximately two years of continuous pumping.

To be protective of surface water quality, the effluent from the second 36 inch stripping tower must be 5 ppb or less for individual volatile organic compounds and be sampled on a monthly basis. In addition, on-site surface water sampling will be continued on a quarterly basis at the five pre-established sampling points to ensure the effectiveness of the completed soils IRM. Samples will be analyzed for EPA Method 8260 VOCs plus Freon 113 and the data reported to the NYSDEC within 6 weeks of the sampling event. The program will be reevaluated after two years to determine if further monitoring requirements are necessary.

To determine the effectiveness of the groundwater pump and treat IRM currently underway, bedrock monitoring wells MW-4 through MW-6 and MW-9 through MW-12, PW-1, PW-2, and PW-3 will be sampled on quarterly basis for a period of two years. Samples will be analyzed for EPA Method 8260 VOCs plus Freon 113 and the data reported to the NYSDEC within 6 weeks of the sampling event. The program will be reevaluated after two years to determine if further monitoring requirements are necessary.

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.

_____ _____

Date

Michael J. O'Toole, Jr., Director
Division of Environmental Remediation

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RECORD OF DECISION

ROTRON-OLIVE

Town of Olive, Ulster County, New York
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SECTION 1: SITE LOCATION AND DESCRIPTION

The EG&G Rotron Inactive Hazardous Waste Disposal Site is situated on Dubois Road in the Town of Olive, Ulster County, New York. The site consists of approximately 150 acres of mostly wooded or open upland property. The site is confined by Little Tonshi Mountain to the north and Route 28 to the south. Structures on the property include a large manufacturing facility and an attached warehouse. The site is surrounded by low density residential dwellings. Drainage on the site is controlled by a perennial stream originating on Little Tonshi Mountain. There is an approximately one-half acre man-made pond on site which was constructed to provide a reliable water supply for use in fire control. The pond supports a resident Canadian geese population as well as other wildlife. The Ashokan Reservoir is approximately one mile downhill topographically and to the south. See Figure 1.

SECTION 2: SITE HISTORY

2.1: Operational/Disposal History

EG&G Rotron formerly manufactured custom air-moving devices and controls at this site. Currently, the facility is now used primarily for parts storage.

During operations between the mid-1960s to 1976, trichloroethene (TCE) was used to degrease parts. Between 1976 and 1985 when the plant closed, trichloroethane (TCA) was used instead of TCE. Freon 113 had been used for ultrasonic parts cleaning from the mid-1960's to 1985. These cleaning agents, or solvents, are volatile organic compounds (VOCs). Each of these compounds, as well as decomposition byproducts of TCE and TCA, have been detected in soils and groundwater on site.

Releases of these compounds occurred as a result of the following: on-site disposal of defective parts and waste solvent drums, spills at the north loading dock, releases of spent solvents from a failed underground storage tank, and drainage of spent solvents to a perforated orangeburg pipe and two drywells.

2.2: Remedial History

Site Investigations

Prior to 1994, EG&G Rotron conducted geotechnical studies and remedial efforts under the observation and approval of the New York State Department of Environmental Conservation (NYSDEC). These activities are described below. Three areas of soils contamination or source regions were identified during these investigations: an abandoned quarry that was used as a landfill, soils near the north loading dock, and soils near an underground storage tank east of the plant building. See Figure 2.

Rotron conducted a groundwater investigation which showed that the bedrock groundwater flow is to the south and southeast. The on-site groundwater production well PW-01 was shown to be contaminated with VOCs. It was also shown that contaminated on-site bedrock groundwater continues to threaten off-site residential wells.

Remedial Activities

In the mid-1980's, Rotron excavated soils and debris from within the former quarry. Approximately 450 tons of VOC contaminated soils were removed from the property. Also removed, were 7 liquid filled drums containing mixed waste VOCs, 5 empty and intact drums, and up to 13 crushed drums. The area was backfilled with clean soils and graded to promote drainage off site. A surface stream which had flowed across the former quarry was temporarily diverted in an attempt to limit surface water from entering the area.

From the loading dock area, following soil sampling to determine the extent of spillage, the DEC required Rotron to excavate approximately 440 cubic yards of soils contaminated with VOCs. After this action, some contaminated soils still remained.

Rotron also excavated and removed a 2,500 gallon underground storage tank located on the east side of the plant building which previously held spent solvents. Contaminated soils in this area were not removed.

Between 1982 and 1984, an on-site production well was pumped to control groundwater migration under the site. Extracted water was pumped to an aeration tower for treatment and discharged through a drain system to the fire pond.

In the 1980's, granular activated carbon (GAC) filtration units were installed on the Rotron water supply system to prevent the ingestion of contaminated groundwater by plant employees. These units are presently still in use at the plant, although water usage is low.

Two air stripping units were installed to provide treatment of stormwater and surface seeps impacted by dissolved VOCs. One air stripping unit provided continued partial treatment of surface water flows.

Surface water entering the fire pond was treated by aeration using spray nozzles to promote volatilization of any remaining VOCs.

SECTION 3: CURRENT STATUS

Since there was a continued threat to public health and the environment from contaminated groundwater, Rotron, Inc. agreed to conduct a Remedial Investigation (RI) to determine the nature and extent of contamination and to evaluate additional remedial measures. The primary concern was that the continued presence of VOC contamination in on-site groundwater was originating from residual VOC contamination in on-site soils. Work on the RI began in November 1995 with NYSDEC oversight and approvals.

3.1: Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site.

The RI was conducted between November, 1995 and September, 1997. A report entitled Remedial Investigation Report, Rotron, Inc. Olive Facility, Olive, New York - July 1997 has been prepared describing the field activities and findings of the RI in detail.

The RI included the following activities:

Contamination Source Investigation:

< A magnetic field survey was performed over the former quarry area to determine if there were any more buried drums. From this information areas were selected for test pit excavation.

< Test pits were excavated and soil samples collected in the former quarry area, the loading dock area, and the area of the former waste solvent tank on the northeast side of the main plant. All samples were analyzed for VOCs. The soils samples were first analyzed at the site through the use of a portable gas chromatograph equipped with two detectors. Additional soil samples were collected from the excavations in areas that exhibited high levels of VOCs based on the on-site field screening. These samples were sent to a certified laboratory and analyzed following USEPA Method 8260 plus Freon 113. Required quality control samples were also collected and analyzed. Site specific cleanup objectives were determined and were based on the NYSDEC soil cleanup objective adjusted for the actual total organic content in the on-site soils.

Groundwater and Surface Water Investigation:

< The existing monitoring wells were modified, redeveloped, and new pumps installed to improve sampling ability and quality. An additional monitoring well, MWRI-12, was installed near the eastern property line.

< All monitoring wells were sampled in February of 1996 and approximately every four months from that time to present. Water levels were recorded. The three on-site production wells were also sampled. The NYSDEC collected split samples from most of these wells.

- A focused aquifer pump test was performed to assess the impacts of pumping production well PW-1. The objective of the pumping test was to evaluate whether PW-1 could be used to limit migration of VOCs. The results indicated that the drop in the bedrock groundwater table (or cone of depression) created by pumping PW-1 was extensive. See Figure 2.

- Surface water samples were also collected from five locations around the site in February of 1996 and approximately every four months from that time to present.

Addendum to the RI Work Plan:

The consultant for Rotron, Inc. submitted an addendum to the RI work plan in April, 1996 to address two rediscovered dry wells. One was located approximately 500 feet east of the former waste solvent tank in a wooded area and the other was located at the northeast corner of the main plant building.

It was learned that the waste solvent tank was periodically drained to the dry well in the wooded area which was connected to the tank by perforated pipe. Additionally, when the dry well was in danger of overflowing it was pumped out and the fluids were discharged to the ground surface near the dry well. The addendum to the RI work plan called for a soil gas survey, additional test pits and soil sampling in the area of the dry wells and along the perforated pipe.

This work was completed in the Summer and Fall of 1996 and was integrated with a soil excavation interim remedial measure (IRM) which had also been proposed by Rotron's consultant.

To determine which media (soil, groundwater, etc.) contain contamination at levels of concern, the RI analytical data was compared to environmental Standards, Criteria, and Guidance values (SCGs). Groundwater, drinking water and surface water SCGs identified for the Rotron-Olive site were based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part V of NYS Sanitary Code. NYSDEC Technical Administrative Guidance Memorandum (TAGM) 4046 Soil Cleanup Guidelines for the Protection of Groundwater, background conditions, and risk-based remediation criteria were used as SCGs for soil. Indoor air quality was also evaluated as part of a baseline human health risk assessment. Results were evaluated for both carcinogenic and noncarcinogenic health risks.

Based upon a comparison of the results of the remedial investigation to the SCGs and potential public health and environmental exposure routes, certain areas and media of the site required continued remediation through the IRMs. These are summarized below. More complete information can be found in the RI Report.

Chemical concentrations are reported in parts per billion (ppb), parts per million (ppm), and parts per billion by volume (ppbv) for air samples. For comparison purposes, SCGs are given for each medium. See Table 1.

3.1.1: Nature of Contamination

The most commonly detected contaminant of concern associated with the Rotron-Olive Site is trichloroethene (TCE). TCE is a colorless, man-made liquid which is used as a solvent for removing grease from metal. It generally gets into drinking water by improper waste disposal. TCE causes cancer in laboratory animals exposed at high levels over their lifetimes. Whether or not TCE causes cancer in humans is unknown. Some humans exposed to large amounts of this chemical have had nervous system, liver, and kidney damage. Other contaminants detected at the site include 1,1,1-trichloroethane (TCA), Freon 113, 1,2-dichloroethene (1,2-DCE) and 1,1-dichloroethane (1,1-DCA). All of these contaminants are volatile organic compounds (VOCs).

As described in the RI Report, many soil, soil gas, groundwater and surface water samples were collected at the Rotron-Olive Site to characterize the nature and extent of contamination. All samples were analyzed for VOCs by field gas chromatography methods or by EPA laboratory method 8260 plus Freon 113 by a NYS-certified laboratory. All laboratory generated data was reviewed by an independent data validator and necessary qualifications to the data were noted in the data tables. Temperature, pH, specific conductance, turbidity and dissolved oxygen were measured for groundwater samples in the field. The NYSDEC also collected duplicate or split samples for a limited number of groundwater sampling sites for independent verification of the analytical data presented in the RI report.

3.1.2: Extent of Contamination

Table 1 summarizes the extent of contamination for the contaminants of concern in soil, surface water and groundwater and compares the data with the proposed remedial action levels (SCGs) for the Site. The following are the media which were investigated and a summary of the findings of the investigation.

Soil

The overburden soil is composed almost entirely of a dense brown silty glacial till. The till is thin in the northern portion of the site where bedrock outcrops are common and where the till varies in thickness from non-existent to around 15 feet thick near the former quarry. The till thickens near the fire pond and is around 40 feet thick near monitoring well MW-12 on the south side of the Rotron site.

The highest levels of TCE detected in on-site soils were in test pit TP-027 (located at the east side of the loading dock area) at 45,000 ppb and in test pit TP-042 (located at the site of the former waste solvent tank on the east side of the plant) at 140,000 ppb. The site specific cleanup objective for TCE in on-site soils ranges from 203 ppb to 238 ppb. Figure 3 depicts the limits of soils impacted by VOCs as of the Summer of 1996 based on the field screening and laboratory analyses of the soil samples.

The test pit and soil sampling results in the former quarry area indicate that no further soil cleanup was necessary. The soils beneath the former drum storage area and the eastern side of the rear loading dock parking area were above the site specific soil cleanup objectives and required further soil cleanup. The area of the former waste solvent tank also contained soils above the site specific cleanup objectives and also required further cleanup. Based on the results of the soil gas survey and additional test pitting, the soils

around the two drywells and the orangeburg pipe were also determined to be impacted by VOCs. Rotron's consultant recommended that the VOC impacted soils be excavated. Rotron's consultant proposed to complete this soil excavation and cleanup through an IRM. This is discussed in detail in Section 3.2.

Bedrock Aquifer Groundwater

The bedrock in the area is composed of interbedded shales and sandstones or graywackes. The graywacke rock beneath the site is massive and tends to fracture either along smooth, curved surface or along secondary joint surfaces. Groundwater storage and flow is believed to be highly dependent on the presence and orientation of these secondary joints and fractures.

Groundwater impacts were detected in bedrock production wells PW-1 and PW-3 and in monitoring wells MW-4, MW-5, and MW-6 surrounding the old quarry and loading dock areas and in shallow perched groundwater emanating from the loading dock area.

Analysis of the sample collected from production well PW-1 in February of 1996 indicated the presence of trichloroethene (TCE) at 130 ppb, Freon 113 at 10 ppb, and cis-1,2-dichloroethane (DCE) at 9 ppb. TCE was detected in production well PW-1 at a high of 1,000 ppb in February of 1997, but generally averages approximately 130 ppb. Freon 113 was detected in PW-1 at a high of 220 ppb, but generally averages approximately 10 ppb. A breakdown product of TCE, DCE has been detected in PW-1 at a high of 68 ppb, but generally averages less than 10 ppb. The groundwater standard for these compounds is 5 ppb each. No VOCs were detected in PW-2. 1 to 2 ppb of TCE has been detected in Production Well PW-3 routinely. PW-3 is currently used to supply water to the plant. Although the levels of TCE detected in PW-3 are below the drinking water standard, the water is treated by a granular activated carbon filtration system prior to use.

Monitoring well MW-6, located just north of the old quarry area, was the most significantly impacted bedrock monitoring well. Freon 113 has been detected up to 91 ppb, TCE up to 36 ppb and DCE up to 27 ppb in recent sampling events. VOCs in the bedrock aquifer would be expected to migrate southward and possibly southeastward under non-pumping conditions. VOCs have been detected only sporadically at the wells along the southern perimeter of the site (MW-9 through MW-12). Dilution and dispersion may be impacting the bedrock groundwater contaminant plume.

Shallow Perched Groundwater

Shallow groundwater in the vicinity of the rear loading dock area is contaminated with VOCs. September 1997 sampling from the small diameter wells and sump in this area indicates the presence of TCE at 4 to 190 ppb, DCE at 7 to 130 ppb, TCA at 2 to 72 ppb, Freon 113 at 11 to 36 ppb, and vinyl chloride at 4 to 20 ppb. Contaminated shallow groundwater from both the loading dock area and the Dry Well #2 area was believed to drain into the storm drain which runs along the eastern side of the plant and discharged into the on-site pond. The shallow groundwater in the loading dock area is now controlled by a footing drain along the north edge of the building and the recently installed collection sump in the middle of the paved parking area. As

part of the ongoing remedial action, this shallow groundwater is treated by the on-site treatment systems in place.

Surface Water & Pond Sediment

As part of the RI, surface water samples were collected from the on-site pond, from several small streams, and from an on-site catch basin on the Rotron-Olive property. TCE, Freon 113, 1,1,1-TCA and 1,2-DCE were present at 78, 6, 3, and 15 ppb respectively in one round of samples collected from the pond. TCE has been detected at this sampling point in each of three samples collected. Past sampling from the outlet of the pond indicated that discharge limitations have not been exceeded. Freon 113 has also been detected at 3 to 22 ppb in 3 of 5 sampling events in samples collected from a small stream adjacent to PW-2.

Three sediment samples were collected from the on-site pond and analyzed for VOCs. Acetone was detected at 10 ppb to 26 ppb. Chloroform at an estimated value of 4 ppb. No other VOCs attributable to the site were detected in these samples.

3.2: Interim Remedial Measures

Interim Remedial Measures (IRMs) are conducted at sites when a source of contamination or exposure pathway can be effectively addressed before completion of the RI/FS. There have been two IRMs which have been completed and are in an operation and maintenance (O&M) phase. Descriptions of these IRMs are as follows:

Soil Excavation & Removal

Approximately 5,620 cubic yards of contaminated soils were excavated from six different areas at the site. See Figure 3 which depicts the limits of the VOC-impacted soils based on field screening and test pit excavation results. Soils were excavated until they met the site specific cleanup objectives listed in Table 1. If soils could not be excavated due to physical constraints imposed by the building, mechanical systems were installed to remediate those areas.

The two dry wells and the orangeburg pipe were removed and adjacent soils excavated. Excavated soils were temporarily staged in the main parking lot area east of the plant. The excavated soils were screened to remove large stone and cobbles. The screened soils were stockpiled in different areas based on contaminant levels. The soils excavated from the areas of the former solvent tank and the drum storage area were the most contaminated. These soils, approximately 1,100 cubic yards, were shipped to a secure chemical landfill in western New York State. Stones left over from the screening process were used to backfill the excavated areas. The remaining soils were tested and met the site specific cleanup values and were subsequently re-used as either backfill material or as grading material in the former quarry area.

Treatment of Unexcavated Soils

For the contaminated soils adjacent to the building foundation where excavation was not possible, mechanical soil vapor extraction (SVE) systems were installed. A SVE system is designed to remove VOCs adhered to unsaturated soils by creating a vacuum in the pore spaces of the contaminated soils.

There are four separate SVE systems. The primary SVE systems were installed in the area of the former solvent storage tank on the east side of the building and the former drum storage area in the rear of the plant. Perforated 4 inch PVC piping wrapped in filter fabric was placed in the excavation and the area backfilled with crushed stone or gravel. Manifold piping was installed back to a blower unit capable of drawing 140 cubic feet per minute (cfm) of air through the system. The extracted air or soil gas is discharged through granular activated carbon filtration canisters for treatment. The treated air is then discharged to a common vent to the atmosphere.

Plans and specifications for these SVE systems were certified by a New York State licensed professional engineer and approved by the NYSDEC. An Operation, Maintenance and Monitoring Plan has been prepared and samples are collected after the vapor has exited the carbon canisters to ensure that the soil gas is being properly treated. The systems are currently operating as designed. These systems will be operated until such a time that the VOC contamination in the soils are below the site specific cleanup objectives to the extent possible. At that time, confirmatory samples will be collected to demonstrate that those objectives have been met. Rotron, Inc. and the NYSDEC will jointly determine when operation of this remediation system can be discontinued.

In an attempt to dewater the loading dock area and the area of the former solvent tank to make the SVE systems operate more efficiently, sump pumps have been installed in subsurface pits. The contaminated water collected in the pits is treated along with contaminated groundwater.

Groundwater Extraction and Treatment

Due to the persistent concentrations of VOCs above groundwater standards detected in production well PW-1, it was determined that the extraction and treatment of this groundwater to limit the migration of the VOC impacted groundwater was necessary. During the RI, a focused aquifer pump test verified that PW-1 could be pumped at a rate sufficient to effectively control groundwater in the identified source regions.

Groundwater extracted from PW-1 is pumped to a new 12 inch diameter packed column air stripper utilizing a 150 cfm blower for VOC stripping. See Figures 4 & 5. Effluent from the PW-1 air stripper is discharged to a combined surface water /groundwater dosing tank. This water is then pumped to a pre-existing 36-inch air stripper. Effluent from this tower is discharged to the storm drain system and gravity fed to the second pre-existing 36 inch packed column air stripping tower for further treatment. Effluent from this stripper is then discharged to the storm drain system which discharges to the on-site fire pond.
Plans and specifications for the new 12 inch air stripping tower were certified by a NYS licensed professional engineer and approved by the NYSDEC. The effluent from the 12 inch air stripping tower will be tested to ensure that the groundwater is being properly treated.

A pilot test of this groundwater pump and treat system is underway and preliminary results indicates that the system is operating as designed. Once the pilot test is completed, the influent (raw water from PW-1), the effluent from the 12 inch stripping tower, and the effluent from the 36 inch stripping tower will be sampled monthly. The samples are to be analyzed for EPA Method 8260 VOCs plus Freon 113 and the data reported to the NYSDEC within 6 weeks of the sampling event in the monthly progress report. Daily system average and total flow must also be reported. To be protective of surface water quality, the effluent from the 36 inch stripping tower must meet State Pollutant Discharge Elimination System (SPDES) discharge limitations established for the Rotron-Olive facility for outfall 002A.

Rotron, Inc. will continue to operate bedrock groundwater recovery well PW-1 for plume control and groundwater remediation purposes until such time that Rotron related dissolved VOC contamination in the bedrock groundwater have reached Class GA groundwater standards, to the extent feasible. If asymptotic, or steady state concentration levels above Class GA groundwater standards are reached, Rotron, Inc. and the NYSDEC will jointly decide when to terminate further pumping.

3.3: Summary of Human Exposure Pathways

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the health risks can be found in Section 7.0 and Appendix J of the RI Report.

An exposure pathway is how an individual may come into contact with a contaminant. The five elements of an exposure pathway are 1) the source of contamination; 2) the environmental media and transport mechanisms; 3) the point of exposure; 4) the route of exposure; and 5) the receptor population. These elements of an exposure pathway may be based on past, present, or future events.

Completed pathways which are known to or may exist at the site include:

- Ingestion of VOC contaminated groundwater by plant employees may occur if granular activated carbon (GAC) units did not exist or fail on the Rotron active production well PW-3. Ingestion of VOC contaminated groundwater by surrounding residents with private wells may occur if the on-site groundwater pump and treat system which is designed to prevent the off-site migration of contaminated groundwater is discontinued. Sampling of on-site monitoring wells and residential wells will need to be continued to ensure that ingestion of contaminated groundwater is not occurring.

- Air quality sampling indicated the presence of trace levels of VOCs in the indoor air inside the main plant building. Inhalation of VOCs were identified as a exposure pathway to employees inside the building and this exposure pathway was subjected to quantitative carcinogenic and non-carcinogenic risk analysis to calculate potential human health risks associated with this exposure. Total carcinogenic risks were determined to be 1.29×10^{-5} which is within the United States Environmental Protection Agency's target range for acceptable carcinogenic risks of 10^{-4} to 10^{-6}. The non-carcinogenic hazard index (HI) was calculated to be 0.897 which is less than the USEPA's HI

threshold of 1.00 for TCE. When the HI is less than 1.00, no human health effects are indicated. When the HI is greater than 1.00, there may be concern for potential noncancer health effects.

3.4: Summary of Environmental Exposure Pathways

No environmental exposure pathways were identified during the RI. The contaminants of concern at the site are volatile organic compounds (VOCs). The primary route of disposal of these contaminants was to subsurface soils resulting in the contamination of on-site groundwater. Based on sampling conducted in the RI, only trace levels of VOCs have been detected in the on-site surface waters and pond sediments. Due to the nature of VOCs and the low part per billion concentrations detected in the on-site surface water and pond sediments, impacts from the site contaminants to fish and wildlife resources are not expected. A Fish and Wildlife Impact Assessment was not required as part of the RI.

SECTION 4: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The NYSDEC and Rotron, Inc. entered into a Consent Order on December 18, 1995. The Order obligates the responsible parties to implement a full remedial program.

SECTION 5: SUMMARY OF THE SELECTED REMEDY

The selected remedy for any site will, at a minimum, eliminate or mitigate all significant threats to the public health or the environment presented by the hazardous waste present at the site. The State believes that the remediation systems now in place, which are described in Section 3.2, will accomplish this objective provided that they continue to be operated and maintained by Rotron in a manner consistent with their design.

Based upon the results of the RI, previous investigations and the IRMs that have been performed or are underway at the site, the NYSDEC is selecting no further action, other than the continued operation, maintenance and monitoring of the remedial systems currently in place, as the remedy for the site. The components of the remedy are as follows:

Continuation of the IRMs which includes:

The soil vapor extraction (SVE) treatment system(s) and the groundwater pump and treat remedial system will be monitored in accordance with the NYSDEC approved Operation, Maintenance & Monitoring (O,M&M) Plans. The plans specify what criteria must be achieved to terminate the operation of the remedial systems.

The SVE system(s) influent and effluent will be monitored monthly. The data will be evaluated yearly to determine if further vapor extraction is warranted. Confirmatory sampling will be taken to verify that the site specific soil cleanup objectives have been met.

The bedrock groundwater recovery well PW-1 will continue to be operated for plume control and groundwater remediation purposes until such time that EG&G Rotron, Inc. related volatile organic compounds (VOC) contamination in the bedrock groundwater have reached Class GA groundwater standards, to the extent feasible. If asymptotic, or steady state, concentration levels above Class GA groundwater standards are reached, Rotron, Inc. and the NYSDEC will jointly decide when to terminate further pumping. It is anticipated that PW-1 will require approximately two years of continuous pumping.

To be protective of surface water quality, the effluent from the second 36 inch stripping tower must be 5 ppb or less for individual volatile organic compounds and be sampled on a monthly basis. In addition, on-site surface water sampling will be continued on a quarterly basis at the five pre-established sampling points to ensure the effectiveness of the completed soils IRM. Samples will be analyzed for EPA Method 8260 VOCs plus Freon 113 and the data reported to the NYSDEC within 6 weeks of the sampling event. The program will be reevaluated after two years to determine if further monitoring requirements are necessary.

To determine the effectiveness of the groundwater pump and treat IRM currently underway, bedrock monitoring wells MW-4 through MW-6 and MW-9 through MW-12, PW-1, PW-2, and PW-3 will be sampled on quarterly basis for a period of two years. Samples will be analyzed for EPA Method 8260 VOCs plus Freon 113 and the data reported to the NYSDEC within 6 weeks of the sampling event. The program will be reevaluated after two years to determine if further monitoring requirements are necessary.

The Department will also reclassify the site from a Class 2 to a Class 4 on the New York State Registry of Inactive Hazardous Waste Disposal Sites. This reclassification indicates that the site is properly closed and requires continued management and monitoring.

SECTION 6: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the remedial investigation process, a number of Citizen Participation (CP) activities were undertaken in an effort to inform and educate the public about conditions at the site and the potential remedial alternatives. The following public participation activities were conducted for the site:

Repositories for documents pertaining to the site were established at the following locations:

Olive Free Library
Route 28A
Olive, NY
(914) 657-2482

NYSDEC
21 S. Putt Corners Rd.
New Paltz, NY 12561
(914) 256-3086

NYSDEC
50 Wolf Rd., Room 242
Albany, NY 12233-7010
(518) 457-3395

A site mailing list was established which included nearby property owners, local elected officials local media and other interested parties. Project Progress Reports dated January 1996, July 1996 and January 1998 were mailed to the parties on this list.

A public meeting to discuss the remedial investigation work plan was conducted on January 18, 1996.

Project Progress Reports and site related reports and documents were placed in the document repositories.

On January 22, 1998 a public meeting to present the Proposed Remedial Action Plan (PRAP) was conducted. A public comment period on the PRAP extended from January 12, 1998 to February 13, 1998.

In March 1998 a Responsiveness Summary, to address the comments received at the PRAP public meeting and in writing, was prepared and made available to the public.

Table 1
Nature and Extent of Contamination

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of EXCEEDING	SCG (ppb)
Groundwater	Volatile Organic Compounds	Trichloroethylene	ND (1) to 1000	9 of 62	5
		1,2-Dichloroethene	ND (1) to 68	8 of 62	5
		Freon 113	ND (1) to 220	7 of 62	5
Surface Water	Volatile Organic Compounds	Trichloroethylene	ND (1) to 78	3 of 24	11
		1,2-Dichloroethene	ND (1) to 15	2 of 24	5 [1]
		1,1,1-Trichloroethane	ND (1) to 7	1 of 24	5 [1]
		Freon 113	ND (1) to 22	3 of 24	5 [1]
Soil [2]	Volatile Organic Compounds	1,2-Dichloroethene	ND (5) to 160	2 of 45	87 [3]
		Trichloroethylene	ND (1) to 140,000	4 of 45	203 [3]
		Tetrachloroethene	ND (2) to 3,400	2 of 45	406 [3]
		Freon 113	ND (5) to 15,000	1 of 45	1740 [3]

(1) The SCG is for surface water used as a source of drinking water. It is for comparison purposes only and is not applicable to on-site surface waters. There is no SCG for these compounds in surface water not used as a source of drinking water.

(2) The soil data presented is based on laboratory analysis by USEPA Method 8260 plus Freon 113. Soil samples analyzed by a field gas chromatography method generally exhibited 1 to 2 orders of magnitude or greater of volatile organic compound contamination.

(3) The SCG's are the soil cleanup objectives for the east side of the building at the location of the former underground solvent tank. The values have been adjusted for the total organic content of the soils in this area.

APPENDIX A
RESPONSIVENESS SUMMARY
EG&G ROTRON-OLIVE INACTIVE HAZARDOUS WASTE SITE
I.D. NO. 356008

The issues addressed below were raised during a public meeting conducted by the New York State Department of Environmental Conservation (NYSDEC) in conjunction with the New York State Department of Health (NYSDOH) and the Ulster County Health Department (UCHD) or were received in writing during the public comment period. The meeting was held on January 22, 1998 at the Onteora Junior-Senior High School, Route 28, Boiceville, New York. The purpose of the meeting was to present the Proposed Remedial Action Plan (PRAP) for the site and receive comments on the PRAP for consideration during the final remedy selection. The public comment period for the PRAP extended from January 12, 1998 to February 13, 1998.

Written comments related to the PRAP were received from:

Mr. & Mrs. David Kerr MacCandlish, 222 East Union Street, Kingston, N.Y. 12401

I. Questions Related to the Remedial Investigation Findings:

1. **What is the orientation of the bedrock fractures which bisect the site?**

Two sets of near-vertical fractures were mapped in the outcrops found on and near the EG&G (Rotron) Olive site. The two fracture clusters are nearly perpendicular to each other. The most pronounced vertical fracture has a concentration of orientations around North 25 Degrees East. The less pronounced fracture set is orientated nearly perpendicular to the first set at approximately North 79 Degrees West. Figure 9 and Figure 10 of the Remedial Investigation (RI) report display the results of the bedrock fracture analysis.

2. **Were residential wells to the north of the site tested by the Ulster County Health Department?**

Yes. The Ulster County Health Department has historically tested numerous residential wells in the vicinity of the site, including some to the north of the site along Pitcairn Road. The UCHD has indicated that the sampling results from the residential well to the north of the site have shown no contamination historically.

3. **Why was a fish and wildlife assessment not completed as part of the RI?**

The RI work plan was reviewed by a NYSDEC/Division of Fish & Wildlife biologist. Due to the nature of the contaminants of concern (volatile organics) and the low parts per billion concentrations detected in the on-site surface water and pond sediments, impacts from the site contaminants to fish and wildlife resources were not expected. No environmental pathways were identified during the RI and therefore a formal fish and wildlife assessment was not required.

II. Questions Related to Public Health:

1. Do significant health hazards exist off-site?

No. The New York State Department of Health has reviewed the off-site residential sampling data, the RI report, and the data from Interim Remedial Measures (IRMs) being conducted at the site. Based on the implementation of these IRMs, the NYSDOH has concurred that the selected remedial action is protective of public health.

2. How will workers be protected inside the plant building from the possible volatilization of contaminants from beneath the building slab?

Historical hazardous waste disposal at the site resulted in the presence of volatile organic compound (VOC) contamination in the soils adjacent to the building foundation. Excavation of these soils was not possible without likely damage to the building foundation. Therefore, mechanical soil vapor extraction (SVE) treatment systems have been installed to remediate these soils. Due to the possibility that these remaining contaminants might migrate into the building, air quality sampling within the building was completed during the remedial investigation.

The air quality sampling indicated the presence of trace levels of VOCs in the indoor air inside the main plant building. Inhalation of VOCs were identified as a exposure pathway to employees inside the building and this exposure pathway was subjected to quantitative carcinogenic and non-carcinogenic risk analysis to calculate potential human health risks associated with this exposure. Total carcinogenic risks were determined to be 1.29×10^{-5} which is within the United States Environmental Protection Agency's target range for acceptable carcinogenic risks of 10^{-4} to 10^{-6}. The non-carcinogenic hazard index (HI) was calculated to be 0.897 which is less than the USEPA's HI threshold of 1.00 for TCE. When the HI is less than 1.00, no human health effects are indicated. When the HI is greater than 1.00, there may be concern for potential noncancer health effects. In summary, the levels of VOCs inside the building are not a threat or hazard to workers. The concrete building slab provides a barrier to the migration of VOCs from beneath the slab to the inside of the building. Additionally, the continued operation of the SVE systems may lesson any soil vapor migration into the building over time.

3. Is the neighborhood surrounding the EG&G Olive facility safe to live in with respect to site related contamination?

Yes. The New York State Department of Health has reviewed the off-site residential sampling data, the RI report, and the data from Interim Remedial Measures (IRMs) being conducted at the site. Based on the implementation of these IRMs, the NYSDOH has concurred that the selected remedial action is protective of public health.

III. Questions Related to the Operation, Maintenance and Monitoring (OM&M) Program:

1. **How long will groundwater monitoring occur for?**

Monitoring of the groundwater will continue until contaminants from the EG&G (Rotron)-Olive site are no longer detected or no longer exceed Class GA groundwater standards. To determine the effectiveness of the groundwater pump and treat IRM currently underway, bedrock monitoring wells MW-4 through MW-6 and MW-9 through MW-12, and plant production wells PW-1, PW-2, and PW-3 will be sampled on quarterly basis for a period of two years. Samples will be analyzed for EPA Method 8260 VOCs plus Freon 113 and the data reported to the NYSDEC within 6 weeks of the sampling event. The program will be reevaluated after two years to determine if further monitoring requirements are necessary.

2. **How will a possible power failure effect the pumping of the on-site bedrock groundwater extraction well PW-1?**

The temporary loss of electrical power to the EG&G(Rotron)-Olive facility would have little effect on the continued control of the on-site bedrock groundwater from the pumping of PW-1. A substantial cone of influence (the localized depression of the groundwater table due to pumping) has been created from the continuous pumping of groundwater from PW-1. In the event of loss of power, it would take approximately two days for the groundwater table to return to non-pumping or steady state conditions. If power was not restored to the facility during that period, a generator could be hooked up to provide power to the pump in PW-1. Continuous control of the on-site groundwater will be maintained.

IV. Miscellaneous Questions:

1. **Will EG&G, Inc., the new owner of the site, take responsibility for the remedial program being conducted at the site?**

Yes. The December 1995 Order on Consent for the remedial program was between the NYSDEC and Rotron, Inc., a subsidiary of EG&G, Inc. Recently, EG&G has sold Rotron, Inc. To AMETEK, Inc., but retained ownership of the property in Olive, New York. EG&G, Inc. has agreed to be substituted for Rotron, Inc. as Respondent for the remedial program. Since EG&G,Inc. has considerable assets and it is in the best position to complete the remedial work, the NYSDEC has accepted this substitution.

2. **What will happen to the remedial systems in place if the facility is sold to another company for manufacturing?**

Under the terms of the Order on Consent between EG&G, Inc. and the NYSDEC, EG&G, Inc. is required to continue to operate the remedial systems in place, regardless of the ownership of the facility. A provision requiring the continued operation of the remedial systems will have to be included in any property transaction agreement.

APPENDIX B
ADMINISTRATIVE RECORD
EG&G ROTRON-OLIVE SITE NO. 356008

A. Reports and Work Plans

Remedial Action Plan: Closure of Industrial Landfill at EG&G Rotron, Inc. Commercial Products Division, Shokan, New York - July 1981 by EG&G Environmental Consultants.

Investigation/Remedial Action Plan: Closure of Industrial Landfill at EG&G Rotron, Inc. Commercial Products Division, Shokan, New York - December 1981 by EG&G Environmental Consultants.

Amendment to the Investigation/Remedial Action Plan: Closure of Industrial Landfill at EG&G Rotron, Inc. Commercial Products Division, Shokan, New York - March 1982 by EG&G Environmental Consultants.

Environmental Information Package - September 24, 1982 - EG&G Rotron, Inc.

Site Groundwater Investigative Program for EG&G Rotron, Inc., Shokan, New York - September 1982 by EG&G Environmental Consultants.

Final Site Groundwater Treatment Program for EG&G Rotron, Inc., Shokan, New York - March 1983 by EG&G Environmental Consultants.

Engineering Report Related to SPDES Permit for EG&G Rotron, Inc., Shokan, New York - January 1984 by EG&G Environmental Consultants.

Remedial Investigation Work Plan, EG&G Rotron Olive Facility, Olive - New York - September, 1995 prepared by The Chazen Companies.

Interim Remedial Measures Work Plan, EG&G Rotron-Olive Facility, Olive, New York - July 1996 prepared by The Chazen Companies.

Plans and Specifications for Soil Vapor Extraction and Dewatering Systems Rotron-Olive Site, submitted under cover letter by the Chazen Companies dated October 23, 1996.

Inactive Hazardous Waste Disposal Site #3-56-008 Interim Remedial Measures Report, Rotron, Inc. Olive Facility, Olive, New York - April 1997 prepared by The Chazen Companies.

PW-1 Scavenger Well and Treatment System Plans and Specifications, Rotron Olive Site, submitted under cover letter by the Chazen Companies dated July 28, 1997.

Inactive Hazardous Waste Disposal Site #3-56-008 Remedial Investigation Report, Rotron, Inc. Olive Facility, Olive, New York - September 1997 (main text plus four volumes of appendices) prepared by The Chazen Companies.

B. Order on Consent

New York State Department of Environmental Conservation "In the Matter of the Development and Implementation of a Remedial Program for an Inactive Hazardous Waste Disposal Site Under Article 27, Title 13 and Article 71, Title 27 of the Environmental Conservation Law of the State of New York by Rotron, Inc., Respondent" Order on Consent Index # W3-0720-95-02 dated December 18, 1995.

New York State Department of Environmental Conservation "In the Matter of the Development and Implementation of a Remedial Program for an Inactive Hazardous Waste Disposal Site Under Article 27, Title 13 and Article 71, Title 27 of the Environmental Conservation Law of the State of New York by EG&G, Inc., Respondent" Modification to an Order on Consent Index # W3-0720-95-02 dated February 25, 1998.