

**Response to
Colorado Department of Public Health and Environment**

Comments on

**DRAFT CORRECTIVE ACTION MANAGEMENT UNIT
INTERIM MEASURE/INTERIM REMEDIAL ACTION DECISION DOCUMENT
AND APPLICATION SUPPORT DOCUMENT FOR CONTAINERIZED STORAGE
FOR ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
November 25, 1996**

1. On page iii, Tables 5-1 and 5-2 are listed as being on pages 5-6 and 5-8, respectively. Tables 5-1 and 5-2 are actually on pages 5-4 and 5-6, respectively. Please modify document accordingly.

Response: The page numbers have been corrected.

2. On page ES-1 it states, "This facility would be known as the Containerized Storage Facility (CSF)." Please change the above sentence to state, "The facility proposed to be situated within the CAMU would be known as the Containerized Storage Facility (CSF)."

Response: The sentence has been modified to read "This facility, proposed to be located within the CAMU, would be known as the Containerized Storage Facility (CSF)."

3. Please change the third sentence of the first paragraph on page ES-1 to state, "This CSF CAMU designation is being requested to facilitate remedial activities in support of site closure at RFETS and may be used along with a separate bulk storage CAMU designation to provide a range of options for waste management."

Response: The sentence has been modified to read "This CSF CAMU designation is being requested to facilitate remedial activities in support of site closure at RFETS and may be used along with a separate bulk storage CAMU to provide a range of options for management of remediation waste."

4. Please delete the last sentence in the first paragraph on page ES-1. The text must be rewritten to reflect that references to a CAMU as a contingency is only applicable if an appropriate remedy is specified. A CAMU is not a remedy in and of itself. The text must explicitly state what the remedy is (offsite disposal) and specify a reasonable time frame for CAMU implementation (e.g., within 2 years after CAMU designation) and for remedy completion or CAMU closure.

Response: The sentence was deleted. The text has been revised to read "The remedy at RFETS for cleanup of contaminated areas is source removal, including treatment if appropriate, followed by offsite disposal of remediation waste. This is embodied in the Site closure schedules. Planning assumptions in the site closure baseline, as described in the Ten Year Plan (DOE 1996a), call for offsite shipment for disposal of remediation waste as it is generated. This CAMU designation would serve as a contingency to this assumption, ensuring risk reduction activities could continue in the event immediate offsite shipment is not possible. The assumptions of site closure will be reviewed on a periodic basis along with funding profiles and risk reduction priorities to determine if or when implementation of this contingency would be appropriate."

5. The second paragraph on page ES-1 presents waste volume estimates. The text should distinguish between CSF CAMU waste estimates and total site-wide waste estimates. The current overall volume estimates should be consistent throughout the document and with the overall waste volume estimates presented in the Draft Bulk CAMU document (see pages ES-3, 1-2, 5-6, etc.).

ADMIN RECORD

A-SW-002086

Response: The text in the second paragraph was modified to state these estimates are for remediation wastes. This should distinguish these estimates from other waste streams on site. The upper end remediation waste volume estimate is 300,000 cubic yards. This is consistent with the bulk storage CAMU application and will be consistent throughout the text.

This facility is not intended to be able to support storage of 300,000 cubic yards. This design represents an option from the lower end of the waste management spectrum with respect to waste volumes. In the event that the waste streams generated would be closer to 300,000 cubic yards, this option would likely not be the one selected to support management of these volumes of waste.

The sentence on page 1-2 citing Ten Year Plan waste estimates has been deleted since these estimates are being refined as new information is gathered.

6. In order to clarify that the requested designation is for the CAMU, not the CSF, the first sentence of the third paragraph on page ES-1 should state: "This CSF CAMU designation request is presented as an Interim Measures/Interim Remedial Action (IM/IRA) Decision Document and Application Support Document."

Response: The sentence has been modified to read "This CSF CAMU designation request is presented as an Interim Measures/Interim Remedial Action (IM/IRA) Decision Document and Application Support Document."

7. The meaning of the last sentence in the third paragraph on page ES-1 would be clearer if modified to state, "The CSF would store waste ready to be shipped in the near-term to an available offsite disposal or treatment facility and waste not amenable for bulk storage."

Response: The sentence has been modified to read "The CSF would store waste ready to be shipped in the near-term to an available offsite disposal or treatment facility and waste not amenable for bulk storage."

8. On page ES-1, TSCA wastes are identified as being one of the types of remediation wastes to be managed in this facility. TSCA waste requirements specify a one-year storage ceiling. Please provide details as to how the facility will comply with this requirement for a containerized storage CAMU.

Response: All TSCA waste will be managed under the requirements of TSCA. The text has been modified to delete references to TSCA.

9. At the top of page ES-2 it states, "The request that CDPHE make a finding of fact as to whether the proposed facility also meets the requirements for a disposal facility, as described in paragraph 80 of the RFCA, is deferred." The CSF is not designed to meet the Subpart N requirements and is not intended to become a disposal facility, therefore, this sentence should be eliminated. It is assumed that paragraphs 80 and 109 of the RFCA is intended to apply to the proposed bulk storage CAMU and that this CSF CAMU proposal will proceed as an IM/IRA Decision Document outside the purview of paragraphs 80 and 109. This decision document should clarify to which CAMU these paragraphs apply.

Response: The sentence has been deleted. By joint agreement of all parties, the containerized CAMU application will proceed as an IM/IRA Decision Document under RFCA. The schedule for review for this CAMU application will follow the time frames outlined in Paragraph 109 of RFCA.

10. On page ES-2 it states, "A determination has not been made on the period of operation of the CSF CAMU." The period of operation for the CSF CAMU must be designated and should be consistent with the term of RFCA's Intermediate Site Condition, a maximum of 25-years, as well as the design life of the proposed alternative. In Section 5 of this document, the design life of the CSF is given as 20 years.

Response: The period of operation for the CSF will be clarified as 25 years consistent with the RFCA preamble definition of the intermediate site condition. This will be clarified in Section 5.0 as well.

11. Please change the last sentence of the paragraph at the top of page ES-2 to state, "Closure of the facility will be in accordance with 6 CCR 1007-3 § 264.552(e)(4)."

Response: The sentence has been modified to read "Closure of the facility would be consistent with cleanup levels established in the RFCA and in accordance with 6 CCR 1007-3 264.552 (e) (4)."

12. The first bullet on page ES-2 must be changed to incorporate the modifications mentioned in comment #4 above regarding the CSF CAMU serving as a contingency.

Response: The following sentence has been inserted after the first sentence in the bullet: "This remedy is source removal coupled with offsite disposal."

13. On page ES-2, please modify the last bullet to state: "The CSF CAMU may allow DOE to achieve economies of scale by consolidating remediation waste, making treatment and offsite disposal less costly and addressing long-term liability and safety issues." Please also provide further rationale for stating that the containerized CAMU approach would be less costly, overall. Cost must be computed not only in the present time frame, but over the long term as well. Every indication is that off-site disposal cost will continue to be on the rise.

Response: The decision document has never stated that the CAMU will achieve lower overall cost. The following paragraph has been added after the first paragraph for clarification: "The most cost effective approach to site closure is to ship remediation waste offsite as it is generated. The decision of whether or not to implement the CAMU contingency would need to balance cost issues with the ability to achieve timely risk reduction."

14. The text should further describe the physical characteristics of the "rolloff" type containers first mentioned on page.

Response: The container description, is used for cost estimating purposes only, and not intended to limit facility flexibility with respect to waste management. These containers have been described in more detail in Section 5.1 and in the design narrative. All containers used in this facility will be suitable for storage purposes. Container specifications will be described in the waste acceptance criteria.

15. Please replace the first sentence in Section 1 (page 1-1) with the following: "This is an application for designation of a Resource Conservation and Recovery Act (RCRA) Corrective Action Management Unit (CAMU) and a Rocky Flats Cleanup Agreement (RFCA) Decision Document. The storage unit within the proposed CAMU area would be known as the Containerized Storage Facility (CSF)."

Response: The first two sentences of Section 1 have been revised to read "This is an application for designation of a Resource Conservation and Recovery Act (RCRA) Corrective Action management Unit (CAMU) and a Rocky Flats Cleanup Agreement (RFCA) Decision Document. The storage unit within the proposed CAMU area would be known as the Containerized Waste Storage Facility (CSF)."

16. In the second paragraph on page 1-1 it states, "The flexibility provided by the CSF contingency enhances DOE's ability to ensure timely and cost-effective site closure in support of the aggressive offsite waste shipment strategy embodied in the Site Draft Ten Year Plan (DOE 1996a)." Please see comment #13 above.

Response: As stated for Comment Number 13, it was never the intent of this document to suggest this option is more cost effective than immediate offsite shipment. If this option is needed, however, it would be the most cost effective, given the consideration listed in Section 1, and would support timely risk reduction. No further revisions to the text have been made.

17. On page 1-2 it states, "The designation of the CSF as a CAMU provides an option for quick and effective handling of a larger volume of waste in a safer manner than the

conventional RCRA approach allows." Please delete the above sentence or modify it to state, "The designation of the CSF CAMU may provide..." Also describe how a CAMU is safer than a "conventional RCRA approach."

Response: The sentence has been modified to state: "The designation of the CSF as a CAMU may provide an option for quick and effective handling of a larger volume of waste in a safer manner than what would occur from multiple smaller storage and shipping areas spread across RFETS". As explained in the paragraph, a centralized facility reduces the handling requirements and potential exposure that would occur if multiple work location across the Site were storing, handling, and shipping waste. This facility would provide storage capabilities significantly larger than those that currently exist so larger volumes could be handled.

18. Please change the sentence in the next-to-last paragraph on page 1-2 which states, "Remediation waste does not include wastes generated from non-ER or decommissioning activities." to say, "Remediation waste does not include wastes generated from other activities."

Response: The sentence has been modified to read "Remediation waste does not include wastes generated from process related or other activities."

19. On page 1-4 it states, "This Decision Document contains the information necessary for the Colorado Department of Public Health and Environment (CDPHE) to designate a CSF [CAMU] used for containerized storage." Additional information is necessary, however, before a CAMU can be designated. Besides addressing our other comments, the Decision Document should also include: a comprehensive design narrative including geotechnical analyses (e.g., settlement, bearing capacity, slope stability) and pertinent design parameters (including a comprehensive table which addresses design items, components, performance standards, design guidance, design parameter demonstration, and resultant design criteria), guidance narrative which thoroughly addresses development of operational and maintenance requirements, guidelines for development of a Waste Analysis Plan, Security Plan outline, Personnel Training Plan outline, Inspection Plan outline, Construction Quality Assurance Plan outline, Health and Safety Plan outline, Operating Record System Plan outline, guidelines for development of a ground water monitoring plan (including field procedures and analysis of the proposed CSF monitoring network efficiencies), guidelines for development of a surface water monitoring plan, guidelines for closure and post-closure plan(s), preliminary specifications, Contingency Plan outline, and an outline for a chemical compatibility determination.

Response: 6-CCR-1007-3 264.552 (e) requires that requirements be specified with respect to waste management, closure, groundwater monitoring, and treatment. The issue here is defining the level of detail incorporated into the requirements. There is no language in the regulation requiring demonstration of compliance with a particular requirement, simply identification of the requirements themselves. The intent of this language, according to the proposed rule, was to allow flexibility outside pre-established requirements such as Subpart N. There is no specific regulatory guidance as to the level of detail. An inference can be made that this level should be consistent with the level of detail contained in the regulations. 6 CCR 1007-3 264.301 (Subpart N) establishes a general model for the level of detail considered to be adequate in terms of defining a requirement. This CAMU designation request meets or exceeds this level of detail.

Other guidance as to the level of detail is provided in the EPA final rule under section 264.552 (c) (1): Facilitation of Reliable, Effective, Protective, and Cost Effective Remedies where it states "The Agency does not intend that evaluation of this decision criterion will require a detailed cost/benefit or other quantitative analyses" (FR Vol. 58, No. 29 February 16, 1993, page 8668). This is supported by similar language in the proposed rule. No language to the contrary appears in the Colorado Notice of Final Adoption dated May 31, 1994.

RFCA Paragraph 80 has defined the requirements for the bulk storage CAMU as those in Subpart N. The level of detail required for any requirements should also be consistent with the detail in Subpart N. The level of detail to be contained in the CAMU designation request was specifically discussed during the RFCA negotiations where it was decided that only

conceptual level information was needed rather than detailed design information. Detailed design information will be provided and be subject to approval if, and when, the Site decides to proceed with construction of the CAMU.

Additional supplementary information has been provided. No text was modified in response to this comment. A design narrative has been prepared in response to comment 19.

20. The CSF does not exist as a “regulated unit”. Therefore, please delete the second sentence of the first paragraph on page 1-4.

Response: This sentence has been deleted.

21. In the first paragraph on page 1-4, the proper reference citation for RFCA is (DOE, 1996a).

Response: This reference has been corrected

22. On page 1-4 it states, “The CSF would consist of metal storage buildings with sealed concrete floors and would be constructed to store containerized remediation waste.” The text should add that the sealed concrete floors must be constructed of components that will have appropriate chemical and physical properties to prevent failure. Also, the text should state that the facility design would incorporate internal leakage stops.

Response: The sentence has been modified to read: “The CSF would consist of metal storage buildings with chemically resistant sealed concrete floors, internal leak stops, and would be constructed to store containerized remediation waste.”

23. On page 1-4 it states, “It is the intent of DOE to request a CSF CAMU for storage only, and that all waste would be removed from the CSF prior to Site closure. The request that CDPHE make a finding of fact as to whether the proposed facility also meets the requirements for a disposal facility, as described in Paragraph 80 of the RFCA, is deferred.” This sentence last should be deleted (see comment #9 above).

Response: This sentence has been deleted.

24. On page 1-6 it states, “Specific plans and documents detailing environmental monitoring, waste acceptance criteria, and closure are not in the scope of this document....” Please see comment #19 above. A ground water monitoring efficiency analysis must be incorporated into the document to show that the proposed ground water monitoring system is adequate.

Response: It is agreed that the groundwater monitoring requirements of 6 CCR 1007-3 264.552 (e) (3) (i) apply to this CAMU. Additional submittals for the CAMU will include a detailed groundwater monitoring plan that will be included as part of the Site Integrated Monitoring Plan (IMP) for groundwater. There is no requirement in the regulations for a “groundwater monitoring efficiency analysis”. Determination of necessary and sufficient requirements for issues such as well spacing, screen placement, and sampling frequency will be developed in conjunction with facility design and be reviewed and approved by CDPHE.

25. The essence of the first bullet at the top of page 1-7 says, “...the management of ... remediation waste” ensures safety “through ... management of remediation wastes...” Please modify this sentence to avoid this redundancy by replacing the phrase “management of remediation wastes at the RFETS” with “remedies”.

Response: The bullet has been modified to read: “In support of the RFCA and the Draft Ten Year Plan, the management of low-level, low-level mixed, and hazardous remediation waste must ensure the safety of the public, RFETS workers, and the environment through reliable, effective, protective, and cost-effective implementation of interim and final remedies at the RFETS.”

26. On page 1-7 the second bullet in Section 1.2.2 refers to “the uncertainties surrounding waste volume estimates”. Please provide further details as to methods to be utilized to further pin down estimates, and a schedule for performing this analysis.

Response: The text was not changed in response to this comment. Estimates for waste volumes with respect to site closure are included in the Ten Year Plan.

As part of the overall strategy, an exercise has been conducted for the Ten Year Plan to estimate waste volumes. For D&D, volume estimates are being based on actual D&D volumes associated with recent buildings around the DOE complex including RFETS buildings. ER waste volumes are being estimated and revised based upon past characterization activities. Additional characterization activities are also being scoped for the Industrial Area to provide better detail for cleanup including waste volume estimates. Volumes are refined as new data are collected.

A mass balance exercise is also being conducted that assesses waste volume estimates, shipping capacity, current onsite storage capacity, other potential onsite storage resources, funding curves, and activity cost estimates. This will be used to provide overall waste generation curves and evaluate when, if at all, additional storage will be necessary. This assessment will drive the proposed scope of the Ten Year Plan. Once the Ten Year Plan is completed, periodic updates will provide a planning baseline intended to support issues such as determining the adequacy of RFETS storage capacity.

27. In the third bullet on page 1-7, please replace "solution" with "remedy".

Response: "Remedy" now replaces "solution" in the sentence.

28. In the last bullet in Section 1.2.3 (top of page), please delete "designated CSF contingency."

Response: The first two words were deleted as requested however, this facility is still a contingency and it is appropriate to identify it as such in the bullet.

29. On page 2-1, The first sentence in Section 2 should read, "The ability to designate the CSF CAMU is dependent in part on compliance with the criteria found in 6 CCR 1007-3 265.552 (c), Corrective Action Management Units."

Response: The sentence has been modified to read: "Designation of the CSF as a CAMU shall be in accordance with 6 CCR 1007-3 264.552 (c), Corrective Active Management Units. "

30. The second sentence of Section 2 on page 2-1 states, "In order to demonstrate a need for a CSF CAMU at RFETS, these seven criteria [6 CCR 1007-3 264.552(c)] were made an integral part of the decision-making process." §264.552 (c) specifies that the Department shall designate a CAMU in accordance with the seven items referred to in the above text. These regulations define how a CAMU must be designated and do not demonstrate the necessity of a CAMU. Please modify the text accordingly.

Response: The sentence has been deleted.

31. The regulatory citation in the first criterion listed in Section 2 should be 264.552 (c)(1).

Response: The citation has been corrected.

32. The discussion on pages 2-1 through 2-3 addresses 6 CCR 1007-3 § 264.552(c)(1). Please rewrite this discussion to specify the remedy and how the proposed CAMU appropriately facilitates its implementation.

Response: The second paragraph has been modified to state the following:

"The CSF CAMU provides reliability and effectiveness by allowing the remedy of source removal coupled with offsite disposal to continue in the event offsite disposal capabilities cannot support near term waste generation during remedy implementation. This allows contaminant sources to be removed sooner rather than remain exposed in the environment because no storage or the offsite shipment is available. The CSF CAMU would be implemented to support continued risk reduction and mitigate delays to cleanup schedules in

the event offsite disposal cannot occur in a timely manner, thereby facilitating remedy implementation.”

33. On page 2-1 it states, “This CAMU is cost effective from both location and design standpoints.” A detailed cost comparison of all CSF CAMU options should be provided and compared with costs of other potential alternatives (e.g., no action/using existing permitted units, etc.). Total costs of fully implementing the proposed remedy should be considered for all alternatives. Comment #54 below discusses adding these costs to Table 4-1.

Response: The total costs for implementing this interim action were considered. Costs for these options will be included in Section 4. Most of these costs will be based on the cost estimates prepared for the bulk storage CAMU and corrected for omission of liners and capacity. Since timely risk reduction rather than cost would drive the decision for implementation of this CAMU, cost estimates are included only to support selection of the most cost effective design rather than to demonstrate this option is more cost effective than immediate offsite disposal.

The no action alternative considers costs relative to the interim action only. These costs have been defined as essentially zero relative to the other options identified. In reality, some costs would be incurred for containers, packaging, and characterization if any level of cleanup occurred. Quantification of these costs is highly subjective and of little value when selecting an alternative for onsite storage since it has already been stated that the desire for risk reduction rather than cost would drive the decision to implement this CAMU.

The final remedy is source removal followed by offsite disposal. These costs are not part of the interim action and therefore not considered.

The focus of this document is to provide a proposed design for a cost effective containerized CAMU facility. It is not the objective of this document to establish a site wide waste management policy which evaluates numerous alternatives to a CAMU. The objective of this document is to evaluate CAMU alternatives. It is agreed that evaluation of all waste management options should occur prior to making a decision

34. On page 2-1 it states, “The design includes containment, retrievability, and inspection features which ensures that the facility is protective of human health and the environment.” Please delete the above sentence from the text or modify the sentence to avoid the implication that protection of human health and the environment is guaranteed.

Response: The sentence has been modified to read: “The design includes containment, retrievability, and inspection features which supports protectiveness of human health and the environment.”

35. On page 2-2 it states, “Final shipping and offsite disposition of the wastes would be conducted once cleanup is complete, allowing resources to be more efficiently focused, economies of scale to be achieved, and support operations to be appropriately scaled.” This statement apparently contradicts the criterion that a CAMU must expedite the timing of remedial activity implementation. Please delete the above sentence from the text.

Response: This sentence has been deleted.

36. The third criterion on page 2-3 states the preference to site the CAMU in uncontaminated areas of the facility. A more detailed map(s) (i.e., 1"=200') which at least encompasses the proposed CAMU area and the rail spur should be provided to support the discussion of this criterion.

Response: A more detailed map has been included.

37. The first bullet under criterion #3 on page 2-3 states, “The area is near the RFETS rail spur and other offsite shipment facilities.” The third bullet states, “The area is not within the Protected Area.” Please identify and describe any contaminated areas outside the Protected Area near the RFETS rail spur and other shipment facilities which could provide a suitable location for the CSF CAMU.

Response: This site was selected because the emphasis is on active offsite disposal. The location, therefore, was based on shipping logistics rather than longer term storage. A major emphasis during site selection was to locate an area with previous contamination however, no IHSS areas met the following criteria :

- The area needed to support near term implementation
- The area needed to support active offsite shipment including ease of use issues such as not being located within the PA.
- The area could not conflict with other risk reduction activities (i.e. Pu consolidation, D&D, and ER) or future near term site use such as existing plans for buildings and site infrastructure.

These considerations led to the selection of a site that did not incorporate current IHSSs but was in a previously disturbed portion of the Industrial Area adjacent to the rail line.

38. The second bullet on page 2-3 states, "The area is relatively free of obstructions such as buildings, utilities, and process waste lines which facilitates more rapid construction." Facilitating rapid construction does not suitably address § 264.552(c)(3). The second bullet should be deleted from the text.

Response: The ability to implement this facility relatively quickly if the need arises supports timely risk reduction, mitigates potential delays to cleanup activities, and allows exposed sources to be placed into a more protective configuration. All these factors associated with more rapid implementation as well as selection of an area that does not hamper risk reduction activities supports this criteria. The text was not modified in response to this comment.

39. The fourth bullet on page 2-3 states, "The area is within a previously disturbed industrial setting which limits the impacts to natural resources, endangered species habitat, and the environment." The proposed area appears to be located in an uncontaminated area above a shallow ground water table which does not particularly limit impacts to natural resources or the environment. Delete this bullet.

Response: The text was not modified for the following reasons:

- This bullet supports that fact that this area is not in an area of significant ecological importance since it has already been disturbed, is in an area of active use, and does not support endangered species or near term future site use such as potential open space.
- The area limits impact to natural resources such a gravel deposits since this area is not ideal for this type of operation.
- The area is also located within the surface water management area and, therefore, is supported by the current safety envelope of the Site. this makes the area more protective from an environmental standpoint than areas in the southern or northern buffer zones.
- The depth to groundwater is relatively constant across the entire Industrial Area including the Protected Area and does not factor significantly in site selection . In addition, most groundwater under the proposed site daylights in the seeps to the south. These seeps are within the current surface waster management safety envelope supporting the ability to maintain protectiveness or support corrective action.

40. Criterion #5 on page 2-5 indicates the CAMU shall expedite the timing or remedial activities. The text should specifically address how the proposed CAMU will expedite remedial activity implementation. Please also see comments #4 and #35 above.

Response: This paragraph has been revised as follows:

"This CSF CAMU is intended to be used as a contingency to the site closure strategy. As previously mentioned, the Ten Year Plan assumes wastes can be shipped and disposed offsite

as they are generated. In the event this assumption fails, contaminant sources would either be stored at the point of generation or left exposed to the environment. This would delay implementation of the remedy of source removal and offsite disposal. Implementation of this contingency would ensure that the timing of remedial activities would not be impacted. This allows expedited cleanup schedules to continue as planned.”

41. The text under criteria 6 and 7 on pages 2-4 and 2-5 should be deleted from the text and replaced with the following, “This criterion is not applicable. At this time, the intended use of this facility is for monitored, retrievable waste storage.” (See text under criterion #4 at the top of page 2-4.)

Response: This revision has been incorporated and is consistent with Criterion 4.

42. The first sentence of Section 3 on page 3-1 should be deleted. Although it is within quotation marks, the text is not quoted verbatim. The CSF is not designed to meet Subpart N requirements and cannot be a disposal facility. Please also see comment #9 above.

Response: Both sentences referenced in Comments 42 and 43 have been deleted and replaced with the following statement: “The approval of this IM/IRA Decision Document by the State of Colorado shall constitute approval of a CAMU designation for storage of containerized remediation waste. This section identifies the applicable requirements considered to be met upon approval of this decision document.”

43. The second sentence of Section 3 on page 3-1, which refers to the CAMU rule, is also not verbatim. On page 1-6 it states, “The first step is the IM/IRA Concept Validation/CAMU Designation, which consists of this IM/IRA Decision Document.” Accordingly, the sentence should be replaced with a statement to the effect that with the State’s approval, this decision document will constitute a designation of the proposed CAMU.

Response: Both sentences referenced in Comments 42 and 43 have been deleted and replaced with the following statement: “The approval of this IM/IRA Decision Document by the State of Colorado shall constitute approval of a CAMU designation for storage of containerized remediation waste. This section identifies the applicable requirements considered to be met upon approval of this decision document.”

44. Assuming that paragraph 80 of RFCA refers to the proposed bulk CAMU, the phrase “Consistent with RFCA paragraph 80” should be deleted from the first sentence under Section 3.2 on page 3-1 (see comment #9 above). The list of design and operating requirements is still appropriate. The sentence at the end of this list of requirements refers to further discussion in Section 5.4. This reference is apparently in error. In the next sentence, the reference to paragraph 109 of RFCA should be removed.

Response: This sentence and all other references to Paragraph 80 have been deleted.

45. Please delete the first paragraph under Section 3.3 on page 3-2 from the document. See comment #9 above.

Response: This paragraph has been deleted.

46. Additional requirements for designation enumerated in Part 264.552(e) of the CAMU rule are listed at the bottom of page 3-2. Please change the regulatory citation after bullet 2 to (Part 264.552(e)(2) and (4)) or change bullet 2 to read “Specification of the applicable design, operation and closure requirements” and add a fourth bullet which states, “Specification of closure and post closure requirements (Part 264.552(e)(4)).”

Response: The citation was modified to include “and (4)”.

47. On page 3-2 it states, “If implementation of this CSF CAMU becomes necessary to meet risk reduction goals, documentation and plans meeting the above requirements will be provided during the CSF design/preparation for construction phase.” The CAMU areal

configuration must be included in this decision document. Also, please see comment #19 above. All guidelines, outlines and conceptual plans mentioned above must be submitted as work plans during the design phase.

Response: The areal configuration for this CAMU has been identified in the new appendix. Please see response to Comment 19. All work control documents will be submitted for State review during the design phase should this CAMU contingency be implemented.

48. On page 4-1 it states, "All of the alternatives except No-Action, would provide handling and shipping capabilities for offsite transport." All alternatives should include handling and shipping capabilities for offsite transport. The document should present a detailed cost estimate for all alternatives to demonstrate that the CSF would support a cost-effective remedy.

Response: At this time, the intended use of this facility is to support storage and shipment with packaging and any onsite treatment performed at the project sites. It is agreed that maximum flexibility, with respect to design features, should be maintained in this document to ensure that the final design would support effective offsite transport for disposal.

Additional cost data has been provided in section 4 in Table 4-2. The cost estimates are used for relative comparisons between designs and support selection of the most cost effective design.

The usefulness of these estimates is for alternative comparisons only. The determination of whether or not to implement this CAMU option will not be based solely on cost since it is significantly more cost effective to ship waste offsite as it is generated. The cost of the facility will be balanced with the objective of timely risk reduction when the decision to implement this option is evaluated.

The level of detail in these estimates is consistent with conceptual level design and not intended to be definitive estimates. Addition or deletion of design features such as handling and shipping facilities would create no significant relative differences between the design alternatives and therefore, not impact alternative selection. Similar shipping and handling facility upgrades have relatively little value when comparing alternatives because, at the conceptual level of design, the costs would all be relatively equal and, therefore, not differentiate one design over another. Please also see the response to comment 47 with respect to the statement in the final rule regarding detailed cost benefit analyses. In addition, comment by the State regarding limiting flexibility by making statement limiting facility design options (Comment 63) should also consider the limited flexibility of building excessive design features into the designs at this early stage.

Conceptual level cost estimates have fairly high levels of uncertainty associated with them. These uncertainties, or margins of error, are quantified as contingency and cover omission or addition of design features such as those mentioned in the comment.

49. The first bullet on page 4-2 regarding rejection of the No Action Alternative states, "The current permitted storage capacity at RFETS would not likely support storage for the waste volumes estimated in the Draft Ten Year Plan in the event offsite shipment cannot keep pace with generation thus delaying cleanup." Please identify the factors which would prevent offsite shipment from "keeping pace with generation." The cost savings benefit resulting from not building the CSF might be better applied to facilities or procedures which will facilitate implementation of the offsite disposal remedy. Please also see comment #48 above.

Response: The factors that might impact offsite capabilities include availability of offsite disposal, future funding profiles, risk reduction priorities, generation rates, and shipping capabilities.

The intent of this decision document is to provide an option for a CAMU. This would not be the sole option for future waste management but it is the sole purpose of this document rather than assess infinite modifications to current site practices. Use of funding to upgrade facilities

or otherwise enhance offsite shipment capabilities is a valid issue which would be considered during the CAMU implementation decision process.

50. The second bullet on page 4-2 regarding rejection of the No Action Alternative states, "Near-term costs for risk reduction activities could increase because additional resources might be needed sooner to meet land disposal restriction treatment requirements. This would delay the number of source removals that could take place in a given time frame." The document should also indicate that near-term costs for risk-reduction activities could also increase because additional resources would be needed sooner to build the CSF.

Response: The second bullet has been deleted. The basis for decision on whether or not to implement a CAMU is not cost based. The basis for CAMU implementation is the desire on the part of DOE to meet its commitments for expedited risk reduction even if offsite disposal is not immediately available and recognizing the additional costs necessary to support this. Cost, however, will be one of the primary factors influencing selection of the design.

51. On page 4-2 it states, "If the facility needed to be utilized for more than 30 years, the Hardened Concrete Vault might be the best alternative. However, the CSF facility is intended for short-term use only (as described in the Draft Ten Year Plan strategy)." On page 4-3 it states, "The Metal Buildings alternative was selected as the best alternative for short-term storage (10-20) years." Please see comments # 4 and #10 above.

Response: The first statement was modified to read: "If the facility needed to be utilized for more than 30 years, the Hardened Concrete Vault might be the best alternative. However, the CSF facility is intended for short-term use consistent with the 25 year time limit for the intermediate site condition as defined in the RFCA preamble."

The second statement now reads: "The Metal Buildings alternative was selected as the best alternative for short-term storage consistent with the intermediate site condition as defined in the RFCA preamble (12 to 20-25 years)."

52. The sentence in the first bullet on page 4-3 states, "Air monitoring could be incorporated into existing programs." Please replace "could" with "would" in the above sentence.

Response: The text has been revised to read: "Existing RFETS air compliance programs will incorporate the CSF facility."

53. Discussions of a leak (leachate) collection system and secondary containment, as in the third bullet on page 4-3, should include a commitment that components of these systems would be subject to chemical compatibility testing or demonstration.

Response: The second sentence in the third bullet has been revised to read: "The combination of strong tight containers, an enclosed building, a leak collection system, chemical resistant materials where applicable, and secondary containment would provide protectiveness to surface water and ground water."

54. Table 4-1 modifications:

Under Worker Safety for the No Action alternative it states, "Waste would need to be immediately shipped in bulk to reduce exposure." This block also states, "Exposure could result if waste leaked from containers." Please clarify the apparent inconsistency between these two statements. Also, waste would not have to be immediately shipped in bulk if a handling facility was available for packaging purposes. This handling facility would also address the "lack of a waste handling facility" mentioned under Transportation for the No Action alternative.

The second sentence under Facility Design, Containment and Monitoring for the No Action alternative would make more sense if modified to read, "Source removals may not be continued in a timely fashion."

Please replace "CSF" with "Metal buildings" under Transportation for the Metal Buildings alternative and elsewhere in Table 4-1. Also, please explain why the metal buildings would allow more transportation options for offsite shipment than the other alternatives.

Under the Institutional Controls column it states that RFCA (or RCRA) will be an institutional control. While Institutional controls can be established by decision documents such as this, RFCA itself (or RCRA) is not an institutional control. Delete this sentence from this table.

The detailed cost comparison of all CSF alternatives mentioned in comments #33 and #60 should be incorporated into the Cost column by listing the estimated costs, or may be provided in a separate table. The narrative should explain that the cost for the No Action alternative is the basic final disposal cost.

Under Community Acceptance, it is assumed that the "desire for offsite disposal" is the general public's desire. It should be so identified.

Response:

a. The referenced block has been revised to read: "Cleanup schedules might be impacted if offsite shipment cannot occur. Exposure could result if sources are not contained or if waste leaked from containers left at project site."

b. This block now reads: "Waste will not be consolidated. Source removals may not be conducted in a timely fashion. Site monitoring requirements would not be reduced through cleanup activities."

c. The term "CSF" has been replaced with "metal buildings" throughout Table 4-1. The second sentence in the block now reads: "The metal buildings would allow coordination of transportation and more ease of transportation than vaults."

d. The sentence has been revised to read: "Institutional controls requiring continued maintenance, inspection and monitoring of the facility would be required."

e. Conceptual cost estimates are summarized in a new Table 4-2.

f. This statement was already included under this heading.

55. The first bullet under Section 5.1 on pages 5-1 and 5-4 states, "RFCA paragraph 80 describes requirements that have been incorporated into the conceptual design such as leachate detection and collection. Details of how these requirements will be met will be submitted during the design phase." A drawing(s) showing a conceptual floor design which incorporates integral drain channels and sumps built into the concrete slab should be included in the document. The text should state that the leachate collection system would be designed and operated to minimize clogging and that the sealed concrete floors should be subjected to chemical compatibility testing.

All guidelines, outlines and conceptual plans mentioned above must be submitted as work plans during the design phase (see comment #19).

Response:

a. The second bullet under Section 5 has been modified to read: "Structural concrete floor slab with chemical resistant coating and an integral leak collection system designed to minimize clogging."

b. A design narrative has been added to supply additional design and operational information.

56. Figure 5-1 illustrates the proposed containerized storage facility (CSF) footprint. A figure which illustrates the CSF CAMU areal configuration should be included in the document. The location of the proposed CSF footprint within the CAMU should also be shown. The importance of proximity to the rail spur has previously been expressed and so that feature

should also be shown. A more detailed map (e.g., 1" = 200') which at least encompasses the proposed CAMU area and the rail spur should be included.

Response: A more detailed map has been included in the design narrative.

57. Features used to develop the conceptual cost estimate are listed on page 5-4. The following additional features should also be listed:
- Surface water controls (the document should address the design criteria for surface water controls),
 - Handling, packaging and transportation,
 - Leachate management/treatment,
 - A sludge-drying facility may need to be listed.

The next-to-last bullet in the list of features provides for 20,000 cargo containers which contradicts the 5,000 mentioned just above and in other previous sections. The use of "cargo containers" also differs from "rolloffs" used in previous sections. Please modify the text to make these items consistent.

Response: Additional information has been included in the design narrative. The basis for the cost estimates has already been established and as mentioned in response to Comment 48, these features create no relative difference between the design alternatives and provide no significant added benefit

58. On page 5-4 the last bullet states, "Groundwater monitoring wells (six total maximum) would be installed both up gradient and down gradient and would be monitored through the life cycle of the CSF (20 years)." Please insert the word "hydraulically" in front of the word "up" and the word "down" in the above sentence. As previously mentioned, a ground water monitoring efficiency analysis must be incorporated into the document to show that six wells are adequate.

Response:

a. The text was modified to include the word "hydraulically".

b. As stated in the text, the number of wells identified in this bullet are for conceptual cost estimating purposes only and not intended to establish a regulatory baseline. Some number needs to be assumed in order to estimate the facility costs. An analysis of sufficient groundwater monitoring will be conducted during the design phase and incorporated into a CDPHE approved groundwater monitoring plan.

59. Table 5-1 addresses a cost summary for the CSF. Total costs (including handling, packaging and transportation costs) associated with fully implementing the proposed cost effective than the No Action alternative (estimated at \$215,000,000).

Response: It is acknowledged that the CAMU option would be significantly more expensive than No Action and would need to be balanced against risk reduction objectives prior to implementation. The nature of the design allows modular construction to ensure cost effective implementation. In addition, the total capacity of both options exceeds all current waste volume estimates making the scenario for implementation in this comment unlikely. The current waste management strategy is a focus on offsite shipment limiting additional storage to the extent practicable.

Since no leachate is expected with this design, design features have been focused on leak collection. These costs are negligible for a roofed facility housing water tight metal containers that do not contain free liquids. When used in this context, the term leachate suggests that water would infiltrate the roof of the facility and then into the sealed containers prior to leaking out through the same containers. This is an unlikely scenario. More likely is general water collection resulting from the influx of containers during precipitation events. The conceptual design accounts for water collection within the facility. References to "leachate" have been changed to "leak".

The additional cost of a drying facility would be approximately equal between alternative designs and, therefore, not significantly influence design selection. Inclusion of a drying facility may also impact design flexibility later. The current intention of the design information at this stage is not to limit the possibility of incorporating this design feature later. This is consistent with Comment 63.

60. On page 5-5 it states, "The integral leachate collection and retrieval system built into the concrete floor would collect any potential leachate which would be transferred to a facility for treatment." Leachate management costs (and potential drying facility costs) should be included in the alternative analysis (see comment #57 above).

Response: Please see response to Comments 48, 57, and 59. Since it is highly unlikely that leachate could be generated from this type of facility design, the focus of the design is on leak collection. Leak collection costs would be minimal since this is a fully enclosed facility with waste in containers and free liquids would be prohibited in the waste acceptance criteria. Previous experience at RFETS with containerized storage facilities indicate no significant generation of leachate occurs and leak collection is already included in the design.

61. On page 5-6, treated and untreated sludge and sediments are listed as remediation waste types expected to be taken to the CSF. The text should state that wastes placed into the CSF must pass the Paint Filter Test.

Response: The paint filter test was already identified in the third bullet of Section 5.2.4. "Lack of free liquids shall be demonstrated by EPA Test Method 9095 (Paint Filter Test)." has been added to the conceptual waste acceptance criteria.

62. Waste acceptance criteria are discussed on pages 5-7 and 5-8. The text should state that pondcrete and saltcrete are solar ponds process wastes that will not be accepted at the CSF. The text should also state that waste acceptance criteria will be detailed in a workplan (see comment #19).

Response: It is clear throughout the document that only remediation waste will be accepted for the CAMU. "Remediation waste" was defined in Section 1. No text was modified in response to the first issue. The following sentence was added to the first paragraph of Section 5.2.3: "A detailed Waste Acceptance Criteria (WAC) will be developed during the design phase of the CSF." This was also specified in Section 5.3 under "Operational Controls".

63. On page 5-7 it states, "The CSF is not a handling facility and is not intended to repackage waste once received." This sentence conflicts with the statement in the second to last paragraph on page 4-1 and reduces flexibility. It should be modified to state how and where wastes will be managed (handled, treated, packaged) to facilitate the offsite disposal remedy.

Response: This sentence was deleted from the text. Details for management of wastes including handling, treatment, packaging etc. will be submitted during the design phase as stated in Comment 47.

During the evaluation of whether or not this facility is needed to support risk reduction it will be determined what type of design features this facility will require. The current assumption and the basis for the alternative cost estimates is that waste will be packaged and treated as necessary at the project specific sites. Additional treatment may also be conducted by offsite disposal sites.

During discussions with the State held February 13, it was mutually agreed that this document should not limit the flexibility of design. This resulted in deletion of the above referenced sentence. Likewise, flexibility should not be limited by specifying features that may not be necessary at the time of implementation.

It is also important to note that offsite disposal in and of itself is not the remedy. The actual remedy is source removal which is then followed by the waste management decision of offsite disposal.

64. On page 5-8 it states, "Process knowledge and/or chemical and radiological analyses would be the tools to document accurate characterization of the remedial waste." Please delete "/or" from the above sentence and describe how "process knowledge" can accurately characterize remediation waste.

Response: The sentence was modified to read: "Historical knowledge including previous analytical data and/or current chemical and radiological analyses would become the tools to document accurate characterization of the remedial waste."

65. Threshold limits of VOCs for the CSF should be included on the list of primary health concerns on page 5-9.

Response: The bullet has been revised to state: "Threshold limits for radionuclides and organic compounds for the CSF; and"

66. On page 5-9 it states, "The majority of low-level remediation waste to be managed at the CSF would have an average radionuclide activity less than ten nanocuries per gram (nCi/g) as mentioned previously under section 5.2.1." DOE and its contractors must protect workers against the worst possible exposures, and be prepared for those types of exposures in advance. Therefore, DOE must calculate a potential worker's exposure to the highest concentrations present in waste scheduled to go into the CSF over a one year period, and protect to that level or greater. It cannot be guaranteed that a worker would only be exposed to average concentrations of radionuclides and not to higher concentrations over a significant portion of the year. This type of radiation protection policy is consistent with all the radiation protection policies RFETS has had in the past during plant operation.

Response: Agreed. These limits would be incorporated into health and safety and operational procedures as well as the WAC during the design phase. No change was mad to the text.

67. On page 5-10 it states, "This would include both air and surface water monitoring stations and groundwater monitoring wells upgradient and downgradient of the CSF." The text should specify that surface water and ground water monitoring stations will be "hydraulically" up gradient and "hydraulically" down gradient of the CSF.

Response: This sentence has been modified to read: "This would include both air and surface water monitoring stations and groundwater monitoring wells positioned hydraulically upgradient and hydraulically downgradient of the CSF."

68. On page 5-10 it states, "A groundwater monitoring plan would be developed." The text should state that the ground water monitoring requirements in § 264.552(e)(3) would apply to the containerized storage CAMU.

Response: The sentence now reads: "A groundwater monitoring plan in compliance with CCR 1007-3 264.552 (e) (3) would be developed."

69. The third bullet on page 5-11 addresses quality assurance procedures. This bullet should state that approval of quality assurance procedures will be required by the agencies.

Response: The bullet now reads: "Numerous quality assurance procedures from construction quality assurance, to procedural audits, all designed to ensure the facility and operations meet designated performance standards and approved, as appropriate, by the State;"

70. Please change the fourth bullet on page 5-11 to state, "Closure and post-closure plans approved by the agencies that define how the facility would be closed after the life of the operations and performance standards for closure and post-closure per 6 CCR 1007-3 § 264.552(e)(4); and"

Response: The bullet now reads: "Closure plans that define how the facility would be decommissioned after the life of the operations and the performance standards for closure per 6 CCR 1007-3 264.552 (e) (4); and"

71. The fifth bullet on page 5-10 should state that approval of contingency/spill response plans will be required by the agencies.

Response: The response assumes that the comment actually refers to page 5-11. The bullet has been modified to read: "Agency approved contingency/spill response plans would define how the facility responds to a release of waste or constituents from the CSF."

72. The last sentence in Section 5.4.1 at the bottom of page 5-12 should be deleted from the text. The CSF will not be a disposal facility (see comment #9 above).

Response: This sentence has been deleted.

73. On page 5-13 the last bullet mentions a closure plan. This bullet should be entitled "Closure Plan and Post-Closure Plan." The appropriate regulatory citation is 6 CCR 1007-3 § 264.552(e)(4).

Response: The bullet now reads: "Closure and Post-Closure Plan - This would include the requirements and performance standards for closure per 6 CCR 1007-3 264.552 (e) (4) to close the facility after the end of its operational life."

74. The conclusion on page 5-14 should be modified to reflect these transmitted comments.

Response: The conclusion has been revised to read as follows:
"The CSF is proposed as a contingency to meet the accelerated risk reductions described in the Draft Ten Year Plan. The Draft Ten Year Plan assumes remediation waste can be shipped offsite at the same rate it is generated. The CAMU is proposed to address the contingency that offsite waste shipment and disposal are not available when the wastes are generated. This CAMU will support the final remedy of source removal followed by offsite disposal.

The CSF will consist of one or more metal buildings constructed on concrete pads with a chemical resistant coating and integral leak collection that is designed to minimize clogging. The Facility will have a storage capacity of up to 100,000 cubic yards of containerized remediation waste.

The length of operations for the CSF will be consistent with the intermediate site condition as defined in the RFCA preamble (12 to 20-25 years)."

75. The discussion of the CAMU designation process found in paragraph 109 of RFCA applies to the proposed bulk storage CAMU. Please delete this text from the document. Please also see comment #9 above. Paragraph 89 of RFCA discusses a joint process to determine a review schedule for decision documents such as this.

Response: It was agreed to by all parties that the schedule for document review will be consistent with the time frames listed under Paragraph 109 of RFCA. These time frames are still identified, however, the description of direct applicability of Paragraph 109 has been deleted.

76. Figure 6-1 presents the proposed containerized storage facility schedule. A reasonable amount of time for CDPHE review of the design should be allotted. A public comment period on the design should also be allotted.

Response: The schedule has been modified.

GENERAL COMMENTS:

77. Similar to the bulk CAMU IM/IRA, this document should contain figures (or references to figures) which illustrate hydrogeological conditions, geological and geotechnical conditions, structure base of alluvium, thickness of alluvium, ecology and NEPA map, adverse conditions map for CSF siting, and mineral ownership map.

Response: Figures similar to those included in the Bulk Storage Decision Document, Siting Study (Appendix C) have been included with the design narrative.

78. The document should address 6 CCR 1007-3 § 264.18.

Response: 6 CCR 1007-3 264.18 was incorporated into the original siting study for bulk storage. This area passed the original siting screen that considered these restrictions. This area, as indicated in the attached maps, is not located within a floodplain nor is it in an area of faulting within the Holocene time frame. The geology of this area is known to not contain salt formations or underground caves.

All editorial corrections have been made.