ACCURATE DIE CASTING
Inactive Hazardous Waste Site

Village of Fayetteville, Onondaga County, New York
Site No. 7-34-052

PROPOSED REMEDIAL ACTION PLAN

September 1994

Prepared by:

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

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Village of Fayetteville, Onondaga County, New York
Site No. 7-34-052
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SECTION 1: PURPOSE OF THE PROPOSED PLAN

The New York State Department of Environmental Conservation (NYSDEC), in consultation with the New York State Department of Health (NYSDOH), is proposing a remedy to address soil and groundwater contamination at the Accurate Die Casting Site. The proposal includes 1)excavating contaminated soils from the former oil spill area and removing the contaminated sludge from the septic tank located on site and disposing of them in an off-site landfill, 2)extracting the bedrock groundwater, treating it on site by air stripping to remove contaminants and discharging the treated groundwater into Bishop Brook, and 3)long-term groundwater monitoring.

These remedial actions are necessary to mitigate the threats to public health and the environment posed by uncontrolled releases of chemicals. The primary contaminant at the site is trichloroethene (TCE). TCE was used as a degreasing solvent to clean metal parts and was leaked from a storage tank into the soil and subsequently into groundwater. An oil spill in another part of the site has contaminated the soil in that area.

In mid-1994, an Interim Remedial Measure (IRM) was initiated to address the TCE contaminated soils and shallow groundwater contamination at the site. The IRM involved 1)excavating the TCE contaminated soils located at the south-east corner of the building and treating the soils on site by mechanical volatilization and/or soil vapor extraction based on the concentration of TCE, 2)placing the treated soils back in the excavated areas and 3)extracting the shallow groundwater, treating it on site by air stripping and discharging the treated groundwater into Bishop Brook. A work plan for the IRM was approved in May 1994. A public meeting was held on April 26, 1994 to present the details of the IRM and to receive public comment. The public comment period established for the IRM ended on May 6, 1994. A responsiveness summary and a decision document was prepared for the IRM.

This Proposed Remedial Action Plan (PRAP) identifies the preferred remedy, summarizes the other alternatives considered, and discusses the rationale for this preference. The NYSDEC will select a final remedy for the site only after careful consideration of all comments submitted during the public comment period.

This PRAP is issued by the NYSDEC as an integral component of the citizen participation plan responsibilities provided by the New York State Environmental Conservation Law (ECL), 6 NYCRR Part 375 and the Federal Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986. This document is a summary of the information that can be found in greater detail in the Remedial Investigation

(RI) and Feasibility Study (FS) reports on file at the document repositories.

The NYSDEC may modify the preferred alternative or select another response action presented in this PRAP or the RI/FS Report. Therefore, the public is encouraged to review and comment on all of the alternatives identified here.

The public is encouraged to review the documents at the repositories to gain a more comprehensive understanding of the site and the investigations conducted there. The project documents can be reviewed at the following repositories:

Village Clerk - Treasurer's Office
425 East Genesee Street
Fayetteville, NY 13066
Hours: 8AM to 4PM, Mon.-Fri.

Charlie Branagh, P.E.
Regional Hazardous Waste Engineer
Div. of Hazardous Waste Remediation
615 Erie Boulevard West
Syracuse, NY 13204-2400
Phone: (315)426-7551
****BY APPOINTMENT ONLY****

Vivek Nattanmai, P.E.
Project Manager
Div. of Hazardous Waste Remediation
50 Wolf Road
Albany, NY 12233-7010
Phone: (518)457-0315
****BY APPOINTMENT ONLY****

Written comments on the PRAP can be submitted to Mr. Nattanmai at the above address.

DATES TO REMEMBER:

September 12 - October 14, 1994: Public comment period on RI/FS Report, PRAP, and preferred alternative.

September 26, 1994: Public meeting at the Auditorium of the Fayetteville Elementary School, Fayetteville Manilus Road, Fayetteville, NY at 7.00 P.M.

SECTION 2: SITE LOCATION AND DESCRIPTION

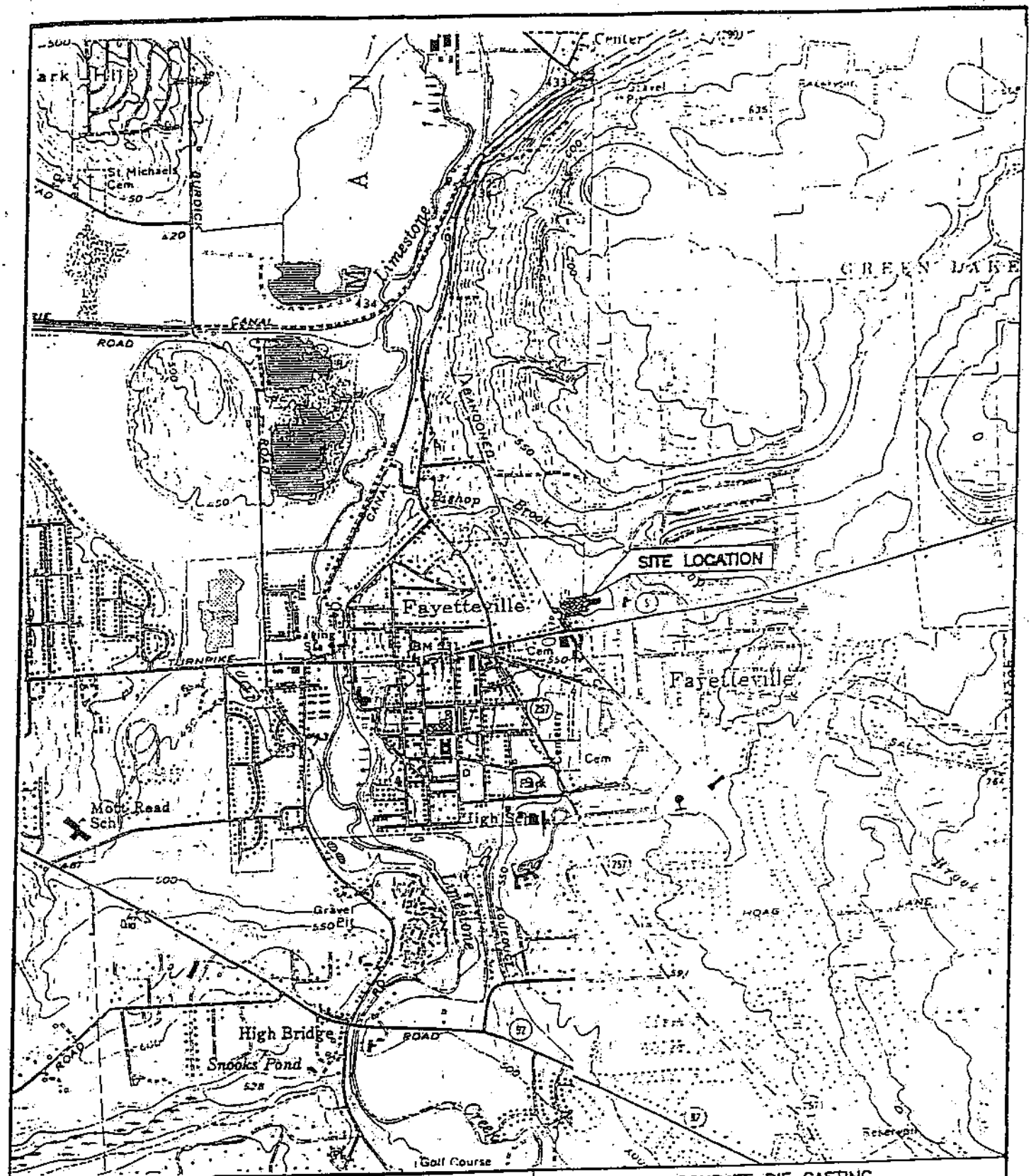
The Accurate Die Casting site is located on a 32-acre parcel at 547 East Genesee Street in the Village of Fayetteville, New York (Figure 1). The site includes parking areas adjacent to the main building, a wooded area to the north, scrub growth to the east, and a lawn to the south. The topography is generally flat on the south end of the site and slopes to the north on the north half of the site. At the northern edge of the site, there is a steep embankment adjacent to Bishop Brook, which flows from east to west. Figure 2 shows the details of the site, sampling locations and identifies the contaminated areas. Bordering properties include abandoned farmland to the north, residential areas to the east and west and commercial properties to the south along East Genesee Street. An abandoned railroad siding extends along the western border of the site, acting as a buffer between the site and adjacent parcels.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

Early 1950 - The facility was constructed as an aluminum die casting industry.

Mid-1987 - A waste cutting oil spill occurred at the site. The release occurred in the northwest area of the site at the discharge point of a cooling water outfall pipe. NYSDEC responded to the spill and approximately 120 tons of soil contaminated with cutting oil was removed from the site. The facility was considered as a potential hazardous waste site.



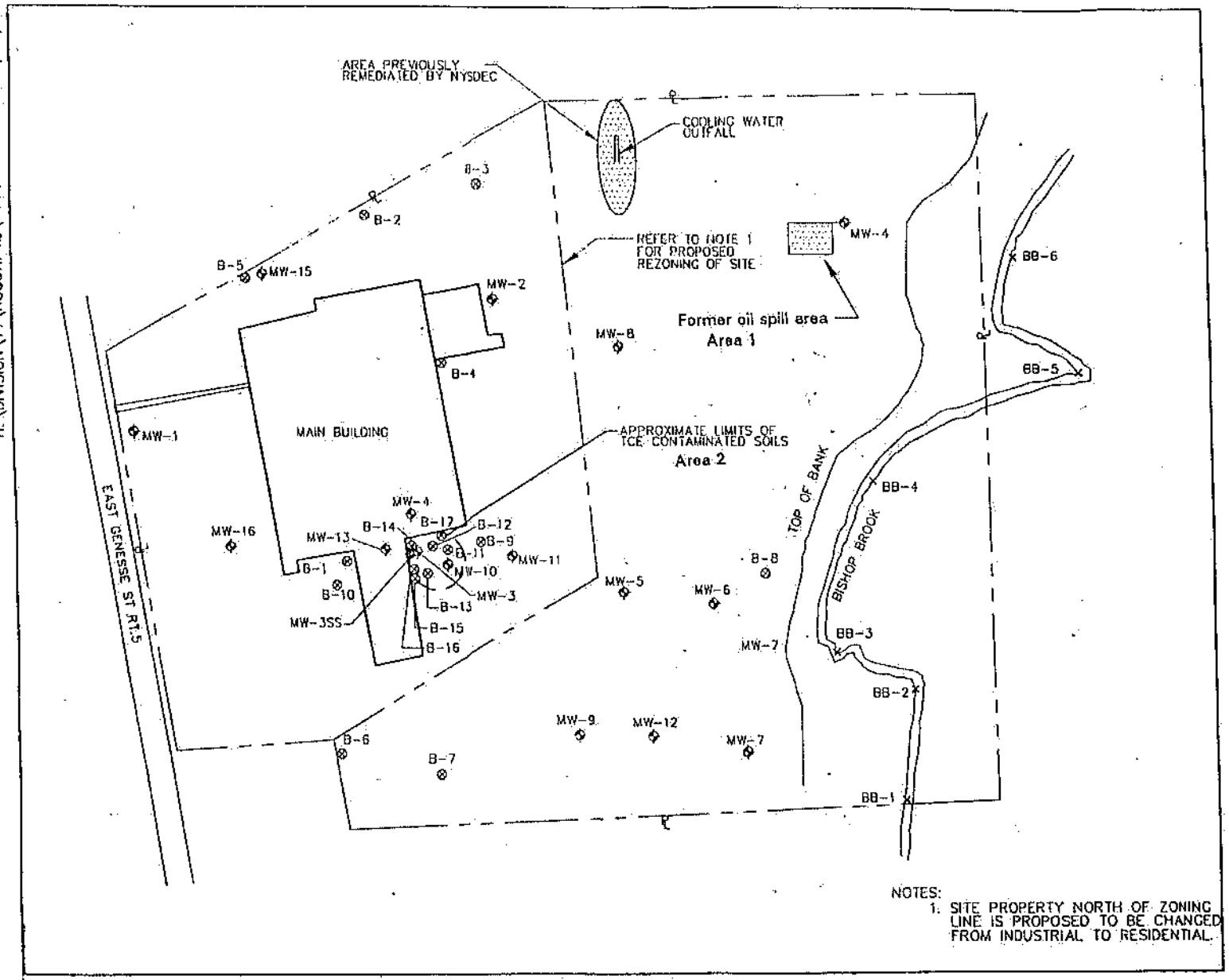
Stearns & Wheler
ENVIRONMENTAL ENGINEERS & SCIENTISTS

DATE: 2/94 JOB No.: 2125

ACCURATE DIE CASTING
FAYETTEVILLE, NEW YORK
FEASIBILITY STUDY

FIGURE 1
SITE LOCATION

FIGURE -2



NOTES:
1. SITE PROPERTY NORTH OF ZONING LINE IS PROPOSED TO BE CHANGED FROM INDUSTRIAL TO RESIDENTIAL.

LEGEND

- ℄ PROPERTY LINE
- MW-4 ⊕ MONITORING WELL
- B-2 ⊗ BORING SAMPLE LOCATION
- × SEDIMENT SAMPLE LOCATION

ACCURATE DIE CASTING
FAYETTEVILLE, NEW YORK

SITE PLAN

150 0 150

APPROX. SCALE IN FEET

FILE NO. 2488.396-03F

O'BRIEN & GERE ENGINEERS INC.
Syracuse , New York

H:\DIVISION\71\ACCURATE\ACCUSP1 SF=150' 5/24/9

Mid-1988 - Termination of activities at the site and bankruptcy filing.

December 20, 1988 - Soil and water samples collected and analyzed by DEC indicated the presence of TCE and perchloroethene (PCE).

1989 - ITT Commercial Corporation takes over the title to the property through foreclosure and ITT is the current owner of the property.

January 1990 - The facility was included in the NYSDEC's Registry of Inactive Hazardous Waste sites as a Class 2 site. This indicates that the site presents a significant threat to human health or the environment and that action is required to investigate and, if necessary, remediate the site.

A TCE storage tank was located outside the northeast corner of the building and a degreaser system which was used to degrease the castings was located inside the building. Releases/spills of TCE from the tank and the degreaser system have resulted in contamination of the soil and groundwater at the site. There are no records available to verify the quantity and/or the duration of the TCE release/spill from the TCE storage tank or the degreaser system.

3.2: Remedial History

June 1989 - A Phase I environmental assessment was done by Stearns & Wheler for the potentially responsible party (PRP). Based on the available information, a report was prepared which included the details such as the history of the site, potential areas of contamination and investigative efforts to characterize the site.

Early 1990 - During the Phase II environmental assessment, three contaminated areas were identified and remediated as an IRM during the year. IRMs are intended to address both emergency and non-emergency site conditions, which can be undertaken without extensive investigation and evaluation, to prevent, mitigate, or remedy environmental damage attributable to a site. The following IRMs were completed at the site - 1) approximately 70 drums of waste located inside the building were characterized and disposed, 2) the sludge from the TCE degreaser system was removed and the system was decontaminated, 3) the TCE free product pool which was discovered above the water table adjacent to the storage tank was pumped and disposed until no TCE free product was found in samples.

August 1990 - Transformers containing PCB fluids were removed and disposed. The soil in the transformer area was sampled and soils exhibiting levels above guidance values were removed and disposed.

September 1990 - The Phase II environmental assessment was completed. During this period groundwater, surface water, sediment and soil samples were collected and analyzed. Based on the results, a report was prepared which concluded that TCE contamination exists in soil, groundwater and surface water. A soil vapor survey was also conducted during this period.

SECTION 4: CURRENT STATUS

The NYSDEC, under the State Superfund Program, directed ITT commercial Corporation, the PRP for the site to initiate a Remedial Investigation/ Feasibility Study (RI/FS) to address the contamination at the site. The RI/FS was initiated by the PRP in August 1991.

Concurrent with the preparation of the FS, an IRM was initiated in mid-1993. The work plan for the IRM was approved in May 1994. The field work for the IRM began in June 1994.

The 1994 IRM included the following tasks:

* excavation of contaminated soil located at the northeast corner of the building, on-site treatment, and replacement in the excavated areas.

* extraction of contaminated groundwater from the shallow aquifer, on-site treatment, and discharge to Bishop Brook.

The soil remediation has essentially been completed. The excavated soils were treated by mechanical volatilization. The shallow groundwater remediation is expected to begin in October 1994.

An addendum to the existing consent order was prepared and signed on June 6, 1994 by ITT Commercial Corporation, the PRP for the site and the NYSDEC to implement the 1994 IRMs at the site. O'Brien and Gere, an engineering consultant, is currently under contract with the PRPs to refurbish the manufacturing building to rent/lease the property and to remediate the entire site.

4.1: 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 May 1992 and February 1993 and the second phase between July 1993 and February 1994. Reports entitled "Phase I RI Report, January 1993" and "Final RI Report, February 1994" have been prepared describing the field activities and findings of the RI in detail. A summary of the RI follows:

The RI activities consisted of the following:

- Surface soil samples were obtained from the cutting oil spill area to determine the extent of residual contamination.

- Soil borings and deep monitoring wells were installed for analysis of soils and groundwater as well as to document the physical properties of soil and hydrogeologic conditions.

- Surface water and sediment samples were obtained to determine the extent of contamination in the Brook.

The land surface at the site slopes generally northward with a steep embankment at Bishop Brook which forms the northern boundary of the site. Based on the subsurface studies, the overburden consists of a dense layer that ranges in composition from red clay to silt with sand, gravel and cobbles. This layer has been interpreted to be glacial till which seems to have limited the migration of contaminants to the bedrock. The till is overlain by coarser sand and gravel deposits. The highly fractured bedrock slopes northward down into the Bishop Brook ravine.

The groundwater in the overburden unit flows to the north towards Bishop Brook. Based on the available data on the bedrock unit, it is assumed that the groundwater flow in this unit is also towards the north. Bishop Brook flows east to west and empties into Limestone Creek several miles west 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 site were based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part V of the NYS Sanitary Code. For the evaluation and interpretation of soil and sediment analytical

results, NYSDEC soil cleanup guidelines for the protection of groundwater, background conditions, and risk-based remediation criteria were used to develop remediation goals.

Based upon the results of the remedial investigation in comparison to the SCGs and potential public health and environmental exposure rates, certain areas and media of the site require remediation.

The results of the RI showed that the groundwater and soil samples obtained from the site contain contamination that is site-related. The primary contaminant in soil and groundwater was found to be TCE. The soil samples collected in the spill area contained polycyclic aromatic hydrocarbons (PAH) polychlorinated biphenyls (PCBs) and volatile organics (VOC). Zinc was detected in the septic tank sludge and chromium was detected in groundwater samples.

The highest concentration of TCE [340,000 parts per billion (ppb)] in groundwater was detected in the shallow portion of the aquifer near the TCE storage tank located outside the building. The highest concentration of TCE in the groundwater that was detected in the bedrock portion of the aquifer was 5200 ppb. All groundwater samples contained TCE above the groundwater standard which is 5 ppb. Chromium (430 ppb) was the only inorganic that was detected above the groundwater standard in the groundwater sample collected from MW-9. The groundwater standard for chromium is 50 ppb.

A groundwater seep in the steep bank of Bishop Brook was sampled before it emerges to the surface and was found to contain 700 ppb of TCE. The seep was also sampled after it emerges and found to contain 67 to 78 ppb of TCE.

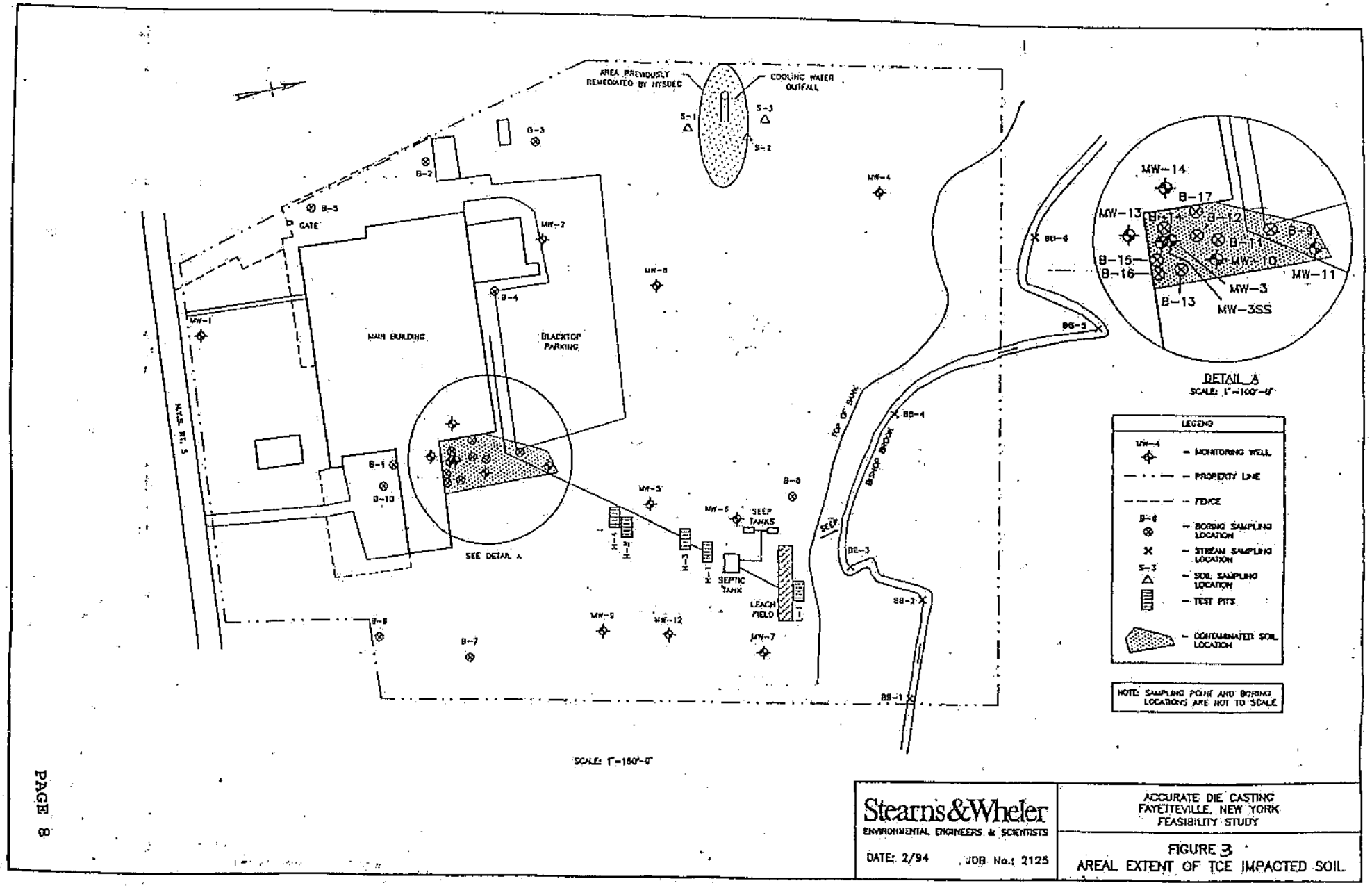
The maximum concentration of TCE detected in the surface water samples was 3 ppb. The stream bed sediments were found to be not impacted by site contamination except for one sample which contained TCE at 0.8 ppb. The surface water standard for TCE is 11 ppb. The sediment criteria for TCE is 1.0 ppb (assuming 0.5% total organic carbon).

The highest concentration of TCE in the subsurface soil was found in the immediate vicinity of the storage tank. The concentration of TCE in the subsurface soil samples ranged from non-detect to 7500 parts per million (ppm). TCE concentrations in the subsurface soil decreased with increasing distance from the location of the storage tank area. The depth of the soil samples collected was between 3 and 30 feet. The concentration of TCE was between non-detect to 9.7 ppm up to a depth of approximately 20 feet. Higher concentrations of TCE were found between 20 and 30 feet. In accordance with NYSDEC guidance, the clean-up goal for TCE in soil is 64 ppm based on health risk and 0.7 ppm based on the leachability of the contaminant to groundwater.

An elevated level of Zinc (644 ppm) was detected in a septic tank sludge sample. The septic tank is located in the northern portion of the site and was connected to a drainage system from the manufacturing building (Figure 3).

Additional soil sampling was conducted in the spill area described in Section 3.1, to determine if residue from the oil spill is present. The soil samples obtained from this area detected PAH (semi-volatiles) ranging from non-detect to 49 ppm, PCBs ranging from non-detect to 2.3 ppm and dichloroethene (volatile) ranging from 19 ppm to 190 ppm.

The investigation identified five areas of concern at the site which need to be or have been remediated. The areas of concern are as



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DATE: 2/94 JOB No.: 2125

ACCURATE DIE CASTING
FAYETTEVILLE, NEW YORK
FEASIBILITY STUDY

FIGURE 3
AREAL EXTENT OF TCE IMPACTED SOIL

follows: 1)an area of subsurface soil contaminated with TCE (area 2), 2)a plume of dissolved TCE in the shallow groundwater, 3)dissolved TCE in the bedrock aquifer, 4)former oil spill area (area 1), and 5)sludge contained in a septic tank. Please refer to Figure 2 for the locations of these areas.

4.3 Summary of Human Exposure Pathways:

Exposure pathways consist of five elements: a source of contamination, transport through environmental media, a point of exposure, a route of human exposure, and an exposed population. An exposure route is the mechanism by which contaminants may enter the body (e.g., inhalation, ingestion, absorption). Without all the elements, an exposure pathway is not complete. Risk assessments evaluate any current or future exposure pathways which could be complete. The Village has rezoned part of the site as residential. In this scenario, a complete exposure pathway at the site is ingestion of and dermal (skin) contact with contaminated soil in the oil spill area. Some of the individual PAHs and VOCs found in the soil obtained from the oil spill area exceed the guidance levels for protection of human health. The exposures for contaminated groundwater were calculated for future conditions only because the residences around the site obtain their drinking water from the Village's public water system. The results showed that this pathway would pose an unacceptable risks to human health, if the groundwater at the site is utilized as a source for water supply.

4.4 Summary of Environmental Exposure Pathways:

The groundwater at the site discharges into Bishop Brook. If unremediated, the contaminated groundwater would continue to contribute contamination to the Brook. There is a potential for the contaminated soil in the oil spill area to migrate to the Brook by surface water run-off. There is also a potential for exposures for wildlife to the contaminated soil in the oil spill area which is located in a wooded area.

SECTION 5: ENFORCEMENT STATUS

The NYSDEC and ITT Commercial Corporation, the PRP for the site, entered into two Consent Orders on September 20, 1990 and August 19, 1991. The First Order obligates the responsible party to implement the three IRMs as stated in Section 3.1. The Second Order is for the implementation of the RI/FS program. An amendment to the second order was executed to implement the current IRM program. Upon issuance of the Record of Decision, the NYSDEC will seek to implement the selected remedy under a new Order on Consent with the PRPs.

The following is the chronological enforcement history of this site.

Date	Index No.	Subject of Order
1990	A7-0223-90-02	IRM
1991	A7-0258-91-03	RI/FS
1994	Amendment	IRM

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

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

At a minimum, the remedy selected should eliminate or mitigate all significant threats to the

public health and to the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

The goals selected for this site are:

- Eliminate to the extent practicable, the contamination present within the soils on site.
- Eliminate the potential for direct human or animal contact with contaminated soils on site that presents significant threats.
- Provide for attainment of groundwater standards for groundwater quality at the site to the extent practicable.

Table 1 presents the soil and groundwater remedial action goals established for the site.

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

Potential remedial alternatives for the Accurate Die Casting site were identified, screened and evaluated in a Feasibility Study (FS). This evaluation is presented in the report entitled Feasibility Study Report, August 1994. A summary of the detailed analysis follows.

7.1: Description of Alternatives

Alternative 1: No Action

Present Worth:	$76,863
Capital Cost:	$ 0
Annual O&M:	$ 5,000

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. Under this alternative, the contaminated groundwater at the site would be periodically monitored. The cost for the annual monitoring is based on a 30 year period. If necessary, the annual monitoring would continue after the 30 year period.

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: Groundwater Recovery and treatment / Soil Containment / off-site disposal of sludge

Present Worth:	$ 1,473,120
Capital Cost:	$ 797,500
Annual O&M:	$ 43,950

In this alternative, contaminated groundwater from the bedrock aquifer would be actively recovered by pumping. The recovered groundwater would be treated by air stripping/carbon adsorption method. A cap would be constructed in the former oil spill area (area 1). The sludge from the septic tank would be removed and disposed of in an off-site landfill. A maintenance program would be established to maintain the cap.

Alternative 3: Groundwater Recovery and Treatment / Off-site disposal of Soil and Sludge

Present Worth:	$ 1,850,000
Capital Cost:	$ 1,174,500
Annual O&M:	$ 43,950

As in alternative 2, contaminated groundwater from the bedrock aquifer would be actively recovered by pumping and the recovered groundwater would be treated by air

Table 1 Soil and Groundwater Remedial Action Goals

ACCURATE DIE CASTING SITE

SOIL

Total volatile Organic Compounds (VOCs)	10 ppm
Individual VOC	1 ppm
Polycyclic Aromatic Hydrocarbons (PAHs)	Note A
Polychlorinated Biphenyls (PCBs)	
Subsurface Soils	10 ppm
Surface soils	1 ppm

GROUNDWATER (*)

t-1,2-Dichloroethene	5 ppb
Trichloroethene	5 ppb
1,1,1-Trichloroethene	5 ppb
Vinyl Chloride	2 ppb
Ethylbenzene	5 ppb
Toluene	5 ppb
Xylene	5 ppb
PCB	0.1 ppb
Chromium	50 ppb

(*) Remedial action goals for groundwater are based on 6 NYCRR Part 703.5, groundwater standards.

Notes:

Note A - The remedial action goals for the PAHs will be to the site background conditions which will be determined during the design of the remedial action.

ppm - Parts Per Million (mg/kg or mg/l)

ppb - Parts Per Billion (ug/kg or ug/l)

stripping/carbon adsorption method. The contaminated soil from the former oil spill area (area 1) and the sludge from the septic tank would be excavated and/or removed for off-site disposal.

NOTE: The FS report for the site was prepared concurrently with the IRM work plan. Therefore, the remedial alternatives evaluated in the report focused on addressing all areas of concern at the site including the current IRM tasks. This PRAP does not focus on the concerns already addressed by the current IRM. The remedial alternatives presented in this document are identical to those in the FS report except that the items which have been, or will be, addressed by IRMs have been omitted. For this reason, the PRAP has evaluated only three remedial alternatives.

7.2 Evaluation of Remedial Alternatives

The criteria used to compare the potential remedial alternatives are defined in the regulation that directs the remediation of inactive hazardous waste sites in New York State (6 NYCRR Part 375). For each of the criteria, a brief description is 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 considered "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 will meet applicable environmental laws, regulations, standards, and guidance. Please refer to Tables 2 and 3 for the SCGs applicable for this site. The chemical specific SCGs are classified as the cleanup goals determined for the site and NYSDEC's Technical & Administrative Guidance Memorandum on soil cleanup objectives. Action specific SCGs are classified as the applicable regulations such as 6 NYCRR Part 372 for off-site disposal, NYSDEC's Air Guide 1 for air emissions and 6NYCRR Part 375 for removing the hazardous waste and remediating the site. Alternative 1 would not comply with this criterion because it would not remove and/or remediate the contaminated soil and groundwater. Alternative 2 would comply with action-specific SCGs but chemical-specific SCGs would not be met because the contaminated soil and sludge would be left in place. Alternative 3 is identical to 2 except that the contaminated soil and sediment would be excavated from the site for off-site disposal and landfilling.

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 eliminate potential exposure because contaminated soil and groundwater would not be remediated. Alternative 3 would be most protective of human health and the environment because the soil and sludge would be removed from the site and the groundwater would be remediated. Alternative 2 would comply with this criterion by eliminating the potential for contact with soils by the placement of cover. The contaminated groundwater would be treated under both alternatives 2 and 3.

The next five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies. Alternative 1 will not be evaluated for the remaining criteria because it did not comply with the threshold criteria.

TABLE 2
Review of Chemical-Specific SCGs And To Be Considered Criteria
Accurate Die Casting Facility -- Feasibility Study Report

MEDIA	TITLE OF REGULATION	CITATION Federal	CITAT State
SOIL	NYSDEC Guidance Document for Setting Clean-up Levels		TAGM HWR-92-4086
GROUNDWATER	Water Quality Regulations		6 NYCRR 700-705
	Groundwater Classificaitons and Quality Standards		6 NYCRR 703 10 NYCRR 5.1 10 NYCRR 170
	Standards, Limitations for Discharges to Class GA Waters	NPDES	6 NYCRR 703 TOGS 1.1.1
	Federal & State DOH Sanitary Codes for Drinking Water	SDWA MCLs, MCLGs	10 NYCRR 5.1, 5.3
	Ambient Water Quality Standards & Guidance Values		TOGS 1.1.1
	SDWA	40 CFR 141, 143 PL 93-523	
	EPA Health Advisories and NAS SNARLS		
SURFACE WATER	SPDES/NPDES	NPDES	6 NYCRR 750-758 6 NYCRR 701.5
	Ambient Water Quality Standards & Guidance Values		TOGS 1.1.1
	Water Quality Regulations, Surface Water Classifications and Standards	FWQC CWA § 303, 304	6 NYCRR 700 - 705
AIR	NYS Guidelines for the Control of Toxic Ambient Air Contaminants		6 NYCRR 212
	National Emission Standards for Hazardous Air Pollutants	NESHAPS	
	NY State Air Pollution Control Regulations		6 NYCRR 201,202, 6 NYCRR 219

TABLE 3
Review of Remedial Action-Specific SCGs And To Be Considered Criteria
Accurate Die Casting Facility -- Feasibility Study Report

ACTION/RESPONSE	ACTIVITY TO MEET RESPONSE	CITATION		ARAR	Potential ARAR*
		Federal	State		
No Action	Monitoring		6 NYCRR 373	X	
			6 NYCRR 360	X	
Institutional Controls	Alternate Water Supply or User Treatment System		10 NYCRR 5 et seq.	X	
Containment	Cap	40 CFR 264	6 NYCRR 373	X	
			6 NYCRR 360	X	
	Vertical Barriers	40 CFR 268			X
Excavation &/or Soil Treatment	Disposal on site or in landfill	40 CFR 268	6 NYCRR 376		X
Collect/ Treat/ Discharge	Discharge to Surface Waters	NPDES	6 NYCRR 751		X
	Discharge to POTW	40 CFR 403	6 NYCRR 750 - 758		X
	Discharge to Groundwater	40 CFR 144	6 NYCRR 703		X
	Monitor	40 CFR 122, 125	6 NYCRR 751		X
			TOGS 86-W-52		X
All work on site	OSHA Regulations	29 CFR 1926			X
Discharge of gases to atmosphere	Soil venting, discharge from air stripper or other treatment unit	40 CFR 60	6 NYCRR 257		X
	Incinerator				X
	Permit process		6 NYCRR 219		X
	Discharge of toxics	Clean Air Act	6 NYCRR 201		X
Incineration	Hazardous waste standards, emissions, monitoring requirements, etc.	40 CFR 264	6 NYCRR 373		X
	Emission limits	40 CFR 60	6 NYCRR 219		X

*Applicability of regulation is dependent on remedial technology(ies) chosen for site

3. Short-term Effectiveness and Impacts. 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. For all the alternatives, the short-term effectiveness of the groundwater remediation would be minimal because it is a long-term process. Alternative 3 would be more effective but would have the most significant short term impacts because of significant excavation activities. Alternative 2 would provide less disturbance of the contaminated soils when compared to alternative 3.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of alternatives after implementation of the response actions.

Soil Remediation:

Alternative 3 would provide long-term effectiveness and would permanently remediate the site. Alternative 2 would be effective with periodic maintenance and would provide adequate control to eliminate direct contact with the contaminated soil.

Groundwater Remediation:

The goal of the groundwater remediation under both alternatives is to attain groundwater standards. The remediation would remove the contaminated groundwater but the permanence of the remediation can be determined only by the long-term operation of the pump and treatment system.

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. Under Alternatives 2 and 3 groundwater would be treated to reduce the toxicity of the contaminants. The contaminated soils and sludge would be removed from the site thereby reducing the toxicity of the contaminated soil as it pertains to the site under Alternative 3. Alternative 2 would reduce the mobility of the contaminants from the soil media.

6. Implementability. The technical and administrative feasibility of implementing each alternative is evaluated. Technically, this includes the difficulties associated with the construction, the reliability of the technology, and the ability to monitor the effectiveness of the remedy. Administratively, the availability of the necessary personnel and material is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc.. Between Alternatives 2 and 3, Alternative 3 is the easiest to implement because it involves excavation and transportation. Alternative 2 is also easily implementable with readily available technologies.

7. Cost. Capital and operation and maintenance costs are estimated for each alternative and 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. Between Alternatives 2 and 3, Alternative 2 would be lowest in cost but the remedy cannot be considered as permanent. The capital cost of Alternative 3 would be higher than Alternative 2 but the O&M costs are less. Both Alternatives 2 and 3 would be cost effective but Alternative 3 would be more protective and would be permanent.

8. Community Acceptance - Concerns of the community regarding the RI/FS reports and the Proposed Remedial Action Plan are evaluated. A " Responsiveness Summary" will be prepared that describes public comments received and

how the Department will address the concerns raised. If the final remedy selected differs significantly from the proposed remedy, notices to the public will be issued describing the differences and reasons for the changes.

SECTION 8: SUMMARY OF THE PREFERRED REMEDY

Based upon the results of the RI/FS, and the evaluation presented in Section 7, the NYSDEC is proposing Alternative 3 as the remedy for this site.

This selection is based upon the following factors:

Alternative 1 is not protective, therefore, has been rejected. Alternative 2 would be protective and less costly but would not meet chemical-specific SCGs and would require continued maintenance for long-term effectiveness. Alternative 3 would be the most protective in the long term, have no significant short term impact and be cost effective. Alternative 3 would reduce the toxicity of the contaminated soil as it pertains to the site whereas alternative 2 would not. Therefore, Alternative 3 which would be protective, cost effective and permanent, is the preferred remedy for this site.

The estimated present worth cost to implement the remedy is $1,850,000. The capital cost to construct the remedy is estimated to be $1,174,500 and the estimated average annual operation and maintenance cost for 30 years is $43,950.

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. **Excavation of soils from area 1 and removal of the sludge from the septic tank for off-site disposal.** The soils from area 1 and the sediments from the septic tank would be excavated and disposed of in an off-site landfill. The excavated areas would be backfilled with clean soil. Excavation would be carried out in accordance with the recommended cleanup goals.

3. **Pumping of groundwater for on-site treatment and disposal.** The groundwater from the bedrock aquifer would be pumped, treated on-site and discharged into Bishop Brook. The goal of the groundwater treatment would be to achieve the groundwater standards.

4. **A Long-term groundwater monitoring** program would be implemented to periodically sample the groundwater at the site. This would determine the effectiveness of the groundwater remediation program.