

Colorado Department of Public Health and Environment  
Hazardous Materials and Waste Management Division

**ENCLOSURE 1**

COMMENTS

DOE's Response and Resolution to the Division's Comments  
Draft Final Corrective Measure Study/Feasibility Study  
Operable Unit 1, 881 Hillside Area  
Rocky Flats Environmental Technology Site

DOCUMENT CLASSIFICATION  
REVIEWED PER  
CLASSIFICATION OFFICE

April 11, 1995

Colorado Department of Public Health and Environment,  
Hazardous Materials and Waste Management Division

COMMENTS

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General Comments

**Comment 1:**

Point of Compliance - DOE has proposed not to include the point of compliance (POC) for OU1 in the Final CMS/FS. The Division does not agree that an effective comparative analysis of the remedial alternatives is accomplished without identifying each ARAR and its designated POC. The Detailed Analysis of Alternatives (DAA) CMS/FS (Section 4), must identify all ARARs and their designated POC for each remedial alternative being evaluated. As part of the CMS/FS, the DAA must identify which ARARs are met at their designated POC, which ARARs would need to be waived, and/or which POCs would require modification.

The Division recommends incorporating a table into Section 4 of the Final CMS/FS similar to the example presented below.

<u>Alternative</u>	<u>ARARs</u>	<u>Point of Compliance</u>	<u>Analysis</u>
0	264.101(c)	between the SWMU and the down down gradient facility boundary; and beyond the facility boundary...	1. What ARARs are met at their designated point of compliance? 2. What ARARs are not met at the POC?
	264.95(a)	vertical surface located at the hydraulically downgradient limit...	3. What ARARs need to be waived? 4. What POCs need to be modified?

Each alternative would be evaluated for compliance with their respective ARARs and POCs. The Proposed Plan would then act as the mechanism to determine which ARARs would be waived as a result of the selected remedy.

**Comment 2:**

DOE caveated several of their responses by identifying a disapproved schedule extension as partial justification for not resolving many issues. CDPHE and EPA granted three OU1 schedule extensions in order to improve the consultative process and progress towards a remedy selection. DOE has failed to acknowledge that the agencies' previous schedule extension approvals were based on DOE's willingness to resolve certain issues, specifically, point of compliance and ARARs. At this time although ARARs are currently being addressed through the ARARs working group, point of compliance has not been addressed in a timely manner.

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As a result, the agencies' approval of a 15 working day extension was granted in order for RFETS to incorporate the results of the additional groundwater modeling runs to demonstrate the sensitivity of the model in the Final CMS/FS. The agencies did not approve the latest schedule extension request based on DOE's unwillingness to resolve the point of compliance issue.

**Comment 3:**

Many of DOE's responses stated that CDPHE had not reviewed Section 4.0 of the Draft Final CMS/FS. Again, DOE has failed to fully comprehend the Division's comment. The comment to Section 4.0 stated that "the Division has not specifically commented on Section 4.0 ... based on the number and significance of the unresolved issues." Section 4.0 was in fact reviewed by CDPHE but because Sections 1-3 of the Draft CMS/FS lacked sufficient detail and accuracy, further evaluation was not warranted.

**Comment 4:**

The State suggested a separate working session to review the Detailed Analysis of Alternatives (DAA). Unfortunately, RFETS representatives did not make themselves available to participate in a separate working session to discuss the DAA prior to submittal of the Final CMS/FS. As a result, many issues which could have been resolved in a working session prior to submittal must now be formally discussed further prolonging the selection of an appropriate remedy for OUI.

**Comment 5:**

Response to General Comment 1 - DOE cited the timeliness of the submittal of our comments as a hinderance to proper resolution of outstanding issues, identifying in particular, comments regarding IHSS 130. The Division disagrees that the timeliness of our comments have hindered properly resolving outstanding issues. DOE's tendency to continually disregard issues raised by the State, both formally and informally, have contributed significantly to the prolonged resolution of issues.

DOE stated that issues such as classification of IHSS 130 as a mixed waste landfill impact the content of the CMS/FS and should have been discussed during the identification of PRGs and RAAs. It is true that IHSS 130 may significantly impact the CMS/FS. However, it is imperative throughout the remedy selection process that all new and available data is considered. The Division received information which we believed warranted further review to determine whether IHSS 130 was in fact a radioactive or mixed waste disposal site. In order to achieve an adequate and accurate Final CMS/FS, all significant available information must be investigated and included when applicable.

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**Comment 6:**

Resolution to General Comment #3 - DOE stated that based on the State's revised position on the IHSS by IHSS evaluation issue, the CAMU language will be removed. This resolution is completely inaccurate. Deletion of the CAMU language was based on the OU1 - 881 Hillside's inability to meet the Colorado Hazardous Waste Regulation's Part 2 Siting Requirements. The IHSS by IHSS evaluation had no regulatory impact on the designation of the 881 Hillside as a CAMU.

DOE criticized CDPHE for raising issues previously not discussed in the various working meetings held between DOE, EPA, and the CDPHE. Similarly, DOE's proposal to designate OU1 as a CAMU should have been discussed prior to the official submittal of the Draft Final CMS/FS. A great deal of time and effort could have been saved from all agencies had DOE requested CDPHE and EPA input on and approval of the CAMU concept.

**Comment 7:**

Clarification to Response #3 - During previous working meetings, it was agreed that each individual IHSS may not require its own alternative analysis provided it is directly linked to a source area. However, the Proposed Plan must specify how each IHSS is addressed as a result of the remedy selected. DOE must provide the rationale (e.g., the Phase III RFI/RI, EE, BRA, etc.) for the remedy selected for each IHSS, including no further action.

**Comment 8:**

Clarification to General Comment #6 - Each alternative must be evaluated on whether or not ecological receptors could be impacted. CDPHE's original comment #6 is based on adequately evaluating each remedial alternative, in particular for alternatives that have the potential to create preferential pathways (i.e., using a backhoe to decommission the French Drain). The comment was not intended to dispute the conclusions of the Environmental Evaluation or the Phase III RFI/RI.

**Comment 9:**

Response to General Comment #7 - IHSS 130 is, at a minimum, a radioactive waste disposal area and has been documented by DOE as such. The Division is currently reviewing the likelihood of past mixed waste buried at IHSS 130. The Division no longer considers IHSS 130 a landfill but as an illegal radioactive waste disposal site. In order to be classified as a landfill, DOE would have had to establish controls (e.g., engineered system, liners, collection systems, etc.). Burying radioactive waste and covering it with dirt obviously includes no controls. All IHSSs are required to meet ARARs, including IHSS 130.

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The Division disagrees with DOE's response that the State's Basic Standards for Ground Water are ARARs except for radionuclides. CDPHE preserves the right to include radionuclides standards in groundwater as ARARs throughout the Rocky Flats Plant.

**Comment 10:**

Response to General Comment #14 - DOE stated that the State's position to date has been that remedial action is warranted at OU1 regardless of the results of the DAA. The Division strongly disagrees with this statement. The State's position throughout the development of the CMS/FS is to develop a non-biased document which accurately identifies the areas (IHSSs) of contamination at OU1, the regulatory requirements for each IHSS, and an adequate comparative analysis of the alternatives proposed. As a result, an effective DAA will produce, with little doubt, the appropriate remedy to be selected. The Division would further argue that DOE's position to date has been to bias the DAA to support their preferred alternative of performing as little action as possible.

**Comment 11:**

Clarification to General Comment #15 - For alternatives which require decommissioning of the French Drain, DOE must describe in detail the process required to fully decommission the French Drain, potentially including: removal and disposal of the existing liner, soil management, and any other potential hazardous waste management requirements. Decontamination requirements, closure performance standards, and post closure care are not required provided the French Drain is decommissioned in a manner protective of human health and the environment.

**Comment 12:**

Resolution to General Comment #19 - DOE stated that in a December 14, 1994 meeting, the Division revised our position that the OU1 CMS/FS report did not contain sufficient information regarding the RCRA CAP evaluation criteria. The Division continues to hold the position that the Draft Final CMS/FS did not adequately identify or address the RCRA CMS requirements and our comments appropriately represented this position. As a result of exhaustive discussions and commenting by the Division, both formally and informally, DOE modified the Final CMS/FS to more adequately identify and acknowledge the RCRA CMS requirements.

**Comment 13:**

Response to General Comment #21 - The Division disagrees that the groundwater model was developed

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in accordance with active participation of CDPHE and EPA representatives. CDPHE did comment on the conceptual aspects of the OU1 groundwater modeling during meetings with DOE, EG&G, and Dames and Moore. Issues such as heterogeneity and the specific path and calibration wells were brought up at the May 23, 1994 meeting. The meeting documentation does not mention the specific contaminants and if they were discussed there is not a record of it. CDPHE and EPA expressed reservations about the specific treatment of these conceptual aspects and the old data being used for modeling in subsequent meetings. DOE chose to disregard these comments as impractical or not within the scope of the modeling project.

Due to the tight time constraints imposed on the modeling project many important aspects of testing and documenting the model were excluded. Refinement of the model continued without benefit of CDPHE or EPA input after the submission of the Draft Final CMS/FS. Modeling is an iterative process and even parameters that all parties agree to may not produce results that are expected or helpful. Unrealistic deadlines placed upon a modeling project ensure that the results will have limited value. DOE was well aware of CDPHE and EPA's requirement that a credible model be developed for the CMS/FS and could have initiated this project much sooner than it did. Therefore, references to what DOE thought was occurring from the informal working meetings (such as concurrence, agreements, etc.) are inappropriate.

**Specific Comments**

**Comment 1:**

Response to Specific Comment #14 - DOE failed to respond to or resolve the Division's entire comment. Specifically, how does this section of the Final CMS/FS discuss subsurface soil sources and the suspected presence of residual and/or free phase DNAPL?

**Comment 2:**

Response to Specific Comment #20 - The Final CMS/FS states, "Vanadium is the only contaminant detected at this location (IHSS 130) over background levels." What about the plutonium and americium levels above background detected in subsurface soils from several boreholes at IHSS 130?

**Comment 3:**

Response to Specific Comment #27 - DOE's response acknowledged that the potential exists that the French Drain doesn't extend across the entire OU1 area. This potential impacts the effectiveness of the French Drain and should be included under all alternatives proposing to utilize the French Drain.

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**Comment 4:**

Response to Specific Comment #33 - How and where was this comment addressed in the Final CMS/FS?

**Comment 5:**

Response to Specific Comment #35 - It was agreed that IHSS 130 would not be considered a landfill but is, at a minimum, an illegal radioactive waste disposal site. See general comment #7 for the Division's position on IHSS 130.

**Comment 6:**

Response to Specific Comment #42 - Why does DOE consider the subsurface soil at OU1 a secondary source of contamination? What is considered the primary source?

**Comment 7:**

Response to Specific Comment #69 - DOE failed to respond to the majority of the Division's comment. Specifically, how is DOE going to guarantee institutional controls will be permanently maintained and does DOE have the authority to implement deed restrictions and other institutional controls at a federal facility?

**Comment 8:**

Response to Specific Comment #73 - The Division's comment recommended utilizing a table similar to Table 4-1 found in the CERCLA RI/FS Guidance. How and where was this comment addressed in the Final CMS/FS? This table would describe the relationship between RAOs, PRGs, and GRAs. DOE has acknowledged that the goal of remediation is to achieve all RAOs. However, it is not obvious in either the Draft Final or Final CMS/FS whether all of the RAOs are achieved for each alternative. A summary table would be very helpful in identifying how each GRA corresponds to the PRGs and RAOs.

**Comment 9:**

Response to Specific Comment #77 - The Division agrees that modifications to the existing Building 891 treatment system to add the OU2 GAC unit can be handled outside of the OU1 CMS/FS. However, in order to effectively evaluate each alternative utilizing the 891 treatment system, the Final CMS/FS must identify whether or not the GAC unit will be part of the 891 treatment system. The existing Final CMS/FS language, "it is expected" is not adequate.

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**Comment 10:**

Response to Specific Comment #82 - The Division's comment regarding the approximate 30 year remediation time frame was not only specific to the cost analysis. The detailed analysis of alternatives must state the anticipated remediation time frame for each alternative, including those alternatives which exceed the 30 year time frame. Based on the groundwater modeling results, a 30 year estimate is unrealistic for many of the alternatives.

**Comment 11:**

Response to Specific Comment #89 - This comment was discussed during a meeting with EG&G, DOE, EPA, and Dames & Moore representatives on January 9, 1995. The Division presented Figure 6 from Kueper and McWhorter to illustrate the point that for a DNAPL such as PCE, the height of the DNAPL pool need only be 0.5 to 8 inches in height to enter a fracture aperture of 0.1 millimeters (0.003 inches). Fractures of this magnitude are not likely to be characterized or may even appear to be healed in a core sample. Figure 6 is a graphical summary of modeling done with various combinations of interfacial tension, fluid density differences, and fracture apertures which are likely to be within the range of the site specific values. The interfacial tension and the fluid density differences are chemical specific, not site specific.

The State agrees that hypothetical case 2 is the more accurate conceptual model for the sources at IHSS 119.1. However, enough time has passed for the DNAPL to have moved into the fractures of the bedrock and have spread by diffusion in the bedrock. The volume of the original DNAPL source is not known. The State also agrees that the largest source of contamination to groundwater is an immobile, residual source in the colluvium. However, the possibility of bedrock contamination should be considered when a remedy is being discussed. If contaminated claystone bedrock is more difficult to remove and treat then what would be the consequence of leaving it in place? This should be included in the model if the selected alternative includes both source removal and decommissioning of the French Drain.