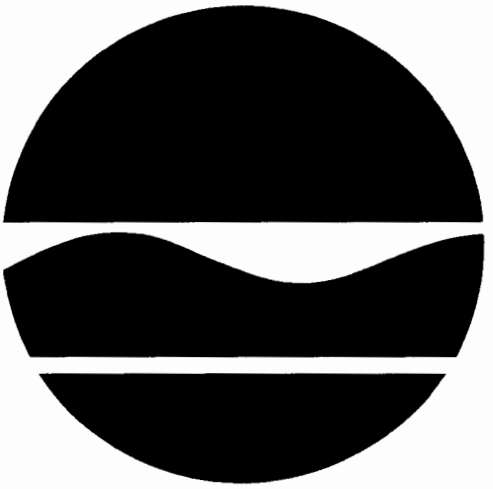
I.W. Industries

Huntington (T),Suffolk County, New York
Site No. 1-52-102

PROPOSED REMEDIAL ACTION PLAN

February 2000



Prepared by:

Division of Environmental Remediation
New York State Department of Environmental Conservation

PROPOSED REMEDIAL ACTION PLAN

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SECTION 1: SUMMARY AND PURPOSE OF THE PROPOSED PLAN

The New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health is proposing a remedy to address the significant threat to human health and/or the environment created by the presence of hazardous waste at the **I.W. Industries, Incorporated site** (also called I.W. Industries and the "potentially responsible party" or "PRP" in this plan), a class 2 inactive hazardous waste disposal site. As more fully described in Sections 3 and 4 of this document, disposal of cutting oils and industrial solvents have resulted in the disposal of a number of hazardous wastes, including volatile and semi-volatile organic compounds, and metals (e.g., lead), at the site. These disposal activities have resulted in the following significant threats to the public health and/or the environment.

- A significant environmental threat associated with the release of contaminants to **the Long Island sole source aquifer**; and
- a significant threat to human health if excavation occurs in areas of contamination that could result in exposures to contaminated soil and vapors.

In order to eliminate or mitigate the significant threats to the public health and/or the environment that the hazardous wastes disposed at I.W. Industries site have caused, the following remedy is proposed:

- removal of soils from leaching pools that are or have the potential to impact groundwater quality;
- removal of free product (oils and the contaminants dissolved in them) from the top of the water table; and
- long-term monitoring of groundwater to verify that cleanup is occurring.

The proposed remedy, discussed in detail in Section 7 of this document, is intended to attain the remediation goals selected for this site in Section 6 of this Proposed Remedial Action Plan (PRAP), in conformity with applicable standards, criteria, and guidance (SCGs).

This PRAP identifies the preferred remedy, summarizes the other alternatives considered, and discusses the reasons for this preference. The NYSDEC will select a final remedy for the site only after careful consideration of all comments received during the public comment period.

The NYSDEC has issued this PRAP as a component of the citizen participation plan developed pursuant to the New York State Environmental Conservation Law and 6 NYCRR Part 375. This document is a summary of the information that can be found in greater detail in

the Preliminary Remedial Investigation Study, Focused Remedial Investigation (RI), Focused Feasibility Study (FS) and other relevant reports and documents, available at the document repositories listed below.

To better understand the site and the investigations conducted, the public is encouraged to review the project documents at the following repositories:

NYS Department of Environmental Conservation
Hazardous Waste Remediation Unit
Building 40 - SUNY at Stony Brook
Stony Brook, NY 11790-2350
Telephone: 631-444-0350
Hours: 8:30 am - 4:45 PM by appointment Monday thru Friday

Huntington Public Library
338 Main Street
Huntington, NY 11743
Telephone: 631-427-5165
Hours: 9:00 am - 9:00 pm Monday thru Friday; 9:00 am - 5:00 pm Saturday

For further information please contact:

Mr. David Foster
NYSDEC - BWRA, Room 348
50 Wolf Road
Albany, NY 12233-7010
Telephone: 518-457-0315

-or-

Mr. Mark Lowery
Public Participation Specialist
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Building 40 - SUNY at Stony Brook
Stony Brook, NY 11790-2350
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e-mail: mdlowery@gw.dec.state.ny.us

The NYSDEC seeks input from the community on all PRAPs. A public comment period has been set from February 23 to March 24, 2000, to provide an opportunity for public participation in the remedy selection process for this site. A public meeting is scheduled for **March 9, 2000**, at the **West Hollow Middle School,** Old East Neck Road, Melville, beginning at **7:00 PM.**

At the meeting, the results of the RI/FS will be presented along with a summary of the proposed remedy. After the presentation, a question-and-answer period will be held, during which you can submit verbal or written comments on the PRAP.

The NYSDEC may modify the preferred alternative or select another of the alternatives presented in this PRAP, based on new information or public comments. Therefore, the public is encouraged to review and comment on all of the alternatives identified here.

Comments will be summarized and responses provided in the Responsiveness Summary section of the Record of Decision. The Record of Decision is the NYSDEC's final selection of the remedy for this site. Written comments may be sent to Mr. Foster at the above address through March 23, 2000.

SECTION 2: SITE LOCATION AND DESCRIPTION

The IW Industries site, number 1-52-102, is located in an industrial park in the Town of Huntington, Suffolk County, New York. It is approximately 1800 feet southeast of Exit 49 of the Long Island Expressway. (See Figure 1.)

The site consists of approximately six acres and includes a one- and two-story manufacturing and office building which covers 100,000 square feet (approximately one-third) of the site. (See Figure 2.) The site has been occupied by this facility since it was built in 1966.

The industrial park is located in an industrialized area of Long Island. There are a number of listed hazardous waste sites in the vicinity of I.W.

Industries, including the adjacent property to the west. (See Figure 1.)

One characteristic of industrial and commercial buildings in this area of Long Island is the disposal of surface water runoff from roofs and parking lots, as well as sanitary waste water by introduction into leaching pools. These subsurface pools are constructed of concrete rings typically eight to ten feet in diameter and four to six feet high, stacked atop one another in holes excavated into the ground. The leach pools are constructed with an open bottom and holes on the sides, which serve as access points for the water to infiltrate into the ground. Their function is to allow storm water and sanitary wastewater to discharge to the ground and infiltrate downward to recharge the aquifers.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

IW Industries manufactures and distributes threaded metal parts for the electrical lighting, plumbing, and plumbing fixture trades. It has operated on the site since the present facility was constructed in 1966. In August 1980, discharges from parts washing operations (i.e., cutting oils and degreasing solvents along with wash water) were observed discharging to several on-site leaching pools. From these pools they apparently migrated downward into the ground, reaching the water table. No on-site discharges of wastewater have been reported since 1984.

3.2: Remedial History

According to a Preliminary Remedial Investigation Report submitted by I.W. Industries, the first remedial activities at the site resulted from an inspection by the Suffolk County Department of Health Services (SCDHS) in August 1980. The inspection revealed that discharges from metal parts washing operations were entering on-site leaching pools identified as LP-1 and LP-2 on plans and drawings. This alleged practice resulted in the signing of an order on consent between I.W. Industries and the SCDHS (# IW82-5) on November 5, 1982. The order on consent called for cleaning the contaminated leaching pools.

An inspection on January 4, 1983, indicated that all floating oil had been removed from the pools as required by the order. Two groundwater monitoring wells were also installed as part of the work resulting from this order. Around this time an ultrafiltration unit was installed in an effort to reduce discharge concentrations from the parts washing machine. However, an inspection on February 27, 1984 indicated that leach pools again contained oil, and the PRP retained the services of an environmental management firm to again clean the pools.

The preliminary actions taken in 1983 and 1984 by I.W. Industries were immediate responses to situations revealed by the SCDHS investigations. (See Section 4.2 below.)

Between 1984 and 1991 three additional groundwater monitoring wells were installed at the site. In 1993 two more wells were installed, and a previously unknown well was discovered on the site, bringing the total number to eight. At this time a Geoprobe ® soil investigation was performed by driving specially designed hollow rods into the ground and obtaining samples of soil and groundwater. The rods were driven to depths of up to 41 feet, at 24 locations on the site.

Chemical analysis was performed on collected soils and additional groundwater samples. The analytical results indicated the presence of volatile and semi-volatile organic compounds, high levels of tentatively identified hydrocarbon compounds, as well as elevated values of certain metals.

SECTION 4: SITE CONTAMINATION

To evaluate the contamination present at the site and to identify alternatives to address the

significant threat to human health and the environment posed by the presence of hazardous waste, I.W. Industries conducted a Remedial Investigation/Feasibility Study (RI/FS).

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 consisted of consolidating and analyzing the investigation work and chemical analyses that were performed between 1981 and 1994; the second phase was carried out between 1994 and 1998. Reports entitled Preliminary Remedial Investigation Report and Focused Remedial Investigation Report were issued in 1994 and 1997, respectively. A Final Focused Remedial Investigation Report, which describes the field activities and findings of the RI in detail, was issued by I.W. Industries in January 1999.

The Preliminary RI included the following activities:

- sampling and analysis of solids from on site leaching pools;
- collection and analysis of deep soil samples; and
- installation of groundwater monitoring wells, and sampling and analysis of groundwater.

To determine which media (soil, groundwater, etc.) are contaminated at levels of concern, the RI analytical data were compared to environmental Standards, Criteria, and Guidance values (SCGs). Groundwater, drinking water and surface water SCGs identified for the I.W. Industries site are based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part 5 of New York State Sanitary Code.

The media of concern for the site are groundwater, soil, and leach pool sediments. Since leach pool "sediments" are not true sediments (they are not associated with surface waters that could present exposures to fish and wildlife), they have been treated in the investigations as a special class of "soils." Throughout the RI and FS reports reference is made to "leach pool sediments." In order to clarify the distinction between soils in the leach pools and other site soils, leach pool soils will be referred to throughout this report as "source soils." Collectively, all other soils will be referred to simply as "soils."

For both soils and leach pool source soils, NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4046 has been used for cleanup guidelines for the protection of groundwater, regional background conditions, and health-based exposure scenarios. In addition, the SCDHS regulations for "Pumpout and Cleanup Criteria (12 - SOP #9-95) and the Town of Huntington Building Department code for Storm-water Facilities pertain. Under NYSDEC SCGs, site-specific background concentration levels can be considered for certain classes of contaminants in soils.

Based on the RI results, in comparison to the SCGs and potential public health and environmental exposure routes, certain media and areas of the site require remediation. These are summarized below. More complete information can be found in the RI reports.

Chemical concentrations are reported in parts per billion (ppb), and parts per million (ppm). For comparison purposes, where applicable, SCGs are provided for each medium.

The Focused RI included the following activities:

- additional sampling and analysis of shallow soils;
- sampling and analysis of deep soils;

- installation of additional monitoring wells and groundwater sampling and analysis; and

- additional leach pool source soil sampling and analysis.

4.1.1: Site Geology and Hydrogeology

The site is located on sand and gravel outwash plains of central Long Island, New York, approximately 120 feet above sea level. The surface soil is sandy loam classified as belonging to the Riverhead and Haven soil unit. The near surface unconsolidated deposits were formed at the end of the last ice age, as the melt water from retreating glaciers deposited gravels and sands in spillways channelized between the West Hills to the east and the Half Hollow Hills to the west.

In vertical cross-section, the following sequence of surficial geologic deposits overlies the crystalline bedrock of Precambrian (very ancient) age. The bottom most units are Cretaceous in age, dating from late in the time of dinosaurs, and are much older than the overlying glacial deposits. The Cretaceous units include the Lloyd Sand Member of the Raritan formation, consisting of sands and gravels with occasional clay lenses; the Raritan Clay member of the Rartian formation, which generally acts as a partial confining layer by restricting vertical groundwater movement; and the Magothy formation, consisting of gray and white fine-grained sand, with interbedded layers of clayey sand, silty sand, and clay. (These units are listed in geological order, from deepest to most shallow.)

The uppermost geological unit is known as the Pleistocene Glacial deposits, which are Quarternary (much younger) in age. These deposits consist of stratified sand and gravel deposits and were formed during and following the most recent ice age. This unit is approximately 50 feet thick, and extends upward to the surface at the site.

There are three primary aquifers (productive water bearing units) beneath the site. The deepest one is the Lloyd Aquifer which is associated with the Lloyd sands; the intermediate one is the Magothy Aquifer, which is associated with the Magothy formation and is estimated to be over 500 feet thick. The most shallow one is the Upper Glacial Aquifer, which is associated with the Pleistocene Glacial deposits. Most of its thickness is above the water table. It has a saturated thickness of less than 10 feet beneath the site, which is to say that only 10 feet of its 50 foot thickness lie below the groundwater table.

The three aquifers are not isolated hydraulically; however, clay layers between the units locally serve to retard groundwater flow between the aquifers.

The groundwater flow direction in the Upper Glacial Aquifer beneath the site is south-southeast. The rate of flow of groundwater is controlled by two factors: the permeability of the aquifer material and the gradient (steepness) within the aquifer. In the case of the Upper Glacial Aquifer, the permeability of the aquifer material is relatively high, but the gradient is very low.

4.1.2: Nature of Contamination

As described in the RI report, samples of leaching pool soils, groundwater, and soil were collected to characterize the nature and extent of contamination. The main categories of contaminants which exceed their SCGs are inorganics (metals), volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs).

A total of fourteen metals and eighteen organic compounds have been detected on-site to date. The complete list can be found in Table 1. The total number of contaminants includes those believed to be migrating onto the site from adjoining properties, which are being addressed under separate remedial efforts. The chlorinated

Table 1
Nature and Extent of Contamination[1]

MEDIUM	CATEGORY	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of EXCEEDING SCGs	SCG/ Bkgd. (ppb)
Groundwater	Volatile Organic Compounds (VOCs)*	1,2-dichloroethene	ND - 55	2 of 8 samples	5
		trichloroethene	ND - 16	2 of 8	5
		chlorobenzene	ND-41	2 of 8	5
		tetrachloroethene	ND - 29	2 of 8	5
Groundwater	Inorganic Compounds (metals, **in ppb**)	Chromium	0.87 - 677	1 of 8	50
		Iron	85.1 - 232,000	6 of 8	300
		Lead	ND - 91.4	3 of 8	25
		Manganese	107 - 2150	5 of 8	300
		Iron & Manganese	401 - 234,150	7 of 8	500
Soils	Tentatively Identified Semi-Volatile Organic Compounds	Unknown Alkanes	ND - 51,600	1 of 12	50,000
Soils	Inorganic Compounds (metals, **in ppm**)	Iron	1,530 - 5,180	9 of 12	2,000
Leach Pool Source soils	Volatile Organic Compounds (VOCs)	Xylene	ND - 3,500	2 of 26	1,200
		Toluene	ND - 71,000	2 of 26	1,500
		Total VOCs	1 - 382,240	4 of 26	10,000

*There is evidence of an off-site source for the VOCs in groundwater.

[1]This table is based on the complete round of sampling presented in the FS.

MEDIUM	CATEGORY	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	SAMPLES EXCEEDING SCGs	SCG/ Bkgd. (ppb)
Leach Pool Source soils	Semi-Volatile Organic Compounds (SVOCs)	Fluoranthene	ND - 470,000	7 of 26 samples	50,000
		Phenanthrene	ND - 350,000	4 of 26	50,000
		Phenol	ND - 8,700	4 of 26	30
		Dibenzofuran	ND - 23,000	3 of 26	6,200
		Pyrene	ND - 300,000	6 of 26	50,000
		Benzo(a)anthracene	ND - 130,000	15 of 26	224
		Chrysene	ND - 240,000	15 of 26	400
		Benzo(b)fluoranthene	ND - 110,000	15 of 26	224
		Benzo(k)fluoranthene	ND - 120,000	15 of 26	224
		Benzo(a)pyrene	ND - 100,000	15 of 26	61
		Indeno(1,2,3)	ND - 66,000	11 of 26	3,200
		Total SVOCs	ND - 4,593,700	7 of 26	500,000
Leach Pool Source soils	Inorganic Compounds (metals, **in ppm**)	Arsenic	ND - 22.9	4 of 26	7.5
		Cadmium	ND - 74.5	2 of 26	10
		Chromium	3.2 - 1,990	2 of 26	50
		Copper	53.3 - 179,000	26 of 26	25
		Iron	1,180 - 115,000	22 of 26	2,000
		Lead	24.2 - 7,200	14 of 26	500
		Mercury	ND - 4.8	6 of 26	0.1
		Nickel	1.4 - 114	12 of 26	13
		Zinc	31.1 - 96,500	26 of 26	20

volatile organic contaminants (VOCs) 1,2-dichloroethene, trichloroethene (TCE), chlorobenzene, tetrachloroethene (PCE) have been shown to be originating from an adjacent off-site source (the 25 Melville Park site), and are subject to a separate remedial action.

The VOCs of concern for the I.W. Industries site are xylene, toluene, and total Volatile Organic Compounds (the sum of the xylene, toluene, plus other tentatively identified compounds). The semi-volatile organic contaminants (SVOCs) of concern are the carcinogenic SVOCs benzo(a)anthracene, chrysene, benzo(b)-fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3)perylene the non-carcinogenic SVOCs fluoranthene, phenanthrene, phenol, dibenzofuran, pyrene, total SVOCs, and unspecified alkanes. The inorganic contaminants of concern are arsenic, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel and zinc. (See Table 1.)

4.1.3: Extent of Contamination

The following media have been identified as areas of concern: wastewater-contaminated leach pool source soils; other soils, and groundwater. Indications are that the soil and groundwater contamination originated as contamination associated with past wastewater disposal practices and subsequently contaminated leach pool source soils.

Figure 3, taken from the FS, shows the extent of soil contamination as determined from data in the RI reports.

Table 1 summarizes the extent of contamination for the contaminants of concern in soils, leach pool source soils and groundwater, and compares the data with the SCGs for the site. The following are the media which were investigated and a summary of the findings of the investigation.

Leach Pool Source Soils

Oil and an oily emulsion were found in several leaching pools at various times from 1982 through 1987. I.W. Industries undertook activities to remove contaminated liquids and soil from the leach pools (see Section 4.2, Interim Remedial Measures, below).

Leach pool source soils contain high levels of a variety of SVOCs (e.g., *fluoranthene* up to 470 ppm, vs. an SCG of 50 ppm, *chrysene* up to 240 ppm vs. 0.4 ppm). Also of concern are several metals, notably lead (up to 7,200 ppm vs. an SCG of 500 ppm), mercury (up to 4.8 ppm vs. 0.1 ppm), and zinc (up to 96,500 ppm vs. 20 ppm).

The leach pool source soils also contain VOCs including toluene (up to 71 ppm vs. the soil SCG of 1.5 ppm) and a variety of chemicals associated with the cutting oils used at the facility. The site has 29 numbered leach pools. Twenty of these pools (listed under Alternative 2) contain contamination at levels considered to be significantly above the cleanup goals. Deep soils near the water table also contain contaminants but not at levels of significant concern. Another six pools (listed in alternative 3) contain contaminants marginally above cleanup goals (see Table 3).

Groundwater

Groundwater from several monitoring wells on site contained elevated levels of VOCs, SVOCs and/or metals. Some of this contamination appears to be migrating onto the site from an adjacent listed inactive hazardous waste site.

Data indicate that chlorinated VOCs (e.g., PCE) are migrating at low levels onto the site from the site to the west. Cutting oils from site operations have been found floating on the water table (Figure 3A) in MW-7 (0.4 feet)and MW-2 (0.03 feet) and oil was also detected in a hydropunch sample near the site boundary (DH-3). Site activities have contaminated groundwater with metals, notably lead (up to 91.4 ppb vs. the SCG of 25 ppb) and iron and manganese (up to 234,150 ppb vs. 500 ppb). Chromium was also detected in a groundwater sample from hydropunch sample DH-3 (at 677 ppb vs SCG of 100). Except for

Table 3

Contaminant Concentrations in Leach Pools with No Action Proposed

Contaminant	Minimum	Maximum	Average	SCG	#That Exceed SCG
Metals (ppm)					
Arsenic	0.64	11.2	3	7.5	1
Cadmium	0.04	0.84	0.37	10	0
Chromium	3.2	10.5	6.1	50	0
Copper	53.3	239	113	25	6
Iron	1180	8810	3697	2000	4
Lead	56.1	760	263	500	1
Mercury	ND	0.11	0.04	0.1	1
Nickel	0.95	7.8	4.3	13	0
Zinc	31.1	220	120	20	6
VOCs (ppb)					
Xylene	ND	7	7.0	1200	0
Toluene	ND	180	43	1500	0
Total VOCs	ND	3488	1384	10000	0
SVOCs (ppb)					
Fluoranthene	ND	5500	1293	50000	0
Phenanthrene	ND	1800	548	50000	0
Phenol	ND	230	43	30	1
Dibenzofuran	ND	50	50	6200	0
Pyrene	ND	2900	920	50000	0
Benzo(a)anthracene	ND	1300	393	224	2
Chrysene	ND	3800	912	400	2
Benzo(b)fluoranthene	ND	1900	367	224	2

isolated zones associated with individual leach pools, the extent of the plume from on-site disposal appears to be limited to the area between LP-3 and MW-3. (See Figure 3B.) This is also the area where the chlorinated VOC plume encroaches from off-site. The relatively small size of the on-site plume is likely due to the low mobility of the site contaminants and the low hydraulic gradient at the site.

Soil

An area of impacted soil (around and below the leach pool source soils) is present in the vicinity of LP-1 and LP-2. The contamination is present at depth, in the vicinity of the water table surface; it was not present in shallow samples. The contamination includes primarily SVOCs that are associated with the cutting oils.

4.2: Interim Remedial Measures

An Interim Remedial Measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before completion of the RI/FS.

As mentioned under Section 3.2 Remedial History above, several actions were taken subsequent to site identification and prior to completion of the FS. The preliminary actions taken by I.W. Industries in 1983 and 1984 consisted of cleaning and removing soil, oil, and a mixture of oil and water from those leach pools that the SCDHS found to be contaminated. Under the supervision of Suffolk County, 7,000 gallons of accumulated oils was removed from leach pools in 1982, and an additional 8,700 gallons of liquids and 8 cubic yards of leach pool source soils were removed in 1984.

These actions removed significant quantities of contaminants, but were not successful in remediating the full extent of the contamination problems at the site. Apparently, episodes of re-contamination of the leach pools took place. Current operations are regulated by the State Pollution Discharge Elimination System, and new washing technology is now employed at the site to minimize or eliminate the likelihood of future spills to the leach pools.

Another cleanup action was undertaken in 1994, concurrently with the completion of the Preliminary Remedial Investigation. It consisted of installing a "product recovery device" in monitoring well MW-7 to recover oils that were found floating atop the water table. Its success was also reported to be limited due to the design of the device. In 1998, 0.4 feet of oil was measured in monitoring well MW-7 and 0.03 feet in MW-2.

4.3: Summary of Human Exposure Pathways:

This section summarizes the types of environmental exposures and ecological risks which may be presented by the site. An exposure pathway is the manner by which an individual may come in contact with a contaminant. The five elements of an exposure pathway are 1) the source of contamination; 2) the environmental media and transport mechanisms; 3) the point of exposure; 4) the route of exposure; and 5) the receptor population. These elements of an exposure pathway may be based on past, present, or future events.

There are no known completed pathways for human exposure that exist at the site today. However, there are several pathways which may possibly be completed in the future. These include:

- ingestion as a result of releases to the sole source Long Island Aquifer system and subsequent use of contaminated water for potable supply;
- dermal contact, ingestion and inhalation as a result of on site construction activities which involve excavation in the vicinity of certain leach pits; and

- dermal contact, ingestion and inhalation if contaminated subsurface materials are redistributed to the surface following construction activities.

Contaminants released to the sole source aquifer could migrate and be extracted at off-site down-gradient locations for uses that could result in human exposure. A detailed water supply well survey is included in the RI. Data indicate that groundwater contamination from this site does not extend off-site at this time.

Contaminants are present beneath the surface and covered by asphalt, which prevents direct exposures. This scenario is likely to continue into the foreseeable future as the site use will remain industrial/commercial.

4.4: Summary of Environmental Exposure Pathways

This section summarizes the types of environmental exposures and ecological risks which may be presented by the site.

The Fish and Wildlife Impact Assessment included in the Focused RI presents a more detailed discussion of the potential impacts from the site to fish and wildlife resources. It concludes that there are no known pathways for environmental exposure and/or ecological risks at this time based on these considerations. No surface bodies of water or wetlands have been identified within three miles of the site in the down-gradient direction; the site and its surroundings are developed as industrial/commercial; and the contamination which is present is in the subsurface.

SECTION 5: ENFORCEMENT STATUS

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

The NYSDEC and the PRP, I.W. Industries, Incorporated entered into a Consent Order on March 31, 1995, which was modified on September 24, 1996, to complete an RI/FS.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. The overall remedial goal is to meet all Standards, Criteria and Guidance (SCGs) and be protective of human health and the environment. At a minimum, the remedy selected must eliminate or mitigate all significant threats to public health and/or 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:

(1) to eliminate to the extent practicable all threats to the Long Island Sole Source Aquifer that originate from this site by

- removing the remaining sources of metals, volatile and semi-volatile organic chemical, and oils contamination from the significantly impacted leach pools, and

- removing to the maximum extent practicable the layer of oil floating on the water table; and

(2) eliminating or minimizing the potential for on-site exposures to future site users, including construction workers, during any excavation work on the site by

- taking the above actions,

- requiring notification to the property owner through the institutional control of a deed notice identifying the nature of the

contamination, and

- restricting future land use at the site to industrial/commercial through the institutional control of a deed restriction.

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy must be protective of human health and the environment, be cost effective, comply with other statutory laws and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for the I.W. Industries, Incorporated site were identified, screened and evaluated in the Focused Feasibility Study.

To be successful, the selected remedy must address: (1) removing or controlling the sources of metals contamination; (2) removal or control of the sources of volatile and semi-volatile organic compounds originating from on-site; (3) removal or control of the subsurface pools of oils, since the oils act as solvents for the other compounds and can collect and release them to the groundwater over time; and (4) institution of appropriate notification and restrictive clauses in the property deed. A long term groundwater monitoring plan will be implemented to verify the effectiveness of items (1) through (3).

A summary of the detailed analysis follows. As presented below, the time to implement reflects only the time required to implement the remedy, and does not include the time required to design the remedy, procure contracts for design and construction or to negotiate with responsible parties for implementation of the remedy.

7.1: Description of Remedial Alternatives

The potential remedies are intended to address the contaminated groundwater, soils, and leach pool source soils at the site. Three alternatives were chosen for detailed analysis. These are (1) the "No Action"alternative, (2) removal of source soils from selected leaching pools, removal of free-phase product (oil) from the top of the water table, and groundwater monitoring, and (3) removal of source soils from all leaching pools, free-product removal, and long-term monitoring of groundwater.

Site-wide Alternative 1:

No action

Present Worth:	*$ 00*
Capital Cost:	*$ 00*
Annual O&M:	*$ 00*
Time to Implement	*none*

Alternative 1, the "No Action" alternative, provides a basis for comparison. Under this alternative there would be no remediation or monitoring at the site. Leaching pool source soils would remain in their present state, and it is assumed that contaminant concentrations in the source soils and groundwater would spread but gradually diminish over time. This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment.

Site-wide Alternative 2:

Removal of source soils from selected leaching pools, removal and off-site disposal of free-phase product (oil) from the top of the water table, and groundwater monitoring

Present Worth:	*$ 231,070*
Capital Cost:	*$ 165,400*
Lifetime O&M:	*$ 65,670*
Time to Implement	*2 - 3 years*
Period of Long-Term Monitoring	*15 years*

This alternative consists of three elements: (1) removing source soils from the bottom of the most contaminated leach pools, based on the sampling already conducted (that is, leach pools 3 through

15, 18, 22 through 24, 28, 29, and 31, an estimated quantity of 250 tons); (2) removal of the oil layer that is floating on top of the groundwater table under a portion of the site; and (3) monitoring of groundwater quality. Remediation would occur in phases during short plant shutdown periods. Oils collected from the water table will be disposed off-site in accordance with applicable rules for these wastes.

Site-wide Alternative 3:

Removal of source soils from nearly all leaching pools, removal and off-site disposal of free-phase product (oil) from the top of the water table, and groundwater monitoring

Present Worth:	*$ 1,330,070*
Capital Cost:	*$ 1,264,000*
Lifetime O&M:	*$ 65,670*
Time to Implement	*3 - 4 years*
Period of Long-Term Monitoring	*15 years*

This alternative contains the same three elements as Alternative 2, but with different levels of effort: (1) removing source soils from the bottom of all leach pools listed for Alternative 2 plus leach pools 1, 2, 20, 21, 26, and 27, an estimated quantity of 3,700 tons); (2) removal of the oil layer that is floating on top of the groundwater table under a portion of the site, and (3) monitoring of groundwater quality. Oils collected from the water table will be disposed off-site in accordance with applicable rules for these wastes.

A large portion of the additional costs for this alternative are associated with the additional quantities of source soils to be removed and with shoring of the deeper excavations. This alternative would also require at least an additional year to implement because the leach pools are beneath the parking lot of an operating manufacturing facility. Scheduling considerations are necessary to minimize disruptions to the PRP's normal conduct of business. Remediation would occur in phases during short plant shutdown periods.

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 included in the Feasibility Study.

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

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

The most significant SCGs for this site are soils standards (NYSDEC TAGM 4046), groundwater standards (NYCRR Part 703) and SCDHS Article 12 - SOP No. 9-95 "Pumpout and Soil Cleanup Criteria." Also applicable are the federal Underground Injection Control (UIC) requirements. The UIC requirements are equivalent to the application of NYSDEC TAGM 4046.

Alternative 1, the "No Action" alternative will not achieve soil or groundwater standards for metals either in the source area (leach pool source soils) or in the vicinity of the groundwater table. This alternative might eventually achieve cleanup standards for VOCs and SVOCs due to degradation by natural processes. However, no investigation has been made to identify which processes, if any, are occurring at this site or to support "natural attenuation" as a viable remediation strategy.

Alternative 3 would achieve SCGs for VOCs, SVOCs and metals in the leach pools (source

soils). Alternative 2 would substantially but not completely achieve SCGs in source soils. The result would be to reduce contaminants to levels where the potential for migration would be minimized. This would limit future migration to the water table and should eventually lead to groundwater meeting SCGs. Alternative 2 would leave behind contamination above SCGs in six leach pools (see Table 3). Although not in strict compliance, both Alternatives 2 and 3 would substantially meet local and UIC requirements for cleanup of the leach pool source soils.

VOCs and SVOCs in soils near the water table can be expected to dissolve slowly into the groundwater at low rates, eventually attenuating to environmentally acceptable levels. Metals in soils near the water table are not likely to be attenuated; however, with the exception of iron and zinc, which are not considered contaminants of concern, levels are consistently below SCGs. The other metals such as lead and zinc tend to become increasingly less mobile in the natural environment with time, and those such as chromium are present at low levels (10.5 ppm is the maximum value in the remaining leach pool source soils compared to an SCG of 50). In addition, metals generally are much less mobile than VOCs and SVOCs and dissolve only very slightly into groundwater.

2. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

Alternative 1 would meet this criterion only in the long-term, if at all. Alternatives 2 and 3 would be protective of human health with respect to worker exposure by removing contaminated material from the leach pools and by institutional controls. For deep soils there is not a direct pathway for human exposure. Although the potential exists for exposure through continued migration from deep soils to the groundwater resource, exposure via this pathway is considered remote in the foreseeable future and the rate of migration is expected to decrease with time. Alternatives 2 and 3 would provide protection of the environmental resource (sole source aquifer) over time. This would be verified with long term groundwater monitoring.

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

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

Potential short-term impacts are limited to remediation worker exposure during source soil and product removal, and exposure to plant employees and the general public from migration of dust during these activities. Remediation personnel would be protected throughout these activities through implementation of site-specific health and safety procedures. Plant employees and the general public would be protected through implementation of dust control methods along with a community air monitoring/contingency plan.

The length of time needed to achieve the remedial objectives is estimated to be one to two years or three to four years in the leach pool source soils for Alternatives 2 and 3, respectively, and longer in the groundwater of the aquifer. The longer time associated with Alternative 3 is due to the larger amount of source soils to be removed and the factor of plant scheduling (see discussion under "6. Implementability," below).

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on site after the selected remedy has been

implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the controls intended to limit the risk, and 3) the reliability of these controls.

Under Alternative 1 wastes and residuals would remain on site for an indeterminate but extended period of time. Under Alternatives 2 and 3 the most contaminated wastes and residuals (leach pool source soils) would be permanently removed upon implementation of the remedy. Contaminated soils near the water table would recover more slowly. Removal of floating product (oils) from the groundwater table surface would significantly reduce the time required for groundwater to achieve SCGs with respect to organic contaminants. While the magnitude of the remaining risks is greatly reduced over current risks, Alternatives 2 and 3 anticipate the need for additional institutional controls to limit the risk.

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.

The "No Action" alternative would not actively reduce contaminant concentrations currently present at the site. The only reductions in toxicity, mobility or volume of contamination would be as a result of unspecified natural degradation processes. Therefore it is not possible to predict the rate at which improvement would occur, and any protection to the sole source aquifer would occur gradually with time.

While neither alternative would reduce the toxicity of the contaminated leach pool source soils (because the quantities of these soils do not warrant the use of destruction technologies), the soils would be disposed of in a facility appropriate to the concentrations and toxicity of the contaminants. In terms of site cleanup, the remediation would be permanent.

Both Alternatives 2 and 3 would significantly and permanently reduce the volume of wastes at the site. Alternative 3 would eliminate a much larger total volume of contaminated materials (leach pool source soils) than Alternative 2; however the additional soils contain relatively low levels of contamination.

Both Alternatives 2 and 3 would significantly reduce mobility of contaminants at the site by reducing the rate at which contaminants migrate from shallow leach pool source soils to the groundwater table surface. Alternative 3, which would result in the removal of a larger quantity of contaminants, would result in a proportionately greater reduction in contaminant mobility.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated under this criterion. Technical feasibility includes the difficulties associated with the construction and the ability to monitor the effectiveness of the remedy. For administrative feasibility, the availability of the necessary personnel and material is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc.

All three Alternatives utilize conventional technologies and should encounter no difficulties with implementability. The administrative aspects of all alternatives are also implementable.
The issue of disruptions to the parking lot facilities at a working manufacturing facility necessitate phasing the work to conform with plant scheduling.

Both Alternatives 2 and 3 require disruptions to the parking facilities at this operating manufacturing facility. Because Alternative 2 can be carried out in a shorter time frame than Alternative 3, Alternative 2 is more implementable in terms of scheduling.

This final criterion is considered a modifying criterion and is taken into account after evaluating those above. It is evaluated after public comments on the Proposed Remedial Action Plan have been

received.

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

The costs for each alternative are presented in Table 2. As Table 2 makes clear, the cost of implementing Alternative 3 is considerably greater than Alternative 2, due to costs associated with the greater volume of source soil removal and deeper excavation (e.g., shoring of the excavations). Alternative 3 does not provide environmental and human health improvements proportionate to the additional costs.

8. **Community Acceptance** - This criterion evaluates concerns of the community regarding the RI/FS reports and the Proposed Remedial Action Plan. A "Responsiveness Summary" will be prepared that describes public comments received and the manner in which the Department will address the concerns raised. If the selected remedy 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 PROPOSED REMEDY

This selection is based on the evaluation of the three alternatives developed for the site. Based upon the results of the RI/FS, and the evaluation presented in Section 7, the NYSDEC is proposing Alternative 2 as the remedy for this site. Alternative 2 consists of removal of source soil from selected leaching pools, removal of free-phase product (oil) from the top of the water table, and groundwater monitoring.

While the "no action" alternative (Alternative 1) would not comply with the threshold criteria, Alternatives 2 and 3 would. In addition, both Alternatives 2 and 3 are similar with respect to the majority of the balancing criteria. The major difference between these alternatives is the number of leach pools to be cleaned of source soils, the quantities of source soil to be removed, and the costs associated with removal.

Alternative 2 would provide for the removal of the source materials from the leach pools, allowing a visual and analytical inspection to ensure that all of the soils containing VOCS in excess of the proposed remedial goals would be removed and properly disposed of. Alternative 3 would not contribute much more in terms of source removal or environmental improvement because it involves cleaning a number of leach pools where contamination is only marginally greater than the cleanup criteria. See Table 3 for a summary of contaminant levels in leach pools not slated for leach pool source soil removal.

The estimated present worth cost to implement the remedy is $231,070. The cost to construct the remedy is estimated to be $165,400. The estimated present worth cost for operations and maintenance is $89,700, and the present worth for operation, maintenance, and monitoring (OM&M) annualized over 15 years is $8,600.

The elements of the proposed 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. Any uncertainties identified during the RI/FS would be resolved.

2. A project to remove source soil from Leach Pools 3 through 15, 18, 22 through 24, 28, 29, and 31.

   To minimize disruptions at this

Table 2
Remedial Alternative Costs

Remedial Alternative	Capital Cost	OM&M Present Worth*	Total Present Worth
No Action	$0	$0	$0
Alternative 2	$165,400	$89,700	$255,100
Alternative 3	$1,264,000	$89,700	$1,353,700

*Because different elements of Operations and Maintenance (O&M) require different lengths of time to implement, annualized O&M cost figures are misleading. An annualized amount of the total present worth over 15 years would be $8,600.

manufacturing facility, remediation of leach pools would be accomplished primarily during plant shut down periods (i.e., during summer). Verification samples would be taken after each round of removal activities and compared with the cleanup goals in Table 1. The remediation work plan would contain procedures for taking additional samples and determining whether any remaining contamination is "marginal" or must be removed.

3. A project to remove free-phase product (oil) from the top of the water table by use of specially designed equipment (e.g., an in-well oil skimmer) to remove floating product. This will be focused in the area between MW-7 and MW-2 and will continue until all recoverable product has been removed. Current operations are regulated by the State Pollution Discharge Elimination System, and the PRP has taken steps to minimize the likelihood of future spills to the leach pools.

4. Since the remedy results in untreated hazardous waste remaining at the site, a long-term monitoring program would be designed and implemented to evaluate the success of the remediation on groundwater quality underlying the affected area of the site. The need for additional off-site monitoring wells will be evaluated during design of the monitoring program.

5. Institutional controls will also be required to reduce or eliminate future exposures to site workers and the general public. A deed notice will notify owners of the presence of residual contamination and a deed restriction will limit land use at the site to industrial and commercial uses consistent with the contamination remaining at the completion of active remediation.

DF/FILE

STATE OF NEW YORK
DEPARTMENT OF HEALTH

Flanigan Square, 547 River Street, Troy, New York 12180-2216

Antonia C. Novello, M.D., M.P.H.
Commissioner

Dennis P. Whalen
Executive Deputy Commissioner

February 17, 2000

Mr. Michael O'Toole, P.E., Director
Division of Hazardous Waste Remediation
NYS Dept. Of Environmental Conservation
50 Wolf Rd., Room 260B
Albany, NY 12233

RE: Proposed Remedial Action Plan
I.W. Industries, ID **#152102**
Melville, Suffolk County

Dear Mr. O'Toole:

My staff have reviewed the Proposed Remedial Action Plan (PRAP), the version completed on February 17, 2000, for the I.W. Industries site. Based on that review, I understand the Plan recommends the removal of contaminated leach pool source soils from 20 on-site leach pools, removal of free-phase product from the water table, and long-term groundwater monitoring. Additionally, a deed notice will be used to document the existence of residual contaminants and a deed restriction will be used to limit land use at the site to industrial and commercial uses.

Based on this information, I concur with the selected remedy and believe it will be protective of public health.

Sincerely,

G. Anders Carlson, Ph.D.
Director
Bureau of Environmental Exposure investigation

cc: Dr. N. Kim
Mr. S. Bates/Mr. W. Gilday/File
[redacted] DEC
Mr. W. Parish - DEC Region 1
Mr. S. Robbins - NCDOH

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