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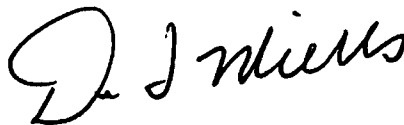
SUBJECT: Surveillance S-15-06 of the SRS/CCP Nondestructive Assay and Real-time Radiography Processes and Equipment

TO: Herbert M. Crapse, DOE/SR

On October 15, 2014, the Carlsbad Field Office conducted Surveillance S-15-06 of the Savannah River Site Central Characterization Program (SRS/CCP) nondestructive assay and real-time radiography processes and equipment. Details of the surveillance are contained in the attached report.

The surveillance team concluded that the SRS/CCP technical and quality assurance programs were effectively implemented and satisfactory in achieving the desired results.

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



Dennis S. Miehl
Senior Quality Assurance Specialist

Attachment



cc: w/attachment

J. Franco, CBFO	*ED
D. Bryson, CBFO	ED
M. Brown, CBFO	ED
J.R. Stroble, CBFO	ED
M. Navarrete, CBFO	ED
D. Moody, DOE-SR	ED
R. McQuinn, NWP	ED
J. Blankenhorn, NWP	ED
J. Harris, NWP	ED
F. Sharif, NWP/CCP	ED
D.E. Gulbransen, NWP/CCP	ED
V. Cannon, NWP/CCP	ED
A.J. Fisher, NWP/CCP	ED
I. Joo, NWP/CCP	ED
M. Walker, NWP/CCP	ED
W. Ledford, NWP/CCP	ED
J. Carter, NWP/CCP	ED
J. Hoff, NWP/QA	ED
B. Allen, NWP/QA	ED
S. Punchios, NWP/QA	ED
S. Escareno-Soto, NWP/QA	ED
T. Peake, EPA	ED
L. Bender, EPA	ED
E. Feltcorn, EPA	ED
R. Joglekar, EPA	ED
S. Ghose, EPA	ED
R. Lee, EPA	ED
J. Kieling, NMED	ED
R. Maestas, NMED	ED
S. Holmes, NMED	ED
C. Smith, NMED	ED
D. Winters, DNFSB	ED
V. Daub, CTAC	ED
R. Allen, CTAC	ED
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*ED denotes electronic distribution

CBFO SURVEILLANCE REPORT

Surveillance Number: S-15-06

Date of Surveillance: October 15, 2014

Surveillance Title: Savannah River Site Central Characterization Program (SRS/CCP)
Nondestructive Assay (NDA) and Real-Time Radiography (RTR)

Organization Surveilled: SRS/CCP

Surveillance Team:

Dennis S. Miehl	Management Representative, Carlsbad Field Office (CBFO) Quality Assurance Division
Berry Pace	Surveillance Team Leader, CBFO Technical Assistance Contractor (CTAC)
Jim Oliver	Technical Specialist, CTAC (NDA)
Priscilla Martinez	Technical Specialist, CTAC (RTR)
Greg Knox	QA Auditor and Technical Specialist in Training, CTAC (RTR)

Surveillance Scope/Purpose:

The scope of the surveillance was to evaluate field activities associated with NDA and RTR processes and associated equipment used by the Nuclear Waste Partnership LLC (NWP) Central Characterization Program (CCP) at the Savannah River Site for the characterization of contact-handled (CH) transuranic (TRU) Summary Category Groups (SCGs) S3000 homogeneous solids, S4000 soils/gravel, and S5000 debris wastes. The purpose of the surveillance was to evaluate the degree of effective implementation of associated requirements and to supplement the annual recertification audit of SRS/CCP (A-15-02) to be conducted November 4 – 6, 2014, at the Skeen-Whitlock Building in Carlsbad, New Mexico.

Governing Documents/Requirements:

Evaluation of the program effectiveness of SRS/CCP documents was based on the current revisions of the following documents:

- DOE/CBFO-94-1012, *CBFO Quality Assurance Program Document (QAPD)*
- Waste Isolation Pilot Plant Hazardous Waste Facility Permit NM4890139088-TSDF
- DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant (WAC)*
- CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan (QAPjP)*

- CCP-PO-002, *CCP Transuranic Waste Certification Plan*
- Associated SRS/CCP quality assurance (QA) and technical implementing procedures

Activities Evaluated:

Real-time Radiography

The surveillance team conducted interviews with responsible personnel and reviewed implementing procedures CCP-TP-053, Rev. 15, *CCP Standard Real-Time Radiography (RTR) Inspection Procedure*, and CCP-TP-145, Rev. 4, *RTR #4 Operating Procedure*.

The surveillance team observed the RTR characterization process at the SRS Solid Waste Materials Facility (SWMF), TRU-Pad 4 for CH container 773A120017 using RTR Unit 4. The team performed a walk-down of the unit to verify equipment capability and associated components required by the Hazardous Waste Facility Permit Waste Analysis Plan to effectively characterize waste.

The surveillance team interviewed RTR operators, verified the use of current RTR operating procedures and AK Summary reports, and reviewed associated logbooks to verify entries and required reviews. Additionally, the team reviewed and verified training and qualification for RTR operators.

The surveillance team concluded that the associated requirements for performing RTR at SRS are effectively implemented.

Nondestructive Assay

The surveillance team examined the NDA systems used by at SRS to characterize SCGs S3000 homogeneous solids, S4000, soils/gravels, and S5000, debris wastes. Specifically, the surveillance team evaluated the Box Segmented Gamma Scanner (BSGS) and the Box Neutron Assay System (BNAS). Collectively, these two instruments constitute the Savannah River Box Counter (SRBC). These systems were previously evaluated by CBFO in November 2013 as part of Audit A-14-04.

The BSGS (also referred to as the Segmented Gamma Box Counter (SGBC) in some documents) and the BNAS, which together are also referred to as the Nondestructive Assay Box Counter (NABC) or the SRBC, can perform as stand-alone assay systems or work in concert to assay wastes contained in 55-gallon (208-liter) drums, standard large box 2 containers (SLB2s), and standard waste boxes (SWBs).

The large box counter system consists of a segmented gamma scanner (SGS) and a separate neutron assay counter. The SGS uses four high-purity germanium detectors to measure passive gamma emissions from the waste. The system can measure three different types of containers: 55-gallon drums, SWBs, and SLB2s. The SGS utilizes

both a transmission and an efficiency correction. Transmission correction is accomplished by scanning the waste with an active gamma source (in this case, two 250 millicurie ^{60}Co sources (approximate as of date of installation)) paired with two 5-inch (diameter) X 4-inch (depth) sodium iodide detectors. Each ^{60}Co source has a variable attenuation shutter that is independently controlled so that a transmission correction can be optimized for each measurement segment.

Neutron measurement is performed by the BNAS. The BNAS has two operating modes: efficiency-determined multiplicity analysis mode and standard neutron coincidence counting mode. The counter utilizes 320 ^3He proportional tubes arranged in a 4 π geometry about the assay cavity and divided into 80 counting channels. Matrix correction is accomplished by using an Add-A-Source (AAS) where the empty chamber response to the AAS is compared to system response with the waste present and the AAS inserted to determine neutron moderation characteristics of the waste matrix. NDA 2000, in conjunction with GENIE 2000 software, is used to control both of these systems.

Based on a review of the current revisions of CCP procedures provided prior to the surveillance, a checklist was prepared and used to evaluate the following:

- System stability as demonstrated by the implementation and effectiveness of quality control measurements
- Proper training and qualification of operators
- Adherence to operating procedures
- Adequate documentation of operational activities through logbook review
- Continued operability and condition of the NABC systems since Audit A-14-04

The surveillance team interviewed NDA operational personnel, observed equipment and operational practices, and reviewed operational logbook entries. Additionally, the training and qualification for NDA operators was verified.

The surveillance team concluded that the associated requirements for performing NDA at SRS are effectively implemented.

Surveillance Results:

The results of the surveillance indicate that the SRS/CCP activities and related requirements associated with NDA and RTR for the characterization of CH TRU SCGs S3000, S4000 and S5000 are effectively implemented and satisfactory in achieving the desired results. No concerns were identified.

Corrective Actions:

None.

Corrected During the Surveillance:

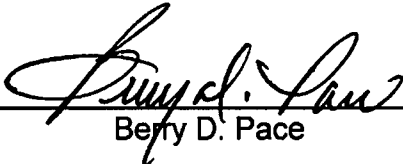
None.

Observations:

None.

Recommendations:

None.

Surveillance Team Leader:  Date: 10/22/14
Berry D. Pace

Assistant Manager/Office Director: N/A Date: N/A

CBFO QA Approval:  Date: 10-31-14