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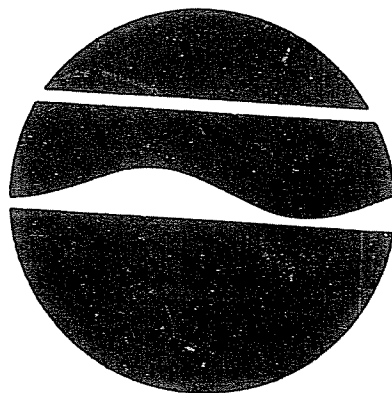
PROPOSED REMEDIAL ACTION PLAN

Signore, Inc.

Site No. 905023

Prepared by:

New York State
Department of Environmental Conservation



December 1991

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SIGNORE INCORPORATED
SITE No. 905023

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I. SITE LOCATION AND DESCRIPTION:

The Signore Facility is located in the Village of Ellicottville, Cattaraugus County, New York. The facility is located on State Road, Route 219 (Jefferson Avenue) approximately 0.3 miles southeast of the intersection of Routes 219 and 242 (Figure 1). The facility consists of 168,000 square feet of manufacturing facilities located on approximately 13 acres. Residential areas adjoin the plant property on the northeast, northwest and southeast sides. The general area relies heavily on the tourist industry during the winter skiing season. This has resulted in a substantial increase in construction activities in the area surrounding the site.

Municipal water supplies for both the Village and Town of Ellicottville are obtained from the local groundwater. The Village of Ellicottville has two active water supply wells. The primary well is located approximately 0.75 miles north of the facility, with the secondary water supply well located approximately 800 feet east of the plant site. The Town of Ellicottville water supply well is located approximately 0.75 miles to the southeast. Water demands vary significantly due to the increase in regional populations during the winter skiing season.

The site is situated on the south west side of a steep sided, flat bottomed valley which is drained to the southeast by Great Valley Creek. Plum Creek borders the plant site on the west and southeast sides, eventually discharging to Great Valley Creek approximately 500 feet east. The subsurface geology can be divided into three zones: (1) an upper alluvial deposit, 10 to 30 feet in thickness; (2) a middle outwash unit, 20 to 50 feet thick, and (3) a lower zone of varying stratigraphy consisting of outwash, till and lake deposits. Bedrock is estimated to be greater than 200 feet in depth. The groundwater flow through the upper and middle zones is to the southeast, parallel to Route 219 and Great Valley Creek.

II. SITE HISTORY AND PREVIOUS INVESTIGATIONS:

Site History

The site has been used for over 30 years for the machining and fabrication of metal products. The enterprise is reported to have begun as a tool and die operation in a garage to the rear of a residential house which is still in existence at the site. The factory has undergone several phases of expansion since 1952, resulting in approximately 168,000 square feet of covered floor space at the present time.

The plant is used for the fabrication of steel furniture products such as file cabinets, lockers, desks and computer furniture. Various

parts of the buildings are used for storage, pressing, welding, painting, assembly and packaging. The buildings are heated by natural gas. A wide range of bulk oil and hazardous materials including solvents, adhesives, lubricants, cutting oils, cleaners, thinners, and paints are used or stored in various parts of the facility.

The facility was connected to the municipal sewage system in about 1968. Prior to that time, waste effluent was disposed of by way of septic tanks/leach field, believed to have been located beneath one of the building additions.

Previous Investigations

In late 1986, as part of a proposed real estate transaction, Dames and Moore performed a site assessment at the Signore Facility (formerly American Locker Group) with the results presented in a June 1987 report entitled, "Oil and Hazardous Material Site Evaluation, American Locker Group, Inc. Signore Division, Ellicottville, New York" (Dames and Moore, 1987a). The results of this study indicated the presence of several volatile organic chemicals (VOCs) in the groundwater beneath the site. As a result, a detailed investigation of the Signore site was conducted by Dames and Moore in early 1987, with the results presented in a June 1987 report entitled, "Ground Water Study, American Locker Group, Inc., Signore Division, Ellicottville, New York" (Dames and Moore, 1987b). This study involved the installation and sampling of about 30 monitoring wells on-site at the Signore Facility (Figure 2). About one-third of these monitoring wells had detectable levels of VOCs, primarily 1,1,1 trichloroethane (TCA) and trichloroethene (TCE). It was also determined that the groundwater flow in the outwash deposits is to the southeast.

Based on the southeasterly groundwater flow direction, a water supply well sampling and chemical testing program was conducted by Dames and Moore in the area southeast of the Signore Site. This program involved the sampling of about 30 domestic wells, with the results presented in a June 1987 report entitled, "Water Supply Well Sampling and Analysis, Ellicottville, New York" (Dames and Moore, 1987c). Analytical results from these samples indicated the general wide-spread occurrence of low levels of TCE and TCA (less than 50 micrograms per liter, ug/l), which generally decreased to the south. One of the wells sampled was the Town Well which had 11 ug/l of TCE in May 1987.

Since mid-1987, investigative activities at the Signore Facility have involved sampling selected on-site wells and collection of groundwater level data on several occasions in 1987 and 1989. The results of September and November 1987 sampling were presented in letters from Ground Water Associates, Inc. (GWA) to American Locker Group, dated November 9, 1987 and December 21, 1987. In addition to the on-site sampling, the Town Well and Village Well were sampled by

GWA in January 1989 and April 1989 to develop an expanded database. Additional sampling and analysis of selected domestic wells south of the Signore site similar to that conducted in 1987 was conducted by GWA in May 1989.

The Cattaraugus County Department of Health and the Town and Village of Ellicottville have also sampled a number of supply wells since 1987. In 1988, the Town and Village contracted with Malcolm Pirnie, Inc to perform an evaluation of their water systems. The results of this evaluation were presented in a February 1989 report entitled "Water Supply evaluation, Town and Village of Ellicottville, New York" (Malcolm Pirnie, 1988). The report indicated that both the Village and Town Wells exceed the Maximum Contaminant Level (MCL) for TCE and outlined several options for treatment and relocation of wells to meet quality and quantity objectives. The MCL is the maximum permissible level of a contaminate in water, as determined by the NYSDOH Standard for Drinking Water Supplies. Exceeding this limit can result in a increased risk of cancer and other health problems. Effective January 1989 the MCL for TCE and TCA were reduced from 50 ug/l to 5 ug/l. The report recommended a new Village/Town Water Supply well, which was installed north of Town and went into operation in January 1991.

In April 1989, the public was notified that the Town Well and Village Well exceeded the State MCLs for drinking water. In a letter dated March 17, 1989, Signore, Inc. proposed a strategy to the NYSDEC for remediation of the site which focused on the protection of public health and restoration of the aquifer. The proposal outlined tasks for: (1) installation of an interceptor well upgradient of the Town Well to reduce contaminant levels in the Town Well; (2) connection of residences with impacted private wells just south of the Village limits to the Town water distribution system; and (3) installation of an interceptor well at the Signore Facility to reduce off-site contaminant migration.

At a meeting with the NYSDEC and concerned parties (Town, Village, County Health Department and Signore) on May 23, 1989, it was decided that the above three interim remedial measures would be implemented in conjunction with the Remedial Investigation (RI). As a result, Signore submitted a Work Plan entitled, "Interim Remedial Measures, Signore Site, Ellicottville, New York" (Lozier/Groundwater Associates (LGA), May 1990). This work plan presented the scope of work to complete the interceptor well upgradient of the Town Well and the connection of the residences to the Town water distribution system. The scope of work for the on-site interceptor well was incorporated into the Work Plan for the RI (LGA, February 1990) in order to use the RI results for optimal placement of the interceptor well.

To eliminate potential sources and pathways of contamination at the Signore Facility, the use of various steel and concrete underground storage tanks was discontinued through closure, floor drains were closed or rerouted to the sanitary sewer system, and the

Facility switched from an on-site septic disposal system to the public sewer. Additionally, the use of TCE as a degreaser has been discontinued since the mid-1970's in favor of a "Safety Kleen" system that collects waste solvents for removal by the Safety Kleen Service.

The use and disposal of hazardous materials (solvents, adhesives, lubricants, cutting oils, cleaners, thinners and paints) and the underground storage of hazardous materials and fuels at the Facility are described by Dames and Moore in the June 1987 report entitled, "Oil and Hazardous Material Site Evaluation, American Locker Group, Inc." (Dames and Moore, 1987a). The present or former locations of underground storage tanks, septic tanks, catch basin and the sanitary sewer are shown on Figure 3.

The three underground fuel storage tanks (two gasoline and one diesel) were closed in December 1986 by removing fluids and sludge remaining in the tanks, cleaning the inside of the tanks and filling each of the tanks with concrete (Figure 3). The underground paint thinner storage tank was closed in December 1987 in a similar manner. "Emergency dump" tanks available to temporarily store flammable liquids underground if a fire occurred, are also present at the site. According to Signore personnel, these tanks were never used and have never received discharges. The spill collection sump have been disconnected from drains so that no discharges from the plant site can be made.

Areas with floor drains were the paint storage building, paint supply room, waste solvent distilling room and paint spraying room. All floor drains have been closed with concrete or rerouted from the storm drain system. The rerouted drains now connect to collection tanks or the sanitary sewer system. All process water and sanitary discharges were changed over from on-site septic system to the public sewer system.

III. CURRENT STATUS

1. Interim Remedial Measures

The Interim Remedial Measure (IRM) project was developed to address low level TCE and TCA groundwater contamination in residential domestic wells and the Town Well, down gradient of the Signore Facility. The IRM projects consisted of four separate projects as follows(Figure 4):

1. Town Well Interceptor Well

The purpose of this IRM was to intercept the flow of contaminants in the groundwater prior to it reaching the Town of Ellicottville well or the downgradient school and private water supply wells. This

project consisted of the installation of five groundwater monitoring wells in the vicinity of the Town of Ellicottville Water Supply Well. After installation and sampling of the wells, a pump test was conducted to determine hydrogeological conditions of the groundwater aquifer in the study area. Based on this test, an interceptor well was installed to intercept the flow of groundwater contaminants before reaching the Town well. The "Interceptor Well Assessment Report" (LGA, August 1990) presented the results of the monitoring well installation, the Town Well aquifer test, and the hydrogeologic evaluation and basis of design for the interceptor well. After NYSDEC approval of the Assessment Report, plans and specifications for the Town Well Interceptor Well and Pumping System (Hydro Group, October 1990) were prepared and submitted on October 29, 1990. Construction began on November 7, 1990 after NYSDEC approval of the Interceptor Well Plans and Specifications, and was completed in March 1991. Long term monitoring of the Interceptor Well has detected levels of TCE and TCA of approximately 6ppb and 4ppb respectively in its discharge. The Town of Ellicottville has contracted with the Village of Ellicottville for water and therefore only uses their well as a stand-by water source.

2. Water Line Extension

The purpose of this IRM was to provide a source of uncontaminated drinking water to the residents currently served by contaminated private groundwater wells. The Basis of Design Report for the Town Water Line Extension (Lozier, May 1990) was submitted on May 22, 1990(Exhibit D). After approval by the NYSDEC and Cattaraugus County Department of Health, Plans and Specifications (Lozier, July 1990) were prepared and submitted on July 23, 1990. Following approval of these Plans and Specifications, receipt of construction right-of-way agreements from all the residences to be connected to the Town water line, and approval from the Town Board for the extension of the Town Water District, construction of the water line extension began on October 8, 1990. Construction of the water line and connections to the home were completed in December 1990. Connections inside the homes were made in April 1991, after the new Town/Village water supply well went into operation.

3. On-Site Interceptor Well

This IRM project consists of the installation of a extraction well on the downgradient side of the Signore Site. The well will be installed to depth of approximately 75 feet and a pump test will be conducted to determine the hydrogeological conditions and capture zone of the ground water aquifer at the site. Specific tasks for this project are discussed in the workplan approved by NYSDEC, dated March 1991(Exhibit E). Construction of the well commenced in October 1991 and is expected to be completed by December 1991.

4. Septic Tank Removal

Past sanitary wastes from the Facility were discharged into an on-site septic system which consisted of several septic tanks in series with the outfall to Plum Creek. Two of these septic tanks were discovered and sampled during the field work for the RI. These tanks, designated Tank No. 4 and Tank No. 2, are located in the central part of the Plant as shown on Figure 3. Sampling procedures and results were presented in a letter submitted to the NYSDEC on November 28, 1990 entitled, "Work Plan- Septic Tank Cleaning, Signore Facility, Ellicottville, New York"(Exhibit C). Although, not included as a IRM in Signore's original proposal to NYSDEC, Signore officials chose to remove these structures as a possible source of contamination upon their discovery. These two tanks were properly closed on February 16-18, 1991. The liquids from the tanks were removed using an air powered pump and the solids were removed manually. The tanks were then cleaned with a pressure washer. Both tanks were filled with a concrete grout mixture.

2. The Remedial Investigation and Risk Assessment

The RI Report - April 1991 - Lozier/Ground Water Associates(LGA)

The purpose of the Remedial Investigation was to gather additional data necessary to further evaluate the source, extent and remedial alternatives for VOCs at the Signore Facility. The primary volatile organics associated with the site are trichloroethylene (TCE) and 1,1,1-trichloroethane (TCA), along with their various degradation products. Investigative work consisted of the installation of additional on-site and off-site groundwater monitoring wells, conducting a soil gas vapor survey, sampling and analysis of: on-site and off-site groundwater, surface and subsurface soils, surface water and surface water sediments from Plum Creek and Great Valley Creek and the municipal sanitary sewer system. The location of said sampling locations are shown on Figures 5 through 8.

As described in the previous sections, the site is located on the west side of a steep sided, flat bottomed valley. The aquifer in the area consists of a unconsolidated glacial outwash unit, that is generally encountered from a depth of 15 to 50 feet. Three distinct groundwater zones were established and monitored as part of this study. These zones were: the shallow zone - the upper sand and gravel in the glacial outwash unit above a depth of 25 feet; the intermediate zone - the lower coarse grained sand and gravel in the glacial outwash unit from a depth of 25 to 50 feet; and the deep zone - the lower part of the glacial outwash unit and the upper part of the lower, variable unit below 50 feet. Groundwater in the study area flows to the south-southeast paralleling State Route 219 and following the flow of Great Valley Creek to the southeast. Flow gradients ranged from 0.001 to 0.007 ft/ft. A pump test was conducted as part of the Town Well Interceptor well IRM activities, down gradient of the site at the location of the Town of Ellicottville well (Figure 8). This test

calculated the hydraulic conductivity of the intermediate ground water zone at 2×10^{-1} cm/sec or 400 ft/day. Based on this information, the ground water flow rate in the study area ranges from 2 to 20 ft/day.

Based on the RI study, groundwater was determined to be the only environmental media most severely impacted by contamination from the Signore Facility. Analytical results from the sampling of the surface water and surface water sediments (Tables 1 & 2) from Plum Creek and Great Valley Creek and the municipal sanitary sewer system (Table 3) has shown that the Signore Facility has not impacted these areas. Results of soil samples collected on the site, detected low levels (less than 50ppb) of individual volatile organics, primarily TCE and TCA (Table 4).

Groundwater has been shown to be impacted by these VOCs both at the site and down gradient for approximately 3600 feet. On-site groundwater contamination generally increases areally and with depth from the northwest to the southeast, across the Signore site. On-site groundwater contamination was detected highest in the shallow zone with total volatile organic concentrations ranging from non-detectable to 362ppb (Table 5). Off-site groundwater contamination extends from the Signore Facility to the Town Well, and appears confined to the intermediate zone. Concentrations of primarily TCE and TCA, ranged from non-detectable to 72.8ppb in this zone with the highest concentrations located near the boundary of the Signore Facility and decreasing downgradient toward the Town Well site (Table 6). Total TCE and TCA values in the vicinity of the Town well measured <10ppb. Residential wells located between the Signore Facility and the Town Well were not sampled as part of this investigation because of the implementation of an IRM to provide an alternate source of drinking water. Residential wells, sampled in previous studies (noted in Section II), had exhibited similar levels of volatile organics that were detected in the off-site groundwater sampling program.

The sources of VOCs were leaks from floor drains, sumps, pits, underground tanks and the on-site septic system inside and outside the buildings. The drains, sumps pits and tanks have either been closed or rerouted. All process and sanitary discharges have been directed to the municipal sewer system. There are currently no known continuing sources of volatile organics at the Signore Facility.

Health Risk Assessment

The Health Risk Assessment concluded that the only exposure route associated with the Signore site was the contaminated ground water. The estimated risk associated with the potential exposure to non-carcinogenic chemicals is expressed as the ratio of the estimated exposure to the smallest exposure that might possibly cause adverse effects. this ratio is called the hazard index. Life time exposure (70 years) to the maximum levels of volatile organics in the ground water found in the off-site wells, has a non-cancer health risk with a combined hazard index of 0.04 and a cancer risk equal to 4×10^{-6} . [NOTE: In general, regulatory agencies in the United States have not

established a uniform cancer risk level for distinguishing between risks which are deemed acceptable and those which may be of concern. The Environmental Protection Agency (EPA) has generally considered risks in the range of one in ten thousand (1×10^{-4}) to one in ten million (1×10^{-7}) to be acceptable, and has recently adopted a risk level of one in one million (1×10^{-6}) as a "point of departure" for selecting the risk level that will be considered acceptable (EPA 1990)]. This risk assessment assumes continued exposure to the ground water contamination in the future which will not occur due to the implementation of the IRMs noted in Section II.

IV. ENFORCEMENT STATUS

The New York State Department of Environmental Conservation (NYSDEC) has entered into an Order on Consent (Index #B9-0258-89-03) with Signore, Inc. under Article 27 of the Environmental Conservation Law (ECL) entitled "Inactive Hazardous Waste Disposal Sites". The Order on Consent was signed by the Commissioner of the NYSDEC on August 28, 1989 (Exhibit A). As stipulated by the Order, Signore Inc. is responsible for the development and implementation of Interim Remedial Measures (IRM) and implementation of a Remedial Investigation/Feasibility Study (RI/FS). In addition, upon the acceptance of the FS and the selection of the final remedial alternative by the NYSDEC the company is required to conduct a Remedial Design and pursue a Remedial Action at the site.

Signore, Inc. also entered into an agreement with the Town of Ellicottville, dated January 1990 (Exhibit B), to construct an extension of the Town's water distribution system to serve the residents downgradient of the site with contaminated groundwater wells. This agreement was part of the Water Line extension IRM.

V. GOALS FOR THE REMEDIAL ACTION

Remedial action objectives are developed to be protective of human health and the environment for all exposure pathways and to comply with applicable State standards, criteria and guidelines (SCGs). The following represents the basic conclusions of the RI report from which the remedial action objectives were developed:

- o Groundwater is the environmental media impacted by contamination from the Signore Facility which requires remediation.

- o Dissolved volatile organics (VOCs) in the groundwater are the contaminants of concern; no free phase contamination is present. Off-site samples show levels of TCE and TCA above New York State Maximum Contaminant Levels (MCLs); On-site samples show levels of TCE, TCA, 1,1-dichloroethane (DCA) and 1,2-dichloroethene (DCE) above MCLs.
- o Dissolved VOC contaminants will migrate by advection/dispersion in the direction of groundwater flow, to the south-southeast.
- o The potential receptors of VOC contaminants in the groundwater downgradient of the Signore Facility are the Town Well, domestic water supply wells located between Signore and the Town Well and other wells located further downgradient from the Town Well.

In addition, the RI Report concluded that existing groundwater contamination is due to historic leakage from closed storage and/or disposal facilities and/or past spills. Investigations performed as part of the RI did not find any particular source area that could be associated with the contamination on the site. Thus, source control measures will not be effective in mitigating groundwater contamination.

Remedial Action Objectives

Remedial action objectives for mitigating the contaminated groundwater impacted by the Signore Facility have been established to allow selection of the recommended remedial actions. These proposed objectives, which fall under the categories of protecting human health and protecting the environment, are listed below:

Human Health Protection

1. Provide water meeting State drinking water standards to residences located between Signore and the Town Well which have domestic wells affected or potentially affected by VOC contaminated groundwater.
2. Reduce the concentration of VOC contaminants in the groundwater at the Town Well to meet State drinking water standards.
3. Prevent VOC contamination groundwater from moving down-gradient beyond the Town Well.

Environmental Protection

4. Prevent VOC contaminated groundwater from moving down-gradient beyond the Town Well.
5. Restore the aquifer between Signore and the Town Well by reducing VOC contaminant concentrations in the

groundwater between Signore and the Town Well to appropriate State standards.

6. Restore the aquifer beneath the Signore Facility by reducing VOC contaminant concentrations in the groundwater beneath the Signore Facility to appropriate State standards.

These six objectives have been combined to create four remedial action objectives for mitigating groundwater contamination from the Signore Facility. These four objectives are listed as (A), (B), (C) and (D) as follows:

Remedial Action Objectives

(A) Provide water meeting State drinking water standards to residences with domestic wells between Signore and and Town Well.

(B) Reduce VOC contaminants in Town Well below appropriate levels and prevent VOC contaminants from moving downgradient beyond Town Well.

(C) Restore aquifer between Signore and Town Well by reducing VOC contaminants below appropriate State levels.

(D) Restore aquifer beneath Signore by reducing VOC contaminants below appropriate State levels.

In order to properly implement these objectives, the following SCGs have been identified as being applicable to the Signore Site:

* NYS Department of Health Standards for Drinking Water Supplies, 10 NYCRR Subpart 5-1 .

* NYS Department of Environmental Conservation Water Quality Regulations for Surface water and Groundwaters, 6 NYCRR, Parts 700-705, September 1, 1991.

* NYS Department of Environmental Conservation, Division of Air, Air Guide I

* NYS Department of Environmental Conservation State Pollutant Discharge Elimination System (SPDES) Regulations, 6 NYCRR, Parts 750-758

VI. SUMMARY OF THE EVALUATION OF THE REMEDIAL ALTERNATIVES

A. Feasibility Study Report - September 1991 - Lozier/Ground Water Associates

General response actions are developed to describe general categories of remedial actions that will satisfy the

remedial action objectives for each environmental media of interest. Because groundwater is the only media impacted by contamination, only one set of general response actions was developed. The types of general response actions potentially applicable for groundwater remedial actions are listed below.

1. No Action is lack of any remediation, i.e. natural attenuation of groundwater contaminant levels.

This action is not applicable because several IRMs have already been completed to eliminate the source of the contamination and protect public health by supplying a non-contaminated source of potable water.

2. Institutional Actions are those actions which include controls on use of the groundwater or provision of alternative water supply.

This action is applicable. Deed restrictions or the refusal to issue occupancy permits can be instituted by local governments to restrict building in contaminated areas, unless a acceptable source of potable water is available.

3. Containment Actions are those actions which include creation of barriers to prevent groundwater contaminant movement.

None of the available containment technologies are applicable to this site. Capping, for example is not applicable because restricting infiltration through the site will not limit the recharge to the contaminated aquifer in the study area. In addition, no source areas exist to cover and limit infiltration into the ground water. A vertical physical barrier is also not applicable because no low permeable layer exists at a reasonable depth that can be used to contain the site.

4. Collection Actions are those actions which include extraction of the contaminated groundwater.

This actions is applicable to the site and should be evaluated further.

5. Treatment Actions are those actions which include removal of the contaminants from the groundwater, including on-site physical, chemical and biological treatment and off-site treatment.

This action is applicable. However, treatment actions are be limited to the technologies that are applicable to the treatment and removal of VOCs from the ground water medium. Such treatment

technologies that were eliminated from further evaluation: physical/chemical treatment, filtration, coagulation/ flocculation and reverse osmosis since they are not acceptable for the removal of dissolved organics.

6. Discharge Actions are those actions which include disposal of the treated or untreated groundwater, including on-site and off-site discharge.

None of the off-site discharge remedial technologies for untreated groundwater can be applied at the site. Discharge of a large volume of contaminated groundwater to the local sewer is prohibited since it would hydraulically inhibit operation of the municipality's biological treatment process. Discharge of untreated groundwater to surface water bodies or back to the existing aquifer is not feasible since the contaminants exceed State drinking water and water quality standards. Discharge actions regarding treated groundwater are applicable and were considered. Discharge limits to Plum Creek and Great Valley Creek have been set by the NYSDEC's Division of Water in accordance with State Water Quality Standards and SPDES regulations (Tables 7 & 8).

A comprehensive list of remedial technologies established by the USEPA was utilized to determine potentially feasible remedial alternatives. Table 10 lists the general response actions, technology type associated with each general response, process options available for each technology type and the applicability of the process option to the Signore site.

B. Preliminary Screening of Remedial Alternatives

As noted in the Remedial Objectives for the site, four objectives were identified as necessary to remediate groundwater contamination from the Signore site.

Regulations established by the State and Federal governments, which deal with the remediation of inactive hazardous waste sites, require that the selected remedial alternative be; 1) protective of human health and the environment, 2) comply with the statutory requirements and 3) be cost effective. Since groundwater is the media requiring remediation, all the remedial alternatives are specific to mitigating the groundwater contamination.

A preliminary screening of remedial alternatives identified eight (8) alternatives for addressing the contaminated groundwater issue. These alternatives were further grouped into three subgroups to correspond to the Remedial Objectives of the site.

1. Preliminary Remedial Alternatives for Ground Water

a). Objective A - Provide Water to Residents

1. Provide Alternative Water Supply from Existing Town System by Extending Town District
2. Provide Treatment of Existing Residential Water Supplies
3. Provide Alternative Water Supply from New Water Supply System

b). Objective B - Reduce Contamination at Town Well

1. Recover Contaminated Groundwater from Extraction Well
2. Treat Groundwater from Existing Town Well

c). Objective C - Restore Aquifer between Signore and Town Well

1. This objective will be addressed by in alternatives encompassing Objectives B and D

d). Objective D - Restore Aquifer beneath Signore Site

1. On-site Extraction Well with Stream Discharge
2. On-site Extraction Well with Injection Discharge
3. On-site Extraction Well with Water System Discharge

C. The Preferred Alternatives

The final remedial alternatives underwent a detailed analysis based on their effectiveness and implementability in meeting the remedial objectives.

The application of the following remedial alternatives were determined unsuitable to this site as follows:

A-1 - Provide treatment of Existing Residential Water Supplies

The treatment of the existing residential water supplies will be difficult to implement administratively, due to the extensive operation and maintenance activities that would need to be periodically performed at the 33 separate residential supplies.

A-3 - Provide Alternative Water Supply from a New Water System

Implementation of this alternative will be significant, since there will be operation and maintenance activities associated with the operation of a new supply well and a treatment/distribution system.

B-2 - Treat Groundwater from existing Town Well

The Town well was originally designed as a water source. As a result its optimum pumping rate being higher than needed causing problems with the discharge location. The Town has also gone on record as opposing this alternative (Appendix D).

D-2 - On-site Extraction Well with Injection Discharge

There are technical difficulties associated with recharging treated groundwater into the aquifer, since it is permeable and unconfined.

D-3 - On-site Extraction well with Water System Discharge

Operationally, it will be difficult to ensure that the treated water is provided at proper pressure into the distribution system. In addition, stringent sampling will be required to insure that potable water quality is not compromised.

Based on the the available information, the following alternatives are preferred:

1. Objective A - Provide water to Residences

Note: Reducing the toxicity, mobility and volume of the hazardous waste is not part of this objective. This remedial objective was developed specifically for the protection of human health.

A-1 - Provide Alternate Water supply from existing Town System

This alternative is technically feasible to construct, operate and maintain as a remedial action utilizing available technologies (Table 11). Administratively, extension of the water district and creation of a new water district will require statutory and regulatory actions by both local and State governmental agencies. Implementation of the alternative will be minimal, as little operation and maintenance activities will be required since the alternative deals with the installation of a non-mechanical system (distribution pipe) to an already existing distribution system owned by the Town. This alternative will be effective in both long and short term protection human health. No additional monitoring of the each specific residential supply will be performed since they are to be provided with water from the existing public distribution system. However,

routine monitoring of drinking water quality, as required by the NYSDOH, will continue on the public water supplies in both the Village of Ellicottville and Town of Ellicottville. Private residential wells will be left in place and could be used by the owners for non-potable uses such as washing cars or watering lawns. Institutional controls imposed by the local government, should be required to restrict building in the contaminated areas, unless a acceptable source of potable water is available.

2. Objective B - Reduce Contamination at Town Well

B-1 - Recover Contaminated Groundwater from Extraction Well

This alternative is both technically and administratively feasible to construct, operate and maintain (Table 12). The alternative will require the installation of an extraction well and control system in the vicinity of the Town of Ellicottville well. The extracted groundwater from the interceptor well will be discharged to Great Valley Creek, with no treatment being provided. Discharge limits and monitoring requirements have been established for the discharge of the groundwater to surface water based on NYSDEC surface water quality standards as defined by 6 NYCRR Part 700-705 and SPDES regulations, 6 NYCRR Part 750-758. The decision not to provide treatment of the groundwater, prior to discharge, was based on the rationale that the concentration of contaminants in the groundwater in the area, is below the limits established for the discharge. Therefore, based on the discharge limits established for Great Valley Creek no treatment, prior to discharge is required at this time. It should also be noted that the Town of Ellicottville went on record preferring this alternative over other technically feasible remedial actions as referenced in Appendix D.

Long-term monitoring will consist of the twice per month sampling of the discharge for the VOCs of concern, and the monthly sampling of other selected parameters. After six-month of continuous data accumulation the discharge concentrations will be reviewed and the frequency of monitoring evaluated and possibly adjusted. Monitoring of the groundwater monitoring wells in the vicinity of the extraction well for groundwater elevation, contaminant concentration and flow direction, will be addressed in the long term monitoring program developed for the study area.

3. Objective D - Restore Aquifer Beneath Site

D-1 - On-site Extraction Well with Stream Discharge

This alternative is technically feasible to construct, operate and maintain for the life of the project (Table 13). Discharge of

extracted groundwater to either Plum Creek or Great Valley Creek will require that discharge limitations and monitoring requirements be promulgated under the administrative requirements of the SPDES program. Discharge limitations will be based on surface water quality standards as defined by the 6 NYCRR Part 700-705 and SPDES regulations, 6 NYCRR Part 750-758. Since it is anticipated that treatment will be required, technologies currently applicable to this application are carbon adsorption and air stripping. Air stripping appears to be the most favorable due to the lower operation and maintenance costs associated with the long term operation of the unit and the large flow rates that would be involved.

Long-term monitoring will consist of the twice per month sampling of the discharge for the VOCs of concern, and the monthly sampling of other selected parameters. After six months of continuous data accumulation the discharge concentrations will be reviewed and the frequency of monitoring evaluated and possibly adjusted. Monitoring of the groundwater monitoring wells in the vicinity of the extraction well for groundwater elevation, contaminant concentration and flow direction, will be addressed in the long term monitoring program developed for the study area.

The remedial actions will be reviewed by NYSDEC at least once every five years after their implementation, to assure that human health and the environment are being protected. This review will take place in addition to the regularly scheduled monitoring and operation and maintenance activities, and even if the monitoring data indicates that the implemented remedy meets the "clean up criteria or standards". The objective of the review will be to evaluate if the implemented remedy protects human health and the environment and to identify a "permanent" remedy for the site. Before taking or requiring such action to be taken, all parties and the public shall be provided an opportunity to comment on NYSDEC's decision.

D. Rational for Selection

The final alternatives were evaluated against the following eight criteria: 1) Compliance with New York State Standards, Criteria and Guidelines (SCGs), 2) Reduction of toxicity, mobility or volume, 3) Short-term impacts, 4) Long-term effectiveness and permanence, 5) Implementability, 6) Cost, 7) Community acceptance, and 8) Overall protection of human health and the environment.

1. Residential Water Supply

This alternative is intended to meet Objective A (provide water meeting State drinking water standards to residents with domestic wells between Signore and Town Well), and consists of extending the Town Water District water distribution system into the area between Signore and Town Well and connecting the 33 residences in that area to the distribution system. Institutional controls would consist of the restriction of building in the contaminated area unless a suitable source of potable water is available.

Compliance with SCGs: This alternative complies with the SCGs because the residences will be provided the Town municipal water supply which meets NYSDOH MCLs.

Reduction of Toxicity, Mobility and Volume: The objective of this alternative is not to reduce the hazardous waste remaining in the ground water between Signore and the Town Well. As stated above, that is the subject of other alternatives.

Short-Term Effectiveness: This alternative will have no human health or environmental impacts during construction and implementation. In addition, the objective will be achieved immediately after implementation because the impacted domestic well water supplies are replaced with the Town water supply.

Long-Term Effectiveness and Permanence: Because this alternative requires connection of the residences to the municipal water supply, it is considered permanent. Other alternatives will deal with the residual contamination (the contaminated groundwater remaining in the area between Signore and the Town Well) remaining after this alternative is implemented.

Implementability: This alternative is technically feasible; there are no technical difficulties, the technology is reliable, no future remedial actions will be necessary and no monitoring of the effectiveness will be required. This alternative is also administratively feasible. Prior to construction, the Town will have to approve extending the boundaries of the Water District to include the additional service area. County and State Health Departments will also have to approve the plans and specifications. All necessary equipment, services and materials are readily available.

Cost: The estimated capital and operations and maintenance costs for this alternative are presented in Table 14.

Community Acceptance: Community acceptance has been received for this project in public meetings held on May 17, 1990 and September 17, 1990.

Overall Protection of Human Health and the Environment: This alternative is fully protective of human health and the environment because the impacted domestic well water supplies are replaced with the Town water supply.

2. Off-site Interceptor Well

This alternative is intended to meet Objective B (reduce volatile organic contaminants in Town Well to below appropriate levels and prevent volatile organic contaminants from moving downgradient beyond Town Well) and consists of installation of an extraction well upgradient of the Town Well and construction of discharge piping and controls to discharge the untreated recovered groundwater to a nearby stream.

Compliance with SCGs: This alternative complies with the SCGs because the interceptor well is designed to capture contaminants before they can reach the Town Well, thus reducing the VOC concentrations to below NYSDOH MCLs. In addition, the discharged groundwater will meet the VOC discharge limits to surface water as defined by 6 NYCRR, Parts 700-705.

Short-Term Effectiveness: This alternative will have no human health or environmental impacts during construction and implementation. There will be an unknown amount of time required for the interceptor well to capture contaminants in the aquifer sufficiently to reduce the VOC contaminants in the groundwater at the Town Well to below MCLs, therefore the objectives will not be immediately met.

Long-Term Effectiveness and Permanence: This alternative is not considered permanent. The interceptor well will continue to capture groundwater contamination as a protection for the Town Well and to restore the aquifer between Signore and the Town Well. A residual contamination will remain after the remedial action objectives have been met because contaminant concentrations in the groundwater will be reduced to below acceptable levels (<5ppb).

Reduction of Toxicity, Mobility and Volume: This remedial action is being implemented at the leading edge of the contamination, therefore no contamination will remain in the ground downgradient of the extraction well. No treatment is required because the recovered groundwater meets surface water limits for discharge.

Implementability: This alternative is technically feasible; there are not technical difficulties, the technology is reliable, no future remedial actions will be necessary. However, monitoring of the discharge will be required to ensure that surface water discharge limits are met and groundwater monitoring will be required to ensure that the VOC contaminant concentrations at the Town Well are reduced to acceptable levels. This alternative is also administratively feasible, NYSDEC approval of the interceptor well and discharge system plans and specifications is required before construction and NYSDEC approval of the discharge plan is required before operation.

Cost: The estimated capital and operations and maintenance costs for this alternative are presented in Table 14.

Community Acceptance: Community concerns will be addressed during the formal public meeting and comment period. Public meetings held on May 17, 1990, September 17, 1990 and March 26, 1991 have not indicated any public concern for the implementation of this alternative.

Overall Protection of Human Health and the Environment: This alternative is fully protective of human health and the environment because the Town Well is protected by the interceptor well capturing contaminants before they can reach the Town Well.

3. Site Interceptor Well/Stream Discharge

This alternative is intended to meet Objective D (restore aquifer beneath Signore by reducing volatile organic contaminants to below appropriate levels) and consists of installation of an extraction well along the downgradient Signore property boundary and construction a packed column air stripper or granular activated carbon adsorption vessel and discharge piping and controls to discharge the treated recovered groundwater to Plum Creek.

Compliance with SCGs: This alternative complies with the SCGs because the interceptor well is designed to prevent off-site migration of VOC contaminants with the goal for the restoration of the aquifer beneath the Signore Facility to NYSDOH MCLs. In addition, the discharged groundwater will meet the SPDES VOC discharge limits to surface water.

Short-Term Effectiveness: This alternative will have no human health or environmental impacts during construction and implementation. There will be an unknown amount of time required for the interceptor well to capture contaminants in the aquifer sufficiently to restore the aquifer beneath Signore by reducing the VOC contaminants in the groundwater, therefore the objectives will not be immediately met.

Long-Term Effectiveness and Permanence: This alternative is not considered permanent. The on-site interceptor well will continue to capture groundwater contamination to restore the aquifer beneath Signore as long as VOC contaminant concentrations in the groundwater beneath the Facility are above State Drinking Water Standards and the recovered groundwater will continue to be treated prior to discharge Plum Creek as long as the recovered groundwater is above discharge limits to surface water. Some residual contamination will remain in the soil beneath the Signore Facility after the objectives have been met but these wastes will be at such levels that they will not be a continuing source of VOC groundwater contamination.

Reduction of Toxicity, Mobility and Volume. This remedial action will result in residual wastes remaining in the ground that cannot be removed by pumping but as stated above these wastes will be at such levels that they will not be a continuing source of VOC groundwater contaminations. The recovered groundwater will be treated by a method which is not considered a destructive technology, however, air stripping and carbon absorption are considered "Best Available Technologies" for treating VOCs in groundwater.

Implementability: This alternative is technically feasible; there are no technical difficulties, the technology is reliable, no future remedial actions will be necessary. However, monitoring of the discharge will be required to ensure the surface water discharge limits are met and groundwater monitoring will be required to ensure that the VOC contaminant concentrations are being reduced to acceptable levels. This alternative is also administratively feasible; NYSDEC approval of the plans and specifications for the

interceptor well, treatment, controls and discharge system plans and specifications are required before construction and NYSDEC approval of the discharge plan is required before operation.

Cost: The estimated capital and operations and maintenance costs for this alternative are presented in Table 14.

Community Acceptance: Community concerns will be addressed during the formal public meeting and comment period. Public meetings held on May 17, 1990, September 17, 1990 and March 26, 1991 have not indicated any public concern for the implementation of this alternative.

Overall Protection of Human Health and the Environment: This alternative is fully protective of human health and the environment because off-site migration of VOC contaminated groundwater is being prevented and the recovered groundwater will be treated prior to discharge to Plum Creek.

VII. SUMMARY OF THE GOVERNMENT'S POSITION

The basis for the Government's decision is Article 27, Title 13 of the Environmental Conservation Law. A public meeting is scheduled for January 1992 to present the Proposed Remedial Action Plan (PRAP). A responsiveness summary will be prepared addressing the comments and recommendations of the responsible party and the public.

As noted in Section III, the extension of the existing potable water supply was completed in April 1991 as an IRM. Since that time the effected residents have been provided with a uncontaminated source of drinking water. In addition, the Town Interceptor Well was also completed and became operational in March 1991 with discharge being provided to Great Valley Creek via a unnamed tributary. Monitoring of this discharge has been conducted in accordance with the approved monitoring plan with the results collected to date, provided in Table 9. The construction of an aquifer pump test well and related equipment, is currently in progress at the site and is scheduled to be completed by December 1991. If successful, it is anticipated that this well will be utilized as the on-site interceptor well with treated groundwater being discharged to Plum Creek.

The NYSDEC and NYSDOH consider the preferred remedial alternatives to provide the best alternatives with respect to the criteria used to evaluate the remedies. Based on the information available at this time, it is believed that the preferred alternatives will be protective of public health and the environment and would also be in compliance with all applicable or relevant and appropriate requirements of Federal and State environmental statutes and would be cost effective to implement.

APPENDICES

LIST OF APPENDICES

SIGNORE INCORPORATED

Site No. 905023

Appendix A: List of Figures

1. Study Area Location Map
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3. Facility Map
4. Interim Remedial Measures
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6. Soil Boring Locations
7. Soil Gas Sample Locations
8. RI/IRM Monitoring Well Locations

Appendix B: List of Tables

1. Surface Water Organic Sampling Results
2. Surface Water Sediment Organic Sampling Results
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Appendix C: List of Exhibits

- A. Order on Consent(Aug.1989), NYSDEC and Signore Inc.
- B. Agreement, Signore Inc. and Town of Ellicottville
- C. Work Plan - Septic Tank Cleaning
- D. Work Plan - Basis of Design, Water Line Extension
- E. Work Plan - On-Site Interceptor Well (March 15, 1991)

Appendix D: Administrative Record

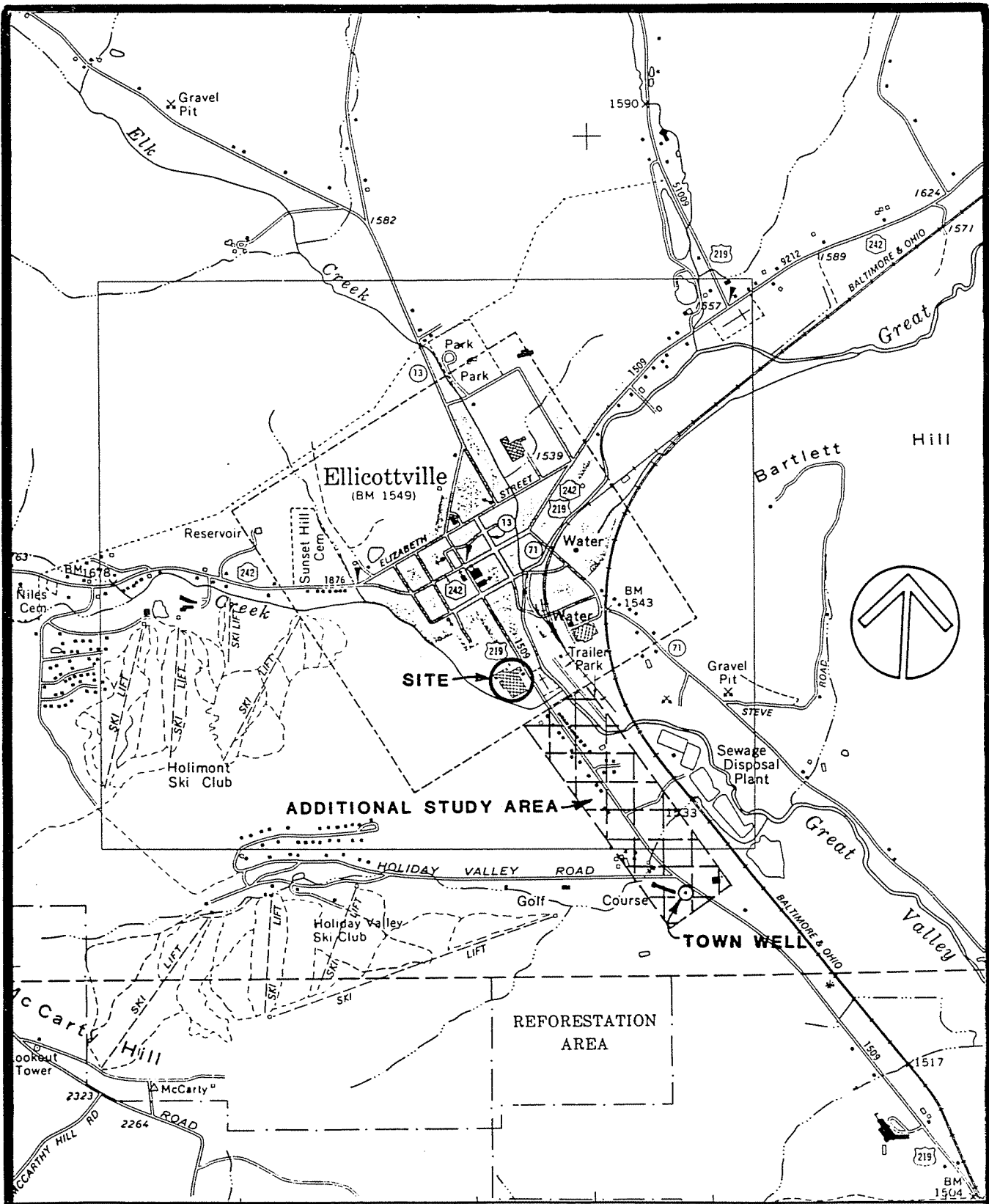
Appendix E: List of Acronyms

Appendix F: References

APPENDIX A

FIGURES

1. Study Area Location Map
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7. Soil Gas Sample Locations
8. RI/IRM Monitoring Well Locations



SCALE 1:24 000

1934-01 K160.



Map base from 1964 U.S. Geological Survey 7.5-minute quadrangle.



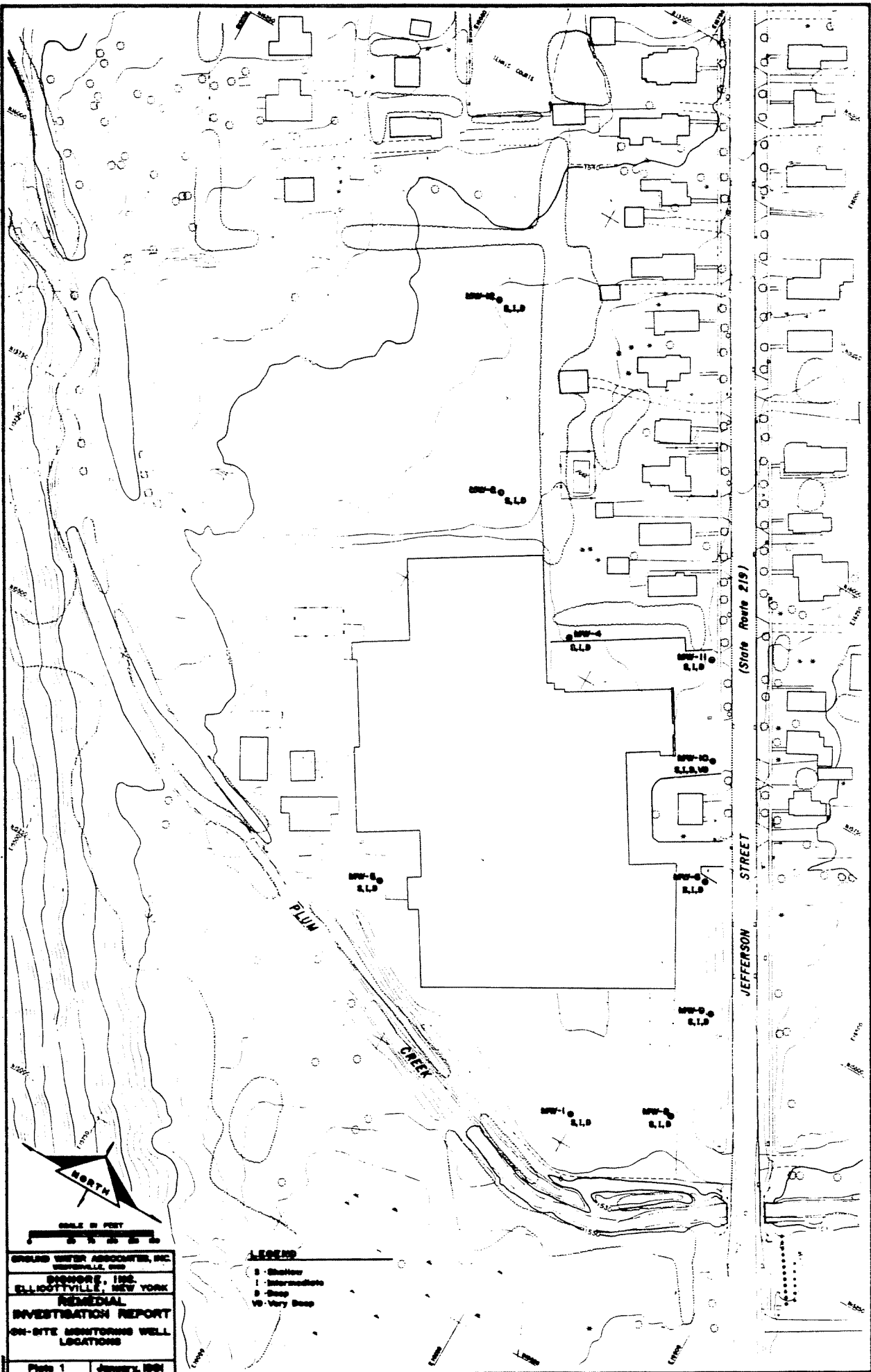
QUADRANGLE LOCATION

Ellicottville, New York

ELLICOTTVILLE QUADRANGLE

SECOND EDITION - 1975

**FIGURE 1
STUDY AREA
LOCATION MAP**

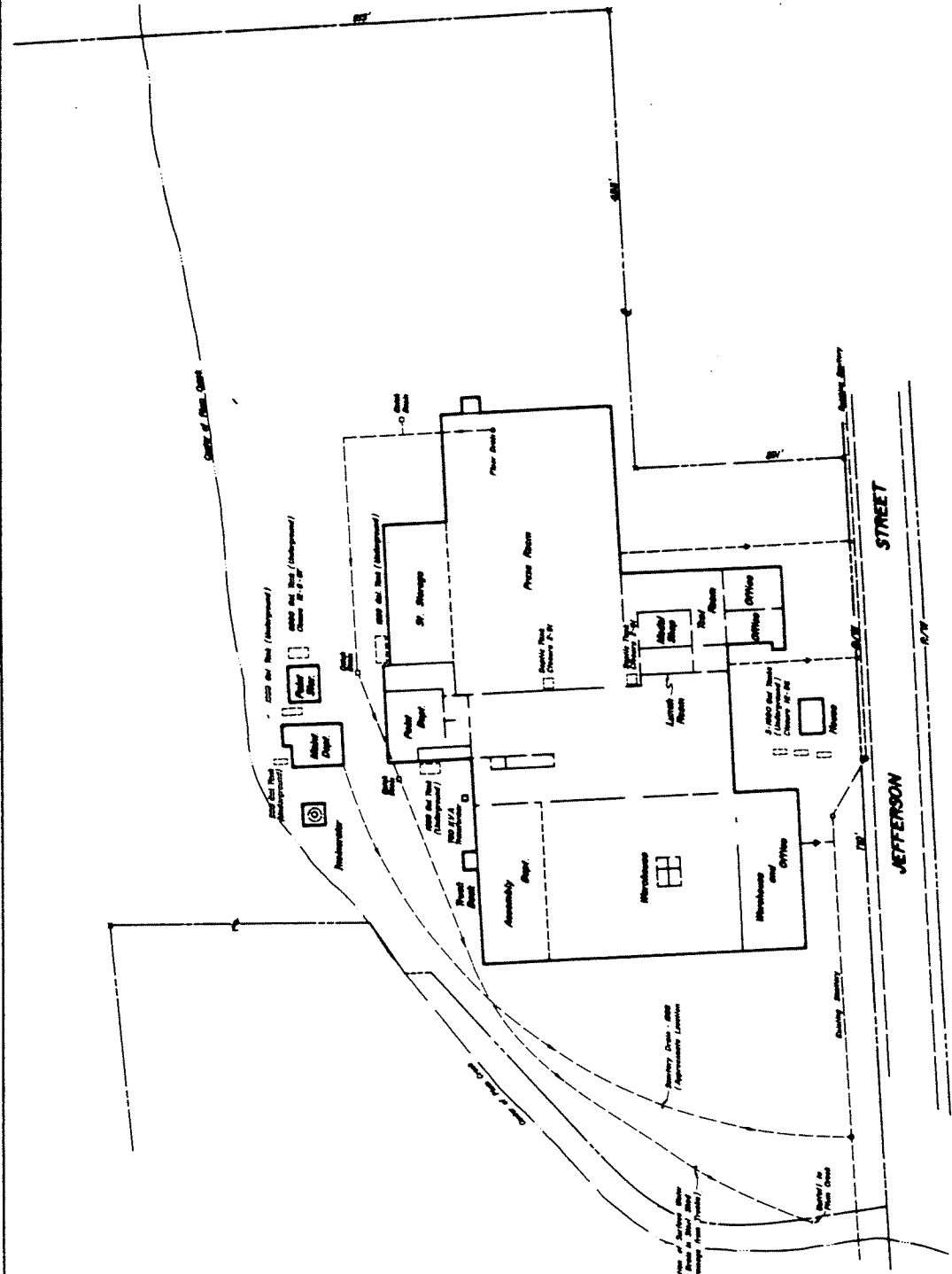
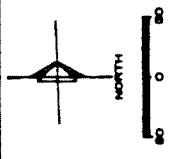


GROUND WATER ASSOCIATES, INC.
 WASHINGTON, D.C.
 DESIGNER, INC.
 ELICOTTVILLE, NEW YORK
REMEDIATION
INVESTIGATION REPORT
 ON-SITE MONITORING WELL
 LOCATIONS

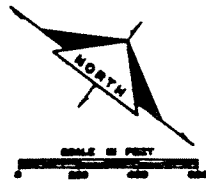
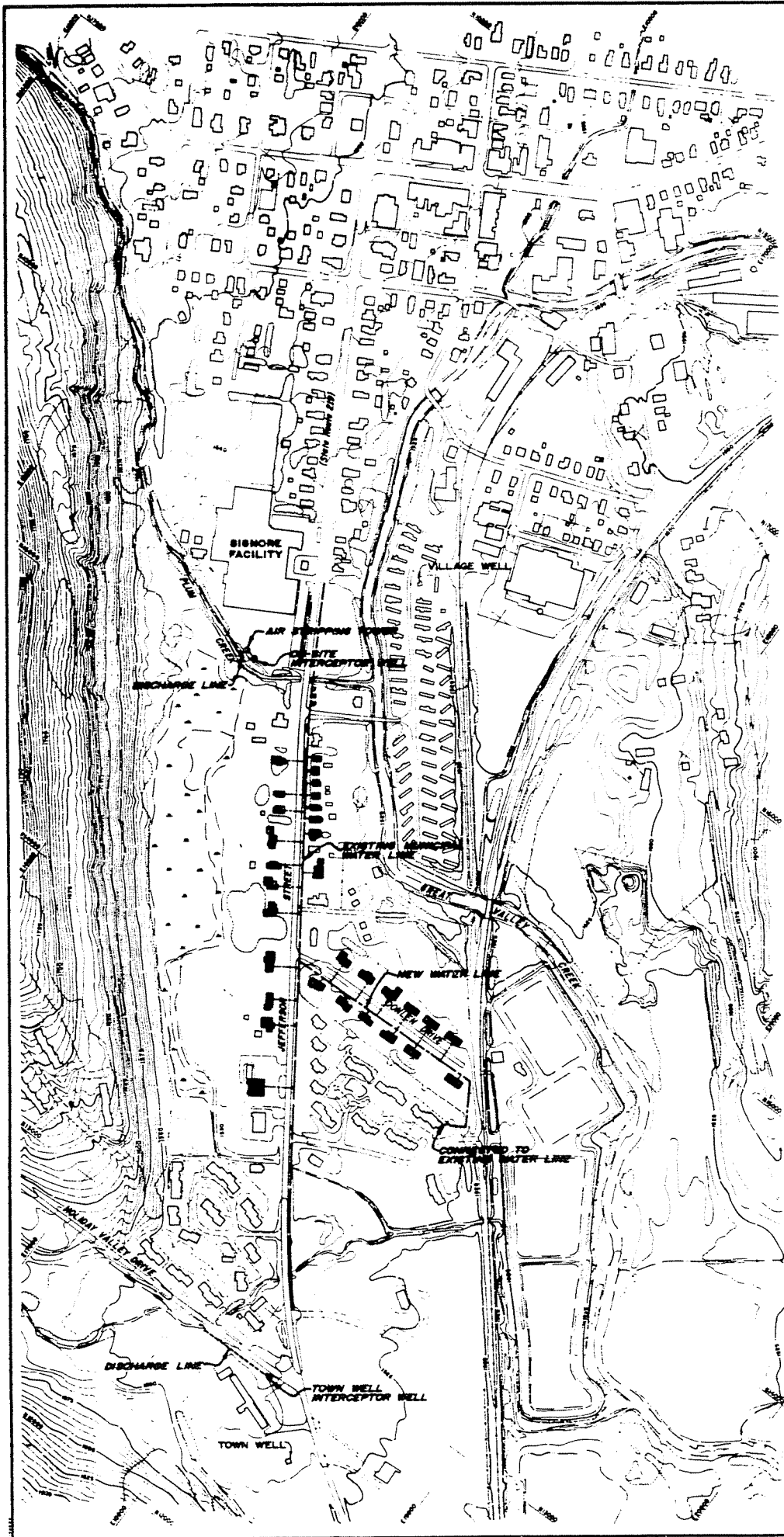
Plate 1 January, 1981

LEGEND

- S - Shallow
- I - Intermediate
- D - Deep
- VD - Very Deep



JANUARY, 1960
SIGNORE . INC.
 ELLICOTTVILLE , NEW YORK
Plate 2
FACILITY MAP



- LEGEND**
- Buildings with New Water Service
 - Interceptor Well
 - Air Stripping Tower
 - Discharge Line
 - New Water Service Line
 - New Supply Water Line
 - Existing Interceptor Water Line

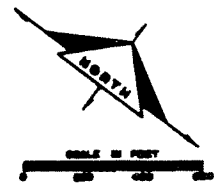
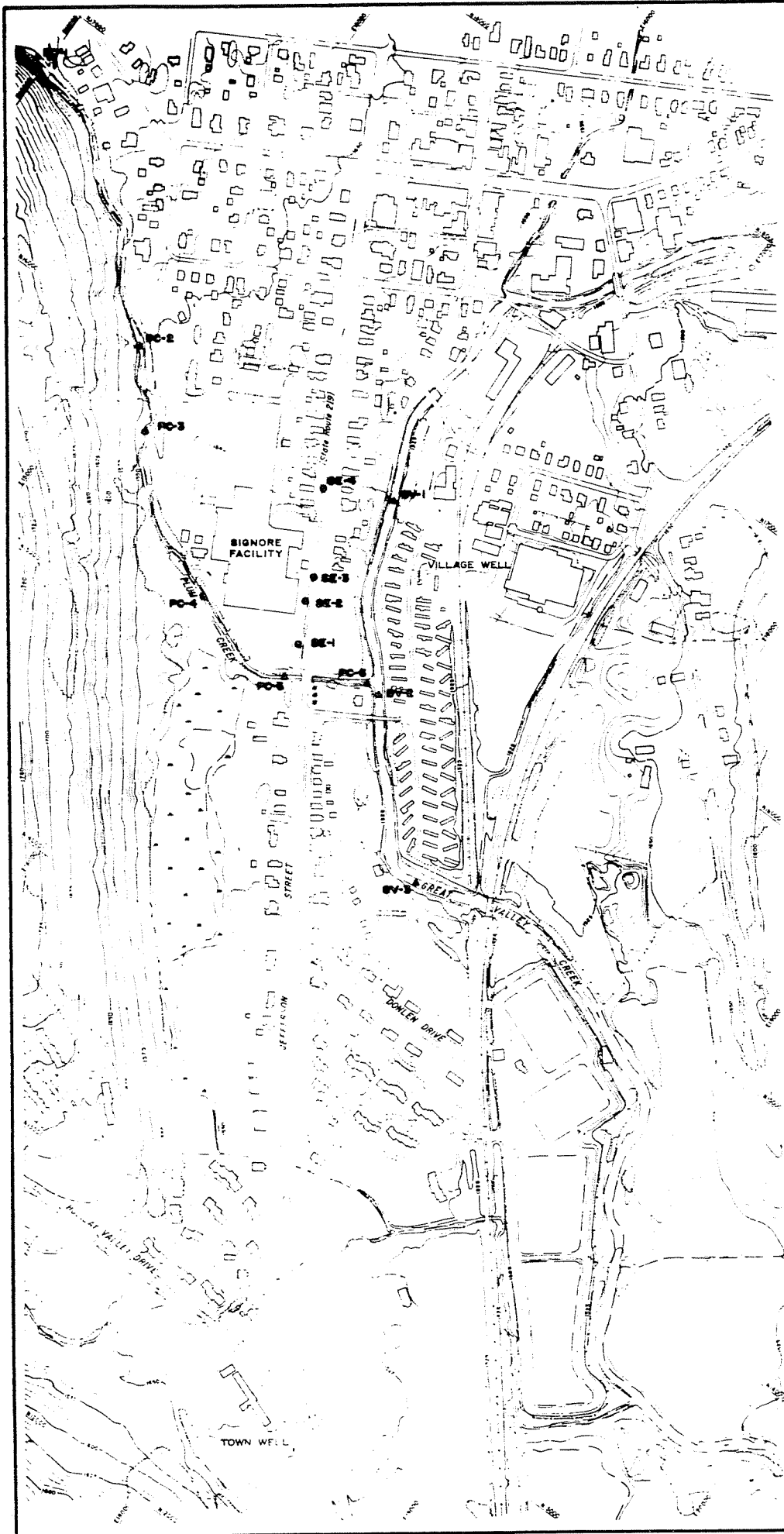
GROUND WATER ASSOCIATES, INC.
WESTERVILLE, OHIO

SIGNORE, INC.
ELLICOTTVILLE, NEW YORK

**REMEDIAL
INVESTIGATION REPORT**

INTERNAL
REMEDIAL MEASURES

August, 1991 Plate 7



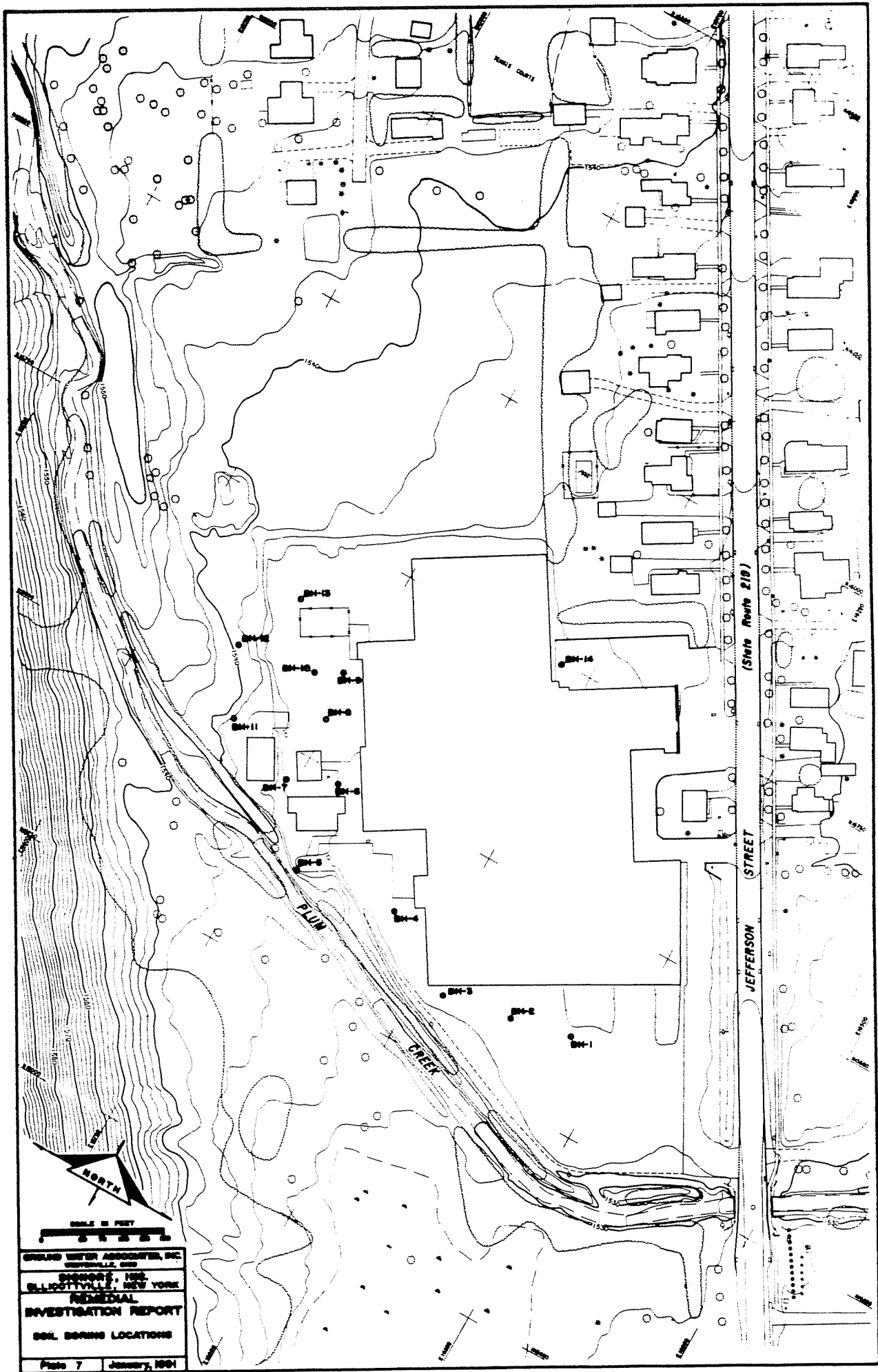
- LEGEND**
- ▲ Great Valley Creek
Sample Locations
 - Pine Creek
Sample Locations
 - Sanitary Sewer
Sample Locations

GRAND WATER ASSOCIATES, INC.
 600 WEST 111th STREET
 ELIZABETH, N.J. 07208

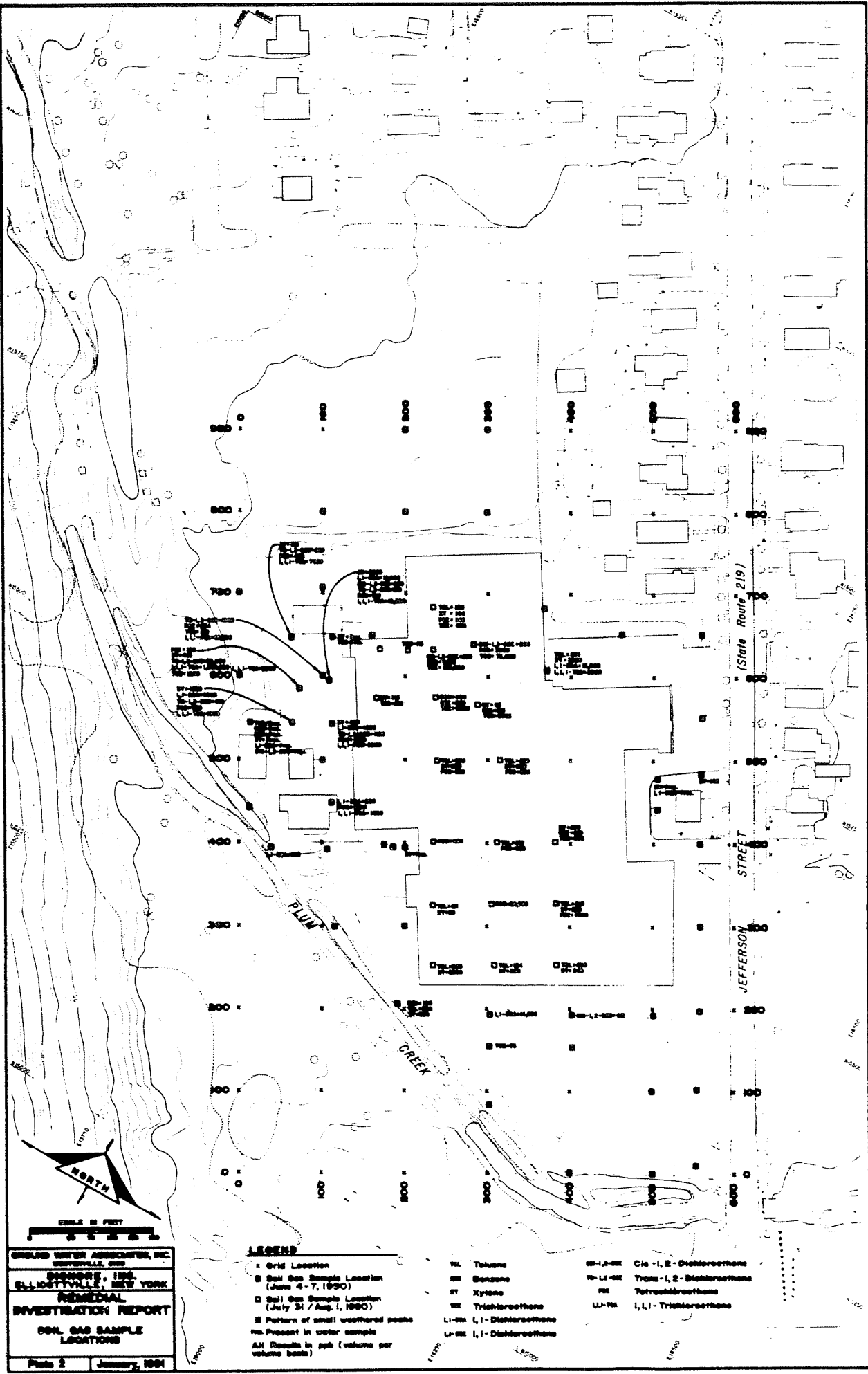
SHORE, INC.
 ELLIOTTVILLE, NEW YORK

**REMEDIAL
 INVESTIGATION REPORT
 SURFACE WATER, SEDIMENT
 AND SEWER SAMPLE
 LOCATIONS**

January, 1984 Plate 9



SCALE IN FEET
 0 10 20 30 40 50 60 70 80 90 100
 GROUND WATER ASSOCIATES, INC.
 WASHINGTON, D.C.
 GEORGE E. HILL, INC.
 ELIZABETHVILLE, NEW YORK
 FEDERAL
 INVESTIGATION REPORT
 SOIL BORING LOCATIONS
 Plate 7 January, 1964



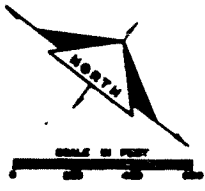
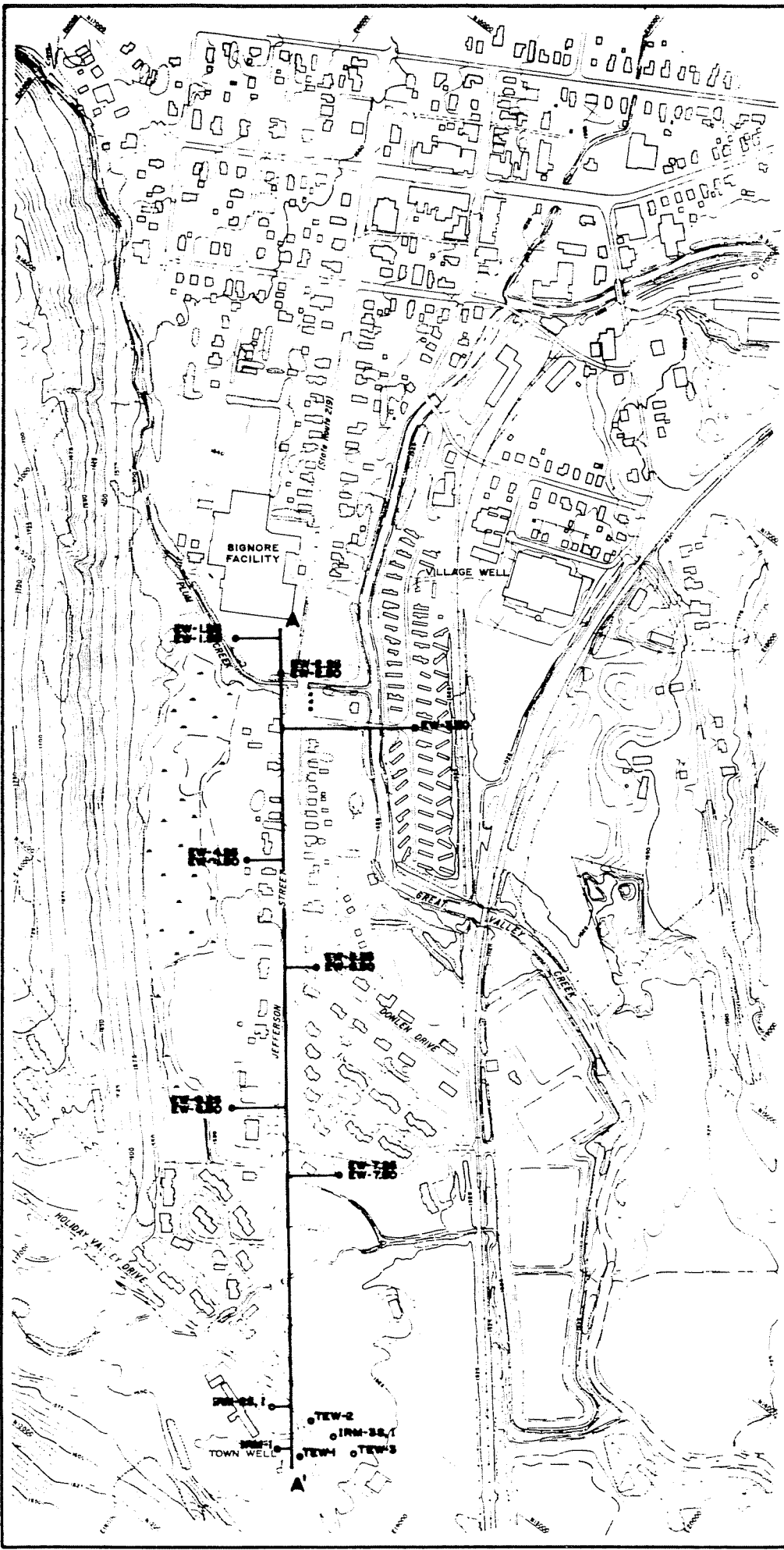
GROUND WATER ASSOCIATES, INC.
 CANTONVILLE, OHIO
 DECEMBER, 1980
 ELLIOTTVILLE, NEW YORK
REMEDIAL INVESTIGATION REPORT
 SOIL GAS SAMPLE LOCATIONS
 Plate 2 January, 1981

LEGEND

- Grid Location
- Soil Gas Sample Location (June 4-7, 1980)
- Soil Gas Sample Location (July 31 / Aug. 1, 1980)
- ≡ Pattern of small weathered pebbles Present in water sample
- AN (Results in ppb (volume per volume basis))

- ME Toluene
- BE Benzene
- XY Xylene
- TR Trichloroethane
- L-1,1,1 Dichloroethane
- L-1,1,2 Dichloroethane

- Cl-1,2 Dichloroethane
- Tr-1,2,3 Trichloroethane
- TE Tetrachloroethane
- U-1,1,1 Trichloroethane



- LEGEND**
- RI Monitoring Well
 - S=Shallow
 - I=Intermediate
 - RI/IRM Monitoring Well

GROUND WATER ASSOCIATES, INC.
 CANTONVILLE, OHIO

SIGNORE, INC.
 ELLIOTTVILLE, NEW YORK

REMEDIAL
 INVESTIGATION REPORT
 RI/IRM MONITORING WELL
 LOCATIONS AND CROSS
 SECTION LOCATION A-A'

January, 1991 Plate 2

APPENDIX B

List of Tables

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TABLE 1
 SURFACE WATER ORGANIC ANALYTICAL RESULTS
 SIGNORE REMEDIAL INVESTIGATION REPORT
 ELLICOTTVILLE, NEW YORK

SAMPLE NO.	ACETONE	METHYLENE CHLORIDE	CHLOROFORM
SW-GV-1	--	2 B	--
SW-GV-2	--	2 B	--
SW-GV-3	--	3 B	0.6 J
DUP 5 (GV-3)	--	1 B	--
SW-PC-1	--	1 B	--
SW-PC-2	--	0.8 B	--
SW-PC-3	--	--	--
SW-PC-4	--	2 B	--
SW-PC-5	--	--	--
SW-PC-6	--	1 B	--

All results in ug/L
 J=Estimated Value
 B=Compound was also detected in blank
 --=Not Detected
 Samples collected on 7/11/90

TABLE 2
 SURFACE WATER SEDIMENT ORGANIC ANALYTICAL RESULTS
 SIGNORE REMEDIAL INVESTIGATION REPORT
 ELLICOTTVILLE, NEW YORK

COMPOUND	SED-GV-1	SED-GV-2	DUP 7 (GV-2)	SED-GV-3	SED-PC-1	SED-PC-2	SED-PC-3	SED-PC-4	SED-PC-5	SED-PC-6
=====										
VOLATILES										
=====										
2-BUTANONE	4 B	4 B	--	2 B	--	--	5 B	--	--	3 B
METHYLENE CHLORIDE	25 B	34 B	21 B	43 B	18 B	28 B	47 B	15 B	28 B	41 B
ACETONE	54 B	41 B	36 B	52 B	37 B	34 B	29 B	45 B	24 B	27 B
CHLOROFORM	2 J	--	--	--	--	--	--	--	--	--
SEMI-VOLATILES										
=====										
PHENANTHRENE	2000	870	170 J	260 J	120 J	590	--	170 J	73 J	--
FLUORANTHENE	1500	210 J	200 J	230 J	68 J	--	47 J	--	89 J	--
PYRENE	1500	190 J	160 J	190 J	65 J	--	46 J	--	65 J	--
BENZO(A)ANTHRACENE	450	90 J	62 J	75 J	--	--	--	--	--	--
CHRYSENE	610	87 J	88 J	89 J	--	--	--	--	--	--
BENZO(B)FLUORANTHANE	1100 J	140 J	280 J	200 J	--	--	--	--	48 J	43 J
BENZO(K)FLUORANTHENE	1100 J	140 J	280 J	200 J	--	--	--	--	48 J	43 J
BENZO(A)PYRENE	310 J	54 J	63 J	79 J	--	--	--	--	--	--
NAPHTHALENE	130 J	--	--	--	--	--	--	--	--	--
2-METHYLNAPHTHALENE	62 J	--	--	--	--	--	--	--	--	--
ACENAPHTHENE	91 J	--	--	--	--	--	--	--	--	--
DIBENZOFURAN	94 J	--	--	--	--	--	--	--	--	--
FLUORENE	130 J	--	--	--	--	--	--	--	--	--
ANTHRACENE	200 J	57 J	--	--	--	--	--	--	--	--
BIS(2-ETHYLHEXYL) PHTHALATE	60 J	--	--	54 J	--	--	--	--	--	--
INDENO(1,2,3-CD)PYRENE	120 J	--	--	--	--	--	--	--	--	--
BENZO (G,H,I) PERYLENE	120 J	--	--	--	--	--	--	--	--	--
4-METHYLPHENOL	--	--	--	120 J	--	--	--	--	--	--
BENZOIC ACID	--	--	--	--	--	50 J	120 J	73 J	--	--
ACENAPHTHYLENE	--	--	--	--	--	--	--	--	--	--
PESTICIDE/PCB										
=====										
ENDOSULFAN SULFATE	27	--	--	--	--	--	--	--	--	--

All results in ug/kg
 J=Estimated Value
 B=Compound was also detected in blank
 --=Not Detected
 Samples collected on 7/11/90

TABLE 3

SEWER SAMPLE ORGANIC ANALYTICAL RESULTS

SIGNORE REMEDIAL INVESTIGATION REPORT
 ELLICOTTVILLE, NEW YORK

SAMPLE NO.	VOLATILES			SEMI-VOLATILES					
	2-BUTANONE	ACETONE	METHYLENE CHLORIDE	BENZOIC ACID	HEXYL PHTHALATE)	BIS (2-ETHYL-4-METHYL PHENOL	ALCOHOL	BENZYL	PHENOL
SE-1	--	--	--	--	--	--	--	--	--
SE-2	--	44 B	4 B	9 J	3 J	3 J	4 J	2 J	--
SE-3	4 J	13 B	--	--	9 J	--	--	--	--
DUP 6 (SE-3)	--	18 B	--	18 J	8 J	--	--	--	--
SE-4	--	22 B	--	--	--	--	--	--	--

All results in ug/L
 J=Estimated Value
 B=Compound was also detected in blank
 ---=Not Detected
 Samples collected on 7/11/90

TABLE 4
SOIL SAMPLE VOC ANALYTICAL RESULTS
SIGNORE REMEDIAL INVESTIGATION REPORT
ELLCOTTVILLE, NEW YORK

SOIL BORING	METHYLENE				ETHYL-				PCE	1,2-DCE	TCE	1,1,2-TCA
	CHLORIDE	ACETONE	2-BUTANONE	TOLUENE	BENZENE	XYLENE	1,1,1-TCA					
BH-1 4-6	17 B	13 B	--	--	--	--	--	--	--	--	--	--
BH-2 2-4	23 B	72 B	17 B	--	--	--	--	--	--	--	--	--
BH-2 6-8	38 B	120 B	16 B	3 J	--	--	--	--	--	--	--	--
DUP 8 (BH-2 6-8)	18 B	46 B	18 B	--	--	--	--	--	--	--	--	--
BH-3 2-4	38 B	35 B	6 B	--	3 J	73	--	--	--	--	--	--
BH-3 4-6	42 B	100 B	7 B	6 J	--	--	--	--	--	--	--	--
BH-3 6-8	23 B	63 B	6 B	5 J	2 J	11	--	--	--	--	--	--
BH-4 6-8	9 B	20 B	2 B	--	--	--	--	--	--	--	--	--
BH-4 8-10	21 B	38 B	5 B	--	--	--	--	--	--	--	--	--
BH-4 10-12	8 B	17 B	3 B	--	--	--	--	--	--	--	--	--
BH-4 12-14	5 B	11 B	--	--	--	--	--	--	--	--	--	--
BH-5 4-6	22 B	50 B	6 B	1 B	--	--	--	--	--	--	--	--
BH-6 6-8	19 B	30 B	5 B	--	--	--	--	--	--	--	--	--
BH-6 10-12	19 B	67 B	24 B	--	--	--	--	--	--	--	--	--
BH-7 2-4	58 B	43 B	8 B	--	12	4 J	--	--	1 J	9	--	--
BH-7 4-6	22 B	43 B	6 B	--	2 J	--	--	--	2 J	15	--	--
BH-7 6-8	16 B	41 B	5 B	--	--	--	--	--	--	10 J	--	--
BH-8 4-6	36 B	30 B	5 B	--	--	--	--	--	--	--	--	--
BH-8 8-10	22 B	49 B	4 B	--	--	--	--	--	--	--	--	--
BH-9 0-2	19 B	66 B	8 B	--	--	--	3 J	--	--	--	--	--
BH-9 6-8	17 B	47 B	4 B	--	--	--	--	--	--	--	--	--
BH-9 8-10	23 B	24 B	3 B	--	--	--	--	--	--	--	--	--
BH-10 2-4	43 B	24 B	2 B	--	--	--	--	--	--	--	--	--
BH-10 4-6	23 B	26 B	3 B	--	--	--	1 J	--	--	--	--	--
DUP 11(BH-10 4-6)	27 B	31 B	--	--	--	--	--	--	--	--	--	--
BH-10 6-8	26 B	49 B	7 B	--	--	--	8	--	--	--	--	--
BH-11 4-6	17 B	50 B	4 B	--	--	--	--	--	--	--	--	--
BH-12 10-12	15 B	40 B	3 B	--	--	--	--	--	--	--	--	--
DUP 10(BH-12 10-12)	16 B	39 B	7 B	--	--	--	--	--	--	--	--	--
BH-13 8-10	26 B	28 B	5 B	--	--	--	--	--	--	--	--	--
BH-14 0-2	25 B	41 B	6 B	--	--	--	--	--	--	--	6 J	--
BH-14 2-4	12 B	19 B	2 B	--	--	--	--	--	--	2 J	6 J	--
BH-14 4-6	16 B	42 B	6 B	--	--	--	--	--	--	--	--	--
DUP 9 (BH-14 4-6)	10 B	15 B	1 B	--	--	--	--	--	--	--	--	--
BH-14 6-8	32 B	24 B	2 B	--	--	--	5	5 J	--	24	--	--

All Results in ug/kg

J=Estimated Value

B=Compound was also detected in blank

--=Not Detected

Samples collected on 7/30/90 through 8/3/90

TABLE 5

GROUND WATER ORGANIC ANALYTICAL RESULTS
ON-SITE MONITORING WELLS

SIGNORE REMEDIAL INVESTIGATION REPORT
ELLICOTTVILLE, NEW YORK

WELL	VOLATILES										SEMI-VOLATILES				
	METHYLENE CHLORIDE	VINYL CHLORIDE	ETHANE	1,1,1-TCA	TCE	PCE	1,1-DCE	ACETONE	1,2-DCE	1,1-DCA	BENZENE	TOLUENE	2-BUTANONE	HEXYL PHTHALATE)	BIS (2-ETHYL
MW-1S	1 B	--	--	--	1 J	--	--	--	2	100 J	--	--	--	--	--
MW-11	2 B	2 J	2 J	6	55	2 J	0.7 J	--	79 J	73 J	--	--	--	--	--
MW-10	5 B	--	--	38 J	25	1 J	--	--	2 J	9	--	--	--	--	--
MW-2S	0.8 B	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-4S	5 B	--	--	10	27	3	--	--	3	1 J	--	--	--	--	--
MW-5S	3 B	--	2 J	99 J	100 J	1 J	1 J	--	20	8	--	--	--	--	--
MW-5D	5 B	--	--	--	--	--	--	6 B	--	1 J	1 J	--	--	--	--
MW-6S	2 B	--	--	--	--	--	--	5 B	--	--	--	--	--	--	--
MW-6D	4 B	--	--	--	--	--	--	2 B	--	--	--	--	--	1 J	--
MW-8S	3 B	--	--	5	19	3	--	--	1 J	--	--	--	--	--	--
DUP 4 (8S)	2 B	--	--	5	18	3	--	--	1 J	--	--	--	--	--	--
MW-9S	0.8 B	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-9I	14 B	--	--	10	28	2 J	1 J	--	--	--	--	--	--	--	--
DUP 3 (9I)	4 B	--	--	--	30	2 J	1 J	--	--	--	--	--	10 J	--	--

All results in ug/L
B=Compound was also detected in blank
J=Estimated Value
--=Not Detected
Samples collected on 6/28/90 and 6/29/90

TABLE 6

GROUND WATER ORGANIC ANALYTICAL RESULTS
RI MONITORING WELLS

SIGNORE REMEDIAL INVESTIGATION REPORT
ELLICOTTVILLE, NEW YORK

WELL	METHYLENE CHLORIDE	ACETONE	1,1,1-TCA	PCE	1,2-DCE	TCE	1,1-DCA	CHLOROETHANE	1,1-DCE
EW-1.25	--	19 B	84	--	42	180	37	--	--
EW-1.50	1 B	--	160 J	--	5	65 J	20	1 J	1 J
EW-2.25	20	--	--	--	--	--	--	--	--
DUP 16 (2.25)	24	--	--	--	--	--	--	--	--
EW-2.50	6 B	--	--	--	--	1 J	--	--	--
EW-3.50	2 B	--	--	--	--	2	--	--	--
EW-4.25	2 B	--	--	--	--	--	--	--	--
EW-4.50	2 B	--	37	0.8 J	2	29	4	--	--
EW-5.25	1 B	--	2	0.9 J	--	4	--	--	--
EW-5.50	1 B	--	2	1 J	--	6	--	--	--
EW-6.25	1 B	--	--	--	--	--	--	--	--
EW-6.50	1 B	--	--	--	--	--	--	--	--
EW-7.25	1 B	--	--	--	--	--	--	--	--
DUP 15 (7.25)	1 B	--	--	--	--	--	--	--	--
EW-7.50	1 B	--	2	--	--	3	--	--	--

All Results in ug/L
B=Compound was also detect in blank
J=Estimated Value
--=Not Detected
Samples collected on 9/10/90

NOTE: Well Nos. EW-3.50, thru EW-7.50 are located off-site of the Signore property.
Wells EW-1.25, 1.50, 2.25 & 2.50 are located on the southeast boundary of the site.

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning with the pumping of the interceptor well

and lasting until completion of groundwater remediation

the discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

Outfall Number & Effluent Parameter	Discharge Limitations		Units	Minimum Monitoring Requirements	
	Daily Avg.	Daily Max.		Measurement Frequency	Sample Type
<u>001; Discharge of treated groundwater to an unnamed intermittent tributary of Great Valley Creek:</u>					
Vinyl Chloride	NA	0.05	mg/l	Monthly	Grab
Chloroethane	NA	0.17	mg/l	Monthly	Grab
1,1,1-Trichloroethane	NA	0.02	mg/l	Monthly	Grab
Trichloroethylene	0.011	0.04	mg/l	2/month	Grab
Tetrachloroethylene	0.001	0.04	mg/l	2/month	Grab
1,1-Dichloroethane	NA	0.03	mg/l	Monthly	Grab
1,2-(trans)-Dichloroethylene	NA	0.03	mg/l	Monthly	Grab
Aluminum, Dissolved	NA	0.10	mg/l	Monthly	Grab
Chromium, Total	NA	0.18	mg/l	Monthly	Grab
Copper, Total	NA	0.01	mg/l	Monthly	Grab
Iron, Total	NA	0.30	mg/l	Monthly	Grab
Lead, Total	NA	0.003	mg/l	Monthly	Grab
Nickel, Total	NA	0.086	mg/l	Monthly	Grab
Zinc, Total	NA	Monitor	mg/l	Monthly	Grab
Manganese	NA	4.8	mg/l	Monthly	Grab

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning with the pumping of the on-site extraction well

and lasting until completion of groundwater remediation

the discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

Outfall Number & Effluent Parameter	Discharge Limitations		Units	Minimum Monitoring Requirements	
	Daily Avg.	Daily Max.		Measurement Frequency	Sample Type
<u>001: Discharge of treated groundwater to Plum Creek:</u>					
Vinyl Chloride	NA	0.05	mg/l	Monthly	Grab
Chloroethane	NA	0.17	mg/l	Monthly	Grab
1,1,1-Trichloroethane	NA	0.02	mg/l	Monthly	Grab
Trichloroethylene	0.011	0.04	mg/l	2/month	Grab
Tetrachloroethylene	0.001	0.04	mg/l	2/month	Grab
1,1-Dichloroethane	NA	0.03	mg/l	Monthly	Grab
1,2-(trans)-Dichloroethylene	NA	0.03	mg/l	Monthly	Grab
Aluminum, Dissolved	NA	0.10	mg/l	Monthly	Grab
Chromium, Total	NA	0.18	mg/l	Monthly	Grab
Copper, Total	NA	0.01	mg/l	Monthly	Grab
Iron, Total	NA	0.30	mg/l	Monthly	Grab
Lead, Total	NA	0.003	mg/l	Monthly	Grab
Nickel, Total	NA	0.086	mg/l	Monthly	Grab
Zinc, Total	NA	Monitor	mg/l	Monthly	Grab
Manganese, Total	NA	4.8	mg/l	Monthly	Grab

INTERIM REMEDIAL MEASURE MONITORING PLAN
LONG TERM MONITORING RESULTS
SIGNORE INC. SITE, ELLICOTTVILLE(T), CATTARAUGUS CO.
SITE NO. 905023

DATE: 10/31/91

LIMITATIONS

SAMPLING LOCATION	PARAMETERS (1)	FREQUENCY	UNITS	DAILY MAX MON. AVG.	4/25/91	5/6/91	5/20/91	6/04/91	6/19/91	7/7/91	7/23/91	8/05/91
TOWN WELL	CHLOROETHANE	1/MO.	ug/l	170	NA	1.00E+00	NA	1.00E+00	NA	NA	1.00E+00	1.00E+00
INTERCEPTION WELL	1,1-DICHLOROETHANE	1/MO.	ug/l	30	NA	5.00E-01	NA	5.00E-01	NA	NA	1.00	1.00
	TRANS-1,2-DICHLOROETHANE	1/MO.	ug/l	30	NA	1.00	NA	5.00E-01	NA	NA	5.00E-01	1.00
	TETRACHLOROETHENE	2/MO.	ug/l	40	1	0.23	0.22	0.24	0.19	0.29	1.00	1.00
	1,1,1-TRICHLOROETHANE	2/MO.	ug/l	20	20	4.3	4.1	4.6	3.5	4.2	4.00	4.20
	TRICHLOROETHYLENE	2/MO.	ug/l	40	11	6.7	6.00	6.30	4.50	6.50	5.60	5.90
	VINYL CHLORIDE	1/MO.	ug/l	50	NA	1.00E+00	NA	1.00E+00	NA	NA	2.00	1.00E+00
	TRICHLOROETHANE	NA	ug/l	NA	NA	1.00E+00	NA	1.00E+00	NA	NA	NA	NA
	ALUMINUM(T)	1/MO.	ug/l	100	NA	5.00E+01	NA	11	11	NA	2.50E+01	130.00
	CHROMIUM(T)	1/MO.	ug/l	180	NA	5.00E+00	NA	29	29	NA	2.50E+00	5.00E+00
	COPPER(T)	1/MO.	ug/l	10	10	NA	10	NA	9	NA	5.00E+00	16.00
	IRON(T)	1/MO.	ug/l	300	NA	130	130	NA	1.50E+02	NA	31.00	24.00
	LEAD(T)	1/MO.	ug/l	3	3	NA	33	NA	14	NA	4.00	3.00
	NICKEL(T)	1/MO.	ug/l	86	NA	1.00E+01	NA	1.00E+01	NA	NA	1.00E+01	1.00E+01
	ZINC(T)	1/MO.	ug/l	M.O.	M.O.	90	NA	26	26	NA	36	71

NOTES: NA - NOT ANALYZED OR NOT APPLICABLE
VALUES IN SCIENTIFIC NOTATION EQUALS 1/2 DETECTION LIMIT
(1) - PARAMETERS REPRESENT SITE SPECIFIC SUBSTANCES OF CONCERN

TABLE 10

REMEDIAL TECHNOLOGIES AND PROCESS OPTIONS DESCRIPTIONS
SIGNORE FEASIBILITY STUDY REPORT
ELLICOTTVILLE, NEW YORK

<u>General Response Actions</u>	<u>Remedial Technology</u>	<u>Process Options</u>	<u>Description</u>	<u>Preliminary Implementability Screening Comments</u>
No Action	None	None	No action.	Not applicable, Interim Remedial Measures already in place.
Institutional	Restricted Ground Water Use	Statutory/Deed Restrictions	Statutory code or deed restrictions prohibiting wells in area between Signore and Town Well.	Potentially applicable to prevent new wells being drilled in contaminated area.
	Monitoring	Ground Water Monitoring	On-going sampling of monitoring, domestic, municipal and interceptor wells.	Not applicable, contamination already present in aquifer.
	Alternative Water Supply	Existing Municipal Water	Connect residences in area between Signore and Town Well to Town distribution system.	Potentially applicable.
Containment	Capping	New Municipal Well	Install new well with treatment and build distribution line to residences in affected area.	Potentially applicable.
		New Individual Domestic Wells	Relocate or deepen individual domestic wells in affected area.	Not feasible, no suitable replacement locations and can not deepen wells.
		Clay and Soil	Install compacted clay covered with soil over contaminated areas.	Not applicable, capping will not limit recharge to aquifer.
	Vertical Physical Barrier	Asphalt	Apply layer of asphalt and sealer over contaminated areas.	Not applicable, capping will not limit recharge to aquifer.
		Concrete	Install concrete slab over contaminated areas.	Not applicable, capping will not limit recharge to aquifer.
		Synthetic and Soil	Install compacted clay and synthetic membrane covered with soil over contaminated areas.	Not applicable, capping will not limit recharge to aquifer.
		Sheet Piling	Install sheet piling around ground water contaminated area to total depth of contamination.	Not feasible, nothing to tie barrier into above bedrock, which is greater than 75 ft.
Grout Curtain	Slurry Wall	Install trench backfilled with soil/cement/bentonite slurry around and to total depth of contam.	Not feasible, nothing to tie barrier into above bedrock, which is greater than 75 ft.	
	Grout Curtain	Pressure injection of grout in pattern of drilled holes around and to total depth of contamination.	Not feasible, nothing to tie barrier into above bedrock, which is greater than 75 ft.	

TABLE 10 (cont.)

REMEDIAL TECHNOLOGIES AND PROCESS OPTIONS DESCRIPTIONS
 SIGNORE FEASIBILITY STUDY REPORT
 ELLICOTTVILLE, NEW YORK

<u>General Response Actions</u>	<u>Remedial Technology</u>	<u>Process Options</u>	<u>Description</u>	<u>Preliminary Implementability Screening Comments</u>
Containment	Horizontal Physical Barrier	Liners	Install compacted clay and synthetic membrane underneath contamination.	Not applicable, no waste source to be controlled with horizontal barrier.
		Grout Injection	Pressure injection of grout at depth through closely spaced drillholes below contamination.	Not applicable, no waste source to be controlled with horizontal barrier.
		Barrier Extraction Injection Wells	Extract from barrier extraction wells and inject into upgradient injection wells.	Not feasible, aquifer flow rate too large to control hydraulically.
Collection	Extraction	Extraction Wells	Extract contaminated water from vertical wells.	Potentially applicable.
		Extraction Injection Wells	Extract from barrier extraction wells and inject into upgradient injection wells.	Potentially applicable.
		Well Point System	Extract contamination from a header system connected to a system of individual well points.	Not applicable, not best technology to extract from high production aquifer.
Treatment	Drains	Interceptor Trench	Extract contamination from perforated pipe installed in trench backfilled with porous media.	Not applicable, not best technology to extract from high production aquifer.
		Air Stripping	Volatilization of contaminants by mixing air with water to promote mass transfer from water to air.	Potentially applicable.
	Physical Treatment	Steam Stripping	Air stripping where volatilization enhanced by pre-heating water or injecting steam.	Not applicable, contaminants of concern readily strip without heat.
		Carbon Adsorption	Adsorption of contaminants onto activated carbon by passing water through carbon column.	Potentially applicable.
		Floating Phase Separation	Gravity separation of free phase contamination from surface of ground water.	Not applicable, no free phase contamination present.
		Filtration	Removal of suspended solid contaminants by passing water through filter.	Not applicable for contaminants of concern.
		Conagulation/Flocculation	Separation of suspended solid contaminants by addition of coagulants followed by flocculation.	Not applicable for contaminants of concern.

TABLE 10 (cont.)

REMEDIAL TECHNOLOGIES AND PROCESS OPTIONS DESCRIPTIONS
SIGNORE FEASIBILITY STUDY REPORT
ELLICOTTVILLE, NEW YORK

<u>General Response Actions</u>	<u>Remedial Technology</u>	<u>Process Options</u>	<u>Description</u>	<u>Preliminary Implementability Screening Comments</u>
Treatment	Physical Treatment	Reverse Osmosis	Removal of dissolved contaminants by high pressure passage of water through semi-permeable membrane.	Not applicable for contaminants of concern.
	Chemical Treatment	Ion Exchange	Removal of dissolved contaminants by exchanging one ion for another by passing water over resin bed.	Not applicable for contaminants of concern.
		Precipitation	Chemical dissolution of contaminants by addition of chemicals and/or adjustment of pH.	Not applicable for contaminants of concern.
		Oxidation	Oxidation of contaminants using hydrogen peroxide, ozone or ozone/UV.	Potentially applicable.
	Biological Treatment	Anaerobic Reactor	Degradation of contaminants using bacteria in an anaerobic environment.	Not applicable for ground water remedial systems.
		Aerobic Suspended Growth Reactor	Degradation of contaminants using bacteria mixed with water in aerated lagoon/basin with clarifier.	Potentially applicable.
		Aerobic Fixed Film Reactor	Degradation of contaminants by passing water across bacteria grown on fixed film in aerated reactor.	Potentially applicable.
	Thermal Destruction	Incineration	Oxidation of contaminants by heating water to high temperature in presence of oxygen.	Not feasible, can not construct on-site incinerator.
	In-Situ Treatment	Vapor Recovery	Physical removal of air in vadose zone followed by carbon adsorption treatment of vapor.	Potentially applicable.
		Biological Degradation	Degradation of contaminants in ground by injection of bacteria, oxygen and nutrients into ground wtr.	Potentially applicable.
		Aeration	Stripping of contaminants in ground by injection of air into ground water.	Not applicable for contaminants of concern.
	Off-Site Treatment	POTW	Contaminated water discharged to local POTW for treatment.	Not feasible, large flow of non-nutrient water creates POTW operational problems.
		RCRA Facility	Contaminated water collected and transported to permitted RCRA facility for treatment.	Not feasible, liability problems associated with off-site transport.
Discharge	On-Site Discharge	Local Stream	Contaminated water, before or after treatment, discharged to adjacent stream.	Potentially applicable.

TABLE 10(cont.)

REMEDIAL TECHNOLOGIES AND PROCESS OPTIONS DESCRIPTIONS
 SIGNORE FEASIBILITY STUDY REPORT
 ELLICOTTVILLE, NEW YORK

<u>General Response Actions</u>	<u>Remedial Technology</u>	<u>Process Options</u>	<u>Description</u>	<u>Preliminary Implementability Screening Comments</u>
Discharge	On-Site Discharge	Injection Well	Contaminated water, before or after treatment, recharged to aquifer.	Not applicable, injection into drinking water aquifer contrary to regulations.
		Municipal Dist. System	Contaminated water, after treatment, discharged into municipal distribution system.	Potentially applicable.
	Off-Site Discharge	POTW	Contaminated water, before or after treatment, discharged to local POTW.	Not feasible, large flow of non-nutrient water creates POTW operational problems.
		Pipeline to Larger Stream	Contaminated water, before, or after treatment, discharged through pipe to Great Valley Creek.	Not applicable, piping to Great Valley Creek no advantage over local stream.
		Deep Well Injection	Contaminated water, before or after treatment, transported to permitted deep well for discharge.	Not feasible, liability problems associated with off-site transport.

TABLE II

PROCESS OPTIONS SCREENING, OBJECTIVE A - PROVIDE WATER TO RESIDENCES
SIGNORE FEASIBILITY STUDY REPORT
ELLICOTTVILLE, NEW YORK

<u>General Response Actions</u>	<u>Remedial Technology</u>	<u>Process Options</u>	<u>Effectiveness</u>	<u>Implementability</u>	<u>Cost</u>
Institutional	Alternative Water Supply	Existing Municipal Water New Municipal Well	Effective and reliable. Effective, treatment must be monitored to ensure < MCLs.	Requires Water District extension and deed of water line. Requires formation of new Water District.	High capital, low O&M. Very high capital, high O&M.
Collection	Extraction	Extraction Wells Extraction Injection Wells	Does not meet objective. Does not meet objective.	Does not meet objective. Does not meet objective.	High capital, moderate O&M. High capital, high O&M.
Treatment	Physical Treatment	Air Stripping Carbon Adsorption	Effective for removing contaminants. Effective for removing contaminants.	Appropriate for treating new municipal well. Appropriate for treating individual domestic wells.	High capital, low O&M. High capital, moderate O&M.
	Chemical Treatment	Oxidation Aerobic Fixed Film Reactor	Not best available technology for VOCs. Unreliable for removing chlorinated solvents.	Implementable. Implementable.	High capital, high O&M. High capital, high O&M.
	Biological Treatment	Vapor Recovery Biological Degradation	Unreliable for removing low levels of dissolved VOCs. Unreliable for removing chlorinated solvents.	Contaminated area too large to implement system. Contaminated area too large to implement system.	High capital, moderate O&M. High capital, high O&M.
Discharge	On-Site Discharge	Local Stream Municipal Dist. System	Does not meet objective. Does not meet objective.	Does not meet objective. Does not meet objective.	Moderate capital, low O&M. Moderate capital, low O&M.

TABLE 12

PROCESS OPTIONS SCREENING, OBJECTIVE B - PROTECT TOWN WELL/PREVENT DOWNGRAIDENT MOVEMENT
SIGNORE FEASIBILITY STUDY REPORT
ELLICOTTVILLE, NEW YORK

<u>General Response Actions</u>	<u>Remedial Technology</u>	<u>Process Options</u>	<u>Effectiveness</u>	<u>Implementability</u>	<u>Cost</u>
Institutional	Alternative Water Supply	Existing Municipal Water New Municipal Well	Does not meet objective. Does not meet objective.	Does not meet objective. Does not meet objective.	High capital, low O&M. Very high capital, high O&M.
Collection	Extraction	Extraction Wells	Effective for controlling ground water movement.	Implementable.	High capital, moderate O&M.
		Extraction Injection Wells	Ineffective at leading edge of contamination.	Requires permit for injection to aquifer.	High capital, high O&M.
Treatment	Physical Treatment	Air Stripping	Effective for removing contaminants.	Implementable.	High capital, low O&M.
		Carbon Adsorption	Effective for removing contaminants.	Implementable.	High capital, moderate O&M.
	Chemical Treatment	Oxidation	Not best available technology for VOCs.	Implementable.	High capital, high O&M.
	Biological Treatment	Aerobic Fixed Film Reactor	Unreliable for removing chlorinated solvents.	Implementable.	High capital, high O&M.
	In-Situ Treatment	Vapor Recovery	Unreliable for removing low levels of dissolved VOCs.	Contaminated area too large to implement system.	High capital, high O&M.
		Biological Degradation	Unreliable for removing chlorinated solvents.	Contaminated area too large to implement system.	High capital, high O&M.
Discharge	On-Site Discharge	Local Stream	Effective for discharge of treated or untreated water.	Implementable.	Moderate capital, low O&M.
		Municipal Dist. System	Effective for discharge of treated water.	Implementable.	Moderate capital, low O&M.

TABLE 13

PROCESS OPTIONS SCREENING, OBJECTIVE D - RESTORE AQUIFER BENEATH SIGNORE
SIGNORE FEASIBILITY STUDY REPORT
ELLICOTTVILLE, NEW YORK

<u>General Response Actions</u>	<u>Remedial Technology</u>	<u>Process Options</u>	<u>Effectiveness</u>	<u>Implementability</u>	<u>Cost</u>
Institutional	Alternative Water Supply	Existing Municipal Water New Municipal Well	Does not meet objective. Does not meet objective.	Does not meet objective. Does not meet objective.	High capital, low O&M. Very high capital, high O&M.
Collection	Extraction	Extraction Wells Extraction Injection Wells	Effective for controlling ground water movement. Effective in enhancing ground water flow to extraction well.	Implementable. Requires permit for injection to aquifer.	High capital, moderate O&M. High capital, high O&M.
Treatment	Physical Treatment	Air Stripping Carbon Adsorption	Effective for removing contaminants. Effective for removing contaminants.	Implementable. Implementable.	High capital, low O&M. High capital, moderate O&M.
	Chemical Treatment	Oxidation	Not best available technology for VOCs.	Implementable.	High capital, high O&M.
	Biological Treatment	Aerobic Fixed Film Reactor	Unreliable for removing chlorinated solvents.	Implementable.	High capital, high O&M.
	In-Situ Treatment	Vapor Recovery Biological Degradation	Unreliable for removing low levels of dissolved VOCs. Unreliable for removing chlorinated solvents.	Implementable. Implementable.	High capital, moderate O&M. High capital, high O&M.
Discharge	On-Site Discharge	Local Stream Municipal Dist. System	Effective for discharge of treated or untreated water. Effective for discharge of treated water.	Implementable. Implementable.	Moderate capital, low O&M. Moderate capital, low O&M.

TABLE 14

REMEDIAL ACTION COST ANALYSIS

Preliminary Capital Cost Summary

Alternatives	Construction	Engineering	Total Cost
A1	\$85,000	\$50,000	\$135,000
A2	\$75,000	\$15,000	\$90,000
B1	\$62,000	\$15,000	\$77,000
B2	\$55,000	\$10,000	\$65,000
D1	\$105,000	\$35,000	\$140,000
D2	\$190,000	\$50,000	\$240,000

APPENDIX C

EXHIBITS

- A. Order on Consent(Aug.1989), NYSDEC and Signore Inc.
- B. Agreement, Signore Inc. and Town of Ellicottville
- C. Work Plan - Septic Tank Cleaning
- D. Work Plan - Basis of Design, Water Line Extension
- E. Work Plan - On-Site Interceptor Well (March 15, 1991)

EXHIBIT A

STATE OF NEW YORK: 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,
of the Environmental Conservation
Law of the State of New York
by

ORDER
ON
CONSENT

INDEX #B9-0258-89-03
SITE #905023

SIGNORE, INC.

Respondent

WHEREAS,

1. The New York State Department of Environmental Conservation (the "Department") is responsible for enforcement of Article 27, Title 13 of the Environmental Conservation Law of the State of New York ("ECL"), entitled "Inactive Hazardous Waste Disposal Sites".

2. SIGNORE, INC. ("Respondent"), is a corporation organized under the laws of the State of New York and owns and operates an industrial manufacturing facility located at 45 Jefferson Street in the Village of Ellicottville in Cattaraugus County, New York (the "Site").

3. The Department has determined that the Site is an inactive hazardous waste disposal site, as that term is defined at ECL Section 27-1301(2) and presents a significant threat to the public health or environment. The site has been listed in the Registry of Inactive Hazardous Waste Disposal Sites in New York State as Site Number 905023. The Department has classified the Site as a Classification "2" pursuant to ECL Section 27-1305(4)(b).

4. Pursuant to ECL Section 27-1313(3)(a), whenever the Commissioner of Environmental Conservation (the "Commissioner") "finds that hazardous wastes at an inactive hazardous waste disposal site constitute a significant threat to the environment, he may order the owner of such site and/or any person responsible for the disposal of hazardous wastes at such site (i) to develop an inactive hazardous waste disposal site remedial program, subject to the approval of the Department, at such site, and (ii) to implement such program within reasonable time limits specified in the order."

5. The Department and Respondent agree that the ~~goals of this Order shall be the development and implementation of Interim Remedial Measures by Respondent, and a Remedial Investigation/Feasibility Study at the Site.~~

6. Respondent, without any admission of law or fact, having waived its right to a hearing herein as provided by law, and having consented to the issuance and entry of this Order, agrees to be bound by its terms.

NOW, having considered this matter and being duly advised, IT IS ORDERED THAT:

I. All activities and submittals required by this Order shall address both on-Site and off-Site contamination and shall be in accordance with Requisite Remedial Technology. As used in this Order, Requisite Remedial Technology means the proper application of scientific and engineering

principles and practices, subject to the Department's approval, which will identify and mitigate or eliminate any present or potential threat to the public health or environment posed by the presence of hazardous waste at the Site and any release or threatened release of hazardous waste at or from the Site.

II. Respondent shall retain professional consultants, contractors and laboratories acceptable to the Department to perform the technical, engineering and analytical obligations required by this Order. The experience, capabilities and qualifications of the firms or individuals selected by Respondent shall be submitted to the Department for approval prior to initiation of any activities for which the Respondent and their consultants will be responsible.

III. Within 60 days after the effective date of this Order, Respondent shall submit to the Department a detailed plan for the implementation of Interim Remedial Measures and for the implementation of a Remedial Investigation/ Feasibility Study (the "Work Plan"). The Work Plan shall describe the methods and procedures to be implemented to accomplish the scope of work necessary to accomplish the following tasks:

A. Assure that the Town of Ellicottville public water supply distributed to the public from the Town's well located south of the Village complies with the applicable quality standards for public water supplies;

B. Provide for the supply of public water to those

~~residences whose private wells fail to meet the standards applicable to public water supplies due to the presence of chlorinated organics and~~

C. ~~Implement a Remedial Investigation and Feasibility Study at the Site~~

4-11-15-1990
The Department shall notify Respondent in writing of its approval or disapproval of the Work Plan. If the Department approves the Work Plan, Respondent shall perform all work in accordance with it.

If the Department disapproves the Work Plan, the Department shall notify Respondent in writing of the Department's objections. Within 45 days after receipt of notice of disapproval, Respondent shall revise the Work Plan in accordance with the Department's specific comments, and shall submit a revised Work Plan.

The Department shall notify Respondent in writing of its approval or disapproval of the revised Work Plan. If the Department approves the revised Work Plan, Respondent shall perform the Interim Remedial Measures and the Remedial Investigation/Feasibility Study in accordance with the Work Plan.

If the Department disapproves the revised Work Plan, the Respondent shall be deemed to be in violation of this Order. The Work Plan, if approved by the Department, shall be attached as Appendix "A" and incorporated into this Order.

IV. ~~In accordance with the time schedule contained in the approved Work Plan,~~ Respondent shall perform the Interim

Remedial Measures and the Remedial Investigation and submit the status reports and other deliverables (as defined in the Work Plan) and the Remedial Investigation Report. During the implementation of the Work Plan, Respondent shall have on-Site a full-time representative who is qualified to inspect the work. The Report shall include all data generated and all other information obtained during implementation of the Interim Remedial Measures and the Remedial Investigation, provide all of the assessments and evaluations set forth in CERCLA, the NCP then in effect, and the USEPA draft guidance document entitled "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA," dated March 1988 and any subsequent revisions thereto and appropriate technical and administrative guidelines and identify any additional data that must be collected. The Report shall be prepared and certified by an engineer licensed to practice by the State of New York, who may be an employee of Respondent, or an individual or member of a firm which is authorized to offer engineering services in accordance with Article 145 of the New York State Education Law, who shall certify that all activities that comprised the Remedial Investigation were performed in full accordance with the approved Work Plan.

V. After receipt of the Report, the Department shall determine if the Interim Remedial Measures and the Remedial Investigation were conducted and the Report prepared in accordance with the Work Plan and this Order, and shall

notify Respondent in writing of its approval or disapproval of the Report.

If the Department disapproves the Report, the Department shall notify Respondent in writing of the Department's objections. Respondent shall revise the Report and/or reperform or supplement the Interim Remedial Measures or the Remedial Investigation in accordance with the Department's specific comments and shall submit a revised Report. The period of time within which the Report must be revised or any Interim Remedial Measure or the Remedial Investigation reperformed or supplemented shall be specified by the Department in its notice of disapproval.

After receipt of the revised Report, the Department shall notify the Respondent in writing of its approval or disapproval of the revised Report.

If the Department disapproves the revised Report, the Respondent shall be deemed to be in violation of this Order.

The approved Report shall be attached as Appendix "B" and incorporated into this Order.

VI. ~~The Department reserves the right to require a modification and/or an amplification and expansion of the Interim Remedial Measures and the Remedial Investigation and Report by Respondent if the Department determines, as a result of reviewing data generated by the activities pursuant to this Order or as a result of reviewing any other data or facts, that further work is necessary.~~

VII. ~~Within 90 days after receipt of the Department's~~

approval of the Report, Respondent shall ~~submit a Feasibility Study~~ evaluating on-site and off-site remedial actions to eliminate, to the maximum extent practicable, all health and environmental hazards and potential hazards attributable to the Site. The Feasibility Study shall be prepared and certified by an engineer licensed to practice by the State of New York, and approved by the Department who may be an employee of Respondent, or an individual or member of a firm which is authorized to offer engineering services in accordance with Article 145 of the New York State Education Law.

The Feasibility Study shall be performed in a manner that is consistent with CERCLA, the NCP then in effect, and the guidance documents referred to in paragraph IV above.

VIII. After receipt of the Feasibility Study, the Department shall determine if the Feasibility Study was prepared in accordance with this Order, and shall provide written notification of its approval or disapproval.

If the Department disapproves the Feasibility Study, the Department shall notify Respondent in writing of the Department's objections. Within 45 days after receipt of notice of disapproval, Respondent shall revise the Feasibility Study in accordance with the Department's specific comments and submit a revised Feasibility Study.

After receipt of the revised Feasibility Study, the Department shall notify Respondent in writing of its approval or disapproval of the revised Feasibility Study.

If the Department disapproves the revised Feasibility Study, the Respondent shall be deemed to be in violation of this Order.

The approved Feasibility Study shall be attached as Appendix "C" and incorporated into this Order.

IX. ~~Within 60 days after the Department's approval of the Feasibility Study,~~ the Department and Respondent shall solicit ~~public comment~~ on the Remedial Investigation/ Feasibility Study and the Interim Remedial Measures in accordance with CERCLA, the NCP, and any relevant Department policy and guidance documents in effect at the time the public comment period is initiated. After the close of the public comment period, the Department shall select a final remedial program for the site in a Record of Decision ("ROD"). ~~The ROD shall be attached as Appendix "D" and incorporated into this Order.~~

X. Unless the ROD recommends the "no action" alternative, Respondent shall ~~submit a Remedial Design within 90 days after the ROD is signed.~~ The Remedial Design shall be prepared and certified by an engineer licensed to practice by the State of New York, who may be an employee of Respondent, or an individual or member of a firm which is authorized to offer engineering services in accordance with Article 145 of the New York State Education Law.

The Remedial Design shall include the following:

a. A detailed description of the means by which each essential element of the Remedial Program will be performed,

to include but not be limited to:

1. the collection, destruction, treatment and/or disposal of hazardous wastes, and their constituents and degradation products, and any soil or other materials contaminated thereby;

2. the collection, destruction, treatment, and/or disposal of contaminated groundwater, leachate and air;

3. physical security and posting of the Site;

4. health and safety of persons living and/or working at or in the vicinity of the site;

5. quality control and quality assurance procedures and protocols to be applied during implementation of the Remedial Program; and

6. monitoring which integrates needs which are present both on-Site and off-Site during implementation of the Remedial Program.

b. "Biddable Quality" documents for the Remedial Program, including plans and specifications prepared and certified by an engineer licensed to practice by the State of New York who may be an employee of the Respondent, or an individual or member of a firm which is authorized to offer engineering services in accordance with Article 145 of the New York State Education Laws. These plans shall satisfy all applicable local, state and federal laws, rules and regulations;

c. A time schedule for the Remedial Program and provisions for periodic work-in-progress reports during the

Remedial Program;

d. The parameters, conditions, procedures and protocols to determine the effectiveness of the Remedial Program, including a schedule for periodic sampling of groundwater monitoring wells on-Site and off-Site;

e. A description of operation, maintenance and monitoring activities to be undertaken following completion of the Remedial Program, including the number of years during which such activities will be performed.

f. A contingency plan to be implemented in the event that any element of the Remedial Program fails to operate in accordance with the Remedial Design or otherwise fails to protect human health or the environment; and

g. A health and safety plan for the protection of persons at and in the vicinity of the Site during construction and after completion of the Remedial Program. The plan shall be prepared in accordance with 29 C.F.R. Section 1910 by a certified health and safety professional.

XI. After receipt of the Remedial Design, the Department shall notify Respondent in writing of its approval or disapproval of the Remedial Design. If the Department approves the Remedial Design, the Respondent shall implement the Remedial Program in accordance with it.

If the Department disapproves the Remedial Design, the Department shall notify Respondent in writing of the Department's objections. Within 45 days after receipt of notice of disapproval, Respondent shall revise the Remedial

Design in accordance with the Department's specific comments and submit a revised Remedial Design.

After receipt of the revised Remedial Design, the Department shall notify Respondent in writing of its approval or disapproval of the revised Remedial Design. If the Department approves the revised Remedial Design, Respondent shall implement the Remedial Program in accordance with it.

If the Department disapproves the revised Remedial Design, the Respondent shall be deemed to be in violation of this Order.

The approved Remedial Design shall be attached as Appendix "E" and incorporated into this Order.

XII. Respondent shall implement the Remedial Program in accordance with the approved Remedial Design. Respondent must obtain written approval from the Department prior to deviating from the approved Remedial Design in any way. During implementation of the Remedial Program, Respondent shall have on-site a full-time representative who is qualified to inspect the work.

Within 60 days after completion of the Remedial Program, Respondent shall submit as-built drawings, a final engineering report, final operation, maintenance and monitoring report reflecting all changes made during construction and a certification that the Remedial Program was completed in accordance with the approved Remedial Design, all by an engineer licensed to practice by the State of New York who may be an employee of the Respondent, or an

individual or member of a firm which is authorized to offer engineering services in accordance with Article 145 of the New York State Education Law.

XIII. After receipt of the as-built drawings, final engineering report and certification, the Department shall notify Respondent in writing whether it is satisfied with the quality and completeness of the Remedial Program as being protective of human health and the environment.

If the Department concludes that any element of the Remedial Program fails to operate in accordance with the Remedial Design or otherwise fails to protect human health or the environment, the Department may take any action or pursue whatever rights it has pursuant to any provision of statutory or common law.

XIV. Prior to its acceptance and approval of the engineer's certification that construction was completed in accordance with the approved Remedial Design, the Department may require the Respondent to modify the Remedial Design and Construction if the Department determines that such modification is necessary due to:

(1) environmental conditions on-site or off-site which are related to the presence of hazardous wastes at the Site and were unknown to the Department at the time of the effective date of this Order;

(2) information received, in whole or in part, after the effective date of this Order, where such unknown environmental conditions or information indicates that the

Remedial Program is not protective of human health or the environment.

XV. Respondent shall operate, maintain and monitor all elements of the Remedial Program for the period of years set forth in the approved Remedial Design, implement the contingency plan contained in the approved Remedial Design in the event any element of the Remedial Program fails after completion or otherwise fails to protect human health or the environment, and implement the health and safety plan contained in the approved Remedial Design after completion.

XVI. The Department shall have the right to obtain split samples, duplicate samples, or both, of all substances and materials sampled by Respondent and the Department shall also have the right to take its own samples.

XVII. Respondent shall provide notice to the Department at least 10 working days in advance of any field activities to be conducted pursuant to this Order.

XVIII. Respondent shall be responsible for assuring that whatever permits, easements, rights-of-way, rights-of-entry, approvals or authorizations are necessary to perform Respondent's obligations under this Order are properly obtained.

XIX. Respondent shall permit any duly designated employee, consultant, contractor or agent of the Department or any State agency to enter upon the Site or areas in the vicinity of the Site which may be under the control of Respondent for purposes of inspection, sampling and testing.

and to assure Respondent's compliance with this Order. During implementation of the Remedial Program, Respondent shall provide the Department with suitable office space at the site, including access to a telephone, and shall permit the Department full access to all records and job meetings.

XX. Respondent shall not suffer any penalty under this Order, or be subject to any proceeding or action, if it cannot comply with any requirements hereof because of an act of God, war or riot. Respondent shall immediately notify the Department in writing when it obtains knowledge of any such condition and request an appropriate extension or modification of this Order.

XXI. The failure of the Respondent to comply with any term of this Order shall be a violation of this Order and the ECL.

XXII. Nothing contained in this Order shall be construed as barring, diminishing, adjudicating or in any way affecting:

a. the Department's right to bring any action or proceeding against anyone other than Respondent, its directors, officers, employees, servants, agents, successors and assigns;

b. the Department's right to enforce this Order against Respondent, its directors, officers, employees, servants, agents, successors and assigns in the event that Respondent shall fail to satisfy any of the terms hereof;

c. the Department's right to bring any action or

proceeding against Respondent, its directors, officers, employees, servants, agents, successors and assigns with respect to claims for natural resources damages as a result of the release or threatened release of hazardous wastes or constituents at or from the Site or areas in the vicinity of the Site, and;

d. the Department's right to bring any action or proceeding against Respondent, its directors, officers, employees, servants, agents, successors and assigns with respect to hazardous wastes that are present at the site or that have migrated from the site and present a significant threat to human health or the environment.

XXIII. This Order shall not be construed to prohibit the Commissioner or his duly authorized representative from exercising any summary abatement powers.

XXIV. Respondent shall indemnify and hold the Department, the State of New York, and their representatives and employees harmless for all claims, suits, actions, damages and costs of every name and description arising out of or resulting from the fulfillment or attempted fulfillment of this Order by Respondent, its directors, officers, employees, servants, agents, successors or assigns.

XXV. The effective date of this Order shall be the date it is signed by the Commissioner or his designee.

XXVI. If Respondent desires that any provision of this Order be changed, it shall make timely written application to the Commissioner, setting forth reasonable grounds for the

relief sought. A copy of such written application shall be delivered or mailed to:

Martin Doster, P.E.
New York State Department of
Environmental Conservation
Div. Hazardous Waste Remediation
600 Delaware Avenue
Buffalo, New York 14202

XXVI. Within 30 days after the effective date of this Order, Respondent shall file a Declaration of Covenants and Restrictions with the Cattaraugus County Clerk to give all parties who may acquire any interest in the Site notice of this Order.

XXVII. In the event Respondent proposes to convey the whole or any part of its ownership interest in the Site, Respondent shall, not fewer than 60 days prior to the proposed conveyance, notify the Department in writing of the identity of the transferee and of the nature and date of the proposed conveyance and shall notify the transferee in writing, with a copy to the Department, of the applicability of this Order.

XXVIII. All written communications required by this Order shall be transmitted by United States Postal Service, by private courier service, or hand delivered as follows:

A. Communication from Respondent shall be made as follows:

1. Director, Division of
Environmental Enforcement
New York State Department of
Environmental Conservation
50 Wolf Road
Albany, New York 12233

2. Director, Division of Hazardous Waste Remediation
New York State Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233
3. Director, Bureau of Environmental Exposure Investigation
New York State Department of Health
2 University Place
Albany, New York 12203
4. New York State Department of Environmental Conservation
Division of Environmental Enforcement
600 Delaware Avenue
Buffalo, New York 14202-1073
5. John J. Spagnoli, Regional Director
New York State Department of Environmental Conservation - Region 9
600 Delaware Avenue
Buffalo, New York 14202-1073
6. New York State Department of Environmental Conservation
Div. Hazardous Waste Remediation
Region 9
Attn: Martin Doster
600 Delaware Avenue
Buffalo, New York 14202-1073

B. Copies of work plans and reports shall be submitted as follows:

1. One copy to the Director, Division of Environmental Enforcement.
2. Two copies to the Director, Division of Hazardous Waste Remediation.
3. Two copies to the Director, Bureau of Environmental Exposure Investigation.
4. One copy to Buffalo Field Unit - Division of Environmental Enforcement

5. Five copies to Region 9 Division of Hazardous Waste Remediation.

C. Communication to be made from the Department to the Respondent shall be made as follows:

Harold J. Ruttenberg
Signore, Inc.
403 Bellefield Tower
100 North Bellefield Avenue
Pittsburgh, Pennsylvania 15213

D. The Department and Respondent respectively reserve the right to designate other or different addresses on notice to the other.

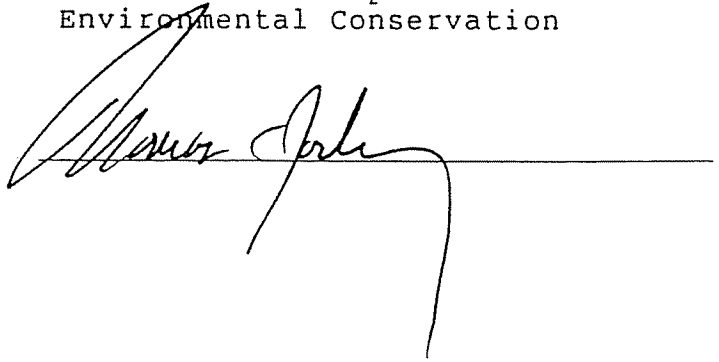
XXIX. Respondent, its officers, directors, agents, servants, employees, successors and assigns shall be bound by this Order.

XXX. The terms hereof shall constitute the complete and entire Order between Respondent and the Department concerning the Site. No terms, conditions, understandings or agreements purporting to modify or vary the terms hereof shall be binding unless made in writing and subscribed by the party to be bound. No informal advice, guidance, suggestions or comments by the Department regarding reports, proposals, plans, specifications, schedules or any other submittals

shall be construed as relieving Respondent of its obligations to obtain such formal approvals as may be required by this Order.

DATED: *Albany,* , New York
Aug 28 , 1989

THOMAS C. JORLING
Commissioner
New York State Department of
Environmental Conservation

A handwritten signature in black ink, appearing to read "Thomas C. Jorling", is written over a horizontal line. The signature is stylized and cursive.

CONSENT BY RESPONDENT

Respondent hereby consents to the issuing and entering of this Order, waives its right to a hearing herein as provided by law, and agrees to be bound by this Order.

SIGNORE, INC.

By:

Harold J. Ruttenberg

Harold J. Ruttenberg

(TYPE NAME OF SIGNER)

Title: Chairman, CEO and Treasurer

Date: August 2, 1989

COMMONWEALTH OF PENNSYLVANIA
~~STATE OF NEW YORK~~)
) s.s.:
COUNTY OF ALLEGHENY)

On this 2nd day of August, 1989,
before me personally came Harold J. Ruttenberg,
to me known, who being duly sworn, did depose and say that he
resides in Allegheny County, Pennsylvania; that
he is the Chairman, CEO and Treasurer of the
Signore, Inc. corporation described in and
which executed the foregoing instrument; that he knew the
seal of said corporation; that the seal affixed to said
instrument was such corporate seal; that it was so affixed by
the order of the Board of Directors of said corporation,
and that he signed his name thereto by like order.

Karen Lynn Lusky
NOTARY PUBLIC

KAREN LYNN LUSKY, Notary Public

Pittsburgh, Allegheny Co., PA

My Commission Expires Nov. 20, 1989

AGREEMENT

REC'D 2/15/90
MLD

THIS AGREEMENT, made effective the _____ day of January, 1990, by and between the TOWN OF ELLICOTTVILLE (hereinafter the "TOWN"), a municipal corporation having its offices at 1 West Washington Street, Ellicottville, New York 14731, and SIGNORE, INC. (hereinafter "SIGNORE"), a domestic corporation having its principal place of business at Jefferson Street, Ellicottville, New York 14731, in the manner following:

RECITALS

A. SIGNORE owns and operates a manufacturing plant located in the Village and Town of Ellicottville, New York.

B. TOWN, by and through Town of Ellicottville Water District No. 1 (the WATER DISTRICT), provides potable water to properties generally situate in the south-west segment of the TOWN.

C. It has been determined that the private water supplies of various residential and other properties situate in the TOWN, outside of the WATER DISTRICT, have been contaminated by trichloroethylene (TCE) and other volatile organic compounds (VOCs).

D. SIGNORE has been identified by the New York State Department of Environmental Conservation as a probable responsible party (PRP) in regard to such contamination.

E. The parties have agreed and intend hereby to agree to effect a replacement of the private water supply to such properties by annexing them to the WATER

DISTRICT and connecting them to the TOWN's municipal water supply system.

AGREEMENT

NOW, THEREFORE, in consideration of the covenants each to the other herein contained, the parties do hereby agree as follows:

1. SIGNORE agrees as follows:

1.1. That SIGNORE has retained the services of Ground Water Associates which has identified the parcels of real property which have had their supplies contaminated as aforesaid and those residential properties for which the water supply should be replaced. This identified list of affected properties has been supplied to the Town and County Health Department.

1.2. SIGNORE will immediately retain the services of a professional engineer licensed to practice in the State of New York to prepare a design of the water facilities necessary to service the affected properties and plans and specifications for the construction thereof. Such Engineer shall also obtain all necessary approvals for water line extensions from the Cattaraugus County Health Department and other public agencies. Such design, plans and specifications shall be completed and submitted to the Cattaraugus County Health Department and the TOWN for approval and obtain necessary approvals for waterline extension on or before _____, 1990.

1.3. Immediately following the extension of the WATER DISTRICT by the TOWN as hereinafter provided, SIGNORE shall construct and install water mains extending from the TOWN's present water system to all of such residential properties

and shall construct and install service lines and interior plumbing necessary to connect such mains to the dwellings affected hereby for those dwellings whose owners approve such installation as hereinafter provided. The construction and emplacement of such water main or mains, service lines and interior plumbing shall be subject to the inspection and approval of the Town Engineer and such work shall be completed in accordance with such plans and specifications and to the satisfaction of the TOWN. The construction of such water mains will be completed not later than December 31, 1990. The construction and installation of service lines and interior plumbing at such dwellings shall be completed within such reasonable period time as may be determined by SIGNORE and the New York State Department of Environmental Conservation.

1.4. SIGNORE shall be solely responsible for all costs incurred by the parties hereto, or either of them, and by the WATER DISTRICT in the performance of this agreement. Specifically, but not in limitation of the aforementioned covenant, SIGNORE agrees to pay or reimburse the TOWN, as the TOWN may elect, for all costs incurred in the extension of the WATER DISTRICT, for inspections made by the TOWN and for all costs incurred in the process of obtaining easements or rights-of-way is necessary in order to accomplish the work herein described.

1.5. SIGNORE hereby expressly assumes full responsibility for all damages and injury that may result to any person or persons or to any property by reason of the aforementioned construction and emplacement of water lines and agrees and covenants to indemnify and save harmless the TOWN and the WATER DISTRICT against all loss and damage, including damage to person or property, arising from any act by, or negligence of, SIGNORE or its agents or employees or the engineer and contractor or their agents or employees, while engaged in the performance of the work herein described or arising from accident or any injury not caused by the direct negligence of the TOWN or the WATER DISTRICT.

2. The TOWN hereby agrees as follows:

2.1. The TOWN will take all necessary steps to extend the boundaries of the WATER DISTRICT sufficiently to encompass the properties for which replacement water supplies are required.

2.2. The Town Engineer will inspect the installation and construction of water mains, service lines and interior plumbing constructed and/or emplaced by SIGNORE in order to ascertain that the work is done in accordance with the plans and specifications prepared by the Town Engineer and the requirements of the WATER DISTRICT.

2.3. The TOWN's WATER DISTRICT will provide and maintain all necessary meters for the metering of water to such residential properties.

3. It is understood and agreed that all rights-of-way for water lines, all mainlines and all service lines located in such rights-of-way shall be owned and maintained by the TOWN, by and through the WATER DISTRICT. It is further understood and agreed that the owners of each accepting effected properties shall own and maintain all service lines and interior plumbing constructed by SIGNORE according to the terms hereof.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be signed by their duly authorized representatives, effective the day and year first above written.

TOWN OF ELLICOTTVILLE

By: _____

John Widger, Supervisor

GROUND WATER ASSOCIATES, INC.

321-129

771 Brookside Plaza Drive, Westerville, Ohio 43081 (614) 882-3136

November 28, 1990

Mr. Gregory P. Sutton, P.E.
 New York State Department of
 Environmental Conservation
 600 Delaware Avenue
 Buffalo, New York 14202

RE: WORK PLAN - Septic Tank Cleaning, Signore Facility,
 Ellicottville, New York

Dear Mr. Sutton:

This letter presents the Work Plan for cleaning two septic tanks in the Signore, Inc. Facility Plant in Ellicottville, New York. This modification of the November 5, 1990 Work Plan incorporates the comments in your November 6, 1990 letter.

The Signore Facility is presently connected to the Village of Ellicottville sanitary sewer system. However, in the past the sanitary wastes from the Plant were discharged into an on-site septic tank system that consisted of several septic tanks in series with the outfall to Plum Creek. During the field work for the Remedial Investigation/Feasibility Study Project being conducted by Signore, two septic tanks in the Plant were identified and sampled. These tanks, designated Tank No. 4 and Tank No. 2, are located in the central part of the Plant, as shown on the map of the Plant in Attachment A to this letter. The concrete lids for these tanks are flush with the Plant floor and sealed. Therefore, samples from these tanks were collected by drilling a 1-inch hole through the lid and drawing samples through a ½-inch plastic tube. Fluid and sludge samples were collected from Tank No. 2 and only a sludge sample was collected from Tank No. 4 due to insufficient fluid in the tank. The fluid and sludge samples were analyzed for volatile organics as water and soil samples, respectively. The analytical results of these samples are presented in Attachment B to this letter and summarized below in parts per million (ppm).

	Tank No. 4 <u>sludge, ppm</u>	Tank No. 2 <u>sludge, ppm</u>	<u>fluid, ppm</u>
trichloroethene	2.6	3.4	0.46
toluene	-	0.19	-
ethylbenzene	-	0.75	0.05
total xylenes	-	4.8	0.31

SIGNORE, INC.

By:

Alex N. Ditonto

Alex N. Ditonto, President

GROUND WATER ASSOCIATES, INC.

321-129

771 Brooksedge Plaza Drive, Westerville, Ohio 43081 (614) 882-3136

November 28, 1990

Mr. Gregory P. Sutton, P.E.
 New York State Department of
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ethylbenzene	-	0.75	0.05
total xylenes	-	4.8	0.31

Because of the presence of trichloroethene in the samples from these tanks, even though at relatively low concentrations, the decision was made to remove the fluid and sludge contents, clean the tanks and fill them with concrete to prevent the possibility that these tanks could be a source of ground water contamination beneath the Plant. Specifically, the cleaning and backfilling of the septic tanks will be accomplished in the following steps.

1. The concrete lid covering the septic tank will be removed using a jackhammer.
2. After removing the lid, the cleaning crew will remove the fluid and sludge from the septic tank using a vacuum and shovels. The sludge will be collected in 55-gallon drums.
3. After the material is removed, the tank will be cleaned with a power steam cleaner. The fluids from the steam cleaning will be collected in 55-gallon drums.
4. After steam cleaning, the concrete lid will be broken and placed into the bottom of the tank. The tank will be filled with concrete to the grade of the Plant floor.
5. The sludge material collected in 55-gallon drums will be appropriately disposed. The steam cleaning fluid in 55-gallon drums will be sampled for volatile organics and then disposed into the sanitary sewer pending approval from the Village of Ellicottville to accept this material for treatment.

To perform the above tasks, the cleaning crew will be working inside of the tank. The Contractor will be responsible for developing a Site Specific Health and Safety Plan (HSP) to comply with all OSHA or other regulations for Working in Confined Spaces. The HSP will include provisions for monitoring the breathing space for the presence of volatile organics around the tanks during the cleaning activities. The work will be performed over a weekend to minimize impact to Plant employees. In addition, exhaust from any vacuum equipment used to remove material from the tanks will be vented outside the Plant.

Mr. Gregory P. Sutton, P.E.
NYSDEC
Buffalo, New York

Page Three

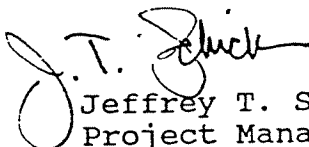
November 28, 1990

Signore proposes to use SLC Consultants/Constructors of Lockport, New York as the Contractor to perform this work. The work will be scheduled at the earliest possible weekend. We will provide the NYSDEC and Cattaraugus County Department of Health with a minimum of two weeks notice prior to the work being performed.

If you have any questions regarding this plan, please call.

Sincerely,

GROUND WATER ASSOCIATES, INC.



Jeffrey T. Schick
Project Manager

JTS:js

cc: Mr. Theodore Meyers - NYSDEC Div. of Water, Buffalo
Director, NYSDEC Div. of Env. Enforcement, Albany
Mr. James Moras - NYSDEC Div. of Haz. Waste Remed., Albany
Mr. Glenn Bailey - NYSDEC Div. of Env. Enforcement, Buffalo
Mr. Cameron O'Connor - NYSDOH
Ms. Loni Rafferty - NYSDOH Bureau of Env. Exposure Invest.
Mr. Chester Halgas - Cattaraugus County Dept. of Health
Mr. Frank Bianco - Village of Ellicottville
Mr. Mark Alianello - Town of Ellicottville
Mr. Alex Ditonto - Signore, Inc.
Mr. James Fitzpatrick - Signore, Inc.
Mr. Howard Shapiro - Lozier Architects/Engineers

11/28/90

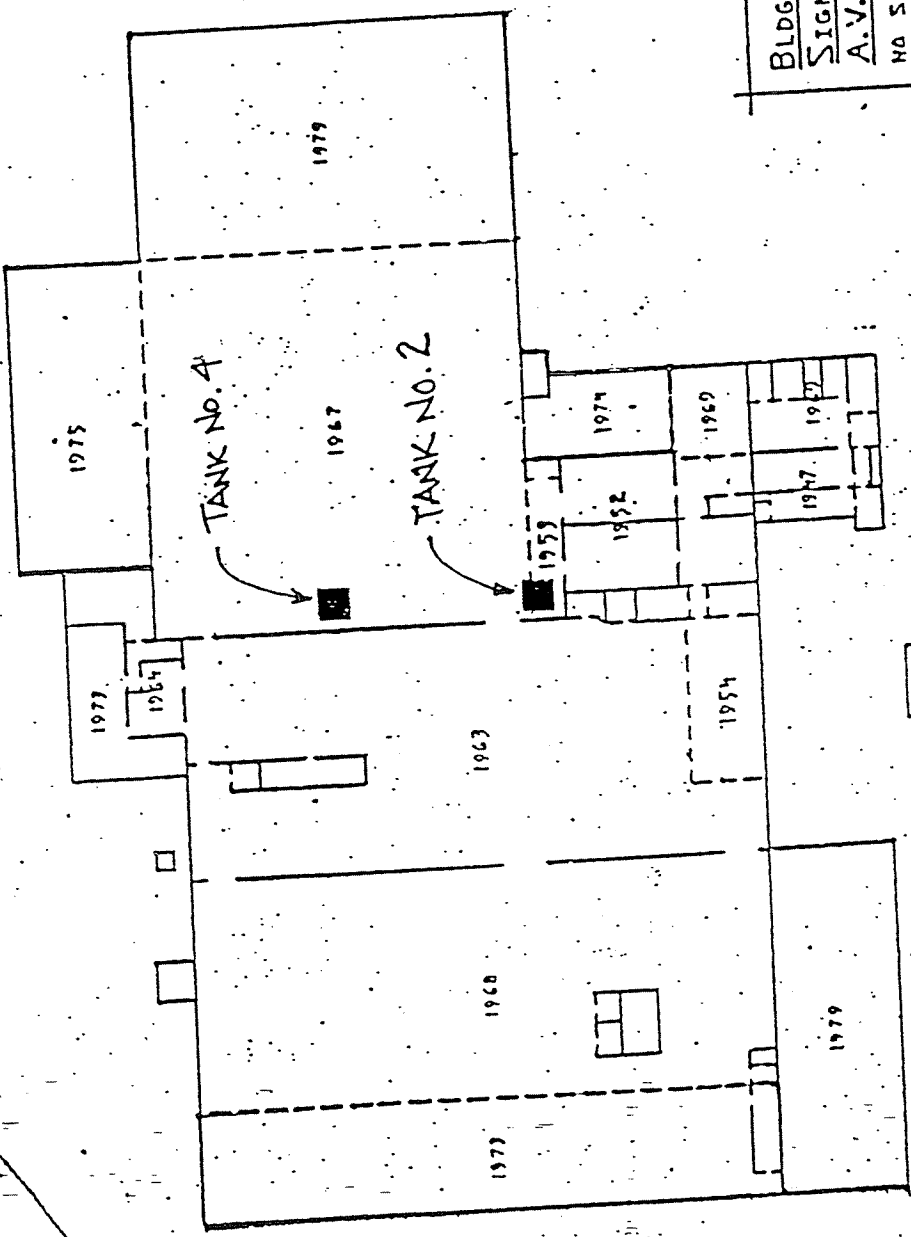
ATTACHMENT A

SEPTIC TANK LOCATIONS

SIGNORE FACILITY, ELLICOTTVILLE, NEW YORK



1969



BLDG. ADDITIONS
 SIGNORE DIVISION
 A.V.M. CORP. INC.
 NO SCALE
 10-17-79 JACK W.

Borden Plant 12,800 Square Foot Main Plant 163,960 Square Foot

STREAM

405023

703043

EXHIBIT D

BASIS OF DESIGN REPORT

for the

PUBLIC WATER SUPPLY CONNECTIONS INTERIM REMEDIAL MEASURE

SIGNORE SITE
ELLICOTTVILLE, NEW YORK

Prepared for:
SIGNORE, INC.

Project No.
1934-01

MAY 22, 1990

Prepared by:

LOZIER/
GROUND WATER

ASSOCIATES



FAIRPORT, NY • WESTERVILLE, OH

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Table 1 - Proposed 33 Water Services

Sheet 1 - Proposed Public Water Service (33 Properties)

Sheet 2 - Proposed Water District Extension

1.0 INTRODUCTION

In mid-1989, Signore, Inc. entered into an Order on Consent (Index #B9-0258-89-03) with the New York State Department of Environmental Conservation (NYSDEC) regarding the Signore Facility in the Village and Town of Ellicottville, Cattaraugus County, New York. As stipulated in the Order, Signore is responsible for development and implementation of Interim Remedial Measures (IRM). As part of the May, 1990 final IRM Work Plan, residences with impacted private water supply wells are to be connected to the Town water distribution system. The need to replace private water supply wells with water from the Town system was documented from the results of ground water sampling of wells between the Signore Facility and the Town Well. The results of this sampling indicated the occurrence of low levels (less than 50 parts per billion, ppb) of trichloroethene (TCE) and 1,1,1-trichloroethane (TCA).

This document presents the Basis of Design for supplying water from the Town of Ellicottville water distribution system to the area of the affected residences between the Signore Facility and the Town Well. The IRM Work Plan references this Basis of Design Report as a memorandum of understanding for this conceptual design phase of the project.

2.0 GENERAL INFORMATION

2.1 Water District Extension Area

The impacted area to be connected to the Town of Ellicottville Water Distribution System consists of the 33 properties (31 residences) shown on Sheet 1. These 33 properties are all within the Town of Ellicottville but are outside the boundaries of Town Water District #1. The properties are located on Jefferson Street (U.S. Route 219) and Donlen Drive. A list of the property owners is presented in Table 1. The property numbers shown in Table 1 correspond to the numbers on Sheet 1.

2.2 Existing and Proposed Water Works

The existing water system to be utilized consists of the new Village Well, the existing Town and Village Wells and the existing Town and Village water distribution and reservoir systems. The new Village Well, located north of the area of concern, has been tested and shown to yield a sufficient quantity of acceptable quality water to meet the needs of the Village and Town. The existing Town Well, with TCE levels slightly above State MCLs, will be relegated to a backup supply. An interceptor well will be installed as part of the IRM to protect the Town Well and bring the TCE levels below MCL. Of the two existing Village Wells, the one at the Fire House which has never had detectable volatile organics will be delegated as the primary backup well.

The 33 properties shown on Sheet 1 will be incorporated into Town Water District #1, as shown on Sheet 2. The proposed extension to the Town water distribution system will consist of a new water line along Donlen Drive, domestic connections from this new water line and domestic connections from the existing 10-inch watermain which runs along the east side of Jefferson Street. As shown on Sheet 2, the new water line along Donlen Drive will loop from the existing 10-inch watermain along Jefferson Street to the existing 8-inch watermain along Wildflower.

2.3 Water District Extension Owner

The Town of Ellicottville Water District #1 will be the owner of the public portion of the proposed water district improvements. The improvements will extend to water meters which will be owned by the Town. The individual residences will be connected to the water meters; these domestic connections will be owned by the individual residents.

3.0 BASIS OF DESIGN

3.1 Individual Connections

As outlined in Section 2.0, this project consists of the installation of water services to the residences along Jefferson Street by tapping the existing 10-inch diameter water line, and extending a 3/4-inch type K copper tube, to the residences shown on Sheet 2. The Contractor installing the water service would contact the Town to obtain a tap permit and the Town would provide a meter to the Contractor. The home service connection would incorporate a shutoff valve, a pressure reducing valve, the meter, connection to the house plumbing, and disconnection of the residential well from the house plumbing.

On Donlen Drive, an 8-inch diameter Class 52 ductile iron watermain in conformance with the Town of Ellicottville requirements will be installed first, followed by the service connections described above.

This project will conform to the requirements of the Town of Ellicottville, Cattaraugus County and the State of New York. As shown on Sheet 2, the proposed route for the 8-inch diameter main on Donlen Drive is on the north side of the street. This routing is subject to change based upon final design considerations. Sheet 1 shows the 33 properties subject to individual hook up and includes two vacant lots on Donlen Drive (No. 16 and 19). At the

two vacant lots, a curb stop and teed connection would be provided. It is understood that three properties shown on Sheet 1 along Jefferson Street near the Village limits are currently on public water and therefore are not included in the new services.

To facilitate the individual connections, Signore, Inc. will be responsible for contacting each owner and offering the owner the opportunity to hook up at no cost for the hook up. This process would be governed by terms of an agreement which would also include disconnection of the individual's well from the house's potable water distribution system.

3.2 Soil and Ground Water Conditions

It is not anticipated that ground water would be encountered during the water service and watermain installation. As discussed in Section 3.6.4 of the IRM Work Plan, a site safety plan for the water line extension construction activities will be developed and submitted for review with the Plans and Specifications.

It has been reported that large cobbles exist in the area which may make the pushing of water services beneath Jefferson Street difficult. Our experience with this condition indicates that several tries may be required at an individual residence, if an obstruction is encountered.

3.3 Water Use Data

The recently completed Malcolm Pirnie report on the Town and

Village water supply and distribution system estimates that water use is estimated at 90 gallons per day (gpd) per capita. Assuming four individuals per household, the total new demand for the proposed 33 connections is estimated to be 12,000 gpd. This new demand will not adversely impact the supply and distribution system because the new Village Well has adequate capacity and the existing distribution system is capable of supplying the area.

It is reported that water pressures in the existing Town distribution system near the proposed connections are between 75 and 80 pounds per square inch (psi). With the installation of a pressure reducing valve at the proposed connection, the differences in pressure experienced by the residents should not be significant.

3.4 Fire Protection

The proposed improvements will include one hydrant on Donlen Drive. Hydrants already exists along Jefferson Street in the area of the service connections. Additionally, as reported in the recent Malcolm Pirnie report, fire flows and pressures are more than adequate near the expansion area.

3.5 Sewerage System

All 33 properties are presently in an area serviced by public sewer.

3.6 Water District

The Town of Ellicottville will be responsible for extending the

boundaries of Water District #1 to encompass the 33 properties shown on Sheet 2 pursuant to the Agreement dated January 1990 between the Town and Signore, Inc. (IRM Work Plan, Appendix F).

3.7 Historical/Archeological Survey

The necessity of a historical/archeological survey will be evaluated and if determined to be necessary will be performed prior to submittal of Plans and Specifications.

3.8 Schedule

Milestones for this project are outlined in correspondence dated May 4, 1990 from Ground Water Associates, Inc. to NYSDEC. The next submittal will be the Plans and Specifications for the water line extension and domestic connections, which are due July 23, 1990, subject to approval of this report.

TABLE 1 - Proposed 33 Water Services, Ellicottville, NY

ID#	TAX MAP NO.	NAME	MAILING ADDRESS	NOTES
1	35.043-2.41	Gerald & Phyllis K. Woods	4410 Kinter Hill Road Edinboro, PA 16412	Route 219S
2	35.043-2.50	Arnold Wiechman	Box 26, Jefferson Street Ellicottville, NY 14731	Route 219S
3	55.044-2.4	Jane G. Geier	#1 Brantenahl Cleveland, OH 44108	Route 219S
4	55.044-2.5	James W. & Jean Walden	539 Colonial Drive Waterloo, Ontario N2K 1Z7	Route 219S
5	55.044-2.6	Richard McIntosh & Nancy MacQuarrie	20 White Street Thorold, Ontario L2V 2T3	Route 219S
6	55.044-2.7	Martha Estus	Ellicottville, NY 14731	Route 219S
7	55.044-2.8	Betty Jane Hawkins	Ellicottville, NY 14731	Route 219S
8	55.044-2.9	Fred & Wife Manning	RD#1 Box 28 Ellicottville, NY 14731	Route 219S
9	55.044-2.10	Allan & Jane Whitting	730 Meadow Wood Road Mississauga, Ontario L5J 2S6	Route 219S
10	55.044-2.11	James J. Kaney	53 Newman Street Lackawanna, NY 14218	Jefferson St. Ext.
11	55.044-2.12	Leigh Batterson	Ellicottville, NY 14731	Route 219
12	55.044-2.15	Mary Lou Fitzpatrick	6544 Donlen Drive Ellicottville, NY 14731	Donlen Drive
13	55.044-2.16	Daniel & Margaret Sirianni	6538 Donlen Drive Ellicottville, NY 14731	Feldman Sub 5
14	55.044-2.17	Paul S. & Florence Bielicki	Ellicottville, NY 14731	Feldman Sub 7
15	55.044-2.18	Kenneth L. & Elizabeth C. Way	Ellicottville, NY 14731	Donlen Drive
16	55.044-2.19	Paul S. & Sandra L. Fisher	36 Gwendolen Avenue Willowdale, Ontario M2N 1A2	Feldman Sub Vacant Lot
17	55.044-2.20	Shirley Weast	Thornwood Drive West Valley, NY 14171	Donlen Drive

TABLE 1 - Proposed 33 Water Services, Ellicottville, NY

ID#	TAX MAP NO.	NAME	MAILING ADDRESS	NOTES
18	55.044-2.21	Bernard J. Merglen	256 Oak Street Buffalo, NY 14202	Donlen Drive
19	55.044-2.22	Thomas & Ellen Costanzo	4133 Forest Road Lewiston, NY 14092	Feldman Sub 14 Vacant Lot
20	55.044-2.23	Ralph E. Miller, Inc.	Box 85, RD#1 Jordon, Ontario LOR 1S0	Donlen Drive
21	55.044-2.24	Mary Jane Fox	Ellicottville, NY 14731	Donlen Drive
22	55.044-2.25	Mary Elizabeth Dunbar	P.O. Box 617 Ellicottville, NY 14731	6 Donlen Drive
23	55.044-2.26	Leon C. & Doris L. Gleockler	Ellicottville, NY 14731	Donlen Drive
24	55.044-2.27	James S. & Jean E. Dineen	Ellicottville, NY 14731	Donlen Drive
25	55.044-2.28	Richard & Beverly Bowen	RD#1, Box 45 Ellicottville, NY 14731	Route 219S
26	55.044-2.29	Louise M. & Marylou Fitzpatrick	P.O. Box 293 Ellicottville, NY 14731	Route 219S
27	55.044-2.30	Elizabeth & Thibert Taylor	Ellicottville, NY 14731	Route 219S
28	55.044-2.31	Pengelly Corporation	P.O. Box 686 Ellicottville, NY 14731	Route 219S
29	55.044-2.32	Charles & Irma Musall	Ellicottville, NY 14731	Route 219S
30	55.044-2.33	Lillian T. Ruhland et.al.	7715 Marlborough Avenue Parma, OH 44129	Route 219S
31	55.044-2.34	Sidney V. Jr. & Romanam Bickell	RD#1, Box 31 Ellicottville, NY 14731	Jefferson Street
32	55.044-2.35	Nancy E. Fennell	179 Viewbank Cresent Oakville, Ontario L6L 1R3	Route 219S
33	55.002-2.41	Daniel L. Ludwick	Stone Road Great Valley, NY 14741	Route 219

WORK PLAN

ON-SITE INTERCEPTOR WELL SYSTEM

*SIGNORE RI/FS PROJECT
ELLCOTTVILLE, NEW YORK*

March 15, - 1991

INTRODUCTION

This document presents the Work Plan for the On-Site Interceptor Well System at the Signore, Inc. Facility in Ellicottville, New York. The On-Site Interceptor Well is part of the Interim Remedial Measures implemented to mitigate ground water contamination related to the Signore Facility.

The Work Plan for the Remedial Investigation/Feasibility Study (RI/FS) Project being conducted by Signore includes a task entitled, "Pumping Test Well Installation and Aquifer Testing", under Section 6.3.7 of the Work Plan. The scope of work of this task includes the following.

- Install and develop a test interceptor well.
- Prepare detailed plans and specifications for a temporary air stripping tower.
- Prepare a work plan for conducting an aquifer test outlining the duration of the test, the planned discharge rate, wells to monitor, water level data collection frequency and sampling frequency.
- Conduct the approved aquifer test and air stripping evaluation test.

As stated in the RI/FS Work Plan, the results from the aquifer test and air stripping evaluation were needed to design the On-Site Interceptor Well System, consisting of an interceptor well, treatment and discharge system along the downgradient (southern) boundary of the Signore Facility to capture off-site migration of ground water contamination. However, the information that currently exists from the drilling, installation and ground water sampling of the on-site and RI/FS monitoring wells and from the evaluation of the Town Well Interceptor Well is sufficient to design the On-Site Interceptor Well System without performing the aquifer test using a test recovery well.

SCOPE OF WORK

The following tasks have been developed to evaluate, design, install, test and document the On-Site Interceptor Well System.

Task 1 - Basis of Design Report

Information from the drilling, installation, water level measurements and ground water sampling of the on-site and RI/FS monitoring wells and information from the aquifer testing for the Town Well Interceptor Well will be evaluated to select the conceptual design for the On-Site Interceptor Well System. A capture zone analysis will be performed select the optimal recovery production rate. This conceptual design and information supporting the design will be documented in a Basis of Design Report, which will include the following.

- Well design: location, depth, diameter, screen setting, slot size and gravel pack.
- Influent (recovered ground water) characteristics: expected contaminant constituents and concentrations.
- Discharge limitations.
- Treatment requirements: effluent characteristics, treatment processes (air stripping) and removal efficiency requirements.
- Discharge design and location.

Task 2 - Plans and Specifications

After approval of the Basis of Design Report by the NYSDEC, detailed Plans and Specifications will be developed for the On-Site Interceptor Well System including the interceptor well, discharge piping, submersible pump and controls, treatment system and effectiveness testing plan. The design of the well (location, depth, diameter, screen setting, slot size, gravel pack and planned production rate) will be based on the evaluation of the hydrogeologic and ground water quality information presented in the Basis of Design Report. The treatment system (air

stripping) design will be based on the influent flow rate and contaminant concentrations, required discharge limitations and proposed removal efficiencies.

The Plans and Specifications will also include the proposed effectiveness testing plan to monitor the effectiveness and select the optimal pumping rate for the interceptor well. The plan will outline the details of an aquifer test and air stripping test, including: duration of the test; pumping rate; monitoring wells to monitor; frequency of water level monitoring; frequency of sampling from the interceptor well and effluent of air stripper; laboratory analyses to be performed on the samples; and location of discharge. A discussion on evaluating emissions from the air stripper, either by sampling or modeling, will also be presented in the plan. As requested by the NYSDEC, the effectiveness monitoring plan will be submitted at least 30 days prior to any scheduled testing.

It is anticipated that the On-Site Interceptor Well will be located along the southern boundary of the Signore Facility between the EW-1 and EW-2 monitoring well clusters. The design will probably be similar to the Town Well Interceptor Well (a 16 by 10-inch well, approximately 50 feet total depth with 10 feet of screen), designed to pump from 200 to 400 gallons per minute.

Task 3 - Interceptor Well System Installation

After approval of the Plans and Specifications by the NYSDEC, bids will be requested and contractor(s) will be selected to: (1) drill and install the interceptor well; (2) fabricate, deliver and install the air stripper; and (3) construct the discharge piping and controls. All installation work will be supervised by Lozier/Ground Water Associates personnel to ensure that the work is done according to the Plans and Specifications.

Task 4 - Effectiveness Testing

The effectiveness test will be performed after the On-Site Interceptor Well System is installed and after approval of the Effectiveness Testing Plan by the NYSDEC. As requested by the NYSDEC, a minimum of 30 days notification will be given so that NYSDEC personnel can witness the test. The test, including the water level measurements and sampling, will be supervised by Lozier/Ground Water Associates personnel.

Task 5 - Documentation Report and Monitoring Plan

A report documenting the On-Site Interceptor Well System installation and testing will be prepared. This report will be submitted within 30 days after receipt of laboratory analyses from samples collected during the testing, anticipated to be 60 days after completion of the testing. The report will include as-builts of the system and will document the results of the aquifer testing and air stripper testing. A capture zone analysis will be performed based on the results of the testing to select the pumping rate for the interceptor well.

Also submitted with the Documentation Report will be a proposed discharge monitoring plan for testing the effluent concentrations from the interceptor after treatment and before discharge. The plan will include method and location of sample collection, frequency of sampling, laboratory analyses for samples collected and reporting requirements.

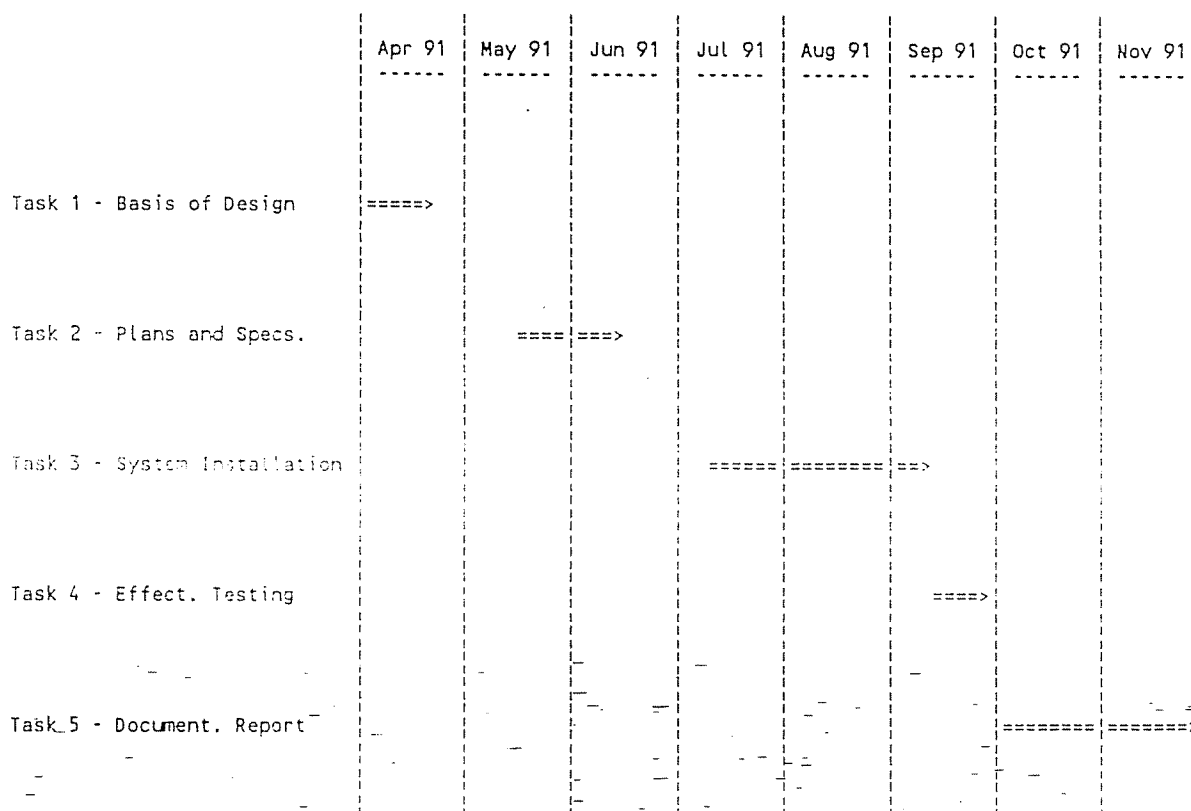
SCHEDULE

The schedule for the On-Site Interceptor Well System project is presented on the enclosed figure. As shown, three weeks review time for the NYSDEC are built in after submittals. If any change in this Work Plan becomes necessary, approval will be requested and received from the NYSDEC before implementing the change.

PROJECT SCHEDULE

ON-SITE INTERCEPTOR WELL SYSTEM INSTALLATION AND TESTING

SIGNORE FACILITY - ELLICOTTVILLE, NEW YORK



APPENDIX D

Administrative Record

Signore Inc. Site

Site No. 905023

Letter March 20, 1989 - Ruttenburg to Doster, Committing to remediation of the problems associated with the Signore site.

Listed on NYS Registry of Inactive Waste Sites, April 1989

IRM and RI/FS Scope of Work - May 10, 1989

Draft IRM work plan - June 12, 1989

Revised draft IRM and RI/FS workplans - July 31, 1989

Order on Consent (Index #B9-0258-89-03) dated August 28, 1989

Letter October 20, 1989 - Town of Ellicottville to Cattaraugus County DOH, Preferring remedial action of Off-site interceptor well in lieu of using Town Well to treat groundwater contamination.

Revised draft IRM work plan - November 13, 1989

Letter February 1, 1990 - Ground Water Associates(GWA) to NYSDEC, Response to IRM comments

Revised draft IRM and RI/FS workplans - February 2, 1990

Letter April 13, 1990 - NYSDEC to Signore, Draft RI/FS workplan approval and comments

Letter April 13, 1990 - NYSDEC to Signore, Draft IRM workplan approval and comments

Public Meeting Announcement - May 4, 1990

Final RI/FS Workplan - May 11, 1990

Final IRM Workplan - May 11, 1990

Letter May 17, 1990 - NYSDEC to GWA, Acceptance of final RI/FS and IRM workplans

Letter June 7, 1990 - Signore to Interested Citizens, Response to comments made at public meeting of May 17, 1990

Public Meeting Announcement - September 6, 1990

Letter September 14, 1990 - Cattaraugus County DOH to GWA, Approval of
Water Line Extension IRM Plans and
Specifications

Septic Tank Cleaning Work Plan, November 5, 1990

Town Well Interceptor Well Discharge Monitoring Plan,
November 1, 1990

Letter November 6, 1990 - NYSDEC to GWA, Acceptance of Plans and
Specifications for Town Well Interceptor
Well IRM

Draft On-Site Interceptor Work Plan, November 12, 1990

Letter December 4, 1990 - NYSDEC to GWA, Acceptance of Septic Tank IRM
Work Plan

Letter December 4, 1990 - NYSDEC to GWA, Acceptance of Town Well
Discharge Monitoring Plan

Letter December 4, 1990 - NYSDEC to GWA, Comments on On-Site
Interceptor Well Work Plan

Remedial Investigation Report - January 1991

Letter March 8, 1991 - NYSDEC to GWA, Comments of Remedial
Investigation Report

Public Meeting Announcement - March 1991

Final On-Site Interceptor IRM Work Plan, March 15, 1991

Letter March 29, 1991 - NYSDEC to GWA, Acceptance of On-Site
Interceptor Work Plan

Letter May 24, 1991 - NYSDEC to Signore, Approval of revised Remedial
Investigation Report dated April 1991

On-Site Interceptor IRM Plans and Specifications - June 1991

Letter July 31, 1991 - NYSDEC to GWA, Acceptance of On-Site
Interceptor IRM Plans and Specifications

Draft Feasibility Study - September 3, 1991

Letter October 21, 1991 - NYSDEC to GWA, Comments on Draft Feasibility
Study Report

APPENDIX E

LIST OF ACRONYMS

1,1-DCA	-	1,1-Dichloroethane
CFR	-	Code of Federal Regulations
DCE	-	Dichloroethane also known as Dichloroethene
ECL	-	Environmental Conservation Law
GWA	-	Groundwater Associates
LGA	-	Lozier/Groundwater Associates
EPA	-	Environmental Protection Agency
FS	-	Feasibility Study
IRM	-	Interim Remedial Measure
MCLs	-	Maximum Contaminant Levels
MC	-	Methylene Chloride
NYSDEC	-	New York State Department of Environmental Conservation
NYSDOH	-	New York State Department of Health
NYCRR	-	New York Code Rules and Regulations
ppm	-	Parts per million
ppb	-	Parts per billion
HRA	-	Health Risk Assessment
RAOs	-	Remedial Action Objectives
RCRA	-	Resource Conservation and Recovery Act
RI	-	Remedial Investigation
SCGs	-	Standards, Criteria and Guidelines
SPDES	-	State Pollutant Discharge Elimination System
TCA	-	1,1,1-Trichloroethane
ug/l	-	Micrograms per litre
VOC	-	Volatile Organic Compound
TCA	-	1,1,1-Trichloroethane
TCE	-	Trichloroethylene (also known as Trichloroethene)

APPENDIX F

REFERENCES

- Freeze, R. A. and J. A. Cherry, 1979, Groundwater: Prentic-Hall, Inc., Englewood Cliffs, New Jersey, 604 pgs.
- Dames and Moore, June 1987a, Report on Oil and Hazardous Material Site Evaluation, American Locker Group, Inc., Signore Division, Ellicottville, New York: prepared for Kirkpatrick & Lockhart, Pittsburgh, Pennsylvania.
- Dames and Moore, June 1987b, Report on Ground Water Study, American Locker Group, Inc., Signore Division, Ellicottville, New York: prepared for Kirkpatrick & Lockhart, Pittsburgh, Pennsylvania.
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Lozier/Groundwater Associates, February 1990, Work Plan, Remedial Investigation and Feasibility Study, Signore Site, Ellicottville, New York: prepared for Signore, Inc., Ellicottville, New York.

Lozier/Groundwater Associates, May 1990, Work Plan, Interim Remedial Measures, Signore Site, Ellicottville, New York: prepared for Signore, Inc., Ellicottville, New York.

Lozier/Groundwater Associates, May 1990, Basis of Design Report for the Public Water Supply Connections, Interim Remedial Measures, Signore Site, Ellicottville, New York: prepared for Signore, Inc., Ellicottville, New York.

Lozier Architects/Engineers, July 1990, Contract Documents Including Bidding and Contract Requirements for the Construction of Ellicottville Town Water Line Extension: prepared for Lozier/Ground Water Associates and Signore, Inc.

Lozier/Groundwater Associates, August 1990, Interceptor Well Assessment, Signore, Inc. IRM Project, Ellicottville, New York: prepared for Signore, Inc., Ellicottville, New York.

Hydro Group, Inc., October 1990, Specifications for the Installation of an Interceptor Well and Pumping System, Interim Remediation Project, Signore, Inc., Ellicottville, New York: prepared for Lozier/Groundwater Associates and Signore, Inc.

Lozier/Groundwater Associates, September 1991, Air Pathways Analysis Report, Signore Inc. Ellicottville, New York: prepared for Signore, Inc., Ellicottville, New York.

Lozier/Groundwater Associates, September 1991, Feasibility Study Report, Signore Inc. Ellicottville, New York: prepared for Signore, Inc., Ellicottville, New York.