

**UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION III**

**FINAL DECISION AND RESPONSE TO COMMENTS
UNION CARBIDE CORPORATION - INSTITUTE OPERATIONS
(FORMERLY: BAYER CROPSCIENCE LP)**

PURPOSE

The United States Environmental Protection Agency (EPA) is issuing this Final Decision and Response to Comments (FDRTC or Final Decision) selecting the Final Remedy for the Union Carbide Corporation (UCC) Institute Operations located in Institute, West Virginia (hereinafter Facility). The Final Decision is issued pursuant to the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA) of 1976, and the Hazardous and Solid Waste Amendments (HSWA) of 1984, 42 U.S.C. Sections 6901, *et seq.*

On July 13, 2018, EPA issued a Statement of Basis (SB) in which it described the information gathered during environmental investigations at the Facility and proposed a Final Remedy for the Facility. The SB is hereby incorporated into this Final Decision by reference and made a part hereof as Attachment A. Consistent with the public participation provisions under RCRA, EPA solicited public comment on its proposed Final Remedy. A forty-five (45) day comment period ended on August 26, 2018; however, a request was made and granted to extend the public comment period until September 26, 2018. Comments received during the public comment period were reviewed by EPA and are addressed in Attachment B.

Based on comments received during the public comment period, EPA has determined that modifications to its proposed Final Remedy as set forth in the SB are unnecessary. EPA is, however, acknowledging minor factual errors in the SB as described in more detail in Attachment B. This Final Decision, the remedy selected herein, and the Response to Comments reflect those minor modifications and clarifications.

West Virginia Department of the Environment (WVDEP) will issue a RCRA Corrective Action Permit to require implementation of the Final Remedy following the issuance of this FDRTC. A separate public review and comment period will provide the public opportunity to review and comment on the proposed permit independently.

FINAL DECISION

EPA's Final Remedy for the Facility consists of the following:

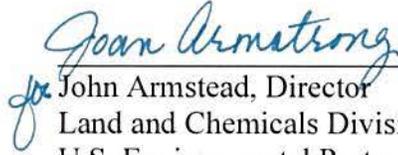
- Monitored natural attenuation including groundwater monitoring;
- Compliance with and maintenance of institutional controls;
- Groundwater remediation;
- A Technical Impracticability waiver; and

- Engineering controls

DECLARATION

Based on the Administrative Record compiled for the corrective action at the Union Carbide Institute Operations, I have determined that the remedy selected in this Final Decision and Response to Comments, which incorporates the July 13, 2018 Statement of Basis, is protective of human health and the environment.

Date: 10-24-2018



John Armstead, Director
Land and Chemicals Division
U.S. Environmental Protection Agency, Region III

Attachment A: Statement of Basis (July 13, 2018)

Attachment B: Public Comments and Response to Comments

ATTACHMENT B

Public Comments and Response to Comments



EPA received comments on its June 28, 2018 Statement of Basis for the Union Carbide Corporation Institute Operations (Formerly: Bayer Cropscience LP) Facility located in Institute, West Virginia from Union Carbide Corporation (UCC) and West Virginia State University. The comments and EPA's responses are provided below.

UCC Comments:

1. Section II.A- Site History: The text states that the "Facility is situated on approximately 443 acres..."; however, the Facility size is approximately 433 acres.

EPA Response: EPA agrees with the clarifying information provided by the commenter and hereby incorporates the clarifying information into the FDRTC.

2. Section II.B - Physical Setting: The text states that the "Lowest potentiometric heads are measured in the groundwater wells at the southern end of the Facility, adjacent to the River, approximately 8 feet higher than the mean stage for the Kanawha River (566 feet amsl)." The lowest potentiometric head is approximately 2 feet higher than the mean stage of the Kanawha River.

EPA Response: EPA agrees with the clarifying information provided by the commenter and hereby incorporates the clarifying information into the FDRTC.

3. Section II.B - Physical Setting: The text states that "Depth- to-groundwater data for wells completed in the localized perched groundwater zones atypically range from 5 to 15 feet bgs." UCC proposes that the word "atypically" be changed to "typically".

EPA Response: EPA agrees with the clarifying information provided by the commenter and hereby incorporates the clarifying information into the FDRTC.

4. Section II.C-Environmental History and Assessment Overview: The text states that "As part of those investigation, UCC took soil and groundwater samples at each EU and at the neighboring (offsite) APCO and WVSU properties." No soil samples were collected on APCO or WVSU property; therefore, UCC proposes that this sentence be revised to state "As part of those investigations, UCC took soil and groundwater samples at each EU and groundwater samples at the neighboring (offsite) APCO and WVSU properties."

EPA Response: EPA agrees with the clarifying information provided by the commenter and hereby incorporates the clarifying information into the FDRTC.

5. Section III.H- Offsite Groundwater: The text states that "An apparent source area is located in the southeastern portion of the WVSU property". To make it clear that this apparent source is not related to the facility, UCC proposes that this text be revised to state "An apparent source area, not related to the Facility, is located in the southeastern portion of the WVSU property".

EPA Response: EPA disagrees with the proposed revision. EPA has determined that the increase in constituent concentrations identified on the southeastern portion of the WVSU property is unrelated to current operations or existing contamination at the Facility. However, given the historical nature of that area (it predates RCRA) and the lack of historical data from the WVSU property, EPA has not made, and cannot make, a determination that the apparent source area is not related to the Facility.

6. Section III.I-Human Health Risk Assessment: The text states that "WVSU Property: chloroform exceeds screening levels". Chloroform concentrations only exceeded the U.S. Environmental Protection Agency (USEPA) vapor intrusion screening level for residential exposure. In addition, the exceedance related to the Facility was only observed in the southwestern portion of the WVSU property. UCC proposes this text be revised to state "Southwestern Portion of WVSU Property: chloroform exceeds vapor intrusion screening level for residential exposure."

EPA Response: EPA agrees with the clarifying information provided by the commenter and hereby incorporates the clarifying information into the FDRTC.

7. Section IV - Corrective Action Objectives: The text states that "Potential risks associated with exposure to VI from groundwater occurs on the Facility property and on the WVSU property..." The potential risk associated with exposure to VI is only in the southwestern portion of the WVSU property as stated in the 2018 Corrective Measures Study; therefore, UCC proposes that sentence be revised to include "southwestern portion of" prior to WVSU in this sentence.

EPA Response: EPA agrees with the clarifying information provided by the commenter and hereby incorporates the clarifying information into the FDRTC.

8. Section V.E - Facility Land and Groundwater Use Restrictions: Bullet 3) in this section states that access restrictions are facility-wide. UCC believes this restriction should only apply to areas with waste-in-place (i.e., SWMUs 1, 2 & 6, and 11) or where concentrations in soil exceed USEPA's allowable risk range of 1×10^{-4} to 1×10^{-6} and non-cancer HI of 1 for an industrial exposure

scenario (i.e., EU-1 and Tank 1010). UCC proposes this bullet be re-written to state that "Access restrictions at EU-1 (including SWMU 11), SWMUs 1, 2 & 6, and Tank 1010 through the use and maintenance of fencing and controlled access (security gate);"

EPA Response: EPA agrees with the clarifying information provided by the commenter and hereby incorporates the clarifying information into the FDRTC.

9. Section VE-Facility Land and Groundwater Use Restrictions: Bullet 4) in this section includes APCO and WVSU; however, restrictions for both of these properties are addressed in Section V.F (Offsite Use Restrictions). UCC proposes that reference to APCO and specific areas of WVSU be removed from this bullet.

EPA agrees with the clarifying information provided by the commenter and thus the clarifying information is hereby incorporated into the FDRTC.

10. Section V.E - Facility Land and Groundwater Use Restrictions: Bullet 5) in this section states that an "EPA-approved vapor intrusion control system shall be installed in new structures...". UCC proposes that this text be revised to clarify that a vapor intrusion control system is only required in "new *occupied* structures". In addition, agency approval of vapor intrusion control systems is not required for other facilities in West Virginia; therefore, UCC requests this requirement be removed and addressed later (if needed) during development of the environmental covenant.

EPA Response: EPA agrees with the clarifying information concerning new occupied structures provided by the commenter and hereby incorporates the clarifying information into the FDRTC.

Additionally, with respect to Agency approval of required vapor intrusion control systems, the requirement to submit a design to the Agency remains. EPA has considered the comment, reviewed previous Final Decisions in West Virginia, and elsewhere, discussed the process with WVDEP, and concludes that the Agencies must remain as part of the design process for the control system and not simply as a notified party.

11. Section V.F - Offsite Use Restrictions: Bullet 1) in this section is titled "WVSU". This bullet should only apply to the southwestern portion of the WVSU property as outlined in the 2018 Corrective Measure Study; therefore, UCC proposes this be revised to state "Southwestern Portion of WVSU".

EPA Response: EPA agrees with the clarifying information provided by the commenter and hereby incorporates the clarifying information into the FDRTC.

12. Section V.F - Offsite Use Restrictions: Bullet 5) in this section states that an "EPA-approved vapor intrusion control system shall be installed in new structures ...". UCC proposes this text be revised to clarify that a vapor intrusion control system is only required in "new *occupied, residential* structures in the southern portion of the Phase 1 Investigation Area (i.e., the southern portion of the former Rehabilitation Center Property) as stated in the 2018 Corrective Measure Study." In addition, agency approval of vapor intrusion control systems is not required for other Facilities in West Virginia; therefore, UCC requests this requirement be removed and addressed later (if needed) during development of the environmental covenant.

EPA Response: EPA agrees with the clarifying information concerning new occupied structures provided by the commenter and hereby incorporates the clarifying information into the FDRTC.

Additionally, with respect to Agency approval of required vapor intrusion control systems, the requirement to submit a design to the Agency remains. EPA has considered the comment, reviewed previous Final Decisions in West Virginia, and elsewhere, discussed the process with WVDEP, and concludes that the Agencies must remain as part of the design process for the control system and not simply as a notified party.

13. Section VI.A- Threshold Criteria: Bullet 1 in this section states that "The use of a Soil Management Plan for the Facility, and land disturbance restrictions at SWMUs 1, 2 & 6, and 11.. ." The land disturbance restriction in Section V.E Bullet 2) included EU-1 and Tank 1010. UCC suggests this text be revised to state "The use of a Soil Management Plan for the Facility, and land disturbance restrictions at *EU-1 (including SWMU 11)*, SWMUs 1, 2 & 6, and *Tank 1010* ... "

EPA Response: EPA agrees with the clarifying information provided by the commenter and hereby incorporates the clarifying information into the FDRTC.

WVSU Comments:

This letter sets forth West Virginia State University's (the "University") comments in response to the Statement of Basis regarding Union Carbide Corporation's Institute plant, dated June 28, 2018.

Comment: The University appears only briefly and tangentially in the Statement of Basis, which focuses primarily on the Union Carbide plant and offers little explanation for EPA's proposed remedies as to the University's campus. Although EPA's proposed remedies with respect to the University are insufficiently protective, the EPA public comment process is not the best forum to address that deficiency, because the University is not a RCRA site and RCRA gives the EPA no authority over the University.

EPA Response: EPA disagrees with the University's comment that the proposed remedy is insufficiently protective with respect to the University. As stated in the SB, from 2013 to 2016, at the direction and oversight of EPA, UCC investigated groundwater along the eastern boundary of the Facility to determine if Facility-related VOCs and SVOCs had migrated from the Facility to beneath the University property. VOC and SVOC concentrations were screened against federal maximum contaminant levels (MCLs)¹ promulgated pursuant to Title 42 U.S.C. §§ 300f et seq. of the Safe Drinking Water Act and codified at 40 CFR Part 141, or EPA Regional Screening Levels (RSLs) for tap water for constituents for which no MCL exists. In addition, groundwater concentrations were screened against vapor intrusion screening levels (VISLs) to determine if the contaminants in the groundwater posed a vapor inhalation threat.

Based on groundwater data and the qualitative screening, EPA determined that groundwater beneath the southwestern portion of WVSU property contained chlorobenzene at a concentration greater than its MCL, 1,1-DCA and 1,4-dioxane at concentrations above their respective tap water RSLs, and chloroform in concentrations above its applicable VISL.

Screening levels are not cleanup standards, but are used to determine if further evaluation of potential risks exist. Because 1,1-DCA, chlorobenzene, 1,4-dioxane and chloroform were detected in concentrations above their respective screening levels, UCC conducted a Human Health Risk Assessment. Based on the that Assessment, EPA determined no groundwater constituents pose a current risk to human health at the University property because the University is on public water and groundwater from beneath the University is not a drinking water source. In addition, EPA's Final Remedy restricts groundwater use on the University property thereby eliminating future unacceptable exposures to groundwater.

EPA determined that the chloroform VISL exceedance does not pose a vapor inhalation risk because there are no existing buildings on the University property in which there could be exposure to vapor intrusion above the groundwater contamination and, EPA's Final Remedy requires a vapor intrusion control system be installed in new occupied structures constructed above the contaminated groundwater or within 100-foot of the contamination, thereby eliminating future unacceptable exposures to indoor vapor.

¹ EPA expects final remedies to return usable groundwater to its maximum beneficial use within a timeframe that is reasonable given the particular circumstances of the project. At facilities where aquifers are either currently used for water supply or have the potential to be used for water supply, EPA will use drinking water standards, MCLs, during the screening process and for the ultimate long-term objective. If no MCL exists for a contaminant, EPA will screen that contaminant against its RSL.

