DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

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

Facility Name: **Kearfott Guidance & Navigation Corporation**
Facility Address: **1125 & 1150 McBride Avenue, Little Falls, New Jersey**
Facility EPA ID#: **NJD002148484**

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 system (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 Kearfott Guidance & Navigation Corporation (Kearfott) facility, formerly the Singer Company (Singer) facility, is a 31-acre manufacturing facility located at 1125 and 1150 McBride Avenue in Little Falls, New Jersey. The facility is located in a mixed industrial and residential area. Singer acquired the property during the early 1950s. In 1971, Kearfott became a division of Singer. Singer operated the Kearfott Division until April 1988, when it transferred the assets to Kearfott. Kearfott was then sold to Astronautics Corporation of America (ACA) on October 4, 1988. According to facility representatives, Kearfott remains a wholly owned subsidiary of ACA. For the purposes of this EI determination, the facility will be referred to as Kearfott.

The facility complex consists of two plants, Plant 1 (1150 McBride Avenue) and Plant 3 (1125 McBride Avenue). Plant 1 is approximately 25 acres and is bounded to the north by the Passaic River, to the east by the Peckman River, to the west by residential property and a chain link fence with a gate, and to the south by McBride Avenue. A majority of the Plant 1 site is covered by the Plant 1 building (approximately 254,900 square feet) and paved parking areas, which extend north, east, and west of the structure. The Plant 3 site is approximately six acres and is bounded to the north by McBride Avenue, to the west by industrial properties and Lackawanna Avenue, and to the south and east by the Peckman River and the Memorial Drive Property. A majority of Plant 3 is also covered by the existing building and/or paved parking areas.

Two additional parcels have also been associated with the Kearfott site: the Memorial Drive Property and a property at 165 Lackawanna Avenue (Former Plant 32). The Memorial Drive Property is an undeveloped parcel that was reportedly used by Patterson Gas Company and Public Service Electric and Gas (PSEG) to dispose of coal gas related wastes in the late 1800s and early 1900s. In 1956, Kearfott purchased the Memorial Drive Property but has not used the property for any facility operations. The Memorial Drive Property is approximately six acres and is bounded to the south by Former Plant 32, to the west by Plant 3, to the east by Memorial Drive, and to the north by industrial and residential parcels. The Memorial Drive School is located across Memorial Drive to the east. The Former Plant 32 site is located at 165 Lackawanna Avenue in West Paterson, New Jersey. Former Plant 32 was leased to Kearfott from 1978 to 1989 and was used only for storage of office supplies. Former Plant 32 is approximately 2.19 acres and is bounded to the north by the Memorial Drive Property, to the east by residential property, to the south by Memorial Drive, and to the west by Lackawanna Avenue. A majority of the Former Plant 32 parcel is covered by buildings, pavement, or concrete. A chain link fence surrounds the Former Plant 32 property on the north, east, and south sides. Refer to the Site Plan figure in the New Jersey's Environmental Cleanup and Responsibility Act (ECRA) Sampling and Revised Cleanup Plan (Ref. 1) for the location of Plant 1, Plant 3, and the Memorial Drive Property. Also Refer to Figure 2 in the Remedial Action Workplan for Former Plant 32 for a depiction of the property location (Ref. 2).

Kearfott manufactures navigation and guidance systems, gyroscopes, and other electro-mechanical products for the aerospace industry. The primary hazardous materials used at the facility include chlorinated solvents, alcohols, and acetone. Manufacturing operations begin at Plant 1 in 1950. Plant 3 was constructed in 1960, and operations have consisted mostly of office administration and product research and development.

As a result of certain past corporate changes discussed above, ECRA (now known as the Industrial Site Recovery Act [ISRA]) has been triggered at Plant 1, Plant 3, Former Plant 32, and the Memorial Drive

Property. On April 13, 1988, an Administrative Consent Order (ACO) was issued by the New Jersey Department of Environmental Protection (NJDEP) and entered into by Singer. Subsequently, ACA purchased the Kearfott Division, which triggered a second ECRA review and an amended ACO. Soil, groundwater, surface water, and sediment investigations are ongoing at the Plant 1 facility under ISRA (ISRA Case Number 88064); soil and groundwater investigations are also ongoing at Former Plant 32 under ISRA (ISRA Case Numbers E88069 and E99953). Impacts to soil and groundwater at Plant 1 and Former Plant 32 have primarily resulted from leaks at underground storage tanks (USTs). Investigations are complete at Plant 3 and the Memorial Drive Property. The specifics of current investigations are discussed further in this EI determination.

References:

1. Results of ECRA Sampling and Revised Cleanup Plan. Prepared by Woodward-Clyde Consultants. Dated December 4, 1991.
2. Remedial Action Workplan, Former Plant 32. Prepared by ARCADIS G&M, Inc. Dated August 21, 2003.

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

PLANT 1 & 3 FACILITIES

Fourteen AOCs were identified at the Plant 1 (13 AOCs) and Plant 3 (1 AOC) facilities, but only one Plant 1 AOC (AOC K) is currently undergoing remedial action. All other AOCs on these parcels have received no further action (NFA) approval from NJDEP. Thus, for purposes of this EI determination, only AOC K is being retained for consideration.

AOC K: This AOC consisted of a drum storage area located northwest of the maintenance pavilion. In 1993, soil investigations were conducted, and trichloroethene (TCE) was detected at boring location SB-13 below New Jersey Non-Residential Direct Contact Soil Cleanup Criteria (NJ NRDCSCC), but above the New Jersey Impact to Groundwater Soil Cleanup Criteria (NJ IGWSCC). In 1995, four additional soil borings were installed in the approximate vicinity of boring SB-13 and indicated subsurface soil concentrations of TCE below the NJ IGWSCC. NJDEP stated that Kearfott was required to perform "hot spot" remediation at AOC K in a February 26, 1996, (Ref. 4) letter and reiterated the requirement in an October 8, 1996, letter (Ref. 5). In response to NJDEP letters, one soil boring was installed approximately three feet south of boring SB-13. TCE and cis-1,2-dichloroethene (cis-1,2-DCE) were detected in subsurface soil above NJ IGWSCC. Subsequently, Kearfott proposed to excavate the contaminated soil, which NJDEP approved on August 30, 2000 (Ref. 9). However, NJDEP also required additional investigation into the source(s) of groundwater contamination in the aforementioned letters. Thus, excavation in this area was not performed. Kearfott submitted a work plan on May 30, 2001 to investigate the area north of AOC K in the vicinity of wells MW-2 and MW-9 (Ref. 10). NJDEP approved this work plan on February 14, 2002 (Ref. 11). Twenty-three subsurface soil samples were collected and analyzed (see Figure 1 in Ref. 13 for a depiction of soil boring locations). TCE was detected in subsurface soil in five sample locations above the NJ NRDCSCC and the NJ IGWSCC, while tetrachloroethene (PCE) was detected in subsurface soil at one sample location above the NJ NRDCSCC and NJ IGWSCC (see Figure 3 in Ref. 13 for figure presenting the volatile organic compound [VOC] detections in soil). Based upon the results of this investigation, Kearfott proposed conducting a facilitated bioremediation pilot study, using molasses as the substrate, to address subsurface soil and groundwater contamination at AOC K. However, NJDEP has indicated that active remediation of soils is the preferred approach and continues to recommend excavation of impacted soil above the NJ IGWSCC. NJDEP has also indicated that additional sampling in the area of boring SB-13, below the water table, may also be necessary (Ref. 20).

Groundwater, Surface Water, and Sediment: VOC contamination in excess of the New Jersey Groundwater Quality Criteria (NJ GWQC) for Class II-A potable groundwater has been reported in the shallow and glacial groundwater units beneath Plant 1; however, this contamination is mostly confined to the shallow unit on the west side of Building 1A. Groundwater contamination at Plant 1 has resulted primarily from leaking USTs. A majority of these tanks were previously identified as AOCs and have either been removed or closed in place and received a no further action designation from NJDEP. Recent quarterly monitoring results (May 2003, Second Quarter 2003) indicate that 1,1-dichloroethene (1,1-DCE), 1,1-dichloroethane (1,1-DCA), cis-1,2-DCE, 1,1,1-trichloroethane (1,1,1-TCA), TCE, PCE, and vinyl chloride (VC) concentrations are above NJ GWQC (Ref. 19). Kearfott submitted a Classification Exception Area (CEA) Application for Plant 1 on September 24, 2001, but NJDEP recently rejected the application, based upon a requirement for additional information and actions (Ref. 14).

Historically, contaminants have been detected in surface water samples collected from the Peckman and Passaic Rivers. To a lesser extent, sediment impacts have also been documented. It is believed that this contamination was primarily due to impacted shallow groundwater discharge into the Passaic and Peckman Rivers. The reported contaminants and concentrations have widely varied both spatially and temporally between sampling events. Contaminants have consisted primarily of VOCs (cis-1,2-DCE, TCE, 1,2-dichloroethane, and VC) and Freon 113. For this reason, NJDEP required that Kearfott reinstate quarterly surface water sampling (Ref. 9). The most recent available groundwater, surface water, and sediment data, collected as part of the site-wide monitoring program, are from May 2003 (Second Quarter 2003). No contaminants were detected in surface water above the NJ SWQC during this sampling event (Ref. 19). In addition, all constituents were non-detect in sediment. The May 2003 results were consistent with the March 2003 (First Quarter 2003) results, which also indicated no exceedances in surface water and no constituents detected in sediment (Ref. 18). Kearfott recently submitted a Baseline Ecological Evaluation (BEE) to assess potential impacts to surface water and sediment (Ref. 21). Quarterly monitoring of groundwater, surface water, and sediment is ongoing.

MEMORIAL DRIVE PROPERTY

Previous investigation identified five AOCs at the Memorial Drive Property, including: AOC 1- Northern Debris Area, AOC 2-Southern Debris Area, AOC 3-Tar Area, AOC 4-Memorial Drive Gate Area, and AOC 5-Northwest Area (Refs. 2, 6). Elevated concentrations of primarily VOCs, poly-nuclear aromatic hydrocarbons (PAHs), and metals in surface and subsurface soil were detected above NJ NRDCSCC and/or New Jersey Residential Direct Contact Soil Cleanup Criteria (NJ RDCSCC). In addition, VOCs were detected in groundwater above NJ GWQC. In 1995, Kearfott proposed capping the areas of contamination in excess of the NJ RDCSCC and submitting a deed notice. NJDEP approved this approach in a letter dated February 7, 1996 (Ref. 3). In 1997, an earthen cap and passive gas venting system was constructed over approximately 1.5 acres of the site. An eight-foot-high chain link fence restricts access to the Memorial Drive Property (Ref. 20). A CEA was also filed for the Memorial Drive Property and approved by NJDEP. However, the CEA does not require ongoing monitoring of groundwater at the Memorial Drive Property. After several iterations, the final Deed Notice (Corrected) was submitted to NJDEP on October 3, 2002, with a request for an NFA determination for this site (Ref. 20). The Deed Notice restricts use of this area to non-residential. NJDEP has yet to comment on the final Deed Notice and request for NFA determination (Ref. 14).

FORMER PLANT 32

Kearfott has been performing investigations at this facility under ISRA with oversight by NJDEP. In 1990, as part of these investigations, two USTs were removed from Former Plant 32. One tank had a 1,000-gallon capacity and was used to store gasoline, while the other had a 550-gallon capacity and was used to store diesel fuel. In addition, 35 cubic yards of impacted soils were removed. Due to reported leaks, Kearfott established a monitoring well network to assess groundwater impacts for total benzene, toluene, ethylebenzene, xylenes (BTEX), and lead in 1990. In 1995, NJDEP approved an NFA determination for soils and recommended that groundwater monitoring be continued (Ref. 20). However, NJDEP has recently requested a soil removal report (Ref. 14). Kearfott recently submitted a BEE, CEA Application, and a Remedial Action Workplan for natural attenuation of groundwater beneath the Former Plant 32 parcel (Refs. 16, 17). This workplan also proposed to advance and collect samples from four additional soil borings to ensure that no further source removal is necessary. BTEX are the only constituents currently present above NJ GWQC in shallow groundwater at Former Plant 32. Recent monitoring reports have documented that significant attenuation is occurring at Former Plant 32 (Ref. 15).

References:

1. Results of ECRA Sampling and Revised Cleanup Plan. Prepared by Woodward-Clyde Consultants. Dated December 4, 1991.
2. Remedial Action Workplan. Prepared by McLaren/Hart. Dated November 6, 1995.
3. Letter from Stephen Maybury, NJDEP, to Alexander G. Hladky, Kearfott Guidance & Navigation Corporation, Re: Site Investigation/Remedial Investigation Workplan dated November 6, 1995 and August Quarterly Monitoring Results dated October 12, 1995. Dated February 7, 1996.
4. Letter from Stephen Maybury, NJDEP, to Alexander G. Hladky, Kearfott Guidance & Navigation Corporation, Re: Remedial Action Report Dated November 9, 1995. Dated February 26, 1996.
5. Letter from Murdo Morrison, NJDEP, to Alexander G. Hladky, Kearfott Guidance & Navigation Corporation, Re: Response to NJDEP Letters of January 5 and February 26, 1996: May 1996 and Remedial Action Report Dated: July 23, 1996. Dated October 8, 1996.
6. Remedial Action Report Capping of Memorial Drive Site. Prepared by Roux Associates, Inc. Dated November 14, 1997.
7. Remedial Action Workplan Progress Report. Prepared by Harding Lawson Associates (HLA). Dated October 21, 1999.
8. Underground Storage Tank Upgrade and Site Remediation. Prepared by Safety Health & Environmental Control. Dated January 2000.
9. Letter from John Graham, NJDEP, to John P. Nemergut, Kearfott Guidance & Navigation Corporation, Re: Remedial Action Workplan Progress Report Dated February 12, 1998, Remedial Action Workplan Progress Report Dated October 21, 1999, Underground Storage Tank Upgrade and Site Remediation Dated January 2000, and Copy of Recorded Version of Deed Notice for Memorial Drive Attached to Letter Dated June 23, 2000. Dated August 30, 2000.

10. Letter from Tom C. Eng, ARCADIS Geraghty & Miller, Inc., to Murdo Morrison, NJDEP, Re: Kearfott Guidance & Navigation Corporation - Plant 1 ISRA Case No. E88964. Dated May 30, 2001.
11. Letter from John Graham, NJDEP, to John P. Nemergut, Kearfott Guidance & Navigation Corporation, Re: Remedial Investigation Workplan dated June 8, 2001. Dated February 14, 2002.
12. Corrected Deed Notice. Recorded July 2, 2002.
13. Soil and Groundwater Investigation. Prepared by ARCADIS Geraghty & Miller, Inc. Dated December 20, 2002.
14. Letter from Murdo Morrison and Joseph Nowak, NJDEP, to John Nemergut, Kearfott Guidance and Navigation Division, Re: Administrative Consent Order (ACO) in the Matter of the Singer Company, (Singer ACO). Dated May 20, 2003.
15. Groundwater Monitoring Report, Second Quarter 2003, Kearfott Guidance and Navigation Corporation, Former Plant 32. Prepared by ARCADIS. Dated August 20, 2003.
16. Baseline Ecological Evaluation, Former Plant 32. Prepared by ARCADIS. Dated August 21, 2003.
17. Remedial Action Workplan, Former Plant 32. Prepared by ARCADIS G&M. Dated August 21, 2003.
18. Groundwater Monitoring Report, First Quarter 2003, Kearfott Guidance and Navigation Corporation, Plant 1. Prepared by ARCADIS. Dated August 20, 2003.
19. Groundwater Monitoring Report, Second Quarter 2003, Kearfott Guidance and Navigation Corporation, Plant 1. Prepared by ARCADIS. Dated August 26, 2003.
20. Letter from Donald Camerson, Bressler, Amery & Ross, P.C., to Alan Straus, USEPA, Re: Kearfott Guidance & Navigation Corp., Little Falls, New Jersey. Dated September 11, 2003.
21. Baseline Ecological Evaluation, Plant 1. Prepared by ARCADIS. October 21, 2003.

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
Air (Indoors)[2]		X		
Surface Soil (e.g., <2 ft)	X			VOCs, PAHs, Metals (Memorial Drive Only)
Surface Water		X		
Sediment		X		
Subsurface Soil (e.g., >2 ft)	X			VOCs, PAHs, 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:

Three principal hydrogeologic units are present at the Kearfott facility: the shallow unit, glacial unit, and bedrock unit. The shallow unit is approximately 15 feet to 40 feet thick and consists of an upper sandy/silty sand/fill unit (2 feet to 15 feet thick), underlain by gravelly sand, and by pinkish-brown silt (approximately 20 feet thick). The glacial unit consists of sandy to clayey silt with variable amounts of fine to course gravel that varies in thickness from 10 feet to 30 feet. The bedrock unit is part of the

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

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

Brunswick Formation, consists of medium- to fine-grained sandstone, and is encountered at 67 feet to 71 feet below ground surface (bgs). Based on the most recent monitoring results collected in May 2003, depth to shallow groundwater at Plant 1 ranges from approximately 6.06 feet to 10.77 feet bgs (Ref. 13) and at Former Plant 32 ranges from 3.33 feet to 6.75 feet bgs (Ref. 10).

Shallow groundwater flow direction is generally towards the northwest, where shallow groundwater discharges to the Passaic and Peckman Rivers (Refs. 10, 13). According to groundwater elevation data obtained in 1998, groundwater in the glacial and bedrock units at Plant 1 generally flows to the west-southwest away from the Passaic and Peckman Rivers (Ref. 4).

Groundwater at Plant 1 and Former Plant 32 is monitored for water level and water quality on a quarterly basis. The monitoring network at Plant 1 includes monitoring wells MW-1, MW-2, MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-18, MWS-1, and MWS-4R. Surface water sampling locations SW-1 through SW-6 on the Passaic and Peckman Rivers have also been sampled, but not routinely. The monitoring well network at Former Plant 32 includes monitoring wells MW32-1, MW32-1D, MW32-2, MW32-3, and MW32-5 through MW32-9. Groundwater at Memorial Drive is not being monitored under the NJDEP-approved CEA; however, 13 shallow unit monitoring wells were sampled between 1989 and August 1995 (Ref. 1). Monitoring well locations for Plant 1 are depicted on the Groundwater Elevation Contours, May 29, 2003, map, Figure 1, of the latest monitoring report (Ref. 13) and for Former Plant 32 are depicted in Groundwater Elevation Contours, May 14, 2003, map, Figure 1, of the latest monitoring report (Ref.10). Monitoring well locations for Memorial Drive are depicted on the Groundwater Elevation Contours, May 16, 1995, Figure 2-4, of the Remedial Action Work Plan (Ref. 1).

VOC and BTEX contamination in excess of the NJ GWQC for Class II-A potable groundwater has been reported in the shallow unit beneath Plant 1, the Memorial Drive Property, and Former Plant 32. Maximum contaminant concentrations that exceeded the NJ GWQC during the most recent sampling events for Plant 1 (Ref. 13), Former Plant 32 (Ref. 10), and Memorial Drive (Ref. 1) are summarized in Table 1.

Table 1 - Maximum Contaminant Concentrations Above NJ GWQC (µg/L)

Aquifer	Constituent	Well I.D.	Concentration	NJ GWQC
Plant 1[1]				
Shallow	Vinyl Chloride	MW-9	2,700	5
	1,1-DCE	MWS-1	11.6	2
	1,1,-DCA	MW-5	74.8	70
	cis-1,2-DCE	MW-9	5,980	10
	1,1,1-TCA	MW-7	185	30
	TCE	MW-9	94.2	1
	PCE	MWS-1	13.6	1
Glacial[2]	TCE	MWG-9	2.4	1
Memorial Drive[3]				
Shallow	Benzene	MW-27	37	1
	Total Xylenes	MW-27	99	40
	TCE	MW-29	6.2	1
Former Plant 32[4]				
Shallow	Benzene	MW32-6	207	1
	Ethylbenzene	MW32-1	1,440	700
	Total Xylenes	MW32-1	5,650	40

1. Samples collected in May 2003 as part of quarterly sampling event (Ref. 13).
2 Samples collected in April 2000 (Ref. 6).
3. Samples collected in August 1995 (Ref. 10).
4. Samples collected in May 2003 as part of quarterly sampling event (Ref. 1).

TCE concentrations in excess of the NJ GWQC are also reported in the glacial unit underlying Plant 1. Monitoring well MWG-9 reported a concentration of 2.4 µg/L during the latest sampling event conducted in April 2000 (Ref. 6). No VOCs were detected in the other glacial monitoring well sampled (well MWG-7).

Air (Indoors)

VOCs are present in groundwater at the Plant 1, Former Plant 32, and Memorial Drive Property. The Memorial Drive Property is undeveloped and the most recent available data indicate that groundwater contamination is maintained within site boundaries. Given that shallow groundwater beneath the Memorial

Drive property discharges directly to the Peckman River at the northwestern property boundary, there is no concern for volatile migration into off-site buildings. Thus, there is no concern for the VOCs detected at the Memorial Drive Property to migrate into indoor air. VOCs in groundwater are also maintained within site boundaries at the Plant 1 and Former Plant 32 site. Shallow groundwater at Plant 1 discharges directly to the Peckman and Passaic Rivers along the northwestern and northern property boundaries. While recent monitoring results indicate shallow groundwater at Former Plant 32 is localized in two wells and is not being detected in downgradient wells within the Former Plant 32 property boundary. Thus, migration of volatile contaminants in groundwater migrating into off-site buildings is not a concern for Plant 1 and Former Plant 32. To evaluate the potential for VOCs to migrate into indoor air at Plant 1 and Former Plant 32, recently detected VOC concentrations (Refs. 10, 13) were compared to the State of Connecticut Proposed Revisions to the Groundwater Volatilization Criteria for the Industrial/Commercial Scenario (CT I/C GWVC) (May 2003). The Proposed revisional values were used because they have been revised to be more consistent with EPA's 2002 Draft Guidance "Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soil." Thus, these updated values are based on the most up-to-date Johnson-Ettinger Model, toxicity information, and exposure assumptions. VC and TCE are the only constituents present above CT I/C GWVC at Plant 1, while no constituents are above CT I/C GWVC at Former Plant 32. Table 2 identifies each well with concentrations of VC and TCE above the I/C GWVC.

Table 2. Contaminants Detected Above CT I/C VC at Plant 1

Contaminant	Well I.D.	Concentration (µg/L)	CT I/C VC (µg/L)
VC	MW-2	124	52
	MW-9	2,700	
TCE	MW-2	89.1	67
	MW-9	94.2	

(Ref. 13)

Wells MW-2 and MW-9 are both located over 120 feet downgradient of on-site buildings (Plant 1 and Maintenance Structures). VOC concentrations in monitoring wells located upgradient of MW-2 and MW-9, but slightly downgradient (approximately 30 to 40 feet) of on-site buildings (wells MWS-1, MWS-4R, MW-7) did not report VOCs above the CT I/C GWVC. Thus, potential migration of VOCs from groundwater to indoor air is not a concern at Plant 1 or the Former Plant 32 facility.

Kearfott has also indicated that Occupational Health and Safety Administration (OSHA) air monitoring has been performed at the facility in the past, and results have not shown any concentrations of air contaminants above applicable limits. OSHA monitoring is not currently being performed at the facility on a routine basis; however, Kearfott provides respiratory protection to employees and employees are required to undergo medical monitoring annually (Ref. 14).

Surface/Subsurface Soil

Plant 1 - AOC K

As mentioned in the response to Question 1, all AOCs at Plant 1, with the exception of AOC K, have received an NFA determination from NJDEP. Thus, AOC K is the only AOC being discussed in this EI determination at Plant 1. Soil contamination has resulted primarily due to releases from USTs. Therefore, subsurface soil is the medium of impact. Based upon available information, surface soil is not currently a concern at the Plant 1 facility.

Historic sampling in the vicinity of Area K had documented TCE and cis-1,2-DCE above NJ IGWSCC. Through various correspondence (Refs. 2, 3, 5, 7) NJDEP required that additional VOC delineation be performed at AOC K. As a result, Kearfott conducted soil investigations in the vicinity of AOC K in April 2002 (Ref. 9). Twenty-three subsurface soil samples were collected and analyzed. TCE was detected above the NJ NRDCSCC (54 mg/kg) and NJ IGWSCC (1 mg/kg) in two soil borings: SB-16 (6.0 - 6.5 feet bgs) at 220 mg/kg and SB-23 (7.5 - 8.0 feet bgs) at 573 mg/kg. PCE (7.13 mg/kg) was only detected in one boring (SB-23, 7.5 - 8.0 feet bgs) slightly above the NJ NRDCSCC (6 mg/kg) and NJ IGWSCC (1 mg/kg) (Ref. 9).

Former Plant 32

As mentioned in Question 1, two USTs were removed from Former Plant 32 in 1990 along with 35 cubic yards of impacted soil. In 1995, NJDEP approved an NFA determination for soil at Former Plant 32. However, NJDEP has recently requested a soil removal report (Ref. 14). Thus, Kearfott has proposed to conduct a source area soil investigation, consisting of four geoprobe soil samples, to confirm that no further source remains (Ref. 11). Based upon current available information, there is no documented soil contamination at this property and this property has received an NFA determination for soil. However, for conservativeness, and based upon NJDEP's future recommendations, it is assumed that some residual BTEX contamination remains in subsurface soil in the vicinity of the former UST locations.

Memorial Drive Property

Historic surface and suburface soil sampling results at the Memorial Drive Property are documented in the Corrected Deed Notice, recorded on July 2, 2002 (Ref. 8). Soil samples were taken between 1984 and July 1996 and indicated that primarily VOCs, PAHs, and metals were present above NJ NRDCSCC from a depth of zero to 16 feet bgs. The primary contaminants detected, their sample location, and relevant NJ NRDCSCC are identified in Table 2 below.

Table 2. Primary Contaminants Present in Soil at the Memorial Drive Property

Contaminant	Sample Location / Depth	Concentration (mg/kg)	NJ NRDCSCC (mg/kg)
Benzene	B-22 / 0-2 ft	13	13
Benzo(a)anthracene	B-19 / 5 -7 ft	1,000	4
Benzo(a)pyrene	TAR-1 / 0-0.5 ft	690	0.66
Benzo(b)flouranthene	B-19 / 5-7 ft	300	4
Benzo(k)flouranthene	TAR-1 / 0-0.5 ft	160	4
Chrysene	B-19 / 5-7 ft	1,200	40
Dibenzo(a,h)anthracene	TAR-1 / 0-0.5 ft	93	0.66
Indeno(1,2,3-cd)pyrene	TAR-1 / 0-0.5 ft	230	4
Napthalene	B-22 / 2-4 ft	6,400	4,200
Lead	TP-11 / 2 ft and B-19 / 0-2 ft	630	600
Copper	B-19 / 0-2 ft	6300	600

(Ref. 8)

Surface Water and Sediment

The Plant 1 facility is located at the confluence of the Peckman and Passaic Rivers. The Peckman River flows in a northerly direction. The Peckman River is located to the west of the Former Plant 32 facility, flows through the Memorial Drive Property, and flows into the Passaic River to the northeast of the Plant 1 facility. The Passaic River forms the northern boundary of the Plant 1 facility and flows in an easterly direction. Both the Peckman and Passaic Rivers are classified as FW2-NT[3] (freshwater, non-trout) rivers according to the NJ Surface Water Quality Standards (NJ SWQS). In an August 30, 2000, letter (Ref. 5), NJDEP required that Kearfott reinstate the quarterly groundwater and surface water monitoring program. Surface water sampling currently includes the following locations: SW-1, SW-2, SW-3, SW-4, SW-5, and SW-6 (please see Figure 3 in the Groundwater Monitoring Report, Second Quarter 2003, dated August 26, 2003 [Ref. 13]). NJDEP approved the groundwater and surface water sampling program proposed by Kearfott, which includes sampling at the aforementioned locations, in a February 14, 2002, letter (Ref. 7). In addition, NJDEP required that Kearfott conduct sediment sampling in conjunction with surface water sampling. The most recent documented surface water and sediment samples were

[3] A freshwater body not capable of supporting trout populations.

collected in May 2003 (Second Quarter 2003) (Ref. 13). Surface water results indicated that no contaminants were present above NJ SWQC. In addition, no contaminants were detected in sediment. Thus, sediment and surface water are not currently impacted above relevant criteria. It should be noted that surface water and sediment sample results collected in March 2003 (First Quarter 2003) (Ref. 12) were consistent with the May 2003 (Second Quarter 2003) (Ref. 13) results.

Air (Outdoors)

No assessment of impacts to outdoor air has been conducted at this property. However, surface characteristics at the site are not conducive to migration of contamination to outdoor air because all areas of impacted soil at Plant 1 and Former Plant 32 are covered with pavement and/or buildings. Contaminated areas at the Memorial Drive Property have also been covered with an earthen cap. Thus, migration of contaminants bound to airborne particulate matter is not expected at this site due to the extremely limited amount of exposed surface soil. In addition, volatile emissions of VOCs (e.g., VC and TCE) from groundwater to outdoor air is not expected to be of concern given that the majority of the Plant 1 facility is covered by buildings, pavements, and asphalt, and given the natural dispersion of volatile contaminants once they reach the surface. VOC migration from groundwater to outdoor air is not a concern at the Former Plant 32 and Memorial Drive Property due to the relatively low levels of VOCs and the natural dispersion of volatile contaminants once they reach the surface. Therefore, the migration of particulates entrained on dust and/or volatile emissions are not expected to be significant exposure pathways of concern at the Kearfott site.

References:

1. Remedial Action Workplan, Kearfott Guidance and Navigation Corporation, Memorial Drive Site. Prepared by McLaren/Hart. Dated November 6, 1995.
2. Letter from Stephen Maybury, NJDEP, to Alexander G. Hladky, Kearfott Guidance & Navigation Corporation, Re: Remedial Action Report Dated November 9, 1995. Dated February 26, 1996.
3. Letter from Murdo Morrison, NJDEP, to Alexander G. Hladky, Kearfott Guidance & Navigation Corporation, Re: Response to NJDEP Letters of January 5 and February 26, 1996: May 1996 and Remedial Action Report Dated: July 23, 1996. Dated October 8, 1996.
4. Remedial Action Workplan Progress Report - Groundwater and Surface Water Sampling and Monitoring Program, Kearfott Guidance & Navigation Corporation, Plant 1, Volume I of III. Prepared by Harding Lawson Associates. Dated October 21, 1999.
5. Letter from John Graham, NJDEP, to John P. Nemergut, Kearfott Guidance & Navigation Corporation, Re: Remedial Action Workplan Progress Report Dated February 12, 1998, Remedial Action Workplan Progress Report Dated October 21, 1999, Underground Storage Tank Upgrade and Site Remediation Dated January 2000, and Copy of Recorded Version of Deed Notice for Memorial Drive Attached to Letter Dated June 23, 2000. Dated August 30, 2000.
6. Letter from John Nemergut, Kearfott Guidance & Navigation Corporation, to Murdo Morrison, NJDEP, Re: Review of Water Samples Collected from the Kearfott Guidance & Navigation Corporation in West Paterson, New Jersey, April 2000. Dated September 10, 2001.
7. Letter from John Graham, NJDEP, to John P. Nemergut, Kearfott Guidance & Navigation Corporation, Re: Remedial Investigation Workplan dated June 8, 2001. Dated February 14, 2002.
8. Corrected Deed Notice. Recorded July 2, 2002.

9. Soil and Groundwater Investigation. Prepared by ARCADIS Geraghty & Miller, Inc. Dated December 20, 2002.
10. Groundwater Monitoring Report, Second Quarter 2003, Kearfott Guidance and Navigation Corporation, Former Plant 32. Prepared by ARCADIS. Dated August 20, 2003.
11. Remedial Action Workplan, Former Plant 32. Prepared by ARCADIS G&M. Dated August 21, 2003.
12. Groundwater Monitoring Report, First Quarter 2003, Kearfott Guidance and Navigation Corporation, Plant 1. Prepared by ARCADIS. Dated August 26, 2003.
13. Groundwater Monitoring Report, Second Quarter 2003, Kearfott Guidance and Navigation Corporation, Plant 1. Prepared by ARCADIS. Dated August 26, 2003.
14. Letter from Donald Camerson, Bressler, Amery & Ross, P.C., to Alan Staus, USEPA, Re: Kearfott Guidance & Navigation Corp., Little Falls, New Jersey. Dated September 11, 2003.

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[4]
Groundwater	No	No	No	Yes	–	–	No
~~Air (indoor)~~					–	–	–
Surface Soil (e.g. < 2 ft)	No	No	–	No	No	No	–
~~Surface Water~~			–	–			
~~Sediment~~			–	–			
Subsurface Soil (e.g., > 2 ft)	–	–	–	Yes	–	–	–
~~Air (outdoors)~~						–	–

Instruction for Summary Exposure Pathway Evaluation Table:

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

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

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

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

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

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

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

Rationale:

Groundwater

Plant 1

As mentioned in response to Question #2, VOC contamination exists at the Plant 1 facility. VOC contamination is mostly confined to the shallow unit on the west side of Building 1A. Contamination exceeds the NJ GWQC at monitoring well MW-9, which is located adjacent to the Peckman River about 100 feet from the confluence of the Peckman and Passaic Rivers. Monitoring wells MWS-1, MW-2, MW-4, and MW-5, which are located downgradient of Plant 1 and along the banks of the Passaic River, also report exceedances of VOCs. (See Figure 1 in Ref. 13 for the locations of monitoring wells). Shallow groundwater flow direction is towards the northwest, where shallow groundwater discharges to the Passaic and Peckman Rivers. Slightly elevated TCE levels (2.4 µg/L, NJ GWQC = 1 µg/L) are present in the glacial unit in only one well (MWG-9) at the Plant 1 facility. The other glacial well (MWG-7) does not report contaminants above the NJ GWQC.

Groundwater beneath the Plant 1 facility is not utilized for any industrial or potable purpose on site. Potable water at the facility, and in the immediate vicinity, is obtained from municipal sources (Passaic Valley Water Commission) (Refs. 1, 2). Given that shallow groundwater flow is to the northwest, to the Passaic and Peckman Rivers at the property boundary, impacted groundwater does not flow beneath any other off-site properties. Impacts to the glacial unit are also localized and maintained within site boundaries. Thus, there is no concern for direct contact to impacted groundwater for on-site workers or off-site receptors (e.g., residents, day-care users, off-site workers). Kearfott has prepared a CEA Application for Plant 1; however, NJDEP recently requested additional information and actions before the CEA could be finalized.

Kearfott has indicated that there are no planned or scheduled construction activities at the Plant 1 facility. However, remedial activities are scheduled to occur in AOC K (Ref. 14). Given that shallow groundwater is encountered at depths of less than 10 feet bgs, there is a potential for on-site remedial workers (classified as construction workers for the purpose of this EI determination) to come in contact with impacted shallow groundwater at the Plant 1 facility.

Former Plant 32

Impacted groundwater beneath the Former Plant 32 property is also currently contained within property boundaries. Recent groundwater monitoring results (Second Quarter 2003) have documented benzene, ethylbenzene, and xylene impacts in MW32-1 and MW32-6 above NJ GWQC (Ref. 10). Shallow groundwater flow is towards the northwest, where shallow groundwater eventually discharges to the Peckman River. Downgradient monitoring wells (MW32-2, MW32-3, and MW32-5) did not report BTEX impacts, indicating that contamination is not migrating downgradient to the Peckman River and beyond property boundaries. Therefore, there is no concern for off-site exposure to impacted shallow groundwater emanating from the Former Plant 32 property.

Groundwater beneath the Former Plant 32 facility is not utilized for any industrial or potable purpose on site. Potable water at the facility, and in the immediate vicinity, is obtained by municipal sources (Passaic

Valley Water Commission) (Refs. 1, 2). Kearfott recently submitted a CEA Application and Remedial Action Workplan for natural attenuation of groundwater (Ref. 11). NJDEP has yet to comment on this CEA Application.

Kearfott no longer leases and/or operates at the Former Plant 32, thus there are no planned construction activities at this location. Remedial activities are scheduled to occur at this location (Ref. 14). Given that shallow groundwater is encountered at depths of less than 10 feet bgs, there is a potential for remedial workers (e.g., construction workers) to come in contact with impacted groundwater in the vicinity of MW32-1 and MW32-6.

Memorial Drive Property

As mentioned in response to Question #2, benzene, xylene, and TCE have historically been documented above NJ GWQC at the Memorial Drive Property (Ref. 1). The impacted area lies between Memorial Drive and the Peckman River. Shallow groundwater flows is to the northwest, thus groundwater beneath the Memorial Drive site discharges directly to the Peckman River and does not flow beneath any other off-site properties. A CEA has been filed for the Memorial Drive Property and has been approved by NJDEP (Ref. 14). The CEA provides public notice of the groundwater contamination and restricts use of groundwater at the Memorial Drive Property. Typically, ongoing groundwater monitoring is required as part of a CEA; however, NJDEP is not requiring ongoing monitoring of groundwater at the Memorial Drive Property. Thus, there is no concern for exposure to impacted groundwater associated with the Memorial Drive Property.

Surface/Subsurface Soil

Plant 1

As discussed in Question #2, subsurface soil contamination (TCE and PCE) above NJ NRDCSCC exists in the area of AOC K. Thus, exposure to subsurface soil may occur during construction and/or remedial activities taking place in the vicinity of AOC K. Kearfott has indicated that there are no planned or scheduled construction activities at the Plant 1 facility (Ref. 14). However, remedial activities are scheduled to occur in AOC K, thus, there is a potential for on-site remedial workers (e.g., construction workers) to come in contact with impacted subsurface soil in AOC K.

Former Plant 32

As discussed in Question #2, currently available information documents no soil contamination at this property and indicates that this property has received an NFA determination for soil. However, given NJDEP's recent request for additional information related to soil at this property, it is assumed that some residual BTEX contamination remains in subsurface soil in the vicinity of the former UST locations. The former UST location is entirely covered by impervious surfaces (e.g., the on-site structure or pavement). Kearfott no longer leases and/or operates at the Former Plant 32, thus there are no planned construction activities at this location (Ref. 14). Remedial activities are scheduled to occur at this location, thus there is a potential for remedial workers (e.g., construction workers) to come in contact with potentially impacted subsurface soil in the vicinity of the former USTs.

Memorial Drive Property

As discussed in Question #2, VOCs, PAHs, and metals are present in surface and subsurface soil at the Memorial Drive Property. The site is currently inactive and undeveloped. As documented in the

Corrected Deed Notice, recorded on July 2, 2002 (Ref. 8), all impacted areas above the NJ RDCSCC have been covered with an earthen cap and passive gas venting system. The cap consists of a non-woven geotextile filter fabric placed over a six-inch layer of crushed stone. A 12-inch thick soil cover was placed over the filter fabric and the entire cap was hydroseeded with grass mix. In addition, the property is entirely surrounded by an eight-foot high chain link fence to restrict any off-site receptor access (Ref. 14). The deed notice also restricts all future site activities to non-residential uses and restricts intrusive activities at the property. Given the institutional and engineering controls in place at the Memorial Drive Property, there is currently no concern for on- or off-site receptor exposure to impacted surface or subsurface soil at this property.

References:

1. Remedial Action Workplan, Kearfott Guidance and Navigation Corporation, Memorial Drive Site. Prepared by McLaren/Hart. Dated November 6, 1995.
2. Memo to File, from Andrew Clibanoff, Malcolm Pirnie, Inc., to File, Re: Groundwater Population - Summary for the West Paterson Goal Gas Site. Dated September 6, 1995.
3. Letter from Stephen Maybury, NJDEP, to Alexander G. Hladky, Kearfott Guidance & Navigation Corporation, Re: Remedial Action Report Dated November 9, 1995. Dated February 26, 1996.
4. Letter from Murdo Morrison, NJDEP, to Alexander G. Hladky, Kearfott Guidance & Navigation Corporation, Re: Response to NJDEP Letters of January 5 and February 26, 1996: May 1996 and Remedial Action Report Dated: July 23, 1996. Dated October 8, 1996.
5. Remedial Action Workplan Progress Report - Groundwater and Surface Water Sampling and Monitoring Program, Kearfott Guidance & Navigation Corporation, Plant 1, Volume I of III. Prepared by Harding Lawson Associates. Dated October 21, 1999.
6. Letter from John Graham, NJDEP, to John P. Nemergut, Kearfott Guidance & Navigation Corporation, Re: Remedial Action Workplan Progress Report Dated February 12, 1998, Remedial Action Workplan Progress Report Dated October 21, 1999, Underground Storage Tank Upgrade and Site Remediation Dated January 2000, and Copy of Recorded Version of Deed Notice for Memorial Drive Attached to Letter Dated June 23, 2000. Dated August 30, 2000.
7. Letter from John Graham, NJDEP, to John P. Nemergut, Kearfott Guidance & Navigation Corporation, Re: Remedial Investigation Workplan dated June 8, 2001. Dated February 14, 2002.
8. Corrected Deed Notice. Recorded July 2, 2002.
9. Soil and Groundwater Investigation. Prepared by ARCADIS Geraghty & Miller, Inc. Dated December 20, 2002.
10. Groundwater Monitoring Report, Second Quarter 2003, Kearfott Guidance and Navigation Corporation, Former Plant 32. Prepared by ARCADIS. Dated August 20, 2003.
11. Remedial Action Workplan, Former Plant 32. Prepared by ARCADIS G&M. Dated August 21, 2003.
12. Groundwater Monitoring Report, First Quarter 2003, Kearfott Guidance and Navigation Corporation, Plant 1. Prepared by ARCADIS. Dated August 26, 2003.
13. Groundwater Monitoring Report, Second Quarter 2003, Kearfott Guidance and Navigation Corporation, Plant 1. Prepared by ARCADIS. Dated August 26, 2003.
14. Letter from Donald Camerson, Bressler, Amery & Ross, P.C., to Alan Straus, USEPA, Re: Kearfott Guidance & Navigation Corp., Little Falls, New Jersey. Dated September 11, 2003.

4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **significant**[5] (i.e., potentially "unacceptable" because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks?

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

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

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

Rationale:

Groundwater

As discussed in response to Question #3, the potential for on-site remedial workers to come in direct contact with contaminated shallow groundwater at Plant 1 and Former Plant 32 are being considered potentially complete exposure pathways due to the planned remedial activities at each property. However, exposures are not expected to be significant because remedial workers are required to wear personal protective equipment (PPE) and adhere to strict OSHA guidelines to minimize exposure to contamination, per their site-specific Health and Safety Plan (Refs. 1, 2). Thus, potential exposure to contaminated shallow groundwater at Plant 1 and Former Plant 32 for workers conducting remedial activities are not expected to pose a significant risk.

Surface/Subsurface Soil

As discussed in response to Question #3, the potential for on-site remedial workers to come in direct contact with contaminated subsurface soil at Plant 1 and Former Plant 32 are being considered potentially complete exposure pathways due to the planned remedial activities at each property. However, exposures are not expected to be significant because remedial workers are required to wear PPE and adhere to strict OSHA guidelines to minimize exposure to contamination, per their site-specific Health and

[5] 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.

Safety Plan (Refs. 1, 2). Thus, potential exposure to contaminated subsurface soil at Plant 1 or Former Plant 32 for workers conducting remedial activities are not expected to pose a significant risk.

References:

1. Health and Safety Plan, Kearfott Former Plant 32. Prepared by ARCADIS G&M, Inc. Dated August 20, 2003.
2. Health and Safety Plan, Kearfott Plant 1. Prepared by ARCADIS G&M, Inc. Dated September 4, 2003.

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

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

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

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

Rationale:

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

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

X YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI determination, "Current Human Exposures" are expected to be "Under Control" at the Kearfott Guidance & Navigation Corporation site, EPA ID #NJD002148484, located at **1125 & 1150 McBride Avenue, Little Falls,** 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:_____

Alan Straus, RPM
RCRA Programs Branch
USEPA Region 2

_____ Date:_____

Barry Tornick, Section Chief
RCRA Programs Branch
USEPA Region 2

Approved by: original signed by: Date: 12/30/2003

Adolph Everett, Acting Chief
RCRA Programs Branch
USEPA Region 2

Locations where references may be found:

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

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

Attachments

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

- Attachment 1 - Summary of Media Impacts Table

Attachment 1 - Summary of Media Impacts Table
Kearfott Guidance & Navigation Corporation Site

	GW	AIR (Indoors)	SURF SOIL	SURF WATER	SED	SUB SURF SOIL	AIR (Outdoors)	CORRECTIVE ACTION MEASURE	KEY CONTAMINANTS
Plant 1 - AOC K (Soil)	Yes	No	No	No	No	Yes	No	*Proposed*: Facilitated bioremediation pilot study, using molasses as the substrate, to address subsurface soil contamination at AOC K. NJDEP recommended active remediation (e.g., excavation of impacted soil above the NJ IGWSCC) of soils in this area. **Note: Impacted area is completely covered by existing pavement.**	TCE, PCE, cis-1,2-DCE
Plant 1 - Groundwater	Yes	NA	NA	NA	NA	NA	NA	*Completed:* Removal of potential sources of groundwater contamination. Historic AOCs consisted of numerous USTs. These USTs have either been removed or decommissioned in place and necessary soil and groundwater investigations have been completed. All AOCs, with the exception of AOC K, have received a NFA designation from NJDEP. *Ongoing:* Quarterly monitoring of groundwater and surface water. *Ongoing:* CEA application has been submitted, but NJDEP recently requested additional information and actions before it can be finalized.	VOCs

	GW	AIR (Indoors)	SURF SOIL	SURF WATER	SED	SUB SURF SOIL	AIR (Outdoors)	CORRECTIVE ACTION MEASURE	KEY CONTAMINANTS
Memorial Drive Property	Yes	No	Yes	No	No	Yes	No	*Completed*: Earthen cap installed over all impacted areas above the NJ RDCSCC; eight-foot high chain link fence has been erected around the entire property; deed notice has been recorded; CEA has been implemented and natural attenuation is occurring (ongoing groundwater monitoring is not required as part of this CEA).	VOCs, PAHs, Metals
Former Plant 32	Yes	No	No	No	No	Yes	No	*Completed*: Removal of two USTs and 35 cubic yards of impacted soil; implementation of monitoring well network and groundwater monitoring to assess impacts. *Proposed:* Source area soil investigation (per recent NJDEP request) and continued groundwater monitoring. CEA has also been submitted. **Note: Impacted area is completely covered by existing pavement and/or on-site buildings.**	BTEX