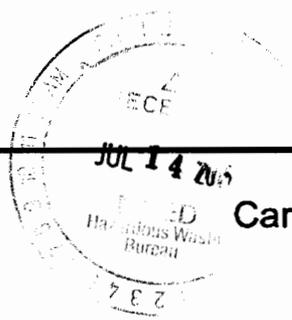


United States Government

Department of Energy

# memorandum



Carlsbad Field Office  
Carlsbad, New Mexico 88221

DATE: JUL 14 2015  
REPLY TO  
ATTN OF: CBFO:OQA:DSM:SG:15-0814:UFC 2300.00  
SUBJECT: Interim Audit Report A-15-18, INL/CCP Characterization and Certification Activities for CH and RH TRU Waste  
TO: Benjamine B. Roberts, DOE-ID

The Carlsbad Field Office (CBFO) conducted Annual Recertification Audit A-15-18, Idaho National Laboratory Central Characterization Program (INL/CCP) Characterization and Certification Activities for Contact-Handled (CH) and Remote-Handled (RH) Transuranic (TRU) Waste, June 16 – 18, 2015. The interim audit report is attached.

The audit team concluded that, with the exceptions described below, the implementing procedures reviewed during the audit are adequate relative to the flow-down of requirements, and the technical activities evaluated are satisfactorily implemented and effective.

As a result of the audit, one CBFO corrective action report was issued and transmitted under separate cover. Additionally, three conditions adverse to quality, isolated in nature, were corrected during the audit. The audit team offered three Recommendations to INL/CCP management for consideration.

If you have any questions or comments, please contact me at (575) 234-7491.

Dennis S. Miehls  
Senior Quality Assurance Specialist

Attachment

- |                          |     |                                     |    |
|--------------------------|-----|-------------------------------------|----|
| cc: w/attachment         |     |                                     |    |
| D. Bryson, CBFO          | *ED | L. Bender, EPA                      | ED |
| M. Brown, CBFO           | ED  | E. Feltcorn, EPA                    | ED |
| J.R. Stroble, CBFO       | ED  | R. Joglekar, EPA                    | ED |
| M. Navarrete, CBFO       | ED  | J. Kieling, NMED                    | ED |
| G. Birge, CBFO           | ED  | S. Holmes, NMED                     | ED |
| N. Castaneda, CBFO       | ED  | R. Maestas, NMED                    | ED |
| J. Zimmerman, DOE-ID     | ED  | C. Smith, NMED                      | ED |
| M. Wilcox, DOE-ID        | ED  | I. Triay, NMED                      | ED |
| P. Breidenbach, NWP      | ED  | D. Winters, DNFSB                   | ED |
| J. Blankenhorn, NWP      | ED  | V. Daub, CTAC                       | ED |
| J. Britain, NWP          | ED  | R. Allen, CTAC                      | ED |
| F. Sharif, NWP/CCP       | ED  | P. Martinez, CTAC                   | ED |
| D.E. Gulbransen, NWP/CCP | ED  | B. Pace, CTAC                       | ED |
| R. Reeves, NWP/CCP       | ED  | T. Ackman, CTAC                     | ED |
| V. Cannon, NWP           | ED  | D. Harvill, CTAC                    | ED |
| A.J. Fisher, NWP/CCP     | ED  | G. White, CTAC                      | ED |
| I. Joo, NWP/CCP          | ED  | Site Documents                      | ED |
| J. Carter, NWP/CCP       | ED  | WWIS Database Administrators        | ED |
| B. Allen, NWP/QA         | ED  | CBFO QA File                        |    |
| S. Punchios, NWP/QA      | ED  | CBFO M&RC                           |    |
| T. Peake, EPA            | ED  | *ED denotes electronic distribution |    |

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U.S. DEPARTMENT OF ENERGY  
CARLSBAD FIELD OFFICE

INTERIM AUDIT REPORT

OF THE

IDAHO NATIONAL LABORATORY  
CENTRAL CHARACTERIZATION PROGRAM

IDAHO FALLS, IDAHO  
AND CARLSBAD, NEW MEXICO

AUDIT NUMBER A-15-18

June 16 – 18, 2015

CHARACTERIZATION AND CERTIFICATION  
ACTIVITIES FOR CONTACT-HANDLED AND REMOTE-HANDLED  
TRANSURANIC WASTE



Prepared by:

Tamara D. Ackman

Tamara D. Ackman, CTAC  
Audit Team Leader

Date:

07/14/15

Approved by:

D. J. Mills FOR

Michael R. Brown, Director  
Office of Quality Assurance

Date:

7-14-15

## **1.0 EXECUTIVE SUMMARY**

Carlsbad Field Office (CBFO) Recertification Audit A-15-18 was conducted to evaluate the continued adequacy, implementation, and effectiveness of Idaho National Laboratory (INL) transuranic (TRU) waste characterization activities performed for INL by the Nuclear Waste Partnership LLC (NWP) Central Characterization Program (CCP). Activities were evaluated relative to the requirements of the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit (HWFP), the CBFO *Quality Assurance Program Document (QAPD)*, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant (WAC)*, and the *Remote-Handled TRU Waste Characterization Program Implementation Plan (WCPIP)*.

The audit team evaluated characterization and certification activities for contact-handled (CH) Summary Category Groups (SCGs) S3000 homogeneous solids waste, S4000 soils/gravel waste, and S5000 debris waste, and remote-handled (RH) SCGs S3000 homogeneous solids waste and S5000 debris waste. Specific technical and quality assurance (QA) elements audited are listed in section 2.1.

The audit was conducted at the INL/CCP facility near Idaho Falls, ID, and the NWP/CCP facilities in Carlsbad, NM, June 16 – 18, 2015. The audit team concluded that the INL/CCP adequately incorporates upper-tier requirements into its program plans and procedures. The team verified that INL/CCP activities for characterization and certification related to CH SCGs S3000 homogeneous solids, S4000 soils/gravel, and S5000 debris wastes, and RH SCGs S3000 homogeneous solids and S5000 debris wastes, continue to be adequate, satisfactorily implemented, and effective.

During the audit, the team identified one condition adverse to quality (CAQ) resulting in the issuance of one CBFO corrective action report (CAR) (see section 6.1). The CAR was issued under separate cover. Three deficiencies, isolated in nature, and requiring only remedial corrective action, were identified and corrected during the audit (CDA) (see section 6.2). No Observations were identified during the audit, and three Recommendations were offered for management consideration (see sections 6.3 and 6.4).

## **2.0 SCOPE AND PURPOSE**

### **2.1 Scope**

Audit A-15-18 was conducted to evaluate the continued adequacy, implementation, and effectiveness of the INL/CCP TRU waste characterization and certification activities for CH SCGs S3000 homogeneous solids, S4000 soils/gravel, and S5000 debris wastes, and RH SCGs S3000 homogeneous solids and S5000 debris wastes. The audit included the following elements.

General

- Results of Previous Audits
- Changes in Programs or Operations
- New Programs or Activities Being Implemented
- Changes in Key Personnel

Quality Assurance

- Personnel Qualification and Training
- Nonconformance Reporting
- Records

Technical Activities

- Acceptable Knowledge (AK) (including waste certification, e.g., Waste Stream Profile Forms [WSPFs])
- Project-level Data Verification and Validation (PL V&V)
- WIPP Waste Information System (WWIS)/Waste Data System (WDS)
- Real-time Radiography (RTR)
- Visual Examination (VE)
- Nondestructive Assay (NDA)
- Dose-to-Curie (DTC)
- Flammable Gas Analysis (FGA)
- Gas Generation Testing (GGT)
- Container Management

The evaluation of INL/CCP TRU waste activities and documents was based on current revisions of the following documents:

Waste Isolation Pilot Plant Hazardous Waste Facility Permit NM4890139088-TSDF  
*Quality Assurance Program Document, DOE/CBFO-94-1012*

*Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant,*  
DOEWIPP-02-3122

*Remote-Handled TRU Waste Characterization Program Implementation Plan,*  
DOEWIPP-02-3214

*CCP Transuranic Waste Characterization Quality Assurance Project Plan,*  
CCP-PO-001

*CCP Transuranic Waste Certification Plan, CCP-PO-002*

*CCP/INL Interface Document, CCP-PO-024*

*CCP/INL RH TRU Waste Interface Document, CCP-PO-501*

Related technical and quality assurance implementing procedures

## 2.2 Purpose

The audit team assessed INL/CCP compliance with the referenced upper-tier requirements for waste characterization and certification and applicable QA program activities for CH SCGs S3000 homogeneous solids, S4000 soils/gravel, and S5000 debris wastes, and RH SCGs S3000 homogeneous solids and S5000 debris wastes.

## 3.0 AUDIT TEAM AND OBSERVERS

### AUDITORS/TECHNICAL SPECIALISTS

Michael Brown	Director, CBFO Office of Quality Assurance
Dennis Miehl	Management Representative, CBFO Office of Quality Assurance
Tamara Ackman	Audit Team Leader, CBFO Technical Assistance Contractor (CTAC)
Berry Pace	Auditor, CTAC (Program Status)
Charlie Riggs	Auditor, CTAC (AK)
Jim Schuetz	Auditor, CTAC (C6 QA)
Bob Prentiss	Auditor, CTAC (C6 QA)
Katie Martin	Auditor, CTAC (VE)
Greg Knox	Auditor, CTAC (RTR)
Roger Vawter	Auditor, CTAC (NDA and DTC)
Kathy Hood	Auditor in Training, CTAC (VE)
B.J. Verret	Auditor/Technical Specialist, CTAC (GGT, FGA, and Container Management)
Porf Martinez	Technical Specialist, CTAC (VE)
Paul Gomez	Technical Specialist, CTAC (PL V&V)
Dick Blauvelt	Technical Specialist, CTAC (AK)
Rhett Bradford	Technical Specialist, CTAC (RTR)
Jim Oliver	Technical Specialist, CTAC (NDA and DTC)
Michel Hall	Technical Specialist, CTAC (NDA and DTC)

### OBSERVERS

Robert Murray	Office of Standards and Quality Assurance, EM-43
Steven Ross	Office of Standards and Quality Assurance, EM-43
Larry Perkins	Office of Standards and Quality Assurance, EM-43
Ray Wood	Office of Standards and Quality Assurance, EM-43 Contractor
Steve Holmes	New Mexico Environment Department (NMED)
Coleman Smith	NMED
Ines Triay	NMED
J. R. Stroble	CBFO TRU Sites and Transportation Division (TSTD)
Norma Castaneda	CBFO TSTD
Gary Birge	CBFO TSTD
Mark Doherty	CBFO/CTAC
Dale Bignell	CBFO/CTAC

## **4.0 AUDIT PARTICIPANTS**

The INL/CCP individuals involved in the audit process are identified in Attachment 1. A pre-audit meeting was held at the Radioactive Waste Management Complex (RWMC), Building WMF-637 main conference room at the INL near Idaho Falls, ID, and at the Skeen-Whitlock Building in Carlsbad, NM, on June 16, 2015. Daily briefings were held with INL/CCP management and staff to discuss issues and potential deficiencies. The audit was concluded with a post-audit meeting held June 18, 2015, at the RWMC Building WMF-637 main conference room at the INL and in the Skeen-Whitlock Building in Carlsbad.

## **5.0 SUMMARY OF AUDIT RESULTS**

### **5.1 Program Adequacy, Implementation, and Effectiveness**

The audit team concluded that the applicable INL/CCP TRU waste characterization activities, as described in the associated implementing plans and procedures, are adequate in meeting upper-tier requirements, and that the procedures evaluated are satisfactorily implemented and effective in achieving the desired results. Audited activities are described below. Attachment 2 contains a Summary Table of Audit Results. Attachment 3 contains a list of audited documents. Attachment 4 contains a list of the processes and equipment reviewed during the audit.

During Audit A-15-18, the audit team identified seven concerns consisting of four CAQs resulting in the issuance of CBFO CAR 15-050, and three deficiencies, isolated in nature and requiring only remedial corrective action, which were corrected during the audit. Three Recommendations were offered for management consideration. No Observations were identified. The CARs, CDAs, and Recommendations are described in detail in section 6.

### **5.2 General Activities**

#### **5.2.1 Results of Previous Audits**

The audit team examined the results of the previous CBFO audit of the INL/CCP (Audit A-14-18). Audit A-14-18 identified three CAQs, which resulted in the initiation of CAR 14-044, dealing with the lack of indoctrination/training related to NDA personnel, CAR 14-046, use of an obsolete AK Summary Report during real-time radiography (RTR), and CAR 14-047, the lack of justification for assigning or not assigning toxicity characteristic hazardous waste numbers. During the performance of Audit A-15-18, the team did not observe any instances similar to the conditions identified during A-14-18, suggesting that the corrective actions taken to address these CAQs were adequate in precluding recurrence.

### **5.2.2 Changes in Program or Operations**

The audit team determined through interview with the INL/CCP Project Manager that there were no significant changes in programs or operations since the previous recertification audit.

### **5.2.3 New Programs or Activities Being Implemented**

The audit team determined through interview with the INL/CCP Project Manager that no new programs or activities had been implemented since the previous recertification audit.

### **5.2.4 Changes in Key Personnel**

The audit team determined through interview with the INL/CCP Project Manager that the only changes in key personnel included a change in the Project Manager and Site Project Manager positions for CH waste characterization.

### **5.2.5 INL/CCP Program Interface**

The audit team examined CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan (QAPjP)*, and CCP-PO-002, *CCP Transuranic Waste Certification Plan*, and verified that the documents adequately address the applicable upper-tier requirements specified in the WIPP HWFP Waste Analysis Plan (WAP), and DOE/WIPP 02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*. One concern identified during this review was classified as Recommendation 1, described below (also see section 6.4).

Both CCP-PO-001 and CCP-PO-002 include references to CCP-QP-029, *CCP Corrective Action Management*. On September 20, 2013, CCP-QP-029 was declared obsolete and replaced by WP 15-GM1002, *Issues Management Processing of WIPP Forms*. Both documents use the term "corrective action reports"; however, the term "WIPP Forms" is used in WP 15-GM1002. CCP Standing Order CCP-SO-107, dated June 12, 2014, directs CCP personnel that any references or links to CCP-QP-029 found in CCP documents are superseded by WP 15-GM1002. Upon review of CCP-PO-002, the audit team found a reference to NWP Procurement Services commercial instruction C1015, *Supplier Selection*, which was replaced by NWP Commercial Instruction CI No. 4, *Supplier Selection*, on January 15, 2014.

Although these concerns have no negative effect on the adequacy and implementation of the CCP, the team recommends that CCP documents should be reviewed and revised as necessary to eliminate outdated references.

The audit team interviewed the CCP Program Manager, Site Project Manager, and Quality Assurance Engineer and reviewed objective evidence to evaluate requirements in INL/CCP interface documents CCP-PO-024, *CCP/INL Interface Document*, Rev. 15, governing CH (TRU waste characterization activities, and CCP-PO-501, *CCP/INL RH TRU Waste Interface Document*, Rev. 8, governing RH TRU waste characterization

activities. The team assessed implementation of requirements for the following elements:

- CCP management assessments
- INL-provided radiological controls
- INL site-specific training
- AK Summary Report provisions
- QA validation of nonconformance reports
- QA receipt inspections
- QA semi-annual trend reporting
- Program document review coordination
- Host-site-performed QA assessments
- Certified container segregation
- Vendor project manager (VPM) daily pre-operational briefings
- Measuring and test equipment (M&TE) recall notifications
- Site-provided bioassay participation
- CCP QA surveillances

As a result of personnel interviews and reviews of objective evidence, the requirements specified in the interface documents were determined to be satisfactorily implemented and effective in achieving the desired results.

### **5.3 Quality Assurance Activities**

#### **5.3.1 Personnel Qualification and Training**

The audit team interviewed responsible personnel and reviewed documentation to verify that INL/CCP meets the requirements of the CBFO QAPD and CCP-QP-002, Rev. 39, *CCP Training and Qualification Plan*. The team determined that CCP-QP-002 adequately addresses upper-tier requirements.

Training and qualification records for the following positions were reviewed:

- CH waste and RH waste Acceptable Knowledge Experts (AKEs)
- Site Program Managers (SPMs)
- Flammable Gas Analysts (FGAs)
- Gas Generation Tester (GGT)
- NDA Operators/Independent Technical Reviewers (ITRs)
- NDA Expert Analysts
- DTC Survey Operators/ITRs
- VE Operators/ITRs
- Nondestructive Examination (NDE) RTR Operators/ITRs.

Records reviewed included the List of Qualified Individuals (LOQI) for INL personnel working with CH waste dated 06/11/15, the RH Program LOQI dated 06/16/15, subject matter expert/on-the-job-training appointment letters, test drum (capability demonstrations) and training container documentation, and annual eye examination forms for NDE RTR Operators.

The audit team reviewed training records for CH Container Managers to verify that qualification cards included training to procedure CCP-TP-068, *CCP Standardized Container Management*. The team found that completed qualification cards in records did not reference the procedure. CCP Training personnel explained that the qualification cards reviewed did not include a reference to procedure CCP-TP-068 because in the past, operators performed container management work with a current copy of the procedure open at the workstation for reference.

The audit team requested a new qualification card for the CH Container Manager from the CCP Training group to verify that the current qualification card included a reference to procedure CCP-TP-068. CCP Training personnel provided documents to verify that CCP-TP-068 was undergoing revision, with an anticipated issue date of June 30, 2015. Candidates seeking qualification as CH Container Managers will be administered training under the new qualification card that includes training to CCP-TP-068. Based on the fact that no qualification card was required to perform the work scope being audited, the team determined that the operator is in compliance with training/qualification requirements.

The procedures reviewed and objective evidence assembled and evaluated during the audit indicated that the applicable requirements for Personnel Qualification and Training are adequately established for compliance with upper-tier requirements and are satisfactorily implemented, resulting in an effective training program.

### 5.3.2 Nonconformance Reporting

The audit team conducted interviews and reviewed implementing procedure CCP-QP-005, Rev. 24, *CCP TRU Nonconforming Item Reporting and Control*, to determine the degree to which the procedure addresses upper-tier requirements. Results of the review indicated that the procedure is adequate in addressing requirements.

The team interviewed the project office Quality Assurance Engineer and randomly selected the following nonconformance reports (NCRs) for review:

NCR-INL-0004-15_R1	NCR-INL-0005-15	NCR-INL-0181-15
NCR-INL-0183-15_R2	NCR-RHINL-0224-15_R1	NCR-RHINL-0227-15_R2
NCR-RHINL-0230-15	NCR-RHINL-0242-15	NCR-RHINL-0359-14
NCR-RHINL-0698-14		

The purpose of the review was to confirm that administrative deficiencies are appropriately documented and tracked through resolution. All NCRs were verified as being managed and tracked in the CCP Integrated Data Center (IDC) on the CCP NCR Logs.

One concern was identified related to documentation of an NCR. NCR-INL-0004-15 was voided, but sufficient justification for voiding the report was not provided in NCR documentation. This issue was discussed with CCP personnel, and the audit team determined that conditions and actions taken to void the NCR were valid and that the

concern was an isolated case. The NCR was revised, the audit team reviewed the detailed justification description, the revised NCR was sent to CCP records, and the audit team classified the concern as CDA 1 (see section 6.2).

One Recommendation was offered for management consideration related to the NCR process. The audit team witnessed a demonstration of the IDC database management application with respect to generation and management of an NCR. A listing of all NCRs associated with a specific container can be accessed in the IDC. The audit team recommended adding a function to the IDC that would automatically display existing NCR numbers that are assessed against a specific container when the container number is entered as part of the generation of a new NCR. This information will assist the originator of an NCR in determining the scope and impact and identification of possible recurring conditions with respect to the specific container and/or the subject of the new NCR (see section 6.4, Recommendation 3).

No WAP-related deficiencies regarding NCRs were identified. The procedures reviewed and objective evidence assembled and evaluated during the audit indicated that requirements for Nonconformance Reporting are adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

### **5.3.3 Records**

The audit team conducted interviews and reviewed implementing procedures relative to the control and administration of QA records to determine the degree to which the procedures adequately address upper-tier requirements. The audit team reviewed procedures CCP-QP-008, Rev. 24, *CCP Records Management*, and CCP-QP-028, Rev. 16, *CCP Records Filing, Inventorying, Scheduling, and Dispositioning*. Control of QA records was verified through review of the CH Records Inventory and Disposition Schedule (RIDS) dated 7/01/2014, and the RH RIDS dated 7/18/2014.

The audit team verified that the annual review of CCP RH RIDS was submitted on 6/16/2015, as documented in an email provided in the objective evidence file.

There were five changes to the CCP RH RIDS and one change to the CCP CH RIDS submitted to WIPP Records Management Services (WRMS) via WIPP Records Inventory Work Sheet EA15RM3002-1-0 forms.

The audit team conducted a walkthrough of the WRMS facility to validate proper segregation of active records from archived records. The team observed active records stored in a segregated, secured area including a posted access list of authorized personnel.

No concerns were identified. The procedures reviewed and objective evidence assembled and evaluated during the audit provided evidence that the applicable requirements for QA Records management are adequately established for compliance

with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

## **5.4 Technical Activities**

### **5.4.1 Acceptable Knowledge/Waste Certification**

The audit team reviewed implementing procedures CCP-QP-021, Rev. 10, *CCP Surveillance Program*; CCP-TP-002, Rev. 26, *CCP Reconciliation of DQOs and Reporting Characterization Data*; CCP-TP-005, Rev. 26, *CCP Acceptable Knowledge Documentation*; CCP-TP-506, Rev. 5, *CCP Preparation of the RH TRU Waste AK Characterization Reconciliation Report*; and WP 13-QA.03, Rev. 24, *Quality Assurance Independent Assessment Program*, to determine the degree to which the procedures adequately address upper-tier requirements. The results of the review indicate that the referenced procedures are satisfactory in addressing upper-tier requirements.

The audit team participated in a recertification audit of the INL CCP TRU waste characterization and certification program for CH SCGs S3000, S4000, and S5000, and RH SCGs S3000 and S5000 SCG. This recertification audit was based on requirements contained in the latest version of the WIPP Resource Conservation and Recovery Act (RCRA) permit and described in the WAP, as well as the requirements of the WCPIP, the WIPP WAC, and relevant portions of the CH and RH TRAMPAC. The team reviewed documentation to support all applicable AK requirements, completing WAP C6-1 and C6-2 checklists, WCPIP checklists, and WAC checklists, and compiling and reviewing objective evidence to demonstrate compliance.

The team examined specific and complete AK program documentation for CH debris waste stream ID-SDA-DEBRIS, and CH soils stream ID-SDA-SOIL, both from the excavation of the Subsurface Disposal Area (SDA) at INL; CH solids stream ID-SRP-S3000 from the remediation of both inorganic and organic sludge waste streams from Rocky Flats Environmental Technology Site (RFETS); RH TRU debris stream ID-RF-S5300-RH, generated at RFETS during Am-241 recovery activities in Building 771; and RH TRU S3000 solids stream IN-ID-BTO-030, created from the solidification of fines generated during the destructive examination of post-irradiation fuel assemblies at Bettis Atomic Power Laboratory.

The objective evidence compiled and reviewed included the AK Summary Reports, numerous AK source documents, WAP-compliant WSPFs and attachments and batch data reports (BDRs) for VE, RTR, and NDA. Additional supporting documentation for the WCPIP requirements included Characterization Reconciliation Reports and supporting documentation, and DTC BDRs for the RH debris stream contained in CCP-RC-INL-641, *CCP RH TRU Radiological Characterization Technical Report (RCTR)*, and RCTR CCP-RC-INL-591 for the RH solids stream. Documentation from the AK record called out in the respective AK Summary Reports was reviewed to assure that all of the data quality objectives (DQOs) cited in the WCPIP were met. In addition, the auditors examined the AK record regarding the methods used for qualification of AK information as required by the WCPIP.

With regard to the WAP requirements, in addition to the AK Summary Reports, AK Source Document Summaries and other relevant AK records cited above, the audit team reviewed for each waste stream:

- Attachment 1 – AK Documentation Checklist
- Attachment 4 – AK Information List
- Attachment 5 – AK Hazardous Constituents List
- Attachment 6 – AK Waste Form, Waste Material Parameters, Prohibited Items and Packaging along with the applicable justification memo for waste material parameter weight estimates
- Attachment 7 – Radionuclides List, and the accompanying AK/NDA memo (CH waste only)
- Attachment 8 – AK Container List with memos supporting the process for adding containers to the waste streams as applicable

Examples of the resolution of AK discrepancies in the AK record and at characterization, NCRs dealing with prohibited items, AK accuracy reports, and the most recent internal surveillance were also collected and examined, along with screenshots from the IDC database.

The WAP-required container traceability exercise was conducted for nine waste containers from the five waste streams. The drums selected provided BDRs for RTR, VE, NDA and DTC. Additional traceability documentation included AK tracking spreadsheets, the IDC screen shots, container input forms, characterization information summaries and waste stream characterization checklists when available.

The audit team identified three concerns. The first concern dealt with the discrepancy regarding radionuclides expected in waste stream ID-RF-S5300-RH compared to those expected in the comparable CH waste stream (see section 6.4, Recommendation 2). The second concern addressed a discrepancy resolution (DR002) regarding hazardous waste number assignments for waste stream ID-RF-S5300-RH, which omitted the list of the final HWNs assigned. This concern was corrected during the audit (see section 6.2, CDA 2). The final concern addressed errors in the AK Attachment 3 summaries for DR006 and P132 regarding the solidification process used to immobilize the fines in waste stream IN-ID-BTO-030 (see section 6.1, CAR 15-050).

With regard to the QA portion of the audit, the audit team examined training records for six AKEs and two SPMs and reviewed BDRs, discrepancy reports, and NCRs. It was noted that for the NCRs reviewed, administrative controls had been used rather than tagging to maintain segregation of the containers due to the high radiation levels of the RH waste. In addition, the handling of AK records was examined for compliance with preparation, legibility, accuracy, review, approval, and maintenance requirements. Distribution, control and use of appropriate AK procedures were also reviewed.

The audit team also examined the most recent surveillance reports relevant to AK. SUR-CCP-09-14, completed December 30, 2014, was the most recent, but it did not

specifically address INL/CCP. SUR-CCP-0009-13, completed December 13, 2013, included activities at INL/CCP.

Overall, the Acceptable Knowledge/Waste Certification activities evaluated were judged to be adequate in representing the requirements of the WAP, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

#### 5.4.2 Project-level Data Verification and Validation

The audit team conducted interviews with responsible personnel and reviewed implementing procedures CCP-TP-001, Rev. 21, *CCP Project Level Data Validation and Verification*; CCP-TP-002, Rev. 26, *CCP Reconciliation of DQOs and Reporting Characterization Data*; CCP-TP-005, Rev. 26, *Acceptable Knowledge Documentation*; CCP-TP-500, Rev. 13, *CCP Remote-Handled Waste Visual Examination*; and CCP-TP-508, Rev. 11, *CCP RH Standard Real-Time Radiography Inspection Procedure*, to determine the degree to which the procedures address upper-tier requirements. The review indicated that upper-tier requirements are adequately addressed.

The audit team verified project-level data V&V activities are performed in compliance with applicable procedural requirements. In support of both CH and RH characterization activities completed at the INL the team evaluated the following BDRs:

##### Nondestructive Examination

INLRHRTR14004                      INLRHRTR15002                      INLRHRTR15004

##### Visual Examination

INLRHVE14001                      IN-SRP-VE-000880                      IN-ARP-VE-002982  
IN-ARP-VE-003185                      IN-ARP-VE-003195

The audit team found the BDRs evaluated met procedure adequacy.

The audit team reviewed WSPFs for waste streams ID-SRP-S3000, ID-SDA-DEBRIS, and ID-SDA-SLUDGE. The forms were determined to be properly completed. The team evaluated CISs for content in ID-SRP-S3000 Lots 24 through 102, ID-SDA-DEBRIS Lots 63 through 69, and ID-SDA-SLUDGE Lots 335 through 396, and found they were accurate and met the DQOs.

A concern was raised during the audit for container SRP23481 in CH waste stream ID-SRP-S3000, removed for flammable gas generation rate failure. Container removal from the lot candidate list is not described by the project office in procedure CCP-TP-002. This concern was abated in a meeting with CBFO QA and CCP QA and SPM management after the audit, in which it was determined that the container deletion appropriately followed CCP-TP-030, Rev. 34, *CCP CH TRU Waste Certification and WWIS/WDS Data*. This issue, identified by project-level review and resolved within the confines of WWIS/WDS process procedure, was removed from the list of concerns for this audit.

Acceptable Knowledge Discrepancy resolutions for ID-SDA-SLUDGE Lot 44, ID-SRP-S3000 for D024 and DR702, and ID-SDA-SLUDGE ID-D007 were reviewed and were found to be complete.

The audit team verified the required quarterly repeat of the data-generation level data by the project level for the following:

2 <sup>nd</sup> Quarter 2014 VE	3 <sup>rd</sup> Quarter 2014 VE	4 <sup>th</sup> Quarter 2014 VE
1 <sup>st</sup> Quarter 2015 VE		
2 <sup>nd</sup> Quarter 2014 NDE	4 <sup>th</sup> Quarter 2014 NDE	1 <sup>st</sup> Quarter 2015 NDE

NDE did not perform any RH waste characterization activities in the third quarter of 2014, so results were not applicable to that quarter.

Overall, the procedures for Project-level Verification and Validation were determined to be adequate. Applicable processes were found to be effective and satisfactorily implemented.

#### **5.4.3 WIPP Waste Information System/Waste Data System**

The audit team conducted interviews with responsible personnel and reviewed implementing procedures CCP-TP-030, Rev. 34, *CCP CH TRU Waste Certification and WWIS/WDS Data Entry*, and CCP-TP-530, Rev. 11, *CCP RH TRU Waste Certification and WWIS/WDS Data Entry*, to determine the degree to which they address upper-tier requirements. The review indicated that the referenced procedures were adequate in addressing applicable requirements.

The audit team interviewed CCP Waste Certification Officials (WCOs) and reviewed training records and determined that WCOs are qualified to perform certification activities for both CH and RH waste. Waste Certification Assistants (WCAs) were found to be qualified to perform WWIS/WDS data entry activities for CH and RH waste. WCO and WCA qualification include performance of activities for the INL host site location, as well as all other CCP host site locations.

The audit team interviewed the lead CCP WCO and reviewed documentation for certification of new WSPFs for the INL host site location. The team verified that characterization data were entered into WWIS, and WSPFs were approved and adequately entered into WDS in accordance with CCP procedures.

The audit team evaluated a sample of data entry packages for both RH and CH waste WWIS/WDS data entry and waste container certification. Data for CH containers are entered into the IDC management database and subsequently submitted to the WWIS/WDS database. Prior to waste certification using the IDC, CH waste was certified using the WDS Master Template.xls spreadsheet. CH container data packages reviewed during this audit included evidence of container certification using IDC and the WDS Master Template.xls spreadsheet. Data for RH containers are entered and

verified using the RH WDS Master Template.xls spreadsheet application and subsequently submitted to the WWIS/WDS database. Data packages for CH containers include CIS lists, radiation survey documentation, WDS overpack build and loading sheets as appropriate, evidence of verification of resolution of CARs and NCRs associated with containers, WWIS/WDS Container Data Reports, WDS Master Template.xls data spreadsheet reports, IDC data reports, and NDA, FGA, and VE BDR data excerpts. Data packages for RH containers include CIS lists, evidence of verification of resolution of CARs and NCRs associated with containers, AK Summary Report excerpts, WWIS/WDS Container Data Reports, RH WDS Master Template.xls data spreadsheet reports, radiation survey documentation, DTC and VE BDR data excerpts, and WDS overpack build and loading sheets.

The audit team witnessed a demonstration of entry and verification of FGA data into WWIS/WDS for containers that are analyzed by CCP but are certified by the AMWTP. FGA data are entered using the IDC and are adequately checked and verified prior to submittal to WDS. The remaining characterization data are entered by AMWTP, which then certifies the containers. AMWTP operations were not in the scope of this audit and were not evaluated.

No concerns were identified by the audit team. The procedures and documents reviewed provided objective evidence that the applicable requirements for waste certification and WIPP Waste Information System/Waste Data System activities are adequately established for compliance with upper-tier requirements and satisfactory in the implementation of these requirements, resulting in an effective waste certification program.

#### **5.4.4 Real-time Radiography**

The audit team evaluated the adequacy, implementation, and effectiveness of the INL/CCP RTR characterization process for RH SCG S5000 debris waste.

The team reviewed procedures CCP-TP-508, Rev. 11, *CCP RH Standard Real-Time Radiography Inspection Procedure*; CCP-TP-028 Rev. 9, *Radiographic Test Drum and Training Container Construction*; and CCP-QP-002, Rev. 39, *CCP Training and Qualification Plan*, and determined that the procedures adequately address upper-tier requirements.

The audit team observed the RTR of drum ANLE1A-2 at the INTEC facility. The team examined the RTR operational logbooks and verified logbook entries were logged correctly and reviewed by the VPM as required. The team also interviewed the operators and inspected the RTR unit.

The audit team examined the following RTR RH BDRs and RTR tapes generated from operations performed in the INTEC facility to verify implementation and compliance with the requirements for documenting RTR activities, as stipulated in CCP-TP-508.

INLRHRTR14001  
INLRHRTR14007  
INLRHRTR15004

INLRHRTR14004  
INLRHRTR14009

INLRHRTR14005  
INLRHRTR15002

The team examined training records for four RTR operators and verified that the operators were appropriately qualified as required.

The procedure reviews, field observations, and document reviews provided evidence that the applicable requirements for Real-time Radiography characterization of RH S5000 debris waste are adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

#### **5.4.5 Visual Examination**

The audit team evaluated the adequacy, implementation and effectiveness of INL/CCP characterization and certification of CH SCGs S3000 homogeneous solids, S4000 soils/gravel, and S5000 debris waste, and RH S5000 debris waste using the VE process. The team evaluated the following procedures CCP-QP-002, Rev. 39, *CCP Training and Qualification Plan*; CCP-TP-006, Rev. 20, *CCP Visual Examination Technique for INL Newly Generated TRU Waste*; CCP-TP-113, Rev. 18, *CCP Standard Contact-Handled Waste Visual Examination*; and CCP-TP-500, Rev. 15, *CCP Remote-Handled Waste Visual Examination*. The results of the review indicate that the procedures adequately address upper-tier requirements.

The audit team examined training records for 13 VE Operators/ITRs, and confirmed the appointment of four INL/CCP VEEs. The team verified that VE Operators/ITRs and VEEs were appropriately qualified as required. INL/CCP uses the two-operator method when conducting VE characterization activities. VE is performed by two qualified operators who visually examine the waste and place it into containers. The audit team interviewed VE Operators, VEEs, the VE Cognizant Engineer, and the CCP RH Manager.

The audit team toured Hot Cell 308 in Building CPP-659 at the INTEC facility and observed RH VE being performed on container ANLE35B-1 from SCG S5000 debris waste stream ID-ANLE-S5000. The VE audit team verified that the most current revision of CCP-TP-500 (Rev. 15) was being used to perform VE, and the most current revision of the associated AK Summary Report (CCP-AK-INL-500, Rev. 11) was available for reference as needed.

The team also toured the ARP-8 facility, Building WMF-1621 at the RWMC, and observed CH VE being performed on container ARP82665 from SCG S4000 soils/gravel waste stream ID-SDA-SOIL. The team verified the most current revision of CCP-TP-006 (Rev. 20) was being used to perform VE and the most current revision of the associated AK Summary Report (CCP-AK-INL-001, Rev. 12) was available for reference as needed.

During the observance, the audit team identified the following concern. In CCP-TP-006, Rev. 20, Attachment 1 - CCP Waste Visual Examination Data Form SCO #798 Version 18 Addendum 9 (Waste\_VE.xlsx), does not correlate with the information documented on the Software Inventory Listing posted on the sftp site. This concern was an isolated case requiring only remedial action. Cognizant CCP personnel updated the Software Inventory Listing to reflect a minor modification made through the software change control process. Specifically, the header was revised to read Attachment 1 – CCP Waste Visual Examination Data Form (Waste\_VE.xlsx) SCO# 798 Version 18 Addendum 9 Windows 7 MS Excel 2010 minor change date 6/28/15. The audit team verified the corrections were made prior to the end of the audit (see section 6.2, CDA 3).

The audit team examined VE operational logbooks CCP-RH-INL-VE-009 for VE activities performed on RH waste at the INTEC facility, and CCP-INL-VEL-032 for VE activities performed at the ARP-8 facility, and verified logbook entries were logged correctly and reviewed by the VPM as required.

During examination of RH VE BDR INLRHVE14001 (the only RH BDR generated since the previous audit) the audit team identified a concern related to RH VE activities performed on June 3, 2014, in which graphite was identified in container number FCO100A-3A, as documented in BDR INLRHVE14001. The graphite was recorded in the waste description section as graphite (IM-Iron Metal), as referenced in AK Summary Report CCP-AK-INL-580, Rev. 4. The AK Summary Report was revised to move the graphite from waste material parameter IM (Iron Metal) to OIM (Other Inorganic Materials). After discussions with CCP personnel, additional information was provided to satisfactorily address the concern, which was subsequently withdrawn.

The audit team examined the following VE CH BDRs and determined that they were appropriately completed as required.

IN-ARP-VE-003000	IN-ARP-VE-003052	IN-ARP-VE-003104
IN-ARP-VE-003163	IN-ARP-VE-003196	IN-ARP-VE-003218
IN-SRP-VE-000790	IN-SRP-VE-000816	IN-SRP-VE-000857
IN-SRP-VE-000878		

Review of procedures, documents and records, and field observations performed by the audit team provided evidence that the applicable requirements for characterizing RH S5000 debris waste and CH S3000 homogeneous solids, S4000 soils/gravel, and S5000 debris waste using the Visual Examination processes at the RWMC and INTEC facilities as described, are adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

#### **5.4.6 Nondestructive Assay**

The audit team assessed the adequacy, implementation, and effectiveness of the NDA systems used at INL as part of the CCP to characterize waste from CH SCGs S3000, S4000, and S5000. The audit team evaluated the Waste Assay Gamma Spectrometer

(WAGS) and the Stored Waste Examination Pilot Plant (SWEPP) Gamma-Ray Spectrometer (SGRS).

The SGRS and WAGS are both gamma spectrometers with multiple high-resolution broad energy germanium (BEGe) detectors. The WAGS uses six such detectors divided into two vertical banks of three detectors each. One bank is positioned opposite a set of three Ba-133 sources. These detectors are calibrated, based on a density correction obtained from the Ba-133 transmission, to quantify gamma-emitting radionuclides using the Canberra MGA software. The second bank of three BEGe detectors uses cadmium filters to attenuate low-energy gamma rays, thus reducing dead time and increasing measurement resolution. The spectra obtained from these detectors are used to determine the relative isotopic ratios of gamma-emitting radionuclides. The SGRS differs from the WAGS in that it does not use a transmission source to perform a density correction. The SGRS utilizes four BEGe detectors that each acquires a gamma spectrum. The four spectra are then summed and corrected using a multi-curve correction that was developed during system calibration. This multi-curve correlates detector efficiency with waste density and gamma energy. Once the spectra are corrected, the same Canberra MGA software is used to quantify the individual radionuclides present. Both the WAGS and the SGRS can assay 55-gallon (208-liter) drums. CBFO previously evaluated these NDA systems during Audit A-14-18, June 3 – 5, 2014.

Based on a review of the current revisions of INL/CCP procedures, technical documents, and completed BDRs provided prior to the audit, checklists were prepared and used to evaluate:

- System stability as determined by the implementation and effectiveness of quality control measurements, calibration verifications and weekly interfering matrix checks
- Applicability of each system's calibration and operational range to the matrix, geometry and radionuclide content of samples assayed since the last audit
- Successful participation in the CBFO-sponsored NDA Performance Demonstration Program (PDP)
- Completed BDRs to ensure data are reported and reviewed as required
- Data storage and retrievability
- Personnel qualification and training
- Continued operability and condition of the WAGS and SGRS since Audit A-14-18

The audit team reviewed the following documents to guide checklist development and guide personal interviews, and as objective evidence of the adequate implementation of top-tier requirements and satisfactory and effective implementation of those requirements.

Calibration Reports

CCP-INL-WAGS-001                      CCP-INL-WAGS-003  
 CCP-INL-WAGS-08-002                CCP-INL-SGRS-001

Total Measurement Uncertainty

CCP-INL-SGRS-002 (4/21/05)              CCP-INL-WAGS-002 (4/20/05)

Operating Procedures

CCP-TP-010, CCP Waste Assay Gamma Spectrometer (WAGS) and SWEPP Gamma-Ray Spectrometer (SGRS) Calibration Procedure  
 CCP-TP-019, CCP Waste Assay Gamma Spectrometer (WAGS) Operating Procedure  
 CCP-TP-058, CCP NDA Performance Demonstration Program  
 CCP-TP-115, CCP SWEPP Gamma-Ray Spectrometer (SGRS) Operating Procedure

Operating Documents (Logbooks)

INL-NDA-WAGS-021 log                      INL-NDA-WAGS-022 log  
 INL-NDA-SGRS-023 log                      INL-NDA-SGRS-024 log

Calibration Verifications

CCP-INL-WAGS-14-004 Cal Ver              CCP-INL-WAGS-14-006 Cal Ver  
 CCP-INL-SGRS-14-005 Cal Ver

Calibration Confirmations

CCP-INL-WAGS-003, Revision 0              CCP-INL-WAGS-001, Revision 1  
 CCP-INL-SGRS-001, Revision 2

Quality Control Measures

CCP-INL-WAGS-15-002 WIM              CCP-INL-WAGS-14-007 WIM  
 CCP-INL-SGRS-15-001 WIM              CCP-INL-SGRS-14-004 WIM

Batch Data Reports

WAGS (14 BDRs of approximately 211 completed since the last audit, selected to represent four different waste streams):

INNDAW140075	INNDAW140084	INNDAW140094	INNDAW140100
INNDAW140108	INNDAW140112	INNDAW140113	INNDAW140144
INNDAW140150	INNDAW140175	INNDAW140181	INNDAW140183
INNDAW150009	INNDAW150029		

SGRS (25 BDRs of approximately 359 completed since the last audit selected to represent five different waste streams):

INNDAS140095	INNDAS140100	INNDAS140120	INNDAS140128
INNDAS140141	INNDAS140143	INNDAS140148	INNDAS140152
INNDAS140157	INNDAS140189	INNDAS140201	INNDAS140243

INNDAS140251	INNDAS140252	INNDAS140256	INNDAS140261
INNDAS150001	INNDAS150006	INNDAS150010	INNDAS150012
INNDAS150022	INNDAS150023	INNDAS150027	INNDAS150032
INNDAS150034			

The audit team interviewed NDA personnel, observed equipment and system operations, and examined electronic and paper copies of reports and records.

The WAGS and SGRS successfully participated in PDP Cycle 21A for drums. Both instruments passed all test criteria. The approval granted by passing this cycle extends until July 2015. Both instruments also participated in PDP Cycle 22A by measuring the test containers and submitting the data for analysis. The scoring report for Cycle 22A has not yet been issued.

Calibration verifications on the WAGS are documented in CCP-INL-WAGS-14-004 and CCP-INL-WAGS-14-006. CCP-INL-WAGS-14-004 documents the calibration verification performed following the replacement of system power cords and the recalibration of the reference peak pulser. CCP-INL-WAGS-14-006 documents the calibration verification performed following the replacement of a detector and a digital signal analyzer. The calibration verifications were reviewed for technical adequacy and found to be acceptable.

Calibration verification performed on the SGRS is documented in CCP-INL-SGRS-14-005. This calibration verification was performed subsequent to the replacement of a DSA 1000 power supply on detector DETA4 on the SGRS. The calibration verification was reviewed for technical adequacy and found to be acceptable.

One concern was identified during previous Audit A-14-18. No objective evidence was provided to document required indoctrination training/reading of CCP-HSP-013, *CCP WAGS & SGRS Health and Safety Plan*, for three NDA SGRS operators and three NDA WAGS operators, as required by the respective operating procedures. Also, the required indoctrination training/reading of CCP-HSP-013 is not listed on the current revisions of the NDA SGRS and NDA WAGS qualification cards. CCP-TP-019, *CCP Waste Assay Gamma Spectrometer (WAGS) Operating Procedure*, Rev. 6, section 2.2.1 states: "Personnel must have read CCP-HSP-013, *CCP Waste Assay Gamma Spectrometer (WAGS) and SWEPP Gamma-Ray Spectrometer (SGRS) Nondestructive Assay Systems Health and Safety Plan*." The audit team verified that corrective actions to preclude recurrence were adequate.

Overall, Nondestructive Assay activities were determined to be adequate, satisfactorily implemented, and effective.

#### **5.4.7 Dose-to-Curie**

The audit team assessed the adequacy, implementation, and effectiveness of the DTC methodology used at INL as part of the CCP to characterize waste from SCGs S3000 and S5000. The team also evaluated the DTC measurement system.

DTC measurements are accomplished using multiple detectors, one to obtain the relative contributions of Co-60 and Cs-137 to the gamma dose rate, and one of two probes (either high-range or low-range) to take dose rate measurements. CBFO previously evaluated the DTC methodology during Audit A-14-18, June 5 – 7, 2014.

Based on a review of the current revisions of INL/CCP procedures, technical documents, and completed BDRs provided prior to the audit, checklists were prepared and used to evaluate:

- System stability as evidenced by the implementation and effectiveness of quality control measurements, and the use of calibrated equipment
- Applicability of each detector's calibration and operational range to the matrix, geometry and radionuclide content of samples assayed since the last audit
- Completed BDRs to ensure data are reported and reviewed as required
- Data storage and retrievability
- Personnel qualification and training
- Continued operability and condition of the DTC equipment since Audit A-14-18

The audit team interviewed DTC personnel, observed equipment and measurement operations, and examined electronic and paper copies of reports and records.

DTC is performed at INTEC in the CPP-659 area. The measurement acquisition control room (Cell 302) contains closed circuit camera control systems and display units and the readouts for the dose measurement and gamma spectrometry and the analysis resulting from the Osprey detector measurement. The actual measurements are performed in an adjacent hot cell (Cell 306) where the Osprey detector, DTC dose measurement probes, measurement fixture, and the rotating platform are located. The drums are lowered into the hot cell from a high bay above the hot cell. The audit team examined Cell 302 (Cell 306 was in use for RTR and dose rate measurement at the time of the audit), interviewed attending personnel, examined data acquisition equipment, and reviewed records, logbooks, and procedures.

The dose rate measurement is acquired using either a Thermo Electron Corporation Model RO-7 High Range Survey System or a Thermo Electron Corporation Model FH 40 G Dose Rate Measuring Unit, depending on the level of the radiation dose measurement relative to the environmental background.

The audit team observed dose rate measurement, the enclosure, and shielding via close circuit camera. The team reviewed CCP procedures, interviewed operations staff, observed data acquisition and measurement data, and reviewed BDRs. The team determined that technical and personnel elements of the DTC methodology were adequate satisfactory and effective.

The audit team reviewed the following BDRs, which constitute a sample size of 100%.

INLRHDTC14001 – 5 containers from waste stream ID-RF-S5300 and 1 container from waste stream ID-ANLW-W269

INLRHDTC14004 – 3 containers from waste stream ID-HFEF-S5400

INLRHDTC14007 – 2 containers from waste stream ID-HFEF-S5400

INLRHDTC14008 – 7 containers from waste stream ID-HFEF-S5400

INLRHDTC14009 – 6 containers from waste stream ID-HFEF-S5400

INLRHDTC14010 – 8 containers from waste stream ID-HFEF-S5400

INLRHDTC15001 – 7 containers from waste stream ID-HFEF-S5400

INLRHDTC15002 – 11 containers from waste stream ID-HFEF-S5400

INLRHDTC15004 – 3 containers from waste stream ID-HFEF-S5400

INLRHDTC15005 – 10 containers from waste stream ID-HFEF-S5400

The audit team evaluated radiological characterization analysis using ORIGEN2.2, identified in CCP-RC-INL-601, as applied to S5000 waste. CCP-RC-INL-601 documents the method used to characterize three major components of the Experimental Breeder Reactor I core: the outer blanket, the control rods, and the base slab. In this method, AK on the make-up of the various components and their irradiation histories is used to calculate radionuclide inventories that must be reported and tracked. The ORIGEN2.2 computer code is used, adjusted for breeder reactor nuclear physics developed by comparing the radionuclide inventories predicted by ORIGEN2.2 to a large population of fuel elements that were examined at the Los Alamos National Laboratory. This activity has been reviewed and approved, as documented in CCP-RC-INL-601.

In addition, the audit evaluated radiological characterization neutron DTC method by confirmation, identified in CCP-RC-INL-631, as applied to S5000 SCG waste. CCP-RC-INL-631 documents the process used to characterize a single curium-244 neutron source in waste stream ID-TRA-W345-RH. AK was available describing the contents of the neutron source, but the AK needed to be confirmed. CCP-RC-INL-631 introduces a variant on the traditional DTC method whereby a gamma dose rate is measured and correlated to a quantity (in curies) of a fiducial gamma-emitting radionuclide. Various methods (based on sampling, computer modeling, correlated CH data, etc.) are then used to develop the relative quantities of the other radionuclides of interest. In this variant on the traditional DTC method, a neutron dose rate is measured and then correlated to a quantity of the neutron-emitting radionuclide using the Monte Carlo Neutron Particle (MCNP5) computer code.

No concerns were identified during this portion of the audit.

Overall, RH waste characterization activities related to Dose-to-Curie were determined to be adequate, satisfactorily implemented, and effective.

#### **5.4.8 Flammable Gas Analysis**

FGA activities were audited during the course of Audit A-15-18. CCP/INL performs FGA in accordance with DOE/WIPP 06-3345, *Waste Isolation Pilot Plant Flammable Gas Analysis*. The audit team conducted a walkthrough of the FGA CH drum sampling area, inspected sampling equipment, and observed sampling activities.

Sampling of RH containers is conducted per DOE/WIPP 06-3345 and RH samples are analyzed for hydrogen and methane only, per the applicable procedure.

For analysis of the samples, CCP/INL uses four Hewlett-Packard GC/MS systems equipped with thermal conductivity detectors, in addition to the mass spectral detectors, and a sample splitter which delivers sample to both detectors. All required equipment and standards were verified to be compliant and within expiration dates.

Initial Calibration Reports IN14FG6145\_ICAL, IN14FG9112\_ICAL, IN15FG5019\_ICAL, and IN15FG10026\_ICAL were examined. All initial calibrations were determined to have been correctly performed, satisfactory, effective, and referenced in each FGA BDR.

The audit team examined Minimum Detection Limit (MDL) spreadsheets from IN08FG5156\_MDL, IN11FG6067\_MDL, IN11 FG9004\_MDL, and IN13FG10014\_MDL. Results were found to be correctly calculated and the spreadsheets were referenced in the FGA BDRs as appropriate.

The audit team reviewed CH Analytical BDRs IN14FG5051, IN14FG5076, IN14FG6123, IN14FG6135, IN14FG9115, IN14FG10099, and IN15FG9003, and RH BDRs IN15FG9007 and IN15FG9008, and found them to be complete and satisfactory. The BDRs had been reviewed by the ITR as required by procedure, and correctly transmitted to CCP records.

The audit team interviewed personnel and verified operator training. Use of the latest revision of the FGA procedure was verified.

The audit team reviewed CCP/INL Instrument Logbooks CCP-INL-HSG-UNIT6-012 and CCP-INL-HSG-UNIT9-005 for the GC/MS systems. The logbooks were found to be legible and reviewed and initialed in a timely manner, and included equipment status entries, preventative maintenance performed, and repairs.

The audit team found that Flammable Gas Analysis activities and procedures were acceptable, satisfactorily implemented, and effective.

#### **5.4.9 Gas Generation Testing Program**

CCP/INL implements the flow-down requirements for GGT using procedures CCP-PO-016, *CCP Gas Generation Testing Quality Assurance Project Plan*, Rev. 6; CCP-TP-083, *CCP Gas Generation Testing*, Rev. 8; and CCP-TP-138, *Execution of Long-Term Objective for the Unified Flammable Gas Test Procedure*, Rev. 2. These procedures were reviewed by the audit team and determined to adequately capture upper-tier requirements.

The audit team performed a walkthrough of the GGT drum testing area and conducted an inspection of the GGT analytical instruments. All required equipment and standards were verified to be compliant. Analytical BDR IN13G1001 was examined and found to be complete and acceptable. The team interviewed GGT operations personnel and verified operator training. The team verified use of the latest revision of the GGT procedure.

There have been no additions to the Long Term Objective Report since the last audit.

The audit team found that Gas Generation Testing procedures were satisfactorily implemented and effective.

#### **5.4.10 Container Management**

The audit team reviewed the requirements of CCP-TP-068, *CCP Standardized Container Management* and CCP-TP-509, *CCP Remote-Handled Transuranic Container Tracking*, which describe and implement the CCP/INL management, control, and tracking of CH and RH TRU waste containers during the characterization process.

The team observed Container Management activities and conducted interviews with Container Management Specialists and VPMs for both RH waste and CH waste on 6/16-17/15. Containers are provided by the host site and CH and RH containers enter the CCP/INL characterization process immediately prior to VE characterization activities. Both CH and RH handling procedures specify how the containers are weighed, processed, characterized, and dispositioned. Containers are compared to the AK spread sheet to confirm eligibility for characterization.

For CH containers, container integrity checks are performed, the container is weighed, a tracking traveler is initialized and placed onto the container, and an attachment is initiated which follows the container throughout the characterization process. Data sheets are completed for each characterization activity and placed inside a plastic envelope, which is fastened to the container when it enters the CCP/INL characterization program for CH waste.

For RH waste, the traveler and data sheets are electronic. The completed attachment and data sheets are reviewed by the site VPM, and submitted to CCP Records when finalized. Containers that do not pass any of the characterization processes are

returned to the host site. The audit team observed segregation and tagging of unacceptable containers, which was found to be satisfactory.

Audit team evaluation of CCP-TP-068 and CCP-TP-509 for CH and RH container management found both procedures to be adequate, satisfactorily implemented, and effective.

## **6.0 CORRECTIVE ACTIONS, OBSERVATIONS, AND RECOMMENDATIONS**

### **6.1 Corrective Action Reports**

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

Condition Adverse to Quality (CAQ) – An all-inclusive term used in reference to any of the following: failures, malfunctions, deficiencies, defective items, nonconformances, and technical inadequacies.

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

One CAR was issued as a result of the audit.

#### **CAR 15-050**

A discrepancy resolution (DR006) for waste stream IN-ID-BTO-030 was written to address the process steps used to solidify the fines generated during the destructive examination of post-irradiation fuel assemblies at Bettis Atomic Power Plant. The DR documents an interview with two employees involved in this activity which contradicts the actual step-by-step process used. The narrative in the DR and the Attachment 3 Summary both contain an incorrect source document number for the step-by-step instructions. The resolution described in the DR, which is to follow the procedure in AK Source Document U221, is correct. In addition, AK Source Document (P132) describes another general contaminated liquid solidification process. The Attachment 3 AK source document summary incorrectly indicates that this process was used for the solidification.

### **6.2 Deficiencies Corrected During the Audit**

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 an isolated case requiring only remedial action and therefore can be CDA. 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. Examples include one or two minor changes required to correct a procedure (isolated), one or two forms not signed or not dated (isolated), or one or two individuals have not completed a reading assignment.

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 CDA.

Three deficiencies, requiring remedial action only, were identified during Audit A-15-18.

### **CDA 1**

NCR-INL0004150 does not provide sufficient detail in the justification section for voiding the nonconforming condition. An attachment to the original NCR, using an Attachment 3 – CCP Nonconformance Report (NCR) Continuation Sheet from procedure CCP-QP-005, was created and attached to the original NCR. The record copy of the NCR was appended in CCP QA records. The audit team reviewed the revised justification for voiding the NCR and determined that the content provided a sufficiently detailed description.

### **CDA 2**

A discrepancy resolution (DR002) for waste stream ID-RF-S5300-RH addressed the hazardous waste numbers (HWNs) assigned by CCP, as compared to those assigned earlier by the INL 3100M<sup>3</sup> project AK Report, and justified appropriately those that had been added. The audit team determined that this discrepancy resolution and accompanying AK Source Document Summary needed to be revised to provide the final listing of HWNs. Objective evidence showing the corrected documentation was provided to the audit team prior to the end of the audit.

### **CDA 3**

Attachment 1 - CCP Waste Visual Examination Data Form SCO #798 Version 18 Addendum 9 (Waste\_VE.xlsx), did not correlate with the information documented on the Software Inventory List posted on the sftp site. The auditee completed an Attachment 3, SPRCR to initiate a minor revision to SCO #798, Version 18, Addendum 9, to update the header of the form to remove Windows XP as an operating system. This minor change was dated 6/18/15 and the audit team verified it was posted to the sftp site.

## **6.3 Observations**

During the audit, the audit team may identify potential problems that should be communicated to the audited organization. The audit team members, in conjunction with the ATL, evaluate these conditions and classify them as Observations using the following definition.

*Observation* – A condition that, if not controlled, could result in a CAQ.

Once a determination is made, the audit team member, in conjunction with the ATL, categorizes the condition appropriately.

No Observations were identified during Audit A-15-18.

#### **6.4 Recommendations**

During the audit, the audit team may identify suggestions for improvement that should be communicated to the audited organization. The audit team members, in conjunction with the ATL, evaluate these conditions and classify them as Recommendations using the following definition.

*Recommendations* – Suggestions that are directed toward identifying opportunities for improvement and enhancing methods of implementing requirements.

Once a determination is made, the audit team member, in conjunction with the ATL, categorizes the condition appropriately.

Three Recommendations were presented for INL/CCP management consideration during the audit.

##### **Recommendation 1**

The audit team recommended that CCP-PO-001, *CCP Quality Assurance Project Plan* and CCP-PO-002, *CCP TRU Waste Certification Plan* be reviewed/revise as necessary to address the following

1. CCP-PO-001, *CCP Quality Assurance Project Plan* references CCP-QP-029, *CCP Corrective Action Management*. CCP-QP-029 was rendered obsolete September 20, 2013. Examples include Section C3-7, Nonconformances, and Attachment 1, Implementing Procedures.
2. CCP-PO-002, *CCP TRU Waste Certification Plan*, notes the following references that should be addressed.
  - CCP-QP-029, *CCP Corrective Action Management* (rendered obsolete September 20, 2013) is referenced in sections 3.1, 4.1, 5.3, 5.8.3, and 5.10.
  - Section 2.1.6[A.5] details the types of nonconformances to be tracked and trended, which includes corrective action reports. The term “corrective action report” and associated procedures are no longer used. CCP programmatic conditions adverse to quality are now documented in accordance with NWP procedure 15-GM1002, *Issues Management Processing of WIPP Forms*. The term “corrective action report” should be replaced with the term “WIPP Forms”.

- Section 5.8.4 references NWP Procurement Services Commercial Instruction C1015, *Supplier Selection*. This document was replaced with NWP CI No. 4, Rev. 0, on January 15, 2014.

NOTE: CCP Standing Order CCP-SO-107, Rev 1, dated 6/12/14, was initiated to address numerous references to CCP-QP-029 in CCP documents and procedures, along with direction to defer to WP 15-GM1002 wherever CCP-QP-029 is referenced.

### **Recommendation 2**

The summary of radionuclides in waste stream ID-RF-S5300-RH in AK Summary Report CCP-AK-INL-640 R2 notes that Sr-90 and Cs-137 are expected in this waste stream, although they cannot be measured. The AK Summary Report for companion stream ID-RF-S5300-A indicates that SR-90 and Cs-137 are not expected. The audit team recommended that DR009 for waste stream ID-SRP-S3000, which addresses this issue, be referenced in the AK Summary Report, with additional text to clarify the discrepancy.

### **Recommendation 3**

The audit team witnessed a demonstration of the IDC database management application with respect to generation and management of an NCR. A listing of all NCRs associated with a specific container can be accessed in the IDC. The audit team recommended adding a function to the IDC to automatically display existing NCR numbers that are assessed against a specific container when the container number is entered as part of the generation of a new NCR. This information will assist the originator of an NCR in determining the scope and impact and possible recurring condition with respect to the new NCR.

## **7.0 LIST OF ATTACHMENTS**

- Attachment 1: Personnel Contacted During Audit A-15-18
- Attachment 2: Summary Table of Audit Results for A-15-18
- Attachment 3: Listing of Audited Documents for A-15-18
- Attachment 4: Processes and Equipment Reviewed During Audit A-15-18 of the INL/CCP

<b>PERSONNEL CONTACTED DURING AUDIT A-15-18</b>				
<b>NAME</b>	<b>TITLE/ORG</b>	<b>PREAUDIT MEETING</b>	<b>CONTACTED DURING AUDIT</b>	<b>POST AUDIT MEETING</b>
Abbott, Preston	Ops Mgr/NDA/MCS/CCP	X	X	
Alade, Lashell	RTR/CCP		X	
Ams, David	AK/LANL/CCP	X	X	X
Andrews, Sway	RTR/CCP		X	
Armijo, Cheryl	Training Records Analyst/CCP		X	
Bailey, Ken	Operations Foreman CCTV/CWI		X	
Barney, Travis	NFM/Waste Management		X	
Barr, Geraro	VE Escort/CWI		X	
Bhatt, Raj	Project Engineer/CWI	X	X	
Bignell, Dale	Observer/CBFO/CTAC	X	X	X
Billett, Michele	Training Coordinator/CCP Training	X	X	X
Birge, Gary L.	Oversight/DOE/CBFO	X	X	X
Boland, S. Corey	RH DTC Lead/CCP		X	
Brasier, David	NDA Expert Analyst (EA)/CCP		X	
Brown, Michael R.	QA Director/CBFO	X	X	X
Castaneda, Norma	Certification Manager/DOE/CBFO	X	X	
Chapple, Jason	PM/CWI		X	
Clements, Tom	TRU Projects Manager/CWI	X	X	X
Christenson, Tyson	RTR LO/CCP		X	X
Davis, Chris	VEO/Waste Management		X	
Davis, Crary	NDA Lead/CCP		X	
Dennert, Clay A.	FGA Op/NFT/CCP		X	
Dial, Brent	RH DTC Gamma Operator/CCP		X	
Doherty, Mark	NTP Support/CTAC	X	X	X
Dover, Dale	FGA/GGT/CCP	X	X	X
Fiedler, Brenda	CCTV Firewatch/CWI		X	

<b>PERSONNEL CONTACTED DURING AUDIT A-15-18</b>				
<b>NAME</b>	<b>TITLE/ORG</b>	<b>PREAUDIT MEETING</b>	<b>CONTACTED DURING AUDIT</b>	<b>POST AUDIT MEETING</b>
Fisher, A.J.	Support Services Manager/CCP		X	
Frost, Lisa	Support/CWI	X	X	
Gough, Linda	VEO/CCP		X	
Greenwood, Trey	AK/TechSpecs/CCP	X	X	
Grenfell, Michael	Container Manager/CCP	X	X	X
Grise, Ron	VEE/ITG	X		X
Gulbransen, Ed	Manager/CCP	X	X	X
Gyorfy, Brett	Records/CCP/TFE	X	X	X
Harvill, Joe P.	Technical Advisor/NWP/CCP	X	X	X
Hobbes, Tammy	VP/WM	X		
Holmes, Steve	Observer/NMED	X	X	X
Hutson, Matt	VEO/CCP		X	
Johnson, Carrie	AKE/CCP	X	X	X
Jones, Laura R.	QA Engineer/NWP	X	X	X
Joo, Irene	RH Manager/NWP	X	X	X
Kantrowitz, Richard	SPM/NWP/CCP	X	X	X
Kirkes, Creta	WCO/Certification/CCP		X	
Klingler, Larry	QA/CCP	X	X	X
LaMarca, Frank	Training Manager/CWI	X		
Law, Jenifer	NDA Operator/CCP		X	
Ledford, Wayne	QA Specialist/NWP	X		X
Lee, Ronnie	PM/CCP	X		X
MacDonald, Lloyd	VE Escort/CWI		X	
Martin, Kerry	Observer/Idaho DEQ	X	X	X
Martin, Ryan	WCO/Certification/CCP		X	
Martinez, Shelly	CE NDE/NWP	X	X	X
Miehls, Dennis S.	Sr. QA Specialist/CBFO	X	X	X
Miles, Jeri	VPM/CCP	X	X	X
Muntean, Lori	VEE/CCP		X	
Murray, Bob	Director/DOE EM-43	X	X	X
Morris, Randall C.	AK/AMWTP	X	X	X
Navarrete, Martin	QA/CBFO/DOE	X		X
Parmer, J. Bret	VEO/Waste		X	

<b>PERSONNEL CONTACTED DURING AUDIT A-15-18</b>				
<b>NAME</b>	<b>TITLE/ORG</b>	<b>PREAUDIT MEETING</b>	<b>CONTACTED DURING AUDIT</b>	<b>POST AUDIT MEETING</b>
	Management			
Pattee, Spencer	VEE/NWP/CCP	X	X	X
Payanes, Jose	Document Services Manager/CCP		X	
Pearcy, Sheila	Records Manager/CCP/TFE	X	X	X
Perkins, Larry W.	Observer/DOE-HQ	X	X	X
Pennala, Eric	General Manager/MCS			X
Poirier, Joe	FGA Lead/NFT/CCP	X	X	X
Poole, Jeff	VPM/NWP/CCP	X	X	X
Pyeatt, Brandye	SPM/NWP/CCP	X	X	X
Ross, Steven L.	Audit Observer/DOE HQ (EM-43)	X		X
Salas, Paula	WTS/Container Management/CWI		X	
Sensibaugh, Michael	Ops Manager/CCP	X		X
Sharif, Farok	NTP/NWP	X	X	X
Sorrell, Steven	Rad Engineer/CWI	X	X	
Smith, Coleman	RCRA Reg/NMED	X	X	X
Smith, Scott	AKE/CCP	X	X	X
Soaterna, Carolina	SPM/CCP	X		X
Stark, Brad	VEE/CCP		X	
Stroble, J. R.	Oversight/DOE/CBFO	X	X	X
Tierney, Michael	VEO/CCP		X	
Triay, Ines	Observer/FIU/NMED	X	X	X
Twitchell, Juanita	VEO/CCP		X	
Villani, Marcel	NDA/MCS	X	X	X
Wade, Daniel	SPM/CCP	X		X
Walker, Laura	NDA Operator/CCP		X	
Walters, Eddy	FGA Op/NFT/CCP		X	X
Watson, Lisa	AK/CCP/LANL	X	X	X
Willcox, Mary	Observer/DOE-ID	X		X
Wood, Ray	Assessor/Trinity Engineering	X		X
Yturralde, Jewell	Records/CCP/TFE	X	X	X

**Summary Table of Audit Results for A-15-18**

Documents	Concern Classification				QA Evaluation		Technical
	CARs	CDAs	Obs	Rec	Adequacy	Implementation	Effectiveness
<b>Activity</b>							
Program Status/Interface				1	A	S	E
Acceptable Knowledge	15-050	1		1	A	S	E
Reconciliation of DQOs/WSPFs					A	S	E
Project Level V&V					A	S	E
WWIS/WDS					A	S	E
Real-time Radiography					A	S	E
Visual Examination		1			A	S	E
Nondestructive Assay					A	S	E
Dose-to-Curie					A	S	E
Flammable Gas Analysis					A	S	E
Gas Generation Testing					A	S	E
Leak Testing					A	S	E
Container Management					A	S	E
Training					A	S	E
Nonconformance Reporting		1		1	A	S	E
QA Records					A	S	E
<b>TOTALS</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>3</b>	<b>A</b>	<b>S</b>	<b>E</b>

**Definitions**

E = Effective  
S = Satisfactory  
I = Indeterminate  
M=Marginal

CAR = Corrective Action Report  
CDA = Corrected During Audit  
NE = Not Effective  
Obs = Observation

Rec = Recommendation  
A = Adequate  
NA = Not Adequate

<b>LISTING OF AUDITED DOCUMENTS FOR A-15-18</b>			
	<b>Document No.</b>	<b>Rev</b>	<b>Document Title</b>
1.	CCP-PO-001	21	CCP Transuranic Waste Characterization Quality Assurance Project Plan
2.	CCP-PO-002	27	CCP Transuranic Waste Certification Plan
3.	CCP-PO-005	26	CCP Conduct of Operations
4.	CCP-PO-016	6	CCP Gas Generation Testing Program Quality Assurance Project Plan
5.	CCP-PO-024	15	CCP/INL Interface Document
6.	CCP-PO-501	8	CCP/INL RH TRU Waste Interface Document
7.	CCP-QP-002	39	CCP Training and Qualification Plan
8.	CCP-QP-005	24	CCP TRU Nonconforming Item Reporting and Control
9.	CCP-QP-008	24	CCP Records Management
10.	CCP-QP-010	25	CCP Document Preparation, Approval, and Control
11.	CCP-QP-016	20	CCP Control of Measuring and Test Equipment
12.	CCP-QP-017	4	CCP Identification and Control of Items
13.	CCP-QP-021	10	CCP Surveillance Program
14.	CCP-QP-022	16	CCP Software Quality Assurance Plan
15.	CCP-QP-028	16	CCP Records Filing, Inventorying, Scheduling, and Dispositioning
16.	CCP-TP-001	21	CCP Project Level Data Validation and Verification
17.	CCP-TP-002	26	CCP Reconciliation of DQOs and Reporting Characterization Data
18.	CCP-TP-005	26	CCP Acceptable Knowledge Documentation
19.	CCP-TP-006	20	CCP Visual Examination Technique for INL Newly Generated TRU Waste Retrieved from Pits
20.	CCP-TP-010	5	CCP Waste Assay Gamma Spectrometer (WAGS) & SWEPP Gamma-Ray Spectrometer (SGRS) Calibration Procedure
21.	CCP-TP-019	8	CCP Waste Assay Gamma Spectrometer (WAGS) Operating Procedure
22.	CCP-TP-028	9	CCP Radiographic Test Drum and Training Container Construction
23.	CCP-TP-030	34	CCP CH TRU Waste Certification and WWIS/WDS Data Entry
24.	CCP-TP-033	22	CCP Shipping of CH TRU Waste
25.	CCP-TP-058	6	CCP NDA Performance Demonstration Plan
26.	CCP-TP-068	11	CCP Standardized Container Management
27.	CCP-TP-082	10	CCP Waste Container Filter Vent Operation
28.	CCP-TP-083	8	CCP Gas Generation Testing
29.	CCP-TP-109	9	CCP Data Reviewing, Validating, and Reporting Procedure
30.	CCP-TP-113	18	CCP Standard Contact-Handled Waste Visual Examination
31.	CCP-TP-115	6	CCP SWEPP Gamma-Ray Spectrometer (SGRS) Operating Procedure
32.	CCP-TP-138	2	CCP Execution of Long-Term Objective for the Unified Flammable Gas Test Procedure
33.	CCP-TP-163	4	CCP Evaluation of Waste Packaging Records for Visual Examination of Records
34.	CCP-TP-500	15	CCP Remote-Handled Waste Visual Examination
35.	CCP-TP-504	17	CCP Dose-to-Curie Survey Procedure for Remote-Handled Transuranic Waste
36.	CCP-TP-506	5	CCP Preparation of the RH TRU Waste AK Characterization Reconciliation Report
37.	CCP-TP-507	8	CCP Shipping of Remote-Handled Transuranic Waste
38.	CCP-TP-508	11	CCP RH Standard Real-Time Radiography Inspection Procedure
39.	CCP-TP-509	6	CCP Remote-Handled Transuranic Container Tracking
40.	CCP-TP-512	6	CCP Remote-Handled Waste Sampling
41.	CCP-TP-530	11	CCP RH TRU Waste Certification and WWIS/WDS Data Entry
42.	DOE/WIPP 06-3345	8	Waste Isolation Pilot Plant Flammable Gas Analysis Procedure
43.	WP 13-QA.03	24	Quality Assurance Independent Assessment Program

**Processes and Equipment Reviewed During Audit A-15-18 of the INL/CCP**

WIPP #	Process/Equipment Description	Applicable to the Following Waste Streams/Groups of Waste Streams	Currently Approved by NMED	Currently Approved by EPA
<b>NEW PROCESSES OR EQUIPMENT</b>				
NO NEW PROCESSES				
<b>PREVIOUSLY APPROVED PROCESSES OR EQUIPMENT</b>				
14VE1	Visual Examination (VE) Procedure – CCP-TP-006 Description – Visual Examination Technique (VET)	Solids (S3000) Soils (S4000) Debris (S5000)	YES	YES
14RHVE1	Visual Examination Procedure – CCP-TP-500 Description - The VE of audio/video media process used for a total of 70 retrievably stored remote-handled (RH) debris waste drums	Solids (S3000) Soils (S4000) Debris (S5000)	YES	YES
14RR2	Nondestructive Examination Procedure – CCP-TP-053 Equipment – MCS RTR-5 Description – MCS Real-time Radiography (RTR) Mobile Characterization (RTR-5) System	Solids (S3000) Debris (S5000)	YES	YES
14RRH1	Nondestructive Examination Procedure – CCP-TP-508 Equipment – RTR-RTR-0659 Description – VJ Technologies, Real-time Radiography Characterization (RH-RTR-0659) System	Solids (S3000) Debris (S5000)	YES	YES
N/A	Acceptable Knowledge	Solids (S3000) Soils (S4000) Debris (S5000)	YES	YES

**Processes and Equipment Reviewed During Audit A-15-18 of the INL/CCP**

WIPP #	Process/Equipment Description	Applicable to the Following Waste Streams/Groups of Waste Streams	Currently Approved by NMED	Currently Approved by EPA
N/A	Data Validation and Verification	Solids (S3000) Soils (S4000) Debris (S5000)	YES	YES
N/A	WIPP Waste Information System (WWIS)	Solids (S3000) Soils (S4000) Debris (S5000)	YES	YES
14HENC1	Nondestructive Assay Procedure – CCP-TP-107 Description – CCP High Efficiency Neutron Counter	Solids (S3000) Soils (S4000) Debris (S5000)	N/A	YES
14SGRS1	Nondestructive Assay Procedure – CCP-TP-115 Description – Stored Waste Examination Pilot Plant (SWEPP) Gamma Ray Spectrometer (SGRS)	Solids (S3000) Soils (S4000) Debris (S5000)	N/A	YES
14WAGS1	Nondestructive Assay Procedure – CCP-TP-019 Description – Waste Assay Gamma Spectrometer	Solids (S3000) Soils (S4000) Debris (S5000)	N/A	YES
14DTC1	Radiological characterization process using dose-to-curie (DTC) and modeling-derived scaling factors for assigning radionuclide values to RH waste stream  Dose-rate fractional contribution of Cs-137 and Co-60 using OSPREY La <sub>3</sub> Br(Ce) gamma detector  Procedure CCP-TP-504	Solids (S3000) Debris (S5000)	N/A	YES

**Processes and Equipment Reviewed During Audit A-15-18 of the INL/CCP**

WIPP #	Process/Equipment Description	Applicable to the Following Waste Streams/Groups of Waste Streams	Currently Approved by NMED	Currently Approved by EPA
N/A	Load Management	Solids (S3000) Soils (S4000) Debris (S5000)	N/A	YES
N/A	Quality Assurance Program	Solids (S3000) Soils (S4000) Debris (S5000)	N/A	YES