



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

December 9, 2002

OFFICE OF
AIR AND RADIATION

Dr. Inés Triay, Manager
Carlsbad Area Office
U.S. Department of Energy
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COPY

Dear Dr. Triay:

This letter provides the results of the U.S. Environmental Protection Agency's (EPA) inspections for EPA-WIPP-6.02-21a (Subpart A), EPA-WIPP-6.02-21b (waste emplacement), and EPA-WIPP-6.02-21c (parameter monitoring) of the Waste Isolation Pilot Plant (WIPP). EPA performed these inspections on June 24-28, 2002, under authority of 40 CFR 194.21. We have determined that the activities that we inspected were being conducted consistent with the Agency's Certification Decision of May 18, 1998. We also determined that the Department of Energy (DOE) is in compliance with the requirements of 40 CFR Part 191, Subpart A. The inspection team did not identify any findings or concerns.

If you have any questions regarding the enclosed reports, please call Betsy Forinash at (202) 564-9233.

Sincerely,

Frank Marcinowski, Director
Radiation Protection Division

Enclosure

cc: Ava Holland, CBFO
Russ Patterson, CBFO
Casey Gadbury, CBFO
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UNIQUE #	DOE UFC	DATE REC'VD	ADDRESSEES
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Item: II-B3-37

**INSPECTION No. EPA-WIPP-6.02-21c
OF THE
WASTE ISOLATION PILOT PLANT
June 26-28, 2002**

Parameter Monitoring Inspection Report

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

November 2002

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1.0 Executive Summary

The U.S. Environmental Protection Agency (EPA) inspected activities at the Department of Energy's (DOE) Waste Isolation Pilot Plant (WIPP) on June 25-28, 2002, as part of our continuing WIPP oversight program. The purpose of this inspection was to verify that DOE is monitoring the ten parameters listed in the Compliance Certification Application (CCA), Volume 1, Section 7.0, in particular Table 7-7 (see Table 1 below).

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

The inspectors found that DOE, through its contractor Westinghouse, effectively implemented the monitoring programs at WIPP for all areas and reported annually. Inspectors did not identify any findings or concerns.

2.0 Scope

40 CFR Part 194.42(a) requires 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 must be included in the CCA and are to be used to develop pre-closure and post-closure monitoring requirements.

Volume 1, Chapter 7, of the CCA documents DOE's analysis of monitoring. Table 7-7 of the CCA (p. 7-48) lists the ten parameters that DOE determined may impact the disposal system. These parameters are grouped into major categories and listed in Table 1.

Table 1 - Monitored Parameters	
Geomechanical Parameters <ul style="list-style-type: none">- Creep closure,- Extent of deformation,- Initiation of brittle deformation, and- Displacement of deformation features.	Waste Activity Parameter <ul style="list-style-type: none">- Waste Activity Subsidence Parameter <ul style="list-style-type: none">- Subsidence measurements
Hydrological Parameters <ul style="list-style-type: none">- Culebra groundwater composition, and- Change in Culebra groundwater flow direction.	Drilling-Related Parameters <ul style="list-style-type: none">- Drilling rate, and- The probability of encountering a Castile brine reservoir.

EPA accepted these ten monitoring parameters in the certification issued on May 18, 1998. This inspection was performed under authority of 40 CFR 194.21 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. We also reviewed sampling procedures and measurement techniques and verified implementation of an effective quality assurance program.

3.0 Inspection Team, Observers, and Participants

The inspection team consisted of two EPA representatives. Thomas Klein of the Environmental Evaluation Group (EEG) and Alton Harris of DOE Headquarters were present as observers.

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

DOE staff and contractors participated in the inspection are listed in Table 1.

The inspection began on the afternoon of Tuesday, June 25, 2002, with a presentation by DOE/CBFO, Sandia National Laboratories (SNL) and WTS that covered an overview of the status of elements of the monitoring program (COB-M2002-Q, COB-M2002-ZZ, COB-M2002-AD, COB-M2002-3a and 3b).

The inspection team reviewed various activities to verify effective implementation of the plans and procedures. Inspectors observed a demonstration of the WIPP Waste Information System (WWIS), which is used to track the waste shipped from TRU waste sites. Inspectors also reviewed the Delaware Basin Drilling Surveillance program, Groundwater Monitoring Program, and the Ground Control Monitoring program.

4.0 Performance of the Inspection

EPA inspectors reviewed three fundamental areas to verify continued implementation of the DOE monitoring program during the pre-closure phase: 1) written plans and procedures, 2) quality control 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 inspection activities.

Table 1 - DOE Staff and Contractors

DOE/Contractor/Participates	Organization/Title	Affiliation/Organization
Casey Gadbury	Waste OPS Pgm Manager	DOE/CBFO
Jim Kenney	Safety Oversight	DOE/CBFO
Stan Patchet	Manager	WTS
Jack Gilbert	Mine Manager	DOE
Ron Richardson	ES&H	WTS
Mike Strum	Waste Ops	WTS
Stewart Jones	ES&H	WTS
Rey Carrasco	Geo. Engr.	WTS
Dave Speed	WWIS	WTS
Tom Pfeifle	Monitoring Team Lead	SNL
Larry Pyeatt	Mine Engr. Surveyor	WTS
Dennis Mathieu	Geo. Engr.	WTS
Sam Dominguez	Geo. Engr.	WTS
Ricky Whiteley	Geo. Engr.	WTS
Dan Middleton	Mine Engr.	WTS
Ty Zimmerly	Mine Engr.	WTS
Dave Hughes	RHG	WTS
Tom Phillips	Mine Engr.	WTS

WTS = Westinghouse CBFO = Carlsbad Field Office ES&H = Environmental Safety and Health
 WWIS = WIPP Waste Information System

4.1 Monitoring of Geomechanical Parameters

DOE committed to measure four geomechanical parameters in the CCA: creep closure, extent of deformation, initiation of brittle deformation, and displacement of deformation features. WIPP has four programs that supply information for these four parameters: the geomechanical monitoring program, the geosciences program, the ground control program, and the rock mechanics program. These programs are documented in the WIPP Geotechnical Engineering Program Plan (WP 07-01, COB-M2002-D). The results of the Geotechnical Engineering Program are documented in the Geotechnical Analysis Report for July 1999 - June 2000 (DOE/WIPP-00-3177, COB-M2002-A).

Inspectors toured and reviewed underground instrumentation, the computer database, and field data sheets used to record raw measurement data (COB-M2002-P1 to P5). They also examined the input of data into the computer database and examined the output QA check printouts (COB-M2002-P2) to verify implementation of the measurement plan.

In 2002 the inspectors requested that DOE/WTS walk them through the measurement of values and to the input of those values into the database used to store this information. A roof to floor convergence measurement was chosen for the geomechanical program. While in the underground, inspectors observed Sam Dominguez and Ricky Whiteley taking a roof to floor convergence measurement at location S1950-E660-4 in Panel One using procedure WP 07-EU1301. Inspectors examined the datasheet filled out by the technicians, then the data were processed, checked, printed (COB-M2002-P1 to P5), and input into the database by Rey Carrasco and Dennis Mathieu according to procedure WP 07-EU130. This demonstration showed that DOE/WTS staff implemented procedures appropriately.

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).

The results of this program are documented in the Waste Isolation Pilot Plant 2002 Site Environmental Report, DOE/WIPP 01-2225. This document describes the groundwater monitoring program and presents monitoring results for the previous year.

Inspectors requested that DOE/WTS perform a groundwater level measurement according to procedure WP 02-EM1014. This measurement was taken on June 27, 2002, by Mel Balderrama and Morgan Nail. Ron Richardson showed how these values are used to update the database and how the monthly report is produced (COB-M2002-T1 to T3). This demonstration showed that DOE/WTS staff implement procedures appropriately.

4.3 Monitoring of Waste Activity Parameters

DOE committed to measure waste activity 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 TRU waste sent to WIPP. The requirements for the WWIS are discussed in the WIPP Waste Information Program and System Data Management Plan (WP 08-NT.01).

The facility demonstrated that the WWIS can receive data and that the WWIS can generate reports as needed. Dave Speed showed the inspection team how the WWIS records waste activity information provided by the generator sites and how the computer database produces waste activity reports. The inspection team reviewed the Nuclide Report and Biennial Report (COB-M2002-AG and AF).

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). 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 Drilling Surveillance Program - Annual Report for September 2000 through August 2001 (DOE/WIPP99-2308).

Inspectors reviewed the drilling surveillance database, examined drilling rate changes, and permitted and active injection wells while interviewing Dave Hughes. Inspectors reviewed a list of changes in drilling rates from 1996 to 2002 (COB-M2002-ZZ) and a list from the well database of permitted and active injection wells (COB-M2002-X). In addition, inspectors reviewed a list of "Castile Brine Encounters" (COB-M2002-W).

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). DOE performs the subsidence survey at the site annually during pre-closure operations. The results of this program are reported annually in the WIPP Subsidence Monument Leveling Survey - 2001 (DOE/WIPP 00-2293).

Larry Pyeatt, Tom Phillips, Dan Middleton, and Ty Zimmerly showed the inspection team how elevation surveys are performed. Inspectors examined the steps taken to perform a survey, the methods used to record and check field data, how these data are input into the computer database and used to produce the needed reports: Digital Leveling Log Sheets (COB-M2002-

AC1), raw field data (COB-M2002-AC2), DIGILEV Version 10.94d raw data (COB-M2002-AC3), and DIGILEV data-extracted sheets (COB-M2002-AC4).

In response to a finding that EPA inspectors identified during inspection no. EPA-WIPP-6.01-21c in June 2001 (see Air Docket A-98-49, Item II-B3-13), DOE/WTS developed a new procedure, Subsidence Survey Data Acquisition and Report (WP 09-ES4001), specifically for subsidence measurements. Inspectors witnessed a demonstration of a sample elevation survey loop that followed the steps documented in the new procedure. Inspectors were then shown how measurement data are reduced using the new procedure. Based on this demonstration, EPA considers the June 2001 finding to be adequately resolved.

5.0 Summary of Findings

Inspectors concluded that DOE has adequately maintained programs to monitor the required ten parameters and report annually during pre-closure operations. Inspectors identified no findings or concerns. A finding related to monitoring of subsidence that was identified in June 2001 has been resolved.

Attachment A

Inspection Checklist

40 CFR 194.42 - 2002 DOE WIPP Monitoring Commitments Checklist

Pre-closure Monitoring Commitments			
#	Questions	Comments (Objective Evidence)	Results
	General Questions and Previous Findings		
1	Last years monitoring inspection found, "...that the subsidence monitoring program at WIPP was not able to show that it had an implemented effective quality assurance program..." Has this finding been adequately responded too?	The Subsidence Monitoring staff have developed a new procedure. Inspector review the procedure and has the SM staff walk through the procedures to verify adequate implementation.	Satisfactory (Sat).
2	WTS Surveillance # S02-16 "The subsidence monitoring program does not have a procedure that describes in detail how the subsidence surveys are performed. ... This appears to be a violation of the CBFO QAPD, section 2.1.1.B which defines the required content for procedures." Has this finding been adequately responded too?	See # 1.	Sat.
3	WTS Surveillance #S02-16 "The personnel performing the subsidence surveys do not have a qualification standard for their position." Has this observation been adequately responded too?	During interviews, Stan Prachet and his staff stated that members of the subsidence staff were being appropriately qualified.	Sat.
4	Some monitoring parameter programs, such as geomechanical, subsidence, and waste activity, do not appear to have technical procedures. How are these operations performed and audited? Provide evidence to confirm adequate performance of these activities.	Inspectors received the needed procedures. They were inadvertently left off the CD.	Sat.

40 CFR 194.42 - 2002 DOE WIPP Monitoring Commitments Checklist

Pre-closure Monitoring Commitments			
#	Question	Comment (Objective Evidence)	Result
Geomechanical Monitoring			
1	<p>Does DOE demonstrate that they have implemented plans/programs/procedures to measure -</p> <p>a) Creep Closure;</p> <p>b) Extent of Deformation;</p> <p>c) Initiation of Brittle Deformation and</p> <p>d) Displacement of Deformation Features</p> <p>during the pre-closure phase of operations as specified in the CCA part of the geomechanical monitoring system?</p> <p>(CCA, Volume 1, Table 7-7; App MON, Table MON-1) 40 CFR 194.42 (c) and (e)</p>	<p>COB_M2002-D documented the program planned to measure, document, report, and QA these four activities. Section 3.0, COB_M2002-D documented the Geomechanical Monitoring Program and records the activities associated with this program, the methods planned to be used, and the reporting plans. Section 4.0, COB_M2002-D documented the quality assurance requirements of these activities.</p> <p>Rey Carrasco and his staff demonstrated how they take convergence measurements. COB_M2002-P1 through P5 were examples of data collected (WP 07-EU1301, Section 1) and verification (WP 07-EU1303, Section 1). COB_M2002-A was an example of results of these monitoring activities.</p> <p>The inspection team toured and reviewed the computer system and database systems used to collect and process these data.</p>	Sat.
2	<p>Does DOE demonstrate that they have implemented an effective quality assurance program for item 1 above? 40 CFR 194.22</p>	<p>EPA performed a quality assurance inspection July 2002 and found the program at DOE/WTS was adequate.</p>	Sat.
3	<p>Does DOE demonstrate that the results of the geotechnical investigations are reported annually? (CCA, App. MON, Page MON-10)</p>	<p>COB_M2002-D, page 6 required that analysis will be performed annually and the results will be published in the geotechnical analysis report.</p>	Sat.
<p>Documents Reviewed:</p> <p>#8 - COB-M2002-D: WIPP Geotechnical Engineering Program Plan - WP 07-01, Revision 2</p> <p>#23 - COB-M2002-R: Manually Acquired Geomechanical Instrument Data - WP 07-EU1301, Revision 0</p> <p>#24 - COB-M2002-S: Geomechanical Instrument Data Processing - WP 07-EU1303, Revision 0, 01/15/01</p> <p>#21 - COB-M2002-P1: Sample - raw data - GIS Field Data Sheet, Room Closure Measurements</p> <p>#21 - COB-M2002-P2: Sample - raw data - Convergence CHECK PRINT</p> <p>#21 - COB-M2002-P3: Sample - Database printout showing addition of demonstration measurement.</p> <p>#21 - COB-M2002-P4: Sample - Convergence Point plot verifying addition of point at S1950 Drift-E660</p> <p>#21 - COB-M2002-P5: Sample - Convergence Points, displacement plot.</p> <p>#22 - COB-M2002-Q: Opening program overview presentation by Rey Carrasco</p> <p>#4 - COB-M2002-A: Geotechnical Analysis Report for July 1999 - June 2000</p>			

40 CFR 194.42 - 2002 DOE WIPP Monitoring Commitments Checklist

Pre-closure Monitoring Commitments			
#	Questions	Comments (Objective Evidence)	Results
	Geomechanical Parameters	Part II	
1	WP 07-01, Rev. 2 Pg 7 (COB-M2002-D) states that, "Installation and monitoring of the instruments will be governed by approved WIPP procedures." What are these technical procedures? None appear to be included on the CD.	Geomechanical procedures were inadvertently left off the CD. The procedures were supplied during the inspection.	Sat.
2	WP 07-01, Rev. 2 Pg 15 states that, "Quality-affecting activities performed by ... the geotechnical engineering programs will be performed in accordance with written plans or approved procedures." Is the plan, WP 07-01, Rev. 2 sufficient for implementation? How can audits be done to this plan to assure adequate implementation?	See # 1.	Sat.
3	WP 07-01, Rev. 2 Pg 15 states that, "Technical procedures will be developed for routine quality-affecting functions. The procedures will include in-process and final quality controls and documentation requirements." What are the technical procedures used to fulfill these plan requirements?	See # 1.	Sat.
4	WP 07-01, Rev. 2 Pg 8 describe geomechanical monitoring instrumentation used, what technical procedures document the emplacement and monitoring of tape extensometers? Some specific examples?	See # 1. During the inspection a demonstration of a conversion measurements was done using applicable procedures.	Sat.
5	Other parts of the monitoring program have various written procedures why does the geotechnical program appear to not have specific program technical procedures? And how is the program implementation verified?	See # 1.	Sat.

40 CFR 194.42 - 2002 DOE WIPP Monitoring Commitments Checklist

Pre-closure Monitoring Commitments			
#	Question	Comment (Objective Evidence)	Result
1	<p>Does DOE demonstrate that they have implemented plans/programs/procedures to measure -</p> <p>a) Culebra Groundwater Composition;</p> <p>b) Change in Culebra Groundwater Flow Direction</p> <p>during the pre-closure phase of operations as specified in the CCA part of WIPP's groundwater monitoring plan?</p> <p>(CCA, Volume 1, Table 7-7; App MON, Table MON-1) 40 CFR 194.42 (c) and (e)</p>	<p>COB-M2002-C documented the program planned to measure, document, report, and QA these two activities. COB-M2002-C documented the Groundwater Surveillance Program Plan and records the activities associated with this program, the methods planned to be used, and the reporting plans. Section 12.0, COB-M2002-C documented the quality assurance requirements of these activities.</p> <p>Mel Balderrama walked inspectors through the measurement of the water level at WIPP-22 to demonstrate the implementation of WP 02-EM1014. #25 is an example of this measurement. Ron Richardson showed how these data are used to update the database and produce the monthly reports (#25).</p>	Sat.
2	<p>Does DOE demonstrate that they have implemented an effective quality assurance program for item 1 above? (CCA, App MON, Page MON-22) 40 CFR 194.22</p>	<p>EPA performed a quality assurance inspection July 2002, and found the program at DOE/WTS adequate.</p>	Sat.
3	<p>Does DOE demonstrate that the results of the groundwater monitoring program are reported annually? (CCA, App. MON, Page MON-22)</p>	<p>COB-M2002-C, page 40 documented that results of monitoring will be reported annually and will be published in the Annual Site Environmental Report (ASER).</p>	Sat.
<p>Documents Reviewed:</p> <p>#6 - COB-M2002-C: Groundwater Monitoring Program Plan - WP 02-1, Revision 5, 11/17/99</p> <p>#26 - COB-M2002-U: Groundwater Level Measurement - WP 02-EM1014, Revision 2, 11/12/01</p> <p>#25 - COB-M2002-T1: Demo Water Level Measurement Field Data Sheet for WIPP-22 - WP 02-EM1014, Attachment 1</p> <p>#25 - COB-M2002-T2: WIPP-22 Check Print Table and Plot with Mel Balderrama's signature and date.</p> <p>#25 - COB-M2002-T3: Table of May 2002 Water level Measurements, Check Print with Mel Balderrama's signature.</p> <p>#20 - COB-M2002-O: Waste Isolation Pilot Plant 2000 Site Environmental Report.</p>			

40 CFR 194.42 - 2002 DOE WIPP Monitoring Commitments Checklist

Pre-closure Monitoring Commitments			
#	Questions	Comments (Objective Evidence)	Results
	Hydrological Parameters	Part 1	
1	For the two hydrological monitor parameters, Culebra groundwater composition and flow direction, what are the steps used to derive these parameter values?	Culebra flow direction was derived from water levels which are controlled by WP 02-EM1014 (COB-M2002-U). Inspectors observed a demonstration of water level measurements using this procedure. Many procedure control the measurement of water composition, such as WP 02-EM1004, 1006, 1007. Inspectors reviewed these procedures and found them to be adequate.	Sat.
2	What technical procedures control the collection and reporting of the hydrological monitor parameters, both groundwater composition and flow direction?	Procedures WP 02-EM1002 through WP 02-EM1007 and WP 02-EM1014 were examples of procedures that are used to support these monitor parameters.	Sat.
3	WP 02-1, Revision 5, page 23 notes that, "Data collection as required by the Environmental Monitoring Plan." This document did not appear to be on the CD, is this 94-024?	The WIPP Environmental Monitoring Plan, DOE/WIPP 99-2194 was supplied by DOE/WTS.	Sat.
4	WP 02-EM1014 requires that "all field data sheets are filled out properly"; does anyone verify that water level measurements are taken properly? The procedure does not appear to require this.	Yes. During the water level measurement demonstration it was clear that the staff checked and double-checked the measurements.	Sat.

40 CFR 194.42 - 2002 DOE WIPP Monitoring Commitments Checklist

Pre-closure Monitoring Commitments			
#	Question	Comment (Objective Evidence)	Result
1	<p>Does DOE demonstrate that they have implemented plans/programs/procedures to measure -</p> <p>a) Waste Activity?</p> <p>(CCA, Volume 1, Table 7-7; App MON, Table MON-1) 40 CFR 194.42 (c) and (e)</p>	<p>The WWIS will be used to measure and store waste activity among other things. COB-M2002-G documentd the program plan to measure, document, report, and QA this activity. COB-M2002-G documented the WWIS Program and records the activities associated with this program, the methods planned to be used, and the reports planned.</p> <p>Dave Speed demonstrated the used of the WWIS and described the production of the Nuclide Report which list total waste activity. Dave demonstrated that procedures are implemented appropriately.</p>	Sat.
2	<p>Does DOE demonstrate that they have implemented an effective quality assurance program for item 1? (CCA, App WAP, page C-30) 40 CFR 194.22</p>	<p>EPA performed a quality assurance inspection July 2002, and found the program at DOE/WTS adequate.</p>	Sat.
3	<p>Does DOE demonstrate that the results of the waste activity parameters are reported annually? (CCA Volume, Section 7.2.4 Reporting)</p>	<p>COB-M2002-G, page 10 documented that results of monitoring will be reported annually.</p>	Sat.
<p>Documents Reviewed: #11 - COB-M2002-G: WIPP Waste Information System Program and Data Management Plan - WP 08-NT.01, Revision 6, 12/03/01 #27 - COB-M2002-AF: Sample - WWIS Biennial Report #28 - COB-M2002-AG: Sample - WWIS Nuclide Report</p>			

40 CFR 194.42 - 2002 DOE WIPP Monitoring Commitments Checklist

Pre-closure Monitoring Commitments			
#	Questions	Comment (Objective Evidence)	Results
	Waste Activity Parameters	Part II	
1	Where is the waste activity parameter requirement reported?	Waste activity was reported in the annual change report.	Sat
2	What is the process used to derive the waste activity parameter to be reported? Show the steps, provide procedures and objective evidence.	While interviewing Dave Speed the inspector was shown that the Nuclide Report was used to derive the waste activity. He showed the steps used to run the report, a copy is noted at COB-M2002-AG	Sat
3	How are the waste activity parameter values qualified? Show the steps and provide objective evidence?	While interviewing Dave Speed he demonstrated that values input in to the WWIS were qualified before they were accepted.	Sat
4	What is the specific WWIS report that produces the waste activity parameter?	See # 2.	Sat

40 CFR 194.42 - 2002 DOE WIPP Monitoring Commitments Checklist

Pre-closure and Post Closure Monitoring Commitments			
#	Question	Comment (Objective Evidence)	Result
Drilling related parameters			
1	<p>Does DOE demonstrate that they have implemented plans/programs/procedures to measure -</p> <p>a) Drilling Rate; and</p> <p>b) Probability of Encountering a Castile Brine Reservoir?</p> <p>(CCA, Volume 1, Table 7-7; App MON, Table MON-1) 40 CFR 194.42 (c) and (e)</p>	<p>COB-M2002-F documented the program planned to measure, document, report, and QA these two activities. COB-M2002-F documented the Delaware Basin Drilling Surveillance Plan and records the activities associated with this program, the methods planned to be used, and the reporting plans. Section 6.0, COB-M2002-F documented the quality assurance requirements of these activities.</p> <p>Dave Hughes showed COB-M2002-W and COB-M2002-X were examples of data generated by the drilling related monitoring program. COB-M2002-N was an example of the information produced from the surveillance database.</p> <p>COB-M2002-N was a copy of the annual report; page 8 shows the 2000 calculation of the drilling rate and page 10 shows a discussion of Castile brine pockets. The inspection team toured and reviewed the computer and database system used to record and store drill hole data.</p>	Sat.
2	<p>Does DOE demonstrate that they have implemented an effective quality assurance program for item 1 above? (CCA, App DMP, page DMP-9) 40 CFR 194.22</p>	<p>EPA performed a quality assurance inspection July 2002, and found the program at DOE/WTS adequate.</p>	Sat.
3	<p>Does DOE demonstrate that the results of the drilling related parameters are reported annually? (CCA Volume, Section 7.2.4 Reporting; App DMP, page DMP-9)</p>	<p>COB-M2002-F, page 5 documented that results of monitoring will be reported annually.</p>	Sat.
<p>Documents Reviewed:</p> <p>#10 - COB-M2002-F: Delaware Basin Drilling Surveillance Plan - WP 02-PC.02; Revision 0</p> <p>#29 - COB-M2002-ZZ: Opening presentation by Stewart Jones, listing recent drilling rates and showing Castile Brine encounters.</p> <p>#30 - COB-M2002-X: List of New Mexico injection wells</p> <p>#31 - COB-M2002-W: List of Castle brine encounters near WIPP.</p> <p>#32 - COB-M2002-AA: Delaware Basin Drilling Database Upgrade Process - WP 02-EC3002, Revision 1</p> <p>#19 - COB-M2002-N: Delaware Basin Drilling Surveillance Program - Annual Report for September 2000 through August 2001</p>			

40 CFR 194.42 - 2002 DOE WIPP Monitoring Commitments Checklist

Pre-closure Monitoring Commitments			
#	Questions	Comment (Objective Evidence)	Results
	Drilling Related Parameters	Part D	
1	WP 02-PC.02, Revision 0, states that data will be added "to the extent it is not proprietary", what impact does this have on the completeness of the data in the database?	During the interview with Dave Hughes, he stated that 'proprietary' information had not been a problem and had not compromised the database.	Sat.
2	WP 02-PC.02, Rev 0, pg 5 and WP 02-EC3002, Rev 1, pg 18 state that periodic random audits will take place to evaluate the integrity of databases; are data input on a daily basis checked for accuracy? Are there written procedures that govern this process?		Sat.
3	DOE/WIPP-99-2308, Rev 2, pg 3 states, "The output of the program is used to generate the Annual Compliance Monitoring Assessment Report and is reported annually to EPA in the 40 CFR 194.4(b)(3) report". Is this being done? Provide this report.	Inspectors obtained a copy of this report. It has not been provided to the Agency on a regular basis, but it will be provided with the annual change report from now on.	Sat.
4	DOE/WIPP-99-2308, Rev 2, pg 11 states, "Under R-111-P regulations, the operator is required to run a solid cement plug through the entire salt section..." In the PA DOE assumes 2% of the plugs were like this. Why is there such a difference?	Inspectors noted this issue during the inspection. DOE will ensure that it is included in the recertification.	Sat.

Pre-closure and Post Closure Monitoring Commitments			
#	Question	Comment (Objective Evidence)	Result
	Subsidence Measurements		
1	<p>Does DOE demonstrate that they have implemented plans/programs/procedures to measure -</p> <p>a) Subsidence measurements?</p> <p>(CCA, Volume 1, Table 7-7; App MON, Table MON-1) 40 CFR 194.42 (c) and (e)</p>	<p>COB-M2002-B documented the program planned to measure, document, report, and QA these two activities. COB-M2002-B documented the WIPP Underground & Surface Surveying Program and records the activities associated with this program, the methods planned to be used, and the reporting plans. Section 4.0, COB-M2002-B documented the quality assurance requirements of these activities.</p> <p>Larry Pyeatt and his staff demonstrated the implementation of WP 09-ES4001 from the measurement of a leveling loop in the field to the reduction of the measurements in the office.</p> <p>The inspection team toured and reviewed the computer and database system used to record and store subsidence survey data.</p>	Sat.
2	<p>Does DOE demonstrate that they have implemented an effective quality assurance program for item 1? 40 CFR 194.22</p>	EPA performed a quality assurance inspection July, 2002 and found the program at DOE/WTS adequate.	Sat.
3	<p>Does DOE demonstrate that the results of the subsidence measurements are reported annually? (CCA Volume, Section 7.2.4 Reporting)</p>	COB-M2002-B, page 2 documented that results of monitoring will be reported annually.	Sat.
<p>Documents Reviewed:</p> <p>#5 - COB-M2002-B: WIPP Underground and Surface Surveying Program - WP 09-ES.01, Revision 2</p> <p>#33 - COB-M2002-AB: Subsidence Survey Data Acquisition and Report, Technical Procedure - WP 09-ES4001, Revision 0, 06/13/02</p> <p>#34 - COB-M2002-AC1: Demonstration 1 - raw survey data - Digital Leveling Log Sheet (Loop)</p> <p>#34 - COB-M2002-AC2 Demonstration 2 - L0117902.raw - Raw Data leveling data from field measurements</p> <p>#34 - COB-M2002-AC3: Demonstration 3 - DIGILEV output - L0117902.lev - Leveling data summary</p> <p>#34 - COB-M2002-AC4: Demonstration 4 - WILDsoft output from COLLFIX.</p> <p>#35 - COB-M2002-AD: Opening program overview presentation by Larry Pyeatt</p> <p>#9 - COB-M2002-E: WIPP Subsidence Monument Leveling Survey - 2001, October 2001</p>			

40 CFR 194.42 - 2002 DOE WIPP Monitoring Commitments Checklist

Pre-closure Monitoring Commitments			
#	Questions	Comment (Objective Evidence)	Results
	Subsidence Parameters	Part 1	
1	Surveillance # S02-16 notes, "The subsidence monitoring program does not have a procedure that describes in detail how subsidence surveys are performed. ... This appears to be a violation of the CBFOP QAPD, section 2.1.2.B which defines the required content for procedures." What is the corrective action for this finding?	Inspectors were provided a copy of the new procedure called "Subsidence Survey Data Acquisition [and] Report" (WP 09-ES4001). They were also provided a demonstration implementing this procedure. (See COB-M2002-AC)	Sat.
2	Surveillance #S02-16 notes, "The personnel performing the subsidence surveys do not have qualification standard[s] for their position. ... Because subsidence surveys are governed by the requirements of the CBFO and WTS QAPDs and constitute an element of the monitoring of the disposal system, a qualification standard should be developed for survey personnel." What is the corrective action for this observation?	Stan Patchet stated during our interview that personnel are being qualified for each position. <u>We will review this next year to ensure completion of this task.</u>	Sat.
3	Last years monitoring inspection found, "...that the subsidence monitoring program at WIPP was not able to show that it had an implemented effective quality assurance program..." Has this finding been adequately responded too?	The introduction of the procedure (See #1) had established a verifiable quality structure to the subsidence program.	Sat.

40 CFR 194.42 - 2002 DOE WIPP Monitoring Commitments Checklist

Pre-closure Monitoring Commitments			
#	Questions	Comment (Objective Evidence)	Results
	Subsidence Parameters	Part III	
5	*From WP 09-ES.01, Revision 3, pg 11 - Provide evidence that subsidence stations are installed in accordance with FGCS specifications and procedures for Second Order, Class II Surveys.	WP 09-ES4001 stated that the level surveys have a error of closure less than the FGCS Second Order Class II. Larry Pyeatt provided a copy of a map (Drawing # 21-C012-SF9, 1980-81, COB-M2002-AE) that describes the installation of subsidence monuments location and construction. This appears in compliance with FGCS requirements.	Sat
6	* Provide evidence that in use, daily test are performed on <u>all</u> equipment used to ensure proper operation and calibration.	WP 09-ES4001 stated that a two-peg test is deformed at the starting point of each loop. During the subsidence loop demonstration, the inspector observed that this test was done and that the instrument is calibrated periodically.	Sat
7	* Provide evidence that survey information is maintained in electronic files in two locations and that backup electronic files of the information are maintained on the WIPP intranet.	Larry Pyeatt noted that he keeps multiple copies of each set of measurements. WP 09-ES4001 steps 2.29 to 2.35 documented this process.	Sat
8	* Provide evidence that data, plots, graphics, and reports generated by annual subsidence survey will be reviewed and signed by cognizant technical engineer.	WP 09-ES4001 step 2.27 documented this requirement.	Sat
9	How does data reduction take place and how is this activity qualified?	WP 09-ES4002 Section 2 documented this process	Sat

40 CFR 194.42 - 2002 DOE WIPP Monitoring Commitments Checklist

Pre-closure Monitoring Commitments			
#	Questions	Comment (Objective Evidence)	Results
	Subsidence Parameters	Partial	
10	* pg 13 - Provide evidence that software is verified to produce valid results for test problems.	Stan Patchett stated that they are in the process of qualifying the software used for subsidence related computations. During the inspection it appeared that the software operated as expected. The Agency will review this qualification process next year.	Sat

Attachment B

Opening and Closing Meeting Attendance Sheets

Attachment C

Documents Reviewed

Documents Reviewed and Copies Received		194.42 Monitoring Inspection - June 2002	DOE Documents
#	Document Title	Subject Matter	Source and Location
1	Table 7-7 from Chapter 7 of the CCA; Pre-closure and Post-closure Monitored Parameters.	Parameters committed by DOE to be measured. COB-M2002-1	DOE, CCA, Chapter 7, Table 7-7. Attachment D.6
2	CCA, Appendix MON and Attachment MONPAR. In particular Table MON-1, pages MON-10, MON-29	Both documents discuss the pre- and post-closure parameters selected to be monitored at the WIPP site. COB-M2002-2	DOE, CCA documentation. *Not included in this report
3	Opening Meeting Presentation Materials	Compliance Monitoring Parameters Derivation and Assessment Against 40 CFR 194.42 Requirements by Tom Pfeifle COB-M2002-3a and 3b	DOE/WTS/SNL Attachment D.6
4	Geotechnical Analysis Report for July 1999 - June 2000, DOE/WIPP-00-3177, 09/01, Volumes One and Two	This report is an example of the results of the geomechanical monitoring program. COB-M2002-A	DOE/WTS
5	Subsidence Monitoring: WIPP Underground and Surface Surveying Program WP 09-ES.01 Revision 3, 10/16/01	Demonstrates DOE's implementation of subsidence monitoring. COB-M2002-B	DOE/WTS
6	Hydrological Monitoring: WIPP Groundwater Monitoring Program Plan WP 02-1 Revision 5, 11/17/99	Demonstrates DOE's implementation of hydrological monitoring. COB-M2002-C	DOE/WTS

NOTE: Copies of plans, procedures, and reports may be obtained from the Department of Energy or Westinghouse.

Documents Reviewed and Copies Received		194-42 Monitoring Inspection - June 2002	DOE Documents	Copy
#	Document Title	Subject Matter	Source and Location	
8	Geomechanical Monitoring: WIPP Geotechnical Engineering Program Plan WP 07-01, Revision 2, 03/16/98	Demonstrates DOE's implementation of geomechanical monitoring. COB-M2002-D	DOE/WTS	No*
9	WIPP Subsidence Monument Leveling Survey - 2001 DOE/WIPP 00-2293, October 2001	This report is an example of the results of the subsidence monitoring program. COB-M2002-E	DOE/WTS	No*
10	Delaware Basin Drilling Surveillance Plan WP 02-PC.02, Revision 0, 03/27/97	Documents DOE's drilling monitoring plan. COB-M2002-F	DOE/WTS	No*
11	WIPP Waste Information System Program and Data Management Plan WP 08-NT.01, Revision 6, 12/03/01	Demonstrates DOE's implementation of waste activity monitoring. COB-M2002-G1	DOE/WTS	No*

Documents Reviewed and Copies Received		19442 Monitoring Inspection - June 2002 - DOE Documents	
#	Document Title	Subject Matter	Source and Location
12	Waste Stream Profile Form Review and Approval Program WP 08-NT.03 Revision 1, 10/20/00	Demonstrates DOE's implementation of waste activity monitoring. COB-M2002-G2	DOE/WTS *Not included in this report.
13	WIPP Waste Information System Configuration Management and Software Quality Assurance Program WP 08-NT.04, Revision 2, 10/09/00	Demonstrates DOE's implementation of waste activity monitoring. COB-M2002-G3	DOE/WTS
14	WIPP Waste Information System Software Verification and Validation Plan WP 08-NT.05, Revision 1, 10/31/00	Demonstrates DOE's implementation of waste activity monitoring. COB-M2002-G4	DOE/WTS
15	WIPP Waste Information Software Requirements Specification WP 08-NT.06, Revision 1, 10/31/00	Demonstrates DOE's implementation of waste activity monitoring. COB-M2002-G5	DOE/WTS
16	WIPP Waste Information System Software Design Description WP -08-NT.07, Revision 3, 08/13/01	Demonstrates DOE's implementation of waste activity monitoring. COB-M2002-G6	DOE/WTS
17	TRU Waste Receipt WP 08-NT3020, Revision 3, 01/24/02	Demonstrates DOE's implementation of waste activity monitoring. COB-M2002-G7	DOE/WTS

Documents Reviewed and Copies Received		194-42 Monitoring Inspection - June 2002		DOE Documents	
#	Document Title	Subject Matter	Source and Location	COBY	
18	WID Quality Assurance Program Description WP 13-1 Revision 22, 03/27/02	Demonstrates DOE's implementation of quality assurance program. COB-M2002-M	DOE/WTS *Not included in this report.	No*	
19	Delaware Basin Drilling Surveillance Program - Annual Report for September 2000 Through August 2001 DOE/WIPP99-2308 Revision 2	Demonstrates DOE's implementation of drilling surveillance program. COB-M2002-N	DOE/WTS	No*	
20	Waste Isolation Pilot Plant 2000 Site Environmental Report, November 2001 DOE/WIPP 01-2225	Example of the results of the environmental monitoring program, in particular hydrological parameters. COB-M2002-O	DOE/WTS	No*	
21	GIS Field Data Sheet, Check Print, Sample Plots	Demonstrates implementation of geomechanical monitoring program. COB-M2002-P1 to P5	DOE/WTS Attachment D.1	Yes	
22	Opening Program Overview Presentation by Rey Carrasco	COB-M2002-Q	DOE/WTS Attachment D.1	Yes	

Documents Reviewed and Copies Received		194-42 Monitoring Inspection - June 2002		DOE Documents	
#	Document Title	Subject Matter	Source and Location	Copy	
23	Geomechanical Parameters: Manually Acquired Geomechanical Instrument Data, WP 07-EU1301, Revision 0	Technical Procedure for taking geomechanical measurements. COB-M2002-R	DOE/WTS	No*	
24	Geomechanical Parameters: Geomechanical Instrument Data Processing, WP 09-EU1303, Revision 0, 01/15/01	Sample of implementation of subsidence monitoring program COB-M2002-S	DOE/WTS	No*	
25	Field data sheet for WIPP-22, Check print table and plot and May 2002 Water level measurements.	Sample of implementation of hydrological procedures COB-M2002-T1 to T3	DOE/WTS Attachment D.2	Yes	
26	Groundwater Level Measurement, WP 02-EM1014, Revision 2, 11/12/01	Technical Procedure for taking hydrological measurements. COB-M2002-U	DOE/WTS	No*	
27	WWIS Biennial Report	Sample of implementation of waste activity requirements and procedures. COB-M2002-AF	DOE/WTS Attachment D.3	Yes	
28	WWIS Nucleide Report	Sample of implementation of waste activity requirements and procedures. COB-M2002-AG	DOE/WTS Attachment D.3	Yes	
29	Opening presentation by Stewart Jones, listing recent drilling rates and showing Castile Brine encounters	Sample of implementation of drilling related monitoring requirements. COB-M2002-ZZ	DOE/WTS Attachment D.4	Yes	
30	List of New Mexico injection wells	Documents results of drilling related monitoring program. COB-M2002-X	DOE/WTS Attachment D.4	Yes	

#	Documents Reviewed and Copies Received	194-42 Monitoring Inspection - June 2002	DOE Documents	
#	Document Title	Subject Matter	Source and Location	
			Copy	
31	List of Castle brine encounters near WIPP	Sample of results of drilling related monitoring COB-M2002-W	DOE/WTS Attachment D.4	Yes
32	Drilling Related Monitoring: Delaware Basin Drilling Database Upgrade Process, WP 02-EC3002, Revision 1	Technical procedure. COB-M2002-AA	DOE/WTS	No*
33	Subsidence Monitoring: Subsidence Survey Data Acquisition and Report, WP 09-ES4001, Revision 0, 06/13/02	Technical procedure. COB-M2002-AB	DOE/WTS	No*
34	Demo 1, Raw survey data, Digital Leveling Log Sheet (Loop) from WP 09-ES4001, L0117902.raw, L0117902 lev, WILDsoft output.	Demonstration steps showing implementation of WP-09-ES4001. COB-M2002-AC1 to AC4	DOE/WTS Attachment D.5	Yes
35	Opening program overview presentation by Larry Pyeatt	List the number of drums and standard waste boxes in the underground. COB-M2002-AD	DOE/WTS Attachment D.5	Yes
36	Drawing #21-C012-SF9, 1980-81.	Describes subsidence monument location and construction to FGCS requirements. COB-M2002-AE	DOE/WTS	No*

DOCKET NO: A-98-49
Item: II-B3-37

EPA INSPECTION No. EPA-WIPP-6.02-21b
OF THE
WASTE ISOLATION PILOT PLANT
June 24-27, 2002

Waste Emplacement Inspection Report

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

November 2002

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Table B	Listing of Inspection Participants	3
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Attachments

Attachment A	Listing of TRU Wastes Emplaced To Date
Attachment B	Waste Emplacement Report For Five TRU Waste Containers

1.0 Executive Summary

In accordance with 40 CFR 194.21, the U.S. Environmental Protection Agency (EPA or the Agency), conducted an inspection of the U.S. Department of Energy's (DOE) Waste Isolation Pilot Plant (WIPP) near Carlsbad, New Mexico, from June 24 to 27, 2002. The WIPP is a disposal system for defense-related transuranic (TRU) waste as defined by the WIPP Land Withdrawal Act.¹ EPA certified that the WIPP complies with the Agency's radioactive waste disposal regulations (Subparts B and C of 40 CFR Part 191) on May 18, 1998.

Five DOE transuranic waste sites have shipped waste to the WIPP for disposal. These sites are: Los Alamos National Laboratory (LANL) in New Mexico, Rocky Flats Environmental Technology Site (RFETS) in Colorado, Idaho National Engineering and Environmental Laboratory (INEEL), Hanford Site in Washington, and Savannah River Site (SRS) in Georgia. The first shipment was received by the facility in March 1999.

EPA inspected the WIPP to verify that waste is being emplaced in the underground facility in the manner specified in DOE's Compliance Certification Application (CCA) for the WIPP (EPA Air Docket A-93-02, Item II-G-01, and associated documents). The inspection also verified the proper emplacement of backfill material (magnesium oxide) with the waste packages. EPA found that waste is being emplaced in accordance with commitments made in the CCA.

2.0 Inspection Purpose and Scope

The purpose of this inspection was to determine whether wastes sent to the WIPP have been emplaced in the underground facility in the manner specified in DOE's Compliance Certification Application for the WIPP. EPA performed the inspection under authority of 40 CFR 194.21, which authorizes the Agency to inspect the WIPP during its operational period to verify continued compliance with the 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 to understand the potential for transport of radionuclides out of the mined rooms. The WIPP site is operated by Westinghouse TRU Solutions (WTS) under contract to DOE. The majority of waste-related activities performed on the site are described by or controlled through WTS procedures. A list of all WTS procedures examined for this inspection is provided in Table A.

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

Table A
Listing of WTS Procedures Examined During Inspection

- *WTS Quality Assurance Program Description*, Waste Isolation Pilot Plant Procedure WP 13-1, Revision 22; Effective Date March 27, 2002
 - *Specification for Repackaged MgO Backfill*, Waste Isolation Pilot Plant Procedure D-0101, Revision 3, ECO Number 9753; Effective Date April 4, 2000
 - *CH Waste Processing*, Technical Procedure WP 05-WH1011, Revision 16; Effective Date May 7, 2002
 - *WIPP Waste Information System Program*, Waste Isolation Pilot Plant Procedure WP-08-NT.01, Revision 6; Effective Date December 3, 2001
 - *TRU Waste Receipt*, Management Control Procedure WP-08-NT3020, Revision 3; Effective Date January 24, 2002
 - *Waste Stream Profile Form Review and Approval Program*, Waste Isolation Pilot Plant Procedure WP-08-NT.03, Revision 1; Effective Date October 20, 2000
-

The activities within the scope of this inspection included are:

- demonstration of the site's ability to receive, process, and emplace TRU wastes within the repository
- the use of magnesium oxide (MgO) backfill in appropriate amounts to fulfill CCA commitments
- maintenance of relevant waste packaging records, including the electronic WIPP Waste Information System (WWIS).

The Inspector observed wastes that had been emplaced in the repository and reviewed records documenting that waste emplacement was conducted in accordance with procedures. To date, the wastes received at the repository are contact-handled (CH) transuranic wastes from LANL, RFETS, INEEL, SRS, and Hanford. These wastes are in one of two configurations: Standard Waste Boxes (SWBs) and 55-gallon (208 liter) drums assembled in groups of seven, called a Seven Pack. Both the SWB and Seven Pack have the same "footprint"—that is, they occupy equivalent floor space—and can be stacked in vertical columns as described in this report. There are other waste configurations allowable at WIPP, but they have not been employed to date and are not addressed in this report. A list of wastes emplaced in the repository as of the date of this inspection is provided in Attachment A.

3.0 Performance of the Inspection

The EPA Inspector was Nick Stone, the WIPP Project Officer for Region 6. Casey Gadbury, the CBFO Waste Operations Program Manager, was the chief DOE contact for the inspection. A list of all inspection participants is provided in Table B.

Table B
Inspection Participants

INSPECTION TEAM MEMBER	POSITION	AFFILIATION
Nick Stone	Inspector	EPA Region 6
CBFO/WTS PERSONNEL	POSITION	AFFILIATION
Casey Gadbury	Waste Operations Program Manager	DOE/CBFO
Jody Plum	RCRA Compliance Manager	DOE/CBFO
Dave Speed	WWIS Data Administrator Team Leader	WTS
Mike Strum	WWIS Data Administrator	WTS

The inspection took place on June 24-27, 2002, at the WIPP facility, which is located approximately 30 miles south east of Carlsbad, New Mexico. The opening meeting with CBFO and WTS personnel was held on June 24, 2002. The EPA Inspector viewed a required safety video at the WIPP site before the inspection activities began. The Inspector interviewed WTS personnel about current shipments and emplacement in the underground.

The EPA Inspector then accompanied CBFO and WTS personnel into the underground repository, in order to view waste packages that had been emplaced. The EPA Inspector selected five containers and noted their numbers; the records for these containers were examined later. The WTS personnel explained how waste packages are handled and emplaced and answered questions from the EPA Inspector. The inspection continued the next day with an examination of records and interviews of WTS personnel in charge of the WIPP Waste Information System (WWIS), which took place at the Carlsbad Field Office in Carlsbad. A closeout meeting was held at the end of each day.

3.1 Waste Emplacement and WIPP Waste Information System

The repository is subdivided into panels, each panel consisting of seven (7) rooms. Wastes have been emplaced in Room 7 and most of Room 3. Rooms 4, 5, and 6 were bypassed due to excessive salt creep. At the time of inspection, waste was emplaced in the access Drift S1950

and facility staff were preparing to begin emplacement in Room 2. Since opening in 1999, wastes have been emplaced in Drift S1600 adjacent to Room 7, throughout Rooms 7 and 3, and Drift S1950.²

Wastes are stacked in columns (also called waste stacks) three high in any combination of SWBs and Seven Packs, both having the same "footprint." The Inspector did not observe any 85 gallon drum assemblies or Ten Drum Over Packs (TDOPs), both of which have specific requirements regarding their placement in a column.³ There is no particular order in which SWBs and Seven Packs are stacked; wastes are emplaced as received. A series of three columns (9 SWB or Seven Packs total) spans the distance of the disposal cell from left to right with ample space between columns. Space between the repository wall and the waste column is left open at alternating ends, as represented in Table C below. A second row of three columns is emplaced parallel to the first, but each column is staggered such that it is located between two columns from the previous row; these two left-to-right rows of three columns each (6 columns or 18 SWBs/Seven Packs) are designated a row and numbered, as shown in Table C below. This results in each waste Seven Pack or SWB having a unique identifier that indicates its location underground according to the row, the column and the position within the column (see Attachment B). MgO is placed above each column in 4,000 pound super sacks.

Table C
Schematic of Waste Emplacement in Columns

Column 1		Column 3		Column 5		Combination of 2 left-right columns is a Row
	Column 2		Column 4		Column 6	

The EPA inspector randomly selected five waste containers emplaced in the repository, and WTS personnel read their identification numbers directly off the drums. The EPA Inspector was unable to read them directly because the area adjacent to the emplaced waste was posted as a Radiation Area and access was restricted. The containers selected are identified in Table D below.

² Procedure WP 05-WH1011 identifies the order of waste emplacement in the repository.

³ Due in part to their different footprint, TDOPs must be placed on the bottom of a column, and 85 gallon drum assemblies must be placed on the top level of each column.

Table D
Randomly Selected Waste Containers Examined During Inspection

<u>Site of Origin</u>	<u>Waste Container Identifier</u>	<u>Container Type</u>
RFETS	RFS00855	Standard Waste Box
RFETS	RFDB0279	55 gallon drum pipe overpack
RFETS	RFDA7881	55 gallon drum pipe overpack
RFETS	RFDA0323	55 gallon drum pipe overpack
INEEL	IDRF741202926	55 gallon drum

Some records were paper, while others were electronic, such as fields in the WIPP Waste Information System (WWIS) database. The WWIS is an on-line database system used to record, track, and document the range of activities required for shipping TRU wastes to WIPP. The WTS personnel stated that the reliance on electronic approvals instead of paper was deliberate and was designed to minimize the use of paper. The EPA Inspector examined the following modules:

- Characterization Module, linked to the Waste Container Data Report
- Certification Module, linked to the Acceptance Report or Rejection Report
- Shipping Module, linked to the Shipment Summary Report
- Inventory Module, linked to the Nuclide Report and Waste Emplacement Report.

Mike Strum produced either paper or electronic records of all modules requested. All records were found to contain the required information.

3.2 Magnesium Oxide Backfill

Magnesium oxide (MgO) is used in the repository as backfill, as specified in DOE's Compliance Application (CCA). WTS Procedure D-0101, *Specification for Prepackaged MgO Backfill*, contains specifications for the amount and specific placement of prepackaged MgO for four waste configurations: 85 gallon Over Packs, Ten Drum Over Packs, Seven Packs, and Standard Waste Boxes. WTS Technical Procedure WP 05-WH1011; *CH Waste Processing*, details a procedure for MgO placement and how to document that the placement of MgO has been accomplished correctly (CH Waste Processing Data Sheet). The EPA Inspector observed that MgO had been placed properly in the three rows that were visible from outside the restricted access area. Completed rows have supersacks stacked on each column. Records examined for the 5 waste shipments discussed earlier in this report indicated that MgO had been placed in compliance with Technical Procedure WP 05-WH1011.

4.0 Summary of Findings

The activities examined during the inspection were found to comply with WTS procedures and with the description of waste and that for the backfill emplacement provided in the CCA. No noncompliance or activities that had the potential to compromise waste isolation were observed. The inspector identified no findings or concerns.

Attachment A

Listing of TRU Wastes Emplaced at WIPP As of June 21, 2002

TRU Waste Generator Site:	Los Alamos National Laboratory
Waste Containers Shipped:	55 gallon (208 liter) drums in Seven Pack Configuration Standard Waste Boxes (SWBs)
Number Shipped:	169 total - 28 drums & 141 SWBs
TRU Waste Generator Site:	Idaho National Engineering and Environmental Laboratory
Waste Containers Shipped:	55 gallon (208 liter) drums in Seven Pack Configuration
Number Shipped:	9326 total - 8893 drums & 433 dunnage drums
TRU Waste Generator Site:	Rocky Flats Environmental Technology Site
Waste Containers Shipped:	55 gallon (208 liter) drums in Seven Pack Configuration 55 gallon drums with Pipe Overpack Containers (POCs) Standard Waste Boxes (SWBs)
Number Shipped:	4740 total - 2730 drums, 13552 POCs, 35 dunnage drums, & 42 SWBs
TRU Waste Generator Site:	Hanford Site
Waste Containers Shipped:	55 gallon (208 liter) drums in Seven Pack Configuration
Number Shipped:	383 drums total & 2 dunnage drums
TRU Waste Generator Site:	Savannah River Site
Waste Containers Shipped:	55 gallon (208 liter) drums in Seven Pack Configuration
Number Shipped:	336 drums total

Attachment B

Waste Emplacement Report Data for Five (5) TRU Waste Containers

TRU PACT No.	125	145	145	178	164
Container No.	IDRF741202926	RFDA0323	RFDA7881	RFDB0279	RFS00855
Row Number	148	148	148	137	147
Height	Top	Top	Top	Middle	Middle
Column	2	6	4	1	3
Disposal Cell	SD1950	SD1950	SD1950	Main Room	SD1950
Disposal Room	3	3	3	3	3
Disposal Panel	1	1	1	1	1
Disposal Date	6-23-02	6-24-02	6-24-02	6-17-02	6-23-02

Attachment C

Inspection Checklist

WIPP Emplacement Inspection Checklist

#	Question	Comments (Objective Evidence)	Documentation	Results														
Waste Emplacement																		
1	Is waste being emplaced in the underground facility in the manner specified in DOE's Compliance Certification Application (CCA)?	Observed the waste emplaced in Panel 1, within the access drift near the opening of Room 2. The waste emplacement appeared to be compliant with the requirements in the CCA.	WP 05-WH1011	Adequate														
2	Are waste stacked in columns three high?	Inspector observed the waste stacks. All stacks were three drums high with an MgO super sack above each.	WP 05-WH1011	Adequate														
3	Are waste emplaced as received?	Inspector observed waste removed from TRU-PACT II containers and staged for transport into the underground.	WP 05-WH1011	Adequate														
4	Are records adequate? Randomly select five waste containers to verify records for waste approval, shipment, and receipt:	<table border="0"> <thead> <tr> <th><u>Site of Origin</u></th> <th><u>Identifier</u></th> </tr> <tr> <th><u>Type</u></th> <th></th> </tr> </thead> <tbody> <tr> <td>Rocky Flats</td> <td>RFDB0279</td> </tr> <tr> <td>Idaho</td> <td>IDRF741202926</td> </tr> <tr> <td>Rocky Flats</td> <td>RFS00855</td> </tr> <tr> <td>Rocky Flats</td> <td>RFDA7881</td> </tr> <tr> <td>Rocky Flats</td> <td>RFDA0323</td> </tr> </tbody> </table>	<u>Site of Origin</u>	<u>Identifier</u>	<u>Type</u>		Rocky Flats	RFDB0279	Idaho	IDRF741202926	Rocky Flats	RFS00855	Rocky Flats	RFDA7881	Rocky Flats	RFDA0323	N/A	Adequate
<u>Site of Origin</u>	<u>Identifier</u>																	
<u>Type</u>																		
Rocky Flats	RFDB0279																	
Idaho	IDRF741202926																	
Rocky Flats	RFS00855																	
Rocky Flats	RFDA7881																	
Rocky Flats	RFDA0323																	
5	Verify documentation for the containers listed in item 4 - 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 emplace in the underground, and placement of backfill [MgO].	Reviewed the Shipment Summary Report, the Waste Container Data Report, and the CH Waste Processing Data Sheet (Attachment 1 of WP 05-WH1011) for each of the selected drums.	Attachments 1 and 4 of WP 05-WH1011.	Adequate														

WIPP Emplacement Inspection Checklist

#	Question	Comments (Objective Evidence)	Documentation	Results
Backfill [MgO] Emplacement				
6	Is DOE properly emplacing backfill material (magnesium oxide [MgO]) with the waste packages?	Inspector observed the MgO super sacks placed on top of the waste stacks.	WP 05-WH1011	Adequate
7	Are Super Sacks placed on top of waste stacks as described in Volume 1, Section 3.3.3 of the CCA; approximately 4,000 pounds, multi-wall construction with a vapor and moisture barrier?	Inspector observed the MgO super sacks to be constructed of polymer multi-walled material and sized properly to contain 4,000 lbs of MgO.	WP 05-WH1011	Adequate
#	Question	Comments (Objective Evidence)	Documentation	Results
WIPP Waste Information System (WWIS)				
8	Is DOE maintaining records of waste shipments and emplacement properly?	Reviewed the WWIS reports and WP 05-WH1011 attachments for the five selected drums.	WP 05-WH1011	Adequate
9	Do the characterization module, certification module, shipping module, and inventory module adequately record the required information?	Interviewed Dave Speed and reviewed the characterization module, certification module, shipping module, and inventory module for each of the five drums selected.	WP 05-WH1011	Adequate
10	Characterization Module - Review a WWIS Waste Container Data Report. Does this report adequately record the Waste Stream Profile Form information?	Reviewed the Waste Container Data reports for each of the selected drums. Determined that each report reflected the Waste Stream Profile form information.	WP 05-WH1011 and RP0360	Adequate
11	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?	Reviewed the Container Approval/Rejection Report. This document confirms that CBFO certifies and grants authority to each generator prior to review of the characterization data.	WP 05-WH1011 and RP0510	Adequate

WIPP Emplacement Inspection Checklist

#	Question	Comments (Objective Evidence)	Documentation	Results
	WIPP Waste Information System (WWIS)			
12	Certification Module - Examine an Acceptance Report and a Rejection Report. Do these adequately record waste information?	Reviewed RP0510 "Container Approval/Rejection Report."	WP 05-WH1011 and RP0510	Adequate
13	Is the generator/shipper denied any further write access to certification information after the data passes the limit and edit check and a review by the WWIS data administrator?	In discussions with Dave Speed and Mike Strum I determined that the generator sites are denied write access to WWIS data that has been confirmed by CBFO prior to shipment.	WP 05-WH1011	Adequate
14	Shipping Module - Review the Shipment Summary Report. Does the report correctly record the containers shipped?	Reviewed the Shipment Summary Report for each of the drums selected. Determined that each drum was accurately described in the report.	WP 05-WH1011 and RP0390	Adequate
15	Inventory Module - Review the Container Emplacement Report. Does this report adequately record the date of receipt, disposal locations of containers, and the emplacement of MgO?	Reviewed the Container Emplacement Report for each of the drums selected. Determined that the report accurately showed the receipt date, location, and placement of MgO.	WP 05-WH1011 and RP0440	Adequate
16	Does the WWIS adequately document waste shipment and emplacements information for waste containers selected item 4 above?	After review of the documents provided, I determined that the WWIS accurately reflects the waste shipment and emplacement information for the drums selected in Item 4.	WP 05-WH1011 and RP0390, RP0440, RP0360, RP0510, and Attachments 1&4 of WP-05-WH1011	Adequate

DOCKET NO: A-98-49
Item: II-B3-37

INSPECTION No. EPA-WIPP-6.02-24a
OF THE
WASTE ISOLATION PILOT PLANT
June 24-25, 2002

40 CFR 191, Subpart A Inspection Report

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

November 2002

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1.0 Executive Summary

The U.S. Environmental Protection Agency (EPA) conducted an inspection of the Waste Isolation Pilot Plant (WIPP) on June 24-25, 2002, as part of our continuing oversight program. This inspection was conducted under the authority of 40 CFR 191, Subpart A. The purpose of this inspection was to verify that the Department of Energy (DOE), which operates the WIPP, was in compliance with the dose release standard found at 40 CFR 191.03.

Inspectors reviewed DOE's ability to monitor radiation releases to the public due to normal waste disposal operations and any unplanned or accidental releases that might occur during reporting periods established under 40 CFR 191. As of June 2002, there had been no such releases. Inspectors examined WIPP's emission control devices and methods used to estimate radiation doses to the public. In addition, the inspectors toured radiation sample locations and equipment, observed sample processing, and reviewed the computational methods used to estimate doses.

We found that DOE continued to improve its air monitoring program during the past year, has an effective radiation sampling program, and can calculate both yearly and accidental dose estimates adequately. Inspectors identified no findings or concerns.

2.0 Scope

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

During this year's inspection, we focused our attention on two main areas: (1) DOE's ability to produce an annual report; and (2) DOE's ability to respond to unplanned or accidental releases. EPA's expectations in both areas are described in "Guidance for the Implementation of the EPA's Standards for Management and Storage of Transuranic Waste (40 CFR Part 191, Subpart A) at the WIPP" (EPA 402-R-97-001), Sections 2.3 and 4.2.

3.0 Inspection Team, Observers, and Participants

The inspection team consisted of two EPA representatives. Thomas Klein of the Environmental Evaluation Group (EEG) and Alton Harris of DOE Headquarters were present as observers.

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

Numerous DOE staff and contractors participated in the inspection.

DOE/Contractor Participates	Position	Affiliation
Russ Patterson	PA Manager	DOE/CBFO
Casey Gadbury	Waste Ops Pgm Manager	DOE/CBFO
Linda Frank-Supka	ES&H	WTS
Dave Kump	ES&H	WTS
Tom Goff	Radiological Engineer	WTS
Sabrina Lacy	Radiological Control Technician.	WTS

WTS = Westinghouse, CBFO = Carlsbad Field Office, ES&H = Environmental
NTP = National TRU Program OPS = Operations Safety and Health

The inspection began on Monday, June 24, 2001, with a presentation by Dave Kump about the status of the WIPP radiation monitoring program. He discussed changes in the program (COB-A2002-AA) since EPA inspection no. EPA-WIPP-6.02-21a in June 2001, as summarized below

Monitoring Station A -

- Skid A-3 moved from the east skid location to the south skid location.
- Changing from flow recorder data cards to a PC-based recorder (not completed at time of inspection).
- Changing from one DP instrument on each skid (3) to one DP instrument on each leg (9).
- A temperature and humidity probe is being added to each skid.
- Differential pressure, temperature, and humidity data will be archived to the PA-based recorder.
- An efficient probe cleaning tool was designed, developed, and put into use.

- Ball valves were installed in each leg of each skid to prevent filter loss.
- The Station A-1 probe and transport line were replaced.
- Improvements to Station A have allowed a reduction in filter changes from twice per day to once per day.

Monitoring Station C

- Texas A&M has been contracted and is performing work to certify Station C at the Waste Handling Building using the 1999 ANSI 13.1 Standards.

Monitoring Station D

- Installation of Station D at the qualified location was completed in August 2001. Installation included an enclosure to protect personnel and samples during sample collection from the high air velocity in E-300.

Other Changes

- An offsite communicator was put into service to allow expeditious notification of stakeholder personnel of events at the WIPP that may affect the quality of air effluent samples.

The inspection team toured and reviewed various activities to verify effective implementation of procedures. The team reviewed the new skid location at Station A at the air exhaust, viewed filter changing operations, evaluated the radiological accidental response procedures and implementation, interviewed site staff about the steps involved in an accidental response scenario, examined the changes implemented at Station D, and the Waste Handling Building (WHB).

The inspectors asked DOE/WTS staff to walk through the steps necessary to develop and complete the annual emissions report, and to simulate an accidental release scenario and show the steps to respond.

4.0 Performance of the Inspection

Inspectors reviewed the aspects of the radiation compliance program described below.

Annual Report Development

Inspectors reviewed the steps taken to produce the annual emissions report using

procedure WP 12-HP3125. No findings or concerns were identified.

Simulated Accidental Release

Inspectors reviewed the steps that would be taken during an accidental release of radioactive material. On June 25 inspectors observed Sabrina Lacy changing filters at Station A following the chain of custody procedures for a hypothetical accidental release. Inspectors followed the samples to the onsite laboratory and were walked through the steps taken to determine first estimates, "quick count," and the laboratory procedures to determine final measurements of possible radioactivity on the filters collected from Station A.

Next, Tom Goff showed inspectors how weather data are collected in real time, how GXQ program input files are updated, and how an accidental release is estimated by running the GXQ computer code. During last year's inspection of the same program (EPA-WIPP-6.02-21a; See Air Docket A-98-49, Item II-B3-13), inspectors questioned the readiness of the WIPP program to perform dose calculations during an emergency. Mr. Goff explained the process of performing dose calculations using three different methods, described in Procedure WP12-ER4903, "Radiological Event Response, Rev. 8." The WIPP program met a full time staff member hired to run the GXQ program periodically and take real-time meteorological weather measurements.

DOE has moved the sample of record location from Skid A-3 to Skid A-1 to improve the representativeness of air effluent samples taken at Station A. This move significantly improved the overall quality of the samples. Inspectors observed that the sampling equipment was working properly. Inspectors reviewed the Station D location and the changes that had been taken to improve its operation. Further details about inspection activities can be found in Attachment A, Inspection Checklist.

5.0 Summary of Findings

Inspectors concluded that DOE adequately implemented a radiological monitoring and sampling program for WIPP disposal operations and appropriately performed calculations to estimate potential releases to the public. Inspectors identified no findings or concerns.

Attachment A
Inspection Checklist

Part 191 Subpart A for year 2002 - Compliance Reporting Checklist

Standard Compliance
 5/10/02
 5/10/02
 5/10/02

#	Question	EPA Citation	Comment (Objective Evidence)	Result
	40 CFR 191.403 Compliance Standard			
	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 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			
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 Site Environmental Report (COB-A2002-C) documents the results of DOE/WIPP's efforts to consider all activities that impact compliance.	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?	EPA 402-R-97-001 Section 2.3, Page 5	Section 3.2 of COB-A2002-A, documents the program planned to show how this requirement is examined. COB-A2002-F, documents the QA requirements for the sampling of emissions. COB-A2002-I demonstrates that normal operations are examined. COB-A2002-BA documents DOE's review of potential accidents at WIPP. Procedure WP 12-FP4000 (COB-A2002-AH) documents emergency responses.	Sat.
	Media considered in determining compliance			
3	Does DOE demonstrate that the air pathway is the credible release pathway?	EPA 402-R-97-001 Section 2.4, Page 5	COB-A2002-G, Chapter 5 page 5.2-12 of the SAR (DOE/WIPP-95-2065, Rev. 5) 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	Section 2.1 and 3.5 of COB-A2002-A documents the detailed plan for measurements these potential exposure mechanisms. COB-A2002-I demonstrates that these exposure mechanisms are included.	Sat.

Part 191 Subpart A for year 2002 - Compliance Reporting Checklist

#	Question	EPA Citation	Comments (Objective Evidence)	Results
	<u>Matters considered in determining compliance</u>			
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 COB-A2002-A explains DOE plan to fulfill this requirement. COB-A2002-C demonstrates that DOE implements a groundwater surveillance, biota sampling and off-site air monitoring programs.	Sat.
	<u>Boundary of compliance</u>			
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 COB-A2002-A states that the "Exclusive Use Area" will be used as the boundary for 40 CFR 191 Subpart A compliance.	Sat.
	<u>Location of maximally exposed individual</u>			
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	COB-A2002-I demonstrates that DOE does consider doses at appropriate offsite points, such as Smith Ranch located 7.5 km away in the WNW sector of WIPP.	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	COB-A2002-I demonstrates that DOE does consider doses at appropriate offsite points, such as Smith Ranch located 7.5 km away in the WNW 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	COB-A2002-BA Section 5.2.1.1 describes the selection of the MEI location. COB-A2002-I demonstrates that DOE does consider doses at appropriate offsite points, such as Smith Ranch located 7.5 km away in the WNW sector of WIPP.	Sat.

Part 191 Subpart A for year 2002 - Compliance Reporting Checklist

#	Question	EPA Citation	Comments (Objective Evidence)	Results
	Personal parameters			
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 COB-A2002-A describes the "reference man" parameters as described in the CAP88-PC computer code. COB-A2002-I demonstrates that "reference man" is used to evaluate radiation doses.	Sat.
	Calculation of dose - Modeling - Parameters			
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	COB-A2002-I demonstrates that DOE appropriately fulfills the requirements of #11.	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 COB-A2002-A states that the air pathway is the most credible but other exposure pathways will be monitored. COB-A2002-I 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 COB-A2002-A states that a computer model will be used to calculate radiation doses. COB-A2002-I 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	Section 3.2 of COB-A2002-A states that CAP88-PC is used for dose calculations. COB-A2002-I 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	Section 3.2 of COB-A2002-A states that DOE uses the atmospheric dispersion code (CXQ) to determine concentrations for accidental releases.	Sat.
16	Does DOE adequately support exposure parameters used in dose calculations?	EPA 402-R-97-001 Section 2.7.3, Page 10	COB-A2002-I demonstrates that DOE is using appropriate parameters in dose calculations.	Sat.

Part 191 Subpart A for year 2002 - Compliance Reporting Checklist

#	Question	EPA Citation	Comments (Objective Evidence)	Results
17	<p>Calculation of dose - Modeling Parameters</p> <p>Does DOE document that "conservative simplifying assumptions" are used in the radiation dose calculations?</p>	EPA 402-R-97-001 Section 2.7.3, Page 10	COB-A2002-1 demonstrates that DOE is using conservative simplifying assumptions in dose calculations.	Sat.
18	<p>Are DOE's exposure parameters as conservative as the following?</p> <p>For a maximally exposed individual located at a residence, assumed continuous exposure (24 hours per day).</p> <p>For a maximally exposed individual located at a business, office, or school, assume exposure of 8 hours per day.</p> <p>Assume individuals consume 3 liters per day of drinking water from an underground source of drinking water.</p> <p>Assume inhalation rate for air to be $9E+5$ cm³/hr.</p> <p>Assume ingestion rate of meat to be 85 kg/yr.</p> <p>Assume ingestion rate of leafy vegetables to be 18 kg/yr.</p> <p>Assume ingestion of milk to be 112 liter/yr.</p> <p>Assume ingestion rate of produce to be 176 kg/yr.</p>	EPA 402-R-97-001 Section 2.7.3, Page 10	Section 3.2 of COB-A2002-A states that DOE is using these values as exposure parameters. COB-A2002-1 demonstrates that DOE is using these parameters in dose calculations.	Sat.

Part 191 Subpart A for year 2002 - Compliance Reporting Checklist

#	Question	EPA Citation	Comments (Objective Evidence)	Results
19	<p><i>Emissions and Environmental Monitoring - Air</i></p> <p>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?</p>	EPA 402-R-97-001 Section 3.1, Page 11, (1(i))	COB-A2002-F Section 4.1 documents that this requirement is appropriately implemented at WIPP.	Sat.
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 exceed the 40 CFR 60 requirements.	NA
21	<p>Does DOE demonstrate that the frequency of flow rate measurements depend on the variability of the effluent flow rate?</p> <p>Note: 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.</p>	EPA 402-R-97-001 Section 3.1, Page 11, (1(iii))	COB-A2002-A, Section 3 describe the continuous air monitoring requirements at WIPP.	Sat.
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. COB-A2002-F documents in Section 4.1 the location of sampling sites.	Sat.

Part 191 Subpart A for year 2002 - Compliance Reporting Checklist

#	Question	EPA Citation	Comments (Objective Evidence)	Results
23	<p>Emissions and Environmental Monitoring - Air</p> <p>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.</p>	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.	NA
24	<p>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?</p> <p>If not, does DOE demonstrate that the Administrator has approve the method used?</p>	EPA 402-R-97-001 Section 3.1, Page 12, (2)(iii)	COB-A2002-F page 10 documents that DOE used these principles.	Sat
25	<p>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"?</p>	EPA 402-R-97-001 Section 3.1, Page 12, (2)(ii)(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, COB 191A-AO-2000) documents DOE's evaluation of the Shrouded Probe and its compliance with the EPA criteria.	Sat
26	<p>Does DOE's quality assurance program meet the performance requirements described in Appendix, Method 114 of 40 CFR Part 61?</p>	EPA 402-R-97-001 Section 3.1, Page 12, (2)(iv)	COB-A2002-F documents DOE quality assurance requirements. These meet the requirements of 40 CFR 61.	Sat

Part 191 Subpart A for year 2002 - Compliance Reporting Checklist

#	Question	EPA Citation	Comments (Objective Evidence)	Results
	Emissions and Environmental Monitoring - Air			
27	<p>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:</p> <ul style="list-style-type: none"> (i) DOE shows that methods in Section 3.1(1) or (2) are impractical; (ii) DOE shows the alternative procedure will not significantly underestimate the emissions; (iii) DOE show the alternative procedure is fully documented; and (iv) DOE has received prior approval from EPA. 	EPA 402-R-97-001 Section 3.1, Page 12, 3(i) to 3(iv))	See question #19, DOE uses Section 3.1 (1)(i) of EPA 402-R-97-001 page 11.	NA.
28	Does DOE demonstrate that radionuclide emission measurements are in conformance with the methods in Section 3.1(1) and (2) to be made at all release points which have a potential to discharge radionuclides into the air in quantities which could cause a combined annual dose equivalent in excess of 1% of the dose limit in Subpart A?	EPA 402-R-97-001 Section 3.1, Page 12 and page 13, (4(i))	Section 3.3.3 of COB-A2002-A 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 COB-A2002-A documents DOE's compliance with this requirement.	Sat.

Part 191 Subpart A for year 2002 - Compliance Reporting Checklist

#	Question	EPA Citation	Comments (Objective Evidence)	Results
	<u>Emissions and Environmental Monitoring - Air</u>			
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 does not use alternative procedures at WTPP.	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. COB-A2002-BA documents these conclusions.	NA
32	Does DOE demonstrate that an evaluation has been done to evaluate the potential for radionuclide emissions for that release point?	EPA 402-R-97-001 Section 3.1, Page 13, (4(ii))	Chapter 5 of COB-A2002-BA documents this evaluation.	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 of COB-A2002-BA documents this demonstration.	Sat.

Part 191 Subpart A for year 2002 - Compliance Reporting Checklist

#	Question	EPA Citation	Comments (Objective Evidence)	Results
	<u>Environmental Measurements (Page 1)</u>			
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)	Section 3.5, COB-A2002-A documents that DOE does not use environmental monitoring as an alternative.	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))	Section 3.3.3, COB-A2002-A documents that DOE uses periodic confirmatory monitoring because doses are below 1% of the standard.	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))	COB-A2002-I documents the results DOE's environmental monitoring program. This report demonstrates that the results are based on major radionuclides.	Sat.
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))	COB-A2002-D and COB-A2002-H describe the methods used by DOE to measure radionuclide concentrations. These methods will detect doses that are in compliance with this requirement.	Sat.
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))	COB-A2002-F documents that DOE's QA program meets these requirements.	Sat.

Part 191 Subpart A for year 2002 - Compliance Reporting Checklist

#	Question	EPA Citation	Comments (Objective Evidence)	Results
39	<p><u>Environmental Measurements (Page 2)</u></p> <p>Does DOE demonstrate that EPA has granted prior approval for the use of environmental measurements to demonstrate compliance with the standard?</p>	<p>EPA 402-R-97-001 Section 3.1, Page 13, (5(v))</p>	<p>DOE has not requested approval to use environmental measurements.</p>	<p>NA</p>
40	<p><u>Emissions and Environmental Monitoring - Other Media</u></p> <p>Does DOE demonstrate that environmental monitoring of other release points or critical receptor locations to confirm air exhaust as the only release pathway?</p>	<p>EPA 402-R-97-001 Section 3.2, Page 14.</p>	<p>COB-A2002-C demonstrates that DOE's environmental program monitors other release points and critical receptor locations.</p>	<p>Sat.</p>

Part 191 Subpart A for year 2002 - Compliance Reporting Checklist

#	Question	EPA Citation	Comments (Objective Evidence)	Results
	<u>Compliance Reporting</u>			
41a	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 3.3.3 of COB-A2002-A documents that DOE's plans to report results yearly. COB-A2002-I demonstrates that DOE does report results yearly.	Sat.
41b	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 3.3.3 of COB-A2002-A documents that DOE's plans to report results yearly. COB-A2002-I demonstrates that DOE does report results yearly.	Sat.
41c	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 3.3.3 of COB-A2002-A documents that DOE's plans to report results yearly. COB-A2002-I demonstrates that DOE does report results yearly.	Sat.
	<u>Notification of construction or modification</u>			
42	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 COB-A2002-A documents that DOE's plans to report results yearly. COB-A2002-I, Section 8.0 demonstrates that DOE does report planned construction and modification during the year.	Sat.
43	Does DOE demonstrate that advanced notification was not needed for construction and 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 COB-A2002-A documents that DOE's plans to report results yearly.	Sat.

Part 191 Subpart A for year 2002 - Compliance Reporting Checklist

Subpart A - Normal Reporting			
#	Questions	Comment (Objective Evidence)	Results
1	<p>Document the steps normally taken to prepare and complete the annual Subpart A report as noted in the example in Implementation Plan for 40 CFR Part 191, Subpart A.</p> <p>List steps involved and provide objective evidence that verifies the quality of results at each step. List procedures that control the process in the order they are used.</p> <p>We are mainly looking for how the process works and how procedures are used.</p>	<p>Attachment D.2 shows the documents generated to produce the annual report. The documents follow the requirements of WP 12-HP3125 (COB-A2002-AC) as noted on each page. This step-by-step process documents that DOE/WTS is following appropriate steps to measure can calculate the annual effective dose.</p>	Sat.

Part 191 Subpart A for year 2002 - Compliance Reporting Checklist

Subpart A - Accident Reporting			
#	Questions	Comment (Objective Evidence)	Results
1	<p>Assume the CMR monitors an underground CAM alarm at 0900, June 25, 2002. Report the steps taken to deal with such an event, using reasonable detail - not everything that takes place. List major steps involved and provide objective evidence that verifies the quality of results at each step, noting procedures used.</p> <p>For example:</p> <ul style="list-style-type: none"> -Release notification -Taking samples -Laboratory measurements -Derivation of the source term -Calculation of projected doses <p>You have four hours to complete this task.</p> <p>We are looking for how samples are collected, analyzed, and how the dose is calculated.</p>	<p>Attachment D.4 shows documents produced in response to a CAM alarm. COB-A2002-XX records the steps, with related procedures, taken to response to a possible radioactive release. These documented steps show that DOE/WTS is prepared and drilled to respond to an accidental release.</p>	Sat.

Attachment B

Opening and Closing Meeting Attendance Sheets

Westinghouse TRU Solutions Meeting Attendance Record

Topic EPA Monitoring Inspection Audit opening Meeting
 Date 6/24/02 Location Lg. Conf Rm./Site Time 8:30 AM

Name-	Title	Organization	Phone
Lisa Will	QA ANALYST	QA ADP	8433
JOHN HOFF	MANAGER ASBESTOS/ROG. QA	QA	8403
Steve Youngerman	OPS Manager	OPS - WTS	8302
HW Bellows	OPS MANAGER	OPS	8257
ALTON Harris	DOE HQ ^{Waste Mgmt}	DOE HQ	301-903-8446
Casey Gadbury	DOE/CBFO Waste Ops Team Manager	DOE-CBFO	8303
Nick Stone	EPA REGION 6 Inspector	EPA Region 6	
Chuck Byrum	EPA Inspector	EPA OIA	
Ginny Waymire	QA Officer - WIPP Labs	ES+H	8018
Kuss Patterson	PA-Manager	DOE-CBFO	505/231-7657
RON RICHARDSON	TEAM LEAD GROUNDWATER	WTS	234-2395
Stewart Jones	Mgr. Env. Monitoring	WTS	8293
RAY CARASLO	Prin. Engr.	Mini Ops	8698
S. J. PATCHET	Hon. Comm. Eng. Inc.	Min. Dev. Dept	8370
Steve Pritchett	SUBWAY	WTS MINI-OPS	8191
Michael Galbraith	DOE/CBFO Fac Rep	DOE	8365
TIM KLAUS	System Eng Mgr	CBFO	8460
John D. Gony	Waste Handling Coord Mgr	WTS/WHO	8906
ROBERT WADE	CH Radiol. Control MGR	WTS/RELATN	8701
Don Harward	ESEN Rep. Mgr	WTS/ES+H	8285
Rob Hayes	RH Rad Engineer	WTS/ES+H	8629
SABRINA LACH	RAD CON TECH	WTS/OHP	8168
Paul Salmer	CTAC / Hydrologist	CTAC	7187
Mike Lipscomb	QA Manager	WTS	8240
CANDICE SIERRA	ESH. MGR	WTS	8525
Jim Kenney	CTAC - Sp. Oversight	CTAC	8128
Thomas Klein	EEG - Scientist	EEG	885-9625
TOM GOFF	Radiological Engineer	WTS	234-8861
Linda Frank-Supka	Radiological Engineer	WTS	234-8816
Dave Kump	hot safety	WTS	234-8486

COB-A2002-AB5

Attachment C

Table of Documents Reviewed

#	Documents Reviewed and Copies Received	191-03 Subpart A Inspection - June 2002	DOE Documents	Copy
Document Title	Subject Matter	Source and Location		
1	CCA, Appendix EMP, Waste Isolation Pilot Plant Environmental Monitoring Program. DOE/WIPP 96-2194. In particular pages 4-1, 5-1, 5-3, 5-4, 5-6.	Discussed DOE environmental monitoring plans at the WIPP site. COB-A2002-1	DOE, CCA, Appendix EMP (*Not included in this inspection report.)	No*
2	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. COB-A2002-A	DOE/WTS	No*
3	Periodic Confirmatory Measurement Protocol for the Waste Isolation Pilot Plant DOE/WIPP 97-2238, Revision 6, June 2001	Used to explain the protocol to used perform periodic confirmatory measurements. COB-A2002-B	DOE/WTS	No*
4	Waste Isolation Pilot Plant CY 2000 Site Environmental Report, DOE/WIPP 01-2225, ESRF-045	Example of the results of the environmental monitoring program, in particular radiological measurements. COB-A2002-C	DOE/WTS	No*
5	Airborne Radioactivity - Technical Procedure WP 12-HP3500, Revision 9, 03/26/02	Procedure provides instructions for analyzing, reporting, and trending results of air samples. COB-A2002-D	DOE/WTS	No*
6	WTS Quality Assurance Program Description WP 13-1, Revision 22, 03/27/02	WTS minimum quality requirements for WIPP. COB-A2002-E	DOE/WTS	No*
7	Quality Assurance Program Plan for Sampling Emissions of Radionuclides to the Ambient Air at the Waste Isolation Pilot Plant WP 12-RC.01, Revision 6, 06/16/00	QA program for sampling air emissions at WIPP. COB-A2002-F	DOE/WTS	No*

Documents Reviewed and Copies Received		191.03 Subpart A Inspection - June 2002		DOE Documents	
#	Document Title	Subject Matter	Source and Location	Copy	
8	Pages 5.2-11, Chapter 5 of DOE/WIPP-95-2065 Rev. 5.	This selection verifies that the air pathway is the only pathway of concern at the WIPP. COB-A2002-G	DOE/WTS.	No*	
9	Instructions for Periodic Confirmatory Sampling Compliance Reporting WP 12-HP3125, Revision 7, 06/15/01	This procedure provides instructions for Radiological Engineers of the Radiological Controls Department to fulfill the requirements of NESHAPs. COB-A2002-H	DOE/WTS	No*	
10	Letter from Inez Triay (DOE) to Carl Edlund Weber (EPA). June 25, 2002	References the attached Annual Periodic Confirmatory Measurement Compliance Report for the U.S. Department of Energy's Waste Isolation Pilot Plant for calendar year 2001. COB-A2002-I	DOE/WTS Attachment D.1	Yes	
11	Presentation on changes to the monitoring system by Dave Kump in the opening meeting.	Discussed changes to Station A and procedures to improve effluent monitoring. COB-A2002-AA	DOE/WTS Attachment D.1	Yes	
12	Opening and Closeout Meeting Sign-up Sheets	COB-A2002-AB1 to AB5	DOE/WTS Attachment B	Yes	
13	Instructions for Periodic Confirmatory Sampling Compliance Reporting, WP 12-HP3125, Revision 7, 06/15/01	COB-A2002-AC	DOE/WTS Attachment D.2		

#	Documents Reviewed and Copies Received	191105 Subpart A Inspection - June 2002	DOE Documents	Copy
Document Title	Subject Matter	Source and Location		
14	Sample - From WP 12-HP1300 Attachment 1 - Radiological Monitoring Equipment Log Sheet	Form used to document a filter change out at Station A. COB-AA2002-AD	DOE/WTS Attachment D.2	Yes
15	Sample - Tables showing Station A and Station B NESHAP Filter information	Documents daily filter change-outs, flow rates, and air volumes. Use to calculate total annual dose. COB-AA2002-AE1 and AE2	DOE/WTS Attachment D.2	Yes
16	Sample - From WP 12-HP1300 Attachment 3 - CAM and FAS Rates and Alarm Set Points	Used to verify that alarms are set correctly/ COB-AA2002-AF	DOE/WTS Attachment D.2	Yes
17	Radiological Event Response, Emergency Response Procedure, WP 12-ER4903, Revision 5, 01/18/01	Procedure documents actions taken if a potential or actual radioactive release takes place. COB-AA2002-AG	DOE/WTS Attachment D.4	Yes
18	Emergency Radiological Control Responses, Emergency and Alarm Response Procedure, WP 12-HP4000, Revision 2, 06/19/00	Section 3.0 documents actions to be taken in the event of and "ON-SITE AIRBORNE RADIOACTIVITY EVENT". COB-AA2002-AH	DOE/WTS Attachment D.4	Yes
19	Sample - Summary of Station A, Skid A-3 and A-1 Monthly Probe Cleaning Activities Calendar Year 2001	Documents results of probe monthly cleaning. COB-AA2002-AI	DOE/WTS Attachment D.2	Yes
20	Sample - Attachment 5 - Request For Analysis / Chain-of-Custody Record	Used to request laboratory analysis and serves as a chain of custody form. COB-AA2002-AJ	DOE/WTS Attachment D.2	Yes

Documents Reviewed and Copies Received		19F03 Subpart A Inspection - June 2002		DOE Documents	
#	Document Title	Subject Matter	Source and Location	Copy	
21	Sample - Laboratory Sample Result Summary for Stations A, B, and C.	Documents results of laboratory measurements. COB-A2002-AK1 to AK3	DOE/WTS Attachment D.2	Yes	
22	Sample - Worksheet used to calculate total annual values.	Documents summation of monthly values. COB-A2002-AL.	DOE/WTS Attachment D.2	Yes	
23	Sample - From WP 12-HP3125, Attachment 1 - Composite Samples Worksheet with accompanying Excel spreadsheet	Documents final composition of valves and calculation yearly activity. COB-A2002-AM1 and AM2.	DOE/WTS Attachment D.2	Yes	
24	WPPP Air Monitoring Status First Quarter 2002, June 2002	Documents results of periodic probe inspection and cleaning. COB-A2002-AN	DOE/WTS Attachment D.3	Yes	
25	Response to Underground Airborne Radioactive Release, with procedure references	Documents steps taken to respond to airborne release. COB-A2002-AO	DOE/WTS Attachment D.4	Yes	
26	Example page from CMR Operation Log Book	This log book notes daily activities and any accidents. COB-A2002-AP	DOE/WTS Attachment D.4	Yes	

Documents Reviewed and Copies Received		19103 Subpart A Inspection - June 2001	DOE Documents	Copy
#	Document Title	Subject Matter	Source and Location	
27	From WP 12-HP3700, Attachment 1, 2, 3, and 4 - Initial Radiological Event/Sample Data	Documents the 'first' estimate of a possible release. COB-A2002-AQ	DOE/WTS Attachment D.4	Yes
28	From WP 12-HP1305, Attachment 1 - Fixed Air Monitoring Equipment Log Sheet	Used to demonstrate filter change during a possible release. COB-A2002-AR	DOE/WTS Attachment D.4	Yes
29	From 12-HP3500, Attachment 4 - Request For Analysis/Chain-of Custody Record	Used to request laboratory analysis of filters and as a chain-of custody form. COB-A2002-AS	DOE/WTS Attachment D.4	Yes
30	Sample - Laboratory sample log book	Records when the laboratories receive samples to be processed. COB-A2002-AI	DOE/WTS Attachment D.4	Yes
31	Sample - SP2002-3 - Radiochemistry Sample Preparation Log Book	Records the preparation of samples for radiochemistry analysis. COB-A2002-AU	DOE/WTS Attachment D.4	Yes
32	Sample - Notebook 2002-1, Example of Lab Workbook	Demonstrates record keeping in the laboratory. COB-A2002-AV	DOE/WTS Attachment D.4	Yes
33	Sample - Fromm WP 12-ER4916, Attachment 1 - Assessment form, results of GXQ calculations for release demonstration.	Documents the input and results of GXQ calculations. COB-A2002-AW1, AW2, and AW3	DOE/WTS Attachment D.4	Yes

