RDMS DocID 106597

New Hampshire Department of Environmental Services
DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION
RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name: Elementis Chemicals, Inc. (Former Harcros Chemical)
Facility Address: 441 Daniel Webster Highway, Merrimack, NH
Facility EPA ID #: NHD 000471771
DES Site #: 198901022

RCRA
Elementis
NHD000471771
R-13
#106597

INTRODUCTION

The purpose of this EI Determination is to provide documentation in support of the CA725 determination entered in the RCRAinfo for this site. The New Hampshire Department of Environmental Services, as an authorized Corrective Action Program, manages this site under the State Program to assure that conditions at the site do not adversely affect the protection human health and the environment. Documentation to support this EI Determination is presented for each criterion and is consistent with the United States Environmental Protection Agency requirements. All reports referenced are available for review at the Department's office and a limited number of reports are available on the Department's internet web site.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to look beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the surrounding environment. The two EI developed to-date address 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 subject to RCRA corrective action associated with the identified facility (i.e., there are no contaminants in concentrations that exceed appropriate risk-based levels).

Relationship of EI to Final Remedies

The EI are near-term objectives which are currently being used as Program measures to satisfy requirements of the Government Performance and Results Act of 1993, (GPRA).

The "Current Human Exposures Under Control" EI pertains only to reasonably expected human exposures under current land- and groundwater-use conditions. Final Remedies remain the long-term objective of the RCRA Corrective Action program and does not substitute for the development of further remedies (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). The Department will update EI Determinations in the event significant land use changes occur at the site.

Applicable Acronyms

The New Hampshire Department of Environmental Services - Department
Ambient Groundwater Quality Standards – AGQS
Risk Characterization and Management Policy – RCMP
Groundwater Management Permit – GMP
Remedial Action Plan - RAP
Surface Water Quality Standards – SWQS
Volatile Organic Compounds - VOCs
1,1- Dichloroethylene – 1,1-DCE
1,1-Dichloroethane – 1,1-DCA
Cis-1,2-Dichloroethylene – cis-1,2, DCE
Tetrachloroethylene – PCE
Trichloroethylene – TCE
Vinyl chloride – VC

DETERMINATION

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

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

2. Are groundwater, soil, surface water, sediments, or air media known or reasonably suspected to be "contaminated" 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)?

	YES	NO	?	RATIONAL
Groundwater	x			Exceeds AGQS for VOCs. See below
Air (indoors)		x		See below
Surface Soil, 2 feet or less		x		See below
Surface Water		x		See below
Sediment		x		See below
Air (outdoors)		x		See below
Subsurf. Soil (e.g., >2 ft)		x		See below

	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 and Reference:

Groundwater: A total of 25 different compounds have been detected in Site groundwater. AGQS is exceeded for 1,1-DCA, 1,1-DCE, Cis-1,2, DCE, PCE, TCE, VC, Naphthalene, Ethylbenzene and Chromium. GMP GWP-198901022-M-002 requires regular monitoring of site groundwater to ensure off-site migration is not occurring.

- GWP-198901022-M-002
- 2005 Annual Summary Report dated January 2006

Indoor Air – Currently the site and downgradient of the site is undeveloped. All structures adjacent to the site are upgradient of the contaminant plume and upgradient of the "clean" background monitoring wells.

Surface Soil – Remedial activities have addressed surficial soil contamination. Detailed information is contained in the following remedial reports:

- Remedial Action Plan dated June 1998
- Remedial Action Plan dated April 19, 2002
- Remedial Action Implementation Report dated August 14, 2002
- Supplemental RAP dated November 1, 2002
- GMP dated January 13, 2004
- Additional information Remedial Action Implementation dated March 15, 2004
- 2005 Annual Summary Report dated January 2006

Surface Water – Historic surface water impacts were significant at the site. Current sampling as required by the GMP of Baboosic Brook and Souhegan River have had minor detects and no impacts above the SWQS since October 2004. See the following report for current information:

- 2005 Annual Summary Report dated January 2006

Sediments – VOCs and metals have been detected in adjoining sediments. Elementis has determined the levels pose little or no risk to human health. The Department's Ecocological Risk Assessor agreed that the human risk was minimal, however questioned the determination and the results. Therefore, the Department has agreed to allow the groundwater remediation to proceed and upon meeting the site performance standard revisiting the sediment issue for any ecological risk. See the following reports:

- Sediment sampling plan dated April 2004
- Report on Sediment Sampling dated July 2004
- Elementis letter dated November 12, 2004
- Department letter dated December 1, 2004

Outdoor Air – Air monitoring during remedial activities have not detected contaminant concentrations above action levels.

Subsurface Soil – Soil contamination at depth continues to pose a threat to site groundwater. Current concentrations do not exceed the Department's Risk Based Standards. Remedial activities have included soil removal and underground injection of chemical oxidant. See the following reports for detail:

- Remedial Action Plan dated April 19, 2002
- Remedial Action Implementation Report dated August 14, 2002
- Supplemental RAP dated November 1, 2002

- Additional information Remedial Action Implementation dated March 15, 2004
- 2005 Annual Summary Report dated January 2006

Summary Exposure Pathway Evaluation Table

3 Potential Human Receptors (Under Current Conditions)

Contaminated Media, Recreation, Food	Residents	Workers	Day-Care	Construction	Trespassers
~~Groundwater~~					
~~Air (indoors)~~					
~~Surface Soil, 2 feet or less~~					
~~Surface Water~~					
~~Sediment~~					
~~Air (outdoors)~~					
~~Subsurf. Soil (e.g., >2 ft)~~					

X	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):

The site is currently a fenced, vacant lot with no occupied buildings or structures. The groundwater is not utilized as a drinking water source.

No workers, residents, day care operations or current construction projects are present. Therefore, this is not a complete exposure pathway.

Trespassers may be present. However, groundwater is not readily accessible. Other exposure pathways (i.e., surface water, sediments, surficial and subsurface soil, outdoor air) meet standards and pose little or no human risk.

4 Can the exposures from any of the complete pathways identified in #3 be reasonably expected to be "significant" (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)?

	If no (exposures can not 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 and Reference(s):

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 and Reference(s):

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 (All documentation must be referenced for future reference):

X	YES - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination. 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 David Bowen 8/16/06 Date
Print David Bowen
Title Hydrogeologist

Supervisor Signature Kenneth Kettenring 8/16/06 Date
Print Kenneth Kettenring
Title Hydrogeologist

REV'D BY FRANK BATTAGLIA
8/16/06
OK ✓

Locations where References may be found:
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