UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION III

FINAL DECISION
FORMER GENERAL MOTORS CORPORATION BALTIMORE, MD

PURPOSE

The United States Environmental Protection Agency (EPA) is issuing this Final Decision and Response to Comments (FDRTC or Final Decision) selecting the Final Remedy for the Former General Motors Corporation (GM) Baltimore Assembly facility located at Baltimore, MD (hereinafter referred to as the Facility). The Final Decision is issued pursuant to the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA) of 1976, and the Hazardous and Solid Waste Amendments (HSWA) of 1984, 42 U.S.C. Sections 6901, et seq.

On February 13, 2015, EPA issued a Statement of Basis (SB) in which it described the information gathered during environmental investigations at the Facility and proposed a Final Remedy for the Facility. The SB is hereby incorporated into this Final Decision by reference and made a part hereof as Attachment A.

This FDRTC selects the remedy that EPA evaluated under the SB. Consistent with the public participation provisions under RCRA, EPA solicited public comment on its proposed Final Remedy. On February 18, 2015, notice of the SB was published on the EPA website: [http://www.epa.gov/reg3wcmd/publicnotice_ Duke-FormerGM.html] and in the Daily Record newspaper. The thirty (30) day comment period ended on March 20, 2015.

Since EPA did not receive any comments on the SB; thus, the remedy proposed in the SB is the Final Remedy selected by EPA for the Facility.

FINAL DECISION

EPA's Final Remedy for the Facility includes the following:

- Compliance with EPA and MDE-approved Risk Management Plans and
- Compliance with and maintenance of land and groundwater use restrictions.

DECLARATION

Based on the Administrative Record compiled for the corrective action at the Former GM Baltimore Assembly facility, I have determined that the remedy selected in this Final Decision and Response to Comments, which incorporates the February 13, 2015 Statement of Basis, is protective of human health and the environment.

Date: 3.26.15

John Armstead
John Armstead, Director
Land and Chemicals Division
U.S. Environmental Protection Agency, Region III

Attachment A: Statement of Basis (February 13, 2015)

Attachment A

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION III

FINAL DECISION
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Since EPA did not receive any comments on the SB and EPA has determined it is not necessary to modify the proposed Final Remedy set forth in the SB based on the comment; thus, the remedy proposed in the SB is the Final Remedy selected by EPA for the Facility.

FINAL DECISION

EPA's Final Remedy for the Facility consists of the following:

- Compliance with and maintenance of land and groundwater use restrictions.

DECLARATION

Based on the Administrative Record compiled for the corrective action at the Former General Motors Corporation ("GM") Baltimore Assembly facility, I have determined that the remedy selected in this Final Decision and Response to Comments, which incorporates the February 13, 2015 Statement of Basis, is protective of human health and the environment.

Date: ____________

John Armstead, Director
Land and Chemicals Division
U.S. Environmental Protection Agency, Region III

Attachment A: Statement of Basis (February 13, 2015)

Attachment A

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION III

STATEMENT OF BASIS

FORMER GENERAL MOTORS CORPORATION BALTIMORE ASSEMBLY PLANT
AREAS B-1, B-3 and C
2122 BROENING HIGHWAY

BALTIMORE, MARYLAND

EPA ID NO. MDD003091972

Prepared by
Office of Remediation
Land and Chemicals Division
February 2015

Table of Contents

List of Acronyms

AOI	Areas of Interest
AR	Administrative Record
AST	Above Ground Storage Tank
COMAR	Code of Maryland Regulations
EC	Engineering Control
EI	Environmental Indicator
EPA	Environmental Protection Agency
FDRTC	Final Decision and Response to Comments
GPRA	Government Performance and Results Act
IC	Institutional Control
MCL	Maximum Contaminant Level
MDE	Maryland Department of the Environment
PAH	Polycyclic Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Conditions
RFI	Remedial Field Investigation
RMP	Risk Management Plan
RSL	Regional Screening Level
RSSL	Soil Screening Level
SB	Statement of Basis
TPH	Total Petroleum Hydrocarbons
UST	Underground Storage Tank
UECA	Uniform Environmental Covenants Act
VOC	Volatile Organic Compound

Section 1: Introduction

The United States Environmental Protection Agency ("EPA") has prepared this Statement of Basis ("SB") to solicit public comment on its proposed remedy for certain areas of the Former General Motors Corporation ("GM") Baltimore Assembly Plant located in Baltimore, Maryland (hereinafter referred to as the "Facility" or "Site"). EPA's proposed remedy for those areas of the Facility ("Relevant Facility Areas") consists of the implementation and maintenance of land and groundwater use restrictions. This SB highlights key information relied upon by EPA in proposing its remedy for the Relevant Facility Areas.

The entire Facility is subject to EPA's Corrective Action program under the Solid Waste Disposal Act, as amended, commonly referred to as the Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. Sections 6901 et seq. The Corrective Action program requires that facilities subject to certain provisions of RCRA investigate and address releases of hazardous waste and hazardous constituents, usually in the form of soil or groundwater contamination, that have occurred at or from their property. Maryland is not authorized for the Corrective Action Program under Section 3006 of RCRA. Therefore, EPA retains primary authority in the state for the Corrective Action Program.

EPA is providing a 30-day public comment period on this SB. EPA may modify its proposed remedy based on comments received during this period. EPA will announce its selection of a final remedy for the Relevant Facility Areas in a Final Decision and Response to Comments (Final Decision) after the public comment period has ended.

Information on the Corrective Action program as well as a fact sheet for the Facility can be found by navigating http://www.epa.gov/reg3wcmd/correctiveaction.htm.
The Administrative Record ("AR") for the Relevant Facility Areas contains all documents, including data and quality assurance information, on which EPA's proposed remedy is based. See Section VIII, Public Participation, for information on how you may review the AR.

Section 2: Facility Background

2.1 Introduction

The Facility is located at 2122 Broening Highway in Baltimore, Maryland. The approximate 182-acre Facility is bordered by Holabird Avenue and both residential and commercial/industrial land to the north; Broening Highway to the east; Keith Avenue and Norfolk Southern Railroad to the south; and, Norfolk Southern Railroad yard and other commercial properties to the west. The Facility is zoned for commercial/industrial use.

The Facility primarily housed GM automobile assembly operations from 1936 to 2005. GM's operations consisted of four major production departments: Body, Paint, Trim, and Chassis. Each department consisted of a main conveyor line supported by sub-assembly operations contributing to the assembly of a complete vehicle.

Duke Baltimore LLC ("Duke") purchased the Facility from GM in January 2006. Duke demolished all existing buildings and structures and is currently redeveloping portions of the Facility to include over 3,500,000 square feet of commercial and industrial buildings to be used for bulk distribution, light manufacturing, and research and development. To date, over 450,000 square feet of commercial and industrial buildings have been constructed, and a new 2,400,000 square foot distribution facility was completed in September 2014.

Since 2006 Duke has sold portions of the Facility to new owners; however, all of the Relevant Facility Areas addressed in this SB are still owned by Duke.

On February 22, 2006, Duke entered into a Facility Lead Agreement ("FLA") with EPA to address RCRA corrective action at the entire Facility. Duke also assessed the Facility under the Maryland Department of the Environment's Voluntary Cleanup Program ("VCP") in order to obtain a Certificate of Completion under the VCP. For purposes of redevelopment, the Facility has been divided into four areas designated as Area A, Area B, Area C, and Area D, respectively. EPA issued a Final Decision for Areas A, B-2, B-4, D and C-1 (a small sub-parcel of Area C) in August 2011. With this SB, EPA is proposing remedies for the Relevant Facility Areas: Areas B (Sub-parcels B-1 and B-3) and Area C (excluding the small portion previously addressed as Sub-parcel C-1). A map identifying the location of the Site and a Site plan depicting the location of each Area and Sub-parcel are attached hereto as Figures 1 and 2, respectively.

2.2 Areas of Investigation

Below is a description of the historical use and current condition of Area B (Sub-parcels B-1 and B-3) and Area C.

2.2.1 Area B (Sub-parcels B-1 and B-3)

Sub-parcels B-1 and B-3 are located within Area B. Area B covers approximately 52.43 acres and is located to the north of GM's former Main Assembly Building (i.e., Area C). In 1971, GM acquired Area B from American Standard, formerly known as the American Radiator and Standard Sanitary Corporation. American Standard manufactured bathroom fixtures, such as sinks and bathtubs, and operated an iron sand-form foundry, enamel application shop, cleaning houses, machine shop, acetylene generation house, oil storage and distribution facilities, Underground Storage Tanks, Above Ground Storage Tanks, warehouses, and office space at the Facility. All American Standard buildings were demolished in 1974, except for a warehouse which GM subsequently used for tire storage.

2.2.2 Area C

The Area C property covers approximately 81.33 acres. It consisted mainly of GM's Former Main Assembly Building. The oldest portions of the Main Assembly Plant building were constructed on vacant land in 1934. The building originally consisted of two plants, the Fisher Body Plant to the south and the Chevrolet Assembly Plant to the north. The two plants were consolidated into the Main Assembly Building and were gradually expanded north to the CSX railroad tracks and west to Quail Street between 1960 and 1982. Because of its large size, Area C was divided into two investigative areas, Area C-1 and Area C-2, for the purpose of the RCRA

Facility Investigation ("RFI"), which was prepared by Duke. In particular, Duke employed the Area C-1 and Area C-2 designations during its preparation of the RFI in order to manage the data generated from the large Area C Redevelopment Area. It is important to note that the formally-designated Sub-parcel C-1 that was addressed in the July 2011 SB is not the same as investigative Area C-1 outlined in the RFI.

Sub-parcel C-1 represents a small portion of the overall Area C Redevelopment Area that was sold to a new owner and currently houses a refrigerated warehouse facility. Sub-parcel C-1 covers approximately 13.41 acres and is located within the northwest portion of Area C-1. Area C-1 included the following structures that were peripheral to the former Main Assembly Building: Power House, Pump House, Drive away Building, Storage Building (formerly called the Weld Destruct Building) for unspecified materials, Central Wastewater Treatment Plant (WWTP), UST and AST Tank Farms, Training Facility, and Sealer Building. These structures were all of slab-on-grade, brick and concrete block construction. Subsequent to Duke acquiring the Facility, all of the buildings in Area C-1 were demolished. Sub-parcel C-l was purchased by Merchant Quail Properties, LLC from Duke in June 2008 and is currently operated as a refrigerated warehouse. The address for Sub-parcel C-l is 4851 Holabird Avenue, Baltimore, MD 21224.

This SB applies to the entirety of Area C, excluding the small portion previously sold and developed (Sub-parcel C-1).

Section 3: Summary of Environmental Investigations

3.1 Environmental Investigations

For all environmental investigations, groundwater concentrations were screened against Federal Maximum Contaminant Levels ("MCLs") promulgated at 40 C.F.R. Part 141 pursuant to Section 1412 of the Safe Drinking Water Act, 42 U.S.C. Section 300g-l, or EPA Region III Screening Levels ("RSL") for tap water for chemicals for which there are no applicable MCLs. Soil concentrations were screened against EPA RSLs for residential soil and industrial soil. Soil concentrations were also screened against EPA Region III Soil Screening Levels to Protect Groundwater ("RSSLs").

In May 2006, Duke submitted to EPA and MDE a Phase I Environmental Site Assessment ("Phase I") which identified those areas at the Facility requiring further investigation under a RCRA Facility Investigation Work Plan ("RFI Work Plan"). Areas requiring additional investigation were designated as Recognized Environmental Conditions ("RECs") or Areas of Interest ("AOIs").

In August 2006, EPA and MDE approved Duke's RFI Work Plan which summarized historical data and proposed additional investigative activities for the RECs and AOIs located in Areas A, B, C, and D. Duke completed the investigative activities outlined in the RFI Work Plan between August and November 2006. The results of the investigations for Area A are summarized in an EPA- and MDE-approved April 2007 RCRA Facility Investigation/Phase II Environmental Site Assessment and Focused Corrective Measures Study (Revision 1.0) Report ("RFI Phase II Report"). The results of the investigations for Area B are summarized in an EPA- and MDE-approved March 2007 RFI Phase II Report. The results of the investigations for Area C are summarized in an EPA- and MDE-approved June 2007 RFI Phase II Report. The results of the investigation for Area D are summarized in an EPA- and MDE-approved July 2007 RFI Phase II Report.

A. Summary of Environmental Investigations and RFI Phase II Reports

1. Soil Investigation

Facility soils were analyzed for a total of 176 chemicals, including volatile organic compounds ("VOCs"), semi-volatile organic compounds ("SVOCs"), polycyclic aromatic hydrocarbons ("PAHs"), polychlorinated biphenyls ("PCBs"), and metals. The soil analytical results were screened by Duke for chemicals of potential concern ("COPCs") using the lower of U.S. EPA Region 3 RSLs table (April 11, 2006) and MDE Non-Residential Cleanup Levels. The RSLs for industrial soil and the MDE Non-Residential Cleanup Levels were selected for screening purposes based on the existing and future land use of the Facility as industrial and/or commercial.

a. *Area B*

A total of 69 chemicals were detected in soils at Area B; however, only 11 of those chemicals were detected at concentrations exceeding their respective RSLs and/or MDE Non-Residential Soil Cleanup values and were, therefore, classified as COPCs. Each of the eleven (11) COPCs was evaluated for exposure based on a direct contact with soils pathway as discussed in the Risk Assessment. For a summary of chemicals, including COPCs, detected in soil for Area B, please refer to Table 2-1 (presented in the Human Health Risk Assessment ("HHRA") provided as Appendix A of the RFI/Phase II Report for Area B) included as Table 1 to this SB.

b. *Area C*

Based on the results of the screening process, five chemicals were each detected at a concentration above its respective Industrial Soil RSL and, therefore, each was retained as a COPC with respect to the direct contact with soil exposure pathway. The maximum detected concentrations of arsenic (19.2 mg/kg), benzo(a)pyrene (3.2 mg/kg), benzo(b)fluoranthene (4.59 mg/kg), dibenz(a,h)anthracene (0.705 mg/kg) and thallium (8.4 mg/kg) exceed their respective RSLs. COPCs were evaluated for exposure based on a direct contact with soils pathway as discussed in the Risk Assessment. Please refer to Table 2-2 (presented in the Human Health Risk Assessment ("HHRA") provided as Appendix A of the RFI/Phase II Report for Area C) included as Table 2 to this SB.

2. Groundwater Investigation

Duke has installed 36 groundwater monitoring wells across the Site and, for purposes of investigation, has divided the groundwater into three major zones: the shallow water-bearing zone, the deep water-bearing zone, and the bottom of the deep water-bearing zone.

Shallow groundwater under the Facility is contained in the Patapsco Aquifer. Across the Facility, shallow groundwater ranges from approximately 0.5 to 16 feet below ground surface and generally flows in an overall southeasterly direction toward Colgate Creek. Colgate Creek, a tidally-influenced tributary of the Patapsco River, is the closest body of water located approximately 200 feet southeast of Area D. The Patapsco Aquifer contains chloride contamination resulting from salt water intrusion, in addition to industrial contamination resulting from historic industrial operations in the region.

Groundwater in the deep water-bearing zone beneath the Facility is contained in the Patuxent Aquifer. Groundwater in this zone underlying the eastern portion of the Facility flows east, towards Colgate Creek with an average gradient of 0.0024 feet/foot, while groundwater in the deep water-bearing zone at the western portion of the Facility flows south, towards Keith Avenue with a hydraulic gradient of 0.005 feet/foot. Groundwater flow at the bottom of the deep zone is to the south-southwest, which is similar to the flow in the top of the deep zone for the same area of the Facility. As with the Patapsco Aquifer, the Patuxent Aquifer is contaminated with chloride and industrial contaminants.

State of Maryland Well Construction Regulations, codified at Code of Maryland Regulations ("COMAR") 26.03.01.05, prohibit installation of individual water systems where adequate community systems are available. In addition, Baltimore County Bill No. 17-13 and Baltimore City Revised Code § 2.19.1 require connection to the public water supply system where such a system is available within 500 feet of the owner's property line. In this case, the Facility and surrounding area are already being provided with potable water from the City's public water supply system. Baltimore City uses surface water from local rivers, but not groundwater, as its source of potable water. Furthermore, as part of the EPA- and MDE-approved June 2007 RFI/Phase II Report, Duke identified no potable wells within one mile of the Facility. Groundwater beneath the Facility was analyzed for a total of 176 chemicals including VOCs, SVOCs, PAHs, PCBs, and metals. Although the Facility is located within an area where groundwater is not used, and will not be used in the foreseeable future as a source for drinking water, concentrations of COPCs in groundwater were screened against drinking water criteria. For each COPC, the lower value between the U.S. EPA Region 3 Tap Water RSL (April 11, 2006) or the MCL was selected as the screening criterion for groundwater. In some cases, neither an RSL nor a MCL was available for a detected chemical, and, as a result, detections of these chemicals were evaluated via the selection by selecting a surrogate screening concentration. For example, the RSL for isopropylbenzene was used as a screening concentration for n-propylbenzene, p-isopropyltoluene and sec-butylbenzene. In addition, the chemicals identified as COPCs were screened against their respective U.S. EPA groundwater-to-indoor air screening criterion to evaluate the potential for volatile emissions to migrate to indoor air (i.e., vapor intrusion).

a. *Area B*

A total of 52 chemicals were detected in groundwater in Area B. Of the detected chemicals, twenty-one chemicals were identified as COPCs with respect to the screening criteria. Seventeen chemicals were detected at concentrations above their respective RSL and/or MCL. In addition, the maximum concentrations of three COPCs exceeded their respective RSL and/or MCL as well as their U.S. EPA groundwater-to-indoor air screening criterion. Lead was also detected at a concentration above its RSL and/or MCL. The chemicals, including COPCs, detected in groundwater for Area B, are summarized in Table 3 of this SB and in the HHRA as Appendix A of the RFI/Phase II Report for Area B.

b. *Area C*

Sixty-two analytes detected in groundwater were identified as COPCs with respect to the screening criteria. COPCs identified in groundwater samples collected from Area C included VOCs, polycyclic aromatic hydrocarbons ("PAHs") and metals. A tabular summary of the groundwater COPCs are located in Table 4 of this SB and in Table 2.4 of the HHRA, Appendix A for Area C.

3. Human Health Risk Assessment and Evaluation of Exposure Pathways

An HHRA was completed for Areas A, B, C and D in 2007 to determine whether site-related contaminants pose an unacceptable risk to human health assuming industrial and/or commercial use of the Facility. The HHRA did not include an evaluation for residential use because the reasonably anticipated land use for the entire Facility is industrial and/or commercial. The exposure pathways assessed include VOC emissions from soil to indoor air; VOC emissions from groundwater to indoor air; direct contact with soil; and, direct contact with groundwater (construction/excavation workers only). The reference location of the HHRA report for each redevelopment Area is as follows:
Area A - Appendix A of the April 2007 RFI/Phase II Report for Area A.
Area B - Appendix A of the March 2007 RFI/Phase II Report for Area B.
Area C - Appendix A of the June 2007 RFI/Phase II Report for Area C.
Area D - Appendix A of the July 2007 RFI/Phase II Report for Area D.

a. *Area B (Sub-parcels B-1 and B3)*

1) Soil to Indoor Air Pathway
No soil locations exceeding the indoor air decision levels calculated in the HHRA were detected within Sub-parcels B-1 and B-3.

2) Groundwater to Indoor Air Pathway
None of the 12 VOCs that were detected in groundwater samples collected from Area B were reported at concentrations which posed a potentially unacceptable human health risk resulting from the groundwater to indoor air pathway.

3) Direct Contact with Soils Pathway

At several sampling locations, lead concentrations were detected above the U.S. EPA lead cleanup level of 1,000 mg/kg for industrial properties. Soils at two areas also exhibited leachable concentrations of lead in excess of the Toxicity Characteristic Leaching Procedural ("TCLP") regulatory limit of 5 parts per million. Those two areas were centered around sampling locations HSB-8 (0 feet to 2 feet below ground surface) and HSBB- 13 (0 feet to 2 feet below ground surface). The HHRA concluded that any soil removed from those areas during redevelopment activities must be managed as a hazardous waste under RCRA Subtitle C because it exceeds the TCLP regulatory limit for lead.

The HHRA concluded that exposure to lead in soil may pose a potential unacceptable human health risk to the construction/excavation worker receptor population. Please refer to Section 3 of this document, for a summary of remedial actions that have been conducted to eliminate potential exposure pathways to soils remaining in Areas B-1 and B-3 by on-site workers, child/youth visitors and/or trespassers.

4) Direct Contact with Groundwater Pathway

The HHRA concluded that exposure to multiple COPCs in groundwater may pose a potential unacceptable risk to the construction/excavation worker receptor population from groundwater contact during excavations. As a result, in addition to required soil management activities described in the Risk Assessment, the EPA- and MDE-approved Risk Management Plans ("RMPs") will be implemented to address such potential unacceptable hazards posed by direct contact exposures to groundwater by on-site construction or excavation workers. The EPA- and MDE-approved RMPs contain protocols to address future construction.

b. ***Area C***

1) Soil to Indoor Air Pathway

Of the chemicals detected in soil at Area C that were evaluated for the potential soil-to-indoor air pathway, 12 COPCs were detected in soil at Area C at concentrations exceeding the single chemical soil-to-indoor air decision levels (i.e., benzene, bromodichloromethane, nbutylbenzene, chloroform (trichloromethane),chloromethane (methylchloride), tetrachloroethene, toluene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and total xylenes (including separate detections of the m,p-xylene and o-xylene isomers)). Based on evaluation of soil VOC data compared to the soil-to-indoor air Facility specific limits, the areas represented by soil sampling locations HSB17A (14.0 ft to 16.0 ft bgs), HSBC122 (6.0 ft to 8.0 ft bgs and 10.0 ft – 12.0 ft bgs), HSBC16 (0.0 ft to 1.0 ft bgs), HSBC21 (6.0 ft to 8.0 ft bgs), HSBC131 (6.0 ft to 8.0 ft bgs) were identified as Soil Management Areas (i.e., redevelopment activities will include measures that will preclude potentially complete indoor air exposures in this area by soil placement or other ECs, or additional evaluation through soil gas sampling could be performed), as the samples contained VOCs at concentrations in excess of 10 times their respective risk-based concentrations.

2) Groundwater to Indoor Air Pathway

Four VOCs (benzene, toluene, trichloroethene and total xylenes) were detected in groundwater samples collected from Area C at concentrations exceeding their respective groundwater-to indoor air risk-based decision levels. The four VOCs were evaluated in the HHRA for potential additive effects of exposure to the maximum concentrations present. Based on the HHRA results, the Hazard Index and Excess Lifetime Cancer Risk were below applicable targets/goals. Therefore, no further actions were necessary.

3) Direct Contact with Soils Pathway
The quantitative evaluation of direct contact with soil indicates that there is no unacceptable human health hazard or risk posed by direct contact exposures to soil in Area C for any of the potential future receptor populations; therefore, remedial activities are not necessary to address this exposure pathway.

In the Remedial Action Plan February 2008, Lead and Total Petroleum Hydrocarbons ("TPH") were evaluated separately from the other COCs at the Site through comparison to site-specific, risk-based decision levels. A single sample from Area C (sample location I-3 from 0 to 2 feet below ground surface) displayed lead at a concentration above the EPA lead cleanup level of 1,000 mg/kg for industrial properties. The area around that sample required management through soil removal and/or placement of a barrier over the contamination to prohibit exposure. Two areas exhibited TPH at concentrations exceeding risk-based levels. Accordingly, the TPH areas required soil removal and/or placement of a barrier over the contamination to prohibit exposure.

4) Direct Contact with Groundwater Pathway
The evaluation of potential direct contact exposures to groundwater by the construction/excavation worker receptor population concludes that risk management activities are necessary to preclude unacceptable hazard and risk posed to on-site construction/excavation workers from groundwater contact during excavations. As a result, in addition to required soil management activities described in the Corrective Measures Study, the EPA- and MDE-approved RMPs will be implemented to address such potential unacceptable hazards posed by direct contact exposures to groundwater by on-site construction or excavation workers. The EPA- and MDE-approved RMPs contain protocols to address future construction.

5) Groundwater Exposures to Off-site Receptors
The evaluation of potential direct-contact exposures to groundwater by off-site receptors concludes that no management activities are necessary to address potential exposures. Further, the surrounding area is serviced by public water-supply systems and is subject to local regulations requiring users to hook up to the public system and state regulations prohibiting the installation of individual water systems where adequate community systems are available. As such, no unacceptable exposures to site groundwater by off-site receptors are evident.

Data gathered from the 36 monitoring wells at the Facility was used to model groundwater flow beneath the Facility; to demonstrate that the groundwater plume ultimately discharges to Colgate Creek; and, to demonstrate that concentrations of contaminants are below levels of concern for surface water quality standards.

The risk assessment compared the maximum detected concentration of each chemical detected in the closest upgradient monitoring wells to screening criteria based on the migration of COPCs in groundwater to surface water. The closest upgradient monitoring wells are located in redevelopment Area D, which is approximately 200 ft. upgradient of the Creek. The State of Maryland's numeric surface water quality criteria for the protection of aquatic life and human recreational users, where available, were selected as the appropriate level for the evaluation of the concentrations of chemicals detected in the nearest up-gradient well. As surface water standard(s) are not available for several chemicals detected in groundwater in Area D (i.e., acetone, carbon disulfide, isopropylbenzene (cumene), methyl tert-butyl ether, total xylenes, acenaphthylene, benzo(g,h,i)perylene, caprolactam, 2-methylnaphthalene, naphthalene, phenanthrene, arsenic, barium, cobalt, copper, and manganese), the evaluation of these concentrations was based on alternative screening values (e.g., Tap Water RSLs) or surface water standards for surrogate chemicals. The screening levels for acetone, carbon disulfide, methyl tert-butyl ether, total xylenes, caprolactam, and cobalt are based on the Region III Tap Water RSLs for each chemical. The surface water criterion for the protection of human health for anthracene was selected as a surrogate standard for the evaluation of 2-methylnaphthalene, naphthalene, and phenanthrene concentrations. The acute and chronic surface water criteria for freshwater aquatic life for naphthalene was obtained from Quality Criteria for Water, referred to as "The Gold Book" (U.S. EPA, 1986). The surface water criteria for benzene, acenaphthene, and pyrene were selected as a surrogate standards for the evaluation of isopropylbenzene (cumene), acenaphthylene, and benzo(g,h,i)perylene concentrations, respectively. The surface water criteria for arsenic, barium, and copper are based on the consumption of aquatic life and drinking water, as criteria for the consumption of aquatic life only are not available. Finally, the surface water criterion for manganese was obtained from the National Recommended Water Quality Criteria (U.S. EPA, 2006b).

Three chemicals were each detected in groundwater at Area D at a concentration above its surface water screening criterion. The maximum concentration of lead at sampling location 8B2 (2.7 ug/L), manganese at 8A1 (2,770 ug/L), and selenium at 8B1 (5.2 ug/L) exceed their single or most conservative screening criteria of 2.5 ug/L, 100 ug/L, and 5 ug/L, respectively. However, none of the chemicals was retained as a COPC, as discussed below.

Lead was detected slightly above the single surface water screening criterion of 2.5 ug/L (based on chronic exposure to aquatic life) in only one groundwater sample (sampling location 8B2 at a concentration of 2.7 ug/L). The reported datum at sampling location 8B2 was an estimated concentration (i.e., J-qualified), indicating that lead was positively detected but at a concentration below the reporting limit for the sample. The maximum detected non-qualified lead concentration is below the chronic exposure to aquatic life screening criterion at sampling location MW27D (1.69 ug/L). Based on the estimated concentration of lead slightly above the surface water screening criterion and the general immobility of lead in the subsurface, it is reasonably anticipated that the lead concentration is at or below the surface water screening criterion prior to potential discharge of groundwater containing lead to Colgate Creek.

The elevated manganese concentrations detected in Area D groundwater are consistent with regional manganese concentrations in groundwater in the Patapsco and Patuxent formations (collectively included in the Potomac Group) in the Baltimore City area. A search of water quality data maintained by United States Geological Survey (USGS) indicates manganese has been detected in the Patapsco and Patuxent aquifers at several sampling locations in Baltimore City at concentrations ranging from 50 ug/L to 17,000 ug/L. The manganese concentrations detected in groundwater in Area D range from 501 ug/L to 2,770 ug/L, which is significantly below the maximum concentration detected in the Potomac Group Aquifers as reported by USGS. Therefore, groundwater manganese concentrations will not be further evaluated with respect to potential migration to surface water.

Selenium was detected in one of the nine groundwater samples collected in Area D. Because shallow groundwater discharges to Colgate Creek, this detection was compared to surface water quality screening criteria for aquatic life, and for human health based on consumption of aquatic life. The detected concentration of selenium in the single groundwater sample was 5.2 ug/l, which only slightly exceeds the surface water screening criterion based on a chronic exposure of aquatic life to selenium (5.0 ug/l), and is approximately four times less than the surface water screening concentration based on acute exposures of aquatic life (20 ug/L). Furthermore, this concentration of detected selenium in groundwater is approximately 800 times less than the human health-based surface water criterion based on consumption of aquatic life (4,200 ug/L). Further transport and discharge of the groundwater into Colgate Creek would result in dilution of the selenium concentration detected at the single well, such that actual in-stream concentrations would be even lower. EPA, therefore, determined that the detection of selenium at a single location in groundwater and its subsequent discharge into Colgate Creek does not pose an unacceptable risk to human health or the environment.

B. Summary of Remedial Activities Completed

1. ***Sub-parcel B-1and 3***

In accordance with a Response Action Plan for Area B ("Area B RAP"), approved by EPA and MDE on July 20, 2007, Duke conducted the following activities at Sub-Parcel B-1 and 3:

- Soil removal and soil grading requirements of the Area B RAP were completed in 2007 and 2008. Onsite management and beneficial reuse of soils to create the grades necessary to support redevelopment were also completed.

- Excavation and offsite disposal of soils from the two areas containing leachable lead concentrations exceeding the TCLP regulatory limit.

- Site-wide installation of building slabs, hardscape, and clean cover soils to prevent direct contact exposures.

- Placement of clean cover soils in future landscape areas to prevent direct contact exposures.

The Area B RAP also provided that the following will be completed as part of any future construction or excavation activities:

- Establishment of a land use restriction prohibiting use of the property for residential purposes.

- Establishment of a property restriction prohibiting onsite use of groundwater for potable purposes.

- Establishment of a Risk Management Plan to manage potential direct contact exposures by construction or excavation workers to soil and groundwater.

2. ***Area C***

In accordance with a Response Action Plan for Area C ("Area C RAP"), approved by EPA and MDE in March of 2008, Duke conducted the following activities at Sub-Parcel C:

- Excavation and offsite disposal of TPH-impacted soils.

- Installation and sampling of two additional monitoring wells.

- Additional year of groundwater sampling at all Area C wells to demonstrate that concentrations remain protective of applicable receptors.

There have been the following two addenda to the March 2008 Area C RAP:

The 2009 Addendum to the Area C RAP evaluated locations in Area C that were initially identified during the RFI as exceeding initial VI screening levels and that were subsequently shown using soil gas sampling to be below VI screening levels. The Addendum to the Area C RAP also required the installation of a methane mitigation system consisting of passive venting system over a specific area found to display methane in the subsurface environment. The system was proposed in the event that buildings were to be constructed over the affected area. The system was to be fully designed once the actual development plan for Area C was developed (i.e., placement of buildings, size of buildings, etc.). This system was installed in 2014.

A 2014 Addendum to the Area C RAP ("Area C RAP, Amendment 2") required developing a methane mitigation system consisting of a passive venting system and vapor barrier across the entire footprint of a new distribution facility. This system was installed in 2014.

The following Requirements for the Area C RAP, including the amendments thereto, were completed as part of constructing the new distribution facility at Area C:

- Placed a clean soil cover over the single area of leachable lead contamination exhibited concentrations in excess of the TCLP regulatory limit.

- Installed the methane mitigation system required by the Area C RAP, Amendment 2.

Section 4: Corrective Action Objectives

EPA's Corrective Action Objectives for the specific environmental media at the Facility are the following:

1. Soils

The objective for soils is to attain EPA's acceptable cumulative cancer risk range of 10^{-4} to 10^{-6} for non-residential exposure and construction/utility worker exposure scenarios.

2. Groundwater

For facilities where aquifers are either currently used for water supply or have the potential to be used for water supply, EPA uses MCLs promulgated pursuant to Section 42 U.S.C. §§ 300f et seq. of the Safe Drinking Water Act and codified at 40 C.F.R. Part 141. However, both the Patapsco Aquifer (shallow water-bearing zone) and Patuxent Aquifer (deep water-bearing zone) are contaminated with chloride as a result of salt water intrusion, in addition to industrial contamination from historical industrial operations in the region. In addition, the Facility and the surrounding area are serviced by public water-supply systems and are subject to local regulations requiring users to hook up to the public system and state regulations prohibiting the installation of individual water systems where adequate community systems are available. According to the June 2007 RFI/Phase II Report, there were no potable wells within one mile of the Facility. Therefore, based on the foregoing, MCLs will not be used as the corrective action objectives.

Monitoring in Areas B and C and the findings of the risk assessments have shown that there are no unacceptable exposures to groundwater at the Facility or from groundwater discharging to Colgate Creek by applicable receptors, with the exception of the potential for construction workers to contact contaminated groundwater during excavations. That exposure pathway is addressed through the EPA and MD-approved RMPs. Monitoring at the Facility has shown that the extent of contamination in groundwater attributable to the Facility is not increasing and concentrations of those contaminants are declining or will remain stable over time. In addition, concentrations of contaminants are below levels of concern for Maryland surface water quality standards. Therefore, because the only reasonably expected exposure from Facility groundwater is to construction workers, the objective for groundwater is to control the exposure of a construction/utility worker to EPA's acceptable cumulative cancer risk range of 10^{-4} to 10^{-6} for construction/utility worker exposure scenarios.

Section 5: Proposed Remedy

1. Soils

EPA's proposed remedy for soils at the Relevant Facility Areas consists of compliance with the RMPs for each Area, compliance with maintenance requirements and compliance with use restrictions. Under EPA's proposed remedy, the following use restrictions and requirements will be implemented for soils at the Relevant Facility Areas:

a) Areas shall be restricted to commercial and/or industrial purposes and shall not be used for residential purposes unless it is demonstrated to EPA and MDE that such use will not pose a threat to human health or the environment or adversely affect or interfere with the selected remedy and EPA and MDE provide prior written approval for such use and

b) All activities shall be conducted in accordance with the EPA and MDE-approved RMP specific to each Area to maintain the integrity and protectiveness of the selected remedy unless it is demonstrated to EPA and MDE that such activity will not pose a threat to human health or the environment or adversely affect or interfere with the selected remedy and EPA and MDE provide prior written approval for such use.

The proposed remedy for soils will be implemented through enforceable mechanisms such as administrative orders or UECA (Uniform Environmental Covenants Act) Environmental Covenants executed pursuant to the provisions of Subtitle 8, Title 1 of the Environment Article, Ann. Code of Md. (2007 Repl. Vol.) (Environmental Covenants). Environmental Covenants implemented as part of the final remedy will be recorded in the chain of title for the Facility property and, once recorded, will be enforceable against the current and future land owners.

2. Groundwater

The proposed remedy for groundwater consists of compliance with and maintenance of groundwater use restrictions at the Facility to prevent exposure to contaminants while levels remain above drinking water standards. While the Facility and the surrounding area are serviced by public water-supply systems and are prohibited from installing wells, to further minimize the potential for exposure to Facility-related contaminants, EPA is also requiring the following groundwater use restrictions:

1. Groundwater at the Facility shall not be used for any purpose other than the operation, maintenance, and monitoring activities required by MDE and/or EPA, unless it is demonstrated to EPA that such use will not pose a threat to human health or the environment or adversely affect or interfere with the final remedy and EPA provides prior written approval for such use and

2. No new wells shall be installed on the Relevant Facility Areas unless it is demonstrated to EPA, that such wells are necessary to implement the final remedy and MDE provides prior written approval to install such wells.

The proposed remedy for groundwater will be implemented through enforceable mechanisms such as administrative orders UECA Environmental Covenants or state/local laws and regulations. State regulations include the Maryland Well Construction Regulations, COMAR 26.03.01.05, which prohibit the installation of individual water systems where adequate community systems are available. Local regulations include Baltimore County Bill No. 17-13 and Baltimore City Revised Code § 2.19.1, which require connection to the public water supply system where such a system is available within 500 feet of an owner's property line.

3. Additional Requirements for Soils and Groundwater

1. Within 21 days after written request by the MDE or EPA, the then current owner(s) of the Relevant Facility Area(s) shall submit to MDE and EPA written documentation stating whether or not the groundwater and land use restrictions are being abided by.

2. Within 21 days after any of the following events, the then current owner(s) of the Relevant Facility Area(s) shall submit a report to MDE and EPA describing: a) non-compliance with groundwater and land use restrictions; b) transfer of all or any portion of the Relevant Facility Area(s); c) changes in use of the Relevant Facility Area(s); or d) the filing of applications for building permits for the Relevant Facility Area(s) and any proposals for any work there, if such building or proposed work will affect the contamination on the Relevant Facility Area(s). If there is noncompliance with groundwater and land use restrictions, the report will state the actions that will be taken to assure compliance.

3. The Relevant Facility Areas shall not be used in a way that will adversely affect or interfere with the integrity and protectiveness of the final remedy.

4. In addition, the then current owner of the Relevant Facility Areas shall provide MDE and EPA with a coordinate survey, as well as a metes and bounds survey, of the Relevant Facility Area boundary for Areas B-1, B-3, and C. Mapping the extent of the land use restrictions will allow for presentation in a publicly accessible mapping program such as Google Earth or Google Maps.

The Additional Requirements for Soils and Groundwater will be implemented through enforceable mechanisms such as administrative orders or UECA Environmental Covenants

Section 6: Evaluation of Proposed Remedy

This section provides a description of the criteria EPA used to evaluate the proposed remedy consistent with EPA guidance. The criteria are applied in two phases. In the first phase, EPA evaluates three decision threshold criteria as general goals. In the second phase, for those remedies which meet the threshold criteria, EPA then evaluates seven balancing criteria.

Threshold Criteria	Evaluation
1) Protect human health and the environment	EPA's proposed remedy protects human health and the environment by eliminating, reducing, or controlling potential unacceptable risk through the installation and maintenance of the building slab, paved parking areas, roadways, and clean cover, which are already in place at Area C and have eliminated potential human exposure to contaminated soils. The placement of clean soils and building slabs are part of the construction at Areas B-1 and B-3, which is complete. Furthermore, to prevent any exposure to contaminated soil throughout Areas C, B-1 and B-3 in the future, the property owner will be required to maintain the integrity of the building slabs and paved parking areas and roadways at all times. A vapor intrusion system is installed in the new warehouse at Area C. EPA is also proposing use restrictions to restrict land use to commercial or industrial purposes throughout Areas B-1, B-3, and C. Additional use restrictions will also require the implementation of the EPA- and MDE-approved RMPs for Areas B and C to prevent future exposures to contaminated soil and/or groundwater within these areas. Groundwater monitoring has shown groundwater risk-based clean-up concentrations standards are met. State of Maryland regulations prohibit well installation where adequate community water supplies are available. In addition, the County and City of Baltimore require connection to a public water supply system where such a system is available within 500 feet of the owner's property line. Such a public system is already providing water to the Relevant Facility Areas. With respect to future uses, the proposed remedy requires groundwater use restrictions to minimize the potential for human exposure to contamination and protect the integrity of the remedy.

2) Achieve media cleanup objectives	EPA's proposed remedy meets the media cleanup objectives based on assumptions regarding current and reasonably anticipated land and water resource use(s). The remedy proposed in this SB is based on the current and reasonably anticipated land use at Areas B-1, B-3 and C as commercial or industrial. As such, industrial media cleanup objectives for soils were selected since the majority of Relevant Facility Areas soils contain contaminant concentrations that are below EPA's industrial soil RSLs. For those areas where contaminants remain in place above EPA's industrial soil RSLs, land use restrictions will be maintained and implemented to address potential direct contact risks. The groundwater plume appears to be stable (not migrating); although contaminants remain, they are either stable or declining over time. In addition, groundwater monitoring has shown groundwater clean-up standards are met since groundwater contaminant concentrations at the Relevant Facility Areas meet EPA risk guidelines for human health and the environment. Data gathered from the 36 monitoring wells at the Facility was used to model groundwater flow beneath the facility; to demonstrate that the groundwater plume ultimately discharges to Colgate Creek; and, that concentrations of contaminants are below levels of concern for surface water quality standards. EPA's proposed remedy requires the implementation and maintenance of use restrictions to ensure that groundwater beneath the Relevant Facility Areas is not used for any purpose except to conduct the operation, maintenance, and monitoring activities required by MDE and EPA and to control exposure to construction/utility workers.
3) Remediating the Source of Releases	In all proposed remedies, EPA seeks to eliminate or reduce further releases of hazardous wastes and hazardous constituents that may pose a threat to human health and the environment and the Facility met this objective. Duke removed the source of contaminants from the soil and installed concrete sub slabs and soil covers at the Relevant Facility Areas, thereby, eliminating, to the extent practicable, further releases of hazardous constituents from on-site soils as well as the source of the groundwater contamination. In addition, the soil and groundwater management procedures

	stated in the RMPs will require the proper removal and off-site disposal of contaminated soils and/or groundwater that are disturbed during any construction/excavation activities conducted at the Facility in accordance with applicable state and federal laws and regulations, thereby removing the source of contaminants from Relevant Facility Area soils as well as groundwater. Contaminants in groundwater are stable or declining through natural attenuation. There are no remaining large, discrete sources of waste from which constituents would be released to the environment. Groundwater is not used for potable purposes at the Facility or at neighboring facilities. In addition, groundwater monitoring has shown groundwater clean-up standards were met since groundwater contaminant concentrations at the Facility meet EPA risk guidelines for human health and the environment. Data gathered from the 36 monitoring wells at the Facility was used to model groundwater flow beneath the facility; to demonstrate that the groundwater plume ultimately discharges to Colgate Creek; and, that concentrations of contaminants are below levels of concern for surface water quality standards. The existing State of Maryland well construction regulations will aid in minimizing exposure to contaminated groundwater by restricting the installation of wells in contaminated water sources. The City of Baltimore, Maryland does not allow new drinking water wells to be installed in the City since potable water is provided to homes by Baltimore. Therefore, EPA has determined that this criterion has been met.

Balancing Criteria	Evaluation
4) Long-term effectiveness	The proposed remedy will maintain protection of human health and the environment over time by controlling exposure to the hazardous wastes remaining in soils. Groundwater is not used on the Relevant Facility Areas for drinking water, and no down gradient users of off-site groundwater exist. Data gathered from the 36 monitoring wells at the Facility was used to model groundwater flow beneath the facility; to demonstrate that the groundwater plume ultimately discharges to Colgate Creek; and, to demonstrate that concentrations of contaminants are below levels of concern for surface water quality standards. Therefore, the proposed long term effectiveness of the remedy for the Relevant Facility Areas will be maintained by maintenance of soil covers and by implementation of use restrictions, which include implementation of the RMPs.
5) Reduction of toxicity, mobility, or volume of the Hazardous Constituents	The reduction of toxicity, mobility and volume of hazardous constituents has occurred by natural attenuation at the Relevant Facility Areas. Reduction has already been achieved, as demonstrated by the data from the groundwater monitoring which shows groundwater already meeting risk based cleanup standards.
6) Short-term effectiveness	EPA's proposed remedy takes into consideration future activities, such as construction or excavation that would pose short-term risks to workers, residents, and the environment by requiring the Facility to follow the RMPs. In addition, EPA anticipates that the groundwater and land use restrictions will be fully implemented shortly after the issuance of the Final Decision and Response to Comments.
7) Implementability	EPA's proposed decision is readily implementable. EPA does not anticipate any regulatory constraints in implementing its proposed remedy. EPA proposes to implement the use restrictions through enforceable mechanisms such as administrative orders, Environmental Covenants and/or state or local laws or regulations.
8) Cost	EPA's proposed decision is cost effective. The costs to record Environmental Covenants in the chain of title to the Facility property are minimal. The costs associated with issuing administrative orders are also minimal. State and local regulations are already in place. There are no costs for the installation of the engineered components of the proposed remedy since they are complete.

9) Community Acceptance	EPA will evaluate community acceptance of the proposed remedy during the public comment period, and it will be addressed in the Final Decision and Response to Comments.
10) State/Support Agency Acceptance	MDE has reviewed and concurred with the proposed remedy for the Facility.

Section 7: Financial Assurance

EPA has evaluated whether financial assurance for corrective action is necessary to implement EPA's proposed remedy at the Facility. Given that the costs of implementing use restrictions and maintaining soil covers at the Facility will be minimal, EPA is proposing that no financial assurance be required.

Section 8: Public Participation

Interested persons are invited to comment on EPA's proposed remedy. The public comment period will last 30 calendar days from the date that notice is published in a local newspaper. Comments may be submitted by mail, fax, e-mail, or phone to Mr. Leonard Hotham at the address listed below.

A public meeting will be held upon request. Requests for a public meeting should be made to Mr. Leonard Hotham at the address listed below. A meeting will not be scheduled unless one is requested.

The Administrative Record contains all the information considered by EPA for the proposed remedy at this Facility. The Administrative Record is available at the following location:

U.S. EPA Region III
1650 Arch Street
Philadelphia, PA 19103
Contact: Mr. Leonard Hotham (3LC20)
Phone: (215) 814-5778
Fax: (215) 814 - 3113
Email: hotham.leonard@epa.gov

Date: 2.13.15

John A. Armstead, Director
Land and Chemicals Division
US EPA, Region III

Attachments:
Figure 1: Map of Facility
Figure 2: Map of Facility
Table 1: Summary of Chemicals Detected in Soil in Area B
Table 2: Summary of Chemicals Detected in Soil in Area C
Table 3: Summary of Chemicals Detected in Groundwater in Area B
Table 4: Summary of Chemicals Detected in Groundwater in Area C

Section 9: Index to Administrative Record

Phase I Environmental Site Assessment of: Former General Motors Corporation Baltimore Assembly Plant, Hull Inc., May 2006

RCRA Facility Investigation Work Plan For: Former General Motors Corporation Baltimore Assembly Plant, Hull Inc., June 2006

RCRA Facility Investigation / Phase II Environmental Site Assessment and Corrective Measures Study of: Area B, Hull Inc., January 2007

RCRA Facility Investigation /Phase II Environmental Site Assessment of: Area C, Hull Inc., June 2007

Revised Response Action Plan Revision 1.0 for: Area B, Hull Inc., July 2007

Risk Management Plan for Area B – Former General Motors Corporation Baltimore Assembly Plant, Hull Inc., January 2008

Response Action Plan Addendum No.1 for Area C, Hull Inc., February 2009

Groundwater Sampling Results for June 2009 for Area C, Hull Inc., November 18, 2009

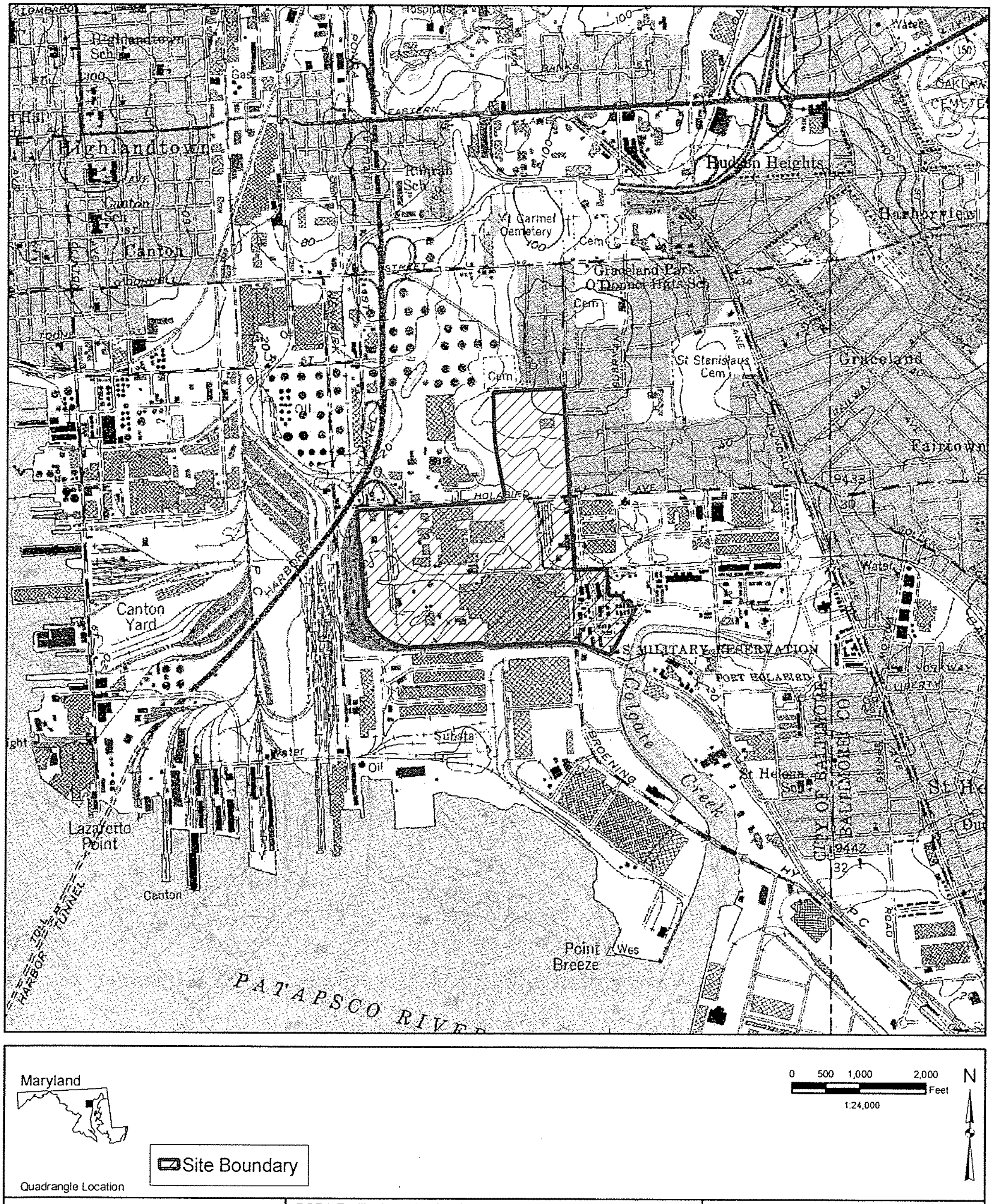
Statement of Basis Former General Motors Corp. Baltimore Assembly Plant Areas A, B-2, B-4, C-1, and D, EPA, June 30, 2011

Chesapeake Commerce Center Development Update, Hull Inc., August 7, 2013

Response Action Plan Addendum No. 2 for Area C, Hull Inc., January 2014

Risk Management Plan for Area C – Former General Motors Corporation Baltimore Assembly Plant, Hull Inc., April 2014

Attachments



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Produced using ArcGIS 9.1

RCRA Facility Investigation/Phase II Environmental Site Assessment
Former GM Baltimore Assembly Plant
(Revision 1.0)

Facility Location Map

2122 Broening Highway
Baltimore, Maryland 21224

Date:
March 2007

Project Number: DUK038
Geodatabase:
DUK038_Basemap.mdb
File Name:
DUK038_03_Fig01_FacLocMap.mxd

Figure
1

Redevelopment Areas and Sub-Parcels

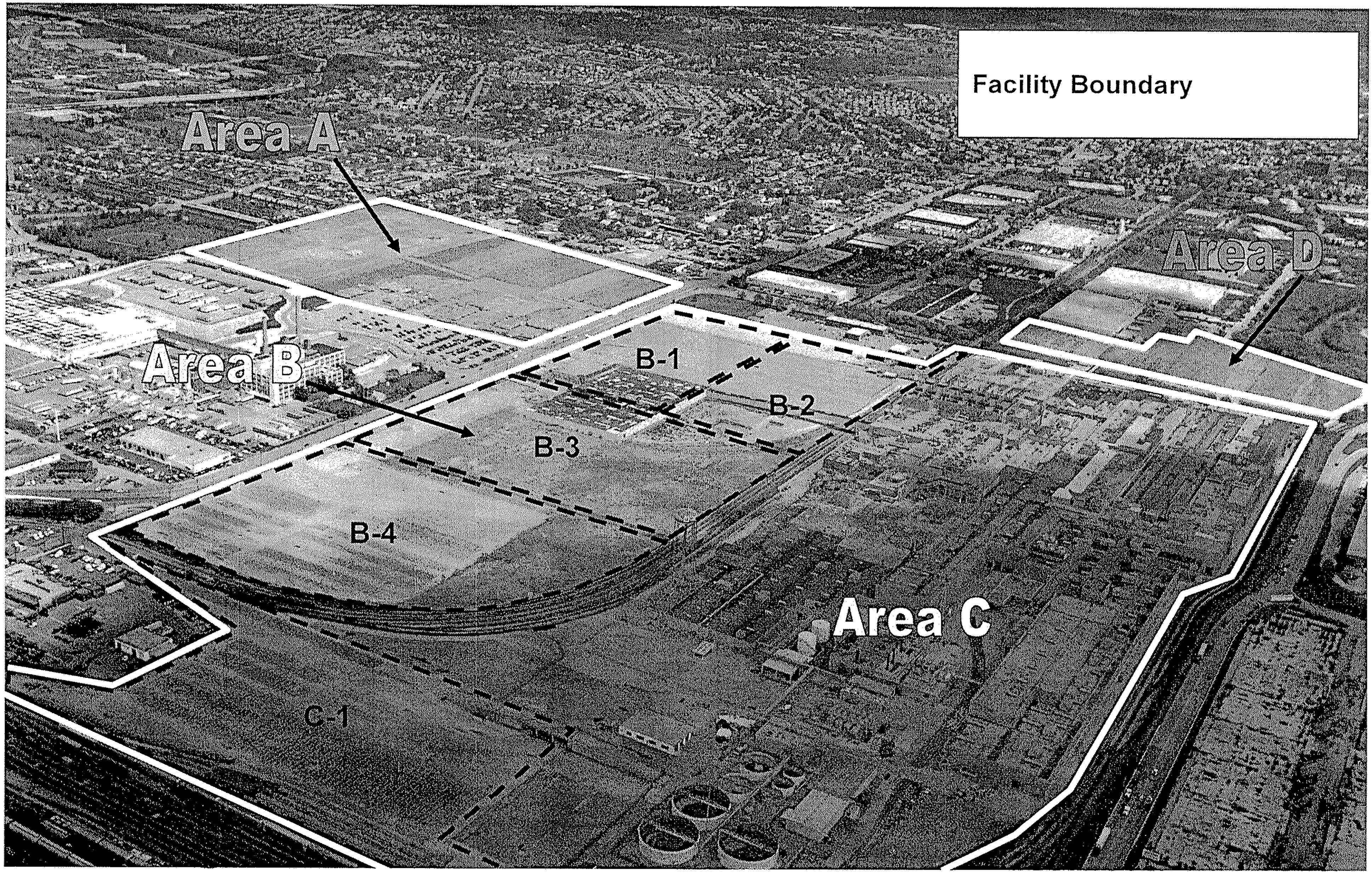

TABLE 1

SUMMARY OF CHEMICALS DETECTED IN SOIL IN AREA B

Chemical of Potential Concern		CAS Registry	Maximum Detected Concentration (mg/kg)	Minimum Detected Concentration (mg/kg)	Number of Reported Detects	Number of Samples	Frequency of Detection (%)	Location of Maximum Detection	Sampling Interval of Maximum Detection (ft bgs)	RBC Industrial Soil[a] (mg/kg)	Exceed Screening Level?
VOCs											
Acetone		67641	0.11	0.001	35	104	34	7A1	0.0' - 2.0'	9.2E+04	N
Benzene		71432	0.008	0.0009	14	104	13	HMW1	13.0' - 15.0'	5.2E+01	N
Bromomethane		74839	0.001	0.001	1	104	1	7A5	0.0' - 2.0'	1.4E+02	N
2-Butanone (Methyl Ethyl Ketone)		78933	0.02	0.001	30	104	29	7F1	0.0' - 2.0'	6.1E+04	N
Carbon Disulfide		75150	0.0139	0.001	26	104	25	HSBB3	0.5' - 2.0'	1.0E+04	N
Chlorobenzene		108907	0.91	0.001	5	104	5	HMW1	13.0' - 15.0'	2.0E+03	N
Cyclohexane	b	110827	0.16	0.013	2	62	3	7F1	14.0' - 16.0'	1.1E+06	N
Cis-1,2-Dichloroethene	c	156592	0.01	0.01	1	104	1	7F7	8.0' - 10.0'	9.2E+02	N
Trans-1,2-Dichloroethene		156605	0.0082	0.005	2	104	2	HMW3	5.0' - 7.0'	2.0E+03	N
Ethylbenzene		100414	0.068	0.002	6	104	6	HMW1	13.0' - 15.0'	1.0E+04	N
2-Hexanone	d	591786	0.002	0.002	1	104	1	7I3	0.0' - 2.0'	6.1E+04	N
Iodomethane	e	74884	0.00442	0.00442	1	34	3	HSBB12	10.0' - 12.0'	1.4E+02	N
Isopropylbenzene (Cumene)		98828	14	0.07	2	96	2	7F1	14.0' - 16.0'	1.0E+04	N
Methyl Cyclohexane	b	108872	7.3	0.006	3	62	5	7F1	14.0' - 16.0'	1.1E+06	N
Methylene Chloride		75092	0.1	0.0034	5	104	5	7B4	0.0' - 2.0'	3.8E+02	N
Tetrachloroethene		127184	1.8	0.0034	8	104	8	HMW3	5.0' - 7.0'	5.3E+00	N
Toluene		108883	0.011	0.001	5	104	5	HMW1	13.0' - 15.0'	8.2E+03	N
1,1,1-Trichloroethane		71556	0.003	0.003	1	104	1	7F4	0.0' - 2.0'	2.9E+04	N
Trichloroethene		79016	0.14	0.14	1	104	1	HMW3	5.0' - 7.0'	7.2E+00	N
Xylenes, Total		1330207	0.027	0.019	2	104	2	HMW2	15.0' - 17.0'	2.0E+04	N
SVOCs											
Acenaphthene		83329	8	0.079	18	112	16	7B6	0.0' - 2.0'	6.1E+03	N
Acenaphthylene	f	208968	0.25	0.11	3	112	3	7B6, 7F1	0.0' - 2.0'	6.1E+03	N
Acetophenone		98862	0.16	0.16	1	62	2	7F12	0.0' - 2.0'	1.0E+04	N
Anthracene		120127	18	0.085	21	112	19	7B6	0.0' - 2.0'	3.1E+04	N
Aroclor-1016		12674112	0.073	0.073	1	18	6	7F2	0.0' - 2.0'	4.1E+01	N
Aroclor-1242		53469219	0.17	0.17	1	18	6	7F1	0.0' - 2.0'	1.4E+00	N
Aroclor-1254		11097691	0.31	0.029	4	18	22	7F2	0.0' - 2.0'	1.4E+00	N
Aroclor-1260		11096825	0.2	0.027	6	18	33	7D1	0.0' - 2.0'	1.4E+00	N
Benzo(A)Anthracene		56553	52	0.089	32	112	29	7B6	0.0' - 2.0'	3.9E+00	Y
Benzo(A)Pyrene		50328	48	0.089	34	112	30	7B6	0.0' - 2.0'	3.9E-01	Y
Benzo(B)Fluoranthene		205992	60	0.13	32	111	29	7B6	0.0' - 2.0'	3.9E+00	Y
Benzo(G,H,I)Perylene	g	191242	1.4	0.46	3	33	9	HMW2	11.0' - 13.0'	3.1E+03	N
Benzo(K)Fluoranthene		207089	32	0.11	28	111	25	7B6	0.0' - 2.0'	3.9E+01	N
Bis(2-Ethylhexyl)Phthalate		117817	3.5	0.083	12	94	13	7F1	0.0' - 2.0'	2.0E+02	N
Butyl benzyl phthalate		85687	4.8	0.089	12	94	13	7F1	0.0' - 2.0'	2.0E+04	N
Carbazole		86748	7	0.081	11	70	16	7C3	8.0' - 10.0'	1.4E+02	N
Chrysene		218019	46	0.11	34	112	30	7B6	0.0' - 2.0'	3.9E+02	N
di-n-Butyl phthalate		84742	0.8	0.088	7	95	7	7F12	0.0' - 2.0'	1.0E+04	N
Dibenz(A,H)Anthracene		53703	5.7	0.077	14	111	13	7B6	0.0' - 2.0'	3.9E-01	Y
Dibenzofuran	h	132649	3.7	0.14	9	95	9	7C3	8.0' - 10.0'	2.0E+02	N
Diethyl Phthalate		84662	0.23	0.099	6	95	6	7F11	4.0' - 5.0'	8.2E+04	N
2,4-Dimethylphenol		105679	5.8	5.8	1	95	1	7I4	0.0' - 2.0'	2.0E+03	N
Fluoranthene		206440	110	0.091	41	112	37	7B6	0.0' - 2.0'	4.1E+03	N
Fluorene		86737	8.4	0.076	17	112	15	7F1	0.0' - 2.0'	4.1E+03	N
Indeno(1,2,3-Cd)Pyrene		193395	15	0.078	26	111	23	7B6	0.0' - 2.0'	3.9E+00	Y
2-Methylnaphthalene		91576	45	0.086	14	112	13	7F1	14.0' - 16.0'	4.1E+02	N
4-Methylphenol		106445	0.26	0.095	2	62	3	7I4	0.0' - 2.0'	5.1E+02	N
Naphthalene		91203	4.5	0.08	12	112	11	7C3	8.0' - 10.0'	2.0E+03	N

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Chemical of Potential Concern		CAS Registry	Maximum Detected Concentration (mg/kg)	Minimum Detected Concentration (mg/kg)	Number of Reported Detects	Number of Samples	Frequency of Detection (%)	Location of Maximum Detection	Sampling Interval of Maximum Detection (ft bgs)	RBC Industrial Soil[a] (mg/kg)	Exceed Screening Level?
Pentachlorophenol		87865	0.1	0.1	1	95	1	7F5	0.0' - 2.0'	2.4E+01	N
Phenanthrene	I	85018	75	0.087	42	112	38	7B6	0.0' - 2.0'	3.1E+04	N
Pyrene		129000	87	0.079	45	112	40	7B6	0.0' - 2.0'	3.1E+03	N
2,4,5-Trichlorophenol		95954	1.1	1.1	1	95	1	7A6	13.0' - 15.0'	1.0E+04	N
Metals											
Antimony		7440360	165	0.48	26	50	52	7A6	0.0' - 2.0'	4.1E+01	Y
Arsenic		7440382	19.2	0.93	51	73	70	7A6	0.0' - 2.0'	1.9E+00	Y
Barium		7440393	889	2.2	72	73	99	HSBB13	0.5' - 2.0'	2.0E+04	N
Beryllium		7440417	3.1	3.1	1	39	3	162	7.0' - 9.0'	2.0E+02	N
Cadmium		7440439	39.6	0.29	21	73	29	7A6	0.0' - 2.0'	5.1E+01	N
Chromium Total	j	18540299	116	2.1	69	73	95	7A6	0.0' - 2.0'	3.1E+02	N
Cobalt	h	7440484	14.2	0.2	39	39	100	7I4	0.0' - 2.0'	2.0E+03	N
Copper		7440508	453	0.71	39	39	100	7A6	0.0' - 2.0'	4.1E+03	N
Lead	k	7439921	11,800	1.6	70	85	82	7A6	0.0' - 2.0'	1.0E+03	Y
Manganese		7439965	2,670	2.4	39	39	100	7A6	0.0' - 2.0'	2.0E+03	Y
Mercury	l	7439976	0.81	0.0105	36	72	50	7A3	5.5' - 7.5'	31 / 10 / 0.12	Y
Nickel		7440020	98.8	0.32	39	39	100	7I4	0.0' - 2.0'	2.0E+03	N
Selenium		7782492	18.2	0.62	9	73	12	HSBB12	0.3' - 2.0'	5.1E+02	N
Silver		7440224	10.2	0.43	24	73	33	7A6	0.0' - 2.0'	5.1E+02	N
Thallium		7440280	11	0.67	5	39	13	7I4	2.5' - 4.5'	7.2E+00	Y
Vanadium		7440622	43.6	1.5	39	39	100	7I3	0.0' - 2.0'	1.0E+02	N
Zinc		7440666	3,330	3.9	39	39	100	7A6	0.0' - 2.0'	3.1E+04	N

NOTES:

a. In accordance with the Risk Evaluation Matrix (Hull document DUK033.200.0034.xls), all noncarcinogenic Region III RBCs were reduced by a factor of 10 to account for possible cumulative effects.
b. Hexane was selected as a surrogate for this compound, however, the RBC for hexane was withdrawn from the RBC Table in October, 2005. This value is the adjusted RBC for industrial soil from the April, 2005 RBC Table.
c. The April 2006 Region III RBC for total 1,2-dichloroethene was used as a surrogate for cis-1,2-dichloroethene.
d. The April 2006 Region III RBC for 2-butanone was used as a surrogate for 2-hexanone.
e. The April 2006 Region III RBC for bromomethane was used as a surrogate for iodomethane.
f. The April 2006 Region III RBC for acenaphthene was used as a surrogate for acenaphthylene.
g. The April 2006 Region III RBC for pyrene was used as a surrogate for benzo(g,h,i)perylene.
h. The RBC for this compound was withdrawn from the RBC Table in October, 2005. This value is the adjusted RBC for industrial soil from the April, 2005 RBC Table.
i. The April 2006 Region III RBC for anthracene was used as a surrogate for phenanthrene.
j. The April 2006 Region III RBC for chromium VI was used as a surrogate for chromium total.
k. Screening value is the MDE-recommended maximum average value for lead across the exposure unit.
l. Mercury was evaluated with respect to the April 2006 Region III RBC for mercuric chloride, the April 2006 Region III RBC for methylmercury and the MDE Non-Residential Soil Cleanup value for total mercury, respectively.

TABLE 2

SUMMARY OF CHEMICALS DETECTED IN SOIL IN AREA C

Chemical of Potential Concern		CAS Registry	Maximum Detected Concentration (mg/kg)	Minimum Detected Concentration (mg/kg)	Number of Reported Detects	Number of Samples	Frequency of Detection (%)	Location of Maximum Detection	Sampling Interval of Maximum Detection (ft bgs)	RBC - Industrial Soil (mg/kg)	COPC?
Vinyl Chloride		75014	0.0285	0.00209	3	201	1	HSBC29	2.0' - 4.0'	4.0E+00	N
M,P-Xylene	h	1330207	660	0.0039	5	15	33	HSB17A	14.0' - 16.0'	2.0E+04	N
O-Xylene	h	95476	400	0.0064	6	15	40	HSB17A	14.0' - 16.0'	2.0E+04	N
Xylenes, Total		1330207	1,100	0.003	27	201	13	HSB17A	14.0' - 16.0'	2.0E+04	N
SVOCs											
Acenaphthene		83329	1.17	0.224	7	209	3	HSBC136	0.0' - 2.0'	6.1E+03	N
Acenaphthylene	i	208968	0.448	0.12	3	209	1	HSBC210	6.0' - 8.0'	6.1E+03	N
Acetophenone		98862	1.9	0.11	2	70	3	111	3.0' - 5.0'	1.0E+04	N
Anthracene		120127	2.21	0.087	8	209	4	HSBC28	0.0' - 2.0'	3.1E+04	N
Benzo(A)Anthracene		56553	3.23	0.083	18	209	9	HSBC28	0.0' - 2.0'	3.9E+00	N
Benzo(A)Pyrene		50328	3.2	0.088	14	209	7	HSBC28	0.0' - 2.0'	3.9E-01	Y
Benzo(B)Fluoranthene		205992	4.59	0.0842	13	209	6	HSBC28	0.0' - 2.0'	3.9E+00	Y
Benzo(G,H,I)Perylene	j	191242	1.61	0.12	4	138	3	HSBC29	2.0' - 4.0'	3.1E+03	N
Benzo(K)Fluoranthene		207089	1.42	0.16	8	209	4	HSBC28	0.0' - 2.0'	3.9E+01	N
Bis(2-Ethylhexyl)Phthalate		117817	1.7	0.11	5	160	3	HSB18	2.0' - 4.0'	2.0E+02	N
Butyl Benzyl Phthalate		85687	1.02	0.097	8	160	5	HSBC212	6.0' - 8.0'	2.0E+04	N
Carbazole		86748	0.074	0.074	1	85	1	7F10	0.0' - 2.0'	1.4E+02	N
Chrysene		218019	3.08	0.081	20	209	10	HSBC28	0.0' - 2.0'	3.9E+02	N
Di-N-Butylphthalate		84742	0.22	0.088	7	142	5	155	5.0' - 7.0'	1.0E+04	N
Dibenz(A,H)Anthracene		53703	0.705	0.085	7	209	3	HSBC29	2.0' - 4.0'	3.9E-01	Y
Dibenzofuran	g	132649	0.799	0.13	3	160	2	HSBC28	0.0' - 2.0'	2.0E+02	N
Diethyl Phthalate		84662	0.23	0.094	4	160	3	7F10	6.0' - 8.0'	8.2E+04	N
2,4-Dinitrophenol		51285	4.59	0.429	8	159	5	HSBC26	0.0' - 2.0'	2.0E+02	N
Fluoranthene		206440	10	0.08	25	209	12	HSBC28	0.0' - 2.0'	4.1E+03	N
Fluorene		86737	1.61	0.25	8	209	4	HSBC136	0.0' - 2.0'	4.1E+03	N
Indeno(1,2,3-Cd)Pyrene		193395	1.6	0.09	8	209	4	HSBC29	2.0' - 4.0'	3.9E+00	N
2-Methylnaphthalene		91576	17	0.1	11	160	7	HSB17	0.6' - 1.0'	4.1E+02	N
Naphthalene		91203	65	0.15	24	209	11	HSB18	10.0' - 12.0'	2.0E+03	N
Phenanthrene	k	85018	9.38	0.1	32	209	15	HSBC28	0.0' - 2.0'	3.1E+04	N
Pyrene		129000	8.11	0.0866	34	208	16	HSBC28	0.0' - 2.0'	3.1E+03	N
Metals											
Antimony		7440360	3.7	0.59	3	74	4	102	0.0' - 2.0'	4.1E+01	N
Arsenic		7440382	19.2	0.87	90	167	54	5B3	0.0' - 2.0'	1.9E+00	Y
Barium		7440393	259	0.59	123	126	98	HSBC126	8.0' - 10.0'	2.0E+04	N
Beryllium		7440417	5.6	0.48	4	75	5	HSB15	2.0' - 4.0'	2.0E+02	N
Cadmium		7440439	1.2	0.098	5	166	3	102	0.0' - 2.0'	5.1E+01	N
Chromium	l	7440473	78.1	1.7	148	166	89	HSBC111	0.0' - 2.0'	3.1E+02	N
Cobalt	g	7440484	30.7	0.21	35	36	97	PAOR102	2.0' - 4.0'	2.0E+03	N
Copper		7440508	153	0.16	72	75	96	HSBC113	0.0' - 2.0'	4.1E+03	N
Lead	m	7439921	2,030	0.58	95	198	48	13	0.0' - 2.0'	1.0E+03	Y

TABLE 2

SUMMARY OF CHEMICALS DETECTED IN SOIL IN AREA C

Chemical of Potential Concern		CAS Registry	Maximum Detected Concentration (mg/kg)	Minimum Detected Concentration (mg/kg)	Number of Reported Detects	Number of Samples	Frequency of Detection (%)	Location of Maximum Detection	Sampling Interval of Maximum Detection (ft bgs)	RBC - Industrial Soil[a] (mg/kg)	COPC?
Manganese		7439965	434	0.49	39	39	100	102	4.0' - 5.0'	2.0E+03	N
Mercury	n	7439976	0.177	0.00965	83	166	50	HSBC18	0.7' - 2.0'	31 / 10 / 0.12	N
Nickel		7440020	30.5	0.29	68	75	91	PAOR103	6.8' - 8.5'	2.0E+03	N
Selenium		7782492	16.7	0.62	2	166	1	HSBC218	0.0' - 2.0'	5.1E+02	N
Silver		7440224	0.56	0.56	1	166	0.6	102	0.0' - 2.0'	5.1E+02	N
Thallium		7440280	8.4	1.1	8	75	11	5B3	0.0' - 2.0'	7.2E+00	Y
Vanadium		7440622	51.7	1.7	36	36	100	PAOR103	6.8' - 8.5'	1.0E+02	N
Zinc		7440666	238	3.9	71	75	95	HSBC19	4.0' - 4.6'	3.1E+04	N
TPH											
Gasoline Range Organics (GRO)	o	NA	2,610	7.8	25	37	68	HSBC122	6.0' - 8.0'	NA	Y
Diesel Range Organics (DRO)	o	NA	9,200	13	16	20	80	HSB17	0.6' - 1.0'	NA	Y

NOTES:

a. In accordance with the Risk Evaluation Matrix (Hull document DUK033.300:0001), all noncarcinogenic Region III RBCs were reduced by a factor of 10 to account for possible cumulative effects.
b. The April 2006 Region III RBC for isopropylbenzene was used as a surrogate for n-butylbenzene, sec-butylbenzene, tert-butylbenzene, p-isopropyltoluene, and n-propylbenzene.
c. The April 2006 Region III RBC for bromomethane was used as a surrogate for chloromethane and iodomethane.
d. Hexane was selected as a surrogate for this compound, however, the RBC for hexane was withdrawn from the RBC Table in October, 2005. This value is the adjusted RBC for industrial soil from the April, 2005 RBC Table.
e. The April 2006 Region III RBC for total 1,2-dichloroethene was used as a surrogate for cis-1,2-dichloroethene.
f. The April 2006 Region III RBC for 2-butanone was used as a surrogate for 2-hexanone and 4-methyl-2-pentanone.
g. The RBC for this compound was withdrawn from the RBC Table in October, 2005. This value is the adjusted RBC for industrial soil from the April, 2005 RBC Table.
h. The April 2006 Region III RBC for xylenes, total was used as a surrogate for m,p-xylene and o-xylene.
i. The April 2006 Region III RBC for acenaphthene was used as a surrogate for acenaphthylene.
j. The April 2006 Region III RBC for pyrene was used as a surrogate for benzo(g,h,i)perylene.
k. The April 2006 Region III RBC for anthracene was used as a surrogate for phenanthrene.
l. The April 2006 Region III RBC for chromium VI was used as a surrogate for chromium total.
m. Screening value is the MDE-recommended maximum average value for lead across the exposure unit.
n. Mercury was evaluated with respect to the April 2006 Region III RBC for mercuric chloride, the April 2006 Region III RBC for methylmercury and the MDE Non-Residential Soil Cleanup value for total mercury, respectively.
o. A Region III RBC does not exist for total petroleum hydrocarbon, therefore these consitiuents were retained for further evaluation.

TABLE 3

SUMMARY OF CHEMICALS DETECTED IN GROUNDWATER IN AREA B

Chemical of Potential Concern		CAS Registry	Maximum Concentration (ug/L)	Location of Maximum Concentration	Potable Use Screening Level	Indoor Air Screening Level	Most Conservative Screening Level	Exceed Most Conservative Screening Level?
VOCs								
Acetone		67641	32	7F1	5.5E+02	2.2E+05	5.5E+02	N
Benzene		71432	2	7F1	3.4E-01	1.4E+01	3.4E-01	Y
n-Butylbenzene	c	104518	15.3	HMW1	6.6E+01	2.6E+02	6.6E+01	N
sec-Butylbenzene	c	135988	6.99	HMW1	6.6E+01	2.5E+02	6.6E+01	N
tert-Butylbenzene	c	98066	188	HMW1	6.6E+01	2.9E+02	6.6E+01	Y
Carbon Disulfide		75150	7	7F8	1.0E+02	5.6E+02	1.0E+02	N
Chlorobenzene		108907	21	7F1	9.0E+00	3.9E+02	9.0E+00	Y
Cyclohexane	d	110827	7	7F1	1.2E+03	1.5E+02	1.5E+02	N
cis-1,2-Dichloroethene		156592	16.2	HMW3	7.0E+01	2.1E+02	7.0E+01	N
trans-1,2-Dichloroethene		156605	8.6	HMW3	1.2E+01	1.8E+02	1.2E+01	N
Isopropylbenzene (Cumene)		98828	88	7F1	6.6E+01	8.4E+00	8.4E+00	Y
p-Isopropyltoluene	c	99876	1.06	HMW1	6.6E+01	8.4E+00	8.4E+00	N
Methyl Cyclohexane	d	108872	13	7F1	6.3E+02	1.4E+04	6.3E+02	N
n-Propylbenzene	c	103651	48.3	HMW1	6.6E+01	3.2E+02	6.6E+01	N
Tetrachloroethene		127184	130	7F11	1.0E-01	1.1E+01	1.0E-01	Y
Toluene		108883	4.5	7I4	2.3E+02	1.5E+03	2.3E+02	N
1,1,1-Trichloroethane		71556	17	7F4	1.7E+02	1.3E+06	1.7E+02	N
1,1,2-Trichloroethane		79005	0.85	HMW3	1.9E-01	4.1E+01	1.9E-01	Y
Trichloroethene		79016	18.4	HMW3	2.6E-02	5.0E+00	2.6E-02	Y
Xylenes, Total		1330207	2	7F1	2.1E+01	2.3E+04	2.1E+01	N
SVOCs								
Acenaphthene		83329	3.25	HMW2	3.7E+01	NA	3.7E+01	N
Acenaphthylene	e	208968	5	7F1	3.7E+01	NA	3.7E+01	N
Anthracene		120127	0.73	HMW1	1.8E+02	NA	1.8E+02	N
Benzaldehyde		100527	10	7C3, 7I1	3.7E+02	NA	3.7E+02	N
Benzo(A)Anthracene		56553	0.14	HMW1	9.2E-02	NA	9.2E-02	Y
Benzo(B)Fluoranthene		205992	0.08	HMW2	9.2E-02	NA	9.2E-02	N
Benzo(G,H,I)Perylene	f	191242	0.06	HMW1	1.8E+01	NA	1.8E+01	N
Benzo(K)Fluoranthene		207089	0.04	HMW2	9.2E-01	NA	9.2E-01	N
Bis(2-Ethylhexyl)Phthalate		117817	40.5	HSBB6	4.8E+00	NA	4.8E+00	Y
Caprolactam		105602	95	162	1.8E+03	NA	1.8E+03	N
Chrysene		218019	0.11	HMW1	9.2E+00	NA	9.2E+00	N
Dibenzofuran	d	132649	2.51	HMW2	1.2E+00	NA	1.2E+00	Y
Di-n-Butyl phthalate		84742	2	7F8	3.7E+02	NA	3.7E+02	N
Fluoranthene		206440	0.25	HSBB6	1.5E+02	NA	1.5E+02	N
Fluorene		86737	5	7F1	2.4E+01	NA	2.4E+01	N
2-Methylnaphthalene		91576	100	7F1	2.4E+00	NA	2.4E+00	Y
Naphthalene		91203	6	7F8	6.5E-01	1.5E+02	6.5E-01	Y
Phenanthrene	g	85018	7	7F1	1.8E+02	NA	1.8E+02	N
Pyrene		129000	0.56	HMW1	1.8E+01	NA	1.8E+01	N

TABLE 3

SUMMARY OF CHEMICALS DETECTED IN GROUNDWATER IN AREA B

Chemical of Potential Concern		CAS Registry	Maximum Concentration (ug/L)	Location of Maximum Concentration	Potable Use Screening Level	Indoor Air Screening Level	Most Conservative Screening Level	Exceed Most Conservative Screening Level?
Metals								
Antimony		7440360	356	7I4	1.5E+00	NA	1.5E+00	Y
Arsenic		7440382	50.2	7I4	4.5E-02	NA	4.5E-02	Y
Barium		7440393	545	7I2	7.3E+02	NA	7.3E+02	N
Chromium	h	7440473	27.7	7D1	1.1E+01	NA	1.1E+01	Y
Cobalt	d	7440484	225	162	7.3E+01	NA	7.3E+01	Y
Copper		7440508	4.8	162	1.5E+02	NA	1.5E+02	N
Lead	i	7439921	61	HPZ3	1.5E+01	NA	1.5E+01	Y
Manganese		7439965	1660	7B2	7.3E+01	NA	7.3E+01	Y
Mercury	j	7439976	0.15	7I3	1.1 / 0.37 / 2.0	6.8E-01	6.8E-01	N
Nickel		7440020	358	162	7.3E+01	NA	7.3E+01	Y
Selenium		7782492	39.5	7C3	1.8E+01	NA	1.8E+01	Y
Vanadium		7440622	299	7I4	3.7E+00	NA	3.7E+00	Y
Zinc		7440666	193	162	1.1E+03	NA	1.1E+03	N

NOTES:

a. U.S. EPA target groundwater concentration based on migration of volatile emissions from groundwater to indoor air (U.S. EPA, 2002).
b. U.S. EPA Region III single chemical Tap Water RBC (April 2006) or MCL, based on lowest of the two values. RBCs based on a non-cancer endpoint adjusted to target hazard quotient of 0.1.
c. The screening levels for isopropylbenzene were used as a surrogate for n-butylbenzene, n-propylbenzene, p-isopropyltoluene, sec-butylbenzene and tert-butylbenzene.
d. The RBCs for cyclohexane, methylcyclohexane, dibenzofuran, and cobalt were withdrawn from the RBC Table in October, 2005. The potable use screening level for each is the adjusted RBC for tap water from the April, 2005 RBC Table.
e. The April 2006 Region III RBC for acenaphthene was used as a surrogate for acenaphthylene.
f. The April 2006 Region III RBC for pyrene was used as a surrogate for benzo(g,h,i)perylene.
g. The April 2006 Region III RBC for anthracene was used as a surrogate for phenanthrene.
h. The April 2006 Region III RBC for chromium VI was used as a surrogate for chromium total.
i. The potable use screening level for lead is based on the action level for lead at the tap.
k. Mercury was evaluated with respect to the RBC for mercuric chloride, the RBC for methylmercury and the MDE Groundwater Standards for total mercury, respectively.

TABLE 4

SUMMARY OF CHEMICALS DETECTED IN GROUNDWATER IN AREA C

Chemical of Potential Concern		CAS Registry	Maximum Concentration in Area C-1 (ug/L)	Location of Maximum Concentration in C-1	Maximum Concentration in Area C-2 (ug/L)	Location of Maximum Concentration in Area C-2	Maximum Concentration (ug/L)	Location of Maximum Concentration in Area C	Potable Use Screening Level (ug/L)	Indoor Air Screening Level (ug/L)	Most Conservative Screening Level (ug/L)	Exceed Most Conservative Screening Level?
VOCs												
Acetone		67641	39,500	MW28D	975	MW20D	39,500	MW28D	5.5E+02	2.2E+05	5.5E+02	Y
Benzene		71432	961	MW25S	340	MW9D	961	MW25S	3.4E-01	1.4E+01	3.4E-01	Y
Bromodichloromethane		75274	NA	NA	0.58	MW21S	0.58	MW21S	1.7E-01	2.1E+01	1.7E-01	Y
2-Butanone		78933	400,000	GMW103	100	MW20D	400,000	GMW103	7.0E+02	4.4E+05	7.0E+02	Y
N-Butylbenzene	c	104518	100	MW3	5.84	MW9D	100	MW3	6.6E+01	2.6E+02	6.6E+01	Y
Sec-Butylbenzene	c	135988	11	MW3	16.3	MW11D	16.3	MW11D	6.6E+01	2.5E+02	6.6E+01	N
Tert-Butylbenzene	c	98066	NA	NA	1.23	MW11D	1.23	MW11D	6.6E+01	2.9E+02	6.6E+01	N
Carbon Disulfide		75150	7.72	HSBC126	0.61	MW9D	7.72	HSBC126	1.0E+02	5.6E+02	1.0E+02	N
Chloroethane		75003	16.1	MW15D	1.96	MW8S	16.1	MW15D	3.6E+00	2.8E+04	3.6E+00	Y
Chloroform		67663	4.85	GMW102	5.9	MW21S	5.9	MW21S	1.5E-01	8.0E+01	1.5E-01	Y
2-Chlorotoluene	d	95498	13.6	MW3	NA	NA	13.6	MW3	1.2E+01	3.9E+02	1.2E+01	Y
4-Chlorotoluene	d	106434	4.9	MW3	NA	NA	4.9	MW3	4.3E+01	3.9E+02	4.3E+01	N
Cyclohexane	e	110827	5	MW7	NA	NA	5	MW7	1.2E+03	2.9E+00	2.9E+00	Y
Trans-1,4-Dichloro-2-Butene	f	110576	32.3	MW3	NA	NA	32.3	MW3	1.2E+01	1.8E+02	1.2E+01	Y
1,1-Dichloroethane		75343	342	MW28D	202	MW11D	342	MW28D	9.0E+01	2.2E+03	9.0E+01	Y
1,2-Dichloroethane		107062	NA	NA	27.8	MW11D	27.8	MW11D	1.2E-01	2.3E+01	1.2E-01	Y
1,1-Dichloroethene		75354	71	MW28D	4,080	MW11D	4,080	MW11D	7.0E+00	1.9E+02	7.0E+00	Y
Cis-1,2-Dichloroethene		156592	75	MW28D	32.8	MW13D	75	MW28D	7.0E+01	2.1E+02	7.0E+01	Y
Trans-1,2-Dichloroethene		156605	2	5B3	5.94	MW11D	5.94	MW11D	1.2E+01	1.8E+02	1.2E+01	N
Ethylbenzene		100414	14,000	MW29D	85.3	MW9D	14,000	MW29D	1.3E+02	7.0E+02	1.3E+02	Y
Isopropylbenzene (Cumene)		98828	77	GMW101	28.4	MW9D	77	GMW101	6.6E+01	8.4E+00	8.4E+00	Y
P-Isopropyltoluene	c	99876	22.2	MW3	1.81	MW9D	22.2	MW3	6.6E+01	8.4E+00	8.4E+00	Y
Methyl cyclohexane		108872	7	5A2	NA	NA	7	5A2	6.3E+02	7.1E+02	6.3E+02	N
4-Methyl-2-Pentanone		108101	18,000	GMW103	5.01	MW9D	18,000	GMW103	6.3E+02	1.4E+04	6.3E+02	Y
Methyl Tert-Butyl Ether		1634044	211,000	MW25S	24	PAOR102	211,000	MW25S	2.6E+00	1.2E+05	2.6E+00	Y
Methylene Chloride		75092	2,200	GMW103	NA	NA	2,200	GMW103	4.1E+00	5.8E+02	4.1E+00	Y
N-Propylbenzene	c	103651	172	GMW101	51.9	MW9D	172	GMW101	6.6E+01	3.2E+02	6.6E+01	Y
Styrene		100425	85	MW3	NA	NA	85	MW3	1.0E+02	8.9E+03	1.0E+02	N
Tetrachloroethene		127184	86	133	1	11	86	133	1.0E-01	1.1E+01	1.0E-01	Y
Toluene		108883	100,000	MW6	24.7	MW9D	100,000	MW6	2.3E+02	1.5E+03	2.3E+02	Y
1,1,1-Trichloroethane		71556	129	MW28D	5.08	MW11D	129	MW28D	1.7E+02	3.1E+03	1.7E+02	N
1,1,2-Trichloroethane		79005	NA	NA	6.72	MW11D	6.72	MW11D	1.9E-01	4.1E+01	1.9E-01	Y
Trichloroethene		79016	11.4	MW3	192	MW13D	192	MW13D	2.6E-02	5.0E+00	2.6E-02	Y
Trichlorofluoromethane		75694	0.65	MW26D	18.2	MW19S	18.2	MW19S	1.3E+02	1.8E+02	1.3E+02	N
1,2,4-Trimethylbenzene	g	95636	189	MW22S	14.6	MW9D	189	MW22S	1.2E+00	2.4E+01	1.2E+00	Y
1,3,5-Trimethylbenzene	g	108678	50.3	MW22S	2.89	MW9D	50.3	MW22S	1.2E+00	2.5E+01	1.2E+00	Y
Vinyl Acetate		108054	NA	NA	1.82	MW11D	1.82	MW11D	4.1E+01	9.6E+03	4.1E+01	N
Vinyl Chloride		75014	4.9	MW7	88.3	MW9D	88.3	MW9D	1.5E-02	2.5E+00	1.5E-02	Y
Xylenes, Total	h	1330207	67,000	MW29D	36.7	MW9D	67,000	MW29D	2.1E+01	2.3E+04	2.1E+01	Y
SVOCs												
Acenaphthene	i	83329	3.55	GMW102	42	MW21S	42	MW21S	3.7E+01	NA	3.7E+01	Y
Acenaphthylene		208968	0.35	GMW102	11	MW20D	11	MW20D	3.7E+01	NA	3.7E+01	N
Acetophenone		98862	2	5B2	NA	NA	2	5B2	6.1E+01	8.0E+05	6.1E+01	N
Anthracene		120127	7.02	GMW102	118	MW21S	118	MW21S	1.8E+02	NA	1.8E+02	N
Benzo(A)Anthracene		56553	45.8	GMW102	497	MW21S	497	MW21S	9.2E-02	NA	9.2E-02	Y

TABLE 4

SUMMARY OF CHEMICALS DETECTED IN GROUNDWATER IN AREA C

Chemical of Potential Concern		CAS Registry	Maximum Concentration In Area C-1 (ug/L)	Location of Maximum Concentration In C-1	Maximum Concentration In Area C-2 (ug/L)	Location of Maximum Concentration In Area C-2	Maximum Concentration (ug/L)	Location of Maximum Concentration In Area C	Potable Use Screening Level (ug/L)	Indoor Air Screening Level (ug/L)	Most Conservative Screening Level (ug/L)	Exceed Most Conservative Screening Level?
Benzo(A)Pyrene		50328	33.4	GMW102	402	MW21S	402	MW21S	9.2E-03	NA	9.2E-03	Y
Benzo(B)Fluoranthene		205992	57.4	GMW102	654	MW21S	654	MW21S	9.2E-02	NA	9.2E-02	Y
Benzo(G,H,I)Parylene	j	191242	17.6	GMW102	223	MW21S	223	MW21S	1.8E+01	NA	1.8E+01	Y
Benzo(K)Fluoranthene		207089	19.9	GMW102	185	MW21S	185	MW21S	9.2E-01	NA	9.2E-01	Y
Benzoic Acid		65850	NA	NA	7,220	MW20D	7,220	MW20D	1.5E+04	NA	1.5E+04	N
Benzyl Alcohol		100516	3.2	MW3	612	MW20D	612	MW20D	1.8E+03	NA	1.8E+03	N
Bis(2-Ethylhexyl)phthalate		117817	14.9	GMW102	54.4	MW21S	54.4	MW21S	4.8E+00	NA	4.8E+00	Y
Butyl Benzyl Phthalate		85687	3.48	GMW102	NA	NA	3.48	GMW102	7.3E+02	NA	7.3E+02	N
Caprolactam		105602	52	5A2	74	16	74	16	1.8E+03	NA	1.8E+03	N
Chrysene		218019	49.9	GMW102	515	MW21S	515	MW21S	9.2E+00	NA	9.2E+00	Y
Dibenz(A,H)Anthracene		53703	6.59	GMW102	85.9	MW21S	85.9	MW21S	9.2E-03	NA	9.2E-03	Y
Dibenzofuran	g	132649	NA	NA	51.3	MW20D	51.3	MW20D	1.2E+00	NA	1.2E+00	Y
Di-N-Butyl Phthalate		84742	NA	NA	1	16	1	16	3.7E+02	NA	3.7E+02	N
2,4-Dichlorophenol		120832	1	5B2	NA	NA	1	5B2	1.1E+01	NA	1.1E+01	N
Diethyl Phthalate		84662	17.4	GMW101	NA	NA	17.4	GMW101	2.9E+03	NA	2.9E+03	N
2,4-Dimethylphenol		105679	6.86	MW3	992	MW20D	992	MW20D	7.3E+01	NA	7.3E+01	Y
Di-N-Octyl Phthalate	k	117840	3.5	GMW102	61.3	MW20D	61.3	MW20D	3.7E+02	NA	3.7E+02	N
2,6-Dinitrotoluene		606202	NA	NA	2.89	HMW8	2.89	HMW8	3.7E+00	NA	3.7E+00	N
Fluoranthene		206440	79.6	GMW102	941	MW21S	941	MW21S	1.5E+02	NA	1.5E+02	Y
Fluorene		86737	3.42	GMW102	46.8	MW21S	46.8	MW21S	2.4E+01	NA	2.4E+01	Y
Indeno(1,2,3-Cd)Pyrene		193395	16.3	GMW102	205	MW21S	205	MW21S	9.2E-02	NA	9.2E-02	Y
2-Methylnaphthalene		91576	8	113	3	153	8	113	2.4E+00	NA	2.4E+00	Y
2-Methylphenol (o-Cresol)		95487	189	MW28D	1,510	MW20D	1,510	MW20D	1.8E+02	NA	1.8E+02	Y
Naphthalene		91203	3,500	GMW103	359	MW20D	3,500	GMW103	6.5E-01	1.5E+02	6.5E-01	Y
N-Nitrosodimethylamine		62759	NA	NA	2.69	MW19S	2.69	MW19S	1.3E-03	NA	1.3E-03	Y
N-Nitrosodiphenylamine		86306	NA	NA	2.14	MW19S	2.14	MW19S	1.4E+01	NA	1.4E+01	N
Pentachlorophenol		87865	8.84	MW1	9.16	MW13D	9.16	MW13D	5.6E-01	NA	5.6E-01	Y
Phenanthrene		85018	28.5	GMW102	484	MW21S	484	MW21S	1.8E+02	NA	1.8E+02	Y
Phenol		108952	6.11	GMW101	8,450	MW20D	8,450	MW20D	1.1E+03	NA	1.1E+03	Y
Pyrene		129000	56.4	GMW102	704	MW21S	704	MW21S	1.8E+01	NA	1.8E+01	Y
Metals												
Arsenic		7440382	12.6	MW28D	16.7	153	16.7	153	4.5E-02	NA	4.5E-02	Y
Barium		7440393	406	HSBC126	293	262	406	HSBC126	7.3E+02	NA	7.3E+02	N
Beryllium		7440417	NA	NA	22.1	PAOR103	22.1	PAOR103	4.0E+00	NA	4.0E+00	Y
Cadmium		7440439	1.61	MW24D	3.63	MW19S	3.63	MW19S	1.8E+00	NA	1.8E+00	Y
Chromium	l	7440473	27.8	HSBC126	41.1	MW20D	41.1	MW20D	1.1E+01	NA	1.1E+01	Y
Cobalt	g	7440484	189	5B2	392	PAOR103	392	PAOR103	7.3E+01	NA	7.3E+01	Y

TABLE 4

SUMMARY OF CHEMICALS DETECTED IN GROUNDWATER IN AREA C

Chemical of Potential Concern		CAS Registry	Maximum Concentration in Area C-1 (ug/L)	Location of Maximum Concentration in C-1	Maximum Concentration in Area C-2 (ug/L)	Location of Maximum Concentration in Area C-2	Maximum Concentration (ug/L)	Location of Maximum Concentration in Area C	Potable Use Screening Level (ug/L)	Indoor Air Screening Level (ug/L)	Most Conservative Screening Level (ug/L)	Exceed Most Conservative Screening Level?
Copper		7440508	9.3	5B1	2.5	PAOR103	9.3	5B1	1.5E+02	NA	1.5E+02	N
Lead		7439921	36.5	MW3	127	MW20D	127	MW20D	1.5E+01	NA	1.5E+01	Y
Manganese		7439965	4,290	5B2	3,000	262	4,290	5B2	7.3E+01	NA	7.3E+01	Y
Mercury	m	7439976	NA	NA	0.366	MW20D	0.366	MW20D	1.1 / 0.37 / 2.0	6.8E-01	3.7E-01	N
Nickel		7440020	182	261	372	PAOR103	372	PAOR103	7.3E+01	NA	7.3E+01	Y
Selenium		7782492	10.7	133	6.28	MW19S	10.7	133	1.8E+01	NA	1.8E+01	N
Silver		7440224	NA	NA	0.508	MW19S	0.508	MW19S	1.8E+01	NA	1.8E+01	N
Thallium		7440280	8.5	261	11.7	PAOR103	11.7	PAOR103	2.6E-01	NA	2.6E-01	Y
Vanadium		7440622	7.8	5B1	5.2	262	7.8	5B1	3.7E+00	NA	3.7E+00	Y
Zinc		7440666	295	261	1,250	PAOR103	1,250	PAOR103	1.1E+03	NA	1.1E+03	Y

NOTES:

a. Region III single chemical Tap Water RBC (April 2006) or Maximum Contaminant Level (U.S. EPA, 2003), based on lowest of the two values. In accordance with the Risk Evaluation Matrix (Hull document DUK033.200.0034), all noncarcinogenic Region III RBCs were reduced by a factor of 10 to account for possible cumulative effects.
b. U.S. EPA target groundwater concentration based on migration of volatile emissions from groundwater to indoor air (U.S. EPA, 2002).
c. The screening levels for isopropylbenzene were used as a surrogate for n-butylbenzene, n-propylbenzene, p-isopropyltoluene, sec-butylbenzene, and tert-butylbenzene.
d. The target groundwater concentration based on migration of volatile emissions from groundwater to indoor air for chlorobenzene was used as a surrogate for this compound.
e. The U.S. EPA target groundwater concentration based on migration of volatile emissions from groundwater to indoor air for hexane was used as a surrogate for cyclohexane.
f. The April 2006 Region III RBC for trans-1,2-dichloroethene was used as a surrogate for trans-1,4-dichloro-4-butene.
g. The RBC for this compound was withdrawn from the RBC Table in October, 2005. The potable use screening level is the adjusted RBC for tap water from the April, 2005 RBC Table.
h. The screening levels for m-xylene, the most abundant of the isomers in the total xylene mixture, were used as a surrogate for total xylenes.
i. The April 2006 Region III RBC for acenaphthene was used as a surrogate for acenaphthylene.
j. The April 2006 Region III RBC for pyrene was used as a surrogate for benzo(g,h,i)perylene.
k. The April 2006 Region III RBC for di-n-butyl phthalate was used as a surrogate for di-n-octyl phthalate.
l. The April 2006 Region III RBC for chromium VI was used as a surrogate for chromium total.
m. Mercury was evaluated with respect to the RBC for mercuric chloride, the RBC for methylmercury and the MDE Groundwater Standards for total mercury, respectively.