FINAL

REMEDIAL ACTION WORK PLAN

FOR

I.W. INDUSTRIES, INC.

35 MELVILLE PARK ROAD

MELVILLE, NEW YORK

NYSDEC REGISTRY # 1-52-102

FOR SUBMITTAL TO

THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

PREPARED BY

FPM group

(Formerly FANNING, PHILLIPS & MOLNAR)
909 MARCONI AVENUE
RONKONKOMA, NEW YORK 11779

JUNE, 2000

FINAL
REMEDIAL ACTION WORK PLAN

New York State Department of Environmental Conservation

Prepared for IW INDUSTRIES #1-52-102

☒ Approved ☐ Approved As Noted ☐ Resubmit With Revisions ☐ Disapproved

COMMISSIONER OF ENVIRONMENTAL CONSERVATION

Andrew O. English
Designated Representative

Date 6/29/00

Facility: I.W. Industries, Inc.
35 Melville Park Road
Melville, NY 11747
NYSDEC Registry # 1-52-62

FPM File No: 362-00-18

I hereby certify that this Remedial Action Work Plan was prepared in conformance with the associated Order on Consent.

STATE OF NEW YORK
JOHN JORGEN TACETTA
NO. 077550
LICENSED PROFESSIONAL ENGINEER

John Tacetta
New York State Professional Engineer 077550

Signature 6/26/00

"It is a violation of Article 130 of the New York State Education Law for any person to alter this document in any way without the express written verification or adoption by a New York State licensed land surveyor or engineer in accordance with Section 7209(2), Article 130, New York State Education Law."

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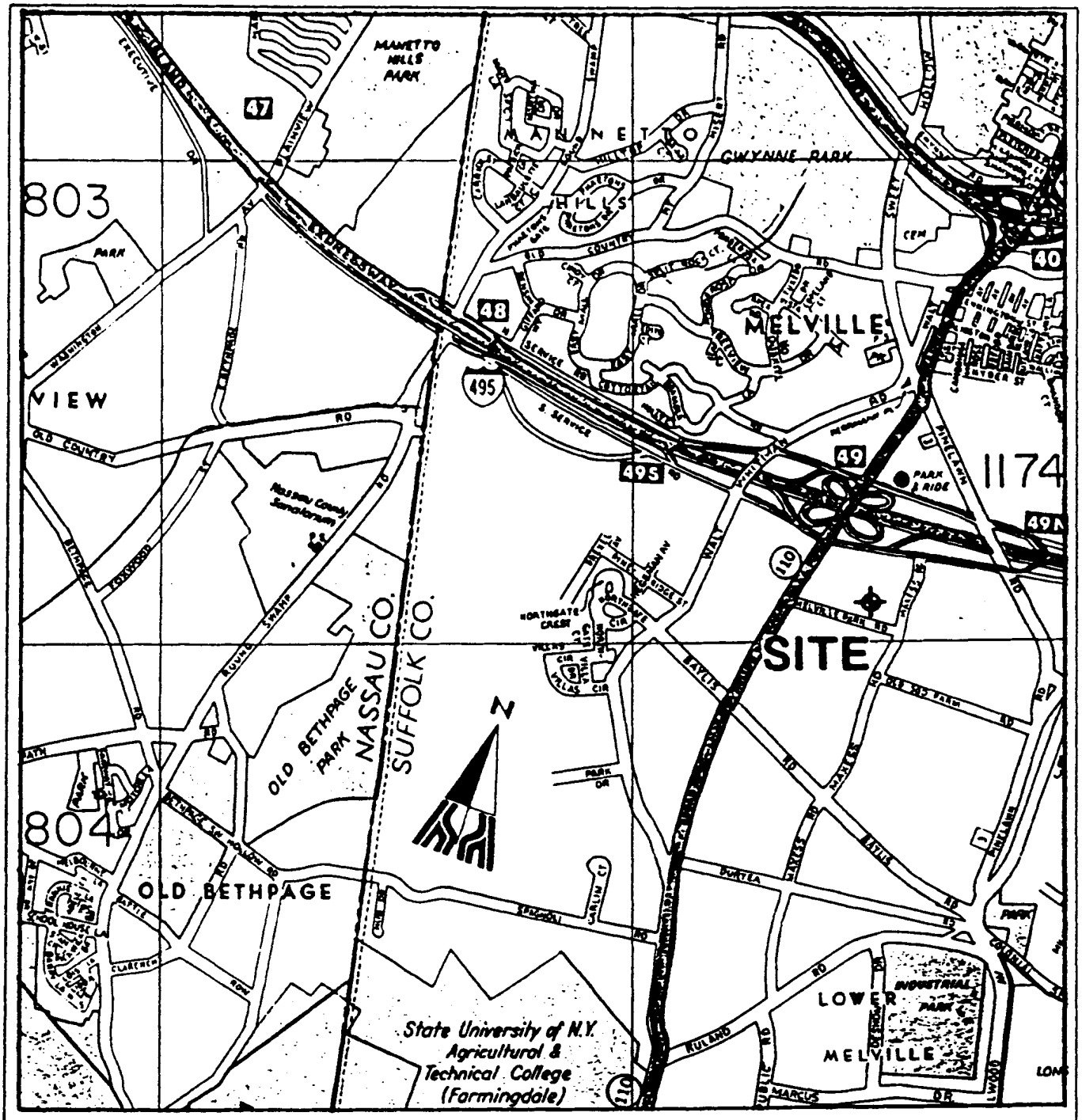
SECTION 1.0
INTRODUCTION

1.1 Remedial Action Work Plan Purpose and Organization of the Report

This Remedial Action (RA) work plan has been prepared by FPM Group (FPM) for the I.W. Industries, Inc. (IWI) Inactive Hazardous Waste Disposal Site (NYSDEC Registry # 1-52-102) located at 35 Melville Park Road, Melville, New York (Site). The Site location is shown in Figure 1.1.1. The Site was placed on the New York State Department of Environmental Conservation (NYSDEC) Registry of Inactive Hazardous Waste Disposal Sites (IHWDS) as a Class 2 site. Between 1982 and 1994, IWI performed several soil, groundwater, and leaching pool investigations at the Site. A Focussed Remedial Investigation (RI) was performed in 1997 and 1998 to obtain data to augment the existing Site information for the purpose of characterizing the nature and extent of potential contamination at the Site. The Focussed RI was completed in January, 1999 and a Focussed Feasibility Study (FS) was completed in February, 1999. The Focussed FS identified several remedial alternatives for the Site and a preferred remedial alternative was identified. Subsequently a Proposed Remedial Action Plan (PRAP) was prepared by the NYSDEC in February, 2000. Following the public comment period for the PRAP, a Record of Decision (ROD) was recorded on March 30, 2000.

The purpose of this RA work plan is to document the procedures which will be used to implement the remedial measures identified in the ROD. This RA work plan provides IWI and the NYSDEC with sufficient procedural information to guide the execution of the selected remedial alternatives.

This RA work plan includes five sections. Section 1.0, Introduction, provides site background information and a summary of the nature and extent of contamination. Section 2.0, Selected Remedy, provides an overview of the selected remedy elements and detailed procedures for their implementation. Section 3.0 provides quality assurance/quality control (QA/QC) procedures to be utilized in the



Fanning, Phillips & Molnar Engineers		
FIGURE 1.1.1 SITE LOCATION IWI INDUSTRIES, INC. MELVILLE, NEWYORK		
Drawn By: JDS	Checked By: PP	Date: 9-8-94

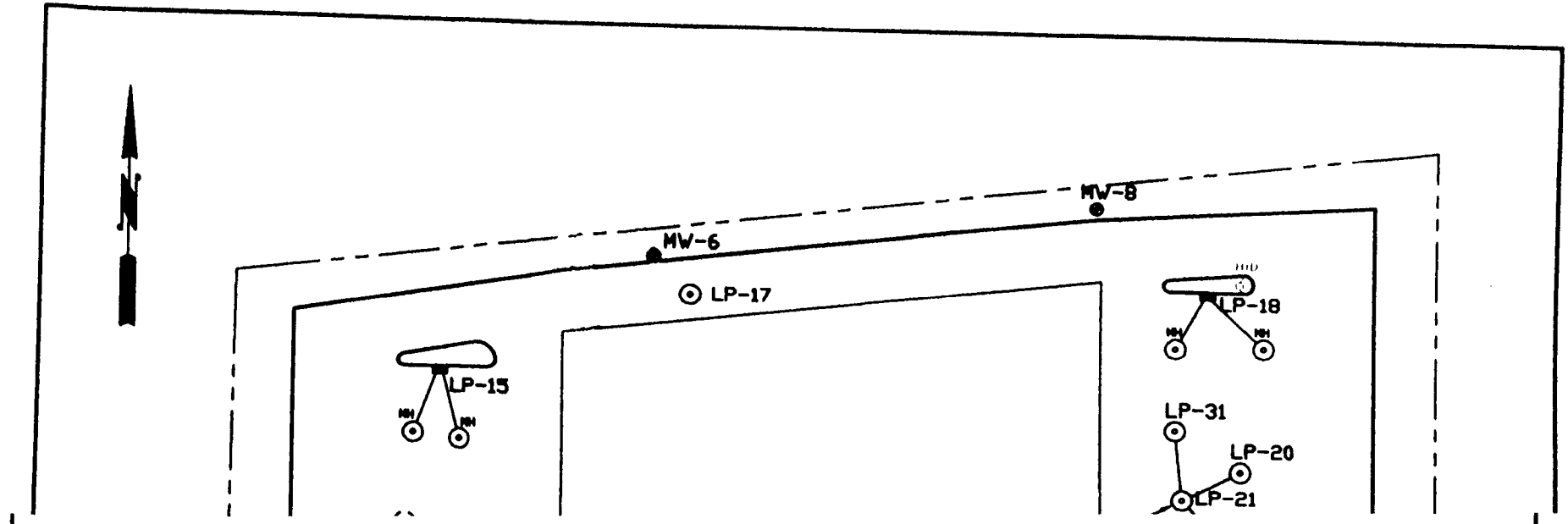
performance of the remedy. Section 4.0 provides the health and safety plans to be utilized during the implementation of remediation. Section 5.0 includes the references utilized in the RA work plan.

1.2 Site Setting

The Site consists of approximately six acres and includes one 100,000-square-foot, one- to two-story building. A Site plan showing the locations of existing subsurface drainage structures, groundwater monitoring wells, soil borings, and storage tanks is presented in Figure 1.2.1. The surface grade at the Site is generally flat and the majority of the Site is paved or covered by the Site building; therefore, surface water runoff is captured by on-Site stormwater leaching pools.

The Site geology was described in detail in the Focussed RI Report (FPM, January, 1999). The geologic units of concern at the Site include the Cretaceous Magothy Formation and the upper Pleistocene Glacial Deposits. The Upper Glacial Deposits are approximately 55 to 57 feet thick beneath the Site and are delineated at their base by light brown to orange brown silty clay with muscovite mica which is interpreted as the top of the Magothy Formation. The Magothy Formation consists of light brown fine- to medium-grained sand with muscovite mica. The sand generally becomes lighter in color and finer-grained downward. No field indications of contamination were noted in any of Magothy Formation materials during the RI.

There are two primary aquifers beneath the Site. The shallower aquifer is the Upper Glacial (water table) Aquifer which, based on the results of the RI, has a saturated thickness of less than 10 feet beneath the Site. It is associated with the upper Pleistocene Glacial Deposits. The deeper aquifer is the Magothy Aquifer, which underlies the Upper Glacial Aquifer. It is estimated to be over 500 feet thick in the Site area (USGS, 1964) and is associated with the Magothy Formation.



LEGEND:

MW-11 MONITORING WELL LOCATION

DH-1 / GP-1 SOIL BORING LOCATION

LP-1 / LP-27 LEACHING POOL LOCATION WITH MANHOLE

( ) LEACHING POOL LOCATION WITH SUBGRADE ACCESS

Fanning, Phillips & Molnar
Engineers

FIGURE 1.2.1
SITE PLAN
35 MELVILLE PARK ROAD
MELVILLE, NEW YORK

Drawn By:JDS	Checked By:SOD	Date: 8/18/97

The water table is present approximately 50 feet below grade and the groundwater flow direction is generally to the south with a gradient of 0.0008 to 0.0009. The Site-specific hydraulic conductivity of the Upper Glacial Aquifer ranges from 122 to 368 feet per day.

1.3 Site History

IWI has occupied the Site since it was developed in approximately 1966 and has always conducted operations similar to those which occur at present. Threaded metal parts are manufactured at the IWI facility. Brass rods, composed of roughly a 60/40 mixture of copper and zinc with an approximate lead content of 2.5 percent (known as "Alloy 360"), are fed into screw machines which are used to mill the metal parts. The manufacturing process produces scrap brass. Lubrication and cutting oils are used within the screw machines and both the threaded products and the scrap material are coated with oil as a result of the manufacturing process. Some threaded parts are washed in machines and the oil removed from the parts is skimmed from the washwater and stored in an outdoor above-ground storage tank (AST). This oil is removed from the Site as non-hazardous used oil. A portion of the washwater is recycled following oil separation while the remainder is either evaporated or disposed of off-Site. Prior to approximately 1984, the wastewater from an older parts washing machine was discharged to two SPDES leaching pools (SPDES #003 and #004) which are referred to in this report as LP-1 and LP-2, respectively. No discharges of wastewater are reported to have occurred since approximately 1984.

Oil is also separated from the scrap metal by centrifuging. The centrifuged scrap metal is collected and trucked from the Site for recycling. The recovered oil is filtered and then pumped to a series of ceiling-mounted storage tanks for reuse. Two 6,000-gallon double-walled fiberglass underground storage tanks (USTs) exist to the west of the building. One is used to store recycled oil and the other (northernmost) stores either recycled oil or virgin make-up oil to be used in the manufacturing process.

In August, 1980, discharges were noted to be occurring from the metal parts washing operation to on-Site leaching pools and in 1982 oil and/or oil emulsion were noted to be present in several leaching pools. Leaching pool LP-3 was remediated under the supervision of the Suffolk County Department of Health Services (SCDHS). Floating oil was removed from the leaching pools in January, 1983. In 1984, the SCDHS reported that the SPDES outfalls contained oil. The SPDES outfalls were subsequently remediated by pumping out the liquids, pressure-washing the leaching pool walls, and removing impacted sediments. Oil was noted in several leaching pools in 1997 during the performance of the RI. This oil was also removed from the leaching pools and disposed offsite.

In 1993, floating oil was detected on one occasion at two of the on-Site monitoring wells. A soil investigation was also performed in the vicinity of several of the leaching pools. Organic compounds were detected in one soil sample. In 1994, additional monitoring wells were installed and floating oil was detected in one monitoring well. A product recovery device placed in this well recovered a minimal amount of floating oil. Floating oil was noted in 1997 in two Site wells during the performance of the RI.

1.4 History of Investigations

Chemicals and metals have been detected in the discharges from IWI to the seven leaching pools at the southwest corner of the Site and one leaching pool on the east side of the Site. Oil was found during the 1980s in leaching pools LP-1 through LP-7 on the west side of the building and LP-9 on the east side of the building. This oil is believed to be cutting oil used in Site processes which, prior to approximately 1984, was discharged along with wastewater to on-Site leaching pools. The Site leaching pools were sampled during the RI and metals, volatile organic compounds (VOCs), and/or semivolatile organic compounds (SVOCs) were detected at concentrations exceeding the NYSDEC Recommended Soil Cleanup Objectives (Objectives). The chemical analytical data for the leaching pool samples are discussed in more detail in Section 1.5 of this work plan.

In November and December, 1993, an investigation was performed primarily to evaluate the soil in the southwest corner of the property. The results showed that the area of concern for the soil appears to be the vicinity of LP-1 and LP-2. Additional soil samples were collected and analyzed during the RI. The data from these samples indicates that while visual and olfactory indications of soil contamination are present in samples from the vicinity of leaching pools LP-1 and LP-2, in general, metals, VOCs or SVOCs were not detected at elevated concentrations in these soils. The data from these investigations will be discussed more fully in Section 1.6 of this work plan.

Groundwater monitoring wells were installed at the Site during several investigations. The locations of the wells are shown on Figure 1.2.1. The groundwater monitoring wells were sampled on ten occasions since 1983. Summaries of the groundwater chemical analytical results obtained prior to the RI were presented in Tables 4.3.1 through 4.3.9 of the RI Work Plan (FPM, May, 1997). The groundwater chemical analytical data obtained during the RI were presented in the Focussed RI Report (FPM, January, 1999). The results of the groundwater analyses indicated that concentrations of VOCs and metals are present in the Site groundwater. The groundwater chemical analytical results are discussed in more detail in Section 1.7 of this work plan.

1.5 Summary of Leaching Pool Contamination

Soil samples were collected from most of the on-Site leaching pools in 1997 during the RI. Soil that appeared to be impacted based on visual observations or photoionization detector (PID) readings was encountered in most of the leaching pools. In general, the leaching pool soils were described as dark gray to black sand with gravel and exhibited a petroleum odor. Soil samples were collected for chemical analysis from each of the visibly-impacted leaching pools. Floating product was found in leaching pools LP-4, LP-5, LP-6, LP-20, LP-22, and LP-31. No significant evidence of soil contamination was noted

in leaching pools LP-17, LP-25, or LP-30, and, therefore, these leaching pools were not sampled in 1997.

The chemical analytical results for the leaching pool soils obtained at the Site from the RI are presented in Tables 1.5.1 and 1.5.2. The laboratory reports for the RI were presented in Appendix C of the RI Report (FPM, January, 1999).

Target Compound List (TCL) VOCs were detected in all of the leaching pool soil samples. The VOCs that exhibited exceedances of the NYSDEC Recommended Soil Cleanup Objectives (Objectives) include toluene (LP-14 and LP-28) and total xylene (LP-14 and LP-29). The total VOCs concentration exceeded its Objective at LP-6, LP-14, LP-28 and LP-29.

TCL SVOCs were detected in all of the leaching pool soil samples except for LP-1. Exceedances of the NYSDEC Objectives were noted for phenol (LP-2, LP-3, LP-12, and LP-28), 4-methylphenol (LP-14 and LP-28), various polynuclear aromatic hydrocarbons (PAHs) at LP-3, LP-5 through LP-13, LP-15, LP-18, LP-20, LP-23, LP-24, LP-26, and LP-27, and dibenzofuran (LP-4, LP-5, and LP-15). The total carcinogenic SVOCs concentration exceeded its NYSDEC Objective at LP-3, LP-5 through LP-13, LP-15, LP-18, LP-23, and LP-24. The total non-carcinogenic SVOCs concentration exceeded its NYSDEC Objective at LP-5, LP-12, LP-14, LP-23, LP-24, LP-28, and LP-29.

Target Analyte List (TAL) metals were detected in all of the leaching pool soil samples. Exceedances of the NYSDEC Objectives were noted for arsenic (LP-10, LP-11, LP-26, and LP-29), barium (LP-29), beryllium (LP-3, LP-8, LP-10, LP-12, LP-13, LP-15, LP-23, LP-24, LP-26, and LP-29), cadmium (LP-3 and LP-29), chromium (LP-11 and LP-29), cobalt (LP-29), copper (all LP samples), iron (all LP samples except LP-1, LP-2, LP-14, and LP-28), lead (all LP samples except LP-1, LP-2, LP-5, LP-8, LP-9, LP-18, LP-20, LP-23, LP-24, and LP-26 through LP-28), mercury (LP-4, LP-10,

TABLE 1.5.1
LEACHING POOL SEDIMENT SAMPLES
ORGANIC PARAMETERS DATA
I. W. INDUSTRIES, MELVILLE, NEW YORK

Boring No.	LP-1	LP-2	LP-3	LP-4	LP-5	LP-6	LP-7	LP-8	LP-9	LP-10	LP-11	LP-12	NYSDEC Cleanup Objectives
Sampling Date	7/2/97	7/2/97	7/2/97	7/2/97	7/2/97	7/2/97	7/2/97	7/10/97	7/2/97	7/10/97	7/8/97	7/8/97	
Volatile Organic Compounds in ug/kg													
Chloromethane	ND	ND	2 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
Carbon disulfide	ND	ND	7 J	4 J	ND	ND	8 J	2 J	ND	8 J	4 J	10 J	2,700
4-Methyl-2-pentanone	ND	ND	6 J	ND	ND	ND	ND	4 J	ND	6 J	ND	12 J	1,000
Xylene (total)	ND	17 JB	6 JB	ND	ND	91	ND	ND	ND	ND	12 J	ND	1,200
Ethylbenzene	ND	ND	ND	ND	ND	22 J	ND	ND	ND	ND	3 J	ND	5,500
2-Butanone	ND	ND	ND	ND	ND	ND	ND	5 J	ND	28	21	40 J	300
Toluene	ND	ND	ND	ND	250	ND	ND	32 J	ND	16 J	80 J	74	1,500
Tetrachloroethene	2 J	3 J	3 J	2 J	4 J	ND	ND	3 J	2 J	27	7 J	28 J	1,400
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	8 J	ND	ND	1,700
Tentatively Identified Volatile Organic Compounds in ug/kg													
Dimethyl sulfide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
Unknown acid	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	91 J	-
Hexane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
Unknowns	327 J	260 J	515 J	9 J	210 J	520 J	720 J	ND	14 J	ND	254 J	97 J	-
Unknown alkene	ND	ND	ND	ND	ND	ND	ND	14 J	ND	ND	ND	ND	-
Unknown alkane	ND	ND	ND	ND	ND	ND	ND	ND	ND	405	ND	ND	-
Unknown hydrocarbons	2,070 J	3,208 J	1,721 J	230 J	3,061 J	13,660 J	8,000 J	ND	170 J	ND	2,548 J	2,492 J	-
Unknown cyclic	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
Unknown alcohols	290 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
Unknown ketone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
Unknown alkane + C3 sub benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
c3- subs.benzene	ND	ND	ND	11 J	ND	ND	ND	ND	ND	ND	ND	ND	-
c4 subs.benzene	ND	ND	ND	84 J	130 J	ND	ND	6 J	10 J	ND	ND	ND	-
Undecane, 2,5-dimethyl-	ND	ND	180 JN	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
Total VOCs	2,689	3,488	2,440	340	3,555	**14,293**	8,728	66	196	498	2,929	2,844	10,000

Notes: Only analytes detected in one or more samples are included in this table.
ND = Not Detected.
B = Analyte is detected in an associated blank.
J = An estimated value.
N = Presumptive evidence of a compound.
E = Estimated concentration exceeding the calibration range of the instrument.
D = Diluted sample result.
ug/kg = micrograms per kilograms.
- = NYSDEC Recommended Soil Cleanup Objectives not established for this compound.
Bold values exceed the NYSDEC Recommended Soil Cleanup Objective.

TABLE 1.5.1 (CONTINUED)
LEACHING POOL SEDIMENT SAMPLES
ORGANIC PARAMETERS DATA
I. W. INDUSTRIES, MELVILLE, NEW YORK

Boring No.	LP-13	LP-14	LP-15	LP-18	LP-20	LP-21	LP-22	LP-23	LP-24	LP-26	LP-27	LP-28	LP-29	LP-31	NYSDEC Cleanup Objectives
Sampling Date	7/8/97	7/8/97	7/8/97	7/8/97	7/10/97	7/10/97	7/10/97	7/10/97	7/10/97	7/10/97	7/8/97	7/10/97	7/10/97	7/10/97	
Volatile Organic Compounds in ug/kg															
Chloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	120 J	ND	ND	-
Carbon disulfide	ND	880 J	ND	2 J	ND	4 J	2 J	ND	3 J	ND	ND	24 J	230 J	3 J	2,700
4-Methyl-2-pentanone	ND	ND	ND	ND	ND	ND	ND	ND	7 J	ND	ND	170 J	ND	ND	1,000
Xylene (total)	55	**3,500 J**	24 J	ND	ND	ND	14 J	ND	340	ND	ND	ND	**1,500 J**	ND	1,200
Ethylbenzene	25 J	700 J	ND	ND	ND	ND	2 J	ND	54	ND	ND	ND	340 J	ND	5,500
2-Butanone	22 J	240 J	15 J	9 J	ND	30	8 J	ND	ND	6 J	ND	ND	230 J	10 J	300
Toluene	34 J	**45,000 JD**	120	21	23	180 D	32 JD	ND	4 J	34 J	ND	**71,000 JD**	130 J	310 D	1,500
Tetrachloroethene	26 J	20 J	12 J	ND	ND	36 JD	95 D	27	69 D	55 J	1 J	85 J	ND	34 JD	1,400
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	31 J	1,500 J	ND	1,700
Tentatively Identified Volatile Organic Compounds in ug/kg															
Dimethyl sulfide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	640 JN	ND	ND	-
Unknown acid	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
Hexane	ND	ND	ND	ND	ND	25 JN	ND	ND	ND	ND	ND	ND	ND	ND	-
Unknowns	ND	51,000 J	430 J	29 J	ND	26 J	ND	ND	ND	ND	ND	88 J	ND	ND	-
Unknown alkene	ND	ND	ND	ND	ND	11 J	ND	21 J	56 J	ND	ND	2,250 J	ND	ND	-
Unknown alkane	ND	ND	ND	ND	144 J	225 J	1,851 J	272 J	13 J	717 J	ND	300 J	19,860 J	2,137	-
Unknown hydrocarbons	6,760 J	280,900 J	4,790 J	254 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
Unknown cyclic	ND	ND	ND	ND	ND	7 J	130 J	ND	ND	25 J	ND	160 J	ND	ND	-
Unknown alcohols	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
Unknown ketone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2,410 J	ND	ND	-
Unknown alkane + C3 sub benzene	ND	ND	ND	ND	ND	ND	230 J	ND	ND	ND	ND	ND	ND	ND	-
c3- subs.benzene	2,360 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
c4 subs.benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1,600 J	ND	ND	-
Undecane, 2,5-dimethyl-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
Total VOCs	9,282	**382,240**	5,391	315	167	1,124	2,649	320	1,017	837	1	**78,878**	**23,790**	2,534	10,000

Notes: Only analytes detected in one or more samples are included in this table.
ND = Not Detected.
B = Analyte is detected in an associated blank.
J = An estimated value.
N = Presumptive evidence of a compound.
E = Estimated concentration exceeding the calibration range of the instrument.
ug/kg = micrograms per kilograms.
- = NYSDEC Recommended Soil Cleanup Objectives not established for this compound.
D = Diluted sample result.
Bold values exceed the NYSDEC Recommended Soil Cleanup Objective.

TABLE 1.5.1 (CONTINUED)
LEACHING POOL SEDIMENT SAMPLES
ORGANIC PARAMETERS DATA
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Boring No.	LP-1	LP-2	LP-3	LP-4	LP-5	LP-6	LP-7	LP-8	LP-9	LP-10	LP-11	LP-12	NYSDEC Cleanup Objectives
Sampling Date	7/2/97	7/2/97	7/2/97	7/2/97	7/2/97	7/2/97	7/2/97	7/10/97	7/2/97	7/10/97	7/8/97	7/8/97	
Semivolatile Organic Compounds in ug/kg													
Fluoranthene	ND	ND	8,500 D	2,500	**470,000 JD**	23,000	13,000 D	**86,000 D**	48,000 D	**97,000 JD**	16,000 D	**190,000 D**	50,000
Naphthalene	ND	550 J	ND	ND	3,600 J	3,200 J	1,900 JD	ND	ND	ND	550 JD	760 J	13,000
2-Methylnaphthalene	ND	3,900	91 J	3,800	7,300 J	5,400	1,300 JD	ND	ND	ND	1,300 JD	1,500 J	36,400
Phenanthrene	ND	ND	4,500 D	16,000 D	**350,000 JD**	16,000	4,700 D	30,000 D	16,000	47,000 JD	9,600 D	**110,000 D**	50,000
Carbazole	ND	ND	860	3,900	20,000 J	2,400 J	ND	7,300	4,800	2,200 J	3,500 JD	8,600	-
Phenol	ND	**230 J**	**89 J**	ND	ND	ND	ND	ND	ND	ND	ND	**450 J**	30
Acenaphthene	ND	ND	450 J	32,000 D	30,000 JD	1,600 J	ND	930 J	890 J	690 J	3,100 JD	5,100	50,000
Dibenzofuran	ND	ND	390 J	**22,000 D**	**23,000 JD**	ND	ND	620 J	660 J	540 J	1,700 JD	4,200 J	6,200
Fluorene	ND	ND	780	27,000 D	36,000 JD	3,200 J	1,300 JD	1,400 J	1,500 J	2,000 J	2,600 JD	10,000	50,000
Anthracene	ND	ND	990	3,500	**120,000 JD**	4,600	720 JD	4,000 J	2,600 J	5,700 J	2,900 JD	25,000	50,000
Pyrene	ND	ND	8,700 D	3,200	**300,000 JD**	22,000 D	5,800 D	**62,000 D**	24,000	**65,000 JD**	13,000 D	**80,000 D**	50,000
Benzo(a)anthracene*	ND	ND	**3,600 D**	ND	**130,000 JD**	**14,000**	**3,000 JD**	**27,000**	**13,000**	**25,000 J**	**6,200 D**	**46,000 D**	224
Chrysene*	ND	ND	**7,300 D**	ND	**240,000 JD**	**33,000**	**5,800 D**	**49,000 D**	**31,000**	**42,000 JD**	**13,000 D**	**96,000 D**	400
bis(2-Ethylhexyl)phthalate*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	50,000
Benzo(b)fluoranthene*	ND	ND	**3,100**	ND	**110,000 JD**	**11,000**	**3,600 JD**	**46,000 D**	**17,000**	**36,000 JD**	**4,600 D**	**42,000 JD**	224
Benzo(k)fluoranthene*	ND	ND	**3,100**	ND	**100,000 JD**	**9,200**	**3,300 JD**	**18,000**	**13,000**	**29,000 JD**	**5,100 D**	**43,000 JD**	224
Benzo(a)pyrene*	ND	ND	**2,800**	ND	**85,000 JD**	**11,000**	**3,200 JD**	**34,000 D**	**14,000**	**30,000 JD**	**4,600 D**	**32,000 JD**	61
Indeno(1,2,3-cd)pyrene*	ND	ND	2,300	ND	**66,000 JD**	**7,800**	1,700 JD	**32,000**	**7,200**	**17,000 JD**	**3,900 JD**	**19,000 JD**	3,200
Benzo(g,h,i)perylene	ND	ND	3,100	ND	**110,000 JD**	13,000	2,100 JD	26,000	11,000	12,000 JD	7,000 D	31,000 JD	50,000
Di-n-octylphthalate	ND	ND	ND	ND	ND	ND	ND	780 J	ND	ND	ND	ND	50,000
Dibenz[a,h]anthracene*	ND	ND	ND	ND	ND	ND	ND	**2,000 J**	ND	ND	ND	ND	14
Dimethylphthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2,000
4-Methylphenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	900
Butylbenzylphthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	2,000 J	ND	ND	50,000
Total Carcinogenic SVOCs	ND	ND	**22,200**	ND	**731,000**	**86,000**	**20,600**	**208,000**	**95,200**	**179,000**	**37,400**	**321,000**	10,000

TABLE 1.5.1 (CONTINUED)
LEACHING POOL SEDIMENT SAMPLES
ORGANIC PARAMETERS DATA
I. W. INDUSTRIES, MELVILLE, NEW YORK

Boring No.	LP-1	LP-2	LP-3	LP-4	LP-5	LP-6	LP-7	LP-8	LP-9	LP-10	LP-11	LP-12	NYSDEC Cleanup Objectives
Tentatively Identified Semivolatile Organic Compounds in ug/kg													
Unknowns	9,000 JD	320 J	3,130 J	1,460 J	5,500 J	13,000 J	16,300 JD	2,100 J	ND	10,200 J	48,700 JD	31,000 J	-
Unknown alkanes	131,000 JD	12,770 J	5,830 J	44,400 J	ND	79,600 J	111,700 JD	ND	850 J	1,200 J	45,100 JD	13,700 J	-
Unknown cyclic cpds.	3,800 JD	830 J	ND	2,500 J	ND	7,800 J	6,900 JD	ND	ND	ND	4,400 JD	ND	-
Unknown PNAs	ND	ND	ND	ND	19,100 J	ND	ND	27,200 J	9,000 J	13,500 J	ND	ND	-
Naphthalene, 1-methyl-	ND	570 JN	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
Dimethylnaphthalene isomer	ND	790 J	ND	4,300 J	ND	ND	17,000 JD	ND	ND	ND	ND	4,600 J	-
Dibenzothiophene	ND	ND	ND	ND	1,000 JN	ND	ND	ND	ND	ND	ND	ND	-
Trimethylnaphthalene isomer	ND	ND	ND	ND	ND	8,700 J	ND	ND	ND	ND	ND	ND	-
4H-Cyclopenta[def]phenanthrene	ND	ND	ND	ND	ND	ND	ND	ND	2,600 JN	ND	ND	2,600 JN	-
Unknown ketone	ND	ND	ND	ND	ND	ND	ND	4,800 J	ND	ND	ND	ND	-
Unknown methylated PNA	ND	ND	ND	ND	ND	ND	ND	ND	ND	1,700 J	ND	ND	-
Total Non-carcinogenic SVOCs	143,800	19,960	37,410	166,560	**1,495,500**	203,500	182,720	253,130	121,900	260,730	176,350	**518,510**	500,000

Notes: Only analytes detected in one or more samples are included in this table.
ND = Not Detected.
B = Analyte is detected in an associated blank.
J = An estimated value.
N = Presumptive evidence of a compound.
A = TIC is a suspected aldol condensation product.
E = Estimated concentration exceeding the calibration range of the instrument.
D = Diluted sample result.
ug/kg = micrograms per kilogram.
- = NYSDEC Recommended Soil Cleanup Objective not established for this compound.
• = Carcinogenic SVOC.
Bold values exceed the NYSDEC Recommended Soil Cleanup Objective.

TABLE 1.5.1 (CONTINUED)
LEACHING POOL SEDIMENT SAMPLES
ORGANIC PARAMETERS DATA
I. W. INDUSTRIES, MELVILLE, NEW YORK

Boring No.	LP-13	LP-14	LP-15	LP-18	LP-20	LP-21	LP-22	LP-23	LP-24	LP-26	LP-27	LP-28	LP-29	LP-31	NYSDEC Cleanup Objectives
Sampling Date	7/8/97	7/8/97	7/8/97	7/8/97	7/10/97	7/10/97	7/10/97	7/10/97	7/10/97	7/10/97	7/8/97	7/10/97	7/10/97	7/10/97	
Semivolatile Organic Compounds in ug/kg															
Fluoranthene	9,700 J	ND	40,000 D	94,000 D	340 J	320 J	ND	**340,000 D**	280,000 JD	1,300	5,500 D	ND	ND	ND	50,000
Naphthalene	4,400 J	ND	2,100 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	13,000
2-Methylnaphthalene	1,100 J	32,000 J	3,800 J	ND	ND	ND	1,300 D	ND	ND	ND	ND	ND	11,000 JD	1,400 D	36,400
Phenanthrene	8,600 J	ND	41,000 D	33,000 D	200 J	ND	ND	**150,000 D**	**120,000 JD**	840	1,800 JD	ND	5,100 JD	ND	50,000
Carbazole	2,600 J	ND	18,000	11,000	ND	ND	ND	20,000	21,000 J	ND	540 JD	ND	ND	ND	-
Phenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**8,700 J**	ND	ND	30
Acenaphthene	1,200 J	ND	18,000	1,400 J	ND	ND	ND	3,000 J	4,000 J	ND	ND	ND	ND	ND	50,000
Dibenzofuran	1,000 J	ND	**13,000**	950 J	ND	ND	ND	2,100 J	2,300 J	ND	ND	ND	ND	ND	6,200
Fluorene	1,800 J	4,200 J	15,000	2,000 J	ND	ND	ND	5,100	6,300 J	96 J	ND	ND	ND	ND	50,000
Anthracene	2,600 J	ND	16,000	6,800	ND	ND	ND	16,000	20,000 J	120 J	ND	ND	ND	ND	50,000
Pyrene	9,100 J	ND	32,000	41,000	260 J	660	ND	**230,000 D**	**210,000 JD**	1,600	2,900 JD	ND	ND	ND	50,000
Benzo(a)anthracene*	**3,800 J**	ND	**17,000**	**28,000**	100 J	ND	ND	**89,000 D**	**87,000 JD**	**810**	**1,300 JD**	ND	ND	ND	224
Chrysene*	**7,900 J**	ND	**35,000**	**60,000**	220 J	ND	ND	**150,000 D**	**130,000 JD**	**1,300**	**3,800 D**	ND	ND	ND	400
bis(2-Ethylhexyl)phthalate*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	50,000
Benzo(b)fluoranthene*	**3,300 J**	ND	**17,000**	**31,000 D**	**260 J**	ND	ND	**110,000 D**	**110,000 JD**	ND	**1,900 JD**	ND	ND	ND	224
Benzo(k)fluoranthene*	**2,600 J**	ND	**19,000**	**25,000 D**	**240 J**	ND	ND	**120,000 D**	**84,000 JD**	ND	**1,900 JD**	ND	ND	ND	224
Benzo(a)pyrene*	**3,100 J**	ND	**13,000**	**20,000 JD**	**170 J**	ND	ND	**100,000 D**	**91,000 JD**	ND	**1,800 JD**	ND	ND	ND	61
Indeno(1,2,3-cd)pyrene*	2,000 J	ND	**10,000**	**13,000 JD**	94 J	ND	ND	**34,000**	**32,000 J**	ND	1,400 JD	ND	ND	ND	3,200
Benzo(g,h,i)perylene	3,400 J	ND	16,000	23,000 D	53 J	ND	ND	25,000	25,000 J	ND	2,300 JD	ND	ND	ND	50,000
Di-n-octylphthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	50,000
Dibenz(a,h)anthracene*	ND	ND	ND	ND	ND	ND	ND	**2,000 J**	ND	ND	ND	ND	ND	ND	14
Dimethylphthalate	ND	ND	ND	ND	ND	ND	ND	600 J	ND	ND	ND	ND	ND	ND	2,000
4-Methylphenol	ND	**220,000 JD**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**420,000 JD**	ND	ND	900
Butylbenzylphthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	50,000
Total Carcinogenic SVOCs	**22,700**	ND	**111,000**	**177,000**	1,084	ND	ND	**605,000**	**534,000**	2,110	**12,100**	ND	ND	ND	10,000

TABLE 1.5.1 (CONTINUED)
LEACHING POOL SEDIMENT SAMPLES
ORGANIC PARAMETERS DATA
I. W. INDUSTRIES, MELVILLE, NEW YORK

Boring No.	LP-13	LP-14	LP-15	LP-18	LP-20	LP-21	LP-22	LP-23	LP-24	LP-26	LP-27	LP-28	LP-29	LP-31	NYSDEC Cleanup Objectives
Sampling Date	7/8/97	7/8/97	7/8/97	7/8/97	7/10/97	7/10/97	7/10/97	7/10/97	7/10/97	7/10/97	7/8/97	7/10/97	7/10/97	7/10/97	
Tentatively Identified Semivolatile Organic Compounds in ug/kg															
Unknowns	58,700 J	38,100 J	ND	3,200 J	ND	3,670 J	ND	7,200 J	3,830 J	ND	21,600 JD	ND	47,000 JD	ND	-
Unknown alkanes	44,200 J	210,000 J	ND	1,500 J	1,390 J	10,580 J	12,190 JD	ND	ND	12,740 J	ND	46,000 J	6,100 JD	22,230 JD	-
Unknown cyclic cpd.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
Unknown PNAs	ND	ND	13,100 J	18,500 J	ND	ND	2,200 JD	3,000 J	26,500 J	770 J	4,200 JD	ND	173,000 JD	1,800 JD	-
Naphthalene, 1-methyl-	2,500 JN	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
Dimethylnaphthalene isomer	ND	19,000 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
Dibenzothiophene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
Trimethylnaphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
4H-Cyclopenta[def]phenanthrene	ND	ND	1,500 JN	2,000 JN	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
Unknown acid	ND	ND	ND	ND	940 J	ND	ND	ND	ND	ND	ND	3,080,000 J	ND	ND	-
Unknown ketones	ND	ND	ND	ND	2,420 J	2,210 J	ND	2,200 J	2,500 J	420 J	ND	180,000 J	62,300 JD	15,000 JD	-
Unknown alcohol	ND	ND	ND	ND	470 J	1,760 J	ND	ND	ND	ND	ND	824,000 J	64,000 JD	ND	-
Unknown aromatics	ND	ND	ND	ND	ND	ND	ND	7,300 J	ND	ND	ND	ND	ND	ND	-
Unknown amine	ND	ND	ND	ND	ND	ND	ND	ND	1,200 J	ND	ND	ND	86,000 JD	ND	-
Unknown methylated PNA	ND	ND	ND	ND	ND	ND	ND	ND	1,000 J	ND	ND	35,000 J	ND	ND	-
Butylated Hydroxytoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	58,000 JNDA	ND	-
Triclosan	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	41,000 JND	ND	-
Total Non-carcinogenic SVOCs	150,900	**523,300**	229,500	250,350	7,873	19,990	15,690	**811,500**	**723,630**	17,880	38,840	**4,593,700**	**553,500**	40,430	500,000

Notes: Only analytes detected in one or more samples are included in this table.
ND = Not Detected.
B = Analyte is detected in an associated blank.
J = An estimated value.
N = Presumptive evidence of a compound.
A = TIC is a suspected aldol condensation product.
E = Estimated concentration exceeding the calibration range of the instrument.
D = Diluted sample result.
ug/kg = micrograms per kilograms.
- = NYSDEC Recommended Soil Cleanup Objectives not established for this compound.
• = Carcinogenic SVOC.
Bold values exceed the NYSDEC Recommended Soil Cleanup Objective.

TABLE 5.2

LEACHING POOL SEDIMENT SAMPLES
INORGANIC PARAMETERS DATA
I. W. INDUSTRIES, MELVILLE, NEW YORK

Boring No.	LP-1	LP-2	LP-3	LP-4	LP-5	LP-6	LP-7	LP-8	LP-9	LP-10	LP-11	LP-12	NYSDEC Cleanup Objectives
Sampling Date	7/2/97	7/2/97	7/2/97	7/2/97	7/2/97	7/2/97	7/2/97	7/10/97	7/2/97	7/10/97	7/8/97	7/8/97	
Total Metals in mg/kg													
Aluminum	793	776	2,600	1,390	1,260	2,410	2,410	4,830	952	9,500	2,490	22,200	SB
Antimony	ND	ND	7.8 JBN	11.5 JBN	0.68 JBN	1.0 JBN	2.9 JBN	10.6 JN	0.69 JBN	ND	3.2 JBN	0.47 JBN	SB
Arsenic	0.65 B	0.64 B	7	3.6	0.77 B	2.2	2.8	2.6	0.94	**8.6**	**18.1**	2.5	7.5
Barium	3.3 B	1.8 B	26.1 B	11.4 B	7.9 B	43.8	56.5	66.2	12.0 B	33.3	32.4	43.5	300
Beryllium	0.05 B	0.04 B	**0.25 B**	0.10 B	0.09 B	0.16 B	0.16 B	**0.33 B**	0.11 B	**0.19 B**	0.16 B	**0.25 B**	0.16
Cadmium	0.09 B	ND	**12.5**	3.8	1.6	3.6	3.5	2.5 JN	0.62	2.4 JN	0.71	1.7	10
Calcium	99.8 B	45.6 B	3,300	7,600	8,650	6,580	13,900	4,560	19,300	9,010	1,480	8,710	SB
Chromium	3.2 JN	3.8 JN	20.6 JN	39.8 JN	4.1 JN	35.9 JN	33.7 JN	35.6 JN	7.6 JN	46.0 JN	**82.5 JN**	23.1 JN	50
Cobalt	0.54 B	0.3 B	6.5 B	2.6 B	1.1 B	3.6 B	4.3 B	4.7 B	1.7 B	4.8 B	11.2	3.5 B	30
Copper	**101**	**88**	**179,000**	**62,000**	**6,470**	**23,000**	**29,800**	**2,880**	**3,170**	**5,110**	**4,610**	**9,910**	25
Iron	1,180	1,470	**6,510**	**5,880**	**3,170**	**6,340**	**6,210**	**8,970**	**4,280**	**9,840**	**43,100**	**6,950**	2,000
Lead	112 E	91.7 E	**7,200 E**	**2,630 E**	298 E	**1,110 E**	**2,090 E**	236 N	142 E	**885 N**	**636 E**	**1,390 E**	500
Magnesium	193 B	195 B	1,970	2,390	583 B	2,690	8,110	2,340	10,500	5,190	1,210	4,570	SB
Manganese	9.4 JN	10.4 JN	38.3 JN	49.7 JN	30.3 JN	45.0 JN	48.0 JN	37.8 J	39.8 JN	56.3	290 JN	48.8 JN	SB
Mercury	ND	ND	ND	**5.9**	ND	ND	ND	0.08 B	ND	**0.16**	ND	ND	0.1
Nickel	1.4 B	0.95 B	**172**	**72.4**	9.0	**29.2**	**41.3**	**20.5 JN**	8.3	**29.8 JN**	**80.9**	**19.8**	13
Potassium	92.2 B	76.5 B	320 B	172 B	160 B	293 B	189 B	703.0	141 B	243 B	223 B	395 B	SB
Selenium	ND	ND	0.81	0.41 B	ND	ND	0.41 B	1.1 J	ND	1.3 J	1.9	0.46 B	2
Silver	ND	ND	17.1 JN	6.6 JN	0.67 JBN	3.0 JN	3.7 JN	0.59 JBN	0.41 JBN	1.2 JBN	1.1 JBN	1.5 JN	SB
Sodium	27.1 B	22.3 B	4,970	1,540	38.1 B	86.5 B	67.1 B	177 B	56.3 B	104 B	66.9 B	107 B	SB
Thallium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.92 B	ND	SB
Vanadium	4.0 B	2.8 B	16.3	13.0	5.5 B	17.2	20.6	21.1	10.4	28.9	33.3	26.7	150
Zinc	**96.3 E**	**31.1 E**	**96,500 E**	**30,500 E**	**3,460 E**	**12,200 E**	**15,900 E**	**1,890**	**1,600 E**	**3,030**	**2,460 E**	**4,520 E**	20
Total Organic Carbon (mg/kg)	68,300	34,300	67,000	62,700	33,600	93,800	86,500	17,400	16,200	7,480 J	34,000	67,300	-

Notes:
- ND = Not Detected.
- B = Reported value is less than the Contract Required Detection Limit but greater than the Instrument Detection Limit. SB
- E = Reported value is estimated due to the presence of interference.
- J = Estimated value.
- mg/kg = milligrams per kilogram
- N = Matrix spiked sample recovery not within control limits.
- = Site Background.

Bold values exceed the NYSDEC Recommended Soil Cleanup Objective.

TABLE 1.5.2 (CONTINUED)
LEACHING POOL SEDIMENT SAMPLES
INORGANIC PARAMETERS DATA
I. W. INDUSTRIES, MELVILLE, NEW YORK

Boring No.	LP-13	LP-14	LP-15	LP-18	LP-20	LP-21	LP-22	LP-23	LP-24	LP-26	LP-27	LP-28	LP-29	LP-31	NYSDEC Cleanup Objectives
Sampling Date	7/8/97	7/8/97	7/8/97	7/8/97	7/10/97	7/10/97	7/10/97	7/10/97	7/10/97	7/10/97	7/8/97	7/10/97	7/10/97	7/10/97	
Total Metals in mg/kg															
Aluminum	4,090	659 J	2,080	1,570	2,210	2,830	2,590	2,750	3,410	7,010	1,230	645 J	10,700 J	4,530	SB
Antimony	1.2 JBN	1.6 JBN	1.0 JBN	ND	ND	0.43 JBN	0.44 JBN	0.63 JBN	0.92 JBN	ND	ND	ND	5.4 JBN	0.41 JBN	SB
Arsenic	2.4	1.9 JB	3.4	1.3	1.3	2.3	1.7	1.3 B	1.4	**11.2**	1.6	ND	**22.9 J**	2.2	7.5
Barium	34.6	97.3 J	13.9 B	18.2 B	4.3 B	10.5 B	5.8 B	38.0	41.2	29.6	7.4 B	21.7 JB	**593 J**	10.7 B	300
Beryllium	**0.20 B**	0.03 JB	**0.17 B**	0.12 B	0.11 B	0.11 B	0.16 B	**0.19 B**	**0.21 B**	**0.28 B**	0.11 B	0.05 JB	**0.76 JB**	0.15 B	0.16
Cadmium	1.2	10.0 J	J2.5	0.20 B	0.84 JN	0.64 JN	1.8 JN	0.62 JBN	0.79 JN	0.42 JBN	0.18 B	0.78 JBN	**74.5 JN**	2.2 JN	10
Calcium	29,500	282 JB	16,400	5,690	313 B	346 B	20,300	1,470	2,280	863	5,250	5,990 J	4,780 J	1,270	SB
Chromium	20.7 JN	27.5 JN	18.3 JN	19.4 JN	7.4 JN	8.8 JN	4.4 JN	15.0 JN	20.0 JN	10.5 JN	4.4 JN	6.1 JN	**1,990 JN**	5.6 JN	50
Cobalt	3.2 B	6.8 JB	2.3 B	2.0 B	0.91 B	1.8 B	1.4 B	2.2 B	2.9 B	3.5 B	1.4 B	1.4 JB	**52.0 J**	3.6 B	30
Copper	**11,200**	**7,250 J**	**31,500**	**217**	**53.5**	**239**	**167**	**633**	**1,270**	**53.3**	**145**	**255 J**	**22,100 J**	**138**	25
Iron	**8,160**	1,740 J	**6,960**	**5,540**	**2,720**	**3,530**	**3,610**	**8,050**	**5,550**	**8,180**	**4,470**	1,590 J	**115,000 J**	**6,880**	2,000
Lead	**888 E**	**1,430 JE**	**1,230 E**	76.3 E	471 N	**760 N**	**1,180 N**	107 N	248 N	86.1 N	56.1 E	24.2 JN	**2,550 JN**	**1,150 N**	500
Magnesium	15,200	149 JB	9,320	3,230	441 B	583 B	11,800	921	1,070	944	1,130	632 JB	2,840 JB	1,310	SB
Manganese	69.8 JN	6.9 JN	40.2 JN	48.1 JN	14.6	23.6	60.6	34.1	28.0	48.3	77.5 JN	37.7 J	233 J	54.6	SB
Mercury	ND	**1.6 J**	ND	ND	**0.11**	ND	ND	ND	**0.11 B**	**0.11**	ND	**0.54 J**	**4.8 J**	ND	0.1
Nickel	**20.1**	**23.1 J**	**27.9**	5.1	3.4 JBN	7.8 JN	3.2 JBN	7.8 JN	10.7 JN	6.2 JN	5.8	6.5 JBN	**114 JN**	5.6 JN	13
Potassium	361 B	133 JB	177 B	208 B	130 B	161 B	170 B	415 B	449 B	288 B	90.0 B	442 JB	1,320 JB	203 B	SB
Selenium	ND	**4.6 J**	ND	ND	0.61 J	0.75	ND	0.87	0.56 B	0.82	ND	**2.4 JB**	**16.0 J**	0.73	2
Silver	1.4 JN	8.5 JN	2.9 JN	ND	ND	0.24 JBN	ND	0.16 JBN	0.72 JBN	0.11 JBN	ND	33.4 JN	34.8 JN	0.18 JBN	SB
Sodium	104 B	202 JB	60.4 B	62.7 B	37.7 B	46.3 B	42.6 B	99.7 B	113 B	36.9 B	39.7 B	367 JB	468 JB	152 B	SB
Thallium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.8 JB	ND	SB
Vanadium	17.6	23.2 J	17.4	9.9	8.5	15.6	7.4	11.1	14.7	17.1	5.1 B	2.4 JB	99.0 J	17.6	150
Zinc	**5,990 E**	**3,220 JE**	**16,800 E**	**177 E**	**90.3**	**220**	**165**	**466**	**657**	**130**	**155 E**	**472 J**	**22,100 J**	**227**	20
Total Organic Carbon (mg/kg)	35,700	269,000 J	12,300	35,400	20,300	46,000	30,200	41,100	22,300	20,600	7,140	672,000 J	1,000,000 J	60,900	-

Notes:
- ND = Not Detected.
- B = Reported value is less than the Contract Required Detection Limit but greater than the Instrument Detection Limit.
- E = Reported value is estimated due to the presence of interference.
- J = Estimated value.
- mg/kg = milligrams per kilogram
- N = Matrix spiked sample recovery not within control limits.
- SB = Site Background.
- **Bold** values exceed the NYSDEC Recommended Soil Cleanup Objective.

LP-14, LP-20, LP-24, LP-26, LP-28, and LP-29), nickel (LP-3, LP-4, LP-6, LP-7, LP-8, LP-10 through LP-15, and LP-29), selenium (LP-14, LP-28, and LP-29), and zinc (all LP samples).

Based on these results, impacted soil is present in all of the sampled leaching pools. However, the magnitude of the impact is variable. The following leaching pools were identified in the Focussed FS and ROD as having one or more target compounds or analytes at concentrations that require remediation: LP-3 through LP-15, LP-18, LP-22 through LP-24, LP-28, LP-29, and LP-31. Remediation of the source soil in these leaching pools is planned.

The remaining leaching pools, LP-1, LP-2, LP-20, LP-21, LP-26, and LP-27, did not exhibit concentrations of contaminants that require remediation. As discussed in Section 1.7 of this report, in general, target compounds are not detected at elevated concentrations in groundwater downgradient of the leaching pools and, therefore, it does not appear that the materials in the leaching pools have contributed significantly to groundwater contamination at this Site. Since the materials in the leaching pools have been present for an extended time (at least 16 years), it is anticipated that any potential groundwater impact from these materials would be evident in the groundwater chemical analytical data. Therefore, it appears that any constituents in the materials in the leaching pools are relatively immobile in the subsurface environment.

1.6 Summary of Soil Contamination

Soil borings were performed in the vadose zone primarily in the area of leaching pools LP-1 and LP-2 in 1993 and 1997. The results showed that impacted soil appears to be present in the vicinity of LP-1 and LP-2. Impacted soil is generally gray to black, oily, with a petroleum odor and elevated PID readings. Based on an evaluation of the qualitative indicators of soil contamination in the vadose zone from both the RI borings and the previously-obtained data, impacted soil in the vadose zone appears to be confined to the area in the immediate vicinity of LP-1 and LP-2 and impacted soil is present in the

vicinity of the water table over a larger area. In general, soil contamination increased below approximately 30 feet below grade and was not present in shallow samples. These data suggested that LP-1 and LP-2 appear to be the sources of the oil contamination and the oil which was discharged into these leaching pools may have spread laterally at depth.

The chemical analytical results for the soil samples obtained at the Site from the RI were presented in Tables 2.1.1 and 2.1.2 of the RI. The results from the previous investigation (Anson, 1994) were presented in Table 2.4.1.1 of the RI (FPM, January, 1999). The laboratory reports for the RI were presented in Appendix C of the RI Report (FPM, January,1999).

Although TCL VOCs, primarily tetrachloroethene, xylene, 2-butanone, and ethylbenzene, were detected in several of the soil samples, none of the detected concentrations exceeded their respective NYSDEC Objectives. The total VOCs concentrations also did not exceed the NYSDEC Objective.

TCL SVOCs were detected in two soil boring samples, however, none of the detected concentrations exceed their respective NYSDEC Objectives.

TAL metals were detected in all of the soil boring samples. However, none of the detected concentrations exceed their respective NYSDEC Objectives with the exception of zinc at one location which slightly exceeds its Objective and iron at several locations at concentrations which somewhat exceed the Objective.

Based on these results, although visibly-impacted soil is present in the vadose zone in the vicinity of leaching pools LP-1 and LP-2, in general, concentrations of TCL VOCs and SVOCs and TAL metals do not exceed their respective NYSDEC Objectives. Exceedances of the NYSDEC Objective for iron were noted for several samples. However, Long Island soils naturally contain high concentrations of iron and, therefore, the elevated concentrations of this constituent do not necessarily indicate soil contamination. Zinc was detected at one location at an estimated concentration somewhat exceeding its

NYSDEC Objective. Based on this information, there does not appear to be significant contamination of the Site soil in the vicinity of LP-1 or LP-2. No remediation is planned for Site soil.

1.7 Summary of Groundwater Contamination

Groundwater sampling has been performed on ten occasions at the Site since 1983. The results of the groundwater sampling conducted prior to the RI were summarized in the RI Work Plan (FPM, May, 1997). The results of these sampling events indicated that metals and VOCs were the constituents of concern at the facility. Additional groundwater samples were collected during two rounds of sampling during the RI. The chemical analytical results from these sampling events are presented in Tables 1.7.1, 1.7.2, and 1.7.3. The laboratory reports for the RI were presented in Appendix C of the RI Report (FPM, January, 1999).

Groundwater samples were obtained from seven on-Site groundwater monitoring wells and from the DH-2 Hydropunch location during the July, 1997 sampling event. Two wells, MW-4 and MW-5, were found to be dry and, therefore, were not sampled. Two wells, MW-2 and MW-7, were found to contain floating product and, therefore, were not sampled in concurrence with the on-Site NYSDEC representative. Concentrations of several metals were noted to be elevated in several groundwater samples, as discussed below, and it is likely that the elevated metals concentrations are attributable to suspended material within the groundwater samples since several of the groundwater samples had been noted to be turbid. Therefore, it was proposed to perform additional groundwater sampling at select wells and have splits of the resulting groundwater samples filtered. The resulting filtered and unfiltered samples would then be analyzed for TAL metals. This proposed sampling was approved by the NYSDEC representative and the sampling was performed in January, 1988.

TCL VOCs were detected in three of the groundwater samples as shown in Table 1.7.1. The VOCs that exhibited exceedances of the NYSDEC Class GA Ambient Water Quality Standards or

TABLE 1.7.1
GROUNDWATER SAMPLES
ORGANIC PARAMETERS DATA
I. W. INDUSTRIES, MELVILLE, NEW YORK

Well No.	MW-1	MW-3	MW-6	MW-8	MW-9	MW-10	MW-11	DH-2	NYSDEC GA Standards
Sampling Date	7/14/97	7/14/97	7/14/97	7/14/97	7/14/97	7/14/97	7/14/97	7/8/97	
Sampling Depth (ft)	52.85	49.20	52.77	51.30	54.50	58.00	58.00	65.00	
Volatile Organic Compounds in ug/l									
1,2-Dichloroethene	3 J	ND	ND	ND	ND	**47**	ND	**55**	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	1 J	ND	3 J	5
Trichloroethene	ND	ND	ND	ND	ND	**9 J**	ND	**16**	5
Chlorobenzene	**41**	ND	ND	ND	ND	2 J	ND	**12**	5
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	2 J	2
Carbon disulfide	ND	ND	ND	ND	ND	ND	ND	2 J	-
Tetrachloroethene	ND	ND	ND	ND	ND	**29**	ND	**20**	5
Tentatively Identified Volatile Organic Compounds in ug/l									
Unknown alkanes	20 J	ND	ND	ND	ND	ND	ND	ND	-
Benzene, 1,4-dichloro-	**11 JN**	ND	ND	ND	ND	ND	ND	**7 JN**	4.7*

Notes: Only analytes detected in one or more samples are included in this table.
Sample Depth refers to well depth for monitoring wells and to the hydropunch screen depth for the DH-2 sample.

ND = Not Detected.
B = Analyte is detected in an associated blank.
J = An estimated value.
N = Presumptive evidence of a compound.
ug/l = micrograms per liter.
- = NYSDEC Class GA Standard or Guidance Value not established for this compound.
* = Refers to the sum of the dichlorobenzenes.
Bold values exceed their respective NYSDEC Class GA Standard or Guidance Value.

TABLE 1.7.1 (CONTINUED)
GROUNDWATER SAMPLES
ORGANIC PARAMETERS DATA
I. W. INDUSTRIES, MELVILLE, NEW YORK

Boring No.	MW-1	MW-3	MW-6	MW-8	MW-9	MW-10	MW-11	DH-2	NYSDEC GA Standards
Sampling Date	7/14/97	7/14/97	7/14/97	7/14/97	7/14/97	7/14/97	7/14/97	7/8/97	
Sampling Depth (ft)	52.85	49.20	52.77	51.30	54.50	58.00	58.00	65.00	
Semivolatile Organic Compounds in ug/l									
1,2-Dichlorobenzene	**2 J**	ND	ND	ND	ND	ND	ND	**1 J**	4.7*
1,4-Dichlorobenzene	**6 J**	ND	ND	ND	ND	2 J	ND	**4 J**	4.7*
bis(2-Ethylhexyl) phthalate	ND	ND	ND	ND	ND	ND	ND	ND	50
Di-n-butylphthalate	ND	ND	1 J	ND	2 J	ND	2 J	ND	50
Diethylphthalate	ND	1 J	ND	ND	ND	ND	ND	4 J	50
Tentatively Identified Semivolatile Organic Compounds in ug/l									
Unknowns	ND	6 J	2 J	2 J	2 J	5 J	ND	ND	-
Unknown alkanes	8 J	ND	ND	ND	ND	14 J	9 J	6 J	-
Unknown alcohols	14 J	ND	ND	5 J	ND	4 J	ND	34 J	-
Unknown ketone	ND	ND	9 J	ND	ND	6 J	8 J	7 J	-
Unknown cyclic cpd.	7 J	ND	ND	3 J	3 J	ND	ND	ND	-

Notes: Only analytes detected in one or more samples are included in this table.
Sample Depth refers to well depth for monitoring wells and to the hydropunch screen depth for the DH-2 sample.

ND = Not Detected.
B = Analyte is detected in an associated blank.
J = An estimated value.
N = Presumptive evidence of a compound.
ug/l = micrograms per liter.
- = NYSDEC Class GA Standard or Guidance Value not established for this compound.
• = Refers to the sum of the dichlorobenzenes.
Bold values exceed their respective NYSDEC Class GA Standard or Guidance Value.

TABLE 1.7.2
GROUNDWATER SAMPLES
INORGANIC PARAMETERS DATA
I. W. INDUSTRIES, MELVILLE, NEW YORK

Well No.	MW-1	MW-3	MW-6	MW-8	MW-9	MW-10	MW-11	DH-2	NYSDEC GA Standards
Sampling Date	7/14/97	7/14/97	7/14/97	7/14/97	7/14/97	7/14/97	7/14/97	7/8/97	
Sampling Depth (ft)	52.85	49.20	52.77	51.30	54.50	58.00	58.00	65.00	
Total Metals in ug/l									
Aluminum	7,350	4,370	1,270	2,820	7,460	269	272	68,400	-
Antimony	**3.6 JBN**	ND	ND	ND	ND	ND	ND	**3.6 JBN**	3
Arsenic	**35.3**	6.3 B	ND	3.5 B	ND	ND	ND	**143**	25
Barium	75.8 B	61.2 B	47.2 B	53.6 B	55.5 B	148 B	35.0 B	351	1,000
Beryllium	0.87 B	0.50 B	0.17 B	0.23 B	0.83 B	ND	ND	**6.9**	3
Cadmium	3.5 B	0.67 B	ND	0.33 B	ND	ND	ND	ND	10
Calcium	25,400	6,830	8,280	11,200	12,800	9,780	20,800	37,100	-
Chromium	11.1	18.2	5.4 B	20.2	0.87 B	5.7 B	1.7 B	**677**	50
Cobalt	24.4 B	6.3 B	2.0 B	3.4 B	5.8 B	27.9 B	1.5 B	43.7 B	-
Copper	**306**	43.7	18.7 B	24.0 B	120	7.8 B	6.4 B	**201**	200
Iron	**58,000**	**18,900**	**3,360**	**8,280**	85.1 B	**19,600**	294	**232,000**	300
Lead	**41.3**	**29.9**	4.8	14.7	17.2	ND	1.1 B	**91.4**	25
Magnesium	4,520 B	3,340 B	2,010 B	4,020 B	3,220 B	2,370 B	1,710 B	8,880	35,000
Manganese	**1,000**	**403**	143	227	**592**	**1,570**	107	**2,150**	300
Mercury	0.11 B	ND	ND	ND	ND	ND	ND	0.1 B	2
Nickel	13.3 B	9.3 B	4.2 B	5.3 B	20.4 B	10.1 B	1.6 B	192	-
Potassium	15,100	2,450 B	1,570 B	2,000 B	10,900	1,910 B	2,920 B	12,100	-
Selenium	ND	3.0 B	ND	ND	ND	ND	ND	9.3	10
Silver	ND	ND	ND	1.3 B	ND	ND	ND	ND	50
Sodium	**30,300 JE**	10,600 JE	9,180 JE	**22,900 JE**	**28,700 JE**	12,100 JE	8,960 JE	17,100 JE	20,000
Thallium	ND	ND	ND	ND	ND	ND	ND	**9.0 B**	4
Vanadium	14.1 B	14.1 B	4.9 B	6.4 B	ND	ND	3.8 B	392	-
Zinc	261	65.8	21.7	35.3	74.9	40.2	11.5 B	**320**	300
Iron and Manganese	**59,000**	**19,303**	**3,503**	**8,507**	**677.1**	**21,170**	401	**234,150**	500

Notes: Sample Depth refers to well depth for monitoring wells and to the hydropunch screen depth for the DH-2 sample.
ND = Not Detected.
B = Reported value is less than the Contract Required Detection Limit but greater than the Instrument Detection Limit.
E = Reported value is estimated due to the presence of interference.
N = Matrix spiked sample recovery not within control limits.
J = Estimated value.
ug/l = micrograms per liter.
Bold values exceed their respective NYSDEC Class GA Standard or Guidance Value.

TABLE 1.7.3
GROUNDWATER SAMPLES
INORGANIC PARAMETERS DATA
I. W. INDUSTRIES, MELVILLE, NEW YORK

Well No.	MW-1			MW-3			MW-8			MW-9			MW-10			NYSDEC GA Standards
Sampling Date	7/14/97	1/29/98	1/29/98	7/14/97	1/29/98	1/29/98	7/14/97	1/29/98	1/29/98	7/14/97	1/29/98	1/29/98	7/14/97	1/29/98	1/29/98	
Sample Type	Whole	Whole	Filtered	Whole	Whole	Filtered	Whole	Whole	Filtered	Whole	Whole	Filtered	Whole	Whole	Filtered	
Sampling Depth (ft)		52.85			49.20			51.30			54.50			58.00		
Total Metals in ug/l																
Aluminum	7,350	485	ND	4,370	1,050	28.9 B	2,820	1,960	11.5 B	7,460	10,800	6,090	269	61,600	17.8 B	-
Antimony	**3.6 BN**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**3.4 B**	ND	3
Arsenic	**35.3**	23.6	12.9	6.3 B	1.9 B	ND	3.5 B	ND	ND	ND	6.9 B	ND	ND	**119**	ND	25
Barium	75.8 B	44.1 B	13.6 B	61.2 B	59.9 B	37.7 B	53.6 B	122 B	76.1 B	55.5 B	53.0 B	40.3 B	148 B	**5,630**	92.5 B	1,000
Beryllium	0.87 B	0.20 B	ND	0.50 B	0.10 B	ND	0.23 B	0.17 B	ND	0.83 B	1.8 B	0.80 B	ND	**6.3**	ND	3
Cadmium	3.5 B	0.63 B	ND	0.67 B	0.30 B	ND	0.33 B	0.23 B	ND	ND	0.80 B	ND	ND	0.27 B	ND	10
Calcium	25,400	13,600	12,400	6,830	11,500	9,990	11,200	16,800	16,000	12,800	16,700	18,300	9,780	11,200	9,590	-
Chromium	11.1	1.8 B	ND	18.2	3.5 B	0.73 B	20.2	13.5	1.3 B	0.87 B	7.1 B	ND	5.7 B	**90.7**	ND	50
Cobalt	24.4 B	14.4 B	12.4 B	6.3 B	3.4 B	1.7 B	3.4 B	2.0 B	ND	5.8 B	51.3	12.2 B	27.9 B	61.3	10.4 B	-
Copper	**306**	43.1	3.1 B	43.7	22.7 B	4.6 B	24.0 B	36.4	2.4 B	120	27.1	20.9 B	7.8 B	164	1.7 B	200
Iron	**58,000**	**95,900**	**80,400**	**18,900**	**4,720**	187	**8,280**	2,750	23.1 B	85.1 B	**9,360**	30.2 B	**19,600**	**249,000**	**9,500**	300
Lead	**41.3**	14.5	1.5 B	**29.9**	19.9	4.9	14.7	10.6	ND	17.2	10.7	0.81 B	ND	**118**	ND	25
Magnesium	4,520 B	2,120 B	1,970 B	3,340 B	3,830 B	3,410 B	4,020 B	3,950 B	3,530 B	3,220 B	3,480 B	3,570 B	2,370 B	8,120	2,340 B	35,000
Manganese	**1,000**	**1,710 JN**	**1,590 JN**	**403**	237 JN	128 JN	227	160 JN	27.5 JN	**592**	**1,650 JN**	**855 JN**	**1,570**	**1,890 JN**	**823 NJ**	300
Mercury	0.11 B	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.46	ND	2
Nickel	13.3 B	4.8 B	3.5 B	9.3 B	2.2 B	ND	5.3 B	4.9 B	ND	20.4 B	21.3 B	17.3 B	10.1 B	59.9	3.7 B	-

TABLE 1.7.3 (CONTINUED)
GROUNDWATER SAMPLES
INORGANIC PARAMETERS DATA
I. W. INDUSTRIES, MELVILLE, NEW YORK

Well No.	MW-1			MW-3			MW-8			MW-9			MW-10			NYSDEC GA Standards
Sampling Date	7/14/97	1/29/98	1/29/98	7/14/97	1/29/98	1/29/98	7/14/97	1/29/98	1/29/98	7/14/97	1/29/98	1/29/98	7/14/97	1/29/98	1/29/98	
Sample Type	Whole	Whole	Filtered	Whole	Whole	Filtered	Whole	Whole	Filtered	Whole	Whole	Filtered	Whole	Whole	Filtered	
Sampling Depth (ft)		52.85			49.20			51.30			54.50			58.00		
Potassium	15,100	5,200	4,540 B	2,450 B	3,330 B	2,960 B	2,000 B	2,810 B	2,490 B	10,900	10,200	10,700	1,910 B	11,300	5,740	-
Selenium	ND	4.5 B	4.1 B	3.0 B	ND	ND	ND	ND	ND	ND	ND	ND	ND	**12.4**	ND	10
Silver	ND	ND	ND	ND	ND	ND	1.3 B	ND	ND	ND	ND	ND	ND	ND	ND	50
Sodium	**30,300 E**	10,900 JE	9,890 JE	10,600 E	11,900 JE	12,000 JE	**22,900 E**	**40,200 JE**	**40,000 JE**	**28,700 E**	**24,300 JE**	**27,100 JE**	12,100 E	12,800 JE	14,000 JE	20,000
Thallium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.3 B	ND	4
Vanadium	14.1 B	2.2 B	ND	14.1 B	3.6 B	ND	6.4 B	2.3 B	ND	ND	14.7 B	ND	ND	220	ND	-
Zinc	261	71.5	30.7	65.8	25.3	27.7	35.3	33.8	15.2 B	74.9	56.4	50.1	40.2	228	16.5 B	300
Iron and Manganese	**59,000**	**97,610**	**81,990**	**19,303**	**4,957**	315	**8,507**	**2,910**	50.6	**677.1**	**11,010**	**885.2**	**21,170**	**250,890**	**10,323**	500

Notes: Sample Depth refers to well depth for monitoring wells and to the hydropunch screen depth for the DH-2 sample.
ND = Not Detected.
B = Reported value is less than the Contract Required Detection Limit but greater than the Instrument Detection Limit.
E = Reported value is estimated due to the presence of interference.
N = Matrix spiked sample recovery not within control limits.
J = Estimated value.
ug/l = micrograms per liter.
Bold values exceed their respective NYSDEC Class GA Standard or Guidance Value.

Guidance Values (standards) include chlorobenzene (MW-1 and DH-2), 1,2-dichloroethene (MW-10 and DH-2), trichloroethene (MW-10 and DH-2), and tetrachloroethene (MW-10 and DH-2). The samples exhibiting exceedances of the NYSDEC standards for TCL VOCs are all located on the southwest corner of the facility in the vicinity of an adjoining property with a plume of VOC-impacted groundwater.

TCL SVOCs were detected in several of the groundwater samples, although generally at low concentrations, as shown in Table 1.7.1. Exceedances of the NYSDEC standards were noted only for dichlorobenzenes (MW-1 and DH-2) which were detected at concentrations slightly exceeding their NYSDEC standard. As discussed above, these exceedances were noted for two sampling locations on the southwest corner of the facility in the vicinity of an adjoining property with a plume of VOC-impacted groundwater.

TAL metals were detected in all of the groundwater samples. For the July, 1997 sampling round (Table 1.7.2), exceedances of the NYSDEC standards were noted for antimony (well MW-1 and DH-2), arsenic (well MW-1 and DH-2), beryllium (DH-2), chromium (DH-2), copper (MW-1 and DH-2), iron (all locations except MW-9 and MW-11), lead (well MW-1, well MW-3, and DH-2), manganese (all locations except MW-6, MW-8, and MW-11), sodium (well MW-1, well MW-8, and well MW-9), thallium (DH-2), zinc (DH-2), and the sum of iron and manganese (all locations except MW-11).

For the January, 1998 sampling round (shown in Table 1.7.3), significant reductions in the metals detections were noted for the samples that had been filtered when compared to the results of the unfiltered (whole) samples. Specifically, reductions in metals concentrations were noted for several metals which had exhibited exceedances based on the July, 1997 sampling: antimony, arsenic, beryllium, chromium, copper, iron, lead, thallium, zinc, and the sum of iron and manganese. For the filtered samples, the only metals concentrations that exceeded the NYSDEC standards were iron (well MW-1 and well MW-10), manganese (well MW-1, well MW-9, and well MW-10), sodium (well MW-8 and well MW-9), and the

sum of iron and manganese (well MW-1, well MW-9, and well MW-10). These data indicate that many of the metals exceedances noted in the July, 1997 data resulted from suspended particulate material in the groundwater samples and were not representative of metals concentrations dissolved in the groundwater.

Based on these results, elevated concentrations of several TCL VOCs and/or SVOCs are present at several on-Site sampling locations, including wells MW-1 and MW-10 and Hydropunch location DH-2. The samples exhibiting exceedances of the NYSDEC standards for VOCs and SVOCs are all located on the southwest corner of the facility in the vicinity of an adjoining property with a plume of VOC-impacted groundwater, as described in the RI Report. These constituents have not been detected at elevated levels in either soil or leaching pool sediment samples at the IWI facility and are not interpreted to have originated from the IWI facility.

Elevated concentrations of several dissolved metals, including iron, manganese, and/or sodium, were detected in several wells, including MW-1, MW-8, MW-9, and MW-10. The sodium detections at wells MW-8 and MW-9 appear to be related to off-Site sources and do not appear to be associated with contamination associated with the facility leaching pools.

The iron and manganese exceedances were detected in wells MW-1, MW-9, and/or MW-10. These wells are located in the vicinity of leaching pools which exhibited elevated concentrations of iron, and, therefore, these detections may be related to contamination associated with the facility leaching pools. The iron and manganese concentrations were noted to decrease in a downgradient direction from MW-1 to MW-10 and it was predicted in the RI that groundwater iron and manganese concentrations should decrease to below the NYSDEC standards in the vicinity of the Site boundary.

Free-phase product was identified at wells MW-2 and MW-7 in July, 1997 at apparent thicknesses of 0.03 feet and approximately 0.4 feet, respectively. MW-7 is in the vicinity of LP-1 and LP-2 and MW-2 is located downgradient. It appears that the free-phase product originated from oil and/or emulsion

which was formerly present in these leaching pools. No free-phase product was noted in these wells or any of the nearby Site wells in May, 2000. Depth to water measurements in the Site wells indicated that the water table was between 0.5 and 1.0 feet higher in May, 2000 than in July, 1997 and, therefore, the free-phase product may no longer be present as a continuous layer on the water table surface. It is anticipated that the free-phase product layer will re-form as the water table declines.

Based on these data, groundwater monitoring and removal of free-phase product were selected as remedial measures for the Site groundwater. It is anticipated that removal of free-phase product will become feasible once the water table declines.

1.8 Summary of the Selected Remedy

Based upon the results of the RI/FS and the evaluation presented in Section 7 of the ROD, the NYSDEC has selected Alternative 2 as described in the FS and ROD as the remedy for the Site. Alternative 2 consists of the removal of source soils from selected leaching pools, removal of recoverable free-phase product from the top of the water table, and groundwater monitoring.

Alternative 2 will provide for the removal of the source soils from the leach pools, allowing a visual and analytical inspection to ensure that the soils containing VOCs in excess of the remedial goals will be removed and properly disposed. Regarding those leach pools not slated for source soil removal, the levels of contamination remaining in them are not expected to contribute additional contamination to groundwater. The primary reason that remaining contamination will not migrate to the water table is the vertical distance that separates the soils from the water table. Since the residual contamination is not expected to reach the water table, it would not be cost effective to remove the additional soils.

The elements of the selected remedy are as follows:

- A remedial action program, as presented in this work plan, 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.
- 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 manufacturing facility, remediation of leach pools will be accomplished primarily during plant shut down periods, which occur in July each year. Verification samples will be taken after each round of removal activities and compared with the cleanup goals. Procedures are also established for taking additional samples and determining whether any remaining contamination is "marginal" or must be removed.
- A project to remove free-phase product from the top of the water table by use of specially designed equipment (e.g., oil absorbent materials or specially designed bailer) to remove floating product from monitoring well(s). This will be focused in the vicinity of monitoring wells MW-7 and MW-2 and will continue until recoverable product has been removed. Current operations are regulated by the State Pollution Discharge Elimination System, and I.W. Industries has taken steps to minimize the likelihood of future spills to the leach pools or elsewhere on the property.
- Since the remedy results in untreated waste remaining at the Site, a long-term monitoring program will be designed and implemented to evaluate the success of the remediation on the quality of groundwater underlying the affected area of the Site. The need for additional off-site monitoring wells will be evaluated on an on-going basis.
- 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. The NYSDEC will be notified and must approve excavations five feet or greater below grade.

1.9 Remedial Action Objectives

The remedial action objectives for the leach pool source soils are the New York State Standards, Criteria, and Guidance (SCGs) as described in Section 4.1 of the ROD. The SCGs for the leach pool source soils are detailed on Table 1.9.1.

1.10 Phasing

The remedial actions are planned to be implemented in one or more phases, as determined by facility operations, feasibility, and other factors. The phasing of each action is discussed below. The anticipated project schedule is discussed in Section 2.6 of this work plan.

1.10.1 Leaching Pool Remediation

Leaching pool remediation is planned to be performed primarily during facility shutdown periods which are scheduled each year for the first two weeks in July. Performing this type of remediation during the facility shutdowns will result in less impact to facility operations and workers and will enable more leaching pools to be remediated during a given time frame. It is planned to start with the leaching pools in the more active areas of the facility in July, 2000. These will likely include LP-3 through LP-10, LP-23, LP-24, LP-28, and LP-29. Leaching pools that will be remediated at a later time will likely include LP-11 through LP-15, LP-18, LP-22,and LP-31. If the facility operations and finances permit, IWI may elect to have all of the leaching pools remediated during one event starting in July, 2000. If this option is utilized, then it is likely that all of the pools will be remediated in a time frame of three to four weeks.

Regardless of whether the leaching pools are remediated in one or two phases, it is possible that an additional phase of remediation will be necessary, depending on the results of the end-point samples. FPM will review the results of the end-point samples collected following remediation and will compare

TABLE 1.9.1
CONTAMINANT CONCENTRATIONS IN SOURCE SOILS - LEACH POOLS SELECTED FOR REMEDIATION[1]

Contaminant	Minimum	Maximum	Average	SCG	# That Exceed SCG
Metals (ppm)					
Arsenic	ND	22.9	4.4	7.5	2
Cadmium	0.2	74.5	6.4	10	2
Chromium	4.1	1,990	122.8	50	2
Copper	138	179,000	20,034	25	22
Iron	1,590	115,000	13,217	2,000	18
Lead	24.2	7,200	1,275	500	13
Mercury	ND	5.9	0.7	0.1	6
Nickel	3.2	172	35.4	13	12
Zinc	165	96,500	11,117	20	20
VOCs (ppb)					
Xylene	ND	3,500	277	1,200	2
Toluene	ND	71,000	5,855	1,500	2
Total VOCs	ND	382,000	27,103	10,000	4
SVOCs (ppb)					
Fluoranthene	ND	471,000	85,935	50,000	6
Phenanthrene	ND	350,000	56,535	50,000	4
Phenol	ND	450	27	30	4
Dibenzofuran	ND	32,000	3,156	6,200	3
Pyrene	ND	300,000	29,185	50,000	6
Benzo(a)anthracene	ND	130,000	24,630	224	14
Chrysene	ND	240,000	45,000	400	14
Benzo(b)fluoranthene	ND	110,000	27,230	224	14

[1]Includes 20 leach pools: 3-15, 18, 22-24, 28, 29, 31.

them to the remedial action objectives described in Section 1.9 of this work plan. In some cases, the end-point sample results may exceed the remedial action objectives. In these cases, the feasibility of removing additional source soil will be evaluated with respect to engineering, cost, facility operation, and potential benefit considerations, as discussed in Section 7.2 of the ROD. FPM will present its findings and recommendations from this evaluation to the NYSDEC in the post-remediation report. Based on the findings and recommendations, additional remediation of select pools may be necessary. This remediation would be accomplished in a separate phase following NYSDEC review and approval.

1.10.2 Free-Phase Product Recovery

Free-phase product recovery is planned to be initiated upon approval of this work plan and finalization of the Order on Consent. Product recovery efforts are anticipated to be continuously on-going until the free-phase product is reduced to non-recoverable thicknesses less than 0.01 foot at the affected wells. Product thickness monitoring will occur at quarterly intervals thereafter for a minimum of three years to confirm the absence of product. If recoverable product is noted during the monitoring period, product recovery efforts will commence until the product thickness is reduced to less than 0.01 foot at the affected wells. Thickness monitoring will again be conducted on a quarterly basis for a minimum of three years.

1.10.3 Groundwater Monitoring

Groundwater monitoring is planned to be initiated following the completion of the first phase of leaching pool remediation. Groundwater monitoring is anticipated to occur annually for at least three years to evaluate the anticipated reduction in groundwater constituents following the completion of leaching pool remediation.

1.11 Intended Future Site Use

Since impacted material will remain in some of the Site leaching pools following remediation, the selected remedy includes restrictions on the use of the Site to reduce or eliminate future exposures to this material by site workers and the general public. At present, IWI has no plans to utilize the Site for purposes other than its current industrial use. Based on the Site location and zoning it is unlikely, if the property ownership were to change, that a non-commercial or non-industrial use would be contemplated. However, to reduce the potential for exposure to the materials remaining at the Site, a deed notice and a deed restriction are planned.

A deed notice is proposed for the purpose of notifying potential future property owners of the presence of residual contamination at the Site. A deed restriction is proposed for the purpose of restricting Site uses to commercial or industrial purposes consistent with the level of contamination remaining following remediation. The NYSDEC will be notified and must approve excavations five feet or greater below grade. Additional information concerning these institutional controls is provided in Section 2.5 of this work plan.

SECTION 2.0
SELECTED REMEDY

Several remedial alternatives were evaluated in the Focussed FS for each of the media of concern and Site-wide Alternative 2, as described in the PRAP, the ROD, and Section 1.8 of this work plan, was selected. Site-wide Alternative 2 includes removal of impacted source soil from selected leaching pools, removal of recoverable free-phase product from the water table, groundwater monitoring, and imposition of institutional controls. Implementation of each of these elements of the selected remedy is described in the following sections. Standard operating procedures to be utilized during performance of each remedial element are also documented. Operation, monitoring, and maintenance issues are also addressed in these sections.

2.1 Leaching Pool Remediation Procedures

Source soils in all of the sampled leaching pools are impacted with VOCs, SVOCs, and/or metals. However, the magnitude of the impact is variable. The following leaching pools may be characterized as having constituents detected at concentrations requiring remediation: LP-3 through LP-15, LP-18, LP-22 through LP-24, LP-28, LP-29, and LP-31. These source soils do not present a hazard to human health at this time since there is no completed exposure pathway as discussed in Section 2.4 of the Focussed FS. However, leach pool source soils have the potential to cause groundwater contamination since sanitary waste or stormwater is routinely directed to the leaching pools for discharge. In addition, if workers were to contact the source soils during maintenance or construction activities, there would be the potential for human exposure. Therefore, removal of the most impacted source soils is proposed for the purposes of reducing the potential for groundwater contamination and potential worker contact.

Remediation of the leaching pools includes the following steps: waste characterization, removal of the liquids and source soils, transportation and disposal of the liquids and impacted source soils,

collection and analysis of end-point samples, and restoration of the leaching pools and nearby ground surface. Each of these steps is described in more detail in the following sections.

2.1.1 Waste Characterization

It is intended to perform waste characterization prior to initiating remediation so that the wastes to be disposed may be transported immediately upon removal to the designated waste disposal facilities. Waste characterization will be performed by the selected remediation contractor in consultation with FPM. Based on the existing chemical analytical data for the materials to be removed as wastes, the selected remediation contractor will target select disposal facilities to receive the wastes. The materials to be removed will then be sampled and analyzed for the parameters required by the targeted disposal facilities. These parameters may include Toxicity Characteristic Leaching Procedure (TCLP) metals, VOCs, and SVOCs, corrosivity, ignitability, and reactivity, total petroleum hydrocarbons (TPH), polychlorinated biphenyls (PCBs), and other select parameters. The waste characterization sampling will not include collection or analysis of QA/QC samples and the analyses will be performed with report-only deliverables since these data are to be used for waste classification purposes only, and are not intended to be used to confirm completion of remediation.

The analytical results will be reviewed by the selected remediation contractor and FPM and the wastes will be characterized and disposal facilities selected. The data will then be transmitted to the selected disposal facilities for disposal approval prior to the beginning of remediation. Copies of the analytical data and written approval from the disposal facilities will be supplied to the NYSDEC prior to the start of remediation.

2.1.2 Liquid and Source Soil Removal

Source soil and associated liquids in selected leaching pools will be remediated by removal and off-Site disposal. Although source soil removal may not completely reduce each of the chemical

concentrations in the selected leaching pools to below the targeted concentrations, it is designed to reduce constituent concentrations significantly and is a widely-utilized remedial technology for leaching pools on Long Island. In general, source soil removal includes accessing the leaching pool interiors, removal of any accumulated liquids, removal of the impacted source soils, pressure-washing to remove soil adhering to the interior of the leaching pools, and transfer of the liquids and source soil to appropriate containers for transportation. Following removal, the liquids and source soil will be transported for off-Site disposal.

Proposals to perform the remediation were solicited from several remediation contractors who have experience in performing leaching pool remediation and Integrated Technical Services, Inc. was selected to perform the work. The procedures planned to be utilized for each leaching pool are described below.

Liquid removal will be accomplished using a vacuum truck to pump off the liquids and contain them for transportation and disposal. If separate-phase liquids are encountered, then two vacuum trucks may be utilized so as not to mix the two liquid phases.

Source soil removal is planned to be accomplished by utilizing a high-vacuum vactor to vacuum the impacted source soil from the interior of the leaching pools. Utilization of a vactor often permits the remediation of leaching pools without necessitating the removal of the pool dome or slab since the vactor tube may access the leaching pool interior via the chimney. Utilization of the vactor has the added advantage of permitting the more complete removal of soil than may be accomplished by the other methods. However, since the vactor removal method requires a vacuum to be effective, the soil to be removed must generally be located within 20 to 25 feet of the surface on which the vactor is placed. In addition, if the chimney utilized to access the interior of the leaching pool is significantly offset from the center of the leaching pool or is sufficiently lengthy, the rigidity of the vactor tube has the potential to

restrict its access to the side of the pool distant from the chimney. This restriction is more significant if the depth to the impacted source soil is shallow.

If necessary, other procedures may be considered, including utilizing a crane-mounted clam-shell device (commonly referred to as an orange peel device) to remove the impacted soil, or utilizing a backhoe with an extendable arm to remove the impacted soil. Utilization of either an orange peel device or a backhoe necessitates the removal of the leaching pool dome or slab to access the interior of the leaching pool and the restoration of the ground surface in the vicinity of the leaching pool following remediation. This removal may result in additional costs and creates a health and safety concern for Site workers during the remediation. In addition, generally the removal of impacted source soil is not as complete using an orange peel device or a backhoe since material on the edges near the bottom of the leaching pool is not as accessible by the clamshell device or backhoe as it is with the vactor. The depth of operation of the backhoe is generally limited by the reach of the backhoe arm to approximately 20 feet below grade. Finally, use of the orange peel device has been discouraged by the SCDHS since there is the potential to transfer impacted sediment deeper into the subsurface by the dragging action that accompanies the operation of the orange peel. However, in cases where the depth to soil exceeds the reach of a backhoe arm or vactor, it is recommended to use a crane with an orange-peel device.

In addition to the depth limitations discussed for the removal devices, removal of impacted source soil from leaching pools is limited by several other factors, including the thickness of soil above the base of the leaching pool structure, its proximity to buildings, loading docks, or other structures. Removal of soil is generally not conducted to more than a few feet below the base of the leaching pool structure since this material is partially supporting the structure. If this material is removed, the structure may settle or the rings may separate or become misaligned which may result in a surface safety hazard. If the leaching pool structure is in the vicinity of a building, loading dock, or other structure where subsurface

loads are applied, generally soil is not removed from below the base of the leaching pool structure. If soil is removed from near or below the base of the rings, backfill is generally placed immediately in the bottom of the leaching pool structure for stability. The presence of groundwater also has the potential to limit the soil removal depth. However, based on the depth to groundwater at this Site, this is not anticipated to be a concern.

Increases in excavation depth may be accomplished utilizing shoring devices, including additional leaching pool rings which are placed on top of the original leaching pool rings as they subside into the deepening excavation or sheet piling which may be driven into place surrounding the leaching pool structure. However, utilization of these devices increases remediation costs and may only gain minor increases in excavation depth. Use of this technology will be evaluated on a case-by-case basis, depending on a number of Site factors.

Source soil removal will be conducted at each leaching pool with the objective of obtaining clean end-point samples. The condition of the soil remaining in the pool will be monitored during the removal process using visual methods and a PID to assess organic vapor concentrations. If possible, removal of source soil will continue at each pool until soil that appears visibly clean and does not exhibit appreciable organic vapors is encountered. At this point, an end-point soil sample will be collected as described in Section 2.1.4. However, in some cases, engineering considerations (proximity of excavation to base of leaching pool structure, proximity of pool to buildings, etc.) may limit the amount of material that can safely be removed from the structure. In these cases, if visibly clean soil is not encountered, excavation will continue until the source soil has been removed that can safely be removed without risking pool settlement or failure or other structural failure. In these cases, an end-point sample and a deeper sample will be collected as described in Section 2.1.4.

Following removal of the impacted source soil using one of the methods generally described above, the interior of each leaching pool will be pressure-washed and the accumulated rinseate will be removed with the vactor or vacuum truck.

The removed liquids will generally remain within the vacuum truck which was used for their removal. The liquids will be transported in the vacuum truck to the disposal facility. A waste manifest will be initiated for each load of liquids that is transported from the Site. The completed waste manifests documenting the proper disposal of the wastes will be returned by the remediation contractor to FPM following receipt of the wastes at the disposal facility. Copies of the completed manifests will be transmitted to the NYSDEC in the remediation report.

The removed source soil is planned to be transferred directly to watertight vacuum boxes. If necessary, source soils may be stockpiled on-Site for a short period of time prior to loading into watertight containers. If it becomes necessary to stage the removed source soils on Site, they will be stored in a temporary lined bermed area. A drawing of the lined bermed area, including the dimensions and construction materials, will be provided to the on-site NYSDEC representative prior to the staging of the material.

A waste manifest will be initiated for each load of source soils that is transported from the Site. The completed waste manifests documenting the proper disposal of the wastes will be returned by the remediation contractor to FPM following receipt of the wastes at the disposal facility. Copies of the completed manifests will be transmitted to the NYSDEC in the remediation report.

2.1.3 Waste Transportation and Disposal

As discussed above, the liquid wastes will be transported in vacuum trucks for disposal. Liquids will be transported by a NYSDEC-licensed transporter with a valid Part 364 waste transporter permit. It is anticipated that the liquids will be disposed to the Suffolk County Department of Public Works

(SCDPW) Bergen Point Sewage Treatment Plant. A SCDPW representative will confirm the acceptability of the liquid wastes at the treatment plant prior to the start of remediation. If separate-phase liquids are present, then an alternative disposal facility will be utilized. The selected remediation contractor will target one or more disposal facilities for separate-phase liquids and these facilities will be approved by FPM prior to the start of remediation. Any waste disposal facility utilized will have the appropriate regulatory permits for receiving the waste materials. As discussed above, waste manifests will be utilized to document the proper disposal of the wastes at each of the disposal facilities utilized.

The solid wastes will be loaded directly into watertight vacuum boxes for transportation. The filled vacuum boxes will be transported to the receiving disposal facility by a NYSDEC-licensed hazardous waste transporter with a valid Part 364 waste transporter permit. The selected remediation contractor will target one or more permitted disposal facilities for the solid wastes and these facilities will be approved by FPM prior to the start of remediation. The receiving facility will also pre-approve the wastes prior to remediation. As discussed above, waste manifests will be utilized to document the proper disposal of the transported wastes.

2.1.4 End-Point Sampling

Following the completion of remediation of each leaching pool, an end-point soil sample will be collected and analyzed to document the completeness of remediation. In the cases where leaching pool remediation is terminated prior to encountering visibly clean soil, a deeper soil sample will be obtained from several feet below the top of the remaining soil. The purpose of the deeper sample is to evaluate the vertical extent of contamination which may remain below the base of the excavation. Each end-point or deeper soil sample will be collected using a decontaminated stainless-steel hand auger. The recovered soil will be visually inspected and described and field PID readings will be obtained. Each soil sample will be analyzed for TAL metals, TCL VOCs, and TCL SVOCs. The resulting chemical analytical data

will be evaluated together with other engineering factors (excavation depth, leaching pool structure stability, proximity to buildings, etc.) to confirm the completion of remediation. Decontamination, analytical, and QA/QC procedures associated with end-point sampling are documented in Section 3.0 of this work plan.

The chemical analytical results of the end-point and deeper samples will be presented, together with a summary of the remediation procedures, in a post-remediation report as discussed in Section 2.4 of this work plan.

2.1.5 Restoration

Following end-point sampling, each of the leaching pools will be restored to its previous function, if possible, and the Site surface will be restored. Restoration may require a number of steps, including placement of backfill to stabilize the leaching pool structures, replacement of piping, replacement of the dome or slab on top of the pools, and repaving. Backfill, if placed, will consist of clean virgin bank-run sand as certified by the backfill supplier. Information will be provided to the NYSDEC prior to the placement of the backfill regarding the supplier and the source of the backfill. No recycled or non-virgin materials will be utilized. Due to safety and functional considerations, restoration of the leaching pools will be preformed prior to the receipt of the chemical analytical data from the end-point samples. FPM recognizes that additional remediation work may be required in some leaching pools based on the end-point sample results. If necessary, additional remediation may be performed at some pools following initial restoration.

2.1.6 Phasing

As discussed in Section 1.10 of this work plan, leaching pool remediation will be conducted in one or more phases. It is planned to conduct the first phase in July, 2000 during the annual facility shutdown. The leaching pools to be remediated during this phase will likely include LP-3 through LP-10, LP-23, LP-

24, LP-28, and LP-29. Leaching pools to be remediated at a later time will likely include LP-11 through LP-15, LP-18, LP-22, and LP-31. An additional remediation phase may be necessary if additional remediation is indicated for selected leaching pools.

2.2 Free-Phase Product Removal

Free-phase product removal is planned for the area where recoverable free-phase product is present on the water table surface. The measured free-product thicknesses in 1997 at the Site ranged from 0.03 feet at well MW-2 to 0.4 feet at well MW-7. Free-phase product was not detected in May, 2000 at wells MW-2, MW-7, or any nearby Site wells. The water table elevation was noted to be 0.5 to 1.0 feet higher in May, 2000 than in July, 1997 and, therefore, it is likely that the free-phase product is not present currently as a continuous layer on the water table surface. It is anticipated that the free-phase product layer will reform as the water table declines.

Product removal may be accomplished utilizing several technologies, including product-only pumps, hydrophobic belt systems, absorbent materials, and hydrophobic bailers. In general, the product removal method utilized will depend primarily on the apparent thickness of the product in the wells and the surface conditions in the vicinity of the wells. The apparent thickness of the free-phase product will be measured in each of the Site wells on a quarterly basis to confirm the appropriate selection of product recovery methods.

Product-only pumps are generally most efficient for free-product thicknesses of more than one foot. Since the measured product thicknesses are less than one foot, this remediation technology will not be further considered unless the apparent thickness of free-phase product increases to more than one foot in the Site wells.

Hydrophobic belt systems utilize a motor-driven hydrophobic belt placed into a well installed into the free-product layer to transfer product from the water table to the ground surface for containerization

prior to disposal. Hydrophobic belt systems are inexpensive to procure and operate and may be utilized on relatively thin free-phase product layers. However, these systems generally must be housed in an above-grade structure for periodic servicing and become less efficient in thin free-product layers. Since the free-phase product layer is located below an active outdoor portion of the IWI facility and portions of the plume are very thin (less than 0.1 foot), this technology will not be further considered unless the apparent thickness of free-phase product increases to more than one foot in the Site wells.

Hydrophobic, product-absorbent materials are widely utilized in industry and environmental remediation to absorb and remove free-phase product for disposal. These materials are manufactured in forms suitable for insertion into groundwater monitoring wells (eg. Soak-Eze) and may be utilized to absorb thin free-phase product layers. The absorbent materials are placed into the affected groundwater monitoring wells in contact with the free-phase product. The materials are periodically removed and inspected to evaluate if they are spent. Spent absorbent materials are placed into a container and properly disposed.

Hydrophobic (product-only) bailers are devices which are placed into wells containing free-phase product and are used to continuously capture free-phase product from the water table surface. These devices consist of a hydrophobic membrane covering a bailer intake which floats at the free-phase product surface. The hydrophobic membrane allows the free-phase product to pass into the body of the bailer and restricts water from the bailer. The body of the bailer consists of an approximately one-gallon chamber which is used to contain the captured product for removal. Hydrophobic bailers are suspended in the affected wells and are periodically serviced to remove the accumulated product. The removed product is generally placed in a drum which is used to store the removed material prior to disposal. Hydrophobic bailers are most cost-effective for free-phase product thicknesses ranging between approximately one inch and one foot. With free-phase product thicknesses of less than one inch, little product accumulates in the

bailer and there is a greater risk of collecting water in the bailer. With product thicknesses of more than one foot, the bailers must be frequently serviced to effectively reduce product thicknesses in the vicinity of the affected well.

Based on the existing free-phase product apparent thickness data, free-phase product recovery efforts will consist of placing absorbent materials in wells MW-2 and MW-7 until the product layer reforms with sufficient thickness for alternative methods to be utilized. These devices will initially be serviced weekly until an appropriate servicing frequency is established that will facilitate the most rapid, cost-efficient product removal rate. If free-phase product thicknesses increase to more than one inch, then hydrophobic bailers will be placed in the affected wells. If the free-phase product thicknesses are reduced to less than one inch in wells with hydrophobic bailers, then the bailers will likely be removed and absorbent materials will be utilized to continue free-phase product removal. Product removal efforts will continue from these wells until the product thickness is reduced to less than 0.01 foot (sheen). Copies of manufacturer's information concerning absorbent materials and hydrophobic bailers are included in Appendix A.

Free-phase product removal and monitoring efforts will be documented by the completion of monitoring logs. An example monitoring log is shown in Table 2.2.1. This log can be modified as necessary to add wells or other information necessary to document the free-phase product removal effort. The monitoring log will be completed by FPM personnel each time a product removal event occurs. Copies of the monitoring logs will be included in the annual monitoring reports, as discussed in Section 2.4.

The removed product and spent absorbent materials will be placed into labeled drums and stored indoors on-Site pending disposal. The filled drums will be removed by a licensed waste hauler and transported off-Site for proper disposal. Disposal would occur at an appropriate permitted disposal

TABLE 2.2.1
FREE-PHASE PRODUCT MONITORING LOG
I. W. INDUSTRIES, INC. SITE, 35 MELVILLE PARK ROAD, MELVILLE, NEW YORK

Date	Well MW-2			Well MW-7					
	Depth to Product	Depth to Water	Product Removal Method and Amount	Depth to Product	Depth to Water	Product Removal Method and Amount	Total Product On-Site	Total Product Removed	Comments

facility and the waste will likely be classified as non-hazardous. Waste manifests will be completed to document the proper disposal of the product and spent absorbent materials. It is anticipated that free-phase product removal efforts will continue for approximately one year. Free-phase product monitoring will be performed quarterly for a minimum of three additional years. Free-phase product removal will be reinitiated if additional recoverable (greater than 0.01 foot) free-phase product is noted. On-going product removal efforts will be documented in the annual monitoring reports as discussed in Section 2.4 of this work plan.

2.3 Groundwater Monitoring

Concentrations of several dissolved metals, including iron, manganese, and/or sodium, were detected in wells MW-1, MW-8, MW-9, and/or MW-10. The sodium detections appear to be related to off-Site sources and will not be further addressed. The iron and manganese exceedances may be related to contamination associated with the facility leaching pools. These elevated concentrations are not projected to extend more than 10 feet south of the Site boundary. Since there is no human exposure to on-Site groundwater, the contaminant concentrations are projected to attenuate rapidly off-Site, the contaminant source areas are proposed to be remediated, and the regulatory guidance values for the contaminants are based on aesthetic concerns and are not health-based standards, it is planned to conduct groundwater monitoring to evaluate groundwater contaminant concentrations at select Site locations and to document the anticipated reduction in groundwater iron and manganese concentrations following source-area remediation.

Off-Site groundwater monitoring is not planned at this time since an evaluation of the existing Site groundwater data indicates that contaminant concentrations are projected to attenuate rapidly off-Site. Groundwater monitoring data will be reviewed on an annual basis and the need for off-Site groundwater monitoring will be assessed. If groundwater contaminant concentrations suggest that off-Site groundwater

monitoring is indicated, then it is proposed to utilize off-Site groundwater monitoring wells that are planned to be installed as part of an investigation of groundwater contamination associated with the adjoining facility at 25 Melville Park Road. If off-Site groundwater monitoring is indicated, then FPM will review the locations and screen intervals of the off-Site wells for the purpose of selecting an appropriate well to monitor groundwater conditions downgradient of the Site. Approval will be obtained from the off-Site well owner prior to performing groundwater sampling.

It is planned to collect groundwater samples on an annual basis from select Site monitoring wells (wells MW-1, MW-3, MW-4, MW-8, MW-9, and MW-10) and analyze the samples for the constituents of concern. In addition, free-phase product thicknesses will be monitored on a quarterly basis to evaluate the performance of the product recovery devices. Quarterly monitoring is recommended for the free-phase product to evaluate the impact of changing groundwater levels on the observed free-phase product thicknesses. An annual monitoring report will be prepared to document observed contaminant concentration changes and free-phase product apparent thicknesses as discussed in Section 2.4 of this work plan.

At each well to be sampled, the depth to the static water level and depth of the well will be measured with an interface probe. Measurements will be recorded to the nearest 0.01 foot and any thickness of free-phase product noted in the well will be recorded. The length of the column of water present in the well borehole will be calculated and the volume of the water in the borehole will be derived. A decontaminated stainless steel submersible pump with a polyethylene hose, a decontaminated PVC bailer, or dedicated disposable bailer will be used to purge at least three to five borehole volumes of water from each well. Following the removal of each borehole volume, field parameters, including pH, turbidity, specific conductivity, and temperature will be monitored. When the field parameters are noted to vary less than ten percent between the removal of two successive borehole volumes, the groundwater

turbidity is less than 50 nephelometric turbidity units (NTUs), and after at least three borehole volumes have been removed, the well will be sampled. It should be noted that during groundwater sampling every reasonable effort will be made to purge the facility wells to the extent necessary to reduce the turbidity to below 50 NTU. However, for several older wells at the facility it may not be possible to achieve a turbidity of less than 50 NTU due to the original well construction. For wells where the turbidity is greater than 50 NTU following a significant purging effort, both filtered and unfiltered samples will be collected for metals analyses, as described below.

Groundwater samples will be obtained using a dedicated disposable bailer suspended with a dedicated disposable cord. The samples will be transferred from the bailer to laboratory-supplied sample bottles. At all wells, the sample bottles for VOC analysis will be filled to zero headspace prior to filling any other sample vials. For wells with turbidity greater than 50 NTU following purging, two volumes of groundwater will be obtained from each well for metals analysis. One sample volume will be preserved immediately and transmitted whole and unfiltered to the laboratory for analysis. The second volume will be filtered in a decontaminated filter apparatus fitted with disposable 0.45 micron filter paper. This volume will be preserved after filtering to remove suspended sediment. QA/QC samples will also be obtained as described in Section 3.1.5 of this work plan.

Each sample container will be labeled with the Site name, well number, date and time of sampling, and analysis to be performed. The labeled sample containers will be placed in laboratory-supplied coolers with ice to depress the temperature to four degrees Celsius. A chain-of-custody form will be filled out and kept with the samples in the coolers to document the sequence of sample possession. The sample coolers will be delivered by an FPM employee or by an overnight courier to the selected New York State Department of Health ELAP-certified laboratory. The groundwater samples will be analyzed for TCL VOCs, TCL SVOCs, and TAL metals.

It is planned to conduct annual groundwater monitoring for at least three years to evaluate the anticipated reduction in groundwater constituents following the completion of leaching pool remediation. The existing and newly-obtained groundwater monitoring data will be evaluated each year and a recommendation will be made as to the necessity for continuing monitoring. The NYSDEC must approve this recommendation before monitoring can be terminated. Based on the relatively low rate of groundwater migration beneath the Site, several years may be required for groundwater constituent concentrations to be reduced following remediation.

2.4 Reporting

Several type of reports are anticipated to be prepared to document the results of remediation and monitoring at this Site. These reports include post-remediation reports and annual monitoring reports. All reports prepared to document remediation activities and results will be certified by a professional engineer. The certification will indicate that the Remedial Action Work Plan was implemented and that all construction activities were completed in accordance with the NYSDEC-approved Remedial Action Work Plan and were personally witnessed by the professional engineer or by a person under his or her direct supervision.

Following the completion of leaching pool remediation, a report documenting the remediation procedures, waste disposal, and chemical analytical results of the end-point samples will be prepared. This report will include "as built" documents consisting of a drawing showing a typical leaching pool configuration with the key dimensions indicated, and a table recording the initial and final key dimensions for each leaching pool remediated. Also included will be the volume of materials removed for each leaching pool. In this report, the end-point sample results will be compared to the cleanup goals listed in Table 1 of the ROD. An evaluation of the QA/QC sample results will also be made. The completeness of remediation and the potential impact of any material remaining in the leaching pools will also be

evaluated. In the event that the remediation is accomplished in stages, a report will be prepared following the end of each stage of remediation for the purpose of documenting the remediation results to date and the remaining work to be performed.

In addition, to the report(s) documenting the remediation results, annual reports documenting the groundwater monitoring results and free-phase product removal efforts will also be prepared. These reports will include the groundwater chemical analytical data, an analysis of the QA/QC sample results, a groundwater flow direction map, quarterly free-phase product thickness maps, removed product volumes, free-phase product monitoring logs, waste disposal manifests, and FPM's conclusions and recommendations regarding groundwater monitoring and free-phase product removal.

It is also anticipated that ongoing communications will continue between FPM and the NYSDEC. These ongoing communications may include verbal and written communications intended to convey information regarding Site conditions and to obtain approval for recommended changes in remediation or monitoring procedures. Synopses of significant ongoing communications will be included in the remediation and/or monitoring reports as necessary.

2.5 Institutional Controls

Since impacted material will remain in some of the Site leaching pools following remediation, the selected remedy includes restrictions on the use of the Site to reduce or eliminate future exposures to this material by site workers and the general public.

At present, IWI has no plans to utilize the Site for purposes other than its current industrial use. Based on the Site location and zoning, it is unlikely, if the property ownership were to change, that a non-commercial or non-industrial use would be contemplated. However, to reduce the potential for exposure to the materials remaining at the Site, a deed notice and a deed restriction are planned.

A deed notice is proposed for the purpose of notifying potential future property owners of the presence of residual contamination at the Site. Following completion of the leaching pool remediation and removal of the recoverable free-phase product, IWI will prepare and record a deed notice with information pertaining to the nature and extent of contamination remaining at the Site.

A deed restriction is proposed for the purpose of restricting Site uses to commercial or industrial purposes consistent with the level of contamination remaining following remediation. The NYSDEC will be notified and must approve excavations five feet or greater below grade. Following completion of the leaching pool remediation and removal of the recoverable free-phase product, IWI will prepare and record a deed restriction consistent with the nature and extent of contamination remaining at the Site.

2.6 Schedule

The planned remediation activities are scheduled to occur over the course of two years. Product recovery efforts are planned to start in July, 2000. A schedule depicting the anticipated commencement and duration of activities is presented in Table 2.6.1. This schedule may be modified as necessary based on regulatory agency approvals, facility operations, or extenuating circumstances.

2.7 Project Organization

This project will be implemented by IWI with the assistance of FPM and oversight and approval by the NYSDEC. A chart depicting the project organization is shown in Figure 2.7.1.

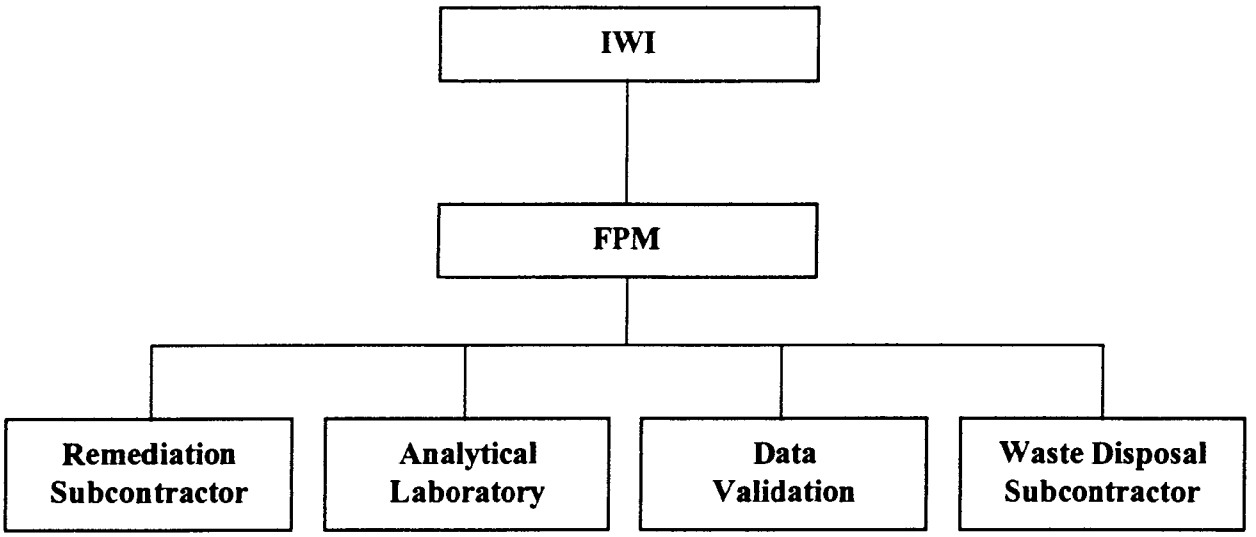
The NYSDEC shall provide regulatory oversight for this project. Oversight may include having a NYSDEC representative on Site for observation purposes during remediation or monitoring activities, obtaining split samples for confirmation purposes, interfacing with NYSDEC personnel concerning off-Site monitoring concerns, or other activities. Remediation and monitoring reports will be submitted to the NYSDEC by IWI for review, comment, and approval.

TABLE 2.6.1
ANTICIPATED SCHEDULE OF REMEDIATION AND MONITORING ACTIVITIES
I.W. INDUSTRIES SITE, 35 MELVILLE PARK ROAD, MELVILLE, NEW YORK

Activity	2000			2001				2002				2003	2004
	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q		
Order on Consent	*												
Remedial Design Work Plan	*												
Leaching Pool Remediation													
Phase I													
Phase I Reporting			*										
Phase II													
Phase II Reporting							*						
Free-Phase Product Recovery													
Recovery Efforts													
Monitoring												Quarterly	Quarterly *
Reporting												Annually	Annually *
Groundwater Monitoring													
Monitoring												Annually	Annually *
Reporting												Annually	Annually *
Institutional Controls													

Notes: * Denotes NYSDEC approvals.

FIGURE 2.7.1
PROJECT ORGANIZATION
REMEDIATION AND MONITORING
I.W. INDUSTRIES SITE, 35 MELVILLE PARK ROAD, MELVILLE, NEW YORK



SECTION 3.0
QUALITY ASSURANCE/QUALITY CONTROL

This section of the work plan describes the quality assurance project plan and the sampling and analysis plan to be utilized during the implementation of the selected remedy.

3.1 Quality Assurance Project Plan

The quality assurance project plan describes the QA/QC procedures to be utilized during the remediation and monitoring activities.

3.1.1 Decontamination Procedures

Dedicated disposable equipment (disposable bailers, gloves, cord, etc.) will be utilized whenever possible to reduce the risk of cross-contamination. When it is not possible to use disposable equipment, all non-disposable downhole or sampling equipment (i.e., hand auger buckets, submersible pump, PVC bailers) will be decontaminated prior to use at each location. The equipment to be decontaminated will be scrubbed in a bath of potable water and low-phosphate detergent followed by a potable water rinse. The equipment will then be rinsed successively with ten percent nitric acid (one percent for carbon steel) and distilled water. Methanol or hexane rinses will not be utilized unless required for removal of oily contamination. The equipment will then be allowed to air dry prior to use if time permits. The decontaminated equipment will be wrapped in aluminum foil (shiny side out) for transport if necessary.

3.1.2 Sample Designation

All samples will be identified with sequential numbers referencing either the leaching pool or the monitoring well from which they were obtained. If additional samples are collected from the same location, they will be clearly labeled with the sampling date and time so as to facilitate identification. For example, at leaching pool LP-3, an end-point sample would be labeled "LP-3 end" with the date and sampling time indicated on the label. If additional end-point soil samples are collected following

additional remediation, the date and time information will reflect a later sampling event. If a deeper soil sample was collected at 35 feet, it would be labeled "LP-3 at 35 feet". All sample depths will be referenced to grade. Groundwater samples will be labeled with the well number from which they were collected and the sample date and time.

3.1.3 Sample Packaging and Shipment

All samples will be placed in laboratory-supplied bottles with appropriate preservatives. Table 3.1.3.1 documents the bottle type and preservation for each anticipated analyte group and matrix.

All samples will be placed in a laboratory-supplied cooler and packed with ice to depress the temperature to 4 degrees Celsius. The shipping coolers will be secured with tape and custody seals will be placed along cooler openings in a manner to reveal if the cooler was opened during transit. The sample containers will be delivered to the laboratory by FPM or by an overnight carrier. In the event the samples cannot be delivered to the laboratory overnight, the samples will remain in the custody of FPM personnel overnight and the samples will be delivered to the laboratory the following day.

3.1.4 Chain-of-Custody Procedures

For each day of sampling, a chain-of-custody sheet will be completed and submitted to the laboratory and a copy of the chain-of-custody will be retained by FPM. The chain-of-custody sheet will include the project name, the sampler's signature, the sampling locations, intervals, and analysis parameters requested. If the samples are shipped using an overnight courier, the air bill number will be placed on the chain-of-custody to facilitate tracking, if necessary.

3.1.5 QA/QC Samples

QA/QC samples will be obtained during the leaching pool end-point soil sampling and groundwater monitoring. QA/QC samples will include equipment blank samples, trip blank samples, duplicate samples, and matrix spike/matrix spike duplicate samples.

TABLE 3.1.3.1
SAMPLE BOTTLES AND PRESERVATIVES
I. W. INDUSTRIES, INC. SITE
35 MELVILLE PARK ROAD, MELVILLE, NEW YORK

Sample Matrix	TCL VOCs	TCL SVOCs	TAL Metals
Solid	One 4 oz. CWM	One 8 oz. CMW	One 8 oz. CWM
Liquid	Three glass VOA vials with HCl	Two one-liter amber glass	One 500 ml plastic with HNO_3

Notes:

CWM = Clear wide-mouth glass jar.
oz. = ounce
ml = milliliter
HCl = hydrochloric acid
HNO_3 = nitric acid

One equipment blank sample per day per matrix sampled will be obtained. Each equipment blank sample will be prepared by pouring laboratory-supplied, deionized water through the sampling equipment and into a set of sample containers. The equipment blank samples will be tested for the same analytes as the matrices to be sampled that day. The equipment blank sample results will be reviewed to evaluate the potential for field or laboratory contamination and will be used to attest to the quality of the decontamination procedures.

One trip blank sample will be provided by the laboratory for each set of samples to be submitted to the laboratory for VOC analysis. The trip blank samples will be prepared by the laboratory from analyte-free, deionized water and will remain in the coolers in which the samples are stored. Trip blank samples will be analyzed for VOCs only. The purposes of trip blank samples are to ensure that no cross-contamination of VOCs occurs in the sample cooler and to attest to laboratory water quality.

Matrix spike/matrix spike duplicate samples will be submitted to the laboratory by obtaining an extra volume of sample for each matrix sampled. The frequency of matrix spike/matrix spike duplicate samples will be one per sample delivery group (20 primary samples) for each matrix. The purpose of the matrix spike/matrix spike duplicate samples is to confirm the accuracy and precision of the laboratory.

Blind duplicate samples will be obtained for each matrix at a frequency of at least one duplicate sample per sample delivery group. Each blind duplicate sample will be prepared by obtaining an extra volume of sample for each matrix sampled. The purpose of the blind duplicate samples is to attest to the precision of the laboratory.

3.1.6 Sample Analysis

All samples will be submitted to a New York State Department of Health ELAP- and CLP-certified laboratory. The laboratory testing will conform to USEPA Contract Laboratory Protocol (CLP) with data

reporting conforming to ASP. Laboratory testing and data reporting will be performed by a subcontracted laboratory. The proposed laboratory is Severn-Trent Laboratory, Monroe, Connecticut.

The ASP laboratory reports will include sample analytical results, methods of analysis, surrogate recoveries, reportable field and laboratory QA/QC sample analytical results, method limits of detection, and sample practical quantification limits (PQLs). All samples will be analyzed for TCL VOCs using EPA Methods 624/8240, TCL SVOCs using EPA Methods 625/8270, and TAL metals by EPA 7000 Series Methods with NYSDEC ASP Category B deliverables.

3.1.7 Data Validation

All samples obtained and analyzed will be subjected to data validation by an independent contractor using NYSDEC ASP Revision 5/95 and EPA Region II Functional Guidelines. The proposed data validation subcontractor is Data Validation Services of North Creek, New York. The data validation will verify that the analytical results are of sufficient quality to be relied upon to assess the potential contamination in the soils and groundwater in the vicinity of the former subsurface leaching pools. The results of the data validation will be presented as an appendix to the reports and a statement of data usability will be included for every validation package. In addition, a general discussion of data usability will be provided in the reports.

Samples will be tracked through the field collection, laboratory analysis, and laboratory report preparation processes. FPM will perform the sample tracking and assemble and review the analytical results as they are received.

3.1.8 Data Evaluation

Data collected during the remediation and monitoring will be assembled, reviewed, and evaluated to assure satisfaction of the remedial objectives. Data evaluated will included chemical analytical data, free-phase product monitoring logs, well sampling forms, and other project documents. The data

collected will be organized and analyzed to evaluate the completeness of leaching pool remediation, free-phase product apparent thicknesses and trends, trends in groundwater constituent concentrations, groundwater flow direction, and the overall status of remediation and monitoring at the Site. Data will be presented and evaluated in one or more remediation reports and in annual monitoring reports, as discussed in Section 2.4 of this work plan.

3.2 Sampling and Analysis Plan

A synopsis of the numbers and types of samples to be collected during the implementation of the remedial measures is included in Table 3.2.1. Information pertaining to the number and type of QA/QC samples, types of analyses, and deliverables is also included.

TABLE 3.2.1
SAMPLING AND ANALYSIS PLAN FOR REMEDIAL MEASURES
I. W. INDUSTRIES SITE
35 MELVILLE PARK ROAD, MELVILLE, NEW YORK

Remedial Measure	Purpose	Matrix	Number of Primary Samples	Analyses to be Performed	QA/QC Samples				Deliverables
					Equipment Blanks	Trip Blanks	Duplicates	MS/MSD	
Leaching Pool Remediation	Waste Characterization	Liquid	Unknown*	Unknown*	-	-	-	-	Report only
		Solid	Unknown*	Unknown*	-	-	-	-	Report only
	End-Point Samples	Soil	20	TCL VOCs, ASP TCL SVOCs, ASP TAL Metals, ASP	10 to 15	10 to 15	1	1	ASP Category B
Free-Phase Product Recovery	Waste Characterization	Liquid	1	Unknown*	-	-	-	-	Report only
Groundwater Monitoring	Evaluate Groundwater Quality	Liquid	7 annually	TCL VOCs, ASP TCL SVOCs, ASP TAL Metals, ASP	1 annually	1 annually	1 annually	1 annually	ASP Category B

Notes:

* = To be supplied by subcontractor.
TCL = Target Compound List
TAL = Target Analyte List
VOCs = Volatile organic compounds
SVOCs = Semivolatile organic compounds

SECTION 4.0
HEALTH AND SAFETY PLANS

This section includes a worker Health and Safety Plan (HASP) to be utilized at the Site during remediation and monitoring activities for the protection of worker health and safety. A community HASP is also included to address potential health and safety issues that may affect the Site community.

4.1 Worker Health and Safety Plan

4.1.1 Introduction

This Health and Safety Plan (HASP) has been written for compliance with "OSHA Hazardous Waste Operations Standards (29 CFR 1910.120)", the guidance documents, "Standard Operating Safety Guidelines (Office of Solid Waste and Emergency Response, 1988)" and the "Occupational Safety and Health Guidance Manual for Hazardous Waste Activities" (U.S. Department of Health and Human Services, 1985).

Scope and Applicability of The HASP

This HASP is designed to be applicable to locations where leaching pool remediation, free-phase product removal, and groundwater sampling are performed at I. W. Industries, Inc. (the "Site") by all parties that either perform or witness the activities on Site. This HASP may also be modified or amended to meet specific needs of the proposed work.

This HASP will detail the Site safety procedures, Site background, and safety monitoring. Contractors will be required to adopt this HASP in full or to follow an FPM-approved HASP.

The Health and Safety Officer (HSO) will be present at the Site to inspect the implementation of the HASP, however, it is the sole responsibility of the contractor(s) to comply with the HASP.

The HASP has been formulated as a guide to complement professional judgment and experience. The appropriateness of the information presented should always be evaluated with respect to unforeseen Site conditions which may arise.

Site Work Zone and Visitors

The Site work zone (a.k.a. exclusion zone) during the performance of the leaching pool remediation, free-phase product removal, or groundwater sampling will be a 30-foot radius about the work location. This work zone may be extended if, in the judgment of the health and safety officer (HSO), Site conditions warrant a larger work zone.

No visitors will be permitted within the work zone without the consent of the HSO. All visitors will be required to be familiar with, and comply with, the HASP. The HSO will deny access to those whose presence within the work zone is unnecessary or those who are deemed by the HSO to be in non-compliance with the HASP.

All Site workers including the contractors will be required to have 40-hour hazardous material training (eight-hour refresher courses annually), respirator fit test certification, and medical surveillance as stated in 29 CFR 1910.120. Copies of documentation certifying the above-listed requirements will be kept at the Site in the possession of the HSO.

The HSO will also give an on-Site health and safety discussion to all Site personnel, including the contractors prior to initiating the Site work. Workers not in attendance during the health and safety talk will be required to have the discussion with the HSO prior to entering the work zone.

Emergency telephone numbers and directions to the nearest hospital are shown in Table 4.1.1.1 and will be kept at the Site in the possession of the HSO and will be available to all Site workers and visitors.

TABLE 4.1.1.1
EMERGENCY INFORMATION
I.W. INDUSTRIES SITE, 35 MELVILLE PARK ROAD, MELVILLE, NEW YORK

EMERGENCY PHONE NUMBERS

Central General Hospital Emergency Room	(631) 681-8900
FPM Group (Kevin Phillips)	(631) 737-6200
I.W. Industries, Inc. (Mr. John Sprufera or Mr. Ed Wigutoff)	(631) 293-9494
Police	911
Ambulance	911

DIRECTIONS TO CENTRAL GENERAL HOSPITAL (631-681-8900)

When exiting the Site, make a right on to Melville Park Road and follow it west to the end. Make a right turn onto Route 110 (Broad Hollow Road). Follow Route 110 northward for approximately one-quarter of a mile and turn left onto Long Island Expressway (Route 495) westbound. Get off at exit 48, turn left and go underneath the Expressway and continue south to Old Country Road. Bear right onto Old Country Road and continue for approximately two miles. The hospital is located at 888 Old Country Road on the right side of the road.

4.1.2 Key Personnel/Alternates

The project manager for this project is Stephanie Davis. The project hydrogeologist will be Mr. John Bukoski. Mr. Bukoski will also act as health and safety officer. An assistant project hydrogeologist and assistant health and safety officer may be designated for the field activities.

4.1.3 Site Background

The known chemicals present at the Site include VOCs, SVOCs, and metals. These chemicals are present in leaching pool sediments and groundwater at the Site.

4.1.4 Task/Operation Health and Safety Analysis

This section will present health and safety analyses for the leaching pool remediation, free-phase product removal, and groundwater purging and sampling tasks. In general, FPM will employ one to two persons at the Site. No sampling or other Site operations will be conducted by contractors without the presence of an FPM representative on Site. In the event that the HSO is not present on the Site, the Assistant HSO will implement the HASP.

Based on the Site history and previous analyses of samples, it has been determined that the chemical compounds of potential concern consist of VOCs, SVOCs, and metals in the leaching pool sediment and groundwater at the Site.

Leaching Pool Remediation Safety Analysis

Leaching pool remediation activities will generally be performed by contractors. FPM personnel are not anticipated to operate remediation equipment or to physically manage waste materials. Remediation will involve the use of heavy equipment. Safety concerns will include risk of injury due to being struck by equipment, being trapped between moving equipment parts, being struck by dropped materials, and hearing damage due to equipment noise. Site personnel will take precautions against these risks when working in the vicinity of heavy equipment by being aware of equipment locations and

movement, by wearing steel-toed boots and hard hats, and by using hearing protection, if necessary. Site personnel who have not previously worked in the vicinity of heavy equipment will be paired with and experienced person for at least one day to familiarize themselves with heavy equipment operations and safety procedures.

Leaching pool remediation will likely result in open excavations and leaching pool structures at the Site. To minimize risks associated with open excavations and structures, an effort will be made to minimize the number of open excavations and structures. Any excavations or structures not undergoing active remediation with either be closed or will be barricaded with construction fencing or other devices so as to minimize their hazards. At the close of each working day, any structures or excavations which are not closed will also be secured. Structures and excavations will not be left open during weekends or following the completion of remediation.

During leaching pool remediation, a photoionization detector (PID) will be utilized to screen vapors in the work zone. Level C personal protection will be donned if steady-state concentrations exceed five parts per million (ppm) above background. Steady-state readings, for this purpose, will be defined as readings exceeding five ppm above background for a minimum of ten seconds.

Upon encountering PID levels greater than five ppm above background in the worker's breathing zone, all personnel will be evacuated from the work zone in the upwind direction. Specific evacuation routes will be discussed prior to commencement of work at each location based on work location and wind direction. In addition, an evacuation meeting place will be determined. Level C personal protection may be implemented including full-face air-purifying respirators with dust and organic vapor cartridges (personal protective equipment will be described in greater detail in Subsection 4.1.7). All FPM personnel and contractors must be properly trained and fit tested prior to donning respirators. If, at any time, PID readings exceed steady-state levels greater that 50 ppm above background, or any conditions

exist which the HSO determines will require Level B personal protective equipment, all work at the Site will cease immediately and all personnel will evacuate the work zone. Evacuation will occur in the upwind direction if discernable. Level B conditions are not anticipated to be encountered; however, if Level B conditions arise, no Site work will be performed by FPM or contractors and a complete evaluation of the operation will be performed and this HASP will be modified.

All personnel will be required to wear chemical-resistant nitrile gloves when the potential for dermal contact with the leaching pool sediments is possible. This will generally include end-point sampling. Dermal contact with leaching pool sediment and equipment that has been in contact with leaching pool sediment will be avoided.

Sediment samples will be generally be obtained using hand augers. Nitrile gloves will be donned by samplers to avoid dermal contact with the sediment or the hand augers. Air monitoring will be performed periodically one foot above the borehole (the worker's breathing zone). Level C personal protection will be donned if steady-state concentrations exceed five ppm above background.

Free-Phase Product Recovery Safety Analysis

Free-phase product is planned to be recovered from two Site wells. The free-phase product consists of petroleum that likely originated as cutting oil. Product recovery will likely be accomplished using absorbent materials and/or a product recovery bailer. These devices will be placed into the wells from which the product is to be removed and will periodically be monitored by FPM personnel.

Nitrile gloves will be donned by FPM personnel samplers to avoid dermal contact with the product. Air monitoring will be performed periodically one foot above the open well (the worker's breathing zone) to evaluate if organic vapors are present. Level C personal protection will be donned if steady-state organic vapor concentrations exceed five ppm above background.

Groundwater Purging and Sampling Safety Analysis

Groundwater will be obtained from all Site monitoring wells. Monitoring wells will be purged by pumping or bailing and samples will be obtained by bailing. Nitrile gloves will be donned by samplers to avoid dermal contact with the groundwater. Air monitoring will be performed periodically one foot above the open well (the worker's breathing zone). Level C personal protection will be donned if steady-state concentrations exceed five ppm above background.

Other Safety Considerations

Noise

During remediation operations or any other operation which may generate potentially harmful levels of noise, the HSO will monitor noise levels with a Realistic[tm] hand-held sound level meter. Noise levels will be monitored in decibels (dBs) in the A-weighted, slow-response mode. Noise level readings which exceed the 29 CFR 1910.95 permissible noise exposure limits will require hearing protection (see Table 4.1.4.1 for Permissible Noise Exposures).

Hearing protection will be available to all Site workers and will be required for exceedance of noise exposure limits. The hearing protection will consist of foam, expansion-fit earplugs (or other approved hearing protection) with an Environmental Protection Agency noise reduction rating of at least 29 dB. Hearing protection must alleviate worker exposure to noise to an eight-hour time-weighted average of 85 dB or below. In the event that the hearing protection is inadequate, work will cease until a higher level of hearing protection can be incorporated.

Slip/Trip/Fall Preventative Measures

To reduce the potential for slipping, tripping, or falling, the work zone will be kept clear of unnecessary equipment. In addition, all Site workers will be required to wear work boots with adequate

TABLE 4.1.4.1
PERMISSIBLE NOISE EXPOSURES*
I. W. INDUSTRIES, INC. SITE
MELVILLE, NEW YORK

Duration Per Day Hours	Sound Level dBA Slow Response
8	90
6	92
4	95
3	97
2	100
1½	102
1	105
½	110
¼ or less	115

NOTES:

When the daily noise exposure is composed of two or more periods of noise exposure of different levels, their combined effect should be considered, rather than the individual effect of each. If the sum of the following fractions: $C_1/T_1+C_2/T_2$ C_n/T_n exceeds unity, then, the mixed exposure should be considered to exceed the limit value. C_n indicates the total time of exposure at a specified noise level, and T_n indicates the total time of exposure permitted at that level.

Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level.

* Standards derived from 29 CFR 1910.95

tread to reduce the potential for slipping (work boots must be leather or chemical-resistant and contain steel toes and steel shanks).

Insects and Ticks

Insect and tick problems are expected to be minimal. Potential insect problems include, but are not limited to, bees, wasps, and hornets. Prior to commencement of work, each work area will be surveyed for nests and hives to reduce the possibility of disturbing these insects. In addition, each Site worker will be asked to disclose any allergies related to insect stings or bites. The worker will be requested to keep his or her anti-allergy medicine on Site.

Tick species native to Long Island consist of the pinhead-sized deer tick and the much-larger dog tick. Ticks are unlikely to exist at the Site due to a paucity of suitable habitat. All Site workers will be advised to avoid walking through tall grassy areas where possible and will be advised to check for ticks on clothing periodically.

Potential Electrical Hazards

Potential electric hazards consist mainly of overhead and underground power lines. Prior to commencement of work at the Site, all remediation and sampling locations will be inspected with respect to overhead lines. Remediation involving backhoes or other tall equipment will not be performed when the horizontal distance between the equipment and overhead wires is less than 30 feet.

Underground potential electrical hazards will be minimized by reviewing as-built Site blueprints to avoid contact with subsurface utility lines or structures.

The Buddy System

All activities in contaminated or potentially contaminated areas will be conducted by pairing off the Site workers in groups of two (or three if necessary). Each person (buddy) will be able to:

- Provide his or her partner with assistance.
- Observe his or her partner for signs of chemical, cold, or heat exposure.
- Periodically check the integrity of his or her partner's protective clothing.
- Notify the HSO or others if emergency help is needed.

The buddy system will be instituted at the beginning of each work day. If new workers arrive on Site, a buddy will be chosen prior to the new worker entering the work zone.

Site Communications

Two sets of communication systems will be established at the Site: internal communication among personnel on-Site, and external communication between on-Site and off-Site personnel.

Internal communication will be used to:

- Alert team members to emergencies.
- Pass along safety information such as heat stress check, protective clothing check, etc.
- Communicate changes in the work to be accomplished.
- Maintain Site control.

Due to ambient noise, verbal communications may be difficult at times. The HSO will carry a whistle (and compressed air horn if respirators are donned) to signal Site workers. A single whistle blast will be the signal to immediately evacuate the work zone through the access control point. This signal will be discussed with all Site workers prior to commencement of work.

An external communication system between on-Site and off-Site personnel will be established to:

- Coordinate emergency response

- Report to the Project Manager
- Maintain contact with essential off-Site personnel

A field telephone will be available at all times in the HSO's vehicle. In addition, the nearest stationary phone will be identified prior to the commencement of Site operations and this location will be relayed to all Site workers.

General Safe Work Practices

Standing orders which will be applicable during Site operations are as follows:

- No smoking, eating, drinking, or application of cosmetics in the work zone.
- No matches or lighters in the work zone.
- All Site workers will enter/exit work zone through the Site access point.
- Any signs of contamination, radioactivity, explosivity, or unusual condition such as dead animals will require evacuating the Site immediately and reporting the information to the HSO.
- Loose fitting clothing or loose long hair will be prohibited in the work zone during drilling operations.
- A signal person will direct the backing of work vehicles.
- Equipment operators will be instructed to check equipment for abnormalities such as oozing liquids, frayed cables, unusual odors, etc.

4.1.5 Personnel Training Requirements

All FPM personnel and contractor personnel will receive adequate training prior to entering the Site. FPM's and contractor's personnel will, at a minimum, have completed OSHA-approved, 40-hour hazardous materials Site safety training and OSHA-approved, eight-hour safety refresher course within one year prior to commencing field work. The HSO will have received the OSHA-approved, eight-hour

course on managing hazardous waste operations. In addition, each worker must have a minimum of three days field experience under the direct supervision of a trained, experienced supervisor.

Prior to Site field work, the HSO will conduct an in-house review of the project with respect to health and safety with all FPM personnel who will be involved with field work at the Site. The review will include discussions of signs and symptoms of chemical exposure and heat stress that indicate potential medical emergencies. In addition, review of personal protective equipment will be conducted to include the proper use of air-purifying respirators.

4.1.6 Medical Surveillance Program

All workers at the Site must participate in a medical surveillance program in accordance with 29 CFR 1910.120. A medical examination and consultation must have been performed within the last twelve months to be eligible for field work.

The content of the examination and consultation will include a medical and work history with special emphasis on symptoms related to the handling of hazardous substances, health hazards, and fitness for duty including the ability to wear required personal protective equipment under conditions (i.e., temperature extremes) that may be expected at the work Site.

All medical examinations and procedures shall be performed by, or under the supervision of, a licensed physician. The Physician shall furnish a written opinion containing:

- The results of the medical examination and tests;
- The physician's opinion as to whether the employee has any detected medical conditions which would place the worker at increased risk of material impairment of the employee's health from work in hazardous waste operations;
- The physician's recommended limitations upon the worker assigned to the work; and

- A statement that the worker has been informed by the physician of the results of the medical examination and any further examination or treatment.

An accurate record of the medical surveillance will be retained. The record will consist of at least the following information:

- The name and social security number of the employee;
- The physician's written opinions, recommended limitations, and results of examinations and tests; and
- Any worker medical complaints related to exposure to hazardous substances.

4.1.7 Personal Protective Equipment

General Considerations

The two basic objectives of the personal protective equipment (PPE) is to protect the wearer from safety and health hazards, and to prevent the wearer from incorrect use and/or malfunction of the PPE.

Potential Site hazards have been discussed previously in Section 4.1.4. The duration of Site activities is estimated to be several years. All work is expected to be performed during daylight hours and workdays, in general, are expected to be eight to ten hours in duration. Any work performed beyond daylight hours will require the permission of the HSO. This decision will be based on the adequacy of artificial illumination and the type and necessity of the task being performed.

Personal protection levels for the Site activities, based on past investigations, are anticipated to be Level D with the possibility of upgrading to Level C. The equipment included for each level of protection is provided as follows:

Level C Protection

Personnel protective equipment

- Air-purifying respirator, full-face

- Chemical-resistant clothing includes: Tyvek[tm] (spunbonded olefin fibers) for particulate and limited splash protection or Saranex[tm] (plastic film-laminated Tyvek) for permeation resistance to solvents.
- Coveralls*, or
- Long cotton underwear*
- Gloves (outer), chemical-resistant
- Gloves (inner), chemical-resistant
- Boots (outer), leather or chemical-resistant, steel toe and shank.
- Boot covers (outer), chemical-resistant (disposable)*
- Hard hat (face shield)*
- Escape mask*
- 2-way radio communications (inherently safe)*

(*) optional

Criteria for Selection of Level C Protection

Meeting all of these criteria permits use of Level C Protection:

- Oxygen concentrations are not less than 19.5% by volume.
- Measured air concentrations of identified substances will be reduced by the respirator below the substance's threshold limit value (TLV).
- Atmospheric contaminants, liquid splashes, or other direct contact will not adversely affect any body area left unprotected by chemical-resistant clothing.
- Job functions do not require self-contained breathing apparatus.
- Direct readings are below 50 ppm on the OVA.

Level D Protection

Personnel protective equipment:

- Coveralls
- Gloves*
- Boots/shoes, leather or chemical-resistant, steel toe and shank
- Safety glasses or chemical splash goggles*
- Hard hat (face shield*)
- Escape mask*

(*) optional

Criteria for Selection of Level D Protection

Meeting any of these criteria allows use of Level D Protection:

- No contaminant levels above 5 ppm organic vapors or dusty conditions are present.
- Work functions preclude splashes, immersion, or the reasonable potential for unexpected inhalation of any chemicals above the TLV.

Additional Considerations for Selecting Levels of Protection

Another factor which will be considered in selecting the appropriate level of protection is heat and physical stress. The use of protective clothing and respirators increases physical stress, in particular, heat stress on the wearer. Chemical protective clothing greatly reduces natural ventilation and diminishes the body's ability to regulate its temperature. Even in moderate ambient temperatures, the diminished capacity of the body to dissipate heat can result in one or more heat-related problems.

All chemical protective garments can be a contributing factor to heat stress. Greater susceptibility to heat stress occurs when protective clothing requires the use of a tightly fitted hood against the respirator

face piece, or when gloves or boots are taped to the suit. As more body area is covered, less cooling takes place, increasing the probability of heat stress.

Wearing protective equipment also increases the risk of accidents. It is heavy, cumbersome, decreases dexterity, agility, interferes with vision, and is fatiguing to wear. These factors all increase physical stress and the potential for accidents. In particular, the necessity of selecting a level of protection will be balanced against the increased probability of heat stress and accidents.

Donning and Doffing Ensembles

Donning an Ensemble

A routine will be established and practiced periodically for donning a Level C ensemble. Assistance may be provided for donning and doffing since these operations are difficult to perform alone.

Table 4.1.7.1 lists sample procedures for donning a Level C ensemble. These procedures should be modified depending on the particular type of suit and/or when extra gloves and/or boots are used.

Doffing an Ensemble

Exact procedures for removing Level C ensembles must be established and followed to prevent contaminant migration from the work area and transfer of contaminants to the wearer's body, the doffing assistant, and others.

Doffing procedures are provided in Table 4.1.7.2. These procedures should be performed only after decontamination of the suited worker. They require a suitably attired assistant. Throughout the procedures, both worker and assistant should avoid any direct contact with the outside surface of the suit.

TABLE 4.1.7.1
SAMPLE DONNING PROCEDURES
I. W. INDUSTRIES, INC. SITE
MELVILLE, NEW YORK

1. Inspect the clothing and respiratory equipment before donning (see Inspection in subsection 7.4).

2. Adjust hard hat or headpiece if worn, to fit user's head.

3. Standing or sitting, step into the legs of the suit; ensure proper placement of the feet within the suit; then gather the suit around the waist.

4. Put on chemical-resistant safety boots over the feet of the suit. Tape the leg cuff over the tops of the boots.

5. Don the respirator and adjust it to be secure, but comfortable.

6. Perform negative and positive respirator facepiece seal test procedures.

   - To conduct a negative-pressure test, close the inlet part with the palm of the hand or squeeze the breathing tube so it does not pass air, and gently inhale for about 10 seconds. Any inward rushing of air indicates a poor fit. Note that a leaking facepiece may be drawn tightly to the face to form a good seal, giving a false indication of adequate fit.

   - To conduct a positive-pressure test, gently exhale while covering the exhalation valve to ensure that a positive pressure can be built up. Failure to build a positive pressure indicates a poor fit.

7. Depending on type of suit:

   - Put on inner gloves (surgical gloves).

   - Additional overgloves, worn over attached suit gloves, may be donned later.

8. Put on hard hat

9. Have assistant observe the wearer for a period of time to ensure that the wearer is comfortable, psychologically stable, and that the equipment is functioning properly.

TABLE 4.1.7.2
DOFFING PROCEDURES
I. W. INDUSTRIES, INC. SITE
MELVILLE, NEW YORK

1. Remove any extraneous or disposable clothing, boot covers, outer gloves, and tape.

2. Remove respirator by loosening straps and pulling straps over the top of the head and move mask away from head. Do not pull mask over the top of the head.

3. Remove arms, one at a time, from suit, avoiding any contact between the outside surface of the suit and wearer's body and lay the suit out flat behind the wearer. Leave internal gloves on, if any.

4. Sitting, if possible, remove both legs from the suit.

5. After suit is removed, remove internal gloves by rolling them off the hand, inside out.

Respirator Fit Testing

The fit or integrity of the facepiece-to-face seal of a respirator affects its performance. Most facepieces fit only a certain percentage of the population; thus each facepiece must be tested on the potential wearer in order to ensure a tight seal. Facial features such as scars, hollow temples, very prominent cheekbones, deep skin creases, dentures or missing teeth, and the chewing of gum and tobacco may interfere with the respirator-to-face seal. A respirator shall not be worn when such conditions prevent a good seal. The worker's diligence in observing these factors shall be evaluated by periodic checks. Fit testing will comply with 29 CFR 1910.1025 regulations.

Inspection

The PPE inspection program will entail five different inspections:

- Inspection and operational testing of equipment received from the factory or distributor;
- Inspection of equipment as it is issued to workers;
- Inspection after use;
- Periodic inspection of stored equipment; and
- Periodic inspection when a question arises concerning the appropriateness of the selected equipment, or when problems with similar equipment arise.

The inspection checklist is provided in Table 4.1.7.3. Records will be kept of all inspection procedures. Individual identification numbers will be assigned to all reusable pieces of equipment and records should be maintained by that number. At a minimum, each inspection should record the ID number, date, inspector, and any unusual conditions or findings. Periodic review of these records may indicate an item or type of item with excessive maintenance costs or a particularly high level of down-time.

TABLE 4.1.7.3
PPE INSPECTION CHECKLIST
I. W. INDUSTRIES, INC. SITE
MELVILLE, NEW YORK

CLOTHING

Before use:

- Determine that the clothing material is correct for the specified task at hand.
- Visually inspect for:
  - imperfect seams
  - non-uniform coatings
  - tears
  - malfunctioning closures
- Hold up to light and check for pinholes.
- Flex product:
  - Observe for cracks
  - Observe for other signs of shelf deterioration
- If the product has been used previously, inspect inside and out for signs of chemical attack:
  - discoloration
  - swelling
  - stiffness

During the work task, periodically inspect for:

- Evidence of chemical attack such as discoloration, swelling, stiffening, and softening. Keep in mind, however, that chemical permeation can occur without any visible effects.
- Closure failure
- Tears
- Punctures
- Seam discontinuities

TABLE 4.1.7.3 (CONTINUED)
PPE INSPECTION CHECKLIST
I. W. INDUSTRIES, INC. SITE
MELVILLE, NEW YORK

GLOVES

Before use:

- Pressurize glove to check for pinholes. Either blow into glove, then roll gauntlet toward fingers or inflate glove and hold under water. In either case, no air should escape.

AIR-PURIFYING RESPIRATORS

- Inspect air-purifying respirators:
  - before each use to be sure they have been adequately cleaned
- Check material conditions for:
  - signs of pliability
  - signs of deterioration
  - signs of distortion
- Examine cartridges to ensure that:
  - they are the proper type for the intended use
  - the expiration date has not been passed
  - they have not been opened or used previously
- Check face shields and lenses for:
  - cracks
  - crazing
  - fogginess
- Air purifying respirators will be stored individually in resealable plastic bags.

Storage

Clothing and respirators will be stored properly to prevent damage or malfunction due to exposure to dust, moisture, sunlight, damaging chemicals, extreme temperatures, and impact. Storage procedures are as follows:

Clothing:

- Potentially contaminated clothing will be stored in an area separate from street clothing;
- Potentially contaminated clothing will be stored in a well-ventilated area, with good air flow around each item, if possible;
- Different types and material of clothing and gloves will be stored separately to prevent issuing the wrong material by mistake; and
- Protective clothing will be folded or hung in accordance with manufacturer's recommendations.

Respirators:

- Air-purifying respirators should be dismantled, washed, and placed in sealed plastic bags.

Maintenance

Specialized maintenance will be performed only by the factory or an authorized repair person. Routine maintenance, such as cleaning, will be performed by the personnel to which the equipment is assigned. Respirators will be cleaned at the end of each day with alcohol pads or, preferably, by washing with warm soapy water.

Decontamination Methods

All personnel, clothing, equipment, and samples leaving the contaminated (work zone) area of the Site must be decontaminated to remove any harmful chemicals or infectious organisms that may have adhered to them. Decontamination methods either (1) physically remove contaminants (2) inactivate contaminants by chemical detoxification or disinfection/sterilization, or (3) remove contaminants by a

combination of both physical and chemical means. In many cases, gross contamination can be removed by physical means involving dislodging/displacement, rinsing, wiping off, and evaporation. Contaminants that can be removed by physical means include dust, vapors, and volatile liquids. All reusable equipment will be decontaminated by rinsing in a bath of detergent and water (respirators, gloves to be reused). Monitoring equipment will be decontaminated by wiping with paper towels and water. All used PPE to be discarded will be placed in a 55-gallon drum and stored in a secure place at the Site while awaiting final disposition.

The effectiveness of the decontamination will be evaluated near the beginning of Site activities and will be modified if determined to be ineffective. Visual observation will be used for this purpose. The HSO will inspect decontaminated materials for discoloration, stains, corrosive effects, visible dirt, or other signs of possible residual contamination.

4.2 Community Health and Safety Plan

This section includes procedures to address potential community health and safety issues associated with remediation at the Site.

4.2.1 Air Monitoring

A community air monitoring plan will be implemented at the Site by FPM during the leaching pool remediation activities. Due to the nature of the materials to be removed from the leaching pools there is the potential for organic vapor emissions to occur as these materials are brought to the Site surface and managed. In addition, there is the potential for organic vapors and/or dust to be associated with the exhaust from the vacuum trucks. To address these concerns, organic vapor and dust monitoring will be performed.

Under the community air monitoring plan, organic vapor concentrations will be monitored at the Site on a continuous basis. It will be the responsibility of the CHSO to implement the plan and to ensure that proper action is taken in the event that any of the established action levels are exceeded.

To monitor organic vapors, a PID will be used and maintained in good operating condition. Calibration of the PID will be performed according to manufacturer's instructions. Background levels of organic vapors will be measured at the Site prior to beginning work and upwind of the work area periodically using a PID. Organic vapors will be monitored at the downwind perimeter of the work area daily at two-hour intervals. Monitoring may be performed more frequently of the discretion of the CHSO.

PID readings will be recorded in the field logbook for both background and work area perimeter. Logbook recordings will include the time, location, and PID readings observed. Downwind perimeter levels will be recorded in the log whenever the level reaches 5 ppm above the background along with the action(s) taken to mitigate the level. If the level of organic vapors exceeds 5 ppm above the background at the downwind perimeter of the work area, work activities will be halted and monitoring continued. The vapor emission response plan will then be implemented.

The vapor emission response plan includes the following trigger levels and responses:

- Greater than 5 ppm at perimeter:

  In the event the level of organic vapors exceeds 5 ppm above the background at the downwind perimeter of the work area, activities will be halted and monitoring continued. If the organic vapor level then decreases to below 5 ppm above background, work activities can resume but organic vapor readings will be obtained more frequently as directed by the CHSO.

- 5 ppm to 25 ppm at perimeter and less than 5 ppm at the property boundary:

  If the level of organic vapors is greater than 5 ppm but less than 25 ppm over background at the downwind perimeter of the work area, activities will be resumed provided the level at the downwind or closest property boundary or half the distance to the nearest residential or commercial structure, whichever is less, is below 5 ppm over background and more frequent intervals of monitoring are performed as directed by the CHSO.

- Above 25 ppm at perimeter:

  If the level of organic vapors is above 25 ppm at the perimeter of the work area, activities will be shut down. Should such a shutdown be necessary, downwind air monitoring will continue as directed by the CSHO to ensure that vapor emission does not impact the nearest residential or commercial structure at levels exceeding those specified in the major vapor emission section.

The following trigger levels and responses are applicable for a major vapor emission:

- If any PID readings exceeding 5 ppm over background are identified at the downwind or closest property boundary or half the distance to the nearest residential or commercial property, whichever is less, all work activities must be halted;
- If, following the cessation of the work activities or as a result of an emergency, organic vapor levels persist above 5 ppm over background at the downwind or closest property boundary or half the distance to the nearest residential or commercial property from the work area, then the air quality must be monitored within 20 feet of the perimeter of the nearest residential or commercial structure (20-foot zone).

The Major Vapor Emission Response Plan shall automatically be placed into effect if:

- Efforts to abate the emission source are unsuccessful and levels above 5 ppm persist for more than 30 minutes in the 20-foot zone; or

- The vapor levels are greater than 10 ppm above background in the 20-foot zone.

Upon activation of the Major Vapor Emission Response Plan, the following activities will be undertaken:

- All emergency response contacts as listed in the Safety and Health Plan will be notified;
- Local officials will be contacted by the CSHO and advised of the situation; and
- Air monitoring will be conducted at 30-minute intervals within the 20-foot zone. If two successive readings below action levels are measured, air monitoring will be halted or modified as directed by the CSHO.

Dust monitoring will be performed with a Miniram personal monitor calibrated according to the manufacturer's instructions. The Miniram will be held in the downwind vicinity of the vactor air discharge at least once per hour, or more frequently if visible dust is noted, and the CHSO will record the readings in the field logbook. If measurable dust levels are noted, then readings will also be obtained upwind of the vactor air discharge. If the downwind particulate level exceeds the upwind level by more than 150 micrograms per cubic meter, then dust suppression techniques will be employed.

4.2.2 Noise Monitoring

Due to the use of heavy equipment at the Site during leaching pool remediation, there is the potential for noise to impact the Site workers and the surrounding community. Since the facility is scheduled to be shut down during the remediation events, it is unlikely that Site workers will be impacted by the noise during the shut down. If remediation activities are conducted following the resumption of facility operations, it is also unlikely that Site workers will be impacted during the work day since hearing protection is worn by workers in manufacturing areas of the building located adjoining most of the leaching pools to be remediated. In addition, work will be performed only during normal working hours when ambient noise levels are elevated due to ongoing industrial activities in the community. Therefore, the potential for noise impacts on either the Site workers or surrounding community is low.

However, if workers are present in the Site parking lot areas when arriving for work or during breaks, or if pedestrians are present in the Site vicinity, it is possible for noise impacts to occur. To address these concerns and other safety concerns, Site workers will be barred from entering the work zone. In addition, the HSO will periodically monitor noise levels at the work zone boundary and the closest property boundary with a Realistic[tm] hand-held sound level meter. Noise levels will be monitored in dBs in the A-weighted, slow-response mode. If noise level readings exceed an eight-hour time-weighted average of 85 dB at the work zone boundary or at the closest property boundary, the HSO will take appropriate measures to reduce noise exposure beyond these boundaries. These measures may include extension of the work zone boundary, relocation of non-essential Site workers, issuing appropriate hearing protection devices as discussed in Section 4.1 of this work plan, or other measures, as appropriate. In the event that the noise exposure measures are inadequate, work will cease until noise levels can be reduced to below 85 dB at the work zone boundary and/or at the closest Site boundary.

4.2.3 Excavation Safety Issues

Leaching pool remediation will likely result in open excavations and leaching pool structures at the Site. To minimize risks associated with open excavations and structures, an effort will be made to minimize the number of open excavations and structures. Any excavations or structures not undergoing active remediation will either be closed or will be barricaded with construction fencing or other devices so as to minimize their hazards. At the close of each working day, any structures or excavations which are not closed will also be secured. Structures and excavations will not be left open during weekends or following the completion of remediation.

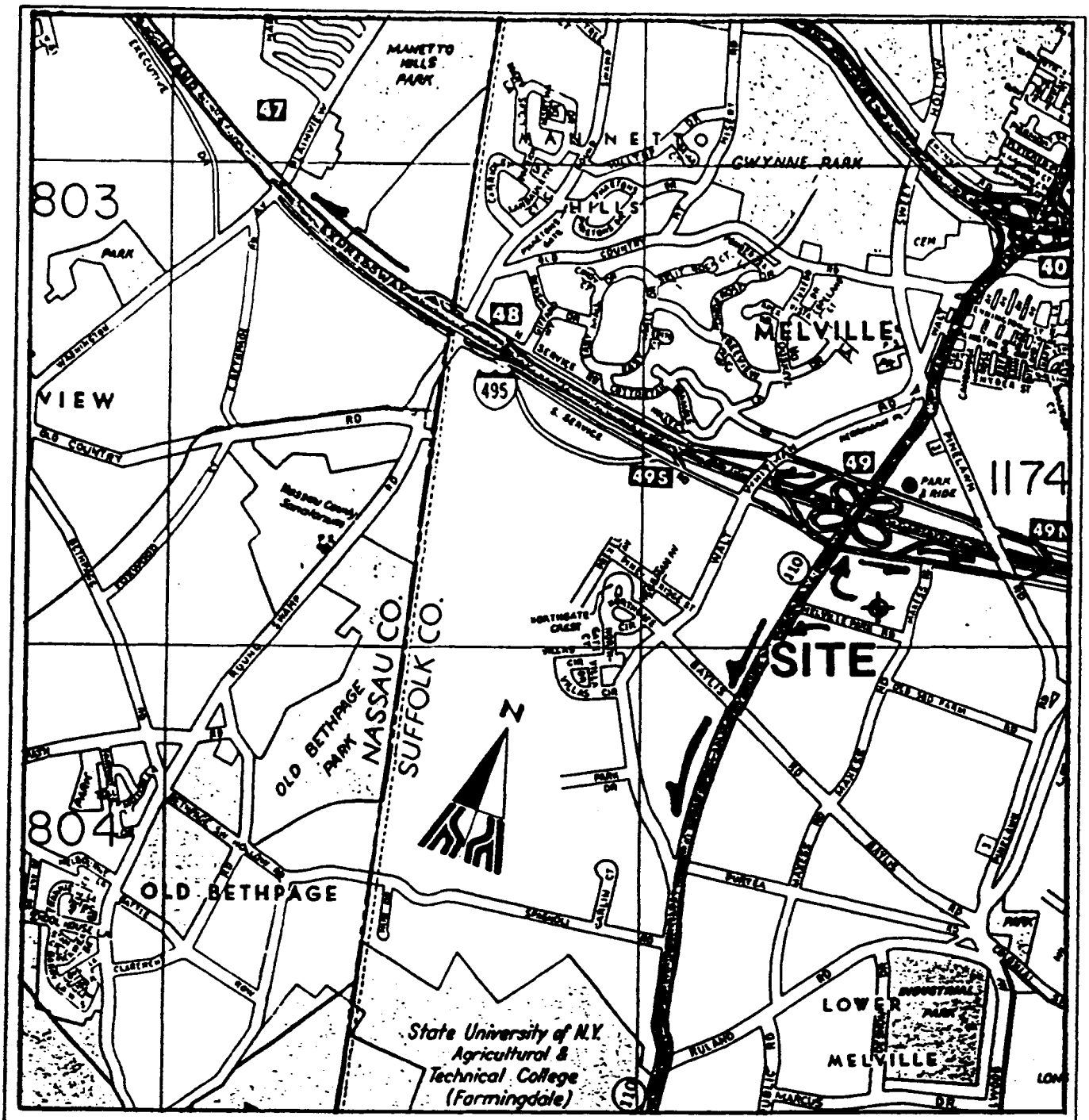
4.2.4 Transportation Issues

There is the potential for community exposure to wastes originating from the Site during transportation of the wastes from the Site to the disposal facilities. To address these concerns, the wastes

will be placed in watertight containers and will be covered to minimize the potential for releases from the containers during transport. In addition, the exterior of each container will be observed by an FPM representative prior to the container leaving the Site. Any adhering waste materials will be removed prior to the container leaving the Site.

In the event that wastes are staged at the Site prior to loading into containers for transportation, then "clean loading" techniques will be used. These techniques include covering the exterior vehicle sides and ground around the vehicle with plastic sheeting during loading. The used plastic sheeting is then disposed with the solid waste.

Wastes will be transported through the immediate community via major roadways through industrial/commercial areas. Wastes which are transported westward or eastward to disposal facilities will exit the Site via Melville Park Road, Route 110, and the Long Island Expressway as shown in Figure 4.2.4.1. Wastes which are transported southward to disposal facilities will also exit the Site via Melville Park Road and Route 110. In no case is it anticipated that any waste transportation will occur through residential areas or other sensitive areas such as parks, school zones, or historic or natural preservation areas.



Fanning, Phillips & Molnar
Engineers

FIGURE 4.2.4.1

TRANSPORTATION ROUTES
IWI INDUSTRIES, INC.
MELVILLE, NEWYORK

Drawn By: JDS	Checked By: PP	Date: 9-8-94

SECTION 5.0
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SECTION 6.0
DISCLAIMER

Conclusions from this data are limited to those areas focused on in the study and represent our best judgement using analytical techniques and our past experience. Even though our investigation has been scientific and thorough, it is possible that certain areas of this property may pose environmental concerns that yet are undiscovered. In addition, environmental regulations may change in the future and could have an effect on our conclusions.

APPENDIX A

MANUFACTURER'S INFORMATION

How Oil-Only PIG® Absorbents work

by New Pig Tech

New Pig developed Oil-Only Absorbents for absorbing oil spills on water. They're formulated in a special way to make cleanup easy: they float on the water's surface even after they're saturated.

Here's how they work... When you place PIG® Oil-Only Absorbents on the water's surface, they begin absorbing oil immediately. As the spill is absorbed, the Absorbent floats lower and lower in the water. Oil is continually pulled into clean, fresh material.

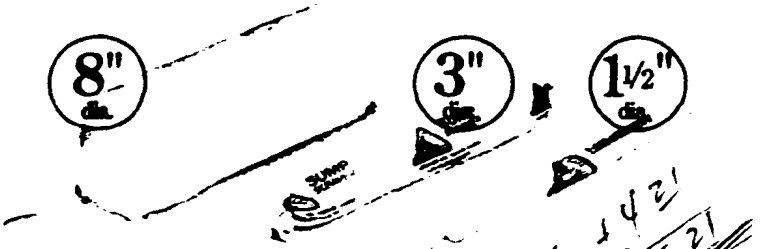
When they're completely saturated, PIG® Oil-Only Absorbents still bob at the water's surface, but will not sink. The absorbed oil stays absorbed. Because they're floating, retrieving the used Absorbents is easy.

Keep your sumps, tanks or bilges oil-free with PIG® Sump Skimmers.

- Absorb up to 1.8 gallons of petroleum-based liquids
- Available in 3 diameters

Lower a Sump Skimmer into your sump, tank or bilge to remove oil, not water. Also helps prevent odor by reducing a breeding area for bacteria.

3"-diameter Skimmer is great for small sumps and bilges,
8"-diameter is perfect for large tanks or pits.
1½" diameter lifts surface oil out of monitoring wells.



Sump Skimmers

Box	1-2	3-9	10+
SKM404 • 25 socks • 3" Dia. x 18" L Absorbs 48 oz./sock • 9 lbs.	$91	$87	$83
SKM403 • 12 socks • 8" Dia. x 18" L Absorbs 1.8 gal./sock • 23 lbs	$98	$93	$89

Monitoring Well Skimming Sock

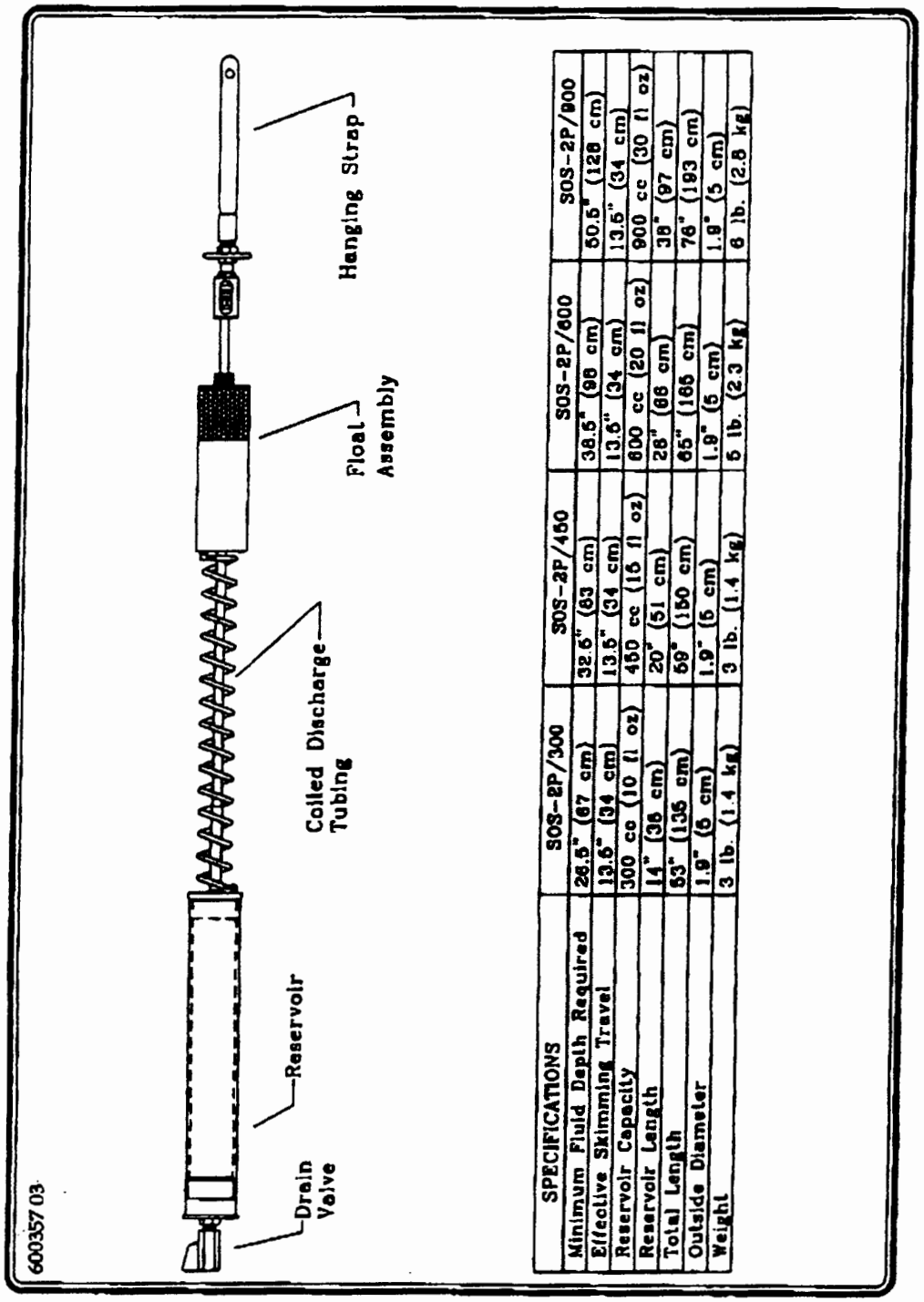
Box	1-2	3-9	10+
SKM401 • 30 socks 1 ½" Dia. x 18" L • Abs. 17 oz./sock • 6 lbs	$69	$66	$63

Phone to order 1-800-HOT-HOGS® (468-4647)

OPERATING MANUAL

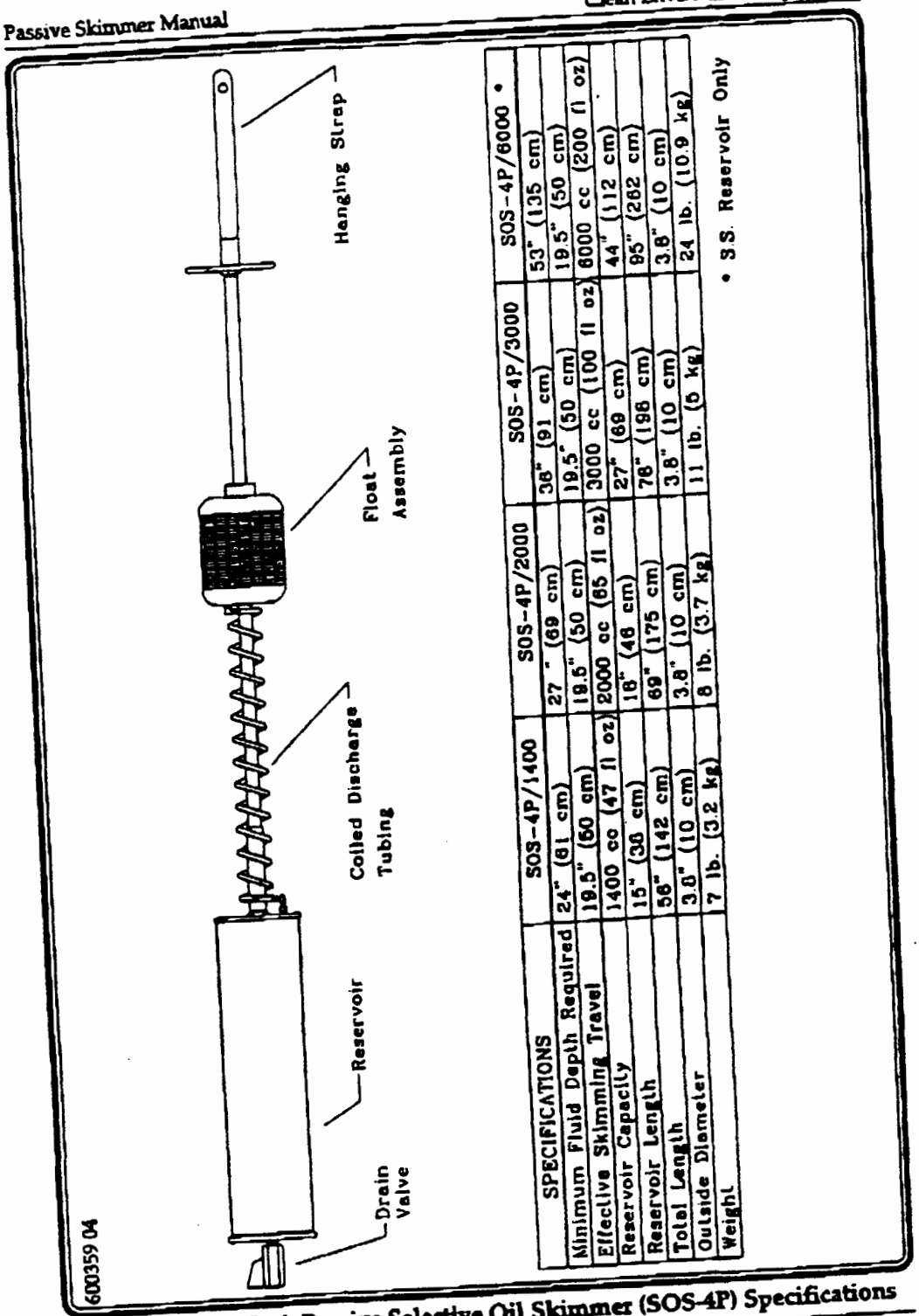
SOS-P
SPG-P

Passive Skimmer



SPECIFICATIONS	SOS-2P/300	SOS-2P/450	SOS-2P/600	SOS-2P/900
Minimum Fluid Depth Required	26.5" (67 cm)	32.5" (83 cm)	38.5" (98 cm)	50.5" (128 cm)
Effective Skimming Travel	13.5" (34 cm)	13.5" (34 cm)	13.5" (34 cm)	13.5" (34 cm)
Reservoir Capacity	300 cc (10 fl oz)	450 cc (15 fl oz)	600 cc (20 fl oz)	900 cc (30 fl oz)
Reservoir Length	14" (36 cm)	20" (51 cm)	28" (66 cm)	38" (97 cm)
Total Length	53" (135 cm)	59" (150 cm)	65" (165 cm)	76" (193 cm)
Outside Diameter	1.9" (5 cm)	1.9" (5 cm)	1.9" (5 cm)	1.9" (5 cm)
Weight	3 lb. (1.4 kg)	3 lb. (1.4 kg)	5 lb. (2.3 kg)	6 lb. (2.8 kg)

Figure 1 - Two-Inch Passive Selective Oil Skimmer (SOS-2P) Specifications

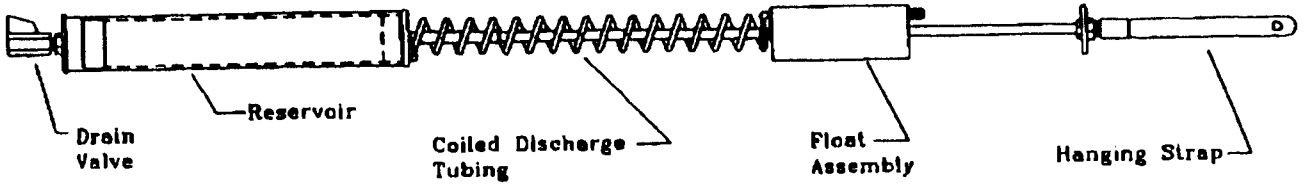


SPECIFICATIONS	SOS-4P/1400	SOS-4P/2000	SOS-4P/3000	SOS-4P/6000 •
Minimum Fluid Depth Required	24" (61 cm)	27" (69 cm)	38" (91 cm)	53" (135 cm)
Effective Skimming Travel	19.5" (50 cm)	19.5" (50 cm)	19.5" (50 cm)	19.5" (50 cm)
Reservoir Capacity	1400 cc (47 fl oz)	2000 cc (65 fl oz)	3000 cc (100 fl oz)	6000 cc (200 fl oz)
Reservoir Length	15" (38 cm)	18" (46 cm)	27" (69 cm)	44" (112 cm)
Total Length	56" (142 cm)	69" (175 cm)	78" (198 cm)	95" (282 cm)
Outside Diameter	3.8" (10 cm)	3.8" (10 cm)	3.8" (10 cm)	3.8" (10 cm)
Weight	7 lb. (3.2 kg)	8 lb. (3.7 kg)	11 lb. (6 kg)	24 lb. (10.9 kg)

• SS Reservoir Only

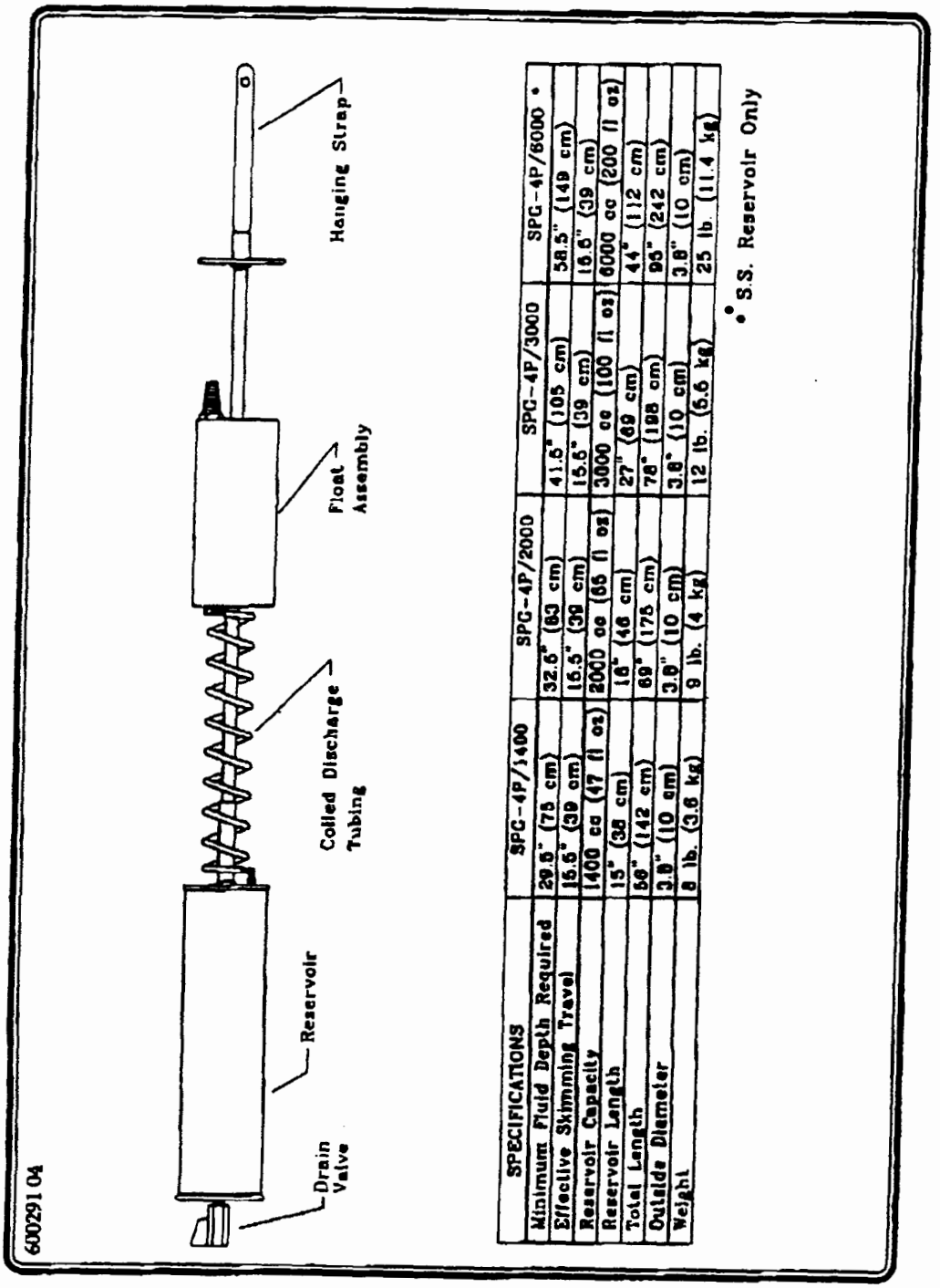
Figure 3 - Four-Inch Passive Selective Oil Skimmer (SOS-4P) Specifications

600293 04



SPECIFICATIONS	SPG-2P/300	SPG-2P/450	SPG-2P/600	SPG-2P/900
Minimum Fluid Depth Required	26" (66 cm)	32" (81 cm)	38" (97 cm)	50" (127 cm)
Effective Skimming Travel	15" (38 cm)	15" (38 cm)	15" (38 cm)	15" (38 cm)
Reservoir Capacity	300 cc (10 fl oz)	450 cc (15 fl oz)	600 cc (20 fl oz)	900 cc (30 fl oz)
Reservoir Length	14" (36 cm)	20" (51 cm)	26" (66 cm)	38" (97 cm)
Total Length	51" (130 cm)	57" (145 cm)	63" (160 cm)	74" (188 cm)
Outside Diameter	1.9" (5 cm)	1.9" (5 cm)	1.9" (5 cm)	1.9" (5 cm)
Weight	3 lb. (1.4 kg)	3 lb. (1.4 kg)	5 lb. (2.3 kg)	6 lb (2.8 kg)

Figure 5 - Two-Inch Passive Specific Gravity Skimmer (SPG-2P) Specifications



SPECIFICATIONS	SPC-4P/1400	SPG-4P/2000	SPG-4P/3000	SPG-4P/6000 *
Minimum Fluid Depth Required	29.5" (75 cm)	32.5" (83 cm)	41.5" (105 cm)	58.5" (149 cm)
Effective Skimming Travel	15.5" (39 cm)	15.5" (39 cm)	15.5" (39 cm)	15.5" (39 cm)
Reservoir Capacity	1400 cc (47 fl oz)	2000 cc (65 fl oz)	3000 cc (100 fl oz)	6000 cc (200 fl oz)
Reservoir Length	15" (38 cm)	18" (46 cm)	27" (69 cm)	44" (112 cm)
Total Length	56" (142 cm)	69" (175 cm)	78" (198 cm)	95" (242 cm)
Outside Diameter	3.9" (10 cm)	3.9" (10 cm)	3.9" (10 cm)	3.9" (10 cm)
Weight	8 lb. (3.6 kg)	9 lb. (4 kg)	12 lb. (5.6 kg)	25 lb. (11.4 kg)

* S.S. Reservoir Only

Figure 7 - Four-Inch Passive Specific Gravity Skimmer (SPG-4P) Specifications

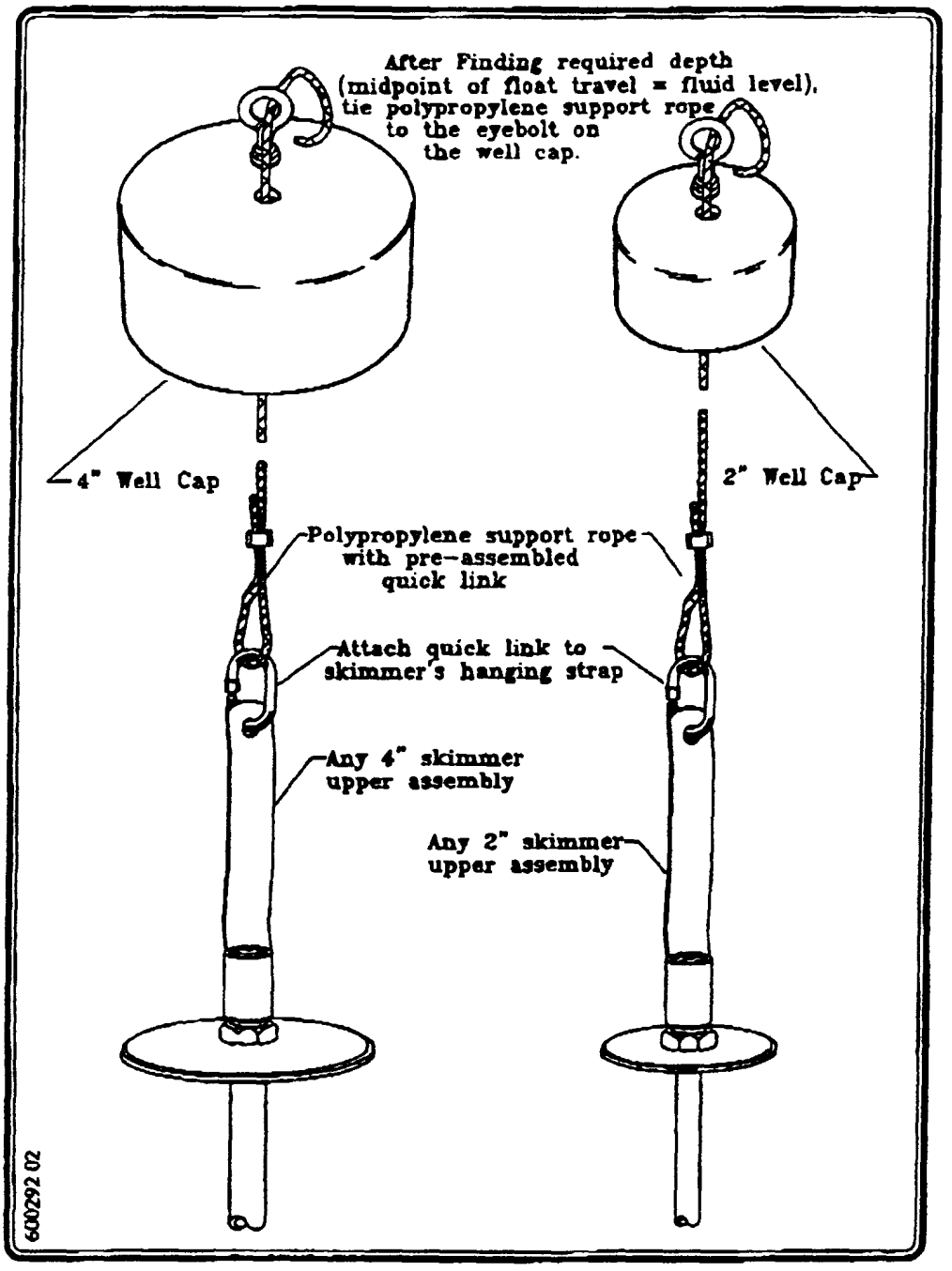


Figure 9 - Well Support System

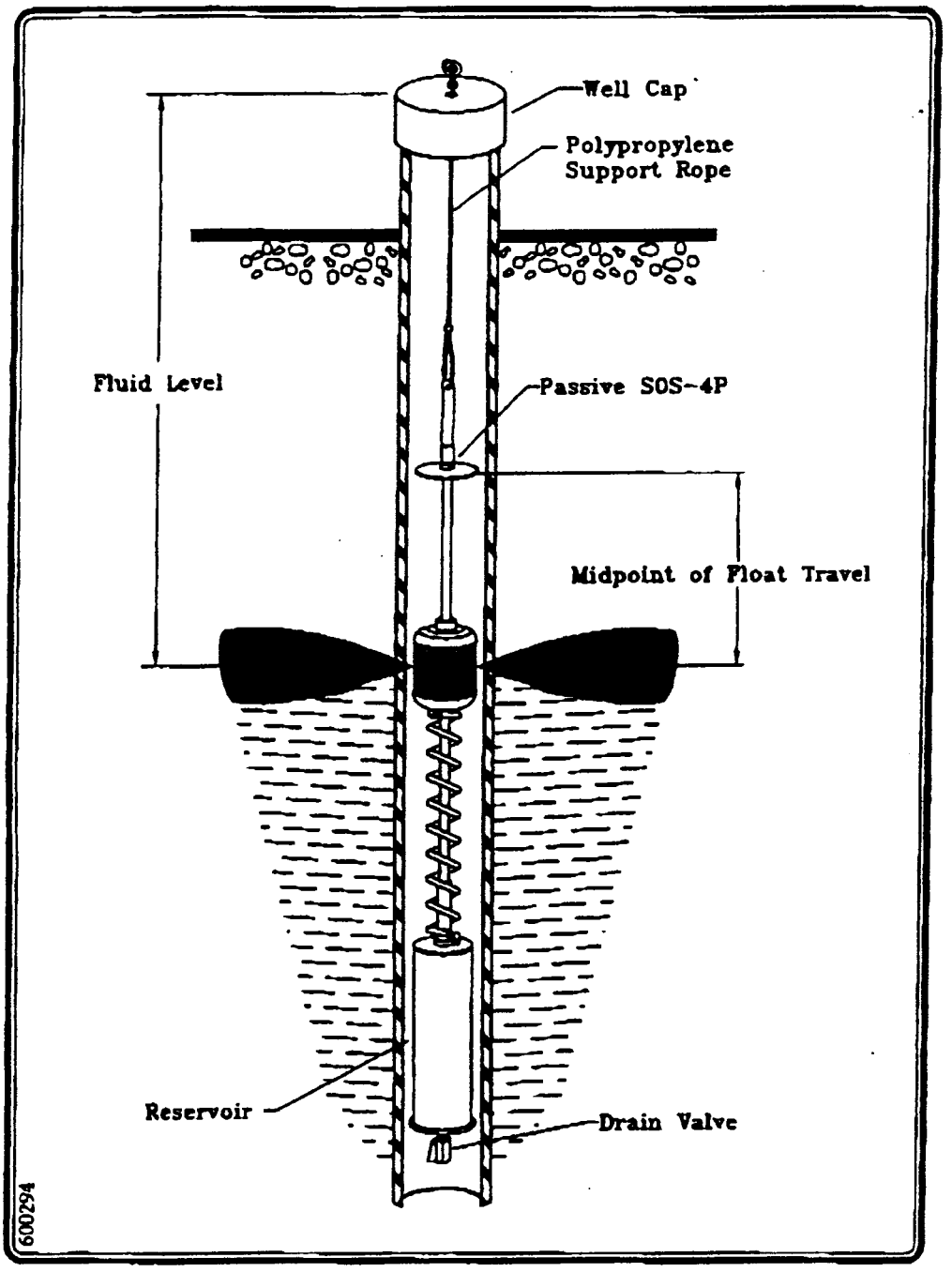


Figure 10 - Four-Inch Passive Selective Oil Skimmer (SOS-4P) Down Well