

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: Ashland Distribution Co.

Facility Address: 2410 Patterson Ave., S.W., Roanoke, VA 24016

Facility EPA ID #: VAD 062 373 600

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		X		While no groundwater monitoring wells exist at the site, no evidence was found in USEPA Region III or VDEQ files indicating a release has occurred to groundwater.
Air (indoors) ²		X		No evidence of indoor air contamination was found in USEPA Region III or VDEQ files.
Surface Soil (e.g., <2 ft)		X		The low levels of contamination remaining at the Facility do not pose any unacceptable risks to human health or the environment.
Surface Water		X		No evidence of releases to surface water was found in USEPA Region III or VDEQ files
Sediment		X		No evidence of releases to sediment was found in USEPA Region III or VDEQ files
Subsurf. Soil (e.g., >2 ft)		X		The low levels of contamination remaining at the Facility do not pose any unacceptable risks to human health or the environment.
Air (outdoors)		X		No activities take place 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.
- 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):

All solid waste management units, with the exception of SWMU-5, had been evaluated and closed. SWMU-5 is a former hazardous waste container storage area located to the southeast of the existing warehouse. This area was originally investigated in 1988 and 1989 as part of the investigation and closure activities conducted at SWMU-2.

Five former SWMUs (storage areas – SWMU No.2) were used for storage at the facility during the Interim Status of the Ashland Chemical facility. Four of the five SWMUs received clean closure certification approval by the Department in correspondence, dated October 2, 1996, from Leslie A. Romanchik, Director, Office of Permitting Management. Clean closure certification was sufficient for the following Interim Status storage area locations identified under SWMU No. 2, Former Old Waste Storage Areas, which include: 1) Warm Warehouse, 2) Inside of Rear Warehouse, 3) Loading Dock (South of Building), and 4) Outside Southwest Corner of Building. However, one storage area utilized during Interim Status did not receive approval for clean closure; this being, SWMU No. 5, the Southeast corner of the warehouse. Closure reports by Westinghouse Environmental Services indicated that the southeast corner area of the warehouse required further study.

During the 1989 investigation of SWMU-5 (Westinghouse 1989), four soil borings were drilled and sampled to a maximum depth of four feet. Results of the investigation indicated that shallow soils were impacted with volatile organic compounds. Metal concentrations and pH in the soils were found to be reflective of background conditions.

In order to complete the environmental assessment for this property, EPA requested that Ashland Inc. conduct additional soil sampling at the SWMU-5 location. The investigation was conducted in December 2009 and consisted of installing five soil borings in the area of SWMU-5 and one soil boring at a background location. Direct-push (Geoprobe®) soil sampling techniques were used to collect the soil samples. The samples were analyzed for VOCs, SVOCs, RCRA metals, pH, formaldehyde, isopropyl alcohol and methanol .

Only tetrachloroethylene (PCE) and trichloroethylene (TCE) were found in excess of the industrial RSLs during the 1989 sampling event. The maximum detections of both constituents were found in one sample at a depth of one foot, at concentrations of 120 mg/kg and 61 mg/kg, respectively. The results of the 2009 supplemental sampling conducted by EHS Support identified only one contaminant, PCE, in excess of its industrial RSL. PCE, in one sample at a depth of 12-13 feet bgs (6.8 mg/kg), was found slightly in excess of the industrial RSL of 2.7 mg/kg. Additionally, detections of arsenic were above the industrial RSL, but as with the 1989 data set, determined to be reflective of background concentrations and therefore, not considered further.

One point of comparison can be made using a 2009 sample taken at (3-4') of fill vs. samples taken at similar depths from the four 1989 borings. A sample collected from a depth of approximately three feet during the 1989 sampling event revealed PCE at a concentration of 2.90 mg/kg, slightly above the industrial RSL of 2.7mg/kg for this compound; however, the concentration of PCE detected in a sample at an approximately three foot depth during the 2009 sampling event was only .15 mg/kg, well below the RSL. This may be indicative of the occurrence of natural attenuation of VOCs in the fill, which would be expected given the volatile nature of the compounds and the length of time between sampling events.

Two sets of soil data collected at the Ashland Inc., Roanoke, VA Facility were evaluated in order to determine, based on concentrations of VOCs and metals, if these data are sufficient to support closure of SWMU-5. The first set was collected by Westinghouse in 1989 and the second was collected by EHS Support in 2009. Based on the review of the vertical depth of sample collection, it appears that, for the most part, the data collected during the two assessments were collected from different vertical intervals. Therefore, additional analysis was required.

To that end, a human health risk assessment was conducted for the Ashland Inc. Facility utilizing data collected in 1989. The rationale for this is that if there is no risk from the highest concentrations of constituents of potential concern (COPCs) ever found on the Facility (i.e., those measured within the top 4 feet of the soil column in 1989), then there should be no risks to current onsite receptors. The results showed that, in fact, none of the complete pathways evaluated were found to have either individual or cumulative carcinogenic or noncarcinogenic risks in excess of those considered protective by the USEPA. Therefore, the data should be considered adequate to support closure of SWMU-5 under an industrial land use scenario at the Ashland Inc. Facility.

It should also be noted that the analytical results for the organic compounds found in the soils from the 2009 sampling event revealed concentrations that were considerably less than the concentrations for the same compounds found in the soils from the 1989 sampling event. The samples from the 2009 sampling event were typically collected at a depth some eight to ten feet deeper than the 1989 samples. This decrease in contaminant concentrations would indicate that the contamination is naturally attenuating as it moves through the soil as well as naturally attenuating with time

Based on the low levels of contamination remaining at the Facility, and the evidence that the contamination appears to be attenuating naturally through time, no corrective measures are proposed for this former industrial property. The investigations have determined that soil contamination is present at the Facility, with USEPA determining that on the basis of commercial/industrial use the impacts do not pose any unacceptable risks to human health or the environment.

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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)

<u>“Contaminated” Media</u>	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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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.”
- 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):

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):

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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 (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 Ashland Distribution Co., EPA ID # VAD 0620373 600, located at 2410 Patterson Ave., S.W. Roanoke, VA 24016. 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 _____
Bill Wentworth
Project Manager

Date _____

Supervisor _____
Luis Pizarro
Associate Director
EPA Region III

Date 9/15/2010

Locations where References may be found:

US EPA Region III
Land & Chemicals Division
1650 Arch Street
Philadelphia, PA 19103

Contact telephone and e-mail numbers

Bill Wentworth
215-814-3184
wentworth.william@epa.gov