United States
Environmental Protection
Agency

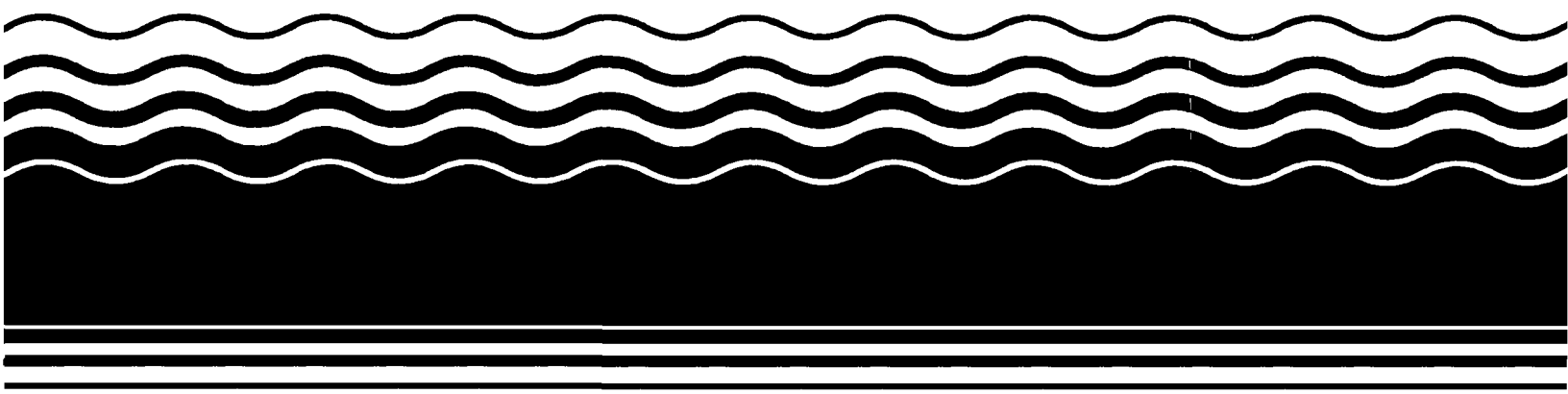
Office of
Emergency and
Remedial Response

EPA/ROD/R02-92/173
September 1992
PB93-963822

EPA

Superfund Record of Decision:

Facet Enterprises, NY



NOTICE

The appendices listed in the index that are not found in this document have been removed at the request of the issuing agency. They contain material which supplement, but adds no further applicable information to the content of the document. All supplemental material is, however, contained in the administrative record for this site.

50272-101

REPORT DOCUMENTATION PAGE	1. REPORT NO. EPA/ROD/R02-92/173	2.	3. Recipient's Accession No.

4. Title and Subtitle
SUPERFUND RECORD OF DECISION
Facet Enterprises, NY
First Remedial Action - Final

5. Report Date 09/04/92

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13. Type of Report & Period Covered 800/000

14.

15. Supplementary Notes
PB93-963822

16. Abstract (Limit: 200 words)

The 31-acre Facet Enterprises site is a manufacturing facility located in the Village of Elmira Heights, Chemung County, New York. Land use in the area is primarily residential and commercial. The site overlies a Class IIa aquifer, which is a potential source of potable water. The facility, constructed in 1895, was first used by Eclipse, Inc. to manufacture bicycles. From 1900 to 1960, Eclipse manufactured motorcycles, engine and airplane parts, military support parts, ammunition, and fuel pumps. During that time, Bendix Aviation Corporation acquired control of Eclipse. From 1960 to 1975, Eclipse, then a division of Bendix, manufactured electric clutches and brakes. In 1974, Facet Enterprises was organized; then, in 1989, Purolator Products Company became the corporate successor to Facet. Over 10 different areas were used at the site for disposal of wastes, including plating wastes, oil sludge, metal hydroxide sludge, chromic acid, PCBs, grinding chips, and miscellaneous liquid wastes. These areas include an oil/water separator, ponds, lagoons, drainage ways, and several dry wells for the disposal of liquid wastes. Since 1979, several site investigations have been conducted by EPA and the state. A 1986 draft remedial investigation revealed that VOCs, PCBs, and PAHs were present in site soil and sediment, and that VOCs,

(See Attached Page)

17. Document Analysis a. Descriptors
Record of Decision - Facet Enterprises, NY
First Remedial Action - Final
Contaminated Media: soil, sediment, debris, gw
Key Contaminants: VOCs (benzene, PCE, TCE, toluene, xylenes), other organics (PAHs, PCBs), metals (arsenic, lead)

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report) None	21. No. of Pages 146
	20. Security Class (This Page) None	22. Price

Abstract (Continued)

organics, and inorganics were detected in ground water and surface water drainage streams at concentrations above New York State standards. Remedial measures, which were implemented at the site in 1979, included excavating surface water diversions, covering past disposal areas with soil, and constructing a leachate collection system. In 1992, Purolator excavated and removed 469 buried drums; excavated 2,250 tons of contaminated soil; and removed and sent 30,000 gallons of contaminated liquids offsite to a RCRA facility . This ROD addresses a final remedy for the onsite contaminated soil, sediment, debris, and ground water. The primary contaminants of concern affecting the soil, sediment, debris, and ground water are VOCs, including TCE, benzene, toluene, xylenes, and PCE; other organics, including PCBs and PAHs; and metals, including arsenic, and lead.

he selected remedial action for this site includes excavating contaminated soil and sediment from the disposal areas; disposing of approximately 1,275 cubic yards of TSCA waste with PCBs concentrations greater than 50 ppm offsite in a secure double-lined landfill facility; stabilizing of all RCRA wastes to prevent leaching of metals and disposing of 2,124 cubic yards of waste in a secure offsite RCRA-lined facility; disposing of approximately 120 cubic yards of non-RCRA wastes in an offsite industrial waste landfill; extracting and storing contaminated ground water in a central onsite collection tank, followed by treatment using air stripping to remove VOCs, and filtration and precipitation to remove metals, if necessary; discharging the treated effluent onsite to the facility non-contact cooling system or to surface water; and implementing a long-term ground water monitoring program and institutional controls including land use restrictions. The estimated present worth cost for this remedial action is $4,850,656, which includes an annual O&M cost of $1,305,596 for 20 years.

PERFORMANCE STANDARDS OR GOALS:

Action levels for excavation of surface soil/sediment are health-based and include benzo(a) anthracene 20 ppm/3 ppm; benzo(b)flouroanthene 20 ppm/3 ppm; benzo(k)flouranthene 43 ppm/7 ppm; benzo(a)pyrene 3 ppm/1 ppm; indeno(1,2,3-cd) pyrene 12 ppm/2 ppm; dibenzo(a,h) anthracene 3 ppm/1 ppm; PCBs 10 ppm/1 ppm; arsenic 19 ppm/7 ppm; and chromium 1110 ppm in sediment only. Action levels for excavation of subsurface soil are also health-based and include benzo(a)anthracene 54 ppm; benzo(b)fluoranthene 55 ppm; benzo(k)flouranthene 118 ppm; benzo(a) pyrene 8 ppm; indeno(1,2,3-cd)pyrene 33 ppm; PCBs 25 ppm; and arsenic 52 ppm. Chemical-specific clean-up goals for soil and sediment are based on RCRA TCLP, Land Ban regulations, and TSCA regulations. Chemical-specific ground water clean-up goals are based on SDWA MCLs and state drinking water standards including TCE 5 ug/l; xylenes 5 ug/l; and lead 25 ug/l. Chemical-specific ARARs will be waived if it is determined by EPA that certain portions of the ground water cannot be restored for beneficial use.

ROD FACT SHEET

SITE

Site name: Facet Enterprises, Inc.

Site location: Village of Elmira Heights, Chemung County, New York

HRS score: 46.67

ROD

Date Signed: September 4, 1992

Selected remedy: Soil and Sediment - Off-site Shipment for Treatment and Disposal
Ground Water - Pump, filtration/precipitation, air stripping

Capital cost: $3,545,060

O & M cost: $1,305,596

Present-worth cost: $4,850,656

LEAD

United States Environmental Protection Agency

Primary Contact: J. Jeffrey Josephson (212) 264-4183

Secondary Contact: Kevin Lynch (212) 264-6194

Main PRPs: Purolator Products Company
Allied-Signal Corporation

WASTE

Waste type: VOCs, PAHs, PCBs, Metals

Waste origin: Industrial Disposal

Estimated waste quantity: At least 3,519 cubic yards sediment and soil and 4.7×10^8 gallons contaminated ground water

Contaminated mediums: Soil, sediment, and Ground water

RECORD OF DECISION

Facet Enterprises, Inc.

Village of Elmira Heights, Chemung County, New York

United States Environmental Protection Agency
Region II
New York, New York
June 1992

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Facet Enterprises, Inc.
Village of Elmira Heights
Chemung County, New York

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the Facet Enterprises, Inc. Site, which was chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision document explains the factual and legal basis for selecting the remedy for this Site.

The New York State Department of Environmental Conservation (NYSDEC) concurs with the selected remedy, per the letter attached as Appendix IV. The information supporting this remedial action decision is contained in the administrative record for this site, the index of which is attached as Appendix III.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from the site, if not addressed by implementing the response actions selected in this Record of Decision, may present an imminent and substantial endangerment to public health, welfare or the environment.

DESCRIPTION OF THE SELECTED REMEDY

The major components of the selected remedy for the treatment of soils, sediments, and ground water at the Facet Enterprises, Inc. Site include the following:

- Excavation of contaminated soils and sediments from the Disposal Areas as identified in the Risk Assessment and in those areas where soils and sediment pose a risk to ground water quality,

- Disposal of TSCA waste (PCBs > 50 ppm) in a secure TSCA double lined landfill facility (estimated at approximately 1,275 cubic yards),

- Stabilization of RCRA waste to prevent leaching of metals and subsequent disposal in a secure RCRA lined facility (approximate volume 2,124 cubic yards),

- Disposal of non-RCRA wastes in an industrial waste landfill (approximate volume 120 cubic yards),

- Strategic placement of pumping wells to extract the contaminated ground water from the aquifer,

- Storage of extracted ground water in a central collection tank for subsequent treatment in an above-ground system,

- Treatment of the contaminated ground water to meet Federal and State Standards for surface water discharge. Treated ground water would then be either discharged as effluent to the facility non-contact cooling system, or to a surface water discharge,

- Recommendation that local institutional controls, in the form of local zoning ordinances, be implemented in an attempt to control any future site use that could create an exposure pathway to subsurface soils,

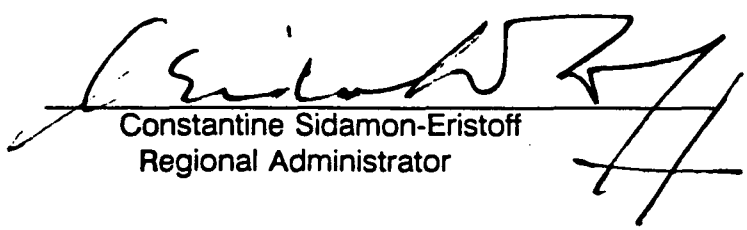
- Recommendation that institutional controls be provided/maintained to restrict access to those portions of the aquifer which remain contaminated above cleanup levels, and

- Implementation of a long-term monitoring program to track the migration and concentrations of the contaminants of concern.

DECLARATION OF STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment, complies with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost effective. The selected remedy utilizes permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable, and it satisfies the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as their principal element.

Because this remedy will result in hazardous substances remaining on site above health-based levels, a review will be conducted within five years after commencement of remedial action, and every five years thereafter, to ensure that the remedy continues to provide adequate protection of human health and the environment.



Constantine Sidamon-Eristoff
Regional Administrator

September 9, 1992
Date

RECORD OF DECISION
DECISION SUMMARY

Facet Enterprises, Inc.

Village of Elmira Heights, Chemung County, New York

United States Environmental Protection Agency
Region II
New York, New York

TABLE OF CONTENTS

ATTACHMENTS

SITE NAME, LOCATION AND DESCRIPTION

The Facet Enterprises, Inc. site includes a 31-acre parcel of land in the Village of Elmira Heights, Chemung County, New York. The Facet Enterprises facility property is bounded to the north by a municipal golf course, to the east by State Route 14, to the south by residential property along West 17th and West 18th Streets, and to the west by residential property and Robinwood Avenue. The Village of Elmira Heights is a mixture of residential, commercial, industrial, and wooded land, but the section in which the site is located is zoned primarily for residential and commercial use. The closest residences are within 60 feet of the present manufacturing facility to the south and west. (See Figure 1.)

Approximately one half of the facility property is currently developed. Between one third and one quarter of the facility property is comprised of one manufacturing plant and the foundation and cement slab of a former manufacturing plant, while the remainder of the developed property is comprised of parking areas or other small production buildings including a starter drive laboratory, a maintenance shop, a fuel pump test laboratory, a boiler room, and several other small buildings. (See Figure 2.)

The facility is not located on or adjacent to a New York State regulated wetland. Any existing Federally regulated wetlands at the Site will be delineated prior to conducting any remediation activities. No Federal or State endangered species have been identified at the site, and no critical habitats are present.

The Facet facility was constructed in 1895 and was used by the Eclipse Bicycle Company (Eclipse) for the manufacture of bicycles. In the early 1900s, Eclipse began manufacturing motorcycles and engine parts and changed its name to Eclipse Machine Company. During World Wars I and II, Eclipse manufactured military support parts, ammunition, airplane parts, and fuel pumps. In 1929, Bendix Aviation Corporation, later to become Bendix Corporation (Bendix), acquired control of Eclipse. Although the Eclipse name remained, Bendix controlled the company. From 1960 until 1975, Eclipse, as a division of Bendix, manufactured electric clutches and brakes.

Facet Enterprises, Inc. was organized as a result of an antitrust action between Bendix and the U.S. Federal Trade Commission in 1974. Purolator Products Company (Purolator) became the corporate successor to Facet in 1989 and maintains the Purolator name to date.

The following areas at the facility are known to have been used for disposal purposes based on the site history.

Area 1 - Plating wastes, oil sludges, and grinding wastes were disposed of in this area between 1960 and 1971. Liquid wastes may have also been disposed in this area; lime was dumped here in an attempt to neutralize the waste prior to covering it with soil.

Area 2 - Plating waste was thought to have been disposed of at Area 2 between 1960 and 1971. Attempts were apparently made to neutralize the waste prior to covering it with soil.

Area 3 - Plating waste, oil sludge, grinding waste and non-characterized liquids may have been disposed of at Area 3 between 1940 and 1965. After 1965, miscellaneous wastes (cinder blocks, metal grindings) were disposed of at Area 3 until 1980. During use, the area was periodically covered and graded. Leachate outbreaks have been noted at the base of this disposal area.

Area 4 - Oils and unknown liquid wastes were disposed of in this currently inactive lagoon between 1920 and 1971. Liquid from this area previously was discharged to the North Drainage Way via a swale which is now filled. In 1981 a soil sample collected from Area 4 contained polychlorinated biphenyls (PCBs) at 320 parts per million (ppm).

Area 5 - Area 5 was previously used as a sludge disposal area containing wastewater treatment units and sand filter beds; metal hydroxide sludge was disposed of in Area 5 until 1965. After 1965, sludge was spread over the surface. The area has been filled and seeded. Sampling conducted by NYSDEC in 1981 detected the presence of cadmium and chromium in excess of 100,000 ppm and copper in excess of 10,000 ppm.

Area 6 - This area, constructed in the early 1970s, is a small pond originally designed to collect seepage and runoff from Areas 1 and 2. Chromic acid may have been treated near this area.

Area 7 - Ash from the production facilities was stored at Area 7 from the early 1940s to the mid 1950s.

Area 8 - Sediments and oily soil have drained over time from a drain pipe from Area 4 into this area.

Area 9 - Ash from the production facilities was stored at Area 9 from the early 1940s to the mid 1950s.

Area 10 - Heat treatment water, non-contact cooling water, and possibly oils were disposed of in this lagoon. The lagoon is no longer active but a surface water impoundment remains in this area. This area is thought to have once been a filter bed.

Plant 2 Yard - Grinding chips, machinery oil, and drummed waste were stored in this area from as early as 1940. The area has been graded and seeded.

Oil/Water Separator - This area was used to segregate oil and particulates from runoff or treatment water at the facility. The oil/water separator is located at the southern boundary of the property.

Dry Wells - Up to five dry wells used for the disposal of liquid wastes and/or water from the facility are present at the facility. The dry wells are being closed pursuant to a consent order with the New York State Department of Envrionmental Conservation (NYSDEC).

Surface Water - In addition to the Area 10 lagoon and the Area 6 pond, Mays Creek, an unnamed drainage way south of the Facet facility, and a drainage way which drains surface water from the northern portion of the facility have all received industrial waste from production activities by way of surface run-off and point source discharge.

SITE HISTORY AND ENFORCEMENT ACTIVITIES

Several investigations of the facility have been conducted by EPA or NYSDEC since 1979. In 1979, an initial Facility inspection conducted by NYSDEC resulted in the implementation of remedial measures which included excavation of surface water diversions, covering of past disposal areas with soil, and construction of a leachate collection system. A facility inspection and sampling was conducted by USEPA in 1980, and additional sampling and investigation was conducted by NYSDEC during March and June 1981. These investigations indicated that volatile organics, inorganics, pesticides, and PCB compounds were present in surface soils, in soils and sediments in the disposal areas, and in surface water drainage streams at the facility.

The Site was first proposed for the National Priorities List on October 1, 1981 and was placed on the NPL on September 1, 1983. In 1983 a preliminary hydrogeologic investigation was conducted at the facility by Facet Enterprises, Inc. under an EPA Administrative Order pursuant to Section 3013 of the Resource Conservation and Recovery Act (RCRA). The investigation concluded that trichloroethylene (TCE) contamination in the ground water exceeded NYSDEC standards. In 1986, Facet Enterprises, Inc. agreed to conduct a Remedial Investigation /Feasibility Study (RI/FS) under a CERCLA Administrative Order (Allied-Signal Corporation, the corporate successor to Bendix Corporation, was also a signatory to this consent order). The 1986 draft RI concluded that TCE, perchloroethylene, 1,1,1-trichloroethane, 1,1-dichloroethane, trans -1,2-dichloroethene, 1,2-dichlorobenzene, trichlorofluoromethane, methylene chloride, acetone, PCBs, and polyaromatic hydrocarbons (PAHs) were present in Site soils. In addition, 14 volatile organic contaminants, pentachlorophenol, and 4 inorganics contaminants were detected in ground water at concentrations above NYSDEC standards.

Based upon a review of the 1986 RI, EPA concluded that additional Site characterization was required before the RI could be finalized. In 1990, Purolator began the necessary field work required to complete the RI. The findings of this field work are reported below.

Enforcement

Facet Enterprises, Inc. has conducted investigations under the following Administrative orders with the EPA:

1) Administrative Order RCRA II-3013-20201 -April 8, 1983 - Hydrogeological Investigation

2) Administrative Order CERCLA II-60205 - May 1986 - (Allied-Signal is also a signatory this Order). - Remedial Investigation/Feasibility Study

Facet Enterprises, Inc. has conducted investigations under the following Administrative order with the NYSDEC:

1) NYSDEC Consent Order under the Clean Water Act R8-0771-90-04 - Dry Well Investigation

HIGHLIGHTS OF COMMUNITY PARTICIPATION

The RI report, FS report, and the Proposed Plan for the Site were released to the public for comment on May 27, 1992. These documents were made available to the public in the administrative record file at the EPA Docket Room in Region II, New York and the information repositories at Village of Elmira Heights, Village Hall, 215 Elmwood Ave, Village of Elmira Heights, New York. The notice of availability for the above-referenced documents was published in the Elmira Star-Gazette on May 27, 1992. The public comment period on these documents was held from May 27, 1992 until June 27, 1992.

On June 16, 1992, EPA, the NYSDEC, and the New York State Department of Health conducted a public meeting at the Village of Elmira Heights Village Hall, to inform local officials and interested citizens about the Superfund process, to review current and planned remedial activities at the Site, and to respond to any questions from area residents and other attenders.

Responses to the comments received at the public meeting and in writing during the public comment period are included in the Responsiveness Summary (see Appendix V).

SCOPE AND ROLE OF OPERABLE UNIT

This Record of Decision outlines EPA's strategy to eliminate the threat to human health and the environment posed by contaminated ground water and contaminated soils and sediments present at the Site. Specifically, remediation of soil and sediment in disposal areas in concentrations above site specific cleanup levels will be conducted. The proposed remediation of ground water will treat contaminated ground water at the facility to meet Federal and State drinking water standards. No further operable units are currently planned for this site.

During the Spring of 1992, pursuant to the CERCLA Administrative Order, Purolator excavated and removed 469 drums buried in Disposal Areas 1,2,3, and 4. In addition, 2,250 tons of contaminated soil was excavated and 30,000 gallons of contaminated liquids were removed to be sent off-site for treatment and disposal at a permitted industrial waste landfill. The drum and soil excavation activities were conducted with oversight by EPA. Purolator and EPA collected confirmatory samples from the excavation floor in each of these disposal areas. Based on the data obtained during the Summer 1992, EPA will evaluate if further action is required.

Once the excavation of the drums and the contaminated soil from Disposal Areas 1,2, and 3 is completed, the potential threat that these materials pose to ground water will be removed. Final remediation of Disposal Area 4 is discussed in this ROD.

Dry well closure, which includes excavation of contaminated sediment and sludges, will be addressed by Purolator Products Company under the consent agreement with the NYSDEC.

The proposed actions to be undertaken at this Site, in conjunction with dry well cleanup actions currently under way under the supervision of the NYSDEC, will address the sources of ground water contamination and the principal threats posed by contaminated soils and sediments.

SUMMARY OF SITE CHARACTERISTICS

A. Site Geology and Hydrology

The Purolator facility lies along the western side of the Newtown Creek Valley. The unconsolidated sediments which underlain the western portion of the facility consist of sands, silts, and clays. In the eastern portion of the facility the unconsolidated sediments consist of outwash sands and gravels and may contain silts and clays. The ground-water flow direction, as determined by water level measurements taken at facility monitoring wells, is south easterly. Figure 3 illustrates ground-water flow direction measured during the summer of 1990. Figure 4 presents the estimated regional ground water flow direction presented in the Kentucky Avenue Wellfield Remedial Investigation Report. Figure 5 illustrates surface water drainage at the facility.

B. Nature and Extent of Contamination

The following section summarizes the known contamination at and near the facility as determined during the Remedial Investigation: This study consisted of the following: eighty-five soil samples were collected from the surface soils or from subsurface borings in known or suspected disposal areas; twenty-five sediment samples were collected from streams; ponds or lagoons at the facility or in streams adjacent to the facility; fourteen ground water samples were collected from monitoring wells or production wells at or near the facility; and 8 surface water samples were collected from streams or lagoons at the facility or in streams adjacent to the facility. Tables 1-11 present analytical data collected during remedial investigation activities. More detailed descriptions of the work can be found in the RI report.

Area 1/Area 2 - A total of 27 samples from these areas were collected for chemical analyses from depths ranging from 1 to 12 feet below ground level. Soil collected from one boring in Area 2 had elevated levels of contaminants. The analytical results indicate the

presence of cadmium (351 ppm), chromium (2410 ppm), and copper (1120 ppm). The maximum TCE concentration in soil was 110 ppb. (Table 1)

Area 3 - A total of 12 samples were collected for chemical analyses from this area at depths from 8 to 14 feet below ground surface. Elevated levels of chromium (2110 ppm), cadmium (72.3 ppm), and copper (270 ppm) were found in soil samples. (Table 2)

Area 4 - A total of 13 samples from this area were collected for chemical analyses at depths ranging from 8 to 20.5 feet below ground surface. The soil borings in this area indicate that a layer of fill approximately 8 feet thick is saturated with oil product. Numerous volatiles and semi-volatiles were detected in Area 4 including toluene (210 ppb), PCB (Arochlor 1248) (35 ppm). (Table 3)

Area 5 - Three samples out of the 21 samples collected at depths ranging from 8 to 20 feet below ground surface from Area 5 had elevated levels of chromium (13,000 ppm). TCE was detected in 14 soil samples in concentrations up to 240 ppb. (Table 4)

Area 6 - Two surface soil samples collected from pond sediments had TCE in concentrations up to 130 ppb. Elevated levels of arsenic (588 ppm), cadmium (79 ppm), and chromium (1220 ppm) were also detected. Confirmatory sampling conducted during the FS, completed in order to determine the presence of Resource Conservation and Recovery Act (RCRA) hazardous waste, revealed that a sediment sample exhibited the characteristic for cadmium waste. (Table 5)

Area 7 - Three surface soil samples were collected from this area. PCB compounds were detected at concentrations ranging from 0.32 ppm to 5.3 ppm. Semi-volatile organics were detected in the one surface sediment sample at concentrations up to 22 ppm. (Table 5)

Area 8 - Area 8 soils contained elevated concentrations of eighteen semi-volatile organic compounds at concentrations up to 69 ppm (benzo(b)fluoranthene). PCBs were detected in concentrations up to 11 ppm. (Table 5)

Area 9 - The one surface soil sample collected from Area 9 contained 1 ppm PCBs. (Table 5)

Area 10 - Two sediment samples and one duplicate sample was collected from Area 10. PCBs were detected in sediments in concentrations up to 14 ppm. Cadmium (796 ppm), chromium (10,100 ppm), and copper (1,110 ppm) were detected in these surface sediment samples. (Table 5)

Plant 2 Yard - Soil sampling (24 samples including duplicate samples in soil boring samples collected from 0-8 feet below the ground surface.) conducted during the 1986 RI field work detected TCE in concentrations ranging from 3.4 ppb to 253 ppb. In addition the analyses revealed tetrachloroethylene (150 ppb), 1,1,1-trichloroethane (48.1 ppb), and 1,1 dichloroethane (8.58 ppb). (Table 6)

Oil/Water Separator - Twenty two semi-volatile compounds (8 of which were in concentrations over 100,000 ppb) were detected in soil collected from near the oil/water separator. Soil samples contained slightly elevated levels of cadmium (41.4 ppm), copper (502 ppm), and zinc (675 ppm). (Table 7)

Dry Wells - Sampling and analysis of dry well liquids, sludges, and sediment has been conducted by Purolator as a part of a consent order with the NYSDEC. The sampling has detected liquid with PCB concentrations up to 31 ppm. TCE was present in sludge material in concentrations up to 60 ppm. Lead was present in concentrations up to 5500 ppm, and chromium was present in concentrations of 450 ppm in dry well sludge. Benzene (1390 ppb), toluene (3050 ppb), chlorobenzene (9260 ppb), ethylbenzene (3330 ppb), p-xylene (3780 ppb), o-xylene (3780 ppb), and 1,3-dichlorobenzene (4940 ppb) were also detected in dry well sludges or liquids.

Unnamed Drainage Swale South of Facility (Also known as the Heights Drainage Swale) - Twenty-one soil and sediment samples were collected from 0 - 6 feet below ground surface from this area. Soil samples and boring data collected from the drainage way south of the Facet facility contained the semi-volatiles benzo(a)anthracene (11 ppm), benzo(a)pyrene (11 ppm), benzo(b)fluoranthene (30 ppm), benzo(k) fluoranthene (30 ppm), and ideno(1,2,3-cd)pyrene (6 ppm); PCB 1254 (6.8 ppm), and the inorganics arsenic (23 ppm) and chromium (3920 ppm) in elevated concentrations. (Table 8)

North Drainage Way - Arsenic (320 ppm) was detected in the North Drainage Ditch in a surface sediment sample collected in July 1980. (Table 9)

Buried Drums - A magnetometry survey and interviews with employees indicated that buried drums were present at the facility. Based on the magnetometry survey results, Purolator Products Company, with oversight by EPA, removed 469 drums from Disposal Areas 1,2,3 and 4. In addition, at least 2,250 tons of contaminated soil have been excavated, and approximately 30,000 gallons of contaminated water have been contained for off site treatment and disposal.

Surface Water Sampling - Seven surface water samples were collected from surface water bodies at the Site. TCE was detected at the oil/water separator effluent at up to 26 ppb, and chloromethane was present at 24 ppb. TCE was detected in Mays Creek surface water at 11 ppb. Surface water samples collected from Area 10 contained elevated concentration of cadmium (77.8 ppb), chromium (2190 ppb), and zinc (894 ppb). (Table 10)

Ground water - A total of 13 monitoring wells were installed at or near the facility in the unconsolidated sediments below the Site. The wells vary in depth from 12.5 feet to 49.2 feet below ground surface. Fourteen organics: n-butylbenzene (13 ppb), 1,1-dichloroethene (160 ppb), ethylbenzene (12 ppb), isopropylbenzene (8 ppb), 4-Isopropyltoluene (12 ppb), methylene chloride (69 ppb), n-propylbenzene (22 ppb), 1,1,1-trichloroethane (13 ppb), trichloroethene (190 ppb), trichlorofluoromethane (19 ppb), 1,2,4-trimethylbenzene (18 ppb), 1,3,5-trimethylbenzene (81 ppb), vinyl chloride (33 ppb Spring 1991 sampling),

and xylenes (14 ppb), and six inorganic contaminants: cadmium (55.8 ppb), chromium (1540 ppb), copper (1200 ppb), lead (146 ppb), mercury (5.6 ppb), zinc (1180 ppb) were detected in ground water at the facility at concentrations in excess of State and Federal standards for potable drinking water sources. (Table 11)

In addition, the concentrations of antimony (45.8 ppb), beryllium (4.2 ppb), and nickel (602 ppb) exceeded either NYSDEC guidance values or EPA proposed Maximum Contaminant Levels (MCLs), the latter of which were promulgated under the Federal Safe Drinking Water Act.

Figures 6 and 7, present respectively, the sampling results of facility groundwater monitoring wells with volatile organic contaminants or inorganic contaminants present.

The ground water contamination flows in the direction consistent with the regional ground water flow direction. The facility contamination contributes to the contamination within the Newtown Creek Aquifer which is classified by EPA a Class IIa aquifer. See Figure 8.

Floating Product - EPA detected a layer of pure product floating on top of the water table (approximately 20 feet below the ground surface) at monitoring well D-5 located on the facility property. (See Figure 2).

SUMMARY OF SITE RISKS

EPA conducted a baseline risk assessment to evaluate the potential risks to human health and the environment associated with the Facet Enterprises, Inc. Site in its current state. The Risk Assessment focused on contaminants in the soil, sediment, surface water, ground water and air which are likely to pose significant risks to human health and the environment. The summary of the contaminants of concern (COC) in sampled matrices is listed in Table 12.

The baseline risk assessment evaluated the health effects which could result from exposure to contamination as a result of ingestion of ground water, inhalation of ground water contaminants during showering, ingestion of sediments in the drainage swale south of the facility, incidental ingestion of sediments while wading in the North Drainage way, ingestion of on site soils, ingestion of sediments in Mays Creek, and incidental ingestion of sediments in areas 6 and 10 lagoons. Both current and future land use at the facility was considered to be industrial with exposure scenarios for on site workers and trespassers. For Mays Creek and the unnamed drainage way south of the facility, exposure to small children and adults was considered because these areas are generally more accessible to the public. A total of 12 exposure pathways were evaluated under possible on site current and future land-use conditions. The exposure pathways considered under current and future uses are listed in Table 13. The reasonable maximum exposure was evaluated.

Under current EPA guidelines, the likelihood of carcinogenic (cancer-causing) and noncarcinogenic effects as a result of exposure to site chemicals are considered separately. It was assumed that the toxic effects of the site-related chemicals would be

additive. Thus, carcinogenic and noncarcinogenic risks associated with exposures to individual compounds of concern were summed to indicate the potential risks associated with mixtures of potential carcinogens and noncarcinogens, respectively.

Noncarcinogenic risks were assessed using a hazard index (HI) approach, based on a comparison of expected contaminant intakes and safe levels of intake (Reference Doses). Reference doses (RfDs) have been developed by EPA for indicating the potential for adverse health effects. RfDs, which are expressed in units of mg/kg-day, are estimates of daily exposure levels for humans which are thought to be safe over a lifetime (including sensitive individuals). Estimated intakes of chemicals from environmental media (*e.g.*, the amount of a chemical ingested from contaminated drinking water) are compared to the RfD to derive the hazard quotient for the contaminant in the particular medium. The HI is obtained by adding the hazard quotients for all compounds across all media that impact a particular receptor population.

An HI greater than 1.0 indicates that the potential exists for noncarcinogenic health effects to occur as a result of site-related exposures. The HI provides a useful reference point for gauging the potential significance of multiple contaminant exposures within a single medium or across media. The reference doses for the compounds of concern at the Site are presented in Table 14. A summary of the noncarcinogenic risks associated with these chemicals across various exposure pathways is found in Table 15.

It can be seen from Table 5 that the HI for noncarcinogenic effects from ingestion of untreated ground water exceeded one (HI = 46) for reasonable maximum exposure for children, therefore, noncarcinogenic effects may occur from the exposure routes evaluated in the Risk Assessment. The noncarcinogenic risk was attributable to several compounds including vinyl chloride, cis-1,2 dichloroethylene, TCE, antimony, arsenic, cadmium, chromium, mercury, and nickel. Furthermore, it can be seen from Table 15 that the HI for noncarcinogenic effects from ingestion of sediment in the unnamed drainage swale (also known as the Heights drainage swale) exceeded one (HI = 3.5) for reasonable maximum exposure for children, therefore, noncarcinogenic effects may occur from the exposure routes evaluated in the Risk Assessment. The noncarcinogenic risk was attributable to several compounds including chromium..

Potential carcinogenic risks were evaluated using the cancer slope factors (Sfs) developed by EPA for the chemicals of potential concern. Sfs have been developed by EPA's Carcinogenic Risk Assessment Verification Endeavor (CRAVE) for estimating excess lifetime cancer risks associated with exposure to potentially carcinogenic chemicals. Sfs which are expressed in units of $(mg/kg\text{-}day)^{-1}$, are multiplied by the estimated intake of a potential carcinogen, in mg/kg-day, to generate an upper-bound estimate of the excess lifetime cancer risk associated with exposure to the compound at that intake level. The term "upper bound" reflects the conservative estimate of the risks calculated from the SF. Use of this approach makes the underestimation of the risk highly unlikely. The SF for each indicator chemical is presented in Table 16.

For known or suspected carcinogens, EPA considers excess upper bound individual lifetime cancer risks of between 10^{-4} to 10^{-6} to be acceptable. This level indicates that an individual has not greater than a one in ten thousand to one in a million chance of developing cancer as a result of site-related exposure to a carcinogen over a 70-year period under specific exposure conditions at the Site. The total cancer risks at the Facet Enterprises, Inc. Site are outlined in Table 17. In addition, MCLs are currently exceeded for several hazardous substances in ground water. Although the risks posed by the soils are within EPA's acceptable risk criteria, contamination in the soils, if not addressed, will likely continue to contribute to further contamination of the ground water at the Site.

Uncertainties

The procedures and inputs used to assess risks in this evaluation, as in all such assessments, are subject to a wide variety of uncertainties. In general, the main sources of uncertainty include:

- environmental chemistry sampling and analysis
- environmental parameter measurement
- fate and transport modeling
- exposure parameter estimation
- toxicological data.

Uncertainty in environmental sampling arises in part from the potentially uneven distribution of chemicals in the media sampled. Consequently, there is significant uncertainty as to the actual levels present. Environmental chemistry-analysis error can stem from several sources including the errors inherent in the analytical methods and characteristics of the matrix being sampled.

Uncertainties in the exposure assessment are related to estimates of how often an individual would actually come in contact with the chemicals of concern, the period of time over which such exposure would occur, and in the models used to estimate the concentrations of the chemicals of concern at the point of exposure.

Uncertainties in toxicological data occur in extrapolating both from animals to humans and from high to low doses of exposure, as well as from the difficulties in assessing the toxicity of a mixture of chemicals. These uncertainties are addressed by making conservative assumptions concerning risk and exposure parameters throughout the assessment. As a result, the Risk Assessment provides upper-bound estimates of the risks to populations near the Site, and is highly unlikely to underestimate actual risks related to the Site.

There are, also, additional uncertainties unique to the Site that would serve to underestimate Site-related risks. Specifically, they are: the presence of previously undetected drums and associated contaminated soils; an on-site "reservoir" of contaminants that may potentially migrate from the facility property; designation of future land use at the facility property as industrial rather than residential; and the contribution to risk resulting from - but not quantified, as a result of limited scientific data - dermal exposure to soil-borne contaminants.

More specific information concerning public health risks, including a quantitative evaluation of the degree of risk associated with various exposure pathways, is presented in the Risk Assessment Report.

Current federal guidelines for acceptable exposures are a health Hazard Index equal to 1.0 and an individual lifetime excess carcinogenic risk in the range of 10^{-4} to 10^{-6}. Some of the on site soil and sediment risks fall within EPA's acceptable risk range. However, EPA has determined that remedial action is necessary in these areas due to: the uncertainties as mentioned above, the contribution of some of the chemicals to the ground water contamination, and that unless these soils and sediments are remediated, they would continue to migrate off the facility property and accumulate which would likely result in an unacceptable risk to the public.

Actual or threatened releases of hazardous substances from this Site, if not addressed by the preferred alternative or one of the other active measures considered, may present a current or potential threat to public health, welfare or the environment.

REMEDIAL ACTION OBJECTIVES

Remedial action objectives are specific goals to protect human health and the environment; they specify the contaminant(s) of concern, the exposure route(s), receptor(s), and acceptable contaminant level(s) for each exposure route. These objectives are based on available information and standards such as applicable, or relevant and appropriate requirements (ARARs) and risk-based levels established in the risk assessment.

The cleanup levels have been chosen for each area where an unacceptable exposure risk was determined or from data which indicates that a disposal area contributes to the groundwater contamination. These cleanup levels are derived from the point of departure, as defined in the NCP, of 1.00×10^{-6} or a Hazard Index of 1 and using the same risk modeling assumptions used in the risk assessment, thereby yielding a cutoff value below which the ingestion of sediment at the Site is no longer a risk.

Soils and Sediments - The following remedial action objectives have been determined for clean-up of soils and sediments at the Site.

Surface Soils (0 to 2 feet below ground surface) and Sediments

	Facility Surface Soils/Sediments	Unnamed Drainage Way and Mays Creek Soils/ Sediments
Semivolatiles (ppm)		
Benzo (a) anthracene	20	3
Benzo(b)fluoranthene	20	3
Benzo (k)fluoranthene	43	7
Benzo(a)pyrene	3	1
Indeno(1,2,3-cd)pyrene	12	2

Dibenzo(a,h)anthracene	3	1
PCBs (ppm)	10	1
Inorganics (ppm)		
Arsenic	19	7
Chromium	-	1110

Cleanup levels are lower for the Unnamed drainage way and Mays Creek soil/sediment than for facility soils and sediment because there is a greater potential for residential exposure (as opposed to industrial exposure) in areas off the facility property.

Subsurface Soils (> 2 ft below ground surface)

Facility Subsurface Soil

Semivolatiles (ppm)	
Benzo(a)anthracene	54
Benzo(b)fluoranthene	55
Benzo(k)flouranthene	118
Benzo(a)pyrene	8
Indeno(1,2,3-cd)pyrene	33
PCBs (ppm)	25
Inorganics (ppm)	
Arsenic	52

The facility subsurface soils cleanup levels are higher than facility surface soils cleanup levels because the potential for human exposure to subsurface soils is restricted to occasional exposure to utility workers.

Soils and Sediments Which May Pose a Threat to the Aquifer

Analytical data from soils and sediment collected from Disposal Areas 6, 10, and 5 indicate that these areas may be contributing to the Site ground water contamination. For these areas, soils and sediments will be analyzed using the TCLP method to determine this potential, and soils or sediments which do not pass this test will be remediated. In addition, preliminary confirmatory data from the bottom of the excavation in drum removal areas 1,2,3 indicate that a small volume of soils remaining pose a threat to ground water quality. These areas will be re-excavated, and confirmatory sampling will be re-conducted.

Ground water

Cleanup levels for ground water are established by federal and State laws and regulations. According to RI data, the aquifer beneath the Site is contaminated with a variety of chemicals. The aquifer is designated by EPA as a Class IIa aquifer and New York State designates the aquifer as a class GA aquifer, or a potential source of potable water. This designation requires that applicable or relevant and appropriate requirements (ARARs) for drinking water be met. Cleanup levels are thereby driven by MCLs established by State and federal regulations. See Table 8. For example, the maximum concentration of the organic chemical TCE in ground water is 190 ppb, while the MCL for TCE for the aquifer is the NYSDEC standard of 5 ppb. For chromium, an inorganic chemical, the maximum concentration in ground water at the facility is 1540 ppb, while the MCL for chromium is the NYSDEC standard of 50 ppb.

DESCRIPTION OF REMEDIAL ALTERNATIVES

CERCLA requires that each selected site remedy be protective of human health and the environment, be cost-effective, comply with other statutory laws, and utilize permanent solutions, alternative treatment technologies and resource recovery alternatives to the maximum extent practicable. In addition, the statute includes a preference for the use of treatment as a principal element for the reduction of toxicity, mobility, or volume of the hazardous substances.

This Record of Decision evaluates in detail eight soil and sediment and two ground water remedial alternatives for addressing the contamination associated with the Site. The time to implement reflects only the time required to construct and/or implement the remedy and does not include the time required to design the remedy, negotiate with the responsible parties, if appropriate, or procure contracts for design and construction.
These alternatives are:

MEDIA 1 and 2: SOILS AND SEDIMENTS

Alternative 1 - No Action

Capital Cost: $ 0
Annual O&M Costs: $0
Present Worth: $ 0
Time to Implement: Could be implemented immediately.

The Superfund program requires that a "no action" alternative be evaluated at every site to establish a baseline for comparison. Under this alternative, a public awareness program concerning surface soil contamination would be implemented, including conducting public

meetings and posting warning signs. The Site would be reviewed every five years to evaluate the protectiveness of the remedy.

Alternative 2 - Access Restriction

Capital Cost: $9,750
Annual O&M Costs:$0
Total Cost: $9,750
Time to Implement: Approximately 6 months

This alternative consists of deed restrictions to restrict future uses of the Facility to industrial operation, to prohibit the extraction of ground water to be used as drinking water, to provide maintenance of the fences surrounding the facility, including the unnamed drainage way south of the facility, and to continue 24-hour security. The Site would be reviewed every five years to evaluate the protectiveness of the remedy.

Common Action for Sediment and Soil Remedial Alternatives

Six of the remedial alternatives evaluated for remediation of surface, subsurface soils and sediment contain the common actions of removal and de-watering of sediment, consolidation of soil, and product recovery, as described below:

1) Excavation of sediment from May's Creek, the Unnamed Drainage way, the North drainage way, and Area 10 Lagoon. The sediment would be staged in one area and de-watered.

2) Excavation of surface soils from Areas 6,7, and 8 and subsurface soil from the oil/water separator and Area 4.

(Volume calculations of the amount of soils and sediments exceeding cleanup levels, which were performed during the FS, indicate that an estimated 3,480 cubic yards of contaminated soil and sediment must be removed to reduce risks posed by the contaminated soil to the 10^{-6} range. In addition, it is estimated that 55 cubic yards of cadmium contaminated soils must be removed from disposal Area 6 to remove the potential threat to ground water posed by these contaminated soils.)

3) Confirmation sampling to ensure remediation goals are obtained.

4) Replacement of existing sediment and soil with clean fill.

5) Implementation of a free-product investigation and remediation program. This program will investigate the source (likely to be contaminated soils) of the floating product detected at monitoring well D-5, and following this study, source control and product recovery will be performed.

6) Access restrictions in the form of existing fences and facility security. This prevents inadvertent trespassing onto the industrial property.

7) Collection of additional soil samples from Area 5 and analysis for TCLP. Based on the TCLP data, a RCRA cover pursuant to 40 CFR Part 264 would be installed over the contaminated areas of Disposal Area 5. A fence with a gate would be placed around the disposal areas. If the volume of contaminated material is very small, EPA will consider off-site treatment and disposal of this material.

8) Collection of additional samples from Area 4 so that wastes may be segregated for proper disposal of PCB-contaminated soils.

9) Installation of a geotextile membrane under rip-rap in May's Creek. This will be installed as a protective measure for aquatic species exposure to low levels of cadmium which have been detected.

Alternative 3 - Consolidate Soil and Sediment, Install RCRA Cover

Capital Cost: $913,094
Annual O&M Costs: $14,300
Present Worth of O&M: $134,849
Total Cost: $1,047,943
Time to Implement: 1 year

The common actions described above would be completed prior to clearing vegetation and grading in a portion of the western half of the facility property selected for the disposal and capping. The consolidated and de-watered sediment would be placed in this selected area. A RCRA cover pursuant to 40 CFR Part 264 would be installed over the soil and sediment. A RCRA cover includes two feet of soil capable of supporting adequate vegetation, a six inch thick drainage layer or synthetic drainage net, a 60 mil geotextile membrane liner, non-woven geotextile, and a one-foot thick layer of intermediate cover above consolidated soil and sediment. A fence with a gate and lock would be installed around the RCRA cover area. Post closure care would include maintenance of the RCRA cover and restricting of facility operations in the area of the RCRA cover.

Alternative 4 - Consolidate Soil and Sediment, Stabilize, Install RCRA Cover

Capital Cost: $1,447,869
Annual Operation and Maintenance (O&M) Costs: $14,300
Present Worth of O&M: $134,849
Total Cost: 1,582,718
Time to Implement: 1 year

The common actions described above except de-watering would be completed prior to clearing vegetation and grading in a portion of the western half of the facility property selected for the disposal of the stabilized material. A treatability study would have to be

conducted in order to determine the most effective stabilization agent. Stabilization agents include portland cement, lime, cement kiln dust, and commercially available materials. The RCRA cover and fencing would be identical to that described for Alternative 3.

Alternative 5 - Segregate Soil and Sediment, Use Low Temperature Thermal Treatment, Stabilize, Install RCRA Cover

Capital Cost: $2,207,215
Annual O&M Costs: $14,300
Present Worth of O&M: $134,849
Total Cost: $2,342,064
Time to Implement: 2 years

The common actions as described above would be conducted. The soil contaminated with inorganics in Area 7 would be segregated from the remainder of the excavated soil and sediment. The Area 7 soil exceeds cleanup levels for metals (arsenic) but not for PAHs and PCBs. Soil and sediment would be treated using a low temperature thermal treatment system. The excavated soil and sediment from Area 7 would then be mixed with the thermally treated material and would be stabilized following a stabilization treatability study. An area in the western portion of the facility property would be selected for placement of the consolidated soil, cleared of vegetation, and graded. The RCRA cover and fencing would be identical to that described for Alternative 3.

Alternative 6 - Consolidate Soils and Sediment, Dispose of Off-Site at Industrial Waste Landfill

Capital Costs; $2,811,931
Annual O&M Costs: $0
Total Cost: $ 2,811,931
Time to Implement: 1 year

This alternative consists of all the common actions described above. The excavated soil and de-watered sediment would be staged in a central area. After consolidation, all the soil and sediment would be transported to a RCRA approved industrial waste landfill.

Alternative 7 - Consolidate Soil and Sediment, Build an On site RCRA-Disposal Landfill

Capital Costs: $ 1,052,252
Annual O&M Costs: $14,300
Present Worth of O&M: $134,849
Total Cost: $1,187,101
Time to Implement: 1 year

This alternative consists of all the common actions described above. An area in the western portion of the Facility property would be selected for construction of the on-site RCRA landfill (approximately 10,340 square feet are required). The on-site RCRA landfill would be constructed as follows: a multi-liner would be constructed from top to bottom consisting of: 1 foot protective cover, non-woven geotextile, 60 mil- geotextile membrane, non-woven geotextile, 1-foot drainage layer, non-woven geotextile, 60 mil- geotextile membrane, non-woven geotextile, 6" compacted sub-base. The liners would be designed and constructed to meet 40 CFR and NYS 6 NYCRR 373-2 requirements. The contaminated soil would be placed over the liner and non-impacted soil would be placed between the contaminated soil and the RCRA cover. The RCRA cover and fencing would be identical to that described for Alternative 3.

Alternative 8 - Consolidate Soil and Sediment, Ship Off-site For Treatment and Disposal

Capital Costs: $ 2,462,334
Annual O&M Costs:$0
Total Costs: $2,462,334
Time to Implement: 1 year

This alternative consists of all the common actions described above. The soil and dewatered sediment would be staged in a central area. After consolidation, all the soil and sediment would be transported to an approved treatment and/or disposal facility. Treatment would be conducted in order to meet RCRA Land Ban Regulations. This alternative includes TSCA waste (PCBs > 50 ppm) disposal in a secure TSCA double lined landfill facility (approximate volume 1,275 cubic yards). RCRA waste (e.g. PCBs < 50 ppm, Arsenic > 5 ppm, Chromium > 5ppm) would be stabilized to prevent leaching of metals and disposed of in a secured RCRA lined facility (approximately 2,124 cubic yards as determined as the reasonable likely quantity in the Feasibility Study), and non-RCRA wastes would be disposed of in an industrial waste landfill (approximate volume 120 cubic yards). Based on soil estimates of 3000 to 6000 cubic yards, approximately 150 to 300 trucks would be expected to leave the facility. The cost estimate is based on the 2,124 cubic yards and may vary depending on the final volume actually excavated.

MEDIUM 3: Ground Water

Ground water analyses conducted during the RI indicate that 14 organics and 7 inorganics are present in concentrations above cleanup levels at the facility.

The ultimate goal of the EPA Superfund Program's approach to ground water remediation, as stated in the NCP (40 CFR Part 300), is to return usable ground waters to their beneficial uses within a time frame that is reasonable. Therefore, for this aquifer, which is classified by New York State as a potential drinking water source, the final cleanup levels will be federal and State drinking water standards. The remedial alternatives for ground water include no action and ground water treatment.

Alternative 9 - No Action

Capital Costs: $12,000
Annual O&M Costs: $14,300
Present Worth of O&M: $134,849
Total Costs: $146,849
Time to Implement: At least 30 years

As previously stated, the Superfund program requires that a "no action" alternative be evaluated at every site to establish a baseline for comparison. Under this alternative, a public awareness program concerning ground water contamination would be implemented, including conducting public meetings and posting warning signs. Institutional controls would be implemented to prevent untreated ground water use as a source of potable water at the Site. Long-term surface water and ground water monitoring would be included to track any contaminant migration. The Site would be reviewed every five years to evaluate the protectiveness of the remedy.

Alternative 10 - Ground water Treatment

Capital Cost: $1,082,726
Annual O&M Cost: $153,419
Present Worth of O&M (20 years): $1,305,596
Total Costs:$ 2,388,322
Time to Implement: Approx 20 years

This alternative involves the pumping and treatment of contaminated ground water with the goal of achieving federal and state drinking water cleanup levels. Treatment will consist of air stripping the extracted water to remove VOCs and, if necessary, metals removal by either filtration or precipitation. Air emission treatment, if necessary, will be installed to meet 6 NYCRR Parts 200, 201, and 212 regulations and New York State Air Guide 1. See Figure 9. The exact treatment specifications required will be determined during the remedial design. Treated ground water will be discharged to the non-contact cooling system at the

plant, or to surface water in accordance with the State Pollutant Discharge Elimination System requirements. The costs are based on pumping and treating 30 gallons per minute. It is possible that higher pumping rates will be required to contain and/or capture contamination in ground water at the facility. The exact pumping rate will be determined during the design stage. Recent studies have indicated that pumping and treatment technologies may contain uncertainties in achieving concentrations required under Federal and State standards over a reasonable period of time. However, these studies also indicate significant decreases in contaminant concentrations early in the system implementation, followed by a leveling out. For these reasons, this alternative stipulates contingency measures, whereby the ground water extraction and treatment system's performance will be monitored on a regular basis and adjusted as warranted by the performance data collected during operation. Modifications may include any or all of the following:

a) at individual wells where cleanup goals have been attained, pumping may be discontinued;

b) alternate pumping at wells to eliminate stagnation points;

c) pulse pumping to allow aquifer equilibration and to allow adsorbed contaminants to partition into ground water; and

d) install additional extraction wells to facilitate or accelerate cleanup of the contaminant plume.

If it is determined, on the basis of the preceding criteria and the system performance data, that certain portions of the aquifer cannot be restored to their beneficial use in a reasonable time frame, all of the following measures involving long-term management may occur, for an indefinite period as a modification of the existing system:

a) engineering controls such as physical barriers including trenches, source control measures, or long-term gradient control provided by low level pumping, may be implemented as containment measures;

b) chemical-specific ARARs will be waived for the cleanup of those portions of the aquifer which cannot be restored based on the technical impracticability of achieving further contaminant reduction;

c) institutional controls will be provided/maintained to restrict access to those portions of the aquifer which remain above cleanup levels;

d) continued monitoring of specified wells; and

e) periodic reevaluation of remedial technologies for ground water restoration.

The decision to invoke any or all of these measures may be made during a periodic review of the remedial action, which will occur at intervals of no less often than every five years after the initiation of the operation.

All costs and implementation times are estimated.
Remedial design period is not included in implementation times.

SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

During the detailed evaluation of remedial alternatives, each alternative was assessed utilizing nine evaluation criteria as set forth in the NCP and OSWER Directive 9355.3-01. These criteria were developed to address the requirements of Section 121 of CERCLA to ensure all important considerations are factored into remedy selection decisions.

The following "threshold" criteria are the most important, and must be satisfied by any alternative in order to be eligible for selection:

1. *Overall protection of human health and the environment* addresses whether or not a remedy provides adequate protection and describes how risks posed through each exposure pathway (based on a reasonable maximum exposure scenario) are eliminated, reduced, or controlled through treatment, engineering controls, or institu tional controls.

2. *Compliance with ARARs* addresses whether or not a remedy would meet all of the applicable, or relevant and appropriate requirements of federal and state environmen tal statutes and requirements or provide grounds for invoking a waiver.

The following "primary balancing" criteria are used to make comparisons and to identify the major trade-offs between alternatives:

3. *Long-term effectiveness and permanence* refers to the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup goals have been met. It also addresses the magnitude and effectiveness of the measures that may be required to manage the risk posed by treatment residuals and/or untreated wastes.

4. *Reduction of toxicity, mobility, or volume through treatment* is the anticipated perfor mance of a remedial technology, with respect to these parameters, that a remedy may employ.

5. *Short-term effectiveness* addresses the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation periods until cleanup goals are achieved.

6. *Implementability* is the technical and administrative feasibility of a remedy, including the availability of materials and services needed.

7. *Cost* includes estimated capital and operation and maintenance costs, and the present-worth costs.

The following "modifying" criteria are considered fully after the formal public comment period on the Proposed Plan is complete:

8. *State acceptance* indicates whether, based on its review of the RI/FS and the Proposed Plan, the State supports, opposes, and/or has identified any reservations with the preferred alternative.

9. *Community acceptance* refers to the public's general response to the alternatives described in the Proposed Plan and the RI/FS reports. Factors of community acceptance to be discussed include support, reservation, and opposition by the community.

A comparative analysis of the remedial alternatives based upon the evaluation criteria noted above follows.

Overall Protection of Human Health and the Environment

Soils and Stream Sediments: All of the alternatives, with the exception of the no action alternative and access restriction alternative (Alternatives 1 and 2), would provide adequate protection of human health and the environment by eliminating or controlling risk through containment, removal, or treatment.

Alternatives 1 and 2 are not an acceptable remedial option given that the current risk from PAHs, PCBs, and inorganics posed by the Site exceeds the acceptable risk range of 10^{-4} to 10^{-6} in certain areas of the Site. Therefore, since Alternatives 1 and 2 do not meet this threshold criterion, they will not be discussed further in this section.

Ground water: Only the treatment alternative (Alternative 10) for ground water attempts to provide adequate protection of human health and the environment by reducing contaminant levels to cleanup levels. Although there is no current exposure pathway for ground water use at the facility, the no action alternative is not protective of public water supplies because it will not prevent the migration of contaminants within the Newtown Creek Aquifer. Consequently, and in accordance with EPA ground water policy as set forth in the NCP, Site remediation is warranted to restore ground water to its beneficial use. Therefore, since Alternative 9 (no action) does not meet this threshold criterion, it will not be discussed further.

Compliance with ARARs

Soils and Stream Sediments: Alternatives 3,4,5,6,7, and 8 provide containment or treatment as a means of eliminating potential exposures.

Land Disposal Restrictions (LDRs) are chemical- and action-specific ARARs that are triggered by the placement of wastes regulated under RCRA. LDRs require that excavated hazardous wastes be treated to acceptable levels before land disposal. For non-listed wastes, on-site or off-site disposal of treated wastes is permitted provided the wastes are not, after treatment, RCRA characteristic hazardous wastes. Soils in Area 6 contain hazardous waste and must therefore be treated so that the contaminants remaining in the leachate (as determined by TCLP) are less than the Toxicity Characteristic limit so as to no longer be considered hazardous waste and therefore be eligible for disposal. Area 5 contains listed hazardous waste, and LDR restrictions would prevent any land disposal of these materials. The LDR requirements, however are not triggered if the material is contained without excavation with a RCRA cover. Alternative 8 would meet Land Disposal Restrictions for all wastes while Alternatives 3 and 6 would not.

One sample from Disposal Area 4 indicated PCBs at a concentration of 320 ppm. Therefore, the potential exists that additional soils and /or sediments will be encountered with concentrations above 50 ppm. For these sediments or soils, Alternative 8, which includes excavation, segregation and off site disposal in a TSCA regulated landfill, would meet TSCA ARARs.

Alternative 7 would not meet New York State requirements as set forth at 6 NYCRR 373-2 for all contaminated soil or sediments because ground water must be greater than 10 feet from a landfill's cell bottom and because the area proposed for the landfill is a ground water recharge zone. Perched ground water was encountered at 4-5 feet below the ground surface during drum excavation activities in Disposal Areas 1 and 2 and therefore this requirement cannot be satisfied.

Other action-specific and location-specific ARARs that are applicable or relevant and appropriate would be met under the selected alternative (Table 9). Examples include Occupational Safety and Health Administration (OSHA) Standards for Hazardous Responses and New York RCRA Hazardous Waste Facility Requirements for the handling and storage of hazardous wastes.

Ground water: According to the federal site-specific classification scheme, the ground water at the Site is Class 2A, which is potential drinking water. New York State classifies the Site ground water "GA" which indicates that the underlying aquifer is a potential drinking water aquifer. Safe Drinking Water Act (SDWA) MCLs are federal chemical-specific ARARs as are NYSDEC Class GA Ground water Quality Standards.

Alternative 10 attempts to meet these ARARs; if ARARs are demonstrated to be unattainable after implementation of a ground water extraction and treatment system, the contingency exists for a waiver of these ARARs, as outlined in the Summary of Alternatives section.

Alternative 10, ground water treatment, would also meet action-specific ARARs. Location-specific ARARs that are applicable or relevant and appropriate would also be met under the preferred alternative. Examples include OSHA Standards for Hazardous Responses

and New York State Pollutant Discharge Elimination System (SPDES) Requirements for Site Runoff, Surface Water and Ground Water Discharge Limits (Table 9).

Long-term Effectiveness and Permanence

Soils and Stream Sediments: Alternative 8 would be both effective and permanent once the construction phase is complete because the potential risks posed by the contaminated soil and sediments would be removed and the contaminated soil areas would be restored to ambient conditions. Alternative 8 will result in transporting additional material to an existing off-site disposal facility as opposed to creating a new disposal facility on-site, thereby restricting future uses of that on site piece of property. Each of the remaining alternatives offer long-term effectiveness and some degree of permanence by removing the exposure pathway or treating the contaminated materials.

Ground water: Alternative 10 is effective and permanent in that the remedial goal is to achieve ARARs and the pumping and treatment would remove the ground water contamination and prevent further negative impacts to the Newtown Creek Aquifer.

Reduction of Toxicity, Mobility, or Volume

Soils and Stream Sediments: Alternative 3 provides no reduction in toxicity or volume because of the absence of treatment, but it would reduce the mobility of contaminants in the soil because they would be contained and no longer exposed for transport by wind or water erosion.

Alternatives 4 and 8 would reduce the mobility of inorganic contaminants through treatment. These alternatives may increase the total volume of waste material. No reduction in toxicity of contaminated soils or sediments would occur under Alternatives 3,4,6, 7 or 8. Only Alternative 5 meets this criterion fully.

Ground water: Alternative 10, pumping and treatment, would contain the ground water contaminants thereby reducing mobility and the ability of contaminants to migrate into the Newtown Creek Aquifer. The treatment process would reduce contaminant concentrations in the treated ground water to below surface water discharge standards and would have the goal of reducing contaminant concentrations in the aquifer to below ARARs, effectively diminishing both toxicity and volume.

Short-term Effectiveness

Soils and Stream Sediments: The short-term effectiveness of all the alternatives is high since each alternative involves relatively little construction and implementation. Although the potential for dust release is higher for Alternative 8 than for on-site alternatives, this alternative is neverthless effective in regard to this criterion. Reliable technologies would

be used in the excavation, treatment, transport, and consolidation phases to ensure that any dust releases would be minimized.

Ground water: The short-term effectiveness of Alternative 10 is high since there is no exposure to contaminated ground water during implementation. Any short-term risks are derived from the potential of constructing and using a ground water well on site before institutional controls are in place, which is considered highly unlikely since the Site is provided with water from the town municipal system. Implementation of Alternative 10 would not result in any exposures through proper operational procedures. The estimated time for implementation of the construction phase for the preferred alternative is 24 months, with a minimum of 20 years of monitoring to complete the remedial action.

Implementability

Soils and Stream Sediments: Alternative 3 is technically easy to implement, although it requires maintenance to remain effective.

Alternative 8, excavation and off-site disposal after treatment, utilizes technologies that are readily implementable. The equipment and personnel required for this alternative are readily available. The removal of all surface soil and sediment will require approximately 150 to 300 trucks leaving the facility.

Treatment alternatives 4 and 5 would require treatability studies to ensure effectiveness, and Alternative 5 must be able to meet NYS air regulations prior to full scale operation.

Ground water: Alternative 10 uses standard equipment and well developed technologies that are commercially available. Treatment alternatives for the extracted ground water would require treatability testing during remedial design. The small volume of residuals from the construction of this alternative would be transported off-site for disposal. However, contingencies will be included to maximize the pump and treatment system's effectiveness in realizing this goal.

Cost

Soils and Stream Sediments: Based on the RI data and the FS evaluation, the cost of treating soils and sediments to meet LDR's, prior to off-site disposal in an Industrial Waste Landfill (Alternative 8) is not substantially higher than the cost of the on-site disposal and treatment alternatives (Alternative 4 and 5). The cost of off site treatment is higher than construction of a RCRA cell for treated wastes, but removal and treatment provides for permanent removal of the contaminants.

The estimated present worth cost of the selected Alternative #8 is $2,462,334. The present worth costs for soil and sediment remediation ranged from $9,750 for Alternative 2 to $2,811,931 for Alternative 6.

Ground water: The actual cost of Alternative 10 could be considerably less depending on whether the contingency measures are invoked after initial implementation, or if EPA decides that the treatment system should be operated for more than 20 years.

The thirty year present worth cost of the no action alternative is $146,849, while the twenty year (estimated time for remediation) present worth cost of the treatment alternative is $2,714,721. Individual cost breakdowns are included in the Summary of Remedial Alternatives section of this Proposed Plan.

State Acceptance

The State of New York concurs with the preferred alternatives presented in this Record of Decision.

Community Acceptance

The Public Comment Period on the Proposed Plan for the Site was held from May 27, 1992 through June 27, 1992. In addition, a Public Meeting was held at the Village of Elmira Heights Village Hall on June 16, 1992 to discuss, answer questions about, and accept comments on the Proposed Plan. No negative comments regarding EPA's Proposed Plan were made by the public during the Public meeting.

SELECTED REMEDY

Based upon consideration of the requirements of CERCLA, the detailed analysis of the alternatives, and public comments, both NYSDEC and EPA have determined that **Alternative 8: Consolidate Soil and Sediment, Ship Off site for Treatment and Disposal; and Alternative 10: Extraction/Air Stripping /Metals Precipitation and or Filtration/Surface Water Discharge** are the appropriate remedies for the Site.

The major components of the selected remedy are as follows:

- Excavation of contaminated soils and sediments from the Disposal Areas identified in the Risk Assessment and where soils and sediment pose a risk to ground water quality,

- Disposal of TSCA waste (PCBs > 50 ppm) in a secure TSCA double lined landfill facility (estimated at approximately 1,275 cubic yards),

- Stabilization of RCRA waste to prevent leaching of metals and disposal in a secure RCRA lined facility (approximate volume 2,124 cubic yards),

- Disposal of non-RCRA wastes in an industrial waste landfill (approximate volume 120 cubic yards),

- Strategic placement of pumping wells to extract the contaminated ground water from the aquifer,
- Storage of pumped ground water in a central collection tank for subsequent treatment in an above-ground system,

- Treatment of the contaminated ground water to meet Federal and State Standards for surface water discharge. Treated ground water would then be either discharged as effluent to the facility non-contact cooling system or to a surface water discharge,

- Recommendation that local institutional controls, in the form of local zoning ordinances, be implemented in an attempt to control any future site use that could open an exposure pathway to subsurface soils,

- Recommendation that institutional controls will be provided/maintained to restrict access to those portions of the aquifer which remain above cleanup levels, and

- Implementation of a long-term monitoring program to track the migration and concentrations of the contaminants of concern.

The ground water alternative also stipulates contingency measures, outlined under Alternative 10 in the Summary of Remedial Alternatives section of this Record of Decision, whereby the ground water extraction and treatment system's performance will be monitored on a regular basis and adjusted as warranted by the performance data collected during operation. If it is determined, in spite of any contingency measures that may be taken, that portions of the aquifer cannot be restored to its beneficial use, ARARs may be waived based on technical impracticability of achieving further contaminant reduction. The decision to invoke a contingency measure may be made during periodic review of the remedy, which will occur at intervals of no less often than every five years.

The selected alternative is believed to provide the best balance of trade-offs among the alternatives with respect to the evaluation criteria. Based on the information available at this time, EPA believes the selected alternative would be protective of human health and the environment, would comply with ARARs, would be cost effective, and would utilize permanent technologies to the maximum extent practicable. The preferred alternatives also treat the most grossly contaminated material (surface soils, sediments, and ground water), meeting the statutory preference for the use of a remedy that involves treatment as a principal element.

STATUTORY DETERMINATIONS

Under its legal authorities, EPA's primary responsibility at Superfund sites is to undertake remedial actions that are protective of human health and the environment. In addition, Section 121 of CERCLA establishes several other statutory requirements and preferences. These specify that when complete, the selected remedial action for this Site must comply with applicable, or relevant and appropriate environmental standards established under Federal and State environmental laws unless a statutory waiver is justified. The selected remedy also must be cost-effective and utilize permanent solutions and alternative treatment technologies or resource-recovery technologies to the maximum extent practicable. Finally, the statute includes a preference for remedies that employ treatment that permanently and significantly reduce the volume, toxicity, or mobility of hazardous wastes, as available. The following sections discuss how the selected remedy meets these statutory requirements. The contingent remedy will also meet these requirements.

Protection of Human Health and the Environment

Once excavation and shipment off-site of sediment and soils with unacceptable levels of contamination is completed, the unacceptable risks posed by these materials will be permanently removed. The soils and sediments will be shipped off-site for treatment and disposal, confirmatory sampling will be conducted in the excavated areas to ensure that all unacceptably contaminated material is removed, and the excavated areas will be covered with clean fill. In addition, EPA will recommend to local officials that institutional controls be implemented to prevent activities at the facility from opening an exposure pathway to the subsurface soils.

After design and construction of a ground water pump and treat system is completed, contaminated ground water will be pumped in order to contain the facility ground water contamination, and to restore the aquifer quality to appropriate State and Federal Standards for a Class IIa and GA aquifer. EPA will recommend to local officials that institutional controls be implemented to prevent installation of a drinking water well in areas effected by the contamiantion caused by releases at the facility.

Compliance with ARARs

At the completion of the response actions, the selected remedy will have complied with the following:

Action Specific ARARs

Soils and Sediments -
6 NYCRR 373-1 Hazardous Waste Facility standards for permitting, 40 CFR 761 PCB Spill Cleanup Policy, and RCRA Land Disposal restriction under 40 C.F.R. 268, 40 C.F.R. 261

determination of whether a waste is hazardous, 40 C.F.R.262 Hazardous waste generator requirements, and 40 C.F.R. 263 Hazardous waste transporter requirements.

Ground Water -
Safe Drinking Water Act (SDWA) Maximum Contaminant Levels (40 C.F.R. 141.11-141.16) and 6 NYCRR Ground Water Quality Regulations (Parts 703.5, 703.6, 703.7) as well as NYS 10 NYCRR 5, 10NYCRR 170 (State Public Drinking Water Standards and State Public Drinking Water Sources Standards, 6 NYCRR 750-757 State Pollution Discharge Elmination System. For air pollution control 6 NYCRR 200, 201, 211, and 212, as well as 6NYCRR 257, and NYS Air Guide 1 will have been considered.

Chemical-Specific ARARs:

Since the ground water at the Site is classified by EPAas IIa (GA by NYSDEC), drinking water standards are relevant and appropriate. Again, these include SWDA MCLs and 6NYCRR Ground Water Quality Regulations. However, achieving chemical-specific ARARs for ground water is dependent on remediation of the contaminant sources at the facility. The remedial action is intended to result in attainment of chemical specific ground water ARARs providing that the remedy is effective in eliminating the sources of aquifer contamination.

Other potential remedial action objectives are presented in Table 18.

Cost-Effectiveness

The selected remedy is cost effective and provides the greatest overall protectiveness proportionate to costs. Excavation, segregation and shipment off-site for treatment and disposal at a present worth of $2,462,334, is more expensive than some of the other alternatives but it does not result in the incurrence of the cost of treatability studies; also it can be completed more quickly than these other alternatives at a reasonable cost. The present worth cost of the ground water treatment and discharge (to the non-contact cooling system or the surface water directly after treatment) is $2,388,322 based on pumping and treating for 20 years and pumping and treating 30 gallons per minute. This alternative provides for containment of the contaminant plume and restoration of the aquifer at the facility to meet Federal and State standards at a reasonable cost.

Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

The selected remedy utilizes permanent solutions and treatment technologies to the maximum extent practicable. The selected remedy represents the best balance of trade-offs among the alternatives with respect to the evaluation criteria.

Preference for Treatment as a Principal Element

The preference for treatment as a principal element is satisfied since treatment of the principal threat (soil and sediment and ground water) will be conducted. The off-site treatment of soil and sediment may include stabilization and incineration, if necessary, to meet LDRs. For ground water treatment: filtration and/or precipitation, and air stripping of contaminants will be utilized to attain ARARs.

DOCUMENTATION OF SIGNIFICANT CHANGES

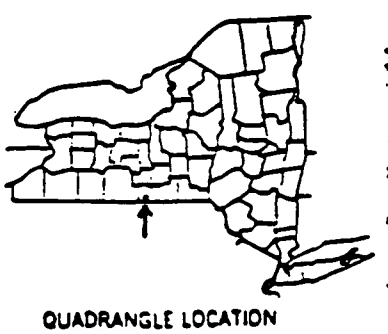
There are no significant changes from the preferred alternative presented in the Proposed Plan.

APPENDIX I

FIGURES

Figures

Figure 1



QUADRANGLE LOCATION

TAKEN FROM USGS 7.5 MINUTE QUADRANGLES
ELMIRA AND HORSEHEADS, N.Y.

TITLE

FACILITY LOCATION

PUROLATOR PRODUCTS COMPANY
ELMIRA, N.Y.

PREPARED FOR

PUROLATOR PRODUCTS COMPANY

ERM-Northeast

SCALE 1:2000

DATE 1/91

FIGURE 2

POOR QUALITY ORIGINAL

Figure 2

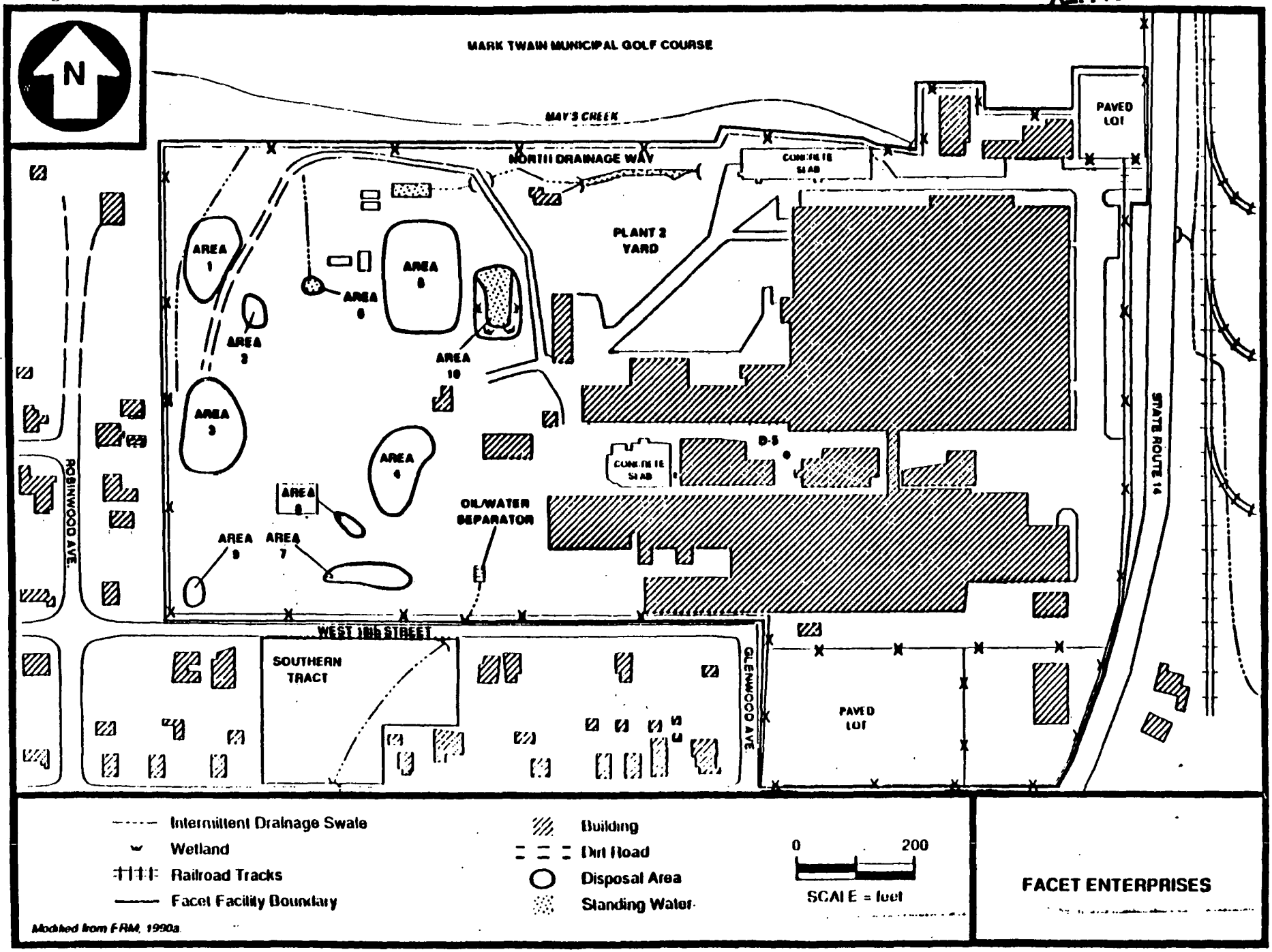
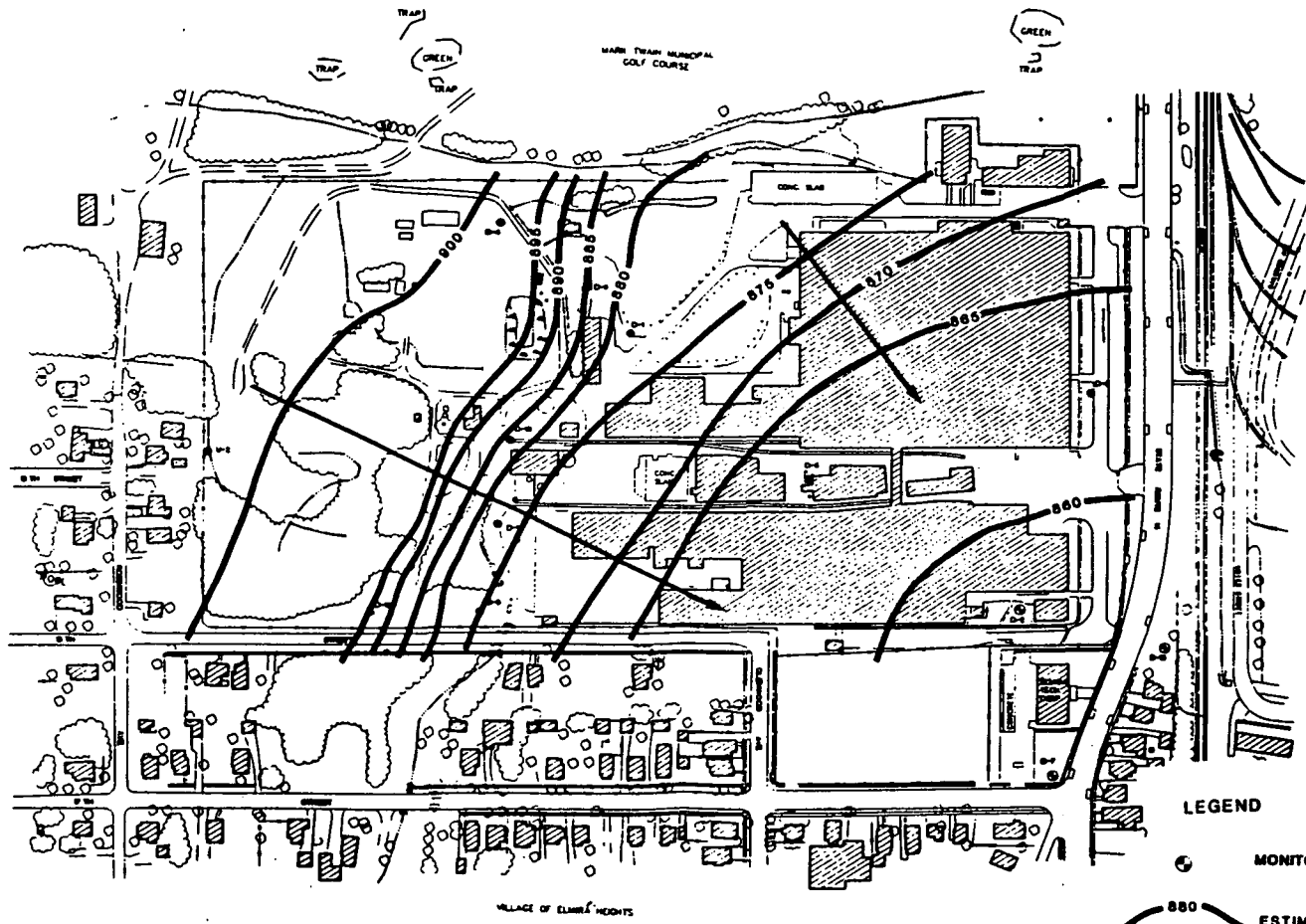


Figure 3



POOR QUALITY ORIGINAL

PUROLATOR PRODUCTS COMPANY

ERM-Northeast
Environmental Resources Management

ESTIMATED GROUNDWATER CONTOUR MAP

1":200'

Figure 4

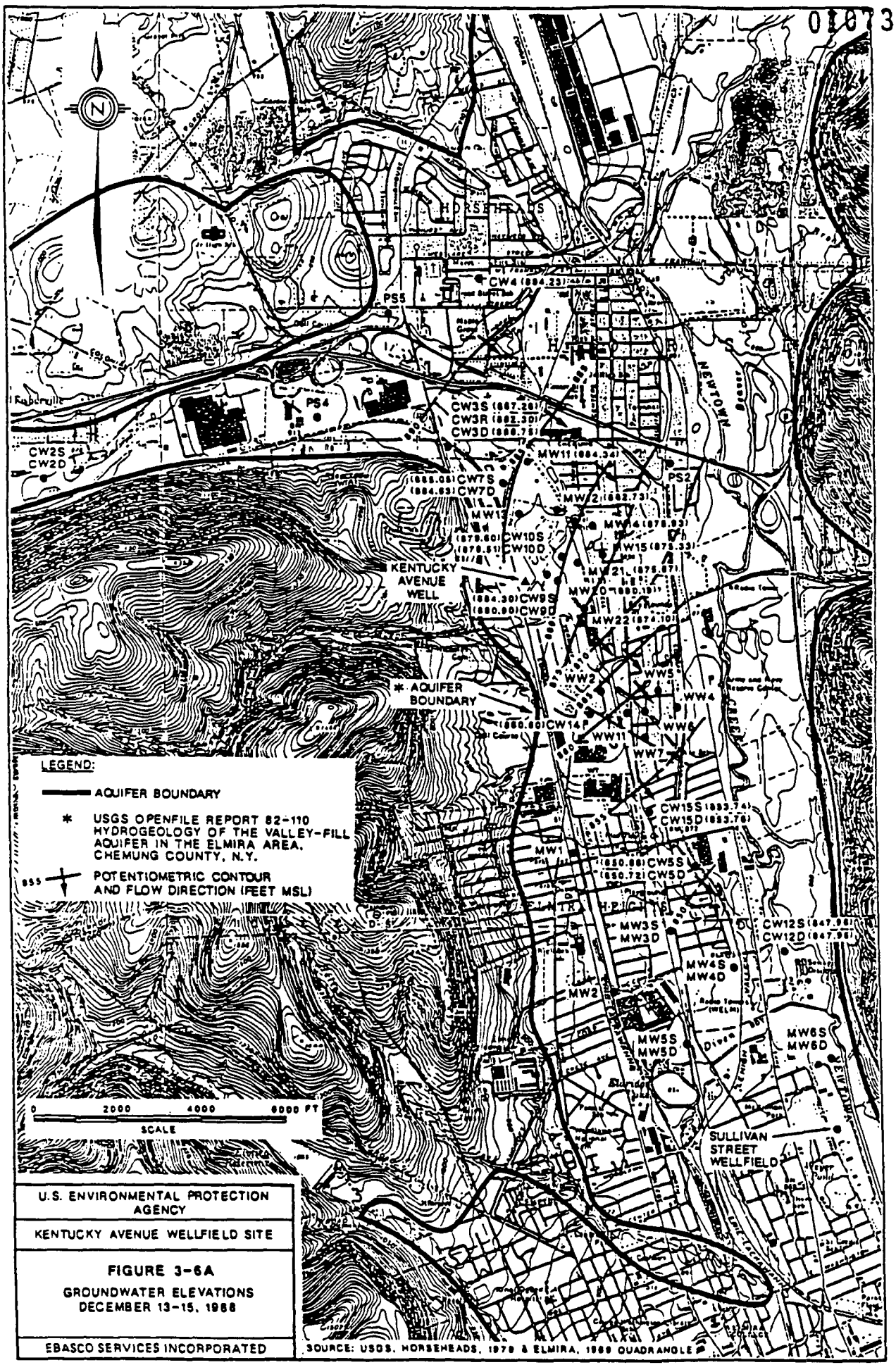
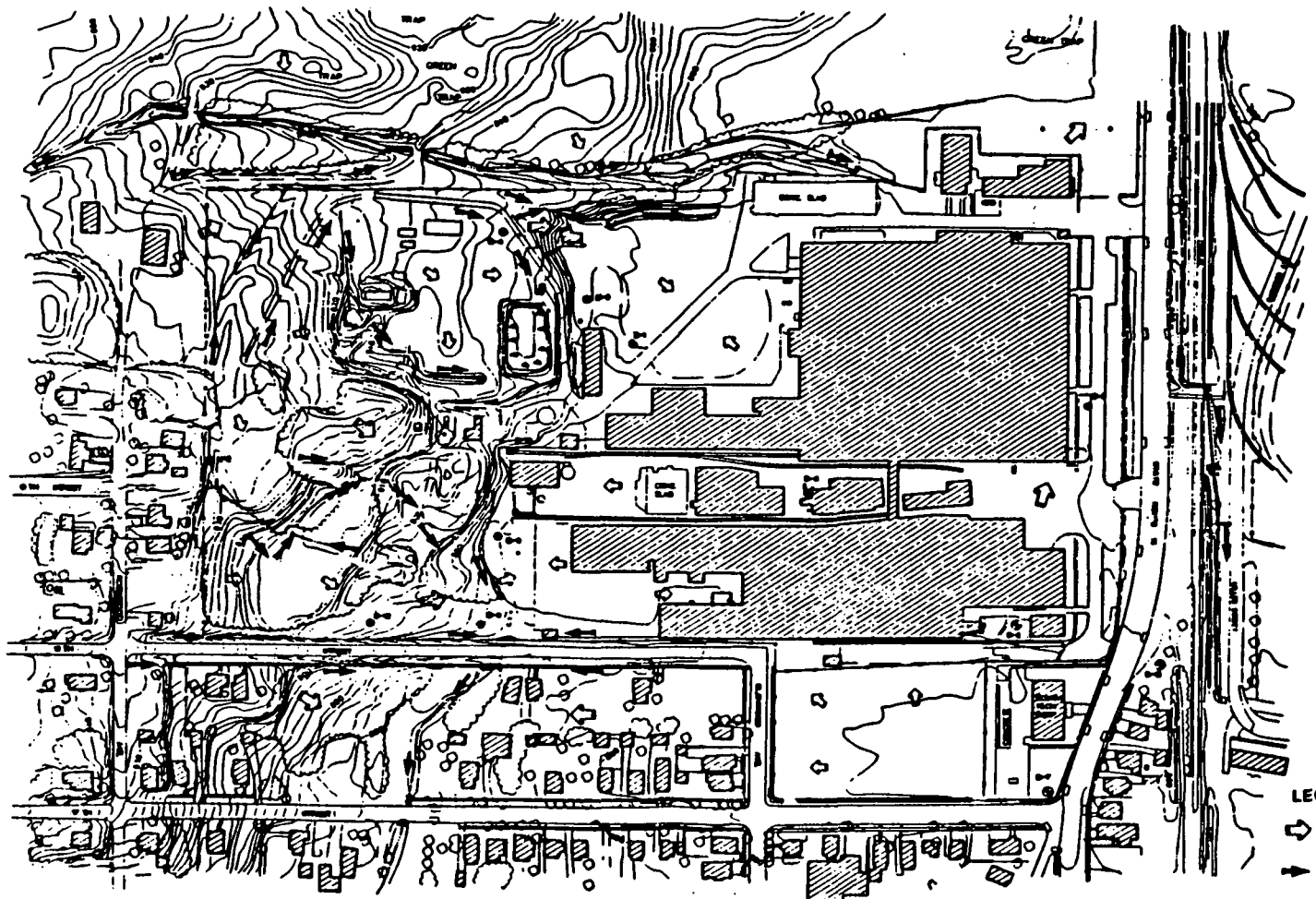


Figure 5



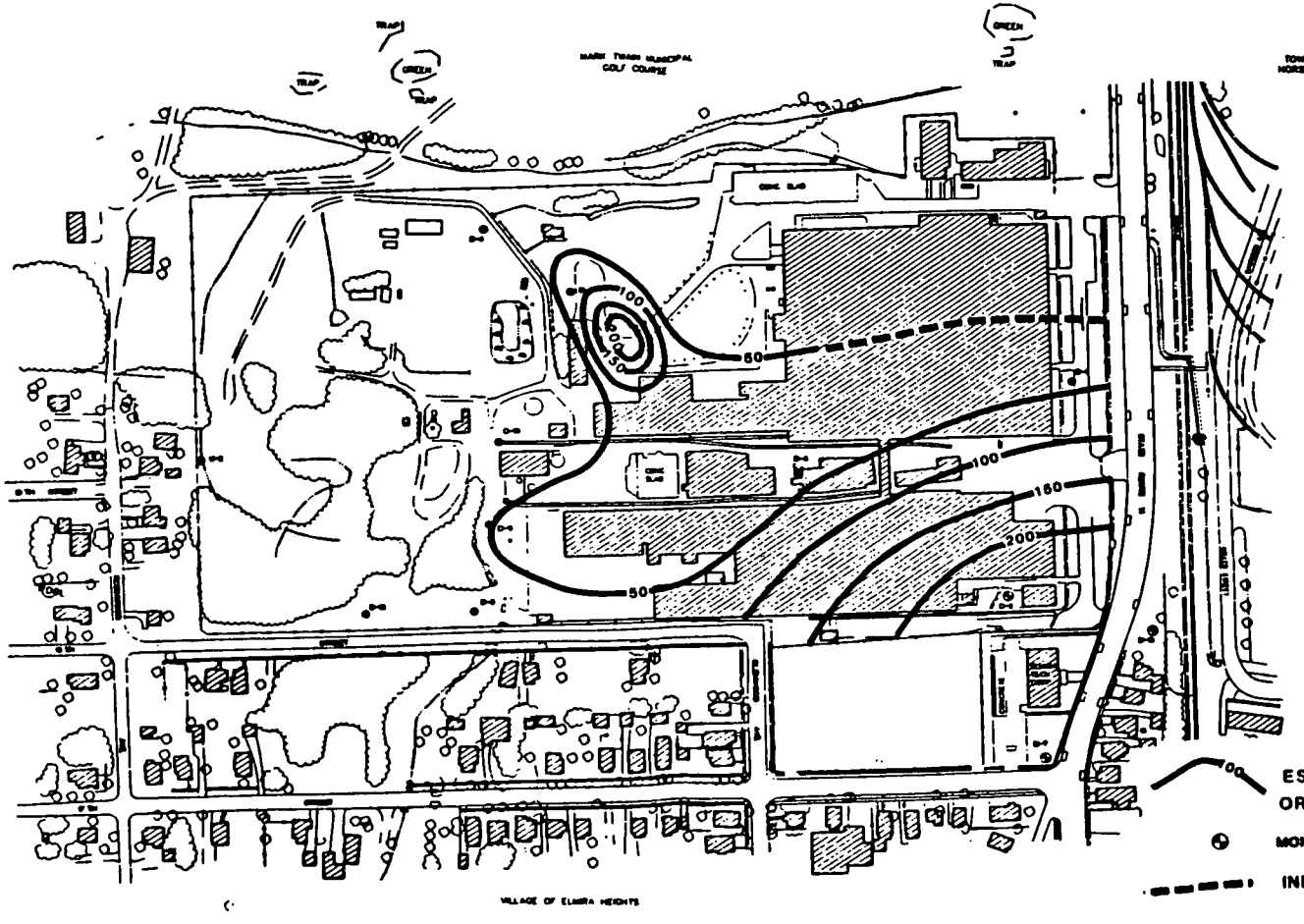
PUROLATOR PRODUCTS COMPANY

FACILITY DRAINAGE FLOW PATTERNS

11/90

1":200'

Figure 6



POOR QUALITY ORIGINAL

PUROLATOR PRODUCTS COMPANY

PUROLATOR PRODUCTS COMPANY

ESTIMATED TOTAL VOLATILE ORGANIC COMPOUNDS ISOCONS BASED ON 1980 GROUNDWATER DATA

9/90

1":200

Figure 7

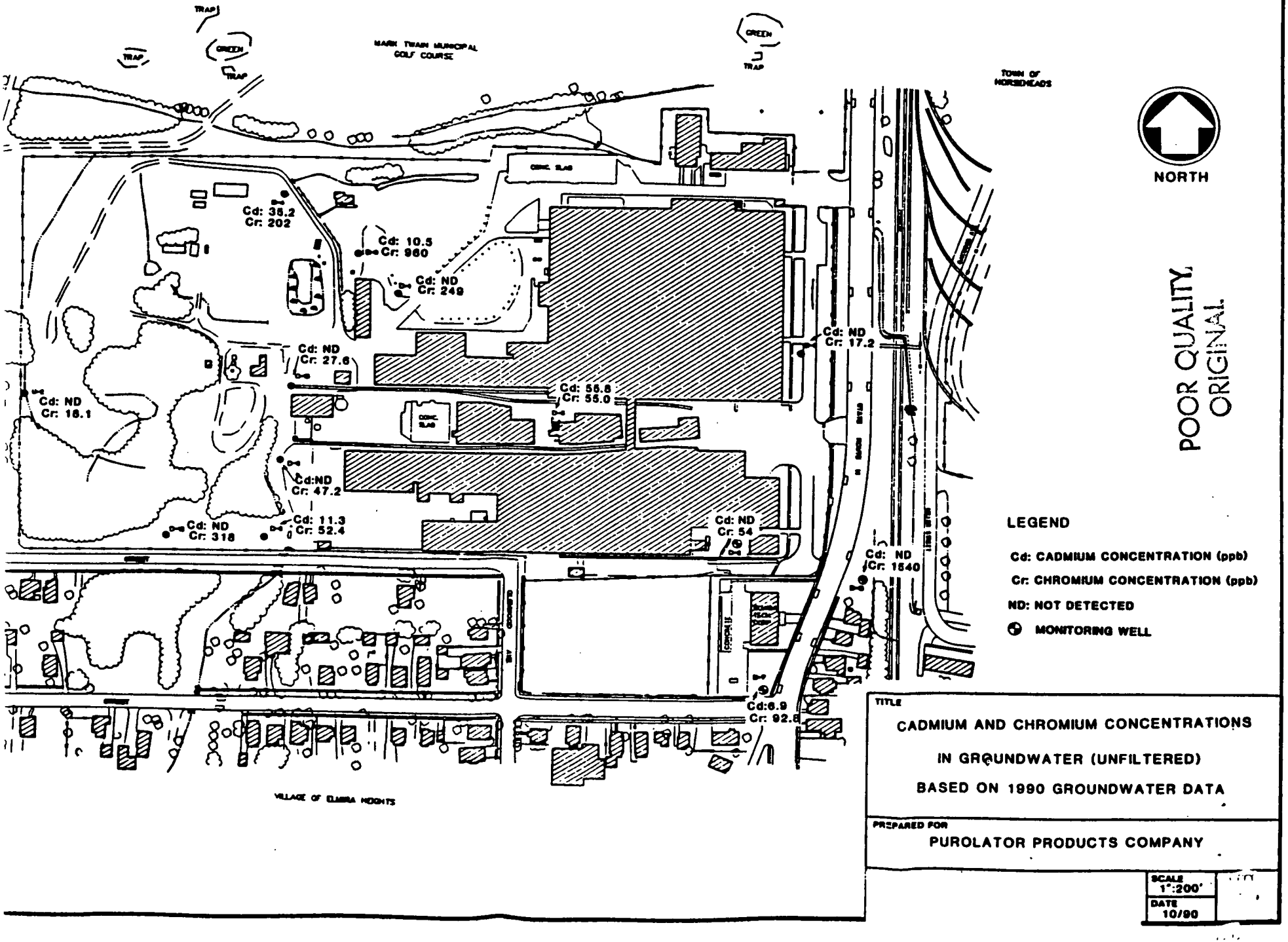
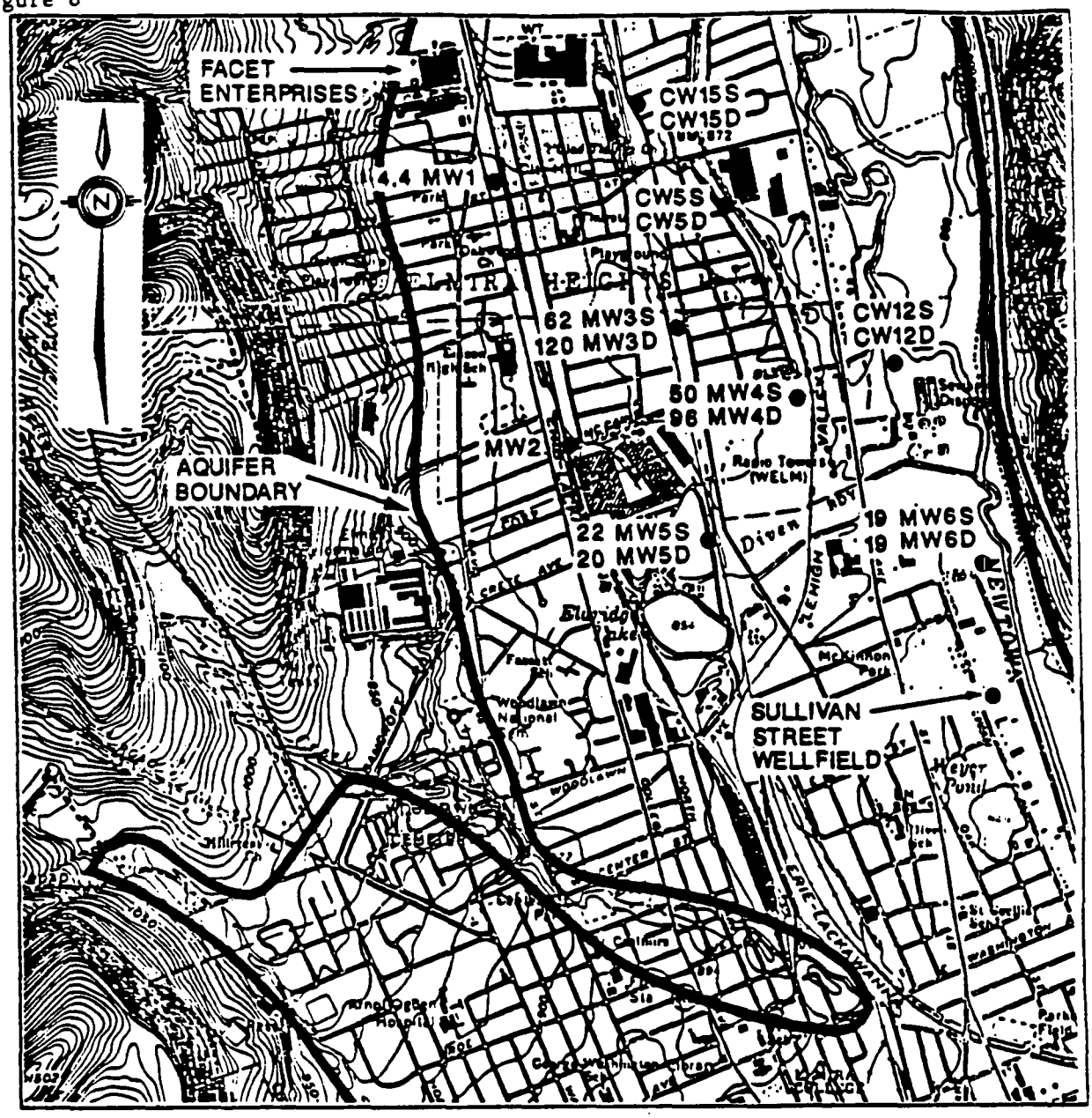


Figure 8



POOR QUALITY ORIGINAL

LEGEND:

AQUIFER BOUNDARY

22 CONCENTRATION OF TCE IN ppb, JANUARY 1990

NOTE: NYSDEC WELLS WERE INSTALLED BY CLEAN HARBORS INC.,1989.

SOURCE: USGS, HORSEHEADS, 1978 & ELMIRA, 1969 QUADRANGLE

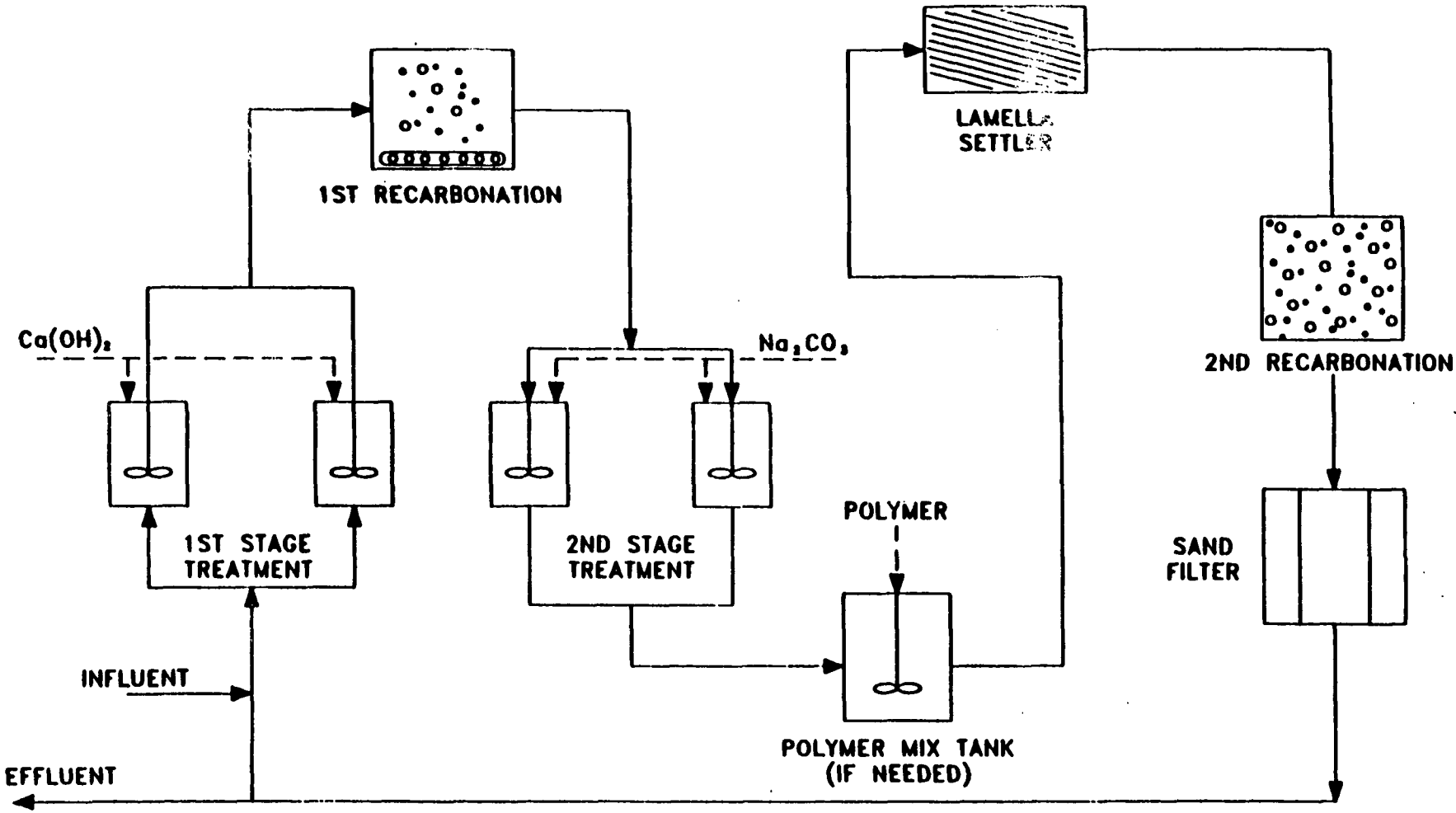
U.S. ENVIRONMENTAL PROTECTION AGENCY

KENTUCKY AVENUE WELLFIELD SITE

TCE DISTRIBUTION IN SULLIVAN STREET MONITORING WELLS (NYSDEC)

EBASCO SERVICES INCORPORATED

Figure 9



TITLE

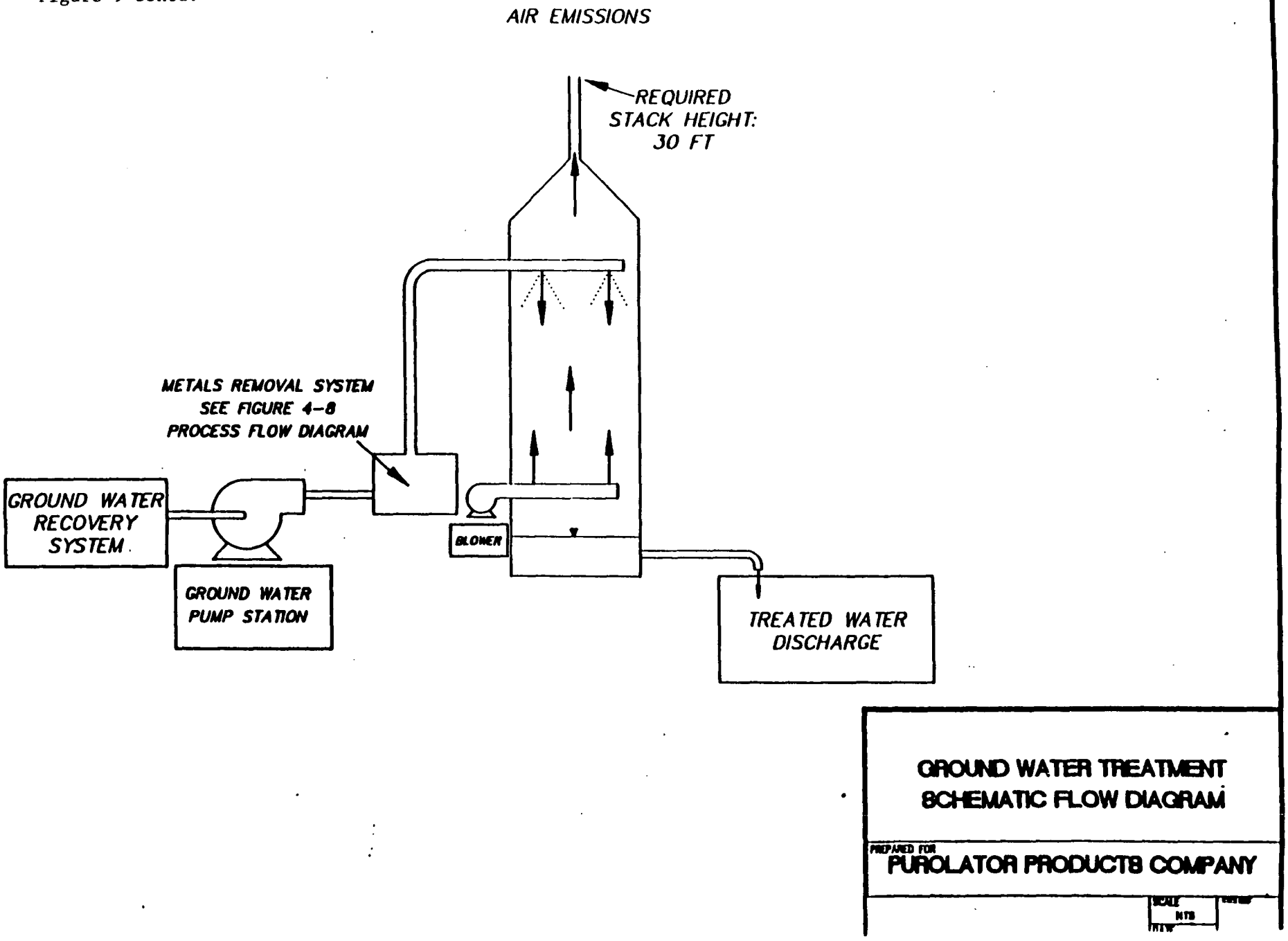
PROCESS FLOW DIAGRAM METALS REMOVAL SYSTEM GROUND WATER TREATMENT

PREPARED FOR

PUROLATOR PRODUCTS COMPANY

SCALE	FIGURE
NONE	
DATE	

Figure 9 contd.



APPENDIX II

TABLES

TABLE 1
VALID ANALYTICAL RESULTS
AREA 1 AND AREA 2 SOIL BORING SAMPLES
VOLATILE ORGANIC COMPOUNDS
1990 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

TCL Compound	SB5:4-6	SB5:6-8	SB5:6-8 (SB5:6-8 Dup.)	SB5:8-10	SB6:6-8	SB6:8-10	SB8:8-10	SB9:4-6	SB9:6-8	SB12:4-6	SB12:6-8	SB12:8-10
Acetone	7J	6J	8J	8J	---	---	---	---	9J	---	---	---
1,1-Dichloroethane	1J	---	-	---	---	---	---	---	---	---	---	---
1,2-Dichloroethene	12	5J	---	6	---	---	---	---	---	---	---	---
1,1,1-Trichloroethene	2J	---	---	---	---	---	---	---	---	---	---	---
Trichloroethene	110	89	12	53	3J	4J	---	---	---	12	30	42
Benzene	---	---	---	---	---	---	2J	---	---	---	---	---
Tetrachloroethene	---	---	---	---	---	---	---	1J	---	---	---	---

Notes: All concentrations in micrograms per kilogram (ug/kg = parts per billion (ppb)).
No volatile organic compounds were detected in SB6:4-6, SB7:4-6, SB7:6-8, SB7:8-10, SB8:4-6, SB8:6-8, SB9:8-10, SB10:4-6, SB10:6-8, SB10:8-10, SB11:4-6, SB11:6-8, SB11:8-10, SB13:0-2, SB13:2-4, and SB13:4-6.

--- = Compound not detected in this sample, but present in another.

J = Semi-quantitative due to concentration below Contract Required Quantitation Limit (CRQL).

TABLE 1
VALID ANALYTICAL RESULTS
AREA 1 AND AREA 2 SOIL BORING SAMPLES
SEMI-VOLATILE ORGANIC COMPOUNDS
1990 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

TCL Compound	SB5:4-6	SB5:6-8	SB51:6-8 (SB5:6-8 Dup.)	SB5:8-10	SB7:6-8	SB7:8-10	SB10:8-10	SB11:6-8	SB12:6-8	SB12:8-10	SB13:0-2	SB13:2-4	SB13:4-6
2-Methylnaphthalene	---	---	---	---	---	---	---	---	---	---	45J	---	---
Phenanthrene	---	---	---	---	---	---	---	---	---	---	84J	---	---
Fluoranthene	---	---	---	---	---	---	---	---	---	---	100J	---	---
Pyrene	---	---	---	---	---	---	---	---	---	---	84J	---	---
Benzo(a)Anthracene	---	---	---	---	---	---	---	---	---	---	66J	---	---
Chrysene	---	---	---	---	---	---	---	---	---	---	66J	---	---
Benzo(b)Fluoranthene	---	---	---	---	---	---	---	---	---	---	130XJ	---	---
Benzo(k)Fluroanthene	---	---	---	---	---	---	---	---	---	---	130XJ	---	---
Benzo(a)Pyrene	---	---	---	---	---	---	---	---	---	---	51J	---	---
Di-n-Butylphthalate	---	---	---	---	---	---	---	66J	---	---	---	---	---
Bis(2-Ethylhexyl)phthalate	---	---	---	---	51J	53J	---	---	---	74J	72J	56J	44J
TIC Compounds													
Total Unknowns	230J	240J	240J	---	---	---	---	---	230J	230J	4750J	---	---
Total Unknown Hydrocarbons	---	---	---	140J	---	---	---	---	---	---	3620J	---	---
2H-1-Benzopyran-2-one	---	---	---	---	---	---	---	---	---	---	190JN	---	---
11H Benzofluorene	---	---	---	---	---	---	---	---	---	---	300J	---	---
Mono(2-Ether)Hexanedioic Acid	---	---	---	---	---	---	190JN	---	---	---	---	---	---
Trimethylhexane	---	---	---	---	---	---	---	300J	---	---	---	---	---

Notes: All concentrations in micrograms per kilogram (ug/kg = parts per billion (ppb)).
No semi-volatile organic compounds were detected in SB6:4-6, SB6:6-8, SB6:8-10, SB7:4-6, SB8:4-6, SB8:6-8, SB8:8-10, SB9:4-6, SB9:6-8, SB9:8-10, SB10:4-6, SB10:6-8, SB11:4-6, SB11:8-10, and SB12:4-6.

--- = Compound not detected in this sample, but present in another.
J = Semi-quantitative due to QA/QC criteria outside of control limits, value below Contract Required Quantitation Limit (CRQL) or compound being a TIC.
X = Identifies coeluting indistinguishable isomers.
N = Identified TIC.

TABLE 1 contd.

TABLE -1
VALID ANALYTICAL RESULTS
AREA 1 AND AREA 2 SOIL BORING SAMPLES
METALS AND CYANIDE
1990 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

Analyte	SB5:4-6	SB5:6-8	SB51:6-8 (SB5: 6-8 Dup.)	SB5:8-10	SB6:4-6	SB6:6-8	SB6:8-10	SB7:4-6	SB7:6-8	SB7:8-10	SB8:4-6	SB8:6-8	SB8:8-10	SB9:4-6
Aluminum	10700J	10400J	8790J	8710J	8720	7460	8100	12400	12900	7740	13600J	11300J	11500J	7170
Arsenic	9.2	5.2	7.0	4.6	6.4J	---	---	4.9J	4.5J	---	7.0J	7.6J	5.7J	4.1J
Barium	91.6J	98.4J	84.3J	84.3J	80.6	73.0	89.4	125	137	63.9	129J	95.4J	95.4J	60.4
Beryllium	.508	.598	.428	.468	---	.238	.268	.438	.538	.308	.518	.418	.388	.318
Cadmium	57.3J	77.9J	73.8J	351J	---	---	---	---	---	---	11.8	---	---	---
Chromium	2410J	224J	215J	548J	15.1	14.7	26.3	43.4	53.1	18.1	96.6J	49.6J	50.4J	12.5
Copper	1120J	62.7J	63.4J	532J	---	---	---	24.1J	27.2J	20.2J	30.4J	25.8J	26.1J	20.9J
Lead	9.8J	9.3J	10.2J	8.8J	9.7	8.5	9.2	---	---	---	10.8	9.8	11.4	---
Mercury	---	---	---	---	.12J	---	---	---	---	---	---	---	---	---
Nickel	29.2	25.5	23.4	37.9	21.9	16.9	17.0	29.6	32.9	22.1	27.8	26.3	30.2	22.7
Tin	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Zinc	242J	175J	174J	442J	63.4	59.0	60.1	61.3	66.5	66.6	139J	81.5J	87.2J	67.2
Cyanide	---	---	1.8	3.0	---	---	---	---	1.2	---	---	---	---	---

Analyte	SB9:6-8	SB9:8-10	SB10:4-6	SB10:6-8	SB10:8-10	SB11:4-6	SB11:6-8	SB11:8-10	SB12:4-6	SB12:6-8	SB12:8-10	SB13:0-2	SB13:2-4	SB13:4-6
Aluminum	9280J	12400J	13100	17500	12900	6870	9600	10800	20100	8760	15900	14900	17500	12100
Arsenic	3.0	7.5	1.98J	4.0J	3.8J	3.7J	6.7J	4.0J	8.9J	3.7J	7.6J	6.6J	---	11.5J
Barium	89.5J	110J	67.3	132	99.6	100	151	151	152	77.1	125	162	145	98.9
Beryllium	.478	.638	.528	.548	.538	.328	.328	.358	.728	.338	.578	.548	.758	.388
Cadmium	---	---	---	---	---	---	---	---	27.6	2.7	---	16.6	---	---
Chromium	15.6J	20.0J	18.5	25.8	19.6	16.7	14.4	16.6	113	67.3	100	545	25.1	18.5
Copper	9.1J	11.0J	21.9J	30.2J	24.6J	21.2J	23.6J	20.2J	42.7J	21.4J	26.1J	81.4J	32.5J	27.3J
Lead	9.3J	11.6J	---	---	---	---	---	---	---	---	10.4	---	---	---
Mercury	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Nickel	23.0	27.1	31.1	38.2	33.0	24.3	30.6	25.6	43.6	32.2	29.6	28.0	32.2	31.6
Tin	4.2B	---	---	---	---	---	---	---	---	---	---	---	---	---
Zinc	63.5J	92.4J	66.2	105	94.5	69.2	78.2	70.2	137	88.7	81.2	137	80.3	87.0
Cyanide	---	---	---	---	---	---	---	---	---	---	---	7.0	3.8	---

Notes: All concentrations are in milligrams per kilogram (mg/kg = parts per million (ppm)).
--- = Analyte not detected in this sample but present in another.
J = Semi-quantitative due to QA/QC requirements.
B = Value is above Instrument Detection Limit (IDL), but below Contract Required Detection Limit (CRDL).

TABLE 2
VALID ANALYTICAL RESULTS
AREA 3 SOIL BORING SAMPLES
VOLATILE ORGANIC COMPOUNDS
1990 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

TCL Compound	SB1:2-4	SB50:2-4 (SB1:2-4 Dup.)	SB2:8-10	SB4:6-8
Acetone	---	---	9J	---
1,2-Dichloroethene	---	3J	---	---
2-Butanone	6J	---	---	2J
Trichloroethene	2J	---	---	---
Toluene	---	---	2J	---

Notes: All concentrations in micrograms per kilogram (ug/kg = parts per billion (ppb)).
No volatile organic compounds were detected in SB1:4-6, SB1:8-10, SB2:2-4, SB2:4-6, SB3:2-4, SB3:4-6, SB3:6-8, SB4:2-4, and SB4:4-6.

--- = Compound not detected in this sample, but present in another.

J = Semi-quantitative due to concentration below Contract Required Quantitation Limit (CRQL).

TABLE
VALID ANALYTICAL RESULTS
AREA 3 SOIL BORING SAMPLES
SEMI-VOLATILE ORGANIC COMPOUNDS
1990 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

TCL Compounds	SB1:2-4	SB50:2-4 (SB1:2-4 Dup.)	SB1:8-10	SB2:2-3	SB3:2 4	SB3:4-6	SB3:6-8	SB4:2-4	SB4:4-6	SB4:6 8
Benzoic Acid	---	---	---	---	---	---	---	67J	---	---
Pentachlorophenol	---	---	---	---	---	---	---	66J	---	---
Fluoranthene	50J	---	---	---	---	---	---	---	---	---
Pyrene	45J	---	---	---	---	---	---	---	---	---
Benzo(a)Anthracene	48J	---	---	---	---	---	---	---	---	---
Bis(2-Ethylhexyl)phthalate	---	40J	---	---	---	---	68J	---	---	52J
Benzo(b)Fluoranthene	69XJ	---	---	---	---	---	---	---	---	---
Benzo(k)Fluoranthene	69XJ	---	---	---	---	---	---	---	---	---
TIC Compounds										
Total Unknowns	2600J	1350J	220J	3760J	620J	2640J	590J	---	250J	---
Total Unknown Hydrocarbons	1220J	1650J	---	3240J	---	430J	---	---	---	---
Total Unknown Aldehydes	240J	---	---	---	---	---	---	---	---	---
Decane	---	---	---	---	150JN	---	---	---	---	---
Octadecanal	---	---	---	---	---	360JN	---	---	---	---

Notes: All concentrations in micrograms per kilogram (ug/kg = parts per billion (ppb)).
No semi-volatile organic compounds were detected in SB1:4-6.

--- = Compound not detected in this sample, but present in another.

J = Semi-quantitative due to QA/QC criteria outside of control limits, value below Contract Required Quantitation Limit (CRQL) or compound being a TIC.

X = Identifies coeluting indistinguishable isomers.

N = Identified TIC.

TABLE
VALID ANALYTICAL RESULTS
AREA 3 SOIL BORING SAMPLES
METALS
1990 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

Analyte	SB1:2-4	SB50:2-4 (SB1:2-4 Dup.)	SB1:4-6	SB1:8-10	SB2:2-3	SB2:3-4	SB2:8-10	SB3:2-4	SB3:4-6	SB3:6-8	SB4:2-4	SB4:4-6	SB4:6-8
Aluminum	13600	12900J	12700	10800J	16100	15400	10900J	13300J	15600J	10000J	15000J	13000J	13500
Arsenic	7.3J	3.4J	8.4J	5.8	5.5J	6.0J	4.5	---	5.6	---	---	---	4.8J
Barium	147	103	50.5	74.3J	174	33.3B	66.3J	165	92.0J	70.4	152	121	128
Beryllium	.45B	.28B	.47B	.53B	.55B	.43B	.58B	.49B	.72B	---	.48B	.38B	.44B
Cadmium	---	1.5J	1.3J	72.3J	58.7J	5.7J	---	---	---	---	---	---	---
Chromium	26.5	29.9	47.5	466J	2110	66.4	22.1J	16.7	17.6J	15.2	19.3	15.9	17.2
Copper	27.9	243J	33.4	143J	270	23.1	12.2J	4.3BJ	5.2BJ	---	---	---	24.7
Lead	14.9	41.1J	12.4	11.7J	18.0	11.7	9.5J	15.9	16.4J	11.7	21.6	14.9	12.4
Mercury	---	---	---	---	.14J	---	---	---	---	---	---	---	---
Nickel	26.5	28.4	21.4	93.6	57.6	25.3	30.1	26.7	26.3	27.5	32.7	29.2	25.9
Zinc	88.9	278J	60.5	266J	209	73.7	84.5J	73.6J	81.1J	76.4J	78.1J	80.9J	74.4

Notes: All concentrations are in milligrams per kilogram (mg/kg = parts per million (ppm)).
Cyanide was not detected in any of these samples.

--- = Analyte not detected in this sample but present in another.

J = Semi-quantitative due to QA/QC requirements.

B = Value is above Instrument Detection Limit (IDL), but below Contract Required Detection Limit (CRDL).

TABLE 3
VALID ANALY. AL RESULTS
AREA 4 SOIL BORING SAMPLES
VOLATILE ORGANIC COMPOUNDS
1990 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

TCL Compounds	SB21:10-14	SB22:9-11	SB23:6-9	SB32:6-9 (SB23:6-9 Dup.)	SB23:9-10	SB24:3-5	SB24:11-15
1,1-Dichloroethane	---	---	1J	---	---	---	---
Chloroform	---	---	---	---	---	---	5J
2-Butanone	---	---	29J	---	---	3J	4J
Benzene	---	---	3J	---	---	---	---
Toluene	210J	---	7	---	---	---	---
Ethylbenzene	520J	---	9	---	---	---	---
Xylenes	760J	3J	47	840J	4J	---	---
TIC Compounds							
Total Unknowns	7000J	13J	220J	35300J	---	---	---
Total Unknown Hydrocarbons	13600J	---	---	29600J	---	---	---
Unknown Sub. Cyclohexane	4000J	---	---	12000J	---	---	---
Decane	4300JN	---	---	---	---	---	---
Dimethyl Cyclohexane	---	---	180J	---	---	---	---
Dimethyl Cyclopentane	---	---	160J	---	---	---	---
Dimethyl Nonane	4000J	---	---	---	---	---	---
Dimethyl Octane	---	---	1570J	---	---	---	---
Ethylmethyl Benzene	---	8.5J	---	---	23J	---	---
Ethylmethyl Heptane	---	---	360J	---	---	---	---
Heptane	3300JN	---	---	---	---	---	---
Methyl Cyclohexane	5900JN	18JN	450JN	---	19JN	---	---
Methyl Nonane	---	---	390J	---	---	---	---
Methyl Propyl Cyclohexane	---	---	580J	---	---	---	---
Propylheptanol	---	---	320J	---	---	---	---
Trimethylbenzene	4000J	---	---	5900J	13J	---	---
Trimethyl Octane	---	---	---	10000J	---	---	---

Notes: All concentrations in micrograms per kilogram (ug/kg = parts per billion (ppb)).
No volatile organic compounds were detected in SB22:11-13, SB22:13-15, SB23:11-13, SB24:0-3, SB25:2-4, SB25:4-6, and SB25:6-8.

--- Compound not detected in this sample, but present in another.

J Semi-quantitative due to QA/QC criteria outside of control limits, value below Contract Required Quantitation Limit (CRQL) or compound being a TIC.

N Identified TIC.

TABLE 3 contd.
AREA 4 SOIL b ING SAMPLES
SEMI-VOLATILE ORGANIC COMPOUNDS
PUROLATOR PRODUCTS COMPANY

TCL Compound	SB21:10-14	SB22:9-11	SB22:12-13	SB22:14-15	SB23:6-9	SB32.6-9 (SB:23:6-9 Dup.)	SB23:9-10	SB23:11-13	SB24:3-5	SB25:4-6
Napthalene	670J	---	---	---	---	1200J	56J	---	---	---
2-Methylnaphthalene	1400	---	---	---	1300J	1800J	120J	---	---	---
Acenaphthene	---	---	---	---	780J	560J	---	---	---	---
Dibenzofuran	---	---	---	---	580J	---	---	---	---	---
Fluorene	430J	---	---	---	1000J	1100J	---	---	---	---
Phenanthrene	1100	44J	48J	---	4900	5800	140J	---	---	---
Anthracene	---	---	---	---	1000J	930J	---	---	---	---
Di-n-Butylphthalate	---	---	44J	---	580J	---	---	---	---	---
Fluoranthene	---	42J	40J	---	4900	4500	63J	45J	---	---
Pyrene	---	85J	---	---	2600	3900	---	---	---	---
Benzo(a)Anthracene	---	190XJ	---	---	2300	3300	---	---	---	---
Chrysene	870	190XJ	110J	---	2100J	2800	---	---	---	---
Bis(2-Ethylhexyl)phthalate	---	---	---	---	970J	---	---	---	73J	---
Di-n-Octyl Phthalate	---	---	---	---	340J	---	---	---	---	---
Benzo(b)Fluoranthene	---	---	---	---	3100XJ	4200XJ	---	---	---	---
Benzo(k)Fluoranthene	---	---	---	---	3100XJ	4200XJ	---	---	---	---
Benzo(a)Pyrene	---	---	---	---	1400J	2000J	---	---	---	---
Indeno(1,2,3-cd)Pyrene	---	---	---	---	530J	650J	---	---	---	---
Dibenzo(a,h)Anthracene	---	---	---	---	---	360J	---	---	---	---
Benzo(g,h,i)Perylene	---	---	---	---	570J	800J	---	---	---	---
TIC Compounds										
Total Unknown	44100J	5390J	7700J	240J	143600J	145000J	4500J	---	5610J	---
Total Unknown Hydrocarbons	99900J	21000J	17900J	---	184000J	211000J	14500J	---	---	---
Total Unknown Cyclic Hydrocarbons	5700J	---	---	---	---	---	---	---	---	---
Total Unknown PAH	---	---	1300J	---	---	---	---	---	---	---
2-Cyclohexyl,2-Cyclodecane	6200JN	---	---	---	---	---	---	---	---	---
Dimethylheptadecane	---	3900JN	6130J	---	---	24000J	12500J	---	---	---
Hexatriacontane	---	---	---	---			1100JN	---	---	---
Iron,Tricarbonyl[N-(Phenyl)]	---	4400JN	---	---	20000JN	---	---	---	---	---
Methyl Tridecane	---	---	---	---	---	---	2100J	---	---	---
N-Propyl-Benzamide	---	---	---	---	---	---	---	---	---	---
Tetramethyl Benzene	6200J	---	---	---	---	---	---	---	---	460JN
Tetramethylheptadecane	---	---	---	---	---	---	3000J	---	---	---
2,6,10,14-Tetramethylpentadecane	---	---	---	---	21000JN	---	---	---	---	---
Undecylcyclohexane	---	---	---	---	---	---	1100J	---	---	---

Notes: All concentrations are in micrograms per liter (ug/l = parts per billion (ppb)).
No semi-volatile organic compounds were detected in SB23:0-3, SB24:11-15, SB25:6-8.

--- = Compound not present in this sample but present in another.

J = Semi-quantitative due to concentration below Contract Required Quantitation Limit (CRQL), data validation requirements or compound being a TIC.

N = Identified TIC.

X = Identifies coeluting indistinguishable isomers.

TABLE 3 contd.
VALID ANALYTICAL RESULTS
AREA 4 SOIL BORING SAMPLES
PESTICIDE/PCB COMPOUNDS
1990 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

TCL Compound	SB21:10-14	SB22:9-11	SB22:12-13	SB23:6-9	SB32:6-9 (SB23:6-9 Dup.)	SB23:9-10
Arochlor 1248	13000C	780	140	35000C	28000C	---
Arochlor 1254	---	---	---	---	---	190

Notes: All concentrations in micrograms per kilogram (ug/kg = parts per billion (ppb)).
No pesticide/PCB compounds were detected in SB22:13-15, SB23:11-13, SB24:0-3, SB24:3-5, SB24:11-15, SB25:2-4, SB25:4-6, and SB25:6-8.

--- = Compound not detected in this sample, but present in another.

C = Value confirmed by GC/MS Analysis.

TABLE 3 contd.
VALID ANALYTICAL RESULTS
AREA 4 SOIL BORING SAMPLES
METALS AND CYANIDE
1990 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

Analyte	SB21:10-14	SB22:9-11	SB22:12-13	SB22:14-15	SB23:6-9	SB32:6-9 (SB23:6-9 Dup.)	SB23:9-10	SB23:11-13	SB24:0-3	SB24:3-5	SB24:11-15	SB25:2-4	SB25:4-6	SB25:6-8
Aluminum	13600J	26100J	16000	7480	20000J	21500	22900J	14600J	14600J	13500J	24400J	13700J	19200J	27100J
Antimony	---	---	---	9.98J	---	11.38J	---	---	---	---	---	---	--	---
Arsenic	16.6J	8.6J	3.9J	3.9J	9.6J	---	14.1J	14.5J	4.7J	3.0J	12.3J	7.4J	9.7J	8.2J
Barium	628J	272J	135	91.7	1110J	553	278J	150J	139J	84.1J	202J	81.7J	194J	252J
Beryllium	.64B	1.1B	.55B	.34B	.90B	1.0B	.98B	.51B	.65B	.59B	.99B	.56B	.75B	1.1B
Cadmium	322	2.3	4.5	---	476	160	44.0	10.6	---	---	---	---	---	---
Chromium	851J	40.9J	31.9J	12.6J	1250J	482J	137J	47.6J	21.3J	18.6J	35.4J	19.4J	29.1J	32.3J
Copper	221J	40.1J	31.1	15.4	382J	146	66.8J	29.8J	22.3J	18.3J	40.7J	20.5J	33.1J	28.1J
Lead	133	12.5J	13.1	7.9	235	88.0	26.0J	19.3J	11.4J	12.6J	17.6J	13.6J	14.4J	16.6J
Mercury	1.9J	.28J	---	---	2.2J	1.7	.94J	.24J	.27J	.36J	.33J	.31J	.22J	.26J
Nickel	273	60.1	44.2	19.5	366	159	79.6	38.3	29.7	24.0	48.0	27.4	43.0	52.1
Tin	---	—	—	—	5.2B	---	---	---	--	—	—	--	—	--
Zinc	1160J	141J	108J	48.2J	2590J	962J	293J	126J	84.6J	73.9J	154J	75.7J	104J	105J
Cyanide	57.9	1.7	2.9	—	38.5	29.1	18.2	2.5	--	—	1.0	—	—	—

Notes:
All concentrations are in milligrams per kilogram (mg/kg = parts per million (ppm)).
— = Analyte not detected in this sample but present in another.
J = Semi-quantitative due to QA/QC requirements.
B = Value is above Instrument Detection Limit (IDL), but below Contract Required Detection Limit (CRDL).

TABLE 6-9
VALID ANALYTICAL RESULTS
SEMI-VOLATILE ORGANIC COMPOUNDS, PESTICIDES AND PCBs
SOIL SAMPLES
1986 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

Compound	L-1	L-2	L-4	L-8*	L-5	L-6	L-7	D-12-5	SB-31-7
PCB-1016	120	---	---	---	---	---	---	---	---
PCB-1248	---	24000	---	---	3150 J	---	---	---	---
PCB-1254	---	---	230	290	---	150	53	---	---
PCB-1260	110	---	---	---	---	---	---	---	---
4-Methylphenol	NA	NA	NA	NA	NA	NA	NA	96 J	---
Naphthalene	NA	NA	NA	NA	NA	NA	NA	170	---
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	140 J	---
Flurorene	NA	NA	NA	NA	NA	NA	NA	83 J	---
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	605	---
Anthracene	NA	NA	NA	NA	NA	NA	NA	190	---
Di-n-butylphthalate	NA	NA	NA	NA	NA	NA	NA	230	3600 J
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	550	---
Pyrene	NA	NA	NA	NA	NA	NA	NA	350	---
Benzo (a) Anthracene	NA	NA	NA	NA	NA	NA	NA	250 J	---
Chrysene	NA	NA	NA	NA	NA	NA	NA	370	---
Bis(2-ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	NA	---	800 J

NOTES: All concentrations in parts per billion (ppb).
--- = Compound not detected in this sample, but present in another.
NA = Compound not analyzed for in this sample.
J = Semi-quantitative value due to QA/QC data validation requirements or value below CRQL.
* = L-8 is a duplicate of L-4.

TABLE 4
VALID ANALYTICAL RESULTS
AREA 5 SOIL BORING SAMPLES
VOLATILE ORGANIC AND PESTICIDE/PCB COMPOUNDS
1990 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

TCL VOC	SB14:1-3	SB14:3-5	SB14:6-8	SB15:1-3	SB15:3.5-4.5	SB15:4-5	SB16:4-6	SB17:2-4	SB17:5-7	SB17:8-10	SB18:1-3	SB18:4-6	SB18:6-8	SB19:2-4	SB19:4-6	SB20:4-6	SB20:8.5-10
Carbon Disulfide	---	---	---	---	---	---	---	---	---	---	4J	---	1J	---	---	---	---
1,1-Dichloroethane	---	---	---	---		---	---	---	---	---	4J	5J	---	---	---	---	---
1,2-Dichloroethene	---	---	---	---	5U	---	---	---	---	---	90	110	---	---	---	---	---
1,1,1-Trichloroethane	---	---	---	---	10	---	---	2J	---	---	---	---	---	---	---	---	---
Trichloroethene	4J	3J	2J	7	240E.J	27	3J	---	---	2J	14	19	---	30	2J	1J	2J
Toluene	---	---	---	---	---	---	---	5J	---	---	---	---	---	---	---	---	---
Ethylbenzene	---	---	---	---	---	---	---	7	---	---	---	---	---	---	---	---	---
Styrene	---	---	---	---	---	---	---	1J	---	---	---	---	---	---	---	---	---
Xylenes	---	---	---	---	---	---	---	2J	---	---	---	---	---	---	---	---	---
TIC Volatiles																	
Total Unknowns	---	---	---	---	16J	---	---	35.8J	140J	---	245.1J	---	23J	---	---	---	---
Total Unknown Alcohols	---	---	---	---	---	---	---	---	---	---	---	---	31J	---	---	---	---
TCL Pesticide/PCB																	
Arochlor 1248	---	---	---	---	58U	---	---	---	---	---	1500	---	---	---	---	---	---
Arochlor 1254	310	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Notes: All concentrations are in micrograms per kilogram (ug/kg = parts per billion (ppb)).
No volatile organic and pesticide/PCB compounds were detected in SB16:0-2, SB16:2-4, SB19:6-8, and SB20:6-8.

--- = Compound not present in this sample, but present in another.

J = Semi-quantitative due to QA/QC criteria outside of control limits, value below Contract Required Quantitation Limit (CRQL) or compound being a TIC.

B = Contamination found in associated blank. Sample value is greater than 10 times the associated blank value.

E = Estimated value. Sample result is over the instrument's linear calibration range by less than 10%.

TABLE 4 contd.
VALID ANALYTICAL RESULTS
AREA 5 SOIL BORING SAMPLES
METALS AND CYANIDE
1990 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

Analyte	SB14:1-3	SB14:3-5	SB14:6-8	SB15:1-3	SB15:3.5-4.5	SB15:4-5	SB16:0-2	SB16:2-4	SB16:4-6	SB17:2-4
Aluminum	8220J	9870J	10600J	9470J	13700J	16100J	13300J	15100J	14400J	10900J
Antimony	---	---	---	---	---	---	---	---	---	---
Arsenic	8.3J	11.2J	5.4J	5.0J	9.4J	11.9J	5.4J	---	---	---
Barium	95.9J	56.5J	85.8J	64.3J	219J	173J	106J	131J	119J	52.6J
Beryllium	.28B	.26B	.28B	---	.56B	.61B	.39B	.58B	.50B	.31B
Cadmium	143	18.6	---	1.6	107	---	5.7	---	4.9	1.3
Chromium	296J	45.3J	25.8J	19.2J	2750J	112J	38.6J	19.2J	31.3J	19.2J
Copper	82.3J	34.2J	18.7J	32.0J	352J	35.1J	24.6J	16.6J	54.3J	39.3J
Lead	24.4	17.8	8.4	12.3	73.0	15.5	16.9J	40.7	11.8	11.2
Mercury	.12	---	---	---	.96	---	---	---	---	---
Nickel	130	36.7	227	22.6	138	34.4	29.3	25.6	40.3	26.9
Silver	2.0BJ	---	---	---	6.8J	---	---	---	---	---
Tin	115	12.8	---	---	113	---	---	---	---	---
Zinc	406J	128J	72.7J	92.4J	373J	102J	91.9J	79.0J	87.3	99.4J
Cyanide	2.2	1.6	1.0	.70	25.0	---	.63	---	---	---

Notes: All concentrations are in milligrams per kilogram (mg/kg = parts per million (ppm)).
SB15:6-8 not submitted for analysis.
--- = Analyte not detected in this sample but present in another.
J = Semi-quantitative due to QA/QC requirements.
B = Value is above Instrument Detection Limit (IDL), but below Contract Required Detection Limit (CRDL).

TABLE 4 (cont'd)

Analyte	SB17:5-7	SB17:8-10	SB18:1-3	SB18:4-6	SB18:6-8	SB19:2-4	SB19:4-6	SB19:6-8	SB20:4-6	SB20:7-8.5	SB20:8.5-10
Aluminum	18300J	15200J	9780J	9070J	20900J	7940J	9030J	9060J	9150J	8740J	11300J
Antimony	---	---	8.6BJ	---	---	23.7J	---	---	---	---	---
Arsenic	---	5.2J	2.3BJ	---	---	---	5.3J	5.3J	5.1J	5.1J	32.4J
Barium	124J	105J	132J	51.9J	126J	85.8J	76.9J	77.9J	55.1J	46.4J	116
Beryllium	.67B	.61B	.26B	.29B	.67B	---	.28B	.25B	.25B	.28B	.50B
Cadmium	---	---	439	15.7	1.9	3390	---	---	38.7	4.0	---
Chromium	29.1J	23.1J	4060J	54.6J	52.8J	13000J	26.9J	15.9J	94.8J	78.6J	126J
Copper	24.6J	21.9J	337J	38.6J	29.8J	1910J	38.1J	20.2J	94.4J	49.6J	23.6J
Lead	14.9	12.5	45.1	12.8	14.9	50.3	10.9J	22.8J	14.1J	9.4J	23.6J
Mercury	---	---	.39	---	---	---	.21J	.25J	.22J	.26J	.30J
Nickel	39.3	26.2	516	35.2	44.0	320	20.3	20.7	21.6	21.2	23.1
Silver	---	---	7.9J	---	---	3.0J	---	---	2.8J	---	---
Tin	---	---	193	9.7	---	133	---	---	---	---	---
Zinc	93.7J	71.6J	2290J	111J	106J	3460J	71.2J	62.8J	165J	72.1J	74.0J
Cyanide	.86	---	114	2.2	1.1	167	6.2	3.2	6.2	.57	.67

Notes: All concentrations are in milligrams per kilogram (mg/kg = parts per million (ppm)).
SB15:6-8 not submitted for analysis.

--- = Analyte not detected in this sample but present in another.

J = Semi-quantitative due to QA/QC requirements.

B = Value is above Instrument Detection Limit (IDL), but below Contract Required Detection Limit (CRDL).

TABLE 4 contd.
VALID ANALYTICAL RESULTS
AREA 5 SOIL BORING SAMPLES
SEMI-VOLATILE ORGANIC COMPOUNDS
1990 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

TCL Compounds	SB14:1-3	SB14:3-5	SB15:1-3	SB15:3.5-4.5	SB15:4-5	SB16:0-2	SB16:2-4	SB17:2-4	SB17:5-7
Benzoic Acid	220J	---	---	990J	---	---	---	85J	---
Acenaphthylene	---	---	---	---	---	---	---	---	---
Acenaphthene	---	---	---	---	---	---	---	---	---
Fluorene	---	---	---	---	---	---	---	---	---
N-Nitrosodiphenylamine	---	---	---	42J	---	---	---	---	---
Pentachlorophenol	---	---	---	---	---	54J	---	---	---
Phenanthrene	100J	---	---	---	---	---	---	---	---
Anthracene	---	---	---	---	---	---	---	---	---
Di-n-Butylphthalate	---	---	---	120J	---	110J	---	---	55J
Fluoranthene	84J	---	---	---	---	---	---	---	---
Pyrene	110J	---	---	---	---	---	---	---	---
Butylbenzylphthalate	---	---	---	160J	---	---	---	---	---
Benzo(a)Anthracene	---	---	---	---	---	---	---	---	---
Chrysene	---	---	---	190J	---	---	---	420	---
Bis(2-Ethylhexyl)phthalate	250J	52J	89J	340J	42J	---	---	---	180J
Di-n-Octyl Phthalate	---	---	---	74J	---	---	---	---	---
Benzo(b)Fluoranthene	84XJ	---	---	---	---	---	---	---	---
Benzo(k)Fluoranthene	84XJ	---	---	---	---	---	---	---	---
TIC Compounds									
Total Unknowns	57280J	6760J	---	171300J	---	220J	600J	36100J	10700J
Total Unknown Hydrocarbons	---	---	---	---	---	---	260J	63800J	8690J
Total Unk. Cyclic Hydrocarbons	---	---	---	---	---	---	---	4700J	---
Alochlor	---	---	210JN	---	---	---	---	---	---
Bromochlorobenzene	---	---	---	---	---	---	---	---	---
Benzo Quinoline	---	---	---	---	---	---	---	---	---
Dimethyl Heptadecane	---	---	---	---	---	---	300J	---	3900J
Heptadecane	---	---	---	---	---	---	---	---	990JN
Mono(2-Ether)Hexanedioic Acid	---	---	---	---	---	---	---	---	---
2,6,10,14-Tetramethyl Hexadecane	---	---	---	---	---	---	---	---	1000JN
2,6,10,15-Tetramethyl Heptadecane	---	---	---	---	---	---	---	---	2200JN

Notes: All concentrations in micrograms per kilogram (ug/kg = parts per billion (ppb)).
No semi-volatile organic compounds were detected in SB14:6-8, SB15:6-8, SB16:4-6, and SB20:6-8.

--- = Compound not detected in this sample, but present in another.
J = Semi-quantitative due to QA/QC criteria outside of control limits, value below Contract Required Quantitation Limit (CRQL) or compound being a TIC.
X = Identifies coeluting indistinguishable isomers.
N = Identified TIC.

TABLE 4 (cont'd)

TCL Compounds	SB17:8-10	SB18:1-3	SB18:4-6	SB18:6-8	SB19:2-4	SB19:4-6	SB19:6-8	SB20:4-6	SB20:8.5-10
Benzoic Acid	---	84J	---	---	---	---	---	72J	---
Acenaphthylene	---	---	---	---	---	---	---	360	47J
Acenaphthene	---	---	---	---	---	---	---	77J	---
Fluorene	---	---	---	---	---	---	---	130J	---
N-Nitrosodiphenylamine	---	---	---	---	---	---	---	---	---
Pentachlorophenol	---	---	---	---	---	---	---	---	---
Phenanthrene	---	91J	---	---	95J	---	---	87J	---
Anthracene	---	---	---	---	---	---	---	530	---
Di-n-Butylphthalate	---	---	56J	47J	---	---	---	---	---
Fluoranthene	---	84J	---	---	340J	---	---	120J	---
Pyrene	---	130J	---	---	380J	---	---	130J	---
Butylbenzylphthalate	---	---	---	---	180J	---	---	---	---
Benzo(a)Anthracene	---	310J	---	---	380XJ	---	---	---	---
Chrysene	---	---	---	---	380XJ	---	---	---	---
Bis(2-Ethylhexyl)phthalate	75J	---	58J	---	1200	45J	53J	270J	---
Di-n-Octyl Phthalate	---	150J	---	---	230J	---	---	---	---
Benzo(b)Fluoranthene	---	---	---	---	---	---	---	---	---
Benzo(k)Fluoranthene	---	---	---	---	---	---	---	---	---
TIC Compounds									
Total Unknowns	---	120300J	9890J	870J	104000J	---	---	34300J	---
Total Unknown Hydrocarbons	---	20700J	2980J	---	92000J	---	---	31300J	---
Total Unk. Cyclic Hydrocarbons	---	---	---	---	---	---	---	---	---
Alochlor	---	---	---	---	---	---	---	---	---
Bromochlorobenzene	---	---	---	---	---	---	---	---	230J
Benzo Quinoline	---	---	---	---	---	---	---	2100J	---
Dimethyl Heptadecane	---	---	---	---	---	---	---	---	---
Heptadecane	---	---	---	---	---	---	---	---	---
Mono(2-Ether)Hexanedioic Acid	390JN	---	---	---	---	---	---	---	---
2,6,10,14-Tetramethyl Hexadecane	---	---	---	---	---	---	---	---	---
2,6,10,15-Tetramethyl Heptadecane	---	---	---	---	---	---	---	---	---

Notes: All concentrations in micrograms per kilogram (ug/kg = parts per billion (ppb)).
No semi-volatile organic compounds were detected in SB14:6-8, SB15:6-8, SB16:4-6, and SB20:6-8.

--- = Compound not detected in this sample, but present in another.
J = Semi-quantitative due to QA/QC criteria outside of control limits, value below Contract Required Quantitation Limit (CRQL) or compound being a TIC.
X = Identifies coeluting indistinguishable isomers.
N = Identified TIC.

TABLE 5
VALID ANALYTICAL RESULTS
SURFACE SOIL SAMPLES
VOLATILE ORGANIC COMPOUNDS
1990 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

TCL Compounds	SS1:0-1	SS2:0-1	SS4:0-1	SS5:0-1	SS6:0-1	SS7:0-1	SS9:0-1	SS21:0-1 (SS9:0-1 Dup.)
Vinyl Chloride	2J	---	---	---	---	---	---	---
Methylene Chloride	---	---	---	22BJ	---	---	---	---
Acetone	---	---	---	5J	34J	---	---	---
Carbon Disulfide	---	---	---	---	---	---	---	15J
1,1 Dichloroethane	3J	---	---	---	---	---	---	---
1,2 Dichloroethene	43	2J	1J	---	4J	---	---	---
2-Butanone	---	---	---	---	9J	---	---	---
1,1,1 Trichloroethane	11	---	---	---	---	---	---	---
Trichloroethene	130	---	5J	---	2J	---	7J	10J
Chlorobenzene	---	---	---	1J	---	---	---	---
TIC Compounds								
Unknowns	---	---	---	---	---	99J	---	---

Notes: All concentrations are in micrograms per kilogram (ug/kg = parts per billion (ppb)).
No volatile organic compounds were detected in SS3:0-1, and SS8:0-1.

--- = Compounds not present in this sample, but present in another.

J = Semi-quantitative due to QA/QC criteria outside of control limits, value below Contract Required Quantitation Limit (CRQL) or compound being a TIC.

B = Contaminant found in associated blank. Sample value is greater than 10 times the associated blank value.

TABLE 5 contd.
VALID ANALYTICAL RESULTS
SURFACE SOIL SAMPLES
SEMI-VOLATILE ORGANIC COMPOUNDS
1990 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

TCL Compounds	SS1:0-1	SS2:0-1	SS20:0-1 (SS2:0-1 Dup.)	SS3:0-1	SS4:0-1	SS5:0-1	SS6:0-1	SS7:0-1	SS8:0-1	SS9:0-1	SS21:0-1 (SS9:0-1 Dup.)
Phenol	—	—	---	---	57J	—	—	—	—	—	—
4-Methylphenol	---	---	---	---	100J	---	---	---	---	---	---
2,4 Dimethylphenol	---	---	---	---	180J	---	---	---	---	---	---
Benzoic Acid	---	---	---	---	---	---	990J	260J	—	—	—
Naphthalene	---	---	---	300J	1500	55J	7600J	210J	---	---	---
2-Methylnaphalene	—	—	---	110J	1700	84J	3000J	350J	72J	---	—
Acenaphthene	71J	—	---	260J	1900	---	8300J	---	---	—	—
Dibenzofuran	---	---	---	200J	1300	---	4900J	83J	---	---	—
Fluorene	—	—	---	250J	1800	---	8400J	—	—	---	—
Pentachlorophenol	—	---	---	---	—	49J	---	—	—	—	—
Phenanthrene	450	210J	130J	2600	10000	---	77000	260J	—	—	—
Anthracene	130J	50J	---	560	3400	---	18000	—	—	—	—
Di-n-Butylphthalate	—	59J	---	60J	95J	---	---	—	—	—	—
Fluoranthene	720	480	210J	3700	16000	220J	110000	210J	—	—	—
Pyrene	520	320J	140J	2400	11000	180J	65000	200J	—	—	—
Benzo(a)Anthracene	430	220J	350J	1400	6700	76J	43000	140J	—	3400J	—
Chrysene	340J	200J	190J	1500	7200	54J	32000	140J	—	3600J	490J
Bis(2 Ethylhexyl)Phthalate	46J	62J	80J	66J	300J	---	---	—	2200J	7300	—
Di-n-Octyl Phthalate	--	130J	--	---	—	---	---	—	—	—	—
Benzo(b)Fluoranthene	690XJ	410XJ	380XJ	2500XJ	19000XJ	52XJ	69000XJ	—	150J	---	—
Benzo(k)Fluoranthene	690XJ	410XJ	380XJ	2500XJ	19000XJ	52XJ	69000XJ	—	—	—	—
Benzo(a)Pyrene	350J	210J	200J	1400	7400	---	33000	—	—	—	—
Indeno(1,2,3-cd)Pyrene	---	---	99J	490	2800	---	16000	—	—	---	—
Dibenz(a,h)Anthracene	---	---	---	190J	610	---	5200J	—	---	---	—
Benzo(g,h,i)Perylene	---	---	99J	440	2500	---	17000	—	—	—	—
Acenaphthylene	---	---	--	---	150J	---	---	—	—	—	---

TABLE 5 contd.
VALID ANALYTICAL RESULTS
SURFACE SOIL SAMPLES
METALS AND CYANIDE
1990 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

Analyte	SS1:0-1	SS2:0-1	SS20:0-1 (SS2:0-1 Dup.)	SS3:0-1	SS4:0-1	SS5:0-1	SS6:0-1	SS7:0-1	SS8:0-1	SS9:0-1	SS21:0-1 (SS9:0-1 Dup.)
Aluminum	9420	8280	10300	14400J	6910J	16400J	6760J	8180J	7550	7840J	7440J
Antimony	---	---	---	---	---	---	---	---	11.7J	25.9J	18.1J
Arsenic	11.3J	---	---	9.5J	---	247	6.4J	16.3	4.1J	8.1J	---
Barium	229	129	152	288	2510J	732J	588	88.4J	318	766J	697J
Beryllium	---	.36B	---	.47B	.52B	7.6	.44B	.76B	---	---	---
Cadmium	25.1J	50.9J	17.1J	2.9	26.5J	---	78.9J	---	622	796J	830J
Chromium	1280	823	641	28.1	169J	26.2J	1220	10.6J	3940	10100J	7370J
Copper	33.7	46.6J	34.3J	83.8J	1210J	56.6J	442J	64.3J	459J	1110J	819J
Lead	19.6	20.3	15.3	29.5	292J	57.1J	88.2J	14.1J	110	311J	286J
Mercury	---	.13J	.31J	.12	.35	.13	.51	---	.52	.78J	1.1J
Nickel	119	59.6	46.9	40.4	224	52.5	138	---	198	452J	520J
Selenium	---	---	---	---	---	---	---	---	---	---	---
Silver	---	---	---	---	---	---	---	---	2.6BJ	4.6BJ	---
Thallium	---	---	---	---	---	16.7J	---	---	---	---	---
Tin	---	---	---	---	15.5	---	---	5.4	435	387J	478J
Zinc	106	135	121	162J	2840J	95.1J	535J	44.1J	3880	11100J	12600J
Cyanide	.74	2.3	1.2	.73	3.6	---	10.7	---	25.5	40.3J	38.5J

Notes: All concentrations are in milligrams per kilogram (mg/kg= parts per million (ppm)).
--- = Analyte not detected in this sample but present in another.
J = Semi-quantitative due to QA/QC requirements.
B = Value is above Instrument Detection Limit (IDL), but below Contract Required Detection Limit (CRDL).

TABLE 5 contd.
VALID ANALYTICAL RESULTS
SURFACE SOIL SAMPLES
PESTICIDE/PCB COMPOUNDS
1990 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

TCL Compound	SS2:0-1	SS20:0-1 (SS2:0-1 Dup.)	SS3:0-1	SS4:0-1	SS5:0-1	SS6:0-1	SS7:0-1	SS8:0-1	SS9:0-1	SS21:0-1 (SS9:0-1 Dup.)
HeptachlorEpoxide	15	---	---	---	---	---	---	---	---	---
Arochlor 1248	---	540	3700C	5300C	320	11000C	1000	3300C	14000C	8900C
Arochlor 1254	---	---	---	1000	---	---	---	---	---	---

Notes: All concentrations are in micrograms per kilogram (ug/kg = parts per billion (ppb)).
No pesticide/PCB compounds were detected in SS1:0-1.
--- = Compound not present in this sample, but present in another.
C = Value confirmed by GC/MS analysis.

TABLE 6

TABLE 6-11
VALID ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES
1986 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

Compound	SB-5-5	SB-8-5	SB-8-7.5	SB-10-2.5	SB-10-7.5	SB-11-2.5	SB-11-7.5	SB-12-2.5	SB-12-5	SB-13-2.5	SB-15-2.5	SB-15-2.5 (DUP)	SB-15-7.5
Trichloroethene	12.4	50.8	23.5 J	28.9	25.4 J	253	39.7 J	118	65.1	7.57	83.9	139	118
Tetrachloroethene	---	150	---	6.34	---	---	---	---	---	---	---	---	---
1,1,-Dichloroethane	---	---	---	8.58	---	---	---	---	---	---	---	---	---
1,1,1-Trichloroethane	---	---	13.5 J	18.5	15.0 J	20.5	---	20.2 J	---	14.6	---	---	8.04
1-1,2-Dichloroethene	---	---	9.22 J	---	13.0 J	---	---	---	---	---	---	---	5.75
Trichlorofluoromethane	---	---	---	---	---	---	---	---	---	---	---	---	---
Methylene Chloride	---	---	---	---	---	---	---	---	---	---	---	---	---
1,2-Dichlorobenzene	---	---	---	---	---	---	---	---	---	---	---	---	---

Compound	SB-17-7.5	SB-18-2.5	SB-18-5	SB-19-5	SB-20-5	SB-22-5	SB-22-5 (DUP)	SB-22-7.5	SB-23-7.5	SB-23-7.5 (DUP)	SB-24-2.5	SB-24-7.5	SB 25-2.5
Trichloroethene	7.13	156	16.9	14.9	7.59	28.9	18.9	23.6	---	---	112	27.5	4.92
Tetrachloroethene	7.65	7.83	---	---	---	---	---	---	---	---	---	---	---
1,1-Dichloroethane	---	---	---	---	---	---	---	---	---	---	---	---	---
1,1,1-Trichloroethane	---	18.5	11.2	19.8	---	24.7	22.7	---	20.7	---	25.7	---	21.6
1-1,2-Dichloroethene	---	---	---	---	---	---	---	---	---	---	22.6	10.4	---
Trichlorofluoromethane	---	---	---	---	---	---	---	---	---	---	---	---	15.0
Methylene Chloride	---	---	---	---	---	---	---	---	---	---	---	---	---
1,2-Dichlorobenzene	---	---	---	---	---	---	---	---	---	---	---	---	---

TABLE 6

TABLE 6-11 (cont'd)

Compound	SB-25-2.5 (DUP)	SB-26-2.5	SB 26 7.5	SB 27-7.5	SB-27-7.5 (DUP)	SB 29-10	SB 31 7	SB-31-7 (DUP)	D-9-2.5	D-9-5	D-9-7.5
Trichloroethene	5.14	121	3 46	58.5	42.4	5.69	5.07	7.53	47.7	98.2	44.4
Tetrachloroethene	---	7.97		12.7	17.0			---	5.86	7.31	---
1,1-Dichloroethane	---	--				---	---	---	---	---	---
1,1,1-Trichloroethane	26.9	48.1	12 2	18.1	20.4	---		---	---	20.8	---
1-1,2-Dichloroethene	---	---	---	---	---	---	---	---	---	---	22.2
Trichlorofluoromethane	18.4	29.0	---	15.3	13.1	---	---	---	---	---	---
Methylene Chloride	---	15.8	---	---	---	---	---	---	---	---	---
1,2-Dichlorobenzene	---	---	--	---	---	---	---	---	---	14.3	---

Notes: All concentrations are in parts per billion (ppb).
-- = Compound not detected in this sample, but present in another.
J = Semi-quantitative value due to QA/QC data validation requirements.

TABLE 7
VALID ANALYTICAL RESULTS
OIL/WATER SEPARATOR SAMPLES
VOLATILE ORGANIC COMPOUNDS, PESTICIDES/PCBs
AND TOTAL PETROLEUM HYDROCARBONS
1990 REMEDIATION INVESTIGATION
PUROLATOR PRODUCTS COMPANY

TCL - VOC	SW-OWS	SED-OWS	SB26*	SB27:0-4	SB:28:2-4
Acetone	91J	6800J	---	---	---
Chloroform	0.6J	---	---	---	---
Toluene	---	---	---	2J	---
Chlorobenzene	---	---	---	1J	---

TIC Volatiles					
Unknown Compounds	65J	---	---	---	---
Unknown Hydrocarbons	120J	50000J	---	---	---
Decane	---	24000JN	---	---	---
Undecane	25JN	---	---	---	---
Undecane and Unknown	---	13000J	---	---	---
Dichlorobenzene and Unknown	---	15000J	---	---	---
Ethylmethylbenzene	---	6200J	---	---	---
Trimethylbenzene	---	8800J	---	---	---
TCL Pesticide/PCB					
Delta - BHC	---	---	---	130	---
Total Petroleum Hydrocarbons	1100	180000	NA	3000	NA

Notes: All volatile and pesticide concentrations are in micrograms per kilogram (ug/kg) except SW-OWS which is in micrograms per liter (ug/l). Both units are equivalent to parts per billion (ppb). TPH concentrations are milligrams per liter (mg/l) for SW-OWS and milligrams per kilogram (mg/kg) for SED-OWS and SB27:0-4. Both units are equivalent to parts per million (ppm).

--- = Compound not present in this sample but detected in another.

J = Estimated value due to QA/QC criteria outside of control limits, value below Contract Required Quantitation Limit (CRQL), or compound being a TIC.

N = Identified TIC.

NA = Not analyzed for in this sample.

* = Sample from SB26 was collected at a depth of 5.5 to 7.5 feet.

TABLE 7
VALID ANALYTICAL RESULTS
OIL/WATER SEPARATOR SAMPLES
SEMI-VOLATILE ORGANIC COMPOUNDS
1990 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

TCL Compounds	SW-OWS	SED-OWS	SB26	SB27:0-4	SB28:2-4
Phenol	---	---	---	390J	---
2-Methylphenol	---	---	---	230J	---
4-Methylphenol	---	---	---	550J	---
Nitrobenzene	---	220J	---	---	---
2,4-Dimethylphenol	---	---	---	550J	---
Naphthalene	---	400J	---	18000	---
2-Methylnapthalene	---	1000J	---	6400	---
Acenaphthylene	---	---	---	880J	---
Acenaphthene	---	380J	---	25000	---
Dibenzofuran	---	180J	---	15000	---
Diethylphthalate	---	---	71J	---	---
Fluorene	15J	650J	---	26000	---
Phenanthrene	29J	3100J	55J	190000	---
Anthracene	---	3100J	---	31000	---
Fluoranthene	22J	2300J	79J	320000	---
Pyrene	48J	2400J	69J	210000	---
Benzo(a)Anthracene	21J	---	50J	160000	---
Chrysene	32J	---	---	130000	---
Bis(2-Ethylhexyl)phthalate	---	1700J	---	---	---
Benzo(b)Fluoranthene	60XJ	3400J	40J	330000XJ	---
Benzo(k)Fluoranthene	60XJ	3400J	---	330000XJ	---
Benzo(a)Pyrene	18J	1300J	---	130000	---
Indeno(1,2,3-cd)Pyrene	---	890J	---	29000	---
Dibenzo(a,h)Anthracene	---	400J	---	12000	---
Benzo(g,h,i)Perylene	---	1000J	---	28000	---

TIC Compounds	SW-OWS	SED-OWS	SB26	SB27:0-4	SB28:2-4
Total Unknowns	28300J	71000J	4900J	302000J	3120J
Total Unknown Hydrocarbons	48000J	96200J	160J	86000J	---
Total Unknown PAH	---	---	---	344000J	---
Total Unknown Alcohol	2800J	---	---	---	---
Benzofluoranthene	---	---	---	50000J	---
Benzonapthofuran	---	---	---	56000J	---
Dimethylphenanthrene	---	---	---	36000J	---
Dodecanamide,N,N-Bis(2-Hydro)	---	---	480JN	---	---
Heptadecane	---	---	---	---	370JN
Hexadecane	---	---	---	---	370JN
Hexadecanoic Acid	---	---	520JN	---	---
Methyl Chrysene	---	---	---	50000J	---
Tetradecanoic Acid	---	---	360JN	---	---

Notes: SW-OWS concentrations in micrograms per liter (ug/l = parts per billion (ppb)). All other concentrations in micrograms per kilogram (ug/kg = parts per billion (ppb)).
J = Semi-quantitative due to QA/QC criteria outside of control limits, value below Contract Required Quantitation Limit (CRQL), or compound being a TIC.
N = Identified TIC.
X = Identifies coeluting indistinguishable isomers.
--- = Compound not detected in this sample, but present in another.

TABLE 7 contd.
VALID ANALYTICAL RESULTS
OIL/WATER SEPARATOR SAMPLES
METALS AND CYANIDE
1990 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

Analyte	SW-OWS	SED-OWS	SB26	SB27:0-4	SB28:2-4
Aluminum	933J	9700	13000J	10900J	13600J
Arsenic	---	7.7J	5.0J	10.9J	3.4J
Barium	165BJ	256	98.8J	319J	156J
Beryllium	---	---	.60B	.61B	.67B
Cadmium	11.5J	44.0J	---	41.4	---
Chromium	16.2J	153J	18.5J	45.1J	37.7J
Copper	67.1J	425	23.5J	502J	41.4J
Lead	51.9J	158J	11.4J	58.3	12.3J
Mercury	---	.65	.24J	.43J	.25J
Nickel	---	73.5	22.8	129	31.0
Tin	---	26.5	---	8.4	---
Zinc	269J	767	75.1J	675J	78.0J
Cyanide	---	2.7J	---	4.3	---

Notes: All concentrations, except for SW-OWS, are in milligrams per kilogram (mg/kg = parts per million (ppm)). Units for SW-OWS are micrograms per liter (ug/l = parts per billion (ppb)).

--- = Analyte not detected in this sample but present in another.

J = Semi-quantitative due to QA/QC requirements.

B = Value is above Instrument Detection Limit (IDL), but below Contract Required Detection Limit (CRDL).

TABLE 8
VALID ANALYTICAL RESULTS
UNNAMED DRAINAGE WAY SEDIMENT SAMPLES
VOLATILE ORGANIC COMPOUNDS
1990 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

TCL Compound	TS1:2-3	TS2:0-1	TS2:2-3	TS4:0-1	TS21:0-1 (TS4:0-1 Dup.)	TS6:0-1	TS7:0-1	TS20:0-1 (TS7:0-1 Dup.)	TS9:0-1
2-Butanone	---	---	---	---	---	---	---	1J	---
Trichloroethene	3J	2J	8	5J	6J	6	3J	7J	3J

Notes: All concentrations in micrograms per kilogram (ug/kg = parts per billion (ppb)).
No volatile organic compounds were detected in TS1:0-1, TS1:5-6, TS2:5-6, TS3:0-1, TS3:2-3, TS3:5-6, TS4:2-3, TS4:5-6, TS5:0-1, TS5:2-3, TS5:5-6, TS6:2-3, TS6:5-6, TS8:0-1.

J = Semi-quantitative due to concentration below Contract Required Quantitation Limit (CRQL).

--- = Compound not detected in this sample, but present in another.

VALID ANALYTICAL RESULTS
UNNAMED DRAINAGE Y SEDIMENT SAMPLES
SEMI-VOLATILE ORGANIC COMPOUNDS
1990 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

TABLE 8 contd.

TCL Compounds	TS1:0-1	TS1:2-3	TS2:0-1	TS2:2-3	TS2:5-6	TS3:0-1	TS4:0-1	TS21:0-1 (TS4:0-1 Dup.)	TS4:2-3
Phenol	—	---	---	---	---	---	---	---	—
4-Methylphenol	---	---	---	---	---	50J	---	---	---
Nitrobenzene	—	---	---	---	470J	---	---	---	---
Benzoic Acid	---	82J	---	80J	---	240J	780J	360J	---
Naphthalene	110J	330J	190J	68J	---	350J	330J	120J	---
2-Methylnaphthalene	130J	540	330J	110J	---	620	490	130J	---
Acenaphthylene	---	76J	120J	---	---	72J	69J	---	---
Acenaphthene	---	51J	95J	---	---	67J	120J	---	---
Dibenzofuran	---	100J	120J	---	---	200J	170J	---	---
Fluorene	---	85J	140J	---	---	73J	140J	---	---
Pentachlorophenol	---	---	---	---	---	---	---	---	---
Phenanthrene	540J	560	1200	99J	---	670	1500	260J	---
Anthracene	140J	76J	170J	---	---	100J	210J	---	---
Di-n-Butylphthalate	—	140J	---	---	---	67J	66J	160J	---
Fluoranthene	890	890	1500	200J	---	560	2500	300J	---
Pyrene	430J	520	950	110J	---	600	1700	---	---
Benzo(a)Anthracene	380J	530	1600	130J	---	810	1100	280J	---
Chrysene	420J	480	880	140J	---	480	1100	280J	—
Bis(2-Ethylhexyl)phthalate	---	60J	---	---	---	---	100J	330J	82J
Di-n-Octyl Phthalate	---	---	---	---	---	---	---	---	—
Benzo(b)Fluoranthene	690XJ	1300XJ	1300XJ	190JXJ	---	1000XJ	1700XJ	460XJ	—
Benzo(k)Fluoranthene	690XJ	1300XJ	1300XJ	190JXJ	---	1000XJ	1700XJ	460XJ	—
Benzo(a)Pyrene	380J	440J	600	100J	---	320J	770	300J	—
Indeno(1,2,3-cd)Pyrene	120J	130J	300J	56J	---	190J	310J	200J	—
Dibenzo(a,h)Anthracene	---	62J	---	---	---	56J	98J	---	---
Benzo(g,h,i)Perylene	110J	160J	470	51J	---	300J	380J	190J	—
1,2,4-Trichlorobenzene	---	---	---	---	46J	---	—	—	—
4-Chloro-3-Methylphenol	---	---	---	---	---	---	—	—	—
TIC Compounds									
Benzeneamine,Hydrochloride	—	---	---	---	930JN	---	—	—	—
BenzoFluorene	—	—	---	---	---	---	—	—	—
BenzoPyrene	310J	—	---	---	---	---	—	—	—
Decane	---	---	---	---	---	---	—	—	—
4-Methyl Octane	---	---	---	---	---	---	—	---	200JN
Total PCB	---	3500J	---	3690J	---	30600J	8700J	---	—
Total Unknown Aldehyde	4900J	---	---	---	---	---	---	---	---
Total Unknown Hydrocarbon	4520J	---	---	520J	---	1700J	14140J	---	3030J
Total Unknown Sub.Hydrocarbon	5400J	---	---	---	---	---	---	---	---
Total Unknown PAH	---	---	---	---	---	---	---	---	---
Total Unknowns	1840J	36260J	80600J	14430J	---	83800J	20370J	263200J	2250J

Notes:
All concentrations in micrograms per kilogram (ug/kg = parts per billion (ppb)).
No semi-volatile organic compounds were detected in TS1:5-6, TS3:2-3, TS3:5-6, TS5:5-6.

J = Semi-quantitative due to QA/QC criteria outside of control limits, value below Contract Required Quantitation Limit (CRQL) or compound being a TIC.
N = Identified TIC.
X = Identifies coeluting indistinguishable isomers.
--- = Compound not detected in this sample, but present in another.

TABLE 8 (cont'd)

TCL Compounds	TS4:5-6	TS5:0-1	TS5:2-3	TS6:0-1	TS6:2-3	TS6:5-6	TS7:0-1	TS20:0-1 (TS7:0-1 Dup.)	TS8:0-1	TS9:0-1
Phenol	---	---	---	---	---	---	---	100J	---	---
4-Methylphenol	---	---	---	---	---	---	210J	320J	---	290J
Nitrobenzene	---	---	---	---	---	---	---	---	---	---
Benzoic Acid	---	---	---	130J	---	---	230J	440J	640J	180J
Naphthalene	---	45J	---	---	---	---	440J	460J	550J	470J
2-Methylnaphthalene	---	60J	---	45J	---	---	550J	560J	690J	690J
Acenaphthylene	---	130J	---	---	59J	---	---	110J	---	140J
Acenaphthene	---	---	---	---	---	---	330J	470J	840J	350J
Dibenzofuran	---	51J	---	---	---	---	290J	310J	540J	330J
Fluorene	---	130J	---	---	59J	---	340J	450J	600J	320J
Pentachlorophenol	---	---	---	---	---	---	---	370J	440J	---
Phenanthrene	43J	380J	---	84J	120J	---	4300	6600	8300	3900
Anthracene	---	92J	---	---	---	---	570J	770J	950J	690J
Di-n-Butylphthalate	---	---	---	---	---	---	---	---	390J	---
Fluoranthene	75J	310J	---	140J	130J	45J	15000	15000	20000	11000
Pyrene	55J	250J	---	100J	94J	---	5600J	11000	13000J	6700
Benzo(a)Anthracene	54J	250J	---	100J	94J	---	3900J	8000	11000	4400
Chrysene	42J	150J	---	74J	67J	---	5100J	7000	11000	5500
Bis(2-Ethylhexyl)phthalate	---	53J	---	---	---	---	690J	12000	600J	440J
Di-n-Octyl Phthalate	---	---	---	---	---	---	440J	---	---	---
Benzo(b)Fluoranthene	88XJ	290XJ	---	180XJ	120XJ	42J	12000XJ	16000XJ	30000XJ	17000XJ
Benzo(k)Fluoranthene	88XJ	290XJ	---	180XJ	120XJ	---	12000XJ	16000XJ	30000XJ	17000XJ
Benzo(a)Pyrene	52J	150J	---	87J	55J	---	5600J	8200	11000	6200
Indeno(1,2,3-cd)Pyrene	---	58J	---	---	---	---	1800J	4000	6000	4100
Dibenzo(a,h)Anthracene	---	---	---	---	---	---	630J	800J	1500J	1000J
Benzo(g,h,i)Perylene	---	62J	---	---	---	---	1800J	3900	6300	4900
1,2,4-Trichlorobenzene	---	---	---	---	---	---	---	---	---	---
4-Chloro-3-Methylphenol	---	---	---	---	---	---	---	---	---	160J
TIC Compounds										
Benzeneamine, Hydrochloride	---	---	---	---	---	---	---	---	---	---
BenzoFluorene	---	230J	---	---	---	---	---	---	---	---
BenzoPyrene	---	---	---	---	---	---	---	---	---	---
Decane	---	---	---	150JN	---	---	---	---	---	---
4-Methyl Octane	---	---	---	---	---	---	---	---	---	---
Total PCB	---	---	---	1310J	---	---	---	---	---	---
Total Unknown Aldehyde	---	---	---	---	---	---	---	---	---	---
Total Unknown Hydrocarbon	---	---	---	3600J	---	---	78000J	---	111200J	52800J
Total Unknown Sub.Hydrocarbon	---	---	---	---	---	---	---	---	---	---
Total Unknowns	700J	5490J	800J	5670J	2070J	1020J	389000J	386600J	394300J	168100J

Notes: All concentrations in micrograms per kilogram (ug/kg = parts per billion = (ppb)).
No semi-volatile organic compounds were detected in TS1:5-6, TS3:2-3, TS3:5-6, TS5:5-6.

J = Semi-quantitative due to QA/QC criteria outside of control limits, value below Contract Required Quantitation Limit (CRQL) or compound being a TIC.
N = Identified TIC.
X = Identifies coeluting indistinguishable isomers.
-- = Compound not detected in this sample, but present in another.
B = Contaminant found in associated blank. Sample value is greater than 10 times the associated blank value.

TABLE 8 contd.
VALID ANALYTICAL RESULTS
UNNAMED DRAINAGE WAY SEDIMENT SAMPLES
PESTICIDE/PCB COMPOUNDS
1990 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

TCL Compound	TS1:0-1	TS1:2-3	TS2:0 1	TS2:2 3	TS3:0-1	TS4:0-1	TS21:0-1 (TS4:0-1 Dup.)	TS5:0-1	TS6:0-1	TS7:0-1	TS20:0-1 (TS7:0-1 Dup.)
Heptachlor Epoxide	---	---	---	---	---	---	---	---	---	31	---
Dieldrin	---	---	---	---	---	---	---	---	---	39	---
Arochlor 1260	---	---	---	---	---	---	240	---	---	---	---
Arochlor 1254	570	3400C	1500C	1100C	6800C	3000C	---	210	1200C	---	570

Notes: All concentrations in micrograms per kilogram (ug/kg = parts per billion (ppb)).
No pesticide/PCB compounds were detected in TS1:5-6, TS2:5-6, TS3:2-3, TS3:5 6, TS4:2-3, TS4:5-6, TS5:2-3, TS5:5-6, TS6:2-3, TS6:5-6, TS8:0-1, TS9:0-1.

C = Value confirmed by GC/MS analysis.

— = Compound not detected in this sample, but present in another.

TABLE 8 contd.
VALID ANALYTICAL RESULTS
UNNAMED DRAINAGE WAY SEDIMENT SAMPLES
METALS AND CYANIDE
1990 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

Analyte	TS1:0-1	TS1:2-3	TS1:5-6	TS2:0-1	TS2:2-3	TS2:5-6	TS3:0-1	TS3:2-3	TS3:5-6	TS4:0-1	TS21:0-1 (TS4:0-1 Dup.)
Aluminum	15400J	20000J	12100J	10100J	15200J	14800J	14600	21800J	15300	8620	10100
Antimony	--	--	--	--	--	--	--	--	--	--	10.6BJ
Arsenic	--	6.3J	9.2J	15.7	12.0	2.4	--	--	23.0J	--	--
Barium	510	327	126	260J	637J	127J	455	253	174	830J	194J
Beryllium	.65B	.76B	.40B	.65B	.95B	.60B	.63B	1.0B	.40B	.44B	.30B
Cadmium	9.6J	6.7J	--	44.6J	59.1J	1.5J	49.4J	--	--	55.6J	372J
Chromium	68.4	56.1	18.5	246J	208J	22.0J	373	27.8	22.3	150J	3920J
Copper	146J	72.4J	--	181J	217J	4.9BJ	338	--	--	542	614
Lead	61.5J	45.6J	13.2	153J	126J	43.9J	199J	16.0	14.0	109J	108J
Mercury	.44	2.3	.12	.88	.60	--	.99J	--	--	.57J	.97J
Nickel	38.7	34.9	23.0	41.8	59.9	20.9	73.0	21.4	21.5	96.5J	1510J
Tin	--	--	--	7.7	5.2B	--	5.1B	--	--	7.7	--
Zinc	217J	160J	58.3J	443J	386J	60.7J	964	102J	65.1	621J	1090J
Cyanide	.82	16.7	--	.87	1.3	--	3.7	--	--	19.8	49.5

Notes: All concentrations are in milligrams per kilogram (mg/kg = parts per million (ppm)).
-- = Analyte not detected in this sample but present in another.
J = Semi-quantitative due to QA/QC requirements.
B = Value is above Instrument Detection Limit (IDL), but below Contract Required Detection Limit (CRDL).

TABLE 8 (cont'd)

Analyte	TS4:2-3	TS4:5-6	TS5:0-1	TS5:2-3	TS5:5-6	TS6:0-1	TS6:2-3	TS6:5-6	TS7:0-1	TS20:0-1 (TS7:0-1 Dup)	TS8:0-1	TS9:0-1
Aluminum	18400	18100	20600J	25100J	14000J	21100J	22100J	14400	8300J	10500J	9850	15600J
Antimony	---	--	--	---	---	---	---	--	--	—	—	--
Arsenic	9.5J	5.0J	---	---	8.8J	---	---	--	6.0J	5.5	6.8J	5.8J
Barium	254	230	243	297	166	257	334	179	183	224J	319	222
Beryllium	.89B	.66B	.69B	.94B	.30B	.71B	.85B	.46B	.32B	.82B	.40B	.68B
Cadmium	81.5J	22.4J	52.6J	2.7J	---	4.7J	18.6J	--	25.9J	38.3J	56.6J	28.1J
Chromium	87.1	30.0	39.4	40.9	23.0	32.7	40.6	16.8	157	299J	226	347
Copper	79.9	34.2	104J	---	--	--	33.3	—	269J	349J	427	329
Lead	17.3	14.1	36.9J	18.6	11.0	25.8	18.2	12.8	143J	190J	218J	92J
Mercury	--	--	.21	.40	--	.29	.19	.11J	.62J	.68	.90J	.58
Nickel	60.1	35.5	63.9	30.9	21.8	30.3	38.4	24.1	57.0	80.2	77.0	83.9
Tin	--	6.0B	--	---	--	--	--	—	8.5	13.1	12.6	16.7
Zinc	96.7	85.0	126J	111J	58.4J	113J	132J	61.2	619J	801J	784	855J
Cyanide	1.1	---	61.0	.74	—	2.2	1.5	—	1.8	1.2	1.3	1.4

Notes: All concentrations are in milligrams per kilogram (mg/kg = parts per million (ppm)).
— = Analyte not detected in this sample but present in another.
J = Semi-quantitative due to QA/QC requirements.
B = Value is above Instrument Detection Limit (IDL), but below Contract Required Detection Limit (CRDL).

TABLE 9
PREVIOUS INVESTIGATIONS ANALYTICAL RESULTS
PUROLATOR PRODUCTS COMPANY

Event:	USEPA	July 29, 1980									NYSDEC	March 23, 1981				NYSDEC	June 10, 1981			
Location:	Area 1	Area 1	Area 2	Area 2	Area 3	Area 4	N.Ditch	S.Ditch	N. Ditch	S. Ditch	N.Ditch	002	Area 6	"Tar"	*	Area 3	Area 1/2**	Area 4	Area 6	S.Ditc
Matrix:	Soil	Soil	Soil	Soil	Soil	Soil	Sed.	Sed.	Water	Water	Sed	Water	Water	Water	Soil	Soil	Soil	Soil	Water	Water
Sample #:	39851	39852	39853	39854	39855	39856	39857	39858	80149	80150	#3	#7	#2	#10	3sdf	81-161-02	81-161-03	81-161-04	81-161-06	81-16
Organics (ppb)																				
Chloroform		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	--	--	--	--	--	N/A	200	--	N/A	--
Methylene Chloride		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	--	--	--	--	--	N/A	610	200	N/A	3
t-1,2 Dichloroethene		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	--	--	--	5	N/A	--	--	--	--	--
1,1,1-Trichloroethane		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21	--	29	--	N/A	N/A	--	--	N/A	6
Trichloroethene		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	34	5	180	44	N/A	N/A	200	--	N/A	--
alpha-BHC		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.02	--	N/A	N/A	350	--	N/A	--
gamma-BHC		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	--	--	--	--	N/A	N/A	30	--	N/A	--
alpha-Endosulfan		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	--	--	--	--	N/A	N/A	--	--	N/A	0.0
Heptachlor		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	--	--	--	--	N/A	N/A	20	--	N/A	--
PCB-1248		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	--	--	--	--	N/A	N/A	--	320000	N/A	--
Metals (ppm)																				
Arsenic		46	440	250	80	30	600	320	80	--	--	--	--	--	98	2.9	26	N/A	--	--
Beryllium		--	--	--	--	--	--	--	--	--	--	--	--	--	33	--	--	--	--	--
Cadmium		4	33	3	4	300	1200	2500	70	0.134	0.017	0.088	0.010	0.007	0.009	31	130000	22	N/A	--
Chromium		120	1400	360	540	3200	1200	940	780	0.214	--	0.040	0.005	18	0.009	480	130000	18	N/A	5.4
Copper		240	330	310	280	980	5300	680	540	0.165	--	0.540	0.009	0.014	--	1000	13000	25	N/A	0.040
Lead		140	120	100	140	100	1100	160	280	--	--	--	0.04	--	--	-230	-180	--	N/A	0.080
Mercury		--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.64	--	0.57	N/A	--
Nickel		54	58	52	40	100	100	88	97	0.035	--	--	--	--	0.03	600	-480	33	N/A	--
Silver		--	--	--	--	--	--	--	--	--	--	0.01	0.007	0.007	0.012	0.18	--	0.24	N/A	--
Selenium		28	100	3	100	200	160	220	140	--	--	--	--	--	--	--	--	--	N/A	--
Thallium		28	20	28	20	200	20	20	20	--	--	--	--	--	--	--	--	--	N/A	--
Zinc		70	150	80	2800	280	32000	560	380	0.27	0.028	1.3	0.075	0.038	0.086	20	35000	17	N/A	--
Cyanide		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	--	0.016	0.013	--	N/A	N/A	N/A	N/A	N/A

Notes: All organic concentrations are in parts per billion (ppb), all metals concentrations are in parts per million (ppm).
- = Compound not detected in this sample, but present in another.
NA = Compound not analyzed for in this sample.
NYSDEC analyses performed by RECRA Research.
* = Location of "Facet Soil" unknown.
** = (Area 1/2) = Composite soil from Area 1 and Area 2.

TABLE 9
PREVIOUS INVESTIGATIONS ANALYTICAL RESULTS
PUROLATOR PRODUCTS COMPANY

Event:	USEPA	July 29, 1980									NYSDEC	March 25, 1981				NYSDEC	June 10, 1981			
Location:	Area 1	Area 1	Area 2	Area 2	Area 3	Area 4	N.Ditch	S.Ditch	N. Ditch	S. Ditch	N.Ditch	002	Area 6	"Tap"	*	Area 5	Area 1/2**	Area 4	Area 6	S.Ditch
Matrix:	Soil	Soil	Soil	Soil	Soil	Soil	Sed.	Sed.	Water	Water	Sed	Water	Water	Water	Soil	Soil	Soil	Soil	Water	Water
Organics (ppb) Sample #:	39951	39952	39953	39954	39955	39956	39957	39958	80149	80150	#3	#7	#9	#10	"Soil"	81-161-02	81-161-03	81-161-04	81-161-05	81-16
Chloroform	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	–	–	–	–	–	N/A	200	–	N/A	–
Methylene Chloride	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	–	–	–	–	–	N/A	610	200	N/A	3
t-1,2 Dichloroethene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	–	–	–	3	N/A	–	–	–	–	–
1,1,1-Trichloroethane	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21	–	29	–	N/A	N/A	–	–	N/A	6
Trichloroethene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	34	5	180	44	N/A	N/A	200	–	N/A	–
alpha-BHC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.02	–	N/A	N/A	350	–	N/A	–
gamma-BHC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	–	–	–	–	N/A	N/A	30	–	N/A	–
alpha-Endosulfan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	–	–	–	–	N/A	N/A	–	–	N/A	0.0
Heptachlor	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	–	–	–	–	N/A	N/A	20	–	N/A	–
PCB-1248	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	–	–	–	–	N/A	N/A	–	320000	N/A	–
Metals (ppm)																				
Arsenic	40	440	250	80	30	800	320	60	–	–	–	–	–	–	56	2.9	38	N/A	–	–
Beryllium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	33	–	–	–	–	–
Cadmium	4	33	3	4	200	1200	2500	70	0.134	0.017	0.088	0.010	0.007	0.005	31	130000	22	N/A	–	–
Chromium	120	1400	380	540	3200	1200	940	780	0.214	–	0.040	0.005	16	0.008	480	130000	18	N/A	5.4	–
Copper	240	530	310	280	980	3300	880	540	0.165	–	0.548	0.009	0.014	–	1000	13000	25	N/A	0.040	0.0
Lead	140	120	100	140	100	1100	180	280	–	–	–	0.04	–	–	~230	~180	–	N/A	0.080	–
Mercury	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.84	–	0.57	N/A	–	–
Nickel	54	58	52	40	100	100	68	97	0.035	–	–	–	–	0.03	600	~680	33	N/A	–	–
Silver	–	–	–	–	–	–	–	–	–	–	0.01	0.007	0.007	0.012	0.16	–	0.24	N/A	–	–
Selenium	30	100	3	100	200	180	220	140	–	–	–	–	–	–	–	–	–	N/A	–	–
Thallium	30	30	30	30	200	30	30	30	–	–	–	–	–	–	–	–	–	N/A	–	–
Zinc	70	130	80	2500	290	32000	360	380	0.27	0.038	1.3	0.073	0.058	0.088	30	35000	17	N/A	–	0.1
Cyanide	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	–	0.016	0.013	–	N/A	N/A	N/A	N/A	N/A	N

Notes: All organic concentrations are in parts per billion (ppb), all metals concentrations are in parts per million (ppm).
- = Compound not detected in this sample, but present in another.
NA = Compound not analyzed for in this sample.
NYSDEC analyses performed by RECRA Research.
* = Location of "Facet Soil" unknown.
** = (Area 1/2) = Composite soil from Area 1 and Area 2.

TABLE 10
VALID ANALYTICAL RESULTS
SURFACE WATER SAMPLES
VOLATILE ORGANIC COMPOUNDS
1990 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

TCL Compounds	SW-1	SW-2	SW-10 (SW-2 Dup.)	SW-3	SW-4	SW-5	SW-6	SW-7
1,1-Dichloroethane	---	---	---	---	---	---	0.4J	---
cis-1,2-Dichloroethene	0.2J	0.7J	0.6J	---	---	---	5J	0.5J
Trichloroethene	---	11J	10	26J	---	---	2J	---
Chloroform	0.03J	0.08J	0.07J	---	---	---	---	---
1,1,1-Trichloroethane	---	5J	4	---	---	---	---	---
Chloromethane	6J	6J	4	24J	---	---	6J	4J
Acetone	---	---	---	34BJ	5J	3J	---	---
Carbon Disulfide	---	---	---	0.1J	---	---	0.1J	---
TIC Compounds								
Unknown Compounds	1.0J	---	---	2.2J	0.5J	---	1.5J	0.9J
Unknown Hydrocarbons	---	---	---	7.9J	---	---	---	---

Notes: All concentrations are in micrograms per liter (ug/l = parts per billion (ppb)).
Of the compounds detected, only TCE has a guidance value (11ppb) for Class C waters as presented in NYSDEC Water Quality Standards, Parts 700-705, effective September 1, 1991.

--- = Compound not present in this sample but present in another.

J = Semi-quantitative due to concentration below Contract Required Quantitation Limit (CRQL), data validation requirements or compound being a TIC.

B = Contaminant found in associated blank. Sample value is greater than 10 times the associated blank value.

TABLE 10 contd.
VALID ANALYTICAL RESULTS
SURFACE WATER SAMPLES
SEMI-VOLATILE ORGANIC COMPOUNDS
1990 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

TCL Compounds	SW-1	SW 2	SW 10 (SW-2 Dup.)	SW-3	SW-4	SW-5	SW-6	SW-7
bis (2-Ethylhexyl)phthalate	---	---	---	5J	---	—	9J	4J
Benzoic Acid	---	---	---	---	---	---	---	3J
1,2-Dichlorobenzene	---	---	---	---	---	---	2J	2J
TIC Compounds								
Dimethylheptadecane	—	---	---	52J	---	—	198J	—
Tetramethylpentadecane	—	---	---	48J	---	—	—	—
Trimethyldodecane	—	---	---	---	---	—	38J	72J
Unknowns	—	---	---	62J	---	—	192J	980J
Unknown Hydrocarbons	—	---	---	462J	---	—	490J	1570J
Unknown Cyclic Hydrocarbons	---	---	---	---	---	—	28J	—

NOTES: All concentration are in micrograms per liter (ug/l = parts per billion (ppb)).
Of the compounds detected, only 1,2-Dichlorobenzene has a standard (5.0 ppb) for Class C waters as presented in NYSDEC Water Quality Standards, Parts 700-705, effective September 1, 1991.

--- = Compound not present in this sample but present in another.

J = Semi-quantitative due to concentration below Contract Required Quantitation Limit (CRQL), data validation requirements or compound being a TIC.

TABLE 10
VALID ANALYTICAL RESULTS
SURFACE WATER SAMPLES
METALS AND CYANIDE
1990 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

Analyte	NYS SWS	SW-1	SW-2	SW-10 (SW-2 Dup.)	SW-3	SW-4	SW-5	SW-6	SW-7
Aluminum	100	174B	127B	134B	766	133B	379	194BJ	548J
Arsenic	190[1]	---	---	---	---	---	3.0B	---	---
Barium	NS	81.8B	149B	150B	1100	45.8B	81.4B	163BJ	240J
Cadmium	5	---	---	---	5.4	---	---	77.8J	76.6J
Chromium	16	---	---	---	11.6	---	---	1290J	2190J
Copper	22	---	---	---	36.7J	---	27.0J	29.0J	70.8J
Lead	110	2.7BJ	---	---	15.7J	---	9.9	11.3J	28.1J
Nickel	2185	---	---	---	---	---	---	---	62.2J
Zinc	30	---	18.6BJ	17.9BJ	153	30.2	171	335J	894J
Cyanide	5.2[2]	---	---	---	20.5B	41.3	---	---	12.7

Notes:
All concentrations are in micrograms per liter (ug/l = parts per billion (ppb)).

NYS SWS = New York State Surface Water Standard for Class C waters as presented in NYSDEC Water Quality Standards, Parts 700-705, effective September 1, 1991, based on a reported average hardness of 125 ppm.

NS = No standard.

1 = Dissolved form.

2 = As free cyanide.

--- = Analyte not present in this sample but present in another.

J = Estimated value due to QA/QC requirements.

B = Value is above Instrument Detection Limit (IDL), but below Contract Required Detection Limit (CRDL).

TABLE 11
VALID ANALYTICAL RESULTS
GROUNDWATER SAMPLES
VOLATILE ORGANIC COMPOUNDS
1990 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

TCL Compounds	NYS GWS	MWU-2	MWD-1	MWD-20 (MWD-1 dup.)	MWD-2	MWD-3	MWD-4	MWD-5	MWD-6	MWD-7	MWD-8	MWD-9	MWD-10	MWD-11	MWD-12	MWD-13	MWR8-1
Methylene Chloride	5	—	698J	—	---	---	---	---	—	—	—	—	—	—	—	—	38J
1,1-Dichloroethane	5	—	2J	---	2J	---	---	0.3J	—	1J	—	0.6J	—	—	—	1J	—
cis-1,2-Dichloroethene	5	—	32J	41J	41	0.4J	---	19J	0.3J	160J	7J	9	0.6J	23J	—	47J	—
Trichloroethene	5	—	120J	140J	190J	---	4	10J	6J	64J	40J	44	—	—	—	160	—
1,1-Dichloroethene	5	—	---	---	2J	---	---	—	—	1J	—	—	—	—	—	—	—
Chloroform	7	—	---	---	0.2J	---	---	—	1J	0.06J	0.1J	0.05J	—	—	—	0.1J	—
1,1,1-Trichloroethane	5	—	—	6J	13J	---	—	---	---	0.4J	—	0.9J	—	—	—	0.6J	—
Vinyl Chloride	2	—	---	---	---	0.4J	---	---	---	33J	—	—	—	26J	—	—	—
1,2-Dichloroethane	5	—	---	---	---	0.3J	---	---	—	—	—	—	—	—	—	—	—
Ethylbenzene	5	—	—	---	---	0.4J	---	---	—	—	—	—	—	—	—	—	—
Trichlorofluoromethane	5	---	—	19J	—	0.2J	---	0.4J	—	—	0.1J	—	—	—	—	—	—
Isopropylbenzene	5	—	—	---	---	0.7J	---	---	—	—	---	—	—	—	—	—	—
trans-1,2-Dichloroethene	5	—	—	---	—	---	—	0.2J	—	2J	0.3J	1	—	1J	—	0.3J	—
Chloromethane	5	—	---	---	—	—	—	—	—	—	—	—	—	—	—	—	8J
Acetone	50	—	—	—	—	—	---	---	—	—	—	—	—	—	—	—	88J
TIC Compounds																	
Unknown Compounds	NS	—	—	—	28J	0.9J	—	0.7J	—	—	2.4J	—	—	—	—	—	—
Unknown Hydrocarbons	NS	—	—	5.0J	—	—	—	—	—	—	0.9J	—	—	—	—	—	—
Hexane	NS	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.0JN

Notes:
All concentrations are in micrograms per liter (ug/l = parts per billion (ppb)).
NYS GWS = New York State Groundwater Standard as presented in NYSDEC Water Quality Standards, Parts 700-705, effective September 1, 1991.
NS = No standard.
— = Compound not present in this sample, but present in another.
J = Semi-quantitative due to concentration below Contract Required Quantitation Limit (CRQL), data validation requirements or compound being a TIC.
B = Contaminant found in associated blank. Sample value is greater than 10 times the associated blank value.
N = Identified TIC.

Groundwater samples were collected during the 1990 RI using a WaTerra inertial pump consisting of a stainless steel check valve and teflon tubing. USEPA Region II representatives have raised concerns that sampling groundwater monitoring wells with this pump may result in a loss of volatile organic compounds, thus biasing volatile organic compound analytical results low. Therefore, the data presented on this table are assumed to represent minimum concentrations of volatile organic compounds in the groundwater samples. USEPA Region II has since re-sampled selected monitoring wells utilizing approved bailer methodology as presented in Appendix H.

TABLE 11 contd.
VALID ANALYTICAL RESULTS
GROUNDWATER SAMPLES
SEMI-VOLATILE ORGANIC COMPOUNDS
1990 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

TCL Compounds	MWU-2	MWD-1	MWD-20 (MWD-1 Dup.)	MWD-2	MWD-3	MWD-4	MWD-5	MWD-6	MWD-7	MWD-8	MWD-9	MWD-10	MWD-11	MWD-12	MWD-13
bis (2-Ethylhexyl)phthalate	---	---	---	4J	---	---	---	---	---	---	---	---	---	---	---
Benzoic Acid	---	---	---	---	---	---	---	---	---	---	---	---	3J	---	---
TIC Compounds															
2,5-Cyclohexadiene-1,4-Dione	---	---	---	---	---	---	8.0JN	---	---	---	---	---	---	---	---
Unknown Oxygenated Alkane	---	---	---	---	---	---	---	---	---	---	---	---	10J	---	---
1,2-Benzenediol,3-Fluoro-	---	---	---	---	---	---	---	---	---	---	16JN	---	---	---	---
Total Unknowns	---	74J	---	---	172J	---	---	---	---	78J	116J	---	20J	32J	---

NOTES:

All concentrations are in micrograms per kilogram (ug/kg = parts per billion (ppb)).
Of the compounds detected, only bis(2-Ethylhexyl)phthalate has a standard (50 ppb) as presented in NYSDEC Water Quality Standards, Parts 700-705, effective September 1, 1991.

--- = Compound not present in this sample but present in another.
J = Semi-quantitative due to concentration below CRQL or data validation requirements.
N = Identified TIC.

TABLE 11 contd.
VALID ANALYTICAL RESULTS
GROUNDWATER SAMPLES
METALS AND CYANIDE
1990 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

Analyte	NYS GWS	MWU-2	MWD-1	MWD-1F	MWD-20 (MWD-1 Dup.)	MWD-20F (MWD-1F Dup.)	MWD-2	MWD-3	MWD-4	MWD-4F	MWD-5
Aluminum	NS	6360	29800J	125B	22500	137B	29900	21100	4570	186B	39400
Antimony	3*	---	---	NA	---	NA	---	---	---	---	40.1B
Arsenic	25	---	9.2B	---	10.2	2.2B	7.3B	6.5B	3.4B	---	3.0B
Barium	1000	140B	778	75.4B	917	76.0B	491	547	171B	56.3B	679
Beryllium	3*	---	1.6B	NA	1.2B	NA	1.1B	1.2B	---	---	1.5B
Cadmium	10	---	---	---	---	---	---	11.3	35.2	---	55.8
Chromium	50	18.1	249	33.4J	296	43.3J	54.0	52.4	202	145J	55.0
Copper	200	31.2J	152J	15.6B	154J	17.2B	168	148	73.7J	9.5	1200J
Lead	25	10.1J	36.2J	---	40.2J	---	---	46.8J	8.7J	---	111J
Mercury	2	---	.25	---	---	---	.26	---	---	---	5.6
Nickel	100**	---	74.1	---	71.7	---	88.4	62.3	86.7	---	79.1
Silver	50	---	---	---	---	---	---	---	---	---	---
Zinc	300	104	261J	7.2B	222J	10.1B	413	264	66.1J	5.6B	615
Cyanide	100	---	36.7	NA	32.8	NA	---	36.6	99.4	NA	---

Notes: All concentrations in micrograms per liter (ug/l = parts per billion (ppb)).
NYS GWS = New York State Groundwater Standard as presented in NYSDEC Water Quality Standards, Parts 700-705, effective September 1, 1991.
NS = No standard.
* = Guidance value.
** = Tentatively proposed USEPA MCL
--- = Analyte not present in this sample but present in another.
J = Semi-quantitative value due to QA/QC requirements.
B = Value is above Instrument Detection Limit (IDL), but below Contract Required Detection Limit (CRDL).
NA = Analyte not analyzed for in this sample.
F = Filtered sample.

TABLE 11 (cont'd)

Analyte	NYS GWS	MWD-6	MWD-7	MWD-8	MWD-9	MWD-10	MWD-11	MWD-11F	MWD-12	MWD-13	MWRB-1
Aluminum	NS	9080	43300	8900	29600	6380	9710	131B	95500J	45500J	102B
Antimony	3*	---	---	---	---	---	---	NA	45.8BJ	43.5BJ	---
Arsenic	25	3.9B	7.1B	3.7B	20.4	5.1B	6.8B	5.1B	---	6.7BJ	---
Barium	1000	294	739	517	672	118B	237	113B	911J	613J	---
Beryllium	3*	---	1.8B	---	1.4B	---	---	NA	4.2BJ	1.9BJ	---
Cadmium	10	---	6.9	---	10.5	---	---	---	---	---	---
Chromium	50	20.5	92.8	17.2	960	27.6	47.2	---	318J	1540J	---
Copper	200	31.8J	274	34.1J	456	30.9J	68.7J	9.1B	337J	353J	---
Lead	25	50.1J	58.2J	27.8J	45.8J	6.2J	15.3J	---	146J	56.8J	---
Mercury	2	---	---	.25	.77	---	---	---	.25J	---	---
Nickel	100**	---	117	---	338	64.1	---	---	290J	602J	---
Silver	50	---	---	---	10.2	---	---	---	---	---	---
Zinc	300	124	698	147	254	65.0J	106	6.3B	1180J	792J	10.7BJ
Cyanide	100	---	---	---	31.9	---	---	NA	---	---	---

Notes: All concentrations in micrograms per liter (ug/l = parts per billion (ppb)).
NYS GWS = New York State Groundwater Standard as presented in NYSDEC Water Quality Standards, Parts 700-705, effective September 1, 1991.
NS = No standard.
* = Guidance value.
** = Tentatively proposed USEPA MCL
--- = Analyte not present in this sample but present in another.
J = Semi-quantitative value due to QA/QC requirements.
B = Value is above Instrument Detection Limit (IDL), but below Contract Required Detection Limit (CRDL).
NA = Analyte not analyzed for in this sample.
F = Filtered sample.

TABLE 11 contd.
VALID ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS
GROUNDWATER SAMPLES
1986 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

Compound	D-1	D-2	D-4	D-5	D-6	D-7	D-8	D-8 (DUP)	D-9	D-11	D-11 (DUP)	D-12	D-13	PW-3	FT
.,1-Dichloroethene	5.3	---	---	---	---	---	---	---	---	---	---	---	---	---	---
t-1,2-Dichloroethene	31	176	---	11.5	2.96	189	25.4	23.4	---	14 Q	12	---	140	8.85	---
1,1,1-Trichloroethane	2.5 J	46.5	---	---	---	---	---	---	---	---	---	---	---	1.50	---
Trichloroethene	140	438	7.3 Q	10.0	13.9	66.5	51.3	55.1	34	---	---	---	268	9.57	2.97
Tetrachloroethene	1.0 J	---	---	---	---	---	---	---	---	---	---	---	---	0.35	0.48
Chlorobenzene	---	---	---	1.42	---	---	---	---	---	---	---	---	---	---	---
Vinyl Chloride	---	---	---	---	---	14.0	---	---	3.1 J	15 Q	22	---	---	---	---
Trichlorofluoromethane	---	---	---	---	---	---	---	---	---	---	---	---	---	0.86	---
1,1-Dichloroethane	---	---	---	---	---	---	---	---	2.3 J	---	---	---	---	0.58	11.4
Methylene Chloride	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8.03
Chloroform	---	---	---	---	---	---	---	---	---	---	---	---	43.6	---	---
Total Xylenes	---	---	---	---	---	---	---	---	---	---	---	11B	---	---	---

NOTES: All concentrations are in micrograms per liter (ug/l = parts per billion (ppb)).
--- = Compound not detected in this sample, but present in another.
J = Semi-quantitative value due to QA/QC data validation requirements or value below CRQL.
Q = Qualitative value due to QA/QC data validation requirements.
B = Compound found in associated blank. Sample value is greater than five times the associated blank value.

TABLE 11 contd.
VALID ANALYTICAL RESULTS
SEMI-VOLATILE ORGANICS COMPOUNDS,
PESTICIDES AND PCBs
GROUNDWATER SAMPLES
1986 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

Compound	MWD-1	MWD-9	MWD-11	MWD-11 (DUP)	MWD-12
Pentachlorophenol	300	---	---	---	---
Bis(2-ethylhexyl)phthalate	7 Q	5	3	4	3
4,4' - DDT	---	---	---	0.02	---
Methoxychlor	3.0	---	---	---	---

NOTES: All concentrations are in parts per billion (ppb).
--- = Compound not detected in this sample but present in another.
Q = Qualitative due to QA/QC data validation requirements.

TABLE 11 contd.
VALID ANALYTICAL RESULTS
TOTAL AND DISSOLVED METALS AND CYANIDE
GROUNDWATER SAMPLES
1986 REMEDIAL INVESTIGATION
PUROLATOR PRODUCTS COMPANY

Analyte	MWD-1 Total	MWD-1 Filt.	MWD-3 Total	MWD-3 Filt.	MWD-4 Total	MWD 4 Filt.	MWD 9 Total	MWD-9 Filt.	MWD-10 Total	MWD-10 Filt.	MWD-11 Total	MWD-11 Filt.	MWD-11D Total	MWD-11D Filt.	MWD-12 Total	MWD-12 Filt.	MWU-2 Total	MWU-2 Filt.
Arsenic	12 J	---	10 J	5	5 J	---	10 J	---	16 J	---	9 J	3	12 J	5	41 J	---	18 J	---
Cadmium	---	---	---	---	7	---	---	---	---	---	---	---	---	---	---	---	6	---
Chromium	280	42	41	---	119	67	58	11	64	---	62	---	78	---	135	---	106	---
Copper	115	---	135	---	68	---	137	29	86	---	125	21	157	---	193	---	355	---
Lead	50	---	53	---	14	---	18	---	28	---	21	---	69	---	63	---	17	---
Mercury	---	---	0.2	0.1	0.1	---	0.2	---	0.1	---	0.2	0.1	0.1	---	---	---	---	---
Nickel	65	---	69	---	61	---	68	---	109	---	78	---	---	---	201	---	218	---
Zinc	165 J	---	208 J	---	75 J	---	130 J	---	251 J	---	162 J	---	218 J	---	566 J	---	648 J	---
Cyanide	51 J	NA	24	NA	100	NA	27	---	---	NA	---	NA	---	NA	---	NA	NA	NA

NOTES:
All concentrations are in parts per billion (ppb).
D-11D is duplicate sample of D-11.
--- = Analyte not detected in this sample, but present in another.
NA = Analyte not analyzed for in this sample.
J = Semi-quantitative value due to QA/QC data validation requirements.

TABLE 12

SUMMARY STATISTICS FOR FACET SITE, BY CHEMICAL AND MEDIUM/AREA

TYPE=Groundwater (Unfiltered)

Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
Vinyl Chloride	3	13	0.40	28.0	0.86	.	0.5	6.0
Methylene Chloride	2	13	2.00	69.0	1.91	.	1.0	20.0
1,1-Dichloroethene	1	13	1.00	1.0	0.86	.	1.0	12.0
1,1-Dichloroethane	6	13	0.30	2.0	0.69	.	1.0	1.0
cis-1,2-Dichloroethene	11	13	0.30	160.0	5.70	.	1.0	1.0
Chloroform	4	13	0.05	2.0	0.59	.	1.0	12.0
1,2-Dichloroethane	1	13	0.30	0.3	0.89	.	1.0	12.0
1,1,1-Trichloroethane	4	13	0.90	11.0	1.09	.	1.0	5.0
Trichloroethene	9	13	4.00	190.0	9.69	.	1.0	1.0
Ethylbenzene	1	13	0.40	0.4	0.91	.	1.0	12.0
Trichlorofluoromethane	4	13	0.10	19.0	0.82	.	1.0	10.0
trans-1,2-Dichloroethene	6	13	0.20	2.0	0.83	.	1.0	12.0
Isopropylbenzene	1	13	0.70	0.7	0.95	.	1.0	12.0
Benzoic Acid	1	11	3.00	3.0	20.62	.	50.0	50.0
bis(2-Ethylhexyl)phthalate	1	13	4.00	4.0	4.91	.	10.0	10.0
Aluminum	13	13	4570.00	95500.0	20016.86	.	.	.
Antimony	3	13	40.10	45.8	21.54	.	35.0	35.0
Arsenic	12	13	3.00	20.4	5.25	.	2.0	2.0
Barium	13	13	118.00	911.0	450.14	.	.	.
Beryllium	8	13	1.10	4.2	1.04	.	1.0	1.0
Cadmium	5	13	6.90	55.8	5.20	.	5.0	5.0
Chromium	13	13	17.20	1540.0	104.24	.	.	.
Copper	13	13	30.90	1200.0	144.06	.	.	.
Lead	12	12	6.20	146.0	36.19	.	.	.
Mercury	6	13	0.25	5.6	0.21	.	0.2	0.2
Nickel	10	13	62.30	602.0	83.12	.	39.0	39.0
Silver	1	13	10.20	10.2	4.30	.	8.0	8.0
Zinc	13	13	65.00	1180.0	257.85	.	.	.
Cyanide	4	13	31.90	99.4	9.82	.	10.0	10.0
Tin	1	13	16.10	16.1	8.39	.	15.9	15.9

TABLE 12 contd.

SUMMARY STATISTICS FOR FACET SITE, BY CHEMICAL AND MEDIUM/AREA

TYPE=Groundwater (Filtered)

Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
Aluminum	3	3	131.00	186.00	147.238	.	.	.
Arsenic	2	3	2.20	5.10	2.239	.	2	2
Barium	3	3	56.30	113.00	78.384	.	.	.
Chromium	2	3	30.35	145.00	25.552	.	6	6
Copper	3	3	9.10	16.40	11.234	.	.	.
Zinc	3	3	5.60	8.65	6.733	.	.	.

TABLE 12 contd.

SUMMARY STATISTICS FOR FACET SITE, BY CHEMICAL AND MEDIUM/AREA

TYPE=Groundwater (Background)

Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
Aluminum	1	1	6360.0	6360.0	6360.0	.	.	.
Barium	1	1	140.0	140.0	140.0	.	.	.
Chromium	1	1	18.1	18.1	18.1	.	.	.
Copper	1	1	31.2	31.2	31.2	.	.	.
Lead	1	1	10.1	10.1	10.1	.	.	.
Zinc	1	1	104.0	104.0	104.0	.	.	.

TABLE 12 contd.

SUMMARY STATISTICS FOR FACET SITE, BY CHEMICAL AND MEDIUM/AREA

TYPE=Soil (Surf.)

Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
Methylene Chloride	1	7	22.00	22.00	5.00	.	5.00	10.00
Acetone	2	7	5.00	34.00	7.28	.	10.00	14.00
1,2-Dichloroethene (total)	2	7	1.00	4.00	2.54	.	5.00	6.00
2-Butanone	1	7	9.00	9.00	5.97	.	10.00	12.00
Trichloroethene	2	7	2.00	5.00	2.89	.	5.00	6.00
Chlorobenzene	1	7	1.00	1.00	2.49	.	5.00	7.00
Benzoic Acid	1	5	990.00	990.00	936.86	.	1800.00	2000.00
Naphthalene	4	6	55.00	7600.00	411.40	.	370.00	380.00
2-Methylnaphthalene	5	6	45.00	3000.00	245.98	.	370.00	370.00
Acenaphthene	3	6	260.00	8300.00	515.01	.	370.00	410.00
Dibenzofuran	3	6	200.00	4900.00	421.14	.	370.00	410.00
Fluorene	3	6	250.00	8400.00	512.68	.	370.00	410.00
Pentachlorophenol	2	4	49.00	54.00	215.16	.	1800.00	1800.00
Phenanthrene	5	6	84.00	77000.00	1332.59	.	370.00	370.00
Anthracene	3	6	560.00	18000.00	747.41	.	370.00	410.00
Di-n-butylphthalate	2	4	60.00	110.00	126.62	.	380.00	410.00
Fluoranthene	5	6	100.00	110000.00	1760.94	.	370.00	370.00
Pyrene	5	6	84.00	65000.00	1298.79	.	370.00	370.00
Benzo(a)anthracene	5	6	66.00	43000.00	886.69	.	370.00	370.00
Chrysene	5	6	54.00	32000.00	781.53	.	370.00	370.00
bis(2-Ethylhexyl)phthalate	3	5	72.00	430.00	158.80	.	370.00	410.00
Benzo(b)fluoranthene	5	6	52.00	69000.00	1265.06	.	370.00	370.00
Benzo(k)fluoranthene	5	6	52.00	69000.00	1265.06	.	370.00	370.00
Benzo(a)pyrene	4	6	51.00	33000.00	933.39	.	370.00	410.00
Indeno(1,2,3-cd)pyrene	3	6	490.00	16000.00	755.82	.	370.00	410.00
Dibenzo(a,h)anthracene	3	6	190.00	5200.00	386.74	.	370.00	410.00
Benzo(g,h,i)perylene	3	6	440.00	17000.00	753.66	.	370.00	410.00
Aroclor-1248	5	7	320.00	11000.00	756.15	.	90.00	91.00
Aroclor-1254	1	7	1000.00	1000.00	200.81	.	170.00	1000.00
Aluminum	7	7	6760.00	16400.00	10865.77	.	.	.
Arsenic	7	7	5.40	247.00	17.39	.	.	.
Barium	7	7	88.40	2510.00	334.88	.	.	.
Beryllium	7	7	0.39	7.60	0.75	.	.	.
Cadmium	5	7	2.90	78.90	5.75	.	1.10	1.30
Chromium	7	7	10.60	1220.00	85.66	.	.	.

TABLE 12 contd.

(Continued)

TYPE-Soil (Surf.)

Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
Copper	7	7	24.60	1210.00	118.42	.	.	.
Lead	7	7	14.10	292.00	41.70	.	.	.
Mercury	4	7	0.12	0.51	0.12	.	0.10	0.11
Nickel	6	7	28.00	224.00	41.88	.	8.40	8.40
Selenium	1	7	11.00	11.00	0.63	.	0.43	2.30
Thallium	1	7	16.70	16.70	0.43	.	0.43	0.52
Zinc	7	7	44.10	2040.00	200.44	.	.	.
Cyanide	5	7	0.63	10.70	1.40	.	0.56	0.63
Tin	2	7	5.40	15.50	2.97	.	3.50	4.20

TABLE 12 contd.

SUMMARY STATISTICS FOR FACET SITE, BY CHEMICAL AND MEDIUM/AREA

TYPE=Soil (Subsurf.)

Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
Acetone	6	70	7.00	170.00	7.52	9.83	10.00	73.00
Carbon Disulfide	2	70	1.00	4.00	2.84	2.96	5.00	7.00
1,1-Dichloroethane	4	70	1.00	5.00	2.83	3.02	5.00	7.00
1,2-Dichloroethene (total)	7	70	2.00	110.00	3.44	5.24	5.00	7.00
Chloroform	1	70	5.00	5.00	2.90	2.98	5.00	7.00
2-Butanone	5	70	2.00	29.00	5.76	6.36	11.00	32.00
1,1,1-Trichloroethane	3	70	2.00	10.00	2.89	3.05	5.00	7.00
Trichloroethene	23	70	1.00	240.00	4.25	9.62	5.00	7.00
Benzene	2	70	2.00	3.00	2.86	3.00	5.00	7.00
Tetrachloroethene	1	70	1.00	1.00	2.83	2.95	5.00	7.00
Toluene	4	71	2.00	210.00	3.10	4.01	5.00	7.00
Ethylbenzene	3	71	7.00	520.00	3.18	4.54	5.00	7.00
Styrene	1	70	1.00	1.00	2.83	2.95	5.00	7.00
Xylene (total)	5	71	2.00	760.00	3.33	6.24	5.00	7.00
N-Nitroso-Di-n-propylamine	1	68	400.00	400.00	189.10	194.41	340.00	430.00
Benzoic Acid	8	68	67.00	2100.00	787.31	1112.81	1600.00	2100.00
Naphthalene	3	70	56.00	1200.00	192.29	215.52	340.00	430.00
2-Methylnaphthalene	3	70	120.00	1550.00	197.17	226.60	340.00	430.00
Acenaphthylene	2	68	47.00	360.00	185.33	196.66	340.00	430.00
Acenaphthene	2	69	77.00	670.00	188.41	200.01	340.00	430.00
Dibenzofuran	1	69	580.00	580.00	190.27	198.20	340.00	430.00
Fluorene	3	70	130.00	1050.00	193.32	208.97	340.00	430.00
N-Nitrosodiphenylamine	1	68	42.00	42.00	183.14	193.96	340.00	430.00
Pentachlorophenol	1	68	66.00	66.00	874.77	988.16	1600.00	2100.00
Phenanthrene	9	71	44.00	5350.00	185.02	241.97	340.00	430.00
Anthracene	2	69	530.00	965.00	194.78	210.61	340.00	430.00
Di-n-butylphthalate	7	69	44.00	580.00	172.57	198.80	340.00	420.00
Fluoranthene	10	70	40.00	4700.00	173.53	230.42	340.00	430.00
Pyrene	7	70	45.00	3250.00	187.34	223.83	340.00	430.00
Butylbenzylphthalate	2	69	160.00	180.00	186.68	180.00	340.00	430.00
Benzo(a)anthracene	5	70	48.00	2800.00	193.74	226.15	340.00	430.00
Chrysene	7	71	110.00	2450.00	200.80	234.45	340.00	430.00
bis(2-Ethylhexyl)phthalate	22	70	40.00	1200.00	152.54	216.49	340.00	430.00
Di-n-octylphthalate	4	70	74.00	340.00	186.18	193.97	340.00	430.00
Benzo(b)fluoranthene	3	69	69.00	3650.00	190.42	224.41	340.00	430.00

TABLE 12 contd.

(Continued)

TYPE-Soil (Subsurf.)

Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
Benzo(k)fluoranthene	3	69	69.00	3650.00	190.42	224.41	340.00	430.00
Benzo(a)pyrene	1	69	1700.00	1700.00	193.26	212.26	340.00	430.00
Indeno(1,2,3-cd)pyrene	1	69	690.00	690.00	190.75	200.14	340.00	430.00
Dibenzo(a,h)anthracene	1	69	360.00	360.00	180.96	360.00	340.00	430.00
Benzo(g,h,i)perylene	1	69	685.00	685.00	190.73	200.05	340.00	430.00
Aroclor-1248	6	71	140.00	31500.00	62.04	173.10	84.00	100.00
Aroclor-1254	2	70	190.00	310.00	95.98	105.21	170.00	1000.00
Aluminum	71	71	7170.00	28100.00	12434.26	14011.09	.	.
Antimony	4	71	8.60	23.70	4.26	4.70	7.10	9.30
Arsenic	70	71	1.50	32.40	5.82	7.71	2.70	2.70
Barium	71	71	33.30	831.50	109.43	142.45	.	.
Beryllium	67	71	0.23	1.10	0.43	0.55	0.21	0.24
Cadmium	29	71	1.30	3390.00	2.52	84.36	1.00	1.30
Chromium	71	71	12.50	13000.00	53.83	301.63	.	.
Copper	71	71	3.70	1910.00	34.19	109.00	.	.
Lead	71	71	3.60	161.50	14.78	20.38	.	.
Mercury	21	71	0.12	1.95	0.09	0.18	0.10	0.13
Nickel	71	71	16.90	516.00	36.09	53.43	.	.
Silver	6	71	1.80	7.90	1.03	1.22	1.60	2.10
Zinc	71	71	40.20	3460.00	110.30	200.56	.	.
Cyanide	27	71	0.57	167.00	0.75	4.53	0.54	0.63
Tin	8	71	4.20	193.00	2.51	5.73	3.20	4.20

TABLE 12 contd.

SUMMARY STATISTICS FOR FACET SITE, BY CHEMICAL AND MEDIUM/AREA

TYPE=Soil-Oil/Wat. Sep. (Subsurf.)

Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
Toluene	1	3	2.00	2.00	2.62	.	6.00	6.00
Chlorobenzene	1	3	1.00	1.00	2.08	.	6.00	6.00
Naphthalene	1	3	15000.00	15000.00	836.34	.	390.00	400.00
2-Methylnaphthalene	1	3	5600.00	5600.00	602.21	.	390.00	400.00
Acenaphthene	1	3	21000.00	21000.00	935.61	.	390.00	400.00
Dibenzofuran	1	3	13000.00	13000.00	797.39	.	390.00	400.00
Diethylphthalate	1	2	71.00	71.00	119.16	.	400.00	400.00
Fluorene	1	3	22000.00	22000.00	950.23	.	390.00	400.00
Phenanthrene	2	3	55.00	190000.00	1270.56	.	400.00	400.00
Anthracene	1	3	58000.00	58000.00	1312.70	.	390.00	400.00
Fluoranthene	2	3	79.00	320000.00	1716.34	.	400.00	400.00
Pyrene	2	3	69.00	210000.00	1425.72	.	400.00	400.00
Benzo(a)anthracene	2	3	50.00	160000.00	1169.61	.	400.00	400.00
Chrysene	1	3	130000.00	130000.00	1717.92	.	390.00	400.00
Benzo(b)fluoranthene	2	3	40.00	330000.00	1382.08	.	400.00	400.00
Benzo(k)fluoranthene	1	3	330000.00	330000.00	2343.47	.	390.00	400.00
Benzo(a)pyrene	1	3	130000.00	130000.00	1717.92	.	390.00	400.00
Indeno(1,2,3-cd)pyrene	1	3	35000.00	35000.00	1109.29	.	390.00	400.00
Dibenzo(a,h)anthracene	1	3	12000.00	12000.00	776.39	.	390.00	400.00
Benzo(g,h,i)perylene	1	3	34000.00	34000.00	1098.62	.	390.00	400.00
Aluminum	3	3	10900.00	13600.00	12444.27	.	.	.
Arsenic	3	3	3.40	10.90	5.70	.	.	.
Barium	3	3	98.80	319.00	170.04	.	.	.
Beryllium	3	3	0.60	0.67	0.63	.	.	.
Cadmium	1	3	41.40	41.40	2.18	.	1.00	1.00
Chromium	3	3	18.50	45.10	31.57	.	.	.
Copper	3	3	23.50	502.00	78.75	.	.	.
Lead	3	3	11.40	58.30	20.14	.	.	.
Mercury	3	3	0.24	0.43	0.30	.	.	.
Nickel	3	3	22.80	129.00	65.01	.	.	.
Zinc	3	3	75.10	675.00	158.13	.	.	.
Cyanide	1	3	4.30	4.30	0.65	.	0.51	0.51
Tin	1	3	8.40	8.40	2.81	.	3.20	3.30

TABLE 12 contd.

SUMMARY STATISTICS FOR FACET SITE, BY CHEMICAL AND MEDIUM/AREA

TYPE=Plant 2 Yard Soil-Surf. (1986 data)

Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
Methylene Chloride	1	20	15.00	15.00	1.9973	3.051	3.10	6.00
1,1-Dichloroethane	1	20	0.50	0.50	0.5105	0.005	0.00	0.00
trans-1,2-Dichloroethene	2	20	17.70	22.60	0.9156	3.046	1.30	1.30
1,1,1-Trichloroethane	9	20	11.60	48.10	10.6917	18.571	0.50	16.00
Trichloroethene	11	20	5.03	253.00	11.7071	719.223	3.00	3.90
Tetrachloroethene	5	20	5.06	20.50	3.1348	5.281	4.30	4.00
Trichlorofluoromethane	2	2	16.70	29.00	22.0068	.	.	.

TABLE 12 contd.

SUMMARY STATISTICS FOR FACET SITE, BY CHEMICAL AND MEDIUM/AREA

TYPE=Plant 2 Yard Soil-Subsurf. (1986 data)

Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
trans-1,2-Dichloroethene	5	21	5.75	22.2	1.2740	6.3440	1.30	1.3
1,1,1-Trichloroethane	10	21	8.04	23.7	9.0790	14.5403	0.50	19.0
Trichloroethene	18	21	3.46	110.0	17.3334	91.9965	3.20	4.4
Tetrachloroethene	4	21	7.31	150.0	2.0056	22.3635	0.38	4.8
1,2-Dichlorobenzene	1	21	14.30	14.3	1.0809	1.6949	1.90	1.9
Trichlorofluoromethane	1	1	14.20	14.2	14.2000	.	.	.

TABLE 12 contd.

SUMMARY STATISTICS FOR FACET SITE, BY CHEMICAL AND MEDIUM/AREA

TYPE=Soil (Background)

Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
Acetone	1	3	5.00	5.00	5.63	.	11.0	13.0
Phenanthrene	1	3	120.00	120.00	162.60	.	350.0	410.0
Fluoranthene	1	3	220.00	220.00	199.10	.	350.0	410.0
Pyrene	1	3	220.00	220.00	199.10	.	350.0	410.0
Benzo(a)anthracene	1	3	140.00	140.00	171.25	.	350.0	410.0
Chrysene	1	3	120.00	120.00	162.60	.	350.0	410.0
Benzo(b)fluoranthene	1	3	230.00	230.00	202.07	.	350.0	410.0
Benzo(k)fluoranthene	1	3	230.00	230.00	202.07	.	350.0	410.0
Benzo(a)pyrene	1	3	130.00	130.00	167.08	.	350.0	410.0
Indeno(1,2,3-cd)pyrene	1	3	53.00	53.00	123.89	.	350.0	410.0
Benzo(g,h,i)perylene	1	3	60.00	60.00	129.12	.	350.0	410.0
Aluminum	3	3	14400.00	16300.00	15367.00	.	.	.
Arsenic	3	3	4.00	7.40	5.14	.	.	.
Barium	3	3	87.90	103.00	94.66	.	.	.
Beryllium	3	3	0.50	0.71	0.62	.	.	.
Chromium	3	3	18.80	42.20	25.70	.	.	.
Copper	3	3	4.80	5.90	5.28	.	.	.
Lead	3	3	12.90	33.40	20.05	.	.	.
Mercury	2	3	0.15	0.85	0.19	.	0.1	0.1
Nickel	3	3	16.00	30.60	22.98	.	.	.
Zinc	3	3	72.70	105.00	90.22	.	.	.

TABLE 12 contd.

SUMMARY STATISTICS FOR FACET SITE, BY CHEMICAL AND MEDIUM/AREA

TYPE-Sediment-Drain Swale (Surf.)

Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
2-Butanone	1	9	1.00	1.00	5.61	.	12.0	18.0
Trichloroethene	5	9	2.00	6.00	3.65	.	6.0	9.0
Toluene	1	9	2.00	2.00	3.29	.	6.0	9.0
4-Methylphenol	3	8	50.00	300.00	213.87	.	370.0	760.0
Benzoic Acid	5	8	130.00	640.00	500.87	.	1900.0	3700.0
Naphthalene	0	9	45.00	550.00	235.57	.	370.0	370.0
4-Chloro-3-methylphenol	1	7	160.00	160.00	232.04	.	370.0	760.0
2-Methylnaphthalene	9	9	45.00	690.00	268.69	.	.	.
Acenaphthylene	5	7	72.00	140.00	140.85	.	370.0	760.0
Acenaphthene	6	9	67.00	840.00	226.03	.	370.0	760.0
Dibenzofuran	7	9	51.00	540.00	210.40	.	370.0	760.0
Fluorene	7	9	73.00	600.00	221.44	.	370.0	760.0
Pentachlorophenol	1	7	440.00	440.00	1043.52	.	1800.0	3700.0
Phenanthrene	9	9	84.00	8300.00	1083.19	.	.	.
Anthracene	0	9	92.00	950.00	256.21	.	370.0	370.0
Di-n-butylphthalate	3	7	67.00	390.00	190.40	.	370.0	760.0
Fluoranthene	9	9	140.00	20000.00	1738.28	.	.	.
Pyrene	9	9	100.00	13000.00	1257.24	.	.	.
Benzo(a)anthracene	9	9	100.00	11000.00	1111.55	.	.	.
Chrysene	9	9	74.00	11000.00	939.70	.	.	.
bis(2-Ethylhexyl)phthalate	5	9	53.00	1500.00	294.01	.	370.0	760.0
Benzo(b)fluoranthene	9	9	180.00	30000.00	1945.75	.	.	.
Benzo(k)fluoranthene	9	9	180.00	30000.00	1945.75	.	.	.
Benzo(a)pyrene	9	9	97.00	11000.00	855.29	.	.	.
Indeno(1,2,3-cd)pyrene	0	9	58.00	6000.00	483.73	.	370.0	370.0
Dibenzo(a,h)anthracene	5	9	56.00	1500.00	309.32	.	370.0	760.0
Benzo(g,h,i)perylene	0	9	62.00	6300.00	554.18	.	370.0	370.0
Heptachlor epoxide	1	9	31.00	31.00	7.85	.	9.0	68.0
Dieldrin	1	9	39.00	39.00	14.92	.	18.0	140.0
Aroclor-1254	7	9	210.00	6800.00	858.87	.	290.0	1400.0
Aroclor-1260	1	9	240.00	240.00	143.15	.	180.0	1400.0
Aluminum	9	9	9360.00	21100.00	13336.27	.	.	.
Antimony	1	9	10.60	10.60	5.34	.	8.1	12.7
Arsenic	0	9	3.20	15.70	5.38	.	2.3	2.3
Barium	9	9	203.50	512.00	311.74	.	.	.
Beryllium	9	9	0.37	0.71	0.58	.	.	.
Cadmium	9	9	4.70	213.00	33.80	.	.	.
Chromium	9	9	32.70	2035.00	188.06	.	.	.
Copper	9	9	21.00	670.00	202.56	.	.	.
Lead	9	9	25.00	210.00	103.37	.	.	.

TABLE 12 contd.

(Continued)

TYPE-Sediment-Drain Swale (Surf.)

Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
Mercury	9	9	0.21	0.99	0.57	.	.	.
Nickel	9	9	30.30	803.25	75.60	.	.	.
Zinc	9	9	113.00	964.00	433.81	.	.	.
Cyanide	9	9	0.02	61.00	3.16	.	.	.
Tin	6	9	5.10	16.70	5.47	.	3.7	3.7

TABLE 12 contd.

SUMMARY STATISTICS FOR FACET SITE, BY CHEMICAL AND MEDIUM/AREA

TYPE-Sediment-Drain Swale (Subsurf.)

Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
Trichloroethene	2	12	3.00	8.0	3.30	.	6.00	7.00
Nitrobenzene	1	12	470.00	470.0	219.30	.	380.00	470.00
Benzoic Acid	2	12	80.00	82.0	635.09	.	1800.00	2100.00
1,2,4-Trichlorobenzene	1	12	46.00	46.0	180.68	.	380.00	470.00
Naphthalene	2	12	68.00	330.0	190.05	.	380.00	430.00
2-Methylnaphthalene	2	12	110.00	540.0	206.11	.	380.00	430.00
Acenaphthylene	2	12	59.00	76.0	166.85	.	380.00	430.00
Acenaphthene	1	12	51.00	51.0	179.04	.	380.00	430.00
Dibenzofuran	1	12	160.00	160.0	196.94	.	380.00	430.00
Fluorene	2	12	59.00	85.0	168.41	.	380.00	430.00
Phenanthrene	4	12	43.00	560.0	172.07	.	380.00	430.00
Anthracene	1	12	76.00	76.0	185.10	.	380.00	430.00
Di-n-butylphthalate	1	12	140.00	140.0	194.76	.	380.00	430.00
Fluoranthene	5	12	45.00	890.0	176.96	.	380.00	430.00
Pyrene	4	12	55.00	520.0	172.55	.	380.00	430.00
Benzo(a)anthracene	4	12	54.00	530.0	174.98	.	380.00	430.00
Chrysene	4	12	42.00	480.0	166.24	.	380.00	430.00
bis(2-Ethylhexyl)phthalate	2	12	60.00	82.0	168.85	.	380.00	430.00
Benzo(b)fluoranthene	5	12	42.00	1300.0	182.03	.	380.00	430.00
Benzo(k)fluoranthene	4	12	88.00	1300.0	206.87	.	380.00	430.00
Benzo(a)pyrene	4	12	52.00	440.0	160.69	.	380.00	430.00
Indeno(1,2,3-cd)pyrene	2	12	58.00	130.0	173.54	.	380.00	430.00
Dibenzo(a,h)anthracene	1	12	62.00	62.0	181.98	.	380.00	430.00
Benzo(g,h,i)perylene	2	12	51.00	160.0	174.69	.	380.00	430.00
Aroclor-1254	2	12	1100.00	3400.0	158.18	.	180.00	210.00
Aluminum	12	12	12100.00	25100.0	17212.48	.	.	.
Arsenic	8	12	2.40	23.0	2.87	.	0.50	2.30
Barium	12	12	126.00	637.0	232.74	.	.	.
Beryllium	12	12	0.30	1.0	0.64	.	.	.
Cadmium	7	12	1.50	81.5	3.57	.	1.10	1.30
Chromium	12	12	16.80	208.0	36.12	.	.	.
Copper	12	12	4.40	217.0	17.36	.	.	.
Lead	12	12	11.00	126.0	21.30	.	.	.
Mercury	6	12	0.11	2.3	0.14	.	0.10	0.13
Nickel	12	12	20.90	60.1	30.37	.	.	.
Zinc	12	12	58.30	386.0	98.46	.	.	.
Cyanide	5	12	0.74	16.7	0.65	.	0.57	0.66
Tin	2	12	5.20	6.0	3.34	.	3.70	4.60

TABLE 12 contd.

SUMMARY STATISTICS FOR FACET SITE, BY CHEMICAL AND MEDIUM/AREA

TYPE-Sediment-N. Drainage Way

Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
Methylene Chloride	1	3	0.00	0.00	7.01	.	14.0	17.00
Phenanthrene	3	3	580.00	4400.00	1564.31	.	.	.
Anthracene	1	3	1200.00	1200.00	1989.02	.	4300.0	6100.00
Fluoranthene	3	3	630.00	8500.00	2523.25	.	.	.
Pyrene	3	3	560.00	8300.00	2557.74	.	.	.
Benzo(a)anthracene	2	3	1700.00	4000.00	2445.21	.	4300.0	4300.00
Chrysene	2	3	2300.00	4800.00	2873.88	.	4300.0	4300.00
bis(2-Ethylhexyl)phthalate	1	3	1400.00	1400.00	2460.69	.	4300.0	9900.00
Benzo(b)fluoranthene	2	3	2300.00	4000.00	2704.43	.	4300.0	4300.00
Benzo(k)fluoranthene	2	3	2000.00	3700.00	2515.11	.	4300.0	4300.00
Benzo(a)pyrene	2	3	2000.00	3900.00	2559.63	.	4300.0	4300.00
Indeno(1,2,3-cd)pyrene	2	3	1100.00	2000.00	1670.63	.	4300.0	4300.00
Benzo(g,h,i)perylene	2	3	1000.00	1800.00	1570.01	.	4300.0	4300.00
Aroclor-1248	1	3	1100.00	1100.00	253.16	.	100.0	590.00
Aluminum	3	3	5480.00	6680.00	5999.79	.	.	.
Arsenic	3	3	7.50	13.20	10.19	.	.	.
Barium	3	3	130.00	398.00	222.88	.	.	.
Cadmium	3	3	96.20	883.00	225.51	.	.	.
Calcium	3	3	18200.00	176000.00	69763.78	.	.	.
Chromium	3	3	225.00	4340.00	863.35	.	.	.
Cobalt	1	3	6.80	6.80	3.49	.	4.8	5.20
Copper	3	3	208.00	2870.00	712.53	.	.	.
Iron	3	3	14100.00	20400.00	16133.70	.	.	.
Lead	3	3	40.30	111.00	60.46	.	.	.
Magnesium	3	3	4130.00	5870.00	4700.82	.	.	.
Manganese	3	3	165.00	632.00	345.94	.	.	.
Mercury	3	3	0.28	0.32	0.31	.	.	.
Nickel	3	3	47.10	202.00	115.27	.	.	.
Potassium	2	3	810.00	1120.00	530.89	.	345.0	345.00
Vanadium	2	3	11.00	15.40	8.89	.	8.3	8.30
Zinc	3	3	572.00	7730.00	1652.18	.	.	.
Cyanide	1	3	7.10	7.10	1.09	.	0.8	0.92

TABLE 12 contd.

SUMMARY STATISTICS FOR FACET SITE, BY CHEMICAL AND MEDIUM/AREA

TYPE-Sediment-Maya Crk. (Dwngrd)

Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
Acetone	1	1	290.00	290.00	290.00			
Naphthalene	1	1	3600.00	3600.00	3600.00	.	.	.
2-Methylnaphthalene	1	1	2500.00	2500.00	2500.00	.	.	.
Acenaphthene	1	1	6400.00	6400.00	6400.00	.	.	.
Dibenzofuran	1	1	4900.00	4900.00	4900.00	.	.	.
Fluorene	1	1	7600.00	7600.00	7600.00	.	.	.
Phenanthrene	1	1	55000.00	55000.00	55000.00	.	.	.
Anthracene	1	1	14000.00	14000.00	14000.00	.	.	.
Fluoranthene	1	1	58000.00	58000.00	58000.00	.	.	.
Pyrene	1	1	56000.00	56000.00	56000.00	.	.	.
Benzo(a)anthracene	1	1	29000.00	29000.00	29000.00	.	.	.
Chrysene	1	1	26000.00	26000.00	26000.00	.	.	.
bis(2-Ethylhexyl)phthalate	1	1	990.00	990.00	990.00	.	.	.
Benzo(b)fluoranthene	1	1	36000.00	36000.00	36000.00	.	.	.
Benzo(k)fluoranthene	1	1	50000.00	50000.00	50000.00	.	.	.
Benzo(a)pyrene	1	1	22000.00	22000.00	22000.00	.	.	.
Indeno(1,2,3-cd)pyrene	1	1	6300.00	6300.00	6300.00	.	.	.
Benzo(g,h,i)perylene	1	1	5900.00	5900.00	5900.00	.	.	.
Aluminum	1	1	11300.00	11300.00	11300.00	.	.	.
Arsenic	1	1	22.00	22.00	22.00	.	.	.
Barium	1	1	195.00	195.00	195.00	.	.	.
Beryllium	1	1	1.20	1.20	1.20	.	.	.
Cadmium	1	1	24.10	24.10	24.10	.	.	.
Calcium	1	1	6390.00	6390.00	6390.00	.	.	.
Chromium	1	1	92.20	92.20	92.20	.	.	.
Cobalt	1	1	0.40	0.40	0.40	.	.	.
Iron	1	1	21900.00	21900.00	21900.00	.	.	.
Lead	1	1	53.80	53.80	53.80	.	.	.
Magnesium	1	1	3930.00	3930.00	3930.00	.	.	.
Manganese	1	1	276.00	276.00	276.00	.	.	.
Mercury	1	1	0.86	0.86	0.86	.	.	.
Nickel	1	1	23.90	23.90	23.90	.	.	.
Potassium	1	1	1630.00	1630.00	1630.00	.	.	.
Vanadium	1	1	19.60	19.60	19.60	.	.	.
Zinc	1	1	439.00	439.00	439.00	.	.	.

TABLE 12 contd.

SUMMARY STATISTICS FOR FACET SITE, BY CHEMICAL AND MEDIUM/AREA

TYPE-Sediment-Area 6

Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
Vinyl Chloride	1	2	2.00	2.00	3.67	.	13.50	13.50
1,1-Dichloroethene	1	2	3.00	3.00	3.12	.	6.50	6.50
1,2-Dichloroethene (total)	2	2	2.00	43.00	9.27	.	.	.
1,1,1-Trichloroethane	1	2	11.00	11.00	5.98	.	6.50	6.50
Trichloroethene	1	2	130.00	130.00	20.55	.	6.50	6.50
Acenaphthene	1	2	71.00	71.00	124.27	.	435.00	435.00
Phenanthrene	2	2	170.00	450.00	276.59	.	.	.
Anthracene	2	2	50.00	130.00	80.62	.	.	.
Di-n-butylphthalate	1	2	59.00	59.00	112.63	.	430.00	430.00
Fluoranthene	2	2	345.00	720.00	498.40	.	.	.
Pyrene	2	2	230.00	520.00	345.83	.	.	.
Benzo(a)anthracene	2	2	205.00	430.00	350.07	.	.	.
Chrysene	2	2	195.00	340.00	257.49	.	.	.
bis(2-Ethylhexyl)phthalate	2	2	46.00	71.00	57.15	.	.	.
Di-n-octylphthalate	1	2	130.00	130.00	167.18	.	430.00	430.00
Benzo(b)fluoranthene	2	2	395.00	690.00	522.06	.	.	.
Benzo(k)fluoranthene	2	2	395.00	690.00	522.06	.	.	.
Benzo(a)pyrene	2	2	205.00	350.00	267.86	.	.	.
Indeno(1,2,3-cd)pyrene	1	2	99.00	99.00	145.89	.	430.00	430.00
Benzo(g,h,i)perylene	1	2	99.00	99.00	145.89	.	430.00	430.00
Heptachlor epoxide	1	2	15.00	15.00	8.66	.	10.00	10.00
Aroclor-1248	1	2	540.00	540.00	164.32	.	100.00	100.00
Aluminum	2	2	9290.00	9420.00	9354.77	.	.	.
Arsenic	2	2	4.90	11.30	7.44	.	.	.
Barium	2	2	140.50	229.00	179.37	.	.	.
Beryllium	1	2	0.36	0.36	0.22	.	0.26	0.26
Cadmium	2	2	25.10	34.00	29.21	.	.	.
Chromium	2	2	732.00	1280.00	967.97	.	.	.
Copper	2	2	33.70	40.45	36.92	.	.	.
Lead	2	2	17.80	19.60	18.68	.	.	.
Mercury	1	2	0.22	0.22	0.11	.	0.12	0.12
Nickel	2	2	53.25	119.00	79.60	.	.	.
Zinc	2	2	106.00	128.00	116.48	.	.	.
Cyanide	2	2	0.74	1.75	1.14	.	.	.

TABLE 12 contd.

SUMMARY STATISTICS FOR FACET SITE, BY CHEMICAL AND MEDIUM/AREA

TYPE-Sediment-Area 10

Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
Carbon Disulfide	1	2	15.00	15.00	7.75	.	0	0
Trichloroethene	1	2	0.50	0.50	5.03	.	0	0
2-Methylnaphthalene	1	1	72.00	72.00	72.00	.	.	.
Benzo(a)anthracene	1	2	3400.00	3400.00	940.21	.	520	520
Chrysene	1	2	2045.00	2045.00	729.18	.	520	520
bis(2-Ethylhexyl)phthalate	2	2	2200.00	7300.00	4007.69	.	.	.
Benzo(b)fluoranthene	1	1	150.00	150.00	150.00	.	.	.
Aroclor-1260	2	2	3300.00	11450.00	6146.95	.	.	.
Aluminum	2	2	7550.00	7640.00	7594.07	.	.	.
Antimony	2	2	11.70	22.00	16.04	.	.	.
Arsenic	2	2	6.10	7.25	5.65	.	.	.
Barium	2	2	318.00	731.50	482.30	.	.	.
Cadmium	2	2	622.00	813.00	711.12	.	.	.
Chromium	2	2	3940.00	8735.00	5866.51	.	.	.
Copper	2	2	459.00	964.50	665.36	.	.	.
Lead	2	2	110.00	298.50	181.20	.	.	.
Mercury	2	2	0.52	0.94	0.70	.	.	.
Nickel	2	2	190.00	486.00	310.21	.	.	.
Silver	2	2	2.60	4.60	3.46	.	.	.
Zinc	2	2	3880.00	11050.00	6780.71	.	.	.
Cyanide	2	2	25.50	39.40	31.70	.	.	.
Tin	2	2	432.50	435.00	433.75	.	.	.

TABLE 12 contd.

SUMMARY STATISTICS FOR FACET SITE, BY CHEMICAL AND MEDIUM/AREA

TYPE=Surf. Water-Mays Crk. (Upgrd)

Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
Chloromethane	1	1	6.00	6.00	6.00	.	.	.
cis-1,2-Dichloroethene	1	1	0.20	0.20	0.20	.	.	.
Chloroform	1	1	0.03	0.03	0.03	.	.	.
Aluminum	1	1	174.00	174.00	174.00	.	.	.
Barium	1	1	81.00	81.00	81.00	.	.	.
Lead	1	1	2.70	2.70	2.70	.	.	.

TABLE 12 contd.

SUMMARY STATISTICS FOR FACET SITE, BY CHEMICAL AND MEDIUM/AREA

TYPE-Sediment-Oil/Wat. Sep.

Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
Acetone	1	1	6800.00	6800.00	6800.00	.	.	.
Nitrobenzene	1	1	220.00	220.00	220.00	.	.	.
Naphthalene	1	1	400.00	400.00	400.00	.	.	.
2-Methylnaphthalene	1	1	1000.00	1000.00	1000.00	.	.	.
Acenaphthene	1	1	380.00	380.00	380.00	.	.	.
Dibenzofuran	1	1	180.00	180.00	180.00	.	.	.
Fluorene	1	1	650.00	650.00	650.00	.	.	.
Phenanthrene	1	1	3100.00	3100.00	3100.00	.	.	.
Anthracene	1	1	3100.00	3100.00	3100.00	.	.	.
Fluoranthene	1	1	2300.00	2300.00	2300.00	.	.	.
Pyrene	1	1	2400.00	2400.00	2400.00	.	.	.
bis(2-Ethylhexyl)phthalate	1	1	1700.00	1700.00	1700.00	.	.	.
Benzo(b)fluoranthene	1	1	3400.00	3400.00	3400.00	.	.	.
Benzo(k)fluoranthene	1	1	3400.00	3400.00	3400.00	.	.	.
Benzo(e)pyrene	1	1	1300.00	1300.00	1300.00	.	.	.
Indeno(1,2,3-cd)pyrene	1	1	890.00	890.00	890.00	.	.	.
Dibenzo(a,h)anthracene	1	1	400.00	400.00	400.00	.	.	.
Benzo(g,h,i)perylene	1	1	1000.00	1000.00	1000.00	.	.	.
Aluminum	1	1	9700.00	9700.00	9700.00	.	.	.
Arsenic	1	1	7.70	7.70	7.70	.	.	.
Barium	1	1	256.00	256.00	256.00	.	.	.
Cadmium	1	1	44.00	44.00	44.00	.	.	.
Chromium	1	1	153.00	153.00	153.00	.	.	.
Copper	1	1	425.00	425.00	425.00	.	.	.
Lead	1	1	158.00	158.00	158.00	.	.	.
Mercury	1	1	0.65	0.65	0.65	.	.	.
Nickel	1	1	73.50	73.50	73.50	.	.	.
Zinc	1	1	767.00	767.00	767.00	.	.	.
Cyanide	1	1	2.70	2.70	2.70	.	.	.
Tin	1	1	26.50	26.50	26.50	.	.	.

TABLE 12 contd.

SUMMARY STATISTICS FOR FACET SITE, BY CHEMICAL AND MEDIUM/AREA

TYPE-Surf. Water-Maye Crk. (Dwngrd)

Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
Chloromethane	1	1	5.000	5.000	5.000	.	.	.
cis-1,2-Dichloroethene	1	1	0.650	0.650	0.650	.	.	.
Chloroform	1	1	0.075	0.075	0.075	.	.	.
1,1,1-Trichloroethane	1	1	4.500	4.500	4.500	.	.	.
Trichloroethene	1	1	10.500	10.500	10.500	.	.	.
Aluminum	1	1	130.500	130.500	130.500	.	.	.
Barium	1	1	149.500	149.500	149.500	.	.	.
Zinc	1	1	18.250	18.250	18.250	.	.	.
Cyanide	1	1	20.400	20.400	20.400	.	.	.

TABLE 12 contd.

SUMMARY STATISTICS FOR FACET SITE, BY CHEMICAL AND MEDIUM/AREA

TYPE-Surf. Water-Area 10

Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
Chloromethane	2	2	4.0	6.0	4.90	.	.	.
Carbon Disulfide	1	2	0.1	0.1	0.22	.	1	1
1,1-Dichloroethane	1	2	0.4	0.4	0.45	.	1	1
cis-1,2-Dichloroethene	2	2	0.5	5.0	1.58	.	.	.
Trichloroethene	1	2	2.0	2.0	1.00	.	1	1
1,2-Dichlorobenzene	2	2	2.0	2.0	2.00	.	.	.
Benzoic Acid	1	2	3.0	3.0	8.66	.	50	50
bis(2-Ethylhexyl)phthalate	2	2	4.0	9.0	6.00	.	.	.
Aroclor-1248	2	2	1.3	3.0	1.97	.	.	.
Aluminum	2	2	194.0	548.0	326.06	.	.	.
Barium	2	2	163.0	240.0	197.79	.	.	.
Cadmium	2	2	76.6	77.8	77.20	.	.	.
Chromium	2	2	1290.0	2190.0	1680.80	.	.	.
Copper	2	2	29.8	70.8	45.31	.	.	.
Lead	2	2	11.3	28.1	17.82	.	.	.
Nickel	1	2	62.2	62.2	36.83	.	39	39
Zinc	2	2	335.0	894.0	547.26	.	.	.
Cyanide	1	2	12.7	12.7	7.97	.	10	10

TABLE 12 contd.

SUMMARY STATISTICS FOR FACET SITE, BY CHEMICAL AND MEDIUM/AREA

TYPE-Surf. Water-Oil/Wat. Sep.

Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
Chloromethane	1	1	5.0	5.0	5.0	.	.	.
Fluorene	1	1	15.0	15.0	15.0	.	.	.
Phenanthrene	1	1	29.0	29.0	29.0	.	.	.
Fluoranthene	1	1	22.0	22.0	22.0	.	.	.
Pyrene	1	1	40.0	40.0	40.0	.	.	.
Benzo(a)anthracene	1	1	21.0	21.0	21.0	.	.	.
Chrysene	1	1	32.0	32.0	32.0	.	.	.
Benzo(b)fluoranthene	1	1	60.0	60.0	60.0	.	.	.
Benzo(k)fluoranthene	1	1	60.0	60.0	60.0	.	.	.
Benzo(a)pyrene	1	1	18.0	18.0	18.0	.	.	.
Aluminum	1	1	933.0	933.0	933.0	.	.	.
Barium	1	1	165.0	165.0	165.0	.	.	.
Cadmium	1	1	11.5	11.5	11.5	.	.	.
Chromium	1	1	16.2	16.2	16.2	.	.	.
Copper	1	1	67.1	67.1	67.1	.	.	.
Lead	1	1	51.9	51.9	51.9	.	.	.
Zinc	1	1	269.0	269.0	269.0	.	.	.

TABLE 12 contd.

SUMMARY STATISTICS FOR FACET SITE, BY CHEMICAL AND MEDIUM/AREA

TYPE=Surf. Water-Drain Swale (Dwngrd)

Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
Chloromethane	1	3	24.00	24.00	1.817	.	1.0	1.0
Acetone	3	3	3.00	34.00	7.998	.	.	.
Carbon Disulfide	1	3	0.10	0.10	0.292	.	1.0	1.0
bis(2-Ethylhexyl)phthalate	1	3	5.00	5.00	5.000	.	10.0	10.0
Endrin ketone	1	3	0.12	0.12	0.067	.	0.1	0.1
Aluminum	3	3	133.00	766.00	337.992	.	.	.
Arsenic	1	3	3.00	3.00	2.466	.	2.0	10.0
Barium	3	3	65.00	1100.00	160.064	.	.	.
Cadmium	1	3	5.40	5.40	3.232	.	5.0	5.0
Chromium	1	3	11.60	11.60	4.709	.	6.0	6.0
Copper	2	3	27.00	36.70	15.026	.	8.0	8.0
Lead	2	3	9.90	15.70	5.377	.	2.0	2.0
Zinc	3	3	30.20	171.00	92.448	.	.	.
Cyanide	1	3	41.30	41.30	10.107	.	10.0	10.0
Tin	1	3	20.50	20.50	10.902	.	15.9	15.9

TABLE 13

TABLE EXPOSURE PATHWAY: INGESTION OF SEDIMENTS IN AREAS 6 & 10 BY TRESPASSERS, PRESENT AND FUTURE SCENARIOS

VARIABLE	RANGE	MIDPOINT	VALUE USED	RATIONALE	REFERENCE
Receptor Population				Trespassers	
Body Weight (Kg)					
Youth (Age 9-18)	30.7 - 66.7	48.7	50	50th percentile values in range; value used is ave. of range	EFH, 1989
Duration of Exposure (Years)					
Youth	1 - 10	5	10	Total years in age group	
Exposure Frequency (Days/Year)					
Youth	1 - 273	136.5	39	Assume youth trespasses 1 d/wk during spring, summer, and fall (39 weeks total)	
Ingestion Rate (Mg/Day)					
Youth	100 - 200	150	100	Value used is specified for children more than 6 years old	RAGS, 1989
Fraction Ingested from Contaminated Source (Unitless)	-	-	1	Assume that all soil contacted is contaminated	RAGS, 1989
Averaging Time (Days)					
Youth					
noncarcinogens	365 - 3650	1825	3650	Range, midpoint, & value used are based on exposure duration	RAGS, 1989
carcinogens	10950 - 25550	18250	25550		

EFH, 1989. Exposure Factors Handbook, EPA /600/8-89/043. Exposure Assessment Group, Office of Health and Environmental Assessment. 1989

RAGS, 1989. Risk Assessment Guidance for Superfund, Volume I, EPA 540/1-89/002. Office of Emergency and Remedial Response. December 1989.

SEAM, 1988. Superfund Exposure Assessment Manual, EPA 540/1-88/001. Office of Remedial Response. April 1988.

TABLE 13

TABLE EXPOSURE PATHWAY: INGESTION OF SEDIMENTS IN MAY'S CREEK BY LOCAL RESIDENTS, PRESENT AND FUTURE SCENARIOS

VARIABLE	RANGE	MIDPOINT	VALUE USED	RATIONALE	REFERENCE
Receptor Population				*Local Residents*	
Body Weight (Kg)					
Small Child (Age 1-6)	-	-	17.4	Value specified in EPH	EPH, 1989
Adult	-	-	70	By convention	RAGS, 1989
Duration of Exposure (Years)					
Small Child	1 - 3	2	3	Total years in age group	
Adult	1 - 30	15	30	90th percentile for time at a single residence	RAGS, 1989
Exposure Frequency (Days/Year)					
Small Child	1 - 273	136.5	143	Assumes 5 d/wk outdoors during summer & 3 d/wk during spring and fall (39 weeks total)	
Adult	1 - 273	136.5	78	Assume 2 d/wk outdoors during spring, summer, & fall (39 weeks total)	
Ingestion Rate (Mg/Day)					
Child	-	-	200	Value used is specified in RAGS	RAGS, 1989
Adult	-	-	100	Value used is specified in RAGS	RAGS, 1989
Fraction Ingested from Contaminated Source (Unitless)	-	-	1	Assume that all soil contacted is contaminated	RAGS, 1989
Averaging Time (Days)					
Child					
noncarcinogens	365 - 1095	730	1095	Range, midpoint, & value used are based on exposure duration	RAGS, 1989
carcinogens	10950 - 25550	18250	25550		
Adult					
noncarcinogens	365 - 10950	5658	10950	Range, midpoint, & value used are based on exposure duration	RAGS, 1989
carcinogens	10950 - 25550	18250	25550		

EPH, 1989. Exposure Factors Handbook, EPA /600/8-89/043. Exposure Assessment Group, Office of Health and Environmental Assessment. 1989

RAGS, 1989. Risk Assessment Guidance for Superfund, Volume I, EPA 540/1-89/002. Office of Emergency and Remedial Response. December 1989.

SEAM, 1988. Superfund Exposure Assessment Manual, EPA 540/1-88/001. Office of Remedial Response. April 1988.

TABLE 13

TABLE EXPOSURE PATHWAY: INGESTION OF ONSITE SUBSURFACE SOILS BY UTILITY WORKERS, PRESENT AND FUTURE SCENARIOS

VARIABLE	RANGE	MIDPOINT	VALUE USED	RATIONALE	REFERENCE
Receptor Population				Utility Workers	
Body Weight (Kg)					
Adult	-	-	70	By convention	RAGS, 1989
Duration of Exposure (Years)					
Adult	1 - 30	15	20	Best professional judgement	
Exposure Frequency (Days/Year)					
Adult	1 - 365	182.5	10	Assume maintenance of buried utilities is necessary 10 for d/yr	
Ingestion Rate (Mg/Day)					
Adult	-	-	100	Value used is specified in RAGS	RAGS, 1989
Fraction Ingested from Contaminated Source (Unitless)	-	-	1	Assume that all soil contacted is contaminated	RAGS, 1989
Averaging Time (Days)					
Adult					
noncarcinogens	365 - 10950	5475	7300	Range, midpoint, & value	RAGS, 1989
carcinogens	10950 - 25550	18250	25550	used are based on exposure duration	

EPH, 1989. Exposure Factors Handbook, EPA /600/8-89/043. Exposure Assessment Group, Office of Health and Environmental Assessment. 1989

RAGS, 1989. Risk Assessment Guidance for Superfund, Volume I, EPA 540/1-89/002. Office of Emergency and Remedial Response. December 1989.

SEAM, 1988. Superfund Exposure Assessment Manual, EPA 540/1-88/001. Office of Remedial Response. April 1988.

TABLE 13

TABLE EXPOSURE PATHWAY: INGESTION OF ONSITE SURFACE SOILS BY TRESPASSERS, PRESENT AND FUTURE SCENARIOS

VARIABLE	RANGE	MIDPOINT	VALUE USED	RATIONALE	REFERENCE
Receptor Population				Trespassers	
Body Weight (Kg)					
Youth (Age 9-18)	30.7 - 66.7	48.7	50	50th percentile values in range; value used is ave. of range	EPH, 1989
Duration of Exposure (Years)					
Youth	1 - 10	5	10	Total years in age group	
Exposure Frequency (Days/Year)					
Youth	1 - 273	136.5	39	Assume youth trespasses 1 d/wk during spring, summer, and fall (39 weeks total)	
Ingestion Rate (Mg/Day)					
Youth	100 - 200	150	100	Value used is specified for children more than 6 years old	RAGS, 1989
Fraction Ingested from Contaminated Source (Unitless)	-	-	1	Assume that all soil contacted is contaminated	RAGS, 1989
Averaging Time (Days)					
Youth					
noncarcinogens	365 - 3650	1825	3650	Range, midpoint, & value used are based on exposure duration	RAGS, 1989
carcinogens	10950 - 25550	18250	25550		

EPH, 1989. Exposure Factors Handbook, EPA 600/8-89/043. Exposure Assessment Group, Office of Health and Environmental Assessment. 1989

RAGS, 1989. Risk Assessment Guidance for Superfund, Volume I, EPA 540/1-89/002. Office of Emergency and Remedial Response. December 1989.

SEAM, 1988. Superfund Exposure Assessment Manual, EPA 540/1-88/001. Office of Remedial Response. April 1988.

TABLE 13

TABLE EXPOSURE PATHWAY: INGESTION OF SEDIMENTS IN THE NORTH DRAINAGE DITCH BY TRESPASSERS, PRESENT AND FUTURE SCENARIOS

VARIABLE	RANGE	MIDPOINT	VALUE USED	RATIONALE	REFERENCE
Receptor Population				Trespassers	
Body Weight (Kg)					
Youth (Age 9-15)	30.7 - 66.7	48.7	50	50th percentile values in range; value used is ave. of range	EFH, 1989
Duration of Exposure (Years)					
Youth	1 - 10	5	10	Total years in age group	
Exposure Frequency (Days/Year)					
Youth	1 - 273	136.5	39	Assume youth trespasses 1 d/wk outdoors during spring, summer, and fall (39 weeks/total)	
Ingestion Rate (Mg/Day)					
Youth	100 - 200	150	100	Value used is specified for children more than 6 years old	RAGS, 1989
Fraction Ingested from Contaminated Source (Unitless)	-	-	1	Assume that all soil contacted is contaminated	RAGS, 1989
Averaging Time (Days)					
Youth					
noncarcinogens	365 - 3650	1825	3650	Range, midpoint, & value used are based on exposure duration	RAGS, 1989
carcinogens	10950 - 25550	18250	25550		

EFH, 1989. Exposure Factors Handbook, EPA /600/8-89/043. Exposure Assessment Group, Office of Health and Environmental Assessment. 1989

RAGS, 1989. Risk Assessment Guidance for Superfund, Volume I, EPA 540/1-89/002. Office of Emergency and Remedial Response. December 1989.

SEAM, 1988. Superfund Exposure Assessment Manual, EPA 540/1-88/001. Office of Remedial Response. April 1988.

TABLE 13

TABLE EXPOSURE PATHWAY: INGESTION OF SEDIMENTS IN HEIGHTS DRAINAGE SWALE BY LOCAL RESIDENTS, PRESENT AND FUTURE SCENARIOS

VARIABLE	RANGE	MIDPOINT	VALUE USED	RATIONALE	REFERENCE
Receptor Population				Local Residents	
Body Weight (Kg)					
Small Child (Age 3-6)	-	-	17.4	Value specified in EPH	EPH, 1989
Adult	-	-	70	By convention	RAGS, 1989
Duration of Exposure (Years)					
Small Child	1 - 5	2	5	Total years in age group	
Adult	1 - 30	15	30	90th percentile for time at a single residence	RAGS, 1989
Exposure Frequency (Days/Year)					
Small Child	1 - 273	136.5	143	Assumes 5 d/wk outdoors during summer & 3 d/wk during spring and fall (39 weeks total)	
Adult	1 - 273	136.5	78	Assume 2 d/wk outdoors during spring, summer, & fall (39 weeks total)	
Ingestion Rate (Mg/Day)					
Child	-	-	200	Value used is specified in RAGS	RAGS, 1989
Adult	-	-	100	Value used is specified in RAGS	RAGS, 1989
Fraction Ingested from Contaminated Source (Unitless)	-	-	1	Assume that all soil contacted is contaminated	RAGS, 1989
Averaging Time (Days)					
Child					
noncarcinogens	365 - 1095	730	1095	Range, midpoint, & value used are based on exposure duration	RAGS, 1989
carcinogens	10950 - 25550	18250	25550		
Adult					
noncarcinogens	365 - 10950	5658	10950	Range, midpoint, & value used are based on exposure duration	RAGS, 1989
carcinogens	10950 - 25550	18250	25550		

EPH, 1989. Exposure Factors Handbook, EPA /600/8-89/043. Exposure Assessment Group, Office of Health and Environmental Assessment. 1989

RAGS, 1989. Risk Assessment Guidance for Superfund, Volume I, EPA 540/1-89/002. Office of Emergency and Remedial Response. December 1989.

SEAM, 1988. Superfund Exposure Assessment Manual, EPA 540/1-88/001. Office of Remedial Response. April 1988.

TABLE 13

TABLE EXPOSURE PATHWAY: INHALATION OF CONTAMINANTS VOLATILIZED FROM GROUND WATER WHEN RESIDENTS SHOWER, PRESENT AND FUTURE SCENARIOS

VARIABLE	RANGE	MIDPOINT	VALUE USED	RATIONALE	REFERENCE
Receptor Population				Local Residents	
Contaminant Concentration (Mg/Cu. M)					
Modeled value (See Appendix C)					
Body Weight (Kg)					
Adult	-	-	70	By convention	RAGS, 1989
Exposure Time (Hours/Day)					
Adult	0.116 - 0.2	0.158	0.2	90th percentile value for showering	RAGS, 1989
Duration of Exposure (Years)					
Adult	1 - 70	35	30	90th percentile for time at a single residence	RAGS, 1989
Exposure Frequency (Days/Year)	1 - 365	182.5	365	Assume daily showers	SEAM, 1988
Inhalation Rate (Cu. M/Hour)					
Adult	-	-	0.6	Value used is an hourly rate that is specific to showering activities	RAGS, 1989
Averaging Time (Days)					
Adult					
noncarcinogens	365 - 25550	12775	10950	Range, midpoint, & value used are based on exposure duration	RAGS, 1989
carcinogens	10950 - 25550	12775	25550		

EPH, 1989. Exposure Factors Handbook, EPA /600/8-89/043. Exposure Assessment Group, Office of Health and Environmental Assessment. 1989

RAGS, 1989. Risk Assessment Guidance for Superfund, Volume I, EPA 540/1-89/002. Office of Emergency and Remedial Response. December 1989.

SEAM, 1988 Superfund Exposure Assessment Manual, EPA 540/1-88/001. Office of Remedial Response. April 1988.

TABLE 13

TABLE EXPOSURE PATHWAY: INGESTION OF GROUND WATER BY LOCAL RESIDENTS, PRESENT AND FUTURE SCENARIOS

VARIABLE	RANGE	MIDPOINT	VALUE USED	RATIONALE	REFERENCE
Receptor Population				Local Residents	
Body Weight (Kg)					
Child (Age <6)	11.6 - 37.4	25	25	Midpoint of range	EPH, 1989
Adult	-	-	70	By convention	RAGS, 1989
Duration of Exposure (Years)					
Child	1 - 6	3	6	Total years in age group	
Adult	1 - 70	25	30	90th percentile for time at a single residence	RAGS, 1989
Exposure Frequency (Days/Year)	1 - 365	182.5	365	Value used is specified in RAGS	RAGS, 1989
Ingestion Rate (L/Day)					
Child	-	-	1	Value used is specified in EPH	EPH, 1989
Adult	-	-	2	Value used is specified in RAGS	RAGS, 1989
Averaging Time (Days)					
Child					
noncarcinogens	365 - 2190	1095	2190	Range, midpoint, & value used are based on exposure duration	RAGS, 1989
carcinogens	10950 - 25550	12775	25550		
Adult					
noncarcinogens	365 - 25550	12775	10950	Range, midpoint, & value used are based on exposure duration	RAGS, 1989
carcinogens	10950 - 25550	12775	25550		

EPH, 1989. Exposure Factors Handbook, EPA /600/8-89/043. Exposure Assessment Group, Office of Health and Environmental Assessment. 1989

RAGS, 1989. Risk Assessment Guidance for Superfund, Volume I, EPA 540/1-89/002. Office of Emergency and Remedial Response. December 1989.

SEAM, 1988. Superfund Exposure Assessment Manual, EPA 540/1-88/001. Office of Remedial Response. April 1988.

TABLE POTENTIAL NONCARCINOGENIC EFFECTS OF FACET COCs: TOXICITY VALUES

Contaminant of Concern	Chronic RfD (oral) (mg/kg/day)	Confidence Level (a)	Critical Effect/Species	Uncertainty and Modifying Factors (b)	RfD Source
Volatiles					
Acetone	1×10^{-1}	low	increased liver weight and nephrotoxicity/rat	UF = 1,000 MF = 1	IRIS (2/91) (U.S. EPA study)
Benzene	--	--	--	--	--
2-Butanone	5×10^{-2}	medium	no adverse effects observed	UF = 1000 MF = 1	IRIS (3/6/91) (LaBelle and Brieger, 1955)
Carbon disulfide	1×10^{-1}	medium	fetal toxicity/malformations in rabbits	UF = 100 MF = 1	IRIS (2/5/91) (Hardin et. al., 1981)
Chloroform	1×10^{-2}	medium	fatty cyst formation in liver/dog	UF = 1,000 MF = 1	IRIS (2/91) (Heywood et. al., 1979)
Chloromethane	---	---	---	---	Heast, 1990
1,1-Dichloroethane	1×10^{-1}	---	---	---	HEAST, 1990
1,2-Dichloroethane	7.4×10^{-2} (d)	--	--	--	U.S. EPA Drinking Water Regulations and Health Advisories, 1990
cis-1,2-Dichloroethylene	1×10^{-2}	---	---	---	HEAST, 1990

TABLE 14

TABLE (CONTINUED)

Contaminant of Concern	Chronic RfD (oral) (mg/kg/day)	Confidence Level (a)	Critical Effect/Species	Uncertainty and Modifying Factors (b)	RfD Source
trans-1,2-Dichloroethylene	2×10^{-2}	low	increased serum alkaline phosphatase in male mice	UF = 1,000 MF = 1	IRIS (2/91) (Barnes et. al., 1985)
1,1-Dichloroethylene	9×10^{-3}	medium	hepatic lesions in rats	UF = 1000 MF = 1	IRIS (2/91) (Quast et. al., 1983)
Ethylbenzene	1×10^{-1}	low	liver and kidney toxicity/rat	UF = 1,000 MF = 1	IRIS (2/91) (Wolf, et al., 1956)
Methylene Chloride	6×10^{-2}	--	liver toxicity/rat	UF = 100 MF = 1	IRIS (2/91)
Tetrachloroethylene	1×10^{-2}	medium	hepatotoxicity in mice	UF = 1000 MF = 1	IRIS (2/91) (Buben and O'Flaherty, 1985)
Toluene	2×10^{-1} (c,e)	--	CNS effects/rat	UF = 100 MF = NA	HEAST, 1990
1,1,1-Trichloroethane	9×10^{-2}	medium	slight growth retardation in guinea pigs	UF = 1,000 MF = 1	IRIS (2/91) (Adams et. al., 1950 Torkelson et. al., 1958)
Trichloroethylene	7×10^{-3}	--	--	--	U.S. EPA Drinking Water Regulations and Health Advisories, 1990
Trichlorofluoromethane	3×10^{-1}	medium	histopathology in rats/mice	UF = 1,000 MF = 100	IRIS (2/91) (NCI, 1978)

TABLE 14

TABLE (CONTINUED)

Contaminant of Concern	Chronic RfD (oral) (mg/kg/day)	Confidence Level (a)	Critical Effect/Species	Uncertainty and Modifying Factors (b)	RfD Source
Vinyl Chloride	1.4×10^{-3} (d)	--	--		U.S. EPA Drinking Water Regulations and Health Advisories, 1990
Xylenes (total)	2×10^{0}	medium	hyperactivity, increased mortality/rats	UF = 100	IRIS (2/91)
Base Neutral/Acid Extractable					
Acenaphthene	6×10^{-2}	low	hepatoxicity in mice	UF = 3,000 MF = NA	IRIS (3/91) (U.S. EPA, 1989)
Acenaphthylene	6×10^{-3}	---	---	---	U.S. EPA Drinking Water Regulations and Health Advisories, 1990 (DWRHA, 1990)
Anthracene	3×10^{-1}	low	no effects in mice	UF = 3,000 MF = 1	IRIS (3/91) (U.S. EPA, 1989)
Benzoic Acid	4×10^{0}		irritation, malaise/ human	UF = 1 MF = 1	IRIS (2/91) (U.S. EPA, 1987)
Benzo(a)anthracene	---	---	---	---	IRIS (3/91)
Benzo(a)pyrene	---	---	---	---	IRIS (2/91)
Benzo(b)fluoranthene	---	---	---	---	IRIS (3/91)
Benzo(g,h,i)perylene	4×10^{-3} (g)	---	---	---	IRIS (3/91)

TABLE 14

TABLE (CONTINUED)

Contaminant of Concern	Chronic RfD (oral) (mg/kg/day)	Confidence Level (a)	Critical Effect/Species	Uncertainty and Modifying Factors (b)	RfD Source
Benzo(k)fluoranthene	—	—	—	—	IRIS (3/91)
Bis(2-ethylhexyl) phthalate	2×10^{-2}	medium	increased liver weight/ guinea pig	UF = 1,000 MF = 1	IRIS (10/90); (Carpenter, et al., 1953)
Chrysene	—	—	—	—	IRIS (3/21/91)
Dibenzo(a,h) anthracene	—	—	—	—	—
Dibenzofuran (f)	—	—	—	—	—
Di-n-butyl phthalate	1×10^{-1}	low	increased mortality in rats	UF = 1,000 MF = 1	IRIS (3/91) (Smith, 1953)
Di-n-octyl phthalate	2×10^{-2}	—	elevated kidney and liver weights/rat	UF = 1000 MF = NA	HEAST, 1990 (Piekacz, 1971; EPA, 1987)
Fluoroanthrene	4×10^{-2}	low	nephropathology, liver weight changes, hematological changes/mice	UF = 3,000 MF = 1	IRIS (3/91) (U.S. EPA, 1980)
Fluorene	4×10^{-2}	low	hematological changes/mice	UF = 3000 MF = 1	IRIS (3/91) (U.S. EPA, 1989)
deno(1,2,3-cd)pyrene	—	—	—	—	IRIS (3/91)
1-Methyl naphthalene	—	—	—	—	—
Naphthalene	4×10^{-3}	—	ocular and internal lesions/rat	—	HEAST, 1990

TABLE 14

TABLE . (CONTINUED)

Contaminant of Concern	Chronic RfD (oral) (mg/kg/day)	Confidence Level (a)	Critical Effect/Species	Uncertainty and Modifying Factors (b)	RfD Source
Pentachlorophenol	3×10^{-2}	medium	liver/kidney pathology/rat	UF = 1,000 MF = 1	IRIS (2/91) (Schwetz et. al., 1978)
Phenanthrene	—	—	—	—	IRIS (3/91)
Pyrene	3×10^{-2}	low	kidney effects/mice	UF = 3,000 MF = 1	IRIS (3/91) (U.S. EPA, 1989)
Pesticides/PCBs					
Aroclor-1248	1.2×10^{-4} (d)	—	—	—	IRIS (2/91)
Aroclor-1254	1.2×10^{-4} (d)	—	—	—	IRIS (2/91)
Inorganics					
Aluminum	—	—	—	—	—
Antimony	4×10^{-4}	low	reduced lifespan, altered blood chemistries/rat	UF = 1,000 MF = 1	IRIS (2/91) (Shroeder, et al., 1970)
Arsenic	1×10^{-3} (c)	--	keratosis and hyper-pigmentation/human	UF = 1 MF = NA	HEAST, 1990
Barium	7×10^{-2}	medium	increased blood pressure in humans	UF = 3 MF = 1	IRIS (2/91) (Wones et. al., 1990; Brenniman and Levy, 1984)

TABLE 14

TABLE (CONTINUED)

Contaminant of Concern	Chronic RfD (oral) (mg/kg/day)	Confidence Level (a)	Critical Effect/Species	Uncertainty and Modifying Factors (b)	RfD Source
Beryllium	5×10^{-3}	low	no observed adverse effect/rat	UF = 100 MF = 1	IRIS (2/91) (Shroeder and Mitchner, 1975)
Cadmium	5×10^{-4}	high	significant proteinuria/ human	UF = 10 MF =1	IRIS (2/91) (U.S. EPA, 1984)
Chromium VI	5×10^{-3}	low	not defined/rat	UF = 500 MF = 100	IRIS (2/91) (MacKenzie, et. al., 1958)
Copper	--	--	--	--	IRIS (2/91)
Cyanide	2×10^{-2}	medium	weight loss, thyroid effects, myeline degeneration in rats	UF = 100 MF = 5	IRIS (2/91) (Howard and Hanzal, 1955; Philbrick et. al., 1979)
Lead	No threshold	--	--	--	IRIS (2/91)
Mercury	3×10^{-4}	--	neurotoxicity, kidney effects/rat	UF = 1,000	HEAST, 1990; (Fawer, et. al., 1987)
Nickel	2×10^{-2}	medium	decreased body weight/rat	UF = 100 MF = 3	IRIS (2/91)
Silver	3×10^{-3}	medium	argyria/humans	UF = 2 MF = 1	IRIS (2/91); (Gaul and Staud, 1935; East, et. al., 1980)

TABLE 14

TABLE (CONTINUED)

Contaminant of Concern	Chronic RfD (oral) (mg/kg/day)	Confidence Level (a)	Critical Effect/Species	Uncertainty and Modifying Factors (b)	RfD Source
Tin	6×10^{-1}	—	—	—	HEAST, 1990
Zinc	2×10^{-1}	—	anemia/humans	UF = 10 MF = N/A	HEAST, 1990 (Pories, et. al., 1967; Prasad, et. al., 1975)

— not available

(a) Confidence level from IRIS; rated either high, medium, or low.
(b) Uncertainty Factor (UF) and Modifying Factor (MF) are adjustments used to account for the following uncertainties:

UFs (10-fold factor for each):

- variation in human sensitivity
- animal to human extrapolation
- extrapolation from subchronic to chronic NOAEL
- extrapolation from LOAEL to NOAEL

MFs (greater than zero and less than or equal to 10)

- Professional judgment based on scientific uncertainties of study and database other than those listed above; default value is 1.

(c) Under review by the EPA RfD Work Group; therefore, no IRIS entry.
(d) No RfD available. Chronic protective dose derived from Long-Term Health Advisory (HA) for adults as follows:

$$\text{Protective dose (mg/kg/day)} = \frac{\text{(Long-term HA µg/L) (2L exposure/day)}}{\text{70 kg (µg/L)}} \quad \text{(mg/1000 µg)}$$

(e) New revised RfD pending.
(f) Available data inadequate for quantitative risk assessment (HEAST, 1990).
(g) The RfD for naphthalene is used as a surrogate for PAHs showing evidence of noncarcinogenic effects.
Note: Sources are IRIS (EPA, 1991b) and HEAST (EPA, 1990a).

TABLE SUMMARY OF NONCARCINOGENIC HAZARD INDICES (HI) FOR THE FACET SITE[a]

Scenario	Receptor	Current/ Future	Acute HI	Chronic HI
Ground Water				
Ingestion	Resident	C/F	2.0×10^{0}(b)*	2.0×10^{1}(b)*
			4.6×10^{0}(c)*	4.6×10^{1}(c)*
Volatiles Inhalation While Showering	Re[illegible]		N/A	2.4×10^{-3}
Soil				
Surface Soil - Ingestion			[illegible] $\times 10^{-2}$	1.6×10^{-1}
Subsurface Soil - Ingestion			3.9×10^{-2}	6.8×10^{-3}
Surface Soil, Plant 2 Yard - Ingestion		[illegible]F	6.6×10^{-4}	2.2×10^{-5}
Subsurface Soil, Plant 2 Yard - Ingestio.		C/F	1.7×10^{-7}	6.2×10^{-7}
Oil/Water Separator - Ingestion		C/F	3.5×10^{-3}	4.1×10^{-3}
Sediment				
Height's Drainage Swale - Ingestion	Resident	C/F	1.3×10^{-1}(b)	2.4×10^{-1}(b)
			1.0×10^{0}(c)*	3.5×10^{0}(c)*
North Drainage Ditch - Ingestion	Trespasser	C/F	5.1×10^{-1}	3.9×10^{-1}
May's Creek - Ingestion	Resident	C/F	1.1×10^{-2}(b)	2.9×10^{-2}(b)
			8.5×10^{-2}(c)	4.3×10^{-1}(c)
Area 6 - Ingestion	Trespasser	C/F	3.9×10^{-2}	6.8×10^{-2}
Area 10 - Ingestion	Trespasser	C/F	5.8×10^{-1}	6.0×10^{-1}

[a]Dermal pathways not evaluated quantitatively based on current EPA Region II guidance for the Facet site (EPA, 1992).
(b) - adult
(c) - child
* HI exceeds one (1).

TABLE SUMMARY OF NONCARCINOGENIC HAZARD INDICES (HI) FOR THE FACET SITE*

Scenario	Receptor	Current/ Future	Acute HI	Chronic HI
Ground Water				
Ingestion	Resident	C/F	2.0×10^{0}(b)*	2.0×10^{1}(b)*
			4.6×10^{0}(c)*	4.6×10^{1}(c)*
Volatiles Inhalation While Showering	Resident	C/F	N/A	2.4×10^{-3}
Soil				
Surface Soil - Ingestion	Trespasser	C/F	7.3×10^{-3}	1.6×10^{-1}
Subsurface Soil - Ingestion	Worker	C/F	3.9×10^{-2}	6.8×10^{-3}
Surface Soil, Plant 2 Yard - Ingestion	Trespasser	C/F	6.6×10^{-6}	2.2×10^{-5}
Subsurface Soil, Plant 2 Yard - Ingestion	Worker	C/F	1.7×10^{-7}	6.2×10^{-7}
Oil/Water Separator - Ingestion	Worker	C/F	3.5×10^{-3}	4.1×10^{-3}
Sediment				
Height's Drainage Swale - Ingestion	Resident	C/F	1.3×10^{-1}(b)	2.4×10^{-1}(b)
			1.0×10^{0}(c)*	3.5×10^{0}(c)*
North Drainage Ditch - Ingestion	Trespasser	C/F	5.1×10^{-1}	3.9×10^{-1}
May's Creek - Ingestion	Resident	C/F	1.1×10^{-2}(b)	2.9×10^{-2}(b)
			8.5×10^{-2}(c)	4.3×10^{-1}(c)
Area 6 - Ingestion	Trespasser	C/F	3.9×10^{-2}	6.8×10^{-2}
Area 10 - Ingestion	Trespasser	C/F	5.8×10^{-1}	6.0×10^{-1}

*Dermal pathways not evaluated quantitatively based on current EPA Region II guidance for the Facet site (EPA, 1992).
(b) - adult
(c) - child
* HI exceeds one (1).

TABLE 16

TABLE .. POTENTIAL CARCINOGENIC EFFECTS OF FACET COCS: SLOPE FACTORS

Chemical	Slope Factor $(mg/kg/day)^{-1}$	EPA Weight of Evidence Classification	Type of Cancer/Species	Slope Factor Source
Volatiles				
Acetone	--	D	lack of data in humans and animals	IRIS (2/91)
Benzene	2.9×10^{-2} (oral) 2.9×10^{-2} (inhal)	A	leukemia/human	IRIS (2/91) (Rinsky, et al., 1981; Ott, et al., 1978; Wang, et al., 1983)
2-Butanone	--	D	lack of data in humans and animals	IRIS (3/91)
Carbon Disulfide	--	D	lack of data in humans and animals	IRIS (2/91)
Chloroform	6.1×10^{-3} (oral) 8.1×10^{-2} (inhal)	B2	kidney tumors/rat hepatocellular carcinoma/ female mouse	IRIS (2/91) (Jorgensen, et al., 1985; NCI, 1976)
Chloromethane	1.3×10^{-2} (oral) 6.3×10^{-3} (inhal)	C	mouse kidney mouse kidney	HEAST, 1990 (CIIT, 1981; NIOSH, 1984; US EPA, 1986,87)
1,1-Dichloroethane	--	C	hemangio-sarcoma in rat	IRIS (2/91) (NCI, 1978)
1,2-Dichloroethane	9.1×10^{-2} (oral)	B2	liver/rat and mouse	IRIS (2/91)

TABLE 16 (CONTINUED)

Chemical	Slope Factor $(mg/kg/day)^{-1}$	EPA Weight of Evidence Classification	Type of Cancer/Species	Slope Factor Source
cis-1,2-Dichloroethylene	--	--	--	--
trans-1,2-Dichloroethylene	--	D	lack of data in humans and animals	IRIS (2/91)
1,1-Dichloroethylene	6.0×10^{-1} (oral)	C	adrenal pheochromocytomas in male rat/F344	IRIS (2/91) (NTD, 1982)
	1.2 (inhal)		kidney adenocarcinoma in male Swiss mouse	IRIS (2/91) (Maltoni, et al. 1977, 1985)
Ethylbenzene	--	D	lack of animal bioassay and human studies	IRIS (2/91)
Methylene Chloride	7.5×10^{-3} (oral)	B2	liver/rat and mice 1.4×10^{-2} (inhal)	IRIS (2/91)
Tetrachloroethylene	5.1×10^{-2} (oral)	B2	liver/mouse	HEAST, 1990 (NCI, 1978)
Toluene	--	D	no human data; inadequate animal data	IRIS (2/91)
1,1,1-Trichloroethane	--	D	no human data; inadequate animal data	IRIS (2/91)
Trichloroethylene	1.1×10^{-2} (oral) 1.7×10^{-2} (inhal)	B2	lung and liver tumors/mouse	HEAST, 1990 (Maltoni, et al., 1986)

TABLE 16 (CONTINUED)

Chemical	Slope Factor $(mg/kg/day)^{-1}$	EPA Weight of Evidence Classification	Type of Cancer/Species	Slope Factor Source
Trichlorofluoromethane	--	D	lack of data in humans and animals	IRIS (2/91)
Vinyl Chloride	1.9 (oral) (b)	A	lung and liver/rat	HEAST, 1990 (Maltoni, et al., 1980)
Xylenes (total)	--	D	animal and human data inadequate	IRIS (2/91)
Base Neutral/Acid Extractable				
Acenaphthene	--	--	--	IRIS (3/91)
Acenaphthylene	--	D	no human data; inadequate animal data	IRIS (3/91)
Anthracene	--	D	no human data; inadequate animal data	IRIS (3/91)
Benzoic Acid	--	D	no human data; inadequate animal data	IRIS (2/91)
Benzo(a)anthracene	1.15×10^{1} (c)	B2	human carcinogenicity in mixture (d)	IRIS (3/91) (US EPA, 1984, 1990; IARC, 1984)

TABLE 16 (CONTINUED)

Chemical	Slope Factor (mg/kg/day)$^{-1}$	EPA Weight of Evidence Classification	Type of Cancer/Species	Slope Factor Source
Benzo(a)pyrene	1.15 x 10^{1}	B2	hamster respiratory tract/mouse stomach	AWQC (1986) (Thyssen, et al., 1990 US EPA, 1980; Neal and Rigdon, 1967)
Benzo(b)Fluoroanthrene	1.15 x 10^{1}(c)	B2	human carcinogenicity in mixture (d)	IRIS (3/91) (US EPA, 1984, 1990; IARC, 1984)
Benzo(g,h,i)perylene	--	D	no human data; inadequate animal data	IRIS (3/91)
Benzo(k)flouranthene	1.15 x 10^{1}(c)	B2	human carcinogenicity in mixture (d)	IRIS (3/91) (US EPA, 1984, 1990; IARC, 1984)
Bis(2-ethylhexyl) phthalate	1.4 x 10^{-2} (oral)	B2	hepatocellular carcinoma and adenoma/mouse	IRIS (2/91) (NTP, 1982)
Chrysene	1.15 x 10^{1}(c)	B2	liver tumors in male mice	IRIS (3/91) (Wislocki, et. al., 1986; Buening et. al., 1986)
Dibenz(a,h)anthracene	1.15 x 10^{1}(c)	B2(b)	N/A	HEAST, 1990
Dibenzofuran	--	D	lack of data in humans and animals	IRIS (2/91)
Di-n-butyl phthalate	--	D	lack of data in humans and animals	IRIS (3/91)

TABLE 16 (CONTINUED)

Chemical	Slope Factor $(mg/kg/day)^{-1}$	EPA Weight of Evidence Classification	Type of Cancer/Species	Slope Factor Source
Di-n-octylphthalate	--	--	--	--
Fluoranthene	--	D	no human data; inadequate animal data	IRIS (3/91)
Fluorene	--	D	no human data; inadequate animal data	IRIS (3/91)
Ideno(1,23-cd)pyrene	1.15×10^{0}(c)	B2	epidermoid carcinomas in rat's lungs	IRIS (3/91) (Deutsch-Wenzel, et. 1983)
2-Methyl naphthalene	--	--	--	--
Naphthalene	--	D	no human data; inadequate animal data	IRIS (3/91)
Pentachlorophenol	1.2×10^{-1}	B2(b)	liver, adrenal, circulatory systems	HEAST, 1990
Phenanthrene	--	D	no human data; inadequate animal data	IRIS (3/91)
Pyrene	--	D	no human data; inadequate animal data	IRIS (3/91)

TABLE 16 (CONTINUED)

Chemical	Slope Factor $(mg/kg/day)^{-1}$	EPA Weight of Evidence Classification	Type of Cancer/Species	Slope Factor Source
Pesticides/PCBs				
Aroclor-1248	7.7 (oral)	B2	hepatocellular carcinoma/ rats and mice	IRIS (2/91) (Norback and Weltman, 1965)
Aroclor-1254	7.7 (oral)	B2	hepatocellular carcinoma/ rats and mice	IRIS (2/91) (Norback and Weltman, 1965)
Inorganics				
Aluminum	--	--	--	--
Antimony	--	--	--	IRIS (2/91)
Arsenic	1.75 (oral)	A	skin/humans	IRIS (2/91)
Barium	--	--	--	IRIS (2/91)
Beryllium	4.3 (oral)	B2	gross tumors all sites/rats	IRIS (2/91)
Cadmium	6.1 (inhal)	B1	lung cancer/humans lung tumors/rats	IRIS (2/91) (Thun, et al., 1985)
Chromium VI	4.1×10^{1} (inhal)	A	lung cancer/humans	IRIS (2/91) (Mancuso, 1975)
Co per	--	D	--	IRIS (2/91)

TABLE 16 (CONTINUED)

Chemical	Slope Factor (mg/kg/day)$^{-1}$	EPA Weight of Evidence Classification	Type of Cancer/Species	Slope Factor Source
Cyanide	--	D	lack of data on humans and animals	IRIS (2/91)
Lead(a)		B2	--	IRIS (2/91)
Mercury	--	D	no human data/inadequate animal data	IRIS (2/91)
Nickel	--	D	--	IRIS (2/91)
Silver	--	D	--	IRIS (2/91)
Tin	--	--	--	--
Zinc	--	D	animal and human data inadequate	IRIS (3/91)

(a) EPA Cancer Assessment Group recommends numerical estimate not be used for lead.
(b) IRIS input pending.
(c) Per EPA guidance, the benzo(a)pyrene slope factor is used as a surrogate for other PAHs where sufficient evidence of carcinogenicity exists, as designated in IRIS or HEAST.
(e) Soot containing these chemicals was found to be carcinogenic (IRIS, 1991).

Sources: IRIS - See EPA, 1991b.
HEAST - See EPA, 1990a.

TABLE . SUMMARY OF CARCINOGENIC RISK ESTIMATES FOR THE FACET SITE[a]

Scenario	Receptor	Current/ Future	Incremental Risk
Ground Water			
Ingestion	Resident	C/F	2.0×10^{-3}**
Volatiles Inhalation While Showering	Resident	C/F	8.0×10^{-5}*
Soil			
Surface Soil - Ingestion	Tres		x 10^{-4}**
Subsurface Soil - Ingestion	Wor		x 10^{-7}
Surface Soil, Plant 2 Yard - Ingestion	Tres		x 10^{-10}
Subsurface Soil, Plant 2 Yard - Ingestion	Wor		x 10^{-11}
Oil/Water Separator - Ingestion	Worl		x 10^{-4}**
Sediment			
Height's Drainage Swale - Ingestion	Resident	C/F	4.0×10^{-4}**
North Drainage Ditch - Ingestion	Trespasser	C/F	8.8×10^{-6}*
May's Creek - Ingestion	Resident	C/F	6.5×10^{-4}**
Area 6 - Ingestion	Trespasser	C/F	1.7×10^{-6}*
Area 10 - Ingestion	Trespasser	C/F	5.1×10^{-6}*

Table 17.

* Exceeds 10^{-6} risk.
** Exceeds 10^{-4} risk.
[a]Dermal pathways not evaluated quantatively based on current EPA Region II guidance for the Facet site (EPA, 1992).

TABLE . SUMMARY OF CARCINOGENIC RISK ESTIMATES FOR THE FACET SITE[a]

Scenario	Receptor	Current/ Future	Incremental Risk
Ground Water			
Ingestion	Resident	C/F	2.0×10^{-3}**
Volatiles Inhalation While Showering	Resident	C/F	8.0×10^{-5}*
Soil			
Surface Soil - Ingestion	Trespasser	C/F	1.1×10^{-4}**
Subsurface Soil - Ingestion	Worker	C/F	4.2×10^{-7}
Surface Soil, Plant 2 Yard - Ingestion	Trespasser	C/F	2.5×10^{-10}
Subsurface Soil, Plant 2 Yard - Ingestion	Worker	C/F	2.4×10^{-11}
Oil/Water Separator - Ingestion	Worker	C/F	1.5×10^{-4}**
Sediment			
Height's Drainage Swale - Ingestion	Resident	C/F	4.0×10^{-4}**
North Drainage Ditch - Ingestion	Trespasser	C/F	8.8×10^{-6}*
May's Creek - Ingestion	Resident	C/F	6.5×10^{-4}**
Area 6 - Ingestion	Trespasser	C/F	1.7×10^{-6}*
Area 10 - Ingestion	Trespasser	C/F	5.1×10^{-6}*

* Exceeds 10^{-6} risk.
** Exceeds 10^{-4} risk.
[a]Dermal pathways not evaluated quantatively based on current EPA Region II guidance for the Facet site (EPA, 1992).

TABLE 18

PUROLATOR PRODUCTS COMPANY

CHEMICAL	MAX.CONC. (ug/l)	GROUND WATER ARAR (1)		SOURCE (2)	MAX. CONC. IS GREATER THAN ARAR
ORGANICS					
n-Butylbenzene	13	5	Standard	NYSDEC (9/90)	YES
Chloroform	1	7	Standard	NYSDEC (5/91)	NO
1,1-Dichloroethane	2	5	Standard	NYSDEC (9/90)	NO
1,2-Dichloroethane	0.3	5	Standard	NYSDEC (9/90)	NO
1,1-Dichloroethene	2	5	Standard	NYSDEC (9/90)	NO
cis-1,2-Dichloroethene	160	5	Standard	NYSDEC (9/90)	YES
trans-1,2-Dichloroethene	2	5	Standard	NYSDEC (9/90)	NO
Dichlorodifluoromethane	2	5	Standard	NYSDEC (9/90)	NO
Ethylbenzene	12	5	Standard	NYSDEC (9/90)	YES
Isopropylbenzene	8	5	Standard	NYSDEC (9/90)	YES
4-Isopropyltoluene	12	5	Standard	NYSDEC (9/90)	YES
Methylene Chloride	69	5	Standard	NYSDEC (9/90)	YES
Naphthalene	23	50	Standard	NYSDEC (9/90)	NO
n-Propylbenzene	22	5	Standard	NYSDEC (9/90)	YES
1,1,1-Trichloroethane	13	5	Standard	NYSDEC (9/90)	YES
Trichloroethene	190	5	Standard	NYSDEC (9/90)	YES
Trichlorofluoromethane	19	5	Standard	NYSDEC (9/90)	YES
1,2,4-Trimethylbenzene	18	5	Standard	NYSDEC (9/90)	YES
1,3,5-Trimethylbenzene	81	5	Standard	NYSDEC (9/90)	YES
Vinyl Chloride	33	2	Standard	NYSDEC (5/91)	YES
Xylenes	14	5	Standard	NYSDEC (9/90)	YES
INORGANICS					
Aluminum	95500		NA (3)	—	—
Antimony	45.8	3	Guidance Value (4)	NYSDEC (9/90)	YES
Arsenic	20.4	25	Standard	NYSDEC (5/91)	NO
Barium	911	1000	Standard	NYSDEC (5/91)	NO
Beryllium	4.2	3	Guidance Value (4)	NYSDEC (9/90)	YES
Cadmium	55.8	10	Standard	NYSDEC (5/91)	YES
Chromium	1540	50	Standard	NYSDEC (5/91)	YES
Copper	1200	200	Standard	NYSDEC (5/91)	YES
Lead	146	25	Standard	NYSDEC (5/91)	YES
Mercury	5.6	2	Standard	NYSDEC (5/91)	YES
Nickel	602	100	Tentative Proposed MCL (4)	USEPA (5/90)	YES
Silver	10.2	50	Standard	NYSDEC (5/91)	NO
Tin	16.1	21000	Chronic RfD (4)	USEPA-HEAST (1991)	NO
Zinc	1180	300	Standard	NYSDEC (5/91)	YES
Cyanide	99.4	100	Standard	NYSDEC (5/91)	NO

NOTES:

(1) When no ARAR has been established, an appropriate guidance or other health-based value is listed, as noted.

(2)
a. NYSDEC, 1991. Revision of Water Quality Regulations for Surface Water and Ground Waters. May.
b. NYSDEC, 1990. Division of Water - Technical and Operational Guidance Series (1.1.1) - Ambient Water Quality Standards and Guidance Values. September.
c. USEPA, 1991b. Health Effects Assessment Summary Tables (HEAST). January.
d. USEPA, 1990a. Fact Sheet - Drinking Water Regulations under the Safe Drinking Water Act. May.

(3) No ARAR or health-based toxicity value available. RA did not identify aluminum as a chemical of concern. Therefore, no remediation goal is developed.

(4) No ARAR available as defined in USEPA, 1989a. Therefore, an acceptable concentration was derived using the USEPA oral chronic reference dose (RfD) and the standard exposure assumptions of 2 liters/day ingestion rate and 70 kg average body weight.

Citation	Description	Type	Reason for Listing
NYS; 6 NYCRR 756	State pollutant discharge elimination system	action	May relate to on-site treatment of wastes.
NYS; 6 NYCRR 757	State pollutant discharge elimination system	action	May relate to on-site treatment of wastes.
NYS; TOGS 1	Technical and operational guidance for pollutant discharge elimination system	action	May relate to on-site treatment of wastes.
NYS; TOGS 2	Technical and operational guidance for ground water	action	May relate to remediation of ground water.
NYS; 10 NYCRR 5	State public drinking water standards	chemical	May relate to remediation of ground water.
NYS; 10 NYCRR 170	State public drinking water source standards	chemical	May relate to remediation of ground water.

GLOSSARY OF ACRONYMS

ARARs - Applicable or Relevant and Appropriate Requirements

CAA - Clean Air Act

CWA - Clean Water Act

OSHA - Occupational Safety and Health Act

RCRA - Resource Conservation and Recovery Act

SDWA - Safe Drinking Water Act

TBCs - To Be Considered

TSCA - Toxic Substances Control Act

TABLE 18

POTENTIAL ARARs AND TBCs
FEASIBILITY STUDY
PUROLATOR PRODUCTS COMPANY

Citation	Description	Type	Reason for Listing
OSHA; 29 CFR 1910	Guidelines and requirements for workers at hazardous waste sites (subpart 120) and standards for air contaminants (subpart 1)	action	May relate to remediation of all areas.
CAA; 40 CFR 50	National Ambient air quality standards	chemical	May relate to on-site treatment of wastes.
CAA; 40 CFR 52	National ambient air quality standards attainment areas	location	May relate to on-site treatment of wastes.
CAA; 40 CFR 60	New source performance standards	action	May relate to on-site treatment of wastes.
CAA; 40 CFR 61	National emission standards for hazardous air pollutants	action, chemical	May relate to on-site treatment of wastes.
CWA; 40 CFR 122	Treatment system discharge standards	action, chemical	May relate to ground water remediation.
CWA; 40 CFR 136	Approved test methods for discharge monitoring	action	May relate to ground water remediation.
SDWA; 40 CFR 141	National primary drinking water standards	chemical	May relate to remediation of ground water.
RCRA; 40 CFR 261	Determination of whether a waste is hazardous	action, chemical	May relate to remediation of all areas.
RCRA; 40 CFR 262	Hazardous waste generator requirements	action	May relate to off-site disposal of wastes.
RCRA; 40 CFR 263	Hazardous waste transporter requirements	action	May relate to off-site disposal of wastes.
RCRA; 40 CFR 264	TSDF standards	action, chemical, location	May relate to remediation of all areas.

APPENDIX IV

STATE LETTER OF CONCURRENCE

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233

Thomas C. Jorling
Commissioner

JUN 30 1992

Ms. Kathleen C. Callahan
Director
Emergency & Remedial Response Division
USEPA, Region II
26 Federal Plaza
New York, NY 10278

Dear Ms. Callahan:

Re: Facet Enterprises Site, Chemung Co, NY
Record of Decision

The purpose of this letter is to confirm the New York State Department of Environmental Conservation's concurrence with USEPA's Record of Decision for the Facet Enterprises NPL Site in Elmira Heights, NY. The selected remedial measure will remove a significant source of groundwater contamination in the Newtown Creek Aquifer.

The ROD notes that EPA will evaluate the need for further action in areas 1,2, and 3 based on the results of confirmatory sampling performed after the drum removal. NYSDEC must have the opportunity to review and concur with this decision when it is made.

We greatly appreciate USEPA's efforts to have as much contaminated material as possible removed from the site for proper treatment and disposal. However, as mentioned in the ROD, some hazardous substances will remain on-site. We support efforts to restrict access to this site in the future to prevent inadvertent human exposure to these substances. A deed restriction would be the most effective means to accomplish this. If this option is unavailable, then NYSDEC and NYSDOH retain the option of filing a deed notification letter with the appropriate local authorities.

Sincerely,

for Charles Goldsmith

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

GC/kp

cc: A. Carlson

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To Jeff Josephson	From George Heitzman
Co.	Co.
Dept.	Phone #
Fax #	Fax #

TOTAL P.01