DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

RCRA Corrective Action
Environmental Indicator (EI) RCRIS Code (CA725)
Current Human Exposures Under Control

Facility Name: Hercules Incorporated Parlin Plant
Facility Address: 50 South Minisink Avenue, Parlin, Middlesex County, New Jersey
Facility EPA ID#: NJD002521961

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EIs) are measures being used by the Resource Conservation and Recovery Act (RCRA) Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved) to track changes in the quality of the environment. The two EIs developed to date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no unacceptable human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all contamination subject to RCRA corrective action at or from the identified facility [i.e., site-wide]).

Relationship of EI to Final Remedies

While final remedies remain the long-term objectives of the RCRA Corrective Action program, the EIs are near-term objectives which are currently being used as program measures for the Government Performance and Results Act of 1993 (GPRA). The "Current Human Exposures Under Control" EI is for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and does not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI determination status codes should remain in the Resource Conservation and Recovery Information System (RCRIS) national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

Facility Information

The 670-acre Aqualon Parlin Plant (Hercules) is a chemical manufacturing facility that was originally built by Union Powder Company in the late 1800's. Hercules purchased the plant in 1915. The plant is presently owned by Aqualon Company, a unit of Hercules Incorporated. The site is located in Parlin, Middlesex County, New Jersey. The facility is located in a mixed residential and industrial area surrounded by DuPont to the east, the Borough of Sayreville well field (SWF) and Perth Amboy well field (PAWF) to the south, mixed residences and various industries to the west, and a residential development (including a park) to the north. Three brooks are located on the site, and the South River is west of the facility. The facility currently produces Natrosol® (hydroxy-ethyl cellulose). Former products included nitrocellulose (coatings, films, inks, adhesives, gelatin dynamite, lacquers, and propellants), nitric acid, and sulfuric acid, parlon (chlorinated rubber), chlorafin (chlorinated waxes), acetate aldehyde, cellulose acetate, dichlorodiphenyltrichloroethane (DDT), acetic anhydride, acetic acid, penton (chemical-resistant plastic), ammonia-nitrate, polyethylene, and polypropylene.

The Natrosol® Manufacturing facility is the only remaining production plant owned and operated by Hercules Incorporated – Aqualon Division at the Parlin, New Jersey location. However, it should be noted that Hercules still owns the entire 669-acre site in Parlin and is responsible for past activities (prior to Green Tree Chemical Technologies, Inc. operations).

The Natrosol® facility occupies only 14.7-acres of the 669-acre site and is completely fenced and separated from the former Green Tree Chemical Technologies, Inc. (Green Tree) nitrocellulose (NC) plant. The Natrosol® facility has been manufacturing Natrosol®, a thickening agent, since 1975. Natrosol® is prepared by reacting cellulose with ethylene oxide and other chemicals (tertiary butyl alcohol – TBA, sodium hydroxide, nitric acid, and acetone). Weak solvents produced from the formulation are recovered by distillation. Still bottom effluent is discharged to the on-site sewer system.

The former Green Tree NC operation consisted of five areas involved with the production of NC, which was used as a film former for coatings, film, ink, and adhesives, and in the manufacturing of lacquers and lacquer solvents (in the past it was also used in gelatin dynamite and propellant powders). The five areas that were involved in NC production included the No. 1 Acid Area (a storage area for acid deliveries), No. 2 Acid Area (acid concentrators), NC Nitration (where concentrated acid was mixed with cellulose), NC Purification (where excess acids were removed), and NC Dehydration (where NC was dried and prepared for shipment). The entire NC production area is also fenced and access is strictly controlled.

The NC production facilities detailed above were sold by Hercules to Green Tree in 2000. Therefore, Green Tree owned the buildings and associated infrastructure involved with the production of NC. Hercules continued to own the land, which was leased to Green Tree. The solid waste management units (SWMUs) listed in the USEPA HSWA and NJDEP NJPDES/DGW permits and, which are present in and around the NC production facilities, are still the responsibility of Hercules.

In 2003, Green Tree ceased operations and abandoned the NC production facilities. Hercules came in to stabilize the area. At this time, Hercules is in the process of decommissioning the NC production facility and declaring it inactive. It should be noted that the former NC production facility remains completely fenced and secured. As stated above, access is strictly controlled.

A New Jersey Pollutant Discharge Elimination System Discharge to Ground Water Permit (#NJ0083411) was issued to Hercules Inc./Aqualon Co. on September 1, 1991. The permit required investigation and mitigation of potential threats to human health and the environment. The Hazardous and Solid Waste Amendment (HSWA) portion of the facility's RCRA permit (#NJD002521961) also required investigation of sixteen solid waste management units (SWMUs) at the property. Furthermore, an Industrial Site Recovery Act (ISRA) investigation in the Natrosol® portion of the plant was triggered by the transfer of Aqualon from joint to sole ownership by Hercules, Inc.

A Facility Background Report was submitted to New Jersey Department of Environmental Protection (NJDEP) on December 2, 1991. Based on this report, the facility prepared a RCRA Facility Investigation (RFI) work plan for the site, which was approved by NJDEP and the U.S. Environmental Protection Agency (USEPA) in May 1992. The Draft RFI Report submitted in March 1994 grouped the original SWMUs and several newly identified areas of concern (AOCs) into several areas of investigation (AOIs) to facilitate and streamline the investigation and remedial activity. These AOIs were further evaluated during the focused Phase II RFI field effort, the Corrective Measures Study (CMS) and Risk Assessment for Landfills 15A-15D and Brook 2, and the CMS and Risk Assessment for the Former DDT Building and Brook 3. A draft Site-Wide Phase II RFI report was submitted to NJDEP on April 15, 2002. Subsequent site investigation and cleanup efforts have included a Baseline Ecological Risk Assessment (BERA) for Brook 3 and the South River, additional groundwater plume delineation in the PAWF and Runyon Watershed Property, completion of the DDT remediation project at Brook 3 (nontidal-influenced portion) and in the former DDT Building Area, and formal closure of Landfills 15A - 15D, including the adjacent section of Brook 2.

To date, Hercules is still in the corrective action mode, working towards a final remedy to address the various AOCs and AOIs at the site.

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from solid waste management units (SWMUs),regulated units (RUs), and areas of concern (AOCs)), been **considered** in this EI determination?

   X If yes - check here and continue with #2 below.

   ____ If no - re-evaluate existing data, or

   ____ If data are not available skip to #6 and enter IN (more information needed) status code

Summary of SWMUs and AOCs: Based on all available information, 32 AOCs with soil and/or sediment impacts were identified at the Hercules Parlin site. No further action (NFA) was recommended for soil at six AOCs. Development of site-specific soil cleanup goals was recommended for 18 AOCs, and corrective measures were recommended for four AOCs. Remediation of soil/sediment has been completed at two AOCs. In addition, two of the original AOCs have been combined into other AOCs: the Flyash Lagoon was removed during construction of the Stormwater Retention Basin, and Impoundment I4 is considered part of the Former DDT Building Area.

During the Phase I RFI, the SWMUs and AOCs were grouped into several AOIs to facilitate ongoing investigation and remediation efforts. The AOIs were defined largely as areas with distinct groundwater impacts. Due to the nature and areal extent of the observed contamination plumes however, impacted groundwater across the site is currently being addressed separately from the soil/sediment AOCs. Key concerns for groundwater at the Hercules site include a plume of tertiary butyl alcohol (TBA) emanating from the Natrosol® Area and extending off site to the south and west, and a smaller plume of carbon tetrachloride (CT) and chloroform (CF) emanating from the Parlon Area. Volatile organic compound (VOC) contamination has also been identified in groundwater in the former landfill area. Groundwater monitoring programs are in place to monitor plume conditions quarterly and landfill area water quality annually (Refs. 8, 11). Additional groundwater investigation was also recommended in the Phase II RFI Report for certain areas of the site where sporadic exceedances of New Jersey Groundwater Quality Criteria (NJ GWQC) have been reported.

The contamination at all the SWMUs and AOCs has been reasonably delineated.

The remaining sections of this EI determination will discuss contaminated media (other than groundwater) according to the established AOIs rather than by AOC. Groundwater will be presented and discussed separately and independent of the AOI/AOC framework. Attachment 1 summarizes the soil/sediment AOCs by AOI. AOC descriptions were excerpted from the Phase I and Phase II RFI Reports (Refs. 2, 7). The AOCs and AOIs are shown on Figure 3-1 of the Site-Wide Phase II RFI Draft Report (Ref. 7). Figures 2 and 3 in the December 2003 Site-Wide Groundwater Monitoring Report (Ref. 11) show the current extent of plume contamination at the site.

References:

1. Interim Remedial Measures Report. Prepared by Dames & Moore. Dated September 6, 1993.
2. Draft RCRA Facility Investigation Report. Prepared by Dames & Moore. Dated March 15, 1994.
3. Final Corrective Measures Field Studies and Risk Assessment, Landfills 15A-15D and Brook 2. Prepared by Dames and Moore. Dated March 31, 1997.
4. Focused Phase II RCRA Facility Investigation Report. Prepared by Dames & Moore. Dated May 23, 1997.
5. Acid Spill Soil Sampling Report. Prepared by Dames & Moore. Dated January 7, 1999.
6. Focused Corrective Measures Study and Risk Assessment, Former DDT Building and Brook 3. Prepared by Dames & Moore. Dated August 30, 1999.
7. Draft Site-Wide Phase II RCRA Facility Investigation Report. Prepared by URS. Dated April 15, 2002.
8. Letter to Paul Harvey, NJDEP, from Monica McHugh and Neil Rivers, Roux Associates. Re: September 2003 Landfill Post-Closure Groundwater Monitoring Report. Dated February 10, 2004.
9. Remedial Action Completion Report, DDT Remediation Project (Brook 3 and Former DDT Building Area). Prepared by URS Corporation. Dated February 19, 2004.
10. Letter to Clifford Ng, EPA, from Karl Vetter, Roux Associates. Re: Environmental Indicator Status Information, Hercules, Inc., Parlin, NJ. Dated August 23, 2004.
11. 2003 Fourth Quarter (December) Site-Wide Groundwater Monitoring Report. Prepared by Roux Associates. Dated March 31, 2004.
12. Letter to Clifford Ng, EPA, from Karl Vetter, Roux Associates. Re: Environmental Indicator Status Information, Areas of Concern, Hercules, Inc., Parlin, NJ. Dated August 24, 2004.

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be "**contaminated**"[1] above appropriately protective risk-based levels (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

Media	Yes	No	?	Rationale/Key Contaminants
Groundwater	x			Metals, VOCs
Air (indoors)[2]		x		
Surface Soil (e.g., <2 ft)	x			Metals, VOCs, SVOCs, PCBs, Pesticides, TPH
Surface Water		x		
Sediment		x		
Subsurface Soil (e.g., >2 ft)	x			Metals, VOCs, SVOCs, PCBs, Pesticides, TPH
Air (Outdoor)		x		

____ If no (for all media) - skip to #6, and enter YE, status code after providing or citing appropriate levels, and referencing sufficient supporting documentation demonstrating that these levels are not exceeded.

_X_ If yes (for any media) - continue after identifying key contaminants in each contaminated medium, citing appropriate levels (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

____ If unknown (for any media) - skip to #6 and enter IN status code.

Rationale:

Groundwater

The Hercules Parlin site is underlain by the Potomac-Raritan-Magothy (PRM) Formation. The most important water-bearing members of this formation include the Old Bridge (OB) and Farrington aquifers. The OB aquifer is encountered at depths less than ten feet below ground surface (bgs) in low-lying

[1] "Contamination" and "contaminated" describe media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

[2] Recent evidence (from the Colorado Department of Public Health and Environment, and others) suggests that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

southwestern areas of the study area, along the three brooks, and in the Natrosol® and Former Parlon source areas. However, at the southern end of the site and in the vicinity of the groundwater recharge basins, OB groundwater is first encountered at depths up to 50 feet bgs. The average saturated thickness of the OB unit ranges from approximately ten feet in the northwestern portion of the plant to about 90 feet in the SWF south and southeast of the site (Ref. 1). Groundwater flow is generally toward the southwest, although a strong southerly component has been observed along the far eastern edge of the site (Ref. 13). The confined Farrington aquifer underlies the OB aquifer. The units are separated by a layer of dark gray clay and silty sand, which is present across the entire Hercules site, up to 90 feet thick in places (Refs. 3, 5). This layer is believed to act as an aquitard; thus, groundwater investigation at the Hercules site has largely been limited to the OB aquifer.

As stated previously, three distinct groundwater impact areas have been identified to date at the Hercules site: a plume of TBA emanating from the Natrosol® Area, a smaller plume of CT and CF emanating from the Parlon Area, and VOC contamination beneath and downgradient of Landfills 15A through 15D. All monitoring well locations are depicted on Figure 1 of the December 2003 Site-Wide Groundwater Monitoring Report (Ref. 13).

TBA Plume Detail

The TBA plume has been associated with leakage from several existing TBA aboveground storage tanks (ASTs) in the Natrosol® Area (East AOI). The leaks were stopped in 1992. NJDEP has established a health-based interim groundwater standard of 100 micrograms per liter (µg/L) for TBA at Hercules. In December 2003 (the most recent quarterly sampling event for which data are available), TBA was reported above the interim standard in 24 of the 51 wells sampled. The highest results were reported in source area wells MW-74A and MW-79 (36,000 and 890,000 µg/L, respectively). The highest concentrations of TBA are typically observed in shallow groundwater within the immediate source area and in intermediate and deep groundwater within 1,000 feet downgradient from the source. The TBA plume extends off site, southward through the SWF area, but drops to acceptable concentrations in the vicinity of Bordentown Avenue. None of the wells farther south in the PAWF area reported TBA exceedances.

CT/CF Plume Detail

A plume of VOC contamination—predominantly CT and CF—emanates from the Former Parlon Area of the Hercules plant. The source has been attributed to past spills within the Former Parlon Manufacturing Area. Note that CT was not detected in the soils in this area, hence no further action was granted for the soils. Therefore, a source of CT no longer exists. At present, this plume extends approximately 750 feet southwest of the source area (entirely within site boundaries) and is commingled with the northernmost portion of the TBA plume. During the most recent sampling round (December 2003), nine of the 13 wells sampled in this area reported VOC contamination above applicable NJ GWQCs. The highest concentrations were observed in a deep well within 100 feet of the suspected source area (well MW-85C), and in two recovery wells screened at intermediate depths within the OB aquifer (wells RW-7 and RW-8). Table 1 lists the maximum concentrations reported in the December 2003 sampling event (Ref. 13).

Table 1 - Maximum Detected Concentrations in Groundwater in the Parlon Area December 2003

Constituent	NJ GWQC (µg/L)	Max Conc. (µg/L)	Well
Carbon Tetrachloride (CT)	2	15,000 D	MW-85C
Chloroform (CF)	6	2,600 D	RW-7
Methylene Chloride	2	28	RW-7
1,1,2,2-Tetrachloroethane	1*	2 J	RW-7
Tetrachlorethene (PCE)	1	250 D	RW-7
Trichloroethene (TCE)	1	3 J	RW-7 and RW-8

*Interim Standard

VOC Impacts in the Landfill Area

Groundwater around Landfills 15A through 15D in the central portion of the Hercules site was impacted by VOCs and metals above applicable NJ GWQC before the area was remediated. The most significant contamination is located within the slurry wall surrounding Landfills 15C and 15D and was located downgradient of Landfills 15C and 15D prior to remediation, with more minor impacts associated with Landfills 15A and 15B. A layer of light non-aqueous phase liquid (LNAPL), approximately ten feet thick, has also been observed in and is believed to originate from Landfill 15C. The LNAPL consists of 91 percent tentatively identified semi-volatile organic compound (SVOC) alkanes, 8.6 percent tentatively identified VOCs, and 0.4 percent target compound list VOCs, pesticides, and polychlorinated biphenyls (PCBs) (Ref. 3). The LNAPL within Landfill 15C is totally enclosed within the slurry wall that surrounds Landfills 15C and 15D.

Hercules has established a program for annual post-closure monitoring of landfill groundwater (Ref. 9). NJDEP approved the monitoring program on July 24, 2003, and the first annual sampling event was conducted in September 2003 (Ref. 10). Table 2 presents the maximum VOC exceedances reported during the September 2003 landfill groundwater sampling round, as well as the maximum concentrations for iron exceedances (Ref. 10).

Table 2 - Maximum Detected Concentrations in Groundwater at the Landfill Area September 2003

VOC Constituent	NJ GWQC (µg/L)	Maximum Conc. (µg/L)	Well
PCE	1	4J	MW-134
Metal Constituent	**NJ GWQC (µg/L)**	**Maximum Conc. (µg/L)**	**Well**
Total Iron	300	56,200	MW-3

Metal Constituent	NJ GWQC (µg/L)	Maximum Conc. (µg/L)	Well
Dissolved Iron	300	9,500	MW-3

PCE is a relatively new constituent of concern for the landfill area, but it is only slightly above the NJ GWQC of 1 µg/L. Reported iron concentrations have declined between September 2002 and September 2003, although exceedances are still reported both upgradient and downgradient of the landfill area (background levels of iron in the aquifer often exceed the NJDEP - GWQC of 300 ppb). Similarly, no pesticide exceedances were reported in groundwater during the two most recent sampling events.

Air (Indoors)

To evaluate the potential for VOCs to migrate to indoor air at the Hercules process area, the maximum concentrations of VOCs detected in the most recent groundwater sampling event (December 2003) were compared to the State of Connecticut Proposed Revisions to the Groundwater Volatilization Criteria for the Industrial/Commercial Scenario (CT I/C GWVC) (March 2003). The proposed revisional values were used because they have been revised to be more consistent with EPA's 2002 Draft Guidance "Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soil." Thus, these updated values are based on the most up-to-date Johnson-Ettinger Model, toxicity information, and exposure assumptions. Only the wells with VOC contamination located within 100 feet (horizontally and vertically) of active buildings are of concern for indoor air. Active site operations and buildings are currently located in the Natrosol® Area. Therefore, available data on VOC concentrations in the uppermost wells in this vicinity were screened against the CT I/C GWVC. TBA is not considered sufficiently volatile to be of concern for indoor air (Ref. 7) and was not considered in the above screening even though part of the TBA plume underlies the active plant area. Table 3 presents the maximum detected concentrations associated with the CT/CF plume and their respective CT I/C GWVC.

Table 3 - Maximum Concentrations Detected in Groundwater in December 2003 Compared with the CT I/C GWVC

Constituent	CT I/C GWVC (µg/L)	Max. Conc. in 12/03 (µg/L)	Well
CF	62	940	MW-85C
CT	14	15,000 D	MW-85C

D - concentration after sample dilution

CT and CF were detected above their corresponding CT I/C GWVC within 100 feet of an active building (Building 9318). This warehouse is used for storage of Natrosol® product and spare machine parts. It has no basement and the floor consists of a concrete slab. Furthermore, this warehouse is not occupied (workers come and go) and the building is well ventilated. Depth to groundwater in the area of this warehouse is usually 7 to 9 feet below ground surface (bgs). It should be noted that there are no human receptor pathways since exposure within the warehouse to carbon tetrachloride (CT) and chloroform (CF) present in the groundwater is highly unlikely. (Ref. 14). EPA, in its Draft Subsurface Vapor Intrusion

Guidance (November 2003), indicates that the Occupational Safety and Health Administration (OSHA) and EPA have agreed that OSHA will take the lead in industrial settings where vapor intrusion may be a concern. Thus, because OSHA oversight applies, the migration of VOCs into indoor air is not currently a concern for this EI determination.

Surface/Subsurface Soil

Surface and subsurface soil has been contaminated with metals, VOCs, SVOCs, PCBs, pesticides, and/or total petroleum hydrocarbons (TPH), at locations throughout the site. As discussed in the facility description, the facility is currently active; thus, applicable soil standards include the New Jersey Non-Residential Direct Contact Soil Cleanup Criteria (NJ NRDCSCC). The contaminants exceeding NJ NRDCSCC have been summarized in Attachment 2 by AOI. The maximum detected concentration for each contaminant identified is presented along with the corresponding NJ NRDCSCC value in parentheses. Soil samples depths were not presented in the soil results tables in the Site-Wide Phase II RFI; thus, the soil results presented in Table 1 are not separated by surface soil (<2 feet bgs) and subsurface soil (>2 feet bgs). There are currently no off-site soil impacts.

In addition, sludge samples were collected during the Phase I RFI from seven lagoons and two landfills located in various AOIs (Ref. 2). Metals were detected in all of the sludge samples, but were only detected above the NJ NRDCSCC at three AOCs (Neutralization Sludge Lagoons, Iron Oxide Lagoon 13A, and Iron Oxide Lagoon 13B). These sludge samples were considered to be soil for the purposes of this EI determination, and the analytical results were compared to the NJ NRDCSCC.

Surface Water/Sediment

Three brooks (Brook 1, Brook 2, and Brook 3) are present on the site. All three brooks discharge to the South River, which is located to the west-southwest of the facility. Brook 1 is located in the northern portion of the facility and is not currently associated with any AOCs (Ref. 2). The Site-Wide Phase I RFI indicated that arsenic (4.9 J µg/L), lead (68 J µg/L), and manganese (265 J µg/L, filtered) were detected in surface water above the NJ Surface Water Quality Criteria (NJ SWQC) for Freshwater 2 (FW2) waters (0.017 µg/L, 5 µg/L, and 100 µg/L, respectively). However, this surface water sample was taken at the extreme northern property boundary, where Brook 1 enters the site. Concentrations of arsenic (1.2 J µg/L) and lead (2.3 B µg/L) were actually lower in the downstream on-site sampling location, with the arsenic concentration falling below the NJ SWQC, and the concentration of manganese remaining unchanged (265 J µg/L filtered, 247 J µg/L total). The surface water contained higher levels of metal contamination upon entering the site than it did further downstream, after passing by several AOCs; thus, it is unlikely that the metal contamination in Brook 1 resulted from Hercules' activities. Brook 1 was recommended for further investigation in the Site-Wide Phase I RFI Report, but the Site-Wide Phase II RFI Report recommended no further action for Brook 1 upon further review of the Phase I RFI results (Refs. 2, 8). Thus, Brook 1 has not been impacted by activities at the site and will not be discussed further in the EI determination.

Brook 2 is located in the central portion of the facility and was historically impacted by adjacent AOCs in the Central and Southwest AOIs. Hercules has reported that samples collected in Brook 2 in September

2003 showed no contamination above relevant screening criteria. See Attachment 4. (Ref.15).

Brook 3 is located in the southwestern portion of the facility. Brook 3 and the South River were historically impacted by pesticides, likely due to direct waste discharge from the former DDT Process House (Ref. 4). An ecological risk-based sediment cleanup goal of 20.8 mg/kg was calculated for total DDT during the 1998 Focused CMS and Risk Assessment (Ref. 6). Remedial activities for the non-tidal-influenced portion of Brook 3 were completed in 2001 and included temporary brook diversion, excavation/dredging of 5,660 tons of contaminated sediment, and consolidation of the dewatered sediment into the swale between on-site Landfills 15C and 15D (Ref. 11). Post-excavation sampling confirmed that total DDT above 20 mg/kg was removed from the excavated areas (Ref. 11).

The tidal-influenced portion of Brook 3 (approximately 800' length of the Brook 3) is to be addressed separately. A Baseline Ecological Evaluation Assessment was conducted in August 2003 and did not identify elevated potential risk to ecological receptors in the South River under current "pre-remediation" conditions (with the tidal-influence Brook 3 left alone). (Ref.16) However, NJDEP required Hercules (March 18, 2004 letter) to address the tidal-influenced portion of Brook 3 using the risk-based sediment cleanup goal of 20.8 mg/kg to reduce a continuing source to the regional problem (South River discharges to Raritan River). (The Remedial Action Work Plan was submitted in August 31, 2004.) This subject area is heavily vegetated and access is fenced off and marked with “no trespassing signs.” (Note that the ecological risk is driving the cleanup goal. Human exposure at this area is not considered complete.)

During the Site-Wide Phase I RFI, beryllium was detected at 2.4 mg/kg in one sediment sample at Neutralization Sludge Landfill 25B (North AOI). This value exceeds the corresponding NJ NRDCSCC (2 mg/kg); however, it represents an isolated, very slight exceedence. NFA was recommended for soil and groundwater at the Neutralization Sludge Landfills, and the landfill has a soil/clay cap that would preclude any potential exposure to contaminated sediment by receptors (Refs. 8, 12). Therefore, given that contaminated sediments along Brook 2 and Brook 3 have been successfully remediated, and there is no other significant site-related sediment contamination, sediment is not considered a medium of concern at this time. The remediation of contaminated sediment along Brooks 2 and 3 has also removed the major source of surface water contamination. Additionally, interim remedial measures and corrective action performed at AOCs adjacent to Brooks 2 and 3 have removed potential sources of surface water contamination. Thus, surface water is also not considered a medium of concern at this time.

Air (Outdoors)

No recent outdoor air sampling has been documented for this site. However, limited migration of contaminants bound to airborne particulate matter is expected at this site because the surface soil throughout the site is covered with engineered cap systems, buildings/concrete slabs, or vegetation/soil cover (Ref. 12). Migration of VOCs from groundwater to outdoor air is not expected to be of concern due to the natural dispersion of contaminants once they reach the surface, resulting in potential exposures below acceptable risk levels. Thus, the migration of particulates entrained on dust and/or volatile emissions are not expected to be significant exposure pathways of concern at the Hercules Parlin site.

References:

1. Groundwater Interim Remedial Measures Report. Prepared by Dames & Moore. Dated April 18,

1994.
2. Draft RCRA Facility Investigation Report. Prepared by Dames & Moore. Dated March 15, 1994.
3. Final Corrective Measures Field Studies and Risk Assessment, Landfills 15A-15D and Brook 2. Prepared by Dames and Moore. Dated March 31, 1997.
4. Focused Phase II RCRA Facility Investigation Report. Prepared by Dames & Moore. Dated May 23, 1997.
5. Letter to Paul Harvey, NJDEP, from Frank McLaughlin, NJDEP. Re: 1997 Fourth Quarter Groundwater Monitoring/Annual Summary Report (5/5/98) and 1998 First Quarter Groundwater Monitoring Report (7/29/97). Dated August 18, 1998.
6. Focused Corrective Measures Study and Risk Assessment, Former DDT Building and Brook 3. Prepared by Dames & Moore. Dated August 30, 1999.
7. Material Safety Data Sheet: Butyl Alcohol-tert. Prepared by Mallinckrodt Baker, Inc. Dated November 2, 2001.
8. Draft Site-Wide Phase II RCRA Facility Investigation Report. Prepared by URS. Dated April 15, 2002.
9. Post-Closure Groundwater Monitoring Program Work Plan, Landfills 15A, 15B, 15C, and 15D. Prepared by URS. Dated February 20, 2003.
10. Letter to Paul Harvey, NJDEP, from Monica McHugh and Neil Rivers, Roux Associates. Re: September 2003 Landfill Post-Closure Groundwater Monitoring Report. Dated February 10, 2004.
11. Remedial Action Completion Report, DDT Remediation Project (Brook 3 and Former DDT Building Area). Prepared by URS Corporation. Dated February 19, 2004.
12. E-mail correspondence from Clifford Ng, USEPA, to Kristin McKenney, Booz Allen Hamilton. Re: Hercules (Parlin, NJ). Dated March 1, 2004.
13. 2003 Fourth Quarter (December) Site-Wide Groundwater Monitoring Report. Prepared by Roux Associates, Inc. Dated March 31, 2004.
14. Letter to Clifford Ng, EPA, from Karl Vetter, Roux Associates. Re: Environmental Indicator Status Information, Hercules, Inc., Parlin, NJ. Dated August 23, 2004.
15. Letter to Clifford Ng, EPA, from Karl Vetter, Roux Associates. Re: Environmental Indicator Status Information, Landfill Closure and Post-closure Monitoring, Hercules, Inc., Parlin, NJ. Dated August 24, 2004.
16. Remedial Action Work Plan – Brook 3 Tidal Portion. Prepared by URS. Dated August 31, 2004

3. Are there **complete pathways** between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table
*Potential **Human Receptors** (Under Current Conditions)*

"Contaminated" Media	Residents	Workers	Day-Care	Construction	Trespasser	Recreation	Food[3]
Groundwater	No	No	No	Yes	–	–	No
~~Air (indoor)~~					–	–	–
Surface Soil (e.g. < 2 ft)	No	No	–	Yes	Yes	No	No
~~Surface Water~~			–	–			
~~Sediment~~			–	–			
Subsurface Soil (e.g., > 2 ft)	–	–	–	Yes	–	–	–
~~Air (outdoors)~~						–	–

Instruction for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not "contaminated" as identified in #2 above.

2. Enter "yes" or "no" for potential "completeness" under each "Contaminated" Media — Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential "Contaminated" Media - Human Receptor combinations (Pathways) do not have check spaces. These spaces instead have dashes ("--"). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

____ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

__X__ If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination) - continue after providing supporting explanation.

____ If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code.

[3] Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish)

Rationale:

Groundwater

The OB aquifer is the most productive unit in the vicinity of the site, and extensive public, industrial, and domestic water supplies are drawn from this unit downgradient of the Hercules Parlin site. However, groundwater beneath the Hercules facility is not utilized for any industrial or potable purpose on site. Water used at the facility is obtained from the Duhernal Water Supply System (a partnership set up by Hercules and other companies to supply the region with water), located about three to four miles from the region (Ref. 7). Thus, there is no concern for direct contact to impacted groundwater via ingestion for on-site workers.

As mentioned in response to Question 2, on-site groundwater has been impacted with VOCs and iron above NJ GWQC, and TBA above the NJDEP interim standard (however, as stated previously, the iron content of the aquifer located upgradient and below the Hercules Parlin plant is naturally high in iron). Hercules is still in the corrective action mode, and remedial activities are ongoing or planned at the facility. Given that shallow groundwater is encountered at depths of less than ten feet bgs, direct contact with impacted groundwater is being considered a potentially complete exposure pathway for on-site remedial workers (classified as construction workers for the purpose of this EI determination).

The Borough of Sayreville formerly operated a groundwater production field approximately 1,300 feet south of the site along Bordentown Avenue. This well field, known as the SWF, is capable of drawing approximately four million gallons of water per day from the OB aquifer (Ref. 1). One SWF monitoring well has also been advanced into the Farrington aquifer; however, the Farrington aquifer contains brackish water in the vicinity of the plant and is unsuitable for potable purposes (Ref. 2). By the end of 1993, all but two wells in the SWF were shut down as a precaution by the Borough of Sayerville (Ref. 7). The last two wells (SWF-I and SWF-L), furthest east of the TBA plume, were taken out of service in 2000 as a precaution (Ref. 3). In 1994, Hercules agreed to have the Borough of Sayreville become a partner in the Duhernal Water Supply System, which has supplied water to Sayreville since then (Ref. 7). Therefore, direct contact to impacted shallow groundwater via ingestion is not a concern for residents or other off-site receptors who obtain water from the Borough of Sayreville.

Another groundwater production field, the PAWF, is located south of the SWF, approximately 5,000 feet south of the Hercules site, and also draws groundwater from the OB aquifer for potable uses. Several groundwater monitoring wells in the PAWF are sampled quarterly by Hercules, including wells DW-1D, DW-8D, DW-10D, EPA-5, MW-141, and MW-142R. Concentrations of TBA detected in these wells during December 2003 are well below the NJDEP health-based interim standard of 100 µg/L, ranging from non-detect to2.1 µg/L (with a detection limit of 1.0 µg/L) (Ref. 6). According to Hercules, Perth Amboy has opted to keep water supply wells PA-5 and PA-6 operating and is monitoring these wells closely (Ref. 7). According to Hercules, recently detected concentrations of TBA in supply wells PA-5 and PA-6 are below 10 µg/L. The groundwater recovery program located north of this area (in the Sayreville Well Field) continues to result in the stabilization of the TBA plume and is expected to provide wellhead protection at less than 100 µg/L in the PAWF (Ref. 6). Therefore, direct contact to impacted shallow groundwater via ingestion is not a concern for residents or off-site receptors who obtain water from the city of Perth Amboy.

As mentioned in response to Question 2, off-site groundwater has been impacted with TBA above the interim standard in the vicinity of the SWF. Although the depth to groundwater is less than 10 feet bgs in six of these wells (MW-111, OB-27, RW-11, SWF-A, and SWF-E in the SWF, and MW-136 between Bordentown Avenue and Old Water Works Road), these monitoring wells were screened in the bottom 20 feet of the OB aquifer (on average, 50 to 70 feet below grade) (Refs. 6, 7). The wells were screened at this depth because groundwater investigations performed in 1993 and 1999 in the SWF confirmed the presence of TBA in the lower portion of the OB aquifer, which is up to 90 feet thick in this area. Therefore, it is extremely unlikely that TBA would be encountered in shallow (e.g., up to 10 feet bgs) excavations on SWF property or between Bordentown Avenue and Old Water Works Road, and direct dermal contact to impacted shallow groundwater is not being considered a potentially complete exposure pathway for off-site workers.

Surface/Subsurface Soil

As presented in response to Question 2, there are several areas on site with contamination in surface/subsurface soil above NJ NRDCSCC. The main soil contaminants include metals, VOCs, SVOCs, PCBs, pesticides, and TPH. As mentioned above, the Hercules site is an active industrial facility that is still in the corrective action mode, working towards a final remedy. Thus, a variety of receptors must be considered for potential exposure to impacted surface/subsurface soil at the site, including on-site workers (e.g., Hercules employees), construction workers (e.g., remedial workers or utility workers), and trespassers.

Although the facility is currently operational, Hercules strictly regulates all ground surface activities by workers, including subsurface or construction-related activities at the site. Additionally, facility operations are confined to locations with existing controls including pavement, gravel, or vegetative cover. These existing controls prevent workers from directly contacting surface or subsurface contamination. (Ref. 7). Thus, the potential for direct exposure to impacted surface/subsurface soil for on-site workers (e.g., Hercules employees) is not being considered a potentially complete exposure pathway at this time.

However, given that there is contamination in place in soil above NJ NRDCSCC and remedial activities are ongoing, the potential for direct exposure to impacted surface/subsurface soil is being considered a potentially complete pathway for an on-site remedial worker at this time (e.g., construction workers).

The site is almost entirely surrounded by a chain-link fence that precludes other receptors (e.g., trespassers) from exposure to soil contamination in on-site areas. However, four AOCs are located either completely outside of the fenced-in area (Neutralization Sludge Landfills and Iron Oxide Lagoon 13A) or partially outside of the fenced-in area (Neutralization Sludge Lagoons; Lagoon 8C is located outside of the fence, while Lagoons 8A and 8B are fenced in, and the Former Parlon Vent Stack). It should be noted that no further action was recommended for the Neutralization Sludge Landfills AOC in the Site-Wide Phase II RFI Report; however, this report has not yet been approved by NJDEP (Ref. 4). No constituents were detected above NJ NRDCSCC in subsurface/surface soil at this AOC. Surface/subsurface soil contamination at the Iron Oxide Lagoon 13A and Neutralization Sludge Lagoon 8C consists of metals detected in soil and sludge above NJ NRDCSCC. At Iron Oxide Lagoon 13A, arsenic was detected in soil at 38 mg/kg (NJ NRDCSCC = 20 mg/kg), and beryllium was detected in soil at 12.6 mg/kg (NJ NRDCSCC = 2 mg/kg). Similarly, lead was detected in sludge above NJ NRDCSCC at Neutralization Sludge Lagoon 8C (1,030 mg/kg; NJ NRDCSCC = 600 mg/kg). At the Parlon Vent Stack area, it should

be noted that carbon tetrachloride impacts were detected in the soil surrounding the Former Parlon Vent Stack and associated feed pipeline. Given that these four areas are located outside of the perimeter fence, direct contact to impacted surface/subsurface soil is being considered a potentially complete exposure pathway for trespassers at this time. (Refs. 7 and 9).

References:

1. Groundwater Interim Remedial Measures Report. Prepared by Dames & Moore. Dated March 15, 1994.
2. Letter to Paul Harvey, NJDEP, from Frank McLaughlin, NJDEP. Re: 1997 Fourth Quarter Groundwater Monitoring/Annual Summary Report (5/5/98) and 1998 First Quarter Groundwater Monitoring Report (7/29/97). Dated August 18, 1998.
3. Letter from Karl R. Vetter, Dames & Moore, to Paul Harvey, NJDEP. Re: Bimonthly Sayreville Well Field Sampling Program. Dated April 13, 2000.
4. Draft Site-Wide Phase II RCRA Facility Investigation Report. Prepared by URS. Dated April 15, 2002.
5. E-mail correspondence from Clifford Ng, USEPA, to Kristin McKenney, Booz Allen Hamilton. Re: Hercules (Parlin, NJ). Dated March 1, 2004.
6. 2003 Fourth Quarter (December) Site-Wide Groundwater Monitoring Report. Prepared by Roux Associates, Inc. Dated March 31, 2004.
7. Letter to Clifford Ng, EPA, from Karl Vetter, Roux Associates. Re: Environmental Indicator Status Information, Hercules, Inc., Parlin, NJ. Dated August 23, 2004.
8. Letter to Clifford Ng, EPA, from Karl Vetter, Roux Associates. Re: Environmental Indicator Status Information, Landfill Closure and Post-closure Monitoring, Hercules, Inc., Parlin, NJ. Dated August 24, 2004.
9. Letter to Clifford Ng, EPA, from Karl Vetter, Roux Associates. Re: Environmental Indicator Status Information, Areas of Concern, Hercules, Inc., Parlin, NJ. Dated August 24, 2004.

4. Can the exposures from any of the complete pathways identified in #3 be reasonably expected to be significant[4] (i.e., potentially "unacceptable") because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks?

__X__ If no (exposures cannot be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) - skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

____ If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) - continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

____ If unknown (for any complete pathway) - skip to #6 and enter "IN" status code.

Rationale:

Groundwater

As discussed in response to Question 3, the potential for on-site remedial workers to come in direct contact with contaminated shallow groundwater is being considered a potentially complete exposure pathway at this time.

However, any exposures that may occur for on-site remedial workers to impacted groundwater at the site are not expected to be significant. Remedial workers are assumed to wear personal protective equipment (PPE) and adhere to strict OSHA guidelines. Thus, direct exposures to on-site contaminated groundwater for construction (e.g., remedial) workers conducting remedial activities are not expected to pose a significant risk. (Ref.. 7)

The TBA plume extends beyond Hercules's property boundary and could present exposure issue to off-site construction workers (who are not supervised by Hercules). However, the groundwater investigations confirmed the presence of TBA in the lower portion of the aquifer (on average, 50 to 70 feet below grade), but not in the upper portion of the aquifer. Thus, direct exposures to off-site TBA contaminated groundwater by construction (remedial) workers are not expected to pose a significant risk, because

[4] If there is any question on whether the identified exposures are "significant" (i.e., potentially "unacceptable") consult a Human Health Risk Assessment specialist with appropriate education, training, and experience.

construction activities at such depths are infrequent. (Ref. 7)

Surface/Subsurface Soil

As discussed in response to Question 3, the potential for on-site remedial workers to come in direct contact with contaminated surface/subsurface soil is being considered a potentially complete exposure pathway at this time.

However, any exposures that may occur for on-site remedial workers to impacted soil at the site are not expected to be significant. Remedial workers are assumed to wear PPE and adhere to strict OSHA guidelines. Thus, direct exposures to on-site contaminated surface or subsurface soil for construction (e.g., remedial) workers conducting remedial activities are not expected to pose a significant risk at this time. (Ref. 7)

As discussed in response to Question 3, the potential for trespassers to come in direct contact with contaminated surface/subsurface soil on Hercules property outside the perimeter fence is being considered a potentially complete exposure pathway at this time. However, exposures are not expected to pose a significant risk because the four areas with soil impacts have access barriers that would preclude significant direct contact. These units can only be accessed through the Hercules plant through locked gates. Once outside the fenced portion of the Hercules plant, these units can only be accessed via dirt roads using four-wheel drive vehicles. These units are approximately 2,000 to 3,000 feet from the nearest public access roadways. Land owned by the Borough of Sayreville (Well Field) and the Red Oak Cogeneration Facility is present between Hercules property and the public access roadways closest to these units. Therefore, these units can only be accessed on foot by trespassing through limited access land. (Ref. 7)

The accessibility of the Neutralization Sludge Landfills AOC is limited, as the waste content has been stabilized (Ref. 5), a soil/clay cap covers the landfills (Ref. 5), and a vegetative cover has been established (Ref. 5). Additionally, although some metals may be present above NJ RDCSCC, no constituents were detected above NJ NRDCSCC at this AOC. USEPA conducted a site visit and determined that Iron Oxide Lagoon 13A is difficult to access and has a vegetative cover. It should be noted that this unit consists of iron sludge removed from the Hercules Parlin plant water treatment plants and, therefore, contains naturally occurring iron and other metals such as antimony, arsenic, and beryllium. USEPA also determined that Neutralization Sludge Lagoon 8C is not really discernible and is isolated. It should be noted that lead impacts were detected in the soil beneath this unit. The impacts were found at a depth greater than 1 foot below the surface. The metal contamination in soil at these two areas is not accessible to trespassers due to access barriers and vegetative cover. Given the isolated nature of this units, there should be no human receptor pathway issues regarding this unit. Thus, direct exposures to contaminated surface/subsurface soil are not expected to pose a significant risk for trespassers at current conditions. (Refs. 7 and 9)

References:

1. Groundwater Interim Remedial Measures Report. Prepared by Dames & Moore. Dated March 15, 1994.

2. Letter to Paul Harvey, NJDEP, from Frank McLaughlin, NJDEP. Re: 1997 Fourth Quarter Groundwater Monitoring/Annual Summary Report (5/5/98) and 1998 First Quarter Groundwater Monitoring Report (7/29/97). Dated August 18, 1998.
3. Letter from Karl R. Vetter, Dames & Moore, to Paul Harvey, NJDEP. Re: Bimonthly Sayreville Well Field Sampling Program. Dated April 13, 2000.
4. Draft Site-Wide Phase II RCRA Facility Investigation Report. Prepared by URS. Dated April 15, 2002.
5. E-mail correspondence from Clifford Ng, USEPA, to Kristin McKenney, Booz Allen Hamilton. Re: Hercules (Parlin, NJ). Dated March 1, 2004.
6. 2003 Fourth Quarter (December) Site-Wide Groundwater Monitoring Report. Prepared by Roux Associates, Inc. Dated March 31, 2004.
7. Letter to Clifford Ng, EPA, from Karl Vetter, Roux Associates. Re: Environmental Indicator Status Information, Hercules, Inc., Parlin, NJ. Dated August 23, 2004.
8. Letter to Clifford Ng, EPA, from Karl Vetter, Roux Associates. Re: Environmental Indicator Status Information, Landfill Closure and Post-closure Monitoring, Hercules, Inc., Parlin, NJ. Dated August 24, 2004.
9. Letter to Clifford Ng, EPA, from Karl Vetter, Roux Associates. Re: Environmental Indicator Status Information, Areas of Concern, Hercules, Inc., Parlin, NJ. Dated August 24, 2004.

5. Can the "significant" exposures (identified in #4) be shown to be within acceptable limits?

____ If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

____ If no (there are current exposures that can be reasonably expected to be "unacceptable") - continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure.

____ If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code.

Rationale:

This question is not applicable. See response to Question 4.

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

_X_ YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control"at the Hercules Incorporated Parlin Plant, EPA ID# NJD002521961, located at 50 South Minisink Avenue, Parlin, Middlesex County, New Jersey, under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

____ NO - "Current Human Exposures" are NOT "Under Control."

___ IN - More information is needed to make a determination.

Completed by: _____ Date:_____

Clifford Ng, RPM
RCRA Programs Branch
EPA Region 2

Reviewed by: _____ Date:_____

Barry Tornick, Section Chief
RCRA Programs Branch
EPA Region 2

Approved by: _____ Date:_____

Adolph Everett, P.E., Chief
RCRA Programs Branch
EPA Region 2

Locations where references may be found:

References reviewed to prepare this EI determination are identified after each response. Reference materials are available at the USEPA Region 2, RCRA Records Center, located at 290 Broadway, 15th Floor, New York, New York, and the New Jersey Department of Environmental Protection Office, located at 401 East State Street, Records Center, 6th Floor, Trenton, New Jersey.

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FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.

Attachments

The following attachments have been provided to support this EI determination.

- Attachment 1 – Summary of AOC Status at the Hercules Parlin Plant Site
- Attachment 2 – COCs in Surface/Subsurface Soil that Exceed NJ NRDCSCC by AOI
- Attachment 3 – Summary of Media Impacts Table
- Attachment 4 – Landfill Post-closure Monitoring Trends