Department of Environmental Conservation

Division of Hazardous Waste Remediation

Record of Decision

Olin Industrial Welding Site
City of Niagara Falls, Niagara County
I.D. Number 9-32-050

November 1994

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

OLIN INDUSTRIAL WELDING
Inactive Hazardous Waste Site
City of Niagara Falls, Niagara County, New York
Site No. 932050

Statement of Purpose and Basis

This Record of Decision (ROD) presents the selected remedial action for the Olin Industrial Welding 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 (40 CFR 300).

This decision is based upon the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the Olin Industrial Welding 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 part of the Administrative Record is included in Appendix B.

Assessment of the Site

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

Description of Selected Remedy

Based upon the results of the Remedial Investigation/Feasibility Study (RI/FS) for the Olin Industrial Welding site and the criteria identified for evaluation of alternatives the NYSDEC has selected for the main site (disposal area and the impacted land) capping of the disposal area, excavation of the surrounding impacted soil and its consolidation under the cap, perimeter vertical barrier to prevent off site migration of contaminated groundwater, leachate collection/disposal, land use restrictions, long term monitoring, and operation and maintenance. For Gill Creek, the NYSDEC has selected removal of contaminated sediments from the creek adjacent to the site and its disposal either under the cap of the main site or, disposal off-site. The main components of the remedy are as follows:

A. Main Site:

- Multilayer impermeable cap over the main waste disposal area.
- Impermeable vertical barrier keyed to underlying clay.
- Excavation of contaminated soil outside the disposal area and its consolidation under the cap. Clean up goals for the soils outside the disposal area are 1 parts per million (PPM) of mercury from the surface to a depth of 2 feet and 15 ppm of mercury below 2 feet depth. Backfilling of the excavated area with clean fill. Post excavation verification sampling.
- Leachate collection and leachate disposal.
- Landscaping of the containment area to improve general visibility of the area.
- Long term monitoring, operation and maintenance, and land use restriction.

B. Gill Creek:

- Excavation of contaminated sediments from Gill Creek bed and banks along approximately 1500 feet of the creek adjacent to the Main Site.
- Dewatering of the excavated sediments.
- Disposal of the excavated sediments by either consolidating them under the cap of the main site or by their use as fill material at the 102nd Street Landfill if approved by EPA.

New York State Department of Health Acceptance

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

Declaration

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

November 3, 1994
Date

Ann Hill DeBarbieri

Deputy Commissioner
Office of Environmental Remediation
NYS Department of Environmental Conservation

TABLE OF CONTENTS

RECORD OF DECISION

OLIN INDUSTRIAL WELDING
Niagara Falls, Niagara County, New York
Site No. 932050
Date of Issuance - August 1994

SECTION 1: SITE LOCATION AND DESCRIPTION

The Olin Corporation Industrial Welding site is an inactive hazardous waste site located west of Packard Road and approximately 500 yards north of Buffalo Avenue in the City of Niagara Falls, Niagara County, New York. The site is approximately 13 acres in area and is currently surrounded by a six foot high chain link fence. Gill Creek lies on the east side of Packard Road. The eastern part of the site was originally a marsh area that may have been formed as a meander channel of Gill Creek. The site was used by Olin Chemicals to dispose process wastes of brine sludge. Main contaminants at the site include mercury, hexachlorocyclohexanes (BHCs) and polycyclic aromatic hydrocarbons (PAHs). Same contaminants are present in the Gill Creek sediments at comparatively lower concentrations.

As a result of landfilling, the site topography has been leveled and slopes gently to the east toward Gill Creek. The eastern half of the site is flat with open grassy areas and several bald spots, indicating brine sludge exposure at the surface of the fill. The western half is covered with several mounds of soil, fly ash, demolition debris, and concrete from floors of demolished buildings. Surface runoff is toward Gill Creek. Land use near the site is mixed industrial, residential, and commercial. South of the site, toward Buffalo Avenue and the Robert Moses Parkway, the area is predominantly industrial. Private residences border the site on the north. There are also private residences to the east of Gill Creek. An American Legion Post is located immediately southeast of the site. The Cerebral Palsy Association building is located in the northwest corner of the site. The area north of the site is entirely residential. Hyde Park lake is located about 1 1/2 miles upstream of the site. The lake and the adjoining area is a public park. See Figures 1 and 2 for the site location and adjacent land use.

SECTION 2: SITE HISTORY

2:1: Operational/Disposal History

Ownership and usage of the site have varied over the past 60 years. The High Energy Fuels (HEF) Division of the Olin-Mathieson Corporation operated a pilot research laboratory and a pilot process plant at the site. After the HEF Division was dissolved, the building was razed and the site was used for landfilling until 1960. Process waste (K071 brine sludge) are reported to be dumped at the site. Also, it has been reported that fly ash, concrete debris and building rubble from a 1956 explosion and fire at the nearby Olin Plant were disposed at the site. This waste is suspected to have contained hexachlorocyclohexane (BHC), a product manufactured at the plant.

In 1964, Olin sold the plant property to Niagara Community College. It was subsequently transferred to Niagara County which uses a parcel adjacent to the site to house the Cerebral Palsy Association of Niagara County. The American Legion Association owns property and has a building southeast of the site.

The site was reported as a waste disposal site in the 1979 Interagency Task Force survey.

2.2: Remedial History

The Niagara County Health Department conducted an initial site investigation and collected one soil sample from the site in 1981. Mercury was found in the sample at a level of 140 parts per million (ppm). NYSDEC also collected three soil samples in October 1981 which were analyzed for Hexachlorobenzene (HCB). HCB was detected at 80 PPM in one of the samples. In 1982, Olin completed soil investigations to determine the areal extent and depth of waste material and the hydrogeological characteristics of the site. Extensive landfilling of waste (brine sludge) was found at the site. Chemical analyses also indicated elevated levels of mercury and BHCs in the soil. During 1984, the Department conducted a Phase I investigation at the site. Additional investigations to determine the extent of contamination at the site were recommended as a result of the Phase I effort.

SECTION 3: CURRENT STATUS

Under the guidance of NYSDEC, the Olin Corporation initiated a Remedial Investigation/ Feasibility Study (RI/FS) in November 1987 to address the contamination at the site.

3.1: Summary of the Remedial Investigation (RI)

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 performed in two phases. The first phase was conducted between October 1988 and June 1989 while the second phase was conducted during 1991. In 1992, the scope of the investigation was expanded to include areas outside the perimeter of the original RI Work Plan. The extended area of investigation included the strip of land between the site and Packard Road, the land around the American Legion Post Building and the Cerebral Palsy Association Building and approximately 1500 feet of Gill Creek adjacent to the site. A report dated July 1993 has been prepared detailing the field activities and findings of the RI. The RI activities including the additional investigation of 1992 consisted of the following:

- Collection of over one hundred soil samples to delineate both the horizontal and vertical extent of contamination as well as to determine the physical properties of the underlying soils.
- Installation of 27 monitoring wells and 12 piezometers to evaluate groundwater quality as well as to determine the hydrogeologic properties of the site.
- Hydraulic monitoring of ground water at the site and Gill Creek water levels to determine groundwater flow direction, its relationship to Gill Creek and its potential for off-site migration.
- Collection of air samples to assess the existence of any airborne contaminants.
- Collection and analysis of sediments from catch basins adjacent to the site for assessment of contaminant migration.
- Collection and analysis of sediments from Gill Creek to assess the extent of contamination in the creek sediments.

The Department compared analytical data obtained from the RI to applicable Standards, Criteria, and Guidance (SCGs) in determining remedial goals. Groundwater, drinking water and surface water SCGs identified for the Olin Corporation-Industrial Welding site were based on NYSDEC Water Quality Standards Parts 700-704 of the NYS

Codes, Rules and Regulations, Title 6, Chapter X and Guidance Values, and Part V of the NYS Sanitary Code. NYSDEC soil cleanup guidelines for the protection of groundwater, background conditions, and risk-based remediation criteria were used to develop remediation goals for soil. NYSDEC sediment criteria were used for Gill Creek sediments.

The environmental media found to be impacted by the site include soil, groundwater, and Gill Creek surface water and sediments. Mercury, BHCs, and Polycyclic Aromatic Hydrocarbons (PAHs) are the main contaminants with levels in soil, groundwater and creek surface water and sediments exceeding SCGs. Contaminant ranges and averages are shown in the following table:

Range and Average of Contamination in Soil, Sediments, Surface Water and Groundwater

Mercury	BHCs	PAHS
	Soil (ppm)	
N.D.-1660 (111)	N.D.-57 (14)	N.D.-235 (55)
	Sediment From Catch Basins (ppm)	
0.24-7.5 (3.1)	N.D.-1.6 (0.6)	13.7-59.0 (15)
	Sediment From Gill Creek (ppm)	
N.D.-11 (3.4)	N.D.-1.3 (0.5)	0.7-70 (21)
	Groundwater (ppb)	
N.D.-240 (69)	N.D.-38 (8)	N.D.
	Gill Creek Surface Water (ppb)	
N.D. - 0.23 (0.12)	0.4 - 203 (104)	N.D.

ppm parts per million
ppb parts per billion
N.D. non detect

Figures in parenthesis are average concentrations with upper 95% confidence level.

Based upon evaluation of the RI findings and applicable SCGs, the Department determined that further study of the site and impacted environmental media was required to determine the feasibility of remediation options.

The areas addressed by the feasibility study are shown in Figures 3 and 4. They include: the disposal areas of the listed K071 brine sludge within the site fence line, the impacted areas to the south and east of the site, and approximately 1500 feet of Gill Creek.

3.2: Summary of Human Exposure Pathways

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

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

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

- Dermal absorption and ingestion of chemicals in soil and groundwater.

- Dermal absorption and ingestion of contaminated sediments.

The risk assessment concluded that the site poses an unacceptable risk to human health through ingestion and other modes of human exposure if the site is used for residential purposes in the future. Mercury, BHCs, and PAHs are identified as the chemicals of concern at the site. The incremental cancer risk primarily associated with BHCs was found to be one in one thousand ($1x10^{-3}$) from the ingestion of home-grown vegetables in such a residential scenario. The hazard index resulting from the consumption of vegetables grown in mercury contaminated soil was determined to be 170. In the unlikely event that vegetable gardens were planted directly in the waste, the hazard index associated with consumption of those vegetables would be 760. A hazard index above 1 indicates that some non-carcinogenic adverse health effects could occur.

3.3: Summary of Environmental Exposure Pathways

This section summarizes the types of environmental exposures which may be presented by the site. The following pathways of environmental exposure were evaluated by the Department:

- Direct contact with surface water and sediment.

- Ingestion of bioaccumulated levels of chemicals in food items by fish and wildlife at the creek.

The Gill Creek characterization report identified the presence of mercury, BHCs, and PAHs at levels that exceed 1993 NYSDEC Fish and Wildlife sediment criteria for the protection of aquatic life. In addition, the RI showed that the contaminated groundwater is moving off site into Gill Creek and may eventually reach the Niagara River.

SECTION 4: ENFORCEMENT STATUS

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

The Potentially Responsible Party (PRP) identified for this site is:

1. Olin Chemicals; Charleston, Tennessee

The NYSDEC and Olin Chemicals entered into a legal Order on Consent on August 28, 1987. The agreement was modified on May 24, 1991. This Order obligates Olin to implement an RI/FS program. Upon the issuance of the Record of Decision the NYSDEC will ask Olin to implement the selected remedy under an Order on Consent. Preliminary discussions in this regard have already occurred as Olin has had substantial opportunity to provide input for the Proposed Remedial Action Plan. The following is the chronological enforcement history of this site.

Date	Index No.	Subject of Order
8/28/87	C9-0001-85-10	RI/FS
5/24/91	C9-0001-85-10	RI Amendment

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 requirement of meeting all standards, criteria, and guidance (SCGs) and protecting human health and the environment.

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

principles. The goals of the selected remedy are to:

- Eliminate the threat to surface waters and sediments from any future contaminated surface runoff.
- Provide for attainment of SCGs for groundwater quality to the extent practicable.
- Reduce the potential for direct human or animal contact with wastes and contaminated soils.
- Eliminate the potential for consumption of fruits and vegetables grown in contaminated soils and incidental ingestion of contaminated soil in a future residential scenario.
- Mitigate the environmental risk to aquatic organisms from contaminated sediments in Gill Creek.

Clean-up Goals

The RI/FS identified mercury, BHCs and PAHs as the chemicals of concern at the site. After evaluation of the concentrations and site distribution of each of these chemicals, it was determined that the mercury contaminated wastes and soils encompass the other chemical contamination and could, therefore, be used in determining the area and quantities to be remediated. Accordingly, the mercury clean up level of 1 ppm from the surface to 2 feet depth and 15 ppm below 2 feet depth are the goals established for soil remediation. For groundwater, GA groundwater standards for site specific hazardous contaminants apply. For sediments, adequate cleanup will be based on the removal of contaminated sediments and the use of Department sediment criteria for guidance. Based on 3% organic carbon in the sediments the Department criteria is 0.045 ppm for BHCs and 22 ppm for PAHs. For mercury the criteria is 0.2 ppm.

SECTION 6: SUMMARY OF THE EVALUATION OF ALTERNATIVES

Potential remedial alternatives for the Olin Industrial Welding site were identified, screened and evaluated in the Feasibility Study. This evaluation is presented in the Feasibility Study Report dated July 1993. An addendum describing and evaluating another remedial alternative was added to the FS in January 1994. Also a cost estimation for remediating Gill Creek sediment was provided by the company in January 1994. A summary of the detailed analysis follows.

6.1: Description of Alternatives

After an initial screening of remedial alternatives, the following alternatives were retained for detailed analysis. The potential remedies are intended to address the contaminated soils, sediments, and groundwater at the site and the adjoining impacted area.

Alternative 1: No Action

The no action alternative is evaluated as a procedural requirement and as a basis for comparison. It requires continued monitoring only, allowing the site to remain in an unremediated state. This is an unacceptable alternative as the site would remain in its present condition, and human health and the environment would not be adequately protected.

Alternative 2: Institutional Control

This alternative consists of access and institutional control measures. These controls would not change the current conditions at the site but would prevent direct contact through deed restrictions and enclosing the site with a fence. This alternative

was, therefore, not further evaluated because of its extremely limited effectiveness.

Alternative 3A, B & D: Capping, Excavation/ Consolidation, and Deed Restrictions

- **Alternative 3A: Asphalt Cap**

Present Worth:	$1,551,000
Capital Cost:	$1,473,000
Annual O&M:	$3,500
Time To Construct:	15 months

- **Alternative 3B: Concrete Cap**

Present Worth:	$2,853,000
Capital Cost:	$2,717,000
Annual O&M:	$6,000
Time to Construct:	15 months

- **Alternative 3D: Multilayer Cap**

Present Worth:	$3,220,000
Capital Cost:	$3,062,000
Annual O&M:	$7,000
Time to Construct:	15 months

Under these alternatives, all contaminated soil, including that outside the boundaries of the site fenced area (Figure 3) would be excavated and deposited within the fenced area. After excavation, verification sampling would be conducted to confirm removal in accordance with the clean up levels. A cap would be installed over the consolidated soils and in-place waste to prevent direct exposure and precipitation infiltration. Signs and deed restrictions would be employed to prevent future construction in the capped area.

Four alternatives were identified each using a different type of cap, but Alternative 3C, which employed a single layer clay cap, was eliminated because it was judged to be less durable than the Alternative 3D: Multi-layer cap.

Alternative 4: Excavation and Off-Site Disposal

Present Worth:	$18,182,000
Capital Cost:	$18,182,000
Annual O&M:	$0
Time to Construct:	6 months

Excavation and off-site disposal of all waste and contaminated soil is a direct means of removing the contaminated media from the site. This action eliminates future releases and off site migration potential and would eliminate potential exposure to humans and/or animals. It would also allow unimpaired use of the site in the future.

Approximately 40,000 cubic yards of wastes, contaminated soil/sediments would be excavated. Approximately 20,000 cubic yards of listed hazardous wastes (K071) would be disposed at a permitted RCRA landfill. Any remaining excavated material determined to be non-hazardous waste would be disposed in a sanitary landfill.

The site would then be backfilled with clean soil, top soil, mulched and vegetated. The site would be permanently remediated and no O&M would be required.

Alternative 5A,B & D: Capping, Slurry wall, Excavation/Consolidation, Leachate Collection System and Deed Restrictions

- **Alternative 5A: Asphalt Cap**

Present Worth:	$1,770,000
Capital Cost:	$1,680,000
Annual O&M:	$4,000
Time to Construct:	15 months

- **Alternative 5B: Concrete Cap**

Present Worth:	$3,068,000
Capital Cost:	$2,922,000
Annual O&M:	$6,500
Time to Construct:	15 months

- **Alternative 5D: Multilayer Cap**

Present Worth:	$3,427,000
Capital Cost:	$3,269,000
Annual O&M:	$7,000
Time to Construct:	15 months

Alternative 5C (clay cap, slurry walls, excavation/consolidation, leachate collection system and deed restrictions) was eliminated from further consideration because a single layer clay cap is considered less durable than the other caps. Therefore, no cost estimate was prepared for Alternative 5C.

Under these alternatives all contaminated soil outside the boundaries of the site fenced area (Figure 3) would be consolidated on site with materials within the fenced area. After excavation, verification sampling would be conducted to confirm the removal was done in accordance with the clean up levels. A cap would be installed over the landfill to prevent direct exposure to the contaminated materials and to reduce precipitation infiltration. A leachate collection system would be constructed to control perched ground water which has become contaminated by direct contact with the waste contained within the landfill.

For all these alternatives a slurry wall would be constructed north and south of the old swale area. The wall would act as a partial vertical barrier to prevent lateral migration of perched groundwater and leachate at the north and south boundaries of the site.

The cap and leachate collection system would require regular maintenance. Leachate generated would be collected, tested and properly disposed. Any necessary pretreatment would be performed before final disposal. A post remedial monitoring system would be designed and installed to determine progress toward achieving remedial goals.

Alternative 6: Modified Multilayer Cap, Excavation/Consolidation, Leachate Collection System, Groundwater Monitoring, and Deed Restrictions

Present Worth:	$2,399,000
Capital Cost:	$2,083,000
Annual O&M:	$14,000
Time to Implement:	15 months

This alternative includes excavation of all contaminated soil lying outside the boundaries of the site fenced area (Figure 3) and consolidation with the material inside the fenced area, construction of modified multilayer cap over the soil and waste material, construction of a leachate collection system under the capped area, long-term groundwater monitoring and deed restrictions. The primary difference between this alternative and Alternative 5D is the design of the cap and the addition of perimeter vertical barrier for adequate hydraulic gradient control. The modified cap would be keyed into the underlying clay strata at the perimeter of the site and would also function as a vertical barrier to prevent off site migration of contaminated groundwater and leachate (Figure 5, 6 and 7).

As with Alternative 5A through 5D, the cap and leachate collection system would require regular maintenance. Any leachate generated would be collected, tested and properly disposed. Any pre-treatment of the leachate required before final disposal would be performed. Long-term monitoring of the groundwater beneath the site would also be performed.

Gill Creek Sediment Remediation:

Present Worth:	$1,400,000
Capital Cost:	$1,400,000
Annual O&M:	$0
Time to Implement:	6 months

Approximately 7,500 cubic yards of contaminated soft sediments would be removed and the creek would be reasonably restored to pre-remediation topography. Olin requested the Environmental Protection Agency (EPA) to approve the use of this material as fill at the 102nd Street Landfill. This would facilitate the creek remediation while providing needed fill for 102nd Street Federal superfund remediation project. While these levels of sediment contamination are considered a problem in the aquatic environment, Olin's contention is that they are substantially lower than those present at the 102nd Street Landfill and, therefore, their use as fill would be considered to have a negligible impact. EPA denied the Olin request and Olin has requested reconsideration. However, in case EPA's denial of Olin's request, the sediments would be consolidated with on site wastes and capped.

For the Gill Creek remediation, Olin preferred to calculate cost independent of the FS and provide a lump sum figure. Therefore, a cost breakdown is not available.

6.2: Evaluation of Remedial Alternatives

The criteria used to compare potential remedial alternatives are delineated in New York State regulations that direct the remediation of inactive hazardous waste sites (6NYCRR Part 375). For each criterion, a brief description is provided followed by an evaluation of the alternatives against that criterion. Only the alternatives that were not previously eliminated are evaluated against these criteria. Accordingly, Alternatives 2, 3C and 5C are not discussed below. A detailed discussion of the evaluation criteria and comparative analysis is contained in the Feasibility Study.

The first two of the following evaluation criteria are termed threshold criteria and must be satisfied in order for an alternative to be considered for selection. The remaining five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

Threshold Criteria

1. Compliance with New York State Standards, Criteria, and Guidance (SCGs): Compliance with SCGs addresses whether a remedy will meet applicable environmental laws, regulations, standards, and guidance. Since Alternative 1 requires no remedial action, it would not comply with this criterion. Alternatives 4 would comply because all wastes and contaminated soil would be removed from the site. Alternative 6 would also be expected to comply because the waste and contaminated groundwater will be effectively contained and controlled. Other Alternatives are less certain because they provide a lesser degree of control of contaminated groundwater.

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. Alternatives 1 would not comply with this criterion because contaminated soils outside the fenced area would remain in an uncontrolled state. Alternatives 4 would comply because all wastes and the contaminated soil would be removed from the site. Alternative 6 would also comply because it requires excavation of all contaminated soil from off-site and adequate containment of on-site wastes and soil and groundwater with long term leachate collection and disposal and land use restrictions. Other alternatives would provide a lesser degree of protection.

Primary Balancing Criteria

3. Short-term Impacts Effectiveness: This criterion evaluates the potential short term impact of the remedial action upon the community, the workers and the environment during the construction.

There would be no short term adverse impact under Alternative 1. However, there would be short term impact for capping and excavation alternatives. Alternative 4 would take approximately 6 months to implement while alternatives 3A-D, 5A-D and 6 would take 15 months to implement. Short term dust and other air pollution emissions would be greater under Alternative 4 than the others. However, control measures are available to minimize these impacts.

4. Long-term Effectiveness and Permanence:

This criterion evaluates the long term effectiveness of alternatives after implementation of the remedial actions.

Alternative 4 provides long term effectiveness and would permanently remediate the site. Alternative 1 does little to reduce the magnitude of risk associated with current and future use, and is not considered reliable. The caps in Alternatives 3A, 3B, 5A and 5B have not been demonstrated to be reliable against severe climatic changes. Asphalt or concrete caps have been used over permanently stabilized/and or immobilized wastes; however, the evaluation made by the Department indicates that their ability to withstand substantial climatic changes (e.g. freeze/thaw) and their capacity to act as a moisture barrier with a hydraulic conductivity less than 10^{-7} cm per second has not been demonstrated. In addition, the Alternative 3A-D and 5A-D do not provide an adequate degree of lateral groundwater control due to absence of slurry wall in Alternative 3A-D and only a partial slurry wall in Alternative 5A-D. Alternative 6 provides a reliable cap and perimeter cut off wall to control lateral groundwater flow together with leachate collection and disposal. Therefore, Alternative 6 would comply in long term effectiveness.

5. Reduction of Toxicity, Mobility or Volume: Under this criterion, preference is given to Alternatives that permanently and significantly reduce the toxicity, mobility, or volume of the waste at the site.

There is no reduction of toxicity, mobility, or volume under Alternative 1. Alternative 4 would comply with this criterion as all wastes would be removed from the site. Alternatives 3A-3D, 5A-5D, would not comply because contaminated groundwater would not be adequately immobilized. Alternative 6 would comply to some degree as the wastes would be immobilized by the cap and perimeter curtain wall. Also, the toxicity and volume would be somewhat reduced through the collection and treatment of leachate under Alternative 6.

6. Implementability: Under this criterion, the technical and administrative feasibility of implementing each alternative is evaluated. The technical evaluation includes the difficulties associated with construction of the remedy, the reliability of the technology and the ability to monitor the effectiveness of the remedy. The administrative evaluation includes the availability of the necessary personnel and material, along with obtaining specific operating approvals, access for construction, etc.

All alternatives are technically readily implementable. The site and surrounding area is open and easily accessible. Waste removal or containment technologies can therefore be readily implemented. Alternative 4 would require short term access agreements with property owners. However, Alternatives 3A-D, 5A-D and 6 would require long term access or property acquisition. It is believed that such approvals would be readily obtainable because of the expected benefits to the property owners. Therefore, all alternatives are administratively implementable.

7. Cost: Under this criterion capital and operation and maintenance costs are estimated and

evaluated on present worth basis for each alternative.

Alternative 1 has the lowest short term cost. However, it lacks of protectiveness and long term effectiveness and would not allow comparison on an equal basis with other alternatives. The cost of Alternative 4 is substantially high. It is higher by about six hundred percent than the average cost of the containment alternatives. Therefore, Alternatives 3A-D, 5A-D and 6 are substantially more cost effective.

SECTION 7: SUMMARY OF THE SELECTED REMEDY

Based upon the results of the RI/FS, the Gill Creek Characterization Report and the evaluation presented in Section 6, the NYSDEC has selected Alternative 6 and removal of contaminated sediments from Gill Creek as the remedy for the site. This selection is based upon the following factors:

Alternatives 1 would not be protective of human health and environment. Therefore, it is rejected. Alternatives 3A-D, and 5A-D do not protect human health and the environment adequately because flow of contaminated groundwater would not be controlled properly. The Alternatives 4 and 6 are effective and protective in the long term, have no significant short term impacts and are readily implementable. Alternative 4 due to its substantially higher cost is not cost effective. Alternative 6 provides a greater degree of reliable control than any of the other capping alternatives. It also provides long term effectiveness without extensive operation and maintenance actions. It also is cost effective.

The capital cost to construct Alternative 6 is estimated to be $2.09 million and the estimated average annual operation and maintenance cost is $14,000. The cost to remediate the Gill Creek portion is $1.4 million. There is no O&M cost for Gill Creek because the creek would be permanently remediated. Combined total present worth cost for Alternative 6 and the remediation of Gill Creek is $3.8 million.

The elements of the selected remedy are as follows:

1. A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program. Uncertainties identified during the RI/FS will be resolved.

2. Contaminated soil from areas outside the present site fence, surrounding the American Legion Hall, and surrounding the Cerebral Palsy Association building (Figure 3) will be excavated and placed within the current fence line. Additional soil sampling will be conducted during the design phase as necessary to delineate the area south of the American Legion Building for excavation. Excavation will be in accordance with the recommended cleanup level of 15 ppm of mercury for soils below two feet from grade, and 1 ppm mercury for surface soils to a depth of two feet. Confirmatory sampling will be done to verify the removal of contaminated soil in accordance with the established cleanup level. The excavation will be backfilled with clean material.

   The height of the containment will be as low as possible and will be properly contoured so as to avoid a high landfill appearance.

3. Installation of a modified multilayer cap to prevent direct contact exposures to the waste and to reduce precipitation infiltration into the wastes and to the contaminated substrata. The liner will be

keyed into the underlying clay strata at the perimeter of the site, to act as a barrier to lateral perched groundwater flow and leachate migration. A leachate collection and disposal system will be installed.

Landscaping will be provided including shrubbery and vegetation in and around the containment area and the monitoring wells. The leachate collection structures will be made as inconspicuous as possible.

4. Operation and maintenance (O&M) of the cap and leachate collection system will be required for a period of thirty years. The leachate generated will be collected and discharged to the local sanitary sewer system if it meets the requirements of the facility receiving the wastes. If not, it will be taken off-site for treatment and disposal. Any pretreatment of wastewater will be in accordance with the requirements of the facility receiving these wastes.

   The containment area will be fenced with high quality chain link fence over 6 feet in height (without barbed wire) and include a vinyl coating. The containment area will not cover the existing alley side area parking. The alley side parking area will be paved and additional security lighting will be installed for security, and to preclude illegal dumping there.

   As hazardous waste will remain at the site, long term monitoring and land use restrictions will be instituted. The monitoring program will provide long-term evaluation of the effectiveness of the selected remedy. The monitoring program, a component of operation and maintenance of the site, will be developed during the design phase and will include groundwater monitoring on the perimeter of site to verify that the contaminated groundwater is adequately controlled by the remedy. Land use restrictions will preclude future activities at the site which threaten, compromise or damage the selected remedy.

5. The contaminated sediments from Gill Creek will be removed and dewatered. The Department sediment criteria will be used as a guidance for the removal of the contaminated sediments from the creek. If approved by EPA, the dewatered sediments will be taken to the 102nd Street Landfill for use as fill. If not, dewatered sediments will be consolidated under the Industrial Welding site cap. During the removal of the sediments, adequate measures will be taken to prevent any upstream or downstream migration of contaminated sediments from the work area. After removal of contaminated sediments, confirmatory samples will be taken to ensure compliance to the Department sediment criteria as much as practicable. The creek bed and banks will then be restored to pre-remediation topography.

SECTION 8: CITIZEN PARTICIPATION ACTIVITIES

As a part of the remedial program, a citizen participation plan was developed for the Olin Industrial Welding Site. The principal objectives of the Citizen Participation Plan are: advise the public about the conditions and the site; inform the public about the remedial program, the RI/FS and PRAP; obtain public comments; obtain support (community acceptance) of the remedial action and ensure that all comments from the public are evaluated and answered in a Responsiveness Summary.

The following public participation activities were conducted for the site:

- A citizen participation plan was developed and made available for public review and inspection at the document repositories.

- All important Remedial Program documents including the RI/FS Work Plan and the Final RI/FS reports were placed in the repositories for public review.

- A mailing list was developed and fact sheets were provided to the public at the start and at the conclusion of the RI/FS.
- A public meeting was held on January 25, 1994 to present the PRAP and review details of the Remedial Action. Due to significant public interest, the Department extended the public comment period an additional 30 days until March 17, 1994.

- A second public meeting was held on February 9, 1994. A Preliminary Responsiveness Summary of the questions and comments obtained during the previous meeting of January 25, 1994 was distributed.

- During February 1994, meetings were also held with County Legislators, City Officials and citizen groups to review the remedial action plan.

- At the request of the public and County Legislature, the public comment period was further extended an additional 60 days until May 13, 1994 (a total of 120 days for public comments).

- From February to May 1994, Olin held a number of discussions with representatives of the homeowners who are located adjacent to the site. The homeowners suggested a number of measures to improve the visibility of the proposed containment. These suggested modifications were first conveyed to the Department by Olin and later by the representatives of the home owners.

The ROD reflects these modifications which will be incorporated in the design as far as practicable. These modifications, however, do not result in a substantial change in the remedy proposed in the PRAP.

STARTING DATE: 3-1-88	DATE LAST REV.: 10-25-89	INITIATOR: C. STUEWE	DRAWING NO.: 408613-A-01
DRAWN BY: BILL SMITH	DRAWN BY: C. HINSHAW	PROJ. MGR. K. BRADLEY	PROJECT NO.: 408613

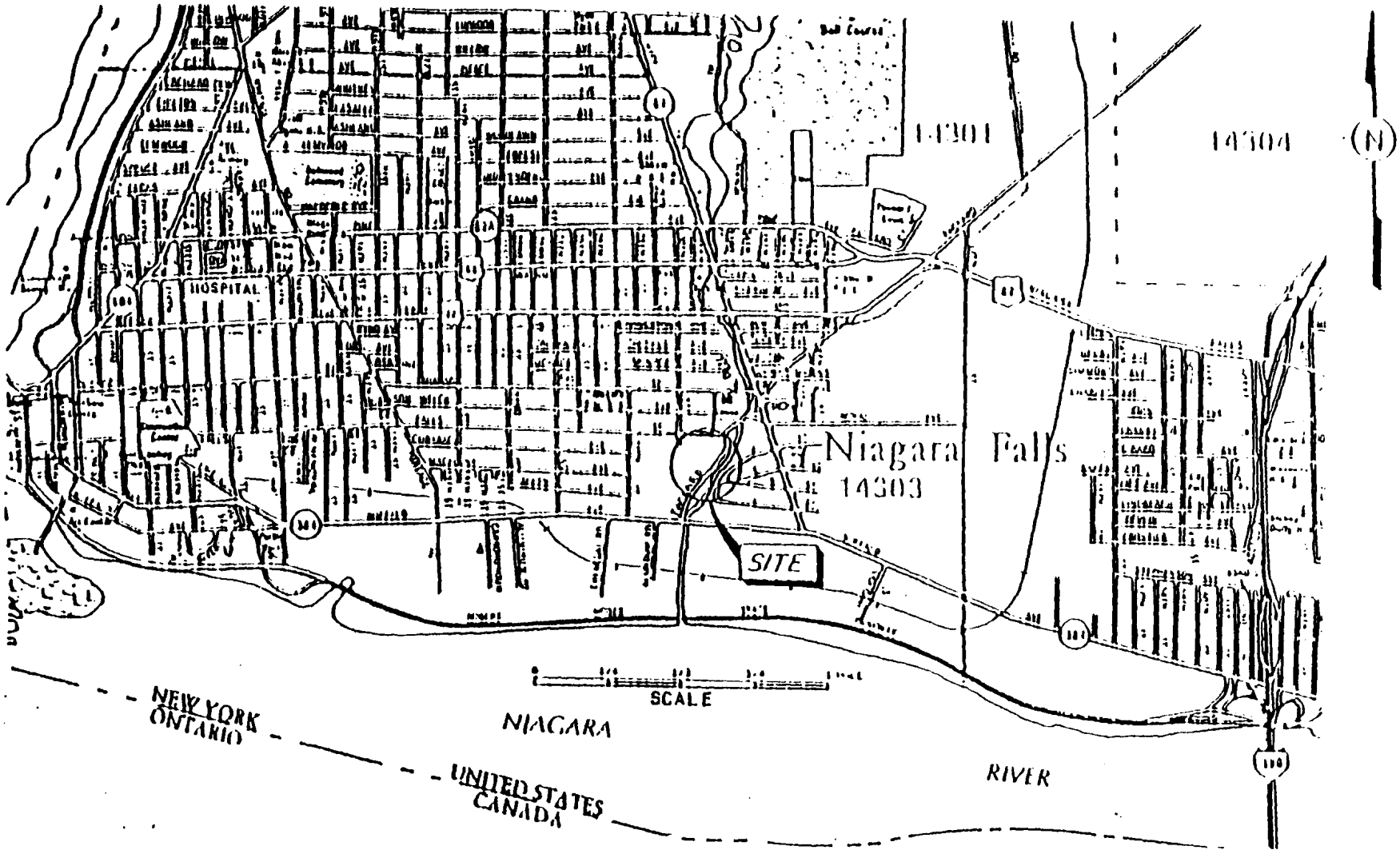


FIGURE 1
SITE LOCATION MAP

INDUSTRIAL WELDING
NIAGARA FALLS, NEW YORK

SOURCE: COPYRIGHT MAP WORKS, INC., 1988

INTERNATIONAL TECHNOLOGY CORPORATION

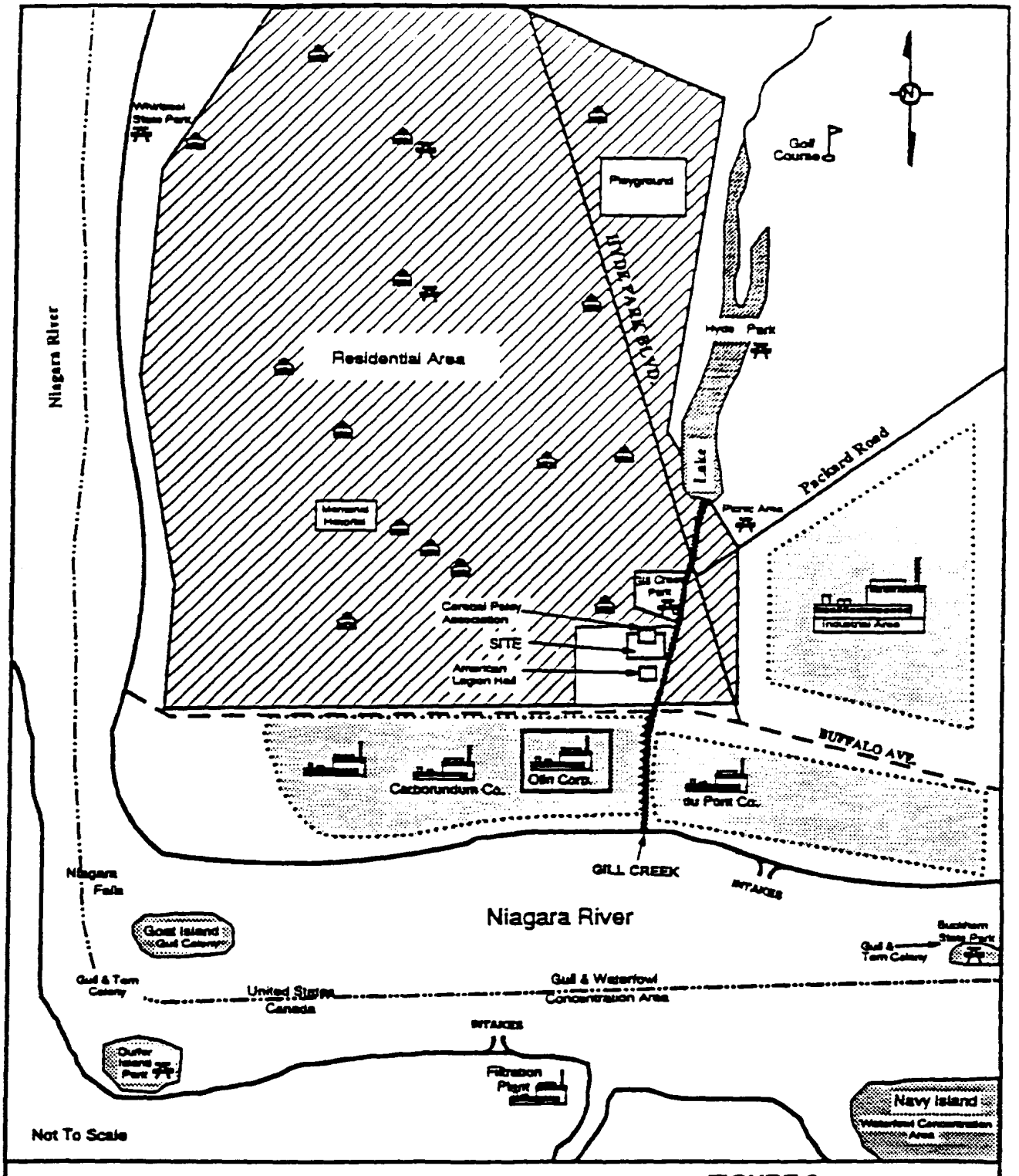


FIGURE 2

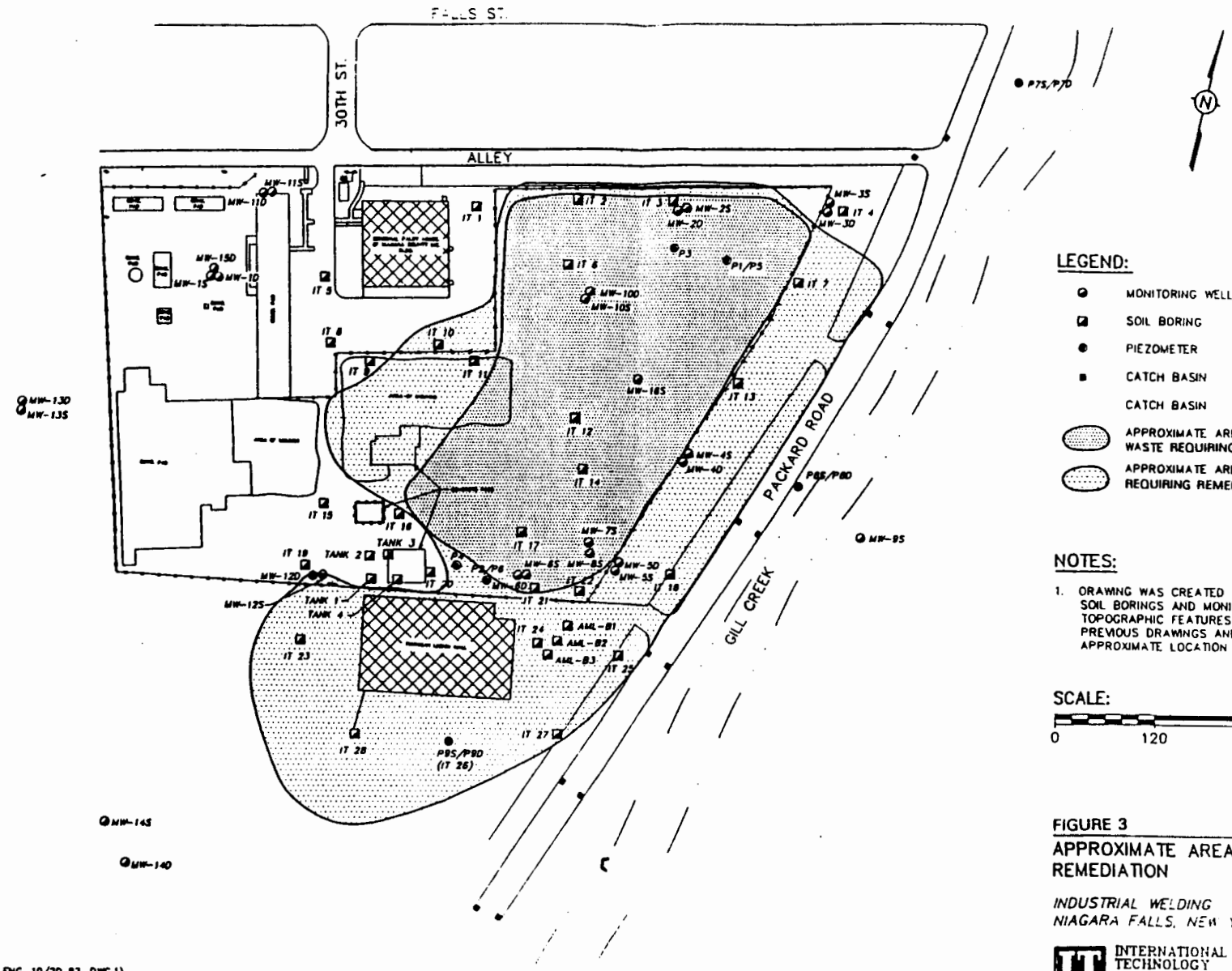
Land Use Map

Industrial Welding

Niagara Falls, New York

INTERNATIONAL TECHNOLOGY CORPORATION

OUNFIG.DRW



LEGEND:

- MONITORING WELL
- SOIL BORING
- PIEZOMETER
- CATCH BASIN
- CATCH BASIN
- APPROXIMATE AREA CONTAINING WASTE REQUIRING REMEDIATION
- APPROXIMATE AREA OF SOIL REQUIRING REMEDIATION

NOTES:

1. DRAWING WAS CREATED TO SHOW LOCATIONS OF SOIL BORINGS AND MONITORING WELLS. TOPOGRAPHIC FEATURES WERE SCALED FROM PREVIOUS DRAWINGS AND ARE SHOWN IN APPROXIMATE LOCATION ONLY.

SCALE:

0 120 240 FEET

(SOURCE: WENDEL ENG. 10/20 82. DWG.1)

FIGURE 3

APPROXIMATE AREAS REQUIRING REMEDIATION

INDUSTRIAL WELDING
NIAGARA FALLS, NEW YORK

INTERNATIONAL TECHNOLOGY CORPORATION

STARTING DATE: 12/16/92 | DATE LAST REV.: | DRAFT. CHCK. BY: R. PITTS | INITIATOR: G. PLAMONDON | DWG. NO.: 408166-B-115
DRAWN BY: J. TABLER | DRAWN BY: | ENGR. CHCK. BY: G. PLAMONDON | PROJ. MGR.: K. BRADLEY | PROJ. NO.: 408166

81660115 01/20/93 3:34pm GMP

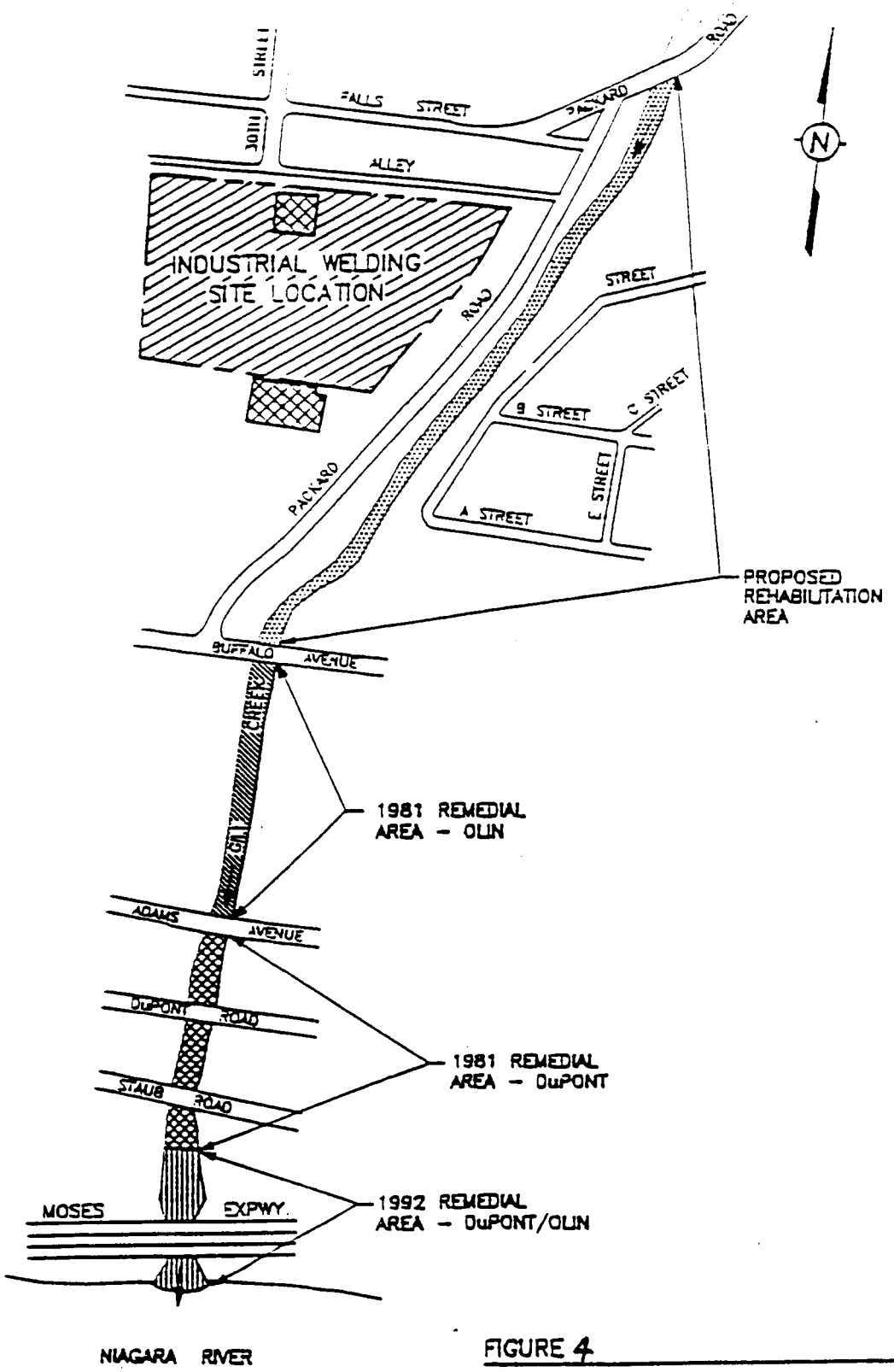


FIGURE 4

GILL CREEK REHABILITATION

NIAGARA FALLS, NEW YORK

INTERNATIONAL TECHNOLOGY CORPORATION

STARTING DATE: 09/3/93 | DATE LAST REV.: | DRAFT. CHCK. BY: R. PITTS | INITIATOR: M. STURDEVANT | DWG. NO.: 408166-A-136

DRAWN BY: J. TABLER | DRAWN BY: | ENGR. CHCK BY: M. STURDEVANT | PROJ. MGR.: K. BRADLEY | PROJ. NO.: 408166

8166036 09/03/93 6:16pm JAT

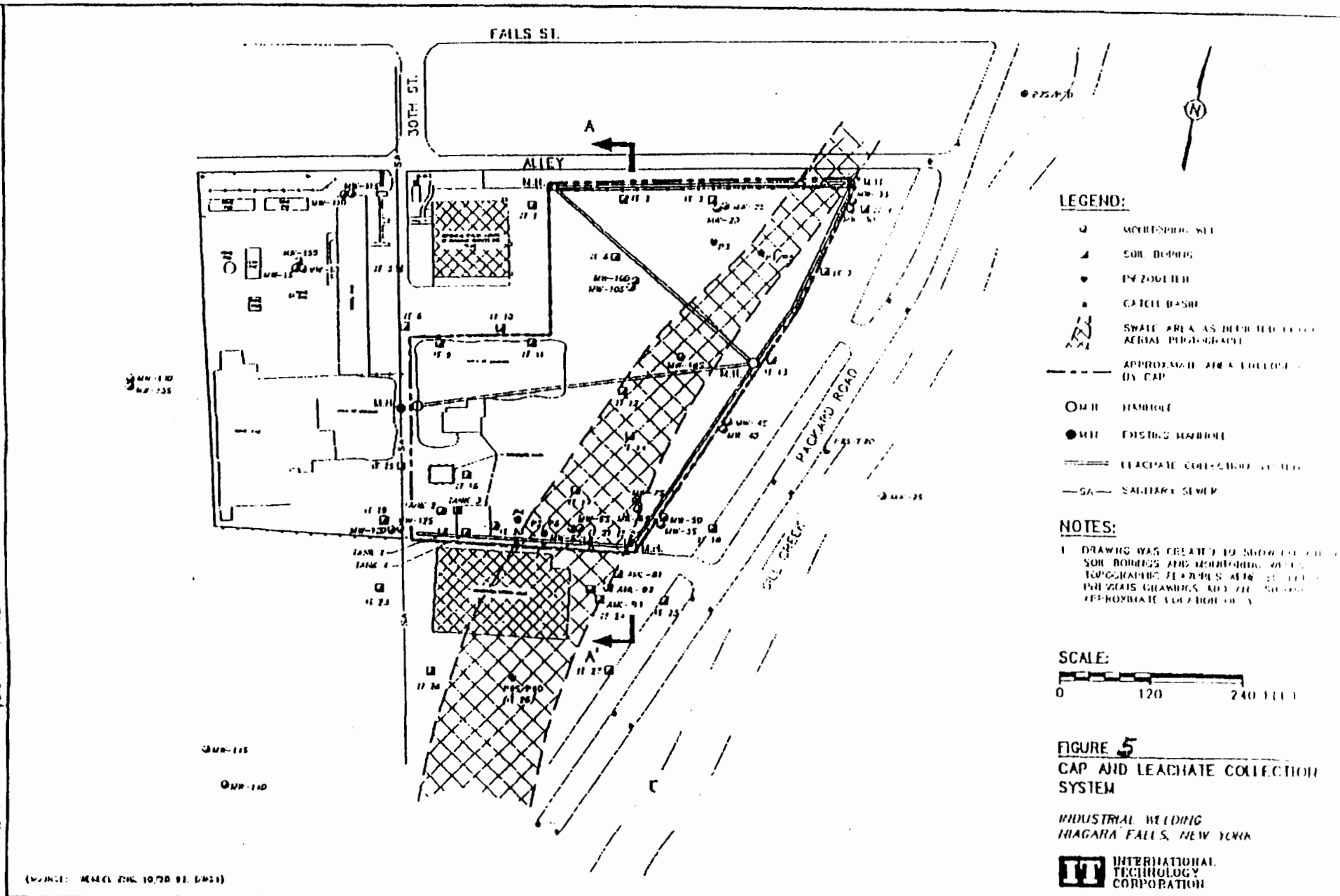
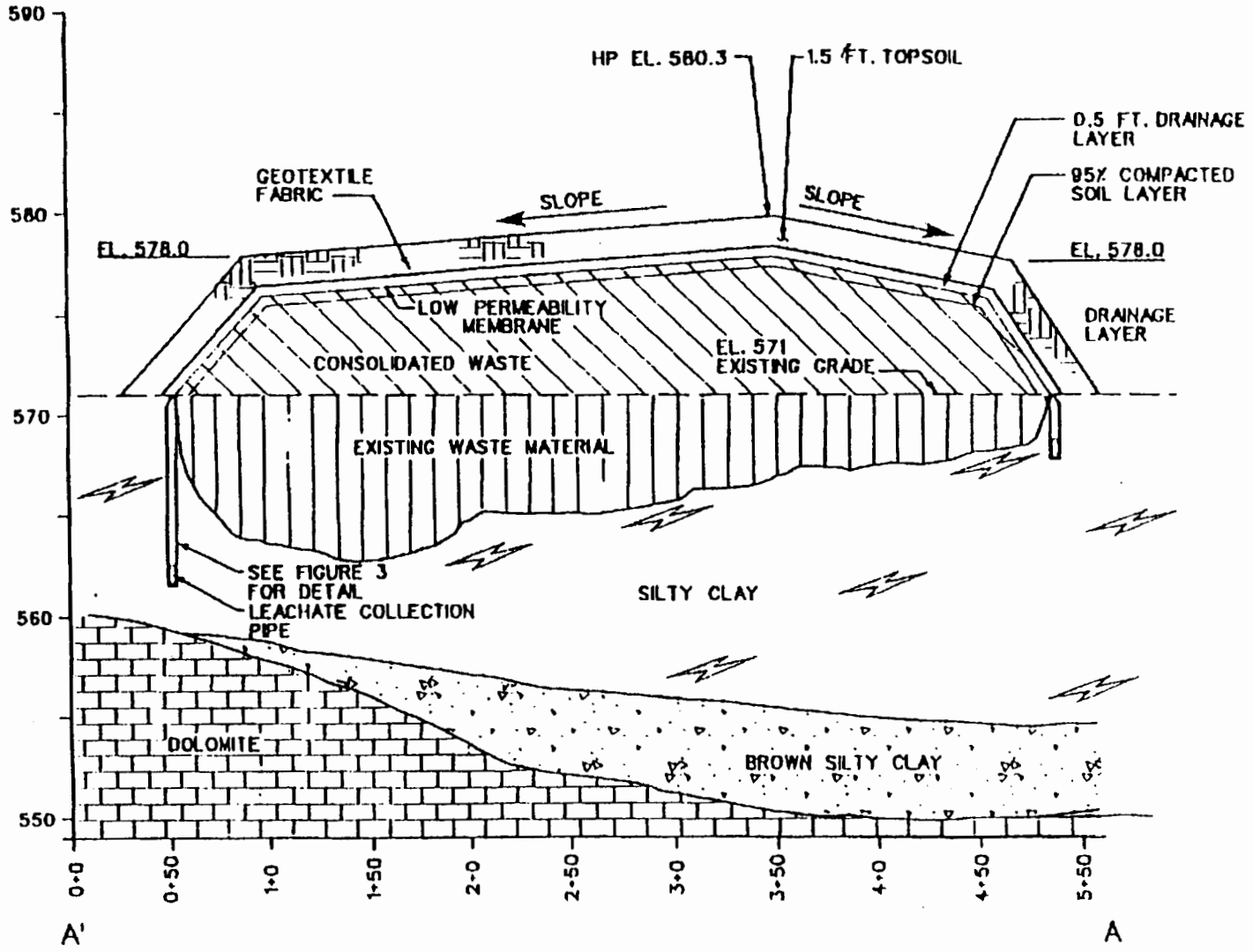


FIGURE 5

CAP AND LEACHATE COLLECTION SYSTEM

INDUSTRIAL WELDING
NIAGARA FALLS, NEW YORK

INTERNATIONAL TECHNOLOGY CORPORATION



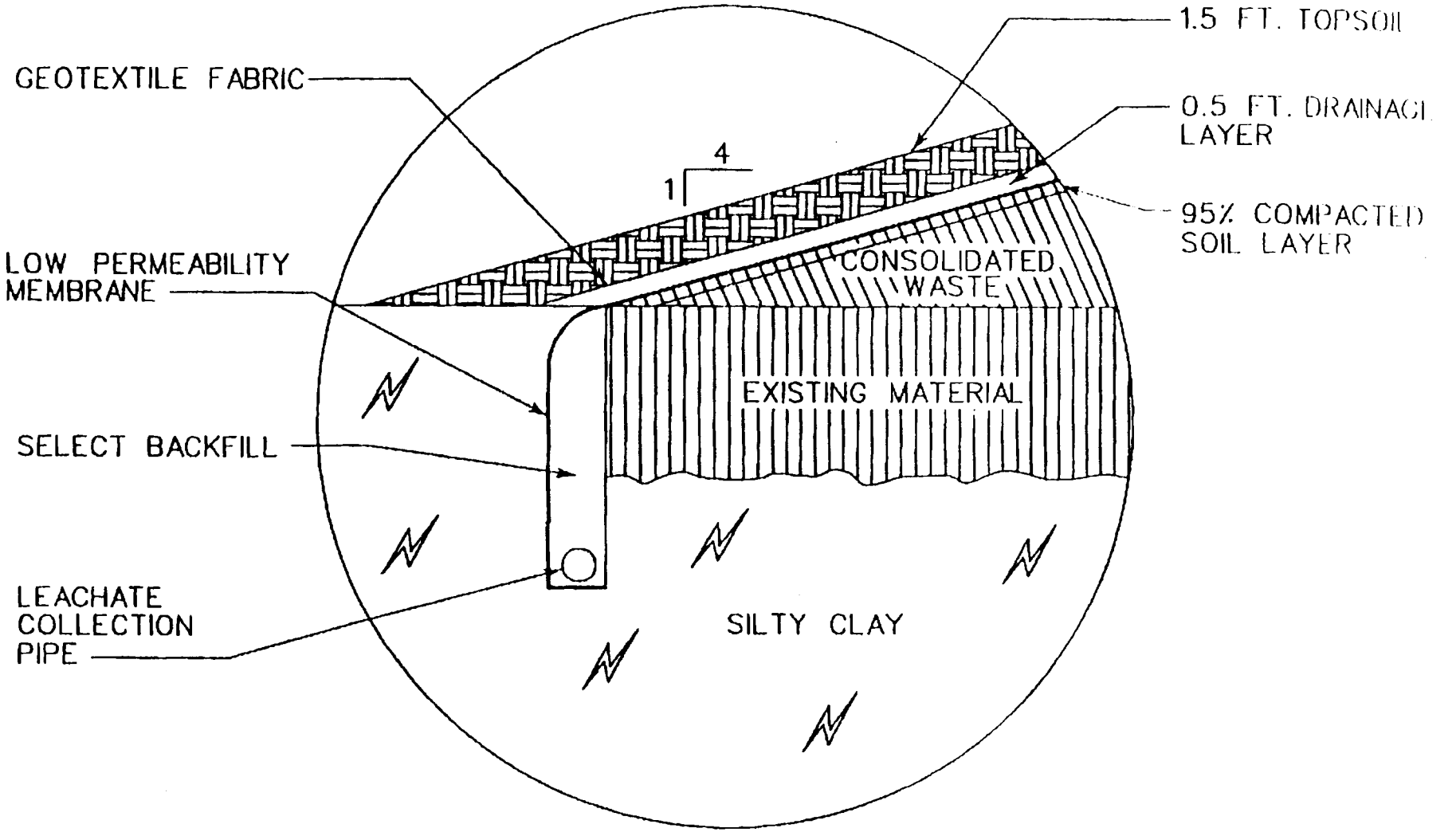
SECTION A'-A

CONCEPTUAL DESIGN

50 0 50 100
25 75
SCALE: 1" = 5'-0" VERTICAL
1" = 50'-0" HORIZONTAL

INTERNATIONAL TECHNOLOGY CORPORATION

FIGURE 6. PROPOSED MODIFIED MULTILAYER CAP



40BIN9AA.002 /GPA-12-94

IT INTERNATIONAL TECHNOLOGY CORPORATION

FIGURE 7. CONCEPTUAL DESIGN DETAIL OF LEACHATE COLLECTION SYSTEM

APPENDIX A

RESPONSIVENESS SUMMARY

The following Responsiveness Summary presents the questions and comments generated through citizen participation in selection of the preferred remedial action for the Industrial Welding site. Specifically, the summary addresses the questions and comments posed at the public meetings of January 25, 1994 and February 9, 1994, as well as those presented in writing during the public comment period of January 14, 1994 to May 13, 1994.

Health related questions and comments are addressed by the New York State Department of Health. The Department of Health responses begin on page A.14 of this Responsiveness Summary.

APPENDIX A

RESPONSIVENESS SUMMARY

I. Questions and Issues Discussed During the January 25, 1994 Public Meeting

1. Q. How long will the containment system last? What happens to the site after 30 years?

   A. The proposed remedial plan requires that the containment system be operated and maintained for 30 years. To ensure its effectiveness, the remedy will be evaluated every 5 years during the 30 year period. If, after 30 years, the contamination at the site remains a threat to the public health or the environment, the Department would pursue another agreement with the responsible party.

2. Q. How long will the contamination be there?

   A. Theoretically, the contamination will be contained indefinitely; however, the leachate collection system will gradually remove mobile contaminants from the site. The Department believes that over time this will reduce the contamination levels.

3. Q. Doesn't containment only delay the problem for 30 years?

   A. The proposed cap and containment system will remedy the site by preventing the current uncontrolled release of contaminants into the environment and effectively eliminate present health risks. In addition, the excavation of contaminated sediments from the creek will eliminate the threat to the aquatic environment.

4. Q. Have operations and maintenance costs been included in the cost figures?

   A. Yes, operations and maintenance costs, for the full 30 years, are included in the cost figures.

5. Q. How high will the cap be with the creek sediments on top of the site?

   A. Preliminary estimates are that the top of the cap will be about eight feet above the ground surface. The exact height of the cap will be determined during the design phase of the project and is dependent on exactly how much contaminated soil and creek sediments must be consolidated under the cap.

6. Q. In your decision, do you consider the impacts on people who might want to live around there in the future?

   A. See NYS Department of Health Response No. 2.

7. Q. Would this site qualify for State or Federal superfund monies?

A. Currently the site would not qualify for either State or Federal Superfund monies because the responsible party, Olin Corporation, has been identified and is actively pursuing remediation of the site. After the remedial action plan is finalized, the Department will approach Olin to undertake the remedial design, construction and maintenance of the site.

8. Q. What plans are there to address contamination in, or under, the Legion building?

A. The preferred remedy requires that all contaminated soil around the American Legion building be dug-up and replaced with clean soil. See also NYS Department of Health Response No. 1.

9. Q. What impacts would the remediation have on the Cerebral Palsy or American Legion buildings or their activities? Are there plans to close the buildings? What happens to our business around the site?

A. The overall remedial project would have little effect on the Cerebral Palsy building or operations of other businesses in the area; however, there may be some temporary inconvenience caused by remedial activities during excavation of soil in the immediate vicinity of the Cerebral Palsy and American Legion buildings. There may also be temporary minor disruption of traffic on the section of Packard Road adjacent to the site. Every effort will be made to minimize any adverse impacts these activities may cause. A State approved Health and Safety plan which will be protective of the surrounding community and workers at the site will be in effect during construction to ensure the safety of the surrounding community and workers at the site.

10. Q. Is the area of the creek planned for remediation also the extent of the contamination? Who determines where the site's impact on the creek ends?

A. The creek remediation will include those areas which the Department has determined were impacted by the site. The Department's sediment criteria will be used as a guide. It is expected that the excavation of contaminated soft sediments from the creek will eliminate the threat to the aquatic environment and effectively remove the contaminants of concern. That portion of the creek south (downstream) of Buffalo Avenue has previously been remediated in conjunction with another site.

11. Q. Have they discussed how they are actually going to mechanically remove the sediments?

A. The exact means by which the contaminated sediments are removed from Gill Creek will be determined during the design phase of the project. The Department's Division of Fish and Wildlife will review the design proposals to ensure reasonable restoration of the creek bed and banks.

12. Q. What are the impacts of remediation on the Hyde Park Lake during construction and after?

A. The impacts on Hyde Park Lake will depend in part on the means of sediment removal developed during the remedial design phase of the project. The Department will work closely with the Division of Fish and Wildlife during the design phase to ensure that all reasonable precautions are taken to minimize adverse impacts on the lake during and after construction.

13. Q. Have any studies been done in the residential properties around the site?

A. One of the goals of the Remedial Investigation was to determine the extent of the area contaminated by the site. The investigation found that contamination from the site does not extend north of the site boundary nor east of Gill Creek. Therefore, during the RI, the residential areas will not tested. However, at the request of local residents NYS DOH collected soil samples along the alley north of the site in June 1994. (Also, see Section II, Question 13).

14. Q. At what point does containment become an option over removal when changes in neighboring property values are considered?

A. Property values are not considered in the remedy evaluation and selection processes. Remediation is expected to result in an overall benefit to the nearby community. In general, the point at which containment would be preferred over removal is the circumstance in which containment is determined to be adequately protective and removal has a substantially higher cost. This tends to be the case for large sites and is the case for the Olin Industrial Welding site. Removal and off-site disposal has been estimated at $18 million while containment has a $2.4 million estimated cost.

15. General: The public emphatically expressed their feeling that the comment period of 30 days was not long enough for them to examine the PRAP (Proposed Remedial Action Plan). They requested extension of the public comment period for an additional 90 days.

A. In response to public request, the comment period was initially extended to an additional 30 days. Later due to requests by the public, the Niagara County Legislature, and Mr. Joseph T. Pillittere, Member NYS Assembly (letter dated February 2, 1994), the comment period was extended an additional 60 days until May 13, 1994 (a total of 120 days for public comments).

II. Questions and Issues Discussed during February 9, 1994 Public Meeting

1. Q. Why are the contaminated soils being consolidated towards the homes rather than on the Olin property or the industrial area to the south of the site?

A. The containment facility would be built in the area where the hazardous wastes were originally disposed and where most of the wastes are buried. The area is currently fenced. The soil from the area outside the fence, which are impacted by the above mentioned disposal, would be excavated and consolidated in the proposed containment facility.

2. Q. How will the proposed remedy effect the value of homes? Will we be able to sell them?

A. No study has been made to determine the present or future value of the adjacent properties. Currently the properties are adjacent to an uncontrolled hazardous waste dump. Remediation of the site is expected to result in an overall benefit to the nearby community.

3. Q. Can the Department require a complete removal of the waste material? Can this be accomplished under the law? If the issue went to court, could it possibly change the law?

A. The law requires that the proposed remedy be protective of human health and environment and be cost effective as well. Complete removal of the waste material was evaluated in the feasibility

study as one of the remedial alternatives. It was not found to be cost effective. The Legislature makes the law; the court interprets the law in case of disputes.

4. Q. If you can afford to remove the sediments from the creek, why can't you afford to remove all contaminated materials from the site?

   A. Removal of the contaminated sediments from Gill Creek is a remedy which is protective of human health and the environment and is also cost effective. As mentioned in the answer to Question 3, the complete removal of the wastes from the main site was found not to be cost effective.

5. Q. Why were there no boreholes drilled beyond the southern area to see whether or not contamination is continuing there?

   A. Boreholes were drilled in the southern area. The area is included for remediation in the proposed remedial action plan.

6. Q. Do you have any boreholes into the bedrock to check if the contamination is getting to the Falls Street Tunnel?

   A. Monitoring wells were installed into the bedrock. Only trace to very low levels of contamination has been detected in the bedrock aquifer. Many of the contaminants are not site related. The remedial investigation indicates that there is no direct evidence of contaminant migration from the site to the Falls Street Tunnel.

7. Q. How do you know in which direction water is going in the bedrock? Is contamination travelling along the fissures in the bedrock?

   A. Hydraulic monitoring was conducted during the remedial investigation to determine groundwater flow direction. Bedrock water does flow through fissures in the bedrock. Trace to very low levels of contaminants (some of which are not site related because they were also found in wells upstream of the site) have been found in the bedrock aquifer.

8. Q. Have you matched any of the site chemicals with those at the sewage treatment plant and at the Falls Street Tunnel?

   A. The remedial investigation (RI) indicates that there is no direct evidence of contaminant migration into the Falls Street Tunnel. Hence, there was no effort to match site chemicals with those at the wastewater treatment plant. The RI further indicates that the contaminants from the fill aquifer could migrate to Gill Creek and ultimately to the Niagara River.

   Also, storm sewers are affected by the contaminated fill aquifer. The preferred remedy provides containment of the contaminated fill aquifer and its collection and treatment through a leachate collection system.

9. Q. Will the contamination spread to nearby homes?

A. The proposed remedy will preclude any possibility of contaminant migration off site by cutting off the routes of migration. This will include a cap on top of the buried wastes, containment of contaminated groundwater and leachate collection and treatment. (Also, see Section II, Question 13).

10. Q. Is there an immediate threat to human health and the environment from this site now?

A. The site is a potential threat to the environment because contaminated groundwater could move off site, to Gill Creek and ultimately into the Niagara River. See also NYS Department of Health Response No. 3.

11. Q. What does "could pose an increased cancer risk from the ingestion of home grown vegetables" mean? How high is the risk?

A. See NYS Department of Health Response No. 4.

12. Q. Who determined the cost estimates for the various remedies? How were they determined?

A. I.T. Corporation, the consultant for Olin Chemicals, made the cost estimates of the various remedies. The estimates are based on the unit cost of items of work for each remedial alternative evaluated in detail. These estimates have been reviewed by the Department.

13. Q. Is the contamination leaching out of the dump, under the alley and into the backyards north of the site? Can we have the backyards tested?

A. It is not likely that contamination is leaching under the alley into the residential yards. One of the purpose of a Remedial Investigation is to determine the extent of contamination from a site, including migration of contamination off-site. The Remedial Investigation found the contamination from the site does not extend north of the site boundary nor east of Gill Creek. However, surface soils samples were collected by the NYS Dept. of Health (NYS DOH) from yards along the alley north of the site in June 1994 to confirm the findings of the Remedial Investigation. The samples have been analyzed and the results are being evaluated by the NYS DOH. When the evaluation is complete, NYS DOH will provide homeowners with their individual results and an interpretation of those results. The preferred remedy will cut off the potential for migration of contaminants off-site. During implementation of the remedy, a Health and Safety Plan will be in place to ensure that the nearby residents are adequately protected. The preferred remedy also includes long-term operation and maintenance, which will ensure that the remedy remains effective.

14. Q. Has the area between 27th and 30th Streets been tested? Is it contaminated? If so, at what levels? Is the area west from the Cerebral Palsy building to 27th Street contaminated?

A. The area between 27th and 30th Streets lies to the north west beyond the existing fence line of the site. Soil samples collected from the area west of the Cerebral Palsy building during the Remedial Investigation (RI) did not show evidence of contamination from the site. In addition, the RI determined that contamination from the site does not extend north of the site boundary. Therefore,

these results indicate that it is not likely that contamination has spread northwest of the site to the area between 27th and 30th Streets.

15. Q. Olin contaminated the whole creek, shouldn't they be made responsible to remediate the whole creek? Who owns the creek?

A. Olin will remediate approximately 1500 feet of the creek adjacent to the site. RI data indicates trace to low level of contamination immediately upstream. The section of the creek downstream to the Niagara River has already been remediated by Olin and DuPont. The City of Niagara Falls is reported to own the creek.

III. Niagara County Legislature Resolution #61-94 dated February 15, 1994

Resolution: Whereas DEC has extended the comment period by 30 days to March 17, 1994, now therefore, be it resolved that the Legislature requests the DEC for an additional extension of 60 days to allow the Niagara Falls members of the Legislature David A. May, Ranae Kimble, Frank N. Cande, Dennis F. Virtuoso, Sean J. O'Conner, Robert R. Villari and others to meet with DEC, the Olin Corporation and citizens regarding economic and other effects on the adjacent property owners and city and county in general.

A. The Department held a meeting with the Niagara County Legislature and other County Officials during February 1994. Based upon these discussions and a request from the public, the Department extended the public comment period to an additional 60 days until May 13, 1994.

IV. Letter received on March 7, 1994 from Ted Janiszewski, Commander Portage Post #1465, 136 Veterans Drive, Niagara Falls, New York

1. Comment: According to the site studies, leaching has occurred over the years which has adversely affected our property. The proposed remedial action plan does not satisfactorily address our concerns. All contaminants should be removed from the area to safeguard the health and safety of the neighborhood and the members and guests of the Portage Post.

A. The proposed remedial action plan requires removal of all contaminated soil around the Portage Post building and replacement with clean soil. Additionally, a deep barrier wall will be installed near the fence line to preclude any future leaching into the Portage Post area from the Industrial Welding site. The proposed remedy has undergone detailed evaluation and was determined to be protective of human health and environment. See also NYS Department of Health Response No. 1.

2. Comment: Further testing should be done at the American Legion property.

A. See NYS Department of Health Response No. 5.

V. Letter received on March 9, 1994 from Mr. Ralph Kline, 2739 Falls Street, Niagara Falls, New York

1. Comment: None of us will ever be able to sell our homes with such a project as you have presented.

A. As mentioned earlier in response to the question #2 in the February 9, 1994 public meeting, no study has been made to determine the present value of the adjacent properties. These properties are currently adjacent to an uncontrolled hazardous waste dump. It is not clear why remediation of the site will render the properties not saleable if they are saleable under the current state of being close to an uncontrolled hazardous waste dump. Your conclusion, in this regard may not be realistic.

2. Comment: With regards to our health and mental well being, I would like the project to be dropped and a new method of disposing the waste employed whereby nothing remains in the area.

A. See NYS Department of Health Response No. 6.

VI. Letter received on March 21, 1994 from Mr. Vincent R. Morello, Councilman, City of Niagara Falls, New York

1. Comment: Capping the site and leaving the contaminants would discourage future development of the area.

A. Currently, area properties are adjacent to an uncontrolled hazardous waste dump. Remediation of the site, which would include capping, deep barrier wall to preclude off site migration of contaminants, leachate collection and its proper disposal, is expected to result in an overall benefit to the adjacent community. This should encourage rather than discourage future development of the area. Development will be barred on the site of the containment.

2. Comment: The proposed remedy would have adverse effects on the individuals located there and it fails to eliminate the potential risk to individual health, not to mention the devaluation of their properties.

A. Regarding devaluation of the adjacent properties it is difficult to conceive that properties will devalue after remediation as compared to their current values and status of being adjacent to an uncontrolled hazardous waste dump. See also NYS Department of Health Response No. 7.

3. Comment: Remember, people and public safety should be the determining factor in deciding the course of action and not what is economically feasible.

A. Protection of human health and environment is a threshold criteria in the evaluation of remedial alternatives. The Department would not agree to implementation of a remedial alternative unless it is protective of human health and environment.

VII. **Letter dated May 6, 1994 from Edwin S. Dojka of American Legion Post, 509-80th Street Niagara Falls, New York 14304 with attachment dated April 28, 1994 containing comments from American Legion consultant Environmental Concepts (Sandra M. Stanish)**

1. Comment: All phases of the remedial work and future maintenance should be done in accordance with the rules and regulations of EPA, OSHA, DEC, NYS DOH and NYS Building Codes at no cost to Portage Post.

   A. The remedial work would be implemented in conformance with all applicable Federal/State and local rules and regulations. It is anticipated that the responsible party Olin Chemicals will implement the remedy and bear all costs for the implementation and for the long term operation and maintenance.

2. Comment: Adequate liability insurance coverage should be provided, in perpetuity, by Olin Chemicals to save harmless the Portage Post from any claims resulting from present and/or future soil conditions and the coverage shall include provisions to reimburse Portage Post for attorney and/or expert witness fees in such claims.

   A. This is outside the Department's purview in remediation of hazardous waste sites. The American Legion should discuss and resolve these issues directly with Olin Chemicals.

3. Comment: The contamination in the area covering the Portage Post may have adversely affected the ability to use the Portage Post in the same capacity as before the discovery of the contamination problem. There will be, therefore, loss of revenue from public events like wedding receptions, banquets, etc. Monetary settlement from Olin is therefore required.

   A. The Department's response is the same as for Comment #2 above.

4. Comment: Even after the remediation is completed there is the possibility of a stigma that may continue to be associated with the Portage Post causing loss of membership and business revenues. Funding is therefore required for a new Post at another location.

   A. The Department's response is the same as for Comment #2 above.

5. Comment: Assuming that Olin will need to institute a number of safeguards to protect the Post building during the proposed soil excavation, it may be less costly for Olin to fund a new Post building at another location and not worry about the structural integrity of the existing building.

   A. The Department's response is the same as for Comment #2 above.

6. Comment: Will Olin have to move any existing landscape and how will the excavated areas be restored? Who is responsible for repairing any damage to the parking lot and to the Post building? Olin or the remediation contractor?

   A. All areas damaged during the remedial work would be restored to their original or better condition by the responsible party, Olin Chemicals.

7. Comment: Will Olin reimburse the Post for lost revenues during the remedial work?

A. The Department's response is the same as for Comment #2 above.

8. Comment: What type of oversight activity will DEC provide during the remediation?

A. The Department will provide oversight of the remedial work either by its own personnel and or by a hired contractor. The oversight will include frequent on-site review by construction inspectors as well as overview and assessment by the Department's project manager.

9. Comment: Will Olin secure the windows and vents so that the contaminants and dust do not enter into the building? Will air monitoring be required during soil excavation?

A. During the remedial construction adequate measures will be taken to protect against any emissions and dust. The details of these measures will be established in the design documents of the Remedial Action. It will include implementation of a community Air Monitoring Plan in accordance with an approved Health and Safety Plan.

10. Comment: RI/FS requires removal of 2 feet of soil. If the Post ever decides to expand or undertake extensive parking lot repair, it will encounter contaminated soil. Who shall be responsible for disposing the contaminated soil, Olin or the Portage Post?

A. The proposed remedial action plan requires removal of soil from the surface to 2 feet depth at a cleanup level of 1 PPM of mercury, which is considered background in the area. Below 2 feet depth, the clean up level of the soil will be 15 ppm of mercury. These clean up levels have been determined to be protective of human health and environment. Any future construction or repair activities in that area, after completion of remedial work, is not expected to pose any significant threat to human health and environment. In the unlikely situation, however, of any residual contamination related to the industrial welding site being detected in the future, Olin Chemicals will be responsible for action to correct the problem.

11. Comment: Further testing should be done at the American Legion property, the Department of Health conducted a general air quality screening, using a type of meter not sophisticated enough to register readings at low levels or that may be collecting over time. There is a possibility of "air out" before the DOH inspector conducted the screening if the building was occupied and the doors or windows were open before the inspection. DOH should, therefore, conduct 8 hour sampling.

A. See NYS Department of Health Response No. 5.

VIII. Letter dated May 9, 1994 received from Daniel L. Mocniak together with a list of 13 other residents of the area

1. Comment: The residents of the neighborhood adjacent to the Olin Industrial Welding site have met and discussed the proposed remedial action plan. We object to the plan of disposing Gill Creek sediments in the containment at the site because it will increase the height of the containment. We suggest the following modifications in the plan to minimize the negative economic impact on our properties:

1. The height of the "mound should be kept as low as possible, and contoured so as to avoid a "dumpsite" appearance.

2. Trees, shrubbery, etc. should be used wherever possible to enhance the appearance.

3. Monitoring wells or leachate collection structures should be placed and landscaped around to be as inconspicuous as possible.

4. Security should be provided by an attractive chain link fence, (i.e. vinyl coated, green) of at least 6 feet in height, without barbed wire.

5. The fence line should remain where it currently is located to allow residents to use the existing alleyside area for parking.

6. The alleyside parking area should be paved, and additional lighting provided to increase security and reduce vandalism and dumping.

7. Regular maintenance, including fence repair and painting, grass cutting, trimming and trash cleanup-up should be guaranteed.

A. The Department considers the above suggestions to be reasonable. The detailed design documents will reflect these suggestions as much as possible. The placement of Gill Creek sediments in the proposed containment facility, if EPA denies their disposal at 102nd Street Landfill, will not significantly increase the overall height of the cap; the increase being approximately one foot or less.

IX Letter dated May 11, 1994 received from Ms. Lorraine M. Miller of Olin Chemicals

1. Comment: Gill Creek is not part of the Industrial Welding Site.

A. Gill Creek is immediately east of Packard Road and near the impacted area of the Industrial Welding Site. The investigation of Gill Creek was conducted simultaneously with the RI of the Industrial Welding Site. The contaminants in the Gill Creek sediments are the same as those at the industrial welding site. The RI indicated that the contaminated perched water from the site may reach Gill Creek. The surface water flow from the site is toward the east and Gill Creek lies to the east. The storm water drains also discharge into Gill Creek. Based on these data, the Department considers Gill Creek as an area of the Industrial Welding site.

2. Comment: If USEPA determines that the sediments cannot be used as fill at 102nd Street Landfill, the ROD should have the option of their disposal within the containment facility at the Industrial Welding site.

A. The ROD includes the option as stated above.

3. Comment: Section 2, 1st paragraph, 3rd sentence: The relationship of the site to Gill Creek is not correct.

A. See the answer to Comment #1, the narrative has been modified indicating Gill Creek lies immediately east of Packard Road.

4. Comment: Section 2, 7th sentence: Amend the narrative regarding private residences.

A. The necessary amendment has been made.

5. Comment: Section 3.1, 1st paragraph: Amend the narrative to insert word "pilot" between "and" and "process plant" in the 3rd sentence.

A. The narrative has been amended accordingly.

6. Comment: Section 3.1, 4th sentence: Amend the narrative to read "After the HEF Division was dissolved, the buildings were razed. A low lying area at the site was used for landfilling from 1958 to 1960".

A. The narrative has been revised to indicate disposal up to 1960. The historical data in our files including EPA Site Assessment Report by NUS dated June 19, 1986 indicates that the landfilling at the site may have been in operation since 1947.

7. Comment: Section 3.2, 1st paragraph, 1st, 2nd and 3rd sentences: Amend the number of samples indicated therein.

A. The necessary amendment has been made.

8. Comment: Section 4.1. Add the items of the work done during the RI with regards to water level monitoring of Gill Creek, collection of air samples and collection of surface soil samples from possible run off points at the site.

A. The required additions have been made.

9. Comment: Section 4.1, second and 4th sentences. Delete these sentences as ground water and drinking were eliminated as exposure pathways and surface water is not an issue.

A. The Department does not agree to the suggested deletions. The Department considers the groundwater and surface water significant issues of this site. The proposed remedy addresses these issues by constructing a containment facility, leachate collection system and removal of sediments from Gill Creek. Olin has already indicated concurrence with the proposed remedy.

10. Comment: Section 4.1: Range of contamination: Amend the figures to indicate N.D. (non-detect) in the range of contamination.

A. The necessary amendment has been made.

11. Comment: Section 4.2: Amend the text to indicate that the site could pose future unacceptable risk by ingestion of vegetables grown at the site.

A. The text already indicates as above. No change in the text is necessary.

12. Comment: Section 6: Gill Creek should not be included as a remedial goal for the site.

A. See the answer to Comment #1.

13. Comment: Section 6: Cleanup Level: Delete the entire sentence regarding remediation of groundwater.

A. The Department does not agree to the deletion as suggested. The groundwater is contaminated with elevated levels of site related contaminants, (e.g. mercury up to 240 PPB). The proposed remedy will address the groundwater problem by containment and long term leachate collection and disposal. Olin has already indicated its concurrence with the proposed remedy. Therefore the deletion of the sentence which refers to the groundwater remediation is not necessary.

14. Comment: Section 7, Alternative 5D: Insert "system" between the words "monitoring" and "would" in the 4th sentence of 4th paragraph.

A. The correction has been made.

15. Comment: Section 7, Alternative 5D: Add "to the Department's satisfaction" in the 2nd sentence of the 5th paragraph.

A. Necessary change has been made. "Department's evaluation" has been inserted therein.

16. Comment: Section 7.2, Threshold criteria: Amend to indicate that Alternative 3A, 3B, 3D, 4, 5A, 5B, 5D and 6 would be expected to comply. Delete the 3rd sentence of the 1st paragraph.

A. All other alternatives except 4 and 6 may not comply with this criteria. The text indicates that the Alternatives 3A, 3B, 3D, 5A, 5B and 5D would not adequately comply with this criteria; because 5A-D requires construction of only a partial slurry wall (on the north and south for a limited length). The alternatives 3A-D do not have a slurry wall.

17. Comment: Section 7.2, Threshold Criteria: Second Paragraph: Amend to indicate that alternatives 3A, 3B, 3D and 4, 5A, 5B, 5D, and 6 would comply with this criteria. Delete 4th sentence of this paragraph.

A. See the answer to Comment #16.

18. Comment: Section 7.2 Balancing Criteria: In the 4th sentence of the 4th paragraph insert "in the Department's opinion" between "not" and "been"

A. "by the Department's evaluation" has been inserted.

19. Comment: Section 7.2, Amend 5th and 6th sentences of the 4th paragraph to indicate that alternatives 3 A-D and 5 A-D would comply if long term O&M measures are adopted. Also

amend the 3rd sentence of the sixth paragraph to indicate that 3A-3D and 5A-5D would comply as the wastes would be immobilized.

A. The Alternatives 3 A-D would not have a slurry wall. The Alternative 5 A-D would have only a partial slurry wall. Therefore, those alternatives would not comply adequately. No change in the text has, therefore, been made.

20. Comment: Section 8, third paragraph: Delete 3rd, 4th and 6th sentences. Also amend 7th sentence to insert " to the Department satisfaction" between the words "demonstrated" and "to be effective".

A. See the answer to Comment No. 1 regarding Gill Creek remediation. The 7th sentence has been amended by inserting "by the Department evaluation of the alternatives".

21. Comment: Section 8, 4th paragraph, 1st sentence: Amend to indicate the cost of Gill Creek remediation separately.

A. The necessary amendment has been made.

NEW YORK STATE DEPARTMENT OF HEALTH

Responses to Health Related Questions and Comments

1. QUESTION: According to the site studies, leaching has occurred over the years which has adversely affected the American Legion-Portage Post property. The proposed remedial action does not satisfactorily address the concerns of the Portage Post. What plans are there to address contamination in or under the Legion building?

ANSWER: The preferred remedy requires that all contaminated soil around the American Legion building be dug-up and replaced with clean soil. This remedy is protective of public health. In order to be exposed to site related contamination under the American Legion Building, a person would have to ingest (eat) or have their skin come in direct contact with contaminated soil. It is unlikely that people would be exposed to any residual contamination that might exist under the building after the remedy is in place. Therefore, there are no current plans to address the possible contamination under the

American Legion Building. If there is site-related contamination under the building, it is unlikely that it would enter the building through the floor. When the NYS Dept. of Health investigated odor complaints at the American Legion (see question #5) there was not evidence of site-related contamination in the American Legion building.

2. QUESTION: In your decision, do you consider the impacts to people who might want to live around the site in the future?

   ANSWER: The health and well being of the public, including current and future residents, is considered during the selection of a remedy for a hazardous waste site. Any remedy that is selected must be protective of public health. The chosen containment option will include removal of contaminated soil from areas outside the current fence, removal of contaminated sediments from Gill Creek, containment of wastes and contaminated soil (within a cap and subsurface barrier wall), collection and disposal of leachate, long-term operation and maintenance of the cap and leachate collection system, and institution of deed restrictions that will prohibit future construction on the actual site. These actions will effectively protect nearby residents, visitors to the American Legion and to the Cerebral Palsy Association from being exposed to site contaminants.

3. QUESTION: Does the site pose an immediate threat to human health?

   ANSWER: There is no immediate threat to public health. The remedial investigation determined that high levels of contamination were found in on-site soils. There is no public access to this area because the site is fenced. Contaminants were also found in soil outside the fence. However, the contaminants were found at levels that do not pose an immediate threat to human health. The contaminated soils located outside the fenced area will be excavated and replaced with clean soil as part of the preferred remedy.

4. QUESTION; In the Baseline Risk Assessment that was done as part of the Remedial Investigation, it is stated that if people were to live on the actual site in the future without the site being cleaned up, the site "could pose an increased cancer risk from the ingestion of home grown vegetables." What does this mean? How high is the risk?

   ANSWER: A risk assessment examines different scenarios in which people might be exposed to site contaminants. The risk assessment is used as a tool to determine if there are possible routes of exposure that need to be addressed by a remedy. For example, if someone were to eat vegetables grown in the contaminated soil, he or she might ingest contaminants that were taken up by the vegetables; therefore soil needs to be remediated to prevent people from growing vegetables in contaminated soil in the future. The Baseline Risk Assessment performed for the Remedial Investigation at this site found that if people ate a certain amount of vegetables grown in contaminated soil on-site or near the American Legion Building for 30 years, they may have an increased risk of developing cancer. This risk was considered in the selection of the site remedy. In addition to covering the contaminated soils with a cap to prevent contact with them on the site, the preferred remedy includes deed restrictions to prevent building of residential homes on the site in the future.

5. COMMENT: Further testing should be done at the American Legion property. The Department of Health conducted a general air quality screen using a type of meter not sophisticated enough to register readings at low levels that may collect over time. There is a possibility of "air out" before the DOH

inspection conducted that screening of the building was occupied and the doors or windows were open before the inspection. DOH should conduct 8-hour sampling the American Legion building.

ANSWER: Sampling of the exterior of the American Legion Building is not necessary at this time since all soil around the building will be removed as part of the remedial activities. The site-related contaminants would not be expected to cause a concern in air, unless large amounts of dust, comprised of contaminated soil particulates, were present in air. The presence of paved and grassy areas minimize the potential of dust being generated. However to investigate odor complaints, the building's indoor air was tested by the NYS Department of Health (NYS DOH) in March 1994. A photo-ionizing detector (HNu), which is standard equipment to detect organic vapors, was used to screen the air inside the building. The building had been closed for several days before the inspection, therefore the building did not "air out". No evidence of organic vapors or health hazards were found in the building. Therefore, additional sampling, including 8-hour sampling, is not necessary. The American Legion-Portage Post was advised of the findings by letter.

6. COMMENT: In order to protect the health and mental well being of the neighborhood around the site, all of the contamination should be removed from the area and disposed of somewhere else.

   ANSWER: The preferred remedy has been evaluated and has been determined to be protective of public health. After the remedy is in place, the ways by which people might be exposed to site-related contamination will be eliminated. Additionally, the capped wastes will be monitored over the long term to ensure that the remedy remains protective of public health.

7. COMMENT: The preferred remedy would have adverse effects on the individuals who live near the site or frequent the area and it fails to eliminate the potential risk to individual health.

   ANSWER: The preferred remedy has been evaluated and found to be protective of human health and the environment. During implementation of the remedy, the community will be protected by implementing a health and safety plan. After the remedy is in place, potential public exposures to site contaminants will be eliminated.

APPENDIX B

ADMINISTRATIVE RECORD

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1. Interagency Task Force Report on Hazardous Wastes 1979 and Revision June 1980.

2. Final Hydrogeological Report Industrial Welding Site -
Michael J. Bellotti, October 1982.

3. Phase I Investigation Report 1984.

4. Potential Hazardous Waste Site - Preliminary Assessment - Industrial Welding (Olin Corp.), NUS Corporation,
June 19, 1986.

5. Plan of Investigation Industrial Welding Site, May 17, 1987.

6. Consent Agreement C9-001-85-10, August 28, 1987

7. Phase II Remedial Investigation Work Plan, RI/FS Industrial Welding Site, IT Corporation, January 1991.

8. Amendment to Consent Agreement C-9-001-85-10, May 24, 1991.

9. Proposed Soil Sampling and Piezometer Location Plan, Olin
August 3, 1992, Revision August 18, 1992.

10. Gill Creek Confirmation Sampling Plan, Olin September 1992.

11. Final Remedial Investigation/Feasibility Study (RI/FS) Reports, Olin Industrial Welding Site, Volume I and Volume II, Volume II and Final Gill Creek Characterization Report, I.T. Corporation, July 1993.

12. Addendum to Final RI/FS Reports Olin Industrial Welding Site Volume I, Volume II and Volume III and Final Gill Creek Characterization Report, I.T. Corporation, January 1994.

13. Proposed Remedial Action Plan (PRAP), NYSDEC January 1994.