

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name: Chem Pak. Corp.
Facility Address: 167 Mill St., Cranston, RI 02905
Facility EPA ID #: RID084802842

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?

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.

BACKGROUND

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 EI 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 objective of the RCRA Corrective Action program the EI 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 are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do 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 Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

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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)?

	<u>Yes</u>	<u>No</u>	<u>?</u>	<u>Rationale / Key Contaminants</u>
Groundwater	—	<u>X</u>	—	_____
Air (indoors) ²	—	<u>X</u>	—	_____
Surface Soil (e.g., <2 ft)	—	<u>X</u>	—	_____
Surface Water	—	<u>X</u>	—	_____
Sediment	—	<u>X</u>	—	_____
Subsurf. Soil (e.g., >2 ft)	—	<u>X</u>	—	_____
Air (outdoors)	—	<u>X</u>	—	_____

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.

_____ 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 and Reference(s):

See Next Page.

Footnotes:

¹ “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).

² 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.

2. Are groundwater, soil, surface water, sediments, or media known or....

Groundwater, soil, surface water, sediments, and air are not reasonably suspected to be "contaminated" above appropriately protective risk-based "levels". Chem Pak submitted the first round of sampling to EPA in a fax dated 7-30-01 that includes a letter to RI DEM dated 6-21-01. Data below. A Full report is to follow and will include a second round of sampling and all rationales. The second round of sampling is expected to occur in late 2001. Following the second round of sampling, wells will be monitored on a regular schedule.

Soil Analyses Summary						
Constituent	Ind./Com. Direct Exposure Criteria (ug/Kg)	GB Leachability Criteria (ug/Kg)	LFR-1 4'-8' (ug/Kg)	LFR-2 0'-4' (ug/Kg)	LFR-3 0'-4' (ug/Kg)	LFR-4 8'-12' (ug/Kg)
Naphthalene	10,000,000		2,270	536	<30	<38
Tetrachloroethene	110,000	4,200	111	13,500	21,700	<38
Trichloroethene	520,000	20,000	1,170	3,550	16,200	<38
1,1,1-Trichloroethane	10,000,000	160,000	< 67	149	457	<38
Cis-1,2-Dichloroethene	10,000,000	30,000	< 67	119	2,330	<38
1,1-Dichloroethane	10,000,000	700	< 67	<44	132	<38
Trans-1,2-Dichloroethene	10,000,000	92,000	< 67	<44	57	<38

Groundwater and surface water are not accessible or drinkable. Groundwater data, from same soil locations, indicates the levels of Tetrachloroethene are below applicable State standards for GB classified groundwater. See rule 8.03B method 1 Groundwater Objectives. Contamination is above the leachability levels but below human exposure levels. Site access is controlled with a locked gate and perimeter fence. VOC contamination is outside footprint of building.

In lieu of applicable volatilization criteria for the State of Rhode Island, the State of Connecticut Regulation of Department of Environmental Protection concerning Remediation Standards were consulted to evaluate indoor air.

Substance	GB Groundwater Objectives¹	Industrial/ Commercial Volatilization Criteria for Groundwater²	Sample ID			
			LFR-1	LFR-2	LFR-3	LFR-4
	(ug/L)	ppb	Result (ug/L)			
1,1-Dichloroethane	513197	50000000	2.53	4.69	ND	ND

¹ RI DEM, Rules and Regulations for the Investigation and Remediation of Hazardous Materials Release, March 31 1993, amended August 1996 (DEM-DSR-01-93)

² State of Connecticut Regulation of Department of Environmental Protection concerning Remediation Standards

1,1-Dichloroethane	513197	5000000	2.53	4.69	ND	ND
1,2-Dichloroethane	670000	90000	1.79	ND	ND	ND
2-Chlorotoluene	152520		4.37	ND	ND	ND
Benzene	18000	530000	ND	1.35	ND	ND
Chlorobenzene	56000	6150000	2.01	ND	ND	ND
cis-1,2-Dichloroethene	69000	6000	ND	79.8	20.6	14.8
Tetrachloroethene	216369	3820000	ND	6.19	ND	ND
Trichloroethene	87000	540000	9.87	4.73	1.65	ND
Vinyl Chloride	215	2000	92.3	39.3	10.3	2.72

In evaluating indoor air, to determine if there is reason to suspect "contaminants" to be above appropriately protective risk-based "levels", the data does not support this possibility. Levels within the groundwater are low in comparison to the State of Connecticut Regulation of Department of Environmental Protection concerning Remediation Standards and do not exceed the Industrial/Commercial Volatilization Criteria for Groundwater. In addition, the VOC contamination is located downgradient and outside the footprint of the building.

The concentrations of constituents detected do not exceed the industrial/commercial direct exposure criteria, but do exceed the GB leachability criteria, for tetrachloroethene, according to the RI DEM, Rules and Regulations for the Investigation and Remediation of Hazardous Materials Release, March 31 1993, amended August 1996 (DEM-DSR-01-93). However, groundwater data does not suggest that tetrachloroethene is leaching from the soil. In addition, comparison of groundwater samples from the four downgradient wells that are located outside the building footprint to groundwater volatilization criteria for the State of Connecticut defines the argument that indoor air is not reasonably suspected to be "contaminated" above appropriately protective risk-based "levels". Therefore, groundwater, soil, surface water, sediments, and air media are not reasonably suspected to be "contaminated" above appropriately protective risk-based "levels".

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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

<u>Contaminated Media</u>	Potential <u>Human Receptors</u> (Under Current Conditions)						
	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food ³
Groundwater	_____	_____	_____	_____			_____
Air (indoors)	_____	_____	_____				
Soil (surface, e.g., <2 ft)	_____	_____	_____	_____	_____	_____	_____
Surface Water	_____	_____			_____	_____	_____
Sediment	_____	_____			_____	_____	_____
Soil (subsurface e.g., >2 ft)				_____			_____
Air (outdoors)	_____	_____	_____	_____	_____		

Instructions 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 (“_____”). 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).
- _____ 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 and Reference(s):

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

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

YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the Chem Pak Corp facility, EPA ID # RID084802842, located at 167 Mill St., Cranston, RI 02905 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 (signature) Edgar A. Davis Date September 27, 2001
(print) _____
(title) Edgar A. Davis
RCRA Facility Manager

Supervisor (signature) Matthew R. Hayward Date 3/4/02
(print) Matthew R. Hayward
(title) Section Chief, RCRA Corr. Act. Prog.
(EPA Region or State) Reg. I.

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REV'D E
FRANK B
9-27-01

Locations where References may be found:

USEPA-REGION 1, RCRA FILES (1 CONGRESS ST, STE 1100, BOSTON MA)

Contact telephone and e-mail numbers

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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.