

**Proposed Designation of a Corrective Action Management Unit
Solvay USA Inc., Silver Bow Plant, Butte, Montana
EPA ID No. MTD 057 558 546**

Introduction

The U.S. Environmental Protection Agency (EPA) is issuing this document to explain the basis for our proposal to designate a Corrective Action Management Unit (CAMU). The CAMU will be located at the closed Solvay USA Inc. (formerly known as Rhodia Inc. (Solvay)) elemental phosphorus processing plant in Silver Bow, Montana (Facility). Solvay has requested designation of the CAMU according to the terms of an administrative order on consent issued by the EPA pursuant to section 3008(h) of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6928(h), dated December 22, 2003 (3008(h) Order). The proposed CAMU will facilitate management of remediation waste expected to be generated during the treatment of “clarifier sludge” in the Mud Still Process, as described in the Supplemental Work Plan (Barr, October 2015) (Work Plan). The Work Plan includes an evaluation of cleanup alternatives for the clarifier sludge and was completed as part of Solvay’s obligation to address certain wastes at the Facility identified in the administrative order issued by the EPA pursuant to section 7003 of RCRA, 42 U.S.C. § 6973, and amended in December 2000 (7003 Order).

The EPA is selecting this remedy pursuant to the 7003 Order. The EPA has selected a remedy (Clarifier Remedy) requiring on-site processing of the clarifier sludge contained in the open-topped clarifier tank (clarifier), using a Mud Still Process, after consultation with the Montana Department of Environmental Quality (DEQ). One environmental benefit of the Clarifier Remedy is that useful elemental phosphorus will be recovered. Simultaneously with that remedy selection, and as more fully described herein, the EPA is proposing to designate the clarifier, once it is as empty as practicable, as a CAMU to allow disposal of wastes generated during implementation of the Clarifier Remedy. Based on the results of pilot tests, the EPA expects wastes from the Mud Still Process to be phosphate ore, coke, silica and other inert materials originating from the clarifier sludge. The CAMU also is expected to contain clarifier sludge that cannot be safely removed from the clarifier during elemental phosphorus recovery operations.

This decision document describes the framework by which the EPA, in consultation with DEQ, evaluated Solvay’s CAMU proposal. In addition, in this document the EPA describes how the waste generated during implementation of the Clarifier Remedy will be evaluated and managed to ensure disposal in the CAMU will not create an unacceptable risk to human health and the environment.

Public Record Availability

Information in this decision document has been summarized from several reports and supporting documents. The complete public record, including these documents, is available for review at the Montana Tech University Library, Butte, Montana, during normal business hours. Referenced reports and supporting documents are also available electronically at: <https://www.epa.gov/mt>.

Opportunities for Public Involvement

The EPA is seeking public comment on the proposed CAMU designation. We invite the public to submit written and/or oral comments on the CAMU designation. We also encourage the public to review documents related to this proposed decision to gain a more comprehensive understanding of the proposed CAMU. The EPA will review all comments before issuing a final CAMU designation. The EPA may modify the proposed CAMU based on new information and/or comments received from the public.

A forty-five (45) calendar day public comment period will extend from September 13, 2016, through close of business on October 27, 2016. Also, please be advised that a public comment period on our proposed Clarifier Remedy selection will run concurrently with the public comment period for this CAMU designation proposal. The EPA will hold a public meeting on the proposed decisions on September 27, 2016 to discuss the remedy decisions and provide an opportunity for public comment. The meeting will be held at 6pm in the cafeteria at the Ramsay Public School, Ramsay, Montana. The EPA will consider all information submitted during the public comment period and, as a result, may modify this CAMU decision.

Comments must be received by close of business October 27, 2016 and may be submitted either:

- By email to cosentini.christina@epa.gov,
- or, by mail to: Christina Cosentini
U.S. Environmental Protection Agency
1595 Wynkoop Street, 8P-R
Denver, CO 80202

Regulatory Background

Through RCRA, Congress has authorized the EPA to develop and implement a program governing the identification, generation, transportation, treatment, storage and disposal of hazardous waste, and environmental cleanup at certain regulated facilities. RCRA's main

goals are to prevent the release of hazardous waste and constituents through appropriate management and to minimize the generation of hazardous waste while promoting recycling and reuse. During cleanup of contaminated sites, RCRA regulations apply to cleanup waste and contaminated media that meet the regulatory definition of hazardous waste.

RCRA's land disposal restriction (LDR) regulations have played a role in many generators reducing the amount of hazardous waste they generate. LDR requirements also apply to waste generated during cleanups. These requirements can act as a disincentive to maximizing the amount of hazardous waste addressed during cleanup. One of the objectives of the CAMU rule is to ensure environmentally protective results are achieved while providing some economic relief from the LDR requirements where possible. The CAMU regulations most relevant to the EPA's analysis of Solvay's CAMU application are discussed in detail below.

Regulatory Evaluation

CAMU designation

Today, proposed CAMUs are subject to the requirements of section 264.552 of Title 40 of the Code of Federal Regulations (40 CFR 264.552). Discussed below are the regulations most relevant to the EPA's analysis of the clarifier CAMU proposal, and the manner by which the regulations are met, or will be met at the time of closure of the CAMU.

1. 40 CFR 264.552(a) states that the CAMU must be located within the facility under the control of the owner or operator where the waste to be managed in the CAMU originated.

The location of the proposed CAMU and the clarifier sludge and Mud Still Process solid residue meet this requirement.

2. 40 CFR 264.552(a)(1) states that wastes to be disposed in the CAMU must be "*CAMU-eligible wastes.*"

Because the clarifier wastes are solid or hazardous wastes being managed in order to implement a cleanup remedy at this closed facility, the waste is CAMU eligible waste.

3. 40 CFR 264.552(a)(3) prohibits the placement of liquids in CAMUs.

Solid residues from the Mud Still Process will be the only waste newly-placed in the CAMU. The residues will be dry and will not contain free liquids. Clarifier sludge that cannot be safely or practically removed during the Mud Still Process will remain in the CAMU. The only water that will be allowed to

remain in the CAMU, or be added to the CAMU during its construction, will be the quantity needed to prevent the clarifier sludge from igniting.

4. 40 CFR 264.552(c)(1) requires that the CAMU *“facilitate the implementation of reliable, effective, protective and cost-effective remedies.”*

The Supplemental Waste Plan (Barr, October 2015) explains in detail the mud still and how the Mud Still Process can be a reliable, effective, protective and cost-effective remedy for the clarifier sludge. This information was used by the EPA to determine the preferred remedy for the clarifier sludge.

5. 40 CFR 264.552(c)(2) requires that *“waste management activities associated with the CAMU shall not create unacceptable risk to humans or the environment resulting from exposure to hazardous waste or hazardous constituents.”*

All hazardous waste facility cleanup choices involve risk. Leaving the clarifier sludge in the clarifier in perpetuity sustains, and eventually would exacerbate, existing risks. Removing clarifier sludge from the clarifier, whether to transport it to a disposal facility or to process it in the Mud Still Process, involves waste management risks. These risks are discussed in detail in the Supplemental Waste Plan (Barr, October 2015). Use of the clarifier as a CAMU itself will create little incremental risk. In addition, solid residues generated during implementation of the Clarifier Remedy will be tested and if necessary treated to ensure that their placement in the CAMU will not create an unacceptable risk to human health or the environment.

6. 40 CFR 264.552(c)(3) this subsection requires that the CAMU not *“include uncontaminated areas of the facility”* (except under certain conditions).

The proposed CAMU is located in the footprint of the existing clarifier and does not include any uncontaminated areas of the Facility.

7. 40 CFR 264.552(c)(4) this subsection requires that all waste in the CAMU *“be managed and contained so as to minimize future releases, to the extent practicable.”*

The proposed design and operation of the CAMU will minimize future releases to the extent practicable. A description of the waste management practices Solvay will implement during implementation of the Clarifier Remedy and CAMU operation is provided in the Supplemental Waste Plan (Barr, October 2015).

8. 40 CFR 264.552(c)(5) requires that the *“CAMU shall expedite the timing of remedial activity implementation, when appropriate and practicable.”*

The designation of this CAMU does not impact the timing of the Clarifier Remedy or any other corrective action activities at the Facility.

9. 40 CFR 264.552(c)(6) requires that the CAMU *“enable the use, when appropriate, of treatment technologies (including innovative technologies) to enhance the long-term effectiveness of remedial actions by reducing the toxicity, mobility, or volume of waste that will remain in place after closure of the CAMU.”*

Implementation of the Clarifier Remedy at the Facility will reduce the toxicity, mobility and volume of the waste, by among other things removal of elemental phosphorus from the clarifier sludge. While designation of this CAMU does not “enable” the use of the Mud Still Process, it does comprise an effective component of an overall remedial approach for the clarifier and its contents.

10. 40 CFR 264.552(c)(7) states the *“CAMU shall, to the extent practicable, minimize the land area of the facility upon which waste will remain in place after closure of the CAMU.”*

The area that will be designated as a CAMU is small (approximately 0.67 acres or 29,000 square feet), extending only slightly beyond the current clarifier structure.

11. 40 CFR 264.552(d)(1) requires Solvay to provide information regarding *“the origin of the waste and how it was subsequently managed (including a description of the timing and circumstances surrounding the disposal and/or release).”*

Historical information on the production and management of the clarifier sludge has been provided by Solvay and is detailed in the Supplemental Waste Plan (Barr, October 2015).

12. 40 CFR 264.552(e) states that the EPA will specify, in the permit or order, requirements for the CAMU to include the following: aerial configuration, design, operation, treatment and closure requirements.

The aerial configuration of the CAMU is identified in Figure 3-10 of the Supplemental Waste Plan (Barr, October 2015).

13. 40 CFR 264.552(e)(2) states that the EPA shall specify *“applicable design, operation, treatment and closure requirements”* for the CAMU.

Solvay has proposed in the Supplemental Waste Plan (Barr, October 2015), design, operating, treatment and closure requirements for the CAMU. Prior to conducting each activity, the EPA will require that Solvay submit work plans for EPA approval, after consultation with DEQ. Approved work plans

relating to the CAMU become part of the 3008(h) Order; approved work plans relating to the Clarifier Remedy will become part of the 7003 Order and so will be enforceable by the EPA in federal court.

Wastes generated during implementation of the Clarifier Remedy will be evaluated as they are generated. Information on waste quantity, waste characteristics, and evidence of clarifier integrity will be collected during operation of the Mud Still Process and used to determine the appropriate final treatment and closure criteria.

14. 40 CFR 264.552(e)(5) requires the EPA to establish requirements for groundwater monitoring and corrective action.

Groundwater monitoring up-gradient and down-gradient of the clarifier is currently being conducted under the requirements of the 3008(h) Order. Groundwater monitoring of the clarifier will continue during implementation of the Clarifier Remedy, during construction and closure of the CAMU, and will continue unless and until it is determined monitoring no longer is necessary.

15. 40 CFR 264.552(e)(6) establishes the requirements for closure and post-closure of CAMUs.

The CAMU will be the final disposal location for remediation waste generated by the Mud Still Process and any remaining clarifier sludge that cannot be safely removed from the clarifier. Construction of the final CAMU cap will be based on the volume and characteristic of the remediation waste and remaining clarifier sludge, as well as the hydrogeologic and environmental conditions that may influence potential migration of constituents. The final CAMU cap as approved by the EPA after consultation with DEQ will:

- Provide long-term minimization of migration of liquids through the closed unit;
- Function with minimum maintenance;
- Promote precipitation drainage away from the contents of the CAMU and minimize erosion or abrasion of the cover;
- Accommodate settling and subsidence so that the cover's integrity is maintained; and
- Have a permeability of less than or equal to the permeability of any bottom liner system or natural subsoils present.

Other post-closure requirements necessary to protect human health and the environment will include monitoring, and maintenance activities to ensure the integrity of the CAMU, including the final cover, in perpetuity.

Conclusion

Solvay has requested that the EPA designate the clarifier as a CAMU for use as a final repository for wastes generated by the Clarifier Remedy. Solvay has provided information which fulfills the regulatory requirements for the EPA to consider designating this CAMU. Upon consideration of all information available to the EPA at this time, the EPA has concluded that it is appropriate to designate the CAMU as proposed by Solvay, with the understanding that during Mud Still Process operation additional information will be collected by Solvay and provided to the EPA. The EPA, in consultation with DEQ, will evaluate such information and make decisions on specific elements of the final CAMU design, and long-term operation and maintenance of the CAMU after construction.

Documents Relevant to this Proposed Decision

Barr, 2015. Supplemental Waste Plan, Clarifier Materials, Silver Bow Plant, October 13, 2015.

EPA, 2016. Proposed Clarifier Remedy Decision, September 2016

Franklin, 2007. Clarifier Waste Treatability Study Phase 1 Report, August 2007

Franklin, 2011. Clarifier Waste Treatability Study Phase 2 Report, February 2011

Franklin, 2012. Clarifier Waste Treatability Study Phase 3 Report, February 2012

Public Participation

The EPA encourages the public to review the documents that are particularly relevant to this decision and submit written comments on the proposed CAMU designation. The EPA will review all comments before issuing a final decision. The EPA may modify the CAMU designation based on new information and/or comments from the public.

The public comment period begins on September 13, 2016 and ends on October 27, 2016. All persons wishing to comment on our proposal to designate this CAMU must do so during this time. The EPA will hold a public meeting on the proposed decisions on September 27, 2016 to discuss the remedy decisions and provide an opportunity for public comment. The meeting will be held at 6pm in the cafeteria at the Ramsay Public School, Ramsay, Montana. Public comments may also be submitted to the EPA in writing, by the methods indicated below. Comments must be received by close of business October 27, 2016 and may be submitted either:

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