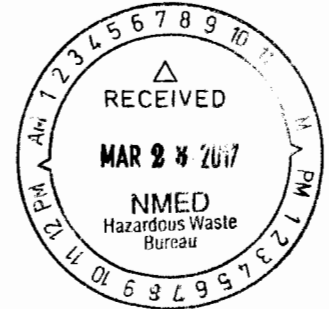




ENTERED

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221
MAR 23 2017



Ms. Mary McDaniel, Manager
Quality and Contractor Assurance
Nuclear Waste Partnership LLC
P.O. Box 2078
Carlsbad, NM 88221-2078

Subject: Transmittal of Audit Report for Audit A-17-15

Dear Ms. McDaniel:

The Carlsbad Field Office performed Audit A-17-15 of the Nuclear Waste Partnership LLC (NWP) Calibration Program February 7 – 9, 2017. The audit team concluded that the overall status of the program is adequately established for compliance with upper tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

The audit team identified six concerns during the audit. Three of the concerns were determined to be conditions adverse to quality (CAQs) and resulted in issuance of Corrective Action Reports (CARs), which have been transmitted to NWP under separate correspondence. Two CAQs were corrected during the audit (CDA) and the remaining concern is offered to NWP management as an Observation. Details of the audit, conclusions of the audit team, and detailed descriptions of the CARs, CDAs, and Observation are documented in the enclosed report.

If you have any questions or comments, please contact me at (575) 234-7483.

Sincerely,

Martin P. Navarrete
Senior Quality Assurance Specialist

Enclosure

cc: w/enclosure

M. Brown, CBFO	*ED	T. Peake, EPA	ED
E. Garza, CBFO	ED	J. Kieling, NMED	ED
D. Miehs, CBFO	ED	R. Maestas, NMED	ED
M. Stapleton, CBFO	ED	D. Biswell, NMED	ED
M. Fineran, CBFO	ED	P. Martinez, CTAC	ED
R. Elmore, CBFO	ED	C. Castillo, CTAC	ED
J. Britain, NWP	ED	M. Leroch, CTAC	ED
V. Ballew, NWP	ED	G. Knox, CTAC	ED
S. Punchios, NWP	ED	D. Harvill, CTAC	ED
A. Boyea, NWP	ED	G. White, CTAC	ED
J. Walsh, EPA	ED	CBFO QA File	
J. Ellis, EPA	ED	CBFO M&RC	

*ED denotes electronic distribution



U.S. DEPARTMENT OF ENERGY
CARLSBAD FIELD OFFICE

AUDIT REPORT

OF

NUCLEAR WASTE PARTNERSHIP LLC
CALIBRATION PROGRAM

AUDIT NUMBER A-17-15

February 7 – 9, 2017

CARLSBAD, NEW MEXICO



Prepared by:

Greg Knox
Greg Knox, CTAC
Audit Team Leader

Date:

23 MAR 2017

Approved by:

Michael R. Brown
Michael R. Brown, CBFO
Quality Assurance Director

Date:

3/23/2017

1.0 EXECUTIVE SUMMARY

Carlsbad Field Office (CBFO) Audit A-17-15 was conducted February 7 – 9, 2017 to evaluate the adequacy, implementation, and effectiveness of Nuclear Waste Partnership LLC (NWP) quality assurance (QA) and technical activities for compliance with NQA-1-1989 Criterion 12, Control of Measuring and Test Equipment (M&TE), including NQA-1 Supplement 12S-1. The audit was conducted at the Waste Isolation Pilot Plant (WIPP) and the Skeen-Whitlock Building in Carlsbad, NM. The activities were evaluated with respect to the calibration requirements defined in DOE/CBFO-94-1012, *Quality Assurance Program Document (QAPD)*, and WP 13-1, *NWP Quality Assurance Program Description (QAPD)*.

The audit team concluded that overall, the NWP Calibration Program continues to adequately address applicable upper-tier requirements and remains satisfactorily implemented and effective.

Six concerns were identified during the audit. Three CAQs were determined to be procedural violations and were documented as CBFO CARs 17-021, 17-022 and 17-023. Two CAQs were corrected during the audit, and the corrective actions were verified by the audit team, as discussed in the applicable sections and summarized in section 6.1 of this report. One Observation was offered to NWP management, as discussed in the applicable section and summarized in section 7.1 of this report.

As a result of the audit, the team offered one Observation to NWP management in the area of environmental monitoring (see Observation 1).

2.0 SCOPE

The scope of this audit included evaluation of NWP calibration activities at the WIPP site for equipment used and/or installed for waste handling, radiation monitoring, environmental monitoring, and plant maintenance. Calibration of equipment used by CCP is separate from the WIPP site M&TE Program and was evaluated at the Skeen-Whitlock Building. Evaluation of CCP calibration procedures for adequacy was based on the CBFO QAPD.

WP 10-WC.03, Rev 1, *NWP Equipment Calibration Program* identifies five separate areas and these were evaluated individually. The five calibration program areas evaluated were:

- Radiological Control (RADCON)
- Environmental Monitoring
- Maintenance
- NWP Site Metrology (M&TE and M&DC)
- CCP Metrology

3.0 AUDIT TEAM

Martin Navarrete

Quality Assurance Representative, CBFO

Greg Knox	Audit Team Leader, CBFO Technical Assistance Contractor (CTAC)
Jack Walsh	Auditor, CTAC
Kirk Kirkes	Auditor, CTAC
Harley Kirschenmann	Auditor, CTAC
Jim Oliver	Auditor, CTAC
Brian Tousley	Auditor, CTAC

4.0 AUDIT PARTICIPANTS

Individuals contacted during the audit are identified in Attachment I. A pre-audit conference was held in the WIPP Safety Building conference room February 7, 2017. The audit was concluded with a post-audit conference in the WIPP Safety Building conference room on February 9, 2017.

5.0 SUMMARY OF AUDIT RESULTS

5.1 Program Adequacy, Implementation, and Effectiveness

The following sections identify each of the calibration program elements evaluated during the audit. For each element, the audit team evaluated the associated implementing procedures to verify the adequate flow-down of upper-tier requirements, conducted interviews with responsible personnel, and reviewed randomly selected records to determine the effectiveness of NWP Calibration Program implementation.

Six concerns were identified during the audit. Three CAQs were determined to be procedural violations and were documented as CBFO CARs 17-021, 17-022 and 17-023. Two CAQs were corrected during the audit, and corrective actions were verified by the audit team, as discussed in the applicable sections and summarized in section 6 of this report. One Observation was offered to NWP management, as discussed in the applicable sections and summarized in section 7 of this report.

NWP implementing procedures included in the audit are identified in Attachment II. Attachment III provides a summary of the audit results. Details of the audit are contained in the following sections.

5.2 Calibration Program Audit Details

5.2.1 RADCON Calibration Program

The audit team reviewed the calibration program documents and procedures prior to the audit in order to develop a checklist to use as a guide in assessing the compliance of the RADCON program with calibration requirements.

The audit team specifically reviewed:

- WP 13-1, *NWP QAPD*;
- IC041072, *Calibration of Effluent Monitoring Skids A-1, A-2, A-3, B1 and B2 Flow Instrumentation*;
- IC041097, *Effluent Monitoring Station C FAS Flow Annual Calibration*;
- WP 10-AD3031, *M&TE/M&DC Inspections*;
- WP 10-WC.03, *NWP Equipment Calibration Program*;
- WP 12-5, *WIPP Radiation Safety Manual*;
- WP 12-RC.01, *QAPP for Sampling Emissions of Radionuclides to the Ambient Air at WIPP*; and
- WP 10-AD3029, *Calibration and Control of Monitoring and Data Collection Equipment*.

At the WIPP site, the audit team obtained copies of the manufacturers operating manuals and technical specifications for several RADCON instruments in order to verify that WIPP site calibration requirements met or exceeded manufacturer specifications.

The audit team reviewed:

- Ludlum model 9DP and 9DP* Pressurized Ion Chamber, August 2014 for Serial #'s 25002500 and succeeding; and
- Ludlum 2350-1 Data Logger, December 1998 for Serial #'s 126167 and succeeding.

The audit team obtained a list of all RADCON instrumentation that listed approximately 255 instruments. Of those 255 instruments listed, approximately 41 were labeled as missing or permanently Out-Of-Service (OOS.) Of the remaining 214 instruments, approximately 29 were either part of the Radiological Assistance Program (RAP), located in the WIPP underground or in the Instrument & Calibration (I&C) shop, or had been returned to the vender for repair or calibration. Finally, a list of approximately 184 instruments remained for selection and examination. The numbers presented above are from the time of the audit and should not be taken as definitive but rather a relative measure of the instrument population and how that population is subdivided.

The audit team verified the location and calibration status of the following, approximately 178 instruments on the surface in various WIPP buildings, as well as all instruments located in the WIPP underground. The list of instruments is provided "as found." The list is not intended to serve as a database of equipment condition, but rather give a snapshot of current equipment condition and calibration status at the time of the audit. The audit team started the examination of RADCON equipment in the CH Bay and then proceeded to the RH Bay. From there, equipment was examined in the TRUPACT Maintenance Facility where the segregation of a large number of instruments as being Out-of-Service or potentially contaminated was noted. The audit team then proceeded to the Instrument Room where the instruments were segregated according to their status relative to the daily "Op Check." From there, Room 103, the I&C Rad Instrument Shop, Station B, Station A, and the main I&C Shop areas were examined.

<u>Maker</u>	<u>Model</u>	<u>Serial #</u>	<u>Cal. On</u>	<u>Condition</u>
Approximately 10 Portable Air Monitors (PAS) with potentially contaminated motors were segregated as OOS				
Tennelec	5XLB	240-RI-000-1029	8-26-15	Tagged OOS
Tennelec	5XLB	240-RI-000-1106	7-13-16	
Tennelec	5XLB	240-RI-000-1106	1-31-17	Tagged OOS
Ludlum	9DP	240-RI-000-1646	5-6-16	
Ludlum	2350	240-RI-000-1334	11-7-16	
Canberra	iSolo	240-RI-000-1626	4-26-16	
Tennelec	5XLB	240-RI-000-1028	7-11-16	
Tennelec	5XLB	240-RI-000-1027	1-10-17	
Tennelec	5XLB	240-RI-000-1031	6-24-16	Tagged OOS
Ludlum	2350	240-RI-000-1352	12-20-16	
Ludlum	2350	240-RI-000-1378	3-2-16	
Canberra	Alpha Sentry	240-RI-000-1528	11-22-16	
Canberra	Alpha Sentry	240-RI-000-1538	11-22-16	
Tennelec	5XLB	240-RI-000-1199		Tagged OOS
Canberra	iCam	240-RI-000-1277	2-25-16	
Canberra	iCam	240-RI-000-1444	8-19-16	
Canberra	iCam	240-RI-000-1803	11-7-16	OOS Area
Canberra	iCam	240-RI-000-1811	11-5-16	OOS Area
Canberra	iCam	240-RI-000-1804	4-22-16	OOS Area
Canberra	iCam	240-RI-000-1275		OOS Area
Canberra	iCam	240-RI-000-1279	3-2-16	OOS Area
Canberra	iCam	240-RI-000-1450	2-29-16	OOS Area
Canberra	iCam	240-RI-000-1808	4-28-16	OOS Area
Canberra	iCam	240-RI-000-1809	9-8-16	OOS Area
Canberra	iCam	240-RI-000-1446	11-5-16	OOS Area
Canberra	iCam	240-RI-000-1283	4-27-16	OOS Area
Canberra	iCam	240-RI-000-1800	1-31-17	OOS Area
Canberra	iCam	240-RI-000-1802	1-31-17	OOS Area
Canberra	iCam	240-RI-000-1806	4-27-16	OOS Area
Env. Prod Co	Hi-Q	240-RI-000-1700	6-29-16	OOS Area
Env. Prod Co	Hi-Q	240-RI-000-1695	3-24-16	OOS Area
Env. Prod Co	Hi-Q	240-RI-000-1616	6-19-1	OOS Area
Env. Prod Co	Hi-Q	240-RI-000-0861	2-3-16	OOS Area
Env. Prod Co	Hi-Q	240-RI-000-1694	3-24-1	OOS Area
Env. Prod Co	Hi-Q	240-RI-000-1690	6-27-1	OOS Area
Env. Prod Co	Hi-Q	240-RI-000-1699	4-3-14	OOS Area
Env. Prod Co	Hi-Q	240-RI-000-1689	7-9-16	OOS Area
Env. Prod Co	Hi-Q	240-RI-000-1691	3-24-1	OOS Area
Canberra	Hand and Foot Monitor			OOS Area
Outdoor PAS		240-RI-000-1728		OOS Area
Outdoor PAS		240-RI-000-1729		OOS Area
Outdoor PAS		240-RI-000-1711		OOS Area
Outdoor PAS		240-RI-000-1722		OOS Area

Outdoor PAS		240-RI-000-1721		OOS Area
Outdoor PAS		240-RI-000-1717		OOS Area
Env. Prod Co	Hi-Q	240-RI-000-1705	4-6-16	OOS Area
Env. Prod Co	Hi-Q	240-RI-000-1638	7-1-16	OOS Area
Env. Prod Co	Hi-Q	Labels Removed		OOS Area
Canberra	iCam	240-RI-000-1801	11-7-16	OOS Area
Env. Prod Co	Hi-Q	240-RI-000-1618	8-5-16	OOS Area
Env. Prod Co	Hi-Q	240-RI-000-1704	4-13-15	OOS Area
Outdoor PAS		240-RI-000-1715		OOS Area
Env. Prod Co	Hi-Q	240-RI-000-1702	4-6-16	OOS Area
Env. Prod Co	Hi-Q	240-RI-000-1688		OOS Area
RTS	RAM 31	Labels Removed		OOS Area
RTS	RAM 31	Labels Removed		OOS Area
Bladewerx	SabreAlert	240-RI-000-1630	11-10-16	
Bladewerx	SabreAlert	240-RI-000-1673	1-17-17	
Ludlum	9DP	240-RI-000-1662	7-6-16	
Ludlum	2360	240-RI-000-1764	8-10-16	
Ludlum	2360	240-RI-000-1295	12-22-16	
Ludlum	2360	240-RI-000-1380		Tagged OOS
Ludlum	2360	240-RI-000-1374	06-08-16	
Bladewerx	SabreAlert	240-RI-000-1629		Tagged OOS
Bladewerx	SabreAlert	240-RI-000-1642		Tagged OOS
Ludlum	Model 17	240-RI-000-1243	2-19-16	
Ludlum	Model 17	240-RI-000-1261	2-17-16	
Ludlum	Model 17	240-RI-000-1348	2-06-16	
Ludlum	Model 17	240-RI-000-1346	2-17-16	
Ludlum	2241	240-RI-000-1214	4-22-16	
Ludlum	2241	240-RI-000-1220		Tagged OOS
Ludlum	2360	240-RI-000-1751	2-3-16	I&C Calibration
Ludlum	2360	240-RI-000-1684	10-3-16	
Ludlum	2360	240-RI-000-1761	11-2-16	
Ludlum	2360	240-RI-000-1758	2-2-17	
Ludlum	2360	240-RI-000-1769	6-15-16	
Ludlum	2360	240-RI-000-1762	12-20-16	
Ludlum	2360	240-RI-000-1392	6-15-16	
Ludlum	2360	240-RI-000-1766	5-7-16	
Ludlum	3030	240-RI-000-1360	8-3-16	
Ludlum	3030	240-RI-000-1241	7-7-16	
Ludlum	2350	240-RI-000-1137	8-25-16	
Ludlum	2360	240-RI-000-1772	6-14-16	
Ludlum	Model 17	240-RI-000-1263	4-8-16	
Ludlum	Model 17	240-RI-000-1273	8-25-16	
Ludlum	Model 17	240-RI-000-1432	4-29-16	
Ludlum	Model 17	240-RI-000-1271	4-24-16	
Ludlum	Model 17	240-RI-000-1259	8-18-16	
Ludlum	Model 17	240-RI-000-1255	4-29-16	

Ludlum	Model 17	240-RI-000-1265	5-5-16
Ludlum	Model 17	240-RI-000-1438	8-30-16
Ludlum	Model 17	240-RI-000-1267	8-29-16
Ludlum	Model 17	240-RI-000-1434	8-30-16
Ludlum	Model 17	240-RI-000-1257	8-29-16
Ludlum	Model 17	240-RI-000-1428	9-6-16
Ludlum	Model 17	240-RI-000-1344	5-5-16
Ludlum	2250	240-RI-000-1133	9-6-16
Ludlum	2250	240-RI-000-1133	8-18-16
Ludlum	2250	240-RI-000-1404	9-6-16
Ludlum	9DP	240-RI-000-1656	8-29-16
Ludlum	9DP	240-RI-000-1663	8-29-16
Ludlum	9DP	240-RI-000-1665	9-6-16
Ludlum	9DP	240-RI-000-1649	9-6-16
Ludlum	9DP	240-RI-000-1647	9-6-16
Ludlum	9DP	240-RI-000-1651	9-6-16
Ludlum	9DP	240-RI-000-1654	5-6-16
Ludlum	9DP	240-RI-000-1658	5-6-16
Ludlum	9DP	240-RI-000-1666	5-6-16
Ludlum	9DP	240-RI-000-1660	5-6-16
Ludlum	9DP	240-RI-000-1648	5-6-16
Ludlum	9DP	240-RI-000-1664	5-6-16
Ludlum	9DP	240-RI-000-1656	5-6-16
Ludlum	9DP	240-RI-000-1668	8-29-16
Ludlum	9DP	240-RI-000-1661	8-29-16
Ludlum	9DP	240-RI-000-1659	11-7-16
Ludlum	9DP	240-RI-000-1653	11-7-16
Ludlum	2350	240-RI-000-1406	10-4-16
Ludlum	2360	240-RI-000-1767	10-11-16
Ludlum	2360	240-RI-000-1247	8-17-16
Ludlum	2360	240-RI-000-1765	8-15-16
Ludlum	2360	240-RI-000-1752	10-4-16
Ludlum	Model 17	240-RI-000-1342	7-8-16
Ludlum	2360	240-RI-000-1305	9-16-16
Ludlum	2350	240-RI-000-1127	9-6-16
Ludlum	2360	240-RI-000-1378	12-20-16
Ludlum	2360	240-RI-000-1332	12-20-16
Ludlum	2360	240-RI-000-1289	1-17-17
Ludlum	2360	240-RI-000-1680	1-6-17
Ludlum	2360	240-RI-000-1285	2-2-16
Ludlum	Model 78	240-RI-000-1368	4-25-16
Ludlum	Model 78	240-RI-000-1424	5-5-16
Ludlum	Model 78	240-RI-000-1370	7-11-16
Bladewerx	SabreAlert	240-RI-000-1640	10-28-16
Bladewerx	SabreAlert	240-RI-000-2008	11-2-16
Bladewerx	SabreAlert	240-RI-000-1596	1-17-17

Bladewerx	SabreAlert	240-RI-000-1631	11-11-16	
Bladewerx	SabreAlert	240-RI-000-2007	11-1-16	
Bladewerx	SabreAlert	240-RI-000-2011	9-30-16	
Bladewerx	SabreAlert	240-RI-000-1634	11-10-16	
Bladewerx	SabreAlert	240-RI-000-1635	11-9-16	
Bladewerx	SabreAlert	240-RI-000-1643	2-24-16	
Ludlum	2350	240-RI-000-1410	9-6-16	
Tennelec	5XLB	240-RI-000-1105	1-11-17	
Tennelec	5XLB	240-RI-000-1032	1-11-17	
Ludlum	2360	240-RI-000-1322	7-13-16	
Ludlum	2241-4	240-RI-000-1222	2-16-16	Tagged OOS
Ludlum	3030	240-RI-000-1350	7-13-16	
Ludlum	3030	240-RI-000-1352	7-13-16	
Canberra	iSolo	240-RI-000-1309	7-19-16	
Canberra	iCam	411-CAM-007-068	7-4-16	Tagged OOS
Canberra	iCam	411-CAM-007-067	10-7-16	
Tennelec	5XLB	240-RI-000-1604	1-12-17	
Tennelec	5XLB	240-RI-000-1606	8-15-17	
Canberra	iCam	534-CAM-007-165	8-30-16	OOS
Canberra	iCam	534-CAM-007-162	8-30-16	Tagged Testing
Canberra	iCam	534-CAM-007-703	8-30-16	Tagged DNO
Env. Prod Co	Hi-Q	240-RI-000-1686	7-8-15	OOS
Ludlum	2360	240-RI-000-1384	12-19-16	OOS
Ludlum	2360	240-RI-000-1301	12-2-16	OOS
Ludlum	2360	240-RI-000-1753	1-4-17	OOS
Ludlum	2360	240-RI-000-1328	8-11-16	OOS
Ludlum	2360	240-RI-000-1303	12-15-16	OOS
Ludlum	2360	240-RI-000-1682	7-3-16	
Ludlum	2360	240-RI-000-1750	12-9-16	
Ludlum	2360	240-RI-000-1394	2-7-17	
Canberra	iCam	365-CAM-018-001	4-8-16	
Ludlum	2360	240-RI-000-1768	12-19-16	
Env. Prod Co	Hi-Q	240-RI-000-1693	3-24-16	

After completing this nearly 100% sample examination, the audit team selected work packages for 14 different types of instruments to review the documentation of calibration activities.

The audit team reviewed these selected work packages against the site procedures and found that they adequately documented the calibration activities in accordance with site procedures. This is indicative of sustaining corrective actions for CBFO CAR 16-022 which was generated during the previous A-16-06 Calibration audit.

<u>Work Order</u>	<u>Instrument</u>	<u>Serial #</u>
1513234	Ludlum 2241	240-RI-000-1414
1619171	Ludlum 2350	240-RI-000-1137

1624665	Ludlum 2360	240-RI-000-1297
1618147	Ludlum 3030	240-RI-000-1350
1617088	Ludlum 9DP	240-RI-000-1653
1617093	Ludlum 9DP	240-RI-000-1670
1615669	Canberra iCam	240-RI-000-1281
1510063	Canberra iSolo	240-RI-000-1311
1513223	Ludlum Model 17	240-RI-000-1346
1512800	Ludlum Model 78	240-RI-000-1426
1619162	Env Prod Co Hi-Q	240-RI-000-1722
1619122	Env Prod Co Hi-Q	240-RI-000-1614
1624024	SabreAlert	240-RI-000-1594
1732298	Tennelec	240-RI-000-1032

No issues were identified during the course of the review of RADCON instrument calibration.

The audit team concluded that the requirements for RADCON Calibration were adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

5.2.2 Environmental Monitoring Calibration Program

The Audit Team conducted interviews with responsible personnel and reviewed the following implementation procedures:

- *WP12-RC.01, QAPP for Sampling Emissions of Radionuclides to the Ambient Air at the WIPP*
- *IC041074, Calibration of MOD and LOW DP Transmitters 41-B-812, 41-B-813, 41-B-814, 41-B-815, 41-B-834, 41-B-861, 41-B-863, and 41-B-979*
- *IC041087, Calibration of Suction Flow Transmitters for 41-B-956 and 41-B-957*
- *IC041072, Calibration of Effluent Monitoring Skids A-1, A-2, A-3, B1 and B2 Flow Instrumentation*
- *IC041096, Calibration of Station C Mass Flow*
- *IC041097, Effluent Monitoring Station C FAS Flow Annual Calibration*
- *IC041098, Quarterly UG Exhaust Mass Flow Measurement Sys. Cal. For fans 700A, 700B and 700C;*
- *IC041106, Exhaust Filter Building (413) Room Static Differential Pressure Controls Annual Calibration Loops 41F06710A, 41F06710B and 41F06710C*
- *IC413000, Station B Mass Flow Measurement Sys, Loop 41A001W2001*
- *IC413005, Calibration of Flow Indicating Transmitters for U/G Exhaust Fan*

Results of the review indicate that the procedures adequately address upper-tier requirements.

The Audit Team evaluated equipment used for monitoring plant emissions and

maintaining the plant air flow systems. The engineered items and systems are defined in WP 12-RC.01. Components evaluated included Fixed Air Sampler (FAS) units that continuously monitor radionuclide emissions, as well as the flow control systems used to monitor the ventilation and filtration systems at the WIPP Site.

The Audit Team conducted interviews with responsible personnel and reviewed the procedures used for calibration of the WIPP emissions monitoring equipment. The team examined equipment and verified the presence of calibration stickers noting calibration dates and due dates for recalibration. The Computerized History and Maintenance Planning System (CHAMPS) is utilized to control the actual calibration of the emission monitoring systems equipment. Calibration activities are conducted utilizing Preventative Maintenance (PM) work orders. The work orders include the use of continuous use calibration procedures that include IC041072; IC041074; IC041096; IC041097 and IC413000. These procedures utilize attachments that document the calibration activities and, when completed, become the Record of Calibration.

The Audit Team verified that maintenance personnel performing in-plant calibration activities obtain calibrated instruments from the M&TE Control Area, verify calibration of the instruments, and record the serial numbers of the M&TE used.

The CHAMPS system is also used to schedule and track the recalibration of plant installed equipment at the appropriate calibration interval.

The Audit Team identified the following concerns:

- Work Order 1628353, generated 11/3/16, for the calibration of SKID 365-S-100, B1 does not include the requirement that a calibration sticker be applied and the application verified by the craft (see CBFO CAR 17-021).
- There is no objective evidence of a current calibration sticker for differential pressure indicators 451-PDT-056-02 and 451-PDT-056-05 in the CH Waste Handling Calibration logbook. Also, there is no objective evidence of a current calibration sticker for 41F05821D in the RH Waste Handling Calibration logbook. Note: Calibrations of 451-PDT-056-02 and 451-PDT-056-05 (both due 1/13/16) were deferred until 4/5/16 by Work Control, but the Calibration stickers in the logbook were not revised. Calibration of 41F05821D (due 1/28/16) was deferred until 4/5/16 by Work Control, but the Calibration stickers in the logbook were not revised (see CBFO CAR 17-022).
- There is no objective evidence of a current calibration sticker for differential pressure indicator 411-PDT-052-31 in the CH Waste Handling Calibration logbook. Note: 411-PDT-052-31 was calibrated on 12/19/16 (due 12/25/16) (see CDA 1).
- WP 12-RC.01 Rev 11, *Quality Assurance Program Plan for Sampling Emissions of Radionuclides to the Ambient Air at the Waste Isolation Plant*, Section 4.0, *Sample*

System Collection and Analysis does not address the calibration of flow indicating transmitters for the underground exhaust fan as described in IC413005 or calibration of suction flow transmitters for 41-B-956 and 41-B-957 as described in IC41087. WP 12-RC.01, Rev 11 was issued 03/02/15. IC413005 and IC41087 were issued June 2016. The team verified that the flow indicating transmitters for the underground exhaust fan and the suction flow transmitters for 41-B-956 and 41-B-957 are being properly calibrated. (see Observation 1).

Overall, the audit team concluded that, with the exceptions noted above, the upper-tier requirements for the control of M&TE use for environmental monitoring activities were adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

5.2.3 Maintenance Calibration Program

The audit team conducted interviews with responsible personnel and reviewed the following work control documents and implementing procedures:

- WP 10-WC.03, *NWP Equipment Calibration Program*;
- WP 10-AD3030, *Calibration Label Application and Control*;
- DC025000, *Backup Diesel Generator 25P-E-503 and 25P-E-504 Instrumentation Calibration*;
- IC041095, *Annual Diesel Fire Pump 45-G-602 Temperature And Oil Pressure Gauge Calibration*;
- IC472000, *472-MMP-007-001 Meteorological Instrumentation Calibration*;
- PM384000, *Salt Hoist Air Compressor Temperature and Pressure Switch Calibration*;

Review of the procedures indicated that upper-tier requirements are adequately addressed.

Access was granted to the underground for a review of the M&TE in the tool crib and RAD instrumentation located at and around the transition line. All instruments and M&TE were verified as having current calibration labels and OPS checks.

A review of completed calibration work orders performed by NWP was performed. All work orders reviewed were found to be complete. The audit team verified current calibration stickers were placed on the systems/equipment related to the work orders reviewed.

A review of the qualifications of the craft performing work on the above-mentioned work orders were found to be adequate and all were current in their training.

The audit team determined that the Maintenance Calibration Program activities evaluated were adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

5.2.4 NWP Site Metrology Program

The audit team verified that the calibration requirements for M&TE and M&DC equipment of DOE/CBFO-94-1012, Rev. 12, *CBFO QAPD*, and WP 13-1, Rev. 36, *NWP QAPD* are adequately documented in the NWP controlling documents. M&TE and M&DC equipment under calibration control are clearly identified within a database by the Metrology Office.

The team verified that the Metrology Office maintains separate listings of M&TE and M&DC equipment under calibration control by the review of certificates of calibration documentation verifying that calibrations are traceable to NIST, international or intrinsic standards in accordance with ANSI/NCSL Z540.

The audit team examined approximately 40 M&TE and M&DC items in the Metrology Lab, Industrial Hygiene Room 125, and the Environmental Mobile Lab. All calibration labels were verified to be correctly applied, legible and not damaged.

Usage Reports are identified for each piece of M&TE and M&DC equipment. The reports identify the equipment number, job package number, date out/date in and user for the period of current calibration.

The audit team identified that the appropriate individuals are notified when an Out-of-Tolerance (OOT) condition is reported by the calibration service vendor. The usage list and vendor data were identified on an OOT Notification form and distribution made to the equipment owners and QA. The Metrology Office provides the Owner and Cognizant Manager with the OOT vendor data on the OOT Notification form EA10AD3029-1-0 when this condition is determined. A Commitment Tracking System (CTS) item is established by the Metrology Office for a period of 10 working days against the owner, then notifies the I&C Manager and sends a copy of the OOT notice to the QA Manager. All reviewed evaluations of the OOT data were completed by the user within 10 working days and the checkbox was completed indicating whether or not a WIPP form was generated. A description in the response portion of the OOT Notification form was provided as to how the M&TE was used, including range of the measurements taken and adequate technical justification statements.

Usage Logs for the M&DC Mobile Lab equipment and Industrial Hygiene are maintained by the designated Owner of the equipment.

The team verified that the Metrology Office has a File Maker Pro master database of M&TE equipment contains the required characteristics of:

- Calibration date
- Calibration expiration date
- Recall frequency
- M&TE ID #

- Description
- Manufacturer
- Model #
- Serial #

The team verified that the Metrology Office issues a list monthly of M&TE and MDC equipment due for calibration, and M&TE and MDC equipment is stored in such a manner that the equipment will not be subjected to extremes outside the manufacturer's recommendations. M&TE records are stored in 1-hour fire-rated cabinets and M&TE records are maintained in the Metrology Office in a secure area with access limited to the Metrology Office personnel. The M&TE 1-hour fire-rated cabinet is a 4-drawer vertical file cabinet. The Industrial Hygiene M&DC records are stored in Building 451 (Safety Building) on the first floor. The records are in a locked 1-hour fire rated 4-drawer vertical cabinet until dispositioned by RIDS. The Environmental Sampling records are stored in 1-hour fire rated 4-drawer cabinets on the 2nd floor of Building 451 (Safety Building). The storage cabinets are locked.

Release inspections are performed on M&TE and M&DC equipment prior to issuance release.

One concern resulted from this review. The Calibration Certificate dated 5/4/16 for M&TE instrument PV0977 identified that calibration was performed at Fluke Corporation, 1420 75th St SW, Everett, WA rather than at Fluke Corporation, 6920 Seaway Boulevard, Everett, WA as identified on the QSL. The NWP shipping authorization for procuring the calibration service was addressed to Fluke Electronics at 1420 75th Street SW, Everett, WA (see CBFO CAR 17-023).

The team concluded that, with the exceptions noted above, the M&TE/M&DC Programs were adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

5.2.5 NWP/CCP Metrology Program

The audit team reviewed implementing procedure CCP-QP-016, *CCP Control of Measuring and Testing Equipment*, to determine the degree to which the procedure adequately addresses QAPD requirements. The results of the review indicate that the referenced procedure adequately implements upper-tier requirements.

The following procedures were also found to have adequately implemented the QAPD requirements:

- CCP-PO-001, *CP Transuranic Waste Characterization QA Project Plan*
- CCP-PO-002, *CCP Transuranic Waste Certification Plan*
- CCP-PO-008, *CCP Records Management*
- NWP 15-PM3525, *Preparation and Processing of Shipping Authorizations*

The audit team interviewed the CCP M&TE Custodian, M&TE Packaging Specialist, CCP Records Manager, database support Software Engineers and the M&RC Records Coordinator and reviewed objective evidence for program compliance. The team verified that M&TE data are entered into the IDC M&TE Module, recall notifications are issued, M&TE are labeled, tools are segregated / controlled when required by status, calibration services used are qualified and that calibration certificates are complete and meet purchasing requirements. Appropriate actions are taken when M&TE is found out of calibration, and records are kept in accordance with the RIDS.

The team identified an isolated CAQ instance of a form with an error. CCP-QP-016, Attachment IV is used to adjust calibration intervals and tolerances. A box was checked, in error, indicating a tolerance adjustment that did not occur. The error was corrected in accordance with CCP-QP-008, Rev 26, Para 4.7.1[A.1] as a single line through the error, initial and date (CDA 2).

The audit team concluded that, with the exception noted above, the requirements for NWP/CCP Metrology were adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

6.0 SUMMARY OF DEFICIENCIES

6.1 Corrective Action Reports (CARs)

During the audit, the audit team may identify CAQs and document such conditions on CARs.

Condition Adverse to Quality (CAQ) – Term used in reference to failures, malfunctions, deficiencies, defective items, and nonconformances.

Significant Condition Adverse to Quality – A condition which, if uncorrected, could have a serious effect on safety, operability, waste confinement, TRU waste site certification, compliance demonstration, or the effective implementation of the QA Program.

As described below, the audit team identified three CAQs during Audit A-17-15, which resulted in the issuance of three CARs.

CBFO CAR 17-021

Work Order 1628353, generated 11/3/2016, for the calibration of SKID 365-S-100, B1 does not include the requirement that a calibration sticker be applied and the application verified by the craft.

WP 13-1, Revision 36, *NWP QAPD* – Section 2.1 states in part “Work shall be performed under controlled conditions using approved instructions, procedures...”

Section 2.5.1.E states in part “All calibrated monitoring, measuring, testing, and data collection equipment shall be labeled to indicate the calibration status...”

CBFO CAR 17-022

There is no objective evidence of a current calibration sticker for differential pressure indicators 451-PDT-056-02 and 451-PDT-056-05 in the CH Waste Handling Calibration logbook.

Also, there is no objective evidence of a current calibration sticker for 41F05821D in the RH Waste Handling Calibration logbook.

Note:

Calibrations of 451-PDT-056-02 and 451-PDT-056-05 (both due 1/13/16) were deferred till 4/5/16 by Work Control, but the Calibration stickers in the logbook were not revised.

Calibration of 41F05821D (due 1/28/16) was deferred till 4/5/16 by Work Control, but the Calibration stickers in the logbook were not revised.

WP 13-1, Revision 36; *NWP QAPD* – Section 2.5.1.E states in part “All calibrated monitoring, measuring, testing, and data collection equipment shall be labeled to indicate the calibration status, the date calibrated, the calibration due date or usage equivalent, and the identification of any limitations. (When it is impractical to apply a label directly to an item, the label may be affixed to the instrument container or some other suitable means may be used to reflect calibration status.)”

IC041074, Step 5.5.A requires a calibration sticker to be placed in the CH Waste Handling Calibration logbook after calibration of the equipment.

IC411016 Step 5.6.1 requires a calibration sticker to be placed in the RH Waste Handling Calibration logbook after calibration of the equipment.

CBFO CAR 17-023

The calibration Certificate for M&TE instrument PV0977 states the calibration was performed at Fluke Corporation, 1420 75th St SW, Everett, WA rather than at Fluke Corporation, 6920 Seaway Boulevard, Everett, WA which is the address identified on the QSL. The NWP shipping authorization for procuring the calibration service was addressed to Fluke Electronics at 1420 75th Street SW, Everett, WA

WP 10-AD.01, Section 5.1 states “The Metrology Office will obtain calibration services from only those vendors approved by the Nuclear Waste Partnership (NWP) QA Department in the Qualified Suppliers List (QSL) to meet the requirements of ANSI/NCSL Z540.3-2006, Calibration Laboratories and Measuring and Test Equipment – General Requirements, or other appropriate standards applicable to the item being calibrated. Any deviation from the QSL will be approved by QA.”

6.2 Deficiencies Corrected During the Audit (CDAs)

Corrected During the Audit (CDA) – Isolated deficiencies that do not require a root cause determination or actions to preclude recurrence, and where correction of the deficiency can be verified prior to the end of the audit. Examples include one or two minor changes required to correct a procedure (isolated), one or two forms not signed or dated (isolated), and one or two individuals who have not completed a reading assignment. During the audit, the audit team may identify CAQs. The audit team members and the Audit Team Leader (ATL) evaluate the CAQs to determine if they are significant. Once a determination is made that the CAQ is not significant, the audit team member, in conjunction with the ATL, determines if the CAQ is isolated requiring only remedial action and, therefore, can be corrected during the audit. Deficiencies that can be classified as CDA are those isolated deficiencies that do not require a root cause determination or actions to preclude recurrence, and those for which correction of the deficiency can be verified prior to the end of the audit.

Upon determination that the CAQ is isolated, the audit team member, in conjunction with the ATL, evaluates/verifies any objective evidence/actions submitted or taken by the audited organization and determines if the condition was corrected in an acceptable manner. Once it has been determined that the CAQ has been corrected, the ATL categorizes the condition as a CDA.

Two isolated CAQs, described below, were identified and corrected during the audit.

CDA 1

There is no objective evidence of a current calibration sticker for differential pressure indicator 411-PDT-052-31 in the CH Waste Handling Calibration logbook. Note: 411-PDT-052-31 was calibrated on 12/19/16 (Due 12/25/16)

Supporting documentation was reviewed and the correction was verified by the audit team.

CDA 2

The team identified one isolated instance of a form with an error. CCP-QP-016, Rev 21, Attachment IV is used to adjust calibration intervals and tolerances. A box was checked in error indicating a tolerance adjustment that did not occur. The error was corrected in accord with CCP-QP-008, Rev 26, Para 4.7.1[A.1] as a single line through the error, initial and date.

Correction was verified by the audit team.

7.0 SUMMARY OF OBSERVATIONS AND RECOMMENDATIONS

During the audit, the audit team may identify conditions that warrant input by the audit team to the audited organization regarding potential problems or suggestions for program improvement. The audit team members, in conjunction with the ATL, evaluate these conditions and classify them as observations or recommendations (using the following definitions). Once a determination is made, the audit team members, in conjunction with the ATL, categorize the conditions appropriately.

Observation – A condition that is determined not to be a violation of procedure or requirement at the time but, if not controlled or addressed, may result in a CAQ during future activities.

Recommendation – A suggestion that is directed toward identifying opportunities for improvement and enhancing methods of implementing requirements.

7.1 Observations

Observation 1

WP 12-RC.01 Rev 11, *Quality Assurance Program Plan for Sampling Emissions of Radionuclides to the Ambient Air at the Waste Isolation Plant, Section 4.0, Sample System Collection and Analysis* does not address the calibration of flow indicating transmitters for underground exhaust fan as described in IC413005 or calibration of suction flow transmitters for 41-B-956 and 41-B-957 as described in IC41087. WP 12-RC.01, Rev 11 was issued 03/02/15. IC413005 and IC41087 were issued June 2016. The team verified that the flow indicating transmitters for the underground exhaust fan and the suction flow transmitters for 41-B-956 and 41-B-957 are being properly calibrated.

7.2 Recommendations

No recommendations were offered by the audit team to NWP Management during the course of this audit.

8.0 LIST OF ATTACHMENTS

- Attachment I: Personnel Contacted During the Audit
- Attachment II: NWP Implementing Procedures Evaluated
- Attachment III: Summary Table of Audit Results

PERSONNEL CONTACTED DURING THE AUDIT				
NAME	ORGANIZATION/ DEPARTMENT	PRE-AUDIT MEETING	CONTACTED DURING AUDIT	POST-AUDIT MEETING
Ballew, V.	NWP/QA Program/Project Integration Mgr.	X	X	X
Biggerstaff, J.	NWP/Rad Con (underground) Super.		X	
Billett, M.	NTP-CCP/Training	X		X
Boyea, A.	NWP/QA Admin.			X
Brewer, D.	NWP/Engineering Technician		X	
Carrasco, R.	NWP/Geo and Mine Eng. Mgr.	X		
Fisher, A.J.	NTP-CCP/Support Services	X		
Hernandez, L.	NWP/QA Analyst			X
Hood, D.	NTP/ Packaging Implementation & Tech Support	X		X
Jimenez, R.	NWP/Environmental Specialist		X	
Kesterson, T.	NWP/Sr. Scientist		X	
Konst, J.	EM-SD-NWP/Readiness & Mission Support Mgr.	X		
London, D.	NWP/Engineering Technician		X	
Mason, R.	NWP/I&C Manager	X	X	X
McDaniel, M.	NWP/Quality and CA Mgr.	X		X
Medina, A	NWP/Quality Assurance Engineer		X	
Pace, B.	NTP-CCP/Records and Issue Management	X		X
Pearcy, S.	NTP-CCP/Records Mgr.	X		
Phillips, J.	NWP/Engineering Technician		X	
Picazo, E.	RES/Regulatory Compliance	X		
Punchios, S.	NWP/QA Staff Admin.	X		
Satterfield, J.	NWP/Rad Con Super.,	X	X	
Scheel, H.	NTP/ Packaging Implementation & Tech Support	X		X
Sellmer, T.	NTP/Packaging & Information System Manager	X		
Urquidez, A.	RES/Permitting and Tech. Specialist	X		

Implementing Procedures Evaluated During A-17-15			
Number	Doc. Number	Rev.	Document Title
1.	CCP-PO-001	22	CP Transuranic Waste Characterization QA Project Plan
2.	CCP-PO-002	29	CCP Transuranic Waste Certification Plan
3.	CCP-PO-008	26	CCP Records Management
4.	CCP-QP-016	22	CCP Control of Measuring and Testing Equipment
5.	DC025000	9	Backup Diesel Generator 25P-E-503 and 25P-E-504 Instrumentation Calibration
6.	IC041040	4	45-B-116 And 45-B-117 Filter ΔP Loop Calibration Loops 41F063021, 41F06322, 41F06323, 41F06325, 41F06326 And 41F06327
7.	IC041072	10 1B	Calibration of Effluent Monitoring Skids A-1, A-2, A-3, B1 and B2 Flow Instrumentation
8.	IC041074	7	Calibration of MOD and LOW DP Transmitters 41-B-812, 41-B-813, 41-B-814, 41-B-815, 41-B-834, 41-B-861, 41-B-863, and 41-B-979
9.	IC041087	0 TRN 2	Calibration of Suction Flow Transmitters for 41-B-956 and 41-B-957
10.	IC041095	7	Annual Diesel Fire Pump 45-G-602 Temperature and Oil Pressure Gauge Calibration
11.	IC041096	6	Calibration of Station C Mass Flow
12.	IC041097	4	Effluent Monitoring Station C FAS Flow Annual Calibration
13.	IC041098	6	Quarterly U/G Exhaust Mass Flow Measurement System Calibration for Fans 700A, 700B and 700C
14.	IC240010	2 TRN 4 IA	Tennelec Series 5 XLB Low Background Alpha/Beta Counting System Calibration
15.	IC240012	1 TRN 2	Calibration and Maintenance of ICAM Alpha/Beta Air Monitor
16.	IC240016	1 IA	Calibration and Maintenance of Ludlum Model 2360 Scaler/Ratemeter With Alpha/Beta 43-93 Probe
17.	IC240017	1 TRN 2	Calibration and Maintenance of Ludlum Model 3030E Alpha/Beta Scaler
18.	IC240020	1 TRN 4 IB	Calibration of Sabre Alert Portable Air Monitor
19.	IC411041	2-1A	41-H-022, 411-WS-264-01 Load Cell and Weight Switch Calibration
20.	IC413000	7	Station B Mass Flow Measurement System Loop 41A001W2001
21.	IC413003	3	Craft Support for Vendor Calibration of Seismic System, 413A-SMP-004-001 & 534-SMP-003-001
22.	IC413005	0 TRN 1	Calibration of Flow Indicating Transmitters for U/G Exhaust Fan
23.	IC472000	6	472-MMP-007-001 Meteorological Instrumentation Calibration
24.	MC 1.10	3	Radiological Instrument Committee
25.	PM384000	4	Salt Hoist Air Compressor Temperature and Pressure Switch Calibration
26.	WP 10-AD.01	10	Metrology Program
27.	WP 10-AD3028	15	Calibration and Control of Measurement and Test Equipment
28.	WP 10-AD3029	12	Calibration and Control of Monitoring and Data Collection Equipment

Implementing Procedures Evaluated During A-17-15			
Number	Doc. Number	Rev.	Document Title
29.	WP 10-AD3030	4	Calibration Label Application and Control
30.	WP 10-AD3031	4	M&TE/M&DC Inspections
31.	WP 10-WC.03	1	NWP Equipment Calibration Program
32.	WP 10-WC3010	29-FR1	Periodic Maintenance Administration and Controlled Document Processing
33.	WP 10-WC3011	37-FR3	Work Control Process
34.	WP 12-5	19	Waste Isolation Pilot Plant Radiation Safety Manual
35.	WP 12-HP3200	20	Radioactive Material Control
36.	WP 12-HP3201	4	Radioactive Source Accountability and Control
37.	WP 12-RC.01	11	Quality Assurance Program Plan for Sampling Emissions of Radionuclides to the Ambient Air at the Waste Isolation Pilot Plant
38.	WP 13-1	36	NWP Quality Assurance Program Description
39.	WP 15-PC3044	10	Quality Credit Card Purchases
40.	WP 15-PM3525	12	Preparation and Processing of Shipping Authorizations

Summary Table of Audit Results

Audit Elements	Concern Classification				QA Evaluation		
	CARs	CDAs	Obs	Rec	Adequacy	Implementation	Effectiveness
RADCON					A	S	E
Environmental	2	1	1		A	S	E
Maintenance					A	S	E
NWP M&TE	1				A	S	E
NWP/CCP M&TE		1			A	S	E
TOTALS	3	2	1				

Definitions

A = Adequate
 I = Indeterminate
 NA = Not Adequate
 S = Satisfactory

E = Effective
 M = Marginal
 NE = Not Effective

CAR = Corrective Action Report
 CDA = Corrected During Audit
 Obs = Observation
 Rec = Recommendation