AUTHORITY APPROVAL

Safety Evaluation Report
of the Waste Isolation Pilot Plant
Remote Handled (RH) Waste
Documented Safety Analysis (Revision 0) and
Technical Safety Requirements (Revision 0),
Changes 2, 3, 4, & 5

U. S. Department of Energy
Carlsbad Field Office

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Approved: Dae Y. Chung, Deputy Assistant Secretary for Safety Management and Operations, Office of Environmental Management — Date: 11/16/06

1.0 INTRODUCTION

This Safety Evaluation Report (SER) addresses the Change 2, 3, 4 & 5 requests to the Waste Isolation Pilot Plant (WIPP) Remote Handled (RH) Waste Documented Safety Analysis (DSA), Revision 0, and RH Technical Safety Requirements (TSRs), Revision 0, as submitted in three Washington TRU Solutions LLC (WTS) memorandums (AA:06:00812, AA:06:00815, dated October 5 and AA:06:00796, dated August 30, 2006) to David Moody, Manager, Carlsbad Field Office (CBFO), requesting Department of Energy (DOE) approval of Page Changes RH-2006-002, RH-2006-003, RH-2006-004 and RH-2006-005 to the RH DSA and TSRs. As a result of a recent WTS Contractor Operational Readiness Review, consistency and editorial changes were made to both the RH DSA and RH TSRs to support planned RH operations at the WIPP facility. These changes are needed to allow: the underground disposal ventilation circuit to be adjusted to support the planned RH waste disposal operations in Panel 4; to clarify RH Shielding Interlock Limiting Conditions for Operation (LCOs) to include all potential operating configurations, and to make bases discussions contained in Appendix A to the TSRs consistent with language contained within the DSA and the TSR LCOs. The changes also eliminate the reference to an unnecessary RH Structural Integrity Program previously contained in section 5.5.12 of the RH TSRs and define minimum facility staffing requirements needed to support safe RH facility operations.

Attached are the TSR and DSA page changes to facilitate DOE's review and approval. The proposed Change 2 (RH-2006-002) to the RH TSRs is consistent with what was previously revised in the Revision 9 Contact Handled (CH) TSRs with the only difference being the reference to RH rather than CH waste handling operations as follows:

> Appended to the final bullet of Section 5.6.5 a. is the text, "When Panel 4 is added to the disposal path no construction work involving flammable gas/liquid or flammable compressed gas cylinders is allowed between the overcast at E-140/S-3310 and the construction bulkhead to the west of this overcast in S-3310 during RH WASTE HANDLING OPERATIONS."

The text changes incorporated in the RH TSR, Revision 0, by Change 2 supports the transition of WIPP CH and future RH waste disposal operations from Panel 3 to Panel 4. The revision provides sufficient detail to allow compliant operations with respect to Section 5.6.5 of the RH TSR, Revision 0, *Combustible Loading Control Program – DISPOSAL PATH.* Change 3 (RH-2006-003) addresses several issues identified during the WTS RH ORR. The first revision clarifies the LCO statement and Mode Applicability for:

- LCO 3.3.1, *WHB Shielding Interlocks – CUR Shield Door, UPPER HOT CELL Shield Plugs and UPPER HOT CELL Crane;*
- LCO 3.3.2, *WHB Interlocks – UPPER HOT CELL Crane and FCLR Grapple Pintle Contact Interlock with Pivot Dogs;*
- LCO 3.3.3, *WHB Interlocks – FCLR grapple hoist and shield bell, telescoping port shield, facility cask and shield valves, and TRANSFER CELL ceiling shield valve,*

- LCO 3.3.4; *WHB Interlocks – TRANSFER CELL shuttle car, CUR shield valve, Upper HOT CELL shield valve, and transfer Cell ceiling shield valve.*
- LCO3.3.5 *WHB Interlocks – Grapple Hoist and Shield Bell, Telescoping Port Shield, and the Facility Cask Rotating Device.*

Specific changes to each LCO are contained in the individual TSR page changes attached and are not repeated here. These revisions identify the specific activity or circumstance when the interlocks must be operable.

The second issue that Change 3 addresses is a revision of Section 5.4.3, TSR Bases Control to reflect a simplified description of those changes, which may be made without DOE approval as follows:

> "Revisions to the bases sections can be made without DOE approval if the changes are editorial in nature and do not make significant changes."

The third issue addressed in Change 3 includes a wording change to Surveillance Requirement (SR) 4.1.3.3 to address the way that semi-annual verification of fire suppression capability for RH diesel powered waste handling equipment is conducted. The SR is revised to state the following:

> "A semi-annual VERIFICATION of the components associated with the automatic fire suppression system on RH diesel powered waste handling equipment is charged. This is done by checking the dry chemical agent and actuator cartridges. The level of the dry chemical agent in the agent tank is verified and the compressed actuator cartridges are removed and weighed. This semi-annual VERIFICATION of system components is judged to be adequate based on the system status checks that are made on the equipment every 48 hours."

Change 3 includes clarification to the bases contained in Appendix A of the RH TSRs for:

- LCO 3.3.1 to correct reference to SR 4.2.1.1 and 4.2.1.2;
- LCO 3.3.2 to correct the Mode Applicability to include reference to when RH WASTE is in the upper hot cell, transfer cell of RH WASTE or in a 10-160B shipping cask in the CUR
- LCO 3.3.4 to correct the Mode Applicability to include a discussion that "Workers are also susceptible to direct radiation exposure in the FCLR during RH WASTE STORAGE when a 72B shipping cask with its lid removed is in the TRANSFER CELL."
- 3.3.5 WHB Interlocks to correct the Mode Applicability, defining it to be "during RH WASTE HANDLING when a RH waste canister is being transferred from the TRANSFER CELL to the FCLR."

Two reference errors were also corrected in Change 3 to reflect the proper LCO as 3.3.4 and the SR as 4.3.4.1.

Change 4 (RH-2006-004) adds the derivation basis to the DSA section 5.5.10, Administrative Controls for the TSR administrative control 5.3, Minimum Staffing. These changes clarify the

minimum staffing requirements for RH waste handling operations to take place on the surface outside the WHB, inside the WHB and in the underground. In addition, it specifies the minimum operating staff to maintain the WPP in a safe condition during non-waste handling operations. Specific revisions to the DSA section 5.5.10 for the three RH operation modes are highlighted on the attached page changes.

Change 5 (RH-2006-005) removes Section 5.5.12, RH Structural Integrity Program of the RH TSRs. This change eliminates a requirement that is no longer required based on engineering analysis.

2.0 REVIEW PROCESS

Incorporation of these changes is recommended to the Approval Authority based upon review of the specific changes and their supporting documentation by the CBFO staff, with assistance from the CBFO Technical Assistance Contractor (CTAC). This involved (1) verification of the technical accuracy, completeness, and defensibility of the proposed change to the RH DSA (RH-2006-004) and of the proposed page changes to RH TSRs (RH-2006-002, RH-2006-003, and RH-2006-005) and their bases statements, and (2) verifying that the TSR changes are consistent with the derivation of controls in the RH TRU DSA, Revision 0. This SER is prepared by the approval authority in accordance with the guidance provided in DOE-STD-1104-96, *Review and Approval of Nonreactor Nuclear Facility Safety Analysis Reports*. This review provides the Director, Deputy Assistant Secretary for Safety Management and Operations, DOE Office of Environmental Management (approval authority), with the basis for approval of these changes.

3.0 APPROVAL BASES

The changes covered by this SER are required due to changes in the underground configuration, inconsistencies, updated analyses, and issues identified during the WTS ORR. The necessary changes to the RH TSR and DSA were corrected in both draft safety basis documents. The changes impact Chapter 5 of Revision 0 of the RH DSA, as well as Chapters 3, 4, 5, and Appendix A (bases) of the Revision 0 RH TSRs. These were previously described in the Section 1.0 Introduction of this SER.

Page change RH-2006-002 reflects a shift from mining and non-waste handling to disposal operations within panel 4, thus necessitating the addition of the RH combustible loading restriction. This revision is consistent with the CH TSR Revision 9, Change 1 recently approved.

Page change RH-2006-003 resolves inconsistencies identified by the contractor ORR team. These changes clarify wording and correct inconsistencies in the TSR LCOs, SRs, and their bases, as identified in Section 1.0 Introduction of this SER. The review team concurs with these improvements to the TSRs and their bases.

Page change RH-2006-004 provides a basis for minimum staffing in the Chapter 5 of the DSA. The RH DSA clarifies minimum staffing for concurrent RH activities with 72B and 10-160B or by separate locations for the same type of cask. The review team concurs with these DSA changes.

Page Change RH-2006-005 removes a requirement that is no longer necessary based on engineering analysis. This is documented in WTS Engineering Change Order 11611 that documents the anticipated exposure based on two full 10-160B payloads with average radiation of 145 rad/hr/payload stored in the hot cell 365 days/year. This results in a 39,000 year hot cell lifetime using the more conservative observable structural property change exposure limit for steel of 1E9 Gray. The review team concurs with the observation that the WIPP anticipated lifetime is insignificant when compared to the 39,000 years until measurable degradation.

4.0 RESULTS

The review resulted in confirmation that the RH TSR Revision 0, Changes 2, 3, and 5 are accurate and complete, and are consistent with the RH DSA Revision 0 Chapters 3, 4, and 5 (as modified by RH-2006-004) and with the TSRs as discussed above.

It is the judgment of the reviewers that the RH DSA Revision 0 Change (RH-2006-004) and the RH TSR Revision 0, Changes (RH-2006-002, RH-2006-003, and RH-2006-005) meet the 10 CFR 830 Subpart B requirements and are consistent with DOE guidance, and that the implementation of these TSR changes are appropriate for the contractor to operate as established by the safety basis.

5.0 CONDITION OF APPROVAL

No conditions of approval are necessary for Changes RH-2006-002, RH-2006-003, RH-2006-004, and RH2006-005 to Revision 0 of the RH DSA and RH TSRs.

6.0 CONCLUSIONS

Based on the reviewers' assessment of Changes RH-2006-002, RH-2006-003, RH-2006-004, and RH2006-005 to Revision 0 of the RH DSA and RH TSRs, and the evaluation of the approval authority, it is concluded that the changes are consistent with the derivation of controls in the RH Waste DSA. Changes RH-2006-002, RH-2006-003, RH-2006-004, and RH-2006-005 to Revision 0 of the RH DSA and RH TSRs are thus approved.