

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

Revised 9/20/02

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

Facility Name: Koch Nitrogen Company  
Facility Address: 11559 U.S. Highway 50, P.O. Box 1337, Dodge City, Kansas 67801-1337  
Facility EPA ID #: KSD044625010

**DETERMINATION RESULT: YE**

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.

**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).

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**Duration / Applicability of EI Determinations**

EI Determinations status codes should remain in RCRA Info national database ONLY as long as they remain true (i.e., RCRA Info status codes must be changed when the regulatory authorities become aware of contrary information).

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be **“contaminated”**<sup>1</sup> above appropriately protective risk-based “levels” (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria [e.g., Maximum Contaminant Levels (MCLs), the maximum permissible level of a contaminant in water delivered to any user of a public water system under the Safe Drinking Water Act] from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

Media	Yes	No	?	Rationale/Key Contaminants
Groundwater	X			Chromium, Nitrates, and VOCs
Air (indoors) <sup>2</sup>		X		
Surface Soil (e.g., <2 ft)	X			Chromium, Nitrates, and VOCs
Surface Water	X			Chromium, Nitrates, and VOCs
Sediment	X			Chromium, Nitrates, and VOCs
Subsurface. Soil (e.g., >2 ft)	X			Chromium, Nitrates, and VOCs
Air (outdoors)		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.

<sup>1</sup> “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).

<sup>2</sup>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.

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Rationale and Reference(s): Contaminated groundwater is offsite at this facility. Contaminants include Chromium, Nitrates, and VOCs. Koch Nitrogen Company (Koch) has in place a groundwater monitoring and recovery system. Quarterly sampling data shows contamination at some of the monitoring wells above the Maximum Contaminant Level (MCL) for Drinking Water Standards. A 1,200 gallon spill of Chromic Acid solution occurred in the early 1970s. Soil sampling conducted approximately 20 years after the spill showed staining of the soils at approximately 30-50 feet below ground surface. Historical data reveals that waste containing contaminants were placed in the Solid Waste Management Units (SWMUs) at the facility. A RCRA Facility Investigation has not been conducted as of 7/20/04 to determine the horizontal and vertical extent of contamination.

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?

<b>Summary Exposure Pathway Evaluation Table Potential Human Receptors (Under Current Conditions)</b>							
“Contaminated” Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food <sup>3</sup>
Groundwater	No	No	N/A	No	No	N/A	No
Air (indoors)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Soil (surface, e.g., <2 ft)	No	No	N/A	No	No	N/A	No
Surface Water	No	No	N/A	No	No	N/A	No
Sediment	No	No	N/A	No	No	N/A	No
Soil (subsurface e.g., >2 ft)	No	No	N/A	No	No	N/A	No
Air (outdoors)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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.

- 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)

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

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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): Three issues were outstanding regarding protection of human health at this facility (1 Exposure of workers to contaminants onsite; 2 University farming of facility property in an area that has been designated a SWMU; and 3 Residences located in the vicinity of the Koch property had contamination in their private wells. Koch’s property is fenced on all sides. A gated, guarded entrance eliminates unauthorized access. To protect workers onsite, Koch has in place a Excavation & Trenching Procedure to prevent workers from accidental exposure to contaminants. This Procedure states that all work has to be approved by the Environmental Compliance Manager prior to the initiation of the work (See letters dated September 30, 2003, and January 23, 2004-Ref: Procedures to Prevent Workers from Coming in Contact with Contaminated Soil). Koch has met with and amended the Dodge City Community College (DCCC) lease to exclude the area of the East Pond (SWMU #3) from any farming activities until such time as the SWMU has been eliminated from concern. In addition, Koch is providing the Coker and Bogner residences with alternate water supply until Koch gets these households hooked up to City water. Koch has received approval from the City of Dodge for the hookups to City water for the Coker and Bogner residences. The Chaffin wells have been eliminated from concern. The Chaffin’s two private wells are used strictly for heating and cooling purposes. The Chaffin business is hooked up to City water. The information on the DCCC farming lease, amendment to the lease, Coker and Bogner hookup to City water and the Chaffin wells is contained in letters dated April 8, 2004, and July 15, 2004.

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

\_\_\_\_\_ 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

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<sup>4</sup>If there is any question on whether the identified exposures are “significant” (i.e., potentially “unacceptable”) consult a human health Risk Assessment specialist with appropriate education, training and experience.



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6. Check the appropriate RCRA Info 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   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 Koch Nitrogen Company facility, EPA ID # KSD044625010, located at Dodge City, Kansas 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:   July 20, 2004    
  Andrea R. Stone    
  Environmental Scientist  

Supervisor \_\_\_\_\_ Date:   July 20, 2004    
  Jody L. Hudson    
  Associate Director, RCRA Office    
  EPA Region VII, Kansas City, Kansas  

Locations where References may be found:

  U.S. EPA Region VII RCRA Records Center  

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.**