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SUBMITTAL OF REVISED FINAL ALTERNATIVE MODELING STRATEGY AND NEW FEDERAL FACILITY AGREEMENT AND CONSENT ORDER (FFACO) UNDERGROUND TEST AREA (UGTA) STRATEGY DECISION PROCESS FOR CORRECTIVE ACTION UNIT (CAU) 99: RAINIER MESA/SHOSHONE MOUNTAIN

On October 17, 2013, the Nevada Nuclear Security Administration Nevada Field Office (NNSA/NFO) submitted the final subject document to the Nevada Division of Environmental Protection (NDEP). The document sent incorporated all NDEP comments on the strategy, however, the flow chart that was included in the document did not have all comments incorporated.

This letter is to submit the Final Alternative Modeling Strategy and new FFACO Strategy for CAU 99 with the corrected flow chart included. The document that was sent on October 17, 2013, may be destroyed and replaced with the enclosed document.

This Alternative Modeling Strategy and new FFACO UGTA Strategy Decision Process will be the framework for the modified flow and transport document. This document will be revised based on these changes and the input from the recent and on-going Pre-emptive Review (PER).

To keep this activity on schedule, please review and reply with your acceptance of this strategy within 30 calendar days from the above letter date.

Please direct comments and questions to Bill Wilborn, of my staff, at (702) 295-3188.

Robert F. Boehlecke, Manager
Environmental Management Operations

EMO:10158. CD

Enclosures:
As stated

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Alternative Modeling Strategy and New FFACO UGTA Strategy Decision Process for Underground Test Area Corrective Action Unit 99 Rainier Mesa/Shoshone Mountain

Introduction

The U.S Department of Energy (DOE), National Nuclear Security Administration (NNSA) and the State of Nevada Division of Environmental Protection (NDEP) reached an agreement early in 2013 (Letter from NDEP to DOE, dated February 7th, 2013), that formalized the first step in the process of examining and providing a **more efficient means to implementing the *Federal Facility Agreement and Consent Order* (FFACO) Underground Test** Area (UGTA) strategy for Corrective Action Unit (CAU) 99: Rainier Mesa/Shoshone Mountain (RM/SM). The details of this agreement are contained within the NDEP approved Technical Basis Agreement Document (TBAD; U.S. DOE, 2013) which provides the rationale for why ensembles of contaminant boundaries are not achievable (irreducible uncertainty and cost prohibitive), presents the reasons and rationale for not pursuing the currently approved 2008 RM/SM modeling strategy, and requests concurrence to propose an alternative modeling strategy for RM/SM. As NDEP has approved the TBAD, the proposed alternative modeling strategy requires DOE to also propose a new FFACO UGTA strategy decision process for CAU 99. The alternative modeling strategy and new FFACO UGTA strategy decision process for CAU 99 are presented below. If this alternative modeling strategy and new FFACO UGTA strategy decision process is accepted by NDEP, its implementation will require an addendum, errata sheet, revision or Record of Technical Change (ROTC) to the previous CAU 99 Corrective Action Investigation Plan (CAIP) and the CAU 99 Model Strategy Document; or, any changes may be detailed in a subsequent document in the corrective action process. The alternative modeling strategy and new FFACO UGTA strategy decision process does not impact the purpose of the FFACO as specified in Part II (FFACO, 1996 as amended).

Alternative RM/SM Modeling Strategy

The flow and transport model document will be modified to state the new modeling strategy and document results that support its implementation. The document will include a range of possible scenarios based on available data that will include transport scenarios that will be investigated, fully documented and included in the flow and transport document. These scenarios will include one with minimum transport, one with maximum transport and scenarios that have assumptions for parameters that are most sensitive for flow and transport. Contaminant transport extent will be simulated using particle tracking that incorporates advective transport, sorption, radioactive decay, and matrix diffusion. Probabilistic analysis will be used, when available and appropriate, to limit incorporation of results deemed improbable. Particle tracking will be used to identify the maximum extent of potential contaminant transport from an appropriate select number of saturated zone simulations. The flow and transport model document will aid in the evaluation of potential exposure pathways thus supporting future potential monitoring strategies. Additionally, the models will provide information for use restriction and regulatory boundary(ies) identification. The document will not provide a decision on final long-term monitoring and stewardship of the CAU 99.

New FFACO UGTA Strategy Decision Process for RM/SM

The New FFACO UGTA Strategy Decision Process is presented in Figure 1. Implementation of the new FFACO UGTA strategy decision process will occur as follows:

1. ***Propose New Strategy:*** The alternative modeling strategy and new FFACO UGTA strategy decision process is proposed within this document.
2. ***Negotiate with NDEP:*** NDEP will or will not accept the alternative modeling strategy and new FFACO UGTA Strategy Decision Process Proposal.
3. ***Develop Alternative Modeling Strategy:*** The CAU 99 Contaminant Flow and Transport Model document will be modified to incorporate the alternative modeling strategy and show how transport simulations support its implementation.
4. **Is the modified CAU 99 Model acceptable for Peer Review:** NDEP will review, comment and approve/disapprove the modified CAU 99 Contaminant Flow and Transport Model Document. If the answer is "no" then a new strategy will be proposed to NDEP.
5. ***Conduct External Peer Review:*** If the answer is "yes", the flow and transport model document will be submitted and assessed by an external Peer Review Panel.
6. ***Is the modified CAU 99 Model acceptable for execution of the New FFACO UGTA Strategy Decision Process:*** The results/recommendations of the external Peer Review Panel will be used by NDEP to determine if the modified CAU 99 Flow and Transport Model is acceptable for full execution of the new FFACO UGTA Strategy Decision Process. If the answer is "no" then a new strategy will be proposed to NDEP.
7. ***Execute New FFACO UGTA Strategy Decision Process:*** If the answer is "yes" then the new FFACO UGTA strategy decision process will be fully implemented.
8. ***Negotiate and Establish CAU Use Restriction and Regulatory Boundaries:*** NDEP and NNSA will negotiate and establish the use restriction and regulatory boundary(ies) before developing the CAU 99 Closure Report (CR).
9. ***Prepare/Addend Closure Report:*** The CR will describe the closure approach for CAU 99, establish the long-term closure monitoring objectives and requirements, identify and describe options for maintaining institutional controls, and describe the required actions for transfer of program responsibilities from the NNSA UGTA Activity to long-term stewardship.
10. ***CR Approval by NDEP:*** NDEP must approve the CR before starting a long-term closure monitoring program. If the CR is not approved, NNSA will revise the document to resolve NDEP concerns and will initiate a revised cycle of document revisions for submittal to NDEP for further assessment and/or approval.
11. ***Implement Long-Term Closure Monitoring:*** NNSA develops the closure monitoring objectives and the monitoring design, and develops the monitoring wells that initiate the long-term closure monitoring program as specified in the CR. NNSA and NDEP will review the monitoring design and initial monitoring results to establish the basis and timing of transition to long-term stewardship.
12. ***Transition to Long-Term Stewardship:*** The transition to long-term stewardship concludes the UGTA Activity responsibilities for individual CAUs.

13. ***Continue Monitoring Program:*** The long-term closure monitoring program will continue for a duration negotiated between NDEP and the organization responsible for long-term stewardship.
14. ***Periodic Evaluations:*** Long-term stewardship will conduct periodic reviews of the results of the long-term closure monitoring program; the interval for the periodic evaluations will be negotiated between NDEP and the long-term stewardship organization. The periodic evaluations will review the results of the monitoring for consistency with CAU model forecasts and the negotiated regulatory and use restriction boundaries. These periodic evaluations will additionally assess the suitability of the monitoring results with the respect to the corrective action decision. The long-term stewardship organization will assess whether model refinements are needed and whether any changes in the monitoring program are required. They will submit a written report on the results of monitoring activities and required changes in model and monitoring studies for review by NDEP. NDEP will review and provide written comments on the report. The long-term stewardship organization will provide responses to resolve the NDEP comments.
15. ***Is The Corrective Action Decision Working:*** The long-term stewardship organization and NDEP will, after each periodic evaluation, assess whether the corrective action decision specified in the CR continues to be adequate for protecting the health and safety of the public.
16. ***Feasibility of Model Refinements/Monitoring Changes:*** If the corrective action decision is not supported by monitoring data, the long-term stewardship organization will assess whether it is technically feasible to modify the CAU model and/or monitoring programs and remain consistent with the corrective action decision. If changes are technically feasible, the long-term stewardship organization will document required model and monitoring changes and will obtain NDEP approval to continue monitoring. If modeling and monitoring changes cannot be made, the long-term stewardship organization will suspend monitoring and propose a new strategy.
17. ***Propose New Strategy:*** If the corrective action decision is not working, NDEP and the long-term stewardship organization will negotiate a new strategy following the steps shown in Figure 1. This negotiation is outside the UGTA strategy of Section 3.0 of Appendix VI, and the steps for developing and implementing a new strategy (FFACO, 1996 as amended).

References

Federal Facility Agreement and Consent Order. 1996 (as amended). Agreed to by the State of Nevada; U.S. Department of Energy, Environmental Management; U.S. Department of Defense; and U.S. Department of Energy, Legacy Management. Appendix VI, which contains the Underground Test Area Strategy, was last modified May 2011, Revision No. 4.

U.S. DOE, 2013. Technical Basis Agreement Document for Underground Test Area Corrective Action Unit 99 Rainier Mesa/Shoshone Mountain: Final Rev. 1 January, 2013.

Final Modeling Approach/Strategy for Corrective Action Unit (CAU) 99: Rainier Mesa and Shoshone Mountain, Nevada Test Site, Nye County, Nevada, Rev. No.I, June 2008

Corrective Action Investigation Plan for Corrective Action Unit 99: Rainier Mesa/Shoshone Mountain, Nevada Test Site, Nevada, Rev. No. 0, December, 2004.

New FFACO UGTA Strategy Decision Process for CAU 99 RM/SM

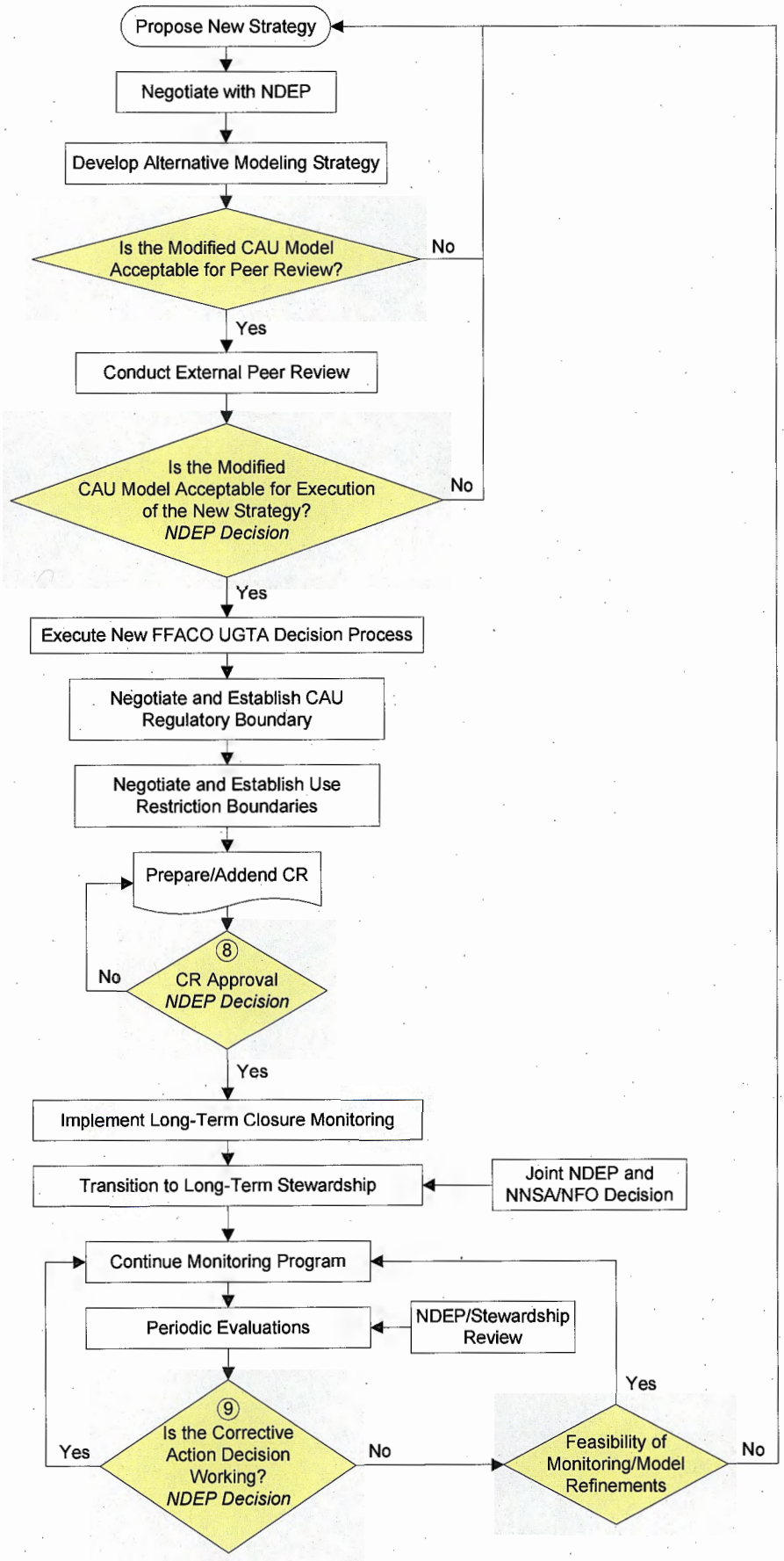

Figure 1