

## DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

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

**Facility Name: Clean Earth of North Jersey, Inc. (formerly S&W Waste, Inc.)**  
**Facility Address: 115 Jacobus Avenue, Kearny, New Jersey 07032**  
**Facility EPA ID#: NJD991291105**

#### **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 Clean Earth of North Jersey, Inc. (Clean Earth) facility, formerly known as S&W Waste, is located on approximately six acres of land in heavily industrialized Kearny, New Jersey. The facility is bordered to the north by property previously owned by Public Service Electric and Gas Co. (PSE&G), to the east by a Conrail right-of-way and Jacobus Avenue, to the south by an access road and the former Syncon Resins facility (now a Superfund site with known soil and groundwater contamination), and to the west by the Passaic River. Other properties in the area subject to environmental investigation include Koppers Coke, Monsanto Chemical Company, and AT&T Technologies/Western Electric. (S&W Waste changed its name to Clean Earth of North Jersey in 2001. For convenience, the facility name shall be referred to as SW/Clean Earth in the discussions below.)

The SW/Clean Earth site has been used for a variety of purposes throughout its operational history, including storage of construction equipment and material and marine salvage operations. Beginning in October 1984, and continuing to date under an active solid and hazardous waste permit from the New Jersey Department of Environmental Protection (NJDEP), the site has been used for hazardous waste treatment, storage, and transfer operations. The facility receives a variety of waste streams from off-site generators for treatment via waste blending, solvent reclamation, solidification and stabilization, container repackaging, and/or waste homogenization. Other wastes are staged on site without processing prior to transfer to off-site hazardous waste treatment, storage, or disposal facilities. Except for temporary staging of incoming hazardous waste transport vehicles, waste management operations at the SW/Clean Earth facility are conducted within paved and bermed areas to minimize the potential for environmental impacts.

Environmental investigation efforts were initiated at the SW/Clean Earth site in the early 1980s. Four monitoring wells were installed around the active waste management area in 1984 prior to its initiation of operation as part of the temporary permit application and an ongoing groundwater quality monitoring program. Preliminary Assessment (PA) activities were completed at six solid waste management units (SWMUs) in 1986, and a grid-based site-wide surface soil sampling program was conducted in 1989 and 1990. To further guide environmental investigation and any necessary corrective actions, NJDEP issued an Administrative Order on Consent to the SW/Clean Earth (then S&W Waste) facility in 1991. Remedial Investigation (RI) field activities were conducted at 11 areas of environmental concern (AECs) in 1992. Data from these investigations indicated a variety of organic and inorganic contaminants in soil and groundwater.

Rather than pursue further investigation and remedial action by SWMU or AEC, the SW/Clean Earth corrective action strategy focuses on site-wide media. Based on all available investigation and groundwater monitoring efforts, SW/Clean Earth and NJDEP determined that corrective actions were only required to address inorganic contamination in shallow groundwater. To minimize migration of contamination to groundwater, SW/Clean Earth removed and disposed of approximately 231 tons of lead-contaminated soil from two on-site locations. A low-permeability asphalt cap was also installed across the eastern portion of the site, and an improved stormwater run-on/run-off control system was implemented. A Declaration of Environmental Restrictions (DER) was filed with Hudson County to limit future use of the property to industrial or commercial activities and prevent disturbance of the asphalt cap and underlying soil. (Ref. 1) Finally, a two-year quarterly groundwater monitoring program was established to evaluate on-going contaminant concentration trends and to support establishment of a Classification Exception Area (CEA) for the portion of the aquifer where inorganic contamination exceeds applicable NJDEP Ground Water Quality Criteria (NJ GWQC). SW/Clean Earth has fulfilled

these requirement. A determination of the next action by NJ is pending. Human exposure to site contamination is under control.

**Reference:**

1. Remedial Action Report for S&W Waste. Prepared by Sadat Associates, Inc. Dated December 1997.

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?

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

**RCRA-Regulated Units**

Hazardous and nonhazardous wastes are stored in a variety of RCRA-regulated units at the SW/Clean Earth site. Regulated units presently in active use or proposed for the site include the Loading/Unloading Dock, Concrete Pad, and Box Trailer; Container Storage Areas A through L; a processing/storage building; a tanker storage area; a containment building; hazardous waste storage tanks; and solidification/stabilization areas. No investigation or corrective action requirements are specified for these units in the facility’s current hazardous waste operating permit (Ref. 4). There are no releases of hazardous constituents that warrants corrective action identified from these units.

**On-Site SWMUs and AECs**

As stated previously, environmental investigation efforts at the SW/Clean Earth site initially focused on six SWMUs and 11 AECs and are listed in Table 1 below. SWMUs 1, 2, 3, 4, and 6 are located within the area of the AECs investigated. (SWMU 5 is on the adjacent property to the north and is discuss below.) The SWMUs and AEC locations and other site features are shown on Attachment 1. (Refs. 2, 5).

**Table 1. Former SWMUs and AECs at the SW/Clean Earth Site**

SWMUs Identified During the PA (Ref. 1)	AECs Evaluated During the RI (Ref. 2)
SWMU 1, Wastewater Tank	Area A, Staging Areas for Incoming Hazardous Waste
SWMU 2, Fuel Blending Tank	Area B, Empty Rolloff Storage Area
SWMU 3, Drum Storage Area	Area C, Former Staging Area for Outgoing Bulk Waste Tankers
SWMU 4, Bulk Storage Area	Area D, Former Bulk Waste Storage Area
SWMU 5, Quality Control (QC) Area	Area E, Known Spill Area
SWMU 6, Solidification Pads	Area F, Stormwater Overflow Areas Near Entrance Gate
	Area G, Former Location of Underground Storage Tanks
	Area H, Stabilization Pad Area
	Area I, High Truck Traffic Area
	Area J, Former Bulk Waste Storage Area
	Area K, Stormwater Overflow Areas Between Maintenance Facility and Lab Pack Processing Area

Although these SWMU and AEC designations were used to guide initial investigation efforts, on-going on-site corrective actions and “no further action” decisions are being organized by media. For this reason, further discussion in this EI determination will primarily be outlined by media.

### **Off-Site Areas of Concern (AOCs)**

In 2000, two site-related AOCs were identified on the former PSE&G facility (property adjacent to and north of the SW/Clean Earth site) as a result of that facility's PA effort (Ref. 3). The PA was conducted by Melon Leasing Corporation, in accordance with a Remediation Agreement with NJDEP pursuant to the Industrial Site Recovery Act, N.J.S.A. 13:1K-6 et.seq., for the purchase of the property. PSE&G maintains a right-of-way for overhead electrical power lines. In addition, underground liquid petroleum pipelines and underground fiber optic lines are below this property.

The PA Report for the former PSE&G property identifies PSE&G AOC A, which consists of a 40' x 100' area on the former PSE&G property that was leased by S&W Waste between 1984 and 1989 for use as a QA dock and employee parking area. This area was "closed" by 1991, with waste removed and contaminated structures decontaminated or removed and the area was then lined with plastic and asphalt cap (Ref. 5). A parcel of this property is being leased by SW/Clean Earth for construction of a railroad spur to facilitate on-going hazardous waste operations. (Note: SWMU 5 is PSE&G AOC A.)

This report also identifies an area impacted by discharge of oily stormwater run-off flowing off-site through the main gate of the former S&W Waste property in September 1985 and pooling on the former PSE&G property (Ref. 3). This area has been designated as PSE&G AOC D and appears to overlap with the SW/Clean Earth AEC F.

Because they are being evaluated independently of on-site impacts, these two AOCs will also be discussed independently in this EI determination.

In summary, the on-site AECs and the off-site AOCs previously operated by SW/Clean Earth have been identified and delineated. All AECs at the SW/Clean Earth site with soil contamination are now paved with concrete or asphalt, except for AECs G and I. AEC I area consist of gravel and packed earth material and AEC G area consist of soil, but both AECs will eventually be paved with concrete or asphalt liner by the end of 2006, as site enhancement construction is implemented. The two AOCs on the adjacent former PSE&G property are paved with asphalt liner.

### **References:**

1. Preliminary Assessment for S&W Waste. Prepared by EPA. Dated June 19, 1986.
2. Final Remedial Investigation Report for S&W Waste. Prepared by Sadat Associates, Inc. Revised April 27, 1995.
3. Preliminary Assessment Report for PSE&G. Prepared by Sadat Associates, Inc. Dated May 22, 2000.
4. Hazardous Waste Facility Permit. Issued by NJDEP on June 30, 1998 and most recently modified on April 3, 2006.
5. Letter from Thomas Sherman, NJDEP, to Robert Fixter, S&W Waste, re: Closure Certification for Old Quality Control Dock. Dated September 9, 1991.

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be “**contaminated**”<sup>1</sup> 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			Antimony, arsenic, lead
Air (indoors) <sup>2</sup>		X		
Surface Soil (e.g., <2 ft) and Subsurface Soil (e.g., >2ft)	X			On Site: Lead, PCBs Off Site: Chlorinated dioxins/furans, hexachlorobenzene
Surface Water		X		
Sediment		X		
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**

##### *Hydrogeological Background*

Based on information obtained at the SW/Clean Earth site and nearby Monsanto and Syncon Resins sites, the native geology is characterized by four distinct strata associated with the Pleistocene and Recent Epochs (Ref. 1). In order of increasing depth, these strata include:

<sup>1</sup> “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).

<sup>2</sup> 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 silt and sand layer approximately 2.5 to 8 feet, intermingled with fill material, including cinders, glass, ceramic, brick, coal, gravel, wood, concrete, asphalt (Ref. 5);
- A highly plastic clay layer approximately 10 feet thick;
- A medium sand layer approximately 10 feet thick; and
- A deep silty clay and very fine sand layer.

The thickness of the deep clay layer beneath the site is believed to be underlain by the Brunswick shale at a depth of approximately 60 feet below ground surface (bgs). The upper portion of this shale bedrock has been extensively weathered, resulting in a network of fractures in the bedrock.

Three aquifers have been identified in the regional geologic sequence for the SW/Clean Earth facility area: a shallow water table aquifer encountered in the upper sand unit at approximately 3 to 4 feet bgs; a second aquifer in the medium sand layer; and a deep aquifer in the weathered portion of the Brunswick shale. The clay layer immediately underlying the upper sand unit and shallow aquifer is highly impermeable, with measured hydraulic conductivities ranging between  $1.85 \times 10^{-6}$  and  $5.21 \times 10^{-7}$  centimeters per second (cm/s) (Ref. 1). Furthermore, logs from on-site soil borings and wells suggest that this clay layer is continuous across the entire SW/Clean Earth site. Consequently, shallow groundwater is not believed to be hydraulically connected to deeper groundwater beneath the SW/Clean Earth facility. Based on the lack of a significant migration pathway, and dissimilar contamination between the shallow and deeper aquifers at nearby sites, NJDEP has determined that no further action is needed for the deeper aquifers beneath the SW/Clean Earth site (Ref. 5). Consequently, only the shallow aquifer will be considered further in this EI determination.

As shown on Figure 5-3 from the Final RI Report (Ref. 1), historic groundwater flow in the shallow aquifer predominantly moved from the northeast corner of the site to the west-southwest toward the Passaic River and the Syncon Resins site. A second component of groundwater flowed south toward the confluence of the Passaic and Hackensack Rivers. Flow velocity is slow at a rate of  $3 \times 10^{-5}$  cm/s, with a near horizontal gradient near the river (Ref. 1). Changes to this local groundwater flow regime were observed after an asphalt cap was placed over the eastern portion of the site and a stormwater collection system was installed in 1997. Collected stormwater discharges to a basin at the southern property boundary, and has resulted in development of a groundwater mound in the vicinity of wells SW-2R and SW-7. Shallow groundwater now flows from this high northwest along (but apparently not immediately into) the Passaic River, and northeast toward Jacobus Avenue. Relatively recent groundwater contours for the site are shown on the December 15, 2000, Groundwater Contour Map included with the May 2001 Groundwater Sampling Program Report (Ref. 7).

The region can also be characterized as historically marshland converted into land with fill material.

### *Groundwater Quality*

In 1984, under a temporary operating authorization and prior to beginning hazardous waste operations, S&W Waste installed four groundwater monitoring wells around the site (i.e., at the eastern, northern, and southern property boundaries, and west of the active waste management area). The wells, designated as SW-1 through SW-4, are approximately 11 feet deep and screened across the shallow aquifer. To monitor groundwater quality, samples were collected from these wells in 1984 and then again between 1992 and 1994 as part of the more comprehensive RI effort involving nine on-site monitoring wells and an up-gradient observation well (OW-1) north of the northeastern corner of the SW/Clean Earth site. Each sample was analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and inorganic constituents.

During the RI effort, six VOCs and five SVOCs were reported above their respective NJDEP Class II-A NJ GWQC in on-site shallow groundwater. Most of these constituents (four VOCs and all five SVOCs) were also detected in the up-gradient observation well. Although acetone and trichloroethene NJ GWQC exceedances were reported only on-site, these VOCs also appear to be unrelated to former site operations. Acetone may be attributable to laboratory contamination, and neither constituent was reported at significant concentrations in site soil during the RI (Ref. 1). Based on their locations with respect to the SW/Clean Earth site and their specific groundwater contamination profiles, numerous other sites in the area (listed in the facility information section above) have been identified as possible off-site sources for organic contamination in groundwater. With approval of the Final RI Report on July 22, 1996, NJDEP agreed with the facility's conclusion that organic contamination in SW/Clean Earth monitoring wells is attributable to regional groundwater quality in the South Kearny area (Refs. 1 and 5).

Metals contamination in shallow groundwater is the primary environmental concern at the SW/Clean Earth site. During the RI, a variety of metals were reported in the up-gradient observation well; however, higher concentrations of those same metals were reported in on-site monitoring wells. A comparison of on-site and off-site metals results is presented in Table 2 below; only those hazardous constituents which exceeded their applicable NJ GWQC are included in the table.

**Table 2. Maximum Metals Concentrations in On-Site and Off-Site Monitoring Wells During the RI (1992 through 1994)**

Constituent	NJ GWQC (µg/L)	On-Site Max. (µg/L)	Off-Site Max. (µg/L)
Antimony	6	84.9	38.6 B
Arsenic	3	368	11.2
Cadmium	4	37.1	ND
Chromium	70	87.1	ND
Lead	5	4,980	55
Mercury	2	7.3	ND
Nickel	100	197	ND

ND: Constituent not detected

µg/L: micrograms per liter

Source: Reference 1.

Because the detected metals contamination in shallow groundwater is believed to be associated primarily with leaching from historic fill in the area (Ref. 5), SW/Clean Earth and NJDEP decided to implement a corrective action strategy to minimize continued migration of contaminants from on-site soil to underlying groundwater. Between November 1996 and January 1997, a total of 231 tons of contaminated soil was excavated from two areas with the highest reported lead concentrations in surface and subsurface soil: east of Storage Pad C near the center of the site in the vicinity of soil boring SB-4, and near the water pillow at the northern edge of the site in the vicinity of soil boring SB-5 (Ref. 3). Figure 2 from the December 1997 Remedial Action Report (Ref. 5) shows the areal extent of this excavation effort, which was completed in December 1996. Although post-excavation soil samples indicated continued lead exceedances, the intent of the removal was not to eliminate direct contact risks, but rather to reduce the quantity of lead available for leaching to groundwater. With off-site disposal of the lead-contaminated hot spot soil, this second corrective action objective was achieved.

Once the soil excavation effort was complete, SW/Clean Earth placed a low-permeability asphalt cap over the eastern, active portion of the site (Ref. 5). The cap consisted of six inches of dense graded aggregate, 2.5 inches of pavement base, and 1.5 inches of surface course. Cap construction was completed on October 24, 1997. An improved surface water drainage system was also installed over the area at this time. This corrective action strategy was intended primarily to minimize infiltration of rain water and

surface water run-on, and thereby reduce migration of contaminants from on-site soil to underlying groundwater. However, the asphalt cap also serves to minimize direct contact risks associated with lead-contaminated historic fill remaining in place (as discussed further in the soil section below). (It should be noted that in the Summer 2006, SW/Clean Earth has been conducting site improvements and constructions on the site. A portion of the asphalt cap was removed in order to construct the new Rail Road Spur and Locker Room. Additional contaminated soils were excavated and disposed off-site and replaced with the foundations for the Rail Road Spur and Locker Room. As these and other construction projects are completed, SW/Clean Earth will revise the deed notice and submit a remedial action report that describes the new “cap” and how it will still prevent direct contact with the remaining contaminated soil.)

### *Groundwater Monitoring*

To monitor the effect of this corrective action program on shallow groundwater quality, SW/Clean Earth was also required to complete a two-year monitoring program. This program involved quarterly sampling of nine on-site wells (SW-1, SW-2R, SW-3, SW-4, SW-5, SW-6, SW-7, SW-8, and SW-9) and one historically upgradient, off-site well (OW-1) for lead. These wells are shown on Figure 5-3 from the Final RI Report (Ref. 1). The program also required annual sampling of these same wells for 11 metals, including aluminum, antimony, arsenic, cadmium, chromium, iron, lead, manganese, mercury, nickel, and sodium (Ref. 5). Monitoring was initiated in September 1997 and ended in September 1999, after three rounds of annual sampling and ten rounds of quarterly sampling. Data from these events are believed to be the most current groundwater monitoring data available for the SW/Clean Earth facility. The highest contaminant concentrations reported annually during the September 1997 to September 1999 sampling rounds are shown in Table 3. Again, only those hazardous constituents that exceeded their NJ GWQC are included.

**Table 3. Maximum Post-Remediation Groundwater Contaminant Concentrations (µg/L)**

Constituent	NJ GWQC	September 1997		September 1998		September 1999	
		On-Site	Off-Site	On-Site	Off-Site	On-Site	Off-Site
Antimony	6	ND	BS	78	ND	35	210
Arsenic	3	574	4	306	7	230	86
Lead	5	28	ND	21	ND	BS	43

ND: Constituent not detected

BS: Constituent detected at a concentration below the applicable NJ GWQC

Source: Reference 6.

As noted in the table, only three hazardous inorganic constituents were reported above their respective Class II-A NJ GWQC in shallow groundwater. The concentrations of both antimony and lead have been reported at a higher levels off-site than on site, so it is possible that the on-site detections may be attributable to regional groundwater quality. Nevertheless, on-site shallow groundwater concentrations of antimony, arsenic, and lead will be carried forward for further evaluation in this EI determination.

### **Air (Indoors)**

As discussed previously, organic constituents in shallow groundwater at the SW/Clean Earth site were attributed to off-site sources. For this reason, SW/Clean Earth was not required to monitor VOC concentrations in groundwater as part of the annual and quarterly monitoring program discussed above (Ref. 5). Furthermore, VOC concentrations reported in soil during the RI were minimal and did not approach risk-based standards for direct contact or potential impact to groundwater (Ref. 1). Because no site-related VOCs of concern have been identified, vapor intrusion does not appear to be a pathway of concern associated with the SW/Clean Earth site.

## **Surface/Subsurface Soil**

### *Inorganic Concentrations in On-Site Soil*

Surface soil samples collected during the RI reported levels of arsenic and lead above their respective New Jersey Non Residential Direct Contact Soil Cleanup Criteria (NJ NRDCSCC) (Ref. 1). Arsenic concentrations ranged from 1.1 to 22.8 parts per million (ppm), but only one of the 14 samples exceeded the NJ NRDCSCC of 20 ppm. Lead concentrations were reported up to 6,212 ppm, but only five samples exceeded the NJ NRDCSCC of 600 ppm. Both metals were also detected in subsurface soil, but no New Jersey Impact to Groundwater Soil Cleanup Criteria (NJ IGWSCC) are available for inorganics.

According to the Final RI Report (Ref. 1), elevated inorganics concentrations in soil at the SW/Clean Earth site appear to be attributable to historic fill and regional urbanization. Naturally elevated arsenic concentrations have been documented throughout the region. A background sample collected in nearby Essex County indicated an arsenic concentration of 48.9 ppm. Data obtained during investigations of the Monsanto and Syncon Resins sites indicate background arsenic concentrations up to 26 and 256 ppm, respectively. Thus, it appears that the SW/Clean Earth site (with a maximum reported arsenic concentration of 22.8 ppm) lies in an area with relatively elevated background levels of arsenic. No corrective actions were required to address arsenic in site soil (Refs. 1 and 5), and this inorganic constituent will not be considered further in this EI determination with regard to site soil.

As outlined in the approved RI Report (Ref. 1) and NJDEP's Site Remediation News (Ref. 2), NJDEP guidance on compliance averaging indicates that compliance can be established for constituents with NJ NRDCSCC levels above 100 ppm by demonstrating that (1) the arithmetic mean of detected concentrations within a specified area is less than or equal to the NJ NRDCSCC, and (2) no single soil sample exceeds the criteria by more than a factor of two. SW/Clean Earth used this evaluation method to assess direct contact concerns associated with lead contamination in surface soil. Lead concentrations in the surface soil ranged between 21 and 6,212 ppm, with an arithmetic mean of 1,170 ppm. Four of the five surface soil samples reporting exceedances indicated lead concentrations above 1,200 (twice the NJ NRDCSCC of 600 ppm). To further evaluate lead in soil, SW/Clean Earth completed a statistical analysis of concentrations in surface and subsurface soil. Based on the random distribution of lead exceedances and the lack of discernable correlations between surface and subsurface lead levels, SW/Clean Earth determined that the presence of lead in soil at the site is attributable to historic fill placement, rather than facility operations. Although the state does not necessarily agree with this conclusion of attributing the lead levels entirely to historic fill, to prevent direct contact with the contaminated soils, the state required Clean Earth to record a Declaration of Environmental Restriction (DER) in accordance with NJDEP regulations for the entire site. The DER restricts residential use of the property because the contamination exceeds NJDEP Residential Direct Contact Soil Cleanup Criteria. The DER also identifies the location of the asphalt cap that was required because that area also exceeds NJDEP Non-Residential Direct Contact Soil Cleanup Criteria. (Ref. 5.) Consequently, no further action was requested by the state to address lead contamination in the historic fill soil (Refs. 1 and 5). Nevertheless, because exceedances remain, lead in on-site surface soil will be carried forward in this EI determination for further evaluation of potential human health risks.

### *Organic Concentrations in On-Site Soil*

No VOCs or pesticides were reported above relevant standards (NJ NRDCSCC or IGWSCC) in surface or subsurface soil at the SW/Clean Earth site, and no SVOCs were reported above applicable NJ

IGWSCC in the subsurface soil samples. However, six SVOCs were detected above the NJ NRDCSCC in surface soil (Ref. 1). The highest SVOC concentrations were centered on soil borings SB-1, SB-2, and SB-9, with each boring reporting surface soil exceedances for benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, and dibenz(a,h)anthracene. Scattered and more minor NJ NRDCSCC exceedances were also reported in eight of the other soil borings. The presence of SVOCs in surface soil is thought to be due to the presence of fill materials across the site. Ash, road millings, and other fill materials typically contain SVOCs such as those found at the SW/Clean Earth site (Ref. 1). This conclusion is supported by the detection of a similar SVOC profile in a surface soil sample collected in 1993 from an area of the SW/Clean Earth site where there had never been any hazardous waste activity or truck traffic. Samples of Hudson River fill soils also reveal elevated SVOC concentrations and compounds similar to those at the SW/Clean Earth site. Because these constituents are not attributable to facility operations, no further action is required (Ref. 1) and they will not be addressed further in this EI determination.

PCBs were reported at concentrations slightly above their respective NJ NRDCSCC of 2 ppm in two surface soil samples (2.6 ppm at soil boring SB-7, and 3.3 ppm at soil boring SB-9), but none exceeded the NJ IGWSCC in subsurface soil. Concentrations in the surface soil ranged from 0.030 to 3.3 ppm, with an arithmetic mean of 0.7 ppm. As outlined in the Final RI Report (Ref. 1) and NJDEP's Site Remediation News (Ref. 2), NJDEP compliance averaging guidance indicates that compliance can be established for compounds with NJ NRDCSCC levels less than 10 ppm by showing that (1) all detected concentrations are within ten times the standard, and (2) the arithmetic mean of detected concentrations is below the NJ NRDCSCC. Because PCB concentrations in SW/Clean Earth surface soil meet both of these conditions, no further corrective action is required. Nevertheless, because exceedances remain, PCBs in on-site surface soil will be carried forward in this EI determination for further evaluation of potential human health risks.

#### *Off-Site Conditions at former PSE&G*

As stated previously, two site-related AOCs--former PSE&G AOCs A and D--have been identified on the adjacent former PSE&G property (Ref. 6).

The former PSE&G AOC A consists of a 40' x 100' area of the former PSE&G property that was leased by S&W Waste between 1984 and 1989 for use as a QA dock and employee parking area. This area was "closed" during 1989 to 1991 with the wastes removed, contaminated structure decontaminated or removed, and the area was then lined with a plastic liner and re-milled asphalt layer. (The area was closed under a closure plan as a generator status.) Available file materials document that surface soil samples collected around the dock as part of RCRA closure activities and spill response actions contained hexachlorobenzene and chlorinated dioxins/furans significantly above applicable NJ NRDCSCC (Ref. 8). A review of SW/Clean Earth inspection reports for the former QA dock and parking area documented only minor spills that were immediately addressed and did not require follow-up investigation or corrective action (Ref. 6). These records do not indicate that poor housekeeping or spills are the source of contamination reported in area soil. Furthermore, in a letter dated May 22, 2006 (Ref. 8), NJDEP suggested that these contaminants may be attributable to other potential sources, such as, the former Standard Chlorine Chemical Company and the former Standard Naphthalene Products Company, both of which were previously located immediately north of the former PSE&G site. (SW/Clean Earth also suggested a possible source could be the past practice of using herbicides to clear out vegetation for maintenance.) If on-going delineation efforts confirm these facilities as the source of contamination in surface soil, rather than operations on the former QA dock, former PSE&G AOC A will be eliminated as a site-related concern. (The site assessment is imposed for the adjacent former PSE&G site and will proceed independently.)

Nevertheless, unless and until the necessary soil data become available, and until subsurface soil data are obtained to vertically delineate the contamination, soil contamination at this AOC will be carried forward for further consideration in this EI determination, as a conservative assumption.

The second area (former PSE&G AOC D) addressed a portion of the former PSE&G property impacted by discharge of oily stormwater run-off flowing off site through the main gate of the former S&W Waste property in September 1985. Flow onto the former PSE&G site was due to unusually high amounts of precipitation associated with Hurricane Gloria, which resulted in overflow of the S&W Waste stormwater basin. This stormwater consisted of run-off from traffic areas only (non-processing areas) and was nonhazardous (Ref. 6). Immediately after this overflow incident, drainage conditions at the S&W Waste property were modified to include grading, lining, and capping. The grading specifically included elevating, pitching, and paving the main gate driveway, such that all stormwater would drain back toward the S&W Waste property. The potentially affected area on former PSE&G property has also been graded and paved.

As stated previously, the incident that resulted in identification of former PSE&G AOC D (i.e., the September 1985 overflow incident) would also have contributed to soil contamination at SW/Clean Earth AEC F. Soil contamination reported across the SW/Clean Earth site (including at AEC F) is below applicable NJ NRDCSCC and IGWSCC, or has been attributed to historic fill. Thus, any site-related soil contamination at the former PSE&G AOC D would likely be similarly below applicable NJ NRDCSCC and IGWSCC. Furthermore, based on the extremely limited duration of the overflow event onto the former PSE&G property, it is unlikely that groundwater would have been significantly impacted by this event (as indicative of the scenario at the adjacent SW/Clean Earth's AEC F). For these reasons, any potential site-related impacts at former PSE&G AOC D are being eliminated from further consideration in this EI determination.

### **Surface Water/Sediment**

No surface water bodies are present on the SW/Clean Earth property, and no areas are currently identified as sediment. However, as shown on Sheet 1 from the Final RI Report (Ref. 1), the Passaic River borders the western end of the SW/Clean Earth property. Surface water and sediment adjacent to the facility could be impacted by contamination entrained in storm water runoff, or by groundwater discharges into surface water.

In 1997, surface soil/historic fill across the active waste management area (shown as Drainage Area A2 on Figure J2 from the Engineering Report for Stormwater Management and Capping Design [Ref. 4]) has been capped with asphalt. An improved stormwater management system, ultimately discharging to a basin on the southern property boundary, was also installed (Refs. 5 and 7). Based on these engineered corrective actions, it is unlikely that significant quantities of contaminated soil would be picked up by storm water running across the property and into the Passaic River.

Although shallow groundwater historically flowed towards and into the Passaic River at the western end of the SW/Clean Earth property, installation of an asphalt cap and stormwater collection/discharge system on the property has altered local groundwater flow. As shown on the December 15, 2000, Groundwater Contour Map (Ref. 7), shallow groundwater now flows from a mound at the south central portion of the site toward the northwest along (but not immediately into) the Passaic River, and northeast toward Jacobus Avenue. The quality of groundwater that may eventually discharge into the Passaic River from the SW/Clean Earth site is best represented by groundwater monitoring results from monitoring well SW-9, as this well is located on the western part of the site and is closer to the river than any of the other

monitoring wells. To determine whether groundwater to surface water discharges are significant for EI purposes, the most recent site-related hazardous constituent concentrations reported in this well were compared to NJ GWQC (multiplied by a factor of ten to account for dilution, dispersion, and other mitigating factors). Table 5 below presents the result of this comparison.

**Table 5. Site-Related Hazardous Constituent Concentrations at Well SW-9 (September 1999)**

Hazardous Constituent	NJ GWQC (µg/L)	NJ GWQC x 10 (µg/L)	Well SW-9 Concentration (µg/L)
Antimony	6	60	ND
Arsenic	3	30	ND
Cadmium	4	40	ND
Chromium	70	700	1
Lead	5	50	ND
Mercury	2	20	0.19
Nickel	100	1,000	5

ND: Constituent not detected

Source: Reference 6.

As shown in the table, no exceedances of the modified NJ GWQC were reported in well SW-9. Consequently, groundwater-to-surface water discharges at the SW/Clean Earth site are unlikely to be a concern.

Because none of the possible migration pathways appears complete at this time, neither surface water nor sediment will be considered further in this EI determination.

### **Air (Outdoors)**

Migration of dust-borne contaminants is expected to be minimal at this site because those portions of the active operating area not covered by waste management structures such as concrete pads, process building, and tank berms have been covered by an asphalt cap (Ref. 5). In addition, migration of contamination from groundwater to outdoor air is not expected to be of concern because, as stated above, only the inorganic constituents in groundwater are believed to be site related (Ref. 1). Thus, ambient air quality is not expected to be a concern at the SW/Clean Earth site.

### **References:**

1. Final Remedial Investigation Report for S&W Waste. Prepared by Sadat Associates, Inc. Revised April 27, 1995.
2. Article 08, "Compliance Averaging," prepared by Brian J. Sogorka, NJDEP, published in NJDEP Site Remediation News, Vol. 7, No. 2, Spring 1995.  
[http://www.state.nj.us/dep/srp/news/1995/95spr\\_08.htm](http://www.state.nj.us/dep/srp/news/1995/95spr_08.htm)
3. Soil Removal Report for S&W Waste. Prepared by Sadat Associates, Inc. Dated April 1997.
4. Engineering Report for Stormwater Management System and Capping Design for S&W Waste. Prepared by Sadat Associates, Inc. Dated September 2, 1997.
5. Remedial Action Report for S&W Waste. Prepared by Sadat Associates, Inc. Dated December 1997.
6. Preliminary Assessment Report for PSE&G. Prepared by Sadat Associates, Inc. Dated May 22, 2000.
7. Report Regarding Groundwater Sampling Program at S&W Waste. Prepared by Sadat Associates, Inc. Dated May 2001.
8. Letter from Donna Gaffigan, NJDEP, to William Moscatello, Melon Leasing Corporation, re: PA Report for PSE&G Electric Transmission Line Right-of-Way. Dated May 22, 2006.

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 <sup>3</sup>
Groundwater	No	No	No	Yes	–	–	No
<del>Air (indoor)</del>							
Surface Soil (on-site)	–	Yes	–	Yes	No	–	–
Surface Soil (off-site)	No	No	–	Yes	No	No	No
<del>Surface Water</del>							
<del>Sediment</del>							
<del>Subsurface Soil (on-site)</del>							
Subsurface Soil (off-site)	No	No	–	Yes	No	No	No
<del>Air (outdoors)</del>							

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.

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

\_\_\_\_ If unknown (for any “Contaminated” Media - Human Receptor combination) - skip to #6 and enter “IN” status code

### **Rationale:**

#### **Groundwater**

As stated previously, the area surrounding the Clean Earth site in Kearny, NJ is heavily industrialized and has been used and/or zoned as industrial property since at least 1947 (Ref. 2). No residences are present within one mile of the site (Ref. 3). A well search conducted in preparation for the RI revealed the presence of 15 industrial supply wells and two domestic supply wells at industrial sites (Ref. 2). When contacted, owners of the industrial supply wells indicated that the wells were no longer in use. Well records for the domestic wells noted that one of the wells was installed and subsequently abandoned, and a pumping system was not installed in the other well. Therefore, it does not appear that these wells had been or are currently being used as potable water sources. Furthermore, Newark and Kearny Health Departments had no listing of any potable wells within a half-mile of the SW/Clean Earth site. Industrial facility and residences in the area (located no closer than 1.1 miles from the site) are believed to be connected to public water supply provided the Kearny or Newark Water Departments (Ref. 2). This potable water is provided by the Passaic Valley Water Commission (PVWC), which draws from the Wanaque Reservoir in northern New Jersey. Domestic water used at the SW/Clean Earth site itself (e.g., for showers, toilets, equipment cleaning, and other uses) is also provided by the Kearny Water Department (Ref. 2). Future use of groundwater beneath the SW/Clean Earth site is considered highly unlikely, as the Town of Kearny is fully serviced by the PVWC (Ref. 2). Thus, ingestion or direct contact with impacted shallow groundwater via water supplies is not a concern for on-site workers, residents, or other off-site receptors. Furthermore, although groundwater beneath the SW/Clean Earth site is classified as Class II-A groundwater (i.e., designated for potable purposes), the Final RI Report (Ref. 3) argues that groundwater in this area has an extensive history of groundwater pollution and no established potable water supply withdrawals.

Given that shallow groundwater is encountered at depths of less than ten feet bgs, workers who conduct intrusive activities are considered potential receptors. Thus, direct dermal contact with impacted groundwater is considered a potentially complete exposure pathway for on-site construction workers. This exposure pathway is considered unlikely based on the fact that on-site remedial measures have been completed and because the area overlying impacted groundwater has largely been covered by buildings, waste management structures, and an low-permeability asphalt cap. Nevertheless, because such contact is possible, *this potential exposure pathway will be carried forward for further evaluation in this EI determination.*

#### **On-Site Surface Soil**

As described in response to Question 2, a limited number of lead and PCB exceedances were reported in surface soil at the SW/Clean Earth site.

Placement of an asphalt cap over the eastern portion of the site in 1997 (as discussed in the response to Question 2) serves not only to limit percolation of contaminants to groundwater, but also to prevent direct contact with the most significant levels of lead in surface soil at the SW/Clean Earth site. A DER was filed with Hudson County on June 9, 1997, to prevent residential use of the property and to notify users of the property of the underlying lead-impacted soil (Ref. 4). Three of the five surface soil lead exceedances were reported in areas that are now covered by the asphalt cap as identified in the DER (Refs. 3 and 4).

Exposure to lead in the remaining two exceedance areas (808 ppm at soil boring SB-6, and 1,420 ppm at soil boring SB-13) also appears to be unlikely. The general area around boring SB-6 is paved with concrete, as shown on the photograph of former AEC D in Attachment 3 to this EI determination (Ref. 6). In addition, although it is shown as a gravel area in figures from the Final RI Report (Ref. 3), the area immediately surrounding boring SB-13 has been paved with concrete, as shown in the photograph of former AEC A in Attachment 2 (Ref. 6). Based on the active nature of this site (and the subject areas in particular), unauthorized disturbance of the concrete is unlikely. For this reason, potential pathways for exposure to lead levels above NJ NRDCSCC in on-site surface soil are considered incomplete and will not be addressed further in this EI determination.

As stated in the response to Question 2 above, low-level PCB exceedances were reported in surface soil at soil borings SB-7 and SB-9 (Ref. 3). SB-7 is located in AEC K (Storm water overflow bermed area), which is an overflow area paved with asphalt. SB-9 is in AEC I (High Traffic Area), which is an area consisting of gravel and packed earth. Consequently, as a conservative assumption, *exposure pathways for site workers and construction workers are considered potentially complete and will be carried forward for further consideration in this EI determination.*

The site is sufficiently secured to prevent potential trespassers from accessing contaminated surface soil. A six-foot high fence surrounds the entire SW/Clean Earth property, and a guard station near the entrance gate is manned 24 hours per day, seven days a week (Ref. 3). Site access is severely limited, so trespassers are not considered receptors of concern for this EI determination.

### **Off-Site Surface/Subsurface Soil**

As presented in the response to Question 2, an area of hexachlorobenzene and chlorinated dioxins/furans above applicable NJ NRDCSCC has been identified on the neighboring former PSE&G site (Ref. 5). Based on former use of the area by S&W Waste as a QA dock and parking area, this area is considered potentially site-related, pending additional investigation by the responsible party of the adjacent property and confirmation of other suspected contaminant sources. During closure of this area in 1989 through 1991, this off-site area was subsequently covered with a plastic liner and paved with asphalt (Refs. 1 and 7). Consequently, neither site workers nor trespassers are expected to come into contact with impacted soil in this area. A railroad spur is currently being constructed in this area and on adjacent land to support hazardous waste operations at the SW/Clean Earth facility (Ref. 7). Based on these planned uses and the presence of liquid petroleum and fiber optic lines beneath the surface, unauthorized excavation in this location is not expected. However, because this AOC is actively being investigated and may require intrusive corrective action, *the potential pathway addressing dermal contact by construction workers will be carried forward for further consideration in this EI determination.*

### **References:**

1. Letter from Thomas Sherman, NJDEP, to Robert Fixter, S&W Waste, re: Closure Certification for the Old Quality Control Dock. Dated September 9, 1991.
2. Modified Remedial Investigation Work Plan for S&W Waste. Prepared by Sadat Associates, Inc. Dated March 1992.
3. Final Remedial Investigation Report for S&W Waste. Prepared by Sadat Associates, Inc. Revised April 27, 1995.
4. Remedial Action Report for S&W Waste. Prepared by Sadat Associates, Inc. Dated December 1997.

5. Preliminary Assessment Report for PSE&G. Prepared by Sadat Associates, Inc. Dated May 22, 2000.
6. Email from Clifford Ng, EPA Region 2, to Michele Benchouk, Booz Allen Hamilton, re: S&W (Clean Earth) Photographs. Dated August 8, 2006.
7. Email from Clifford Ng, EPA Region 2, to Michele Benchouk, Booz Allen Hamilton, re: S&W (Clean Earth) CA725 Guidance. Dated August 17, 2006

4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **significant**<sup>4</sup> (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 construction workers to come into direct contact with contaminated shallow groundwater is being considered a potentially complete exposure pathway at this time. However, any exposures to impacted groundwater that may occur are not expected to be significant because the groundwater impacts are well known and documented, site manager and environmental coordinator are well aware of chemical hazards associated with hazardous waste and environmental contamination (given the nature of facility operations), construction workers at the site are expected to wear appropriate personal protective equipment (PPE) and adhere to strict Occupational Safety and Health Administration (OSHA) guidelines. Thus, direct exposures to contaminated groundwater by construction workers at the SW/Clean Earth site are not expected to pose a significant risk.

#### **On-Site Surface Soil**

As discussed in response to Question 3, the potential for site workers and construction workers to come into direct contact with contaminated surface soil is considered a potentially complete exposure pathway. However, any exposures to impacted surface soil that may occur are not expected to be significant. Based on the limited extent and low level of PCB exceedances (i.e., less than two times the NJ NRDCSCC) reported in surface soil at the SW/Clean Earth site, any site worker exposures that do occur would be

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<sup>4</sup> 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.

expected to be minor. Significant vehicle traffic is also expected to limit the amount of time that site workers would remain in the area of PCB exceedances. The limited duration of potential exposure also serves to reduce the potential significance of risk associated with PCBs in surface soil. Finally, construction workers conducting field operations in the area of reported PCB exceedances would be subject to strict OSHA guidelines and would be expected to wear appropriate PPE to minimize the potential for exposure. For these reasons, exposures associated with PCBs in surface soil are not expected to be significant for purposes of this EI determination.

### **Off-Site Surface/Subsurface Soil**

Because the off-site area of contamination (PSE&G AOC A) is actively being investigated and may require intrusive corrective action, the pathway addressing dermal contact by remedial/construction workers in this area is considered potentially complete. However, as discussed above, remedial/construction workers in this area would be expected to wear appropriate PPE and adhere to strict OSHA guidelines. This area was “closed” during 1989 to 1991, with wastes removed, contaminated structure decontaminated or removed, and the area was then lined with a plastic liner and re-milled asphalt layer. In addition, unauthorized intrusive remedial activity in this area is unlikely due to the underground liquid petroleum and fiber optic lines. Thus, direct exposures to contaminated soil by remedial/construction workers in this off-site area are not expected to pose a significant risk.

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:**

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):

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 Clean Earth (formerly S&W Waste) site, EPA ID# NJD991291105, located at 115 Jacobus Avenue in Kearny, 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: \_\_\_\_\_  
Michele Benchouk  
Environmental Consultant  
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**Reviewed by:** \_\_\_\_\_ Date: \_\_\_\_\_  
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\_\_\_\_\_  
Barry Tornick, New Jersey Section Chief  
RCRA Programs Branch  
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**Approved by:** Original signed by: \_\_\_\_\_ Date: September 28, 2006  
Adolph Everett, Chief  
RCRA Programs Branch  
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**Locations where references may be found:**

References reviewed to prepare this EI determination are identified after each response. Reference materials are available at U.S. EPA, Region 2.

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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 – Site Maps
- Attachment 2 – Summary of Media Impacts Table
- Attachment 3 – Photographs

*Note: The attachments are available upon request.*