ESC ENGINEERING OF NEW YORK, P.C.
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April 2, 2003

Mr. John Rashak, P.E.
New York State Department of Environmental Conservation
Region 3 Headquarters
21 South Putt Corners Road
New Paltz, New York 12561-1696

Re: Revised Indoor Air and Soil Gas Sampling Work Plan
Federal-Mogul Corporation Facility, Kingston, New York
Voluntary Cleanup Program Agreement Index Number: A3-0372-9807

Dear Mr. Rashak:

On behalf of Federal-Mogul Corporation, ESC Engineering of New York, P.C., is submitting this revised work plan to perform indoor air and soil gas sampling at the Federal-Mogul property at 85 Grand Street in Kingston, New York. This work plan has been revised to incorporate comments received from the New York State Department of Environmental Conservation (NYSDEC) in a letter, dated March 19, 2003. In accordance with the site meeting on November 22, 2002, with John Rashak of the NYSDEC and Bridget Callaghan of the New York State Department of Health (NYSDOH), the primary objective of the proposed sampling activities is to evaluate indoor air quality with respect to site-related constituents in occupied portions of the building and to evaluate the potential for offsite exposure to volatile organic compounds (VOCs) in nearby residences. This work plan provides a summary of pertinent background information, a description of the proposed sampling activities, and the proposed project schedule.

Background Information

On November 21, 2002, ESC Engineering submitted to the NYSDEC a supplemental investigative report for the Federal-Mogul facility. The report summarized the results of soil and groundwater investigations, including the collection and analysis of 87 soil samples, 14 *in-situ* groundwater samples from 10 locations, and groundwater samples from 9 existing groundwater monitoring wells. The sample locations are shown in Figure 1 and the analytical results are summarized in Tables 1 through 11. The investigation results indicate that the primary VOCs detected in onsite soil and groundwater at concentrations above the evaluation criteria were cis-1,2-dichloroethene (1,2-DCE), trichloroethene (TCE), and tetrachloroethene (PCE). The highest levels of these compounds were detected in the northeast corner of the property in the former metal finishing area and in the former eastern parking lot transformer area (Figure 1; Tables 1, 5, and 11). It should be noted that low levels of these compounds were also detected in upgradient *in-situ* groundwater samples GP-7 through GP-10, which suggests that there is an upgradient source for VOCs in groundwater that is unrelated to the Federal-Mogul property.

This offsite source could potentially affect soil gas quality at the offsite sample locations proposed in this work plan.

The Federal-Mogul facility is currently leased by Allways Moving and Storage, which uses the main building primarily for indoor self-storage. The building currently contains over 400 self-storage lockers, which are constructed with sheet metal walls, a door to access the interior, and a wire mesh ceiling (Figure 2). Allways Moving does not actively regulate the materials stored in the lockers. The lockers typically store personal belongings, many of which could contain VOCs, such as dry cleaned clothes, household cleaners, paints, and gas-powered lawn and recreation equipment. Portions of the building are subleased to Baily Pottery, Kloom Construction, Brown Security, and Scheff Furniture. According to Bob Benkert of Allways Moving, the spaces subleased to Brown Security, Kloom Construction, and Baily Pottery are used only for storage and, thus, are occupied infrequently and only for brief periods. The only spaces within the main building that are occupied on a regular basis are the Scheff Furniture space and the main office complex (Figure 2). Reportedly, Scheff Furniture may be vacating its space in 2003.

Proposed Scope of Work

Indoor Air Sampling

ESC Engineering is proposing to collect an indoor air sample at the locations designated IA-1 and IA-2 on Figure 2. The air samples will be collected under ambient, normal use conditions so that the results will represent typical indoor conditions as required by the NYSDOH Indoor Air Sampling Guide, dated August 8, 2001. The proposed sample locations are in the main office complex and in the Scheff Furniture space (Figure 2). If the Scheff Furniture space has been vacated or converted to storage units before the field activities are performed, the proposed indoor air sample in this area will be eliminated from the sampling program. Before collecting the indoor air samples, ESC Engineering will complete the NYSDOH's indoor air quality questionnaire and building inventory form for these spaces (Enclosure A). Products containing TCE, PCE, or cis-1,2-DCE will be listed on the NYSDOH's product inventory form and the containers will be removed from the sample locations, if possible. Alternatively, the containers will be scanned with a photoionization detector (PID) for potential leaks. The PID readings will be recorded on the inventory form. If the contents are not listed on the container, ESC Engineering will record the product name and manufacturer's name and address (if available) on the inventory form. ESC Engineering will attempt to contact the manufacturers to determine if the products contain the targeted VOCs. Occupants of the proposed sampling locations will be instructed not to use any materials containing the target VOCs within 24 hours before sample collection or during sample collection.

The indoor air samples will be collected using SUMMA™ canisters positioned approximately three feet above the floor to be representative of the breathing zone. Physical and visual barriers will be placed around the canister so that it is not disturbed during sample collection. The flow regulator will be pre-set by the laboratory to collect the samples over an 8-hour period. The flow regulator will be connected to the canister and the valve will be opened to initiate sample collection. After 8 hours, the valve on the canister will be closed and the canister will be labeled

with the sample name, location, time and date of sample collection, and the analytical method. The time at the beginning and end of the sample period for each canister will be recorded in the bound field notebook.

The air samples will be shipped under ambient conditions to STL Knoxville in Knoxville, Tennessee, a NYSDOH ELAP-certified laboratory. The indoor air samples will be analyzed for TCE, PCE, and cis-1,2-DCE by U.S. Environmental Protection Agency (EPA) Method TO-15. In accordance with EPA Method TO-15, the holding time for VOCs in SUMMA™ canisters is 28 days from the time of collection.

Outdoor Ambient Air Sampling

An outdoor ambient air sample will be collected upwind of the main facility building to assist in evaluating potential sources of chemicals in the indoor air. In accordance with Massachusetts Department of Environmental Protection's (MADEP) Indoor Air Sampling and Evaluation Guide (WSC Policy #02-430), dated April 2002, the outdoor sample will be collected 5 to 15 feet upwind of the main building and the sample intake will be placed approximately 5 feet above the ground. According to the National Weather Service's monthly average wind direction data for Albany, New York, the average wind direction in 2002 was 285 degrees (i.e., from the west-northwest). Therefore, ESC Engineering proposes to collect the outdoor sample in the northwest corner of the property at the location designated OA-1 on Figure 2. In accordance with MADEP guidance, collection of the outdoor air sample will begin approximately 1 hour before the indoor air sampling begins and continue until approximately 30 minutes before the indoor air sampling period ends. The sample will be collected with a SUMMA™ canister over an 8-hour period using the same procedures and analytical methods described above for the indoor air samples.

Soil Gas Sampling

ESC Engineering is proposing to collect five soil gas samples at the locations designated SG-1 through SG-5 on Figure 2. Proposed locations SG-1 through SG-4 were selected to evaluate the potential for VOCs in soil gas to migrate offsite from the northeastern portion of the property toward the adjacent residences. Proposed location SG-5 was selected to evaluate the potential for VOCs in soil gas to migrate toward the office building at the southeast corner of the main building. The soil gas samples will be collected using 6-liter SUMMA™ canisters and dedicated 6-inch-long stainless steel wire mesh screens and Teflon® tubing. The wire-mesh screens have an outside-diameter (OD) of 0.5 inch and a screen pore size of 0.0057 inch. As requested in an electronic message from Ms. Callaghan to Brian Silfer of ESC Engineering, dated November 26, 2002, the soil gas samples will be collected at a depth of 6 feet bgs. To install the sampling device, direct-push rods equipped with a 1.25-inch OD drive point will be advanced to a depth of approximately 6 feet bgs. The stainless steel screen will then be attached to 0.25-inch inside-diameter (ID) Teflon® tubing and lowered through the hollow probe rods until it rests on the drive point. The base of the wire mesh screen will then be threaded into the top of the drive point by rotating the tubing. The probe rods will then be removed from the hole leaving the drive point, screen, and tubing in place. Alternatively, ESC Engineering may elect to collect continuous soil samples using a 1.5-inch OD macrocore tube to advance the boring to the appropriate depth. If the macrocore tube is used, the screen and tubing will be lowered to the bottom of the open borehole. Approximately 1 foot of quartz sand will be placed in the bottom

of the borehole around the screen and tubing to create a 1-foot-thick sample interval. The remainder of the borehole will be sealed with hydrated bentonite chips. The chips will be hydrated before they are placed in the borehole.

Before collecting the soil gas sample, a minimum of one well volume of air will be purged from the sampling equipment and the surrounding sand pack using a calibrated pump to ensure that the sample is representative of the soil gas. Assuming 7.5 feet of 0.25-inch ID tubing, a 6-inch-long section of 0.5-inch OD screen, and a 1-foot-thick quartz sand pack with a porosity of 30 percent, the approximate volume of air to be removed is approximately 125 to 145 cubic centimeters (depending on the borehole diameter). To collect the sample, a certified-clean 6-liter SUMMA™ canister will be connected to the Teflon® tubing and the valve will be opened. The flow regulator will be pre-set at 0.1 liter per minute by the laboratory. After 60 minutes, the valve on the canister will be closed and the canister will be labeled with the analytical method and the sample name, location, time and date of sample collection. Following collection of the soil gas samples, the tubing will be removed from the ground and the borehole will be capped with soil cuttings or an asphalt patch to match the surrounding surface.

The soil gas samples will be shipped under ambient conditions to STL Knoxville in Knoxville, Tennessee, a NYSDOH ELAP-certified laboratory. The samples will be analyzed for TCE, PCE, and cis-1,2-DCE by EPA Method TO-15. In accordance with EPA Method TO-15, the holding time for VOCs in SUMMA™ canisters is 28 days from the time of collection.

Project Schedule and Reporting

ESC Engineering anticipates initiating the sampling activities within 2 weeks of receiving work plan approval, pending subcontractor availability. The proposed sampling activities, including completion of the indoor air quality questionnaires and inventory forms, will require approximately 3 days to complete. Five weeks will be required to complete the analytical testing and data validation. Within one week of completing the data validation (i.e., 8 weeks after work plan approval), ESC Engineering will submit a report to the NYSDEC summarizing and evaluating the results of the indoor air and soil gas samples, including whether complete exposure pathways exist onsite and offsite. The report will also include, at a minimum, an indoor air and soil gas sample location plan, summary tables of the analytical results, and copies of the analytical reports.

Please contact us at (315) 655-3900 with any questions regarding this work plan or other aspects of the project.

Sincerely yours,

Brian E. Silfer

Brian E. Silfer
Project Director

BES:sel
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Enclosures

cc: Deborah W. Christian, Esquire, New York State Department of Environmental Conservation
Ms. Kristin Kulow, New York State Department of Health
Mr. Mark Bauer, Bauer Environmental, L.L.C.
Mr. Jeffrey Hassen, Environmental Strategies Corporation

Enclosure A – NYSDOH Indoor Air Quality Questionnaire and Building Inventory Forms

OSR - 3

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL HEALTH ASSESSMENT
BUREAU OF TOXIC SUBSTANCE ASSESSMENT

INDOOR AIR QUALITY QUESTIONNAIRE AND BUILDING INVENTORY

This form must be completed for each residence involved in indoor air testing.

Preparer's Name _____ Date Prepared _____

Preparer's Affiliation _____ Phone No._____

1. **OCCUPANT** Name: _____

Address: _____

_____

County: _____

Home Phone No. _____Office Phone No _____

2. **OWNER OR LANDLORD**: (If different than occupant) Name: _____

Address: _____

_____

Phone No. _____

A. Building Construction Characteristics

Type (circle appropriate responses): Single Family Multiple Dwelling Commercial

Ranch	2-Family
Raised Ranch	Duplex
Split Level	Apartment House _____ Units
Colonial	Number of floors _____
Mobile Home	Other specify _____

Residence Age _____ General Description of Building Construction Materials _____

_____

Is the building insulated? Yes / No How air tight is the building _____

OSR-3 (continued)

B. <u>Basement construction characteristics (circle all that apply)</u>:

1. Full basement, crawlspace, slab on grade, other _____
2. Basement floor: concrete, dirt, other _____
3. Concrete floor: unsealed, painted, covered; with _____
4. Foundation walls: poured concrete, block, laid up stone, other _____
5. The basement is: wet, damp, dry _____Sump present? y / n _____Water in sump? y / n ____
6. The basement is: finished, unfinished _____
7. Identify potential soil vapor entry points (e.g., cracks, utility ports etc.)

   _____

8. Describe how air tight the basement is _____

   _____

C. <u>HVAC (circle all that apply)</u>:

1. The type of heating system(s) used in this residence is/are:

Hot Air Circulation	Heat Pump
Hot Water Radiation	Unvented Kerosene Heater
Steam Radiation	Wood stove
Electric Baseboard	Other (specify) _____

2. The type(s) of fuel(s) used is/are: Natural Gas, Fuel Oil, Electric, Wood Coal Solar

   Other (specify) _____.

3. Is the heating system's power plant located in the basement or another area: _____.
4. Is there air-conditioning? Yes / No Central Air or Window Units?

   Specify the location _____

5. Are there air distribution ducts present? Yes / No
6. Describe the supply and cold air return duct work in the basement including whether there is a cold air return, the tightness of duct joints

   _____

   _____

OSR-3 (continued)

D. Potential Indoor Sources of Pollution

1. Has the house ever had a fire? Yes / No
2. Is there an attached garage? Yes / No
3. Is a vehicle normally parked in the garage? Yes / No
4. Is there a kerosene heater present? Yes / No
5. Is there a workshop, hobby or craft area in the residence? Yes / No
6. An inventory of all products used or stored in the home should be performed. Any products that contain volatile organic compounds or chemicals similar to the target compounds should be listed. The attached product inventory form should be used for this purpose.
7. Is there a kitchen exhaust fan? Yes / No Where is it vented? _____
8. Has the house ever been fumigated? If yes describe date, type and location of treatment.

_____

E. Water and Sewage (Circle the appropriate response)

Source of Water

Public Water Drilled Well Driven Well Dug Well Other (Specify) _____

Water Well Specifications:

Well Diameter _____ Grouted or Ungrouted _____

Well Depth _____ Type of Storage Tank _____

Depth to Bedrock _____ Size of Storage Tank _____

Feet of Casing _____ Describe type(s) of Treatment _____

_____

Water Quality:

Taste and/or odor problems? y / n If so, describe _____

How long has the taste and/or odor been present? _____

Sewage Disposal: Public Sewer Septic Tank Leach Field Other (Specify) _____

Distance from well to septic system _____ Type of septic tank additive _____

OSR-3 (continued)

F. Plan View

Draw a plan view sketch for each floor of the residence and if applicable, indicate air sampling locations, possible indoor air pollution sources and PID meter readings.

OSR-3 (continued)

G. <u>Potential Outdoor Sources of Pollution</u>

Draw a sketch of the area surrounding the residence being sampled. If applicable, provide information on the spill location (if known), potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system if applicable, and a qualifying statement to help locate the site on a topographical map.

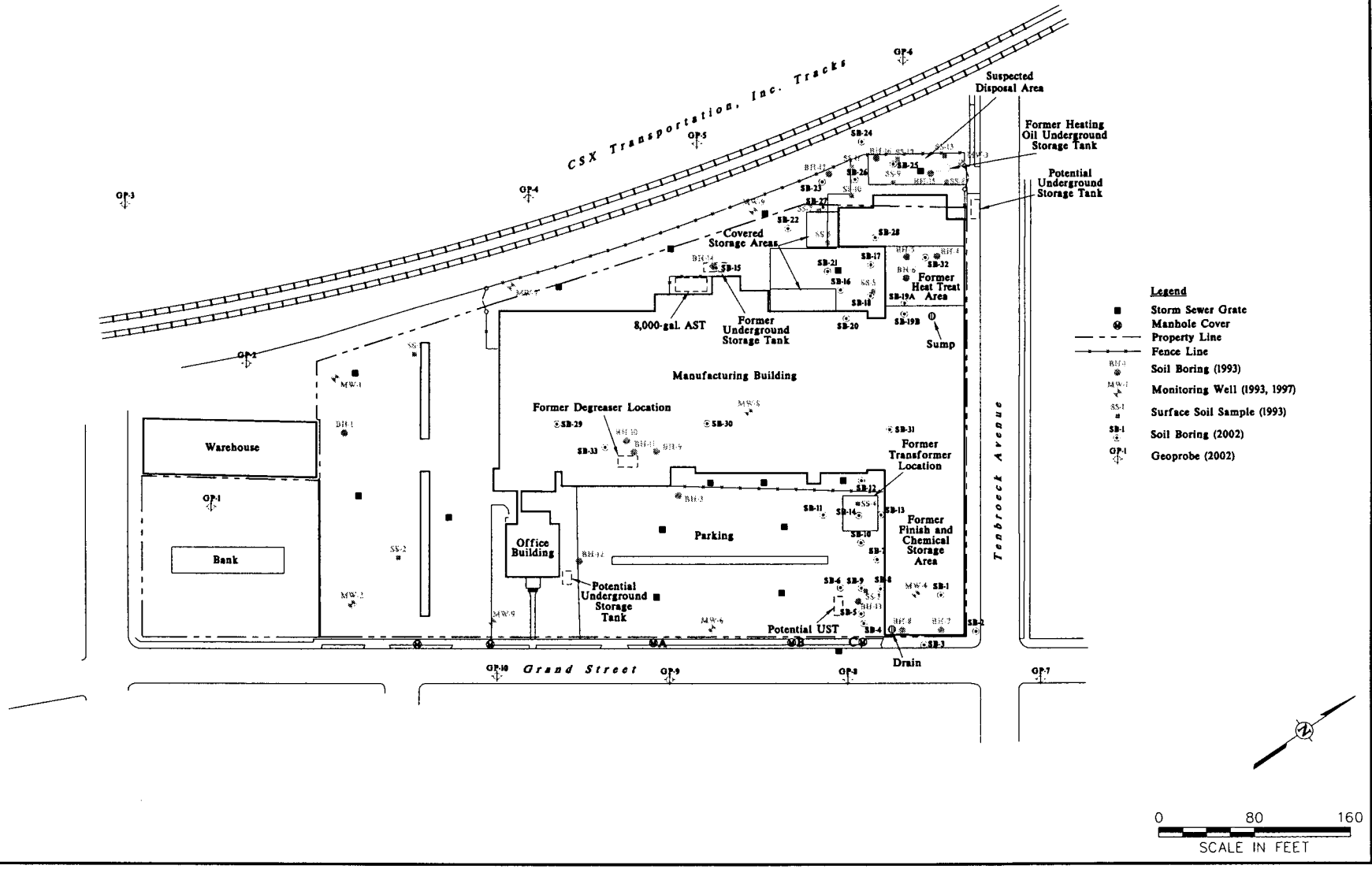
Household Products Inventory

Occupant / residence _____

Investigator: _____ Date: _____

Product description (dispenser, size, manufacturer …)	VOC Ingredients	PID Reading

Figures



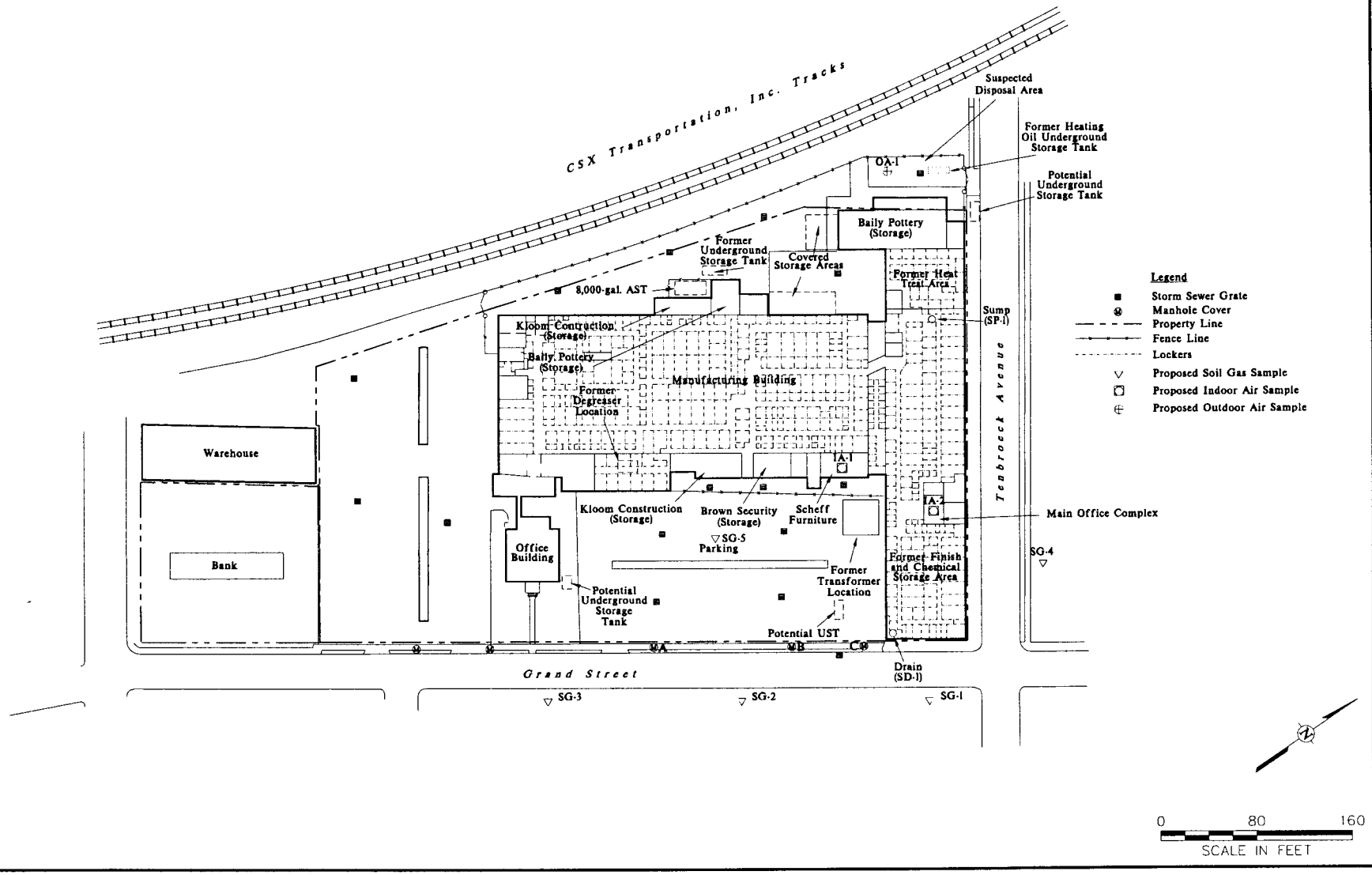
Drawn By: EGC
Checked:
Approved:
DWG Name: 13800818

FEDERAL-MOGUL CORPORATION
KINGSTON, NEW YORK
PREPARED FOR FEDERAL-MOGUL

Figure 1

SITE LAYOUT WITH SAMPLE LOCATIONS

ESC Engineering of New York, P.C.



Drawn By: EGC
Checked:
Approved:
DWG Name: 13800817

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KINGSTON, NEW YORK
PREPARED FOR FEDERAL-MOGUL

Figure 2

SITE LAYOUT WITH PROPOSED SAMPLE LOCATIONS

ESC ENGINEERING OF NEW YORK, P.C.

Tables

Table 1

Soil Results for the Former Metal Finish Area
Federal-Mogul Facility, Kingston, New York
March 19 through 29, 2002(a)

Boring ID	SB-1				SB-2		SB-3		Evaluation
Sample ID	SB01010	SB91010 (b)	SB01060	SB01175	SB02010	SB02060	SB03010	SB03060	Criteria (c)
Depth (ft)	1-3	1-3	6-8	17.5-19.5	1-3	6-8	1-3	6-8	
Parameter									
VOCs (ug/kg)									
1,2-Dichloroethene-cis	11	ND	NA	1,700 J	ND	NA	ND	NA	NVL
Methylene Chloride	ND	10 BJ	NA	ND	ND	NA	ND	NA	100
Tetrachloroethene	ND	ND	NA	ND	ND	NA	ND	NA	1,400
Trichloroethene	83	23	NA	47,000 J	ND	NA	14	NA	700
Cyanide (mg/kg)									
Total Cyanide	ND	0.45	NA	0.57	ND	NA	0.26	ND	0.21 (d)
Free Cyanide	ND	ND	NA	ND	ND	NA	ND	NA	0.21 (d)
Metals (mg/kg)									
Arsenic	ND	ND	ND	ND	32.2	ND	ND	ND	7.5 (e)
Barium	21.7 B	46.3	21.5 B	25.3 B	80.0	13.1 E	90.2	16.9 B	300 (e)
Cadmium	0.57 B	0.66 B	0.23 B	0.22 B	0.33 B	ND J	1.4	1.8 J	1 (e)
Chromium	216 E	408 E	81	468 E	12.1	4.4	9.0	2.8	10 (e)
Hexavalent Chromium	6.9	4.9	10.3	ND	ND	ND	ND	ND	0.42 (d)
Lead	23.3	37.4	3.9	4.2	979	ND	28.3	ND	500 (d)
Mercury	0.091 B	0.083 B	0.014 B	0.036 B	0.18	0.021 B	0.28	0.020 B	0.16 (d)
VOCs (ug/kg)									
cis-1,2-Dichloroethene	8,200	ND	(f)	(f)	NVL				
Methylene Chloride	ND	ND	(f)	(f)	100				
Tetrachloroethene	52,000 J	ND	(f)	(f)	1,400				
Trichloroethene	370,000 E	ND	(f)	(f)	700				

Table 1 (Continued)

Soil Results for Former Metal Finish Area
Federal-Mogul Facility, Kingston, New York
March 19 through 29, 2002(a)

Boring ID	SB-4		SB-5		Evaluation Criteria (c)
Sample ID	SB04010	SB04060	SB08010	SB08010	
Depth (ft)	1-3	6-8	1-3	6-8	
Parameter					
Cyanide (mg/kg)					
Total Cyanide	ND	NA			0.21 (d)
Free Cyanide	ND	NA			0.21 (d)
Metals (mg/kg)					
Arsenic	10.9	ND	NA	NA	7.5 (e)
Barium	87.6	26.3 B	NA	NA	300 (e)
Cadmium	0.33 B	0.24 B	NA	NA	1 (e)
Chromium	4.2	4.4	NA	NA	10 (e)
Hexavalent Chromium	ND	ND	NA	NA	0.42 (d)
Lead	208	3	NA	NA	500 (d)
Mercury	0.073 B	ND	NA	NA	0.16 (d)

a\ B = concentration below contracted laboratory detection limit; J = estimated concentration below detection limit; ND = nondetect; ft = feet; E = estimated value; mg/kg = milligrams per kilogram; ug/kg = micrograms per kilogram; VOCs = volatile organic compounds; NVL = no value listed NA = not analyzed.

b\ SB91010 is a duplicate of SB01010.

c\ Evaluation Criteria for VOCs = New York State Technical and Administrative Guidance Memorandum (TAGM) #4046 Appendix A, Table 1, Recommended Soil Cleanup Objectives (January 1994); Evaluation Criteria for cyanide and metals are twice the average site-specific background concentrations or New York State Technical and Administrative Guidance Manual (TAGM) #4046 Appendix A, Table 4, Recommended Soil Cleanup objectives, whichever is higher (See Table 2).

d\ Site-specific evaluation criteria. See text and (c) above for explanation.

e\ TAGM #4046 criteria. See text and (c) above for explanation.

f\ Sample SB-8 was collected as part of the adjacent Former Eastern Parking Lot Transformer Area Investigation. Cyanide was added to the list of parameters to augment this AOC. VOC results for this sample are presented in Table 7.

\ Exceeds Evaluation Criteria.

Table 2

Soil Results for the Former Heat Treat Area
Federal-Mogul Facility, Kingston, New York
March 19 through 29, 2002(a)

Boring ID	SB-32	
		Evaluation
Sample ID	SB32175	Criteria (b)
Depth (ft)	17.5-19.5	
Parameter		
VOCs (ug/kg)		
Tetrachloroethene	17	1,400

a\ ug/kg = micrograms per kilogram; VOCs = volatile organic compounds; ft = feet.

b\ Evaluation Criteria for VOCs = New York State Technical and Administrative Guidance Memorandum (TAGM) #4046 Appendix A, Table 1, Recommended Soil Cleanup Objectives (January 1994).

Table 3

Soil Results for the Former Fuel Oil Underground Storage Tank Area
Federal-Mogul Facility, Kingston, New York
March 19 through 29, 2002(a)

Boring ID	SB-15		Evaluation
Sample ID	SB15120	SB15175	Criteria (b)
Depth (ft)	12-14	17.5-19.5	
Parameter			
VOCs (ug/kg)			
Naphthalene	300	ND	200
Toluene	94	ND	100
1,2,4-Trimethylbenzene	18 J	ND	100
m,p-Xylenes	28	ND	100
PAHs (ug/kg)			
Acenapthene	650	ND	400
Acenapthylene	180 J	ND	NVL
Anthracene	1,400	ND	1,000
Benzo(a)anthracene	1,700	ND	0.04
Benzo(a)pyrene	1,400	ND	0.04
Benzo(b)fluoranthene	1,300	ND	0.04
Benzo(g,h,i)perylene	450	ND	0.04
Benzo(k)fluoranthene	1,100	ND	0.04
Chrysene	1,500	ND	0.04
Dibenz(a,h)anthracene	120 J	ND	1,000
Dibenzofuran	320 J	ND	NVL
Fluoranthene	6,500 E	ND	1,000
Fluorene	850	ND	1,000
Indeno(1,2,3-cd)pyrene	730 J	ND	0.04
Napthalene	590	ND	200
Penanthrene	4,500	ND	1,000
Pyrene	2,700	ND	1,000

a\ J = estimated concentration below detection limit; ND = nondetect;
E = estimated concentration; NVL = no value listed; ft = feet;
ug/kg = micrograms per kilogram; VOCs = volatile organic compounds;
PAHs = polycyclic aromatic hydrocarbons.

b\ Evaluation Criteria for VOCs and PAHs = TCLP Alternative Guidance Spill Values from New York State Technology and Remediaton Series (STARS), STARS Memo #1: Petroleum-Contaminated Soil Guidance Policy, Tables 1 and 2, Guidance Values for Gasoline and Fuel Oil Contaminated Soil, (August 1992).

\ meets or exceeds Evaluation Criteria.

Table 4

Soil Results for the Former Degreaser Area
Federal-Mogul Facility, Kingston, New York
March 19 through 29, 2002(a)

Boring ID	SB-33	Evaluation
Sample ID	SB33175	Criteria (b)
Depth (ft)	17.5-19.5	
Parameter		
VOCs (ug/kg)		
1,2-Dichloroethene-cis	2,000	NVL
Tetrachloroethene	93,000	1,400
Trichloroethene	65,000	700

a\ ug/kg = micrograms per kilogram; VOCs = volatile organic compounds; NVL = no value listed; ft = feet.

b\ Evaluation Criteria for VOCs = New York State Technical and Administrative Guidance Manual (TAGM) #4046 Appendix A, Table 1, Recommended Soil Cleanup Objectives (January 1994).

\ meets or exceeds Evaluation Criteria.

Table 5

Soil Results for Former Eastern Parking Lot Transformer Area
Federal-Mogul Facility, Kingston, New York
March 19 through 29, 2002(a)

Boring ID	SB-5		SB-6		SB-7		SB-8		Evaluation
Sample ID	SB05010	SB05060	SB06010	SB06060	SB07010	SB07060	SB08010 (b)	SB08060	Criteria (d)
Depth (ft)	1-3	6-8	1-3	6-8	1-3	6-8	1-3	6-8	
Parameter									
VOCs (ug/kg)									
1,2-Dichloroethene-cis	11	NA	140 J	ND	670 J	ND	ND	NA	NVL
Methylene Chloride	6	NA	ND	ND	ND	ND	ND	NA	100
Tetrachloroethene	43	NA	2,500	ND	3,200	ND	16	NA	1,400
Trichloroethene	290 E	NA	29,000 E	ND	260,000 E	ND	170	NA	700

Boring ID	SB-9			SB-10			SB-11		Evaluation
Sample ID	SB09010	SB09060	SB09160	SB10010	SB92010 (c)	SB10060	SB11010	SB11060	Criteria (d)
Depth (ft)	1-3	6-8	16-18	1-3	1-3	6-8	1-3	6-8	
Parameter									
VOCs (ug/kg)									
1,2-Dichloroethene-cis	ND	NA	3 J	2 J	ND	NA	ND	NA	NVL
Methylene Chloride	ND	NA	11	ND	ND	NA	ND	NA	100
Tetrachloroethene	ND J	NA	7	ND	ND	NA	ND	NA	1,400
Trichloroethene	11	NA	300 E	130	8,400	NA	13	NA	700

Table 5 (Continued)

Soil Results for Former Eastern Parking Lot Transformer Area
Federal-Mogul Facility, Kingston, New York
March 19 through 29, 2002(a)

Boring ID	SB-12		SB-13		SB-14			Evaluation
Sample ID	SB12010	SB12060	SB13010	SB13060	SB14010	SB14060	SB14165	Criteria (d)
Depth (ft)	1-3	6-8	1-3	6-8	6-8	1-3	16.5-18.5	
Parameter								
VOCs (ug/kg)								
1,2-Dichloroethene-cis	ND	NA	6	NA	ND	NA	ND	NVL
Methylene Chloride	5	NA	ND	NA	ND	NA	ND	100
Tetrachloroethene	ND	NA	13	NA	ND	NA	1,000	1,400
Trichloroethene	24	NA	88	NA	120	NA	890	700

a\ J = estimated concentration below detection limit; ND = nondetect; NA = not analyzed; E = estimated value; ug/kg = micrograms per kilogram; mg/kg = milligrams per kilogram; VOCs = volatile organic compounds; NVL = no criteria available; ft = feet.

b\ SB08010 was also analyzed for cyanide to augment the adjacent Former Metal Finish area investigation and are reported in Table 3. See text for explanation.

c\ SB92010 is a duplicate of SB10010.

d\ Evaluation Criteria for VOCs = New York State Technical and Administrative Guidance Manual (TAGM) #4046 Appendix A, Table 1, Recommended Soil Cleanup Objectives (January 1994). Evaluation Criteria for cyanide and metals are twice the average site-specific background concentrations.
\ meets or exceeds Evaluation Criteria.

Table 6

Soil Results for the Former Heat Treat Transformer Area
Federal-Mogul Facility, Kingston, New York
March 19 through 29, 2002(a)

Boring ID	SB-16		SB-17		SB-18			SB-19	Evaluation
Sample ID	SB16010	SB16060	SB17010	SB17060	SB18060	SB93060 (b)	SB18200	SB19010	Criteria (c)
Depth (ft)	1-3	6-8	1-3	6-8	6-8	6-8	20-22	1-3	
Parameter									
PAHs (ug/kg)									
Acenapthene	38 J	ND	110 J	ND	ND	ND	ND	ND	50,000
Acenapthylene	61 J	ND	110 J	ND J	ND J	ND J	ND J	ND	41,000
Anthracene	200 J	ND	400	ND	ND	ND	ND	ND	50,000
Benzo(a)anthracene	180 J	ND	1,200	ND	ND	ND	ND	ND	330 (d)
Benzo(a)pyrene	110 J	ND	1,300	ND	ND	ND	ND	ND	330 (d)
Benzo(b)fluoranthene	110 J	ND	1,100	ND	ND	ND	ND	ND	1,100
Benzo(g,h,i)perylene	330 J	ND	820	ND	ND	ND	ND	ND	50,000
Benzo(k)fluoranthene	100 J	ND	930	ND	ND	ND	ND	ND	1,100
Chrysene	160 J	ND	1,300	ND	ND	ND	ND	ND	400
Dibenz(a,h)anthracene	ND J	ND	110	ND	ND	ND	ND	ND	330 (d)
Dibenzofuran	ND J	ND	38 J	ND	ND	ND	ND	ND	6,200
Fluoranthene	470 J	ND	2,800	ND	ND	ND	ND	ND	50,000
Fluorene	ND J	ND	46 J	ND	ND	ND	ND	ND	50,000
Indeno(1,2,3-cd)pyrene	76 J	ND	990	ND	ND	ND	ND	ND	3,200
2-Methylnapthalene	ND J	ND	66 J	ND	ND	ND	ND	ND	36,400
Napthalene	ND J	ND	77 J	ND	ND	ND	ND	ND	13,000
Penanthrene	340 J	ND	1,900	ND	ND	ND	ND	ND	50,000
Pyrene	ND J	ND	2,400	ND	ND	ND	ND	ND	50,000

Table 6 (Continued)

Soil Results for the Former Heat Treat Transformer Area
Federal-Mogul Facility, Kingston, New York
March 19 through 29, 2002(a)

Boring ID	SB-19	SB-20		Evaluation
Sample ID	SB19060	SB20010	SB20060	Criteria (c)
Depth (ft)	6-8	1-3	6-8	
Parameter				
PAHs (ug/kg)				
Acenapthene	NA	ND	NA	50,000
Acenapthylene	NA	ND	NA	41,000
Anthracene	NA	ND	NA	50,000
Benzo(a)anthracene	NA	ND	NA	330 (d)
Benzo(a)pyrene	NA	ND	NA	330 (d)
Benzo(b)fluoranthene	NA	ND	NA	1,100
Benzo(g,h,i)perylene	NA	ND	NA	50,000
Benzo(k)fluoranthene	NA	ND	NA	1,100
Chrysene	NA	ND	NA	400
Dibenz(a,h)anthracene	NA	ND	NA	330 (d)
Dibenzofuran	NA	ND	NA	6,200
Fluoranthene	NA	ND	NA	50,000
Fluorene	NA	ND	NA	50,000
Indeno(1,2,3-cd)pyrene	NA	ND	NA	3,200
2-Methylnapthalene	NA	ND	NA	36,400
Napthalene	NA	ND	NA	13,000
Penanthrene	NA	ND	NA	50,000
Pyrene	NA	ND	NA	50,000

a\ ug/kg = micrograms per kilogram; PAHs = polycyclic aromatic hydrocarbons; J = estimated concentration below detection limit; ND = nondetect; ft = feet; NA = not analyzed.

b\ SB93060 is a duplicate of SB18060.

c\ Evaluation Criteria for PAHs = New York State Technical and Administrative Guidance Memorandum (TAGM) #4046 Appendix A, Table 2, Recommended Soil Cleanup Objectives, (January 1994).

d\ Evaluation criteria is the laboratory method detection limit, as specified in TAGM #4046 Appendix A, Table 2.

\ meets or exceeds Evaluation Criteria.

Table 7

Soil Results for the Suspected Onsite Disposal Area
Federal-Mogul Facility, Kingston, New York
March 19 through 29, 2002(a)

Boring ID	SB-21		SB-22		SB-23		SB-24		Evaluation
Sample ID	SB21010	SB21060	SB22010	SB22060	SB23010	SB23060	SB24010	SB24060	Criteria (c)
Depth (ft)	1-3	6-8	1-3	6-8	1-3	6-8	1-3	6-8	
Parameter									
VOCs (ug/kg)									
cis-1,2-Dichloroethene	49	NA	83 J	NA	67	NA	ND	NA	NVL
Ethylbenzene	ND	NA	ND J	NA	ND	NA	ND	NA	5,500
Methylene Chloride	ND	NA	ND J	NA	ND	NA	ND	NA	100
Tetrachloroethene	ND J	NA	ND J	NA	ND	NA	ND	NA	1,400
Toluene	ND	NA	3 J	NA	ND	NA	ND	NA	1,500
Trichloroethene	6	NA	22 J	NA	21	NA	ND	NA	700
Xylenes (total)	ND	NA	ND J	NA	ND	NA	ND	NA	1,200
PAHs (ug/kg)									
Acenapthene	ND J	NA	ND J	NA	330 J	ND	ND	NA	50,000
Acenapthylene	ND J	NA	ND J	NA	130 J	ND	ND J	NA	41,000
Anthracene	290 J	NA	ND J	NA	1,600	25 J	ND	NA	50,000
Benzo(a)anthracene	160 J	NA	230 J	NA	1,400	28 J	ND	NA	330 (d)
Benzo(a)pyrene	120 J	NA	ND J	NA	1,300	ND	ND	NA	330 (d)
Benzo(b)fluoranthene	180 J	NA	ND J	NA	1,200	ND	ND	NA	1,100
Benzo(g,h,i)perylene	120 J	NA	ND J	NA	980	ND	ND	NA	50,000
Benzo(k)fluoranthene	110 J	NA	ND J	NA	730	ND	ND	NA	1,100
Chrysene	260 J	NA	ND J	NA	1,300	27 J	ND	NA	400
Dibenz(a,h)anthracene	ND J	NA	ND J	NA	100 J	ND	ND	NA	330 (d)
Dibenzofuran	200 J	NA	ND J	NA	220 J	ND	ND	NA	6,200
Fluoranthene	300 J	NA	ND J	NA	3,000	64 J	ND	NA	50,000
Fluorene	350 J	NA	ND J	NA	490	ND	ND	NA	50,000
Indeno(1,2,3-cd)pyrene	110 J	NA	ND J	NA	1,000 J	ND	ND	NA	3,200
2-Methylnapthalene	1,600 J	NA	ND J	NA	130 J	ND	ND	NA	36,400
Napthalene	1,100 J	NA	ND J	NA	160 J	ND	ND	NA	13,000
Penanthrene	1,200 J	NA	59 J	NA	3,100	55 J	ND	NA	50,000
Pyrene	360 J	NA	ND J	NA	2,300	48 J	ND	NA	50,000

Table 7 (Continued)

Soil Results for the Suspected Onsite Disposal Area
Federal-Mogul Facility, Kingston, New York
March 19 through 29, 2002(a)

Boring ID	SB-21		SB-22		SB-23		SB-24		Evaluation
Sample ID	SB21010	SB21060	SB22010	SB22060	SB23010	SB23060	SB24010	SB24060	Criteria (c)
Depth (ft)	1-3	6-8	1-3	6-8	1-3	6-8	1-3	6-8	
Parameter									
Metals (mg/kg)									
Arsenic	ND J	ND J	ND	ND	ND	NA	ND	NA	7.5 (e)
Barium	47.6	14.6 B	38.2	30.6 B	43.8	NA	59.3	NA	300 (e)
Cadmium	0.17 B	0.097 B	0.93	0.2 B	0.25	NA	ND	NA	1 (e)
Chromium	3.7	8.0 BE	13.6	6.5	8.5	NA	7.6	NA	10 (e)
Lead	99.9 J	3.8 J	13.1	2.5 J	52.8 J	NA	13.1 J	NA	500 (f)
Mercury	0.33	0.047 B	0.15	0.012 B	0.076	NA	0.075	NA	0.16 (f)

Table 7 (Continued)

Soil Results for the Suspected Onsite Disposal Area
Federal-Mogul Facility, Kingston, New York
March 19 through 29, 2002(a)

Boring ID	SB-25			SB-26			SB-27		Evaluation
Sample ID	SB25010	SB25060	SB25170	SB26010	SB95010 (b)	SB26060	SB27010	SB27060	Criteria (c)
Depth (ft)	1-3	6-8	17-19	1-3	1-3	6-8	1-3	6-8	
Parameter									
VOCs (ug/kg)									
cis-1,2-Dichloroethene	22	ND	ND	17 J	8 J	ND	ND	ND	NVL
Ethylbenzene	ND	ND	ND	ND J	3 J	ND	ND	ND	5,500
Methylene Chloride	7	5 J	5 J	ND J	6 J	7	6	ND	100
Tetrachloroethene	19	ND	ND	7	9	29	ND	ND	1,400
Toluene	ND	ND	ND	ND	ND	1 J	ND	ND	1,500
Trichloroethene	17	ND	ND	17	13	10	ND	ND	700
Xylenes (total)	ND	ND	ND	ND	9 J	ND	ND	ND	1,200
PAHs (ug/kg)									
Acenapthene	ND	ND	ND	ND	ND	ND	ND	ND	50,000
Acenapthylene	ND J	ND J	ND J	ND	ND J	ND	ND J	ND J	41,000
Anthracene	ND	ND	ND	ND	ND	ND	ND	ND	50,000
Benzo(a)anthracene	ND	ND	ND	ND	350 J	ND	ND	ND	330 (d)
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	330 (d)
Benzo(b)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	1,100
Benzo(g,h,i)perylene	ND	ND	ND	ND	ND	ND	ND	ND	50,000
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	1,100
Chrysene	ND	ND	ND	56 J	ND	ND	ND	ND	400
Dibenz(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND	ND	330 (d)
Dibenzofuran	ND	ND	ND	ND	ND	ND	ND	ND	6,200
Fluoranthene	ND	ND	ND	ND	56 J	ND	ND	ND	50,000
Fluorene	ND	ND	ND	ND	180 J	ND	ND	ND	50,000
Indeno(1,2,3-cd)pyrene	ND	ND	ND J	ND J	ND	ND J	ND	ND	3,200
2-Methylnapthalene	ND	ND	ND	ND	2,000	ND	ND	ND	36,400
Napthalene	ND	ND	ND	ND	1,900	ND	ND	ND	13,000
Phenanthrene	ND	ND	ND	ND	170 J	ND	ND	ND	50,000
Pyrene	ND	ND	ND	42 J	ND	ND	ND	ND	50,000

Table 7 (Continued)

Soil Results for the Suspected Onsite Disposal Area
Federal-Mogul Facility, Kingston, New York
March 19 through 29, 2002(a)

Boring ID	SB-25			SB-26			SB-27		Evaluation
Sample ID	SB25010	SB25060	SB25170	SB26010	SB95010 (b)	SB26060	SB27010	SB27060	Criteria (c)
Depth (ft)	1-3	6-8	17-19	1-3	1-3	6-8	1-3	6-8	
Parameter									
Metals (mg/kg)									
Arsenic	1.3 B	ND	ND	ND	ND	ND	ND	ND	7.5 (e)
Barium	22 B	23.3 B	38.9 B	43	39.3 B	14.8 B	51.2	24.6 B	300 (e)
Cadmium	0.18 B	0.11 B	0.18 B	0.11	0.072 B	0.16 B	0.23 B	0.18 B	1 (e)
Chromium	8.5	5.1	6.8	5.2	5.2	5.7	7.8	7	10 (e)
Lead	8.5 J	5.4 J	5 J	20.8 J	13.5 J	5.2	15.4 J	3.9 J	500 (f)
Mercury	0.035 B	0.031 B	0.027 B	0.25	0.25	0.054	0.042 B	0.13	0.16 (f)

Table 7 (Continued)

Soil Results for the Suspected Onsite Disposal Area
Federal-Mogul Facility, Kingston, New York
March 19 through 29, 2002(a)

Boring ID	SB-27		SB-28		Evaluation
Sample ID	SB27150	SB94150 (b)	SB28010	SB28060	Criteria (c)
Depth (ft)	15-17	15-17	1-3	6-8	
Parameter					
VOCs (ug/kg)					
cis-1,2-Dichloroethene	ND J	ND J	ND	NA	NVL
Ethylbenzene	1,100 J	8 J	ND	NA	5,500
Methylene Chloride	850 BJ	ND J	10 J	NA	100
Tetrachloroethene	ND	ND	13	NA	1,400
Toluene	5,200	28	ND	NA	1,500
Trichloroethene	720	ND	16	NA	700
Xylenes (total)	11,600	80	ND	NA	1,200
PAHs (ug/kg)					
Acenapthene	ND	ND	ND	NA	50,000
Acenapthylene	ND	ND J	ND	NA	41,000
Anthracene	ND	ND	ND	NA	50,000
Benzo(a)anthracene	72 J	240 J	ND	NA	330 (d)
Benzo(a)pyrene	42 J	ND	ND	NA	330 (d)
Benzo(b)fluoranthene	53 J	ND	ND	NA	1,100
Benzo(g,h,i)perylene	ND	ND	ND	NA	50,000
Benzo(k)fluoranthene	37 J	ND	ND	NA	1,100
Chrysene	120 J	180 J	ND	NA	400
Dibenz(a,h)anthracene	ND	ND	ND	NA	330 (d)
Dibenzofuran	ND	ND	ND	NA	6,200
Fluoranthene	130 J	ND	ND	NA	50,000
Fluorene	ND	ND	ND	NA	50,000
Indeno(1,2,3-cd)pyrene	ND J	ND	ND	NA	3,200
2-Methylnapthalene	ND	2,300	ND	NA	36,400
Napthalene	ND	2,100	ND	NA	13,000
Penanthrene	66 J	260 J	ND	NA	50,000
Pyrene	95 J	ND	ND	NA	50,000

Table 7 (Continued)

Soil Results for the Suspected Onsite Disposal Area
Federal-Mogul Facility, Kingston, New York
March 19 through 29, 2002(a)

Boring ID	SB-27		SB-28		Evaluation
Sample ID	SB27150	SB94150 (b)	SB28010	SB28060	Criteria (c)
Depth (ft)	15-17	15-17	1-3	6-8	
Parameter					
Metals (mg/kg)					
Arsenic	ND	ND	ND	NA	7.5 (e)
Barium	39.3 B	36.2 B	59.2	NA	300 (e)
Cadmium	0.21 B	0.19 B	ND	NA	1 (e)
Chromium	8.8	6.6	8.9	NA	10 (e)
Lead	7 J	5.5 J	118	NA	500 (f)
Mercury	0.032 B	0.032 B	0.084 B	NA	0.16 (f)

a\ B = concentration below contracted laboratory detection limit; J = estimated concentration below detection limit; E = estimated value; ND = nondetect; NA = not analyzed; mg/kg = milligrams per kilogram; ug/kg = micrograms per kilogram; VOCs = volatile organic compounds; PAHs = polycyclic aromatic hydrocarbons; NVL = no value listed; ft = feet.

b\ SB95010 is a duplicate of SB26010; SB94150 is a duplicate of SB27150.

c\ Evaluation Criteria for VOCs and PAHs = New York State Technical and Administrative Guidance Memorandum (TAGM) #4046 Appendix A, Tables 1 and 2, Recommended Soil Cleanup Objectives (January 1994); Evaluation Criteria for cyanide and metals are twice the average site-specific background concentrations or New York State Technical and Administrative Guidance Memorandum (TAGM) #4046 Appendix A, Table 4, Recommended Soil Cleanup Objectives (January 1994), whichever is greater.

d\ Evaluation criteria is the laboratory method detection limit, as specified in TAGM #4046 Appendix A, Table 2.

e\ TAGM #4046 criteria. See text and (c) above for explanation.

f\ Site-specific evaluation criteria. See text and (c) above for explanation.

\ meets or exceeds Evaluation Criteria

Table 8

Soil Results for the Main Building
Federal-Mogul Facility, Kingston, New York
March 19 through 29, 2002(a)

Boring ID	SB-29			SB-30			SB-31			Evaluation
Sample ID	SB29010	SB29060	SB29163	SB30010	SB30060	SB30162	SB31010	SB31060	SB31175	Criteria (b)
Depth (ft)	1-3	6-8	16.3-18.3	1-3	6-8	16.2-18.2	1-3	6-8	17.5-19.5	
Parameter										
VOCs (ug/kg)										
1,2-Dichloroethene-cis	ND	NA	ND	2 J	NA	4 J	6	NA	ND	NVL
Methylene Chloride	ND	NA	8	ND	NA	10	13	NA	9 J	100
Tetrachloroethene	40	NA	ND	12	NA	12	ND	NA	ND	1,400
Trichloroethene	57	NA	ND	43	NA	210 E	91	NA	ND	700
PAHs (µg/kg)										
Acenapthene	ND	NA	ND	ND	NA	ND	410 J	ND	ND	50,000
Acenapthylene	ND J	NA	ND	ND	NA	ND	100 J	ND J	ND	41,000
Anthracene	ND	NA	ND	ND J	NA	ND J	2,300	ND	ND	50,000
Benzo(a)anthracene	ND	NA	ND	ND	NA	ND	2,600	ND	ND	330 (c)
Benzo(a)pyrene	ND	NA	ND	ND	NA	ND	2,100	ND	ND	330 (c)
Benzo(b)fluoranthene	ND	NA	ND	ND	NA	ND	2,200 J	ND	ND	1,100
Benzo(g,h,i)perylene	ND	NA	ND	ND	NA	ND	2,100 J	ND	ND	50,000
Benzo(k)fluoranthene	ND	NA	ND	ND	NA	ND	1,700	ND	ND	1,100
Chrysene	ND	NA	ND	ND	NA	ND	2,700	ND	ND	400
Dibenz(a,h)anthracene	ND	NA	ND	ND	NA	ND	280 J	ND	ND	330 (c)
Dibenzofuran	ND	NA	ND	ND	NA	ND	290 J	ND	ND	6,200
Fluoranthene	ND	NA	ND	ND	NA	ND	5,100	ND	ND	50,000
Fluorene	ND	NA	ND	ND	NA	ND	440 J	ND	ND	50,000

Table 8 (Continued)

Soil Results for the Main Building
Federal-Mogul Facility, Kingston, New York
March 19 through 29, 2002(a)

Boring ID	SB-29			SB-30			SB-31			Evaluation
Sample ID	SB29010	SB29060	SB29163	SB30010	SB30060	SB30162	SB31010	SB31060	SB31175	Criteria (b)
Depth (ft)	1-3	6-8	16.3-18.3	1-3	6-8	16.2-18.2	1-3	6-8	17.5-19.5	
Parameter										
PAHs (ug/kg) (cont.)										
Indeno(1,2,3-cd)pyrene	ND	NA	ND	ND	NA	ND	2,300	ND	ND	3,200
2-Methylnapthalene	ND	NA	ND	ND	NA	ND	190 J	ND	ND	36,400
Napthalene	ND	NA	ND	ND	NA	ND	220 J	ND	ND	13,000
Penanthrene	ND	NA	ND	ND	NA	ND	5,400	ND	ND	50,000
Pyrene	ND	NA	ND	ND	NA	ND	5,100	ND	ND	50,000
Metals (mg/kg)										
Arsenic	ND	ND	ND	ND	NA	ND	ND	ND	ND	7.5 (d)
Barium	42.9	22.6 B	26.1 B	53.4	NA	25 B	64.7	15.2 B	31.7 B	300 (d)
Cadmium	0.089 B	0.31 B	0.11 B	0.13 B	NA	0.12 B	4.3	0.18 B	0.17 B	1 (d)
Chromium	10.1 E	5.4	7.8 E	8 E	NA	9.4 E	18 E	6	8.2 E	10 (d)
Lead	7.5	4.2	4.3	7	NA	4.6	13,600	2.4	11.1	500 (e)
Mercury	0.081 B	ND	0.048 B	0.023 B	NA	0.024 B	0.24	NA	0.076 B	0.16 (e)

a\ B = concentration below contracted laboratory detection limit; J = estimated concentration below detection limit; ND = nondetect; NA = not analyzed; E = estimated value; mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram; VOCs = volatile organic compounds; PAHs = polycyclic aromatic hydrocarbons; NVL = no value listed; ft = feet.

b\ Evaluation Criteria for VOCs and PAHs = New York State Technical and Administrative Guidance Memorandum (TAGM) #4046 Appendix A, Tables 1 and 2, Recommended Soil Cleanup Objectives (January 1994); Evaluation Criteria for cyanide and metals are twice the average site-specific background concentrations or New York State Technical and Administrative Guidance Memorandum (TAGM) #4046 Appendix A, Table 4, Recommended Soil Cleanup Objectives (January 1994), whichever is greater.

c\ Evaluation criteria is the laboratory method detection limit, as specified in TAGM #4046 Appendix A, Table 2.

d\ TAGM #4046 criteria. See text and (b) above for explanation.

e\ Site-specific evaluation criteria. See text and (b) above for explanation.

\ meets or exceeds Evaluation Criteria.

Table 9

Groundwater Sampling Results
Upgradient *In-Situ* Investigation
Federal-Mogul Corporation
Kingston, New York
March 19 through 29, 2002 (a)

Boring ID	GP-7	GP-8	GP-9	GP-10	
Sample ID	GP07150	GP08150	GP09150	GP10150	Evaluation Criteria (b)
Depth (ft)	15-25	15-25	15-25	15-25	
Parameter					
VOCs (µg/l)					
1,2-Dichloroethene-cis	ND	ND	10	ND	5
Tetrachloroethene	ND	ND	36	ND	5
Trichloroethene	9	7	79	8	5
Total Metals (µg/l)					
Arsenic	ND	ND	ND	ND	25
Barium	310	3,190	1,340	2,790	1,000
Cadmium	ND	11	3.2 B	13.9	5
Chromium	65.2	480	111	258	50
Lead	96.8	135	80.6	163	25
Mercury	0.38 J	0.15 BJ	0.11 BJ	0.14 BJ	0.7
Selenium	ND J	ND J	ND J	ND J	10
Silver	ND	ND	ND	ND	50
Dissolved Metals (µg/l)					
Arsenic	ND	ND	ND	ND	25
Barium	16.8 B	31.2 B	24.7 B	25.9 B	1,000
Cadmium	ND	ND	ND	ND	5
Chromium	ND	ND	ND	ND	50
Lead	ND	ND	ND	ND	25
Mercury	0.05 B	0.076 B	0.19 B	0.059 B	0.7
Selenium	ND	ND	ND	ND	10
Silver	ND	ND	ND	1.7 B	50

a\ B = concentration below contracted laboratory detection limit; ug/l = micrograms per liter; ND = nondetect; J = estimated concentration; below detection limit; VOCs = volatile organic compounds; ft = feet.

b\ Evaluation Criteria for VOCs and metals is from the New York State Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1, Table 5: New York State Ambient Water Quality Standards and Guidance Values (June 1998)

\ meets or exceeds the Evaluation Criteria

Table 10

Groundwater Sampling Results
Downgradient *In-Situ* Investigation
Federal-Mogul Corporation
Kingston, New York
March 19 through 29, 2002 (a)

Boring ID	GP-1	GP-2	GP-3	GP-4			GP-5			Evaluation
Sample ID	GP01150	GP02150	GP03150	GP04150	GP04400	GP04600	GP05150	GP05400	GP05500 (b)	Criteria (c)
Depth (ft)	15-25	15-25	15-25	15-25	40-45	60-65	15-25	40-45	40-45	
Parameter										
VOCs (µg/l)										
Acetone	ND	ND	ND	ND J	ND	ND	ND	ND	ND	50
Chloroform	ND	ND	ND	ND	ND	4 J	ND	3 J	ND	7
1,2-Dichloroethene-cis	2 J	37 J	ND	43	ND	ND	29	4 J	ND	5
Methylene Chloride	3 BJ	62	ND	ND	ND	ND	ND	ND	ND	5
Tetrachloroethene	ND	150	18	35	ND	ND	ND	ND	ND	5
Trichloroethene	60	1,200	87	370	ND	ND	72	ND	ND	5
Total Metals (µg/l)										
Arsenic	ND	5 B	ND	ND	NA	NA	ND	NA	NA	25
Barium	1,770	155 B	678	1,350	NA	NA	1,460	NA	NA	1,000
Cadmium	8.2 J	1.2 BJ	ND	7.8 J	NA	NA	17 J	NA	NA	5
Chromium	156	18	77.9	104	NA	NA	102	NA	NA	50
Lead	24.7	15.2	78.1	7.3	NA	NA	46.3 B	NA	NA	25
Mercury	ND	0.014 B	0.18 B	0.024 B	NA	NA	0.021 B	NA	NA	0.7
Dissolved Metals (µg/l)										
Arsenic	ND	4.8 B	ND	ND	NA	NA	4.3 B	NA	NA	25
Barium	46.7 B	36.4 B	42.1 B	27 BE	NA	NA	47 BE	NA	NA	1,000
Cadmium	ND	ND	ND	ND	NA	NA	0.91 B	NA	NA	5
Chromium	ND	ND	3.6 B	6.2 B	NA	NA	ND	NA	NA	50
Lead	2.7 B	2.1 B	ND	ND	NA	NA	ND	NA	NA	25
Mercury	ND	0.029 B	0.065 B	0.021 B	NA	NA	0.013 B	NA	NA	0.7
Selenium	ND	ND	4.9 B	ND	NA	NA	ND	NA	NA	10
Silver	ND	ND	2.9 B	1.5 B	NA	NA	ND	NA	NA	50

Table 10 (Continued)

Groundwater Sampling Results
Downgradient *In-Situ* Investigation
Federal-Mogul Corporation
Kingston, New York
March 19 through 29, 2002 (a)

Boring ID	GP-5	GP-6	Evaluation
Sample ID	GP05600	GP06150	Criteria (c)
Depth (ft)	60-65	15-25	
Parameter			
VOCs (µg/l)			
Acetone	11	ND	50
Chloroform	9	ND	7
1,2-Dichloroethene-cis	ND	ND	5
Methylene Chloride	ND	ND	5
Tetrachloroethene	ND	ND	5
Trichloroethene	ND	6	5
Total Metals (µg/l)			
Arsenic	NA	ND	25
Barium	NA	237	1,000
Cadmium	NA	0.67 BJ	5
Chromium	NA	7.2 B	50
Lead	NA	32.1	25
Mercury	NA	0.01 B	0.7
Dissolved Metals (µg/l)			
Arsenic	NA	ND	25
Barium	NA	40.1 BJ	1,000
Cadmium	NA	ND J	5
Chromium	NA	ND	50
Lead	NA	ND	25
Mercury	NA	0.021 B	0.7
Selenium	NA	ND	10
Silver	NA	ND J	50

a\ B = concentration below contracted laboratory detection limit; E = estimated value; J = estimated concentration below detection limit; NA = not analyzed; ND = nondetect; VOCs = volatile organic compounds; NVL = no value listed; ft = feet.

b\ GP05500 is a duplicate of GP05400.

c\ Evaluation Criteria for VOCs and metals is from the New York State Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1, Table 5: New York State Ambient Water Quality Standards and Guidance Values (June 1998).

\ meets or exceeds the Evaluation Criteria.

Table 11

Groundwater Sampling Results
Groundwater Monitoring Wells
Federal-Mogul Corporation
Kingston, New York
March 19 through 29, 2002 (a)

Sample ID	MW-1	MW-2	MW-3	MW-30 (b)	MW-4 (d)	MW-5	MW-6	MW-7	MW-8	MW-9	Evaluation Criteria (c)
Parameter											
VOCs (µg/l)											
Chloroform	ND	ND	ND	ND	88 J	ND	ND	ND	ND	ND	7
1,2-Dichloroethene-cis	11	3 J	ND	ND	2,000	8	18	17	760	28	5
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	6	5
Methylene Chloride	8 BJ	7 BJ	ND	ND	ND	8 BJ	7 BJ	ND	ND	ND	5
Tetrachloroethene	120	ND	ND	ND	ND	37	44	10	ND	ND	5
Trichloroethene	72	110	ND	ND	230	100	77	130	690	19	5
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	24	2
m,p-Xylenes	ND	ND	ND	ND	ND	ND	ND	ND	ND	76	5
o-Xylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	53	5
Total Metals (µg/l)											
Arsenic	ND	5.3 B	5.6 B	5.2 B	7.8 B	ND	17.9	ND	ND	36.4	25
Barium	71.8 B	94.2 B	286	298	157 B	87 B	384	1,930	541	254	1,000
Cadmium	ND J	ND J	ND J	ND J	ND J	ND J	ND J	21.3 J	10.7 J	ND J	5
Chromium	1,440	2,870	3,010	2,610	71.5	2,890	9,810	130	85.2	ND	50
Lead	ND	ND	ND	ND	16.8	ND	ND	3.5	5.8	20.4	25
Mercury	0.011 B	ND	0.06 B	0.03 B	0.071 B	0.071 B	0.012 B	0.021 B	0.036 B	0.016 B	0.7

Table 11 (Continued)

Groundwater Sampling Results
Groundwater Monitoring Wells
Federal-Mogul Corporation
Kingston, New York
March 19 through 29, 2002 (a)

Sample ID	MW-1	MW-2	MW-3	MW-30 (b)	MW-4 (d)	MW-5	MW-6	MW-7	MW-8	MW-9	Evaluation Criteria (c)
Parameter											
Dissolved Metals (µg/l)											
Arsenic	ND	6.4 B	4.6 B	ND	NA	ND	4.1 B	6.5 B	4.4 B	4.8 B	25
Barium	22.4 BJ	64.7 BJ	64.6 BEJ	67.6 BEJ	NA	36.7 BEJ	44.2 BEJ	45.9 BEJ	25.3 BEJ	93.2 BEJ	1,000
Cadmium	ND	ND	ND	ND	NA	ND	ND	0.38 B	0.83 B	ND	5
Chromium	12.6	ND	3.6 B	ND	NA	7 B	ND	127	71.4	ND	50
Lead	ND	2.1 B	ND	ND	NA	ND	ND	ND	ND	ND	25
Mercury	0.051	ND	0.032 B	0.022 B	NA	ND	0.023 B	0.032 B	0.072 B	ND	0.7
Selenium	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	10
Silver	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	50

a\ B = concentration below contracted laboratory detection limit; E = estimated value; J = estimated concentration below detection limit; NA = not analyzed; ND = nondetect; VOCs = volatile organic compounds; NVL = no value listed.

b\ MW-30 is a duplicate of MW-3.

c\ Evaluation Criteria for VOCs and metals is from the New York State Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1, Table 5: New York State Ambient Water Quality Standards and Guidance Values (June 1998).

d\ Dissolved sample not collected because NTUs less than 50.

\ meets or exceeds the Evaluation Criteria.