DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION
RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)
Current Human Exposures Under Control

Facility Name: Huntsman Rockwood/ Excalibur Reality Company
Facility Address: 7101 Muirkirk Road, Beltsville MD
Facility EPA ID #: MDD062011796

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 #8 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)?

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

☒ 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 Facility, formerly operating under the names Laporte Pigments, Mineral Pigments, and Rockwood Pigments operated a pigment manufacturing facility, located approximately two miles north of Beltsville, Maryland.

The site is bordered to the west by US Route 1 and the Chessie Railroad tracks; to the east by Conway Road; to the north by Muirkirk Road, and to the south by a light industrial park. Records indicate that the site has been used for industrial purposes since at least the 1940s.

Rockwood Holdings was acquired in its entirety by Albemarle Corporation on January 13, 2015, and Albemarle is now 100% owner of the subsidiary Excalibur Realty. The site owner continues to be Excalibur Realty Company, a wholly owned subsidiary of Rockwood Holdings ("Rockwood"). Huntsman Pigments Americas LLC ("Huntsman") is the lessee of the site and has manufacturing operations there.

Shallow groundwater at the site has been investigated since 1985. Initially, seven monitoring wells were installed and tested for chromium, lead and zinc. Source removal was also conducted at this time. Later, as required by the 1987 Consent Order with Maryland Department of the Environment (MDE), semi-annual monitoring was conducted until the plan was amended in 1993 by Consent Order C-O-94-038 to a quarterly monitoring of three wells, MP-3, MP-6 and MP-7. In addition to parameters of temperature, pH, and specific conductivity, the wells have only been monitored for chromium. A second source area removal was conducted in 1997. All contaminated soil was removed and disposed of. Follow-up sampling showed no remaining contamination of soil.

In accordance with a requirement of the 1993 Consent Order, the company submitted to the Department, at the end of a 5-year monitoring period, reports evaluating human health and ecological risks, and remedial options. The company concluded that no risk to human health is present if the groundwater is not used for domestic purposes, and that there was no ecological threat. The company also recommended institutional controls and natural attenuation, from among the tested remediation alternatives, for implementation.

On July 6, 2000, MDE issued Amended Consent Order ACO-01-001, requiring the facility to continue to monitor wells MP-3 and MP-7 and report semi-annually for five years. The company was also required to submit a report at the end of the 5-year period, evaluating whether the monitoring results demonstrate natural attenuation of hexavalent chromium. This report was submitted on January 20, 2005, and it presented the conclusion that the natural attenuation of chromium is occurring.

In 2005, the facility entered into the RCRA Facility Lead Program with U.S. EPA Region III. Long-term monitoring of MW-3 and MW-7 continued.

During the 2008 direct push groundwater sampling event, hexavalent chromium was present in GW-1 at 9.17 parts per million (ppm), in GW-4 at .227 ppm, and in GW-6 at 2.17 ppm. The MCL for Total Chromium is .1 mg/l or ppm.

Rockwood Holdings was acquired in its entirety by Albemarle Corporation on January 13, 2015. Albermarle then began to lead the investigation of groundwater contamination.

Additional off-site monitoring wells were installed in 2016 in the industrial area located south of the facility. During the August 2016 groundwater sampling event, hexavalent chromium was present in Well A at .327 parts per million (ppm), in Well B at 2.7 ppm, and in Well C at 1.34 ppm which are offsite wells and southeast of the site.

On July 12, 2017, a sampling event was conducted of Beltsville Agricultural Research Center (BARC) wells 3, 4, and 6 for total and hexavalent chromium (unfiltered) downgradient of the Rockwood facility. No chromium was found in the groundwater. Records from an offsite USFDA well southwest of the site show no chromium in groundwater. The USFDA well is sampled semiannually.

Groundwater monitoring wells that were installed and existing offsite wells have delineated the plume. Groundwater sampling results over the years show the plume is stable and chrome concentrations are decreasing. A review of long-term trends at MP-3 and MP-7 indicate that chromium concentrations have decreased over time and are currently approximately 30X the MCL of 0.1 mg/L (Figure 5). Concentrations are predicted to reach MCLs within 30 years based on linear regression analysis of the last eight monitoring events. The plume limits do not make it to surface waters so there is no surface water discharge.

References:
EPA RCRA Facility Inspection December 1, 2004
Site Characterization Report, Geotrans October 27, 2008
Rockwood Power Point presentation to EPA May 9, 2009
Arcadis Groundwater Sampling Memo January 29, 2018
2016-2017 Groundwater Sampling Results, Arcadis, January 29, 2018

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	No	No	No	No	No	No	No
~~Air n(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):

The risk evaluation completed for the site during 1999 concluded no risk is present for any potential receptors.

Reference:
Risk Evaluation for Mineral Pigments Division of Rockwood Industries, Beltsville, Md, Geotrans, January 12, 1999

[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 **Rockwood** facility, EPA ID # **MDD062011796**, located at **7101 Muirkirk Road Beltsville, Md** 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 7/26/2018
(print) Leonard Hotham
(title) Project Manager

Supervisor (signature) _____ Date 7/26/18
(print) Luis Pizarro
(title) Associate Director
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Locations where References may be found:

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