



RDMS DocID

106686

RCRA RECORDS CENTER
FACILITY North & Judd
I.D. NO. CTD051320372
FILE LOC. R-13
OTHER 106686

ORIGINAL

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: North & Judd
Facility Address: 699 Middle St., Middletown, CT
Facility EPA ID #: CTD 051 320 372

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>	___	___	AOC's 3, 4, 6, 10, 11, 12, 16, 16b, 17, 18 _____
Air (indoors) ²	<u>x</u>	___	___	AOC's 17 and 18 _____
Surface Soil (e.g., <2 ft)	<u>x</u>	___	___	AOC 4, 6 _____
Surface Water	___	___	___	_____
Sediment	___	___	___	_____
Subsurf. Soil (e.g., >2 ft)	<u>x</u>	___	___	AOC's 1, 3, 10, 12, 16, 16b _____
Air (outdoors)	___	___	___	_____

___ 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(s):

The State of Connecticut Department of Environmental Protection (CTDEP) is the lead for this site. The site is currently subject to Connecticut’s closure and property transfer programs. In addition, because the site is a land disposal facility, the site will soon also be subject to Connecticut’s Corrective Action program.

There are some 18 Areas of Concern (AOC) at the site. An AOC summary table is provided in **Attachment A**. According to CTDEP, releases to the environment were documented at eight locations: AOC’s 1, 3, 6, 10, 16, 16b, 17 and 18. A program for post-remedial groundwater monitoring for each of these locations is specified in a CTDEP December 24, 2003 letter. Interim Actions (IA) have been conducted at many of the AOCs, including among others, AOC’s 4, 5, 6, 9, 12, 13, 14 and 17. Two AOCs, 3 and 16, are currently or have previously undergone closure activities. In an August 4, 1998 letter, CTDEP approved as complete the investigation and remediation of AOCs-1,2 & 14. In addition, based on the available information, it is possible to reasonably conclude that a few of the AOCs have few outstanding issues or require limited follow-up (AOCs 4, 5, 7, 8, 9 and 15).

On August 30, 2001, the CTDEP issued an approval letter for a June 5, 2001 N&J report and July 30, 2001 and August 24, 2001 addendum letters to that report (prepared by SESTECH Environmental). This June 5, 2001 report and it’s addendum letters summarize the investigation and remedial activities undertaken at the facility and conclude that remedial measures required have been completed except for the groundwater monitoring requirements and the filing of environmental land use restrictions. In addition, by this Aug. 30, 2001 approval letter, CTDEP summarily approved as complete AOC’s 5, 7, 8, 9, 11, 12, 13 & 15. CTDEP approval and correspondence letters and the SESTECH addendum letters are provided in **Attachment B**.¹

An itemized status for each of the AOCs where further investigation and/or remediation work is or was ongoing (AOCs 1, 3, 6, 10, 16, 17 and 18) is provided below.

¹ All other reports and documents (e.g., June 5, 2001 SESTECH Environmental report) are available at the EPA record center.

- **AOC-1** is the Lacquer and Paint Storage Area. According to CTDEP, heavy metals are present in soil beneath the slab. This contamination will be addressed through the filing of an environmental land use restriction (ELUR) where the soil will be classified as inaccessible and environmentally isolated. The available groundwater data indicates minimal impact to groundwater from this AOC.
- **AOC 3** is a Hazardous Waste Drum Storage and Chemical Storage area (a.k.a. Rack Storage Area). The PA-Plus Report dated August 7, 1992 (**PA-Plus**) ranked this AOC as a “low release potential” area. In a draft Environmental Indicator (EI) Evaluation prepared by North & Judd (N&J) in November of 1996, N&J indicated the AOC was “currently undergoing RCRA closure in accordance with a closure plan approved by [CT]DEP in a letter dated March 19, 1996. November 1996 N&J Draft EI Evaluation at 6 (**N&J EI Evaluation**). According to CTDEP, Chromium is present in soil beneath the slab at a concentration of 211 mg/kg. This contamination will also be addressed by the ELUR. The available groundwater data indicates minimal impact to groundwater from this AOC.
- **AOC 6** is a Scrap Metal Dumpster Area. The PA-Plus noted a sump full of a “dark liquid with an oily sheen” in the area. PA-Plus at Attachment A. However, there is some confusion with respect to this AOC: the PA-Plus links the sump with AOC 4 and N&J links this AOC with AOC 15 and the outside of the western building wall (CTDEP issued an administrative Order for this area, Order No. WC-4026, to “stop the release of oil to the wetland.” *Id.*). N&J asserted it was in “[f]ull compliance with the Order.” N&J EI Evaluation at 7. According to CTDEP, remediation of petroleum impacted soils has been completed under a Pollution Abatement Order WC-4026.

A GZA Nov 11, 1999 "Soil Excavation Report" documents that 100 tons of oil contaminated soil was removed from the Metal Chip Storage Area in 1999. The Dec. 21, 1999 GZA letter to CTDEP documents that all four sediment sampling at the storm drain outfall were below MDL. The SESTECH July 30, 2001 letter states, "[a]ll remedial activities, with the approval and direction of CTDEP, have been completed and no further action is requested pending ... groundwater monitoring." According to CTDEP, there are no longer shallow soil, sediment or surface water impacts related to AOC-6. However, additional groundwater monitoring remains to be performed for the actions required under the CTDEP Order to be completed.

- **AOC 10** is a former Tumbling and Deburring Area. Based on N&J's EI Evaluation, prior to 1990, liquids from AOC 10 were pumped via a floor trough[s] and a sump to AOC 12. After 1992, liquids were pumped to AOC 9. The floor troughs were filled with concrete in 1995. The PA-Plus ranked this AOC as a “low release potential” area. N&J assert there are no historic releases at this AOC. N&J attributes VOCs in this area to AOC 17 and concludes a moderate release potential and apparently relies on GW data from monitoring wells installed outside of the building's south wall to infer a need for Corrective Action. According to CTDEP, cadmium and chromium have been detected in soil beneath the slab adjacent to the former floor trenches. The metals beneath the floor will be addressed through the ELUR. The available groundwater data indicates minimal impact to groundwater from this AOC.
- **AOC 16** is the Former Chromating Sludge Dewatering Lagoon and Rolling Room Sludge Water Pile Area (a.k.a. Lagoon and Metal Hydroxide Stockpile). The PA-Plus characterizes this AOC as “low release potential.” N&J's EI Evaluation indicates that a closure plan was approved by CTDEP and EPA on Sept 27, 1987. N&J and its consultant certified closure on Dec. 14, 1988. Under the closure plan, GW monitoring was to continue until four (4) consecutive rounds of data indicated all parameters below drinking water standards; this criteria was met and monitoring was discontinued in “198-” [probably 1989]. N&J EI Evaluation at 12. CTDEP requested a Post Closure Permit Application on Oct. 28, 1991. N&J submitted a Post Closure Equivalency Demonstration (PCED) in lieu of the permit application on Dec. 18, 1991. To date, there has been no formal response on the PCED from CTDEP or EPA. “However, [CTDEP] informally [] has

advised N&J that the two inch diameter PVC pipe which was used to convey sludge from the wastewater treatment plant (AOC 9) to the lagoons will need to be addressed/closed as part of current closure requirements. N&J is currently proceeding with testing and removal of this line . . . as part of [] voluntary corrective action.” N&J EI Evaluation at 12. According to CTDEP, there is no significant remaining soil or groundwater impacts related to this area.

AOC “16b” is the piping to the AOC 16 Lagoon. According to CTDEP, in 1991, the remediation of metal hydroxide sludges with cadmium and chromium was completed at the location of a break in the pipeline to the lagoon. The available groundwater data indicates minimal impact to groundwater from this AOC.

- **AOC 17** is the Galvanize Area. Based on the available information, chlorinated ethenes were detected below the building floor slab near AOC 10. Contamination at MW-2 was attributed to a preferential pathway via sub-slab materials. GZA (N&J’s consultant) was to investigate this migration pathway. An SVE system was designed and installed by TerraVac in 1992; this system operated until July 1994 until achievement of criteria as set forth in a contact between N&J and TerraVac (i.e., a reduction in VOC concentrations by one order of magnitude). Operation of the system, however, was completed prior to promulgation of Connecticut’s Remediation Standard Regulations (RSRs). “N&J is [] completing confirmation sampling in accordance with a work plan approved by DEP by letter dated July 18, 1995 to demonstrate that the remediation is in compliance with the [RSRs].” N&J EI Evaluation at 13. At the time of the N&J EI Evaluation, this work was on-going and was to include, among other tasks, installation of additional, deep groundwater monitoring wells.” The PA-Plus did not identify this AOC.

According to CTDEP, chlorinated solvents (primarily PCE) are present in the tight soils beneath the floor. A pilot test for a high vacuum venting system indicated that it was technically impracticable to remediate the soil while the building is in place. To prevent vapor migration into the building, and the lateral migration of vapors (conditions that would breach the environmentally isolated presumption of the ELUR), a venting system has been installed beneath the floor to maintain a negative pressure. The indoor air monitoring program to determine the effectiveness of the system, as specified in a CTDEP July 29, 2003 letter, has not yet been initiated. A mechanism still needs to be developed to assure the venting system will continue to be operated. In conjunction with the venting system, the residual solvent contamination will be addressed by the ELUR.

- **AOC 18** is the Polish Room / Vapor Degreaser. This AOC was not identified in the PA-Plus. Based on N&J’s EI Evaluation, VOCs (primarily ethanes) were detected beneath the building floor slab. N&J “concluded that VOCs in this area were ‘contained’ and were not contributing to the VOCs present in groundwater noted in well GZ-2. . . . N&J has also advised CTDEP of [this matter] and will pursue remediation of this area pursuant to the [RSRs] following completion of work in the galvanizing area (AOC No. 17).” N&J EI Evaluation at 13-14. According to CTDEP, as at AOC-17, PCE is present in the tight soils beneath the floor and a negative pressure venting system will continue in long-term operation. The pilot test at AOC-17 was used to support the technical impracticability of remediation in this area as well. The indoor air monitoring program specified in the CTDEP July 29, 2003 letter has not yet been initiated. In conjunction with the venting system, the residual solvent contamination will be addressed by the ELUR.

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.

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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

Potential **Human Receptors** (Under Current Conditions)

“Contaminated” Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food ³
Groundwater	___	___	___	___			___
Air (indoors)	___	<u> x </u>	___				___
Soil (surface, e.g., <2 ft)	___	<u> x </u>	___	<u> x </u>	<u> x </u>	___	___
Surface Water	___	<u> x </u>			<u> x </u>	___	___
Sediment	___	<u> x </u>			<u> x </u>	___	___
Soil (subsurface e.g., >2 ft)	___			<u> x </u>			___
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).
- 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 and Reference(s):

Summary of pathways for AOCs (1, 3, 6, 10, 16, 16b, 17 and 18).

- A. No complete pathways: AOCs where exposures cannot be reasonably expected under the current (land- and groundwater-use) conditions.**
- **AOC-1** is the Lacquer and Paint Storage Area. According to CTDEP, the heavy metal contamination present in soil beneath the slab can be adequately addressed through the filing of an ELUR and therefore is inaccessible and environmentally isolated.

- **AOC 3** is a Hazardous Waste Drum Storage and Chemical Storage area. The chromium contamination present in soil beneath the slab will be addressed by the ELUR. The available information does not indicate a complete or potentially complete pathway at this AOC.
- **AOC 6** is a Scrap Metal Dumpster Area. According to CTDEP, surface soil, surface water and sediment remediation has been completed at this AOC. Although groundwater monitoring requirements remain, the available information does not suggest a complete or potentially complete pathway associated with this AOC.
- **AOC 10** is a former Tumbling and Deburring Area. The PA-Plus ranked this AOC as a “low release potential” area and N&J asserted there are no historic releases at this AOC. The cadmium and chromium contamination present in soil beneath the slab will be addressed by the ELUR. The available information does not indicate a complete or potentially complete pathway at this AOC.
- **AOC 16** is the Former Chromating Sludge Dewatering Lagoon and Rolling Room Sludge Water Pile Area **and AOC 16b** is the piping to the AOC 16 lagoon. According to the available information, a complete or potentially complete pathway cannot be reasonably expected for these AOCs.

B. Indoor Air: Complete or Potentially Complete Indoor Air Pathway at AOC 17 (Galvanize Area) and AOC 18 (Polish Room / Vapor Degreaser). Chlorinated solvents (primarily PCE) are present in the tight soils beneath the floor. A pilot test for a high vacuum venting system indicated that it was technically impracticable to remediate the soil while the building is in place. To prevent vapor migration into the building, and the lateral migration of vapors (conditions that would breach the environmentally isolated presumption of an Environmental Land Use Restriction), a venting system has been installed beneath the floor to maintain a negative pressure. The indoor air monitoring program to determine the effectiveness of the system, as specified in a CTDEP July 29, 2003 letter, has not yet been initiated. A mechanism still needs to be developed to assure the venting system will continue to be operated.

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

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4 Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **“significant”**⁴ (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.”

 x 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):

Indoor Air: Complete or Potentially Complete Indoor Air Pathway at AOC 17 (Galvanize Area) and AOC 18 (Polish Room / Vapor Degreaser). Until an indoor air monitoring program has been conducted to determine the effectiveness of the sub-slab venting system and a mechanism has been developed to assure the venting system will continue to be operated, it is possible for this question that exposures from this pathway could reasonably be expected to be “significant”.

⁴ 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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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):

Indoor Air: Complete or Potentially Complete Indoor Air Pathway at AOC 17 (Galvanize Area) and AOC 18 (Polish Room / Vapor Degreaser). The facility is currently used for commercial warehousing and/or miscellaneous commercial / industrial leaseholds. For purposes of the *Current Human Exposures Under Control* Environmental Indicator, EPA and the Occupational Safety and Health Administration (OSHA) have agreed that OSHA will take the lead role in addressing occupational exposures. *See OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance, dated November 29, 2002 and Vapor Intrusion and RCRA Corrective Action (CA) Environmental Indicators Fact Sheet (Draft 5/16/03).* The vapor intrusion pathway will need to be evaluated more fully for long-term remedy decisions in the future. Moreover, the facility will need to comply with the State of Connecticut’s Remediation Standard Regulations, Regulations of Connecticut State Agencies, 22a-133k-1 *et seq.*

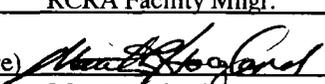
Accordingly, the significant exposures of Question 4 can be said to be within “acceptable limits.”

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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 determined. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the **North & Judd** facility, EPA ID # **CTD 051 320 372**, located at **699 Middle St., Middletown, CT** 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)  Date: 3/31/99
(print) Raphael J. Cody Revised: 8/30/04
(title) RCRA Facility Mngr.

Supervisor (signature)  Date 9/2/04
(print) Matt Hoagland
(title) Chief, Corrective Action
(EPA Region or State) Region 1

Locations where References may be found:

Facility files at EPA and CTDEP
CTDEP
79 Elm Street
Hartford, CT 06106
EPA Record Center, Donna Jutras, 617.918.1455

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.