DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

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

Facility Name: **Unilever Bestfoods (former Brodson Properties, Inc.)**
Facility Address: **24 Taylortown Road, Morris County, Montville, New Jersey**
Facility EPA ID#: **NJD000692327**

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 Act Information (RCRAInfo) national database ONLY as long as they remain true (i.e., RCRAInfo status codes must be changed when the regulatory authorities become aware of contrary information).

Facility Information

The Brodson Properties, Inc. (Brodson) facility occupies approximately 27 acres in the Town of Montville, Morris County, New Jersey. Brodson is a wholly owned real estate subsidiary of Bestfoods. Properties located to the north and east of the facility are primarily residential. Properties to the south have commercial, municipal, and residential uses, and those located to the southeast are largely

undeveloped. The site is bisected into eastern and western sections by Taylortown Road. Crooked Brook runs along the southern extent of the eastern portion of the site. Most areas of the site are wooded, although the central third of the property, which was formerly used for manufacturing and warehousing, is dominated by bushes and grasses. Wetlands are also evident in this part of the property.

Textile mills were operational at the site from the 1880s until 1945, when Penick Corporation purchased the property. From 1945 to 1978, Penick Corporation manufactured pharmaceuticals, intermediaries, and botanicals. The manufacturing processes consisted of extraction, distillation, and chemical synthesis. Wastes generated at the facility were disposed in on-site waste lagoons and settling tanks, or buried in drums. Several of the facility's buildings were also used in later years for the storage of products that were manufactured at other Penick Corporation facilities. In 1978 all manufacturing operations were terminated, and in 1983 ownership was transferred to Brodson. Since 1985, the facility has been dormant with the exception of environmental remedial activities and rehabilitation of the dams that formally impounded the property's two reservoirs. All buildings and remaining structures were razed by 1985.

The New Jersey Department of Environmental Protection (NJDEP) issued an Administrative Consent Order (ACO) for the site in January 1992. The site is currently undergoing remediation under the NJDEP Site Remediation Program and is in the RCRA Facility Investigation (RFI) phase. Remedial actions began in 1974 when 139 drums were removed from the Drum Storage Area. A Phase I Remedial Investigation (RI) was conducted in 1992, a Phase II RI was performed in 1993, and a Phase III RI was performed in 1995. In February 1998, NJDEP requested that EPA Region 2 change the status of the site from medium to high priority because: (1) groundwater contaminant concentrations in many of the bedrock wells exceeded New Jersey Groundwater Quality Criteria (GWQC) for a Class II-A aquifer and have been showing increasing trends; (2) some of the properties adjacent to the site have potable wells; and (3) contaminant seeps along the banks of Crooked Brook may be impacting the ecological environment. Phase IV RI activities began in 2000, with the Phase IV RI Report submitted in February 2002. Additional investigations, including a Phase V RI, are currently ongoing.

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 Areas of Environmental Concern (AECs):

Based on a review of former site operations, the Phase I RI identified seven AECs at the site (Ref. 1). An additional buried drum area was investigated as part of the Phase II RI (Ref. 1). An investigation of historic fill and non-historic fill areas was conducted during the Phase IV RI (Ref. 3). Descriptions of these areas and a brief description of the identified impacts are outlined below. A map depicting all AECs is included in the Phase IV RI Report, Drawing No. 2 (Ref. 3) and is included as Attachment 1.

AEC 1. Former Lagoon Area: This area is located east of Taylortown Road in the west-central portion of the site. The lagoon began operations in 1954 and was closed and backfilled sometime between 1967 and 1970. Previous investigations have indicated that the soil used to backfill the lagoon was contaminated with several constituents, including benzene and hexavalent chromium. Historic soil sampling results indicate the presence of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and pesticides above the New Jersey Non-Residential Direct Contact Soil Cleanup Criteria (NJ NRDCSCC) (Ref. 3). VOCs, SVOCs, alcohols, metals, and dichlorodiphenyldichloroethane (4,4-DDD) were detected in groundwater above New Jersey Ground Water Quality Criteria (NJ GWQC) or identified action levels during the most recent semi-annual groundwater monitoring event (September 2004) (Ref. 5). An in-situ bioremediation system employing biosparging was installed in October 2002 to address the presence of VOCs and SVOCs in soil and groundwater in this area. Annual reports are being submitted to NJDEP to document the system's effectiveness (Ref. 6). In addition, the Phase V RI Work Plan (RIWP) proposes additional soil sampling and the installation of two additional monitoring wells to further delineate impacts in this area (Ref. 4).

AEC 2. Former Waste Water Settling Tank Area: This area, located north of Crooked Brook and just south of the Former Lagoon Area (AEC 1), consisted of a 4,000-gallon, vertical, underground steel wastewater settling tank, a former pump house, and associated underground pipes (Ref. 2). An interim remedial action that removed the settling tank, all associated equipment, and 180 tons of contaminated soil, was completed in 1994. Historic soil sampling results indicate the presence of VOCs, SVOCs, and metals above the NJ NRDCSCC (Ref. 3). VOCs, SVOCs, and isopropyl alcohol were detected above NJ GWQC or identified action levels during the most recent semi-annual monitoring event (September 2004) (Ref. 5). An in-situ bioremediation system employing biosparging was installed in October 2002 to address the presence of VOCs and SVOCs in soil and groundwater in this area. Annual reports are being submitted to NJDEP to document the system's effectiveness (Ref. 6). Groundwater monitoring will also continue in this area to document system effectiveness.

AEC 3. Former Underground Storage Tanks (USTs) - North of the Former Boiler House: Five USTs were located north of the facility's former boiler house. In 1987, these tanks were excavated and removed along with visibly contaminated soil. Soil sampling results in this area indicate the presence of SVOCs and lead above NJ NRDCSCC (Ref. 3). No groundwater sampling was conducted in this area during the recent semi-annual monitoring events (Ref. 5). However, the Phase V RIWP proposes additional soil sampling and the installation of three to six temporary and three permanent monitoring wells to further delineate impacts in this area (Ref. 4).

AEC 4. Former Drum Storage Area: This area is situated on the east side of the property and is bordered on the north by an old railroad bed, on the east by a tributary to Crooked Brook, and on the south by the Former Globe Facility. In 1974, 139 drums were removed from this area. In 1980, an additional 111 drums were removed from this area along with 200 tons of contaminated soil. An interim remedial action that removed several rusted drum carcasses was completed in 1994. Historic soil sampling results in this area indicate the presence of metals above NJ NRDCSCC (Ref. 3). Concentrations of benzene and t-butyl alcohol were detected in groundwater above NJ GWQC and identified actions levels in the most recent semi-annual monitoring event (September 2004) (Ref. 5). No additional RI activities are proposed in this area under the Phase V RIWP; however, semi-annual groundwater monitoring will continue in this area (Ref. 4).

AEC 5. North Basement of the Former Manufacturing Building: The North Basement is located within the northern wing of the facility's former manufacturing building. Remedial actions in this area in 1994 and 1995 included excavation and removal of asbestos and asbestos-containing materials, excavation and removal of soil contaminated with organic compounds and metals, and backfilling of the basement with clean fill. Soil excavations were limited in depth to maintain the structural integrity of the building's foundation. Post-excavation sampling results indicate that metals remain in soil in excess of NJ NRDCSCC (Ref. 3). The most recent semi-annual groundwater monitoring event (September 2004) reports no exceedances of NJ GWQC or identified action levels in this area (Ref. 5). No additional RI activities are proposed in this area under the Phase V RIWP; however, semi-annual groundwater monitoring will continue in this area (Ref. 4).

AEC 6. Former Globe and Columbia Print Works Facility: This area on the southeast portion of the property, encompassing approximately 1.7 acres, was the site of a textile mill that was destroyed by a fire in 1914. No manufacturing operations occurred subsequent to the fire. Metals are present in soil in excess of NJ NRDCSCC (Ref. 3). Historic documentation indicates that no contaminants exceed NJ GWQC in groundwater; this area is not included in the semi-annual groundwater monitoring program. The Phase V RIWP proposes additional soil sampling to further delineate impacts in this area (Ref. 4).

AEC 7. South Wing of the Former Manufacturing Building: This area is located in the southwest quadrant of the site. An oil-water separator and associated piping were removed from the area in September 1997. VOCs are the primary contaminants in soil and groundwater above the NJ NRDCSCC and NJ GWQC, respectively. Remedial actions included the excavation and off-site disposal of approximately 4,500 cubic yards of contaminated soil in 1998. Supplemental remedial activities included removal of below-grade piping and associated stained soil, removal of the quench tank, investigation of a suspected UST, and soil excavations. However, VOCs still remain in soil above NJ NRDCSCC (Ref. 3). Groundwater data from the most recent documented semi-annual monitoring event (September 2004) indicate VOCs, SVOCs, and

isopropyl alcohol above NJ GWQC and/or identified action levels (Ref. 5). The Phase V RIWP proposes additional soil sampling and the installation of six additional monitoring wells to further delineate impacts in this area. Additional geophysical studies are also proposed to better understand the hydrogeology in this area. Semi-annual groundwater monitoring will also continue (Ref. 4).

AEC 8. Former Buried Drum Area: This area, located between the Former Lagoon and Crooked Brook, was a RCRA regulated disposal area. Drums were excavated from this area in 1994. Historic soil sampling results indicate the presence of VOCs, SVOCs, and metals above NJ NRDCSCC (Ref. 3). Groundwater data from the most recent documented semi-annual monitoring event (September 2004) indicate VOCs, catechol, t-butyl alcohol, and arsenic above NJ GWQC or identified action levels (Ref. 5). That Phase V RIWP proposes additional soil sampling and the installation of six additional monitoring wells to further delineate impacts in this area (Ref. 4). Semi-annual groundwater monitoring will also continue.

AEC 9. Historical Fill: Historical fill material overlies approximately ten acres of the eastern portion of the site. The fill is highly variable in composition, but primarily consists of cinders and ash thought to have been generated from burning coal. It is up to 15 feet deep in some areas of the site. Metals and carcinogenic polycyclic aromatic hydrocarbons (cPAHs) appear to be the primary constituents of concern (COCs) detected throughout the fill material, although an investigation to fully characterize the historic fill has not occurred. Additional investigations were conducted during the Phase IV RI to determine fill thickness; however, no soil sampling was conducted and the Phase IV RI does not provide a summary of contaminant impacts in the historical fill (Ref. 3). No additional RI activities are proposed for this AEC in the Phase V RIWP (Ref. 4).

AEC 10. Miscellaneous Non-Historic Fill Areas: During the Phase IV RI, soil sampling was conducted in three areas previously designated as non-historic fill areas. These areas are located adjacent to the South Wing of the Former Manufacturing Building and to the south of the Former Drum Storage Area. During the Phase IV RI, soil samples were collected and SVOCs and arsenic were identified above NJ NRDCSCC (Ref. 3). The Phase V RIWP proposes additional soil sampling to further delineate impacts in the non-historic fill areas (Ref. 4).

References:

1. Phase II Remedial Investigation Report for the Former Penick Corporation Site, Montville, New Jersey. Prepared by Langan Engineering and Environmental Services. Dated March 24, 1993.
2. Revised Phase IV Remedial Investigation Work Plan for the Former Penick Corporation Site, Montville, New Jersey (Revision 3). Prepared by Langan Engineering and Environmental Services. Dated June 2000.
3. Phase IV Remedial Investigation Report for the Former Penick Corporation Site, Montville, New Jersey. Prepared by Langan Engineering and Environmental Services. Dated February 2002.
4. Phase V Remedial Investigation Work Plan for the Former Penick Corporation Site, Montville, New Jersey. Prepared by Langan Engineering and Environmental Services. Dated May 28, 2004.
5. Groundwater Monitoring Report March and September 2004 Sampling Events. Former Penick Corporation Site, Montville, New Jersey. Prepared by Langan Engineering and Environmental Services. Dated January 2005.

6. In-Situ Biosparging Remedial System Annual Status Report (No. 2). Former Penick Corporation Site, Montville, New Jersey. Prepared by Langan Engineering and Environmental Services. Dated June 29, 2005.

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			VOCs, SVOCs, Alcohols, Metals
Air (indoors)[2]		X		
Surface Soil (e.g., <2 ft)	X			SVOCs, Metals
Surface Water		X		
Sediment	X			PAHs
Subsurface Soil (e.g., >2 ft)	X			VOCs, SVOCs, Pesticides, Metals
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

Groundwater at the site consists of three aquifers and a perched water zone. The perched water zone, which can potentially be considered the site's fourth aquifer, is contained in the unconsolidated fill material, and ranges in depth from one-half to three feet below ground surface (bgs). It is underlain by native clayey soil. Much of the perched water reaches Crooked Brook via seeps in the bank (Refs. 1, 3).

[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) suggest 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.

A layer of fine-grained alluvium underlies the fill and clay layers across the site. The alluvium is considered an aquifer despite a very low yield (0.25 to 2 gallons per minute). Depth to groundwater in this unit ranges from six inches to ten feet bgs. Groundwater flow in this aquifer has consistently been in the south-southeasterly direction toward Crooked Brook (Refs. 1, 3).

The remaining two aquifers include a glacial outwash aquifer and a bedrock (including weathered bedrock) aquifer. Hydraulic gradients indicate upward and downward components of flow between the aquifers. The direction of vertical flow varies month to month; however, the direction of horizontal flow has been very consistent. Specifically, the direction of groundwater flow in the upper glacial aquifer is to the south-southeast towards Crooked Brook, while the deeper glacial aquifer is to the east. The direction of groundwater flow in the bedrock aquifer is towards the east-southeast (Refs. 1, 3).

Pursuant to recommendations provided in the March 1993 RI Report (RIR), semi-annual groundwater monitoring was initiated in July 1993. The groundwater sampling program was modified in April 1999 to include quarterly post-remediation monitoring in the area of the South Wing of the Former Manufacturing Building (AEC 7). A map depicting the monitoring well locations can be found in the Groundwater Monitoring Report, March and September 2004 Sampling Events, Drawing No. 1 (Ref. 3).

Table 1 identifies those constituents with detected concentrations in excess of the NJ GWQC or identified action levels, by groundwater zone, from the most recent (September 2004) groundwater monitoring event (Ref. 3). As identified in Table 1, the primary constituents of concern are VOCs, SVOCs, alcohols, and metals.

Table 1. Contaminants Reported above NJ GWQC or Action Levels in September 2004 (µg/L)					
AEC	**Zone/ Aquifer**	**Contaminant**	**Max. Conc.**	**Well Locations above NJ GWQC or Action Level***	**NJ GWQC or Action Level[1]**
AEC 1. Former Lagoon Area	Perched	Benzene	520	MW-20S	1
		Catechol	960	MW-20S	100[2]
		Arsenic	20.5	MW-20S	8
	Alluvial	Benzene	190	MW-7, MW-31, MW-39S, **MW-40**	1
		Catechol	310	**MW-7**, MW-40	100[2]
		t-Butyl alcohol	820	**MW-7**, MW-39S	100[3]
		4,4-DDD	0.52	MW-39S	0.1
		Chromium	112	MW-7	100
	Glacial	Benzene	6,400	MW-7A, MW-20A, MW-39A, MW-40A, **MW-40T**, MW-41A, MW-42A	1
		TCE	2	MW-40A	1
		Catechol	1,200	MW-20A, MW-39A, MW-40A, MW-40T, **MW-41A**, MW-42A	100[2]
		Camphor	110	MW-41A	100[2]
		Salicylic acid	510	MW-41A, **MW-42A**	80[3]
		Ethanol	497	MW-39A, **MW-41A**	100[2]
		Arsenic	24.3	MW-20A, **MW-39A**, MW-41A, MW42A	8
		Chromium	852	MW-20A, MW-40T, MW-41A, **MW-42A**	100
AEC 2. Former Waste Water Settling Tank	Alluvial	Benzene	4,700	MW-23S	1
		Toluene	1,900	MW-23S	1,000
		Catechol	680	MW-23S	100[2]
		Camphor	190	MW-23S	100[2]
		Phenol	9,800	MW-23S	4,000
		Salicylic acid	5,400	MW-23S	80[3]
		Isopropyl alcohol	505	MW-23S	200[4]
	Glacial	Benzene	10	MW-23A	1
AEC 4. Former Drum Storage Area	Perched	t-Butyl alcohol	834	MW-21S	100[3]

Table 1 (continued). Contaminants Reported above NJ GWQC or Action Levels in September 2004 (µg/L)					
AEC	**Zone**	**Contaminant**	**Max. Conc.**	**Well Locations above NJ GWQC or Action Level***	**NJ GWQC or Action Level[1]**
AEC 7. South Wing of Former Manufacturing Building	Alluvial	Benzene	1,200	MW-3, MW-4, MW30, MW-36, **MW-37**	1
		Carbon tetrachloride	9.5	MW-37	2
		Chloroform	180	MW-37	6
		cis-1,2-Dichloroethene	12	MW-37	10
		Methylene chloride	9.8	MW-37	3
		Tetrachloroethene	14	MW-37	1
		Trichloroethene	2.6	MW-37	1
		Vinyl chloride	5.1	MW-37	5
		Catechol	1,100	MW-30	100[2]
		Camphor	210	MW-37	100[2]
		Salicylic acid	650	MW-37	80[3]
		Isopropyl alcohol	508	MW-4	200[4]
	Glacial	Acetone	8,000	MW-36A	700
		Benzene	5,800	MW-29A, MW-29A (Dup), MW-33A, **MW-36A**	1
		Methylene chloride	15	MW-36A	2
		Vinyl chloride	13	MW-36A	5
		Camphor	450	MW-36A	100[2]
		Isopropyl alcohol	22,700	MW-36A	200[4]
	Wht. Bedrock	Acetone	1,200,000	MW-4R	700
		Benzene	64,000	**MW-4R**, MW-38WR	1
		Toluene	4,300	MW-4R	1,000
		Catechol	57,000	MW-4R	100[2]
		Benzoic acid	120,000	MW-4R	30,000[3]
		Camphor	750	MW-4R	100[2]
		Phenol	28,000	MW-4R	4,000
		Isopropyl alcohol	2,030,000	MW-4R	200[4]
AEC 8. Former Buried Drum Area	Alluvial	Benzene	100	MW-26S, **MW-27S**	1
		Catechol	10	MW-27S	100[2]
		t-Butyl alcohol	527	MW-25S (Dup), **MW-26S**	100
		Arsenic	22.3	**MW-26S**, MW-27S	8
	Glacial	Benzene	22	MW-32A	1
		Vinyl chloride	10	MW-32A	5
		Catechol	190	MW-32A	100[2]
		Arsenic	20.7	MW-32A	8

* If a contaminant is present in multiple wells, the well with maximum detected concentration is **bolded**.

1 NJ GWQC is the higher of the Class II-A criteria or Practical Quantitation Level (PQL)
2 Synthetic organic chemical lacking evidence of carcinogenicity lacking specific or interim specific criteria
3 Higher of PQL and Interim Specific criteria determined based on N.J.A.C. 7:9-6
4 Higher of PQL and interim generic (non-carcinogenic compound) criteria.

During the 1992 RI, four off-site private domestic water supply wells were sampled to determine whether groundwater contamination had migrated off site. Contaminant concentrations did not exceed the NJ GWQC; however, methylene chloride was detected in excess of the federal Maximum Contaminant Level (MCL) at one well located immediately south of the site at 4 Taylortown Road. Resampling of the privately owned supply well was proposed in both the Phase IV and Phase V RI, contingent on gaining access to the property. However, the property owner has not cooperated with the requests to gain access to the property; thus, this resampling has not yet been conducted (Refs. 1, 2).

Air (Indoors)

Despite the presence of VOCs in the perched zone, alluvium, and upper glacial units beneath the site, all buildings at the site have been demolished and the facility is currently inactive. Thus, there is no concern for migration of VOCs from shallow groundwater into indoor air at the site. In addition, groundwater in the perched zone, alluvium, and upper glacial units discharges to Crooked Brook, and does not migrate to downgradient, off-site locations (Refs. 1, 3). Given that the deeper glacial and bedrock units do not discharge to Crooked Brook, there is a potential that contamination in groundwater could migrate to off-site downgradient locations. However, according to EPA's 2002 Draft Guidance, "Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soil", when assessing potential migration of volatiles in groundwater into indoor air, one must assess the VOC concentrations in the uppermost portions of groundwater (e.g., the uppermost unit). Thus, it is unlikely that any VOC contamination in lower aquifers (e.g., deeper glacial and/or bedrock), regardless of depth, would volatilize into overlying structures, given the potential presence of up to two shallower aquifers above. Thus, there is no concern for VOCs detected in shallow groundwater to migrate into off-site, downgradient structures.

Surface/Subsurface Soil

The site is predominantly covered with fill material consisting of ash and cinders. PAHs have been detected throughout the site and have been attributed to the presence of the fill material. Brodson has conducted soil sampling activities in various areas of the site during each of the four RIs (Phase I RI - 1992, Phase II RI - 1993, Phase III RI - 1995, Phase IV RI - 2000). Table 2 presents all contaminants detected above the NJ NRDCSCC in surface (zero to two feet bgs) and subsurface (greater than two feet bgs) soil in each AEC during past sampling events and the associated maximum detected concentration (Ref. 1).

Table 2. Contaminants Present in Soil above the NJ NRDCSCC (milligrams per kilogram [mg/kg])				
AEC	**Contaminant**	**Maximum Concentration**		**NJ NRDCSCC**
		Surface Soil	**Subsurface Soil**	
AEC 1. Former Lagoon Area.	Benzene	-	480	13
	PCE	-	15	6
	Benzo(a)pyrene	2.1	3	0.66
	Benzo(b)fluoranthene	-	5.1	4
	Chromium IV	328	1,690	20
	DDD	-	170	12
	DDT	-	27	9
AEC 2. Former Waste Water Settling Tank Area	Benzene	-	120	13
	Benzo(a)anthracene	-	8.4	4
	Benzo(b)fluoranthene	-	10	4
	Benzo(a)pyrene	-	7.0	0.66
	Dibenzo(a,h)anthracene	-	1.0	0.66
	Arsenic	-	26.9	20
	Copper	-	7,980	600
	Lead	-	960	600
AEC 3. Former UST Area	Benzo(a)anthracene	-	8.4	4
	Benzo(b)fluoranthene	-	10	4
	Benzo(a)pyrene	-	7	0.66
	Dibenzo(a,h)anthracene	-	1 J	0.66
	Lead	-	850	600
AEC 4. Former Drum Storage Area	Antimony	421	-	340
	Arsenic	26.5	-	20
	Copper	1,060	-	600
	Lead	3,760	-	600
AEC 5. North Basement of Former Manufacturing Building	Arsenic	126	-	20
	Copper	2,420	-	600
	Lead	3,760	-	600
	Thallium	5.8	-	2
	Zinc	2,850	-	1,500
AEC 6. Former Globe and Columbia Print Works Facility	Antimony	3,510	-	34
	Arsenic	221	-	20
	Beryllium	5.1	9.9	2
	Chromium IV	771	-	20
	Copper	56,200	22,200	600
	Lead	167,000	79,700	600
	Zinc	49,400	190,000	1,500
AEC 7. South Wing of Former Manufacturing Building	Benzene	-	340	13
	Chloroform	-	38	28
	PCE	-	16	6
AEC 8. Former Buried Drum Area	Benzene	-	69	13
	PCE	-	13	6
	Benzo(b)fluoranthene	-	8.1	4
	Benzo(a)pyrene	2.4	5	0.66
	Dibenzo(a,h)anthracene	-	0.82 J	0.66
	Arsenic	-	40.6	20
	Chromium IV	116	262	20
AEC 10. Miscellaneous Non-Historic Fill Areas	Benzo(a)anthracene	33	-	4
	Benzo(a)pyrene	25	-	0.66
	Benzo(b)fluoranthene	32	-	4

Source: Ref. 1
J = Estimated concentration.
- Contaminant either not detected or detected below the NJ NRDCSCC.

Surface Water/Sediment

Crooked Brook bisects the western portion of the property and is close to the southern property boundary on the eastern side of the property. Crooked Brook flows in an easterly direction by the site. Several unnamed tributaries flow into Crooked Brook in the vicinity of the site. Most significantly, Tributary 4 runs along the western boundary, meeting Crooked Brook at the southwestern corner of the site. In July 2005, 32 surface water and 32 sediment samples were collected in various locations near the site (i.e., Crooked Brook upstream, Crooked Brook downstream, Crooked Brook along site, and Tributary 4). Refer to Figure 1 in the September 27, 2005 letter from Langan Engineering to EPA Region 2 for a map depicting the surface water and sediment sample locations (Ref. 4). Sample results indicated that no VOCs, pesticides, metals, alcohols, or pharmaceutical compounds exceeded the relevant New Jersey Surface Water Quality Criteria (NJ SWQC) for freshwater non-trout (FW-NT2) waterways, or the New Jersey Residential Direct Contact Soil Cleanup Criteria (NJ RDCSCC) (Ref. 4). However, several PAHs were detected in surface water and sediment sample locations above NJ SWQC and NJ RDCSCC. Table 3 presents the contaminants reported in surface water, the corresponding NJ SWQC, and the sample locations where contaminants were detected above the NJ SWQC. In addition, the PQLs have been provided, given that the PQLs for all contaminants detected are higher than the corresponding NJ SWQC. Based upon an EPA discussion with NJDEP, the relevant SWQC are the higher of the NJ SWQC or the PQL, given that the PQL (similar to the method detection limit) is the "lowest concentration of a constituent that can be reliably achieved among laboratories within specified limits of precision and accuracy during routine laboratory conditions" (N.J. A.C. 7:9-6).

Table 3. Contaminant Concentrations Reported in Surface Water Samples (July 2005) above the NJ SWQC (µg/L)

Contaminant	Concentration	Sample Locations	NJ SWQC	PQL
Benzo(a)anthracene	0.024J – 0.057 J	SW-25, SW-26, SW-16, SW-27, SW-18, SW-05, SW-28, SW-7C, SW-7B, SW-7A, SW-37, SW-8, SW-52, SW-38, SW-11, SW-14A, SW-14C	0.0028	0.2
Benzo(b)fluoranthene	0.056 J	SW-27	0.0028	0.2
Chrysene	0.049 J	SW-27	0.0028	0.2

Source: Ref. 4

Based upon the information presented in Table 3, no contaminants are reported above the PQL; all constituents are reported as estimated concentrations, and are reported and below the PQL. Thus, no contaminants are reported in surface water above relevant SWQC.

Table 4 presents the contaminant concentrations detected in sediment, corresponding sample locations, and relevant screening criteria.

Table 4. Contaminant Concentrations Reported in Sediment Samples (July 2005) above the NJ RDCSCC (mg/kg)			
Contaminant	**Sample Location**	**Concentration**	**NJ RDCSCC**
Benzo(a)pyrene	SED-28	0.72	0.66
Benzo(a)anthracene	SED-47	2.8	0.9
Benzo(a)pyrene		2.4	0.66
Benzo(b)fluoranthene		3.3	0.9
Benzo(k)fluoranthene		1.1	0.9
Benzo(a)anthracene	SED-50	1.5	0.9
Benzo(a)pyrene		1.2	0.66
Benzo(b)fluoranthene		1.6	0.9
Benzo(a)anthracene	SED-14A	1.0	0.9
Benzo(a)pyrene		0.89	0.66
Benzo(b)fluoranthene		1.1	0.9

Source: Ref. 4

PAHs are not included in the semi-annual groundwater monitoring target analyte list, and are not identified as COCs in groundwater. However, PAHs have been reported in soil above NJ NRDCSCC at some AECs. Thus, it is possible that the elevated concentrations of PAHs in sediment may be a result of overland surface water runoff of impacted particulates. It should be noted that Brodson has consistently attributed PAHs in soil to the historical fill that was brought in to cover a majority of the site, and not from releases at the site associated with SWMUs, AOCs, and/or regulated units. In addition, based upon a review of the sediment impacts, the highest reported PAH concentrations are actually reported upstream (SED-47) of former AEC locations in that vicinity of the site (e.g., AEC 6, AEC 8). Thus, it is possible that detection of PAHs in sediment and surface water are associated with historic fill and/or background contamination; however, NJDEP has not yet supported this theory. Therefore, the PAH detections in sediment above the NJ RDCSCC will be evaluated further in this EI determination as releases associated with past RCRA-regulated activities at the site.

Air (Outdoors)

No assessment of constituents in outdoor air has been conducted at the site. However, limited migration of contaminants bound to airborne particulate matter is expected, because the majority of the contaminated portions of the site are covered by vegetation and asphalt, thereby limiting wind erosion (Ref. 4). It is also unlikely that contaminants detected in groundwater would be present at significant levels in outdoor air because of the natural mixing that occurs when volatile constituents migrate from groundwater to outdoor air. Thus, VOC migration from groundwater, volatile emissions, and/or the migration of contaminated particulates is not expected to be a significant exposure pathway at the site.

References:

1. Phase IV Remedial Investigation Report for the Former Penick Corporation Site, Montville, New Jersey. Prepared by Langan Engineering and Environmental Services. Dated February 2002.

2. Phase V Remedial Investigation Work Plan for the Former Penick Corporation Site, Montville, New Jersey. Prepared by Langan Engineering and Environmental Services. Dated May 28, 2004.
3. Groundwater Monitoring Report March and September 2004 Sampling Events. Former Penick Corporation Site, Montville, New Jersey. Prepared by Langan Engineering and Environmental Services. Dated January 2005.
4. Letter from Stephen Ciambruschini, P.G., Langan Engineering and Environmental Services, to Shane Nelson, USEPA Region 2, re: Response to September 21, 2005 (dated March 17, 2004) Letter. Dated September 27, 2005.

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	No	Yes	No	No	No
Surface Water			–	–			
Sediment	No	No	–	–	Yes	Yes	No
Subsurface Soil (e.g., > 2 ft)	–	–	–	Yes	–	–	No
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 facility has been inactive since 1985, when all remaining buildings and structures were razed (Ref. 3). Thus, groundwater is not used on site for any purpose. On-site construction (i.e., remedial) workers may be exposed to contaminants in shallow groundwater (e.g., perched and alluvial units) via incidental ingestion, inhalation, and dermal contact if intrusive activities (e.g., soil excavation) are performed.

Off-site exposure to contaminated groundwater may be a concern at this site. According to the Phase IV RI Report (Ref. 3) and the most recently documented semi-annual groundwater monitoring report (Ref. 4), groundwater in the perched, alluvial, and upper glacial zones discharge to Crooked Brook and are not migrating off site. However, groundwater in the lower glacial and the bedrock zones do not discharge to the brook, and thus could migrate off site to downgradient properties. As mentioned in response to Question No. 2, four off-site private domestic water supply wells were sampled during the 1992 RI to determine whether groundwater contamination had migrated off site. Contaminant concentrations did not exceed the NJ GWQC. One well located immediately south of the site at 4 Taylortown Road showed detections of methylene chloride (0.014 µg/L) and acetone (0.037 µg/L) below the NJ GWQC of 2 µg/L and 700 µg/L, respectively. However, this methylene chloride detection exceeded the Federal MCL of 0.005 µg/L (there is no Federal MCL for acetone) (Ref. 1).

The Phase IV and V RIWPs included proposals to resample this well. However, it should be noted that the Brodson representatives had made numerous attempts to contact the owner of this well to obtain permission to perform additional sampling, but no response has been received (Ref. 2). Additionally, it is unknown if contaminants detected in this well are related to the Brodson facility. Given that the location is a building used as a furniture making/refinishing shop, and acetone and methylene chloride are commonly found in products used in these activities, it is possible that these contaminants originated from activities at the site of the well. If Brodson is given access, and additional sampling demonstrates that these constituents are present, Brodson proposes to perform further investigations to determine the source of the contamination. However, at this time, EPA believes that sufficient attempts have been made to notify the facility of the potential concern and exposure. Thus, until Brodson is given access to sample this well, this pathway is being considered incomplete, due to the lack of cooperation by the adjacent property owner.

Brodson has proposed additional delineation of on-site groundwater, in the southern portion of the site, to determine if groundwater contamination extends to the property boundary. In addition, Brodson needs to conduct additional investigation in the deep glacial aquifer to assure that the extent of groundwater contamination has been defined. An updated well search should also be conducted.

Surface/Subsurface Soil

Surface soil and subsurface soil impacts have been identified above the NJ NRDCSCC within site boundaries. No off-site soil impacts have been documented. The site is secured by a six-foot chain-link fence along the east and west property boundaries along Taylortown Road and along the southwest portion of the site that is adjacent to the Montville Fire Department building parking lot. The fence continues along the southwest and northwest portions of the site. Access to the northern portion of the site is limited by railroad tracks, a steep incline, and dense vegetation. Access along the northeast and southeast portion of the site is limited by Crooked Brook and a steep incline. Dense vegetation is also present throughout a majority of the site (Ref. 5). Thus, off-site receptor (e.g., trespasser) access to

limited areas of impacted surface soil at the site is not expected to be a currently complete exposure pathway based upon current site conditions and access restrictions along site boundaries. As previously mentioned, the facility has been inactive since 1985; thus, there is no concern for on-site worker exposure to contamination. Remedial activities are ongoing; thus, the potential exists for on-site construction workers (e.g., remedial workers) to come in contact with impacted surface and subsurface soil while conducting remedial activities at the site.

Sediment

As discussed in response to Question No. 2, several PAHs have been detected in sediment at four sampling locations (SED-28, SED-47, SED-50, and SED-14A) above the NJ RDCSCC. One sample (SED-28) was collected in Crooked Brook along the southern section of the site, two samples (SED-47, SED-50) were collected in Tributary 4 along the eastern portion of the site, and the remaining sample (SED-14A) was collected in Crooked Brook in a downgradient, off-site location. Regardless, access to Crooked Brook in all on-site and off-site areas is not restricted. Given that residences are located in close proximity (e.g., along the eastern property boundary, near Tributary 4) of the impacted area, adolescent trespassers and recreational receptors (ages 7-18) could potentially become exposed to impacted sediment in Crooked Brook and Tributary 4. Children (ages 1-6) are not being considered a potential receptor of concern, because the thick vegetation and steep embankments that surround the surface water bodies make it unlikely that a small child would be able to access this area or would be taken to this area on a regular basis.

References:

1. Letter to Montville Health Department from NJDEP, re: Private Potable Well Water Analyses in the Vicinity of the former Penick Corporation Site, Montville Township, Morris County. Dated January 12, 1993.
2. Revised Phase IV Remedial Investigation Work Plan for the Former Penick Corporation Site, Montville, New Jersey (Revision 3). Prepared by Langan Engineering and Environmental Services. Dated June 2000.
3. Phase IV Remedial Investigation Report for the Former Penick Corporation Site, Montville, New Jersey. Prepared by Langan Engineering and Environmental Services. Dated February 2002.
4. Groundwater Monitoring Report March and September 2004 Sampling Events. Former Penick Corporation Site, Montville, New Jersey. Prepared by Langan Engineering and Environmental Services. Dated January 2005.
5. Letter from Stephen Ciambruschini, P.G., Langan Engineering and Environmental Services, to Shane Nelson, USEPA Region 2, re: Response to September 21, 2005 (dated March 17, 2004) Letter. Dated September 27, 2005.

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 mentioned in the response to Question No. 3, on-site construction worker exposure to impacted groundwater is currently considered a potentially complete exposure pathway. While construction workers (remedial workers) are present on site, potential exposures to contaminated groundwater are not expected be significant because construction workers are expected to follow Occupational Safety and Health Administration (OSHA) guidelines and use the appropriate personal protective equipment (PPE) to minimize exposures to impacted groundwater.

Surface/Subsurface Soil

As mentioned in the response to Question No. 3, on-site construction worker exposure to impacted surface and/or subsurface soil is currently considered a potentially complete exposure pathway. However, on-site construction workers (remedial workers) are not expected to experience significant exposure to on-site soil contamination, as they are expected to follow OSHA guidelines and use the appropriate PPE to minimize exposures to impacted surface and subsurface soil.

Sediment

[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.

As mentioned in the response to Question No. 3, trespasser and recreator exposure to impacted sediment is currently considered a potentially complete exposure pathway. However, exposure to both of these receptor populations is not expected to be significant. First, only four out of 32 sediment samples reported PAH impacts above the NJ RDCSCC. The reported concentrations only slightly exceed the relevant NJ RDCSCC. Specifically, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and benzo(k)fluoranthene slightly exceeded (e.g., 3.1, 3.6, 3.6, and 1.2 times, respectively) their corresponding screening criterion. Second, the NJ RDCSCC are based upon conservative residential exposure parameters (e.g., exposure frequency = 365 days, exposure duration = 30 years). Adolescent trespasser and recreator exposure would be expected to be much more limited (e.g., exposure frequency = 60 days, exposure duration = 12 years). Third, the aesthetics of the Crooked Brook and associated tributaries are undesirable. The banks of the surface water bodies are steep and thickly vegetated, thus making access to the impacted sediment difficult. Therefore, based upon all current available information, any trespasser and/or recreator exposure to impacted sediment in Crooked Brook and Tributary 4 is not expected to be significant.

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.

This question is not applicable. See the 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 Brodson Properties, Inc. site, EPA ID# NJD000692327 located at 24 Taylortown Road, in Montville, 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:_____

Kristin McKenney
Risk Assessor
Booz Allen Hamilton

Reviewed by: _____ Date:_____

Kathy Rogovin
Senior Risk Assessor
Booz Allen Hamilton

Also Reviewed by: _____ Date:_____

Shane Nelson, RPM
RCRA Programs Branch
EPA Region 2

_____ Date:_____

Barry Tornick, Section Chief
RCRA Programs Branch
EPA Region 2

Approved by: Original signed by: Date: September 30, 2005

Adolph Everett, 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 EPA 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.

Contact telephone and e-mail numbers: Shane Nelson, EPA RPM
(212) 637-3130
nelson.shane@epa.gov

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 - Site Plan

- Attachment 2 – Summary of Media Impacts Table

Attachment 2 - Summary of Media Impacts Table

Brodson Properties, Inc.
24 Taylortown Road, Morris County, Montville, New Jersey
EPA ID#: NJD000692327

AEC	GW	AIR (Indoors)	SURF SOIL	SURF WATER	SED	SUB SURF SOIL	AIR (Outdoors)	CORRECTIVE ACTION MEASURE	KEY CONTAMINANTS
AEC 1. Former Lagoon Area	Yes	No	Yes	No	Yes*	Yes	No	▸ Closed and backfilled lagoon in late 1960s ▸ Installed in-situ bioremediation system in October 2002	▸ VOCs, SVOCs, alcohols, and metals in groundwater ▸ VOCs, SVOCs, metals, and pesticides in soil
AEC 2. Former Waste Water Settling Tank Area	Yes	No	No	No	Yes*	Yes	No	▸ Removed settling tank, associated equipment, 180 tons of contaminated soil in 1994 ▸ Installed in-situ bioremediation system in October 2002	▸ VOCs, SVOCs, isopropyl alcohol in groundwater ▸ VOCs, SVOCs, metals in soil
AEC 3. Former USTs - North of the Former Boiler House	No	No	No	No	Yes*	Yes	No	▸ Tanks and visibly contaminated soil removed in 1987	▸ SVOCs and metals in soil
AEC 4. Former Drum Storage Area	Yes	No	Yes	No	No	No	No	▸ 139 drums removed in 1974 ▸ 111 drums and 200 tons of contaminated soil removed in 1980 ▸ Removed several rusted drum carcasses in 1994	▸ Benzene and t-butyl alcohol in groundwater ▸ Metals in soil
AEC 5. North Basement of Former Manufacturing Building	No	No	Yes	No	No	No	No	▸ Excavated and removed asbestos and asbestos-containing materials and contaminated soil in 1994 and 1995. Backfilled basement area with clean fill.	▸ Metals in soil
AEC 6. Former Globe and Columbia Print Works Facility	No	No	Yes	No	No	Yes	No	▸ None documented	▸ Metals in soil

AEC	GW	AIR (Indoors)	SURF SOIL	SURF WATER	SED	SUB SURF SOIL	AIR (Outdoors)	CORRECTIVE ACTION MEASURE	KEY CONTAMINANTS
AEC 7. South Wing of Former Manufacturing Building	Yes	No	No	No	No	Yes	No	▸ Excavated and removed approximately 4,500 cubic yards of contaminated soil in 1998 ▸ Removed below-grade piping and associated stained soil, quench tank, and conducted several other soil removals	▸ VOCs, SVOCs, and alcohols in groundwater ▸ VOCs in soil
AEC 8. Former Buried Drum Area	Yes	No	Yes	No	Yes*	Yes	No	▸ Excavated and removed drums in 1994	▸ VOCs, SVOCs, alcohols, and metals in groundwater ▸ VOCs, SVOCs, and metals in soil
AEC 9. Historical Fill	No	No	Yes**	No	Yes*	Yes**	No	▸ None documented	▸ cPAHs and metals in soil**
AEC 10. Miscellaneous Non-Historic Fill Areas	No	No	Yes	No	Yes*	No	No	▸ None documented	▸ SVOCs and arsenic in soil

* PAHs have been detected in sediment; however, a source has not been specified. Brodson has argued that PAHs in soil at the site are due to the presence of historic fill. Thus, there is a potential that PAHs have migrated to surface water via overland surface water runoff. However, all AOCs with documented PAH soil impacts have been identified in Table 1 as possible sources of sediment impacts, given the lack of an identified source.

** Available documentation indicates that cPAHs and metals are present in historic fill. However, sampling data are not included in available documentation; thus, it is unclear whether these contaminants exceed the NJ NRDCSCC.