

**2009 Compliance Recertification Application (2009 CRA)
Compliance Application Review Document (CARD) No. 21
Inspections**

21.0 BACKGROUND

Section 194.21, Inspections, provides the U.S. Environmental Protection Agency (EPA or Agency) with the right to inspect all activities at the Waste Isolation Pilot Plant (WIPP) and all activities located off-site which provide information included in any compliance application. The Agency can conduct periodic inspections to verify the adequacy of information included in the compliance applications. The Agency can conduct its own laboratory tests, in parallel with those conducted by DOE to confirm the adequacy of the techniques employed at those facilities. The Agency may also inspect any relevant records kept by DOE.

This provision of EPA's Compliance Criteria was not applied prior to the 1998 Certification Decision. EPA used the authority given by Section 194.21 to inspect WIPP site activities, waste generator sites, the monitoring program, and magnesium oxide (MgO) backfill and waste emplacement requirements after 1998. These inspections were performed to assure DOE met the requirements.

21.1 REQUIREMENTS

(a) "The Administrator or the Administrator's authorized representative(s) shall, at any time:

(1) Be afforded unfettered and unannounced access to inspect any area of the WIPP, and any locations performing activities that provide information relevant to compliance application(s), to which the Department has rights of access. Such access shall be equivalent to access afforded Department employees upon presentation of credentials and other required documents.

(2) Be allowed to obtain samples, including split samples, and to monitor and measure aspects of the disposal system and the waste proposed for disposal in the disposal system."

(b) "Records (including data and other information in any form) kept by the Department pertaining to the WIPP shall be made available to the Administrator or the Administrator's authorized representative upon request. If requested records are not immediately available, they shall be delivered within 30 calendar days of the request."

(c) "The Department shall, upon request by the Administrator or the Administrator's authorized representative, provide permanent, private office space that is accessible to the disposal system. The office space shall be for the exclusive use of the Administrator or the Administrator's authorized representative(s)."

(d) “The Administrator or the Administrator’s authorized representative(s) shall comply with applicable access control measures for security, radiological protection, and personal safety when conducting activities pursuant to this section.”

21.2 1998 CERTIFICATION DECISION

No inspections under this authority were conducted prior to the 1998 Certification Decision; therefore, no evaluation related to inspections was completed during the certification review

21.3 CHANGES IN THE 2004 COMPLIANCE RECERTIFICATION APPLICATION (2004 CRA)

The 2004 Compliance Recertification Application (2004 CRA) did not specifically address EPA’s inspection activities under Section 194.21.

21.3.1 EVALUATION OF COMPLIANCE FOR 2004 RECERTIFICATION

The inspections section of the compliance criteria, 40 CFR 194.21, lists specific requirements related to EPA’s ability to perform inspections involving WIPP. These requirements include; unfettered and unannounced access equivalent to DOE employees, availability of records for review, and private office access if needed to perform inspections.

EPA evaluated DOE implementation of these requirements at each of the twenty-one inspections performed since the 1998 Certification Decision. DOE provided unfettered access to facilities, access to and list of records as requested by EPA, and actively supported our inspection activities.

21.3.1.1 Monitoring Inspections

EPA inspects the implementation of the monitoring requirements for geomechanical, hydrological, waste activity, drilling related, and subsidence parameters. 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 were included in the 1998 Compliance Certification Application (CCA) and were used to develop pre-closure and post-closure monitoring requirements.

Volume 1, Section 7.0, of the CCA documented DOE’s analysis of monitoring parameters. Table 7-7 of the CCA lists the ten parameters that DOE determined may affect the disposal system. These parameters are grouped into major categories and listed in Table CARD 21-1. DOE revisited the 40 CFR 194.42 requirements and reevaluated monitor parameters as part of the 2004 CRA, this is documented in 2004 CRA Volume 1 Chapter 7.2 and the Agency’s review is discussed in 2004 CRA CARD 42.

Table CARD 21-1 Monitored Parameters	
<p>Geomechanical Parameters-</p> <ul style="list-style-type: none"> -Creep closure, -Extent of deformation, -Initiation of brittle deformation, and -Displacement of deformation features. 	<p>Waste Activity Parameter-</p> <ul style="list-style-type: none"> -Waste Activity <p>Subsidence Parameter-</p> <ul style="list-style-type: none"> -Subsidence measurements
<p>Hydrological Parameters-</p> <ul style="list-style-type: none"> -Culebra groundwater composition and -Change in Culebra groundwater flow direction. 	<p>Drilling Related Parameters-</p> <ul style="list-style-type: none"> -Drilling rate and -The probability of encountering a Castile brine reservoir.

Monitoring inspection activities included an examination of monitoring and sampling equipment both on and off site, and in the underground. EPA also reviewed numerous sampling procedures and measurement techniques and verified implementation of an effective quality assurance program for monitor activities.

Results of EPA's monitoring inspections are described in Table CARD 21-2 below. EPA found few issues during the seven monitoring inspections. Please see each inspection report for details of each inspection, and see the reference section below for Docket reference information. EPA found the overall parameter monitoring program adequate to capture potential changes in the ten monitoring parameters and to verify predictions of the compliance performance assessment.

Monitoring inspection reports are available from the EPA Air Docket A-98-49, Item II-B3.

Table CARD 21-2 Summary of the 2004 Parameter Monitor Inspections Results

Date of Parameter Monitor Inspection	Inspection Results: [See Inspection Reports For Details]
March 23, 1999	During this inspection the Agency found that DOE adequately implemented programs to monitoring these ten parameters during pre-closure operations. EPA did not have any findings or concerns during this inspection.
June 20, 2000	During this inspection the inspectors found that DOE continued to adequately implemented programs to monitoring these ten parameters during pre-closure operations. EPA did not have any findings or concerns during this inspection.
June 19, 2001	Inspectors concluded that DOE had adequately maintained programs to monitor the necessary ten parameters during pre-closure operations, except for the subsidence monitoring program. Inspectors found that the subsidence monitoring program at WIPP was not able to show that it had an implemented effective quality assurance program. EPA found that the Subsidence Program did not have developed adequate written procedures.
June 24, 2002	Inspectors concluded that DOE had adequately maintained programs to monitor the necessary ten parameters during pre-closure operations. EPA evaluated the new subsidence procedure and found it to be adequate and a significant improvement. EPA did not have any findings or concerns during this inspection.
June 17, 2003	Inspectors concluded that DOE had adequately maintained programs to monitor the necessary ten parameters during pre-closure operations. EPA had no findings or concerns, but did have one observation. For some of the parameters that are required to be monitored, such as some geomechanical and waste activity parameters, EPA observed that it was not clear that they were reported properly. During the inspection DOE committed to make sure that all monitored parameters were clearly reported annually.
June 28, 2004	Based on program documents, interviews, and field demonstrations during the inspection, EPA concluded that the monitoring program covers the ten monitored parameters required in the certification decision; that the monitoring, sample collection, and sample/data analysis procedures reviewed were complete and appropriate; that staff were adequately trained and implemented the procedures adequately; and that appropriate quality assurance measures were applied. EPA did not have any findings or concerns during this inspection.
July 12, 2005	Based on program documents, interviews, and field demonstrations during the inspection, EPA concluded that the monitoring program covered the ten monitored parameters required in the certification decision; that the monitoring, sample collection, and sample/data analysis procedures reviewed were complete and appropriate; that staff were adequately trained and implemented the procedures adequately; and that appropriate quality assurance measures are applied. EPA did not have any findings or concerns during this inspection.

21.3.1.2 Waste Emplacement Inspections

EPA inspected the WIPP to verify that waste was being emplaced in the underground facility in the manner described in DOE's CCA (EPA Air Docket A-93-02, Item II-G-01, and associated documents). These inspections also verified the proper emplacement of the MgO backfill material with the waste packages.

EPA found during these inspections that DOE adequately emplaced waste and MgO backfill material and that emplaced waste was traceable using the WIPP Waste Information System (WWIS) database. Table CARD 21-3 describes a brief summary of each waste emplacement inspection. Please see each inspection report for details of each inspection, and see the reference section below for Docket reference information.

Table CARD 21-3 Summary of the 2004 Waste Emplacement Inspections Results

Date of Waste Emplacement Inspection	Inspection Results: [See Inspection Reports For Details]
September 8, 1999	EPA found that waste is being emplaced in accordance with commitments made in the CCA. EPA did not have any findings or concerns during this inspection.
June 20, 2000	EPA found that waste is being emplaced in accordance with commitments made in the CCA. EPA did not have any findings or concerns during this inspection.
June 19, 2001	EPA found that waste is being emplaced in accordance with commitments made in the CCA. EPA did not have any findings but one concern during this inspection. EPA found that DOE did not appear to have a procedure that required proper documentation of off-normal events, in this case waste was shipped without proper documentation.
June 24, 2002	EPA did not have any findings or concerns during this inspection.
June 17, 2003	EPA had one finding during this inspection. EPA found that DOE may not be accounting for random waste emplacement assumptions properly.
June 28, 2004	EPA did not have any findings but did have one concern. EPA found that magnesium oxide (MgO) was not being properly tracked in the WIPP Waste Information System (WWIS).
May 17, 2005	EPA did not have any findings but did have one concern during this inspection. EPA found that DOE needed to develop a formal procedure that guides the MgO emplacement decision making process, rather than use training materials, and that the WWIS needs to be back populated with the quantity of emplaced MgO.

EPA did not receive any public comments on DOE's continued compliance with the inspections requirements of Section 194.21.

21.3.2 2004 RECERTIFICATION DECISION

Based on a review and evaluation of the 2004 CRA and supplemental information provided by DOE (FDMS Docket ID No. EPA-HQ-OAR-2004-0025, Air Docket A-98-49), EPA determined that DOE continued to comply with the requirements for Section 194.21.

21.4 CHANGES IN THE 2009 COMPLIANCE RECERTIFICATION APPLICATION (2009 CRA)

21.4.1 EVALUATION OF COMPLIANCE FOR 2009 RECERTIFICATION

The inspections section of the compliance criteria, 40 CFR 194.21, lists specific requirements related to EPA's ability to perform inspections involving WIPP as noted in Section 21.3.1 of this CARD. EPA evaluated DOE implementation of these requirements at each of the eight inspections performed since the 2004 CRA decision was published in 2006. DOE continued to provide unfettered access to facilities and records as requested by EPA, and actively supported our inspection activities.

21.4.1.1 Monitoring Inspections

Results of EPA's monitoring inspections since the 2004 CRA are described in Table CARD 21-4 below. EPA found few issues during the three monitoring inspections. Please see each inspection report for details of each inspection, see the reference section A-98-49, Items in II-B3. EPA continued to find the overall parameter monitoring program adequate to capture potential changes in the ten monitoring parameters and to verify predictions of the compliance performance assessment.

**Table CARD 21-4 Summary of Parameter Monitor Inspection Results
Since the 2004 CRA Decision in 2006**

Date of Parameter Monitor Inspection	Inspection Results: [See Inspection Reports For Details]
June 20-22, 2006	Based on program documents, interviews, and field demonstrations during the inspection, EPA concluded that the monitoring program covers the ten monitored parameters required by EPA's 1998 Certification Decision. This inspection determined that the monitoring, sample collection, and sample/data analysis procedures were complete and appropriate; that staff were adequately trained and implemented the procedures adequately; and that appropriate quality assurance measures were applied. For these reasons, EPA finds that DOE had maintained adequate parameter monitoring during the past year and had the procedures and requirements in place to sustain their program into the next year. EPA had no findings or concerns. Docket No: A-98-49, Item: II-B3-97
July 10-12, 2007	Based on program documents, interviews, and field demonstrations during the inspection, EPA concluded that the monitoring program covers the ten monitored parameters required by EPA's 1998 Certification Decision. This inspection determined that the monitoring, sample collection, and sample/data analysis procedures were complete and appropriate; that staff were adequately trained and implemented the procedures adequately; and that appropriate quality assurance measures are applied. For these reasons, EPA continued to find that DOE had maintained adequate parameter monitoring during the past year and has the procedures and requirements in place to sustain their program into the next year. EPA had no findings or concerns. Docket No: A-98-49, Item: II-B3-102
July 22-24, 2008	Based on program documents, interviews, and field demonstrations during the inspection, EPA concluded that the monitoring program covers the ten monitored parameters required by EPA's 1998 Certification Decision. This inspection determined that the monitoring, sample collection, and sample/data analysis procedures were complete and appropriate; that staff were adequately trained and implemented the procedures adequately; and that appropriate quality assurance measures are applied. EPA continued to find that DOE had maintained adequate parameter monitoring during the past year and had the procedures and requirements in place to sustain their program into the next year. EPA had no findings or concerns. Docket No: A-98-49, Item: II-B3-108

21.4.1.2 Waste Emplacement Inspections

EPA continued to inspect the WIPP to verify that waste is being emplaced in the underground facility in the manner described in DOE's CCA and 2004 CRA. Table CARD 21-5 describes a brief summary of each waste emplacement inspection. Please see each inspection report for details of each inspection, see the reference section A-98-49, Items on II-B3.

Table CARD 21-5 Summary of Waste Emplacement Inspection Results Since the 2004 CRA Decision in 2006

Date of Waste Emplacement Inspection	Inspection Results: [See Inspection Reports For Details]
June 20-22, 2006	<p>The inspectors reviewed the emplacement operation and the associated documentation for selected shipments. It was determined that DOE was adequately emplacing waste in the repository as specified in the CCA dated May 18, 1998. EPA concluded from this inspection that DOE's emplacement activities were adequate, the cellulose, plastics, rubber (CPR) waste component amounts were appropriately tracked, the safety factor was calculated properly along with the additional MgO needed (since DOE began to track the MgO), and that all MgO was emplaced properly. DOE calculated that the current safety factor was above the mandated 1.67 for closed rooms since the tracking officially began with Room 1, Panel 2 and Room 7, Panel 3. EPA did not identify any findings during this inspection. Docket No: A-98-49, Item: II-B3-97</p>
July 10-12, 2007	<p>The inspectors reviewed emplacement operations and associated documentation for selected containers. EPA concluded that DOE's emplacement activities are adequate, that CPR is appropriately tracked, the safety factor was calculated properly, additional MgO was added as needed, and that all MgO was emplaced properly</p> <p>The surface processing of RH and the underground operation of RH container emplacement were explained and found to be according to specified plans documented in CCA. EPA did not identify any findings or concerns during this inspection. However, EPA recommended that DOE maintain a permanent photographic record of the RH canister number as it is removed from the transportation cask. Docket: A-98-49, Item II-B3-102</p>
July 22-24, 2008	<p>The inspectors reviewed emplacement operations and associated documentation for selected containers. EPA concluded that DOE's emplacement activities were adequate, that CPR amounts were appropriately tracked, the safety</p>

	<p>factor is calculated properly, additional MgO was added as needed, and that all MgO is emplaced properly. DOE noted that the current safety factor was above the mandated 1.67 for closed rooms since the tracking officially began with Room 1, Panel 2 and Room 7, Panel 3 at the time of the inspection.</p> <p>The surface processing of RH and the underground operation of RH container emplacement were reviewed and found to be adequate according to specified plans documented in the CCA. EPA did not identify any findings or concerns during this inspection. However, EPA recommended again that DOE maintain a permanent photographic record of the RH canister number as it is removed from the transportation cask. Docket No: A-98-49, Item: II-B3-108</p>
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21.4.1.3 Other Inspections

EPA performed two other inspections since the 2004 CRA, including a review of DOE’s Remote-handled (RH) waste emplacement plans, process, and procedures and DOE’s document development procedures and processes. The purpose of the RH inspection was to verify that the WIPP site was prepared to begin receiving RH waste. The primary purpose of the document development inspection was to review how DOE, SNL and LANL produce, review and verify the documents they provide to EPA. EPA looked at selected activities, such as document development, project analyses, verification of calculations, and final approval activities. Table CARD 21-6 describes a brief summary of other inspections done since the 2004 CRA decision was published in 2006.

**Table CARD 21-6 Summary of Other Inspection Results
Since the 2004 CRA Decision in 2006**

Date of Other Inspections	Inspection Results: [See Inspection Reports For Details]
January 9-11, 2007 RH Startup Inspection	<p>EPA observed the processing of a test RH canister from a 72B transportation cask beginning with the canister’s removed from the transportation cask. Although there was a problem with the weight sensor on the grapple in the waste handling building, the waste handling staff appeared to appropriately diagnose the problem and had a process (a work package) to deal with the problem. The underground disposal operations that the EPA inspectors observed proceeded according to procedures with no malfunctions.</p> <p>There were no findings or concerns identified in this inspection. DOCKET No: A-98-49, Item: II-B3-101</p>
November 27-28, 2007 Document Review- Technical Inspection	<p>As a result of this inspection EPA identified that, while DOE, SNL, and LANL have procedures in place that direct the production and review of documents, there is room for improvement, such as modifications to procedures. In addition, EPA identified process improvements that can clarify what communications come from EPA to DOE. Docket No: A-98-49, Item: II-B3-103</p>

EPA did not receive any public comments on DOE’s continued compliance with the inspections requirements of Section 194.21.

21.4.2 2009 RECERTIFICATION DECISION

Based on a review and evaluation of the 2009 CRA and supplemental information provided by DOE (FDMS Docket ID No. EPA-HQ-OAR-2009-0330, Air Docket A-98-

49), EPA determines that DOE continues to comply with the requirements for Section 194.21.