DOE F 1325.8

United States Government **Department of Energy**

memorandum

Carlsbad Field Office
Carlsbad, New Mexico 88221

DATE: May 02, 2022

REPLY TO ATTN OF: CBFO:QAD:DMJ:JM:22-0189:UFC 2300.00

SUBJECT: Transmittal of Surveillance Report S-21-22, APPA Changed Conceptual Models, Peer Review

TO: Mr. James Garza, Acting Director, Environmental Regulatory Compliance Division

Enclosed is the report for Carlsbad Field Office (CBFO) Surveillance S-21-22, Additional Panels Performance Assessment (APPA) Changed Conceptual Models, Peer Review, held remotely on July 20, 2021 – December 2, 2021, in Carlsbad, New Mexico.

The surveillance team concluded that the peer review was conducted in accordance with CBFO MP 10.5, *Peer Review*, and was effective with no concerns or recommendations.

If you have any questions about this surveillance, please contact me at (575) 725-1567.

DARREN JOLLEY Digitally signed by DARREN JOLLEY Date: 2022.05.02 11:09:38 -06'00'

Darren Jolley, Director
Quality Assurance Division
Carlsbad Field Office

Attachment

cc: w/attachment

R. Knerr, CBFO	ED	R. Castillo, CTAC	ED
M. Bollinger, CBFO	ED	S. Gomez, CTAC	ED
J. Lopez, CBFO	ED	J. Maupin, CTAC	ED
M. Stapleton, CBFO	ED	B. Blyth, CTAC	ED
J. Montemayor, CBFO	ED	D. Harvill, CTAC	ED
S. Kopp, CTAC	ED	G. White, CTAC	ED
W. Ledford, CTAC	ED	CBFO M&RC	ED
		CBFO QA File	

*ED denotes electronic distribution

SURVEILLANCE REPORT

Surveillance Number: S-21-22 **Date of Surveillance:** 7/20 – 12/2/2021

Surveillance Title: Additional Panels Performance Assessment (APPA) Changed Conceptual Models, Peer Review

Organization Assessed: U.S. Department of Energy, Carlsbad Field Office, Office of Environment, Safety, Health, and Quality Assurance Environmental Regulatory Compliance Division

Surveillance Team:	Daren Jolley	Carlsbad Field Office (CBFO) Quality Assurance Division (QAD) Management Representative
	Bob Blyth	Surveillance Team Leader, CBFO Technical Assistance Contractor (CTAC)

SURVEILLANCE SCOPE:

This surveillance evaluated the peer review of the Additional Panels Performance Assessment (APPA) Changed Conceptual Models Performance Assessment, for compliance with CBFO MP 10.5, *Peer Review*, and overall effectiveness.

Surveillance S-21-22 was conducted by observing presentations and discussions July 20 – July 21, 2021 in Carlsbad, NM, remotely participating in peer review conference calls through November of 2021.

GOVERNING DOCUMENTS/REQUIREMENTS:

- DOE/CBFO-94-1012, Revision 13, *CBFO Quality Assurance Program Document*
- CBFO MP 10.5, Revision 10, *Peer Review*
- CTAC MP 18.3 Revision 3, *Surveillances*
- 40 CFR Part 191, *Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes*
- 40 CFR Part 194, Criteria for the Certification and Re-Certification of the Waste Isolation Pilot Plant's Compliance with the 40 CFR Part 191 Disposal Regulations
- NUREG-1297, Peer Review for High-Level Nuclear Waste Repositories
- DOE / CBFO-21-3629, Additional Panels Performance Assessment Changed Conceptual Models Peer Review Plan, Rev. 0

SURVEILLANCE RESULTS:

After observing presentations by Sandia National Laboratories (SNL) presenters, the follow-on questions by the peer review team, presenter responses, and responses to EPA formal

inquires, the surveillance team concludes that the peer review was conducted in accordance with CBFO MP 10.5; and was effective.

ACTIVITIES EVALUATED:

This surveillance evaluated the peer review of the Additional Panels Performance Assessment (APPA) Changed Conceptual Models Performance Assessment, for compliance with CBFO MP 10.5, *Peer Review*, and overall effectiveness.

In preparation for the surveillance the surveillance team participated in the July 13, peer review team orientation remotely, and reviewed the same documents required for the peer review team: 40 CFR Part 21 *Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes*, 40 CFR Part 194 *Criteria for the Certification and Re-Certification of the Waste Isolation Pilot Plant's Compliance with the 40 CFR Part 191 Disposal Regulations*, NUREG-1297*, Review for High-Level Nuclear Waste Repositories*, DOE/CBFO-94-1012, U.S. *D.O.E. Carlsbad Field Office, Quality Assurance Program Document*, DOE/CBFO-21-3629, *Additional Panels Performance Assessment Changed Conceptual Models Peer Review Plan*, Rev. 1 of *CBFO COVID-19 Workplace Safety Plan* and *Additional Panels Performance Assessment (APPA)Changed Conceptual Models Peer Review Panel Orientation*, which was covered during the July 13, peer review team orientation meeting. These documents are also listed in Appendix A, Objective Evidence Reviewed for Surveillance S-21-22.

The surveillance team observed: presentations by Sandia National Laboratory (SNL) staff followed by questions posed by the peer review team, and Environmental Protection Agency staff about the presented material, and responses to these questions by the SNL presenters and associated staff. The surveillance team also observed peer review caucuses on July 20 and 21, and participated in the bi-weekly peer review team conference calls; all as an observer.

Questions to presenters were technically oriented and demonstrated peer review member technical expertise. Several responses involved back and forth conversations, which were constructive. Responses to peer review questions adequately addressed the posed questions.

Formal inquiries, all from EPA staff present during the presentations, were recorded on CBFO Form 10.5-5, Observer Inquiry Forms. Responses including the peer review chair signature are included in the list of documents reviewed in Appendix A, as "Observer Inquiry Forms", which is a compilation of formal inquires received and their responses. Also included in documents reviewed is a listing of the inquires received titled" inquiry tracking summary"

Personnel contacted during the surveillance were primarily the peer review team and are listed in Appendix B, Personnel contacted for Surveillance S-21-22.

The following is a listing of key peer review requirements, their source and where in the peer review report they are addressed.

Key NUREG-1927 Requirements

Requirement	Where met
NUREG-1927 Evaluate and Report on: A. Validity of Assumptions B. Alternate Interpretations C. Uncertainty of results and consequences if wrong D. Appropriateness and limitations of methodology and procedures E. Adequacy of application F. Accuracy of calculations G. Validity of conclusions H. Adequacy of requirements and criteria Were full and frank discussions between peer reviewers and performers encouraged? CBFO MP 10.5, Rev. 10 Section 5.1 NUREG -1297 Section 4	WIPP APPA Changed Conceptual Models Peer Review Report, 12/2021 A. Page 42 B. Page 42 C. Page 43 D. Page 43 E. Page 43 F. Page 43 G. Page 44 H. Page 44 The surveillance team was present during the presentations and peer review team causes in Carlsbad, NM and listened to most of the follow on peer review team discursions remotely prior to finalizing the report. Discussions were open, frank and constructive. The peer review chairperson facilitated discussions with open ended questions and occasionally queried individual peer review team member for their thoughts.

Key Report Requirements

Requirement	Where Addressed
Verify that a written peer review report was prepared under the direction of the peer review chairman that contains: A. Listing of peer review panel members. B. Description of the work or issue that was reviewed, documenting: 1. Validity of assumptions. 2. Alternate interpretations. 3. Uncertainty of results and consequences, if incorrect. 4. Appropriateness and limitations of methodology and procedures. 5. Adequacy of application. 6. Accuracy of calculations. 7. Validity of conclusions. 8. Adequacy of requirements and criteria in accordance with approved technical and QA requirements and the applicable peer review plan(s). C. Conclusions reached by the peer review panel. D. Individual statements by the peer review panel members, reflecting dissenting views or additional comments, as appropriate. E. Signature of the peer review chairperson and each peer review panel member. CBFO MP 10.5, Rev. 10 Section 6.4.1	WIPP APPA Changed Conceptual Models Peer Review Report, 12/2021 A. Peer review panel members pages: vi and vii and 45 B. 1. Page 42 2. Page 42 3. Page 43 4. Page 43 5. Page 43 6. Page 43 7. Page 44 8. Page 44 C. Page 44 D. Page 44 E. Page 45

Distribution of the Peer Review Report to Key Regulatory Agencies

Requirement	Where Addressed
Verify that the CBFO Deputy Manager, CBFO Director or designee notified the affected organizations (if any) and the appropriate regulatory agencies of the conclusions of the peer review. CBFO MP 10.5, Rev. 10 Section 5.4.2	Letter, R. Knerr, CBFO to Ms. Lee Ann B. Veal, Director Radiation Protection Division Office of Radiation and Indoor Air, (EPA), Transmittal of the Waste Isolation Pilot Plant Additional Panels Performance Assessment Changed Conceptual Models Peer Review Report 3/2/2022

Other Considerations

None

CORRECTIVE ACTIONS:

Corrective Action Reports:

None

Deficiencies Corrected During the Surveillance:
None

Observations:

None

Recommendations:

None

SURVEILLANCE CONCLUSION:

After observing presentations by Sandia National Laboratories (SNL) presenters, follow-on questions by the peer review team and presenter responses, and responses to formal EPA inquiries, the surveillance team concluded that the peer review was conducted in accordance with CBFO MP 10.5 and was effective.

Surveillance Team Leader:  **Date:** 4/28/2022

Bob Blyth, CTAC

Surveillance Team Leader

CBFO QAD Approval: _____ **Date:** _____

Daren Jolley, CBFO
Management Representative
CBFO Quality Assurance Division

Item No.	Document No.	Title	Rev	Date
1.	DOE/CBFO-94-1012	*U.S. D.O.E. Carlsbad Field Office, Quality Assurance Program Document*	13	4/20/2017
2.	CTAC MP 18.3	*Surveillances*	3	9/20/2010
3.	CBFO MP 10.5	*Peer Review*	10	10/1/2018
4.	40 CFR Part 191	*Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes*	N / A	9/15/1985
5.	40 CFR Part 194	*Criteria for the Certification and Re-Certification of the Waste Isolation Pilot Plant's Compliance with the 40 CFR Part 191 Disposal Regulations*	N / A	2/9/2996
6.	NUREG-1297	*Review for High-Level Nuclear Waste Repositories*	N / A	2/1988
7.	N / A	CTAC Peer review plan cover letter	N / A	4/7/2021
8.	DOE/CBFO-21-3629	*Additional Panels Performance Assessment Changed Conceptual Models Peer Review Plan*	0	7/21/2021
9.	N / A	Additional Panels Performance Assessment (APPA)Changed Conceptual Models Peer Review Panel Orientation	N / A	7/13/20201
10.	N / A	CBFO COVID-19 Workplace Safety Plan	1	526/2021
11.	N / A	Additional Panels Performance Assessment (APPA) Salado Flow Results – presentation slides	N / A	July 2021
12.	ERMS 575144	BRAGFLO-PFLOTRAN Salado Flow Results Comparison – presentation slides	N / A	May 2021

Item No.	Document No.	Title	Rev	Date
13.	N / A	Peer Review Regulatory Requirements – presentation slides	N / A	July xx, 2021
14.	N / A	PFLOTRAN ED Meshing and Modeling – presentation slides	N / A	July 2021
15.	N / A	PFLOTRAN Update – presentation slides	N / A	June 3, 2021
16.	N / A	PFLOTRAN Overview – presentation slides	N / A	7/13/2021
17.	N / A	Requirements for Radionuclide Inventory Assessment at the Waste Isolation Pilot Plant – presentation slides	N / A	June 15, 2021
18.	N / A	Summary of Conceptual Models in the Additional Panels Performance Assessment – presentation slides	N / A	July 2021
19.	N / A	The Additional Panels Performance Assessment (APPA) – presentation slides	N / A	June 1, 2021
20.	N / A	WIPP PA Overview – presentation slides	N / A	7/20/2021
21.	AP-185 / ERMS # 57 4493	Features, Events and Processes Assessment for the Additional Panels Performance Assessment (APPA) – presentation slides	N / A	2/23/2021
22.	ERMS 575130	Review of Conceptual Models Hansen – presentation slides	0	4/7/2021
23.		A Primer on CCDFs, January 14-16, 2020 – presentation slides		July 22, 2021
24.		Carlsbad Field Office - presentation slides		7/20/2021
25.	N / A	Blyth observer request – emails, Blyth to Thies and Thies to Blyth	N / A	7/18 & 7/19/2021

Item No.	Document No.	Title	Rev	Date
26.	N / A	CTAC transmittal of APPA Changed Conceptual Models Peer Review Report	N / A	12/2/2021
27.	N / A	WASTE ISOLATION PILOT PLANT Additional Panels Performance Assessment (APPA) Changed Conceptual Models Peer Review Report	N / A	12/2021
28.	N / A	CTAC transmittal of APPA Changed Conceptual Models Peer Review Report	N / A	12/2/2021
29.	N / A	Email - APPA Final Peer Review Report, Basabilvazo to distribution	N / A	12/6/2021
30.	N / A	Document Review Approval Matrix	N / A	10/13/2021
31.	N / A	APPA Weekly reports to CBFO, Thies to distribution	N / A	varies
32.	N / A	Caucus Notes 7/20	N / A	7/20/2021
33.	N / A	Caucus Notes 7/21	N / A	7/21/2021
34.	N / A	Observer Inquires, a compilation of formal inquires received and their responses	N / A	varies
35.	N / A	Inquiry Tracking Summary	N / A	9/8/2021
36.	N / A	Letter, R. Knerr, CBFO to Ms. Lee Ann B. Veal, Director Radiation Protection Division Office of Radiation and Indoor Air (EPA), Transmittal of the Waste Isolation Pilot Plant Additional Panels Performance Assessment Changed Conceptual Models Peer Review Report	N / A	3/2/2022

Name	Peer Review Role	Title
John A. Thies	Peer review team Chair	Chairperson
Ronald W. Falta, Jr., Ph.D.	Peer review panel member	Peer review panel member
Mengsu Hu, Ph.D.	Peer review panel member	Peer review panel member
Edward M. Kwicklis	Peer review panel member	Peer review panel member
Carl I. Steefel, Ph.D.	Peer review panel member	Peer review panel member
Sherilyn C. Williams-Stroud, Ph.D., P.G	Peer review panel member	Peer review panel member
Michael R. Brown	Director - Environmental Regulatory Compliance Division, CBFO	CBFO POC for Added Panels Performance Assessment and changed models