DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

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

Facility Name:	**Former Hyatt Clark Industries (HCI) Site (General Motors New Departure Hyatt Bearing Division)**
Facility Address:	**1300 Raritan Road in Clark/Cranford Township, Union County, New Jersey**
Facility EPA ID#:	**NJD002457174**

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) 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 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 former Hyatt Clark Industries (HCI) site is approximately 87 acres in size and is bounded to the south and east by Raritan Road and Walnut Road, respectively. The northern and eastern portions of the site are bounded by CSX rail lines. The site spans both Clark and Cranford Townships. The areas surrounding the site are industrial and residential. Branches of the Rahway River are located approximately 2,500 feet southeast of the site. The US Gypsum facility, which operates two production wells, is located approximately 400 feet to the southeast of the site.

The site was undeveloped when General Motors (GM) purchased the land in 1937. In 1938, a plant was constructed which originally manufactured hard-rubber products such as automobile steering wheels and door handles. For the majority of the plant's history, antifriction roller bearings, used by the automotive and railroad industries, were the primary product manufactured. Manufacturing processes included hot forming, machining, heat treatment, quenching, drawing, tumbling, deburring, and assembly. In 1981, the facility was bought out by employees, who formed HCI. HCI filed for bankruptcy in August 1987. Shortly thereafter, all plant operations ceased. In 1989, ownership of the site reverted to GM. The site was decommissioned and vacant until it was redeveloped as a golf course in 2001.

The facility obtained 24 permits from the New Jersey Department of Environmental Protection (NJDEP) Bureau of Air Pollution, a New Jersey Pollutant Discharge Elimination System (NJPDES) permit for surface water discharged from cooling water blow-down and stormwater runoff through five outfalls to the Rahway River, and an NJDEP Bureau of Underground Storage Tanks permit. In 1982, a NJDEP, RCRA inspection and investigation was conducted and identified a number of areas where operational losses and apparent spills had occurred. A revised RCRA Part A application was submitted to NJDEP in 1983. When NJDEP requested a RCRA Part B permit application from HCI, it was informed that HCI was operating under protection of federal bankruptcy law, would be ceasing operation, and would not be filing a Part B permit application. Due to the bankruptcy of HCI, a remedial investigation was not performed prior to the transfer of ownership of the site as required under the Environmental Cleanup and Responsibility Act (ECRA) (NJAC 7:1-3). GM signed Administrative Consent Orders in 1989 and 1993 to address the requirements under ECRA. GM performed site and remedial investigations in 1988, 1991, 1994, and 1995. Additional investigations, focusing on groundwater, were performed a 1996 and 1997. A Remedial Action Workplan (RAW) for contaminated soil was submitted in 1998 and approved by NJDEP in 1999. GM implemented the RAW and submitted a Remedial Action Report (RAR) in November 2000. Remedial actions associated with groundwater at the site were addressed separately in a RAW submitted in May 2001.

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 (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

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

   ____ If no - re-evaluate existing data, or

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

Summary of AOCs: Thirty-two AOCs were identified during remedial investigation. These AOCs were eventually consolidated into 10 AOCs (Ref. 1). A site map (Figure 2-1) depicting the location of each AOC was presented in the RAR (Ref. 4). All AOCs have been inactive since 1987, and GM has decommissioned all surface structures related to each AOC (Ref. 2). Soil remedial activities, which included limited excavation of contaminated soil above New Jersey Non-Residential Direct Contact Soil Cleanup Criteria (NJ NRDCSCC) and installation of a multi-layered (geotextile/soil) cap over the majority of the site, were concluded in 2000 (Ref. 4). A Deed Notice submitted in April 2001 outlined contaminant concentrations left in place at the site above New Jersey Residential Direct Contact Soil Cleanup Criteria (NJ RDCSCC), and restricted intrusive activities at the site (Ref. 5).

AOC 1: AOC 1 was located in the northeastern portion of the facility and consisted of two 5,500-gallon unleaded gasoline underground storage tanks (USTs). The tanks and ancillary piping were emptied and cleaned during a decommissioning program conducted in 1991, and subsequently excavated and removed from the site during the 1994 tank closure program (Ref. 3). Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenz(a,h)anthracene were detected in subsurface soil (> two feet below ground surface [bgs]) above NJ NRDCSCC. Approximately three feet of fill material was placed over this area during development of the golf course (Ref. 7). A Deed Notice restricts intrusive activities in this area (Ref. 5). NJDEP has approved a no further action (NFA) determination for this AOC (Ref. 8).

AOC 2: AOC 2 was located in the eastern portion of the facility and contained a 1,000-gallon leaded gasoline UST. The tanks and ancillary piping were emptied and cleaned in 1991, and subsequently excavated and removed from the site in 1994 (Ref. 3). No contaminants were detected above the most stringent NJ soil cleanup criteria[1] during remedial investigation (Ref. 4). Therefore, an NFA determination was approved by NJDEP (Ref. 8). Approximately three feet of fill material was placed over this area during development of the golf course (Ref. 7).

AOC 3: AOC 3 was located in the southern portion of the facility and consisted of a 1,000-gallon leaded gasoline UST and a 1,000-gallon diesel fuel UST. This AOC also extended to the south of the UST area, encompassing the roadway at the southwest corner of the site and a grassy area that contained subsurface fill deposits (Ref. 3). Approximately 6,044 cubic yards of arsenic-contaminated soil were excavated from this AOC in 1999 (Ref. 4). This area was backfilled with

[1] Either the NJ RDCSCC or the New Jersey Impact to Groundwater Soil Cleanup Criteria (NJ IGWSCC), whichever is lower.

clean fill materials. In addition, approximately three feet of additional fill material was placed over this area during development of the golf course (Refs. 4, 7). Residual arsenic contamination is located in surface soil on the adjacent off-site railroad property above NJ NRDCSCC. Polychlorinated biphenyls (PCB) were also detected at one off-site sample location above NJ RDCSCC, but below NJ NRDCSCC. NJDEP has indicated that off-site arsenic soil contamination needs to be delineated to NJ RDCSCC and addressed by a Deed Notice (Ref. 8).

AOC 4: AOC 4 was located along the western site boundary and included the area between the former main manufacturing building and the western property boundary. This AOC contained railroad spurs, a maintenance building, three liquid settling tanks, fuel oil USTs, a scrap pile area, a former chip pit, an electrical switch yard, an electrical substation, and a sump (Ref. 3). Because this AOC contained many operational units, remedial actions for these units were addressed at various times during the 1990s. A few of the operational units were considered to be SWMUs and closed under RCRA requirements. The tanks and ancillary piping were emptied and cleaned during a decommissioning program conducted in 1991 and subsequently excavated and removed from the site during the 1994 tank closure program. The remaining surface structures were demolished in 1998 (Ref. 4). Semi-volatile organic compounds (SVOC), PCBs, metals, and total petroleum hydrocarbons (TPH) were detected in surface and/or subsurface soil above the NJ NRDCSCC (Ref. 5). A multi-layer cap was installed over this AOC and a Deed Notice was filed in 2001 to restrict intrusive activities (Refs. 4, 5).

AOC 5: AOC 5 was located in the northern portion of the site and consisted of three 750,000-gallon wastewater above-ground storage tanks (ASTs), an 8,000-gallon waste oil AST, a propane storage area, a new drum storage pad, a chip tower, a drainage swale, a parshall flume, railroad spurs, and an access road (Ref. 3). The majority of this AOC was not developed until the 1950s and 1960s, with the exception of the railroad spurs, which were present since the original plant was constructed in 1938. A decommissioning program conducted in 1991 included removal of the waste oil AST, west rail siding, and chip hopper. The waste oil AST area was designated as a SWMU and closed under RCRA requirements in 1990. By October 1998, most of the remaining surface structures were demolished or abandoned in place. One 750,000-gallon AST was temporarily left in place for the interim free product (light non-aqueous phase liquids [LNAPL]) recovery system, but was removed prior to completion of the golf course (Refs. 4, 7). A portion of this AOC was capped and another portion of the AOC had approximately 3,975 cubic yards of contaminated surface soil excavated (Ref. 4). Benzo(a)pyrene was detected in surface soil outside the boundaries of the multi-layer cap and areal extent of soil excavation above the NJ NRDCSCC. However, approximately three feet of fill material was placed over this area during development of the golf course; therefore, contaminated soil at this AOC is currently considered subsurface soil (Ref. 7). A Deed Notice restricts intrusive activities in this area (Ref. 5).

AOC 6: AOC 6 was located in the central portion of the facility and included the main manufacturing building, the chip house, and the pang born room (Ref. 3). Following plant shut-down in 1987, the entire main manufacturing area was cleaned, surface structures were demolished, and the debris removed from the site (Ref. 4). SVOCs, PCBs, metals, and TPH were detected in surface and subsurface soil above the NJ NRDCSCC (Ref. 5). AOC 6 is completely covered by the multi-layer cap installed in 1998. A Deed Notice implemented in 2001 restricts intrusive activities in this area (Refs. 4, 5). NJDEP has approved an NFA determination for this AOC (Ref. 8).

AOC 7: AOC 7 was located in the eastern portion of the facility and was the former location of a compactor. The compactor was removed in 1988 and the surrounding contaminated soil was

excavated (Ref. 3). Residual soil concentrations are below the most stringent NJ soil cleanup criteria (Ref. 4). Therefore, an NFA determination was approved by NJDEP (Ref. 8). Approximately three feet of fill material was placed over this area during development of the golf course (Ref. 7).

AOC 8: AOC 8 was located in the eastern portion of the facility and consisted of two skim pits used to separate oils from stormwater discharge (Ref. 3). These skim pits were decommissioned in the early 1990s (Ref. 4). Benzo(a)pyrene was detected in subsurface soil above the NJ NRDCSCC. A Deed Notice restricts intrusive activities in this area (Ref. 5). Approximately three feet of fill material was placed over this area during development of the golf course (Ref. 7). NJDEP has approved an NFA determination for this AOC (Ref. 8).

AOC 9: AOC 9 was located at the eastern boundary of the site and was historically used as an employee parking lot (Ref. 3). Benzo(a)pyrene was detected in surface soil above the NJ NRDCSCC (Ref. 4). Approximately three feet of fill material was placed over this area during development of the golf course; contaminated soil at this AOC is currently considered subsurface soil (Ref. 7). A Deed Notice restricts intrusive activities in this area (Ref. 5). NJDEP has approved an NFA determination for this AOC (Ref. 8).

AOC 10: AOC 10 was located at the southeastern corner of the Butler building (AOC 4) and contained a sump pump (Ref. 3). No contaminants were detected at this AOC above the most stringent NJ soil cleanup criteria (Ref. 4). Therefore, an NFA determination was approved by NJDEP (Ref. 8). AOC 10 is completely covered by the multi-layer cap installed in 1998 (Ref. 4).

Groundwater: Two water-bearing units are present beneath the site: overburden and underlying bedrock. The overburden is comprised of a fill unit, a sand unit, and a till unit. The fill varies in composition from silty clay to coarse gravel and cobbles and extends to a maximum depth of 20 feet. The underlying silty, fine-grained sand unit ranges in thickness from a few feet to 30 feet. The underlying till consists of clay and silt, with local occurrences of large rock clasts and pebbles, and ranges in thickness from two to ten feet. The average depth to groundwater at this site is 12 to 38 feet bgs. Groundwater in the overburden unit generally flows to the southeast towards the Rahway River, except in the vicinity of the product recovery extraction wells where flow is locally towards the wells, when operational. The underlying bedrock unit consists of siltstone and shale of the Passaic Formation. Depth to bedrock varies from approximately 20 feet to 50 feet bgs. The bedrock unit has been divided into a shallow unit and a deep unit. The shallow bedrock unit is defined as the upper 30 feet of bedrock. Goundwater flow direction in the shallow bedrock unit is generally to the southeast, except for localized flow towards the product recovery extraction wells, when operational. Groundwater flow direction in the deep bedrock unit is to the south-southeast (Ref. 6). Volatile organic compounds (VOCs) have been detected in the overburden and bedrock units above New Jersey Ground Water Quality Criteria (NJ GWQC) for Class II-A potable groundwater, since semi-annual groundwater monitoring was initiated in 1994.

In summary, all AOCs are currently inactive and the site has been redeveloped into a golf course, as shown in Figure 1 from a GM letter to USEPA dated November 12, 2001 (Ref. 7). Soil contamination has been addressed by excavating a majority of soil contamination above NJ NRDCSCC, and installing a multi-layered (geotextile/soil) cap. Additional clean fill has also been added throughout the site during development of the golf course. A Deed Notice has been implemented to restrict intrusive activities at the site. Remedial actions associated with soil at the site are complete and a RAR has been submitted to NJDEP. The RAR is currently under review by NJDEP. No additional remedial actions for soil are

planned for the site. Semi-annual groundwater monitoring to evaluate contaminant concentrations in the overburden, shallow bedrock, and deep bedrock units is ongoing.

References:

1. Memorandum from Thomas Sherman, NJDEP, to Linda Grayson, NJDEP, re: Case Transfer of Hyatt Clark Industries, Inc. Dated March 28, 1991.
2. Summary Documentation Report - Facility Decommissioning. Dated May 6, 1991.
3. Remedial Action Workplan. Prepared by URS Greiner. Dated October 1998.
4. Remedial Action Report. Prepared by URS Greiner Woodward Clyde, Inc. Dated November 2000.
5. Letter from Kim Tucker-Billingslea, GM, to Wayne Bevan, NJDEP, re: Former Hyatt Clark Industries, Inc., Clark, NJ, ISRA Case No. 87769 [Deed Notice]. Dated April 20, 2001.
6. Remedial Action Workplan For Groundwater. Prepared by Arcadis Gerahgty & Miller. Dated May 25, 2001.
7. Letter from Kim Tucker-Billingslea, GM Worldwide Facilities Group Environmental Services Remediation Team, to Alan Straus, USEPA Region 2, re: Former Hyatt Clark Industries Site, Clark New Jersey, EPA I.D. NJD002457174, ISRA Case No. E87769, Responses to USEPA Questions regarding CA725 and CA750. Dated November 12, 2001.
8. Letter from Stephen Maybury, NJDEP, to Kim Tucker-Billingslea, GM Corp., re: Administrative Consent Order in the Matter of Hyatt Clark Industries, Inc. Dated November 19, 2001.

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be "**contaminated**"[2] 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, LNAPL, PCBs
Air (indoors)[3]		X		
Surface Soil (e.g., <2 ft)	X			SVOCs, metals, PCBs, TPH
Surface Water			X	VOCs
Sediment			X	VOCs
Subsurface Soil (e.g., >2 ft)	X			SVOCs, metals, PCBs, TPH
Air (Outdoor)		X		

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

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

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

Rationale:

Groundwater

VOC contamination in excess of the NJ GWQC has been reported in the overburden and bedrock units within the facility boundaries. Maximum concentrations reported in the most recent sampling event for which data are available (September 2001), are summarized in Table 1 (Ref. 9). These data indicate chlorinated VOC levels above the NJ GWQC for bromoform, chloroform, cis-1,2-dichloroethene (cis-1,2-DCE), 1,1-dichloroethene (1,1-DCE), 1,1-dichloroethane (1,1-DCA), 1,2-dichloroethane (1,2-DCA), 1,1,2,2-tetrachloroethane, tetrachloroethene (PCE), trichloroethene (TCE), 1,1,1-trichloroethane (1,1,1-

[2] "Contamination" and "contaminated" describes 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).

[3] Recent evidence (from the Colorado Dept. 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.

TCA), and vinyl chloride (VC). The highest VOC concentrations occur in wells on the western portion of the facility within approximately 200 feet of the former maintenance building and drum storage area. The highest concentrations are reported in MW-19 in the overburden unit (74 µg/L of TCE and 76 µg/L of PCE), MW-9B in the shallow bedrock unit (880 µg/L of TCE and 54 µg/L of 1,1-DCE), and MW-10B in the deep bedrock unit (530 µg/L of TCE and 130 µg/L of 1,1-DCA). In the RAW for Groundwater (Ref. 2), GM reports that the VOC contamination in the deep bedrock unit underlying the HCI site is likely due to off-site sources, and therefore proposes to exclude this unit from remedial action. Supportive evidence presented in the RAW for off-site sources included contamination in the deep bedrock (MW-10B) at a location upgradient of on-site sources, differences in contaminants between deep bedrock wells and overburden/shallow bedrock wells, and the presence of trichlorofluoromethane in deep bedrock wells that has not been detected in the overburden/shallow bedrock units. NJDEP is currently reviewing the RAW for Groundwater and is developing a position on the source of deep bedrock contamination.

Table 1 - Maximum Concentrations Detected in Groundwater During the September 2001 Sampling Round (µg/L)

Aquifer	Contaminant	Maximum Concentration [1]	Well I.D. / Location	NJ GWQC Class IIA[2]
Overburden	**VOCs**			
	cis-1,2-DCE	280	MW-19 / west side	70
	1,1-DCE	44	MW-19 / west side	2
	1,1-DCA	330	MW-19 / west side	50
	1,2-DCA	6.6	MW-19 / west side	2
	PCE	76	MW-19 / west side	1
	TCE	74	MW-19 / west side	1
	1,1,1-TCA	63	MW-19 / west side	30
	VC	57	MW-19 / west side	5
	PCBs			
	Aroclor 1254	1.4	MW-18 / west side	0.5
Shallow Bedrock	**VOCs**			
	cis-1,2-DCE	410	MW-09B / west side	70
	1,1-DCE	54	MW-09B / west side	2
	1,1-DCA	160	MW-09B / west side	50
	PCE	41	MW-38B / west side	1
	1,1,2,2-tetrachloroethane	1.5	MW-36B / east side	1
	TCE	880	MW-09B / west side	1
	1,1,1-TCA	17	MW-09 / west side	30
	trans-1,2-DCE	220	MW-09B / west side	100
	VC	130	MW-09B / west side	5
Deep Bedrock	**VOCs**			
	Bromoform	36	MW-10B2 / west side	4
	Chloroform	28	MW-85B3 / east side	6
	1,1-DCE	99	MW-31B2 / central	2
	1,1-DCA	130	MW-10B / west side	50
	1,2-DCA	11	MW-10B / west side	2
	PCE	85	MW-31B2 / central	1
	TCE	530	MW-10B / west side	1
	VC	8.2	MW-10B / west side	5
Off-Site US Gypsum Production Wells[3]	**VOCs**			
	1,1-DCE	9.5	USG-2	2
	Chloroform	15	USG-2	6
	PCE	5.3	USG-2	1
	TCE	120	USG-2	1
Off-Site Villa Construction Company Wells (Completed in overburden)	**VOCs**			
	1,1-DCE	17	MW-45	2
	PCE	260	MW-45	1
	TCE	8.5	MW-41	1
	VC	13	MW-41	2
	Metals			
	Lead	23.3	MW-43	10

[1] Groundwater samples collected in September 2001 (Ref. 9), except for the US Gypsum Wells, which were collected in December 1997 (Ref. 2), and the Villa Construction Co. wells, which were sampled in July and August 1998 (Ref. 2).

[2] NJ GWQC is the higher of the GWQC or the Practical Quantitation Level (PQL)

[3] USG-1 completed in shallow and deep bedrock. Completion details for USG-2 are not available.

GM has proposed monitored natural attenuation (MNA) to remediate the dissolved phase VOC contamination in the overburden and shallow bedrock units (Ref. 2). As mentioned previously, the deep bedrock unit is excluded from the proposed remedial action. The proposal includes a monitoring program to track the attenuation results. The first two years of the program will include semi-annual monitoring for VOC and biochemical parameters and annual monitoring for PCBs, followed by three years of annual monitoring of these constituents. A Classification Exception Area (CEA) for the overburden and shallow bedrock units will be developed to provide notice to NJDEP and other agencies that NJ GWQC will not be met. The CEA boundaries encompass the entire site plus an extension 500 feet downgradient of the southern perimeter of the site. The proposed CEA duration is 30 years, but may be revised, along with the boundaries, as the fate and transport model is revised based on newly-collected groundwater monitoring data. The proposals presented in the RAW for groundwater (Ref. 2) regarding MNA and the CEA are currently under NJDEP review.

The VOC contamination also extends to the downgradient (southeastern) border of the facility. The latest monitoring data indicate levels above the NJ GWQC for TCE in the overburden unit (4.6 µg/L in MW-37 and 6.8 µg/L in MW-39); and 1,1-DCE and TCE in the shallow bedrock unit (4.6 µg/L and 24 µg/L in MW-37B) (Ref. 9). Two US Gypsum production wells (USG-1 and USG-2), which supply process water for the manufacture of paper for wallboard, are located downgradient, 1,000 feet to the south (USG-1) and 500 feet to the southeast (USG-2), and extend to depths of 505 and 300 feet bgs, respectively. In addition, it has been demonstrated that these wells are hydraulically connected to the site. Well construction details for USG-1 report an open borehole within the bedrock, indicating that the well extracts water from both the shallow and deep bedrock units (Ref. 7). Continuous water level monitoring has indicated that all on-site deep bedrock wells (MW-10B, MW-10B2, MW-10B3, MW-31B2, MW-31B3, MW-37B2, MW-37B3, MW-84B3, MW-85B3, MW-86B3), as well as shallow bedrock wells MW-37B and MW-39B, respond to pumping of the US Gypsum wells. The remaining shallow bedrock and overburden wells are not hydraulically connected to the US Gypsum wells (Ref. 2)

In December 1997, GM sampled the US Gypsum wells and reported chlorinated VOCs in excess of the NJ GWQC (Ref. 2). GM argues in the RAW that the presence of trichlorofluoromethane, which has not been detected in the overburden/shallow bedrock units on site, suggests that an off-site source has impacted these wells. However, GM's argument is flawed because well construction details for USG-1 indicate that the well extracts water from both the shallow and deep bedrock units (Ref. 1). To further support the position that on-site activities have not impacted the US Gypsum wells, GM performed fate and transport modeling in April 2001 on TCE in the overburden and shallow bedrock units (Ref. 2). The model indicated that plume migration (1 µg/L TCE contour) would take a period of 99 years to extend 500 feet downgradient of the site, which is the approximate location of the closest US Gypsum well USG-2. Based on these results, GM has argued that plume migration to the Rahway River is also unlikely. However, these results have not been verified by off-site monitoring wells. The downgradient extent of the VOC plume has not been delineated.

VOC contamination has also been documented at off-site locations along the southwestern section of the facility. Samples collected in 1998 at six overburden monitoring wells (MW-40, MW-41, MW-42, MW-43, MW-44, MW-45) located on the Villa Construction Company property indicate levels of PCE, TCE, 1,1-DCE, and VC above the NJ GWQC (Table 1). The highest concentrations were detected at MW-45 (260 µg/L of PCE), which is located furthest from the site. However, because the concentration at MW-45 is elevated above those encountered on site, the RAW (Ref. 2) argued that the contamination at MW-45 can be attributed to off-site sources. The origin of the VOC contaminants in the five remaining wells were not discussed in the RAW. These wells are located in close proximity to contaminated zone on the

western side of the facility, which makes on-site sources plausible. The RAW for Groundwater is currently under review by NJDEP.

PCBs have been detected infrequently and generally decreased when low-flow sampling was introduced. The most recent data indicate that PCB concentrations exceeded the NJ GWQC at one well in the overburden aquifer (MW-18, 1.4 µg/L Aroclor 1254) (Ref. 9). Metal concentrations have also exceeded NJ GWQC in the past, but generally decreased to below the limits when low-flow sampling was introduced. Consequently, the groundwater monitoring program no longer includes metal analyses, except for well MW-37B. The most recent monitoring data indicate that metal concentrations at MW-37B were below the NJ GWQC (Ref. 9).

Free product has been detected in the overburden and shallow bedrock units. Samples collected in 1996 indicate that the product is similar to AW Machine Oil 22 and heat transfer oil (Ref. 1). According to the most recent monitoring results, free product is concentrated in the west central portion of the site, with product thicknesses that vary from 0.03 feet at OW-25D to 11.07 feet at OW-25M (Ref. 8). The facility operated a product skimming system from 1992 to 1996 and an Interim Product Recovery (IPR) system from 1997 to early 2001.

In April 2001, operation of the IPR system was terminated because GM was awaiting NJDEP authorization for the application for Reclaimed Water for Beneficial Reuse for effluent discharge (Refs. 4, 5), which is required to realize plans to discharge the groundwater effluent to the on-site lined irrigation pond for subsequent spray irrigation for the golf course. It is also reported that the shutdown occurred to allow for the construction of the Final Product Recovery (FPR) system and the golf maintenance buildings (Ref. 7). As a result of this system shut down, hydraulic control was lost in the overburden and shallow bedrock units during this time.

In September 2001, the facility began operating the Final Product Recovery (FPR) system (Ref. 8). The FPR system includes nine overburden (OW-22, OW-25M, OW-28S, OW-29, OW-47R, OW-49, OW-58, OW-66) and six shallow bedrock extraction wells (OW-28D, OW-52D, OW-53D, OW-58D, OW-59D, OW-77D) (Ref. 8) and an upgraded treatment system (Ref. 6). Effluent from the FPR system is stored in holding tanks and periodically transported to the Rahway Valley Sewage Authority for disposal (Ref. 6). Evaluation of upcoming monitoring data will allow assessment of whether hydraulic control has been re-established since the temporary shutdown of the system.

Air (Indoors)

Based on the volatile nature of the contaminants detected on site and the average depth to groundwater at the site (12 to 38 feet bgs), migration of volatile contaminants in groundwater to indoor air may be a concern at the HCI site. Thus, the maximum detected VOC concentrations in the overburden unit were compared to the State of Connecticut Groundwater Standards for the Protection of Indoor Air under the Industrial/Commercial Scenario (CT I/C VC) to determine whether migration of VOCs to indoor air may be of concern. Table 2 identifies the maximum detected concentration that exceeded the CT I/C VC during the most recent sampling event (2001) (Ref. 9).

Table 2 - Groundwater Exceedences of the CT I/C VC in the Overburden Unit (µg/L)

Contaminant	CT I/C VC	Maximum Detection
1,1-DCE	6	44 (MW-19)
VC	2	57 (MW-19)

The maximum detected concentrations are at the western side of the site (MW-19), beneath the driving range area. No buildings are present in this area of elevated VOC concentration. The buildings present on the site include a maintenance compound, product recovery building, toilet pavilion/pump house, and club house (Ref. 7). The LNAPL and/or dissolved phase groundwater contaminant plumes are not located beneath any of these buildings (Ref. 1). The maintenance compound and product recovery building are located north of the driving range, upgradient of the plumes (Ref. 7). The toilet pavilion/pump house is adjacent to the pond, crossgradient of the plumes (Ref. 7). The club house for the golf course is located in the southern portion of the facility, downgradient of maximum detected concentrations of 1,1-DCE and VC. The current groundwater data from wells MW-18 and MW-17A, which are approximately 200 feet east-northeast (upgradient) of the club house, indicate that 1,1-DCE and VC are not present in groundwater at levels exceeding the CT I/C VC. Thus, volatilization of contaminants to indoor air at this site is not considered a concern at this time.

Surface/Subsurface Soil

Surface and subsurface soil at the site has been impacted by SVOCs, PCBs, and metals above NJ RDCSCC, NJ NRDCSCC, and/or NJ IGWSCC. Although the Deed Notice outlines the residual contamination above the NJ RDCSCC, the current use of the site is non-residential. Given the current industrial use of the site, only contaminants exceeding the NJ NRDCSCC are of concern. Table 3 presents all residual contaminant concentrations present at the site above NJ NRDCSCC (Ref. 3). The contaminant concentrations presented for surface soil and subsurface soil in Table 3 are based upon the original samples depths. However, fill (i.e., approximately 3 feet or more) has been added in many areas of the site such that a majority of the contamination currently resides in the subsurface.

Table 3 - Residual Contamination Present in Soil Above NJ NRDCSCC (mg/kg)

AOC	Contaminant	NJ NRDCSCC	Surface Soil Maximum Detection	Subsurface Soil Maximum Detection
AOC 1	Benzo(a)anthracene	4	- -	20
	Benzo(a)pyrene	0.66	- -	9.5
	Benzo(b)fluoranthene	4	- -	15
	Dibenz(a,h)anthracene	0.66	- -	1.5
AOC 3[1]	Arsenic	20	44.3	- -
AOC 4	Arsenic	20	128	31.6
	Benzo(a)anthracene	4	90	- -
	Benzo(a)pyrene	0.66	40	1.5
	Benzo(b)fluoranthene	4	75	- -

AOC	Contaminant	NJ NRDCSCC	Surface Soil Maximum Detection	Subsurface Soil Maximum Detection
	Benzo(k)fluoranthene	4	28	- -
	Chrysene	40	87	- -
	Copper	600	3,570	- -
	Dibenz(a,h)anthracene	0.66	13	- -
	Indeno(1,2,3-cd)pyrene	4	29.5	- -
	Lead	600	4,910	- -
	Total PCBs	2	661	113
	TPH	10,000	328,000	69,800
	Zinc	1,500	11,800	- -
AOC 5	Benzo(a)pyrene	0.66	0.81	- -
AOC 6	Arsenic	20	73	34.5
	Benzo(a)anthracene	4	13	10
AOC 6	Benzo(a)pyrene	0.66	8.6	8.6
	Benzo(b)fluoranthene	4	13	11
	Benzo(k)fluoranthene	4	8.2	8.2
	Copper	600	1,280	- -
	Dibenz(a,h)anthracene	0.66	1.1	- -
	Indeno(1,2,3-cd)pyrene	4	4.4	- -
	Lead	600	1,100	- -
	Total PCBs	2	37.2	3,400
	TPH	10,000	122,000	122,000
AOC 8	Benzo(a)pyrene	0.66	- -	0.81
AOC 9	Benzo(a)pyrene	0.66	0.89	- -

-- indicates that the contaminant was not detected above NJ NRDCSCC.

[1] The maximum detected concentration is located at an adjacent off-site location (S00604D).

Arsenic concentrations (44.3 and 35.7 mg/kg) were detected above NJ NRDCSCC (20 mg/kg) in two surface soil samples (S00604D and S00604C, respectively) collected as confirmation samples for excavation activities performed at AOC 3 (Ref. 3). The samples were located off site at an adjacent railroad property. Arsenic was not detected in an additional sample (S00604E) collected adjacent to the railroad track. Off-site arsenic impacts will be discussed further in Questions 3 and 4.

Surface Water/Sediment

There have been no documented impacts to on- or off-site surface water or sediment due to activities at the HCI site. A lined man-made pond, located in the northeastern portion of the site, was constructed in 2000 as part of the golf course. Given that a majority of the site has been covered with a multi-layer cap and clean fill, and given that a new surface water drainage system has been installed at the site, surface water runoff into the pond is not considered a concern. Impacted groundwater discharge to surface water in the man-made pond is also not a concern given that a liner was installed during construction and groundwater contamination is generally downgradient or crossgradient of the pond.

The Rahway River is located approximately 2,500 feet downgradient of the site. Based upon visual observation (Ref. 10), the river has very steep embankments and extremely minimal flow in the vicinity of the site. Based upon a review of recent groundwater data, PCE, TCE, and 1,1-DCE have been detected in downgradient shallow and/or deep bedrock wells (MW-37B, MW-37B2, MW-37B3, MW-85B3) at concentrations greater than ten times the NJ GWQC and/or New Jersey Surface Water Quality Criteria (NJ SWQC). In addition, PCE and TCE have been detected in groundwater from the off-site US Gypsum Production Wells (USG-1 and USG-2) at concentrations greater than ten times the NJ GWQC and/or NJ SWQC. Table 4 presents the most recent groundwater concentrations in downgradient shallow and deep bedrock wells at the site, and off-site US Gypsum wells, where concentrations are greater than ten times the NJ GWQC and/or NJ SWQC.

Table 4 - Recently Detected Groundwater Concentrations at Downgradient Monitoring Well Locations (µg/L)

Well	Contaminant	Concentration [1]	NJ GWQC [2]	NJ SWQC
Shallow Bedrock				
MW-37B	TCE	24	**1**	**1.09**
Deep Bedrock				
MW-37B2	1,1-DCE	24	**2**	4.81
	TCE	65	**1**	**1.09**
	PCE	15	**1**	**0.388**
MW-37B3	1,1-DCE	44	**2**	4.81
	TCE	160	**1**	**1.09**
	PCE	43	**1**	**0.388**
MW-85B3	TCE	47	**1**	**1.09**
Off Site				
USG-1[3]	TCE	41	**1**	**1.09**
USG-2	PCE	5.3	1	**0.388**
	TCE	120	**1**	**1.09**

[1] Groundwater samples collected in September 2001 (Ref. 9), except for the US Gypsum Wells, which were collected in December 1997 (Ref. 2).
[2] NJ GWQC is the higher of the GWQC or the Practical Quantitation Level (PQL)
[3] USG-1 completed in shallow and deep bedrock. Completion details for USG-2 are not available.
Criteria in **bold** are exceeded by ten times.

Fate and transport modeling on TCE in the overburden and shallow bedrock units was conducted in April 2001 (Ref. 2). The model indicated that plume migrations (1 µg/L TCE contour) would take a period of 99 years to extend 500 feet downgradient of the site, the approximate location of US Gypsum well USG-2. GM has not taken responsibility for the groundwater contamination in the US Gypsum wells or in the deep bedrock unit. GM argues that contamination in the deep bedrock unit is from a source upgradient of the HCI site. Because of the modeling results and the fact that GM believes contamination in the deep bedrock unit is due to an upgradient source, no monitoring wells have been installed south-southeast of the site to delineate the downgradient extent of VOCs. Therefore, the downgradient extent of the VOC plume is not currently defined. Given that TCE and PCE are present in groundwater at levels well above NJ GWQC (160 times and 43 times, respectively) and NJ SWQC (142 times and 110 times, respectively) at the downgradient property boundary, potential impacts to surface water and sediment in the Rahway River are currently considered unknown.

Air (Outdoors)

No assessment of the impacts to outdoor air has been conducted at the site. Migration of VOCs in groundwater into outdoor air in not expected to be of concern due to the natural dispersion of contaminants once they reach the surface. In addition, contaminated soil is either underneath a multi-layered cap, clean

fill, or in vegetated areas, which significantly reduces the dispersion of contaminated particulates. Thus, the migration of contaminated particulates and/or volatile emissions are not expected to be significant exposure pathways at the site.

References:

1. Remedial Action Plan for Free Product. Prepared by Arcadis Geraghty & Miller. Dated February 7, 2000.
2. Remedial Action Workplan For Groundwater. Prepared by Arcadis Geraghty & Miller. Dated May 25, 2001.
3. Letter from Kim Tucker-Billingslea, BM, to Wayne Bevan, NJDEP, re: Former Hyatt Clark Industries, Inc., Clark, NJ, ISRA Case No.87769 [Deed Notice]. Dated April 20, 2001.
4. March 2001 Semi-Annual Groundwater Monitoring Report. Former Hyatt Clark Industries Site, Clark, New Jersey. Prepared by Arcadis Geraghty & Miller. Dated June 21, 2001.
5. Letter from Kim Tucker-Billingslea, GM Worldwide Facilities Group Environmental Services Remediation Team, to Wayne Bevan, NJDEP, re: Former Hyatt Clark Industries, Inc., Clark, NJ, Remedial Action Plan for Free Product, ISRA Case No. 87769. Dated August 2, 2001.
6. Letter from Kim Tucker-Billingslea, GM Worldwide Facilities Group Environmental Services Remediation Team, to Wayne Bevan, NJDEP, re: Former Hyatt Clark Industries, Inc., Clark, NJ, Remedial Action Plan for Free Product, ISRA Case No. 87769. Dated October 18, 2001.
7. Letter from Kim Tucker-Billingslea, GM Worldwide Facilities Group Environmental Services Remediation Team, to Alan Straus, USEPA Region 2, re: Former Hyatt Clark Industries Site, Clark New Jersey, EPA I.D. NJD002457174, ISRA Case No. E87769, Responses to USEPA Questions regarding CA725 and CA750. Dated November 12, 2001.
8. Letter from Stephen Maybury, NJDEP, to Kim Tucker-Billingslea, GM Corp., re: Administrative Consent Order in the Matter of Hyatt Clark Industries, Inc. Dated November 19,2001.
9. September 2001 Semi-Annual Groundwater Monitoring Report. Former Hyatt Clark Industries Site, Clark, New Jersey. Prepared by Arcadis Geraghty & Miller. Dated November 27,2001.
10. Telephone conference between Alan Straus, USEPA and Kristin McKenney, Booz Allen Hamilton, Inc. re: Hyatt Clark Site. Dated February 12, 2002.

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

Instruction for Summary Exposure Pathway Evaluation Table:

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

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

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

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

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

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

Rationale:

Groundwater

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

Local groundwater well use searches conducted in 1991, 1993, and 1995 documented groundwater wells located within a one half-mile radius of the site. Results identified 14 groundwater wells in the vicinity of the site, including 9 monitoring wells, 2 industrial use wells, and 3 private wells (Ref. 1). The three private wells are located upgradient of the HCI Site (Ref. 1). The two industrial wells are located at the adjacent US Gypsum facility. Groundwater from these wells is used only for manufacturing operations, and is not used for potable purposes (Ref. 4). The residences in the vicinity are supplied with public water by the Elizabethtown Water Supply Company (Ref. 1). There are no private or public potable water supply wells located within one half-mile of the site; thus, this pathway is not considered complete.

The US Gypsum wells are located approximately 500 and 1,000 feet downgradient of the site to the south and southeast (Ref. 4). The wells extend to depths of 300 and 505 feet bgs and supply process water for the manufacture of paper for wallboard. Well construction details for the well located 1,000 feet from site (USG-1) report an open borehole within the bedrock, indicating that the well extracts water from both the shallow and deep bedrock units (Ref. 5). US Gypsum reported that the well water is not used for drinking, showering, or sanitary purposes, but solely for manufacturing processes. Thus, it appears that US Gypsum employees could potentially have dermal contact with contaminated process water based upon the available file material. However, US Gypsum has advised GM that their health and safety staff were made aware of the testing results from these two production wells and are satisfied that their health and safety protocols adequately address the level of production well water exposure to plant staff. It should be noted that GM maintains that VOCs detected in the US Gypsum production wells are from another off-site source and not from the HCI site. Considering that the well water is not used for potable purposes and that health and safety procedures are in place to limit any potential exposure to production water used at the US Gypsum site, this pathway was not considered to be complete.

The groundwater depth at the HCI site ranges from 12 to 38 feet bgs (Ref. 5). Because most intrusive activities do not occur at depths greater than ten feet, it is unlikely that on-site workers or construction workers would be exposed to contaminated groundwater. In addition, the majority of the site has been capped and a Deed Notice, which restricts intrusive activities, has been implemented, (Refs. 2, 3). Therefore, direct contact with contaminated groundwater is not considered a potentially complete pathway for on- or off-site construction workers.

Surface/Subsurface Soil

The facility has installed a multi-layered cap that covers a majority of the facility (AOC 4 and AOC 6). During development of the golf course, additional fill material (approximately three feet or more) was also placed over portions of the site such that the contaminated soil on site is now considered subsurface soil. A fence surrounds the entire site to prevent off-site receptors from entering. In addition, a Deed Notice has been implemented at the entire site. The Deed Notice outlines all residual contaminant levels at the site that are above the NJ RDCSCC. The Deed Notice restricts intrusive activities at the site in order to prevent exposure to residual contaminant concentrations at the site. The Deed Notice also requires maintenance and monitoring of the capping system in place at the site. There are currently no contaminant concentrations above NJ NRDCSCC in surface soil and the entire site is included in the site-wide Deed Notice; thus, there are currently no complete exposure pathways on site.

A minimal area of inorganic contamination exists just outside the southeastern corner of the site. Two post-excavation confirmation samples (S00604C and S00604D) were collected outside the eastern fenceline along the CSX railroad tracks. The two surface soil samples contained arsenic concentrations (35.7 and 44.3 mg/kg) slightly above the NJ NRDCSCC (20 mg/kg). The locations of these samples are shown on Figure 2-2 of the RAR (Ref. 2). Additional excavation was not conducted at this off-site property because the facility maintains that the off-site contamination is due to past herbicide/pesticide

application at the railroad property and not HCI activities (Ref. 2). In addition, GM indicated that a gas main is located in the area where elevated arsenic concentrations were detected; further limiting sampling and excavation opportunities in the area. Because these samples were located outside the perimeter of the fence, on-site workers from the golf course and recreators (e.g., golfers) are not expected to be exposed to arsenic contamination in this off-site area. A full-time railroad worker is not present on the railroad property (Ref. 6), but workers may periodically perform modification and inspections at the railroad tracks. However, the arsenic contaminated surface soil is not adjacent to the railroad tracks or surrounding ballast area, but is located just outside the site fence line in a highly vegetated area. Thus, railroad workers were not considered a potential receptor of concern. Construction workers (i.e., gas line utility workers) and trespassers, who may be present in this off-site area, are the only potential receptor pathways considered potentially complete at this time.

Surface Water/Sediment

As previously mentioned in Question 2, the Rahway River is located approximately 2,500 feet downgradient of the site. Given that the downgradient extent of the dissolved phase VOC plume has not been documented, the migration of elevated contaminant concentrations from groundwater beneath the site to the river is unknown. Thus, the potential impacts to surface water and sediment in the Rahway River are currently unknown. The Rahway River is classified as a FW2-NT (e.g., fresh water, nontrout). The FW2 classification indicates that the Rahway River's designated uses are maintenance, migration and propagation of the natural and established biota, primary and secondary contact recreation, industrial and agricultural water supply, and public potable water supply after treatment. The NT classification indicates the Rahway River is generally not suitable for trout population because of its physical, chemical, or biological characteristics. Based upon visual observation (Ref. 7), the river has very steep embankments and extremely minimal flow in the vicinity of the site. Because of classification and surface characteristics, a recreator is not expected to be engaged in primary contact recreation (e.g., fishing or swimming) in this portion of the river. Thus, exposure to a recreator is not considered a potentially complete exposure pathway. However, because access to the river is not restricted and the impacts to the river are unknown, a trespasser scenario is considered a potentially complete exposure pathway.

References:

1. Remedial Action Workplan. Prepared by URS Greiner. Dated October 1998.
2. Remedial Action Report. Prepared by URS Greiner. Dated November 2000.
3. Letter from Kim Tucker-Billingslea, GM, to Wayne Bevan, NJDEP, re: Former Hyatt Clark Industries, Inc., Clark, NJ, ISRA Case No. 87769 [Deed notice]. Dated April 20, 2001.
4. Remedial Action Workplan For Groundwater. Prepared by Arcadis Gerahgty & Miller. Dated May 25, 2001.
5. Letter from Kim Tucker-Billingslea, GM Worldwide Facilities Group Environmental Services Remediation Team, to Wayne Bevan, NJDEP, re: Former Hyatt Clark Industries, Inc., Clark, NJ, Remedial Action Plan for Free Product, ISRA Case No. 87769. Dated October 18, 2001.
6. Letter from Kim Tucker-Billingslea, GM Worldwide Facilities Group Environmental Services Remediation Team, to Alan Straus, USEPA Region 2, re: Former Hyatt Clark Industries Site, Clark New Jersey, EPA I.D. NJD002457174, ISRA Case No. E87769, Responses to USEPA Questions regarding CA725 and CA750. Dated November 12, 2001.
7. Telephone conference between Alan Straus, USEPA and Kristin McKenney, Booz Allen Hamilton, Inc. re: Hyatt Clark Site. Dated February 12, 2002.

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:

Surface Soil

The arsenic contamination detected in surface soil at the two off-site sample locations (S00604C and S00604D) is not restricted to potential receptors (Ref. 3). However, visual observation at the site (Refs. 3, 4) indicates that the impacted area is covered with extremely thick vegetation, measuring approximately two to five feet in height, making direct exposure to surface soil unlikely (Ref. 2). Thus, trespasser exposures to elevated arsenic concentrations in surface soil at this off-site area are not expected to be significant given the thick vegetative cover and minimal extent of contamination.

GM indicates that the elevated arsenic concentrations are located within the vicinity of a gas line (Ref. 1). Thus, utility workers may potentially become exposed to elevated concentrations of arsenic while conducting any necessary maintenance activities at the gas line. However, given the limited extent of contamination above NJ NRDCSCC (i.e., only 2 sample locations), minimal exceedences of the NJ NRDCSCC (i.e., less than 3 times the criteria), and limited exposure time of a potential utility worker in this area, exposure to a utility worker is expected to be insignificant. In addition, it is expected that a utility worker would conduct excavation activities in accordance with Occupational Health and Safety Administration (OSHA) guidelines, and potentially wear personal protective equipment that would further limit potential exposure to elevated arsenic concentrations.

As previously mentioned, GM contends that the arsenic concentrations in the off-site area are due to past railroad activities (i.e., pesticide/herbicide use), and not due to activities at the GM site (Refs. 1, 3).

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[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.

NJDEP is currently reviewing available documentation to determine whether GM or CSX will be required to conduct additional delineation sampling, in order to implement a Deed Notice.

Surface Water/Sediment

Recently detected VOC concentrations in shallow and deep bedrock wells along the downgradient property boundary are greater than ten times the NJ GWQC and/or NJ SWQC. GM argues that the VOC contamination in the deep bedrock unit is not due to past activities at the HCI site, but due to an upgradient source. NJDEP is currently reviewing available information to determine whether GM's contention is accurate. GM has also performed fate and transport modeling that indicated that contamination in the shallow bedrock unit would migrate approximately 500 feet downgradient of the site within a 99-year time span (Ref. 2). Because GM maintains that the groundwater contamination in the deep bedrock unit is not a result of HCI activities, and groundwater in the shallow bedrock unit is not expected to reach the river, little information is available on the groundwater flow and potential groundwater to surface water discharge downgradient of the site. No monitoring wells have be installed off site to delineate the extent of the dissolved phase VOCs in groundwater; thus, the potential impacts of groundwater contamination downgradient of the site are unknown. However, trespasser exposure to impacted surface water and/or sediment in the river in not expected to be significant for several reasons. Given the distance of the downgradient wells with elevated VOC concentrations to the Rahway River (i.e., approximately 2,500 feet), it is unlikely that concentrations detected in these wells will migrate to the river at similar concentrations. In addition, the contaminants are VOCs. Thus, it is likely that contaminant concentrations would be significantly reduced by the time they reach the river, or volatilize upon reaching the river. As previously mentioned, the portion of the Rahway River downgradient of the site has steep embankments and minimal flow. It is unlikely that a trespasser would frequent this portion of the river on a routine basis. Therefore, although the trespasser is a potentially complete exposure pathway, it is unlikely that a trespasser will be exposed to significant levels of VOC concentrations in surface water and sediment in the Rahway due to potentially contaminated groundwater discharge to surface water from the HCI site.

References:

1. Remedial Action Report. Prepared by URS Greiner. Dated November 2000.
2. Remedial Action Workplan For Groundwater. Prepared by Arcadis Geraghty & Miller. Dated May 25, 2001.
3. Letter from Kim Tucker-Billingslea, GM Worldwide Facilities Group Environmental Services Remediation Team, to Alan Straus, USEPA Region 2, re: Former Hyatt Clark Industries Site, Clark New Jersey, EPA I.D. NJD002457174, ISRA Case No. E87769, Responses to USEPA Questions regarding CA725 and CA750. Dated November 12, 2001.
4. Telephone conference between Alan Straus, USEPA and Kristin McKenney, Booz Allen Hamilton, Inc. re: Hyatt Clark Site. Dated February 12, 2002.

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 HCI Site, facility EPA ID#NJD002457174, located at 1300 Raritan Road in Clark/Cranford Township, Union County, New Jersey, under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

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

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

Completed by: _____ Date:_____

Angela Sederquist
Risk Assessor
Booz Allen Hamilton

Reviewed by: _____ Date:_____

Kristin McKenney
Senior Risk Assessor
Booz Allen Hamilton

Also Reviewed by: _____ Date:_____

Alan Straus, Remedial Project Manager
RCRA Programs Branch
USEPA Region 2

_____ Date:_____

Barry Tornick, Section Chief
RCRA Programs Branch
USEPA Region 2

Approved by: original signed by: Date: 8/1/2002

Raymond Basso, 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
(212) 637-4160
staus.alan@epa.gov

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

Attachments

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

- Attachment 1 - Summary of Media Impacts Table

Attachment 1 - Summary of Media Impacts Table

Hyatt Clark Industries, Clark/Cranford Township, Union County, New Jersey

AOC	GW [1]	AIR (Indoors)	SURFACE SOIL	SURFACE WATER	SEDIMENT	SUBSURFACE SOIL	AIR (Outdoors)	CORRECTIVE ACTION MEASURE	KEY CONTAMINANTS
AOC 1	NA	No	No	No	No	Yes	No	▸ UST and ancillary piping removal/soil excavation ▸ 1-3 feet of clean fill added for final grade ▸ Deed Notice ▸ NFA	SVOCs
AOC 2	NA	No	No	No	No	No	No	▸ UST removal/soil excavation ▸ 1-3 feet of clean fill added for final grade ▸ NFA	
AOC 3	NA	No	Yes	No	No	No	No	▸ UST removal/soil excavation ▸ Excavated arsenic contaminated soil ▸ 1-3 feet of clean fill added for final grade ▸ Deed Notice	Arsenic
AOC 4	NA	No	Yes	No	No	Yes	No	▸ Decommissioned surface structures, removed tanks and ancillary equipment ▸ RCRA Closure of SWMUs ▸ Installed multi-layer cap ▸ Deed Notice	SVOCs, metals, PCBs, and TPH
AOC 5	NA	No	Yes	No	No	No	No	▸ Decommissioned surface structures, removed tanks and ancillary equipment ▸ RCRA Closure of SWMUs ▸ 1-3 feet of clean fill added for final grade ▸ Deed Notice	SVOCs and PCBs

AOC	GW [1]	AIR (Indoors)	SURFACE SOIL	SURFACE WATER	SEDIMENT	SUBSURFACE SOIL	AIR (Outdoors)	CORRECTIVE ACTION MEASURE	KEY CONTAMINANTS
AOC 6	NA	No	Yes	No	No	Yes	No	▸ Decommissioned surface structures ▸ Installed multi-layer cap ▸ Deed Notice	SVOCs, metals, PCBs, and TPH
AOC 7	NA	No	No	No	No	No	No	▸ Decommissioned surface structures ▸ Excavated impacted soil ▸ 1-3 feet of clean fill added for final grade ▸ NFA	
AOC 8	NA	No	No	No	No	Yes	No	▸ 1-3 feet of clean fill added for final grade ▸ Deed Notice ▸ NFA	SVOCs
AOC 9	NA	No	Yes	No	No	No	No	▸ Demolition of the parking lot ▸ 1-3 feet of clean fill added for final grade ▸ Deed Notice ▸ NFA	SVOCs
AOC 10	NA	No	No	No	No	No	No	▸ Decommissioned surface structures ▸ Installed a multi-layer cap ▸ NFA	
Site-Wide Groundwater	Yes							▸ Implemented free product removal plan (IPR and FPR) ▸ Submitted Remedial Action Workplan (May 2001) ▸ Semi-annual groundwater monitoring	VOCs and LNAPL

[1]- Groundwater has been investigated on a site-wide basis, not on an AOC basis.