



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

OCT 22 2010

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OFFICE OF  
AIR AND RADIATION

Dear Mr. Ziemianski:

During the week of June 28, 2010, U.S. Environmental Protection Agency (EPA) staff performed inspections of the Waste Isolation Pilot Plant (WIPP) waste management and storage operations, emplacement, and the monitoring program (Docket: A-98-49, II-B3-112). These inspections were performed under the authorities of 40 CFR 194.21 and 40 CFR Part 191, Subpart A.

As a result of the inspection, EPA determined that the activities related to emissions monitoring during waste management and storage continue to comply with the requirements of 40 CFR Part 191, Subpart A. We also determined that DOE continues to adequately monitor the ten parameters that are important to the long-term containment of waste, as identified in EPA's 1998 Certification Decision. EPA also determined that waste is presently emplaced adequately.

Copies of these inspection reports are enclosed with this letter and will be placed in the EPA public docket. If you have any questions regarding the enclosed reports, please contact Jonathan Walsh at (214) 343-9238.

Sincerely,

Jonathan Edwards, Director  
Radiation Protection Division

Enclosure

cc: Russ Patterson, DOE/CBFO  
George Basabilvaso, DOE/WIPP  
Alton Harris, DOE/HQ  
Steve Zappe, NMED  
Tom Kesterson, NMED Carlsbad  
EPA WIPP Team  
EPA Docket



**DOCKET NO: A-98-49**  
**Item: II-B3-112**

**2010 - Subpart A Inspection Report**

**INSPECTION No. EPA-WIPP-6.10-29a**  
**OF THE**  
**WASTE ISOLATION PILOT PLANT**  
**June 29 to July 1, 2010**

**U. S. ENVIRONMENTAL PROTECTION AGENCY**  
**Office of Radiation and Indoor Air**  
**Center for Waste Management and Federal Regulation**  
**1200 Pennsylvania Avenue, NW**  
**Washington, DC 20460**

**September 2010**

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## **1.0 Executive Summary**

The U.S. Environmental Protection Agency (EPA) conducted an annual inspection of the Department of Energy (DOE) Waste Isolation Pilot Plant (WIPP) June 29 to July 1, 2010 as part of our continued oversight program. This inspection was conducted under the authority of 40 CFR 191, Subpart A. The purpose of this inspection was to verify that DOE was in continued compliance with the dose release standard found at 40 CFR 191.03, Subpart A.

EPA reviewed DOE's ability to monitor radioactive releases to the public due to normal waste disposal operations and any unplanned or accidental releases that might occur during disposal operations. EPA reexamined DOE's continued moisture problems and salt loading at the Station A sampling location in the air exhaust shaft. EPA inspectors examined WIPP's emission control devices and methods used to estimate radiation doses to the public. In addition, EPA inspected radiation sample locations and equipment, sample processing, and reviewed the computational methods used to estimate dose. EPA observed filter changes, probe pulls, and probe replacement at Station A.

EPA found that DOE continued to improve its air monitoring program during the past year. EPA verified that DOE continues to increase probe cleaning frequency to weekly as needed and continued to work toward a solution to this persistent moisture problem at Station A. DOE continues to have an effective radiation sampling program because of the continued diligence of site staff and can calculate both yearly and accidental dose estimates adequately. EPA did not have any findings or concerns.

## **2.0 Inspection Scope**

The scope of this inspection was to verify that WIPP continues to effectively capture, measure, and calculate radiation doses to members of the public during waste disposal operations. Inspection activities included an examination of monitoring and sampling equipment. This inspection was conducted under the authority of 40 CFR 191, Subpart A.

During this inspection the Agency continued to focus on the impact of moisture and salt loading on the sampling location at Station A and the effectiveness of the RADOS CAMs used at the air exhaust of the active waste emplacement panel in the underground.

### 3.0 Inspection Team, Observers, and Participants

The inspection team consisted of three EPA staff. Thomas Kesterson and Steve Holmes of the State of New Mexico Environmental Department observed the inspection. Jerry Fox, Chris Timm, and Greg Huddleston observed the opening meeting presentations. Claude Magnuson from DOE headquarters also observed the inspection activities.

Inspection Team Member	Position	Affiliation
Chuck Byrum	Inspection Leader	EPA
Nick Stone	Inspector	EPA
Jonathan Walsh	Inspector	EPA

Numerous DOE staff and contractors participated in the inspection; below is a partial list.

Participant or Observer	Participant or Observer
Mike Gross	Art Chavez
Randy Elmore	Larry Madl
Mansour Akbarzadeh	Dave Speed
Jennifer Hendrickson	Tom Goff
Dan Ferguson	David Squires

### 4.0 Performance of the Inspection

The inspection began on Tuesday, June 29, 2010, with an opening meeting that included presentations on changes in air monitoring and WIPP laboratory activities (COB-M2010-S4 to – S6). Site staff discussed changes in the program since the last EPA inspection in July 2009. These presentations included the following changes to the program:

- Replaced Skid A-3 transport line and probe.
- Procedure PM 364001 (COB-A2010-P2) revised to be more conservative. Set maximum probe pull interval to two weeks.
- Developed prototype of back flush system, working on flush test plan (COB-A2010-S5, Photos COB-A2010-Photo 052 to 056).
- Procedures for both effluent monitoring and laboratory analysis have had minor changes.

- Installed RADOS CAMs in Panel 6.

- Appeared to have solved filter jamming issue on the RADOS CAMs. Replaced old filter holders and changed training.

- Study by Mike Gross, "Representative of Samples by Shrouded Probes in the Exhaust Shaft at the WIPP", almost published (COB-A2010-20). Concluded that Station A measures representative samples and recommended that probe pull frequency be bi-weekly for Stations A-2 and A-3.

- Continued to work on remote access to RADOS CAMs.

The EPA inspector observed various activities to verify effective implementation of procedures. EPA reviewed procedures and implementation of procedures, interviewed site staff, and observed activities such as filter changes and probe exchanges.

#### **4.1 Overall Inspection Activities**

The inspector observed sample filter changes and shrouded probe pulls at Stations A, examined the weekly shrouded probe changes, reviewed the underground RADOS CAMs, and examined the processing of samples at the radiochemistry laboratory.

#### **4.2 RADOS CAMs - Filter Transport Problems – Appears Solved.**

Last year it was reported that the auto-filter changing mechanism jammed periodically when a filter was being changed on the RADOS CAMs located at the air exhaust of Panel 5. DOE made modifications to the operation of the CAM transport system and placed the two CAMs in a Master/Slave configuration to ensure that the two CAMs did not change filters at the same time. Since last year the old filter holders have been replaced and additional training appears to have solved the jamming problems (COB-M2010-S2)

#### **4.3 Continued Moisture Problems and Salt Buildup at Station A**

DOE changed the shrouded probes weekly for most of the past year to mitigate the potential impact of salt loading on the probes at Station A. This approach appears to stop probe failures. DOE has also continued to study the impacts of humidity, temperature, and air flows to enhance their ability to potential predict probe pull frequency (COB-M2010-S14, -S15, -S17, -S21, and -S22). DOE believes that they have a reasonable approach and has decreased the probe pull frequency to biweekly during the summer months.

Mike Gross (presentation: COB-M2010-S20) did an extensive study of Station A and the causes of moisture buildup and salt loading at Station A. He concluded that Station A measures representative samples and that, if Station A-2 and A3 are the locations of record for air sampling, then a biweekly probe pull schedule is adequate.

During the inspection EPA examined DOE's activities this year (COB-M2010-S17, -S20 to -S22) and determines that DOE and site staff continues to be aggressive monitoring Station A probe conditions. EPA also agrees with DOE conclusion to use biweekly probe changes during the summer. EPA concurs with Mike Gross' recommendation if Stations A-2 and A-3 are used as the stations of record that biweekly probe pull are appropriate and that the approach should be tested.

DOE provided an update on the probe flush system, the system that may be used to clean the shrouded probes in place, without removal. The prototype has been built (photos COB-M2010-Photos 052 to 056) and the site is developing a test plan (COB-M2010-S4) to evaluate its performance. EPA continues to be skeptical that the flush system will work in the exhaust shaft environment but looks forward to DOE's test results.

EPA also toured the laboratory that supports annual NESHAP reporting and emergency response activities at WIPP. EPA verified that the laboratory continues to adequately support WIPP's needs (COB-M2010-S30 and Photos 173 to 184). EPA also questioned if site staff are qualified to perform manual (hand) release calculations if all other systems fail during an emergency. Site staff notes that all radiation technicians must show proficiency in performing manual calculations to become qualified and that the steps of the hand calculations are documented in WP 12-ER4916, Section 3.0 (COB-M2010-P). Staff also provided an example (COB-M2010-S16) of a manual release calculation.

## **5.0 Summary of Findings**

EPA concludes that DOE continues to adequately implement a radiological monitoring and sampling program for WIPP disposal operations and appropriately performs calculations to estimate potential releases to the public. EPA does not have any findings or concerns.

## **Attachment A: Inspection Plan and Checklist**

### **WIPP Inspection Plan - 40 CFR 191, Subpart A for the year 2010**

#### **Purpose:**

EPA will verify that the Department of Energy (DOE) has been monitoring and calculating possible radiation doses to members of the public due to normal operations and any accidental releases which may have occurred during the last reporting period. This inspection is conducted under the authority of 40 CFR 191, Subpart A. This inspection is part of EPA's continued oversight to ensure that WIPP can, during the operational phase of management and storage of radioactive waste, comply with the limits expressed in 40 CFR 191.03.

#### **Scope:**

The scope of this inspection activity is to verify that DOE at WIPP can measure and calculate and has measured and calculated any actual or potential radiation dose to members of the public during management and storage of radioactive waste during the past year of site operation. Inspection activities will include an examination of the description of monitoring and sampling equipment both on and off site, and in the underground.

The specific purpose of this inspection is to verify and confirm that DOE at WIPP has complied with the "Compliance reporting" expectations of EPA GUIDANCE FOR THE IMPLEMENTATION OF EPA'S STANDARDS FOR MANAGEMENT AND STORAGE OF TRANSURANIC WASTE (40 CFR Part 191, Subpart A) at the WASTE ISOLATION PILOT PLANT (402-R-97-001), Section 4.2, Page 15. In particular the EPA wishes to verify that DOE complies with the Subpart A standard is demonstrated by showing that the annual radiation dose to any member of the public in the general environment falls below the regulatory limits.

#### **Focal Areas for this Years Inspection:**

- #What has changed in air sampling since last year's inspection?
- #During past years a number of potential changes were discussed, such as new methods to evaluate salt build-up on Station A probes. What is the status of these activities?
- #With continued moisture in the exhaust shaft air flow, what have been the conditions of the sample filters? Have the filters had salt buildup or samples washed off as in the past?
- #Verify that the underground CAMs operate as expected.
- #Station A continues to have challenging salt buildup. A procedure has been developed by the site that is used to predict probe pull/cleaning frequency. Describe how this procedure was developed and specifically how it will be implemented. What testing has been done to verify the accuracy of this procedure?
- #How are composite samples handled and processed, measurement accuracy, and implications of laboratory standards used?
- #With the continued challenge of salt buildup at Station A, has testing been done to fully qualify the Shrouded Probe under these conditions as required by EPA's approval letter?
- #Provide a presentation of the process and procedures used to calculate off-normal potential release during operations, use flow charts, photographs, etc as needed. Provide examples of various accidental scenarios with appropriate calculations-source term estimates, etc.

Describe the process from start to finish, the steps taken to respond to off-normal situations?

#Bottom-line: If required, how would DOE prove to independent examiners that samples taken at Station A are representative samples?

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

**Duration:** The EPA expects to complete its inspection in three days. Each day will begin with an opening meeting at 8:00 a.m. and end before 5:00 p.m. with a closeout session.

**Expected Dates:** Week of June 28, 2010.

**Information Requested:** Before the inspection, provide the most recent annual Safety Analysis Report, information that describes how measurements are taken and complete documentation that shows how compliance calculations are performed with an explanation of all input parameters and their derivation and all pertinent related to Subpart A requirements. Provide documentation and procedures related to subpart Subpart A compliance activities as in past years.

REGULATORY REQUIREMENT		DATE	APPLICABLE SUBPART	STATUS
40 CFR 191.03 Compliance Standard		EPA Citation	Comment (Objective Evidence)	Result
Does DOE "...provide reasonable assurance that the combined annual dose equivalent to any member of the public in the general environment resulting from: (1) Discharges of radioactive material and direct radiation from such management and storage and (2) all operations covered by Part 190; shall not exceed 25 millirems to the whole body, 75 millirems to the thyroid, and 25 millirems to any other critical organ." 40 CFR 191.03(a)		40 CFR 191.03 Subpart A - Environmental Standards for Management and Storage	DOE has demonstrated that they can capture, measure, and calculate releases to assure that they are and remain below these limits	
<b>Scope of activities considered in determining compliance</b>				
1	Does DOE demonstrate that all activities at the WIPP up until the point of disposal are considered in determining compliance?	EPA 402-R-97-001 Section 2.3, Page 4	The Annual Site Environmental Report for 2008 (DOE/WIPP 09-2225:COB-A2010-C) Executive Summary documents the results of DOE's efforts to consider all activities that impact compliance. Section 4.9 demonstrates that measured releases are well below the 40 CFR 191.03(b) release standards for a member of the public residing year round at the fence line.	
2	Does DOE demonstrate that radiation doses to the public due to 1) actual normal operation and 2) any unplanned or accidental releases are examined?	EPA 402-R-97-001 Section 2.3, Page 5	Section 3.0 of the Implementation Plan for Subpart A (DOE/WIPP 00-3121:COB-A2010-A), documents the plan to show how this requirement is examined. QAPP for Sampling Emissions (WP 12-RC.01:COB-A2010-F), documents the QA requirements for the sampling of emissions. Annual NESHAP report (COB-A2010-Ja,-Jb,-Jc) demonstrates that normal operations are examined. CH Waste Documented Safety Analysis (DOE/WIPP 95-2065:COB-A2008-G) and RH Waste DSA (DOE/WIPP 06-3174:COB-A2008-H) documents DOE's review of potential accidents at WIPP. Procedure Emergency Radiological Control Response (WP 12-HP4000:COB-A2010-K) and Consequence Assessment Dose Projection (WP 12-ER4916:COB-A2010-R) documents radiological emergency response activities.	
<b>Media considered in determining compliance</b>				
3	Does DOE demonstrate that the air pathway is the credible release pathway?	EPA 402-R-97-001 Section 2.4, Page 5	DOE/WIPP 09-2225 pages xxii, Dose From Air Emission, and Chapter 4 and DOE/WIPP 00-3121 Section 2.1 documents that the air pathway is the only credible release pathway.	
4	Does DOE demonstrate that other exposure mechanisms from an air release could include inhalation of contaminated air, immersion in a plume of radioactive particles, ingestion of soil on which contaminated particles have been deposited, swimming in ponds in which radionuclides have been deposited are considered?	EPA 402-R-97-001 Section 2.4, Page 5	DOE/WIPP 09-2225, Section 4.8.4 and Sections 2.1 and 3.5 of Implementation Plan for Subpart A (DOE/WIPP 00-3121) documents the detailed plan for measuring these potential exposure mechanisms. Annual NESHAP report (COB-A2010-Ja,-Jb,-Jc) demonstrates that these exposure mechanisms are included.	

	OBJECTIVE QUESTION	40 CFR 191	40 CFR 191 Subpart A	
	Media considered in determining compliance	EPA Citation	Comments (Objective Evidence)	Result
5	Is DOE monitoring the expected air exhaust pathway and performing environmental monitoring of other release points and exposure pathways to confirm air exhaust as the only release pathway?	EPA 402-R-97-001 Section 2.4, Page 5 and page 6.	Section 2.1 of the Implementation Plan for Subpart A (DOE/WIPP 00-3121:COB-A2010-A) explains DOE's plan to fulfill this requirement. Annual Site Environmental Report (DOE/WIPP 09-2225:COB-A2010-C) Chapter 4 demonstrates that DOE implements groundwater surveillance, biota sampling and off-site air monitoring programs.	
	<b>Boundary of compliance</b>			
6	Does DOE demonstrate compliance at the "exclusive use area" boundary? If not, does DOE justify changing this boundary?	EPA 402-R-97-001 Section 2.5, Page 6. EPA 402-R-97-001 Section 2.5, Page 7	Section 3.1 of DOE/WIPP 00-3121 states that the "Exclusive Use Area" will be used as the boundary for 40 CFR 191 Subpart A compliance.	
	<b>Location of maximally exposed individual</b>			
7	Does DOE examine radiation doses to individuals at any offsite point where there is a residence, school, business, or office? (Such as grazing, mining, or oil drilling in the vicinity.)	EPA 402-R-97-001 Section 2.6.1, Page 8	For Subpart A DOE (DOE/WIPP 09-2225, Section 4.8.4.3) assumes that the member of the public resides, "... year-round at the fence line in the northwest sector." DOE/WIPP 09-2225, Section 1.3.2, page 30 and the Annual NESHAP report (COB-A2010-Jb page 6 and -Jc page 1) demonstrate that DOE considers doses at appropriate offsite points, such as Smith Ranch located 7.5 km away in the WNW sector.	
8	Does DOE analyze potential exposure pathways and examine demographic information and conduct field investigations to identify the location of actual individual who could be exposed via those pathways?	EPA 402-R-97-001 Section 2.6.1, Page 8	For Subpart A DOE (DOE/WIPP 09-2225, page xxiv) assumes that the member of the public resides, "... year-round at the fence line in the northwest sector." DOE/WIPP 00-3121 page 30 and the Annual NESHAP report (COB-A2010-Jb, page 6) demonstrate that DOE considers doses at appropriate offsite points, such as Smith Ranch located 7.5 km away in the NW sector of WIPP.	
9	Does DOE conduct separate analyses of potential dose received from each exposure pathway? Then does DOE assume that a member of the public resides at the single geographic point on the surface where the maximum dose would be received?	EPA 402-R-97-001 Section 2.6.1, Page 8	For Subpart A DOE (DOE/WIPP 08-2225, Section 4.8.4.3) assumes that the member of the public resides, "... year-round at the fence line in the northwest sector." DOE/WIPP 08-2225:COB-A2010-C Section 1.3.2 and the Annual NESHAP report (COB-A2010-Jb, page 6) demonstrate that DOE considers doses at appropriate offsite points, such as Smith Ranch located 7.5 km away in the WNW sector of WIPP.	

#	CRITERIA QUESTION	DATE (YR)	CHAPTER/PAGE/SUBTITLE	Result
	Personal parameters	EPA Citation	Comments (Objective Evidence)	
10	Does DOE assume that the individual exhibits personal characteristics of the "reference man" when evaluating radiation dose to the maximally exposed individual?	EPA 402-R-97-001 Section 2.6.2, Page 8	Section 3.2 of the Implementation Plan for Subpart A (DOE/WIPP 00-3121:COB-A2010-A) describes the "reference man" parameters as described in the CAP88-PC computer code. Annual NESHAP report (COB-A2010-Jc demonstrates that "reference man" is used to evaluate radiation dose.	
	<b>Calculation of dose - Modeling - Parameters</b>			
11	Does DOE provide both whole body radiation dose and critical organ radiation dose for the maximally exposed individual (or a hypothetical individual conservatively located at a point of higher exposure)?	EPA 402-R-97-001 Section 2.7.1, Page 8	Annual NESHAP report (COB-A2010-Jc, page 1) demonstrates that DOE appropriately fulfills this requirement.	
12	Does DOE calculate radiation doses including all release points and reflecting evaluation of all exposure pathways?	EPA 402-R-97-001 Section 2.7.1, Page 8	Section 2.1 of DOE/WIPP 00-3121 states that the air pathway is the most credible but other exposure pathways are monitored to confirm the air pathway. Annual NESHAP report (COB-A2010-Jb) demonstrates that all release points are evaluated.	
13	Does DOE use computer modeling to calculate radiation doses for compliance with the Subpart A standard?	EPA 402-R-97-001 Section 2.7.2, Page 9	Section 3.2 of DOE/WIPP 00-3121 states that a computer model will be used to calculate radiation doses. Annual NESHAP report demonstrates that DOE is using computer modeling.	
14	Does DOE use CAP88-PC to perform dose calculations?	EPA 402-R-97-001 Section 2.7.2, Page 9	DOE/WIPP 09-2225, page xxiv and Section 3.2 of DOE/WIPP 00-3121 states that CAP88-PC is used for dose calculations. Annual NESHAP report demonstrates that DOE is using CAP88-PC.	
15	Does DOE use an alternate model for calculating radiation doses? If so, does DOE justify such usage?	EPA 402-R-97-001 Section 2.7.2, Page 10	DOE uses a atmospheric dispersion code (HOTSPOT) to determine concentrations for accidental releases. WP 12-ER4916 (COB-A2010-R) states that HOTSPOT is used for accidental release calculations. COB-A2010-S11 shows an example of dose projection using the HOTSPOT code. HOTSPOT is a reasonable choice for these calculations.	
16	Does DOE adequately supported exposure parameters used in dose calculations?	EPA 402-R-97-001 Section 2.7.3, Page 10	Annual NESHAP report demonstrates that DOE is using appropriate parameters in dose calculations.	

	REGULATORY QUESTION	June 2010	40 CFR 9103 Subpart A	
	Calculation of dose - Modeling - Parameters	EPA Citation	Comments (Objective Evidence)	Result
17	Does DOE document that "conservative simplifying assumptions" are used in the radiation dose calculations?	EPA 402-R-97-001 Section 2.7.3, Page 10	Section 3.2 of DOE-WIPP 00-3121 (COB-A2010-A) documents that DOE is using conservative assumptions. Annual NESHAP report (COB-A2010-Jb,-Jc) demonstrates that DOE is using conservative simplifying assumptions in dose calculations.	
18	<p>Are DOE's exposure parameters as conservative as the following?</p> <p>For a maximally exposed individual located at a residence, assumed continuous exposure (24 hours per day).</p> <p>For a maximally exposed individual located at a business, office, or school, assume exposure of 8 hours per day.</p> <p>Assume individuals consume 2 liters per day of drinking water from an underground source of drinking water.</p> <p>Assume inhalation rate for air to be <math>9 \times 10^5</math> cm<sup>3</sup>/hr.</p> <p>Assume ingestion rate of meat to be 85 kg/yr.</p> <p>Assume ingestion rate of leafy vegetables to be 18 kg/yr.</p> <p>Assume ingestion of milk to be 112 liter/yr.</p> <p>Assume ingestion rate of produce to be 176 kg/yr</p>	EPA 402-R-97-001 Section 2.7.3, Page 10	Section 3.2 of the Implementation Plan for Subpart A (DOE/WIPP 00-3121:COB-A2010-A) states that DOE is using these values as exposure parameters. The Annual NESHAP report (COB-A2010-Jc, page 25) demonstrates that DOE is using these parameters in dose calculations	

	WIPPER SUBJECT QUESTION	40 CFR	WIPPER OBJECTIVE EVIDENCE	Result
	Emissions and Environmental Monitoring - Air	EPA Citation	Comments (Objective Evidence)	
19	Does DOE demonstrate that effluent flow rate measurements are made using Reference Method 2 of Appendix A to 40 CFR Part 60 to determine velocity and volumetric flow rate for stacks and large vents?	EPA 402-R-97-001 Section 3.1, Page 11, (1(i))	QAPP For Sampling Emissions (WP 12-RC.01:COB-A2010-F) Section 4.1 documents that this requirement is appropriately implemented at WIPP.	
20	Does DOE demonstrate that effluent flow rate measurements are made using Reference Method 2a of Appendix A to 40 CFR 60 to measure flow rates through pipes and small vents?	EPA 402-R-97-001 Section 3.1, Page 11, (1(ii))	Not applicable at WIPP. Duct diameter associated with WIPP exhaust point exceeds the 40 CFR 60 requirements.	NA
21	Does DOE demonstrate that the frequency of flow rate measurements depend on the variability of the effluent flow rate?  <b>Note:</b> For variable flow rates, continuous or frequent flow rate measurements are expected to be made. For relatively constant flow rates, only periodic measurements are expected.	EPA 402-R-97-001 Section 3.1, Page 11, (1(iii))	Implementation Plan for Subpart A (DOE/WIPP 00-3121:COB-A2010-A) Section 3.3.1 states that DOE uses continuous air monitoring at WIPP and does not need to consider this requirement.	NA
22	Does DOE demonstrate that radionuclides to be directly monitored or extracted, collected and measured using Reference Method 1 of Appendix A to 40 CFR Part 60 for selected monitoring or sampling sites?	EPA 402-R-97-001 Section 3.1, Page 11, (2(i))	DOE uses 40 CFR 61 Appendix B Method 114. WP 12-RC.01 documents in Section 4.2 and Attachment 1 the location of sampling sites.	

	QUESTION	40 CFR	DOE SOURCE	
	Emissions and Environmental Monitoring - Air	EPA Citation	Comments (Objective Evidence)	Result
23a	Does DOE demonstrate that radionuclides to be directly monitored or extracted, collected and measured continuously with an in-line detector capable of distinguish relevant radionuclides? As an acceptable alternative to direct radiation monitoring, the effluent air stream may be continuously sampled such that analysis of filters or other collectors will provide an accurate estimate of emissions from a known flow rate during a fixed sampling time.	EPA 402-R-97-001 Section 3.1, Page 11, (2(ii))	DOE uses periodic monitoring at WIPP to show compliance with 40 CFR 191 Subpart A. The Implementation Plan for Subpart A (DOE/WIPP 00-3121:COB-A2010-A) Section 3.3.3 states that DOE uses periodic confirmatory monitoring. DOE/WIPP 00-3121 Sections 3.5 and 3.3.5 document relevant radionuclides at WIPP. Annual NESHAP report (COB-A2010-Jc) demonstrates that these radionuclides are monitored.	NA
23b	Does DOE demonstrate that representative samples of the effluent stream are withdrawn from the sampling site? "...The need for continuous sampling is applicable to batch processes when the unit is in operation...." The WIPP is a batch (continuous) process disposing of radioactive waste therefore continuous sample is appropriate.	EPA 402-R-97-001 Section 3.1, Page 11, (2(ii))	Environmental Monitoring Plan (DOE/WIPP 99-2194:COB-A2010-1) Section 5.2.1 and DOE/WIPP 00-3121:COB-A2010-A Section 3.3 states that sample sites will acquire representative samples.	
24	Does DOE demonstrate that radionuclides are collected and measured using procedures based on the principles of measurement described in Appendix B, Method 114 of 40 CFR 61? If not, does DOE demonstrate that the Administrator has approve the method used?	EPA 402-R-97-001 Section 3.1, Page 12, (2(iii))	The QAPP for Sampling Emissions (WP 12-RC.01:COB-A2010-F) Section 1.0 documents that DOE used these principles.	
25	If DOE is using the "Shrouded Probe", does DOE demonstrate that this alternative method is being used according to the guidance provide in "An Explanation of Particle Sampling in a Moving Gas Stream Within a Duct Using an Unshrouded and Shrouded Probe"?	EPA 402-R-97-001 Section 3.1, Page 12, (2(iii)(a))	An Assessment of the WIPP Shrouded Probe Against EPA Approval Criteria for Use of Single Point Sampling with the Shrouded Probe HA:98:0100 (Included in August 2000 Inspection Report, A-98-49, II-B3-12, EPA Approval letter (COB 191A-AO-2000: COB-A2006-3) documents DOE's evaluation of the Shrouded Probe and its compliance with the EPA criteria. Single Point Representative Sampling with Shrouded Probes (LA-12612-MS:COB-A2006-4) documents how the shrouded probe was qualified for use at WIPP.	

	Emissions and Environmental Monitoring - Air	EPA Citation	Comments (Objective Evidence)	Result
26	Does DOE's quality assurance program meet the performance requirements described in Appendix, Method 114 of 40 CFR Part 61?	EPA 402-R-97-001 Section 3.1, Page 12, (2(iv))	QAPP for Sampling Emissions (WP 12-RC.01:COB-A2010-F) Section 1.0 documents DOE quality assurance requirements. These meet the requirements of 40 CFR 61. Implementation Plan for Subpart A (DOE/WIPP 00-3121:COB-A2010-A) Section 4.0 states that DOE implements NQA requirements which are equivalent to Method 114.	
27	If it is impractical to measure the effluent flow rate in accordance with the method(s) in Section 3.1(1) or to monitor or sample extraction according to methods in Section 3.1(2) has DOE demonstrated that the use of alternative effluent flow rate measurement or site selection and sample extraction are appropriate and that the alternate method are used provided the following:  (i) DOE shows that methods in Section 3.1(1) or (2) are impractical; (ii) DOE shows the alternative procedure will not significantly underestimate the emissions; (iii) DOE shows the alternative procedure is fully documented; and (iv) DOE has received prior approval from EPA.	EPA 402-R-97-001 Section 3.1, Page 12, (3(i) to 3(iv))	See question #19, DOE uses Section 3.1 (1)(i) of EPA 402-R-97-001 page 11.	NA.
28	Does DOE demonstrate that radionuclide emission measurements are in conformance with the methods in Section 3.1(1) and (2) to be made at all release points which have a potential to discharge radionuclides into the air in quantities which could cause a combined annual dose equivalent in excess of 1% of the dose limit in Subpart A?	EPA 402-R-97-001 Section 3.1, Page 12 and page 13, (4(i))	Section 3.3.3 of DOE/WIPP 00-3121 documents DOE's compliance with this requirement.	
29	Does DOE demonstrate that all radionuclides which could contribute greater than 10% of the combined annual dose equivalent for a release point are being measured?	EPA 402-R-97-001 Section 3.1, Page 13, (4(i))	Section 3.3 of DOE/WIPP 00-3121 documents DOE's compliance with this requirement. Section 2.0 of the Periodic Confirmatory Measurement Protocol (DOE/WIPP 97-2238:COB-A2010-B) discusses release points measured confirm compliance with this requirement.	

	CHALLENGING QUESTION	EPA Citation	DOE/RDMS Subpart C	Result
	Emissions and Environmental Monitoring - Air	EPA Citation	Comments (Objective Evidence)	Result
30	If DOE uses alternative procedures to determine emissions, does DOE demonstrate that they have prior EPA approval?	EPA 402-R-97-001 Section 3.1, Page 13, (4(i))	DOE uses the shrouded sampling probe as an alternative method. EPA has approved this alternative method (COB-A2006-3)	NA
31	Does DOE demonstrate that for other release points which have a potential to release radionuclides into the air it has performed periodic confirmatory measurements to verify the low emissions?	EPA 402-R-97-001 Section 3.1, Page 13, (4(i))	DOE does not have other release points which have a potential to release radionuclides. CH (DOE/WIPP-95-2065:COB-A2010-G) and RH (DOE/WIPP-06-3174:COB-A2010-H) Waste Documented Safety Analysis documents these conclusions.	NA
32	Does DOE demonstrate that an evaluation has been done to evaluate the potential for radionuclide emissions for a release point?	EPA 402-R-97-001 Section 3.1, Page 13, (4(ii))	Section 2.0 of the Periodic Confirmatory Measurement Protocol (DOE/WIPP-97-2238:COB-A2010-B) documents this evaluation and that WIPP has three release points.	NA
33	Does DOE demonstrate that estimated radionuclide release rates are based on discharge of effluent stream that would result if all pollution control equipment did not exist, but the facilities operations were otherwise normal?	EPA 402-R-97-001 Section 3.1, Page 13, (4(ii))	Section 5.2.1 of the WIPP Environmental Monitoring Plan (DOE/WPP 99-2194:COB-A2010-1) states: "Station A exhausts unfiltered air from the underground repository to the atmosphere. Station B samples HEPA filtered exhaust air from the underground repository to the atmosphere when in Filtration Mode of operation. Station C samples HEPA filtered exhaust air from the Waste Handling Building to the atmosphere." Stations B and C uses pollution control equipment, therefore item 33 is not fulfilled. However, because of the nature of these sample locations and that they are filtered continuously this approach is appropriate; therefore the Agency agrees that DOE's sample methods are adequate.	

	Environmental Measurements (Page 1)	EPA Citation	Comments (Objective Evidence)	Result
34	Does DOE demonstrate that environmental measurements of concentrations of radionuclides in air at the critical receptor locations are used as an alternative to air dispersion calculations in demonstrating compliance with the standard?	EPA 402-R-97-001 Section 3.1, Page 13, (5)	DOE does not use environmental monitoring as an alternative to comply with 40 CFR 191.03 Subpart A. DOE samples at release points.	NA
35	Does DOE demonstrate that air at the point of measurement is continuously sampled for collection of radionuclides if environmental measurements are used?	EPA 402-R-97-001 Section 3.1, Page 13, (5(i))		NA
36	Does DOE demonstrate that the environmental measurement program is appropriately designed to collect and measure specifically those radionuclides which are major contributors to the annual radiation dose from the facility?	EPA 402-R-97-001 Section 3.1, Page 13, (5(ii))		NA
37	Does DOE demonstrate that radionuclide concentrations which would cause an annual dose equivalent of 10% of the standard are readily detectable and distinguishable from background?	EPA 402-R-97-001 Section 3.1, Page 13, (5(iii))		NA
38	Does DOE demonstrate that a quality assurance program that meets the performance requirements described in 40 CFR Part 61, Appendix B, Method 114 is conducted for environmental measurements?	EPA 402-R-97-001 Section 3.1, Page 13, (5(iv))		NA

	<b>CHECKLIST QUESTION</b>	<b>40 CFR 91.03</b>	<b>40 CFR 91.03 Subpart A</b>	
	<b>Environmental Measurements (Page 2)</b>	<b>EPA Citation</b>	<b>Comments (Objective Evidence)</b>	<b>Result</b>
39	Does DOE demonstrate that EPA has granted prior approval for the use of environmental measurements to demonstrate compliance with the standard?	EPA 402-R-97-001 Section 3.1, Page 13, (5(v))	DOE has not requested approval to use environmental measurements.	NA
	<b>Emissions and Environmental Monitoring - Other Media</b>			
40	Does DOE demonstrate that environmental monitoring of other release points or critical receptor locations to confirm air exhaust as the only release pathway?	EPA 402-R-97-001 Section 3.2, Page 14.	Implementation Plan for Subpart A (DOE/WIPP 00-3121:COB-A2010-A) Section 2.1 states; "However, to confirm that the air pathway is the only credible pathway for radiological releases, WIPP implements a radiological ground water surveillance program, biota sampling program and off-site radiological air monitoring program." Annual Site Environmental Report (DOE-WIPP 08-2225:COB-A2010-C) Chapter 4 demonstrates that DOE's environmental program monitors other release points and critical receptor locations.	

	DOE QUESTION	June 2010	DOE/WRP/DOE SOURCE	
	<b>Compliance Reporting</b>	<b>EPA Citation</b>	<b>Comments (Objective Evidence)</b>	<b>Result</b>
41	Does DOE demonstrate compliance with the Subpart A standard by showing that the annual radiation dose to any member of the public in the general environment falls below the regulatory limits?	EPA 402-R-97-001 Section 4.2, Page 15.	Section 5.0 of the Implementation Plan for Subpart A (DOE/WIPP 00-3121:COB-A2010-A) documents that DOE's plans to report results yearly. The Annual NESHAP (COB-A2010-Ja,-Jb,-Jc) report demonstrates that DOE reports results yearly and "...fall below regulatory limits".	
42	Does DOE report results of monitoring and the dose calculations for each reporting period?	EPA 402-R-97-001 Section 4.2, Page 15	Section 5.0 of DOE/WIPP 00-3121 documents that DOE's plans to report annual results. The Annual NESHAP Report demonstrates that DOE reports results of monitoring and dose results yearly.	
43	Does DOE demonstrate that monitoring is performed each calendar year of facility operation, and that radiation doses are calculated after the end of each year?	EPA 402-R-97-001 Section 4.2, Page 15	Section 5.0 of DOE/WIPP 00-3121 documents that DOE's plans to report results yearly. The Annual NESHAP Report demonstrates that DOE reports results of monitoring activities and dose is calculated yearly.	
<b>Notification of construction or modification.</b>				
44	Does DOE demonstrate that they have provided the EPA written notification of any planned construction or modification to the WIPP facility, prior to commencing any such activity, if it results in an increase in the rate of emissions of radionuclides during operation?	EPA 402-R-97-001 Section 4.3, Page 16.	Section 5.0 of DOE/WIPP 00-3121 documents that DOE's plans to report results yearly. The Annual NESHAP Report (COB-A2010-Jb page 7) demonstrates that DOE reports planned construction and modification during the year.	
45	Does DOE demonstrate that advanced notification was not needed for construction and modification if the radiation dose caused by all the emissions from the new construction or modification is less than 1% of the Subpart A dose limits?	EPA 402-R-97-001 Section 4.3, Page 16 and page 17.	Section 5.0 of DOE/WIPP 00-3121:COB-A2010-A documents that DOE's plans to report results yearly. The Annual NESHAP Report (COB-A2010-Jb page 7), demonstrates that DOE reports planned construction and modification during the year.	
<b>Record Keeping</b>				
46	Does DOE demonstrate documentation is sufficient to allow the Agency to verify the correctness of the determination made concerning the WIPP's compliance with Subpart A?	EPA 402-R-97-001 Section 4.4, Page 17.	Through its various documents, Subpart A implementation plan, its Annual NESHAP Report, and many procedures that support Subpart A activities, DOE demonstrate that documentation is sufficient to allow EPA to verify compliance with Subpart A.	

**Attachment B**  
**Table of Documents Reviewed**

ID#	Document Title	Subject Matter	Source
EPA 402-R-97-001	Guidance For The Implementation of EPA's Standards For Management And Storage of Transuranic Waste (40 CFR Part 191, Subpart A) at the Waste Isolation Pilot Plant EPA 402-R-97-001, January 1997	"WIPP Subpart A Guidance"	EPA
COB-A2010-1	Waste Isolation Pilot Plant Environmental Monitoring Plan. DOE/WIPP 99-2194. Rev 4, 11/08. In particular Section 4.0 and 5.0.	Discussed DOE environmental monitoring plans at the WIPP site.	DOE/WIPP
COB-A2006-2	Memorandum of understanding between EPA and DOE, September 29, 1994	Agreement states that DOE will implement NESHAPs regulations at the WIPP site.	DOE/WIPP
COB-A2006-3	EPA Shrouded Probe Approval Letter, November 10, 1994	Allows DOE to use the shrouded probe as an alternative measuring procedure.	DOE/WIPP
COB-A2006-4	Single-Point Representative Sampling with Shrouded Probes by McFarland and Rodgers, LA-12612-MS, August 1993	Describes shrouded probe testing requirements and test performed to qualify probe for use at WIPP.	DOE OSTI Document website.
COB-A2010-A	Implementation Plan for 40 CFR 191, Subpart A DOE/WIPP 00-3121, Revision 3, January 2010	Outlines program at WIPP to show compliance with 40 CFR 191, Subpart A.	DOE/WIPP
COB-A2010-B	Periodic Confirmatory Measurement Protocol for the Waste Isolation Pilot Plant, DOE/WIPP 97-2238, Revision 8, August 2008	Used to explain the protocol used to perform periodic confirmatory measurements.	DOE/WIPP
COB-A2010-C	Waste Isolation Pilot Plant Annual Site Environmental Report for 2008, DOE/WIPP 09-2225, 0909	Results of the environmental monitoring program, in particular radiological measurements.	DOE/WIPP
COB-A2010-D	Airborne Radioactivity - Technical Procedure WP 12-HP3500, Revision 18, 05/07/10	Procedure provides instructions for analyzing, reporting, and trending results of air samples.	DOE/WIPP
COB-A2010-E	WIPP Quality Assurance Program Description WP 13-1, Revision 29, 05/10/10	Minimum quality requirements for WIPP.	DOE/WIPP
COB-A2010-F	Quality Assurance Program Plan for Sampling Emissions of Radionuclides to the Ambient Air at the Waste Isolation Pilot Plant, WP 12-RC.01, Revision 9, 04/26/10	QA program for sampling air emissions at WIPP.	DOE/WIPP
COB-A2008-G	WIPP CH Waste Documented Safety Analysis, Section 3.4.1.4. DOE/WIPP-95-2065 Rev. 10, 11/06	This selection verifies that the air pathway is the only pathway of concern at the WIPP for CH waste.	DOE/WIPP.

**Documents Reviewed and Copies Received During Inspection**      **191-03 Subpart A Inspection**      **July 2010**      **DOE Documents**

<b>ID#</b>	<b>Document Title</b>	<b>Subject Matter</b>	<b>Source</b>
COB-A2008-H	WIPP RH Waste Documented Safety Analysis, Section 3.4.1.4. DOE/WIPP-06-3174 Rev 0, 03/06	This selection verifies that the air pathway is the only pathway of concern at the WIPP for RH waste.	DOE/WIPP.
COB-A2010-I	Periodic Confirmatory Sampling, Reporting, and Compliance Activities, Management Control Procedure, WP 12-RE3004, Rev 3, 11/12/09	This procedure provides instructions for Radiological Engineers of the Radiological Controls Department to fulfill the requirements of NESHAPs.	DOE/WIPP
COB-A2010-Ja,-Jb - Jc	Annual Periodic Confirmatory Measurement Compliance Report for the DOE WIPP and CAP88-PC Version 2.00 Output File for CY-2009 WIPP Annual NESHAP Report. 06/22/2010	Documents annual results.	DOE/WIPP
COB-A2010-K	Emergency Radiological Control Responses, Emergency and Alarm Response Procedure, WP 12-HP4000, Revision 6, 05/27/10	Section 3.0 documents actions to be taken in the event of and "ON-SITE AIRBORNE RADIOACTIVITY EVENT".	DOE/WIPP
COB-A2010-AK	Fixed Air Monitoring Equipment, Technical Procedure WP 12-HP1305, Revision 8, 05/07/10	Instructions for the operation of fixed air monitoring equipment. Attachment 2 documents flow rates and alarm set points.	DOE/WIPP
COB-A2010-AL	Canberra Alpha Sentry Continuous Air Monitor, Technical Procedure WP 12-HP1306, Revision 7, 11/11/09	Instructions for operating the Canberra continuous air monitor equipment.	DOE/WIPP
COB-A2010-AM	Portable Instrument and Portal Monitor Operability Checks, Technical Procedure, WP 12-HP1307, Revision 10, 05/14/09	Instructions for operational checks of portable contamination instruments.	DOE/WIPP
COB-A2010-AN2	Portable Alpha-6 Continuous Air Monitors, Technical Procedure WP 12-HP1308, Revision 3, 07/16/08	Instructions for operation of Portable Alpha-6 continuous air monitor.	DOE/WIPP
COB-A2010-AO	Radiological Event Response, Emergency Response Procedure, WP 12-ER4903, Revision 13, 02/27/09	Procedure documents actions taken if a potential or actual radioactive release takes place.	DOE/WIPP
COB-A2010-AP	Radiological Event Reporting, Management Control Procedure WP 12-HP3700, Revision 3, 10/29/08	Documents the 'first' estimate of a possible release.	DOE/WIPP
COB-A2010-L	Calibration of Effluent Monitoring Skids A1, A2, A3, B1 and B2 Flow Instrumentation, Maintenance Procedure, IC041072, Revision 9	Instructions for calibration of FAS skids A1, A2, A3, B1 and B2 flow instrumentation.	DOE/WIPP
COB-A2010-M	Calibration of Station C Flow Instrumentation, Maintenance Procedure IC041097, Revision 2	Instructions for calibration of Station C flow instrumentation.	DOE/WIPP

ID#	Document Title	Subject Matter	Source
COB-A2010-N	U/G Exhaust Mass Flow Measurement System for Fans 700A, B & C, Maintenance Procedure, IC041098, Revision 5	Documents calibration verification test and alignment of U/G exhaust.	DOE/WIPP
COB-A2010-O	Station B Mass Flow Measurement System, Loop 41A001W2001, Maintenance Procedure, IC413000, Revision 5	Documents calibration of Station B mass flow measurement system.	DOE/WIPP
COB-A2010-P	Inspection and Cleaning of Station "A" Sample Probes Bldg. 364, Maintenance Procedure, PM364005, Revision 10	Documents steps to inspect and clean Station A probes. Section 8.3 notes that salt buildup "at the probe inlet should be no more than 2/3 of the area" and "blocking the shroud exhaust should be limited to no more than 1/3 of that area".	DOE/WIPP
COB-A2010-P2	Predictive Maintenance to Determine Station A Probe Pull Frequency, Maintenance Procedure PM364001, Revision 1	Determine recommended frequency of Station A probe inspections based on meteorological data.	DOE/WIPP
COB-A2010-P3	Calibration of Station C Mass Flow, Maintenance Procedure, IC041096, Revision 4	Perform calibration check of the mass flow instrumentation.	DOE/WIPP
COB-A2010-P4	Inspection and Maintenance of Station "B" Radiation Sample Probes 365-S100 & 365-S-102, Maintenance Procedure, PM365001, Revision 4	Instructions for the biennial inspection and maintenance of Station B sample probes.	DOE/WIPP
COB-A2010-Q	WIPP ALARA Program Manual, WP 12-2, Revision 15, 06/03/10	Describes organization and responsibilities of ALARA committee and coordinator.	DOE/WIPP
COB-A2010-R	Consequence Assessment Dose Projection, Technical Procedure WP 12-ER4916, Revision 15, 11/16/09	Documents procedure for estimating the potential dose consequence from a release or suspected release of radioactive material.	DOE/WIPP
COB-A2010-Rb	Consequence Assessment Dose Projection, Technical Procedure WP 12-ER4916, Revision 13, 06/24/09	Documents procedure for estimating the potential dose consequence from a release or suspected release of radioactive material.	DOE/WIPP
COB-A2010-AQ	Radiological Engineering Off-site Air Sampling - Technical Procedure WP 12-RE3002, Revision 2, 04/09/10	Instructions for collecting and documenting Low-Volume filter retrieval in response to a potential release.	DOE/WIPP

<u>ID#</u>	<u>Document Title</u>	<u>Subject Matter</u>	<u>Source</u>
COB-A2010-AR	Radiological Release of Potentially Contaminated Materials, Waste, and Items - Management Control Procedure, WP 12-RE3003, Revision 4, 10/27/09	Instructions for evaluating materials, waste, and items which are to be released from the WIPP as non-radioactive material.	DOE/WIPP
COB-A2006-ZA	Air Sampling With Shrouded Probes At The WIPP Site, by McFarland, Sept 1993	Paper discussing the use of the shrouded probe at WIPP. Benefits of the shrouded probe are discussed.	DOE/WIPP
COB-A2006-ZB	Effects of Salt Loading and Flow Blockage on the WIPP Shrouded Probe, by Chandra, Ortiz, McFarland, August 1993, DOE/WIPP 93-043	Report discusses the impact of salt loading on shrouded probe performance.	DOE/WIPP
COB-A2006-ZC	Evaluation Of The Station B Effluent Monitoring System In The Underground Exhaust Ventilation System At The WIPP, Sept 1990, DOE/WIPP 89-027	Documents testing at WIPP to evaluate the ability of Station B to collect representative samples.	DOE/WIPP
COB-A2006-ZD	Evaluation of the Station C Effluent Monitoring System In The Waste Handling Building Ventilation System At The WIPP, Dec 1989, DOE/WIPP 89-028	Documents testing at WIPP to evaluate the ability of Station C to collect representative samples.	DOE/WIPP
COB-A2006-ZE	The Influence of Salt Aerosol On Alpha Radiation Detection By WIPP Continuous Air Monitors, by Bartlett and Walker, Jan 1996, EEG-60, DOE/AL/58309-60	Reports impact of salt deposits on monitor efficiency.	DOE/WIPP
COB-A2006-ZF	Evaluation Of The Station A Effluent Monitoring System In The Underground Exhaust Ventilation System At The WIPP, DOE/WIPP 89-026, Sept 1990	Documents testing at WIPP to evaluate the ability of Station A to collect representative samples.	DOE/WIPP
COB-A2006-ZG	Single Point Aerosol Sampling: Evaluation of Mixing and Probe Performance In A Nuclear Stack, by Rodgers, Fairchild, Wood, Ortiz, Muyschondt, McFarland, July 1994	Compares performance of ANSI isokinetic with shrouded probes at DOE facilities.	DOE/WIPP
COB-A2006-ZH	Generic Air Sampler Probe Test, by Glissmeyer and Ligothke, Nov 1995, PNL-10816	Test of isokinetic and shrouded probes at Hanford. Tests show that shrouded probes deliver samples with significantly less particle-size bias.	DOE/WIPP
COB-A2006-ZI	Functional Requirements Document For Measuring Emissions Of Airborne Radioactive Materials, by Glissmeyer, Alvarez, Hoover, McFarland, Newton, Rodgers, Nov 1994, PNL-10148	States general functional requirements for system and procedures for measuring emissions.	DOE/WIPP

<u>ID#</u>	<u>Document Title</u>	<u>Subject Matter</u>	<u>Source</u>
COB-A2006-ZJ	Changing Methodology For Measuring Airborne Radioactivity Discharges From Nuclear Facilities, by Glissmeyer and Ligothe, May 1995, PNL-SA-25532	Tests show single-point sampling (shrouded) probes are superior to ANSI style multiple-point probes.	DOE/WIPP
COB-A2010-S	Radiochemistry Quality Assurance Plan, 12-RL.01, Revision 16, 02/18/09	Describes the management policy and organizational structure, and QA requirement for radiochemical analysis.	DOE/WIPP
COB-A2010-T	Sample Tracking and Custody, Technical Procedure, WP 12-RL1001, Revision 9, 02/11/09	Instructions for documenting receipt and storage of samples in WIPP laboratory.	DOE/WIPP
COB-A2010-U	Alpha Spectroscopy System Operation, Technical Procedure, WP 12-RL1002, Revision 9, 10/05/09	Direction for calibrating and operating the Canberra Alpha Spectroscopy System as interfaced with the Genie 2000.	DOE/WIPP
COB-A2010-V	Establishing Gross Alpha and Gross Beta Self-Absorption Curves, Technical Procedure, WP 12-RL1008, Revision 7, 11/17/09	Instructions for preparing samples of known activity and known weight to generate self-absorption curves for each of the gas proportional counters.	DOE/WIPP
COB-A2010-W	Gross Alpha and Gross Beta Activity in Air Filter, Soil, Water, Sludge, and Biota, Technical Procedure, WP 12-RL1009, Revision 4, 10/22/07	Guidance for rapidly performing a variety of screening matrices for both high and low activity Radionuclides.	DOE/WIPP
COB-A2010-X	Sample Preparation, Technical Procedure, WP 12-RL1010, Revision 9, 11/05/08	Directions for preparing samples to determine activity of Radionuclides.	DOE/WIPP
COB-A2010-Z	Elemental Separation - Strontium 90, Technical Procedure, WP 12-RL1011, Revision 11, 09/13/07	Directions for performing elemental separation of strontium from samples.	DOE/WIPP
COB-A2010-AA	Elemental Separation - Transuranic Products, Technical Procedure, WP 12-RL1012, Revision 8, 10/31/06	Describes method for elemental separation and purification of actinide isotopes in samples.	DOE/WIPP
COB-A2010-AB	Sample Mounting, Technical Procedure, WP 12-RL1013, Revision 7, 09/12/07	Directions for electrodeposition sample mounting and neodymium fluoride coprecipitation sample mounting of actinides in preparation for alpha spectroscopy counting.	DOE/WIPP
COB-A2010-AC	Routine Laboratory Operations, Technical Procedure, WP 12-RL1014, Revision 6, 11/05/08	Instructions for routine laboratory operation.	DOE/WIPP
COB-A2010-AD	Canberra Alpha Analyst System Operation, Technical Procedure, WP 12-RL1015, Revision 15, 10/23/09	Directions for calibrating and operating the Canberra Alpha Analyst 32-chamber alpha spectroscopy system.	DOE/WIPP

<u>ID#</u>	<u>Document Title</u>	<u>Subject Matter</u>	<u>Source</u>
COB-A2010-AE	Operation of the Oxford Series 5 Gas Proportional Counter, Technical Procedure, WP 12-RL1016, Revision 10, 09/23/09	Guidance for the operation of the Oxford Series 5 Gas Proportional Counter.	DOE/WIPP
COB-A2010-AF	Plutonium-241 Analysis, Technical Procedure, WP 12-RL1200, Revision 0, 11/26/03	Provides method for the analysis of Pu 241 in any matrix after preparation of the sample in accordance with WP 12-RL1012 and WP 12-RL1015.	DOE/WIPP
COB-A2010-AG	Radiochemistry Laboratory Waste Management, Technical Procedure, WP 12-RL1400, Revision 9, 04/02/09	Instructions for handling, management, and disposal of laboratory waste.	DOE/WIPP
COB-A2010-AH	Radiochemistry Laboratory Data Validation and Verification, Technical Procedure, WP 12-RL3002, Revision 7, 11/17/09	Instructions for performing radiochemistry analytical data verification and validation by radiochemistry staff.	DOE/WIPP
COB-A2010-AI	Data Reduction and Reporting, Technical Procedure, WP 12-RL3003, Revision 7, 02/02/09	Instructions for processing laboratory data from the time of sample receipt to the reporting of final results.	DOE/WIPP
COB-A2010-AS	Property Material Release Evaluation Form, EA12 RE3003-1-0, Rev 2, 10/27/09	Material release evaluation form.	DOE/WIPP
COB-A2010-AT	Airborne Particulate Sampling, WP12-EM1012, Rev 9, 06/07/07	Provides steps for environmental monitor personnel to collect and document results.	DOE/WIPP
COB-A2010-AU	WIPP Radiation Safety Manual, WP12-5, Rev 13, 05/20/10	States radiological control policy and practices.	DOE/WIPP
COB-A2010-AW	Abnormal Radiological Conditions, WP12-HP2001, Rev 4, 06/24/09	Instructions for radiological control technicians when responding to abnormal conditions.	DOE/WIPP
COB-A2010-AX	Radiological Control Administration, WP12-HP3000, Rev 14, 12/07/09	Instructions for performing radiological control.	DOE/WIPP
COB-A2010-AY	Radioactive Material Control, WP12-HP3200, Rev 11, 11/11/09	Instructions for controlling radioactive items	DOE/WIPP
COB-A2010-AZ	Radiation Exposure Control, WP12-HP3300, Rev 2, 08/17/05	Guidance for keeping radiation exposure ALARA.	DOE/WIPP
COB-A2010-BA	Contamination Control, WP12-HP3400, Rev 8, 02/20/09	Guidance for keeping engineering and administrative controls.	DOE/WIPP

ID#	Document Title	Subject Matter	Source
COB-A2010-AJ	Control of Radioactive Standards, Technical Procedure, WP 12-RL1550, Revision 11, 10/22/09	Instructions for labeling, maintaining inventory, dilution of standards, completing standard logbook for new standards received, expired standards, depleted standards, and recertification or standards.	DOE/WIPP
COB-M2010-ZZ	Compliance Monitoring Implementation Plan for 40 CFR 194.14(b), Assurance Requirement, DOE/WIPP 99-3119, Rev 6, 05/10	Outlines monitoring activities at WIPP to demonstrate compliance with 40 CFR 191 and 40 CFR 194.	DOE/WIPP
<b>Documents Received During Inspection</b>			
COB-M2010-S1	2010 Inspection Agenda and sign-in sheets for opening and close-out meetings.		DOE/WIPP
COB-M2010-S2 to S12	Presentation slides from the inspection opening meeting for drilling, hydrology, geotechnical, WWIS topics, etc		DOE/WIPP
COB-M2010-S26	Geomechanical field measurement data sheets, input sheets, plots, and check prints.	Geomechanical manual convergence measurements at 18613/W170-S3080, remote extensometer measurements at 51X-GE-00405 (at W520-S2915), Joint Meter (S1950-E0300), Rock Bolt Load Cell (E140-S2916), and Earth Pressure Cells (Waste Shaft-Level 866').	DOE/WIPP
COB-M2010-S24	Subsidence calculations	DIGILEV 10.94d field data, raw conversion data, and adjusted elevations from files L0136510	DOE/WIPP
COB-M2010-S32	DBM-55-2010, 2010 map of oil and gas wells in the nine township area.		DOE/WIPP
COB-M2010-S35 and S36	Map of oil and gas wells within one mile of WIPP boundary		DOE/WIPP
COB-M2010-S37a and S37b	List of oil and gas wells in New Mexico (-S37b) and Texas (-S39a)		DOE/WIPP
COB-M2010-S38 and S39	07/01/2010 Nuclide Reports from the WDS (WWIS replacement).		DOE/WIPP
COB-M2010-S37	WDS-Summary if Waste Emplacment Inventory Report for 07/01/2010.		DOE/WIPP
COB-M2010-S37	Materials Emplaced in WIPP as of June 30, 2010		

Documents Reviewed and Copies Received  
During Inspection

19103 Subpart A Inspection

July 2010

DOE Documents

ID#	Document Title	Subject Matter	Source
COB-M2010-Photos I to 184	2010 Annual Inspection Photographs	Photographs of underground manual convergence measurements.	DOE/WIPP
COB-E2010-S13	RH Container ID Number and Shipment Summary Report		DOE/WIPP
COB-A2010-S14 and S15	Wet Filter Efficiency		DOE/WIPP
COB-A2010-S16	WIPP Offsite Potential Release Calculations		DOE/WIPP
COB-A2010-S17	A1, A2, A3 Psychometric and % Tip Occlusion		DOE/WIPP
COB-M2010-S18	Culebra Freashwater Head Modeling and Flow Direction		DOE/WIPP
COB-M2010-S19	Basic Data Report for Well Plugging and Abandonment Activities for Fical Year 2009, DOE/WIPP-10-3326, June 2010		DOE/WIPP
COB-A2010-S20	Representativeness of Sampling by the Shrouded Probes at Station A in the Exhaust Shaft at WIPP, June 2010, by M. Gross		DOE/WIPP
COB-A2010-S21	Probe Occlusion at Station A-1, June 2007 to June 2010, comparison to A-2 and A-3 and photos of probes.		DOE/WIPP
COB-A2010-S22	Humidity, temperature and pressure at Station A weather station, air flow at CAM-151, DP and flow at FAS011, FAS0021, FAS0022.		DOE/WIPP
COB-E2010-S23	Panel 5 Room 4 Status Reports		DOE/WIPP
COB-M2010-S24	Panel 6, Room 2 Geologic Log		DOE/WIPP
COB-M2010-S27	E-140 Fracture Mapping Photos		DOE/WIPP
COB-M2010-S28	East-140 Roof Fracture Plots and Panel 6, Room 1 and Panel 5, Room 1 Spall Maps		DOE/WIPP
COB-M2010-S29	Panel 6 Room 1 Stratigraphy		DOE/WIPP
COB-A2010-S30	NESHAPs Air Filter Laboratory Report, 5 Parts		DOE/WIPP

**DOCKET NO: A-98-49**

**Item: II-B3-112**

**Emplacement Inspection Report**

**EPA INSPECTION No. EPA-WIPP-6.10-29c  
OF THE  
WASTE ISOLATION PILOT PLANT  
June 29 to July 1, 2010**

**U. S. ENVIRONMENTAL PROTECTION AGENCY  
Office of Radiation and Indoor Air  
Center for Waste Management and Regulation  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460**

**July 2010**

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## 1.0 EXECUTIVE SUMMARY

The U.S. Environmental Protection Agency (EPA or the Agency) conducted an inspection of the U.S. Department of Energy's (DOE) Waste Isolation Pilot Plant (WIPP) near Carlsbad, New Mexico, from June 29 to July 1, 2010, in accordance with 40 CFR 194.21. The WIPP is a disposal system for defense-related transuranic (TRU) waste as defined by the WIPP Land Withdrawal Act.<sup>1</sup> EPA certified that WIPP complies with the Agency's radioactive waste disposal regulations (Subparts B and C of 40 CFR Part 191) on May 18, 1998.

The purpose of this annual inspection is to determine that waste sent to WIPP during the past year has been emplaced in the underground facility in the manner specified in DOE's Compliance Certification Application and other approvals. The inspection reviews the site's ability to receive, process, and emplace contact-handled and remote-handled TRU wastes within the repository, the emplacement of magnesium oxide (MgO) backfill in appropriate amounts to fulfill DOE commitments and requirements, and the maintenance of records pertaining to waste shipping, packaging, and emplacement, including the electronic Waste Data System (WDS). EPA examined selected activities, such as remote-handled and contact-handled waste processing, waste emplacement activities, and record keeping. During this year's inspection EPA placed specific emphasis on the tracking of emplaced waste and magnesium oxide (MgO) engineered barrier using the WDS, due to the fact that DOE implemented the new WDS to replace the WIPP Waste Information System (WWIS) in the interim since EPA's most recent (July 2009) emplacement inspection.

EPA concluded that DOE's emplacement activities are adequate, that CPR is appropriately tracked and recorded, that MgO balances are calculated properly, and that MgO is emplaced properly. EPA observed the use of the proper waste emplacement procedures in the underground, and successful implementation of the WDS waste container bar code reader. EPA did not identify any findings or concerns during this inspection.

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<sup>1</sup>WIPP Land Withdrawal Act, Public Law 102-579, Section 2(18), as amended by the 1996 WIPP LWA Amendments, Public Law 104-201.

## **2.0 INSPECTION PURPOSE AND SCOPE**

The purpose of this annual inspection is to verify that contact-handled (CH) and remote-handled (RH) transuranic (TRU) waste sent to WIPP during the past year has been emplaced in the underground facility in the manner specified in DOE's Compliance Certification Application and other approvals. EPA performed this inspection under authority of 40 CFR 194.21, which authorizes the Agency to inspect WIPP during its operational period to verify continued compliance with EPA's WIPP Compliance Criteria and the certification decision of May 18, 1998. Emplacement of waste and backfill, in particular, is relevant to compliance because the emplacement method supports the models that DOE uses in the WIPP performance assessment.

Activities within the scope of this inspection included: demonstration of the WIPP site's ability to receive, process, and emplace remote-handled (RH) and contact-handled (CH) TRU wastes within the repository, the use of magnesium oxide (MgO) backfill in amounts to fulfill certification requirements and other approvals, maintenance of relevant waste packaging records, including the electronic Waste Data System (WDS) and the verification of appropriately implemented quality assurance practices. The review and examination of documents related to these activities is an important part of the inspection process. The WIPP site is operated by Washington TRU-Solutions (WTS) under contract to DOE, and the majority of waste related activities onsite are described by or controlled through WTS procedures. A list of WTS procedures examined during this inspection is provided in Attachment G.

## **3.0 INSPECTION TEAM, OBSERVERS, AND PARTICIPANTS**

The inspection team consisted of three EPA staff. Thomas Kesterson and Steve Holmes of the New Mexico Environment Department and Claude Magnuson from DOE headquarters observed the inspection activities. A partial list of inspection participants is provided in Table A.

**Table A**  
**Inspection Participants**

<b>INSPECTION TEAM MEMBER</b>	<b>POSITION</b>	<b>AFFILIATION</b>
Chuck Byrum	Inspector	EPA ORIA
Nick Stone	Inspector	EPA Region 6
Jonathan Walsh	Inspector	EPA ORIA
<b>CBFO / WTS PERSONNEL</b>		
Rey Carrasco		CBFO
Art Chavez		WRES
Dan Ferguson		CBFO
Chris Luona		WTS
Dave Speed		WTS
David Squires		WTS
Gene Valett		WTS
Mike Strum		WTS

#### **4.0 PERFORMANCE OF THE INSPECTION**

The inspection took place from June 29 to July 1, 2010, at DOE's Carlsbad Field Office (CBFO) and at the Waste Isolation Pilot Plant (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 June 29. Several DOE and WTS staff presented information addressing program status, updates and changes since the last EPA emplacement inspection in July 2009.

EPA inspectors accompanied CBFO and WTS personnel into the underground repository on the morning of June 30, in order to examine waste packages and MgO that had been emplaced in Panel 5. Inspectors reviewed paper records documenting that waste emplacement and MgO tracking were conducted in accordance with procedures. Inspectors selected several containers and recorded their numbers (see Figure 5 for container locations); the records for these containers were examined both in the repository, and later using the WDS computer database, to verify correct waste information is recorded by DOE. WTS personnel answered EPA questions about how waste is handled and emplaced.

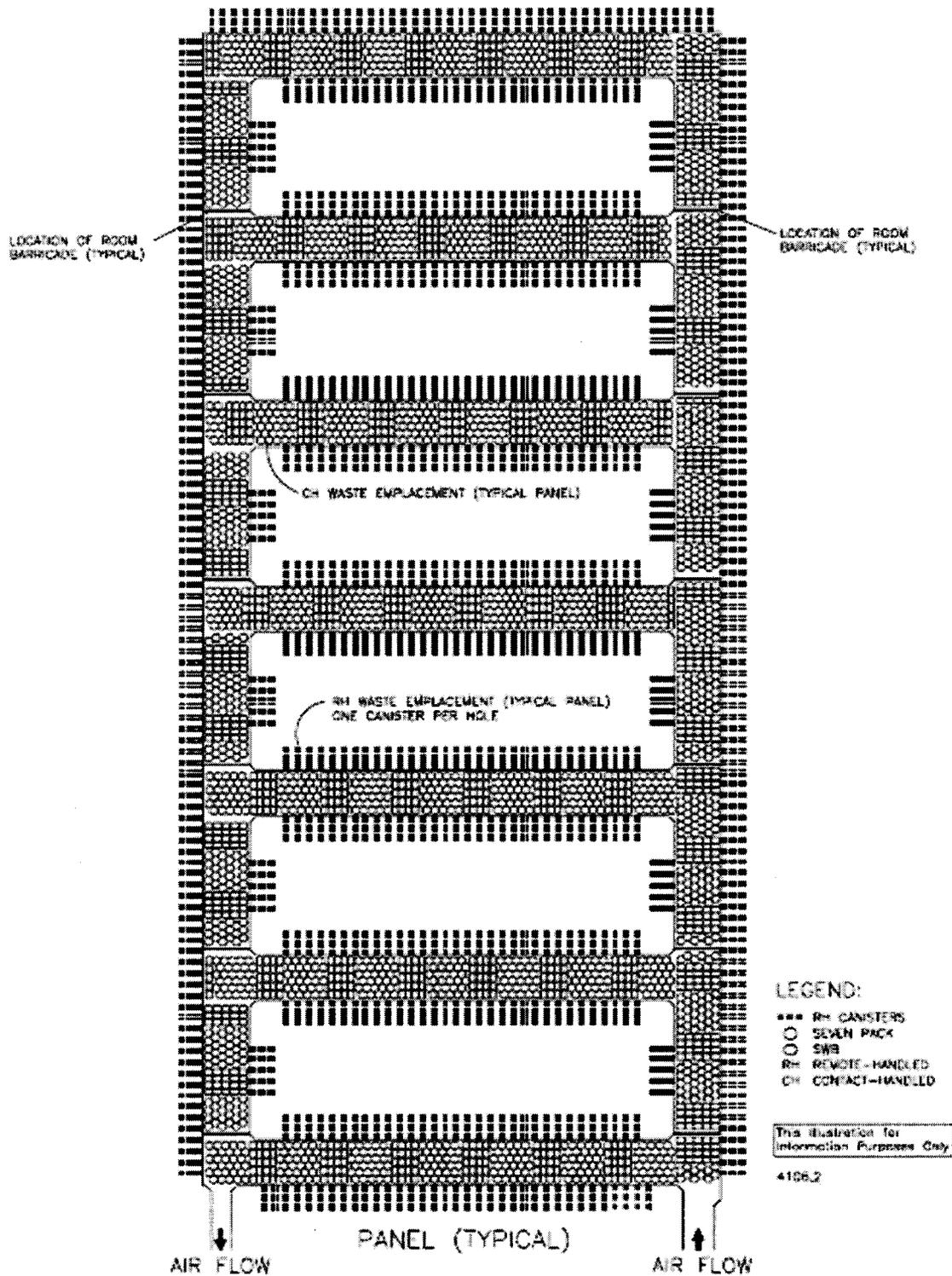
During the afternoon of June 30, EPA inspectors visited the CH and RH waste handling areas aboveground. Also on June 30, inspectors remotely accessed the WDS, and were able to generate Container and Canister Data Reports for the RH boreholes and CH waste containers observed in the underground that morning. On July 1, inspectors discussed record-keeping procedures with WDS data administrators at the Carlsbad Field Office, and WTS personnel generated additional reports and queries for the inspectors, EPA presented its preliminary observations at a close-out meeting on the afternoon of July 16.

#### **5.0 WASTE EMPLACEMENT/WDS**

Wastes received at the repository include contact-handled (CH) transuranic wastes from Argonne National Laboratory-East (ANL-E) in Illinois, Los Alamos National Laboratory (LANL) in New Mexico, Idaho National Laboratory (INL), Hanford Site in Washington, Rocky Flats Environmental Technology Site (RFETS) in Colorado, Savannah River Site (SRS) in South Carolina, the Nevada Test Site (NTS) in Nevada, and the Oak Ridge National Laboratory (ORNL) in Tennessee. These wastes are received and emplaced in several configurations: Standard Waste Boxes (SWBs), 55-gallon drums assembled in groups of seven called a Seven Pack, 100 gallon drums for supercompacted waste, and Ten Drum Overpacks (TDOP). RH wastes from INL, ORNL, and SRS have been emplaced in the WIPP, using the 72-B canister.

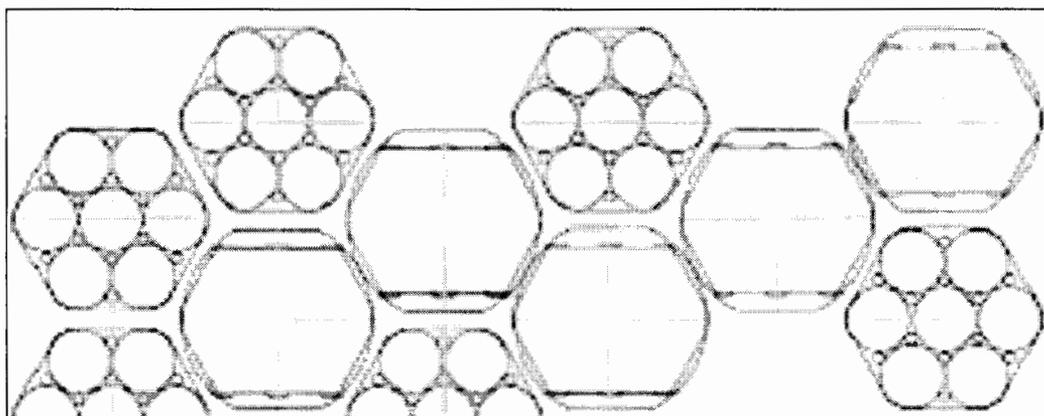
The repository is subdivided into panels, each panel consisting of seven rooms. At the time of the inspection, CH waste was being emplaced in Panel 5, Room 4 and RH waste in the walls of Panel 5, Room 3. CH waste containers are stacked in columns (waste stacks) combining SWBs, drum packs, and TDOPs (see Figures 2 and 3). TDOPs are always placed on the floor of the room, occupying the bottom and middle position of a waste column. SWBs and drums may be emplaced in any order, with most wastes emplaced as received. The waste columns are in a series of staggered rows, with a row consisting of three columns that span the distance of a

disposal room from left to right (Figure 2). RH waste is placed in the walls on eight foot centers (Figures 1, 4, and 5).



**Figure 1**

**Typical RH and CH TRU Mixed Waste Disposal Configuration**



**Figure 2**

Figure 2 Illustrates the arrangement of disposed contact-handled waste in underground. Represented are stacks of seven-packs of drums and standard waste boxes.

In Panel 5, Room 3 inspectors observed boreholes drilled to emplace RH containers, and observed the Horizontal Emplacement/Retrieval Equipment set up to emplace a RH canister in BH 31(Figure 4).

While underground in Panel 5, Room 4, EPA inspectors selected recently emplaced CH waste packages for review. The inspector read the shipment identification numbers directly off the emplaced containers (See Figure 3 for CH locations). The containers selected are identified in Table B below.

**Table B**

Waste Containers Reviewed During Inspection (Panel 5, Room 4)  
CH Waste (Field verified)

<u>Site of Origin</u>	<u>Waste Container Identifier</u>	<u>Container Type</u>
INL	BN10363651	Ten Drum Overpack (TDOP)
RF	BN10218018	Standard Waste Box
INL	BN10368262	100-gallon drum
LA	LAS892993	55-gallon drum

## RH Waste (Panel 5, Room 3) Waste Emplacement Report and Container Data Report

<u>Site of Origin</u>	<u>Waste Container Identifier</u>	<u>Borehole Number</u>
ANL	AE0036	046
ANL	ID0209	099

---

In the interim since the July 2009 inspection, WDS/WWIS staff implemented the change from the WIPP Waste Information System (WWIS) to the Waste Data System, or WDS. The basic structure, an Oracle database, did not change. The WDS replaces the WWIS Oracle Forms application with a Java-based web interface, so that the database may be accessed remotely without additional software installation. The modules of the WWIS have been replaced by “dashboards” which deliver functions and information targeted at a specific user. The underlying data was preserved, and the WWIS is considered to be a subset of the WDS.

On the evening of June 30, EPA inspectors independently accessed the WDS and generated reports available through the EPA Dashboard, including the Container Data Reports and Canister Data Reports, for containers observed in the underground. EPA staff additionally duplicated reports that had been examined during the 2009 inspection, and compared them with WWIS results, to verify that the WDS successfully performs the same functions. On the morning of July 1 at CBFO, inspectors met with WTS personnel, who answered questions and generated the Nuclide Report, Waste Emplacement Report and the MgO safety factor calculations. All electronic records were found to contain required waste stream, container, and emplacement information.

### 6.0 MAGNESIUM OXIDE BACKFILL

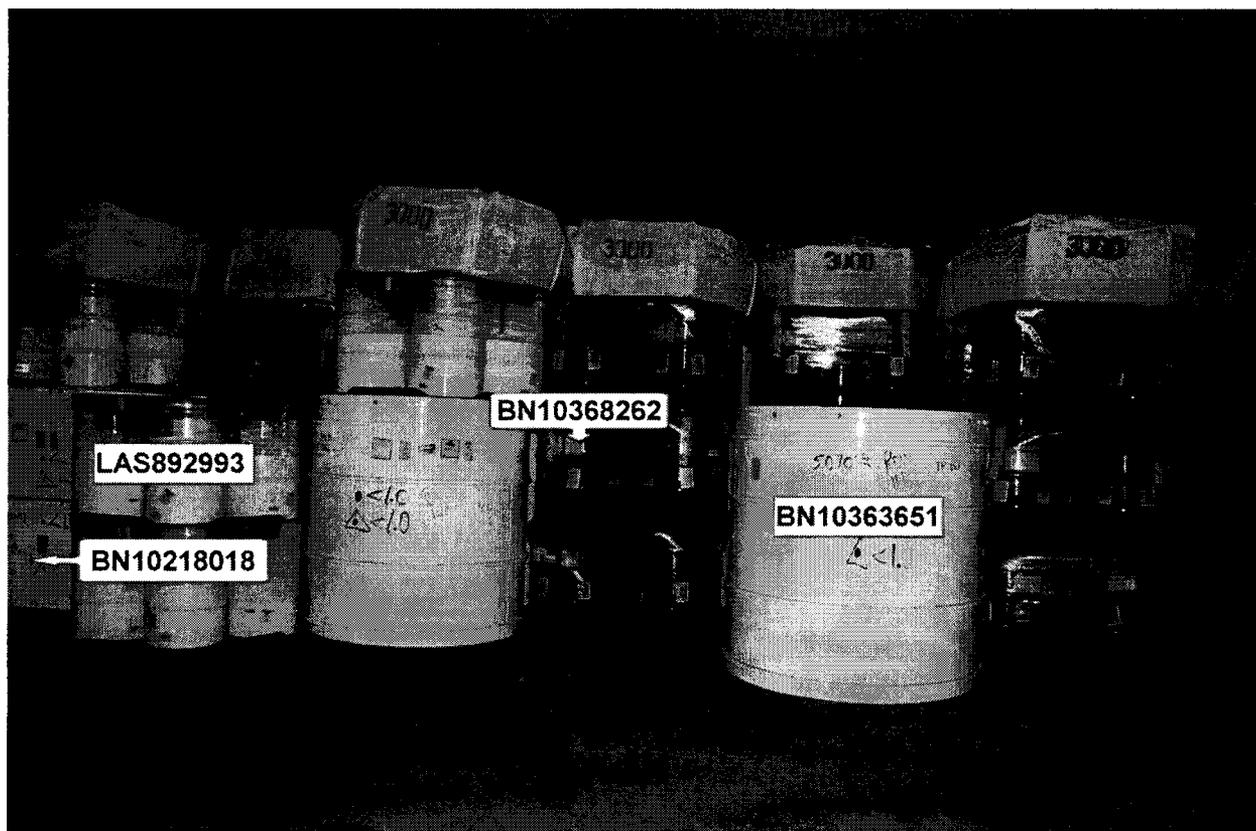
Magnesium oxide (MgO) is the engineered barrier used in the repository as backfill, as specified in DOE's Compliance Certification Application (CCA). EPA requires DOE to maintain an MgO safety factor (excess factor) to ensure that adequate MgO is chemically available to control the chemistry of each room after closure. EPA approved lowering the required safety factor to 1.2 from 1.67 in a letter dated February 11, 2008, requiring the emplacement of sufficient MgO to react with 1.2 times the amount of carbon present in the repository. Conditions of EPA's agreement stipulate that DOE must ensure a minimum reactivity of 96% for the MgO emplaced, and maintain the safety factor on a room-by-room basis. DOE instituted this change in March 2009, and it was a focus of EPA's 2009 inspection.

During the opening meeting, Gene Valett gave a presentation updating DOE's MgO management. Process steps guiding MgO placement and documentation in the underground continue to be found in WP 05-WH1025, *CH Waste Downloading and Emplacement*, and WP-05-WH.02, *WIPP Waste Handling Operations WDS User's Manual*. Waste Handling Engineers (WHE) may record the quantity and placement of MgO electronically using a WWIS/WDS bar code reader, or manually via paper forms if a bar code reader is unavailable. The appropriate forms (*CH Waste Downloading and Emplacement Data Sheet* and *Supersack/BRT Emplacement Data Sheet*) are included as Attachments 1 and 3 of WP 05-WH1025. While in the underground

repository, EPA inspectors verified that the proper procedures were used to track MgO emplacement in Panel 5, Room 4 and that MgO was emplaced on top of the CH waste stacks as stipulated. 3,000 pound sacks are now being emplaced in the underground, and were seen in Panel 5, Room 4 at the time of the inspection.

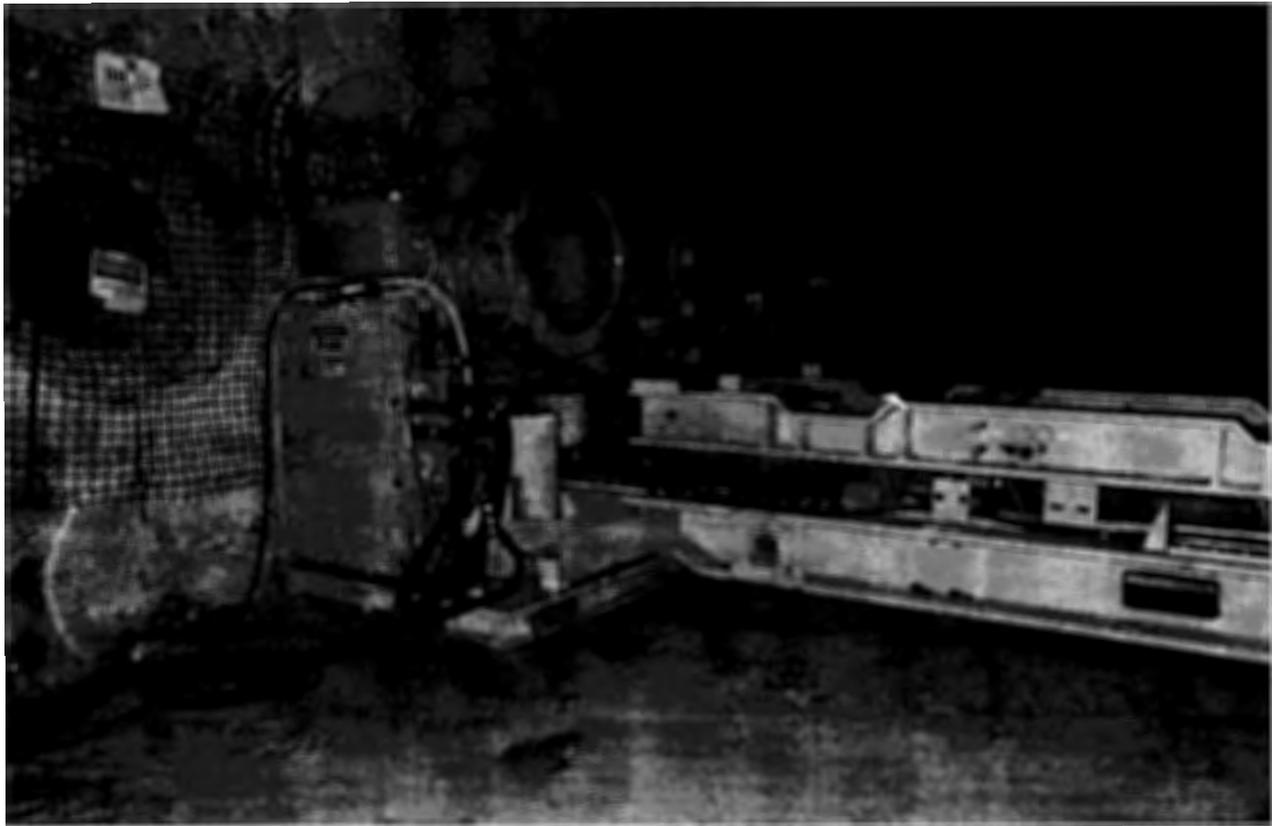
At the conclusion of each shift, the WHE must electronically verify the safety factor of 1.2 using the WDS. During the inspection of the underground, a WHE was asked to demonstrate the use of the WWIS/WDS bar code reader to track the emplacement of waste and MgO, allowing inspectors to determine that current procedures are being followed correctly, and that a MgO safety factor in excess of 1.2 is being maintained in Panel 5, Room 4 [Attachment D].

Checklist items 12-17 and 24 specifically relate to MgO management and demonstrate that DOE has appropriate processes in place to ensure that MgO is properly emplaced.



**Figure 3.** Photo of disposed waste in Panel 5, Room 7.

DOE is emplacing waste stacked 2-3 containers high topped with MgO Supersacks. Figure 3 shows all container types being shipped to date. Large drums are Ten Drum Overpacks (TDOPs), black barrels are 100-gallon drums with supercompacted waste, standard waste boxes, and standard 55-gallon drum 7-packs. 3000 lb supersacks are visible on top of the stack in Figure 3.



**Figure 4**  
Equipment prepared for RH waste emplacement in Room 3 of Panel 5



**Figure 5**  
Emplaced RH waste location selected for review

## 7.0 COMPARISON WITH INVENTORY LIMITS

In the Summary of Waste Emplacement Inventory Report, available through the EPA dashboard, EPA was provided data for emplaced waste, including total activities of the ten EPA-tracked radionuclides, total weights of ferrous and non-ferrous metals, and the CPR/MgO balance by room, as of 7/1/2010. More detailed data on the total amounts of specific materials emplaced was provided by WDS staff, using a script to run a custom WDS query.

EPA establishes limits for certain waste components at WIPP by approving performance assessment inventory estimates. Some limits, such as for iron and other metals, are minimum limits. The amount of iron and steel are now at  $2.02 \times 10^7$  kg. The minimum limit of  $2 \times 10^7$  kg iron has now been met for the repository.

Other waste component limits are maximum limits. Of special concern is the maximum limit on the total amount of cellulosic, plastic and rubber (CPR) materials. In the original CCA, DOE estimated the limit for CPR was  $2.2 \times 10^7$  kg, establishing the limit EPA required DOE to meet. In the subsequent performance assessment baseline calculations, DOE added packaging materials to the calculations, and now the CPR limit for WIPP is  $2.4 \times 10^7$  kg (see Table C).

CPR values are tracked on a per container basis and the current CPR values as of July 1, 2010 are listed in Table C.

As of this inspection the WIPP contained almost  $5.2 \times 10^6$  kg of CPR in waste and  $1.5 \times 10^6$  kg of CPR in packaging material. In addition, emplacement CPR, such as the slip sheets used to aid the emplacement of the containers, accounts for another  $4.3 \times 10^5$  kg of CPR. This is a total of  $6.4 \times 10^6$  kg of cellulosic, plastic and rubber material. The mass of rubber materials currently accounts for 4.3% of the total mass of CPR, compared to 3.4% in 2009, 5% in 2008, 4.7% in 2007, and 7% in 2006. The WIPP currently contains approximately 30% of its maximum limit for CPR. The repository held 29% of its limit for CPR in 2009, 24% in 2008, and 21% in 2007.

**Table C**  
**Emplaced CPR Quantities as of July 1, 2010**

<b>Waste CPR:</b>		<b>Emplacement CPR:</b>	
Type	Weight (kg)	Type	Weight (kg)
-----		-----	
Cellulosic	2,011,586	Cellulosic	51,631
Plastic	2,870,157	Plastic	376,203
Rubber	316,667		
<b>Total</b>	<b>5,198,410 (kg)</b>		<b>427,834 (kg)</b>
-----		-----	
<b>Packaging CPR:</b>		<b>MgO CPR:</b>	
Type	Weight (kg)	Type	Weight (kg)
-----		-----	
Cellulosic	846,973	Cellulosic	49,922
Plastic	633,707	Plastic	55,569
<b>Total</b>	<b>1,480,680 (kg)</b>		<b>105,491(kg)</b>
-----		-----	
<b>Grand Totals:</b>			
Cellulosic + Plastic = 6,895,748			
Rubber = 316,667			
<b>Total CPR</b>	<b>= 7,212,415 (kg)</b>		

## 8.0 SUMMARY OF RESULTS

The inspectors reviewed emplacement operations, WTS procedures, and records associated with selected containers. The surface processing of CH and RH waste as well as underground operations were reviewed and found to be adequate, according to specified plans documented in the CCA. EPA concludes that DOE's emplacement activities and records are adequate, that CPR and MgO are appropriately tracked. EPA identified no findings or concerns.

## **Attachment A**

### **WIPP Emplacement Inspection Plan for the Year 2010**

#### **Purpose:**

The purpose of this inspection is to determine if waste sent to WIPP during the past year has been emplaced in the underground facility in the manner specified in DOE's Compliance Certification Application and other approvals. The objective evidence is the documentation that EPA can use to verify that DOE is conducting its operation appropriately.

EPA is performing this inspection under the authority of 40 CFR 194.21, which authorizes the Agency to inspect the WIPP during its operational period to verify continued compliance with EPA's WIPP Compliance Criteria and the certification decision of May 18, 1998.

- Is DOE emplacing waste in the underground at WIPP in a manner specified in DOE's Compliance Certification Application (EPA Air Docket A-93-02, Item II-G-01, and associated documents)?
- Is DOE emplacing waste in the underground at WIPP in a manner to assure that the 1.2 safety factor is maintained.

**Scope:**

The scope of this inspection includes: demonstration of the site's ability to receive, process, and emplace contact-handled and remote-handled TRU wastes within the repository, the use of magnesium oxide (MgO) backfill in appropriate amounts to fulfill DOE commitments and requirements, maintenance of relevant waste packaging records, including the electronic WIPP Waste Information system (WWIS) and the verification of appropriately implemented quality assurance practices. The availability of documentation of these processes and activities will be a major source of review.

**Focal Areas for this Year's Inspection:**

- What changes have taken place to emplacement activities and documentation since last year's inspection?
- What changes have taken place to MgO emplacement since EPA's approval of decreased MgO?

**Location:**

The inspection will be held at DOE's WIPP facility located twenty-six miles southeast of Carlsbad, New Mexico and the Carlsbad Field Office (CBFO) in Carlsbad. Inspection activities will include examination of the underground facilities, review of records related to waste emplacement, and other information as needed.

**Duration:**

The EPA expects to complete its inspection in about two days plus an initial meeting. Each full day will begin with an opening meeting at 8:00 a.m. and end no later than 5:00 p.m. with a closeout session.

**Expected Date:** Week of June 28, 2010

**Documents For Review:**

Electronically provide for this inspection the latest version of pertinent documentation and/or procedures related to CH and RH waste emplacement, MgO, WWIS, training, etc.

**Attachment B**

Summary of Waste Emplacement Inventory Report  
July 1, 2010

### Attachment C

Materials Emplaced in WIPP as of June 30, 2010

#### CH WASTE:

MP	Material Type	Material Description	Material Weight (kg)
1	Waste	Iron Based Metal/Alloys	7,405,386.80
2	Waste	Aluminum Based Metal/Alloys	47,112.46
3	Waste	Other Metal/ Alloys	294,508.50
4	Waste	Other Inorganic Materials	1,378,937.75
6	Waste	Cellulosics	2,011,515.06
7	Waste	Rubber	316,659.66
8	Waste	Plastics	2,825,398.78
9	Waste	Solidified Inorganic Material	6,459,683.31
10	Waste	Solidified Organic Material	1,680,227.60
12	Waste	Soils	376,384.27
13	Steel - Packaging	Steel Container Materials	12,560,985.89
14	Plastic - Packaging	Plastic /Liners Container Materials	633,311.90
15	Cellulosic - Packaging	Cellulosic Packaging Materials	846,968.88
18	Emplacement	Cellulosic Emplacement Material	51,630.66
20	Emplacement	Plastic Emplacement Material	376,203.05

#### RH Waste

1	Waste	Iron Base Metal/Alloys	37,522.63
2	Waste	Aluminum Base Metal/Alloys	29.20
3	Waste	Other Metal/Alloys	6.62
4	Waste	Other Inorganic Materials	13.00
6	Waste	Cellulosics	71.05
7	Waste	Rubber	7.30
8	Waste	Plastics	44,748.15
9	Waste	Solidified Inorganic Material	18.55
10	Waste	Solidified Organic Material	15.00
13	Steel Packaging	Steel Container Materials	202,489.57
14	Plastic Packaging	Plastic/ Liners Container Materials	395.34
15	Cellulosic Packaging	Cellulosics Packaging Materials	4.26

MgO

16	Emplacement Magnesium Oxide	27,288,465.89
18	Emplacement Cellulosic Emplacement Mat'l	49,921.50
20	Emplacement Plastic Emplacement Mat'l	55,569.00

**Attachment D**

WDS bar code reader displaying MgO Balance for Panel 5, Room 4



**Attachment E**  
**Procedures Examined**

**Attachment F**  
**EPA Emplacement Inspection Checklist – July 14-16, 2009**

#	Questions:	Comments and Objective Evidence	Results
	<b>Waste Emplacement</b>		
1	Is waste being emplaced in the underground facility in the manner specified in DOE's Compliance Certification/ Re-Certification or other relevant documentation?	<p>Yes. Procedure WP 05-WH1025, CH Waste Downloading and Emplacement, Section 2, describes the CH emplacement procedures. Visual verification of the emplaced waste in Rows 146 through 148 of Panel 5, Room 4 confirmed waste emplacement in accordance with facility procedure and CCA documentation .</p> <p>RH processing procedures for 72-B (WP 05-WH1710, WP 05-WH1725) and 10-160-B (WP 05-WH1722) containers are consistent with the approach discussed in the CCA documentation. Emplacement in the repository walls with borehole plugs was verified during inspection of the underground.</p>	Satisfactory
2	Are CH waste containers stacked in columns appropriately given the type of container?	<p>Yes. In WP 05-WH1025, CH Downloading and Emplacement, a note at step 2.25 specifies appropriate stacking of CH container types. Attachment 2 of the same procedure specifies payload assembly positioning. Visual verification confirmed adherence to procedure (e.g. TDOPs placed in bottom position of waste columns.)</p>	Satisfactory

3	<p>Are records adequate?</p> <p>Randomly select 3-4 CH and 2-3 RH waste containers to verify records for waste approval, shipment, and receipt.</p>	<p>Yes. TRU Waste Receipt WP 08-NT3020, Rev.18 describes the process. Records produced are Uniform Hazardous Waste Manifest, TRU Waste Receipt Checklist, Shipment Summary Report, RH waste Processing Data Sheet, Radiological Survey Report, and Waste Emplacement Report. CH waste produces comparable records. EPA reviewed records and found the records to be adequate and traceable.</p> <p>Selected Containers:</p> <p><b>CH Waste</b> (Panel 5, Room 4, Rows 146-148)</p> <ul style="list-style-type: none"> <li>- Ten Drum Overpack (TDOP), BN10363651</li> <li>- Standard Waste Box, BN10218018</li> <li>- 100-gallon drum, BN10368262</li> <li>- 55-gallon drum, LAS892993</li> </ul> <p><b>RH Waste</b> (Panel 5, Room 3)</p> <ul style="list-style-type: none"> <li>- Borehole 046, AE0036</li> <li>- Borehole 099, ID0209</li> </ul>	Satisfactory
4	<p>Is DOE properly emplacing backfill material (magnesium oxide [MgO]) with the waste packages?</p> <p>Are supersacks placed on top of waste stacks according to procedure?</p>	<p>Yes. 3000-pound supersacks were observed to be emplaced on top of each waste assembly at the active waste face in Panel 5 Room 4. WP 05-WH1025, CH Waste Downloading and Emplacement, Section 3.0, establishes procedure for emplacement of MgO.</p>	Satisfactory
5	<p>Verify documentation for the containers listed in item 3 - waste generator site transmittal of waste to WIPP, WIPP approval, shipment certification for transport to WIPP, shipment initiation documentation, shipment received at WIPP records, waste emplaced in the underground, and placement of engineered barrier [MgO].</p>	<p>Inspectors examined paper records maintained underground and electronic records kept aboveground for the selected containers. Site operators demonstrated the use of the WDS bar code reader to track emplacement of waste and MgO. Documentation was determined to be adequate.</p>	Satisfactory
	<p><b>RH Waste Emplacement Questions</b></p>		
6	<p>Are RH containers approved for receipt, received, processed, and emplaced properly?</p>	<p>Yes. Inspection of the underground and RH handling area showed procedures to be in agreement with WP 05-WH1710, 72-B RH Processing, and WP 05-WH1725, RH Waste Downloading and Emplacement.</p>	Satisfactory.

7	<p>Are RH containers appropriately tracked?</p> <p>Where is the information?</p> <p>--In the WDS, what report</p> <p>--During the receipt/transfer process where is it recorded?</p> <p>--In the underground?</p>	<p>Yes. Appropriate information is found in the WDS Canister Data Report, and on the underground facility map maintained by the Waste Handling Engineers in the underground.</p>	Satisfactory.
8	<p>Content of RH canisters</p> <p>--pick 1 to 3 canisters</p>	<p>See Item 3 above. The Canister Data Report was generated and reviewed for each canister.</p>	Satisfactory
9	<p>Volume and mass and/or concentration of important waste components and radionuclides (RH and CH)?</p> <p>Are they within statutory and regulatory limits?</p>	<p>Detailed description of nuclide information is included in the Waste Container Data Reports and Canister Data Reports generated.</p> <p>Yes.</p>	Satisfactory
10	<p>Are RH boreholes closed properly?</p> <p>(Note: also see #9 for tracking of RH in the U/G)</p>	<p>Recently emplaced borehole plugs, and plugs prepared for emplacement, were observed by inspectors in the underground to be in accordance with WP 05-WH1725, Rev. 3, RH Waste Downloading and Emplacement.</p>	Satisfactory
11	<p>Is a photographic record made of the RH canister number during emplacement and retained in the permanent record?</p>	<p>No. The canister ID number is verified by two operators during cask transfer, via closed-circuit television in accordance with procedure 05-WH1710, 72-B RH Processing, Section 8.24. WTS personnel provided EPA inspectors with screen shots from this process. Tapes are maintained for one year, and WP 05-WH1710 Att. 1, RH Waste Processing Data Sheet, then becomes the permanent record. EPA finds this to be adequate.</p>	Satisfactory
	<b>Question: Procedure</b>		
12	<p>Do DOE procedures reflect an MgO safety factor to 1.2?</p>	<p>Partially. WP 05-WH1025, CH Waste Downloading and Emplacement, Rev. 1, Section 3.0, Backfill, establishes procedures to maintain a safety factor of 1.2 or greater per room on a daily basis. Procedures in the WDS User's Manual, WP-05-WH.02, Rev. 0, Sections 6.2.5, 9.5.3, and Attachment 1 reflect the 1.2 safety factor and the use of 3,000-lb. supersacks as necessary. WHEs were observed to be using current procedures and the WDS bar code reader to record MgO emplacement in the underground.</p>	Satisfactory
13	<p>Are both CPR and MgO calculated and tracked on a room-by-room basis?</p>	<p>Yes. Calculations are performed by the Waste Handling Engineer at the conclusion of each shift, through the WDS, using the MgO Balance Report or Daily Report, as required by WP 05-WH1025, CH Waste Downloading and Emplacement, Rev. 1, Section 3.0, Backfill.</p>	Satisfactory

14	Are sampling and analytical procedures in place to ascertain that emplaced MgO maintains a minimum of 96% reactivity?	Yes. Specification D-0101, Prepackaged MgO Backfill, Rev. 8 and WP 05-WH1105, MgO Sample Records Management, Rev. 0, set forth analytical and document management procedures to verifying that each shipment of MgO maintains a 96 +/- 2% reactivity.	Satisfactory
15	Is the acceptance of the MgO backfill material from the supplier documented?	Yes. WP 05-WH1105, MgO Sample Records Management, Rev. 0, Sec. 2.0 requires each shipment to be numbered, and the MgO supplier to provide an Analysis of Shipment and a sample under Chain of Custody for each shipment. Supersacks in the underground were observed by inspectors to be marked with unique ID numbers, traceable to their original shipments.	Satisfactory
16	For the MgO needed for high CPR, are there procedures or documentation for the WHE or WHM (or other appropriate personnel) identifying <b>when</b> and <b>where</b> additional MgO is needed?	Yes. General procedures are found in the WIPP Waste Handling Operation WDS User's Manual, WP 05-WH.02, Attachment 1, Special Requirements for Additional MgO. Section 3 of WP 05-WH1025 calls for notification of the WHM if daily reports show the MgO safety factor of a room to be less than 1.2.	Satisfactory
17	Is there documentation that identifies <b>how</b> MgO should be placed with high CPR waste?	Yes. WP 05-WH1025, CH Waste Downloading and Emplacement, Attachment 3, Supersack/BRT Emplacement Data Sheet; and WP 05-WH1058, CH Waste Handling Abnormal Operations, Sec. 4.0, BRT Emplacement	Satisfactory

18	Verify documentation of procedures for abnormal operating conditions, and documentation of training for contingencies.	<p>Abnormal operating and emergency procedures were reviewed, including but not limited to those listed below.</p> <p>WP 04-CO, Conduct of Operations, Rev. 11, identifies notification policies, supervision and training procedures, and required reading (Management Policy 1.30).</p> <p>WP 02-EC3506, Environmental Incident Reporting, is the Management Control Procedure for reporting releases, and includes statutory requirement charts for notifications and decision flowcharts.</p> <p>WP 05-WH1058, CH Waste Handling Abnormal Operations, includes instructions for recovering from a torn slip sheet, moving emplaced waste, returning waste to surface, and emplacing BRTs. Specifies that "Abnormal operations of a large scope (e.g. overpack and retrieval) will have specific plans developed."</p> <p>WP 05-WH1758, RH Waste Handling Abnormal Operations, includes instructions for operating the Hot Cell Crane in response to a hoist, trolley, bridge or grapple failure, installing and removing the Waste Transfer Machine Assembly (WTMA) wheels, retrieving a loaded RH -TRU 72-B Cask from the Transfer Cell, returning a loaded 10-160B Cask to a generator site and resetting the Transfer Cell Light Curtain.</p> <p>WP 12-9, WIPP Emergency Management Program, is the top-level document outlining emergency response procedures and responsibilities, includes training requirements for response roles.</p> <p>WP 05-WH4401, Waste Handler Operator Event Response, includes alarm, alert, and exit procedures.</p> <p>WP 12-ER3906, Categorization and Classification of Operational Emergencies includes tables of procedures for emergency notifications and classification of events.</p> <p>WP 12-HP4000, Emergency Radiological Control Responses, provides guidance for responding to an actual or suspected breach of a TRU container, contamination found outside controlled areas, radiation levels exceeding the limits set in WP 12-5.</p>	Satisfactory
#	<b>Question: <u>Records/WDS</u></b>		
	Do the characterization module, certification module, shipping module, and inventory module adequately record required information?	<p>WWIS modules have been replaced by WDS Dashboards. Reports available through the EPA Dashboard contain the container number, shipment number, emplacement data and underground location. EPA staff queried the WDS to verify that this information is recorded correctly.</p>	Satisfactory

19	Does the WDS adequately document waste shipment and emplacements information for waste containers selected? (Item 3 above) CH, RH	Yes. Canister, Overpack, and Container Data Reports were retrieved, all of which correctly reflected container number, shipment number, and emplacement information in the underground.	Satisfactory
20	Do records verify that contact handled waste container surface doses fall within statutory requirements? Where are CH surface dose records maintained?	Yes. CH surface dose measurements are recorded in the Container Data Report. Dose limits for each of the containers examined by EPA inspectors (listed in Item 3) were below statutory limits.	Satisfactory
21	Review a Waste Container Data Report. Does this report adequately record the Waste Stream Profile Form information?	Yes. For all containers inspected, inspectors found Container and Canister Data Reports to contain Waste Stream IDs, as well as all necessary radiological and chemical profile information.	Satisfactory
22	Review the Shipment Summary Report. Does the report correctly record the containers shipped? CH, RH	By querying the Shipment number, the Shipment Data report may be generated. Inspectors verified that the report reflects the containers shipped.	Satisfactory
23	Review the Waste Emplacement Report. Does this report adequately record the date of receipt, and disposal locations of containers? CH, RH	Yes. See Item 21.	Satisfactory
24	Is DOE assuring that the 1.2 safety factor being maintained on a room basis?  Does the WDS accurately calculate the safety factor and recommend the proper amount of MgO to emplace?	Yes. See questions 12-17.  EPA inspectors reviewed InSEI Matrix Requirements WWIS2-REQ-2126 and -2127 to verify that the WDS software calculates MgO excess appropriately.	

**Report Statistics**

Report Version: **1.1**  
WDS Instance: **prd01.wipp.carlsbad.nm.us**  
Generated on: **July 01, 2010 00.08 PM**  
Generated by: **STRUMM**  
Total Pages: **4**

**Selection Criteria**

End Date: **07/01/2010**  
Panel Number: **All**  
Room Number: **All**

<b>TRU Waste Inventory as of 07/01/2010</b>	
<b>Panel: All Room: All</b>	
Emplaced CH Containers	68,526.83 (m <sup>3</sup> )
Emplaced RH Containers	190.81 (m <sup>3</sup> )
<b>Total</b>	<b>68,717.64 (m<sup>3</sup>)</b>

**Emplaced Container Counts as of 07/01/2010**  
**Panel: All Room: All**

<b>Description</b>	<b># of Containers</b>
<i><b>Contact Handled (CH) Container Types</b></i>	
100-GALLON DRUM	24,142
12-INCH PIPE OVERPACK	23,805
55-GALLON DRUM	71,577
85-GALLON DRUM - TALL - OVERPACK	5
S100 PIPE OVERPACK	319
S300 PIPE OVERPACK	10
STANDARD WASTE BOX	4,856
STANDARD WASTE BOX - OVERPACK	3,911
TEN DRUM OVERPACK - OVERPACK	5,060
<i><b>Remote Handled (RH) Container Types</b></i>	
FIXED-LID 72-B CANISTER	18
REMOVABLE-LID 72-B CANISTER	1
REMOVABLE-LID 72-B CANISTER - OVERPACK	358
<b>Total:</b>	
	<b>134,062</b>

**Material Parameter Inventory**

Panel: All Room: All

Material Type	Weight (kg)
CELLULOSIC, PLASTIC, RUBBER (CPR)	7,100,273
FERROUS METAL	20,210,004
NON-FERROUS METAL	341,657
OTHER MATERIAL	9,895,279
Total:	37,547,213

**EPA-Tracked Radiological Activity Inventory  
as of 07/01/2010**

Panel: All Room: All

Radionuclide	Repository CH Activity (Ci)	Repository RH Activity (Ci)	Total Repository Activity (Ci)
AM-241	2.021E5	1.495E2	2.023E5
CS-137	5.3E0	1.753E3	1.759E3
PU-238	2.725E5	6.571E1	2.725E5
PU-239	2.913E5	9.739E1	2.914E5
PU-240	7.105E4	6.61E1	7.112E4
PU-242	1.44E1	9.375E-2	1.45E1
SR-90	1.086E1	1.362E3	1.373E3
U-233	4.703E0	1.354E-1	4.839E0
U-234	4.61E1	2.778E-1	4.638E1
U-238	1.19E1	6.035E-3	1.191E1
Total	8.371E5	3.495E3	8.406E5

**MgO-Related Information as of 07/01/2010**

**Panel: All Room: All**

Panel	Room	MgO (kg)	Waste (kg)	CPR (kg)	Excess Factor
1	7	1,127,526	508,254	267,771	2.01
1	6	222,885	101,210	85,308	1.44
1	5	222,885	160,047	78,406	1.56
1	4	228,600	128,597	84,697	1.51
1	3	1,034,415	749,764	338,322	1.67
1	2	1,028,825	948,002	225,711	2.17
1	1	617,220	311,843	136,095	2.14
2	7	1,028,700	571,001	233,104	2.09
2	6	982,980	461,528	205,745	2.20
2	5	988,820	498,970	194,393	2.28
2	4	977,265	518,555	217,372	2.17
2	3	1,028,700	667,662	208,115	2.27
2	2	965,835	733,025	161,914	2.62
2	1	691,515	416,679	183,964	1.71
3	7	960,120	711,188	106,207	3.83
3	6	954,405	876,558	226,189	1.93
3	5	1,022,985	808,693	280,945	1.70
3	4	960,120	899,470	251,694	1.79
3	3	931,545	1,000,561	240,486	1.89
3	2	944,880	1,004,479	224,651	2.03
3	1	662,940	722,043	180,687	1.76
4	7	942,975	1,051,062	245,488	1.90
4	6	925,830	945,599	264,141	1.71
4	5	946,785	890,039	261,866	1.71
4	4	1,013,460	830,990	286,937	1.70
4	3	1,015,365	745,955	282,077	1.70
4	2	931,545	933,179	372,843	1.22
4	1	668,655	554,822	265,884	1.23
5	7	939,165	982,045	353,269	1.29
5	6	875,477	1,085,549	140,009	2.85
5	5	782,346	1,121,745	298,808	1.24
5	4	663,698	929,185	200,361	1.67
5	3	0	8,494	3,349	0.00
5	2	0	1,452	801	0.00

## Documents Received and Reviewed During Inspection

### Document Title

### Subject Matter

WP12-HP1500, Rev. 11, Radiological Posting and Access Control, 12/14/06	Technical Procedure for posting areas according to levels of radiation/contamination and access.
WP 12-HP4000, Rev. 5, Emergency Radiological Control Responses, 8/8/05	Emergency and Alarm Personnel Response Procedure
WP 12-HP3500, Rev. 16, Airborne Radioactivity, 12/04/08	Technical Procedure for analyzing and reporting results of particulate air samples
WP 12-HP3400, Rev. 8, Contamination Control, 2/20/09	Management Control Procedure for control containment, and decontamination.
WP 12-HP2001, Rev. 3, Abnormal Radiological Conditions, 8/23/06	Abnormal Operating Procedure for out of calibration survey instruments, lost TLD, loss of control of radioactive material, low energy gamma monitor alarms, or exceedance of permitted dose limit.
WP 12-HP1100, Rev.12, Radiological Surveys, 7/31/08	Technical Procedure for meter/swipe use, including example survey reports as attachments.
WP 12-ER4903 Rev. 13, Radiological Event Response, 2/27/09	Emergency Response Procedure for CAM radiation alarm, waste handling accident, structural failure in active emplacement area, removable contamination 100 times set limit.
WP 12-ER4902, Rev. 12, Hazardous Material Spill and Release Respon , 2/02/09	Emergency Response Procedure for RCRA event.
WP 12-ER3906, Rev. 1, Categorization and Classification of Operational Emergencies, 12/5/08	Management Control Procedure for classifying emergency and beginning notification within fifteen minutes.
WP 12-9, Rev. 29, WIPP Emergency Management Program, 7/31/08	Comprehensive overview of emergency response, notifications, and reentry.
WP 08-NT3020, Rev. 18, TRU Waste Receipt, 6/9/09, 36 pp.	Management Control Procedure for receipt of TRU and mixed wastes, performed by Transportation Engineer. Sets storage and time limits for initial processing. Uses 'WDS/WWIS.'
WP 08-NT.07, Rev. 6, Waste Data System Software Design Description*, 12/14/09, 17pp.	Top level summary of software design and components. Heavily rewritten to reflect WDS changeover.

## Documents Received and Reviewed During Inspection

### Document Title

### Subject Matter

WP 08-NT.06, Rev. 6, Waste Data System Software Requirements Specification\*, 12/14/09, 30pp.

Summarizes requirements, functions, user roles, constraints, and assumptions of the WWIS. Sec 5.1 clearly defines WWIS/WDS relationship.

WP 08-NT.05, Rev. 7, Waste Data System Software Verification and Validation Plan\*, 5/25/10, 16pp.

Verification and Validation activities through all life phases of the WDS. Title updated. No other major changes from 2009.

WP 08-NT.04, Rev. 15, Waste Data System Configuration Management and Software QA Program\*, 12/17/09, 26pp.

Delineates QC/Data management responsibilities for all WDS users, accounting and documentaiton procedures.

WP 08-NT.03, Rev. 11, Waste Stream Profile Form Review and Approval Program, 12/10/2009, 17pp.

Review procedures for assuring compliance with Hazardous Waste Facilities Permit Waste Analysis Plan, and WIPP Waste Acceptance Criteria, enumerating minimum reviews for each approval. Explains that WWIS is a subset of WDS.

WP 08-NT.01, Rev. 21 Waste Data System Program and Data Management Plan, 4/14/10

Operational overview of WWIS, including regulatory requirements, process, and user responsibilities. Ties WDS functions to regulatory requirements.

WP 05-WH4401, Rev. 3, Waste Handling Operator Event Response, 3/21/01

Emergency Procedure for CAM alarms, fire, smoke, toxic gas, structural issues, or spill/release.

WP 05-WH1810, Rev. 12 Underground Transuranic Mixed Waste Disposal Area Inspections, 6/24/09, 10pp.

Technical Procedure for Preoperational Underground TRU Mixed Waste Disposal Area Inspections. Inspection checklists included in two attachments. Minor updates to reflect consolidated DSA/TSR.

WP 05-WH1758, Rev. 7, RH Waste Handling Abnormal Operations, 12/17/09, 50pp

Technical Procedure for operation of the Hot Cell Crane in response to a hoist, trolley, bridge or grapple failure, installing and removing the the Waste transfer Machine Assembly (WTMA) wheels, retrieving a loaded RH -TRU 72-B Cask from the Transfer Cell, returning a loaded 10-160B Cask to a generator site, or resetting the Transfer Cell Light Curtain.

WP 05-WH1752, Rev. 4, 10-160B Shielded Insert Installation and Removal, 2/05/09

Minor updates reflect WDS. reference I.C.Os  
Technical Procedure. CNS 10-160B cask not yet in use at time of inspection. CCTV use stipulated.

**Documents Received and Reviewed During Inspection**

**Document Title**

**Subject Matter**

WP 05-WH1744, Rev. 11, Surface RH Transuranic Mixed Waste Handling Area Inspections, 12/17/2009, 20pp.

Technical Procedure for RH WHT/WHE to inspect aboveground RH operations. Preoperational Inspection, Daily Door Check, Trailer Parking Area and RH Container Storage Area Weekly Inspection, RH Waste Handling Preoperational Inspection checklists included as attachments. No major changes in 2010

WP 05-WH1729, Rev 9, RH-TRU 72-B Cask Uprighting Trailer Unloading, 5/20/10, 22pp.

See above.

WP 05-WH1727, Rev. 8, RH-TRU 72-B Cask Uprighting Trailer Loading, 5/20/10, 20pp.

Distinct trailer from the mechanically-operated trailer which requires the bridge crane.

WP 05-WH1726, Rev. 0, RH Waste Downloading/Emplacement Using Distributed Controls, 1/19/10, 25pp.

Distinction from WH1725 is unclear

WP 05-WH1725, Rev. 5, RH waste Downloading and Emplacement, 3/11/10, 25pp.

Technical Procedure for RH operations in the underground. Includes paper RH Waste Processing Data Sheet. LCOs referenced by number.

WP 05-WH1722, Rev 11, 10-160B RH Processing, 12/17/09, 35pp.

Technical procedure for unloading the CNS 10-160Band canisterizing drums into the facility canister. CCTV "if necessary" - 13.0, 14.0Reviewed 6/9/10 JPW

WP 05-WH1718, Rev. 6, CNS 10-160B Trailer Unloading, 2/19/09

Technical procedure. CNS 10-160B cask not yet in use at time of inspection.

WP 05-WH1717, Rev. 8, Cask Unloading Room Shield Door Operation, 6/24/09, 7pp.

Continuous Use Procedure for operating the CUR shield door. Minor updates reflect consolidated DSA/TSR.

WP 05-WH1716, Rev. 4, CNS 10-160B Cask Operation, 6/24/09, 10pp.

Technical Procedure for opening 10-160B cask. Includes cask data sheet. CNS 10-160B cask not yet in use at time of inspection.

WP 05-WH1714, Rev. 3, RH Cask Preparation Station 41-Z-076, 3/18/10, 6pp.

Technical Procedure for preoperational checks of the RH CPS. Pertinent to 10-160B.

WP 05-WH1713, Rev. 9, Facility Cask and Facility Cask Rotating Device, 6/24/09, 13pp.

Technical Procedure for inspection and preoperational checksof RH Facility Cask, FC Rotating Device, and Hydraulic Power Unit. Minor updates reflect consolidated DSA/TSR.

## Documents Received and Reviewed During Inspection

### Document Title

### Subject Matter

WP 05-WH1712, Rev.3, RH-TRU 72-B Cask Operation, 5/20/10, 10 pp.	Technical procedure for opening 72-B Cask. No major changes in 2010.
WP 05-WH1710, Rev. 20, 72-B RH Processing, 6/2/10, 38pp.	Technical Procedure for unloading the 72-B Shipping container and preparing for downloading to the underground. Fully revised, WHE Review added. Also see Section 3.3: CCTV recording
WP 05-WH1709, Rev. 13, Rh-TRU 72-B Trailer Unloading, 5/20/10	Technical Procedure for unloading RH-TRU 72-B from incoming trailer to Cask Transfer Car or storage rack. Npo major changes in 2010.
WP 05-WH1707, Rev. 9, RH-TRU 72-B Trailer Loading, 6/24/09, 14pp.	Technical Procedure for loading RH-TRU 72-B for transport.
WP 05-WH1705, Rev. 8, RH Canister Transfer System, 6/24/09, 12pp.	Technical Procedure detailing preoperational equipment checks prior to RH waste-handling. 72-B or 10-160B. CCTV for canister transfer system (sectoion 2.0)
WP 05-WH1705, Rev. 7, RH Canister Transfer System,2/17/09	Technical Procedure for inspection and preoperational checks of RH handling equipment. Minimal changes to reflect consolidated references (RH/CH DSAs and TSRs) Reviewed 6/18/10 JPW
WP 05-WH1704, Rev. 7, Facility Cask Transfer Car (41-H-003) Operation, 4/17/09	Technical Procedure for Facility Cask Transfer Car inspection and RH waste handling - no change in 2010.
WP 05-WH1701, Rev. 10, Road Cask Transfer Car Operation, 2/20/09	Technical Procedure for inspection and properational check of The 72-B Road Cask Transfer Car - no change in 2010.
WP 05-WH1700, Rev. 7, Horizontal Emplacement and Retrieval Equipment Assembly, 6/24/10, 17pp.	Technical Procedure for setting up the HERE in preparation for RH canister emplacement. Rewritten to highlight TSRs, LCOs, and SACs by LCO/SAC number.
WP 05-WH1105, Rev. 3, Magnesium Oxide Sample Records Management, 4/19/10, 10 pp.	Management Control Procedure for the laboratry verification of MgO reactivity. Example MgO Tracking Spreadsheet and Request for Analysis included as attachments 1 and 2. No major changes in 2010.

**Documents Received and Reviewed During Inspection**

**Document Title**

**Subject Matter**

WP 05-WH1058, Rev. 5, CH Waste Handling Abnormal Operations, 6/2/10, 14pp.

Technical Procedure including instructions for recovering from a torn slip sheet, movement of emplaced waste, returning waste to surface, and emplacement of BRTs. Added noncompliant container response, covering filters on assemblies containing high VOCs, and section on WHE review.

WP 05-WH1025, Rev. 2 CH Downloading and Emplacement, 12/17/01, 19 pp.

Technical Procedure including paper forms for recording CH Downloading and MgO/BRT placement as attachments. Updated to reflect both WWIS/WDS.

WP 05-WH1011, Rev. 37, CH Waste Processing, 3/02/10, 32pp.

Continuous Use procedure for unloading TRUPACT-II or HalfPACT. Contains forms and sign-offs. Edited to reference WDS, and add LCOs. Section 2.5.31 deals with VOCs.

WP 05-WH1010, Rev. 6, Container Overpacking, 12/17/09, 24pp.

Technical Procedure for the overpacking of contaminated or damaged containers in 85-gallon drum, SWB, or TDOP. Contains documentation for procedure. Updated to reference WP 05-1025 CH Waste Downloading and Emplacement, DSA/TSR, and WDS

WP 05-WH.02, Rev. 0, WIPP Waste Handling Operations WDS User's Manual, 12/17/09, 39pp.

Replaces WP 05-WH.01, Rev. 4, WIPP Waste Handling Operations WWIS Users Manual. For use by Waste Handling Technicians and Waste Handling Engineers. Updated to reflect WDS changeover.

WP 04-CO, Rev. 11, Conduct of Operations, 10/01/08

Facility operating practices, including shift routines, communications, inspections, training. Minimal changes to reflect consolidated references (RH/CH DSAs and TSRs) Also document revision control.

WP 02-EC3506, Rev. 5, Environmental Incident Reporting, 2/26/07

Management Control Procedure for reporting releases, including statutory requirement charts and decision flowcharts.

WP 02-EC1001, Rev. 8, Characterization Sampling, Shipping, and Documentation, 6/30/08

Technical procedure for waste characterization field sampling.

### **Documents Received and Reviewed During Inspection**

#### **Document Title**

#### **Subject Matter**

Specification D-0101, Rev. 8, Prepackaged MgO Backfill,  
2/11/09

DOE/WIPP-09-3427, Waste Data System User's Manual, U.S.  
DOE, Rev. 0, 12/2009, 202pp.

Includes analytical methods to ensure reactivity, and Analysis  
Request/Chain of custody forms.

Replaces DOE/CBFO-97-2273, Rev. 15, WIPP Waste  
Information System User's Manual, WWIS Software Version  
6.2, 5/2008. Comprehensive guide for all WWIS users,  
including automated parameters to verify compliance of  
containers and shipments with transportation and emplacement  
requirements.

\* denotes title updated to reflect WDS changeover

### **Documents Received/Generated During Inspection**

LA04 Canister Report, Generated 6/30/2010

LA013 Canister Report, Generated 6/30/2010

LA03 Canister Report, Generated 6/30/2010

BN10287121, Container Report, Generated 6/30/2010

NT070679R Container Report, Generated 6/30/2010

BN10278350 Container Report, Generated 6/30/2010

BN10267854 Container Report, Generated 6/30/2010

InSEI Matrix Requirement WWIS2-REQ-2126 - MgO balance  
calculation

InSEI Matrix Requirement WWIS2-REQ-2127 - MgO balance  
calculation

BN10363651 Container Report, Generated 6/30/2010

BN10218018 Container Report, Generated 6/30/2010

BN10368262 Container Report, Generated 6/30/2010

LAS892993 Container Report, Generated 6/30/2010

AE006 Canister Report, Generated 6/30/2010

ID0209 Canister Report Generated 6/30/2010

Panel 5 Room 4 Daily Report Generated 7/1/2010

Summary of Waste Emplacement Inventory Report, Generated  
7/1/2010

**Documents Received and Reviewed During Inspection**

**Document Title**

**Subject Matter**

Materials Emplaced in WIPP as of June 30, 2010. Ad Hoc query performed by WDS staff, 7/2/2010

**Emplacement Inspection      June 2010      DOE Documents**

**Reviewed      Source**

Reviewed 7/2009 JPW	DOE/WIPP
Reviewed 6/18/10 JPW	DOE/WIPP
Reviewed 6/18/10 JPW	DOE/WIPP

Reviewed

Source

	DOE/WIPP
Reviewed 6/18/10 JPW	
	DOE/WIPP
Reviewed 6/18/10 JPW	
Reviewed 6/18/10 JPW	DOE/WIPP
Reviewed 6/18/2010 JPW	DOE/WIPP
	DOE/WIPP
Reviewed 6/17/10.	
Reviewed 7/2009 JPW	DOE/WIPP
Reviewed 6/9/10 JPW	DOE/WIPP
Reviewed 6/9/10 JPW	DOE/WIPP
Reviewed 6/9/10 JPW	DOE/WIPP

**Employment Inspection      June 2010      DOE Documents**

**Reviewed      Source**

Reviewed 6/9/10 JPW      DOE/WIPP

Reviewed 6/9/10 JPW

Reviewed 6/9/10 JPW

Reviewed 6/9/10 JPW

Reviewed 6/9/10 JPW      DOE/WIPP

Reviewed 7/2009 JPW      DOE/WIPP

Reviewed 6/9/10 JPW      DOE/WIPP

Reviewed 6/9/10 JPW      DOE/WIPP

Reviewed 6/9/10 JPW      DOE/WIPP

Reviewed 6/9/10 JPW      DOE/WIPP

Reviewed

Source

Reviewed 6/9/10 JPW

DOE/WIPP

Reviewed 6/9/10 JPW

DOE/WIPP

Reviewed 6/9/10 JPW

DOE/WIPP

Reviewed 6/9/10 JPW

Reviewed 6/9/10 JPW

DOE/WIPP

**Emplacement Inspection      June 2010      DOE Documents**

**Reviewed      Source**

Reviewed 6/9/10 JPW	DOE/WIPP
Reviewed 6/17/10JPW	DOE/WIPP
Reviewed 6/9/10 JPW	DOE/WIPP
Reviewed 7/2009 JPW	DOE/WIPP
Reviewed 7/2009 JPW	DOE/WIPP

Implementation Inspection

June 2010

DOE  
Documents

Reviewed

Source

Reviewed 6/17/10 JPW

DOE/WIPP

Reviewed 6/18/10 JPW

DOE/WIPP

Employment Inspection

June 2010

DOE  
Documents

Reviewed

Source



**DOCKET NO: A-98-49**  
**Item: II-B3-112**

## **2010 - Monitoring Inspection Report**

**INSPECTION No. EPA-WIPP-6.10-29b**  
**OF THE**  
**WASTE ISOLATION PILOT PLANT**  
**June 29 to July 1, 2010**

**U. S. ENVIRONMENTAL PROTECTION AGENCY**  
**Office of Radiation and Indoor Air**  
**Center for Waste Management and Federal Regulation**  
**1200 Pennsylvania Avenue, NW**  
**Washington, DC 20460**

**September 2010**

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## **1.0 Executive Summary**

The U.S. Environmental Protection Agency (EPA) conducted an inspection of the Department of Energy's (DOE) Waste Isolation Pilot Plant (WIPP) from June 29 to July 1, 2010 as part of our continuing WIPP oversight program. The purpose of this inspection was to verify that DOE continues to adequately monitor ten parameters listed in the Compliance Certification Application (CCA), Volume 1, Section 7.0, in particular Table 7-7 (See Table 1, COB-M2010-1). Attachment A contains the inspection plan and the checklist used by the EPA inspectors, and Attachment B lists documents reviewed by the EPA.

The inspection examined the implementation of monitoring for geomechanical, hydrological, waste activity, drilling related, and subsidence parameters. The EPA inspectors toured locations where measurements are taken, reviewed parameter databases, and reviewed documents and procedures directing these monitoring activities.

The EPA found that DOE continues to effectively implement the monitoring programs at WIPP for all areas reviewed. EPA did not have any findings or concerns. The inspectors also confirmed that the results of DOE monitoring programs are reported annually.

## **2.0 Scope**

The EPA WIPP Compliance Criteria (40 CFR Part 194.42(a)) require DOE to "conduct an analysis of the effects of disposal system parameters on the containment of waste in the disposal system." The results of these analyses were included in the 1996 Compliance Certification Application (CCA), confirmed in the most recent Compliance Recertification Application (CRA), and were used to develop pre-closure and post-closure monitoring requirements.

Volume 1, Section 7.0, of the CCA documented DOE's analysis of monitoring parameters. Table 7-7 of the CCA lists the ten parameters that DOE determined may affect the disposal system. These parameters are grouped into major categories and listed in Table 1. EPA accepted these ten monitoring parameters in the 1998 Certification Decision and confirmed them in the 2006 Recertification Decision.

**Table 1 - Monitored Parameters**

<p><b>Geomechanical Parameters-</b></p> <ul style="list-style-type: none"> <li>-Creep closure,</li> <li>-Extent of deformation,</li> <li>-Initiation of brittle deformation, and</li> <li>-Displacement of deformation features.</li> </ul>	<p><b>Waste Activity Parameter-</b></p> <ul style="list-style-type: none"> <li>-Waste Activity</li> </ul> <p><b>Subsidence Parameter-</b></p> <ul style="list-style-type: none"> <li>-Subsidence measurements</li> </ul>
<p><b>Hydrological Parameters-</b></p> <ul style="list-style-type: none"> <li>-Culebra groundwater composition and</li> <li>-Change in Culebra groundwater flow direction.</li> </ul>	<p><b>Drilling Related Parameters-</b></p> <ul style="list-style-type: none"> <li>-Drilling rate and</li> <li>-The probability of encountering a Castile brine reservoir.</li> </ul>

This inspection was performed under authority of 40 CFR 194.21, which authorizes EPA to verify the continued effectiveness of the parameter monitoring program at WIPP. Inspection activities included an examination of monitoring and sampling equipment both on and off site, and in the underground. EPA also reviewed numerous sampling procedures and measurement techniques and verified implementation of an effective quality assurance program (see the document list in Attachment B of this report).

**3.0 Inspection Team, Observers, and Participants**

The inspection team consisted of three EPA staff. Thomas Kesterson, Julia Marple, and Steve Holmes of the State of New Mexico Environmental Department observed the inspection. Jerry Fox, Chris Timm, and Greg Huddleston observed the opening meeting presentations. Claude Magnuson from DOE headquarters observed the inspection activities.

<b>Inspection Team Member</b>	<b>Position</b>	<b>Agency</b>
Chuck Byrum	Inspection Leader	EPA
Nick Stone	Inspector	EPA
Jonathan Walsh	Inspector	EPA

Numerous DOE staff and contractors participated in the inspection; below is a partial list.

DOE Contractor Participants	
Dan Ferguson	Dave Speed
Mike Gross	Steve Wagner
Rey Carrasco	Stan Patchet
Jennifer Hendrickson	Art Chavez
David Hughes	Mansour Akbarzadeh
Larry Madl	Ben Zimmerly

#### 4.0 Performance of the Inspection

The inspection began on Tuesday, June 29, 2010, with an opening meeting (COB-A2010-S1) where changes in the parameter monitoring programs since the previous inspection were discussed by site staff (COB-M2010-S1 to -S12). On June 30, 2010 the inspection continued with interviews and demonstrations of various aspects of each parameter monitoring area. On July 1, 2010 the EPA inspectors examined the database(s) used to store Delaware Basin parameters and the WIPP Waste Data System (WDS formally WWIS) waste computer database system. The underground, where geomechanical measurements are taken, was also inspected on June 30th. The inspection closeout meeting was held on July 1, 2010 in Carlsbad New Mexico (Sign-in sheet COB-A2010-S1).

EPA inspectors reviewed three fundamental areas to verify continued implementation of the DOE parameter monitoring program during the pre-closure phase: 1) written plans and procedures, 2) quality assurance procedures and records, and 3) results of the monitoring program in the form of raw data, intermediate reports, and final annual reports, if appropriate. The inspection checklist in Attachment A provides details of these inspection activities.

The EPA inspectors reviewed various activities to verify effective procedure implementation. The inspector observed a demonstration of the Waste Data System (WDS) and reviewed the Delaware Basin Drilling Surveillance Program, Groundwater Monitoring Program, and the Geomechanical Monitoring Program.

#### 4.1 Monitoring of Geomechanical Parameters

DOE committed to measure four geomechanical parameters in the CCA: creep closure, extent of deformation, initiation of brittle deformation, and displacement of deformation features. WIPP has four programs that supply information for these four parameters: the

geomechanical monitoring program, the geosciences program, the ground control program, and the rock mechanics program. These programs are documented in the WIPP Geotechnical Engineering Program Plan, WP 07-01 (COB-M2010-E). The results of the geotechnical program are reported in the Geotechnical Analysis Report for July 2008 - June 2009, DOE/WIPP-10-3177, Volumes 1 and 2 (COB-M2010-A1 and -A2).

Geomechanical staff manually measured convergence values in the underground (COB-M2010-Photos 129 to 134) and the inspector examined the results documented in field data forms. After taking the measurements the inspector observed staff inputting these data into the computer database (COB-M2010-S25 to S29). The inspector found that procedures are adequate for proper measurements: procedures are implemented adequately; documents and field data forms are controlled; and data is adequately checked, using check prints when necessary, to assure adequate quality.

#### **4.2 Monitoring of Hydrological Parameters**

DOE committed to measure two hydrological parameters in the CCA: Culebra groundwater composition and changes in the Culebra groundwater flow direction. Related parameters are measured, such as fresh water heads, and documented in the WIPP environmental monitoring program. These programs are documented in the WIPP Groundwater Monitoring Program Plan, WP 02-1 (COB-M2010-C). Results of this program are published in the WIPP Site Environmental Report for 2008, DOE/WIPP 09-2225 (COB-A2010-C). This document describes the groundwater monitoring program and reports results for the previous year.

During the 2010 inspection the EPA inspector requested information about changes in the program since last year. The opening meeting presentation noted that no new wells were drilled since last year's inspection (COB-M2010-S3). The current well monitoring network continues to consist of 47 Culebra, 11 Magenta, 3 dual Culebra/Magenta completions, 1 Dewey Lake, 2 Bell Canyon, and 20 shallow Santa Rosa/Dewey Lake wells. Besides examining the Site Environmental Report for 2008 the inspector examined flow direction maps, well location maps, water level measurements, and water chemistry data (COB-M2010-S12 and -S18) during the 2010 inspection. The inspector verified that the potentiometric map development process has not changed since last year (COB-M2010-AS2) and continues to be adequate for this monitoring requirement. The inspector found the hydrological monitoring program to be adequate.

#### **4.3 Monitoring of Waste Activity Parameters**

DOE committed to monitor the activity of waste emplaced in the CCA. This parameter is part of the extensive database collected for each container shipped to WIPP and is stored in the WIPP Waste Data System (WDS, WWIS is a subset of WDS) (COB-M2010-S02). The WDS is a software system that screens waste container data and provides reports on the Transuranic (TRU) waste sent to WIPP. The requirements for the WDS are discussed in the WIPP Waste

Data System Program and Data Management Plan, WP 08-NT.01 (COB-M2010-H2). DOE yearly reports waste activity information in the Annual Change Report, Table 3 (COB-M2010-P).

WDS/WWIS staff demonstrated that the WDS can receive data and that the WDS can generate needed reports. The inspector obtained copies of the Nuclide Report and WWIS Waste Container Data Reports (COB-M2010-S31 to -S33, and -S12). The inspectors verified that DOE tracks and annually reports the waste activity at WIPP.

#### **4.4 Monitoring of Drilling Related Parameters**

DOE committed to measure two drilling related parameters in the CCA: the drilling rate and the probability of encountering a Castile brine reservoir. These parameters are measured as part of the Delaware Basin Drilling Surveillance Plan, WP 02-PC.02 (COB-M2010-G). This surveillance program measures and records many parameters related to drilling activities around the WIPP site. The results of the surveillance program are documented annually in the Delaware Basin Monitoring Annual Report, DOE/WIPP 09-2308 (COB-M2010-M).

The inspectors reviewed the drilling surveillance database, examined drilling rate changes, and permitted and active injection wells while interviewing staff. The inspectors reviewed Texas and New Mexico well database listings and maps of oil and gas wells around WIPP (COB-M2010-S34 to S37). The inspectors verified that DOE tracks and reports the drilling rate and the number of Castile brine encounters near WIPP and reports results annually.

#### **4.5 Monitoring of Subsidence Parameters**

DOE committed to measure subsidence at the WIPP site. This parameter is documented as part of the WIPP Underground and Surface Surveying Program, WP 09-ES.01 (COB-M2010-B). DOE performs subsidence surveys at the site annually during pre-closure operations. The results of this program are reported annually in the WIPP Subsidence Monument Leveling Survey – 2009, DOE/WIPP 10-2293 (COB-M2010-F).

Subsidence staff demonstrated the Office Procedure (Section 2 of WP 09-ES4001: COB-M2010-N) to the EPA inspector which describes the steps taken to process raw field survey data and to calculate final surface elevations published in their annual report (COB-M2010-S24). DOE demonstrated that the subsidence parameter is measured and reported yearly.

#### **5.0 Summary of finding, observation, concerns, and recommendations.**

Based on program documents, interviews, and field demonstrations during the inspection, EPA concludes that the monitoring program covers the ten monitoring parameters required by

EPA's 1998 Certification Decision. This inspection determined that monitoring sample collection, and sample/data analysis procedures were complete and appropriate; that staff were adequately trained and implemented the procedures adequately; and that appropriate quality assurance measures are applied. EPA continues to find that DOE has maintained adequate parameter monitoring during the past year and has the procedures and requirements in place to sustain their program into the next year. EPA has no findings or concerns.

## **Attachment A: Inspection Plan and Checklist**

### **WIPP Monitoring Inspection Plan 40 CFR 194.42 for the year 2010**

#### **Purpose:**

Verify that the Department of Energy (DOE) can demonstrate that the Waste Isolation Pilot Plant (WIPP) is monitoring the parameter commitments made in the documentation to support the EPA's certification decision, in particular CCA, Volume 1, Section 7.2, Table 7.7 and Appendix MON. This inspection is conducted under the authority of 40 CFR 194, Section 21.

This inspection is part of EPA's continued oversight to ensure that WIPP can, in fact, monitor the performance of significant parameters of the disposal system.

#### **Scope:**

Inspection activities will include an examination of monitoring and sampling equipment both on and off site, and in the underground. A review of sampling procedures and measurement techniques may be conducted. Quality assurance procedures and documentation for each of these activities will also be reviewed.

#### **Focal Areas of This Year's Inspection:**

- What has changed in the monitoring program this past year?
- What documentation and procedures have changes?
- Update the monitoring program and results for the past year.
- Have any monitoring parameters changed, and have any action limits been achieved?

**Location:** This inspection will be held at the WIPP facility location twenty-six miles south east of Carlsbad, New Mexico and the surrounding vicinity as needed.

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

**Expected Date:** Week of June 28, 2010.

**Documents For Review:** Just like past years provide latest versions of any documentation and/or procedures related to your monitoring program as soon as possible.

## 2010 Monitor Inspection Checklist

Monitoring Commitments - June 2010		Geomechanical Parameter	
#	Question	Comment (Objective Evidence) SAT = Satisfactory	Result
1	<p>Does DOE demonstrate that they have implemented plans/programs/procedures to measure -</p> <p>a) Creep Closure;</p> <p>b) Extent of Deformation;</p> <p>c) Initiation of Brittle Deformation and</p> <p>d) Displacement of Deformation Features</p> <p>during the pre-closure phase of operations as specified in the CCA part of the geomechanical monitoring system?</p> <p>(CCA, Volume 1, Table 7-7; App MON, Table MON-1) 40 CFR 194.42 (c) and (e)</p>	<p>WIPP Geotechnical Engineering Program Plan, (WP 07-01: COB-M2010-E), documents plans to measure, report, and the QA requirements related to these activities. Section 3.0 of WP 07-01 documents the geomechanical monitoring program and records the activities associated with this program. Section 4.0 of WP 07-01 documents the quality assurance requirements for these activities.</p> <p>WIPP site staff discussed changes to the program during the past year (COB-M2010-S8). Staff demonstrated the adequacy of the program and that the program produces satisfactory results (COB-M2010-S25 to S29). They showed samples of remote measurements, sample plots, and staff preformed underground manual measurements of convergence (Annual Inspection Photos 129 to 134, COB-M2010-Photos). The inspector toured the underground and reviewed the computer system and databases used to collect and process recorded data.</p> <p>Results of this program are documented annually in the Geotechnical Analysis Report for each reporting period (DOE/WIPP 09-3177; COB-M2010-A1 and -A2).</p> <p>The inspector verified that the geomechanical parameters continued to be appropriately monitored by DOE.</p>	SAT
2	<p>Does DOE demonstrate that they have implemented an effective quality assurance program for item 1 above? 40 CFR 194.22</p>	<p>During this inspection the EPA inspector evaluated the quality assurance program and found it to be adequate.</p>	SAT
3	<p>Does DOE demonstrate that the results of the geotechnical investigations are reported annually? (CCA, App. MON, Page MON-10)</p>	<p>WP 07-01, Section 3.2 requires that analysis be performed annually and results are published in the annual geotechnical analysis report (DOE/WIPP 09-3177).</p>	SAT

#	Question	Comment (Objective Evidence)	Result
1	<p>Does DOE demonstrate that they have implemented plans/programs/procedures to measure -</p> <p>a) Culebra Groundwater Composition;</p> <p>b) Change in Culebra Groundwater Flow Direction</p> <p>during the pre-closure phase of operations as specified in the CCA part of WIPP's groundwater monitoring plan?</p> <p>(CCA, Volume 1, Table 7-7; App MON, Table MON-1) 40 CFR 194.42 (c) and (e)</p>	<p>WIPP Groundwater Monitoring Program Plan, WP 02-1 (COB-M2010-C) documents plans to measure, document, report, and the QA requirements for these activities. WP 02-1 records the activities associated with this program (Section 4), methods used (Sections 4 and 5), data analysis (Section 6) and annual reporting requirements (Section 7.2.2). Section 10.0 of WP 02-1 documents quality assurance requirements.</p> <p>WIPP site staff discussed changes to the program over the past year (COB-M2010-S3). Staff explained computer code contouring techniques used to develop maps to find flow direction in the Culebra and compared results to previous the method (COB-M2010-AS2,-S12,-S18). Results are documented annually in the WIPP Annual Site Environmental Report for 2008 (DOE/WIPP 09-2225: COB-A2010-C) Figure 6.12, and Appendix F.</p>	SAT
2	<p>Does DOE demonstrate that they have implemented an effective quality assurance program for item 1 above? (CCA, App MON, Page MON-22) 40 CFR 194.22</p>	<p>During this inspection the EPA inspector evaluated the quality assurance program and found it to be adequate.</p>	SAT
3	<p>Does DOE demonstrate that the results of the groundwater monitoring program are reported annually? (CCA, App. MON, Page MON-22)</p>	<p>Results are published annually in the WIPP Annual Site Environmental Report for 2007 (DOE/WIPP 09-2225: COB-A2010-C) Section 6.2.</p>	SAT

#	Monitoring Commitment - June 2010	Waste Activity Parameter	Result
#	Question	Comment (Objective Evidence)	Result
1	<p>Does DOE demonstrate that they have implemented plans/programs/procedures to measure -</p> <p>a) Waste Activity?</p> <p>(CCA, Volume 1, Table 7-7; App MON, Table MON-1) 40 CFR 194.42 (c) and (e)</p>	<p>The Waste Data System replaced the WWIS. WIPP Waste Data System Program and Data Management Plan (WP 08-NT.01: COB-M2010-H2, Section 6.0) describes how the WDS is used to measure and store waste activity information. WWIS User's manual (DOE/WIPP 09-3427: COB-M2010-O2) documents procedures used to gather, store, and process waste activity information. Table 3 of the Annual Change Report 2008/2010, (COB-M2010-P) updates waste activity information annually.</p> <p>WDS (WWIS) staff discussed changes during the past year (COB-A2010-S11,-S12) and demonstrated the use of the WDS and generated numerous waste related reports (COB-E2010-S12). Such as the Nuclide Report (COB-M2010-S31 to -S33) which summaries isotopes emplaced at WIPP. These activities demonstrate that waste activity is adequately monitored.</p>	SAT
2	<p>Does DOE demonstrate that they have implemented an effective quality assurance program for item 1? (CCA, App WAP, page C-30) 40 CFR 194.22</p>	<p>During this inspection the EPA inspector evaluated the quality assurance program and found it to be adequate.</p>	SAT
3	<p>Does DOE demonstrate that the results of the waste activity parameters are reported annually? (CCA Volume, Section 7.2.4 Reporting)</p>	<p>WP 08-NT.01 Section 6.0, page 14 "Regulatory Reporting" documents that results are reported annually and the Annual Change Report (COB-M2010-P) verifies that results are published annually.</p>	SAT

#	Question	Comment (Objective Evidence)	Result
1	<p>Does DOE demonstrate that they have implemented plans/programs/procedures to measure -</p> <p>a) Drilling Rate; and</p> <p>b) Probability of Encountering a Castile Brine Reservoir?</p> <p>(CCA, Volume 1, Table 7-7; App MON, Table MON-1) 40 CFR 194.42 (c) and (e)</p>	<p>The Delaware Basin Drilling Surveillance Plan, (WP 02-PC.02: COB-M2010-G), documents the program to measure, record, report, and the QA requirements for these activities. Section 7.0 of WP 02-PC.02 documents quality assurance requirements. The Delaware Basin Drilling Database Upgrade Process (WP 02-EC3002: COB-M2010-I) documents the process used to update databases with information from various commercial and state sources. Drilling rate and Castile brine encounter data are reported annually in the Delaware Basin Monitoring Annual Report (DOE/WIPP 08-2308; COB-M2010-M) in Sections 2.5 and 2.6.</p> <p>WIPP staff discussed changes during the past year (COB-M2010-S2). They reported on brine encounters, drilling rate calculations, and provided maps of drilling activities near WIPP (COB-M2010-S34 to -S36). They also provide the latest listing of the New Mexico and Texas well databases (COB-M2010-S37). They demonstrated that DOE is adequately monitoring these parameters through the Delaware Basin monitoring program.</p>	SAT
2	<p>Does DOE demonstrate that they have implemented an effective quality assurance program for item 1 above? (CCA, App DMP, page DMP-9) 40 CFR 194.22</p>	<p>During this inspection the EPA inspector evaluated the quality assurance program and found it to be adequate.</p>	SAT
3	<p>Does DOE demonstrate that the results of the drilling related parameters are reported annually? (CCA Volume, Section 7.2.4 Reporting; App DMP, page DMP-9)</p>	<p>WP 02-PC.02 Section 6.0 documents that results are reported annually. DOE/WIPP 08-2308 verifies that these parameters are updated and reported annually.</p>	SAT

	Monitoring Commitments - June 2010	Subsidence Measurements	
#	Question	Comment (Objective Evidence)	Result
1	<p>Does DOE demonstrate that they have implemented plans/programs/procedures to measure -</p> <p>a) Subsidence measurements?</p> <p>(CCA, Volume 1, Table 7-7; App MON, Table MON-1) 40 CFR 194.42 (c) and (e)</p>	<p>WIPP Underground and Surface Surveying Program (WP 09-ES.01: COB-M2010-B), documents the program used to measure, record, document, report (Section 3.3), and the QA requirements (Section 4.0) for these activities. Subsidence Survey Data Acquisition Report technical procedure (WP 09-ES4001: COB-M2010-N) documents the process for acquiring subsidence data (Section 1.0); updating the database and publishing the annual subsidence report (Section 2.0). The WIPP Subsidence Monument Leveling Survey - 2010 (DOE/WIPP 10-2293: COB-M2010-F) documents that DOE reports this parameter annually and the results of this program (Section 5.0).</p> <p>Site staff discussed changes to the program during the past year (COB-M2010-S7). Site staff demonstrated that procedures are adequately implemented when they showed how the raw field survey data collected is reduced to useful survey data and how annual results are calculated (COB-M2010-S24). They demonstrated that subsidence is adequately monitored at the site.</p>	SAT
2	<p>Does DOE demonstrate that they have implemented an effective quality assurance program for item 1? 40 CFR 194.22</p>	<p>During this inspection the EPA inspector evaluated the quality assurance program and found it to be adequate.</p>	SAT
3	<p>Does DOE demonstrate that the results of the subsidence measurements are reported annually? (CCA Volume, Section 7.2.4 Reporting)</p>	<p>WP 09-ES.01 Section 3.3.2 documents that results are reported annually. DOE/WIPP 09-2293 demonstrates that results are published annually.</p>	SAT

**Attachment B: Documents Reviewed**

**Documents Received and Reviewed During Inspection 194.42 Monitoring Inspection July 2010 DOE Documents**

<b>ID#</b>	<b>Document Title</b>	<b>Subject Matter</b>	<b>Source</b>
COB-M2010-1	Table 7-7 from Chapter 7 of the CCA; Pre-closure and Post-closure Monitored Parameters.	Parameters committed by DOE to be measured.	DOE, CCA, Chapter 7, Table 7-7.
COB-M2010-2a, -2b	CCA, Appendix MON and Attachment MONPAR. In particular Table MON-I, pages MON-10, MON-29	Both documents discuss the pre- and post-closure parameters selected to be monitored at the WIPP site.	DOE, CCA documentation.
COB-M2010-A1, -A2	Geotechnical Analysis Report for July 2008 - June 2009, DOE/WIPP 10-3177, Volumes One and Two (Support Data), 04/10	This report is an example of the annual results of the geomechanical monitoring program.	DOE/WIPP
COB-M2010-B	WIPP Underground and Surface Surveying Program WP 09-ES.01 Revision 5, 01/14/09	Demonstrates DOE's implementation of subsidence monitoring.	DOE/WIPP
COB-A2010-C	WIPP Annual Site Environmental Report for 2008, DOE-WIPP 09-2225, 0909	Results of the environmental monitoring program, in particular radiological measurements.	DOE/WIPP
COB-M2010-C	WIPP Groundwater Monitoring Program Plan WP 02-1 Revision 9, 06/29/09	Demonstrates DOE's implementation of hydrological monitoring.	DOE/WIPP
COB-M2010-D	Strategic Plan for Groundwater Monitoring at the Waste Isolation Pilot Plant DOE/WIPP-03-3230, February 2003	Describes the objectives and goals of the groundwater monitoring program.	DOE/WIPP
COB-M2010-E	WIPP Geotechnical Engineering Program Plan WP 07-1, Revision 6, 03/19/08	Demonstrates DOE's implementation of geomechanical monitoring.	DOE/WIPP
COB-M2010-F	WIPP Subsidence Monument Leveling Survey - 2009 DOE/WIPP 10-2293, December 2009	This report is an example of the results of the subsidence monitoring program.	DOE/WIPP
COB-M2010-G	Delaware Basin Drilling Surveillance Plan WP 02-PC.02, Revision 3, 05/21/10	Documents DOE's drilling monitoring plan.	DOE/WIPP
COB-M2010-H2	WIPP Waste Information System Program and Data Management Plan, WP 08-NT.01, Revision 21, 04/14/10	Demonstrates DOE's implementation of waste activity monitoring.	DOE/WIPP
COB-M2010-I	Delaware Basin Drilling Database Upgrade Process - Management Control Procedure WP 02-EC3002, Revision 3, 03/02/09	Documents how state and commercial well data is entered.	DOE/WIPP
COB-M2010-J2	Electric Submersible Pump Monitoring System Installation and Operation - Technical Procedure WP 02-EM1002, Revision 3, 07/03/08	Installation and operation instructions for submersible pump.	DOE/WIPP
COB-M2010-K2	Final Sample and Serial Sample Collection - Technical Procedure WP 02-EM1006, Revision 6, 06/30/08	Describes water sample collection.	DOE/WIPP

**Documents Received and Reviewed During Inspection 19442 Monitoring Inspection July 2010 DOE Documents**

<b>ID#</b>	<b>Document Title</b>	<b>Subject Matter</b>	<b>Source</b>
COB-M2010-L	Groundwater Serial Sample Analysis - Technical Procedure WP 02-EM1005, Revision 5, 08/11/08	Instruction for taking serial samples.	DOE/WIPP
COB-A2010-E	WTS Quality Assurance Program Description, WP 13-1, Revision 29, 05/10/10	Demonstrates DOE's implementation of quality assurance program.	DOE/WIPP
COB-M2010-M	Delaware Basin Monitoring Annual Report DOE/WIPP 09-2308, Sept. 2009	Demonstrates DOE's implementation of drilling surveillance program.	DOE/WIPP
COB-M2010-N	Subsidence Survey Data Acquisition Report, Technical Procedure WP 09-ES4001 Revision 1, 11/05/07	Procedure documents methods used for acquiring data, creating database, and generating report on subsidence monuments.	DOE/WIPP
COB-M2009-O	WIPP Waste Information System User's Manual, DOE/CBFO 97-2273, Rev 15, WWIS Version 6.2, 05/08	User's manual for computerized data management system used by WIPP to gather, store, and process information, such as waste activity (Section 9), pertaining to CH and RH TRU waste for disposal	DOE/CBFO
COB-M2010-O2	WIPP Waste Data Sytem, User's Manual. DOE/WIPP-09-3427, Version 0. December 2009	Web based software to gather, store, and process information on CH and RH waste user's manual.	DOE/WIPP
COB-M2010-P	Annual Change Report 2008/2009, DOE/WIPP 08-3317, 11/13/09	Table 3, Waste Emplacement Summary Report, of the annual change report updates waste activity yearly.	DOE/WIPP
COB-A2008-G	WIPP CH Waste Documented Safety Analysis, DOE/WIPP-95-2065 Revision 10, 11/06	Describes various CH safety analysis done at WIPP.	DOE/WIPP
COB-A2008-H	WIPP RH Waste Documented Safety Analysis, DOE/WIPP-06-3174 Revision 0, 03/06	Describes various RH safety analysis done at WIPP.	DOE/WIPP
COB-A2010-I	WIPP Environmental Monitoring Plan, DOE/WIPP-99-2194 Revision 4, 11/08	Describes environmental monitoring plan.	DOE/WIPP
COB-M2010-Q	Cation and Anion Analysis, Technical Procedure, WP 02-EM1007, Revision 1, 9/19/03	Documents steps to analysis cation and anions of water samples.	DOE/WIPP
COB-M2010-R	Groundwater Level Measurement, Technical Procedure, WP 02-EM1014, Revision 5, 10/22/09	Steps to do borehole water level measurements.	DOE/WIPP
COB-M2010-S	Pressure Density Survey, Technical Procedure, WP 02-EM1021 Revision 7, 12/01/09	Used to determine average density of fluid in borehole.	DOE/WIPP
COB-M2010-T	Administrative Processes For Environmental Monitoring and Hydrology Programs, Management Control Procedure, WP 02-EM3001 Revision 11, 11/12/08	Guidance to maintain QA of monitoring sampling.	DOE/WIPP

**Documents Received and Reviewed During Inspection 194-42 Monitoring Inspection July 2010 DOE Documents**

<b>ID#</b>	<b>Document Title</b>	<b>Subject Matter</b>	<b>Source</b>
COB-M2010-U	WIPP Core Storage, Handling, and Distribution, Management Control Procedure, WP 07-EU3504, Revision 3, 03/19/08	Defines methods for storage, handling and distribution of cores at the core storage facility.	DOE/WIPP
COB-M2010-V	Geologic and Fracture Mapping Of Facility Horizon Drifts, Technical Procedure, WP 07-EU1001, Revision 2, 03/19/08	Define methods used for geologic and fracture mapping at WIPP.	DOE/WIPP
COB-M2010-W	Manually Acquired Geomechanical Instrumentation Data, Technical Procedure, WP 07-EU1301, Revision 6, 03/19/08	Procedure provides instructions on how to manually collect data from convergence points, multi-position borehole extensometers, piezometer, strain gages, earth pressure cells, and rockbolt loadcells.	DOE/WIPP
COB-M2010-X	Geomechanical Instrument Data Processing, Technical Procedure, WP 07-EU1303, Revision 3, 06/18/08	Describes methods used for processing manually and remotely acquired geomechanical instrument data at WIPP.	DOE/WIPP
COB-M2010-Y	Installing Convergence Reference Points, WP 07-EU1304, Technical Procedure, Revision 5, 10/19/09	Details steps needed to layout and install convergence points in new drifts or to replace point at WIPP.	DOE/WIPP
COB-M2010-Z	Installing Multiposition Borehole Rod Extensometers, Technical Procedure, WP 07-EU1305, Revision 2, 09/01/05	Details steps needed to install multi-position borehole extensometers.	DOE/WIPP
COB-M2010-AB	Installing Wire Convergence Meters, Technical Procedure, WP 07-EU1307, Revision 3, 09/08/05	Steps needed to install remote and manually read convergence meters.	DOE/WIPP
COB-A2010-S	Radiochemistry Quality Assurance Plan, WP 12-RL.01, Revision 16, 02/18/09	Describes the management policy and organizational structure, and QA requirement for radiochemical analysis.	DOE/WIPP
COB-A2010-T	Sample Tracking and Custody, Technical Procedure, WP 12-RL1001, Revision 9, 02/11/09	Instructions for documenting receipt and storage of samples in WIPP laboratory.	DOE/WIPP
COB-A2010-U	Alpha Spectroscopy System Operation, Technical Procedure, WP 12-RL1002, Revision 9, 10/05/09	Direction for calibrating and operating the Canberra Alpha Spectroscopy System as interfaced with the Genie 2000.	DOE/WIPP
COB-A2010-V	Establishing Gross Alpha and Gross Beta Self-Absorption Curves, Technical Procedure, WP 12-RL1008, Revision 7, 11/17/09	Instructions for preparing samples of known activity and known weight to generate self-absorption curves for each of the gas proportional counters.	DOE/WIPP
COB-A2010-W	Gross Alpha and Gross Beta Activity in Air Filter, Soil, Water, Sludge, and Biota, Technical Procedure, WP 12-RL1009, Revision 4, 10/22/07	Guidance for rapidly performing a variety of screening matrices for both high and low activity radionuclides.	DOE/WIPP

<u>ID#</u>	<u>Document Title</u>	<u>Subject Matter</u>	<u>Source</u>
COB-A2010-X	Sample Preparation, Technical Procedure, WP 12-RL1010, Revision 9, 11/05/08	Directions for preparing samples to determine activity of radionuclides.	DOE/WIPP
COB-A2010-Z	Elemental Separation - Strontium 90, Technical Procedure, WP 12-RL1011, Revision 11, 09/13/07	Directions for performing elemental separation of strontium from samples.	DOE/WIPP
COB-A2010-AA	Elemental Separation - Transuranic Products, Technical Procedure, WP 12-RL1012, Revision 8, 10/31/06	Describes method for elemental separation and purification of actinide isotopes in samples.	DOE/WIPP
COB-A2010-AB	Sample Mounting, Technical Procedure, WP 12-RL1013, Revision 7, 09/12/07	Directions for electrodeposition sample mounting and neodymium fluoride coprecipitation sample mounting of actinides in preparation for alpha spectroscopy counting.	DOE/WIPP
COB-A2010-AC	Routine Laboratory Operations, Technical Procedure, WP 12-RL1014, Revision 6, 11/05/08	Instructions for routine laboratory operation.	DOE/WIPP
COB-A2010-AD	Canberra Alpha Analyst System Operation, Technical Procedure, WP 12-RL1015, Revision 15, 10/23/09	Directions for calibrating and operating the Canberra Alpha Analyst 32-chamber alpha spectroscopy system.	DOE/WIPP
COB-A2010-AE	Operation of the Oxford Series 5 Gas Proportional Counter, Technical Procedure, WP 12-RL1016, Revision 10, 09/23/09	Guidance for the operation of the Oxford Series 5 Gas Proportional Counter.	DOE/WIPP
COB-A2010-AF	Plutonium-241 Analysis, Technical Procedure, WP 12-RL1200, Revision 0, 11/26/03	Provides method for the analysis of Pu 241 in any matrix after preparation of the sample in accordance with WP 12-RL1012 and WP 12-RL1015.	DOE/WIPP
COB-A2010-AG	Radiochemistry Laboratory Waste Management, Technical Procedure, WP 12-RL1400, Revision 9, 04/02/09	Instructions for handling, management, and disposal of laboratory waste.	DOE/WIPP
COB-A2008-AH	Radiochemistry Laboratory Data Validation and Verification, Technical Procedure, WP 12-RL3002, Revision 7, 11/17/09	Instructions for performing radiochemistry analytical data verification and validation by radiochemistry staff.	DOE/WIPP
COB-A2010-AI	Data Reduction and Reporting, Technical Procedure, WP 12-RL3003, Revision 7, 02/02/09	Instructions for processing laboratory data from the time of sample receipt to the reporting of final results.	DOE/WIPP
COB-M2010-BM	Installing Wire Extensometers, Technical Procedure, 07-EU1308, Rev 2, 10/19/09	WP Steps to install remotely and manually read wire extensometers.	DOE/WIPP
COB-M2010-AA	Installing Rock Bolt Load Cells, Technical Procedure, 07-EU1306, Revision 4, 10/19/09	WP Steps to install rock bolt load cells.	DOE/WIPP

**Documents Received and Reviewed During Inspection 19442 Monitoring Inspection July 2010 DOE Documents**

<b>ID#</b>	<b>Document Title</b>	<b>Subject Matter</b>	<b>Source</b>
COB-A2010-AJ	Control of Radioactive Standards, Technical Procedure, 12-RL1550, Revision 11, 10/22/09	WP Instructions for labeling, maintaining inventory, dilution of standards, completing standard logbook for new standards received, expired standards, depleted standards, and recertification or standards.	DOE/WIPP
COB-M2010-AC	WIPP Panel Closure Survey Plan, WP 09-ES.02, Rev 1, 03/29/07	Panel closure procedure to ensure that WIPP complies with state permit requirements.	DOE/WIPP
COB-M2010-AS	Construction of the Potentiometric Surface Map for the Annual Site Environmental Report and Shallow Surface Water, Rev 1, WP 02-EM1025, 07/18/08	Instructions for constructing potentiometric maps. *OLD PROCEDURE* Replaced by COB-M2010-AS2	DOE/WIPP
COB-M2010-BC	Geologic Core Logging, Technical Procedure, WP 07-EU1002, Rev 0, 03/07/03	Defines methods used for geologic rock core logging.	DOE/WIPP
COB-M2010-BD	Integrated Sample Control Plan, WP 02-EM.02, Rev 2, 12/12/05	Requirements for control of samples taken at WIPP.	DOE/WIPP
COB-M2010-BE	Water quality Monitoring Using the YSI Model 3560 Monitoring System, Technical Procedure, WP 02-EM1015, Rev 0. 03/31/97	Instructions to operate YSI 3560 for monitoring groundwater quality.	DOE/WIPP
COB-M2010-BF	EM & H Field Work, Management Control Procedure, WP 02-EM1024, Rev 3, 04/06/10	Environmental monitoring and hydrology field team duties are described for the surveillance and documentation of well activities.	DOE/WIPP
COB-M2010-BG	Water Level Data Handling and Reporting, Management Control Procedure, WP 02-EM1026, Rev 2, 07/06/09	Provides instruction on the handling of acquired groundwater data.	DOE/WIPP
COB-M2010-H3	Waste Stream Profile Form Review and Approval Program, WP 08-NT.03, Rev 11, 12/10/09	Requirements and Criteria for review and approval of WSPF.	DOE/WIPP
COB-M2010-H4	WIPP Waste Information System (WWIS-WDS) Configuration Management and Software QA Program, WP 08-NT.04, Rev 15, 12/17/09	QA requirements for development, procurement, maintenance, use, and retirement of WWIS hardware and software.	DOE/WIPP
COB-M2010-H5	WWIS-WDS Software Verification and Validation Plan, WP 08-NT.05, Rev 7, 05/25/10	Describes V and V task for WWIS.	DOE/WIPP
COB-M2010-H6	WWIS-WDS software Requirements Specification, WP 08-NT.06, Rev 6, 12/14/09	Details functional requirements approved for WWIS.	DOE/WIPP
COB-M2010-H7	WWIS-WDS Software Design Description, WP 08-NT.07, Rev 6, 12/14/09	Summary of Software Implementation Description that is maintained.	DOE/WIPP

**Documents Received and Reviewed During Inspection 194.42 Monitoring Inspection July 2010 DOE Documents**

<b>ID#</b>	<b>Document Title</b>	<b>Subject Matter</b>	<b>Source</b>
COB-M2010-H8	TRU Waste Receipt, Management Control Procedure, 08-NT3020, Rev 18, 06/09/09	Instructions for receipt of TRU waste at WIPP.	DOE/WIPP
COB-M2010-AS2	Preparation of Culebra Potentiometric Surface Contour Maps, Specific Procedure, SP 9-9, Revision 0, 10/26/09	Description of methods used to determine groundwater flow rate and flow direction	DOE/WIPP
<b>Documents Received During Inspection</b>			
COB-M2010-S1	2010 Inspection Agenda and sign-in sheets for opening and close-out meetings.		DOE/WIPP
COB-M2010-S2 and S26	Presentation slides from the inspection opening meeting for drilling, hydrology, geotechnical, WWIS topics, etc		DOE/WIPP
COB-M2010-S26	Geomechanical field measurement data sheets, input sheets, plots, and check prints.	Geomechanical manual convergence measurements at 18613/W170-S3080, remote extensometer measurements at 51X-GE-00405 (at W520-S2915), Joint Meter (S1950-E0300), Rock Bolt Load Cell (E140-S2916), and Earth Pressure Cells (Waste Shaft-Level 866').	DOE/WIPP
COB-M2010-S24	Subsidence calculations	DIGILEV 10.94d field data, raw conversion data, and adjusted elevations from files L0136510	DOE/WIPP
COB-M2010-S34	DBM-55-2010, 2010 map of oil and gas wells in the nine township area.		DOE/WIPP
COB-M2010-S35 and S36	Map of oil and gas wells within one mile of WIPP boundary		DOE/WIPP
COB-M2010-S37 and S38	List of oil and gas wells in New Mexico (-S37b) and Texas (-S39a)		DOE/WIPP
COB-M2010-S38 and S39	07/01/2010 Nuclide Reports from the WDS (WWIS replacement).		DOE/WIPP
COB-M2010-S39	WDS-Summary if Waste Emplacement Inventory Report for 07/01/2010.		DOE/WIPP
COB-M2010-S39 and S40	Materials Emplaced in WIPP as of June 30, 2010		DOE/WIPP
COB-M2010-Photo R6-82 and S40	2010 Annual Inspection Photographs	Photographs of underground manual convergence measurements.	DOE/WIPP
COB-M2010-S18	RH Container ID Number and Shipment Summary Report		DOE/WIPP
COB-A2010-S14 and S15	Wet Filter Efficiency		DOE/WIPP

ID#	Document Title	Subject Matter	Source
COB-A2010-S16	WIPP Offsite Potential Release Calculations		DOE/WIPP
COB-A2010-S17	A1, A2, A3 Psychometric and % Tip Occlusion		DOE/WIPP
COB-M2010-S18	Culebra Freshwater Head Modeling and Flow Direction		DOE/WIPP
COB-M2010-S19	Basic Data Report for Well Plugging and Abandonment Activities for Fiscal Year 2009, DOE/WIPP-10-3326, June 2010		DOE/WIPP
COB-A2010-S20	Representativeness of Sampling by the Shrouded Probes at Station A in the Exhaust Shaft at WIPP, June 2010, by M. Gross		DOE/WIPP
COB-A2010-S21	Probe Occlusion at Station A-1, June 2007 to June 2010, comparison to A-2 and A-3 and photos of probes.		DOE/WIPP
COB-A2010-S22	Humidity, temperature and pressure at Station A weather station, air flow at CAM-151, DP and flow at FAS011, FAS0021, FAS0022.		DOE/WIPP
COB-E2010-S23	Panel 5 Room 4 Status Report		DOE/WIPP
COB-M2010-S25	Panel 6, Room 2 Geologic Log		DOE/WIPP
COB-M2010-S27	E-140 Fracture Mapping Photos		DOE/WIPP
COB-M2010-S28	East-140 Roof Fracture Plots and Panel 6, Room 1 and Panel 5, Room 1 Spall Maps		DOE/WIPP
COB-M2010-S29	Panel 6 Room 1 Stratigraphy		DOE/WIPP
COB-A2010-S30	NESHAPs Air Filter Laboratory Report, 5 Parts		DOE/WIPP