UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

FEB 0 2007

OFFICE OF
AIR AND RADIATION

David Moody, Ph.D., Manager
Carlsbad Field Office
U.S. Department of Energy
P.O. Box 3090
Carlsbad, New Mexico 88221-3090

COPY

Dear Dr. Moody:

During the week of January 8, 2007, the U.S. Environmental Protection Agency (EPA) performed inspections of the Department of Energy's (DOE) Waste Isolation Pilot Plant (WIPP) waste management and storage operations, and waste emplacement operations in preparation for the first receipt of remote-handled (RH) waste (EPA Docket No. A-98-49, II-B-101). These inspections were performed under the authority of 40 CFR 194.21 and 40 CFR Part 191, Subpart A.

EPA's inspection verified that DOE will be able to effectively monitor radiation releases to members of the public due to both normal operation and any unplanned or accidental releases, as a result of the disposal of RH waste at WIPP. EPA's inspection examined WIPP's emission control devices and the methods used to estimate radiation doses to the public. EPA did not identify any findings or concerns.

EPA's inspection also verified that DOE can emplace RH waste according to its emplacement plan and that adequate procedures are in place for RH. Although EPA did not identify any findings or concerns during the inspection, EPA noted that the emplacement procedure(s) for 10-160B processing are not yet finalized. EPA is requiring DOE to provide the final procedure(s) for 10-160B processing prior to their implementation.

Copies of the enclosed inspection reports will be placed in the EPA public dockets. If you have any questions regarding the enclosed reports, please call Chuck Byrum at (214) 665-7555.

Sincerely,

for

Juan Reyes, Director
Radiation Protection Division

Enclosures

UNIQUE #	DOE UFC	DATE REC'VD	ADDRESSEES
0700414	5486.00	FEB 14 2007	See back list

cc: (Electronic Distribution)
Russ Patterson, DOE/CBFO
Steve Casey, DOE/CBFO
Steve Zappe, NMED
EPA Docket

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3.0 Inspection Team, Observers, and Participants

The inspection team consisted of representatives of the EPA Administrator.

Inspection Team Member	Position	Affiliation
Chuck Byrum	Inspection Team Leader	EPA
Tom Peake	Inspector	EPA
Shankar Ghose	Observer	EPA

DOE had numerous staff members and contractors participate in the inspection.

DOE/Contractor Participate	Affiliation
Mike Oliver	DOE/CBFO
Ernest Preciado	DOE/CBFO
Richard Farrell	DOE/CBFO
Vernon Daub	DOE/CBFO
Don Galbraith	DOE/CBFO
Scott Anderson	WTS-OPS
Art Chavez	WRES-ECP
Wille Most	WRES-Permitting
Dave Kump	WTS-WWIS
H.W. Bellows	WTS-OPS
Randy Brittain	WTS-OPS
Subhash Sethi	WTS-OPS
Randy Elmore	WTS-IWHE
Stan Patchet	WTS-Mine Eng.
Linda Frank-Supka	WTS-S&H
Bob Kirby	WTS-Underground OPS

area radiation monitor (ARM); Blue dots= CAM only; show approximately locations only) (COB-RH2007-J.) DOE's sampler placement and equipment settings for the RH related samplers appear reasonable and appropriate.

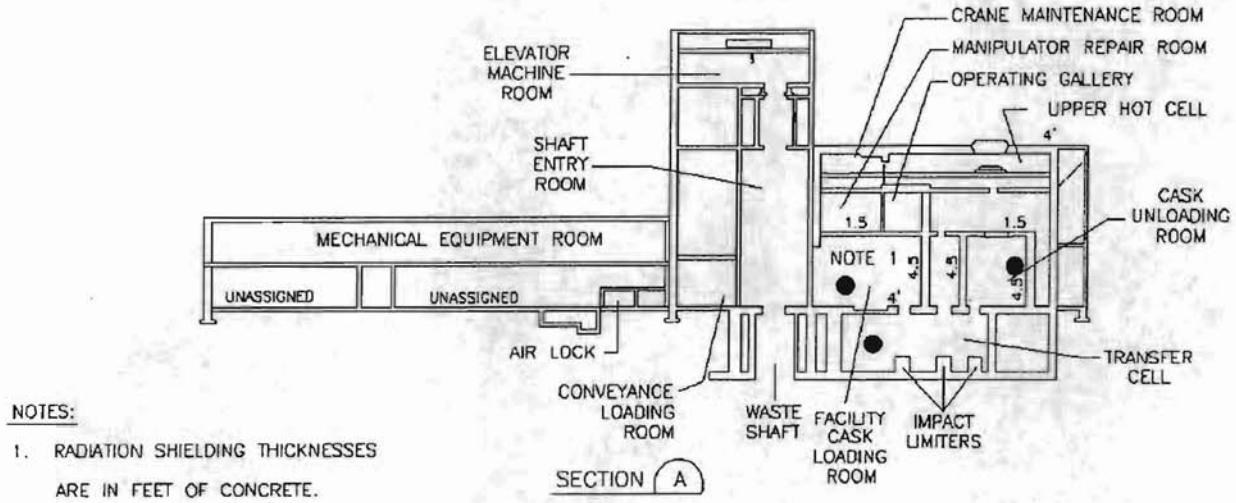

Figure 1. Approximate Location of Samplers in WHB (from COB-RH2007-G, Figure 2.4-6)

Table 1 Summary of Sampler Locations in RH Bay of the Waste Handling Building

Equipment Type	Location
CAM (CAM measures alpha and beta)	Transfer Cell
CAM and ARM (ARM measures gamma radiation)	Cask Preparation Station
CAM and ARM	Facility Cask Loading Room (FCLR)
CAM and ARM	Cask Unloading Room (CUR)

Air is exhausted from the WHB and is sampled at Station C on the air exhaust side of the WHB HEPA filters that operate all the time. Air flow is controlled in the WHB building by differential pressure to limit any potential radioactive releases during RH waste processing.

4.3 Samplers in the Underground

DOE will have a number of samplers along the air flow pathway in the underground as CH waste is placed in one room and RH waste is placed in an adjacent room. DOE presently places air samplers at the air exhaust of the active waste disposal room; this setup will be modified when RH is processed in Panel 4. Samplers will be moved to the air exhaust drift of the active CH and RH waste panel. Unused rooms will be isolated from the active room air flow circuit by special bulkheads (COB-RH2007-BI; Figure 2) to properly direct air flow. DOE may also place air samplers at the air exhaust bulkhead of any active room if deemed necessary (COB-RH2007-B2, last paragraph of question 1). DOE also has air samplers at other locations in the underground, including Station D, near the base of the air exhaust shaft, which samples air from the waste processing air circuit just before air exits up the air exhaust shaft. EPA agrees

5.0 Summary of findings, observations, concerns, and recommendations.

EPA performed this inspection to verify that DOE has implemented a radiological monitoring and sampling program at the WIPP that will appropriately respond to the introduction of RH waste disposal at WIPP. During this inspection the inspectors did not identify any findings or concerns with monitoring program. EPA determines that DOE has adequately implemented the programs and appropriately performed the calculations to estimate potential releases to the public. EPA believes that changes to the program at WIPP, in response to the disposal of RH waste, show that DOE can capture, measure, and calculate possible releases of radioactive material from either CH or RH waste at WIPP.

Attachment A.2

40 CFR 191.03

Inspection

Check List

	Notification of Startup Expectations			RH Startup Inspection January 9, 2007	
#	Question	EPA Citation	Documentation	Comments (Objective Evidence)	Result
5	Did DOE provide a description of any emissions control devices used to limit releases of radionuclides?	EPA 402-R-97-001 Section 4.1, Page 14	DOE-WIPP 06-3174, WIPP RH DSA (COB-RH2007-G), CCA Appendix EMP (COB-RH2007-F), and Response to EPA questions (COB-RH2007-B2)	DOE-WIPP 06-3174 (COB-RH2007-G) Sections 2.6.3.2 and 2.6.3.7 adequately discusses that HEPA filtration is used in the waste handling building (WHB) (Station C) and will be used in the air exhaust shaft exit (Stations B) if an accident takes place; Station A, as well as numerous underground air samplers, sample air exhaust continuously during normal operations. These sampling locations have not changed since the CH startup inspection in 1999, DOE has reevaluated RH bay sampling requirements and updated additional sampling locations in the RH bay of the WHB, these locations are discussed in the DOE's response to EPA questions (COB-RH2007-B2, question 1). The inspection team toured and reviewed these locations to verify this information.	SAT
6	Did DOE provide an estimate of the radiation doses to which the public may be subjected by normal operation of the facility?	EPA 402-R-97-001 Section 4.1, Page 14	DOE-WIPP 06-3174 (COB-RH2007-F)	DOE-WIPP 06-3174 (COB-RH2007-F) DOE's safety analysis documents off-normal operation. The annual NESHAPs report documents normal operation doses to the public (COB-RH2007-H). The WIPP Annual Site Environmental Report (COB-RH2007-I) on page VIII, "Releases and Radiological Dose to the Public" also report estimated radiation does to the public during normal operations. The inspection team will verify the calculations used to support this conclusion during the annual Subpart A inspection in June 2007.	SAT
7	Did DOE provide a written notification of the actual date of initial receipt of radioactive waste?	EPA 402-R-97-001 Section 4.1, Page 15	COB-RH2007-BM	January 18, 2007 email from Russ Patterson (DOE) announcing that RH shipments commenced at 14:53 (MST) January 18, 2007.	SAT

Attachment B

Documents

Reviewed

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Attachments

For the RH emplacement inspection, there were numerous documents reviewed. The primary procedures examined during the inspection were:

- WP 05-WH1710 Rev. 5 72-B RH Processing, 1/2/07
- WP 05-WH1722 Rev. 6 10-160B RH Processing, Draft, no date
- WP 09-ES4002, Revision 0, RH Borehole Layout and Turnover, 7/18/06

Other documents used or obtained during the inspection are listed in Section 5. Pictures from the inspection are provided in Attachment A3. A list of some inspection participants is provided in Table A. In addition, Attachment A1 presents the Emplacement Inspection Plan, Attachment A2 is the checklist used in the emplacement inspection.

Table A
Primary Emplacement Inspection Participants[2]

INSPECTION TEAM MEMBER	AFFILIATION	POSITION
Chuck Byrum	EPA ORIA	Lead Inspector
Tom Peake	EPA ORIA	Inspector
Shankar Ghose	EPA ORIA	Observer
CBFO / WTS PERSONNEL	**AFFILIATION**	
Mike Oliver	DOE/CBFO	
Art Chavez	WRES—ECP	
Craig Suggs	WTS/Ops	
Randy Britain	WTS/Ops	
Hardy Bellows	WTS/Ops	
Stan. Patchet	WTS/MineEng	
Dave Kump	WTS—WWIS	
Dave Speed	WTS—WWIS	

3.0 Performance of the Inspection

The inspection took place on January 9-11, 2007, at DOE's Carlsbad Field Office and at the WIPP facility, which is located approximately 26 miles south east of Carlsbad, New Mexico. The opening meeting with CBFO and WTS personnel was held on the morning of January 9, 2007 at the WIPP facility. Several DOE and WTS staff provided overview presentations.

2 WTS—Washington TRU Solutions, LLC; CBFO—Carlsbad Field Office; WRES--Washington Regulatory & Environmental Services; ORIA--Office of Radiation and Indoor Air

Figure 1. 72 B transportation cask.
Source: WP 05-WH1710 Rev. 5 72-B RH Processing Procedure, 1/2/07

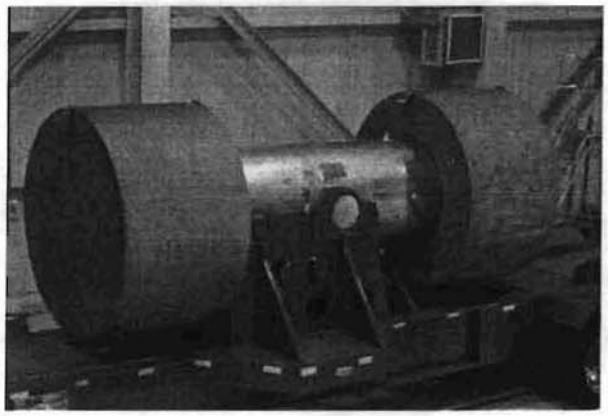


Figure 2. CNS 10-160B transportation cask.
Source: WP 05-WH1722 Rev. 6 10-160 B RH Processing Procedure, Draft, no date

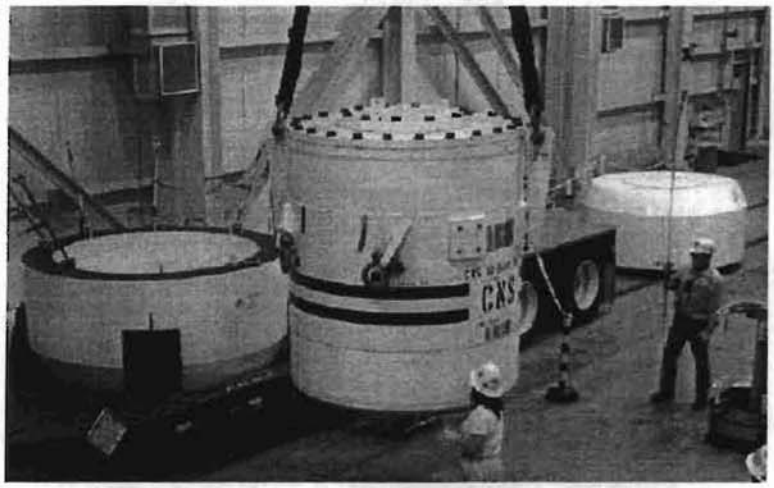
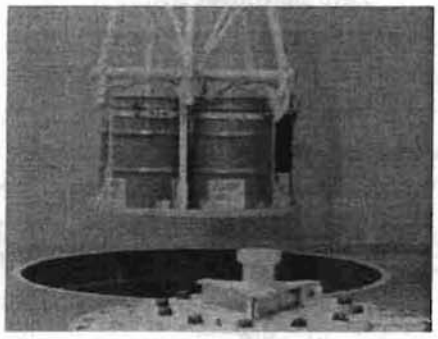


Figure 3. Drums from a CNS 10-160B being brought into the WIPP hot cell.
Source: WP 05-WH1722 Rev. 6 10-160 B RH Processing Procedure, Draft, no date



EPA inspectors also raised the issue of the minimum borehole spacing since it appeared to be left up to the engineer on duty. Disposal operations staff indicated that there were no plans to place borehole centers less than 7.5 feet apart, and it would not be an issue until at least panel 7 because of the limits on the number of RH boreholes per panel[3] . The inspectors also observed the partial drilling of a RH borehole.

The inspection continued on January 11 with a discussion of the WWIS changes for remote-handled waste. This discussion took place at the Carlsbad Field Office. WTS—WWIS personnel identified that a number of changes had been made to the WWIS to accommodate the RH waste and provided a document that listed the modification requirements that had been implemented. Dave Speed of WTS mentioned that many of the changes were due to shipping requirements. (See checklist item 11.)

For the purposes of this inspection, it appeared that the WWIS could track the RH waste as required. The RH canister is tracked by panel, room, and borehole location. Once this information is entered into the WWIS after an RH canister is emplaced into the borehole and closed, the WWIS can call up the data in an emplacement report similar to that used for the contact-handled waste. The borehole location can then be related to the borehole diagram in the RH borehole procedure (WP 09-ES4002, Revision 0, RH Borehole Layout and Turnover, 7/18/06). (See checklist items 2, 9 and 10.)

One observation from this inspection is that, with the process used by the disposal operations staff, there appears to be little opportunity for releases from the remote-handled operations during disposal. The RH canister is either contained in another container or is contained within an enclosed area where no people are allowed.

4.0 Summary of Results

EPA observed the processing of a test RH canister from a 72B transportation cask beginning with the canister's removed from the transportation cask. Although there was a problem with the weight sensor on the grapple in waste handling building, the waste handling staff appeared to appropriately diagnose the problem and had a process (a work package) to deal with the problem. The underground disposal operations that the EPA inspectors observed proceeded according to procedures with no malfunctions.

There were no findings or concerns identified in this inspection. However, before the 10-160B waste is processed at WIPP, DOE needs to provide EPA with the final 10-160B processing procedure (WIPP Procedure WP 05-WH1722 Rev. 6 10-160 B RH Processing).

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3 The DOE Resource Conservation Recovery Act permit modification approved by NMED in October, 2006 also governs aspects of the RH program. The permit limits the number of boreholes per panel to no more than 400 RH boreholes in panel 4, 500 RH boreholes in panel 5, 600 boreholes in panel 6, and 730 boreholes in panel 7.

Attachment A1

RH Startup Emplacement Inspection Plan

Purpose: The purpose of this inspection is to verify that DOE can emplace RH waste according to an appropriate emplacement plan and that adequate procedures are in place to emplace the RH waste as envisioned in certification or updated documentation. This inspection is conducted under the authority of 40 CFR 194.21 as part of EPA's continued oversight to ensure that the waste is being appropriately emplaced.

Scope: The scope of this inspection will cover selected aspects of waste handling building operations in the RH area and underground RH operations, review a sample of training records, and review WWIS functionality applicable to RH disposal operations. Of special interest will be the disposal room operations beginning with the procedures for identifying the borehole locations and finishing with the shield plug.

Location: This inspection will be held at the WIPP facility located twenty-six miles south east of Carlsbad, New Mexico and the DOE Carlsbad Office as needed.

Duration: The EPA expects to complete its inspection, with DOE's cooperation, in two days. Each day will begin with an opening meeting at 8:00 a.m. and end at 5:00 p.m. with a closeout session.

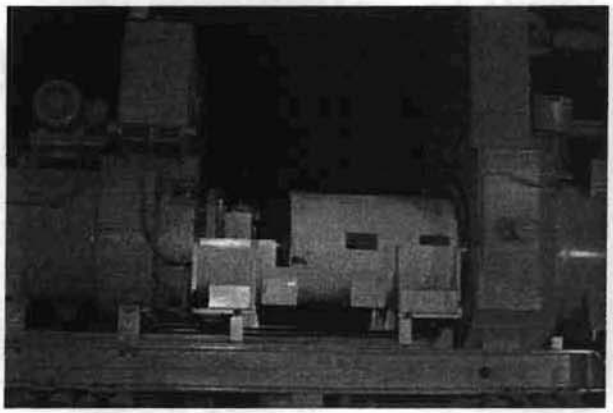
Date: Expected to be held January 9 and 10, 2007.

Opening Meeting: Please describe the processing and emplacement of RH waste, including the relevant aspects of the recent RCRA permit modification, and how the program has been modified to deal with changes related to RH waste and link this discussion to documents and procedures.

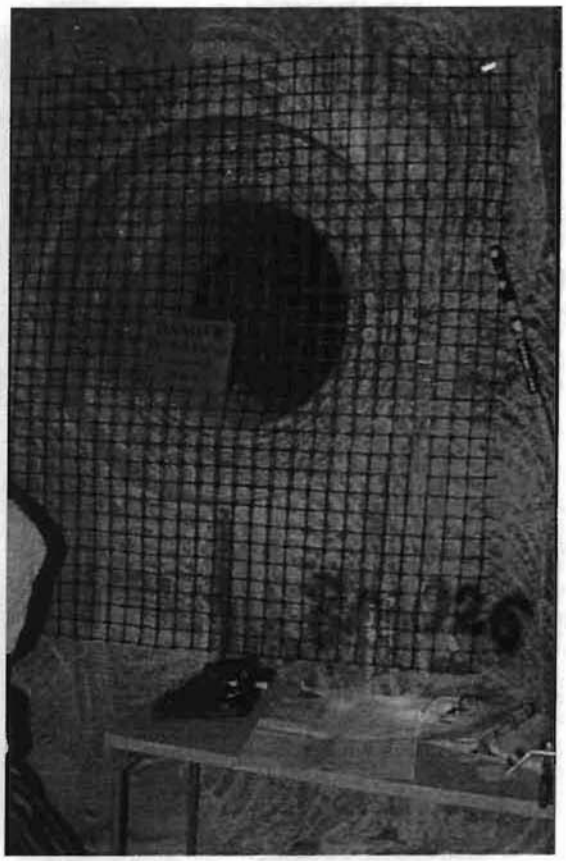
3	How many RH boreholes per panel?	WIPP 2006 Hazardous Waste Facility Permit Modification limits the number of RH boreholes to the following (as related by George Basabilvazo email): Panel 4 – 400 RH canisters Panel 5 – 500 RH canisters Panel 6 – 600 RH canisters Panel 7 – 730 RH canisters This is the upper limit for these panels. RH throughput may limit the number of emplaced canisters to less.	Y
4	How/when does DOE verify/document the RH canister number before emplacement in the borehole?	The canister information is verified in the waste handling building, not in the underground. Once in the facility cask, the waste container is not seen again. 72 B WP 05-WH1710 Rev. 5 72-B RH Processing Section 8.23-25 in the waste handling bay for canister and prerequisite actions 7-9 10-160 B WP 05-WH1722 Rev. 6 10-160 B RH Processing Section 2.7.3 & 2.7.8 in hot cell and Attachment 2	Y
5	Can DOE transfer the RH container to the borehole?	The facility cask bearing the waste container is placed on the HERE (See Attachment 3 photographs). The facility cask is moved against the shield collar and then pushed into the borehole. A shield plug is then placed in the borehole to prevent radiation from streaming out of the borehole. At no time are people exposed during the transfer process. Revision 4 of WP-05 WH1700 Horizontal Emplacement and Retrieval Equipment Assembly WP 05-WH1710 Rev. 5 72-B RH Processing WP 05-WH1722 Rev. 6 10-160 B RH Processing	Y
6	Can DOE ensure proper shield plug emplacement?	WP 05-WH1710 Rev. 5 72-B RH Processing Section 20. WP 05-WH1722 Rev. 6 10-160 B RH Processing	Y

		Data Management Plan inventory module)	
11	What are the primary differences between RH and CH waste tracking and data reporting?	DOE developed a document (see file: Microsoft Word - version 5.4 demo scope - RH _final_) that identifies, for each module, what needed to be changed for the RH waste. A separate spreadsheet provides specific information (see file TRU-WAC Rev 6.0 RH requirements analysis)	Y

Shield plug being emplaced



Completed RH borehole; number 26 visible below on wall. RH borehole layout diagram on table.



RH borehole preparing to be drilled

Disposal operations staff going through canister emplacement procedures