

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

OCT -7 2009

OFFICE OF AIR AND RADIATION

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

Dear Dr. Moody:

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During the week of July 14, 2009, U.S. Environmental Protection Agency (EPA) staff performed inspections of the Waste Isolation Pilot Plant's (WIPP) waste management and storage operations, emplacement, and monitoring programs (Docket: A-98-49, II-B3-111). These inspections were performed under the authorities of 40 CFR 194.21 and 40 CFR Part 191, Subpart A.

As a result of these inspections, the Agency 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. However, to ensure proper performance of the Station A shrouded probes, DOE must maintain frequent cleaning as conditions dictate and in consultation with EPA staff. The Agency also recommends that the HOTSPOT code be properly referenced in site documents. 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. The Agency also confirms that waste is presently emplaced adequately, although EPA recommends that documentation errors be corrected as noted in the emplacement inspection report.

Copies of these inspection reports are enclosed with this letter and will be placed in the EPA's public dockets. If you have any questions regarding the enclosed reports, please contact Chuck Byrum at (214) 665-7555.

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Jongthan Edwards, Director Radiation Protection Division

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Enclosures

- 1. 2009 Subpart A Inspection Report
- 2. 2009 Monitoring Inspection Report
- 3. 2009 Emplacement Report
- 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-B3-111

2009 - Subpart A Inspection Report

INSPECTION No. EPA-WIPP-7.09-14a OF THE WASTE ISOLATION PILOT PLANT July 14 to July 16, 2009

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 2009

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Attachment A	Inspection Plan and Checklist

Attachment B Documents Reviewed

#### **1.0 Executive Summary**

The U.S. Environmental Protection Agency (EPA) conducted an annual inspection of the Department of Energy's (DOE) Waste Isolation Pilot Plant (WIPP) July 14 to July 16, 2009, 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. Once again this year, EPA reexamined DOE's continued moisture problems and salt loading at the Station A sampling location in the air exhaust shaft. However, consistent weekly shrouded probe pulls and replacement with clean probes appear to mitigate this concern. Since DOE started weekly probe pulls, none of the probes of record—A2 or A3—have failed inspection. DOE has committed to weekly probe pulls and cleaning until a reasonable solution is developed at Station A. EPA inspectors examined WIPP's emission control devices and methods used to estimate radiation doses to the public. In addition, the Agency inspected radiation sample locations and equipment, sample processing, and reviewed the computational methods used to estimate dose. This year EPA was able to observe filter changes, probe pulls, and probe replacement at Station A and filter changes at Station B.

EPA found that DOE has continued to improve its air monitoring program during the past year, and responded aggressively and appropriately to Station A issues. Moisture and salt loading continues to challenge the Station A sampling location. The Agency verified that DOE continues to maintain a weekly probe cleaning frequency and continued to work toward a solution to this persistent problem. 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 had one observation, discussed in Section 5 below, as a result of this inspection.

### 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 focused on the impact of moisture and salt loading on the sampling location at Station A and the effectiveness of the RADOS continuous air monitors (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 four EPA staff. Thomas Kesterson of the New Mexico Environmental Department (NMED) observed the inspection.

Inspection Team Member	Position	Affiliation
Chuck Byrum	Inspection Leader	EPA
Nick Stone	Inspector	EPA
Tom Peake	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
Bob Wade	Art Chavez
Joel Siegel	Glenn Galloway
Randy Elmore	Larry Madl
Mansour Akbarzadeh	Dave Speed
Linda Frank-Supka	Tom Goff
Dave Kump	Ed Flynn
Dan Ferguson	David Squires
Jennifer Hendrickson	Stewart Jones

#### 4.0 Performance of the Inspection

The inspection began on Tuesday, July 14, 2009, with an opening meeting that included presentations on changes in air monitoring and WIPP laboratory activities (COB-M2008-I4 and - I6). Site staff discussed changes in the program since the last EPA inspection in July 2008. These presentations included the following changes to the program:

- Validation of a new procedure that may be able to predict shrouded probe performance, salt loading, and direct when probes should be cleaned/changed. Until this technique is proven, if possible, probe pull frequency will be maintained on a weekly schedule.

- New transport lines have been received. They should be installed by the end of summer 2009.

- The new probe back flush system, used to flush water from the surface to clean salt accumulation from the probes in-situ, development continues. The testing phase is expected to take up to twelve or more months and the backup A-1 probe will be used for this testing.

- Procedures for both effluent monitoring and laboratory analysis have had minor changes.

- The underground RADOS CAMs have had a number of recent changes (COB-A2009-S24 and COB-A2009-S34). A few are listed:

-The filter changing mechanism was slowed down to prevent jamming.

-Filter jamming was added as a malfunction alarm.

-A database for alarms only was added.

-A Master/Slave connection was added to prevent CAMs in one location from changing filters at the same time.

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 probe pulls at Stations A, examined the weekly shrouded probe changes, reviewed the underground RADOS CAMs, and followed the steps taken to process samples at the radiochemistry laboratory.

#### 4.2 RADOS CAMs - Filter Transport Problems

One of the major advantages of the RADOS continuous air monitors (CAMs) at the air exhaust drift of the operating waste emplacement panel(s) (presently panel five in the underground) is that when a filter potentially becomes covered with salt dust due to underground operations the RADOS CAM has a mechanism to automatically change the filter to a clean filter. During the inspection Tom Kesterson (NMED) reported, followed up by an email COB-A2009-S25 in Attachment B, that periodically the filter transport "truck" mechanism freezes or jams and causes the RADOS to malfunction requiring technician intervention. (Figure 1: RADOS Filter Transport Mechanism, Alpha Spectrum Screen, and RADOS Operation Screen)



As noted in Section 4.0 above, see COB-A2009-S24, DOE/WIPP has attempted to mitigate this issue by slowing down the automatic change mechanism, requiring an alarm-that will be noted at the Central Monitoring Room (CMR) requiring more effective response, and logging an alarms only database to capture these events. Also to assure continued air sampling in the underground, the two RADOS CAMs are now connected in a MASTER/SLAVE configuration. This configuration means that both RADOS CAMs are not allowed to change filters simultaneously. In addition, improved staff training, change filter cleaning, and filter replacement procedures have been implemented. These changes should mitigate this "freezing" issue and ensure continuous sample of air from the operating waste panel (see COB-M2009-S34).

Continuous sampling at this location is very important. This is the first stage in the defense in depth at WIPP. The RADOS CAM notifies the CMR of an alarm and forces the mine air exhaust to go into HEPA filtration in the event of a potential radioactive release at the air exhaust drift. Therefore, continuous operation of the RADOS is paramount in the earliest detection of potential releases.

One other change to the RADOS CAMs discussed by site staff that may be significant is the ability to examine all aspects of RADOS CAM operation remotely at a computer terminal on the surface. DOE/WIPP is in the process of installing the ability to examine the RADOS operations and spectrum computer screens remotely via the WIPP network system. This will give emergency response staff the ability to get a "first look" at a potential release and to estimate the potential source term of a release without having to go underground to examine the RADOS CAMs or reterive the sample filters.

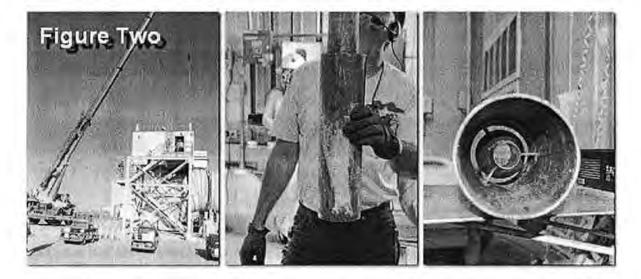
#### 4.3 Continued Moisture Problems and Salt Buildup at Station A

Salt buildup on shrouded probes at Station A continues to be a challenging problem. As noted in last year's Subpart A annual inspection report, the shrouded probes of record—Stations A2 and A3—failed in July 2008. Since that time DOE/WIPP has been replacing the probes weekly with clean probes. This appears to have operationally solved the periodic issue of excessive salt build up on the probes. DOE has committed to continue weekly probe pulls and replacing them with clean probes. EPA concurs with this approach. (Figure 2: Crane Step Up for Probe Pull, Shrouded Probe A-1 as Found, and Probe A-1 Waistline and Inlet)

DOE/WIPP is also examining other solutions to the salt buildup problems. As noted in Section 4.0 above, DOE/WIPP is working on testing a back flush system to clean probes in place in real-time. They have also ordered new probes that may not become salt loaded as easily. Once again, the WIPP staff has continued to be aggressive and proactive in dealing with Station A issues.

EPA suggested during the inspection that DOE/WIPP explore the use of Station D as a potential replacement to Station A. EPA was able to make this suggestion because of recent changes to the RADOS CAMs. Station D is located at the bottom of the WIPP air exhaust shaft and presently samples only the air flow pathway from the waste emplacement mine drifts.

Leading up to this inspection, the Agency had two major objections to using Station D to replace or augment Station A. First, all air exhaust flow pathways are required to be sampled to ensure representative samples are captured from the facilities air exhaust. Presently, Station D only samples one of three pathways that culminate at the base of the WIPP air exhaust shaft – the waste receiving area at the base of the waste handling shaft air flow, the waste emplacement panel air flow, and the experimental air flow pathways. Second, how would sample filters be collected at Station D if a potential release event did occur so that the source term could be determined? As experienced during the drum puncture event last year, the mine is evacuated and reentry is strictly controlled during an accident. Therefore, accurately characterizing a potential release source term may be difficult if Station D was the primary sampling location with the current measurement configuration.



As a result, EPA believes two things need to take place before Station D can be used as the sampling location of record for Subpart A. First, DOE/WIPP needs to work out how to sample all of the potential release pathways at Station D and to qualify the sampler(s) according to the requirements of EPA's shrouded probe approval letter (COB-A2006-3). Secondly, the potential use of RADOS CAMs at Station D must be evaluated, since this allows the notification of the CMR in the event of a captured release, switching automatically to HEPA filtration, and the added ability of integrating the RADOS CAMs remotely to get a direct first estimate of the release source term. Therefore, EPA's second major concern may be adequately solved.

### 4.4 Other Inspection Activities

EPA observed filter changes and probe exchanges at Stations A and verified appropriate implementation of site procedures. The EPA inspector also examined the underground RADOS CAM in Panel 5. The Agency also reviewed the accidental release calculations performed using the computer code HOTSPOT. These calculations are performed in the event of a potential

radioactive release. They include source term estimation, present weather conditions, and an inceasingly accurate estimate of the potential release source term (from first estimate to actual laboratory measurement). HOTSPOT calculations estimate the potential dose to the public and are used to guide response decision making at the site.

EPA also toured the WIPP radiochemistry laboratory. Lab staff demonstrated the various steps taken to process all kinds of samples; sample filters, soil, and samples of opportunity (i.e, road kill) (COB-A2009-L0 to -L10). The staff clearly showed the documentation produced and the elaborate effort taken to ensure that the chain of custody is maintained at all times. (Figure 3: Fish Sample Digestion, Column Separation and Alpha Spectrum Steps) EPA found all activities consistent with established procedures.



#### 5.0 Summary of Findings

EPA concludes that DOE adequately implements a radiological monitoring and sampling program for WIPP disposal operations and appropriately performs calculations to estimate potential releases to the public. Tom Kesterson, as noted in Section 4.2 above, documented that the filter transport mechanism of the RADOS CAM may periodically jam and the CAM may malfunction as a result. It appears to EPA that the steps taken by the site noted in Section 4.2 may have mitigated the problem. However, because of the importance of this sampling system, the Agency believes that DOE/WIPP should assure that these issues have been fully resolved. EPA had one observation – the DOE/WIPP document, "Implementation Plan for 40 CFR 191, Subpart A, DOE/WIPP 00-3121 pages 4 and 12 (COB-A2009-A) states that the computer code GXQ is used for accidental release dose calculations. This code has been replaced by the computer code HOTSPOT. This needs to be corrected.

### Attachment A: Inspection Plan and Checklist

## WIPP Inspection Plan - 40 CFR 191, Subpart A for the year 2009

#### **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 <u>GUIDANCE FOR THE</u> <u>IMPLEMENTATION OF EPA's STANDARDS FOR MANAGEMENT AND STORAGE OF</u> <u>TRANSURANIC WASTE (40 CFR Part 191, Subpart A) at the WASTE ISOLATION PILOT</u> <u>PLANT</u> (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 July 13, 2009.

**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.

#	CHECKLIST QUESTION	July 2009	40 CFR 191.03 Subpart A	_
-	har and the second s		Sat. = Satisfactory NA = Not Applicable	
1	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.	Sat.
	Scope of activities considered in determining compliance	400-4-	M. La Properties	1
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 2007 (DOE/WIPP 08-2225:COB-A2009-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.	Sat.
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? [NOTE: DOE/WIPP 00-3121 reference GXQ as the accidental release computer code, it should be HOTSPOT.]	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-A2009-A), documents the plan to show how this requirement is examined QAPP for Sampling Emissions (WP 12- RC.01:COB-A2009-F), documents the QA requirements for the sampling of emissions. Annual NESHAP report (COB-A2009-Ja,-Jb,-Jc) demonstrates that normal operations are examined. CH Waste Documented Safety Analysis (DOE/WIPP 95-2065:COB-A2009-G) and RH Waste DSA (DOE/WIPP 06-3174:COB-A2009-H) documents DOE's review of potential accidents at WIPP. Procedure Emergency Radiological Control Response (WP 12-HP4000:COB-A2009-K) and Consequence Assessment Dose Projection (WP 12- ER4916:COB-A2009-R) documents radiological emergency response activities.	Sat.
	Media considered in determining compliance			1.1
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 08-2225 pages xxii, Dose From Air Emission, and 4.1 and DOE/WIPP 00- 3121 Section 2.1 documents that the air pathway is the only credible release pathway.	Sat.
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 08-2225, 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-A2009-Ja,-Jb,-Jc) demonstrates that these exposure mechanisms are included.	Sat.

#	CHECKLIST QUESTION	July 2009	40 CFR 191.03 Subpart A	Faul
	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-A2009-A) explains DOE's plan to fulfill this requirement. Annual Site Environmental Report (DOE/WIPP 08-2225:COB-A2009-C) Chapter 4 demonstrates that DOE implements groundwater surveillance, biota sampling and off-site air monitoring programs.	Sat.
	Boundary of compliance		La un	1-1-1
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.	Sat.
	Location of maximally exposed individual			
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 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 Section 1.3.2 and the Annual NESHAP report (COB-A2009-Ja,-Jb,-Jc) demonstrate that DOE considers doses at appropriate offsite points, such as Smith Ranch located 7.5 km away in the WNW sector.	Sat.
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 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, Section 1.3.2 and the Annual NESHAP report (COB-A2009-Jb, page 5) demonstrate that DOE considers doses at appropriate offsite points, such as Smith Ranch located 7.5 km away in the NW sector of WIPP.	Sat.
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-A2009-C Section 1.3.2 and the Annual NESHAP report (COB-A2009-Jb, page 5) demonstrate that DOE considers doses at appropriate offsite points, such as Smith Ranch located 7.5 km away in the WNW sector of WIPP.	Sat.

#	CHECKLIST QUESTION	July 2009	40 CFR 191.03 Subpart A	Sec.
- 1	Personal parameters	EPA Citation	Comments (Objective Evidence)	Result
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-A2009-A) describes the "reference man" parameters as described in the CAP88-PC computer code. Annual NESHAP report (COB-A2009-Jc, page 14) demonstrates that "reference man" is used to evaluate radiation dose.	Sat.
	<u>Calculation of dose - Modeling -</u> <u>Parameters</u>	416101	State New State	1
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- A2009-Jc, page 3) demonstrates that DOE appropriately fulfills this requirement.	Sat.
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. Annual NESHAP report (COB-A2009-Ja,-Jb,-Jc) demonstrates that all release points are evaluated.	Sat.
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.	Sat
14	Does DOE use CAP88-PC to perform dose calculations?	EPA 402-R-97-001 Section 2.7.2, Page 9	DOE/WIPP 08-2225, page xxii 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.	Sat.
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-A2009-R) states that HOTSPOT is used for accidental release calculations. COB-A2009-S11 shows an example of dose projection using the HOTSPOT code. HOTSPOT is a reasonable choice for these calculations.	Sat.
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.	Sat:

#	CHECKLIST QUESTION	July 2009	40 CFR 191.03 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-A2009-A) documents that DOE is using conservative assumptions. Annual NESHAP report (COB-A2009-Ja,-Jb,-Jc) demonstrates that DOE is using conservative simplifying assumptions in dose calculations.	Sat.
18	<ul> <li>Are DOE's exposure parameters as conservative as the following?</li> <li>For a maximally exposed individual located at a residence, assumed continuous exposure (24 hours per day).</li> <li>For a maximally exposed individual located at a business, office, or school, assume exposure of 8 hours per day.</li> <li>Assume individuals consume 2 liters per day of drinking water from an underground source of drinking water.</li> <li>Assume inhalation rate for air to be 9x10<sup>5</sup> cm<sup>3</sup>/hr.</li> <li>Assume ingestion rate of meat to be 85 kg/yr.</li> <li>Assume ingestion of milk to be 112 liter/yr.</li> <li>Assume ingestion rate of produce to be 176 kg/yr</li> </ul>	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-A2009-A) states that DOE is using these values as exposure parameters. The Annual NESHAP report (COB-A2009-Jc, page 15) demonstrates that DOE is using these parameters in dose calculations	Sat

#	CHECKLIST QUESTION	CKLIST QUESTION July 2009 <u>40 CFR 191.03 Subpart A</u>	40 CFR 191.03 Subpart A	
	Emissions and Environmental Monitoring - Air	EPA Citation	Comments (Objective Evidence)	Result
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-A2009-F) Section 4.1 documents that this requirement is appropriately implemented at WIPP.	Sar.
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- A2009-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.	Sat.

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#.	CHECKLIST QUESTION	July 2009	40 CFR 191.03 Subpart A	1
	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-A2009-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-A2009-Ja,-Jb,-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-A2009-1) Section 5.2.1 and DOE/WIPP 00- 3121:COB-A2009-A Section 3.3.2 states that sample sites will acquire representative samples.	Sat.
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-A2009-F) Section 1.0 documents that DOE used these principles.	Sat
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.	Sat.

#	CHECKLIST QUESTION	July 2009	40 CFR 191.03 Subpart A	-
	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-A2009-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-A2009-A) Section 4.0 states that DOE implements NQA requirements which are equivalent to Method 114.	Sat.
27	<ul> <li>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:</li> <li>(i) DOE shows that methods in Section 3.1(1) or (2) are impractical;</li> <li>(ii) DOE shows the alternative procedure will not significantly underestimate the emissions;</li> <li>(iii) DOE shows the alternative procedure is fully documented; and</li> <li>(iv) DOE has received prior approval from EPA.</li> </ul>	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.	Sat.
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- A2009-B) discusses release points measured confirm compliance with this requirement.	Sat.

#.	CHECKLIST QUESTION	July 2009	40 CFR 191.03 Subpart A	1
	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- A2009-G) and RH (DOE/WIPP- 06-3174:COB-A2009-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-A2009-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 5.2.4 of the WIPP Environmental Monitoring Plan (DOE/WPP 99-2194:COB-A2009- 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.	Sat

#	CHECKLIST QUESTION	July 2009	40 CFR 191.03 Subpart A	
0	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

#	CHECKLIST QUESTION	July 2009	40 CFR 191.03 Subpart A	
	Environmental Measurements (Page 2)	EPA Citation	Comments (Objective Evidence)	Result
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
	Emissions and Environmental Monitoring - Other Media			1 m
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- A2009-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-A2009-C) Chapter 4 demonstrates that DOE's environmental program monitors other release points and critical receptor locations.	Sat.

#	CHECKLIST QUESTION	July 2009	40 CFR 191.03 Subpart A	
12	Compliance Reporting	EPA Citation	Comments (Objective Evidence)	Result
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-A2009-A) documents that DOE's plans to report results yearly. The Annual NESHAP (COB-A2009- Ja,-Jb,-Jc) report demonstrates that DOE reports results yearly and "fall below regulatory limits".	Sat.
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.	Sat,
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.	Sat.
	Notification of construction or modification.			
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, page 6, demonstrates that DOE reports planned construction and modification during the year.	Sat.
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-A2009-A documents that DOE's plans to report results yearly. The Annual NESHAP Report, page 6, demonstrates that DOE reports planned construction and modification during the year.	Sat.
	Record Keeping			
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.	Sat.

## Attachment B

Table of Documents Reviewed

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	Documents Reviewed and Copies Received During Inspection	191.03 Subpart A Inspection July 2009	DOE Documents	
ID#	Document Title	Subject Matter	Source	
	and the second			
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-A2009-1	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		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	DOE OSTI Document website.	
COB-A2009-A	Implementation Plan for 40 CFR 191, Subpart A DOE/WIPP 00-3121, Revision 2, June 2001	Outlines program at WIPP to show compliance with 40 CFR. 191, Subpart A. [References GXQ not HOTSPOT as the code used to calculate accidental release dose.]	DOE/WIPP	
COB-A2009-B	Periodic Confirmatory Measurement Protocol for the Waste Isolation Pilot Plant, DOE/WIPP 97-2238, Revision 8, August 2008	이번 것 같은 것은 것 같은 것 같은 것은 것을 알았는 것 같은 것 같	DOE/WIPP	
COB-A2009-C	Waste Isolation Pilot Plant Annual Site Environmental Report for 2007, DOE/WIPP 08-2225, 0908	Results of the environmental monitoring program, in particular radiological measurements.	DOE/WIPP	
COB-A2009-Cb	Waste Isolation Pilot Plant Annual Site Environmental Report for 2008, DOE/WIPP 09-2225, 0909,*DRAFT*	Results of the environmental monitoring program, in particular radiological measurements.	DOE/WIPP	
COB-A2009-Cc	Waste Isolation Pilot Plant Annual Site Environmental Report for 2008, DOE/WIPP 09-2225, 0909,*DRAFT*,	Compares the chemistry of groundwater constituents from 1995 to 2008 in WQSP monitor wells at WIPP. Shows no groundwater contamination to date.	DOE/WIPP	
COB-A2009-D2	Airborne Radioactivity - Technical Procedure WP 12-HP3500, Revision 16, 12/04/08	Procedure provides instructions for analyzing, reporting, and trending results of air samples. Corrected reference error.	DOE/WIPP	

	Documents Reviewed and Copies Received During Inspection	191.03 Subpart A Inspection July 2009	DOE Documents
ID#	Document Title	Subject Matter	Source
(			D OF HURD
COB-A2009-E	WIPP Quality Assurance Program Description WP 13-1, Revision 27, 04/23/08		DOE/WIPP
COB-A2009-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 8, 12/18/07	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.
СОВ-А2009-Н	WIPP RH Waste Documented Safety Analysis, Section 3.4.1.4. DOE/WIPP-06-3174 Rev 0, 03/06		DOE/WIPP.
COB-A2009-I	Periodic Confirmatory Sampling, Reporting, and Compliance Activities, Management Control Procedure, WP 12-RE3004, Rev 2, 07/24/07	성의 사람이 집에 가지 않는 것이 같이 많이 없다. 그는 것이 많이	DOE/WIPP
COB-A2009-Ja,-Jb	- Annual Periodic Confirmatory Measurement Compliance	Documents annual results.	DOE/WIPP
lc	Report for the DOE WIPP and CAP88-PC Version 2.00 Output File for CY-2008 WIPP Annual NESHAP Report. 06/18/09		
COB-A2009-K	Emergency Radiological Control Responses, Emergency and Alarm Response Procedure, WP 12-HP4000, Revision 5, 08/08/05	Section 3.0 documents actions to be taken in the event of and "ON-SITE AIRBORNE RADIOACTIVITY EVENT".	DOE/WIPP
COB-A2009-AK	Fixed Air Monitoring Equipment, Technical Procedure WP 12-HP1305, Revision 7, 11/05/08	Instructions for the operation of fixed air monitoring equipment. Attachment 2 documents flow rates and alarm set points.	DOE/WIPP
COB-A2009-AL	Canberra Alpha Sentry Continuous Air Monitor, Technical Procedure WP 12-HP1306, Revision 6, 04/15/09		DOE/WIPP
COB-A2009-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-A2009-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

	Documents Reviewed and Copies Received During Inspection	191.03 Subpart A Inspection July 2009	DOE Documents
ID#	Document Title	Subject Matter	Source
COB-A2009-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-A2009-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-A2009-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-A2009-M	Calibration of Station C Flow Instrumentation, Maintenance Procedure IC041097, Revision 2	Instructions for calibration of Station C flow instrumentation.	DOE/WIPP
COB-A2009-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-A2009-O	Station B Mass Flow Measurement System, Loop 41A001W2001, Maintenance Procedure, IC413000,	Documents calibration of Station B mass flow measurement system.	DOE/WIPP
СОВ-А2009-Р	Revision 5 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-A2009-Q	WIPP ALARA Program Manual, WP 12-2, Revision 14, 03/04/09	Describes organization and responsibilities of ALARA committee and coordinator.	DOE/WIPP
COB-A2009-R	Consequence Assessment Dose Projection, Technical Procedure WP 12-ER4916, Revision 12, 10/29/08	Documents procedure for estimating the potential dose consequence from a release or suspected release of radioactive material.	DOE/WIPP
COB-A2009-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-A2009-AQ	Radiological Engineering Off-site Air Sampling - Technical Procedure WP 12-RE3002, Revision 1, 3/21/05	Instructions for collecting and documenting Low-Volume filter retrieval in response to a potential release.	DOE/WIPP

	Documents Reviewed and Copies Received	191.03 Subpart A Inspection July 2009	DOE Documents
	During Inspection		
ID#	Document Title	Subject Matter	Source
COB-A2009-AR	Radiological Release of Potentially Contaminated Materials, Waste, and Items - Management Control Procedure, WP 12-RE3003, Revision 3, 06/20/05	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		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		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, Muyshondt, McFarland, July 1994	Compares performance of ANSI isokinetic with shrouded probes at DOE faculties.	DOE/WIPP
COB-A2006-ZH	Generic Air Sampler Probe Test, by Glissmeyer and Ligotke, 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

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	Documents Reviewed and Copies Received During Inspection	191.03 Subpart A Inspection July 2009	DOE Documents	
ID#	Document Title	Subject Matter	Source	
COB-A2006-ZJ	Changing Methodology For Measuring Airborne Radioactivity Discharges From Nuclear Facilities, by Glissmeyer and Ligotke, May 1995, PNL-SA-25532	Tests show single-point sampling (shrouded) probes are superior to ANSI style multiple-point probes.	DOE/WIPP	
COB-A2009-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-A2009-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-A2009-U	Alpha Spectroscopy System Operation, Technical Procedure, WP 12-RL1002, Revision 8, 11/05/08	Direction for calibrating and operating the Canberra Alpha Spectroscopy System as interfaced with the Genie 2000.	DOE/WIPP	
COB-A2009-V	Establishing Gross Alpha and Gross Beta Self-Absorption Curves, Technical Procedure, WP 12-R1008, Revision 6, 11/29/07	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-A2009-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-A2009-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-A2009-Z		Directions for performing elemental separation of strontium from samples.	DOE/WIPP	
COB-A2009-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-A2009-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-A2009-AC	Routine Laboratory Operations, Technical Procedure, WP 12-RL1014, Revision 6, 11/05/08	Instructions for routine laboratory operation.	DOE/WIPP	
COB-A2009-AD	Canberra Alpha Analyst System Operation, Technical Procedure, WP 12-RL1015, Revision 14, 11/05/08	Directions for calibrating and operating the Canberra Alpha Analyst 32-chamber alpha spectroscopy system.	DOE/WIPP	

	Documents Reviewed and Copies Received During Inspection	191.03 Subpart A Inspection July 2009	DOE Document
ID#	Document Title	Subject Matter	Source
COB-A2009-AE	Operation of the Oxford Series 5 Gas Proportional Counter, Technical Procedure, WP 12-RL1016, Revision 9, 02/02/09	Guidance for the operation of the Oxford Series 5 Gas Proportional Counter.	DOE/WIPP
COB-A2009-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-A2009-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
СОВ-А2009-АН	Radiochemistry Laboratory Data Validation and Verification, Technical Procedure, WP 12-RL3002, Revision 6, 02/02/09	Instructions for performing radiochemistry analytical data verification and validation by radiochemistry staff.	DOE/WIPP
COB-A2009-AI	Data Reduction and Reporting, Technical Procedure, WP	Instructions for processing laboratory data from the time of sample receipt to the reporting of final results.	DOE/WIPP
COB-A2009-AS	Property Material Release Evaluation Form, EA12 RE3003- 1-0, Rev 1, 09/26/05		DOE/WIPP
COB-A2009-AT		Provides steps for environmental monitor personnel to collect and document results.	DOE/WIPP
COB-A2009-AU	WIPP Radiation Safety Manual, WP12-5, Rev 10, 05/22/06	States radiological control policy and practices.	DOE/WIPP
COB-A2009-AW	Abnormal Radiological Conditions, WP12-HP2001, Rev 3, 08/23/06	Instructions for radiological control technicians when responding to abnormal conditions.	DOE/WIPP
COB-A2009-AX	Radiological Control Administration, WP12-HP3000, Rev 12, 12/11/08	Instructions for performing radiological control.	DOE/WIPP
COB-A2009-AY		Instructions for controlling radioactive items	DOE/WIPP
COB-A2009-AZ	Radiation Exposure Control, WP12-HP3300, Rev 2, 08/17/05	Guidance for keeping radiation exposure ALARA.	DOE/WIPP
COB-A2009-BA	Contamination Control, WP12-HP3400, Rev 8, 02/20/09	Guidance for keeping engineering and administrative controls.	DOE/WIPP

	Documents Reviewed and Copies Received During Inspection	191.03 Subpart A Inspection July 2009	DOE Documents
ID#		Subject Matter	Source
COB-A2009-AJ	Control of Radioactive Standards, Technical Procedure, WP 12-RL1550, Revision 10, 12/09/08	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-M2009-ZZ	Compliance Monitoring Implementation Plan for 40 CFR 194.14(b), Assurance Requirement, DOE/WIPP 99-3119, Rev 5, 12/07	Outlines monitoring activities at WIPP to demonstrate compliance with 40 CFR 191 and 40 CFR 194.	DOE/WIPP
	Documents Received During Inspection		
COB-M2008-II and	- Presentation slides from the opening meeting.		DOE/WIPP
110			
COB-M2008-S1a,	2009 EPA annual inspection agenda, opening and closeout		DOE/WIPP
S1b	sign-in sheets.		
COB-A2009-S10	WIPP Laboratory Count Room MeV Chart		DOE/WIPP
COB-A2009-S11	WP 12-ER4916 Attachment 1, Dose Projection Sheet	Results of accidental dose projection using the HOTSPOT code. Print and dose direction map.	DOE/WIPP
COB-A2009-S14	WP 12-RE3004 Attachment 1, Composite Samples Worksheet	Worksheet used to calculate annual NESHAPs dose estimate.	DOE/WIPP
COB-A2009-S16	RADOS -31 CAM sensitivity values.		DOE/WIPP
COB-A2009-S17	State of New Mexico May 2007 to June 2008 Station A		DOE/WIPP
	sampling and laboratory results report.		
COB-A2009-S18	State of New Mexico July 2008 to December 2008 Station		DOE/WIPP
12 Mar 1	A sampling and laboratory results report.		
COB-A2009-S19 to	Stations A, B, and C 2008 spreadsheets showing filter		DOE/WIPP
S21	changes and flow rates.		
COB-A2009-S22	WP 12 HP1305 Attachment 1, NESHAPs Particulate Air		
and the second	Filter Sample Form for A33 on 07/07/09		
COB-A2009-S23	Station A, A1, A2, and A3, psychometric, air moisture		DOE/WIPP
1	load, and percent occlusion of probe inlets.		
COB-A2009-S24	Changes to RADOS, Ram-31 CAMs		DOE/WIPP

	Documents Reviewed and Copies Received During Inspection	191.03 Subpart A Inspection July 2009	DOE Documents
ID#	Document Title	Subject Matter	Source
COB-A2009-S25	2009/07/20 email from State of New Mexico, Tom Kesterson, about a problem with the automatic filter changes on the RADOS CAMs.	The arm, the "truck", that carries used filters from the head to storage cylinder #2 freezes along its path of travel. This caused the CAM to malfunction and may inhibit sampling	DOE/WIPP
COB-A2009-S27	2008 Composite Worksheet	for up to 1 ½ hours. Used to calculate yearly NESHAPs activity in Ci/Yr for Stations A, B, and C.	DOE/WIPP
COB-A2009-S28	2008 Precipitation and Temperature Data	Used in NESHAPs CAP88-PC calculations.	DOE/WIPP
COB-A2009-S29	2008 Station A CAP88-PC Input Data	Used to determine CAP88-PC input activities in Bq.	DOE/WIPP
COB-A2009-S30	2008 Station B and C CAP88-PC Input Data	Used to determine CAP88-PC input activities in Bq.	DOE/WIPP
COB-A2009-S31a	Station A 2008 Daily Filter Sample List	Records filter installation and removal data and time, flow rates, air volumes, etc.	DOE/WIPP
COB-A2009-S31b	Station A 2008 Daily Filter Sample List-missing page	Records filter installation and removal data and time, flow rates, air volumes, etc.	DOE/WIPP
COB-A2009-S32	Station B 2008 Weekly FilterSample List	Records filter installation and removal data and time, flow rates, air volumes, etc.	DOE/WIPP
COB-A2009-S33	Station C 2008 Weekly Filter Sample List	Records filter installation and removal data and time, flow rates, air volumes, etc.	DOE/WIPP
COB-A2009-S34	WIPP Site email from David Squires describing steps taken to solve jamming of filters in RADOS Cams.		DOE/WIPP
COB-A2009-L0	Laboratory flowchart of the steps taken to process samples, the Sample Life Cycle.		· DOE/WIPP
COB-A2009-P2	2009-07-14_09 Annual Inspection00001.jpg to -00039.jpg	and a second	DOE/WIPP
COB-A2009-P3	2009-07-14_09 Annual Inspection00044.jpg to -00052.jpg		DOE/WIPP
COB-A2009-P4	2009-07-14_09 Annual Inspection00053.jpg to -00058.jpg		DOE/WIPP
COB-A2009-P5		Station C air sampling equipment.	DOE/WIPP
COB-A2009-P6	2009-07-14_09 Annual Inspection00064.jpg to -00072.jpg	occlusion.	DOE/WIPP
COB-A2009-P7	2009-07-14_09 Annual Inspection00073.jpg to -00075.jpg		DOE/WIPP
COB-A2009-P8	2009-07-15_09 Annual Inspection00093.jpg to -000104.jpg	Air exhaust of waste emplacement panel RADOS CAM photos.	DOE/WIPP

	Documents Reviewed and Copies Received During Inspection	191.03 Subpart A Inspection July 2009	DOE Documents
ID#	Document Title	Subject Matter	Source
COB-A2009-P9	2009-07-16_09 Annual Inspection000196.jpg to - 000212.jpg	Laboratory sample processing photos.	DOE/WIPP
COB-A2009-L1	Sample Tracking Log sheet	Radiochemistry sample tracking logbook items are listed in Section 1.14 of WP 12-RL1001 (COB-A2009-T).	DOE/WIPP
COB-A2009-L2	Internal Chain of Custody (ICOC)	ICOC items are listed in Section 1.2 WP 12-RL1001 (COB-A2009-T).	DOE/WIPP
COB-A2009-L3	Sample Preparation Log	Sample preparation logbook is discussed in WP 12-RL1010 (COB-A2009-X).	DOE/WIPP
COB-A2009-L4	Sample Count Log	Discussed in the introduction of WP 12-RL1015 (COB- A2009-AD).	DOE/WIPP
COB-A2009-L5a	Monthly Background	COB-A2009-L5a, -L5b, -L5c, and -L6 are discussed in WP 12-RL1002 (COB-A2009-U) and WP 12-RL1015.	DOE/WIPP
COB-A2009-L5b	Monthly Primes		DOE/WIPP
COB-A2009-L5c	Daily Pulser		DOE/WIPP
COB-A2009-L6	Source		DOE/WIPP
COB-A2009-L7a	Instrument Printout	Sample alpha spectrometry report.	DOE/WIPP
COB-A2009-L7b	Calculation Spreadsheet	Sample alpha spectrometry calculations.	DOE/WIPP
COB-A2009-L7c	Control Chart	Sample control chart - Reagent blank net counts.	DOE/WIPP
COB-A2009-L8a	Sample Result Summary	Sample radiochemistry results summary.	DOE/WIPP
COB-A2009-L8b	QA Sample Summary	Reagent laboratory control sample summary.	DOE/WIPP
COB-A2009-L8c	Case Narrative	Summarizes measurement taken and procedures used.	DOE/WIPP
COB-A2009-L9a	GAB Report Part I	COB-A2009-L9a and -L9b are discussed in WP 12-RL3002 (COB-A2009-AH).	DOE/WIPP
COB-A2009-L9b	GAB Report Part II		DOE/WIPP
COB-A2009-L10	WIPP Radiochemsitry Laboratory Processing Steps		DOE/WIPP

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## DOCKET NO: A-98-49 Item: II-B3-111

## **2009 - Monitoring Inspection Report**

INSPECTION No. EPA-WIPP-7.09-14b OF THE WASTE ISOLATION PILOT PLANT July 14 to July 16, 2009

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 2009

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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 July 14 to July 16, 2009, 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-M2009-1). Attachment A contains the inspection plan and the checklist used by the EPA inspector, 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.

EPA found that DOE has effectively implemented 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 2004 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 - Monitor	ed Parameters
Geomechanical Parameters-	Waste Activity Parameter-
-Creep closure,	-Waste Activity
-Extent of deformation,	
-Initiation of brittle deformation, and	Subsidence Parameter-
-Displacement of deformation features.	-Subsidence measurements
Hydrological Parameters-	Drilling Related Parameters-
-Culebra groundwater composition and	-Drilling rate and
-Change in Culebra groundwater flow	-The probability of encountering a
direction.	Castile brine reservoir.

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 four EPA staff. Thomas Kesterson of the State of New Mexico Environmental Department observed the inspection.

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

<b>DOE/Contractor Participants</b>	
Dan Ferguson	Dave Speed
Joel Siegel	Dave Kump
Rey Carrasco	Stan Patchet
John VandeKraats	Art Chavez
David Hughes	Mansour Akbarzadeh
Larry Madl	Ben Zimmerly

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

### 4.0 Performance of the Inspection

The inspection began on Tuesday, July 14, 2009, with an opening meeting (COB-A2009-S1a, -S1b) where changes in the parameter monitoring programs since the previous inspection were discussed by site staff (COB-M2009-II to -I10). On July 15, 2009, the inspection continued with interviews and demonstrations of various aspects of each parameter monitoring area. On July 16, 2009, EPA inspectors examined the database(s) used to store Delaware Basin parameters and the WIPP Waste Information System (WWIS) waste computer database system. The underground, where geomechanical measurements are taken, was also inspected on July 15, 2009. The inspection closeout meeting was held on July 16, 2009, in Carlsbad New Mexico (Sign-in sheet COB-A2009-S1a).

The Agency 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.

EPA also reviewed various activities to verify effective procedure implementation. The inspector observed a demonstration of the WWIS 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

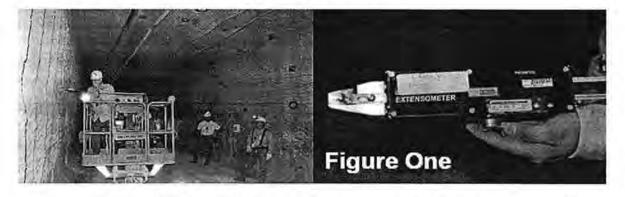
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(Table 2). WIPP has four programs that supply information for these four parameters: the geomechanical monitoring program, the geosciences program, the ground control program, and the rock mechanics program. These programs are documented in the WIPP Geotechnical Engineering Program Plan, WP 07-01 (COB-M2009-E). The results of the geotechnical program are reported in the Geotechnical Analysis Report for July 2007 - June 2008, DOE/WIPP-09-3177, Volumes 1 and 2 (COB-M2009-A1 and -A2).

Monitor Parameters	Confirmed by Measuring	Related Procedure(s) WP 07-EU1301
creep closure and stresses	convergence measurements borehole extensometers	WP 07-EU1301
	borenoic extensioneters	WP 07-EU1304
		WP 07-EU1308
extent of deformation	borehole extensometers	WP 07-EU1301
	borehole observations	WP 07-EU1303
		WP 07-EU1305
		WP 07-EU1308
initiation of brittle	fracture mapping	WP 07-EU1301
deformation	borehole observation	WP 07-EU1303
		WP 07-EU1001
displacement of deformation	geologic mapping	WP 07-EU1301
features	comparison	WP 07-EU1303
		WP 07-EU1001

### Table 2 - Geomechanical Parameter and Values Measured to Confirm Them

-From DOE/WIPP 09-3177 (COB-M2008-A1), Volume 1, Section 1.4



Geomechanical staff manually measured convergence values in the underground (Figure 1, Horizontal Convergence Measurement) 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-M2009-S42 to S47). The inspector found that procedures are

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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 and documented in the WIPP environmental monitoring program. These programs are documented in the WIPP Groundwater Monitoring Program Plan, WP 02-1 (COB-M2009-C). Results of this program are published in the WIPP Site Environmental Report for 2007, DOE/WIPP 08-2225 (COB-A2009-C). This document describes the groundwater monitoring program and reports results for the previous year.

During the 2009 inspection, the EPA inspector requested information about changes in the program since last year. The opening meeting presentation noted that one new Culebra well was drilled, the H-4BR well to replace H4B (COB-M2009-I3). The current well monitoring network consists of 47 Culebra, 11 Magenta, three dual Culebra/Magenta completions, one Dewey Lake, two Bell Canyon, and 20 shallow Santa Rosa/Dewey Lake wells. Besides examining the Site Environmental Report for 2007, the inspector examined flow direction maps, well location maps, water level measurements, and water chemistry data (COB-M2009-S12 and -S15). DOE and Sandia National Laboratory (SNL) implemented a new procedure to produce the potentiometric map used to estimate flow direction for the monitor requirements. The procedure is called "Preparation of Culebra Potentiometric Surface Contour Maps" (SP 9-9, COB-M2009-S12). SNL present a presentation that described the use of this new procedure (COB-M2009-S15). The inspector examined this new approach and found it to be adequate for this monitoring requirement. The inspector found the hydrological monitoring program to be improving and 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 Information System (WWIS). The WWIS is a software system that screens waste container data and provides reports on the Transuranic (TRU) waste sent to WIPP. The requirements for the WWIS are discussed in the WIPP Waste Information System Program and System Data Management Plan, WP 08-NT.01 (COB-M2009-H2). DOE yearly reports waste activity information in the Annual Change Report, Table 3 (DOE/WIPP 08-3317; COB-M2009-P).

WWIS staff demonstrated that the WWIS can receive data and that the WWIS can generate needed reports. The inspector obtained copies of the Nuclide Report (COB-M2009-

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W1) and WWIS Waste Container Data Reports (COB-M2009-W2, -W3, and -W4). The inspector 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-M2009-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 08-2308 (COB-M2009-M).

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The inspector reviewed the drilling surveillance database, examined drilling rate changes, and permitted and active injection wells while interviewing staff. The inspector reviewed Texas and New Mexico well database ACCESS files and maps of oil and gas wells around WIPP (Figure 2, Oil and Gas Wells Around WIPP, yellow dots are oil wells). The inspector 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-M2009-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 09-2293 (COB-M2009-F).

Subsidence staff demonstrated the Office Procedure (Section 2 of WP 09-ES4001: COB-M2009-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-M2009-S62 to -S64). DOE demonstrated that the subsidence parameter is measured and reported yearly.

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

Based on program documents, interviews, and field demonstrations during the inspection, the Agency concludes that the monitoring program covers the ten monitoring parameters required by EPA's 1998 Certification Decision. This inspection determined that the 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.

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# Attachment A: Inspection Plan and Checklist

# WIPP Monitoring Inspection Plan 40 CFR 194.42 for the year 2009

### 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 July 13, 2009.

**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.

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-	Monitoring Commitments - July 2009	Geomechanical Parameters	
#	Question	Comment (Objective Evidence) SAT = Satisfactory	Result
1	<ul> <li>Does DOE demonstrate that they have implemented plans/programs/procedures to measure -</li> <li>a) Creep Closure;</li> <li>b) Extent of Deformation;</li> <li>c) Initiation of Brittle Deformation and</li> <li>d) Displacement of Deformation Features</li> <li>during the pre-closure phase of operations as specified in the CCA part of the geomechanical monitoring system?</li> <li>(CCA, Volume 1, Table 7-7; App MON, Table MON-1) 40 CFR 194.42 (c) and (e)</li> </ul>	<ul> <li>WIPP Geotechnical Engineering Program Plan, (WP 07-01: COB-M2009-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.</li> <li>WIPP site staff discussed changes to the program during the past year (COB-M2009- I8). Staff demonstrated the adequacy of the program and that the program produces satisfactory results (COB-M2009-S42 to S47). They showed samples of remote measurements, sample plots, and staff preformed underground manual measurements of convergence (Photos 2009- 07-15_09 Annual Inspection 00105 to 00110, COB-M2009-P1). The inspector toured the underground and reviewed the computer system and databases used to collect and process recorded data.</li> <li>Results of this program are documented annually in the Geotechnical Analysis Report for each reporting period (DOE/WIPP 09- 3177; COB-M2009-A1 and -A2).</li> <li>The inspector verified that the geomechanical parameters continued to be appropriately monitored by DOE.</li> </ul>	SAT
2	Does DOE demonstrate that they have implemented an effective quality assurance program for item 1 above? 40 CFR 194.22	During this inspection the EPA inspector evaluated the quality assurance program and found it to be adequate.	SAT
3	Does DOE demonstrate that the results of the geotechnical investigations are reported annually? (CCA, App. MON, Page MON-10)	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).	SAT

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	Monitoring Commitments - July 2009	Hydrological Parameters	-
#	Question	Comment (Objective Evidence)	Result
1	<ul> <li>Does DOE demonstrate that they have implemented plans/programs/procedures to measure -</li> <li>a) Culebra Groundwater Composition;</li> <li>b) Change in Culebra Groundwater Flow Direction</li> <li>during the pre-closure phase of operations as specified in the CCA part of WIPP's groundwater monitoring plan?</li> <li>(CCA, Volume 1, Table 7-7; App MON, Table MON-1) 40 CFR 194.42 (c) and (e)</li> </ul>	<ul> <li>WIPP Groundwater Monitoring Program Plan, WP 02-1 (COB-M2009-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.</li> <li>WIPP site staff discussed changes to the program over the past year (COB-M2009-I3). 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-M2009-S15). SNL staff developed a new procedure called, Preparation of Culebra Potentiometer Surface Contour Maps, SP 9-9 (COB-M2009-S12) that standardizes potentiometer surface development. Results are documented annually in the WIPP Annual Site Environmental Report for 2007 (DOE/WIPP 08-2225: COB-A2009-C) Figure 6.11, Appendix E, and Appendix F.</li> </ul>	SAT
2	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	During this inspection the EPA inspector evaluated the quality assurance program and found it to be adequate.	SAT
3	Does DOE demonstrate that the results of the groundwater monitoring program are reported annually? (CCA, App. MON, Page MON-22)	Results are published annually in the WIPP Annual Site Environmental Report for 2007 (DOE/WIPP 08-2225: COB-A2009-C) Section 6.0.	SAT

	Monitoring Commitments - July 2009	Waste Activity Parameters	
#	Question	Comment (Objective Evidence)	Result
1	Does DOE demonstrate that they have implemented plans/programs/procedures to measure - a) Waste Activity? (CCA, Volume 1, Table 7-7; App MON, Table MON-1) 40 CFR 194.42 (c) and (e)	WIPP Waste Information System Program and Data Management Plan (WP 08-NT,01: COB- M2009-H2, Section 6.0) describes how the WWIS is used to measure and store waste activity information. WWIS User's manual (DOE/CBFO 97-2273: COB-M2009-O) documents procedures used to gather, store, and process waste activity information. Table 3 of the Annual Change Report 2007/2008, (DOE/WIPP 08-3317: COB-M2009-P) updates waste activity information annually. WWIS staff discussed changes during the past year (COB-M2009-I10) and demonstrated the use of the WWIS and generated numerous waste related reports (COB-M2009-W2 to W4). Such as the Nuclide Report (COB- M2009-W1) which summaries isotopes emplaced at WIPP. These activities demonstrate that waste activity is adequately monitored.	SAT
2	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	During this inspection the EPA inspector evaluated the quality assurance program and found it to be adequate.	SAT
3	Does DOE demonstrate that the results of the waste activity parameters are reported annually? (CCA Volume, Section 7.2.4 Reporting)	WP 08-NT.01 Section 6, page 13 "Regulatory Reporting" documents that results are reported annually and DOE/WIPP 08-3317 verifies that results are published annually.	SAT

	Monitoring Commitments - July 2009	Drilling Related Parameters	
#	Question	Comment (Objective Evidence)	Result
1	Does DOE demonstrate that they have implemented plans/programs/procedures to measure - a) Drilling Rate; and b) Probability of Encountering a Castile Brine Reservoir? (CCA, Volume 1, Table 7-7; App MON, Table MON-1) 40 CFR 194.42 (c) and (e)	The Delaware Basin Drilling Surveillance Plan, (WP 02-PC.02: COB-M2009-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- M2009-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-M2009-M) in Sections 2.5 and 2.6. WIPP site staff discussed changes during the past year (COB-M2009-I2). They reported on brine encounters, drilling rate calculations, and provided maps of drilling activities near WIPP (COB-M2009-D2a, D2b). They also provide the latest version of the New Mexico well databases (COB-M2009-D3). They demonstrated that DOE is adequately monitoring these parameters through the Delaware Basin monitoring program.	SAT
2	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	During this inspection the EPA inspector evaluated the quality assurance program and found it to be adequate.	SAT
3	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)	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.	SAT

	Monitoring Commitments - July 2009	Subsidence Measurements	-
#	Question	Comment (Objective Evidence)	Result
ı	Does DOE demonstrate that they have implemented plans/programs/procedures to measure - a) Subsidence measurements? (CCA, Volume 1, Table 7-7; App MON, Table MON-1) 40 CFR 194.42 (c) and (e)	<ul> <li>WIPP Underground and Surface Surveying Program (WP 09-ES.01: COB-M2009-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-M2009-N) documents the process for acquiring subsidence data (Section 1.0), updating the database (Section 2.0), and publishing the annual subsidence report (Section 2.2). The WIPP Subsidence Monument Leveling Survey - 2008 (DOE/WIPP 09-2293: COB-M2009-F) documents that DOE reports this parameter annually and the results of this program (Section 5.0).</li> <li>Site staff discussed changes to the program during the past year (COB-M2009-I7). 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-M2009-S62 to – S64). They demonstrated that subsidence is adequately monitored at the site.</li> </ul>	SAT
2	Does DOE demonstrate that they have implemented an effective quality assurance program for item 1? 40 CFR 194.22	During this inspection the EPA inspector evaluated the quality assurance program and found it to be adequate.	SAT
3	Does DOE demonstrate that the results of the subsidence measurements are reported annually? (CCA Volume, Section 7.2.4 Reporting)	WP 09-ES.01 Section 3.3.1 documents that results are reported annually. DOE/WIPP 09- 2293 demonstrates that results are published annually.	SAT

Attachment B: Documents Reviewed

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	Documents Received and Reviewed During Inspection	194.42 Monitoring Inspection July 2009	Documents
ID#	Document Title	Subject Matter	Source
COB-M2009-1	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, Chapte 7, Table 7-7.
COB-M2009-2a, - 2b COB-M2009-A1, -A2	CCA, Appendix MON and Attachment MONPAR. In particular Table MON-1, pages MON-10, MON-29 Geotechnical Analysis Report for July 2007 - June 2008, DOE/WIPP 09-3177, Volumes One and Two (Support Data), 03/09	Both documents discuss the pre- and post-closure parameters selected to be monitored at the WIPP site. This report is an example of the annual results of the geomechanical monitoring program.	DOE, CCA documentation. DOE/WIPP
СОВ-М2009-В	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-A2009-C	WIPP Annual Site Environmental Report for 2007, DOE-WIPP 08-2225, 0908	Results of the environmental monitoring program, in particular radiological measurements.	DOE/WIPP
COB-A2009-Cb	WIPP Annual Site Environmental Report for 2008, DOE-WIPP 09-2225, 0909-*DRAFT*	Results of the environmental monitoring program, in particular radiological measurements.	DOE/WIPP
COB-A2009-Cc	WIPP Annual Site Environmental Report for 2008, DOE-WIPP 09-2225, 0909-*DRAFT*, Appendix E, Time Trend Plots for Detectable Constituents in Groundwater.	Compares the chemistry of groundwater constituents from 1995 to 2008 in WQSP monitor wells at WIPP. Shows no groundwater contamination to date.	DOE/WIPP
COB-M2009-C	WIPP Groundwater Monitoring Program Plan WP 02-1 Revision 8, 11/13/08	Demonstrates DOE's implementation of hydrological monitoring.	DOE/WIPP
COB-M2009-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-M2009-E	WIPP Geotechnical Engineering Program Plan WP 07-01, Revision 6, 03/19/08	Demonstrates DOE's implementation of geomechanical monitoring.	DOE/WIPP
COB-M2009-F	WIPP Subsidence Monument Leveling Survey - 2008 DOE/WIPP 09-2293, December 2008	This report is an example of the results of the subsidence monitoring program.	DOE/WIPP
COB-M2009-G	Delaware Basin Drilling Surveillance Plan WP 02-PC.02, Revision 2, 06/17/08	Documents DOE's drilling monitoring plan.	DOE/WIPP
COB-M2009-H2	WIPP Waste Information System Program and Data Management Plan, WP 08-NT.01, Revision 18, 07/15/08	Demonstrates DOE's implementation of waste activity monitoring.	DOE/WIPP
COB-M2009-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

	Documents Received and Reviewed During Inspection		DOE Documents
ID#	Document Title	Subject Matter	Source
		and the second	DODAUNDD
COB-M2009-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-M2009-K2	Final Sample and Serial Sample Collection - Technical Procedure WP 02-EM1006, Revision 6, 06/30/08	Describes water sample collection.	DOE/WIPP
COB-M2009-L	Groundwater Serial Sample Analysis - Technical Procedure WP 02-EM1005, Revision 5, 08/11/08	Instruction for taking serial samples.	DOE/WIPP
COB-A2009-E	WTS Quality Assurance Program Description, WP 13-1, Revision 27, 04/23/08	Demonstrates DOE's implementation of quality assurance program.	DOE/WIPP
COB-M2009-M	Delaware Basin Monitoring Annual Report DOE/WIPP 08-2308, Sept. 2008	Demonstrates DOE's implementation of drilling surveillance program.	DOE/WIPP
COB-M2009-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-M2009-P	Annual Change Report 2007/2008, DOE/WIPP 08-3317, 11/15/08	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-A2009-1	WIPP Environmental Monitoring Plan, DOE/WIPP-99-2194 Revision 4, 11/08	Describes environmental monitoring plan.	DOE/WIPP
COB-M2009-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-M2009-R	EM1014, Revision 4, 02/26/08		DOE/WIPP
COB-M2009-S	Pressure Density Survey, Technical Procedure, WP 02-EM1021 Revision 6, 07/29/08	Used to determine average density of fluid in borehole.	DOE/WIPP

	Documents Received and Reviewed During Inspection	194.42 Monitoring Inspection July 2009	DOE Documents
ID#	Document Title	Subject Matter	Source
COB-M2009-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
COB-M2009-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-M2009-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-M2009-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 extensioneters, piezometer, strain gages, earth pressure cells, and rockbolt loadcells.	DOE/WIPP
СОВ-М2009-Х	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-M2009-Y	Installing Convergence Reference Points, WP 07-EU1304, Technical Procedure, Revision 4, 03/19/08	Details steps needed to layout and install convergence points in new drifts or to replace point at WIPP.	DOE/WIPP
COB-M2009-Z	Installing Multiposition Borehole Rod Extensometers, Technical Procedure, WP 07-EU1305, Revision 2, 09/01/05		DOE/WIPP
COB-M2009-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-A2009-S	Radiochemistry Quality Assurance Plan, WP 12-RL.01, Revision 16, 02/18/09		DOE/WIPP
COB-A2009-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-A2009-U	Alpha Spectroscopy System Operation, Technical Procedure, WP 12-RL1002, Revision 8, 11/05/08	Direction for calibrating and operating the Canberra Alpha Spectroscopy System as interfaced with the Genie 2000.	DOE/WIPP
COB-A2009-V	Establishing Gross Alpha and Gross Beta Self-Absorption Curves, Technical Procedure, WP 12-RL1008, Revision 6, 11/29/07	Instructions for preparing samples of known activity and known weight to generate self-absorption curves for each of the gas proportional counters.	DOE/WIPP

	Documents Received and Reviewed During Inspection		DOE Documents
ID#	Document Title	Subject Matter	Source
COB-A2009-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-A2009-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-A2009-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-A2009-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-A2009-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-A2009-AC	Routine Laboratory Operations, Technical Procedure, WP 12-RL1014, Revision 6, 11/05/08	Instructions for routine laboratory operation.	DOE/WIPP
COB-A2009-AD	Canberra Alpha Analyst System Operation, Technical Procedure, WP 12-RL1015, Revision 14, 11/05/08	Directions for calibrating and operating the Canberra Alpha Analyst 32-chamber alpha spectroscopy system.	DOE/WIPP
COB-A2009-AE	Operation of the Oxford Series 5 Gas Proportional Counter, Technical Procedure, WP 12-RL1016, Revision 9, 02/02/09	Guidance for the operation of the Oxford Series 5 Gas Proportional Counter.	DOE/WIPP
COB-A2009-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-A2009-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 6, 02/02/09	Instructions for performing radiochemistry analytical data verification and validation by radiochemistry staff.	DOE/WIPP
COB-A2009-A1	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-M2009-BM	Installing Wire Extensometers, Technical Procedure, WP 07-EU1308, Rev 1, 09/01/05	그는 방법은 같은 그녀가는 것이라는 것이 있는 것이다. 그렇게 흔들려졌다. 그는 것은 것이다. 그는 것이 같이 많이 많이 많이 많이 없다.	DOE/WIPP
COB-M2009-AA		Steps to install rock bolt load cells.	DOE/WIPP

	Documents Received and Reviewed During Inspection	194.42 Monitoring Inspection July 2009	DOE Documents
ID#	Document Title	Subject Matter	Source
COB-A2009-AJ	Control of Radioactive Standards, Technical Procedure, WP 12-RL1550, Revision 10, 12/09/08	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-M2009-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-M2009-AS			DOE/WIPP
COB-M2009-AT	FY09 Well Plugging and Abandonment and Reconfiguration Program Description for WIPP Wells 25 and H-4b, DOE/WIPP- 08-3426, 02/09		DOE/WIPP
COB-M2009-BB	Installing Multiposition Borehole Rod Extensometers, Technical Procedure, WP 07-EU1305, Rev 2, 09/01/05	Steps necessary to install multi-position borehole extensometers.	DOE/WIPP
COB-M2009-BC	Geologic Core Logging, Technical Procedure, WP 07-EU1002, Rev 0, 03/07/03		DOE/WIPP
COB-M2009-BD	Integrated Sample Control Plan, WP 02-EM.02, Rev 2, 12/12/05	Requirements for control of samples taken at WIPP.	DOE/WIPP
СОВ-М2009-ВЕ	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-M2009-BF	EM & H Field Work, Management Control Procedure, WP 02- EM1024, Rev 2, 05/05/08	Environmental monitoring and hydrology field team duties are described for the surveillance and documentation of well activities.	DOE/WIPP
COB-M2009-BG	Water Level Data Handling and Reporting, Management Control Procedure, WP 02-EM1026, Rev 1, 11/05/08	Provides instruction on the handling of acquired groundwater data.	DOE/WIPP
COB-M2009-H3		Requirements and Criteria for review and approval of WSPF.	DOE/WIPP
СОВ-М2009-Н4	WIPP Waste Information System (WWIS) Configuration Management and Software QA Program, WP 08-NT.04, Rev 13, 10/26/07	QA requirements for development, procurement, maintenance, use, and retirement of WWIS hardware and software.	DOE/W1PP

	Documents Received and Reviewed During Inspection	194.42 Monitoring Inspection July 2009	DOE Documents
ID#	Document Title	Subject Matter	Source
ALC: BULLERS	And the second sec		a drine a
СОВ-М2009-Н5	WWIS Software Verification and Validation Plan, WP 08- NT.05, Rev 5, 02/20/07	Describes V and V task for WWIS.	DOE/WIPP
COB-M2009-H6	WWIS software Requirements Specification, WP 08-NT.06, Rev 5, 03/11/08	v Details functional requirements approved for WWIS.	DOE/WIPP
COB-M2009-H7	WWIS Software Design Description, WP 08-NT.07, Rev 5, 03/11/08	Summary of Software Implementation Description that is maintained.	DOE/WIPP
COB-M2009-H8	TRU Waste Receipt, Management Control Procedure, 08- NT3020, Rev 18, 06/09/09	Instructions for receipt of TRU waste at WIPP.	DOE/WIPP
Contractorer .	Documents Received During Inspection	and the second s	and the second s
COB-M2009-S1a,	2009 Inspection Agenda and sign-in sheets for opening and		DOE/WIPP
S1b	close-out meetings.		
COB-M2009-I1 to	Presentation slides from the inspection opening meeting for		DOE/WIPP
110	drilling, hydrology, geotechnical, WWIS topics, etc		
COB-M2009-S42 to	Geomechanical field measurement data sheets, input sheets,	Geomechanical manual convergence measurements at W170	- DOE/WIPP
S47	plots, and check prints.	S3565 and remote extensioneter measurements at 51X-GE- 00399 (at S3650-W0985).	
COB-M2009-S62 to S64	Subsidence calculations	DIGILEV 10.934d field data, raw conversion data, and adjusted elevations from files L1031108	DOE/WIPP
COB-M2009-S12	Preparation of Culebra Potentiometric Surface Contour Maps, Specific Procedure, SP 9-9, Revision 0, DRAFT	Description of methods used to determine groundwater flow rate and flow direction	DOE/WIPP
COB-M2009-S15	Presentation by Kris Kuhlman, SNL, on the implementation of SP 9-9	Kris showed the new method used to develop the WIPP potentiometric contour maps and how flow direction is determined.	DOE/WIPP
COB-M2009-D1	DBM-55-2009, 2009 map of oil and gas wells in the nine township area.		DOE/WIPP
COB-M2009-D2a	Map of oil and gas wells within one mile of WIPP boundary		DOE/WIPP
COB-M2009-D2b	List of oil and gas wells within one mile of WIPP boundary		DOE/WIPP
COB-M2009-D3	List of oil and gas wells in New Mexico		DOE/WIPP
COB-M2009-W1	07/16/2009 Nuclide Report from the WWIS		DOE/WIPP
COB-M2009-W2 to W4	WWIS Waste Container Data Reports for LA03, BN10287121, and LA04.		DOE/WIPP

	Documents Received and Reviewed During Inspection	194.42 Monitoring Inspection July 20	9 DOE Documents
ID#	Document Title	Subject Matter	Source
COB-M2009-P1	Photos, 2009-07-15_09 Annual Inspection 00105.jpg to 2009-07- 15 09 Annual Inspection 00110.jpg	<ul> <li>Photographs of underground manual convergence measurements.</li> </ul>	DOE/WIPP
COB-M2009-P2	Photo, 2009-07-15 09 Annual Inspection 00112.jpg	Photograph of 51X-GE-00399 remote extensometer.	DOE/WIPP

# DOCKET NO: A-98-49 Item: П-B3-111

# **Emplacement Inspection Report**

EPA INSPECTION No. EPA-WIPP-7.09-14c OF THE WASTE ISOLATION PILOT PLANT July 14 to July 16, 2009

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

September 2009

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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 July 14 to July 16, 2009, 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 (CH) and remote-handled (RH) 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 WIPP Waste Information System (WWIS). EPA examined selected activities, such as RH and CH waste processing, waste emplacement activities, and record keeping. During this year's inspection EPA placed specific emphasis on the emplacement and tracking of the magnesium oxide (MgO) engineered barrier, due to the fact that DOE implemented its planned change to reduce the MgO safety factor to 1.2 in the interim since EPA's most recent (July 2008) emplacement inspection.

EPA concluded that DOE's emplacement activities are adequate, that cellulosic, plastic and rubber (CPR) material is appropriately tracked and recorded, that MgO balances are calculated properly, and that MgO is emplaced properly. Although EPA observed the use of proper paper documentation in the underground, a small discrepancy was found in the WIPP Waste Handling User's Manual (WP 05-WH.01).

EPA did not identify any findings or concerns during this inspection. EPA observed that procedures found in Revision 4 of the WIPP Waste Handling User's Manual (WP 05-WH.01) do not reflect recent changes to WP 05-WH1011, Rev. 33, *CH Waste Processing*, and WP 05-WH1025, Rev. 1, *CH Downloading and Emplacement*. EPA recommends that DOE update WP 05-WH.01 to assure consistency throughout its procedures.

<sup>&</sup>lt;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 performs the 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 used 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 CH and RH 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 WIPP Waste Information System (WWIS) 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 four EPA staff. Thomas Kesterson of the New Mexico Environment Department also observed the inspection activities. A partial list of inspection participants is provided in Table A.

INSPECTION TEAM MEMBER	POSITION	AFFILIATION
Chuck Byrum	Inspector	EPA ORIA
Tom Peake	Inspector	EPA ORIA
Nick Stone	Inspector	EPA Region 6
Jonathan Walsh	Inspector	EPA ORIA
CBFO / WTS PERSONNEL		
Rey Carrasco		CBFO
Art Chavez		WRES
Dan Ferguson		CBFO
Dave Kump		WTS
Dave Speed		WTS
David Squires		WTS
Gene Valett		WTS
Mike Strum		WWIS

Table A Inspection Participants

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

The inspection took place on July 14-16, 2009, 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 July 14, 2009. Several DOE and WTS staff presented information addressing program status, updates and changes since the last EPA emplacement inspection in July 2008.

EPA inspectors accompanied CBFO and WTS personnel into the underground repository on the morning of July 15, 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 WWIS computer database, to verify correct waste information is recorded by DOE. WTS personnel explained how waste is handled and emplaced, and answered EPA questions.

During the afternoon of July 15, EPA inspectors visited the CH and RH waste handling areas aboveground. On July 16, inspectors reviewed record-keeping procedures with WWIS data administrators, and WTS personnel generated various reports for the inspectors at the Carlsbad Field Office, including Waste Emplacement Reports and Waste Container Data Reports for RH and CH waste containers observed in the underground the day prior. EPA presented its preliminary observations at a close-out meeting on the

### afternoon of July 16.

### **5.0 WASTE EMPLACEMENT/WWIS**

To date, the wastes received at the repository are contact-handled 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.

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 7 and RH waste in the walls of Panel 5, Room 6. 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 are emplaced in no particular 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). Remote-handled waste is placed in the walls on eight foot centers (Figures 1, 4, and 5).

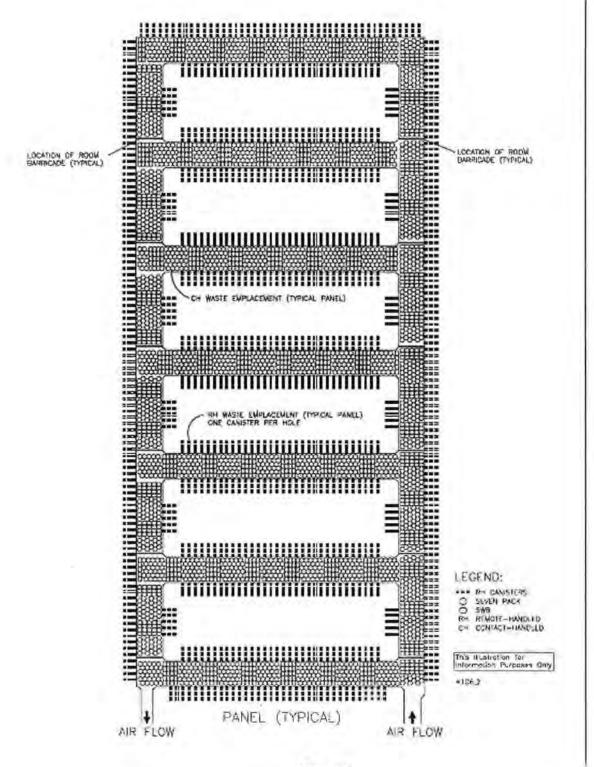
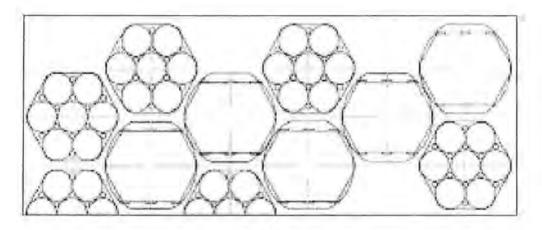


Figure 1

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 6 inspectors observed boreholes drilled (BH 083, BH 084) to emplace RH containers, and observed the Horizontal Emplacement/Retrieval Equipment set up to emplace a RH canister in BH083 (Figure 4).

While underground in Room 7, Panel 5, 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 7) CH Waste (Field verified)

Туре
Overpack (TDOP)
ı drum
n drum
Waste Box

RH Waste (Panel 5, Room 6) Waste Emplacement Report and Container Data Report

Site of	Waste Container	
Origin	Identifier	Borehole Number
LANL	LA04	080
LANL	LA13	081
LANL	LA03	082
LANL	LA13	081

On July 16 at CBFO, WTS personnel and EPA inspectors examined reports from the following WIPP Waste Information System (WWIS) modules:

- · Characterization Module, linked to the Waste Container Data Report
- Certification Module, linked to the Acceptance/Rejection Report
- Shipping Module, linked to the Shipment Summary Report
- Inventory Module, linked to the Nuclide Report, Waste Emplacement Report and the MgO safety factor calculation on the Emplace Containers Underground (Attachments G).

All 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 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 stipulated 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. During the opening meeting, Gene Valett gave a presentation outlining DOE's change to the 1.2 safety factor, which included developing a laboratory verification of MgO reactivity, field testing five supersacks filled with 3000 pounds of MgO (as opposed to 4200 pounds), releasing version 6.4 of the WWIS, updating WTS technical procedures, and designating an MgO Administrator.

Process steps guiding MgO placement and documentation in the underground have been removed from the current revision of WP 05-WH1011, *CH Waste Processing*, Rev. 33, and placed in a new document, WP 05-WH1025, *CH Waste Downloading and Emplacement*, Rev. 1. Specifically, Section 3.0, Backfill, establishes procedures to maintain a safety factor of 1.2 or greater per room on a daily basis. Waste Handling Engineers (WHE) may record the quantity and placement of MgO electronically using a WWIS 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 Attachements 1 and 3 of WP 05-WH1025. While in the underground repository, EPA inspectors verified that the proper, current paper forms were used to track MgO emplacement in Panel 5, Room 7 and that MgO was emplaced on top of the CH waste stacks as stipulated. No 3,000 pound sacks other than those used for field tests had been emplaced in the underground at the time of the inspection, due to the high CPR content of supercompacted CH waste that is currently being emplaced.

At the conclusion of each shift, the WHE must electronically verify the safety factor of 1.2 using WWIS waste database. Electronic MgO record management is addressed in the *WIPP Waste Handling Operations WWIS User's Manual*, WP 05-WH.01, Rev. 4. Sections 6.2.5 and 9.3.3, and Attachment 1 have been appropriately updated to reflect the 1.2 safety factor and the use of 3,000-lb. supersacks as necessary.

However, EPA noted that the procedure has not been updated to reflect that paper forms for recording MgO placement are now found in WP 05-WH1025. Specifically, Steps 6.2.5.D; 8.1.2; and Attachment 1, Steps 6, 8, 9 and 10.2 erroneously refer the user to WP 05-WH1011. EPA inspectors determined that this discrepancy did not rise to the level of a concern, because WHEs are using the correct, updated paper forms (from WP 05-WH1025) to record waste and MgO in the underground.

Checklist items 12-17 and 27-30 specifically relate to MgO management and demonstrate that DOE has appropriate processes in place to ensuring 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.

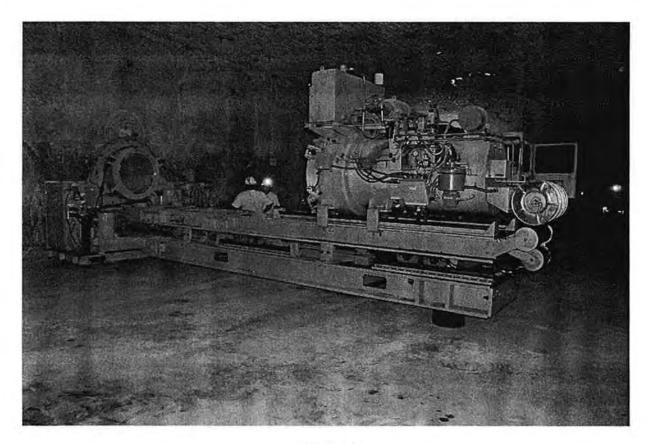


Figure 4 Equipment prepared for RH waste emplacement in Room 6 of Panel 5

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Figure 5 Emplaced RH Waste selected for review

### 7.0 COMPARISON WITH INVENTORY LIMITS

In presentation at the opening meeting of the inspection, EPA was provided with 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 June 30, 2009. More detailed emplacement data were provided during subsequent correspondences with WWIS staff.

EPA has established 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  $1.58 \times 10^7$ kg. The minimum limit is  $2 \times 10^7$  kg iron. With total metals at  $1.61 \times 10^7$  kg, the repository now contains approximately 80% of the minimum amount stipulated in the certification.

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 16, 2009 are listed in Table C.

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As of this inspection the WIPP contained almost  $4.6 \times 10^6$  kg of CPR in waste and  $1.4 \times 10^6$  kg of CPR in packaging material. In addition, emplacement CPR, such as the slipsheets used to aid the emplacement of the containers, accounts for another  $3.5 \times 10^5$  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 now account for only 3.4% of the total mass of CPR, compared to 5% in 20098, 4.7% in 2007, and 7% in 2006. The WIPP currently contains approximately 29% of its maximum limit for CPR. The repository held 24% of its limit for CPR in 2008, and 21% of the limit in 2007.

Waste CPR:		Emplaceme	nt CPR:	
Туре	Weight (kg)	Туре	Weight (kg)	
Cellulosic	1,733,077	Cellulosic	46,435	
Plastic	2,569,409	Plastic	302,390	
Rubber	291,318			
Total	4,593,804 (kg)		348,824 (kg)	
Packaging C	PR:	MgO CPR:		
Туре	Weight (kg)	Туре	Weight (kg)	
Cellulosic	837,120	Cellulosic	44,395	
Plastic	571,457	Plastic	49,997	
Total	1,408,577 (kg)		94,347(kg)	
Grand Total	s:			
Cellulosic + H	Plastic = 6,154,234			
Rubber	= 291,318			

#### Table C Emplaced CPR Quantities as of July 16, 2009

#### 8.0 SUMMARY OF RESULTS

= 6,445,552 (kg)

Total CPR

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 is appropriately tracked, and that DOE's planned change to an MgO safety factor of 1.2 has been implemented properly. Specifically, the CPR/MgO excess factor is calculated correctly and regularly on a room-by-room basis, MgO is emplaced as needed, and that steps have been taken to assure that MgO reactivity is retained. The current safety factor was above the mandated 1.2 for Panel Four, Rooms 1 and 2, both closed since the change took place in March 2009.

EPA did not identify any findings or concerns during this inspection. Its only observation, documented in detail in section 6.0 of this report, is that WP 05-WH.01, *WIPP Waste Handling Operations WWIS User's Manual*, Rev. 4, is inconsistent with recent revisions to facility Technical Procedures WP 05-WH1011 and WP 05-WH1025. EPA recommends that the procedure be updated for consistency.

### Attachment A

WIPP Emplacement Inspection Plan for the Year 2009

#### 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 July 13, 2009

### **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

# Number of TRU Waste Containers Emplaced at WIPP as of 07/16/2009

Site Container Type	gallon	55 gallon	12" Pipe overpack	S100 Pipe over pack	S300 Pipe over pack	Std Waste Box	TDOP	85 gallon overpack	2009 total	2008 total	2007 total	2006 total
ANL-E	0	318	0	0	0	0	12	0	330	330	334	334
Hanford	0	7104	2163	0	0	350	257	0	9874	9474	7390	6159
INL	19018	23294	0	0	0	1950	2345	0	46607	35271	30722	23564
LANL	0	8604	398	211	10	731	1	0	9955	8405	7046	5040
LLNL	0	678	0	0	0	2	0	0	680	680	688	688
NTS	0	1805	0	0	0	14	0	0	1819	1819	1827	1827
ORNL	0	112	0	0	0	0	0	0	112	0		
RFETS	0	15460	21174	0	0	3910	4	0	40584	40548	40548	40548
SRS	0	4157		0	0	5703	2169	0	7029	5885	4755	4173
WIPP	0	2	0	0	0	1	0	5	8	4	3090	3006
TOTAL	19018	61534	23735	211	10	7661	4788	5	116962	102416	96929	85868

# Contact Handled Waste

### Attachment B (continued)

### Number of TRU Waste Containers Emplaced at WIPP as of 07/16/2009

Site	2009 Total	2008 Total
ANL-E	11	
RL	199	
INL		161
LANL	14	
NTS		
ORNL	4	
RFETS		
SRS	15	
WIPP		
TOTAL	243	161

#### Remote Handled Waste Containers

NOTE: The drums listed for WIPP consist of two drums of site generated waste, two drums from RFETS that were overpacked on site, with primarily empty dunnage drums but with some salt-filled dunnage drums.

Argonne National Laboratory - East (ANL-E) Idaho National Engineering and Environmental Laboratory (INEEL) Lawrence Livermore National Laboratory (LLNL) (RFETS) Nevada Test Site (NTS) Waste Isolation Pilot Plant (WIPP)

Drums = 55 gallon (208 liter or 0.208 m<sup>3</sup>) steel drums overpack except for the S100 SWB = Standard Waste Box Dunnage = inert drums used to complete waste assemblies Hanford Site (Hanford) Los Alamos National Laboratory (LANL) Rocky Flats Environmental Technology Site Oak Ridge National Laboratory (ORNL) Savannah River Site (SRS)

Pipe Overpack = 55 gallon drum pipe

TDOP = ten drum overpack

# Attachment C

Materials Emplaced in WIPP as of July 16, 2009 (Table configuration modified for simplification)

# CH WASTE:

MP	Material Type	Material Description M	faterial Weight (kg)
1	Waste	Iron Based Metal/Alloys	6,044,986.86
2	Waste	Aluminum Based Metal/Alloys	
3	Waste	Other Metal/ Alloys	284,958.05
4	Waste	Other Inorganic Materials	1,249,654.69
6	Waste	Cellulosics	1,733,074.17
7	Waste	Rubber	291,317.38
8	Waste	Plastics	2,540,453.10
9	Waste	Solidified Inorganic Material	6,062,180.96
10	Waste	Solidified Organic Material	947,751.31
12	Waste	Soils	141,371.28
13	Steel -		
0.0	Packaging	Steel Container Materials	11,206,328.12
14	Plastic -	Plastic /Liners Container	Prover a Marcine and
	Packaging	Materials	571,198.68
15	Cellulosic -	Cellulosic Packaging	
	Packaging	Materials	837,115.57
18		Cellulosic Emplacement	
	and a second	Material	46,434.77
20	Emplacement	Plastic Emplacement	1,713,017.90
	and the survey	Material	2010-10-00-00
RHW	laste		
		Second States and a second	
1	Waste	Iron Base Metal Alloys	22,383.96
6	Waste	Cellulosics	3.10
8	Waste	Plastics	28,956.16
13	Steel	Steel Container Materials	132,440.59
	Packaging	The second state of the second state of	
14	Plastic	Plastic/ Liners Container	10000
	Packaging	Materials	258.34
15	Cellulosic	Cellulosics Packaging	4.26
	Packaging	Materials	
<u>MgO</u>			
16	Emplacement	Magnesium Oxide	24,627,581.57
18		Cellulosic Emplacement Mat'l	
20		Plastic Emplacement Mat'l	49,997.25
-9	Linplacement	a mono Danpacomont mat t	173771.20

### Attachment D

Panel	Room	MgO (kg)	Waste (kg)	CPR (kg)	Safety Factor
1	7	1,127,526	508,254	276,990	2.01
	6	222,885	101,210	86,116	1.44
	5	222,885	160,047	79,213	1.56
	4	228,600	128,597	85,525	1.51
	3	1,034,415	749,764	342,069	1.67
	2	1,028,825	948,002	229,442	2.17
	1	617,220	311,843	138,330	2.14
2	7	1,028,700	571,001	236,830	2.09
	6	982,980	461,528	209,305	2.20
	5	988,820	498,970	197,609	2.29
	4	977,265	518,555	220,912	2.17
	3	1,028,700	667,662	211,841	2.27
	2	965,835	733,025	165,412	2.62
	1	691,515	416,679	186,200	1.71
3	7	960,120	711,188	104,831	4.03
	6	954,405	876,558	228,033	1.95
	5	1,022,985	808,693	284,651	1.70
	4	960,120	899,470	255,054	1.79
	3	931,545	1,000,561	243,860	1.89
	2	944,880	1,004,479	227,889	2.03
	1	662,940	722,043	183,072	1.76
4	7	942,975	1,051,062	248,903	1.90
	6	925,830	945,599	267,494	1.71
	5	946,785	890,039	265,295	1.71
	4	1,013,460	830,990	290,608	1.70
	17	1 015 205	TAE OFF	005 770	1 70

5

3

2

1

7

6

Summary of MgO Safety Factor Calculations as of 6/30/09 Source: WWIS Data Support, Opening Meeting Slides

the second s ------

745,955

554,822

933179

477,527

8,044

1,015,365

933,176

676,275

438,150

0

20

285,770

374,333

265,912

204,476

6,011

1.70

1.22

1.24

0.92

0.00 (RH Only)

### Attachment E

Excerpt from Panel 5, Room 7 Daily Report, including MgO Balance

Instance: User: SPEEDD prd01 wipp carlsbad.nm.us Daily Thu Jul 16 11:08:13 Report MDT 2009

 MgO Balance:
 1247330 lbs

 MgO 1.247E06
 MgO Excess

 Wt:
 lbs
 Factor

 MgO 4.001E02
 1.14

 $\max_{i=1}^{n} \left\{ \left( q_{i}, \dots, q_{i}, \frac{1}{n}, \frac{1}{n+1} \right) \right\} = \left\{ \left( \frac{1}{n+1}, \frac{1}{n} \right) \left( \frac{1}{n+1} \right) \left( \frac{1}{n+1} \right) \right\}$ 

MgO Read for Planned Shpmnts: APPROVED: 0 lbs COMPLETED: 0 lbs

### **TRU** Waste Totals

Total Weight	1.778E06 lbs
<b>Total Volume</b>	1.226E03 m3
Total Cellulose	2.082E05 lbs
<b>Total Plastic</b>	2.944E05 lbs
Total Rubber	2.727E04 lbs
Total CPR Weight	5.299E05 lbs

Attachment F Procedures Examined

#	Questions:	Comments and Objective Evidence	Results
	Waste Emplacement		
1	Is waste being emplaced in the underground facility in the manner specified in DOE's Compliance Certification/ Re- Certification or other relevant documentation?	Yes. Procedure WP 05-WH1025, Rev. 26, CH Waste Downloading and Emplacement, Section 2, describes the CH emplacement procedures. Visual verification of the emplaced waste in Rows 94 through 96 of Panel 5, Room 7 confirmed waste emplacement in accordance with facility procedure and CCA documentation.	Satisfactory
		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.	
2	Are CH waste containers stacked in columns appropriately given the type of container?	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.)	Satisfactory

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

3	Are records adequate? Randomly select 3-4 CH and 2-3 RH waste containers to verify records for waste approval, shipment, and receipt.	<ul> <li>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.</li> <li>Selected Containers:</li> <li>CH Waste (Panel 5, Room 7, Rows 94-96)</li> <li>Ten Drum Overpack (TDOP), BN10278350, INL(RF)</li> <li>100-gallon drum, BN10287121, INL</li> <li>100-gallon drum, BN10267854, INL</li> <li>Standard Waste Box NT070679R, INL</li> <li>RH Waste (Panel 5, Room 6)</li> <li>Borehole 080, LA04, LANL</li> <li>Borehole 081, LA13, LANL</li> <li>Borehole 082, LA03, LANL</li> </ul>	Satisfactory
4	Is DOE properly emplacing backfill material (magnesium oxide [MgO]) with the waste packages? Are supersacks placed on top of waste stacks according to procedure?	Yes. 4200-pound supersacks were observed to be emplaced on top of each waste assembly. WP 05- WH1025, CH Waste Downloading and Emplacement, Section 3.0, establishes procedure for emplacement of MgO.	Satisfactory
5	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].	Inspectors examined paper records maintained underground and electronic records kept aboveground for the selected containers. Documentation was determined to be adequate.	Satisfactory
	RH Waste Emplacement Questions		
6	Are RH containers approved for receipt, received, processed, and emplaced properly?	Yes. Inspection of the underground and RH handling area showed procedures to be in agreement with WP 05-WH1710, Rev. 13, 72-B RH Processing, and WP 05-WH1725, Rev. 3, RH Waste Downloading and Emplacement.	Satisfactory.

7	Are RH containers appropriately tracked? Where is the information? In the WWIS, what report During the receipt/transfer process where is it recorded? In the underground?	Yes. Appropriate information is found in the WWIS Waste Container Data Report RP0360, and on the underground facility map maintained by the Waste Handling Engineers in the underground.	Satisfactory.
8	Content of RH canisters pick 1 to 3 canisters	See Item 3 above. WWIS Waste Container Data Report RP0360 generated and reviewed for each canister.	Satisfactory
9	Volume and mass and/or concentration of important waste components and radionuclides (RH and CH)? Are they within statutory and regulatory limits?	Detailed description of nuclide information is included in the Waste Container Data Reports generated. Yes.	Satisfactory
10	Are RH boreholes closed properly? (Note: also see #9 for tracking of RH in the U/G)	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.	Satisfactory
11	Is a photographic record made of the RH canister number during emplacement and retained in the permanent record?	Yes. The canister ID number is verified by two operators during cask transfer via closed-circuit television, and the tapes are kept as a record, in accordance with procedure 05-WH1710, 72-B RH Processing, section 8.24.	Satisfactory
	Question: Procedure		
	Is there a schematic hierarchy of DOE's written procedures, including the current revision and effective date?	Yes. A schematic hierarchy of documents related to site operation and monitoring was presented in the opening conference by Larry Madl. QNMIS electronically catalogues procedural documents, indicating past, current, and planned revisions.	Satisfactory

12	Have DOE procedures been updated to reflect EPA's acceptance of the planned change of the MgO safety factor to 1.2?	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 WWIS User's Manual, WP-05-WH.01, Rev. 4, Sections 6.2.5 and 9.3.3, and Attachment 1 have been updated to reflect the 1.2 safety factor and the use of 3,000-lb. supersacks as necessary. Sections 6.2.5 and 8.1.2, however, reference attachments to WP 05- WH1011 which have been moved to WP 05-WH1025. EPA inspectors determined that this did not rise to the level of a concern because WHEs were observed to be using the correct, updated paper forms (from WP 05- WH1025) to record waste and MgO in the underground, but recommend that the documents be brought into agreement.	Observation
13	Are both CPR and MgO calculated and tracked on a room- by-room basis?	Yes. Calculations are performed by the Waste Handling Engineer at the conclusion of each shift, through the WWIS, using the WIPP Emplacement Software MgO Balance Report or Daily Report, as required by WP 05-WH1025, CH Waste Downloading and Emplacement, Rev. 1, Section 3.0, Backfill.	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 when and where additional MgO is needed?	Partially. Procedures are found in the WIPP Waste Handling Operation WWIS User's Manual, WP 05– WH.01, Revision 4, 2/11/08, Attachment 1, Special Requirements for Additional MgO. This procedure correctly shows methods for emplacing adequate MgO to achieve a safety factor of 1.2, however, in steps 6, 7, and 9, it incorrectly cites WP 05-WH1011 instead of WP 05-WH1025. EPA recommends that this procedure be brought up to date.	Observation
17	Is there documentation that identifies how MgO should be placed with high CPR waste?	Yes, WP 05-WH1025, CH Waste Downloading and Emplacement, Rev. 1 Attachment 3, Supersack/BRT Emplacement Data Sheet; and WP 05-WH1058, CH Waste Handling Abnormal Operations, Rev. 0, Sec. 4.0, BRT Emplacement	Satisfactory

18	Verify documentation of procedures for abnormal operating conditions, and	Abnormal operating and emergency procedures were reviewed, including but not limited to those listed below.	Satisfactory
	documentation of training for contingencies.	WP 04-CO, Conduct of Operations, Rev. 10 identifies notification policies, supervision and training procedures, and required reading (Management Policy 1.30).	
		WP 02-EC3506, Environmental Incident Reporting, is the Management Control Procedure for reporting releases, and includes statutory requirement charts for notifications and decision flowcharts.	
		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." 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.	
		WP 12-9, WIPP Emergency Management Program, is the top-level document outlining emergency response procedures and responsibilities, includes training requirements for response roles.	
		WP 05-WH4401, Waste Handler Operator Event Response, includes alarm, alert, and exit procedures.	
		WP 12-ER3906, Categorization and Classification of Operational Emergencies includes tables of procedures for emergency notifications and classification of events.	
		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.	
#	Question: Records/WWIS		
19	Does the WWIS adequately document waste shipment and emplacements information for waste containers selected? (Item 3 above) CH, RH	Yes. In the Waste Emplacement Report, the WWIS adequately documents waste shipment and emplacement information. WWIS Waste Emplacement Reports, and WWIS Waste Container Data Reports contain container number, shipment number, and emplacement information in the underground.	Satisfactory

20	Is DOE maintaining records of waste shipments and emplacement properly? CH, RH	Yes. WWIS Waste Container Data Reports and underground maps were reviewed by inspectors to verify that records are properly maintained for both CH and RH waste containers. Emplacement is tracked properly in the underground using both WWIS barcode readers and paper forms as necessary.	Satisfactory
21	Do the characterization module, certification module, shipping module, and inventory module adequately record the required information?	The Waste Emplacement Report (WER) and Waste Container Data Report records contain the container number, shipment number, emplacement data and underground location. WIPP staff queried the WWIS, and EPA inspectors verified that the WER recorded this information correctly.	Satisfactory
22	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 Waste Container Data Report. Dose limits for each of the containers examined by EPA inspectors (listed in Item 3) were below statutory limits.	Satisfactory
23	Characterization Module - Review a WWIS Waste Container Data Report. Does this report adequately record the Waste Stream Profile Form information?	Yes. Inspectors reviewed Waste Container Data Reports for all containers inspected, and found them to contain Waste Stream IDs, as well as all necessary radiological and chemical profile information.	Satisfactory
24	Characterization Module - Does the data administrator verify that DOE/CBFO has granted certification and transportation authority to the generator/shipper site prior to review of generator/shipper characterization data?	Yes. The Waste Stream Profile Form Review and Approval Program, WP 08-NT.03, Section 8.4 documents that "allows DA (data administrator) approval of certified container data prior to shipment of containers". The inspectors verified these approvals.	Satisfactory
25	Shipping Module - Review the Shipment Summary Report. Does the report correctly record the containers shipped? CH, RH	Yes. Inspectors reviewed Shipment Summary Reports for the selected containers and found them to be adequate.	Satisfactory
26	Inventory Module - 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
27	Is MgO implementation appropriately documented? Where is it described?	Yes. See Items 12, 13, 16 and 17.	Satisfactory
28	Is DOE properly tracking the MgO backfill so that the MgO safety factor can be accurately calculated?	Yes. See Item 13.	Satisfactory

29	Is DOE assuring that the 1.2 safety factor being maintained on a room basis?	Yes. WP 05-WH1025, CH Waste Downloading and Emplacement, Section 3.0 requires the WHE to calculate the MgO balance at the end of each shift. See Item 13.	Satisfactory	
	Does the WWIS accurately calculate the safety factor and recommend the proper amount of MgO to emplace?	EPA inspectors reviewed InSEI Matrix Requirement MB-REQ-0024, to verify that the WWIS software calculates MgO excess appropriately.		
	Where is this been verified?	$M^{MgOReq} = MT^{*}(6)^{*} [m_{e} + m_{g} + 1.7^{*}m_{p}]/(162g/mole)$ *(2.2046lbs/kg)*(kg/100g)*(40.3/mole)		
30	Is there documentation that describes how the site uses the MgO module of the WWIS?	Yes. Instructions are found in the WP 05-WH.01, Rev. 4, WIPP Waste Handling Operations WWIS Users Manual	Satisfactory	

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## Biscaino, Debra - WRMS (Records Center)

Cooper, Andrea on behalf of Moody, Dave C DOE Thursday, October 08, 2009 10:31 AM
Bradford, Aubrey Earl; Casey, Steve - DOE; Castaneda, Norma - DOE; Chavez, Art V.; Chavez, Rick; Chism, Lea - DOE; DL DOE Directors; DOE M&RC Farrell, Richard - DOE; Ford, John - DOE; Gadbury, Casey - DOE; Galbraith, Don - DOE; Gee, Margaret; Gilbert, Patsy - LANL; Gill, Deb - DOE; Lyshik, Gwen - LANL; McCauslin, Susan; Miehls, Dennis - DOE; Most, Wille; Navarrete, Martin - DOE; Pangle, Allison - CTAC; Pastorello, Linda; Patterson, Russ - DOE; Roush, Parrish; Stroble, J. R DOE; Usher, Mike; Vincent, Oba - DOE; Watson, Kerry - DOE; Yocum, Patrick
FW: WIPP Site Inspections July 2009
2009 Annual Inspection Letter_FINAL.pdf; 2009 Subpart A Inspection Report and Checklist.pdf; ATT B-2009 Subpart A Documents Reviewed FINAL.pdf; 2009 Monitoring Inspection Report and Checklist.pdf; ATT B-2009 Monitor Documents Reviewed FINAL.pdf; 2009 EMPLACEMENT INSPECTION REPORT.pdf
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To: Moody, Dave C. - DOE, Patterson, Russ - DOE; Zappe, Steve; Harris, Alton - DOE EM; Basabilvazo, George - DOE; Kesterson, Thomas Ce: Peake. Tom@epamail.epa.gov; Byrum Charles@epamail.epa.gov; Feltcorn.Ed@epamail.epa.gov; Joglekar, Rajani - EPA; Eagle.Mike@epamail.epa.gov; Stone.Nick@epamail.epa.gov; Edwards. Jonathan@epamail.epa.gov; Bender.Lindsey@epamail.epa.gov; Walsh. Jonathan@epamail.epa.gov Subject:

# Hello,

Attached you will find a letter transmitting EPA reports for the Subpart A. Emplacement, and Monitoring inspections conducted at the WIPP during the week of July 14, 2009. If you have any problems opening the .pdfs please let me know.

# Sincerely,

Ray Lee Radiation Protection Division Center for Radiation Information & Outreach (202) 343-9463

(See attached file: 2009 Annual Inspection Letter\_FINAL.pdf) (See attached file: 2009 Subpart A Inspection Report and Checklist.pdf) (See attached file: ATT B-2009 Subpart A Documents Reviewed FINAL.pdf) (See attached file: 2009 Monitoring Inspection Report and Checklist.pdf) (See attached file: ATT B-2009 Monitor Documents Reviewed FINAL.pdf) (See attached file: 2009 EMPLACEMENT INSPECTION REPORT.pdf)

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A. Pangle - CTAC	T. KBan - 102	A. Chavez - 109	R. Chavez - 109	L Pastorell - 109	Wipp Ope Record - 452-

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