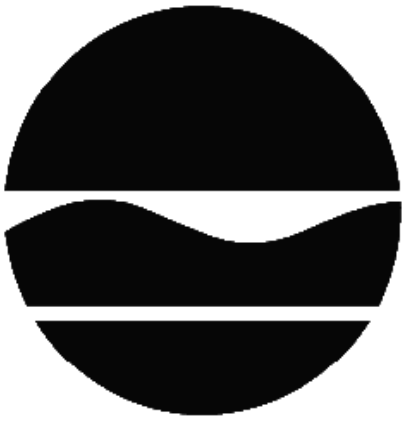
RECORD OF DECISION

RUCO Polymer Corp. (Hooker Chemical)
Operable Unit Number 04
Corrective Action
Remedial Program
Hicksville, Nassau County
NYSDEC Site No. 130004
December 2012



Prepared by
Division of Environmental Remediation
New York State Department of Environmental Conservation

DECLARATION STATEMENT - RECORD OF DECISION

RUCO Polymer Corp. (Hooker Chemical)
Operable Unit Number 04
Corrective Action
Remedial Program
Hicksville, Nassau County
Site No. 130004
December 2012

Statement of Purpose and Basis

This document presents the remedy for Operable Unit Number 4: Corrective Action Remedial Program of the RUCO Polymer Corp-Hooker Chemical (Bayer) site, or the site, a Class 2 inactive hazardous waste disposal site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Parts 373 and 375, and is not inconsistent with the Resource Conservation and Recovery Act (RCRA) of 1976 and as amended in 1984 (42 CFR6901) and the National Oil and Hazardous Substances Pollution Contingency Plan of 1990 (40CFR300), as amended.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for Operable Unit Number 4 of the RUCO Polymer Corp-Hooker Chemical (Bayer) site and the public's input to the proposed remedy presented by the Department. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Description of Selected Remedy

For Operable Unit 4 (OU4) - On-site Soils and On-site Soil Vapor:
This OU includes all on-site soils not previously addressed by the Record of Decision (ROD) issued by the USEPA for OU1 and OU2. OU4 work is being done under the RCRA Program and includes soils contaminated with PCBs, VOC, SVOCs and metals.

The basis for the Department's selected remedy, Corrective Measures Study (CMS) alternative 6, is set forth in more detail in Exhibit D.

The estimated present worth cost to implement the remedy is $5,400,000. The cost to construct the remedy is estimated to be $4,947,647 and the estimated average annual cost is $481,000.

The elements of the proposed remedy are as follows:

1. Remedial Design

Implementation of a remedial design program to provide the details necessary for the construction, maintenance and monitoring of the remedial program. Green remediation principals and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per NYSDEC Division of Environmental Remediation (DER) Guidance-31. The major green remediation components are as follows:

- Considering the environmental impacts of remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gas and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals;
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Excavation

All on-site soils exceeding the SCOs for PCBs will be excavated to a maximum depth of 10 feet below ground surface (bgs). The soil cleanup objective (SCO) for PCB contaminated soils at the surface will be 1 ppm (0-1 foot bgs) and 10 ppm in subsurface soils. These clean up values are from the NYSDEC Commissioners Policy 51 (CP-51) for soil cleanup criteria. All soils contaminated with arsenic and cadmium above the commercial SCOs will be excavated and disposed off-site. This cleanup up criteria comes from Title 6 of the New York codes Rules and Regulations (6 NYCRR) Part 375. These soils are limited to small areas ranging from one to two feet bgs. Confirmatory samples will be collected for each excavation.

Soil will be excavated at two locations with PAH concentrations above the commercial SCOs, so that total PAHs in subsurface soils remain less than 500 ppm. PAHs are part of the compounds known as semi-volatile organic compounds, or SVOCs. This soil removal action is also in accordance with NYSDEC CP-51, Soil Cleanup Guidance.

Overall, approximately 10,762 cubic yards of PCB-contaminated soil, 70 cubic yards of PAH-contaminated soil, and 577 cubic yards of metal-contaminated soil will be excavated and disposed off-site. All hazardous waste has previously been removed from the site and clean fill will be brought in to replace the excavated soil.

3. Cover System

A cover system will be required to allow for commercial use of the site. The cover system (soil, concrete, asphalt/concrete pavement, buildings, etc.) will be installed as an active exposure prevention method over remaining areas of soil exhibiting SVOCs, PAHs and metals at concentrations greater than the commercial SCOs. The cover will consist

either of structures such as buildings, pavement, sidewalks, comprising the site development, or a soil cover in areas where the upper one foot of exposed surface soil may exceed the commercial SCOs. Where the soil cover is required, it will be a minimum of one foot of soil meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for commercial use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer (hydro-seeding). The cover system will cover approximately 105,599 square feet. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

Any future on-site buildings will be required to have a sub-slab depressurization system, or a similar engineered system, to prevent the migration of vapors into the building from soil and/or groundwater.

4. Institutional Controls

Imposition of an institutional control in the form of an environmental easement for the controlled property that:

- requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allows the use and development of the controlled property for commercial uses as defined by Part 375-1.8(g), and as allowed by local zoning laws with the appropriately incorporated land use restrictions;
- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH; and
- requires compliance with the Department approved Site Management Plan.

5. Site Management Plan

A Site Management Plan is required, which includes the following:

a. an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- Institutional Controls: The Environmental Easement discussed in "Institutional Controls";
- Engineering Controls: The soil cover discussed in "Cover System" and the sub-slab depressurization system (or similar engineered system) discussed in "Vapor Mitigation" unless provisions are implemented as discussed below;
- descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;

- provisions for evaluating the potential for soil vapor intrusion at any buildings developed on the site, including a provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls;

b. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

- monitoring of the cover system to assess the performance and effectiveness of the remedy;
- a schedule of monitoring and frequency of submittals to the Department;
- monitoring for vapor intrusion for any buildings occupied or developed on the site, as may be required and discussed in "Institutional Controls" above.

New York State Department of Health Acceptance

The New York State Department of Health (NYSDOH) concurs that the remedy for this site is protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

December 18,2012

Date

Robert W. Schick, P.E., Director
Division of Environmental Remediation

RECORD OF DECISION

Bayer (RUCO Polymer)
Operable Unit Number 04
Hicksville, Nassau County
Site No. 130004
December 2012

SECTION 1: SUMMARY AND PURPOSE

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected a remedy for the above referenced site. The disposal of hazardous wastes at the site has resulted in threats to public health and the environment that would be addressed by the remedy. The disposal or release of hazardous wastes at this site, as more fully described in this document, has contaminated various environmental media. The remedy is intended to attain the remedial action objectives identified for this site for the protection of public health and the environment. This Record of Decision (ROD) identifies the selected remedy, summarizes the other alternatives considered, and discusses the reasons for selecting the remedy.

The New York State Inactive Hazardous Waste Disposal Site Remedial Program (also known as the State Superfund Program) is an enforcement program, the mission of which is to identify and characterize suspected inactive hazardous waste disposal sites and to investigate and remediate those sites found to pose a significant threat to public health and environment.

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and 6 NYCRR Part 375. This document is a summary of the information that can be found in the site-related reports and documents.

SECTION 2: CITIZEN PARTICIPATION

The Department seeks input from the community on all remedies. A public comment period was held, during which the public was encouraged to submit comment on the proposed remedy. All comments on the remedy received during the comment period were considered by the Department in selecting a remedy for the site. Site-related reports and documents were made available for review by the public at the following document repositories:

HICKSVILLE PUBLIC LIBRARY
169 Jerusalem Ave
Hicksville, NY 11801
Phone: 516-931-1417

NYSDEC Central Office
Attn: Steven M. Scharf, P.E.
625 Broadway
11th Floor
Albany, NY 12233
Phone: 518-402-9620

A public meeting was also conducted on March 20, 2012. At the meeting, the findings of the RCRA Facilities Investigation (RFI) and Corrective Measures Study (CMS), or feasibility study (FS), were presented along with a summary of the proposed remedy. After the presentation, a question-and-answer period was held, during which verbal or written comments were accepted on the proposed remedy.

Comments on the remedy received during the comment period are summarized and addressed in the responsiveness summary section, found in Appendix A of the Bayer (RUCO Polymer) OU4 ROD.

Please note that the Department's Division of Environmental Remediation (DER) is "going paperless" relative to citizen participation information. The ultimate goal is to distribute citizen participation information about contaminated sites electronically by way of county email listservs. Information will be distributed for all sites that are being investigated and cleaned up in a particular county under the State Superfund Program, Environmental Restoration Program, Brownfield Cleanup Program, Voluntary Cleanup Program, and Resource Conservation and Recovery Act Program. We encourage the public to sign up for one or more county listservs at http://www.dec.ny.gov/chemical/61092.html

SECTION 3: SITE DESCRIPTION AND HISTORY

Location

The former RUCO Polymer Corp-Hooker Chemical, (Bayer) Site (the Site) consists of a 14-acre triangular-shaped parcel located just southeast of the intersection of New South Road and Commerce Place in Nassau County, Town of Oyster Bay, Hicksville, New York.

Site Features

The manufacturing site originally consisted of several buildings:

- Plant 1 building and adjoining warehouse formerly located in the southern portion of the Site (used for production of polyester from 1982 until 2002).
- Plant 2 building formerly located east of the Plant 1 building (used to produce polyester as polyurethane in solvent and polyurethanes in water).
- Plant 3 building formerly located north of the Plant 1 building (used as a warehouse for accumulation of materials generated in connection with manufacturing operations, including adipic acid storage tanks).
- Pilot Plant formerly located between Plants 1 and 2 (used to produce small volume solid polyurethane and polyesters).

- Administration building located in the northern area of the Site, north of building (used for offices and non-hazardous storage).

A large asphalt-paved parking area is located in the western portion of the site, and a series of rainwater runoff sumps/recharge basins are located along the eastern property boundary. A railroad spur enters the northwestern portion of the Site and splits into two separate lines, including one that continues southward between the former Plant 1 building/warehouse and a second that extends eastward toward the Plant 2 building. The Long Island Railroad tracks run just south of the Site. Sanitary wastewater from the Site was formerly conveyed via underground piping to septic tanks and cesspools/leachate pits. The leachate pits were abandoned in-place when piping was installed to convey the sanitary wastewater to the municipal sewer system. Access to the Site is limited by a chain-link fence and locking gates.

Current Zoning/Use

The Site is currently zoned as light industry and a nonresidential district. The industrial uses that are permitted are "as of right" and other requires the Town of Oyster Bay Approval. Under the current zoning regulations for the Town of Oyster Bay, uses include, but are not limited to helipads, light manufacturing uses, lumber yards, research and development uses, warehouse, distribution and storage, active recreation uses, tennis courts, fitness centers, theatres, museums, trade schools, banks, restaurants and similar, retail and parking structures. The Site is bordered to the north by industrial properties; to the south and west by the Long Island Rail Road (LIRR) tracks and commercial/industrial properties; and to the east by commercial properties. Southwest of the Site and LIRR tracks are some residences.

Historical Uses

The Site was originally constructed in 1945 as the Rubber Company of America (RUCO) and was subsequently purchased/operated by Hooker Chemical and Plastics Corporation. Occidental Chemical Corporation (OCC) owned and operated this site from 1966 to 1982. The site passed through a series of acquisitions to the Sybron Corporation. In 2000, Bayer MaterialScience purchased the facility and remains the current owners of the site.

The site produced polyester resins, polyurethane dispersions, polyvinyl chloride (PVC), latex and ester. From 1951 to 1975, three on-site sumps were used to dispose of wastewaters from PVC, latex and ester manufacturing processes. Wastewaters contained resin solids, vinyl chloride (VC), trichloroethylene (TCE) and vinyl acetate. Styrene and butadiene were also discharged from the latex process. Two sumps received wastewater containing an unknown amount of mixed glycols and alcohols from the ester processes at Plant 1. From 1946 to 1978, the pilot plant used a heat transfer fluid that contained polychlorinated biphenyls, or PCBs. The incidental release of this fluid to the ground resulted in soil contamination. Soils under a former underground fuel oil tank were also contaminated with PCBs.

The Site was designated a Federal Superfund site and placed on the National Priorities List (NPL) established under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in 1984. Various soil and groundwater investigations were implemented in the mid-1980s, including: (1) former discharge of plant wastewater containing volatile organic compounds (VOCs) and heavy metals into on-site recharge basins; and (2) past

release of heat transfer fluids containing PCBs. An initial soil vapor assessment was completed in 1989 but the results were not reliable because the lab methods were outdated. The Site was purchased by Bayer MaterialScience LLC (Bayer) in 2000 and Bayer decided to close the Hicksville facility in 2002. The RCRA permit was interim status, so plant closure proceeded under the RCRA closure program.

Operable Units

An operable unit (OU) means a portion of the remedial program for a site that for technical or administrative reasons can be addressed separately to investigate, or eliminate a release, threat of release or exposure pathway resulting from site contamination. Operable units may address geophysical portions of a site, media specific action, specific site problems, or an initial phase of an action, or may consist of any set of actions performed over time or any actions that are concurrent but located in different parts of a site. For this site, OU1, OU2 and OU3 are part of the USEPA Federal Superfund program for which Records of Decision (ROD) have already been signed and the remedial action is complete or in operation, maintenance and monitoring. OU4 is the subject of this PRAP document.

OU1, Select On-site soils and On-site Groundwater

This OU consists of the soils and groundwater remediation. The soils addressed were in the southeast corner of the site where former Sump 1, Sump 2 and Area E were located. These two drainage sumps received discharge wastewater discharges from various processes at the site that contained elevated levels of TCE and PCE. Also, waste vinyl chloride monomer, or VCM, was discharged undiluted directly into the former Sumps. The soils in the former sump area were impacted with a group of chemical known as tentatively identified compounds, or TICs. These TICs are comprised mainly of long chain glycols and acids that more readily degrade in the environment. Ultimately, some soils were excavated and transported off-site and other soils were flushed of solvents and TICs to be addressed in the groundwater as part of OU3. This OU has been fully implemented. Residual soil gas on-site will be addressed by any new structures requiring sub-slab venting. Operable Unit 5 (OU5) has been created to address the potential for soil vapor intrusion in the off-site soils.

OU2, PCB Soil Removal

This OU consists of soil/debris within four areas, including a "direct-spill area" in the vicinity of the Pilot Plant where heat transfer fluid was released, the area surrounding the Pilot Plant where fluid was spread by on-site truck traffic, a sump/recharge basin that received surface water runoff from the vicinity of the Pilot Plant sump No. 3, also referred to as AOC 30, and former soil stockpile areas east and south of the Pilot Plant. PCBs and organic constituents were the primary site-related contaminants for this OU. A ROD for this OU was signed by the USEPA in 1990. The ROD required excavation and off-site treatment and disposal of soils with PCBs at concentrations greater than 10 ppm in the direct spill area of the Pilot Plant. Remedial activities within OU2 were presumed to be completed in December 2001 by Occidental Chemical Corporation. However, later sampling as part of the RCRA Corrective Action Program identified additional PCB impacts that are discussed under OU4.

OU3, Off-site Groundwater

Vinyl chloride, disposed directly into the environment in the south recharge basin, entered the

groundwater and has now migrated past the site. OU3 consists of breaking down vinyl chloride in groundwater by using a biosparging technology. In addition, other chlorinated solvents, such as PCE, TCE, along with other soluble site-related compounds known as tentatively identified compounds, or TICs that include various long chain alcohols, were discharged at the site and were attributable to OU1 sources. These additional OU1 compounds have migrated downgradient and will be addressed by the OU3 remedy. The impacted groundwater not addressed by the vinyl chloride is projected to be captured by the down gradient Northrop Grumman groundwater containment system.

OU4, On-site Soils and Soil Vapor

This OU includes all on-site soils not previously addressed by the Record of Decision (ROD) issued by the USEPA for OU1 and OU2. OU4 work is being done under the RCRA Program and includes soils contaminated with PCBs, VOC, SVOCs and metals. Currently, there are no buildings at the site, except for the Administration building. However, development of the site is planned, with construction of new buildings. Therefore, a site-wide soil gas sampling program was completed to determine the potential for soil vapor intrusion at future buildings. Some of the PCB removal for OU4 has already occurred as an Interim Remedial Measure, or IRM. This is discussed in more detail in section 6.2.

Site Geology and Hydrogeology

The Site is underlain by unconsolidated coastal plain deposits, mainly sands and gravels intermixed with lenses and types of clay that ultimately overlie bedrock. Hicksville is located on a generally featureless glacial outwash plain of well-sorted and stratified sand and gravel that slopes gently to the south. The closest body of water is South Oyster Bay, about 12 miles south of the Site. The general groundwater flow direction in the vicinity of the Site is north to south. Locally, the flow direction is influenced by the range in lithology of the Pleistocene deposits and by municipal and industrial pumping centers and recharge basins.

The upper aquifer, or Upper Glacial Aquifer, in the area of the site, is composed of sand, gravel, and till deposited by two advances of ice from most recent ice age. Two formations lie below the glacial formation including the Magothy Formation and the underlying Raritan Formation. The Magothy Formation is composed of sand inter-bedded with silt and clay. The Magothy aquifer is bounded at the top by the Glacial Aquifer and at the bottom by the relatively impermeable Clay Member of the Raritan Formation. The upper part of the Magothy aquifer, consisting of a range glacial outwash sand, gravel, and till, contains water mostly in unconfined conditions. Perched and semi-perched water occurs in many places. The lower part of the Magothy aquifer, consisting of heterogeneous sands and gravels, becomes increasingly confined with depth due to numerous discontinuous lenses of silt and clay in the Magothy Formation.

The Magothy aquifer is the primary source of water for municipal and industrial use in the vicinity of the Site. The aquifer is recharged by infiltration of precipitation, industrial discharges, and storm water runoff collected via recharge basins. The clay member of the Raritan Formation confines the Lloyd in most of the area. Bedrock forms the lower boundary of the deep confined aquifer. Based on available information, groundwater at the Site is located at depths greater than 50 feet below ground surface (bgs).

A site location map is attached as Figure 1.

SECTION 4: LAND USE AND PHYSICAL SETTING

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, alternatives (or an alternative) that restrict(s) the use of the site to commercial use (which allows for industrial use) as described in Part 375-1.8(g) are/is being evaluated in addition to an alternative which would allow for unrestricted use of the site.

A comparison of the results of the investigation to the appropriate standards, criteria and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is included in the Tables for the media being evaluated in Exhibit A.

SECTION 5: ENFORCEMENT STATUS

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

The PRPs for the site, documented to date, include:

Bayer MaterialSicence LLC
Occidental Chemical Corporation (OXY Hooker Ruco Site)

PRP Funded RI/FS Under SSF and RCRA
The Department and Bayer Corporation entered into a RCRA Consent Order on December 2, 2002. The Order obligates the responsible party to implement a full remedial program for closure of the facility. In addition, USEPA entered into an Administrative Order for Remedial Design and Remedial Action with Occidental Chemical (former owner) in 2001. The Order directs Occidental to perform the remedial design and implement the remedy described in the September 29, 2000 OU3 Record of Decision issued by USEPA for the site.

Now that the remedy for OU4 has been selected, the Department and the Bayer Corporation (PRP) entered into an Order on Consent to implement the selected remedy on June 15, 2012.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

A Remedial Investigation (RI) has been conducted in the form of a Resource Conservation and Recovery Act (RCRA) Facilities Investigation (RFI). The purpose of the RFI was to define the nature and extent of any contamination resulting from previous activities at the site. The field activities and findings of the investigation are described in the RFI Report. The following general activities were conducted during an RFI:

- Research of historical information;
- Geophysical survey to determine the lateral extent of wastes;
- Test pits, soil borings, and monitoring well installations;
- Sampling of waste, surface and subsurface soils, groundwater, and soil vapor;
- Ecological and Human Health Exposure Assessments.

6.1.1: Standards, Criteria, and Guidance (SCGs)

The remedy must conform to promulgated standards and criteria that are directly applicable or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, Criteria and Guidance are hereafter called SCGs.

To determine whether the contaminants identified in various media are present at levels of concern, the data from the RFI were compared to media-specific SCGs. The Department has developed SCGs for groundwater, surface water, sediments, and soil. The NYSDOH has developed SCGs for drinking water and soil vapor intrusion. The tables found in Exhibit A list the applicable SCGs in the footnotes. For a full listing of all SCGs see: http://www.dec.ny.gov/regulations/61794.html

6.1.2: RI and RFI Information (OU4)

The analytical data for the RFI portion of work collected on this site includes data for:

- soil
- soil vapor

The data have identified contaminants of concern. A "contaminant of concern" is a hazardous waste that is sufficiently present in frequency and concentration in the environment to require evaluation for remedial action. Not all contaminants identified on the property are contaminants of concern. The nature and extent of contamination and environmental media requiring action are summarized in Exhibit A. Additionally, the RFI Report contains a full discussion of the site analytical data. The contaminant(s) of concern identified for all the Operable Units at this site is/are:

Vinyl Chloride
Trichloroethene (TCE)
Tetrachloroethene (PCE)
Cis-1,2 dichlorethene
Barium
Chromium
Copper
Arsenic
Lead
Semi-Volatile Organic Compounds (SVOCs)
Polycyclic Aromatic Hydrocarbons (PAHs)
Ethylene Glycol
1,2-Dichloroethane
Cadmium
Polychlorinated Biphenyls (PCBs)

As illustrated in Exhibit A, the contaminant(s) of concern exceed the applicable SCGs for soil, soil vapor and indoor air.

6.2: Interim Remedial Measures and Interim Corrective Measures

An interim remedial measure (IRM), or Interim Corrective Measure (ICM), is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before issuance of the Record of Decision. The initial ICM was followed up by an additional PCB soil removal that was performed around the former Pilot Plant area. This was above and beyond what the EPA OU2 ROD implementation accomplished. This removed all the soils with PCBs greater than 50 parts per million (ppm), a level that constitutes hazardous waste. Additional PCB impacted soils were also removed as part of this ICM in the various Areas of Concern, or AOCs identified in the CMS Report. Areas with PCBs greater than 10 ppm and less than 50 ppm, and areas of elevated inorganic compounds still exist that will also be addressed under this ROD.

6.3: Summary of Human Exposure Pathways

This human exposure assessment identifies ways in which people may be exposed to site-related contaminants. Chemicals can enter the body through three major pathways (breathing, touching or swallowing). This is referred to as exposure.

The site is completely fenced, which restricts public access. However, people who enter the site could contact contaminants in the soil by digging or otherwise disturbing the soil. People are not drinking the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. Volatile organic compounds in the contaminated groundwater or soil may move into the soil vapor (air spaces within the soil), which in turn may move into overlying buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to a soil vapor intrusion. There are no occupied buildings on the site and the inhalation of site contaminants in indoor air via soil vapor intrusion does not represent a concern for the site in its current condition. The potential exists for the inhalation of site-related contaminants due to soil vapor intrusion for any future on-site redevelopment and/or building occupancy. The potential for soil vapor intrusion to affect indoor air quality in one off-site structure exists and additional off-site soil vapor intrusion evaluations are recommended.

6.4: Summary of Environmental Assessment

Nature and Extent of Contamination:
OU4: On-site Soils and Soil Vapor

Soils (PCBs):
Prior PCB soil contamination around the Pilot Plant building, particularly Aroclor 1248, was caused by spills and releases of heat transfer fluid (Therminol) during site operations. There was also PCB contamination in the nearby recharge basin (Sump 3) that was conveyed via surface water runoff. PCB concentrations in soil were as high as 23,000 ppm, with contamination as deep as 10 feet bgs. The most highly contaminated soil was near the surface, with contamination reaching 3 feet bgs in several areas. Concentrations ranged from over 1 ppm to 500 ppm. PCB concentrations in the recharge basin were measured as high as 176 ppm, and as deep as 10 feet. One soil sample taken during the RI/FS at the former Sump 5 had a PCB concentration of 24

ppm. This sample was taken at a depth of 10 to 12 feet below the existing grade, which is believed to correspond with the surface of that sump before it was filled. Remediation of PCB contaminated soils under OU2 was completed and a record of decision (ROD) issued by USEPA on September 28, 1990.

RCRA Closure and Corrective Action activities were implemented at the site in 2002. The initial RFI focused on sampling and analysis of debris (silt, sand, and gravel material from manholes/catch basins, sumps, floor trenches), concrete (from demolition), soil (from underneath floor slabs), and sump water (sump 4). Analytical results were compared to Part 375 SCOs and Part 373 TCLP regulatory levels.

Results for the debris samples identified the following:

- Debris samples from Plant 1 Boiler Condensate Runoff had a maximum PCB concentration of 28 ppm.
- PCBs detected at remaining sampling locations had concentrations ranging from 1.6 ppm and 4.3 ppm.

Analytical results for soil samples collected from beneath and outside the former building floor slabs identified the following:

- PCBs in five surface soil samples at concentrations of 1.5, 2.8, 5.2, 47 and 160 ppm.
- PCBs at a depth of 1 to 2 feet bgs at a concentration of 190 ppm.

In 2005 and 2006, an additional investigation was completed to further evaluate impacted soils at the Plant 1 area and to assess the need for interim corrective measures (ICM). Conditions were also assessed at the Pilot Plant area after removal of the floor slab. The following were identified in soil samples:

- PCBs in surface soil (0- to 0.2 feet) at 26 sampling locations at concentrations exceeding 1 ppm and ranging from 1.1 ppm to 580 ppm.
- PCBs above 10 ppm at several subsurface locations, with concentrations ranging from 13 ppm (2-2.5 feet bgs) to 370 ppm (4-4.5 feet bgs).

Based on previous PCBs concentrations, soil borings were completed at 23 locations at the Pilot Plant area to evaluate the extent of PCB impacts. The following were identified:

- PCBs at five soil boring locations ranged from 71 ppm (6.8-7.3 feet bgs) to 14,000 ppm (8.8-9.8 ft bgs). There were other locations at several intervals with high PCB concentrations.
- PCB concentrations dropped significantly at about 30 feet bgs.

In 2008 and 2009, several areas at the site, in addition to the ICMs previously discussed, were excavated to remove additional PCB impacted surface and subsurface soils. Verification sampling from the excavation areas identified PCBs in two samples at 43 ppm (0-0.2 feet bgs) and 12 ppm (4-4.5 feet bgs).

Soils (SVOCs and VOCs):

The initial RFI identified the following in soil:

- Glycols at two debris sampling locations exceeded the detection limits. Ethylene glycol

detected near the Pilot Plant building at 17.9 and 14.2 ppm, respectively. Propylene glycol detected at 12.1 ppm.

- VOCs in debris samples were generally less than 1 ppm, except for toluene at 4.4 ppm.
- One or more SVOCs detected at each debris sampling location, particularly around the Plant 1 and Pilot Plant buildings.

Analytical results for concrete samples from the former remaining floor slabs identified the following:

- TCLP VOCs concentrations were low, with a maximum concentration of 0.016 ppm near Plant 2.
- Ethylene glycol was detected in the TCLP extract in three concrete samples at concentrations ranging from 10.4 ppm to 37.5 ppm. Propylene glycol was detected in the TCLP extract at 19 ppm.
- Ethylene glycol was detected in one soil sample at 7.6 ppm.
- SVOCs were detected in 40 soil samples slightly above the guidance values.

Based on the results of the additional investigation completed in 2005 and 2006, the following was found:

- At the Pilot Plant area, soils at 0.0 and 4.0 feet below the concrete slab exhibited a slight odor. Soils from more than 4 feet below the slab exhibited an obvious odor.
- The horizontal and vertical extent of the PCE- and TCE-impacted soils in the Plant 1 area appears to be limited to only the eastern portion of the Plant 1 building.
- SVOC concentrations in soil were generally between 1 and 10 ppm. The highest concentrations were found in the southeastern end of the sampling grid. Only one surface soil sample had a high concentration (160 ppm). SVOCs exceeedances were generally co-located with soils found to contain PCBs and/or VOCs exceedances.

Soil Vapor:

Four phases of on-site soil vapor investigations (SVI) were completed from 2007 to 2009. Sampling locations were selected to provide coverage across the Site, including areas where building construction may occur during site redevelopment; within/near footprints of the former plant buildings; near areas where trichloroethene (TCE) was identified in a 1989 soil vapor assessment; and in various paved areas. Results were compared to the NYSDOH Soil Vapor matrix Guidance values. Constituents detected at the highest concentrations included tetrachloroethene (PCE), TCE, cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride.

The highest concentrations were at locations within the footprints of the former on-site buildings and along the eastern property boundary.

- Along the eastern boundary, TCE concentrations ranged from 22 to 190 ug/m3 (5-5.5 feet bgs). PCE ranged from 880 to 8,100 ug/m3 (5-5.5 feet bgs). Cis-1,2-DCE was detected at a maximum concentration of 2400 ug/m3 at one location (5-5.5 feet bgs).
- At the southeast corner of the site, TCE concentrations ranged from 1.4 ug/m3 to 32 ug/m3 (5-5.5 feet bgs). PCE ranged from 64 to 3,700 ug/m3 (5-5.5 feet bgs).
- Under the Plant 1 building area, TCE ranged from 390 ug/m3 (5-5.5 feet bgs) to

36,000 ug/m3 (15-15.5 feet bgs). PCE ranged from 9,500 ug/m3 (5-5.5 feet bgs) to 150,000 (15-15.5 feet bgs). Vinyl chloride was detected in one sample at 10,000 ug/m3 (5-5.5 feet bgs).

- Under the Plant 3 building area, only one sample detected PCE, ranging from 2,200 to 4,500 ug/m3 (5-5.5 feet bgs).
- Under the Plant 2 building area, one sample detected PCE ranging from 4,600 to 5,800 ug/m3 (5-5.5 feet bgs).

An off-site soil vapor investigation was completed in May 2011 at the off-site commercial building located just east of the site. The investigation consisted of a building reconnaissance, product inventory, and sub-slab vapor sampling and indoor air sampling. PCE was detected in several sub-slab samples, ranging from 11 to 32,000 ug/m3. PCE in indoor air ranged from 0.40 to 6.5 ug/m3. TCE was detected in several sub-slab samples ranging from 1.1 to 66 ug/m3. TCE in indoor air was generally less than 0.21 ug/m3 in most samples.

Soils (Metals):
The initial RFI identified the following:

- Concentrations of inorganic constituents at several debris sampling locations near Plant 1 and Pilot Plant buildings were detected. Barium at a maximum of 1,400 ppm; chromium at a maximum of 472 ppm; copper at maximum of 756 ppm; lead at maximum of 1,480 ppm.
- For soil samples collected from beneath and outside the former building floor slabs, copper ranged from 35.9 to 42.4 ppm.

In July 2010, additional delineation of cadmium and arsenic was completed at the northeast corner of the site. Arsenic was found in eight shallow samples (0-0.5 feet bgs) above 16 ppm, with a maximum concentration of 32.9 ppm. Cadmium was detected in only one sample at 14.2 ppm (0.5 to 2.0 feet bgs). This location coincided with a location where arsenic exceeded the commercial SCO.

6.5: Summary of the Remediation Objectives

The objectives for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to restore the site to pre-disposal conditions to the extent feasible. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the site through the proper application of scientific and engineering principles.

SECTION 7: SUMMARY OF THE SELECTED REMEDY

To be selected the remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. The remedy must also attain the remedial action objectives identified for the site, which are presented in

Section 6.5. Potential remedial alternatives for the Site were identified, screened and evaluated in the feasibility study (FS), or Corrective Measures Study (CMS) report.

A summary of the remedial alternatives that were considered for this site is presented in Exhibit B. Cost information is presented in the form of present worth, which represents the amount of money invested in the current year that would be sufficient to cover all present and future costs associated with the alternative. This enables the costs of remedial alternatives to be compared on a common basis. As a convention, a time frame of 30 years is used to evaluate present worth costs for alternatives with an indefinite duration. This does not imply that operation, maintenance, or monitoring would cease after 30 years if remediation goals are not achieved. A summary of the Remedial Alternatives Costs is included as Exhibit C.

The basis for the Department's remedy is set forth at Exhibit D.

The elements of the selected remedy are as follows:

1. Remedial Design

Implementation of a remedial design program to provide the details necessary for the construction, maintenance and monitoring of the remedial program. Green remediation principals and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per NYSDEC Division of Environmental Remediation (DER) Guidance-31. The major green remediation components are as follows:

- Considering the environmental impacts of remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gas and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals;
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Excavation

All on-site soils exceeding the SCOs for PCBs will be excavated to a maximum depth of 10 feet below ground surface (bgs). The soil cleanup objective (SCO) for PCB contaminated soils at the surface will be 1 ppm (0-1 foot bgs) and 10 ppm in subsurface soils. These clean up values are from the NYSDEC Commissioners Policy 51 (CP-51) for soil cleanup criteria. All soils contaminated with arsenic and cadmium above the commercial SCOs will be excavated and disposed off-site. This cleanup up criteria comes from Title 6 of the New York codes Rules and Regulations (6 NYCRR) Part 375. These soils are limited to small areas ranging from one to two feet bgs. Confirmatory samples will be collected for each excavation.

Soil will be excavated at two locations with PAH concentrations above the commercial SCOs, so that total PAHs in subsurface soils remain less than 500 ppm. PAHs are part of the compounds known as semi-volatile organic compounds, or SVOCs. This soil removal action is also in accordance with NYSDEC CP-51, Soil Cleanup Guidance.

Overall, approximately 10,762 cubic yards of PCB-contaminated soil, 70 cubic yards of PAH-contaminated soil, and 577 cubic yards of metal-contaminated soil will be excavated and disposed off-site. All hazardous waste has previously been removed from the site and clean fill will be brought in to replace the excavated soil.

3. Cover System

A cover system will be required to allow for commercial use of the site. The cover system (soil, concrete, asphalt/concrete pavement, buildings, etc.) will be installed as an active exposure prevention method over remaining areas of soil exhibiting SVOCs, PAHs and metals at concentrations greater than the commercial SCOs. The cover will consist either of structures such as buildings, pavement, sidewalks, comprising the site development, or a soil cover in areas where the upper one foot of exposed surface soil may exceed the commercial SCOs. Where the soil cover is required, it will be a minimum of one foot of soil meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for commercial use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer (hydro-seeding). The cover system will cover approximately 105,599 square feet. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

Any future on-site buildings will be required to have a sub-slab depressurization system, or a similar engineered system, to prevent the migration of vapors into the building from soil and/or groundwater.

4. Institutional Controls

Imposition of an institutional control in the form of an environmental easement for the controlled property that:

- requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allows the use and development of the controlled property for commercial uses as defined by Part 375-1.8(g), and as allowed by local zoning laws with the appropriately incorporated land use restrictions;
- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH; and
- requires compliance with the Department approved Site Management Plan.

5. Site Management Plan

A Site Management Plan is required, which includes the following:

a. an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- Institutional Controls: The Environmental Easement discussed in "Institutional Controls";
- Engineering Controls: The soil cover discussed in "Cover System" and the sub-slab depressurization system (or similar engineered system) discussed in "Vapor Mitigation" unless provisions are implemented as discussed below;
- descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;
- provisions for evaluating the potential for soil vapor intrusion at any buildings developed on the site, including a provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls;

b. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

- monitoring of the cover system to assess the performance and effectiveness of the remedy;
- a schedule of monitoring and frequency of submittals to the Department;
- monitoring for vapor intrusion for any buildings occupied or developed on the site, as may be required and discussed in "Institutional Controls" above.

Exhibit A

Nature and Extent of Environmental Impacts

This section describes the findings of soil, and soil vapor investigations conducted at the site (see Figure 2). As described in Section 6.1, samples were collected and analyzed from various areas of concern (AOCs) to characterize the nature and extent of contamination (see Figure 3). Based on prior investigations for soil and groundwater, three operating units (OUs) were established to address contamination of these media. OU1 and OU3 addressed groundwater impacts from volatile organic compounds (VOCs) and are currently being handled by the United States Environmental Protection Agency (USEPA). OU2 addressed polychlorinated biphenyls (PCBs) in soil when the site was in operation. A Record of Decision (ROD) was signed by the USEPA for OU2 and the OU is now closed. The focus of this Proposed Remedial Action Plan (PRAP) is OU4, On-site Soils and Soil Vapor, which was created to address impacts to on-site and off-site soils that were not previously accessible. OU4 is being handled by the New York State Departmental of Environmental Conservation (NYSDEC) under the RCRA Corrective Action Program.

- OU4, On-site Soils and Soil Vapor: OU4 addresses soils contaminated with PCBs, VOCs, and PAHs as part of semi-volatile organic compounds (SVOCs), and metals. The site is currently vacant, except for one building. Redevelopment is planned in the future with construction of new buildings. Therefore, a site-wide soil vapor intrusion (SVI) sampling program was completed to determine the potential for soil vapor intrusion and any necessary mitigation measures. In addition, the evaluation of the off-site vapor intrusion pathway and the potential implementation of any mitigation measures where necessary and feasible for vapors related to their site operations would be a separate OU5.

Based on RCRA investigations completed at the site as part of the RFI, from 2004 to 2006, 76 AOCs were identified for further evaluation. The location of each AOC is shown on Figure 3. As part of the investigations at the site, primary constituents of interest (COIs) identified in the soils include polychlorinated biphenyls (PCBs), semi-volatile organic compounds (SVOCs), volatile organic compounds (VOCs) and inorganics (metals). Interim corrective measures (ICMs) were also completed from 2005 to 2009 to primarily address removal of PCBs, and to a lesser extent, VOCs and SVOCs. Soil with PCB concentrations exceeding 50 ppm were initially removed in accordance with the Toxic Substances Control Act (TSCA) and 6 NYCRR Part 371.4(e). In 2009, additional soil with PCB concentrations exceeding the 6 NYCRR Part 375 Restricted Use SCOs for industrial use was excavated. Soil containing VOCs at concentrations greater than the 6 NYCRR Part 375 Restricted Use SCOs for commercial and industrial use was also excavated. In 2011, soils at certain areas of the site were sampled for metals, specifically arsenic and cadmium. Results were compared to 6 NYCRR Part 375 Restricted Use SCOs for commercial use. A detailed description of environmental exceedances for all environmental media evaluated is provided in the subsections below.

Table A-1 summarizes the findings of soil investigations performed at the site, presents the range of impacts found in soil at the site, and compares the data with the applicable SCOs for the site. The COIs are arranged into four categories; VOCs, SVOCs, metals, and PCBs. For comparison

purposes, the SCOs are provided for unrestricted use and for the proposed restricted use SCOs identified in Section 6.1.1 (commercial use SCOs).

Soil

The primary contaminants identified by the RFI and interim measures were PCBs and SVOCs in the following: (1) soil within AOCs 28 and 29; and (2) accumulated debris within subsurface structures (i.e., silt, sand, and gravel from manholes/catch basins, sumps, and floor trenches at the site). VOCs and metals were also identified at certain sampling locations.

Soil containing PCBs at concentrations greater than 50 ppm were identified in two locations: (1) near a former electrical transformer area identified as AOC 39; and (2) around two former Pilot Plant sumps identified as AOC 45. Additional soils at the site exhibiting PCBs at concentrations greater than 50 ppm were identified by soil sampling performed in connection with the foundation demolition activities. As a result of the phased sampling completed in 2008, additional PCB-impacted soils at concentrations greater than 50 ppm were discovered within the former Plant 1 and Pilot Plant footprints and from various nearby areas (collectively referred to as "the eastern plant area"). In 2009, additional PCB soils above the commercial and industrial SCOs presented in 6 NYCRR Part 375-6.8 were excavated from the eastern plant area. These programs also included additional soil sampling for VOCs and SVOCs. VOC- and SVOC-containing soil was also removed as part of the PCB excavation activities. RFI and CMS soil sampling locations (this includes all locations where sampling has been performed since 2004 in accordance with plans reviewed/approved by the NYSDEC) are presented on Figure 4.

Soil impacts identified during the investigations described above (except for the metals in the northern half of the site) were partially addressed as described in Section 6.2 of the ROD. A summary of the remedial activities conducted at the site pursuant to the RCRA Corrective Action Program are described below:

- Removal of approximately 30 cubic yards (CY) of PCB soils greater than 50 ppm from the former electrical transformer area (AOC 39), removal of a former gasoline underground storage tank (UST-AOC 50), and cleaning of subsurface structures in 2005.
- Removal of a suspected former heating oil UST encountered beneath Plant 2 (AOC 51) and an unrelated, small isolated amount of pooled non-aqueous phase liquid (NAPL) encountered beneath Plant 2 during foundation demolition activities in 2006.
- Removal of approximately 670 CY of PCB soils greater than 50 ppm from AOC 45 during 2006.
- Removal of approximately 8,774 CY of PCB-impacted soil greater than 25 ppm from "the eastern plant area" in 2009.
- Soil with VOCs exceeding the 6 NYCRR Part 375-6.8 commercial use SCOs were removed from within and around the limits of AOCs 39 and 45 as part of the PCB soil removal and were transported for off-site disposal.

The 2009 activities removed soil from several sampling locations by former plant 1 where VOCs and SVOCs were identified at concentrations exceeding commercial and industrial use SCOs. This resulted in the removal of the remaining soils where VOCs had been identified at

concentrations exceeding the NYSDEC commercial use SCOs. Based on available analytical data, VOCs in existing soils (where detected) are at concentrations less than the commercial use SCOs. COIs remaining in soils on-site are summarized in Table A-1 below.

Soil in the northern half of the site and along the northern fence line was sampled in July 2011 to further evaluate metals in areas where data from sampling performed by Impact Environmental (Impact) suggested the presence of arsenic and cadmium at concentrations exceeding the 6 NYCRR Part 375-6.8 commercial use SCOs. Based on the results obtained for this sampling, soil containing metals (primarily arsenic and one cadmium exceedance) were identified and delineated in the northern portion of the site. The metals soil delineation sampling locations are presented on Figure 4 as Post-RFI soil sampling locations.

Table A-1 - Soil

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCO[b] (ppm)	Frequency Exceeding Unrestricted SCO	Commercial Use SCO[c] (ppm)	Frequency Exceeding Restricted SCO
VOCs					
2-Butanone (MEK)	ND[d] to 0.45 J	0.12	1 of 187 samples[e]	500	0 of 187 samples
Acetone	ND to 3.6	0.05	24 of 187 samples	500	0 of 187 samples
cis-1,2-Dichloroethene	ND to 8.1	0.25	2 of 187 samples	500	0 of 187 samples
Tetrachloroethene	ND to 5.4	1.3	1 of 187 samples	150	0 of 187 samples
Methylene Chloride	ND to 0.13 J	0.5	2 of 187 samples	500	0 of 187 samples
Trans-1,2-Dichloroethene	ND to 0.44 J	0.19	1 of 187 samples	500	0 of 187 samples
Trichloroethene	ND to 2.0	0.47	1 of 187 samples	200	0 of 187 samples
SVOCs					
Benzo(a)anthracene	ND to 45	1.0	22 of 152 samples	5.6	9 of 152 samples
Benzo(a)pyrene	ND to 35	1.0	23 of 152 samples	1.0	23 of 152 samples
Benzo(b)fluoranthene	ND to 43	1.0	24 of 152 samples	5.6	6 of 152 samples
Benzo(k)fluoranthene	ND to 14	0.8	24 of 152 samples	56	0 of 152 samples
Chrysene	ND to 42	1.0	21 of 152 samples	56	13 of 152 samples
Dibenz(a,h)anthracene	ND to 13 J	0.33	14 of 152 samples	0.56	13 of 152 samples

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCO[b] (ppm)	Frequency Exceeding Unrestricted SCO	Commercial Use SCO[c] (ppm)	Frequency Exceeding Restricted SCO
Fluorene	ND to 47	30	1 of 152 samples	500	0 of 152 samples
Indeno(1,2,3-cd)pyrene	ND to 27	0.5	23 of 152 samples	5.6	5 of 152 samples
Phenol	ND to 5 J	0.33	2 of 152 samples	500	0 of 152 samples
Metals					
Arsenic	ND to 32.9	13	15 of 130 samples	16	9 of 130 samples
Cadmium	ND to 14.2	2.5	3 of 130 samples	9.3	1 of 130 samples
Chromium[f]	1.2 B to 22.8	1.0	58 of 58 samples	400	0 of 58 samples
Lead	ND to 135 J	63	2 of 58 samples	1,000	0 of 58 samples
Zinc	ND to 168	109	3 of 58 samples	10,000	0 of 58 samples
Pesticides/PCBs					
Total PCBs	ND to 47	0.1	318 of 370 samples	1.0	219 of 370 samples

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;

b - SCG: Part 375-6.8(a), Unrestricted Soil Cleanup Objectives.

c - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Public Health for Commercial Use, unless otherwise noted.

d – ND: non-detect

e – samples: total number of samples collected by ARCADIS from soils that remain on-site and were analyzed for the constituent. Total samples include duplicates.

f – Chromium: assumes that all chromium samples were for hexavalent chromium.

The primary COI remaining in soil at concentrations above the NYSDEC commercial use SCOs is PCBs. Select metals such as, arsenic and cadmium, and select SVOCs, such as benzo(a)pyrene, also remain in soils at concentrations greater than commercial use SCOs. Soils containing COIs at concentrations exceeding the industrial use SCOs remain in 15 of the 76 designated AOCs at the site (refer to Table 1). Soils containing COIs at concentrations exceeding the commercial use SCOs remain in 25 of the 76 designated AOCs at the site (refer to Table 2). Soils at certain locations between the AOCs (as identified by the 2009 verification soil sampling, and the 2011 metals soil delineation sampling) also contain COIs at concentrations exceeding the commercial and/or industrial use SCOs. PCBs remaining on-site are mostly located on the

southern half of the property in the vicinity of the former Pilot Plant and former Plant 1 building (both buildings have been demolished). Metals impacts are mostly located in the northeastern corner of the site away from historic plant operations. The majority of the SVOC containing soils are located in the vicinity of former plant buildings and can be addressed while simultaneously addressing PCB impacts, except for a few locations just north of former Plant 2. COIs are mostly found in surface soil or shallow subsurface soil, with the exception of PCBs, which have been identified at concentrations greater than 1 ppm in a few select locations at depths greater than 10 feet below ground surface (bgs).

The sampling locations where the COIs remain at concentrations exceeding the commercial and/or industrial use SCOs are summarized in Tables 1 and 2. Analytical results for SVOCs, metals, and PCBs at concentrations exceeding the industrial use SCOs and commercial use SCOs, including corresponding sampling locations/intervals and sampling dates, are presented in Tables 1a, 1b, and 1c (for industrial use exceedances) and Tables 2a, 2b, and 2c (for commercial use exceedances). The sampling locations where COIs remain in soil at concentrations exceeding the industrial and commercial use SCOs are shown by "color-coded dots" on Figures 5 and 6, respectively. The limits of the previous soil excavations at the site are shown on Figure 7.

Based on the findings of the soil investigations, former site operations and releases of PCBs have resulted in soil impacts. The site impacts identified in soil, which are considered to be the primary COIs to be addressed by the final remedy, are PCBs, arsenic, cadmium and benzo(a)pyrene.

Soil Vapor

The evaluation of the potential for soil vapor intrusion resulting from the presence of site related soil or groundwater impacts was completed by the sampling of on-site soil vapor and off-site sub-slab soil vapor and indoor air at a neighboring building complex. At the site no buildings were present in impacted areas, so only soil vapor was evaluated on-site. The on-site investigation included soil vapor sampling in areas where building construction may occur during site redevelopment, within/near footprints of the former plant buildings, near areas where trichloroethene (TCE) was identified in a 1989 soil vapor assessment, along site boundaries, and in various paved areas. Sub-slab vapor and indoor air sampling was not performed at the only building remaining on-site (the Administration Building) because it is unoccupied and may be demolished during/after site redevelopment. A soil vapor evaluation will be completed at the Administration Building if its end-use changes. The NYSDEC has not established standards, criteria, or guidance values for VOCs in soil vapor. Therefore, the screening criteria used for evaluating the soil vapor data were the air guideline values presented in the NYSDOH document titled "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (October, 2006).

Four soil vapor intrusion (SVI) investigations were performed at the Site from 2007 to 2009. As part of the investigations, soil vapor samples were collected from 28 locations and analyzed for chlorinated VOCs. Eleven of those sample locations were re-visited, after the 2009 soil removal activities, to re-evaluate the presence of VOCs in soil vapor. Soil vapor sampling locations were selected to provide coverage across the site. Tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE) and vinyl chloride were identified in soil vapor at

concentrations exceeding the associated screening criteria. Two or more of these VOCs were identified at concentrations exceeding the air guideline values at each soil vapor sampling location, except for one location in the southeastern corner of the site and at three locations in the western portion of the site closest to and opposite a residential area. Constituents that were detected at the highest concentrations included PCE, TCE, cis-1,2-DCE and vinyl chloride. PCE and/or TCE were detected at concentrations greater than the air guideline values at 19 of the 28 sampling locations. The highest VOC concentrations detected in soil vapor were at locations within the footprints of the former on-site buildings and along the eastern property boundary. For the most part, the VOC concentrations identified at the revisited locations were generally the same or somewhat higher than those identified at the respective locations during the previous investigations. However, the VOC concentrations identified in three of the soil vapor samples from revisited locations were lower than the concentrations identified in the previous investigations. This includes a location within the Plant 3 footprint, a location immediately west of the rainwater runoff sumps identified as AOCs 28 and 29, and a location along the eastern property boundary.

The Human Health Exposure Evaluation (HHEE) presented in the *Corrective Measures Study Work Plan* (ARCADIS, May 2008), indicated if any commercial/industrial building were to be constructed in the future, indoor air could present a potentially complete exposure pathway based on soil vapor concentrations at the site. Therefore, VOCs in soil vapor at the site will continue to be monitored, and additional preventative or mitigative measures (i.e., vapor barrier, venting systems) will be incorporated into the land use restriction to address the potential for vapor intrusion into any future buildings. The NYSDEC will require the installation of engineering controls, such as vapor barriers and venting systems (where appropriate), as part of new construction at the Site. In addition, the NYSDEC will require the installation of a sub-slab depressurization system within the existing Administration Building (if it is to remain and be occupied in the future), unless it is demonstrated that sub-slab vapor and indoor air conditions are acceptable.

Based on the findings of the investigations, the presence of chlorinated VOCs resulted in the contamination of soil. The site contaminants that are considered to be the primary contaminants of concern and which will drive the remediation of soil vapor to be addressed by the remedy selection process are PCE, TCE and to a less extent vinyl chloride monomer, or VCM.

Exhibit B

Description of Corrective Measure Alternatives

This section summarizes corrective measure alternatives that were considered based on the Remediation Measures Objectives, or CMOs (see Section 6.5) to address the impacted media identified at the site as described in Exhibit A.

The soil remedial measure alternatives do not include a detailed evaluation of an unrestricted use cleanup (e.g., excavation to achieve unrestricted use SCOs) because: (1) the site is currently zoned Light Industry; (2) the site has historically been used for industrial purposes and future development will be limited to similar industrial uses and/or certain commercial uses; (3) attainment of the industrial use SCOs would meet the program goal presented in the NYSDEC Final Commissioner Policy titled "CP-51/Soil Cleanup Guidance," issued October 2010 ("NYSDEC CP-51"), which is to eliminate or control risks to public health and the environment; and (4) a cleanup alternative to achieve the NYSDEC commercial use SCOs (which includes the same 1 ppm PCB SCO used for residential purposes). . When discussing "industrial" or "commercial" uses in this PRAP, those terms are meant to include those uses that are allowed under the Town of Oyster Bay's "Light Industry" zoning and consistent with the definitions for "industrial" and "commercial" uses as presented in 6 NYCRR Part 375-1.8(g)(2).

Alternative 1: No Further Action

This alternative recognizes the remediation and removal of approximately 9,500 CY of impacted material performed as part of the ICMs described in Section 6.2, and approximately 2,000 CY of impacted material removed as part of the OU2 cleanup. Alternative 1 serves as the baseline for comparison of the overall effectiveness of the other corrective measure alternatives. This alternative leaves the site in its present condition and does not provide any additional protection of the environment. The existing cover material (i.e., grass/vegetation and asphalt) and fencing on the property would be maintained only as associated with current site maintenance. This alternative could be implemented immediately and there are no costs associated with this alternative.

Alternative 2: Site Controls and Monitoring

This alternative recognizes the remediation of the site completed by the ICMs described in Section 6.2. Site controls and monitoring are necessary to confirm the effectiveness of the ICM. This alternative would not involve active remedial measures to remove, treat or contain impacted soil at the site. This alternative maintains engineering controls which were part of the ICM and institutional controls in the form of an environmental easement that imposes land use restrictions.

The institutional controls would include, at a minimum:

- A land use restriction, in the form of an environmental easement, to restrict property use to commercial/industrial and notify future owners of the presence of PCBs, SVOCs, and metals

in soils. It would also restrict site use to prevent young children, the disabled, and the elderly from being site occupants on a regular basis, and uses that would involve cultivation.

The engineering controls would include, at a minimum:

- Maintenance and inspection of the cap;
- Maintenance and inspection of the SSDS, or similar engineered system; and
- Maintenance of the fencing and vegetation.

A Site Management Plan (SMP) would also be in place and include, at a minimum:

- Institutional and Engineering Control Plan;
- Excavation Plan for management of soil in areas of remaining contamination;
- Provisions for evaluating the potential for SVI at any buildings constructed on-site and for certain off-site buildings, and mitigating such buildings as necessary and feasible;
- Site access controls; and
- Monitoring Plan to assess performance and effectiveness of the implemented remedy.

Institutional controls in the form of an environmental easement would restrict future land use of the site to industrial activities and notify future property owners of the presence of constituents in soil and soil vapor at the site and the applicability of the SMP. Specifically, the SMP: (1) addresses potential future soil excavation in connection with future development to the site; (2) includes a requirement for developing a remedial plan that identifies proposed excavation limits and details of the soil removal (e.g., waste characterization sampling, verification sampling, excavation sidewall support, off-site transportation and disposal, dewatering, backfilling, etc.); And (3) requires that the remedial plan be provided to the NYSDEC for review and approval prior to implementation. Costs for this potential excavation are not included in the cost estimate for this alternative.

Additional preventative or mitigative measures (i.e., vapor barrier, venting systems) to address the potential for vapor intrusion into a future building on-site would be incorporated into the land use restriction. These controls may include a sub-membrane depressurization system, an approved vapor retarder membrane, and cap consisting of a concrete floor slab (building footprint).

The capital costs associated with this alternative are related to preparing the appropriate documentation for the land use restriction and preparing the SMP. Annual Operation and Maintenance (O&M) costs associated with this alternative include costs associated with inspection and maintenance of ground cover materials and preparation of a periodic certification report. This alternative could be implemented in an estimated 3 months.

Present Worth: *$360,000*
Capital Cost: *$105,000*
Annual Costs: *$16,250*

Alternative 3: Excavation of PCB-Impacted Soil Greater than 50 ppm and Off-site Disposal, Capping PCB-Impacted Soil Greater than 25 ppm, Capping SVOC- and Metal-Impacted Soil for Industrial Use, Site Controls, and Monitoring

A component of this alternative had already been implemented. In order to expedite remedial activities at the site, the removal of soils containing PCBs at concentrations greater than 50 ppm was performed as part of the 2009 ICM activities. Approximately 10,000 cubic yards of impacted materials were removed, as described in Section 1.3.7.5, and transported for off-site disposal. The existing data indicates that PCB concentrations in the remaining soils are less than 50 ppm.

This alternative would include the installation of a cap (soil cover, asphalt/concrete pavement, concrete foundation, etc.) as an active exposure prevention method over areas of soil exhibiting PCBs, SVOCs and metals at concentrations greater than the NYSDEC industrial use SCOs (See Figure 8). The cap would be installed over impacted soil that would remain at the site and would cover an area of approximately 57,153 square feet. Where a soil cover is required it will be a minimum of one foot of soil meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for commercial use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer (hydro-seeding). Approximate horizontal and vertical limits of the proposed capping areas, based on current site characterization information, are shown on Figure 8.

The cap would generally consist of a 6-inch thick layer of general fill (run-of-bank gravel) and 6 inches of seeded topsoil to provide a vegetative cover. This cap approach could be modified in areas where buildings or driveways are constructed as part of future site redevelopment activities. Specifically, concrete building floor slabs and asphalt/concrete pavement materials could be designed (in consultation with the NYSDEC) to serve as the cap in these areas.

Airborne monitoring for particulate (dust) and volatile organic vapors would be conducted during the excavation and cap construction activities in accordance with the NYSDOH's *Community Air Monitoring Plan*, dated June 2000. Measures would be provided to mitigate dust generation during the project. Appropriate actions would be taken, if needed, based on air monitoring results.

Engineering controls would be implemented to address cap protection and maintenance. Additional preventative or mitigative measures (i.e., vapor barrier, venting systems) to address the potential for vapor intrusion into a future building on-site would be incorporated into the land use restriction. These controls may include a sub-membrane depressurization system, an approved vapor retarder membrane, and cap consisting of a concrete floor slab (building footprint).

Remaining soils at sampling locations exhibiting COIs at concentrations greater than the 6 NYCRR Part 375 NYSDEC industrial use SCOs would be addressed by the following institutional controls, as appropriate:

- A land use restriction to restrict property use to industrial and notify future owners of the presence of PCBs, SVOCs, and metals in soils. It would also restrict site use to prevent young children, the disabled, or the elderly from being site occupants on a regular basis, or uses that would involve cultivation.

- An SMP would be developed to provide guidelines to be followed for the management of such soil material, should future activities disturb subsurface site soils. The SMP would be referenced in the environmental easement to the property.

The capital costs associated with this alternative include costs associated with mobilization, site preparation, cap construction, site restoration, monitoring, and preparation of documentation necessary for the land use restriction. For purposes of this PRAP, the present worth estimated cost of this alternative (based on capping over 57,153 square feet) is $1,360,000. This alternative could be implemented in an estimated 3 months.

Present Worth: *$1,360,000*
Capital Cost: *$874,000*
Annual Costs: *$31,250*

Alternative 4: Excavation of PCB-Impacted Soil Greater than 25 ppm and Off-site Disposal, No Capping for PCBs, Capping SVOC- and Metal-Impacted Soils for Industrial Use, Site Controls, and Monitoring

Under this alternative, soils containing PCBs at concentrations greater than 25 ppm would be excavated and transported for off-site disposal in accordance with applicable rules and regulations. A cap would be installed as an active exposure prevention method over remaining areas of soil exhibiting SVOCs and metals at concentrations greater than the NYSDEC industrial use SCOs. Institutional controls would be implemented to address cap protection and maintenance.

This alternative includes the excavation and off-site transportation and disposal of approximately 3,928 CY of impacted soils from the site. Excavation would be performed in each area where soil exhibits PCBs at concentrations greater than 25 ppm, except for within the footprint of former AOC 45 excavation area (where PCBs remain at a concentration of 26 ppm at sampling location VS-45-2 (34-36') which was below the bottom of the previous 30-foot deep excavation). Under this alternative, excavation would overlap the footprint of a previous 2-foot deep excavation to remove soil at sampling location AOC-52-5 (6-6.5') that exhibits PCBs at a concentration of 34 ppm. Approximate horizontal and vertical limits of the proposed excavation areas, based on current site characterization information, are shown on Figure 9.

Excavation of impacted soils will generally be conducted using conventional construction equipment, such as excavators, front-end loaders, dump trucks, etc. The excavated soil will be stockpiled in lined material staging areas for waste characterization purposes and/or direct-loaded for off-site disposal. Specifics of the handling approach will be determined during the remedial design. In-situ or post-excavation waste characterization samples will be collected from

each stockpile to evaluate constituent concentrations and determine appropriate methods of handling and off-site disposal. For cost estimation and alternative evaluation purposes in this PRAP, it is assumed that all excavated soils (estimated 6,285 tons assuming 1.6 tons per CY) would be characterized as nonhazardous PCB-impacted waste and transported to a permitted landfill for off-site disposal as a nonhazardous waste.

This alternative also includes the construction of a cap extending over remaining on-site soils with SVOCs and metals exceeding industrial use SCOs. The cap would be installed over impacted soil that would remain at the site and would cover an area of approximately 43,781 square feet. Potential horizontal limits of the cap are shown on Figure 9. This alternative would include the same cap construction and airborne monitoring as Alternative 3.

Following completion of the excavation activities, the site would be restored by backfilling the excavated area with imported clean fill material and hydro-seeding the area. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

Additional preventative or mitigative measures (i.e., vapor barrier, venting systems) to address the potential for vapor intrusion into a future building on-site would be incorporated into the land use restriction. These controls may include a sub-membrane depressurization system, an approved vapor retarder membrane, and cap consisting of a concrete floor slab (building footprint).

This alternative would also involve the following institutional controls:

- A land use restriction would be developed to restrict property use to industrial and notify future owners of the presence of PCBs, SVOCs, and metals in soils. It would also restrict site use to prevent young children from potentially being site occupants.

- An SMP would be developed to provide guidelines to be followed for soil management should future activities disturb subsurface site soils that contain chemical COIs at concentrations greater than the NYSDEC industrial use SCOs. The SMP would be referenced in the environmental easement to the property.

The capital costs associated with this alternative include costs associated with mobilization, site preparation, excavation, transportation, disposal, cap construction, site restoration, monitoring, and preparation of documentation necessary for the land use restriction. For purposes of this PRAP, the present worth estimated cost of this alternative (based on the excavation and off-site disposal of 3,928 CY of soils and capping over 43,781 square feet) is $2,700,000. This alternative could be implemented in several months.

Present Worth: *$2,700,000*
Capital Cost: *$2,190,000*
Annual Costs: *$31,250*

Alternative 5: Excavation of PCB-Impacted Soil Greater than 25 ppm and Off-site Disposal, Capping PCB-Impacted Soil Greater than 1 ppm, Capping SVOC- and Metal-Impacted Soil for Commercial Use, Site Controls, and Monitoring

Under this alternative, soils containing PCBs at concentrations greater than 25 ppm would be excavated and transported for off-site disposal in accordance with applicable rules and regulations. A cap would be installed as an active exposure prevention method over remaining areas of soil exhibiting SVOCs and metals at concentrations greater than the NYSDEC commercial use SCOs. Institutional controls will be implemented to address cap protection and maintenance.

This alternative includes the same site controls, monitoring, land use restriction, and institutional controls as Alternative 2 and 3. This alternative also includes the excavation and off-site transportation and disposal of the same impacted soils from the site as Alternative 4. Approximate horizontal and vertical limits of the proposed excavation areas, based on current site characterization information, are shown on Figure 10. This alternative includes the same excavation equipment, methods, handling, characterization, and disposal as Alternative 4.

This alternative also includes the construction of a cap extending over remaining on-site soils with SVOCs and metals exceeding the NYSDEC commercial use SCOs. The cap would be installed over impacted soil that would remain at the site and would cover an area of approximately 187,317 square feet. Where a soil cover is required it will be a minimum of one foot of soil meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for commercial use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer (hydro-seeding). Potential horizontal limits of the cap are shown on Figure 10. This alternative would include the same cap construction and airborne monitoring as Alternative 3 and 4.

Following completion of the excavation activities, the site would be restored by backfilling the excavated area with imported clean fill material and hydro-seeding the area.

Additional preventative or mitigative measures (i.e., vapor barrier, venting systems) to address the potential for vapor intrusion into a future building on-site will be incorporated into the land use restriction. In addition, Bayer will continue to evaluate and mitigate, as necessary and feasible, any off-site buildings impacted by SVI. These controls may include a sub-membrane depressurization system, an approved vapor retarder membrane, and cap consisting of a concrete floor slab (building footprint).

This alternative would also involve the following institutional controls:

- A land use restriction would be developed to restrict property use to commercial as defined in 6 NYCRR Part 375-1.8(g)(2) and allow certain commercial uses permitted within the Town of Oyster Bay "Light Industry" district. It would prevent land uses where young children, the disabled, or the elderly would be site occupants on a regular basis, or uses that

would involve cultivation. It would also notify future owners of the presence of PCBs, SVOCs, and metals in soils.

- An SMP would be developed to provide guidelines to be followed for soil management should future activities disturb subsurface site soils that contain chemical COIs at concentrations greater than the NYSDEC commercial use SCOs. The SMP would be referenced in the environmental easement to the property.

The capital costs associated with this alternative include costs associated with mobilization, site preparation, excavation, transportation, disposal, cap construction, site restoration, monitoring, and preparation of documentation necessary for the land use restriction. For purposes of this PRAP, the present worth estimated cost of this alternative (based on the excavation and off-site disposal of 3,987 CY of soils and capping over 187,317 square feet) is $3,200,000. This alternative could be implemented in several months.

Present Worth: *$3,200,000*
Capital Cost: *$2,740,000*
Annual Costs: *$31,250*

Alternative 6: Excavation of PCB-Impacted Soil Greater than 10 ppm and Off-site Disposal, Capping of PCBs Greater than 1 ppm, Excavation of Metals and Capping of SVOCs for Commercial Use, Site Controls, and Monitoring

Under this alternative, soils containing PCBs at concentrations greater than 10 ppm will be excavated and transported for off-site disposal in accordance with applicable rules and regulations. A cap will be installed as an active exposure prevention method over remaining areas of soil exhibiting PCBs greater than 1 ppm and SVOCs and metals at concentrations greater than the NYSDEC commercial use SCOs. Where a soil cover is required it will be a minimum of one foot of soil meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for commercial use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer (hydro-seeding). Engineering controls will be implemented to address cap protection and maintenance.

This alternative includes the same site controls, monitoring, land use restriction, and institutional controls as Alternative 2 through 5. This alternative also includes the excavation and off-site transportation and disposal of approximately 11,409 CY of impacted soils from the site.

Excavation will be performed in each area where soil exhibits PCBs at concentrations greater than 10 ppm except for select locations where PCBs remain in soil at concentrations greater than 10 ppm at depths more than 10 feet below ground surface (bgs) (i.e., Sump 5 and Pilot Plant area). The 10-foot excavation cut-off depth is consistent with the outcome of the OU2 PCB soil removal action where USEPA allowed soil with PCB concentrations of up to 24 ppm to remain since the impacts were 10 feet bgs. This would also allow on-site construction without presenting potential impacts to human health.

Excavation areas from the 2009 ICM would be revisited where necessary to remove soil containing PCBs at concentrations greater than 10 ppm below the previous soil removal limits.

The 2009 ICM targeted removal of soil impacted with PCBs at concentrations greater than 25 ppm. Therefore, soil impacted with PCBs greater than 10 ppm remains at certain ICM excavations. At these locations, the overlying clean soil (extending to within 2 feet of the 2009 ICM excavation bottom) will first be removed and stockpiled for later use as backfill. The remaining soil between this depth and 10 feet bgs will be transported for off-site disposal in accordance with applicable rules and regulations. It is anticipated that approximately 10,762 CY of soil will be removed specifically to address remaining PCBs at the site.

The excavation under this alternative will also encompass soils at two sampling locations, AOC-48-1 (0-1') (immediately southwest of the Plant 1 footprint) and P1-S121 (0-0.2') (halfway between the Plant 1 footprint and the rainwater runoff sump [AOC 28] to the east). Excavation of soils from these areas will result in removal of soils at the site found to contain total polycyclic aromatic hydrocarbons (PAHs) at concentrations greater than the 500 ppm subsurface soil cleanup level presented in NYSDEC CP-51. The 500 ppm soil cleanup level is in lieu of achieving all of the PAH-specific SCOs in 6 NYCRR 375-6. Subsurface soil means the soil beneath permanent structures, pavement, or similar cover systems, or at least one foot of soil cover that meets the applicable SCOs. Institutional controls in the form of an environmental easement, along with a SMP, will also be in place. This cleanup level is determined to be feasible and protective based on NYSDEC's experience in its various remedial programs. It is anticipated that approximately 70 CY of soil will be removed to address PAHs at these two locations and that these soils will be characterized as non-hazardous waste. Outside these locations, PAH concentrations in subsurface soil are well-below the 500 ppm. PAH constituents remaining in soil at concentrations exceeding individual SCOs (refer to Table 1A for a listing and concentrations) will be addressed via a cap.

Based on the findings of the metals soil delineation sampling activities performed in July 2011, excavation will also be performed to remove soil at locations in the northern portion of the site where arsenic and cadmium were found at concentrations exceeding the commercial use SCOs, as delineated by the sampling performed in the northern portion of the site. It is estimated that 577 CY of soil in the upper two feet (in addition to soil from the PCB excavation areas) will be removed to address the metals at these locations. It is anticipated that the soils at these sampling locations will be characterized as nonhazardous.

Imported clean fill used as backfill or as a barrier layer in areas of the site designated for capping will meet the lower of the protection of groundwater or the protection of public health SCOs as set forth in 6 NYCRR Part 375 Table 375-6.8(b). The approximate horizontal and vertical limits of the proposed excavation areas, based on existing site characterization information, are shown on Figure 11.

This alternative also includes the same excavation equipment, methods, handling, airborne monitoring, characterization, and disposal as Alternative 4, 5, and 6. For cost estimation and alternative evaluation purposes in this PRAP, it is assumed that most of the excavated soils (estimated 17,219 tons assuming a soil density of 1.6 tons per CY) will be characterized as nonhazardous PCB-impacted waste and transported to a permitted landfill for off-site disposal as a nonhazardous waste. It is assumed that approximately 70 CY of SVOC-impacted soils and 577

CY of metals-impacted soil (estimated 1,035 tons assuming 1.6 tons per CY) will be characterized as nonhazardous waste and also transported for off-site disposal.

This alternative also includes the construction of a cap extending over remaining on-site soils with PCBs greater than 1 ppm and SVOCs and metals exceeding the NYSDEC commercial use SCOs. The cap will cover an area of approximately 105,599 square feet. Potential horizontal limits of the cap are shown on Figure 11. This alternative will include the same cap construction and airborne monitoring as Alternatives 3, 4, and 5.

Following completion of the excavation activities, the site will be restored by backfilling the excavated area with imported clean fill material and hydro-seeding the area.

Additional preventative or mitigative measures (i.e., vapor barrier, venting systems) to address the potential for vapor intrusion into a future building on-site will be incorporated into the land use restriction. These controls may include a sub-membrane depressurization system, an approved vapor retarder membrane, and cap consisting of a concrete floor slab (building footprint).

This alternative will also involve the following institutional controls:

- A land use restriction will be developed to restrict property use to commercial as defined in 6 NYCRR Part 375-1.8(g)(2) and will allow certain commercial uses permitted within the Town of Oyster Bay "Light Industry" district. It will prevent land uses where young children, the disabled, or the elderly will be site occupants on a regular basis, or uses that would involve cultivation. It will also notify future owners of the presence of PCBs, SVOCs, and metals in soils.

- An SMP will be developed to provide guidelines to be followed for soil management should future activities disturb subsurface site soils that contain chemical COIs at concentrations greater than the NYSDEC commercial use SCOs. The SMP will be referenced in the environmental easement to the property.

The capital costs associated with this alternative include costs associated with mobilization, site preparation, excavation, transportation, disposal, cap construction, site restoration, monitoring, and preparation of documentation necessary for the land use restriction. For purposes of this PRAP, the present worth estimated cost of this alternative (based on the excavation and off-site disposal of 11,409 CY of soils and capping over 105,599 square feet) is $5,400,000. The time associated with excavation of impacted soils and installation of the cap will be approximately six months.

Present Worth: *$5,400,000*
Capital Cost: *$4,950,000*
Annual Cost: *$31,250*

Alternative 7: Excavation of PCB-Impacted Soil Greater than 1 ppm and SVOCs/Metals at Concentrations Exceeding Commercial Use SCOs, Off-site Disposal, Site Controls, and Monitoring

Under this alternative, soils containing COIs at concentrations greater than the NYSDEC commercial use SCOs for PCBs, SVOCs and metals would be excavated and transported for off-site disposal in accordance with applicable rules and regulations.

This alternative includes the same site controls, monitoring, land use restriction, and institutional controls as Alternative 2 through 6. This alternative also includes the excavation and off-site transportation and disposal of approximately 49,314 CY of impacted soils from the site. Excavation would be performed in areas where soil exhibits chemical COIs at concentrations greater than the NYSDEC commercial use SCOs (i.e., 1 ppm for PCBs and the individual SCOs established for each SVOC and metal constituent), except for select locations where excavations were previously performed to greater than 15 feet deep and clean backfill has been placed. The 15-foot excavation cut-off depth is consistent with the provisions in NYSDEC CP-51 for an appropriate maximum depth under an "Approach 2" cleanup when certain conditions are met.

Where the proposed excavation limits overlap a previously backfilled ICM excavation, the clean fill in these areas would be removed and re-used as fill, except for the bottom 2 feet of that backfill which is in contact with the COI-impacted soil. The 2-foot area of clean fill would be removed for off-site transportation and disposal with the COI-impacted soil underneath. Approximate horizontal and vertical limits of the proposed excavation areas, based on current site characterization information, are shown on Figure 12.

This alternative also includes the same excavation equipment, methods, handling, airborne monitoring, characterization, and disposal as Alternative 4 and 5. For cost estimation and alternative evaluation purposes in this PRAP, it is assumed that approximately 78,902 tons of excavated soils (assuming 1.6 tons per CY) would be characterized as nonhazardous PCB-impacted waste and transported to a permitted landfill for off-site disposal as a nonhazardous waste.

Following completion of the excavation activities, the site would be restored by backfilling the excavated area with imported clean fill material and hydro-seeding the area. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

Additional preventative or mitigative measures (i.e., vapor barrier, venting systems) to address the potential for vapor intrusion into a future building on-site would be incorporated into the land use restriction. In addition, Bayer will continue to evaluate and mitigate, as necessary and feasible, any off-site buildings impacted by SVI. These controls may include a sub-membrane depressurization system, an approved vapor retarder membrane, and cap consisting of a concrete floor slab (building footprint).

This alternative would also involve the following institutional controls:

- A land use restriction would be developed to restrict property use to commercial as defined in 6 NYCRR Part 375-1.8(g)(2) and would allow certain commercial uses permitted within the Town of Oyster Bay "Light Industry" district. It would prevent land uses where young children, the disabled, or the elderly would be site occupants on a regular basis, or uses that would involve cultivation. It would also notify future owners of the presence of PCBs, SVOCs, and metals in soils.

- An SMP would be developed to provide guidelines to be followed for soil management should future activities disturb subsurface site soils that contain chemical COIs at concentrations greater than the NYSDEC commercial use SCOs (if such soils are left in place under this alternative). The SMP would be referenced in the environmental easement to the property.

The capital costs associated with this alternative include costs associated with mobilization, site preparation, excavation, transportation, disposal, and preparation of documentation necessary for the land use restriction. For purposes of this PRAP, the present worth estimated cost of this alternative (based on the excavation and off-site disposal of 49,314 CY of soils) is $15,900,000. The time associated with excavation of impacted soils would be one year or more.

Present Worth: *$15,900,000*
Capital Cost: *$15,700,000*
Annual Cost: *$12,500*

Exhibit D

Corrective Measure Alternative Costs

Corrective Measure Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
Alternative 1: No Further Action	0	0	0
Alternative 2: Site Controls and Monitoring	105,000	16,250	360,000
Alternative 3: Excavation of PCB-Impacted Soil Greater than 50 ppm and Off-site Disposal, Capping PCB-Impacted Soil Greater than 25 ppm, Capping SVOC- and Metal-Impacted Soil for Industrial Use, Site Controls, and Monitoring	874,000	31,250	1,360,000
Alternative 4: Excavation of PCB-Impacted Soil Greater than 25 ppm and Off-site Disposal, No Capping for PCBs, Capping SVOC- and Metal-Impacted Soils for Industrial Use, Site Controls, and Monitoring	2,190,000	31,250	2,700,000
Alternative 5: Excavation of PCB-Impacted Soil Greater than 25 ppm and Off-site Disposal, Capping PCB-Impacted Soil Greater than 1 ppm, Capping SVOC- and Metal-Impacted Soil for Commercial Use, Site Controls, and Monitoring	2,740,000	31,250	3,200,000
Alternative 6: Excavation of PCB-Impacted Soil Greater than 10 ppm and Off-site Disposal, Capping of PCBs Greater than 1 ppm, Excavation of Metals and Capping of SVOCs for Commercial Use, Site Controls, and Monitoring.	4,950,000	31,250	5,400,000
Alternative 7: Excavation of PCB-Impacted Soil Greater than 1 ppm and SVOCs/Metals at Concentrations Exceeding Commercial Use SCOs, Off-site Disposal, Site Controls, and Monitoring	15,700,000	12,500	15,900,000

Exhibit E

SUMMARY OF THE SELECTED REMEDY

The Department has selected Alternative 6, Excavation of PCB-Impacted Soil Greater than 10 ppm and Off-site Disposal, Capping of PCBs Greater than 1 ppm, Excavation of Metals and Capping of SVOCs for Commercial Use, Site Controls, and Monitoring as the remedy for this site. The elements of this remedy are described in Section 7.2. The proposed remedy is depicted in Figure 11.

Basis for Selection

The proposed remedy is based on the results of the soil investigations, SVIs/VIs, and the evaluation of alternatives.

Alternative 6 was selected because, as described below, it satisfies the threshold criteria (i.e. overall protection of human health and the environment; compliance with New York State SCGs) and provides the most appropriate use of the balancing criteria (short-term effectiveness; long-term effectiveness and permanence; reduction of toxicity, mobility, or volume through treatment; implementability; and costs). It would achieve the CMOs for the site by:

- removing soil containing PCBs at concentrations greater than 10 ppm (NYSDEC subsurface soil cleanup level);
- removing total PAHs at concentrations greater than 500 ppm for subsurface soil (per NYSDEC CP-51);
- removing metals (arsenic and cadmium) at concentrations exceeding the commercial use SCOs for surface and subsurface soil;
- installing a soil cap as an active exposure prevention method over remaining areas of soil exhibiting PCBs greater than 1 ppm and SVOCs and metals at concentrations greater than the commercial use SCOs and
- imposing institutional controls in the form of an environmental easement that will limit land use at the site; and
- establishing a SMP that will impose requirements for proper site management (such as future excavations in areas of remaining contamination, the soil cap, SSDS or similar engineered system, fencing).

Based on a comparative evaluation of the alternatives as summarized below, Alternative 6 is the most effective corrective measure alternative overall considering that intended future site uses are for industrial and/or certain commercial purposes. Alternative 6 will mitigate potential human exposure to soils containing PCBs, SVOCs, and metals at concentrations greater than the NYSDEC commercial use SCOs. In addition, this alternative will be protective of the environment, have fewer short-term negative impacts, be effective over the long-term, be conducive to site redevelopment, reduce the mobility of PCBs, SVOCs, and metals in soils at the Site, and be implemented for a cost significantly lower than Alternative 7.

Overall Protection of Human Health and the Environment

Overall protection of human health and the environment, referred to as one of the threshold criteria, is evaluated for each corrective measure alternative, and each alternative must comply with the threshold criteria to remain under consideration. Alternative 1 would be ineffective and would not meet the soil CMOs for the site. The fencing and vegetation maintenance activities under Alternative 2 would reduce potential human exposure and potential migration of soil containing chemical COIs at concentrations greater than the NYSDEC industrial or commercial use SCOs. The cap under Alternatives 3 through 6 would provide a higher level of protection for site occupants than the measures under Alternative 2. Potential future human exposure to soil at the Site containing COIs at concentrations greater than the NYSDEC industrial or commercial use SCOs will be less likely with construction of the cap, as opposed to the existing vegetative cover/gravel. The cap will also further mitigate potential migration of chemical COIs in on-site soils (i.e., via windblown dust). Alternatives 4 and 5 will also remove most soils exhibiting PCBs at concentrations greater than 25 ppm from the Site, thereby further mitigating potential exposure and migration of PCBs. Alternative 6 will provide a higher level of protection for site occupants than Alternatives 4 and 5 by removing soils exhibiting PCBs at concentrations greater than 10 ppm, metals at concentrations greater than the NYSDEC commercial use SCOs, and total PAHs at concentrations greater than the 500 ppm subsurface soil cleanup level presented in NYSDEC CP-51. Alternative 7 would provide the highest level of protection by removing most soils exhibiting PCBs, SVOCs, and metals (COIs) at concentrations greater than the NYSDEC commercial use SCOs from the Site, thereby mitigating potential exposure and migration of these COIs. Soils to remain in place under Alternatives 4 through 7 that exhibit COIs at concentrations greater than the NYSDEC industrial and/or commercial use SCOs (if any) would be beneath clean fill and not susceptible to windblown transport or direct contact.

The land use restriction under Alternative 5 will require additional preventative or mitigative measures (i.e., vapor barrier, venting systems) to address the potential for vapor intrusion into a future building. In addition, Future off-site VI investigation and off-site mitigation will be implemented separately from the alternative recommended herein as operable unit 5 (OU5), pending any necessary access approvals.

Compliance with New York State SCGs

Compliance with these SCGs is the second of the threshold criteria.

Chemical Specific SCGs

Chemical-specific guidance considered under each alternative are the SCOs presented in 6 NYCRR Part 375. Alternative 1 relies on natural attenuation processes that would not likely reduce constituent concentrations in soil at the Site to levels below the commercial or industrial use SCOs. Alternatives 2 and 3 would reduce the potential for human contact with impacted soils. Alternative 3 would minimize potential exposure to soils exhibiting COIs at concentrations greater than the NYSDEC industrial use SCOs. Alternatives 4 through 7 would reduce PCB concentrations in site soil to varying degrees (the most under Alternative 7 and least under

Alternative 4). These four alternatives would also reduce the potential for human contact with impacted soils, as indicated below.

Alternative 4 would reduce potential exposure to soils exhibiting COIs at concentrations greater than the NYSDEC industrial use SCOs, and Alternatives 5, 6, and 7 would reduce potential exposure to soils exhibiting COIs at concentrations greater than the NYSDEC commercial use SCOs. Alternative 4 includes a cap over remaining soils with SVOCs and metals exceeding NYSDEC industrial use SCOs, and Alternative 5 includes a cap over remaining soils with SVOCs and metals exceeding NYSDEC commercial use SCOs. Besides addressing PCBs through removal and capping, Alternative 6 includes excavation of soil containing metals at concentrations exceeding the NYSDEC commercial use SCOs and PAHs at concentrations exceeding the 500 ppm subsurface soil cleanup level presented in NYSDEC CP-51. For the comparatively few areas under Alternative 6 where constituents remain in soil at concentrations exceeding the commercial use SCOs (i.e., as compared to those areas under Alternatives 3, 4, and 5), a cap will be installed to cover these soils and limit exposure. Alternative 7 includes excavation to remove soils containing both metals and SVOCs at concentrations exceeding the NYSDEC commercial use SCOs.

The caps under Alternatives 4, 5, 6 would not reduce constituent concentrations in soil, but reduce the potential for human contact with impacted soils and reduce potential exposure to impacted soils. The excavation activities under Alternatives 6 and 7 go further than the other alternatives in reducing concentrations of COIs in soil and reducing the potential for human contact with impacted soil.

Action Specific SCGs

Action-specific SCGs are not applicable under Alternatives 1 and 2. OSHA regulations (229 CFR Parts 1904, 1910, and 1926) apply to the construction/installation and/or excavation activities included under Alternatives 3 through 7. SCGs relating to packaging, labeling, transportation, and disposal of hazardous materials (including RCRA, UTS/LDR, and USDOT requirements) apply to the removal activities under Alternatives 4 through 7.

All of the remedial activities could be designed and implemented to meet action-specific SCGs.

Location Specific SCGs

Remedial activities under Alternatives 2 through 7 would be conducted in accordance with local construction codes and ordinances, as appropriate.

Short-Term Effectiveness

There are no short-term negative impacts associated with Alternatives 1 and 2. Potential short-term impacts under Alternatives 3 through 7 are associated with worker exposure to soil containing PCBs, SVOCs, and metals due to soil disturbance that would occur during excavation and/or cap installation activities. The significant excavation activities for Alternative 7 present a much greater potential for short-term risks to on-site workers and the community during

implementation. Under Alternatives 3 through 7, appropriate measures would be implemented to mitigate these risks including, but not limited to, implementing a HASP that includes an air monitoring program, using PPE, and instituting engineering controls to suppress dust. Alternative 3 could potentially achieve the CMOs pertaining to soils in the least amount of time of the alternatives. Alternatives 4 through 7 involve larger excavations, which require more time. Such additional time inherently increases on-site labor hours and, thereby, increases the probability of site accidents/worker injury.

Long-Term Effectiveness and Permanence

The no action alternative does not provide means to achieve or methods to monitor long term effectiveness. Alternative 2 would reduce potential direct contact with soils containing PCBs, SVOCs, and metals and potential transport via windblown dust. Alternatives 3 through 7 would be significantly more effective in the long term than Alternative 2, because these alternatives would remove COIs and/or provide a cap isolating surface and subsurface soils containing COIs from direct contact and potential transport via windblown dust. Long-term maintenance and monitoring activities would be required under Alternatives 3 through 6. Under Alternatives 4 and 5, most of the soil on-site containing PCBs at concentrations greater than 25 ppm would be permanently removed and transported for off-site disposal. Alternative 6 provides a higher degree of long-term effectiveness than Alternatives 2 through 4 by removing more on-site soil (i.e., that containing PCBs at concentrations greater than 10 ppm, total PAHs at concentrations greater than 500 ppm, and metals at concentrations greater than NYSDEC commercial use SCOs). Alternative 7 would permanently remove the greatest amount of soil and transport it off-site for disposal, including most of the soil on-site containing COIs at concentrations above the NYSDEC commercial use SCOs.

Alternatives 3 through 7 are most conducive to the currently envisioned site redevelopment (for industrial or certain commercial purposes). The lack of a cap under Alternative 2 would not support future redevelopment in certain areas because COIs would be allowed to remain at elevated levels near the ground surface. The cleanups under Alternatives 3, 4, and 5 would leave PCBs in subsurface soil within 10 feet of the existing ground surface at concentrations greater than the 10 ppm subsurface soil cleanup level from NYSDEC CP-51, which may require limits on weekly occupancy and would also not support future redevelopment.

Under Alternatives 2 through 7, the land use restriction and SMP would be kept in place, unchanged, unless site conditions or SCOs for the intended commercial and/or industrial site use were to change. The SMP would set forth actions to be taken to protect the health and safety of site workers and the community and properly handle impacted materials under a wide variety of typical site development/construction scenarios (site preparation, utility installation, building construction, landscaping, maintenance activities, etc.). If changes were to occur that would require modifications to the land use restriction/SMP, such modifications would be presented to the NYSDEC for review and approval, as appropriate. Both the land use restriction and SMP would be apparent to possible future site owners during comprehensive due diligence activities performed in connection with property transfer. Taken together, these institutional controls could be expected to adequately and reliably provide for the long term management of impacted material to be left in place.

Reduction of Toxicity, Mobility, or Volume through Treatment

Alternatives 1 and 2 do not include implementation of active treatment processes to reduce the toxicity, mobility, or volume of COIs in soil and/or soil vapor. Alternative 2 would slightly reduce the mobility of COIs in on-site soil by maintaining vegetation over these soils, which would limit potential wind-blown dust transport. Alternative 3 would significantly reduce the mobility of COIs through the construction of a cap. Alternatives 2 and 3 would not further reduce the toxicity or volume of COIs in soil and/or soil vapor beyond that achieved by the three previous ICMs, which involved the removal of approximately 9,500 CY of impacted soil. Alternatives 4 through 7 would reduce the mobility and volume of COIs in soil at the Site, as the soil would be transported for off-site disposal, and imported clean backfill would be provided to restore the excavated areas and/or construct a cap.

Implementability

Each of the alternatives could be implemented at the site. Alternative 2 would be the most straightforward to implement. Alternative 3 would require minimal construction and coordination activities. Alternatives 4 through 5 would require the handling and transportation of PCB-impacted material. Alternatives 6 and 7 would require the handling and transportation of larger amounts of soil impacted by PCBs and other site-related COIs (metals and SVOCs). Considering that the site may likely be redeveloped for certain commercial purposes, Alternatives 1 through 5 fall short of what needs to be implemented to prepare the site for redevelopment. Alternatives 6 and 7 are the most adaptable to different redevelopment scenarios.

Costs

Alternative 2 is the least expensive of the action alternatives, but the impacted soil would not be addressed other than by institutional controls. Alternative 3 has moderate costs ($1.4 million) and is the least expensive of alternatives requiring excavation. Alternatives 4 and 5 have similar costs ($2.7 million and $3.2 million). Removing soils with PCB-impacted soil greater than 10 ppm (Alternative 6) would cost $5.4 million, due to a larger excavation volume needed vs. that under Alternatives 4 and 5. Alternative 7 would be the most expensive alternative ($15.9 million).

Summary: Key Advantages of Remedial Alternative 6

The key advantages of Alternative 6 over the other alternatives evaluated in this PRAP are summarized below.

- Under Alternatives 1 through 4, site redevelopment options would be significantly limited. Future commercial use, which is a redevelopment option desired by NSRR and the Town of Oyster Bay, would not be allowed. Alternative 2 requires a substantial part of the property to be cordoned off (enclosed by fence), and use of that part of the property would not be permitted. In addition, because of the lack of capping or soil excavation under Alternative 2,

potential exposures via wind-blown dust are not mitigated. Under Alternatives 3 and 4, site use is limited to industrial purposes and subject to certain additional restrictions, as indicated below.

- Although different amounts of excavation and/or capping are proposed under Alternatives 3, 4, and 5, each of these alternatives would allow soil containing PCBs at concentrations exceeding the 10 ppm subsurface soil cleanup level to remain in-place closer than 10 feet from the existing ground surface. In addition, soil containing total PAHs at concentrations greater than 500 ppm and arsenic/cadmium at concentrations exceeding commercial use SCOs would not be excavated. Such impacted shallow soils would likely be disturbed during future redevelopment and would need to be managed appropriately. Nonetheless, the caps under Alternatives 3, 4, and 5 would reduce potential direct human exposure to site soil containing PCBs, SVOCs, and metals and mitigate the potential for migration of these COIs via wind-blown dust, to varying degrees. The cap under Alternative 5 would provide similar protection to that under Alternative 6, but the caps under Alternatives 3 and 4 would cover smaller areas and exclude certain soils containing COIs at concentrations exceeding commercial use SCOs.

- Alternative 7 would require a considerable amount of additional soil excavation beyond that already completed and beyond that proposed in Alternative 6, and it would be significantly more expensive to implement than Alternative 6 (i.e., approximately 3 times more expensive). The additional soil excavation under this alternative does not significantly increase the protection of human health and the environment or the ultimate effectiveness of the remedy versus that provided under Alternative 6. The soil excavations and disposal under Alternative 7 would result in significantly increased short-term risks (e.g., worker exposure, injury, odors, noise, spills, traffic, etc.) and the "potential" added benefits of these additional actions would not outweigh those risks. Alternative 7 would go well-beyond what is needed for future commercial and/or industrial site uses. The additional costs for Alternative 7 ($10,500,000 greater than Alternative 6) are not justified considering that Alternative 6 can meet the CMOs, is appropriate for future commercial and industrial site use, and can readily be implemented.

TABLE 1
SUMMARY OF SAMPLING LOCATIONS WHERE REMAINING SOIL EXCEEDS INDUSTRIAL USE SCOs

PROPOSED REMEDIAL ACTION PLAN
BAYER MATERIALSCIENCE LLC
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

AOC/ Location	Locations with SVOC Exceedances	Location(s) with Metal Exceedance	Locations with PCB Exceedance
Designated AOCs			
AOC-1	--	1 (AOC 1-2 [0-1])	--
AOC-2	1 (AOC 2-4 [0-1])	--	--
AOC-10	--	--	1 (P1-S34 [4-4.5])
AOC-11	1 (P1-S35 [0-0.2])	--	1 (AOC 11-2 [0-1])
AOC-17	1 (AOC 17-1 [0-1])	--	--
AOC-18	1 (AOC 18-3 [0-1])	--	--
AOC-24	2 (AOC 24-2 [0-1] and AOC 24-7 [0-1])	1 (*R003 [0-5]*)	--
AOC-27 C	1 (P1-S95 [0-0.2])	--	--
AOC-31	1 (AOC31-1 [0-2])	--	--
AOC-35 M	--	--	1 (P1-S134 [6-6.5])
AOC-37	1 (AOC 37-3 [0-1])	--	--
AOC-45	--	--	1 (VS-45-2 [34-36])
AOC-47	1 (P2-S1 [0-2])	--	--
AOC-48	1 (AOC 48-1 [0-1])	--	--
AOC-52	--	--	1 (AOC 52-5 [6-6.5])
Locations Between AOCs			
East of AOC-1 and West of western exterior wall of plant 2, and between AOC-42 and the Former Railroad Tracks to the North and South	1 (P1-S27 [0-0.2])	--	1 (P1-S66 [0-0.2])
Dirt Patch South of AOC 30, north of AOC-7, west of AOC 28, and east of former plant 1 eastern wall	--	--	1 (P1-S90 [2-2.5])
Between AOC 7 and AOC 28	1 (P1-S121 [0-0.2 & 2-2.5])	--	1 (VS-P1-S9 [1.5-2])
South of AOC-7 to Southern Site Boundary, and east of AOC-5 and west of AOC-9	--	--	1 (P1-S65 [0-0.2])
South of AOC-49 and north of AOC-11.	--	--	1 (P1-S50 [0-0.2])
Western half of Former Plant 1. West of western boundary for AOC 42 to former western exterior wall of plant 1. North of AOC-2 and south of AOC 50	3 (P1-S33 [0-0.2], P1-S69 [0-0.2], and P1-S70 [0-0.2])	--	--
Plant 2	3 (VS-P2-1S [0-0.2], *F069 [0-5]*, and *T009 [0-5]*)	--	--
Northwest of AOC 24	*1 (F051 [0-5])*	--	--
Northwest of AOC 32	*1 (DW064 [0-20])*	1 (*DW066 [0-20]*)	1 (P1-S138 [0-0.2])
West of AOC 35M	--	--	1 (P1-S142A [2-2.5])
Northern Corner of Site	--	M-S3 [0-0.5], M-S4 [0.5-2], M-S5 [0-0.5], M-S15 [0-0.5], M-S16 [0-0.5], M-S18 [0.5-2], M-S20 [0-0.5], M-S22 [0-0.5]	--

Notes:
1. AOC = Area of concern.
2. PCBs = Polychlorinated Biphenyls.
3. VOCs = Volatile Organic Compounds.
4. SVOCs = Semi-Volatile Organic Compounds.
6. - - = No sampling Location for AOC/Relative Site Location.
7. Exceedance = Constituent(s) Identified at concentrations above industrial use soil cleanup objectives presented in 6 NYCRR Part 375-6.8(b).
8. Italics indicates that the sampling was a composite soil sample collected by Impact Environmental as part of a Phase II Investigation Environmental Site Assessment dated November 3, 2006.

TABLE 1A
RESULTS FOR REMAINING SOILS WITH SVOCs AT CONCENTRATIONS EXCEEDING INDUSTRIAL USE SCOs

PROPOSED REMEDIAL ACTION PLAN
BAYER MATERIALSCIENCE LLC
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

AOC/ Location	Location s ID	Depth (feet)	Date Collected	Benzo(a) anthracene (ppm)	Benzo(a) pyrene (ppm)	Benzo(b) flouroanthene (ppm)	Dibenzo(a,h) anthracene (ppm)	Indeno(1,2,3-cd) pyrene (ppm)
6 NYCRR 375 Industrial Use SCOs (Exceedances in Bold)				11	1.1	11	1.1	11
Designated AOCs								
AOC-2	AOC 2-4	0 - 1	2/12/2004	0.82	**1.2**	1.8	0.24 J	0.67 J
AOC-11	P1-S35	0 - 0.2	5/2/2006	2.6	**3.3**	3.0	0.95	2.9
AOC-17	AOC 17-1	0 - 1	2/16/2004	1.0 J [0.99 J]	1.1 J [0.92 J]	1.1 J [0.86 J]	0.25 J [0.27 J]	0.60 J [0.63 J]
AOC-18	AOC 18-3	0 - 1	2/16/2004	**12**	**10**	9.9	**3.0 J**	6.7
AOC-24	AOC 24-2	0 - 1	2/17/2004	2.9	**2.8**	2.6	0.49 J	1.1 J
	AOC 24-7	0 - 1	2/17/2004	5.7	**4.8**	5.4	1.1 J	2.2
AOC-27 C	P1-S95	0 - 0.2	10/23/2006	4.0 [3.5]	**3.2 [3.3]**	3.9 [3.4]	<2.7 [0.69 J]	3.3 [3.0]
AOC-31	AOC31-1	0 - 2	2/9/2004	1.9 J	**2.4 J**	2.7 J	<10	3.2 J
AOC-37	AOC 37-3	0 - 1	2/18/2004	6.3	**5.0**	4.6	0.97 J	2.1 J
AOC-47	P2-S1	0 - 2	1/4/2006	6.4	**7.6**	6.7	**2.5**	7.2
AOC-48	AOC 48-1	0 - 1	2/19/2004	**45**	**35**	**42**	**13 J**	**23**
Locations Between AOCs								
East of AOC-1 and West of western exterior wall of plant 2, and between AOC-42 and the Former Railroad Tracks to the North and South	P1-S27	0 - 0.2	5/3/2006	2.1	**1.8**	2.3	0.36	1.3
Between AOC 7 and AOC 28	P1-S121	0 - 0.2	4/24/2007	**32**	**32**	**43**	**5.9 J**	**27**
		2 - 2.5	4/24/2007	1.1	1.1	1.6	0.17 J	0.86
Western half of Former Plant 1. West of western boundary for AOC 42 to former western exterior wall of plant 1. North of AOC-2 and south of AOC 50	P1-S33	0 - 0.2	5/2/2006	5.7 [3.4]	**5.2 [3.5]**	5.7 [4.3]	**1.6 [0.88 J]**	5.1 [3.0]
	P1-S69	0 - 0.2	8/22/2006	2.5	**2.5**	2.3 H	0.38 H	1.7 H
	P1-S70	0 - 0.2	8/22/2006	2.1	**2.2**	2.3 H	0.35	1.6
Plant 2	VS-P2-15	0 - 0.2	5/9/2006	3.6	**3.8**	4.5	1.1 J	4.3
	F069	*0 - 5*	*July - September 2006*	1.3	**2.3**	1.6	<0.33	0.7
	T008	*0 - 5*	*July - September 2006*	3.4	**3.5**	2.6	0.43	2.2
Northwest of AOC 24	*F051*	*0 - 5*	*July - September 2006*	2.6	**2.3**	4	0.37	1.5
Northwest of AOC 32	*DW064*	0 - 20	*July - September 2006*	1.4	**1.2**	1.2	<0.33	0.62

TABLE 1A
RESULTS FOR REMAINING SOILS WITH SVOCs AT CONCENTRATIONS EXCEEDING INDUSTRIAL USE SCOs

PROPOSED REMEDIAL ACTION PLAN
BAYER MATERIALSCIENCE LLC
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Notes:

1. AOC = Area of concern.
2. SVOCs = Semi-Volatile Organic Compounds.
3. Exceedance = Constituent(s) identified at concentrations above industrial use soil cleanup objectives presented in Title 6 of the Official Compilation of Codes, Rules, and Regulations of the State of New York (6 NYCRR) Part 375-6.8(b).
4. Italics indicates that the sampling was a composite soil sample collected by Impact Environmental as part of a Phase II Investigation Environmental Site Assessment dated November 3, 2006. Samples not in italics were collected by ARCADIS.
5. Samples collected by ARCADIS were analyzed by TestAmerica Laboratories, Inc. (formerly Severn Trent Laboratories, Inc) located in Shelton, Connecticut for SVOCs using Environmental Protection Agency (USEPA) SW-846 Method 8270C.
6. Samples collected by Impact Environmental were analyzed by JMS Environmental Services, Inc.
7. All concentrations reported in dry weight parts per million (ppm), which is equivalent to milligrams per kilogram (mg/kg).
8. Field duplicate sample results are presented in brackets.
9. Data qualifiers are defined as follows:
   < - Constituent not detected at a concentration above the reported detection limit.
   H - Sample was prepped or analyzed beyond the specified holding time.
   J - Indicates that the associated numerical value is an estimated concentration.
10. 6 NYCRR Part 375 Industrial Use Soil Cleanup Objectives (SCOs) are from 6 NYCRR Part 375-6.8 (b).
11. Bolding indicates that the result exceeds the 6 NYCRR Part 375 Industrial Use SCO.

TABLE 1B
RESULTS FOR REMAINING SOILS WITH METALS AT CONCENTRATIONS EXCEEDING INDUSTRIAL USE SCOs

PROPOSED REMEDIAL ACTION PLAN
BAYER MATERIALSCIENCE LLC
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

AOC/ Location	Location ID	Depth (feet)	Date Collected	Arsenic (ppm)
6 NYCRR 375 Industrial Use SCOs (Exceedances in Bold)				16
Designated AOCs				
AOC-1	AOC 1-2	0 - 1	2/12/2004	**17.7**
AOC-24	*R003*	*0 - 5*	*July - September 2006*	**17.2**
Locations Between AOCs				
Northwest of AOC 32	*DW066*	*0 - 5*	*July - September 2006*	**19.0**
Norther Corner of Site	*M-S3*	*0-0.5*	*July 2011*	**29.3**
	M-S4	*0.5-2*	*July 2011*	**24.0**
	M-S5	*0-0.5*	*July 2011*	**25.9**
	M-S15	*0-0.5*	*July 2011*	**21.4**
	M-S16	*0-0.5*	*July 2011*	**22.5**
	M-S18	*0.5-2*	*July 2011*	**16.2**
	M-S20	*0-0.5*	*July 2011*	**25.7**
	M-S22	*0-0.5*	*July 2011*	**32.9**

Notes:
1. AOC = Area of concern.
2. Exceedance = Constituent(s) Identified at concentrations above industrial use soil cleanup objectives presented in Title 6 of the Official Compilation of Codes, Rules, and Regulations of the State of New York (6 NYCRR) Part 375-6.8(b).
3. Italics indicates that the sampling was a composite soil sample collected by Impact Environmental as part of a Phase II Investigation Environmental Site Assessment dated November 3, 2006. Samples not in italics were collected by ARCADIS as part of the RCRA Corrective Action Program between February 2004 and February 2009.
4. Samples collected by ARCADIS were analyzed by TestAmerica Laboratories, Inc. (formerly Severn Trent Laboratories, Inc) located in Shelton, Connecticut for metals using United States Environmental Protection Agency (USEPA) SW-846 Methods 6010A.
5. Samples collected by Impact Environmental were analyzed by JMS Environmental Services, Inc.
6. All concentrations reported in dry weight parts per million (ppm), which is equivalent to milligrams per kilogram (mg/kg).
7. Data qualifiers,<, indicates that the constituent was not detected at a concentration above the reported detection limit.
8. 6 NYCRR Part 375 Industrial Use Soil Cleanup Objectives (SCOs) are from 6 NYCRR Part 375-6.8(b).
9. Bolding indicates that the result exceeds the 6 NYCRR Part 375 Industrial Use SCO.

TABLE 1C
RESULTS FOR REMAINING SOILS WITH PCBs AT CONCENTRATIONS EXCEEDING INDUSTRIAL USE SCOs

PROPOSED REMEDIAL ACTION PLAN
BAYER MATERIALSCIENCE LLC
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

AOC/ Location	Location ID	Depth (feet)	Date Collected	Total PCBs (ppm)
6 NYCRR 375 Industrial Use SCO (Exceedances in Bold)				25
Designated AOCs				
AOC-10	P1-S34	4 - 4.5	5/2/2006	**33**
AOC-11	AOC11-2	0 - 1	2/12/2004	**47**
AOC-35 M	P1-S134	6 - 6.5	4/24/2007	**34**
AOC-45	VS-45-2	34 - 36	8/4/2005	**26 [48]**
AOC-52	AOC-52-5	6 - 6.5	6/4/2008	**34**
Locations Between AOCs				
East of AOC-1 and West of eastern exterior wall of plant 1, and between AOC-42 and the Former Railroad Tracks to the North and South	P1-S66	0 - 0.2	8/21/2006	**32**
Dirt Patch South of AOC 30, north of AOC-7, west of AOC 28, and east of former plant 1 eastern wall	P1-S90	2 - 2.5	10/24/2006	**42 J [25]**
Between AOC 7 and AOC 28	VS-P1-S9	1.5 - 2	2/12/2009	**34**
South of AOC-7 to Southern Site Boundary, and east of AOC-5 and west of AOC-9	P1-S65	0 - 0.2	8/21/2006	**28**
South of AOC-49 and north of AOC-11	P1-S50	0 - 0.2	8/21/2006	**31 J**
Northwest of AOC 32	P1-S138	0 - 0.2	4/24/2007	**29 J [39]**
West of AOC 35M	P1-S142A	2 - 2.5	7/24/2009	**42.6**

Notes:
1. AOC = Area of concern.
2. PCBs = Polychlorinated Biphenyls.
3. Exceedance = Constituent(s) identified at concentrations above industrial use soil cleanup objectives presented in Title 6 of the Official Compilation of Codes, Rules, and Regulations of the State of New York (6 NYCRR) Part 375-6.8(b).
4. Italics indicates that the sampling was a composite soil sample collected by Impact Environmental as part of a Phase II Investigation Environmental Site Assessment dated November 3, 2006. Samples not in italics were collected by ARCADIS as part of the RCRA Corrective Action Program between February 2004 and February 2009.
5. Samples collected by ARCADIS were analyzed by TestAmerica Laboratories, Inc. (formerly Severn Trent Laboratories, Inc) located in Shelton, Connecticut for PCBs using USEPA SW-846 Method 8082.
6. Samples collected by Impact Environmental were analyzed by JMS Environmental Services, Inc.
7. All concentrations reported in dry weight parts per million (ppm), which is equivalent to milligrams per kilogram (mg/kg).
8. Field duplicate sample results are presented in brackets.
9. Data qualifier J, indicates that the associated numerical value is an estimated concentration.
10. 6 NYCRR Part 375 Industrial Use Soil Cleanup Objectives (SCOs) are from 6 NYCRR Part 375-6.8 (b).
11. Bolding indicates that the result exceeds the 6 NYCRR Part 375 Industrial Use SCO.

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TABLE 2
SUMMARY OF SAMPLING LOCATIONS WHERE REMAINING SOIL EXCEEDS COMMERCIAL USE SCOs

PROPOSED REMEDIAL ACTION PLAN
BAYER MATERIALSCIENCE LLC
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

AOC/ Location	Locations with VOC Exceedances	Locations with SVOC Exceedances	Location(s) with Metal Exceedance	Locations with PCB Exceedance
Designated AOCs				
AOC-1	--	--	1 (**AOC 1-2 [0-1]**)	--
AOC-2	--	1 (**AOC 2-4 [0-1]**)	--	--
AOC-5	--	--	--	1 (*F032 [0-5']*)
AOC-7	--	--	--	9 (P1-S41 [0-0.2 & 2-2.5], P1-S42 [0-0.2 & 2-2.5], P1-S48 [0-0.2 & 2-2.5], P1-S61 [0-0.2 & 2-2.5], and P1-S62 [2-2.5])
AOC-10	--	--	--	2 (**P1-S34** [0-0.2 & **4-4.5**])
AOC-11	--	1 (**P1-S35 [0-0.2]**)	--	6 (**AOC 11-2 [0-1]**, AOC 11-4S [0-0.17], P1-S36 [0-0.2 & 2-2.5], P1-S37 [2-2.5], and VS-P1-S37A [0-0.2])
AOC-17	--	1 (**AOC 17-1 [0-1]**)	--	--
AOC-18	--	1 (**AOC 18-3 [0-1]**)	--	--
AOC-24	--	2 (**AOC 24-2 [0-1] and AOC 24-7 [0-1]**)	1 (***R003 [0-5']***)	1 (*T006 [0-5']*)
AOC-27 C	--	1 (**P1-S95 [0-0.2]**)	--	2 (P1-S95 [0-0.2 & 2-2.5])
AOC-27 G	--	--	1 (*F063 [0-5']*)	--
AOC-28	--	--	1 (*F042 [0-5']*)	1 (V-A7-S2M [0-0.2])
AOC-31	--	1 (**AOC-31 [0-2]**)	--	4 (AOC 31-1 [0-0.5], AOC 31-2 [0-0.2], AOC 31-3S [0-0.17], and AOC 31-4S [0-0.17])
AOC-33	--	--	--	1 (AOC 33-1 [0-1])
AOC-34	--	--	1 (*F067 [0-5']*)	1 (*F067 [0-5']*)
AOC-35 F	--	--	--	1 (P1-S139 [0-0.5])
AOC-35 M	--	--	--	5 (**P1-S134** [0-0.2, 2-2.5, 4-4.5, & **6-6.5**] and *T011 [0-5']*)
AOC-37	--	1 (**AOC 37-3 [0-1]**)	--	--
AOC-39	--		--	5 (AOC 39-2S [2-3 & 3-4], AOC 39-12S [0-0.17], VS-39-1 [0-2], and VS-39-5 [0-2])
AOC-44	--	--	--	1 (P1-S4 [4-4.5])
AOC-45	--	--	--	7 (**VS-45-2 [34-36**, 40-42, & 44-46], VS-45-4 [6.5-7.5], VS-45-11 [22-24], VS-45-15 [28-30], and VS-45-23 [4.5-5])
AOC-47	--	1 (**P2-S1 [0-2]**)	--	--
AOC-48	--	1 (**AOC 48-1 [0-1]**)	--	--
AOC-50				1 (UST-AOC-50 [0-2.5])
AOC-52	--	--	--	7 (AOC 52-1 [2-3], AOC 52-3 [1-2.5 & 2.5-3.5], and **AOC 52-5 [6-6.5**, 8-8.5, 10-10.5, & 16-18])
Locations Between AOCs				
East of AOC-1 and West of western exterior wall of plant 2, and between AOC-42 and the Former Railroad Tracks to the North and South	--	1 (**P1-S27 [0-0.2]**)	--	13 (P1-S13 [6-6.5], P1-S26 [0-0.2 & 2-2.5], P1-S27 [0-0.2], P1S-43 [0-0.2], P1-S44 [4-4.5], **P1-S66 [0-0.2**, 2-2.5, & 4-4.5], P1-S67 [0-0.2, 2-2.5, & 4-4.5], and P1-S68 [0-0.2])
Dirt Patch South of AOC 30, north of AOC-7, west of AOC 28, and east of former plant 1 eastern wall	--	--	--	17 (P1-S38 [0-0.2], P1-S39 [2-2.5], P1-S40 [2-2.5], P1-S52 [0-0.2 & 2-2.5], P1-S52A [0-0.2 & 2-2.5], P1-S56 [4-4.5], P1-S57 [0-0.2], P1-S58 [0-0.2 & 2-2.5], P1-S59 [0-0.2 & 2-2.5], and **P1-S90** [0-0.2, **2-2.5**, 4-4.5, & 6-6.5])
Between AOC 7 and AOC 28	--	2 (**P1-S121 [0-0.2 &** 2-2.5])	--	20 (P1-S84 [4-4.5, 6-6.5, 8-8.5, & 10-10.5], P1-S121 [0-0.2], P1-S122 [0-0.2, 2-2.5, 4-4.5, & 6-6.5], P1-S123 [0-0.2], P1-S124 [0-0.2, 2-2.5, 4-4.5, 6-6.5, & 8-8.5], P1-S125 [0-0.2 & 2-2.5], **VS-P1-S9 [1.5-2** & 3.5-4], and F083 [0-5])
Around former overhead pipes, north of AOC-35 F and south of southern wall of former plant 2. Also includes, verification samples between AOC 35-F and AOC 49	--	--	--	22 (P1-S135 [6-6.5], P1-S136 [4-4.5 & 6-6.5], P1-S137 [4-4.5 & 6-6.5], P1-S140 [0-0.5], P1-S141 [0-0.2, 2-2.5, 4-4.5, & 6-6.5], P1-S143 [6-6.5, 8-8.5, & 10-10.5], P1-S144 [2-2.5 & 10-10.5], P1-S146 [0-0.2, 2-2.5, & 6-6.5], P1-S147 [0-0.5], P1-S148 [0-0.5 & 2-2.5], and P1-S149 [0-0.5])
North of AOC-28 and AOC-29 to the site boundary including the former shed area	--	--	--	14 (P1-S85 [0-0.2 & 2-2.5], P1-S86 [0-0.2 & 2-2.5], P1-S108 [6-6.5, & 8-8.5], P1-S109 [0-0.2], P1-S110 [0-0.2 & 2-2.5], P1-S127 [0-0.2, 2-2.5, & 4-4.5], DW072 [0-20], and DW076 [0-20])
The northeast corner of former plant 1 south of AOC-11, north of AOC-42, east of AOC-10, and west of former east plant wall	--	--	--	1 (P1-S7 [4-4.5])
South of AOC-7 to Southern Site Boundary, and east of AOC-5 and west of AOC-9	--	--	1 (*F034 [0-5']*)	17 (P1-S63 [0-0.2, 2-2.5, 4-4.5, & 6-6.5], P1-S64 [0-0.2, 2-2.5, & 4-4.5], **P1-S65 [0-0.2** & 2-2.5], P1-S82 [0-0.2 & 2-2.5], P1-S103 [0-0.2, 2-2.5, 4-4.5, & 6-6.5], P1-S129 [0-0.2], and *F034 [0-5']*)

TABLE 2
SUMMARY OF SAMPLING LOCATIONS WHERE REMAINING SOIL EXCEEDS COMMERCIAL USE SCOs

PROPOSED REMEDIAL ACTION PLAN
BAYER MATERIALSCIENCE LLC
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

AOC/ Location	Locations with VOC Exceedances	Locations with SVOC Exceedances	Location(s) with Metal Exceedance	Locations with PCB Exceedance
North of AOC-25 and AOC-30 to Site Boundary	–	–	–	6 (P1-S111 [6-6.5, 8-8.5, & 10-10.5], P1-S112 [0-0.2], P1-S113 [0-0.2], and P1-S116 [4-4.5])
South of AOC-49 and north of AOC-11	–	–	–	11 (P1-S49 [0-0.2, 2-2.5, & 4-4.5], **P1-S50 [0-0.2** & 2-2.5], P1-S51 [2-2.5, & 4-4.5], P1-S71 [0-0.2], P1-S72 [0-0.2 & 2-2.5], and *T013 [0-5]*)
South of AOC-28 and AOC-29, east of AOC-9, to southeast site boundary	–	–	–	13 (P1-S83 [0-0.2 & 2-2.5], P1-S104 [2-2.5], P1-S105 [0-0.2 & 2-2.5], P1-S106 [2-2.5], P1-S107 [0-0.2 & 2-2.5], P1-S131 [0-0.2 & 2-2.5], P1-S132 [0-0.2 & 2-2.5], and *DW117 [0-20]*)
South of AOC-48 to southern site boundary	–	–	–	3 (P1-S79 [0-0.2], P1-S97 [0-0.2], and P1-S99 [0-0.2])
Locations Between AOCs				
South of AOC-35 L to the southern site boundary	–	–	–	3 (P1-S81 [0-0.2 & 2-2.5] and P1-S102 [0-0.2])
Western half of Former Plant 1. West of western boundary for AOC 42 to former western exterior wall of plant 1. North of AOC-2 and south of AOC 50	–	3 (**P1-S33 [0-0.2], P1-S69 [0-0.2], and P1-S70 [0-0.2]**)	–	7 (P1-S33 [0-0.2 & 2-2.5], P1-S69 [0-0.2], P1-S70 [0-0.2], P1-S76 [0-0.2], and P1-S78 [0-0.2 & 2-2.5])
Between AOC 42 and AOC 8	–	1 (P1-S20 [0-0.2])	–	–
Between AOC 39 and AOC 35-F	–	–	–	2 (P1-S74 [0-0.2] and P1-S84 [0-0.2])
Between AOC 25 and AOC 49	–	–	–	6 (P1-S91 [2-2.5 & 4-4.5], P1-S114 [0-0.2 & 2-2.5], and P1-S115 [0-0.2 & 2-2.5])
Plant 2	–	2 (***F069 [0-5]* and *T008 [0-5]***)	2 (*F069 [0-5]* and *T008 [0-5]*)	–
Plant 3	–	–	–	1 (*DW081 [0-20]*)
Northwest Corner of AOC 35-F	–	–	–	2 (P1-S145 [0-0.2 & 2-2.5])
Between AOC 12 and Eastern Site Boundary	–	–	–	1 (*T010 [0-5]*)
North of AOC 27-G and West of AOC 32	–	–	3 (*F057 [0-5], F059 [0-5], and F061 [0-5]*)	2 (*DW069 [0-20]* and *F061 [0-5]*)
Northwest of AOC 24	–	*1 (**F051 [0-5]**)*	2 (*F053 [0-5]* and *F055 [0-5]*)	–
Northwest of AOC 32	–	1 (*DW064 [0-20]*)	3 (***DW066 [0-20]***, *F045 [0-5]*, and *F047 [0-5]*)	4 (**P1-S138 [0-0.2** & 2-2.5], ***DW064 [0-20]***, and *DW065 [0-20]*)
West of AOC 35M	–	–	--	1 (**P1-S142A [2-2.5]**)
Northern Corner of Site	–	–	M-S3 [0-0.5], M-S4 [0.5-2], M-S5 [0-0.5], M-S15 [0-0.5], M-S16 [0-0.5], M-S18 [0.5-2], M-S20 [0-0.5], M-S22 [0-0.5]	–

Notes:
1. AOC = Area of concern.
2. PCBs = Polychlorinated Biphenyls.
3. VOCs = Volatile Organic Compounds.
4. SVOCs = Semi-Volatile Organic Compounds.
6. - - = No sampling Location for AOC/Relative Site Location.
7. Exceedance = Constituent(s) identified at concentrations above commercial use soil cleanup objectives presented in 6 NYCRR Part 375-6.8(b).
8. Bolding indicates that the result exceeds the 6 NYCRR Part 375 Industrial Use SCO.
9. Italics indicates that the sampling was a composite soil sample collected by Impact Environmental as part of a Phase II Investigation Environmental Site Assessment dated November 3, 2006.

TABLE 2A
RESULTS FOR REMAINING SOILS WITH SVOCs AT CONCENTRATIONS EXCEEDING COMMERCIAL USE SCOs

PROPOSED REMEDIAL ACTION PLAN
BAYER MATERIALSCIENCE LLC
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

AOC/ Location	Location s ID	Depth (feet)	Date Collected	Benzo(a) anthracene (ppm)	Benzo(a) pyrene (ppm)	Benzo(b) flouroanthene (ppm)	Dibenz(a,h) anthracene (ppm)	Indeno(1,2,3-cd) pyrene (ppm)
6 NYCRR 375 Commercial Use SCOs (Exceedances in Bold)				5.6	1	5.6	0.56	5.6
6 NYCRR 375 Industrial Use SCOs (Exceedances Shaded)				11	1.1	11	1.1	11
Designated AOCs								
AOC-2	AOC 2-4	0 - 1	2/12/2004	0.82	1.2	1.8	0.24 J	0.67 J
AOC-11	P1-S35	0 - 0.2	5/2/2006	2.6	3.3	3.0	0.95	2.9
AOC-17	AOC 17-1	0 - 1	2/16/2004	1.0 J [0.99 J]	1.1 J [0.92 J]	1.1 J [0.86 J]	0.25 J [0.27 J]	0.60 J [0.63 J]
AOC-18	AOC 18-3	0 - 1	2/16/2004	12	10	9.9	3.0 J	6.7
AOC-24	AOC 24-2	0 - 1	2/17/2004	2.9	2.8	2.6	0.49 J	1.1 J
	AOC 24-7	0 - 1	2/17/2004	5.7	4.8	5.4	1.1 J	2.2
AOC-27 C	P1-S95	0 - 0.2	10/23/2006	4.0 [3.5]	3.2 [3.3]	3.9 [3.4]	<2.7 [0.69 J]	3.3 [3.0]
AOC-31	AOC31-1	0 - 2	2/9/2004	1.9 J	2.4 J	2.7 J	<10	3.2 J
AOC-37	AOC 37-3	0 - 1	2/18/2004	6.3	5.0	4.6	0.97 J	2.1 J
AOC-47	P2-S1	0 - 2	1/4/2006	6.4	7.6	6.7	2.5	7.2
AOC-48	AOC 48-1	0 - 1	2/19/2004	45	35	42	13 J	23
Locations Between AOCs								
East of AOC-1 and West of western exterior wall of plant 2, and between AOC-42 and the Former Railroad Tracks to the North and South	P1-S27	0 - 0.2	5/3/2006	2.1	1.8	2.3	0.36	1.3
Between AOC 7 and AOC 28	P1-S121	0 - 0.2	4/24/2007	32	32	43	5.9 J	27
		2 - 2.5	4/24/2007	1.1	1.1	1.6	0.17 J	0.86
Western half of Former Plant 1. West of western boundary for AOC 42 to former western exterior wall of plant 1. North of AOC-2 and south of AOC 50	P1-S33	0 - 0.2	5/2/2006	5.7 [3.4]	5.2 [3.5]	5.7 [4.3]	1.6 [0.88 J]	5.1 [3.0]
	P1-S69	0 - 0.2	8/22/2006	2.5	2.5	2.3 H	0.38 H	1.7 H
	P1-S70	0 - 0.2	8/22/2006	2.1	2.2	2.3 H	0.35	1.6
Plant 2	VS-P2-1S	0 - 0.2	5/9/2006	3.6	3.8	4.5	1.1 J	4.3
	F069	*0 - 5*	*July - September 2006*	1.3	2.3	1.6	<0.33	0.7
	T008	*0 - 5*	*July - September 2006*	3.4	3.5	2.6	0.43	2.2
Northwest of AOC 24	*F051*	*0 - 5*	*July - September 2006*	2.6	2.3	4	0.37	1.5
Northwest of AOC 32	*DW064*	*0 - 20*	*July - September 2006*	1.4	1.2	1.2	<0.33	0.62

TABLE 2A
RESULTS FOR REMAINING SOILS WITH SVOCs AT CONCENTRATIONS EXCEEDING COMMERCIAL USE SCOs

PROPOSED REMEDIAL ACTION PLAN
BAYER MATERIALSCIENCE LLC
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

Notes:

1. AOC = Area of concern.
2. SVOCs = Semi-Volatile Organic Compounds.
3. Exceedance = Constituent(s) identified at concentrations above commercial use soil cleanup objectives prescribed in Title 6 of the Official Compilation of Codes, Rules, and Regulations of the State of New York (6 NYCRR) Part 375-6.8(b).
4. Italics indicates that the sampling was a composite soil sample collected by Impact Environmental as part of a Phase II Investigation / Environmental Site Assessment dated November 3, 2006. Samples not in italics were collected by ARCADIS.
5. Samples collected by ARCADIS were analyzed by TestAmerica Laboratories, Inc. (formerly Severn Trent Laboratories, Inc) located in Shelton, Connecticut for SVOCs using Environmental Protection Agency (USEPA) SW-846 Method 8270C.
6. Samples collected by Impact Environmental were analyzed by JMS Environmental Services, Inc.
7. All concentrations reported in dry weight parts per million (ppm), which is equivalent to milligrams per kilogram (mg/kg).
8. Field duplicate sample results are presented in brackets.
9. Data qualifiers are defined as follows:
   - c - Constituent not detected at a concentration above the reported detection limit.
   - H - Sample was prepped or analyzed beyond the specified holding time.
   - J - Indicates that the associated numerical value is an estimated concentration.
10. 6 NYCRR Part 375 Commercial and Industrial Use Soil Cleanup Objectives (SCOs) are from 6 NYCRR Part 375-6.8 (b).
11. Bolding indicates that the result exceeds the 6 NYCRR Part 375 Commercial Use SCO.
12. Shading indicates that the result exceeds the 6 NYCRR Part 375 Industrial Use SCO.

TABLE 2B
RESULTS FOR REMAINING SOILS WITH METALS AT CONCENTRATIONS EXCEEDING COMMERCIAL USE SCOs

PROPOSED REMEDIAL ACTION PLAN
BAYER MATERIALSCIENCE LLC
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

AOC/ Location	Location ID	Depth (feet)	Date Collected	Arsenic (ppm)	Cadmium (ppm)
6 NYCRR 375 Commercial Use SCO (Exceedances in Bold)				**16**	**9.3**
6 NYCRR 375 Industrial Use SCO (Exceedances Shaded)				**16**	**60**
Designated AOCs					
AOC-1	AOC 1-2	0 - 1	2/12/2004	17.7	<4.20
AOC-24	*R003*	*0 - 5*	*July - September 2006*	17.2	7.53
AOC-27 G	*F063*	*0 - 5*	*July - September 2006*	2.71	**11.0**
AOC-28	*F042*	*0 - 5*	*July - September 2006*	1.80	**9.78**
AOC-34	*F067*	*0 - 5*	*July - September 2006*	1.02	**9.52**
Locations Between AOCs					
South of AOC-7 to Southern Site Boundary, and east of AOC-5 and west of AOC-9	*F034*	*0 - 5*	*July - September 2006*	2.99	**9.88**
Plant 2	*F069*	*0 - 5*	*July - September 2006*	1.82	**11.0**
	T008	*0 - 5*	*July - September 2006*	2.09	**10.3**
North of AOC 27-G and West of AOC 32	*F057*	*0 - 5*	*July - September 2006*	2.06	**11.5**
	F059	*0 - 5*	*July - September 2006*	2.65	**11.8**
	F061	*0 - 5*	*July - September 2006*	1.76	**9.73**
Northwest of AOC 24	*F053*	*0 - 5*	*July - September 2006*	1.63	**10.9**
	F055	*0 - 5*	*July - September 2006*	6.85	**11.9**
Northwest of AOC 32	*DW066*	*0 - 5*	*July - September 2006*	19.0	3.05
	F045	*0 - 5*	*July - September 2006*	15.0	**9.75**
	F047	*0 - 5*	*July - September 2006*	9.30	**11.0**
Norther Corner of Site	*M-S3*	0-0.5	*July 2011*	28.3	<1.30
	M-S4	0.5-2	*July 2011*	24.0	**14.2**
	M-S5	0-0.5	*July 2011*	25.9	0.260 J
	M-S15	0-0.5	*July 2011*	21.4	0.360 J
	M-S16	0-0.5	*July 2011*	22.5	<1.30
	M-S18	0.5-2	*July 2011*	16.2	<1.30
	M-S20	0-0.5	*July 2011*	25.7	2.60
	M-S22	0-0.5	*July 2011*	22.9	<1.30

Notes:
1. AOC = Area of concern.
2. Exceedance = Constituent(s) identified at concentrations above commercial use soil cleanup objectives presented in Title 6 of the Official Compilation of Codes, Rules, and Regulations of the State of New York (6 NYCRR) Part 375-6.8
3. Italics indicates that the sampling was a composite soil sample collected by Impact Environmental as part of a Phase I Investigation Environmental Site Assessment dated November 3, 2006. Samples not in italics were collected by ARCADIS as part of the RCRA Corrective Action Program between February 2004 and February 2009.
4. Samples collected by ARCADIS were analyzed by TestAmerica Laboratories, Inc. (formerly Severn Trent Laboratories located in Shelton, Connecticut for metals using United States Environmental Protection Agency (USEPA) SW-846 Methods 6010A.
5. Samples collected by Impact Environmental were analyzed by JM5 Environmental Services, Inc.
6. All concentrations reported in dry weight parts per million (ppm), which is equivalent to milligrams per kilogram (mg/kg).
7. Data qualifiers,<, indicates that the constituent was not detected at a concentration above the reported detection limit; J, indicates that the associated numerical value is an estimated concentration.
8. 6 NYCRR Part 375 Commercial Use Soil Cleanup Objectives (SCOs) are from 6 NYCRR Part 375-6.8(b).
9. Shading indicates that the result exceeds the 6 NYCRR Part 375 Industrial Use SCO.
10. Bolding indicates that the result exceeds the 6 NYCRR Part 375 Commercial Use SCO.

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TABLE 2C
RESULTS FOR REMAINING SOILS WITH PCBs AT CONCENTRATIONS EXCEEDING COMMERCIAL USE SCOs

PROPOSED REMEDIAL ACTION PLAN
BAYER MATERIALSCIENCE LLC
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

AOC/ Location	Location ID	Depth (feet)	Date Collected	Total PCBs (ppm)
6 NYCRR 375 **Commercial Use** SCO (**Exceedances in** Bold)				1
6 NYCRR 375 Industrial Use SCO (Exceedances Shaded)				25
Designated AOCs				
AOC-5	*F032*	0 - 5	*July - September 2006*	**3.9**
AOC-7	P1-S41	0 - 0.2	5/2/2006	**7.3 J**
		2 - 2.5	5/2/2006	**5.1 J**
	P1-S42	0 - 0.2	5/2/2006	**1.7 J**
		2 - 2.5	5/2/2006	**1.3**
	P1-S48	0 - 0.2	5/2/2006	**19**
		2 - 2.5	5/2/2006	**1.9 J**
	P1-S61	0 - 0.2	8/21/2006	**2.5 J**
		2 - 2.5	8/21/2006	**5.7 J**
	P1-S62	2 - 2.5	8/21/2006	**1.1 J**
AOC-10	P1-S34	0 - 0.2	5/2/2006	**14 J**
		4 - 4.5	5/2/2006	33
AOC-11	AOC11-2	0 - 1	2/12/2004	47
	AOC11-4S	0 - 0.17	10/20/2004	**1.3**
	P1-S36	0 - 0.2	5/2/2006	**23 J**
		2 - 2.5	5/2/2006	**1.6 J**
	P1-S37	2 - 2.5	5/2/2006	**5.1**
	VS-P1-S37A	0-0.2	7/24/2009	**4.36 [8.0]**
AOC-24	*T006*	0 - 5	*July - September 2006*	**10**
AOC-27 C	P1-S95	0 - 0.2	10/23/2006	**3.1**
		2 - 2.5	10/23/2006	**3.8**
AOC-28	V-A7-S2M	0-0.2	6/5/2009	**9.2 J**
AOC-31	AOC31-1	0 - 0.8	2/9/2004	**2.8 J**
	AOC31-2	0 - 0.2	2/9/2004	**5.2 J [13 J]**
	AOC31-3S	0 - 0.17	10/20/2004	**2.4**
	AOC31-4S	0 - 0.17	10/20/2004	**1.1 J**
AOC-33	AOC33-1	0 - 1	2/18/2004	**1.5 J**
AOC-34	*F067*	0 - 5	*July - September 2006*	**3.1**
AOC-35 F	P1-S139	0 - 0.5	6/3/2008	**2.3 J**
AOC-35 M	P1-S134	0 - 0.2	4/24/2007	**9.6 J**
		2 - 2.5	4/24/2007	**11 J**
		4 - 4.5	4/24/2007	**1.6 [0.32 J]**
		6 - 6.5	4/24/2007	34
	T011	0 - 5	*July - September 2006*	**2.6**
AOC-39	AOC39-2S	2 - 3	10/20/2004	**18**
		3 - 4	10/20/2004	**9.1 J [13]**
	AOC39-12S	0 - 0.17	10/20/2004	**7.5 J**
	VS-39-1	0 - 0.2	6/8/2005	**2.5**
	VS-39-5	0 - 0.2	6/8/2005	**1.1**
AOC-44	P1-S4	4 - 4.5	2/1/2006	**1.6 J**
Designated AOCs				
		34 - 36	8/4/2005	26 [48]

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TABLE 2C
RESULTS FOR REMAINING SOILS WITH PCBs AT CONCENTRATIONS EXCEEDING COMMERCIAL USE SCOs

PROPOSED REMEDIAL ACTION PLAN
BAYER MATERIALSCIENCE LLC
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

AOC/ Location	Location ID	Depth (feet)	Date Collected	Total PCBs (ppm)
6 NYCRR 375 Commercial Use SCO (Exceedances in Bold)				**1**
6 NYCRR 375 Industrial Use SCO (Exceedances Shaded)				**25**
AOC-45	VS-45-2	40 - 42	8/4/2005	**7.4**
		44 - 46	8/4/2005	**6.0**
	VS-45-4	6.5 - 7.5	6/9/2005	**12 J**
	VS-45-11	22 - 24	6/29/2005	**23**
	VS-45-15	28 - 30	6/5/2008	**3.7**
	VS-45-23	4.5 - 5	8/9/2005	**1.5 J [2.1]**
AOC-50	UST-AOC-50	0 - 2.5	6/8/2005	**1.1**
AOC-52	AOC52-1	2 - 3	8/22/2006	**1.7**
	AOC52-3	1.5 - 2.5	8/22/2006	**1.0 J**
		2.5 - 3.5	8/22/2006	**7.9 [17 J]**
	AOC-52-5	6 - 6.5	6/4/2008	**34**
		8 - 8.5	6/4/2008	**19**
		10 - 10.5	6/4/2008	**3.1 J**
		16 - 18	6/4/2008	**6.1**
Locations Between AOCs				
East of AOC-1 and West of eastern exterior wall of plant 1, and between AOC-42 and the Former Railroad Tracks to the North and South	P1-S13	6 - 6.5	5/3/2006	**2.5 J**
	P1-S26	0 - 0.2	5/3/2006	**16 J**
		2 - 2.5	5/3/2006	**1.1 J**
	P1-S27	0 - 0.2	5/3/2006	**1.3 J**
	P1-S43	0 - 0.2	5/2/2006	**2.8**
	P1-S44	4 - 4.5	5/2/2006	**1.2 J**
	P1-S66	0 - 0.2	8/21/2006	**32**
		2 - 2.5	8/21/2006	**12 J**
		4 - 4.5	8/21/2006	**8.8**
	P1-S67	0 - 0.2	8/21/2006	**9.4 J**
		2 - 2.5	8/21/2006	**16**
		4 - 4.5	8/21/2006	**15 J**
	P1-S68	0 - 0.2	8/21/2006	**12**
Dirt Patch South of AOC 30, north of AOC 7, west of AOC 28, and east of former plant 1 eastern wall	P1-S38	0 - 0.2	5/2/2006	**14 J**
	P1-S39	2 - 2.5	5/2/2006	**1.3 J**
	P1-S40	2 - 2.5	5/2/2006	**3.1 J**
	P1-S52	0 - 0.2	8/21/2006	**23 J**
		2 - 2.5	8/21/2006	**9.1 J [0.80 J]**
	P1-S52A	0 - 0.2	8/21/2006	**6.6**
		2 - 2.5	8/21/2006	**0.86 [2.9 J]**
	P1-S56	4 - 4.5	8/21/2006	**9.1**
	P1-S57	0 - 0.2	8/21/2006	**3.6 J**
	P1-S58	0 - 0.2	8/21/2006	**9.2 J**
		2 - 2.5	8/21/2006	**6.5 J**
	P1-S59	0 - 0.2	8/21/2006	**5.3 J**
		2 - 2.5	8/21/2006	**1.3**
	P1-S60	0 - 0.2	10/24/2006	**19 J**
		2 - 2.5	10/24/2006	**42 J [28]**

TABLE 2C
RESULTS FOR REMAINING SOILS WITH PCBs AT CONCENTRATIONS EXCEEDING COMMERCIAL USE SCOs

PROPOSED REMEDIAL ACTION PLAN
BAYER MATERIALSCIENCE LLC
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

AOC/ Location	Location ID	Depth (feet)	Date Collected	Total PCBs (ppm)
6 NYCRR 375 Commercial Use SCO (Exceedances in Bold)				1
6 NYCRR 375 Industrial Use SCO (Exceedances Shaded)				25
	[illegible]	4 - 4.5	10/24/2006	11
		6 - 6.5	10/24/2006	3.0
Locations Between AOCs				
Between AOC 7 and AOC 28	P1-S84	4 - 4.5	10/24/2006	11
		6 - 6.5	10/24/2006	15
		8 - 8.5	4/23/2007	13 J
		10 - 10.5	4/23/2007	5.5 J
	P1-S121	0 - 0.2	4/24/2007	1.7 J
	P1-S122	0 - 0.2	4/24/2007	13 J
		2 - 2.5	4/24/2007	11 J
		4 - 4.5	4/24/2007	9.2 J
		6 - 6.5	4/24/2007	7.3 J
	P1-S123	0 - 0.2	4/24/2007	5.4 J
	P1-S124	0 - 0.2	4/24/2007	7.1 J
		2 - 2.5	4/24/2007	11 J
		4 - 4.5	4/24/2007	10 J
		6 - 6.5	4/24/2007	23 J
		8 - 8.5	4/24/2007	4.8
	P1-S125	0 - 0.2	4/24/2007	8.1 J
		2 - 2.5	4/24/2007	4.5 J
	VS-P1-S9	1.5 - 2	2/12/2009	34
		3.5 - 4	2/12/2009	3.8 J
	F083	*0 - 5*	*July - September 2006*	1
Around former overhead pipes, north of AOC-35 F and south of southern wall of former plant 2. Also includes, verification samples between AOC 35-F and AOC 49	P1-S135	6 - 6.5	4/24/2007	2.5
	P1-S136	4 - 4.5	4/24/2007	5.4 J
		6 - 6.5	4/24/2007	3.0 J
	P1-S137	4 - 4.5	4/24/2007	1.3
		6 - 6.5	4/24/2007	5.8
	P1-S140	0 - 0.5	6/6/2008	2.5 J
	P1-S141	0 - 0.5	6/9/2008	1.9 J
		2 - 2.5	6/9/2008	20
		4 - 4.5	6/9/2008	4.1
		6 - 6.5	6/9/2008	1.4
	P1-S143	6 - 6.5	6/10/2008	9.5 J
		8 - 8.5	6/10/2008	6.4 J
		10 - 10.5	6/10/2008	5.9 J
	P1-S144	2 - 2.5	6/6/2008	2.3
		10 - 10.5	6/6/2008	2.4 J
	P1-S146	0 - 0.5	6/10/2008	1.6 J
		2 - 2.5	6/10/2008	12 J
		6 - 6.5	6/10/2008	6.4
	P1-S147	0 - 0.5	6/9/2008	1.1
	P1-S148	0 - 0.5	6/9/2008	7.6

TABLE 2C
RESULTS FOR REMAINING SOILS WITH PCBs AT CONCENTRATIONS EXCEEDING COMMERCIAL USE SCOs

PROPOSED REMEDIAL ACTION PLAN
BAYER MATERIALSCIENCE LLC
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

AOC/ Location	Location ID	Depth (feet)	Date Collected	Total PCBs (ppm)
6 NYCRR 375 Commercial Use SCO (Exceedances in Bold)				**1**
6 NYCRR 375 Industrial Use SCO (Exceedances Shaded)				**25**
	[illegible]	2 - 2.5	6/9/2006	**1.4**
	P1-S149	0 - 0.5	6/10/2006	**5.3**
Locations Between AOCs				
North of AOC-28 and AOC-29 to the site boundary including the former shed area	P1-S85	0 - 0.2	10/24/2006	**19 J**
		2 - 2.2	10/24/2006	**6.6 J**
	P1-S86	0 - 0.2	10/24/2006	**3.4 J**
		2 - 2.5	10/24/2006	**2.9 J**
	P1-S108	6 - 6.5	10/24/2006	**12**
		8 - 8.5	4/23/2007	**15 J**
	P1-S109	0 - 0.2	10/24/2006	**3.9**
	P1-S110	0 - 0.2	10/24/2006	**4.3**
		2 - 2.5	10/24/2006	**5.8**
	P1-S127	0 - 0.2	4/24/2007	**17 J**
		2 - 2.5	4/24/2007	**4.5 J**
		4 - 4.5	4/24/2007	**12 J**
	DW072	*0 - 20*	*July - September 2006*	**9.4**
	DW076	*6 - 20*	*July - September 2006*	**8.4**
The northeast corner of former plant 1 south of AOC-11, north of AOC-42, east of AOC-10, and west of former east plant	P1-S7	4 - 4.5	1/31/2006	**5.3 J**
South of AOC-7 to Southern Site Boundary, and east of AOC-6 and west of AOC-9	P1-S63	0 - 0.2	8/21/2006	**18 J**
		2 - 2.5	8/21/2006	**12 J**
		4 - 4.5	8/21/2006	**22 J**
		6 - 6.5	8/21/2006	**2.6**
	P1-S64	0 - 0.2	8/21/2006	**23 J**
		2 - 2.5	8/21/2006	**14 J**
		4 - 4.5	8/21/2006	**3.3**
	P1-S65	0 - 0.2	8/21/2006	**28**
		2 - 2.5	8/21/2006	**25 J**
	P1-S82	0 - 0.2	10/24/2006	**1.7 J [15]**
		2 - 2.5	10/24/2006	**2.2 J**
	P1-S103	0 - 0.2	10/24/2006	**14**
		2 - 2.5	10/24/2006	**12**
		4 - 4.5	10/24/2006	**11**
		6 - 6.5	10/24/2006	**1.8**
	P1-S129	0 - 0.2	4/24/2007	**5.2 J**
	F034	*0 - 5*	*July - September 2006*	**1.2**
North of AOC-25 and AOC-30 to Site Boundary	P1-S111	6 - 6.5	10/24/2006	**17 J**
		8 - 8.5	4/23/2007	**11 J**
		10 - 10.5	4/23/2007	**20**
	P1-S112	0 - 0.2	10/24/2006	**2.0**
	P1-S113	0 - 0.2	10/24/2006	**4.3**
	P1-S116	4 - 4.5	4/23/2007	**1.6 J**

12/2/2011
C:\MyFiles\Bayer-Ruco-Hooker\CMS\183111467-Bayer Hicksville-PRAP\Tables (Draft for DEC Review).xls

TABLE 2C
RESULTS FOR REMAINING SOILS WITH PCBs AT CONCENTRATIONS EXCEEDING COMMERCIAL USE SCOs

PROPOSED REMEDIAL ACTION PLAN
BAYER MATERIALSCIENCE LLC
125 NEW SOUTH ROAD
HICKSVILLE, NEW YORK

AOC/ Location	Location ID	Depth (feet)	Date Collected	Total PCBs (ppm)
6 NYCRR 375 Commercial Use SCO (Exceedances in Bold)				**1**
6 NYCRR 375 Industrial Use SCO (Exceedances Shaded)				**25**
	P1-S115	0 - 0.2	4/23/2007	**1.8 J**
		2 - 2.5	4/23/2007	**2.8 J [1.4 J]**
Locations Between AOCs				
Plant 3	*DW081*	*0 - 20*	*July - September 2006*	**2.2**
Northwest Corner of AOC 35-F	P1-S145	0 - 0.5	6/11/2008	**2.1 J**
		2 - 2.5	6/11/2008	**5.2**
Between AOC 12 and Eastern Site Boundary	*7010*	*0 - 5*	*July - September 2006*	**1**
North of AOC 27-G and West of AOC 32	*DW069*	*0 - 20*	*July - September 2006*	**1.6**
	F061	*0 - 5*	*July - September 2006*	**1.8**
Northwest of AOC 32	P1-S138	0 - 0.2	4/24/2007	**29 J [39]**
		2 - 2.5	4/24/2007	**6.6**
	DW064	*0 - 20*	*July - September 2006*	**18**
	DW065	*0 - 20*	*July - September 2006*	**1.9**
West of AOC 35M	P1-S142A	2 - 2.5	7/24/2009	**42.6**

Notes:
1. AOC = Area of concern.
2. PCBs = Polychlorinated Biphenyls.
3. Exceedance = Constituent(s) identified at concentrations above commercial use soil cleanup objectives presented in Title 6 of the Official Compilation of Codes, Rules, and Regulations of the State of New York (6 NYCRR) Part 375-6.8(b).
4. Italics indicates that the sampling was a composite soil sample collected by Impact Environmental as part of a Phase II Investigation Environmental Site Assessment dated November 3, 2006. Samples not in italics were collected by ARCADIS as part of the RCRA Corrective Action Program between February 2004 and February 2009.
5. Samples collected by ARCADIS were analyzed by TestAmerica Laboratories, Inc. (formerly Severn Trent Laboratories, Inc) located i Shelton, Connecticut for PCBs using USEPA SW-846 Method 8082.
6. Samples collected by Impact Environmental were analyzed by JMS Environmental Services, Inc.
7. All concentrations reported in dry weight parts per million (ppm), which is equivalent to milligrams per kilogram (mg/kg).
8. Field duplicate sample results are presented in brackets.
9. Data qualifier J, Indicates that the associated numerical value is an estimated concentration.
10. 6 NYCRR Part 375 Commercial and Industrial Use Soil Cleanup Objectives (SCOs) are from 6 NYCRR Part 375-6.8 (b).
11. Shading indicates that the result exceeds the 6 NYCRR Part 375 Industrial Use SCO.
12. Bolding indicates that the result exceeds the 6 NYCRR Part 375 Commercial Use SCO.

Appendix A

RESPONSIVENESS SUMMARY

RESPONSIVENESS SUMMARY

RUCO Polymer Corp. (Hooker Chemical)
Operable Unit No.4 (OU4)
State Superfund Project
Town of Oyster Bay, Nassau County, New York
Site No. 130004

The Proposed Remedial Action Plan (PRAP) for the RUCO Polymer Corp. Site was prepared by the New York State Department of Environmental Conservation (the Department) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on February 29, 2012. The PRAP outlined the remedial measure proposed for the contaminated soil at the RUCO Polymer site.

The release of the PRAP was announced by sending a notice to the public contact list, informing the public of the opportunity to comment on the proposed remedy. A public meeting for the RUCO Polymer Corp. Site, Site No. 130004, Operable Unit 4 (OU4) Proposed Remedial Action Plan (PRAP), was held on March 20, 2012. The Meeting included a presentation on the remedial investigation, or RCRA Facilities Investigation (RFI), and the RCRA Corrective Measures Study (CMS) for the RUCO Polymer Corp. site as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. The public comment period was to have ended on March 30, 2012, however it was extended to April 30, 2012 at the request of the Massapequa Water District.

This responsiveness summary responds to all questions and comments raised during the public comment period. Questions were raised either at the March public meeting or submitted in writing, either by mail or electronically, to the New York State Department of Environmental Conservation. The following are the comments received from citizens attending the Bayer (RUCO Polymer Corp.) OU4 March 20, 2012 public meeting, with the Department's responses:

Comment No. 1: Excavation for the nearby Sleepy's warehouse did not control fugitive dust very well and kid's played in the dirt. How can they not be impacted?

Response No. 1: The former Northrop Grumman Plant 12 property comprises part of the Sleepy's Headquarters' parcel. All remedial work at the former Northrop Grumman Plant 12, now part of the Sleepy's location, was completed before Sleepy's construction took place. Areas with elevated soil contamination were consolidated and deed restricted to control excavation.

Comment No. 2: How is dust going to be controlled when these railroad cars are loaded? What air monitoring will be done on-site. When soil removal activities take place at this site what precautions are going to be made to prevent blowing dust at this site? Will there be any air monitoring?

Response No. 2: Remedial activities will be conducted at this site according to an approved work plan which will include a Community Air Monitoring Plan (CAMP). The CAMP will specify the required monitoring during intrusive activities to ensure that fugitive dust is not a problem and will also identify additional remedial measures which may be implemented (changes to work activities, dust suppression and work stoppage) if fugitive dust becomes a problem.

Comment No. 3: A comment was made about the New York State Dept of Labor (NYSDOL) asbestos regulations.

Response No. 3: The NYSDOL regulates asbestos removal activities and these regulations will govern any asbestos removal needed at the site.

Comment No. 4: How will on-site soil vapor for future development be dealt with?

Response No. 4: A Site Management Plan (SMP) is an element of the remedy which among other requirements will ensure that any residual soil vapor on-site will not create the potential for exposure via vapor intrusion. All new construction will include sub-slab depressurization (SSD) or similar type system(s) to mitigate the potential for soil vapor intrusion unless environmental sampling can demonstrate a SSD or similar system is not required.

Comment No. 5: There was concern raised about site-related chemical impacts to groundwater.

Response No. 5 : The impacts to groundwater have been addressed by the source removal(s) and corrective actions undertaken by the RCRA facility closure program, as well as the soil and groundwater cleanup under the Federal Superfund program, performed to date at this site. Periodic groundwater monitoring has confirmed that groundwater contaminant levels beneath and immediately downgradient of this site are below groundwater standards. The off-site plume is controlled by the remedial system in place at the Northrop Grumman – Bethpage Site (Site No. 130003A).

Comment No. 6: Will the site be paved?

Response No. 6: Various parts of the site will have a cover system in place through the implementation of the soil cover element of the selected remedy. Where a cover is required, the final design will identify which areas will get a soil cover versus an asphalt cap or buildings.

Comment No. 7: Is soil vapor a groundwater or a soil issue and is soil vapor an issue because of soil contamination, groundwater contamination or both?

Response No. 7: Soil vapor refers to vapor present in the soil above the groundwater table, which may be the result of either contamination in the soil or the groundwater. At this site soil vapor is primarily associated with the remaining soil contamination. Groundwater is located more than 50 feet below grade and on-site groundwater is now at or below groundwater standards.

Comment No. 8: If a new building is built, can they put in a buffer zone (i.e. separation of commercial versus residential areas)?

Response No. 8: Separation of commercial and residential uses is a local issue that will be taken up as part of any Town of Oyster Bay Planning review.

Comment No. 9: What deed restrictions are there going to be with regard to future use of this property.

Response No. 9: In certain areas of the site, soil remains with contaminant levels above the unrestricted use soil cleanup objectives. Due to the presence of these buried soil areas an environmental easement, that will detail the necessary restrictions, will be required for the entire site. Areas which exceed the unrestricted soil cleanup objectives at depth will be identified in the final Engineering Report and the Excavation Plan included in the Site Management Plan will detail how any future excavation in these areas will be carried out. Where the soil cover is required, it will be a minimum of one foot of soil meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for commercial use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer (hydro-seeding). The cover system will cover approximately 105,599 square feet. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

Comment No. 10: If this material is going to be transported off the site by rail are the rail cars going to be covered to prevent blowing dust?

Response No. 10: Railroad cars shipping materials excavated for off-site disposal will be covered. Also see the response to comment 2.

Comment No. 11: How long will the excavated materials be staying on site before they are transported out of the area?

Response No. 11: The remedial action work plan will specify how long soils can be stockpiled on-site prior to being sent off-site for proper disposal at an approved off-site receiving facility. This Department does not expect this to exceed 180 days.

Comment No. 12: What is the PCB level that will be removed from this site?

Response No. 12: Soil with concentrations above one part per million (ppm) at the surface and 10 ppm in the subsurface, where subsurface is greater than one foot depth, will be excavated and sent off-site for disposal.

Comment No. 13: What is being done to address the current soil contamination on-site from continuing to contaminate the groundwater? What will stop future groundwater contamination from leaving this site?

Response No. 13: Areas of on-site soil with contaminants which had impacted groundwater have been cleaned up to levels that should no longer be impacting the groundwater. Also, on-site groundwater is now at or below groundwater standards.

Comment No. 14: When the former Grumman Plant 12 (now Sleepy's Warehouse) was remediated they installed soil berms on site that were to be kept wet to keep dust down and this is not happening now. Who should we speak to about this and has anybody checked our neighborhood since then for contaminated dust?

Response No. 14: The corrective actions which took place when the former Grumman Plant 12 was remediated, were performed in accordance with an approved health and safety plan. This plan included air monitoring to ensure that any off-site impacts were not occurring due to the earthwork being conducted at that time and as part of this plan stockpile material was to be wet down to control dust. All this material has now been removed from the site. Based on the results of the air monitoring program, off-site sampling as a follow-up to the remedial earthwork was not warranted.

Comment No. 15: If alternative seven was accepted rather than alternative six, which the State is proposing as the remedy for this site, would that make a difference as to what future uses this site could have.

Response No. 15: The end use of the site would not be changed in a significant way with the implementation of the use restrictions from alternative 6 versus alternative 7. Both alternatives 6 and 7 use commercial cleanup criteria for metals that would require similar end use restrictions in the form of an environmental easement. The main difference between alternatives 6 and 7 is the much larger amount of PCB impacted material to be excavated by the alternative 7 remedy.

Comment No. 16: How are the soil vapor issues at this site (the Bayer site) different than the soil vapor issues at the Grumman site near Sycamore Avenue?

Response No. 16: Both sites have the potential for soil vapor intrusion but are being addressed differently. At the Sycamore Avenue location of the Northrop Grumman OU3 project, a soil vapor extraction (SVE) system was required on the former Grumman Access Road. This addressed the VOC contamination in the soil, which also addresses the potential for vapor intrusion to the off-site residences. For the Bayer site, new construction will be evaluated to determine if mitigation systems will be required. While both sites do have a potential for soil vapor intrusion, the difference is in the location of the currently identified potential receptors. The Sycamore Avenue Site currently has occupied residential structures to the south of the site and much higher concentrations of contaminated media near these residences, than at the Bayer Site, so the active SVE system is required.

Comment No. 17: Why has it taken so long to remediate this site?

Response No. 17: The remediation for this site has been an ongoing process. While the Bayer (RUCO Polymers) facility was still active, the United States Environmental Protection Agency had been working mainly on the on-site and off-site groundwater and in accessible on-site areas

to address contaminated soil. This site continued to operate with active chemical manufacturing processes until the facility closure in 2002. Over the last ten years since it closed, most of the corrective actions were implemented and are now complete. The completed remedial work implemented between 2003 and 2009 included the removal of all underground and above ground storage tanks, decommissioning the chemical manufacturing equipment, piping and utilities, demolishing all buildings (but the administration building) and numerous soil removal(s).This ROD for OU4, addresses the last of the on-site soil contamination required as part of the RCRA corrective action on-site remedial work.

C**omment No. 18**: Can you explain why the Bayer (RUCO Polymers) site is going to be re-zoned?

Response No. 18: Zoning is a local issue and DEC is unaware of any rezoning in progress. The remedy includes use restrictions in the form of an environmental easement. Based on the contamination remaining at the site, its use will be limited to commercial use, which also allows for industrial use.

Comment No. 19: Can any new buildings on this site have a basement or must they be a slab only?

Response No. 19: Any future use must comply with the Site Management Plan which will not include a restriction prohibiting basements.

Comment 20: Who will be paying for any air testing being done in our houses? What is the cost of soil and vapor testing of someone's home?

Response No. 20: The responsible party will be requested to conduct any required off-site residential air testing. If they decline, the State will undertake the work using the State Superfund.

Comment No. 21: When will you be testing the air in our neighborhood across the street from this site?

Response No. 21: There is not a definite schedule yet, but this testing should occur this heating season (November through March).

Comment No. 22: Has anybody checked our neighborhood since then for contaminated dust and who should we speak to about this?

Response No. 22: The community air monitoring, which was an integral part of the work done to date by the PRP(s) for both the RCRA corrective action work and the USEPA remedial project, did not identify any dust excursions that would have impacted the surrounding community so no such post-remediation testing is planned.

Comment No. 23: Can you explain what the RUCO site is going to be?

Response No. 23: This comment is beyond the scope of this remediation project.

Comment No. 24: Who will be overseeing the work that is going to be done on this site? Will they be at the site daily or weekly?

Response No. 24: The responsible party must have a professional engineer certify that all work was completed in accordance with the approved remedial action work plan. To do so requires, at a minimum, inspectors on-site at all times during remedial construction. This action will also be overseen by the NYSDEC personnel assigned to this project.

Comment No. 25: The Town of Oyster Bay typically encourages commercial enterprises to plant trees along the border of their property to shield their facilities from residents who live nearby. Will the remediation activities at this site and the easements associated with it prevent future developers from planting trees and constructing other items such as fences to shield this property from residents.

Response No. 25: Landscaping of the site to create a buffer zone would be part of the development plan/approval. However remedial activities and associated easements will not preclude future tree plantings or fencing. This issue is best raised during the review process for any redevelopment of this site once the remediation is complete.

Comment No. 26: Should residents who live in surrounding homes, near this site, be concerned about soil vapor issues.

Response No. 26: Testing completed to date shows that soil vapor concentrations drop off significantly in the westerly direction and across New South Road in the direction of the private residences. Further off-site testing is planned to confirm that there are no impacts to nearby residences.

Comment No. 27: What is the definition of gray water that is being used at the Calpine power plant.

Response No. 27: **"**Gray" water is the treated water from the effluent of the Northrop Grumman groundwater remediation system. This water has been treated so it is no longer contaminated, before it is reused in the power plant, thus conserving natural water resources.

The Hicksville Gardens Civic Association (HGCA), in a letter, dated April 29, 2012, supporting the DEC proposed remedy, also provided the following comments:

Comment 28: Although we support DEC's proposed remedial action plan we have concerns regarding potential offsite impact. We understand that remediation by Bayer contractor's will involve significant excavation and demolition. We are particularly concerned about uncontrolled dust that could impact our community. We understand that on-site monitoring by DEC is limited due to staffing shortages and other priorities. We therefore request that DEC require the owner, Bayer, to pay for a full time independent monitor at the site whenever significant potential actions are anticipated that could cause fugitive dust. We are also concerned with Soil vapor intrusion. We request that offsite monitoring be required to determine if there is any potential for

such impact in nearby Hicksville community especially the homes along and immediately west of New South Road.

Response 28: The final remedial program at the former RUCO (Bayer) facility will be conducted under the review and direction of the NYSDEC. The Remedial activities will be conducted at this site according to an approved work plan which will include a Community Air Monitoring Plan (CAMP) which will address emissions related to remediation. This remedial program will also require full oversight by Bayer's remedial consultant during any intrusive activities. Detailed responses to the concerns raised can also be found in answers to questions raised at the meeting. Specifically see responses 2, 10, 11, 12 and 22 for soils remediation and responses 7, 16, 20, 21 and 26 regarding soil vapor intrusion.

The Law Firm of James Periconi, in a letter dated March 16, 2012, commented as follows:

Comment 29: The writer requested clarification in the ROD and submitted the Town of Oyster Bay definition of the current zoning of the former RUCO property and several related statements. The writer also wanted to state for the record that as legal representative for the current contractee for the site, their client is not and will not be responsible for the potential off-site soil vapor issues and the ongoing off-site groundwater remediation.

Response 29: The NYSDEC confirmed with the Town of Oyster Bay the definition of the current zoning of the former RUCO property and all of the writer's comments noted regarding the properties status are correct and will be incorporated into the Record of Decision. With respect to environmental enforcement, currently there is a responsible party (RP), Occidental Chemical Corp, for the USEPA remedial work for OUs1, 2 and 3. As for any investigation and/or remediation dealing with issues being addressed by Federal Agencies and Federal administrative orders, the Department cannot state whether such liabilities or responsibilities will be passed onto a new owner. The NYSDEC is overseeing corrective action(s) now being summarized under this OU4 ROD. Bayer Material Science Inc. has signed a consent order to implement the remedy selected in this OU4 ROD. These Federal and New York State actions cover the on-site soils and soil gas and on-site and off-site groundwater. Off-site soil vapor intrusion concerns will be addressed outside of this OU 4 ROD.

The Massapequa Water District (MWD), in a letter dated March 12, 2012, commented as follows:

Comment 30: The MWD comment letter raised concerns on the distinction of the role of the USEPA in this project, relative to the CERCLA site as well as RCRA.

Response 30: Operable Unit 4, the subject of this ROD, is for on- site soils only. The groundwater issues were handled by the USEPA as part of the National Priorities List Site. The USEPA on the CERCLA side is also part of the Grumman and NWIRP Technical Advisory Committee (TAC). The Bayer Corrective Measures are not part of the Northrop Grumman and Naval Weapons Industrial Reserve Plant Site projects. The USEPA has delegated responsibility for the RCRA corrective action program in the State of New York to the NYSDEC.

A citizen living almost 1 mile north and half mile west of the site submitted comments in a letter dated April 12, 2012 and based on their review of the PRAP in the document repository.

Comment 31: The commenter asked whether their property had been impacted by contamination from the site.

Response 31: This residence is not likely to have been impacted by contaminants from the Bayer site. Groundwater flows to the south southeast away from this home. All site soils to be removed will be sent off site to an appropriate disposal facility and the removal will be done under a community air monitoring program. The Hicksville Water District has not, and is not expected to be, impacted by the Bayer (RUCO Polymer Corp.) Site. All public water supplies are tested on a regular basis by the local water district prior to distribution.

Appendix B

ADMINISTRATIVE RECORD

ADMINISRATIVE RECORD

RUCO Polymer Corp. (Hooker Chemical)
Operable Unit No.4 (OU4)
State Superfund Project
Town of Oyster Bay, Nassau County, New York
Site No. 130004

1. ICM Certification Report, November 2005
2. Bayer Demolition Summary Report, April 2007.
3. Bayer RCRA Facilities Investigation Report, June 2004.
4. Bayer RCRA Phase II RCRA RFI Report January 2005.
5. AOC 45 Interim Corrective Measure Certification Report, May 31, 2007
6. ICM Additional PCB Soil Removal Certification Report, January 2010
7. Soil Vapor Intrusion Background Information Search Summary, October 2010
8. Bayer Soil Vapor Investigation Summary Report, August 2011.
9. Metals Soil Delineation Summary Report, September 2011
10. Bayer Corrective Measures Report, February 2012.
11. Correspondence: 4 comment Letters on the RUCO Polymers OU4 PRAP
    a. Hicksville Gardens Civic Association (HGCA), April 29, 2012
    b. The Law Firm of James Periconi, March 16, 2012
    c. The Massapequa Water District, March 12, 2012
    d. A Local Citizen Nearby, April 12, 2012