Department of Environmental Conservation

Division of Hazardous Waste Remediation

Record of Decision

NOW Corporation Site
Town of Clinton, Dutchess County
Site Number 3-14-008
Operable Unit 1

March 1995

New York State Department of Environmental Conservation
GEORGE PATAKI, *Governor* MICHAEL ZAGATA, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

NOW CORPORATION Inactive Hazardous Waste Site
Clinton, Dutchess County, New York
Site No. 3-14-008
Operable Unit 1

Statement of Purpose and Basis

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

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

Assessment of the Site

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

Description of Selected Remedy

Based on the results of the Remedial Investigation/Feasibility Study (RI/FS) for the Now Corporation site, the NYSDEC issued a PRAP on February 15, 1995. The preferred remedy detailed in the PRAP for this site consisted of a groundwater pump and treat system, and the excavation and off-site disposal of highly contaminated soil. A public meeting was subsequently held on February 22, 1995 to present this proposed remedial program to the public for comment.

Upon review of the comments received at the meeting and in correspondence during the associated comment period, it was discovered that the cost of the off-site disposal for the contaminated soils was significantly under estimated and the previously proposed remedy may no longer be cost effective. Hence, the NYSDEC will reevaluate the remedial alternatives for the contaminated soil at the site. Upon completion of the reevaluation of the remedial alternatives, a cost effective remedy will be proposed to address the contamination in the soil.

However, in order to address the public health threat presented by the groundwater contamination, the NYSDEC has decided to separate the site into two operable units. An operable unit (OU), is defined as a portion of the site that can be remediated independently of the remainder of the site. Operable Unit 1 will address the groundwater contamination and Operable Unit 2 will be the remainder of the site.

This Record of Decision for OU1 will allow the NYSDEC to proceed immediately with the remedy for the groundwater contamination.

The selected remedy for the groundwater contamination includes:

- Implementation of a groundwater pump and treatment system that will reduce, to the extent practical based on technological limitations, the impacts of contaminated groundwater to the environment. This system will also capture and treat vapors present in the bedrock. These actions will serve to control the migration of contaminants off-site.

- Reinfiltration of a portion of the treated groundwater to help flush contamination from the upper bedrock zone and to reduce the impacts of the groundwater withdrawal on neighboring homeowner wells.

- Institutional controls and restrictions to restrain the future use of groundwater at the site. Such controls would be required until the groundwater has been restored to drinking water standards.

- Continue the maintenance or future addition of carbon filters on impacted homeowner wells, until the groundwater meets New York State drinking water standards.

- Long-term monitoring would be carried out to assess the effectiveness of the selected remedy.

New York State Department of Health Acceptance

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

Declaration

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

The groundwater directly beneath the site may not achieve New York State drinking water standards. This is due to technical difficulties associated with the removal of volatile organic contamination from a fractured bedrock aquifer. The selected groundwater remedy will reduce the impacts of contaminated groundwater to the environment.

3/31/95
Date

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

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RECORD OF DECISION

"Now Corporation Site"
Clinton, Dutchess County, New York
Site No. 3-14-008
Operable Unit 1
March, 1995

SECTION 1: SITE LOCATION AND DESCRIPTION

The Now Corporation site consists of the developed portion of a 94.5 acre parcel of property owned by Mr. Robert Fried in the Town of Clinton, Dutchess County (see Figure 1). This developed portion of the property consists of approximately 15 acres along Route 9G. It contains one industrial building and an adjacent concrete pad where a warehouse destroyed by fire in 1989, once stood. This portion of the property, "the site", is bordered by route 9G and residential homes on the north-northwest and an inactive sand and gravel pit on the south. The east and west sides are bound by overgrown fields and woods.

The site is geographically located within the upland section of the Appalachian Highlands. Valley and ridge topography is the dominant feature in this region, with the valleys being deeply incised bedrock which have been filled with thick alluvial and glacial deposits. Typical among these deposits are clays, silts, gravels and till. These deposits tend to form gently sloping floors with steep, to moderately steep ridges along the valley walls. Along these valley walls bedrock outcrops are common, whereas the depth to bedrock along the centers of the valleys may be greater than 100 feet.

The bedrock in this region is typically shale, which has undergone extensive folding and fracturing. These fractures typically dip steeply and strike to the northeast. Regionally groundwater flows toward the Hudson River. However, local flow is controlled by the fracturing.

The Now Corporation site is located on the eastern edge of a valley. The bedrock is found at the surface to approximately thirty-five feet below grade. The bedrock is a shale which is partially covered by till, sand and gravel. Groundwater flow occurs at the site along preferential fracturing on a northeast-southwest trend. These conditions are consistent with the known regional conditions.

The groundwater flow in the bedrock aquifer is the primary source of drinking water in the area.

SECTION 2: SITE HISTORY

2.1: Operational/Disposal History

The property was purchased by Mr. Robert Fried in August 1957. Since the early 1960s, various businesses have operated on the site including: Modern Machine and Tools (1961-1971), Virginia Chemicals, Inc. (1969-1977, bought out by Hoechst Celanese in 1981), Now

Corporation (1970s and 1980s), Now Plastics (1982-1988 according to Mr. Fried), K&K Carpet, Tiffany Marble of New York, South American Development Corporation, and B&R Specialties, Inc. (current tenant).

The first investigation of the site, in 1975, consisted of sampling an on-site well by the Dutchess County Health Department (DCHD). The samples collected were analyzed for metals and general water chemistry parameters only. Sample results showed only manganese at levels exceeding the State Sanitary Code. This manganese is naturally present in the groundwater due to the surrounding soils.

The site was added to the registry in December, 1983, as a class 2a site due to allegations of on-site disposal of tank rinsing solutions.

A Phase I investigation was conducted in 1983 by NYSDEC. This Phase I investigation attempted to establish a Hazard Ranking Score (HRS) to better evaluate the site. A Phase II investigation was recommended to complete the HRS accurately, since the Phase I investigation did not include any groundwater, soil or air sampling.

In February, 1989, following a fire in the warehouse, samples of runoff water and water from three nearby homeowner wells were collected. The runoff water contained low levels of benzene, toluene, ethylbenzene, trichloroethene and 1,1,1-trichloroethane.

In this initial sampling no volatile organic compounds were detected in the nearby homeowner wells. However, follow up sampling in April, 1989, detected the presence of several VOCs in two residential wells. From 1989, to the present, one of these wells has consistently shown contamination with VOCs. For the locations of these residences and their historical contaminant levels, please refer to Figure 2 and Table 1.

In October 1989, the department began sending bottled water to residences G and I. In February 1990, granular activated carbon systems were installed on their water systems.

In August 1990, the NYSDEC reclassified this site to a class 2. A class 2 site presents a significant threat to public health and/or the environment. In July 1992, a work assignment was issued to perform a Remedial Investigation and Feasibility Study (RI/FS) under the State Superfund Program.

In April, 1994 another granulated activated carbon system was also installed on residence K.

SECTION 3: CURRENT STATUS

The NYSDEC, under the State Superfund Program, has conducted a Remedial Investigation/ Feasibility Study (RI/FS) to address the contamination at the site. This Record of Decision (ROD) presents a summary of this RI/FS and the selected remedy for the groundwater contamination. On-site soil contamination will be addressed in a separate ROD.

3.1: Summary of the Remedial Investigation

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

The RI was conducted in two phases. The first phase was conducted between July 1992 and April 1994, the second phase between April 1994 and January 1995. A report entitled Draft Final RI/FS Report, January 1995, has been prepared detailing the field activities and findings of the RI.

The first phase of the RI activities consisted of the following:

- Review of historical documents and aerial photographs, to determine potential disposal areas on and near the site.

- A magnetic survey was conducted in the area of alleged waste disposal. This survey was intended to determine the potential for buried drums and/or tanks which may contain waste in this area.

- A site wide soil gas survey was conducted at 145 locations. These locations were selected near and downgradient of suspected source areas to identify areas of soil and possibly groundwater contamination. See attached Figure 3.

- Six test pits were completed to investigate anomalies detected during the soil gas and magnetometer surveys. Composite soil samples were taken in conjunction with these test pits to better define any contamination present in these areas. See attached Figure 4.

- Soil borings were also installed to collect subsurface soils for chemical analysis. Please refer back to Figure 4.

- Fifteen groundwater monitoring wells were installed to determine the chemical analysis of groundwater, as well as the physical properties of on site hydrogeologic conditions. Please see attached Figure 5.

- The sampling of several nearby homeowner wells to determine the presence and levels of groundwater contamination off-site. Please see attached Figure 6 and Table 1.

- Surface water and surface soil sampling was also performed to define the condition of on-site surface soils and intermittent water.

- Surface water and sediment samples were taken from Crum Elbow Creek, to further assess the possibility of any impact on this water body by the NOW Corporation site. Please refer back to attached Figure 5.

After a preliminary assessment of the first phase RI results, a second phase was conducted to gather information necessary to develop remedial alternatives.

During the second phase of the RI, the following additional work was performed:

- A treatability study was performed. This study was to determine how successful a pump and treat groundwater system would be at remediating the contamination in the fractured bedrock beneath the site. This study included the implementation of a treatment utilizing granulated activated carbon on a small scale to determine its effectiveness so that the appropriate size and cost of the equipment to remediate the entire site by this method could be established. A pumping well and five observation wells on the ridge to the north of the industrial building were also installed.

- A separate treatability study was performed to determine how effective a soil vapor extraction system would be at treating the subsurface soil contamination in the parking lot area of the site.

The analytical data obtained from the RI were compared to applicable Standards, Criteria, and Guidance (SCGs) in determining remedial alternatives. Groundwater, drinking water and surface water SCGs identified for the Now

Corporation site were based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part V of NYS Sanitary Code.

Based upon the results of the remedial investigation in comparison to the SGGs and potential public health and environmental exposure routes, it was determined that the groundwater requires remediation.

GROUNDWATER

The investigation found several of the on-site monitoring wells to be contaminated with benzene, chloroethane, 1,1 dichloroethene (1,1 DCE), 1,2 DCE, tetrachloroethane (PCE), 1,1,1 trichloroethane (1,1,1 TCA), TCE and vinyl chloride. Monitoring wells MW-1, MW-6, MW-6D, MW-7, and MW-7D have shown the highest contamination levels. The concentrations for TCE and 1,2 DCE in these wells range from 11 to 2800 ppb and 12 to 82 ppb respectively. These all exceed the state drinking water standards of 5 ppb for these compounds as stated in Chapter I, Subpart 5-1 of the State Sanitary Code. See Figure 6 for an illustration of the extent and concentration of groundwater contamination.

Additionally, nearby homeowner wells have shown contamination with the same VOCs. The concentration levels in the most contaminated of these wells fluctuate based on the seasonal groundwater cycles. However, the detected VOCs are continually well above drinking water standards as they range from 27 to 730 ppb for TCE, 21 to 700 ppb for TCA, and 35 to 1,838 for total VOCs.

Based on this information, a treatability study was performed to evaluate the effectiveness of a pump and treat system to remediate groundwater contamination. The study consisted of pumping a constant flow of 17.3 gallons per minute from an on site extraction well for 72 hours. The water was then treated with a granular activated carbon filter. This water was sampled prior to and after treatment for VOCs. During the study, total VOC levels as high as 6,900 ppb were present in the pumping well. Contaminant levels did not drop significantly during the test and averaged 5,000 ppb over the entire test. These levels were effectively reduced to non detect by the carbon filtration unit used during the test. Significant vapors were also observed escaping from the test well during this phase of the study. Sampling of these vapors found a total of 190,000 ppb of non methane hydrocarbons present.

3.2 Interim Remedial Measures:

An Interim Remedial Measure (IRM) is implemented when a source of contamination or an exposure pathway can be effectively addressed before completion of the RI/FS. A direct pathway of exposure was established between contaminated groundwater from the site and the impacted homeowner wells. Based on this finding, an IRM was conducted at the site.

Carbon filtration units were installed on three private wells at residences G, I and K to prevent exposure to the contaminated groundwater. (See Figure 2) Bottled water has also been provided to residence G and the Route 9G Garden Center. The Garden Center only uses its well seasonally for irrigation purposes. Residence G is on a carbon filtration unit, but due to the high levels of contaminants in their well, they have experienced breakthrough on occasion. The carbon filtration unit at residence K was subsequently removed at the request of the owner. Responsibility for the carbon filtration unit at residence I was turned over to Mr. Fried in August of 1991, as this well was no longer showing contamination.

3.3 Summary of Human Exposure Pathways:

Based on the results of the remedial investigation, an evaluation of this site's impact on human health was performed. This evaluation, referred to as the baseline risk assessment in the RI/FS report, reached the following conclusion: that noncarcinogenic (systematic) and carcinogenic health effects may impact in both current and hypothetical future residents.

In the human health evaluation (HHE), the likelihood of noncarcinogenic effects is indicated by the hazard index, while the risk of carcinogenic effects is presented as a probability. A hazard index greater than one indicates that adverse noncarcinogenic effects may occur. A risk greater than the New York State Department of Health's remediation risk goal of $1x10^{-6}$ indicates that there is an unacceptable excess risk of carcinogenic effects.

For current residents, the noncarcinogenic hazard index ranges from 0.4 to 2. For hypothetical future residents, the hazard index ranges from 4 to 14. The elevated hazard indices are primarily due to the presence of arsenic, chromium, and manganese in soil, and manganese in groundwater. It should be noted, however, that the presence of these metals is not considered to be a result of hazardous waste disposal. The increased levels of manganese in groundwater can be explained by the high natural ranges of this metal in soils and variations in bedrock mineralogy in the area.

For carcinogenic effects, the risks for the current residents ranged from $5x10^{-6}$ to $2x10^{-5}$. Current exposures to the contaminated groundwater were not considered in this risk evaluation as they are presently prevented through the use of carbon filtration units. For hypothetical future residents, the risks ranged from $4x10^{-5}$ to $2x10^{-4}$. Without further remedial activities on this site, additional exposures will occur as the contaminated groundwater migrates to unprotected surrounding homeowner wells and potential future residences.

Risks for all receptor groups exceeded the NYSDOH remediation risk goal of $1x10^{-6}$. The increased risk to these receptors is primarily due to the presence of 1,1 dichloroethene and trichloroethene in groundwater.

The fact that carcinogenic risk exceeds the DOH goal of $1x10^{-6}$ denotes an increased cancer risk of one in a million and indicates that remediation is warranted to protect future residents.

3.4 Summary of Environmental Exposure Pathways:

Adverse ecological effects as a result of exposure of biota to contaminants at the site are minimal.

SECTION 4: ENFORCEMENT STATUS

The Potential Responsible Parties (PRP) for the site include:

Robert P. Fried
Hollow Road
Straatsburg, N.Y. 12580

Hoescht/Celanese Corp.
Route 202-206
P.O. Box 2500
Sommerville, N.J. 08876-1258

The PRPs failed to implement the RI/FS at the site when requested by the NYSDEC. After the remedy is selected, the PRPs will again be contacted to assume responsibility for the remedial program. If an agreement cannot be reached with the PRPs, the NYSDEC will refer the site for further action under the State Superfund Program. The PRPs are subject to legal actions by the State for recovery of all response costs the State has incurred.

SECTION 5: SUMMARY OF THE REMEDIATION GOALS

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

The remedy selected should eliminate or mitigate all significant threats to public health and the environment presented by the hazardous waste disposed of at the site through the proper application of scientific and engineering principles.

The goals selected for this operable unit are:

- *Reduce, to the extent practical based on technological limitations, the impacts of contaminated groundwater to the environment.*

- *Reduce, to the extent possible, migration of contaminants in the groundwater.*

- *Provide for attainment of groundwater quality as close to SCGs for groundwater within the practical limits of remedial technology.*

Groundwater remediation for the site will be based on the effectiveness of the selected groundwater pump and treat system. This system will be operated until it no longer significantly reduces the contaminant levels in the groundwater.

SECTION 6: SUMMARY OF THE EVALUATION OF ALTERNATIVES

Upon review of the comments received at the meeting and in correspondence during the associated comment period for the PRAP, it was discovered that the off-site disposal costs for the contaminated soil was significantly under estimated and the previously proposed remedy may no longer be cost effective. Hence, the NYSDEC will reevaluate the remedial alternatives for the contaminated soil at the site. Upon completion of the reevaluation of the remedial alternatives a cost effective remedy will be proposed to address the contamination in the soil.

However, in order to address the public health threat presented by the groundwater contamination, the NYSDEC has decided to separate the site into two operable units. An operable unit is defined as a portion of the site that can be remediated independently of the remainder of the site. Operable unit 1 will address the groundwater contamination and Operable Unit 2 will be the remainder of the site.

A summary of the detailed analysis follows.

6.1: Description of Alternatives

The following alternatives are intended to address the contaminated groundwater on site and to prevent the further migration of contaminants from the site via the groundwater. Present worth values are calculated for a discount rate of four percent.

Alternative 1: No Further Action

Present Worth:	$ 378,000
Capital Cost:	0
Annual O & M:	$ 22,000
Time to Implement:	30 years

The no further action alternative is evaluated as a procedural requirement and as a basis for comparison to other actions. This alternative recognizes that carbon filtration units have been installed on impacted homeowner wells. It requires continued monitoring only.

Alternative 2 - Groundwater Pump and Treat

Present Worth:	$ 1,800,000
Capital Cost:	$ 486,000
Annual O&M:	$ 163,000
Time to Implement:	7 to 10 years

This alternative would address the groundwater contamination by installing a system that would withdraw and treat the heavily contaminated groundwater. The goal of this system would be to reduce, to the extent possible based on technological limitations, the impacts of the contaminated groundwater on human health and the environment.

The groundwater pumping system as conceptually designed in the RI/FS would consist of five pumping wells in two rows to the northeast and southwest of the building and concrete pad. These wells would withdraw a combined flow of approximately 25 gallons per minute. This contamination would then be treated by passing the extracted groundwater through a treatment unit. The contaminants would then be removed by carbon filtration, or an equivalent treatment technology. Some of these extraction wells would also be equipped with vapor extraction equipment to treat vapors from the bedrock.

This treated water would then be divided into two flows. A small fraction of the treated water would be reinfiltrated on site to help flush the contaminants from the bedrock around the concrete pad and to minimize groundwater effects of the extraction wells off site. The remainder of the treated water would be piped and discharged into the Crum Elbow Creek. Both flows would be monitored regularly to assure that the treatment unit is operating effectively.

The system would be operated until it is no longer significantly reducing the contaminant levels in the groundwater or until groundwater standards are reached.

This conceptual design would be reevaluated and modified as needed in the remedial design to meet the stated objective of hydrologically isolating and treating the groundwater contamination from the site.

6.2 Evaluation of Remedial Alternatives

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

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

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

The no further action, alternative 1, would not comply with New York State SCGs, primarily due to the continuing exceedances of NYS Groundwater Standards 6NYCRR Part 702.

Alternative 2 would treat the groundwater contamination at this site by a pump and treat system. VOC contamination in fractured bedrock contamination has proven to be mitigated most readily by pump and treat systems as proposed in Alternative 2. However, attainment of Class GA groundwater standards may not be possible. This is primarily due to the presence of VOCs that are heavier than water in a fractured bedrock aquifer.

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

Alternative 1 would not be protective of human health and the environment. This is due to the continuing exceedances of VOCs in the groundwater, which is used as the primary drinking water source in the area.

Alternative 2 may not be protective of human health due to the technical difficulties associated with the removal of all of the VOC contamination in the groundwater. However, the levels and associated risks from the VOC contaminated groundwater in nearby residential wells would be greatly reduced through the containment and withdrawal of the VOC plume by a groundwater pump and treat system.

The next five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

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

Alternative 1 would pose no additional adverse impacts. However, as this alternative would not include active remediation, nor would it reduce the contamination or the risks that are associated with that contamination.

Construction activities for alternative 2 include soil excavation needed for the construction of the pump and treatment system and well drilling. This should not pose a risk to the community or workers as long as action-specific SCGs for these activities are adhered to. Air monitoring would be performed to ensure that dust and/or VOCs are not causing a risk to residents or workers in the on-site building. Additionally, access limitations, protective clothing, monitoring equipment and decontamination procedures would be used in accordance with the site Health and Safety Plan.

Impacts to the environment would consist of the potential for contaminated soil or groundwater to reach Crum Elbow Creek. Plans for controlling soil and sediment from site construction activities would be prepared as part of the remedial design activities.

Similarly, during the operation of the remedy monitoring will be performed to insure that any water discharged to Crum Elbow Creek does not exceed surface water standards.

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

limit the risk, and 3) the reliability of these controls.

Alternative 2 would permanently treat the contaminated groundwater by passing the extracted groundwater contamination through activated carbon filters or an equivalent treatment method. However, due to the nature of the groundwater contamination, it is anticipated that some contamination would remain. This contamination should only pose a potential threat if groundwater on the site was used as a potable water source without treatment. This can be effectively managed by institutional controls and long term monitoring of the site.

Alternative 1 does not contain any permanent remedies. Over the course of time, it is expected that the levels of contamination in the groundwater would reduce through natural attenuation. However, this attenuation would not reduce the risks in a reasonable time. Institutional controls and restrictions would be needed indefinitely.

5. Reduction of Toxicity, Mobility or Volume

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

Alternative 1 would not reduce the toxicity, mobility or volume of the wastes in the groundwater.

Alternative 2 would reduce the toxicity, mobility and volume of the contamination. This would be accomplished by the treatment systems concentrating and permanent treatment of the contamination by activated carbon or an equivalent technology.

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

Both of the alternatives considered for this site are implementable.

Alternatives 1 would only require annual sampling to monitor the site's condition and personnel to maintain the necessary site restrictions. The materials and personnel for these tasks would be readily available.

Alternative 2 would require the design, construction, and operation of the groundwater treatment system. This system would need to meet all quantitative requirements for the discharge of treated groundwater and air emissions from the treatment unit. The vapor extraction system to be included on the groundwater extraction wells would also need to meet all emission requirements.

The necessary materials and personnel to construct, start up and maintain this system should be readily available.

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

The present worth cost of the no further action, alternative 1, is $378,000.

The present worth cost of the groundwater pump and treat system, alternative 2, is $1,800,000. The cost can be broken down into $486,000 in capital costs and $163,000 in annual

operations and maintenance costs. Both of these subcomponents are in present worth dollars.

8. Community Assessment - Concerns of the community regarding the RI/FS report and the February 15, 1995 PRAP have been evaluated. A responsive summary describing these concerns and detailing how the Department will address these concerns has been prepared. This responsive summary is attached as Appendix A.

Due to comments on the proposed remedy the Department decided to issue a Record of Decision for the groundwater and reevaluate the remedial alternatives for the on-site soil contamination.

SECTION 7: SUMMARY OF THE SELECTED REMEDY

Based upon the results of the RI/FS, and the evaluation presented in Section 7, the NYSDEC is selecting Alternative 2, as the remedy for the groundwater, operable unit 1.

Alternative 1 is considered unacceptable as human health and the environment would not be adequately protected. Additionally, human health would not be protected in the future from the groundwater if the contamination migrates to wells without carbon filtration units.

Alternative 2 was selected as the preferred remedy. This alternative will effectively remove the VOC contamination while limiting migration of contaminants outside the site boundary. This alternative will also greatly mitigate the impacts from the contamination to the environment.

The estimated present worth cost to implement the proposed remedy is $1,800,000. The cost to construct the remedy, capital cost, is estimated to be $486,000 and the estimated annual operation cost for 7 to 10 years will be a maximum of $163,000.

The elements of the selected remedy, are as follows:

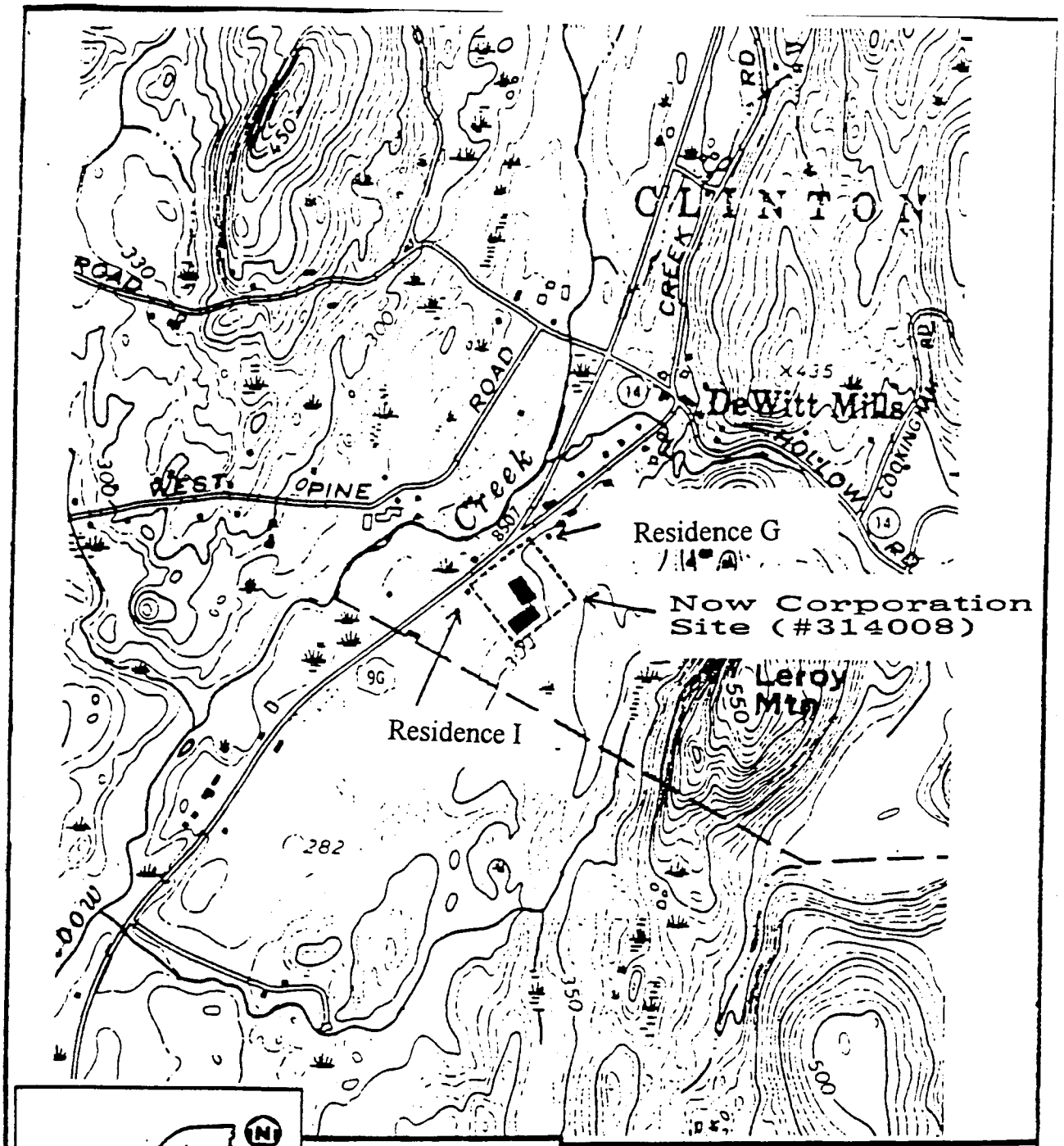
- Implementation of a groundwater pump and treatment system that will reduce, to the extent practical based on technological limitations, the impacts of contaminated groundwater to the environment. This system will also capture and treat vapors present in the bedrock. These actions will serve to control the migration of contaminants off-site.

- Reinfiltration of a portion of the treated groundwater to help flush contamination from the upper bedrock zone and to reduce the impacts of the groundwater withdrawal on neighboring homeowner wells.

- Continue the maintenance and addition of carbon filters on impacted homeowner wells. Institutional controls and restrictions to restrain the future use of groundwater at the site.

The selected remedy, Alternative 2, will leave hazardous waste remaining in the groundwater. As such, a long term monitoring program will be instituted. This is due to the inherent difficulty in removing all of the VOC contamination from a fractured bedrock aquifer. This program will allow the effectiveness of the selected remedy to be monitored. This long term monitoring program will be a component of the operations and maintenance plan for the site and will be developed as part of the remedial design.

The selected remedy represents a sound balancing of cost considerations with the need to protect public health and environment by reducing or controlling risk through treatment, engineering or institutional controls.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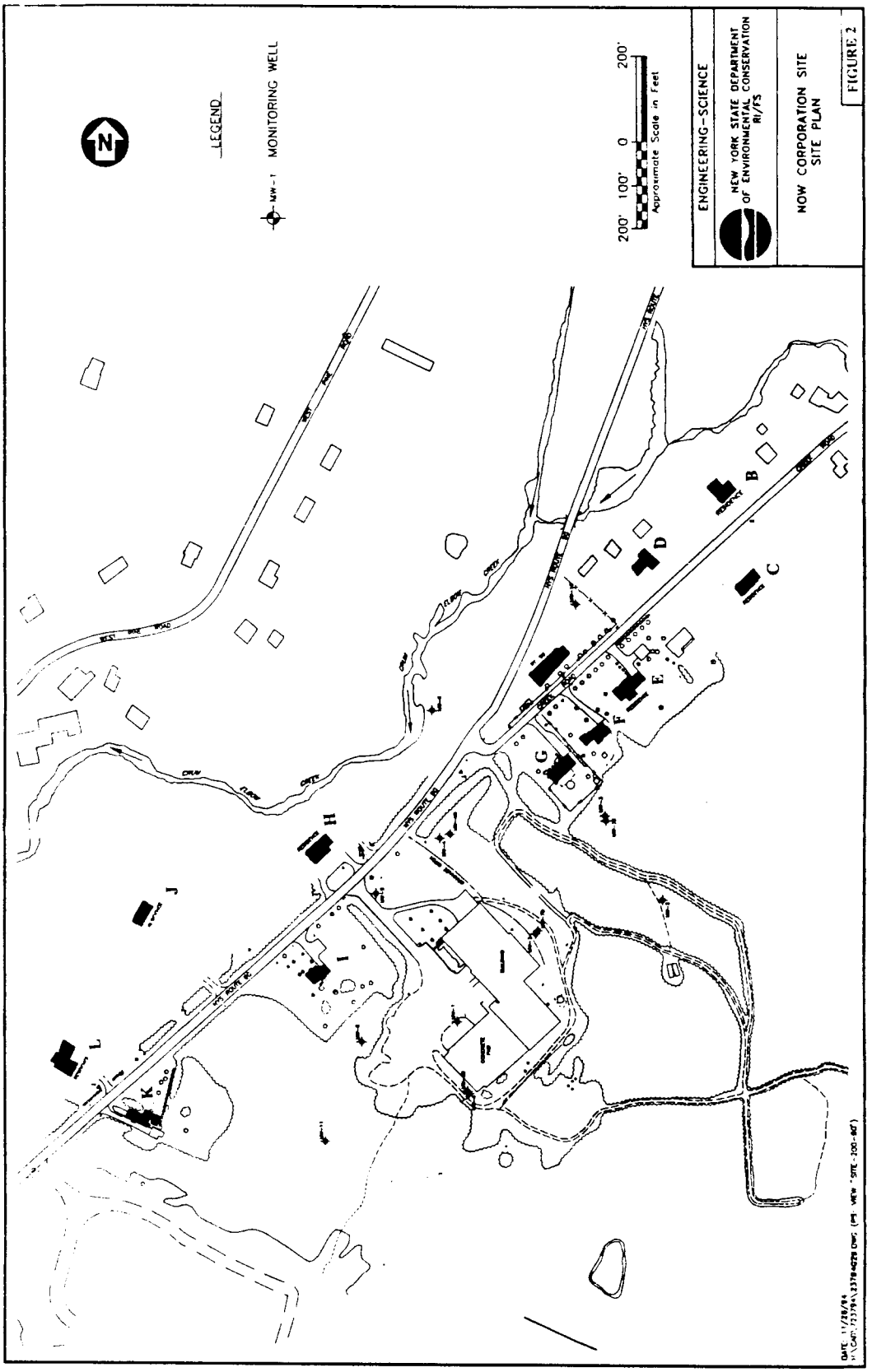
NEW YORK STATE DEPARTMENT OF
ENVIRONMENTAL CONSERVATION
RI/FS INVESTIGATION
FIGURE 1
SITE LOCATION MAP
NOW CORPORATION SITE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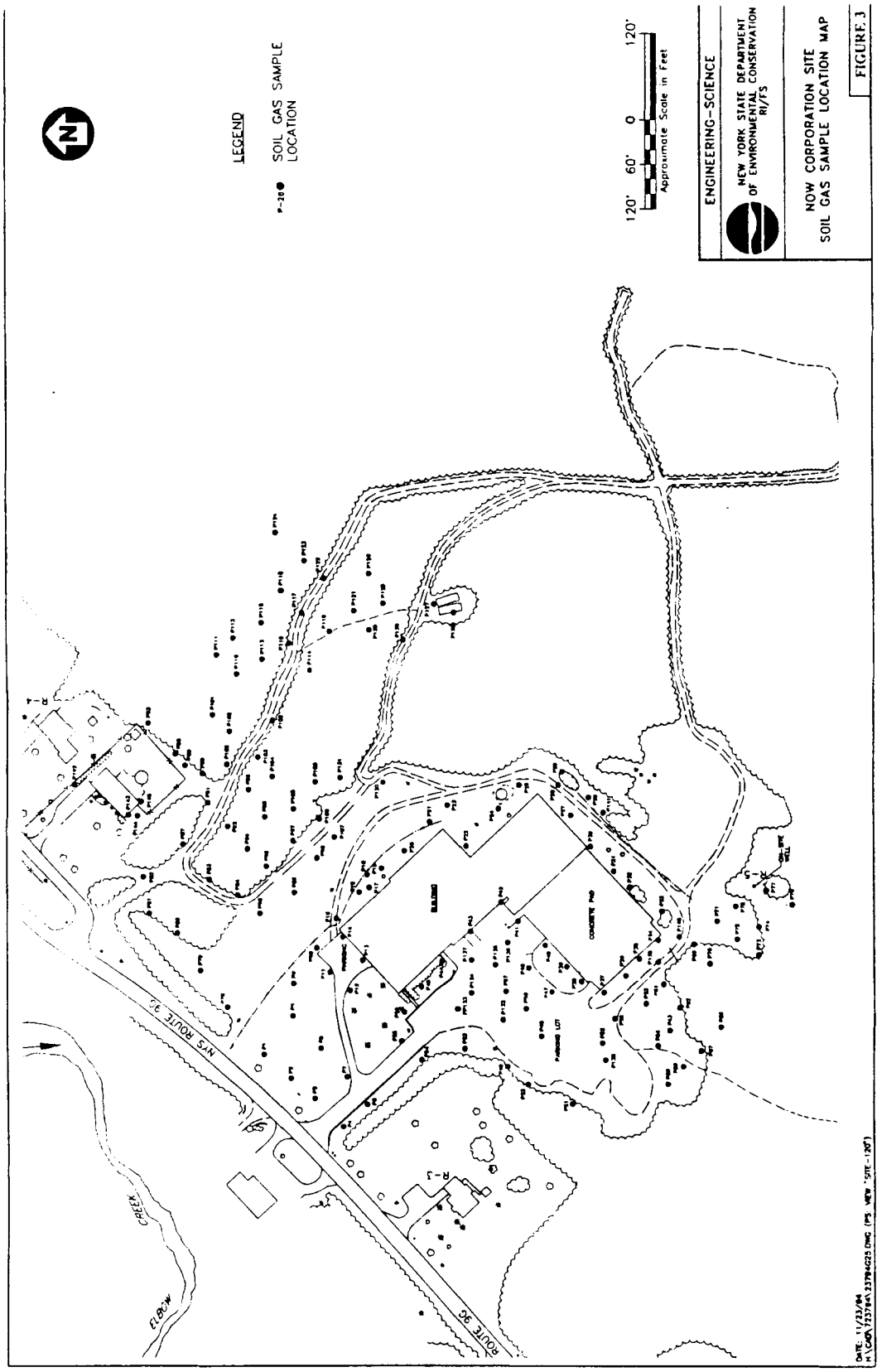
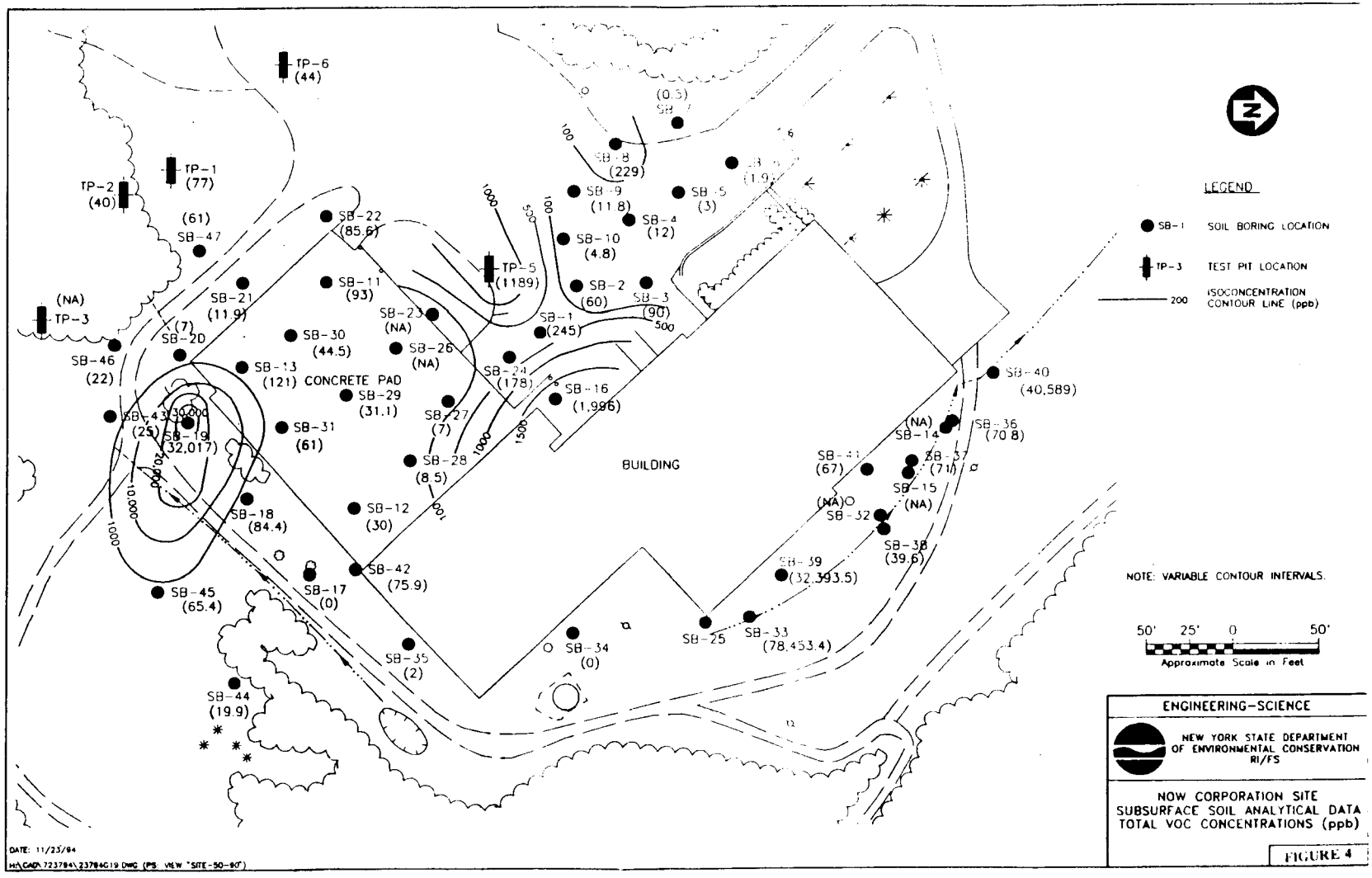
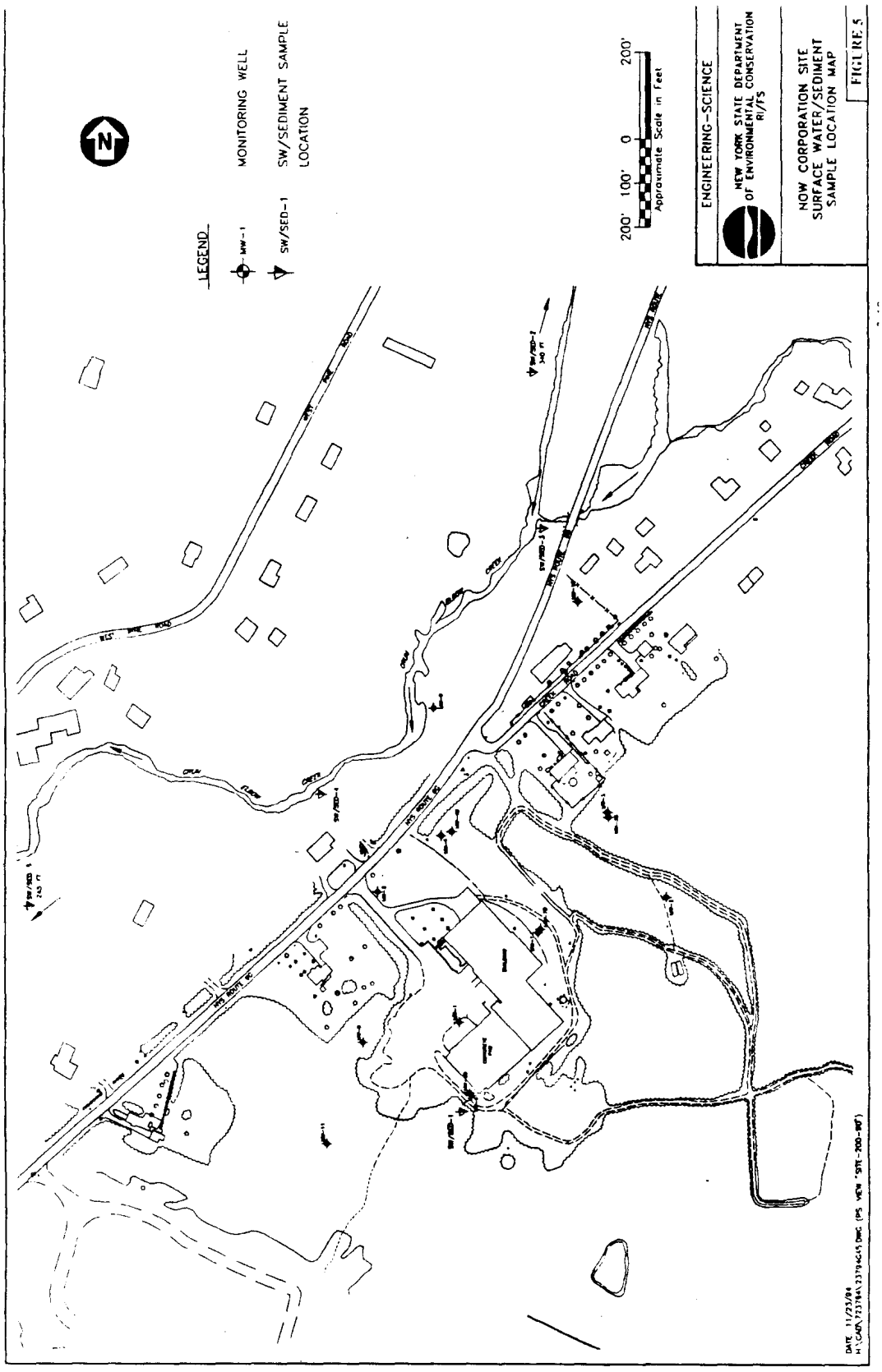
Approximate Scale in Feet
ENGINEERING-SCIENCE
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION RI/FS
NOW CORPORATION SITE
SITE PLAN
FIGURE 2
WEST MIKE ROAD
CREEK ROAD
A
B
C
D
E
F
G
H
I
J
K
L


LEGEND
SOIL GAS SAMPLE LOCATION
120' 60' 0 120'
Approximate Scale in Feet
ENGINEERING-SCIENCE
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION RI/FS
NOW CORPORATION SITE
SOIL GAS SAMPLE LOCATION MAP
FIGURE 3
NYS ROUTE 95
ROUTE 95
CREEK
ELBOW
BUILDING
CONCRETE PAD
PARKING LOT
R-1


TP-6
(44)
TP-1
(77)
TP-2
(40)
(61)
SB-47
(NA)
TP-3
SB-46
(22)
SB-21
(11.9)
(7)
SB-20
SB-22
(85.6)
SB-11
(93)
SB-30
(44.5)
SB-13
(121)
CONCRETE PAD
SB-29
(31.1)
SB-31
(61)
SB-43
(25)
30,000
SB-19
(32,017)
SB-18
(84.4)
SB-45
(65.4)
SB-17
(0)
SB-42
(75.9)
SB-12
(30)
SB-23
(NA)
SB-26
(NA)
SB-27
(7)
SB-28
(8.5)
SB-35
(2)
SB-44
(19.9)
TP-5
(1189)
SB-1
(245)
SB-24
(178)
SB-16
(1,996)
SB-34
(0)
SB-25
SB-33
(78,453.4)
BUILDING
SB-8
(229)
SB-9
(11.8)
SB-10
(4.8)
SB-2
(60)
SB-3
(90)
SB-4
(12)
SB-5
(3)
(0.3)
SB-40
(40,589)
(NA)
SB-14
SB-36
(70.8)
SB-41
(67)
SB-37
(71)
SB-15
(NA)
(NA)
SB-32
SB-38
(39.6)
SB-39
(32,393.5)
100
500
1000
1500
10,000
30,000
LEGEND
SB-1 SOIL BORING LOCATION
TP-3 TEST PIT LOCATION
200 ISOCONCENTRATION CONTOUR LINE (ppb)
NOTE: VARIABLE CONTOUR INTERVALS.
50' 25' 0 50'
Approximate Scale in Feet
ENGINEERING-SCIENCE
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION RI/FS
NOW CORPORATION SITE
SUBSURFACE SOIL ANALYTICAL DATA
TOTAL VOC CONCENTRATIONS (ppb)
FIGURE 4
DATE: 11/23/94
H:\CADD\723784\23784G19.DWG (PS VIEW "SITE-50-80")


LEGEND
MW-1
MONITORING WELL
SW/SED-1
SW/SEDIMENT SAMPLE LOCATION
200' 100' 0 200'
Approximate Scale in Feet
ENGINEERING-SCIENCE
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
RI/FS
NOW CORPORATION SITE
SURFACE WATER/SEDIMENT
SAMPLE LOCATION MAP
FIGURE 5

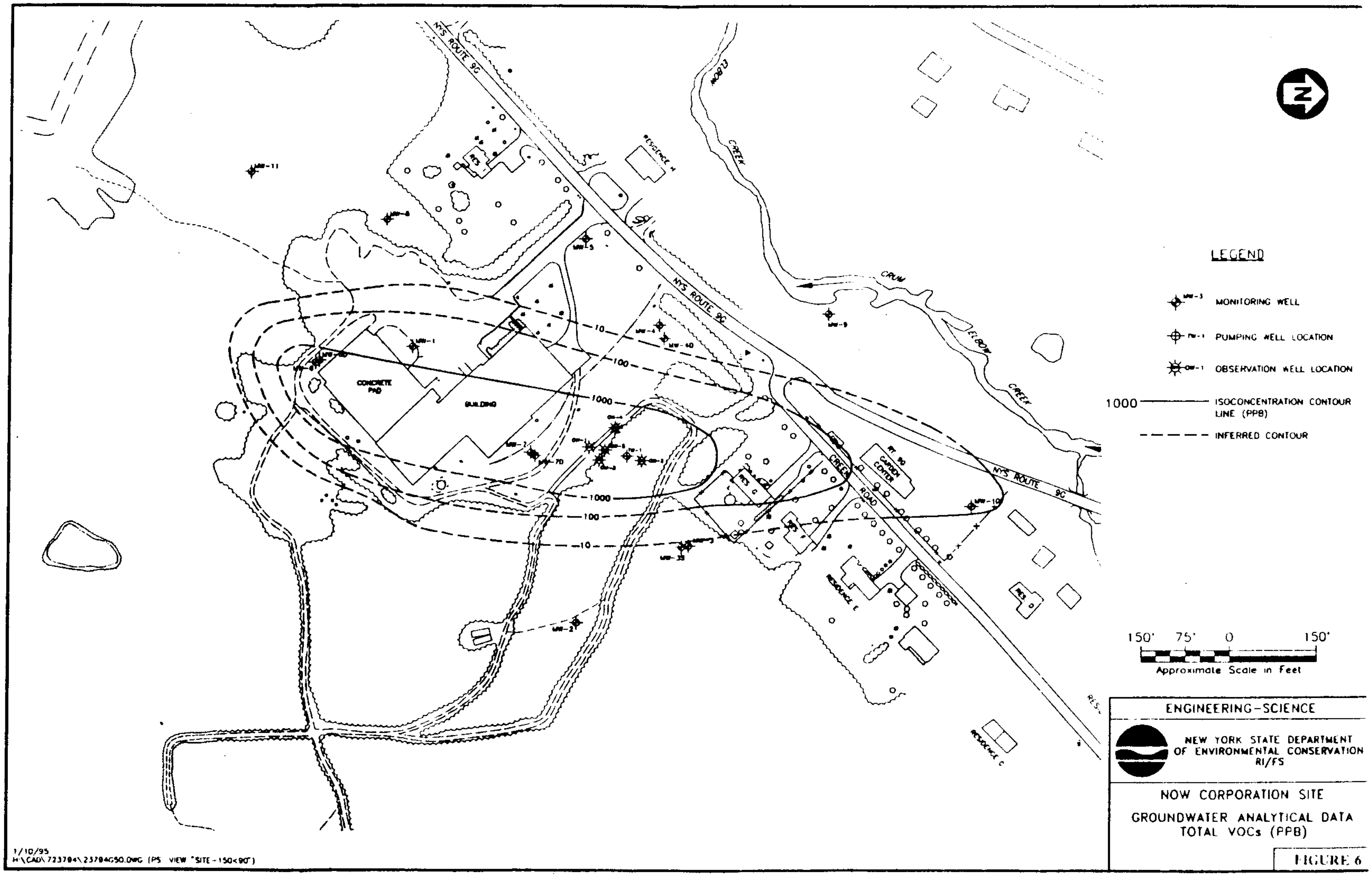

NYS ROUTE 9C
RESIDENCE H
CREEK
CRUM
ELBOW
CREEK
MW-11
MW-8
MW-5
MW-1
MW-4
MW-4D
MW-9
CONCRETE PAD
BUILDING
MW-7
MW-7D
OW-1
OW-4
PW-1
MW-2
MW-3S
MW-10
RT. 9G GARDEN CENTER
CREEK ROAD
RES. G
RES. F
RES. D
RESIDENCE E
RESIDENCE C
10
100
1000
LEGEND
MONITORING WELL
PUMPING WELL LOCATION
OBSERVATION WELL LOCATION
1000 ISOCONCENTRATION CONTOUR LINE (PPB)
INFERRED CONTOUR
150' 75' 0 150'
Approximate Scale in Feet
ENGINEERING-SCIENCE
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION RI/FS
NOW CORPORATION SITE
GROUNDWATER ANALYTICAL DATA
TOTAL VOCs (PPB)
1/10/95
H:\CAD\723784\23784G50.DWG (PS VIEW "SITE-150<90")

FIGURE 6

TABLE 1
NOW CORPORATION SITE
RESIDENTIAL WELL ANALYTICAL RESULTS SUMMARY

		COMPOUNDS DETECTED (ug/L)										
		1,1-DCA	1,1-DCE	1,1,1-TCA	TRANS-1,2 DCE	CIS-1,2 DCE	TCE	VINYL CHLORIDE	ACETONE	CARBON TETRACHLORIDE	TOTAL (1,2-DCE)	TOTAL VOC'S
(1) NYSDEC CLASS GA WATER QUALITY STANDARD/GUIDELINES		5	5	5	5	5	5	2	50 (G)	5	5	
RESIDENCE	SAMPLE DATE											
G	4-19-89	10	1	21	ND	1	66	ND	ND	ND	ND	99.0
G	8-21-89	290	56	420	8	ND	330	ND	ND	ND	ND	1104.0
G	2-21-90	NA	NA	NA	NA	NA	35	NA	ND	ND	ND	35.0
G	3-21-90	NA	NA	NA	NA	NA	86	NA	ND	ND	ND	86.0
G	8-9-90	79	12	83	ND	2	200	ND	ND	ND	ND	375.6
G	5-28-91	11	ND	27	ND	38	75	ND	ND	ND	ND	151.0
G	7-15-91	110	7	250	11	ND	550	ND	ND	ND	ND	928.0
G	10-28-91	310	8	700	13	ND	480	3	ND	ND	ND	1,514.0
G	1-3-92	20	3	27	4	ND	27	ND	ND	ND	ND	81.0
G	4-13-92	22	ND	32	ND	ND	150	ND	ND	ND	ND	204.0
G	7-16-92	73	4.9	140	3.3	ND	230	ND	ND	ND	ND	451.2
G	10-19-92	ND	220	600	NA	ND	780	NA	NA	ND	ND	1,600.0
G	1-7-93	130	7.2	380	NA	3.4	370	NA	NA	ND	ND	890.6
G	4-8-93	4	ND	6.1	NA	ND	28	NA	NA	ND	ND	38.1
G	8-3-93	59	ND	120	NA	6.9	400	NA	NA	ND	ND	585.9
G	11-8-93	350	16	840	NA	8.9	540	NA	NA	81	4.9	1,838.8
G	2-17-94	130	6.7	230	NA	7.1	320	NA	NA	NA	ND	693.8
G	5-21-94	71	ND	140	NA	ND	270	NA	NA	NA	ND	481.0
I	2-16-89	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
I	4-19-89	ND	ND	ND	ND	ND	ND	ND	94	ND	ND	94.0
I	8-25-89	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
I	2-21-90	NA	NA	NA	NA	NA	ND	NA	ND	ND	ND	0
I	3-21-90	NA	NA	NA	NA	NA	ND	NA	ND	ND	ND	0
I	5-16-90	NA	NA	NA	NA	NA	ND	NA	ND	ND	ND	0
I	11-19-90	ND	ND	ND	ND	NA	ND	NA	NA	ND	ND	0
I	3-1-91	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
I	4-3-91	ND	ND	ND	ND	NA	ND	NA	NA	ND	ND	0
I	4-28-93	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
H	2-16-89	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	0
H	9-14-89	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	0
H	7-7-93	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	0
F	9-13-89	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	0
F	10-23-89	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	0
F	3-15-91	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
F	4-28-93	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
F	11-4-93	ND	ND	1.6	ND	ND	2	ND	ND	ND	ND	3.6
J	2-16-89	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	0
J	9-13-89	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	0
J	4-27-93	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
E	9-13-89	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	0
E	4-29-93	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
NOW WELL	4-6-89	1600	95	2600	160	ND	960	2	ND	ND	ND	5617.0
NOW WELL	4-28-93	ND	ND	ND	ND	ND	0.8	ND	ND	ND	ND	0.8
K	4-29-93	ND	ND	4	ND	ND	9	ND	ND	ND	ND	13.0
K	7-7-93	1	ND	4	ND	2	8	ND	ND	ND	ND	15.0
K	4-22-94	ND	ND	4	ND	0.9	6	ND	ND	ND	ND	10.9
K	6-21-94	2.3	ND	5.5	ND	ND	11	ND	ND	ND	ND	18.8
B	4-28-93	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
B	11-4-93	1.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.7
D	4-28-93	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0
9G GARDEN CTR	10-1-92	72	21	62	ND	2	20	ND	ND	ND	ND	177.0
9G GARDEN CTR	4-29-93	ND	5	53	ND	1	28	ND	ND	ND	ND	87.0
M	4-29-93	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	0
N	4-29-93	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	0
L	7-7-93	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	0
C	7-7-93	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	0
A	11-4-93	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	0

(1) NYSDEC WATER QUALITY STANDARDS AND GUIDANCE VALUES (11/91)

(G) GUIDANCE VALUE

SEE FIGURE 4.1 FOR SAMPLE LOCATIONS

ND NOT DETECTED

NA NOT ANALYZED

NOTE: DATA NOT VALIDATED

APPENDIX A
Responsiveness Summary
Now Corporation Site
Site ID: 3-14-008
Operable Unit 1

This document summarizes the comments and questions received by the New York State Department of Environmental Conservation (NYSDEC) regarding the Proposed Remedial Action Plan (PRAP) for the Now Corporation site. A public comment period was held between February 13, 1995 and March 15, 1995 to receive comments on the PRAP. A public meeting was also held on February 22, 1995 in the Clinton Town Hall to present the results of the Remedial Investigation and Feasibility Study (RI/FS) and to describe the PRAP. In addition to this meeting, two other public meetings were held on October 14, 1992 and August 24, 1993 to discuss the RI workplan and the results of the Phase 1 RI, respectively.

This Responsiveness Summary is comprised of verbal comments and questions voiced during the February 22, 1995 public meeting and written comments received during the associated comment period. Written comments were received from the following during the comment period and are available in the document repository.

Janet C. Mills, February 20, 1995
Raymon Oberly, March 15, 1995
Robert S. McEwan, Jr., March 15, 1995
Frederick Loneker, March 15, 1995
Marian Zeilinski, March 15, 1995
Daniel J. Lowenstein, March 15, 1995

Upon review of the comments received at the meeting and in correspondence during the associated comment period, it was discovered that the off-site disposal cost for the contaminated soils was significantly under estimated and the previously proposed remedy may no longer be cost effective. Hence, the NYSDEC will reevaluate the remedial alternatives for the contaminated soil at the site. Upon completion of the reevaluation of the remedial alternatives, a cost effective remedy will be proposed to address the contamination in the soil.

However, in order to address the public health threat presented by the groundwater contamination, the NYSDEC has decided to separate the site into two operable units. An operable unit (OU), is defined as a portion of the site that can be remediated independently of the remainder of the site. Operable unit 1 will address the groundwater contamination and operable unit 2 will be the remainder of the site.

The following comments and questions are paraphrased from the written comments that were received during the comment period or from the public meeting.

1. C: Would my well continue to be tested two seasons a year to be assured that no traces of VOC's have infiltrated my drinking water?

R: The New York State Department of Health will continue to monitor potentially affected homeowner wells on an annual basis.

2. C: If left untreated, would the groundwater contamination keep expanding?

R: The groundwater contamination is presently being contained because the groundwater is being extracted by neighboring homeowner wells, and NYSDEC does not anticipate the significant expansion of groundwater contamination. However, the NYSDEC does not consider the containment of the plume by homeowner drinking wells an acceptable remedy.

3. C: Upon review of the data, we believe that the number of wells required to remediate the site could be reduced to 2, or 3 at most.

R: As stated in the PRAP, the described groundwater pumping system is only a conceptual design. The Department agrees that the system as presented in the RI/FS is not optimal. During the design, the number, location and withdrawal rates for the wells will be reevaluated and modified as necessary to optimize the operation of the treatment system.

4. C: I wonder how this (pump and treat system) might affect the water levels of private wells in the vicinity, particularly in a dry season. Most of the local wells are shallow. Can I assume there will be little or no effect?

R: The pump and treat system should have little or no effect on neighboring homeowner wells. The low withdrawal rate (a total of approximately 25 gallons per minute for all of the extraction wells) should only affect the groundwater level slightly over a small area. This area should be reduced further by the on-site reinfiltration of a portion of this withdrawn water. Additionally, the pump test held in October 1994, withdrew 17.5 gallons per minute for 3 days without any significant impacts on any neighboring homeowner wells.

5. C: I am afraid this pumping (the pump and treatment system) will affect my well in some way, either by drying it up or making it go sulfur again?

R: The pump and treatment system should not cause your well to go dry as explained above. Similarly, the system should not cause the reappearance of sulfur in your well either.

6. C: How deep are the northern most wells?

R: Monitoring well pair 3/3S are the northern most wells at the site. They are 88 and 50 feet deep respectively.

7. C: How much were these wells impacted during the pump test (72 hour constant rate test)?

   R: Both of these were only minimally impacted by the test. The water level in these wells actually rose due to rainfall that occurred during that test.

8. C: Why wasn't a pump test performed for the southern portion of the site?

   R: A second pump test was considered; however, it was determined that the one performed was adequate to characterize the bedrock beneath the entire site.

9. C: Does the casing in the monitoring wells go all the way down to the bedrock?

   R: Yes, all of the on-site monitoring wells are cased all the way down to the bedrock.

10. C: What are the wells in the parking lot (flush mounted ones)?

   R: These are soil vapor extraction wells. They are constructed similarly to groundwater wells, but they contain no water as they do not go down into the groundwater table. They were used to extract vapors out of the ground during the soil vapor extraction treatability study, conducted in October 1994.

11. C: Which wells are of a large diameter?

   R: Monitoring well TW-1 is the only large diameter well presently at the site. It is 6 inches in diameter.

12. C: Why not use the uncontaminated wells on the site as a substitute drinking water source for the affected homeowners?

   R: The use of any monitoring wells as a drinking water well would be difficult due to their construction. Additionally, pumping these wells may draw the contamination into them. It is more practical and safer to continue to use carbon filtration units on the affected homeowner wells until the remedial action is complete.

13. C: Why not pump out of the Residence G Well?

   R: The pumping wells used in a pump and treat system are constructed differently than those used for a household. Additionally, the New York State Department of Health prefers that homeowner wells do not become part of a remedy.

14. C: How often and how long will residence G continue to be sampled?

R: The present practice of sampling residence G quarterly will continue until we have evidence clearly indicating that it can be sampled at a longer interval.

15. C: How long would it take to remediate the site if you simply bought the impacted properties since you will not be able to get all of the contamination out of the bedrock aquifer?

R: New York State law does not allow us to buy out properties unless the property is needed to physically construct a remedy. If the Residence G well was removed from service, the contamination would most likely migrate and impact the next well downgradient. Presently, the contamination is confined to a small area, and can be greatly reduced by a groundwater pump and treat system. This remediation should not only prevent the contamination from spreading, but greatly reduce the levels in the Residence G well.

16. C: Will that well (Residence G) clear up?

R: The pump and treat system is expected to greatly reduce the levels in that well. Over time, the contamination levels in this well should become non detectable.

17. C: Where were the highest concentrations of soil contamination located?

R: The highest concentrations of soil contamination were in soil borings 33, 40, 39 and 19. Soil boring 33, 40 and 39 are located just north of the manufacturing building and soil boring 19 is located near the south east corner of the concrete pad. These borings all exhibited contamination by several volatile organics, notably, trichloroethene and dichloroethene.

18. C: What is the areal (horizontal) extent of the soil contamination along the North side of the building?

R: This contamination is between the north wall of the building and the access road that circles the building.

19. C: Why were borings advanced through the concrete pad that the warehouse use to sit on?

R: These borings were advanced to confirm the geology beneath the concrete pad. These borings also allowed the sampling of these soils to assess any contamination beneath the pad. These samples showed the contamination was predominantly around the edges of the concrete pad.

20. C: Why are we reinfiltrating water in an area where we do not have any soil contamination (along the SE side of the concrete pad)?

    R: The reinfiltrated water is intended to mainly flush the contamination out of the underlying bedrock. This area was chosen as the place where the small amount of reinfiltrated water would create the greatest flushing affect, considering the induced groundwater flow direction from the extraction wells and the natural groundwater flow direction in the bedrock. This location and the amount of water introduced will be reevaluated in the remedial design and modified as necessary to optimize the overall remedy.

21. C: Won't there be a certain amount of natural infiltration and flushing?

    R: Yes, but the introduction of additional water should considerably speed up this natural flushing.

22. C: You are not going to cap it?

    R: No, the proposed remedy did not include capping the parking area or the area of the reinfiltration gallery. The capping of the parking lot was considered in the Remedial Investigation and Feasibility Study report, but was not included in the selected remedy.

23. C: What did the magnetometer survey find?

    R: The data produced by the magnetometer survey indicated 5 areas with anomalous readings. These anomalies represented locations that were likely to contain surface or subsurface metallic objects, which could have included buried drums and/or tanks. Based on this data, and visual observations, test pits were dug which revealed various subsurface metallic debris and one partially filled, intact drum. The sampling of this drum indicated that it contained no hazardous material.

24. C: What can the Department of Environmental Conservation do to prevent the subdivision or the development of the remaining acreage of the property the site is on?

    R: The Department will not allow any activities on the site (15 acres of the property) that will impede the remediation of the site. However, the development of the

remaining acreage of the property or the adjoining properties would fall under the jurisdiction of the Dutchess County Department of Health and the Town of Clinton Zoning Board.

25.C: How would the NYSDEC prevent such activities (that would impede the remedy), could the Department place a lien or deed restrictions on the property?

R: Unless the owner consents to a deed restriction, any legal restriction by the Department would be pursuant to court action.

26. C: What can the Department do to prevent the site owner from contaminating the site again?

R: The Department can initiate an enforcement action to stop any activities that are recontaminating the site.

27. C:What is the time frame for the completion of this remedy?

R: The Potentially Responsible Parties (PRPs) were contacted again, and asked to undertake the selected remedy. Assuming no significant delays in their acceptance, the design should begin by early summer 1995. If the PRPs are unwilling or unable to implement the remedy, the NYSDEC will start the design in the summer of 1995 using a state superfund consultant. This design would then be completed by the winter of 1995 in anticipation of starting construction in the spring of 1996.

28. C:Since the proposed remedy is so expensive, who will pay for it, and if the state pays for it, will it be funded throughout or could monies be withdrawn before completion?

R: If the PRPs are unwilling or unable to undertake the selected remedy, the funds for the selected remedy will come from the State Superfund. At this time, there is sufficient money in the Superfund to cover the anticipated cost of this project.

29. C: Will there be any cost to the local government with regards to the remedy?

R: No, there will be no costs to the local government.

30. C: The Town of Clinton, would like to be provided a copy of the DEC rules, regulations and laws pertaining to the current and future use of the property, a plate showing the identified fifteen acres of the site and the placement of markers on the boundaries of the site.

R: The NYSDEC will provide a copy of the regulations pertaining to the current and

future usage of the site to the Town, as well as the local repository. Similarly, a map outlining the site boundaries will be provided. This boundary will be surveyed in and marked during the construction phase of the remediation.

31. C: Who will be the contact person for the project during the remedial design and construction?

    R: Erin O'Dell-Keller, the Region 3 citizen participation specialist, will be the contact person, and will be able to direct you to the project manager. She can be reached at (914) 256-3154, or by mail at the New York State Department of Environmental Conservation, Region 3 Office, 21 South Putts Corner Road, New Paltz, NY 12561-1696.

32. C: What was the original volume of the contaminants that are now causing this groundwater contamination?

    R: This is difficult to estimate due to uncertainties in the volume of groundwater in the bedrock and the possibility of highly concentrated contaminants in some of the bedrock fractures. By using engineering assumptions and mass balance equations, it is estimated that a few hundred gallons of product or waste could have caused this contamination.

33. C: What are present worth, capital costs and operation and maintenance costs?

    R: Present worth is the total cost of the remedy if all future costs were discounted and paid in the present. Capital costs are costs associated with the purchase of equipment or construction of the remedy. Operation and Maintenance costs are future costs that will be paid to operate and maintain the remedy.

A number of questions and comments were raised regarding remedial alternatives (off-site land disposal and low temperature thermal desorption) for soil contamination as presented in the PRAP and the RI/FS report. Upon completion of the reevaluation of the remedial alternatives, responses to these comments will be presented in the ROD for Operable Unit 2.

APPENDIX B

Now Corporation Site
ID: 3-14-008

ADMINISTRATIVE RECORD

1. Phase I Investigation Report, Now Corporation site, Wehran Engineering, November 1983.

2. Remedial Investigation/Feasibility Study Workplan , Now Corporation site, Engineering-Science, October 1992.

3. Phase II - Remedial Investigation/Feasibility Study Workplan, Now Corporation site, Engineering-Science, July 1994.

4. Remedial Investigation/Feasibility Study Report Volume I, Now Corporation site, Engineering-Science, January 1995.

5. Remedial Investigation/Feasibility Study Report Volume II, Now Corporation site, Engineering-Science, January 1995.

6. Remedial Investigation/Feasibility Study Report Volume III, Now Corporation site, Engineering-Science, January 1995.