

United States Government

Department of Energy

# memorandum

Carlsbad Field Office  
Carlsbad, New Mexico 88221

DATE: September 20, 2010

REPLY TO  
ATTN OF: CBFO:NTP:JRS:GS:10-1528:UFC 5900.00

SUBJECT: SRS-CCP Recertification Expansion to include the Battelle Columbus Laboratory (BCL) Waste Streams

TO: Jack Craig, Savannah River Site Acting Manager  
M. F. Sharif, Washington TRU Solutions General Manager



The CBFO conducted the recertification audit of the contact-handled (CH) and remote-handled (RH) CCP TRU waste program deployed at the SRS. Audit A-10-01 was conducted October 27-29, 2009. The characterization activities were determined to be adequate, satisfactorily implemented, and effective.

During Audit A-10-01, the audit team evaluated the initial certification of Summary Category Group (SCG) CH S3000 solids waste. On September 24, 2009 CBFO requested from the EPA for a Tier 1 baseline change to the SRS CCP certification (CBFO:NTP:NC:GS:09-0759:UFC 5900.00) to include S3000 waste. The EPA gave their approval on March 23, 2010.

In addition, during Audit A-10-01 the audit team evaluated the initial certification SCG RH S3000 solids waste and RH S5000 debris waste. On June 19, 2009, CBFO requested from the EPA for a Tier 1 baseline change to the SRS CCP certification (CBFO:NTP:JRS:GS:09-1023:UFC 5822.00) to include the 6 remaining BCL Waste Streams stored at SRS. The EPA gave their approval on September 13, 2010.

The CCP Quality Assurance Program (QAP) was audited during Audit A-09-10 on February 24-26, 2009 in Carlsbad, New Mexico. The CCP QAP was found to adequately address the upper-tier requirements of the CBFO Quality Assurance Program Document (QAPD) and is being effectively implemented.

CCP CH and RH transportation activities were evaluated in Carlsbad, New Mexico on September 29 through October 1, 2009 during Audit A-09-27. Technical and quality assurance aspects of the transportation program were found to be effectively implemented.

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Based on the results of the CBFO audits, conditions and limitations provided by New Mexico Environment Department (NMED), and U.S. Environmental Protection Agency (EPA), the CBFO is authorizing SRS-CCP to include RH solids (S3000) Waste Streams SR-BCLDP.001.001 and SR-RL-BCLDP.002; and RH debris (S5000) Waste Stream SR-BCLDP.001:002 into their certified program and continue authority for the characterization, certification, and transportation activities of CH solids (S3000), CH soils/gravel (S4000), CH debris (S5000), and RH debris (S5000), as identified in Table 1 of this memo.

TRU waste characterization, certification, or transportation using significantly revised or new processes, procedures, or systems must be evaluated by the CBFO prior to their implementation. Included in this memo are the following attachments:

- *Attachment 1* describes the SRS-CCP certification program status,
- *Attachment 2* contains the list of equipment certified for SRS-CCP,
- *Attachment 3* contains the list of CCP procedures for SRS-CCP, and
- *Attachment 4* describes specific SRS-CCP waste characterization process elements that must be reported. These process elements are identified as Tier 1 changes and Tier 2 changes. The SRS-CCP shall not ship for disposal at WIPP any wastes affected by a Tier 1 process element change without prior CBFO approval, and SRS-CCP shall report Tier 2 changes to CBFO on a quarterly basis.



David C. Moody  
Manager

Attachment(s)

cc: w/attachments

- D. Gadbury, CBFO \*ED
- C. Fesmire, CBFO ED
- N. Castaneda, CBFO ED
- J. Stroble, CBFO ED
- A. Holland, CBFO ED
- M. Navarrete, CBFO ED
- D. Miehl, CBFO ED
- B. Crape, DOE-SR ED
- J. Edwards, EPA ED
- T. Peake, EPA ED
- M. Eagle, EPA ED
- R. Lee, EPA ED
- R. Joglekar, EPA ED
- E. Feltcorn, EPA ED
- J. Bearzi, NMED ED
- D. Haar, WTS ED
- D. Ploetz, WTS ED
- B. Billet, WTS ED
- C. Simmons, WTS ED
- V. Cannon, WTS ED
- J. Harvill, WTS ED
- C. Kirkes, WTS ED
- D. Kump, WTS ED
- D. Speed, WTS ED
- R. Chatfield, WTS ED
- D. Hofer, WTS ED
- M. Strum, WTS ED
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- W. Ledford, CTAC ED
- B. Pace, CTAC ED
- W. Verret, CTAC ED
- S. Percy, Triumph ED
- P. Gilbert, LANL ED
- G. Lyshik, LANL ED

CBFO QA File

WIPP Operating Record

CBFO M&RC

\*ED denotes electronic distribution

**Table 1  
CH & RH Waste Characterization Processes**

Characterization Process	CH S3000 Solids		CH S4000 Soils/gravel		CH S5000 Debris		RH S3000 Solids (SR-BCLDP.001.001, 5 containers and SR-BCLDP.002 1 container)		RH S5000 Debris (SR-RL-BCLDP.001, and SR-BCLDP.001.002 <sup>3</sup> 4 containers)	
	Newly generated	Retrievably-stored	Newly generated	Retrievably-stored	Newly generated	Retrievably-stored	Newly generated	Retrievably-stored	Newly generated	Retrievably-Stored
Acceptable Knowledge (AK)	N/A	APPROVED	APPROVED	APPROVED	APPROVED	APPROVED	N/A	APPROVED	N/A	APPROVED
Data Validation & Verification (V&V)	N/A	APPROVED	APPROVED	APPROVED	APPROVED	APPROVED	N/A	APPROVED	N/A	APPROVED
Headspace Gas Sampling (SUMMA) <sup>1</sup>	N/A	N/A	N/A	N/A	APPROVED	APPROVED	N/A	N/A	N/A	N/A <sup>1</sup>
Load Management	N/A	APPROVED	APPROVED	APPROVED	APPROVED	APPROVED	N/A	N/A	N/A	N/A
Non-destructive assay (NDA)	N/A	APPROVED	APPROVED	APPROVED	APPROVED	APPROVED	N/A	N/A	N/A	N/A
Dose-to-Curie (DTC)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	APPROVED	N/A	APPROVED
Real-time Radiography (RTR)	N/A	APPROVED	N/A	APPROVED	N/A	APPROVED	N/A	N/A	N/A	N/A
Solids Sampling and Analysis <sup>2</sup>	N/A	APPROVED	N/A	APPROVED	N/A	N/A	N/A	N/A <sup>1</sup>	N/A	N/A
Visual Examination (VE)	N/A	APPROVED	APPROVED	APPROVED	APPROVED	APPROVED	N/A	APPROVED	N/A	APPROVED
WIPP Waste Information System (WWIS)	N/A	APPROVED	APPROVED	APPROVED	APPROVED	APPROVED	N/A	APPROVED	N/A	APPROVED

<sup>1</sup> For CH waste, SUMMA sampling is performed by CCP, analysis is performed by the Idaho National Laboratory, which is approved under a separate certification. For RH waste, NMED granted exemption by approving an AK Sufficiency Determination on March 13, 2009.

<sup>2</sup> The soils/gravel waste stream for analysis is performed by the Idaho National Laboratory, which is approved under a separate certification.

<sup>3</sup> Received EPA approval of a Tier 1 change request to include the 6 remaining RH BCL waste streams stored at SRS. CCP is currently approved by CBFO for characterization of RH S3000 Solids Waste Stream SR-BCLDP.001.001 and SR-BCLDP.002; and RH S5000 Debris Waste Stream SR-RL-BCLDP.001 and SR-BCLDP.001.002.

## CENTRAL CHARACTERIZATION PROJECT DEPLOYMENT AT SAVANNAH RIVER SITE CERTIFICATION PROGRAM STATUS

The CBFO Director of the Office of the National TRU Program and the CBFO Director of Quality Assurance have evaluated the documentation supporting the compliance of the Central Characterization Project (CCP) TRU waste program deployed at the Savannah River Site (SRS). Attachments 2 and 3 provide complete lists of certified processes, procedures, documents, and systems deployed at the SRS-CCP. Attachment 4 is the contact-handled (CH) and remote-handled (RH) Tiering of TRU Waste Characterization Processes Implemented by the CCP at SRS.

### STATUS

- All program elements remain complete.
- The following site documents demonstrate how the CCP complies with the CBFO requirements from Audit A-10-01.
  - **QAPjP – CCP-PO-001, Revision 18 - CCP Transuranic Waste Characterization Quality Assurance Project Plan** (Approved June 29, 2010 – CBFO:NTP:CF:GS:10-1422:UFC 5900.00).
  - **WCP - CCP-PO-002, Revision 24 - CCP Transuranic Waste Certification Plan** (Approved June 29, 2010 – CBFO:NTP:NC:GS:10-1428:UFC 5900.00).  
**QAP - Section 4.0 of CCP-PO-002.**
  - **TRAMPAC – CCP-PO-003, Revision 11, CCP Transuranic Authorized Method for Payload Control** (Approved June 3, 2009 - CBFO:NTP:CF:GS:09-0987:UFC 5900.00).
  - **CCP RH-TRAMPAC – CCP-PO-505, Revision 0, CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control** (Approved September 20, 2006 - CBFO:NTP:CF:GS:06-1355:UFC 5900.00).
- Certified Systems - see Attachment 2 for the complete list of certified systems used by the CCP at the SRS.
- Standard operating procedures - see Attachment 3 for the complete list of certified procedures used by the CCP at the SRS.
- Tiering of the CH & RH TRU Waste Characterization Processes – see Attachment 4 for the implementation by CCP at SRS (based on EPA Baseline Inspections)

CCP currently has participated in the required annual cycle and their PDP qualification is based on PDPs completed after audit. During the audit A-10-01, CCP participated in the following performance demonstration programs (PDPs):

- **NDA PDP – Cycle B9A approval** for radioassay of WIPP wastes contained in the TRU *SWB* and TRU *large box* using the NABC (SR05/SRN2) and the operating procedures identified as CCP-TP-189, Revision 1 and CCP-TP-191, Revision 1.
- **NDA PDP – Cycle 17A approval** for analysis of TRU waste *drums* using the NABC (SR05/SRN2) and the operating procedures identified as CCP-TP-189, Revision 1 and CCP-TP-191, Revision 1.
- **HSG PDP (CCP-INL) –** For CH waste, SUMMA sampling is performed by CCP, analysis is performed by the Idaho National Laboratory, which is approved under a separate certification. For RH waste, NMED granted exemption by approving an AK Cycle B9A approved for radioassay in the TRU standard waste box using the NABC (SR05/SRN2).
- CBFO conducted the CH and RH Recertification Audit A-10-01 of the SRS CCP on February 1, 2010.
  - CAR 10-005 was issued on November 5, 2009.
  - CAR 10-005 was closed on February 22, 2010.
  - Interim Audit Report was issued on November 24, 2009.
  - Final Audit Report was issued on February 1, 2010
  - NMED issued their approval on March 16, 2010.
  - CBFO received EPA's approval on March 23, 2010.
- CBFO conducted a Quality Assurance Program Audit A-09-10 on February 24-26, 2009.
  - Audit Report was issued on March 4, 2009.
- CBFO conducted CH and RH Transportation Audit A-09-27 for all sites on September 29-October 1, 2009.
  - Audit Report was issued on October 14, 2009.
- CBFO requested from EPA an approval of a Tier 1 adding the CH S3000 SCG to the certification for the SRS CCP on September 24, 2009 (CBFO:NTP:NC:GS:09-0759:UFC 5900.00).
  - CBFO received EPA's approval on March 23, 2010.
- CBFO requested from EPA an approval of a Tier 1 to include the 6 remaining BCL Waste Streams to the certification for the SRS CCP on June 19, 2009.
  - NMED approved RH solids (S3000) Waste Streams SR-BCLDP.001.001 and RH debris (S5000) Waste Stream SR-BCLDP.001.002 on June 3, 2010
  - NMED approved RH solids (S3000) Waste Stream SR-RL-BCLDP.002 on September 10, 2010.
  - CBFO received EPA's approval on September 9, 2010.
- EPA issued concurrence on the draft CBFO recertification memo on September 16, 2010.

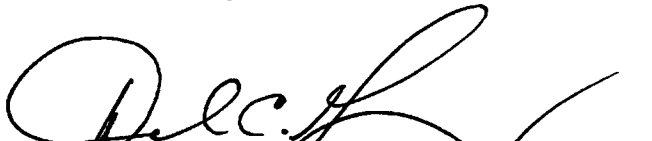
**RECOMMENDATION**

The recommendation to the CBFO Manager is for CCP to include the RH homogeneous solids waste (S3000) Waste Stream SR-BCLDP.001.001 and SR-BCLDP.002; and RH debris waste (S5000) Waste Stream SR-BCLDP.001.002 into their certified program and continue to have the authority for the characterization, certification, and transportation CH homogeneous solids (S3000), CH soils/gravel (S4000), CH debris (S5000), and RH debris (S5000) Waste Stream SR-RL-BCLDP.001 at the SRS. Attachments 2 and 3 list the systems and procedures that constitute the bounds of this authority. Attachment 4 is the CH and RH Tiering of TRU Waste Characterization Processes Implemented by the CCP at SRS.

**CONCURRENCE**

  
\_\_\_\_\_  
Ms. Ava Holland, Director  
CBFO Quality Assurance

9/16/10  
Date

  
\_\_\_\_\_  
Donald C. Gadbury, Director  
CBFO Office of the National TRU Program

9-16-10  
Date

SRS CCP CH & RH Certified Equipment and Process List					
WIPP WWIS #	Site Equipment #	Description	Components	Software	NDA Calibrated Range, Operating Range and TMU
<b>Non-destructive Assay</b>					
1NABC1	NABC – (SR05/SRN5)	<p>Nondestructive Assay Box Counter (55-gallon drums, SWBs)</p> <p>Method identified in CCP-TP-189 and CCP-TP-191</p>	<p>Gamma</p> <ul style="list-style-type: none"> <li>• Two Co-60 Transmission Sources</li> <li>• Two NaI Gamma Detectors for transmission measurements</li> <li>• Four Broad Energy Germanium (BEGe) Detectors for gamma emission measurements</li> <li>• Six Digital Signal Processors</li> </ul> <p>Neutron</p> <ul style="list-style-type: none"> <li>• 320 He-3 Tubes in High Density Polyethylene Liner</li> <li>• Cf-252 Add-A-Source Correction</li> </ul>	<ul style="list-style-type: none"> <li>• NDA-2000</li> <li>• Genie-2000</li> </ul>	<p>The NABC has two modalities of operation: gamma and neutron. Therefore two sets of calibration documents exist. For the gamma modality the calibration of the NABC is documented in CCP-SRS-SRBC001, "Nondestructive Assay Box Counter Calibration Validation and Confirmation Report for the Gamma Modality," dated October 23, 2008. For the neutron modality the calibration of the NABC is documented in CCP-SRS-SRBC002, "Nondestructive Assay Box Counter Calibration Validation and Confirmation Report for the Neutron Modality," dated July 29, 2009.</p> <p>The determination of the TMU for the NABC is similarly documented for the gamma modality in A40972, "Savannah River Box Gamma Box Counter Total Measurement Uncertainty Report for Alternatives for Non-Destructive Assay (NDA) of Large Containers to Allow Shipping in TRUPACT-III without Resizing and/or Repackaging," dated October 15, 2007, and for the neutron modality in A41309, "Savannah River Neutron Box Counter Total Measurement Uncertainty Report for Alternatives for Non-Destructive Assay (NDA) of Large Containers to Allow Shipping in TRUPACT-III without Resizing and/or Repackaging," dated October 15, 2007.</p>



<b>SRS CCP CH &amp; RH Certified Equipment and Process List</b>					
<b>WIPP WWIS #</b>	<b>Site Equipment #</b>	<b>Description</b>	<b>Components</b>	<b>Software</b>	<b>NDA Calibrated Range, Operating Range and TMU</b>
1SG1	MCS SGS – (SR04/SRG3)	Mobile Characterization Systems (MCS) Segmented Gamma Scanner (SGS) – 55 gallon drums  Method identified in CCP-TP-051	<ul style="list-style-type: none"> <li>• Assay Chamber with motor driven turntable</li> <li>• Ba 133 gamma ray transmission source</li> <li>• SEGe and LEGe detectors</li> </ul>	<ul style="list-style-type: none"> <li>• Gamma Waste Assay System (GWAS) Analysis Software</li> </ul>	<p>The calibration of the SGS is documented in MCS-SRS-NDA-0706, Revision 0, "Calibration and Verification Report for the Range Extension of the Segmented Gamma Scanner at the Savannah River Site" dated June 19, 2007.</p> <p>The determination of the TMU for the SGS is documented in MCS-SGS-SRS-TMU-001, Revision 1, "Total Measurement Uncertainty for the SRS MCS Segmented Gamma Scanner," dated August 8, 2007.</p>
<b>Non-destructive Examination</b>					
1RR3	RTR-15 (owned by SRS)	Real-time Radiography Built by Marietta X-Ray – 55 gallon drums  Method identified in CCP-TP-053	<ul style="list-style-type: none"> <li>• Shielded x-ray enclosure with a hydraulic drum loading door and manually opened personnel door</li> <li>• Conveyer cart including drum manipulation equipment</li> <li>• X-ray imaging system including x-ray tube, image intensifier, and video camera</li> <li>• Video/audio recording equipment</li> <li>• Mobile platform</li> </ul>	N/A	N/A
1RR4	RTR-4	Real-time Radiography – 55 gallon drums and standard waste boxes (SWBs)  Method identified in CCP-TP-053 and CCP-TP-145	<ul style="list-style-type: none"> <li>• Shielded x-ray enclosure with a rear container loading door and manually opened personnel door</li> <li>• Conveyer cart</li> <li>• Drum manipulation equipment</li> <li>• X-ray imaging system including x-ray tube, image intensifier, and video camera</li> <li>• Video/audio recording equipment</li> <li>• Mobile platform</li> </ul>	N/A	N/A

<b>SRS CCP CH &amp; RH Certified Equipment and Process List</b>					
<b>WIPP WWIS #</b>	<b>Site Equipment #</b>	<b>Description</b>	<b>Components</b>	<b>Software</b>	<b>NDA Calibrated Range, Operating Range and TMU</b>
<b>Visual Examination</b>					
1RHVE1	Visual Examination	Visual Examination Technique Method identified in CCP-TP-500	N/A	N/A	N/A
VISUAL	Visual Examination	Visual Examination VE QC Check for RTR, VE in lieu of RTR, VET for retrievably stored waste  Method identified in CCP-TP-113	N/A	N/A	N/A
<b>Dose-to-Curie</b>					
1DTC1	Dose-to-Curie	Radiological characterization  Method identified in CCP-TP-504	As identified in CCP-TP-504	As identified in CCP-TP-504	N/A
<b>Headspace Gas</b>					
N/A	HSG	SUMMA Sampling process on selected waste containers from waste stream lots.	As identified in CCP-TP-093	As identified in CCP-TP-093	N/A
<b>Flammable Gas Analysis (FGA)</b>					
1HG2	N/A	Flammable Gas Analysis  Method identified in DOE/WIPP-06-3345	N/A	N/A	N/A

<b>List of Deactivated Equipment</b>			
<b>WIPP #</b>	<b>Site Equipment #</b>	<b>Site Description</b>	<b>Date Deactivated</b>
1IP1	MCS IPAN/GEA – MC-01, Group MC-N1	Mobile Characterization Systems (MCS) Imaging Passive-Active Neutron/Gamma Energy Analysis (IPAN/GEA) [Built by BNFL] – 55 gallon drums	May 2006
1HG1	NUCFIL HSG DVS2	NucFil headspace gas system DVS2 – VOCs and hydrogen and methane analysis	March 2008
1IQ1	IQ3 - SR03/SR-G2	Canberra Mobile Qualitative and Quantitative Drum Counter with Isotopics (IQ3) Method identified in CCP-TP-047	July 2009

CCP SRS Certified Procedures		
#	Procedure #	Procedure Title
1.	CCP-PO-001	CCP Transuranic Waste Characterization Quality Assurance Project Plan
2.	CCP-PO-002	CCP Transuranic Waste Certification Plan
3.	CCP-PO-003	CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)
4.	CCP-PO-004	CCP/SRS Interface Document
5.	CCP-PO-005	CCP Conduct of Operations
6.	CCP-PO-006	CCP Conduct of Operations Matrix
7.	CCP-PO-008	CCP Quality Assurance Interface with the WTS Quality Assurance Program
8.	CCP-PO-505	CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)
9.	CCP-QP-001	CCP Graded Approach
10.	CCP-QP-002	CCP Training and Qualification Plan
11.	CCP-QP-004	CCP Corrective Action Management
12.	CCP-QP-005	CCP TRU Nonconforming Item Reporting and Control
13.	CCP-QP-006	CCP Corrective Action Reporting and Control
14.	CCP-QP-008	CCP Records Management
15.	CCP-QP-010	CCP Document Preparation, Approval, and Control
16.	CCP-QP-011	CCP Laboratory Logbooks
17.	CCP-QP-014	CCP Quality Assurance Trend Analysis and Reporting
18.	CCP-QP-015	CCP Procurement
19.	CCP-QP-016	CCP Control of Measuring and Testing Equipment
20.	CCP-QP-017	CCP Identification and Control of Items
21.	CCP-QP-018	CCP Management Assessment
22.	CCP-QP-019	CCP Quality Assurance Reporting to Management
23.	CCP-QP-021	CCP Surveillance Program
24.	CCP-QP-022	CCP Software Quality Assurance Plan
25.	CCP-QP-023	CCP Handling, Storage and Shipping
26.	CCP-QP-025	CCP Lessons Learned Program Management Control Procedure
27.	CCP-QP-026	CCP Inspection Control
28.	CCP-QP-027	CCP Test Control
29.	CCP-QP-028	CCP Records Filing, Inventorying, Scheduling, and Dispositioning
30.	CCP-QP-030	CCP Written Practice for the Qualification of CCP Helium Leak Detection Personnel
31.	CCP-TP-001	CCP Project Level Data Validation and Verification
32.	CCP-TP-002	CCP Reconciliation of DQOs and Reporting Characterization Data
33.	CCP-TP-003	CCP Data Analysis for S3000, S4000, and S5000 Characterization
34.	CCP-TP-005	CCP Acceptable Knowledge Documentation
35.	CCP-TP-028	CCP Radiographic Test and Training Drum Construction
36.	CCP-TP-030	CCP CH TRU Waste Certification and WWIS/WDS Data Entry

CCP SRS Certified Procedures		
#	Procedure #	Procedure Title
37.	CCP-TP-033	CCP Shipping of CH TRU Waste
38.	CCP-TP-035	CCP Container Management
39.	CCP-TP-050	CCP Mobile Segmented Gamma Scanner Calibration Procedure
40.	CCP-TP-051	CCP Mobile Segmented Gamma Scanner Operation
41.	CCP-TP-052	CCP Mobile Segmented Gamma Scanner Data Reviewing, Validating and Reporting
42.	CCP-TP-053	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
43.	CCP-TP-054	CCP Adjustable Center of Gravity Lift Fixture Preoperational Checks and Shutdown
44.	CCP-TP-055	CCP Varian Porta-Test Leak Detector Operations
45.	CCP-TP-056	CCP HSG Performance Demonstration Plan
46.	CCP-TP-058	CCP NDA Performance Demonstration Plan
47.	CCP-TP-066	CCP Radiography Screening Procedure for Prohibited Items
48.	CCP-TP-082	CCP Preparing and Handling Waste Containers for Headspace Gas Sampling
49.	CCP-TP-083	CCP Gas Generation Testing
50.	CCP-TP-086	CCP CH Packaging Payload Assembly
51.	CCP-TP-087	CCP Scale Operations
52.	CCP-TP-093	CCP Sampling of TRU Waste Containers
53.	CCP-TP-098	CCP Installation of the NucFil HSG Sample Port
54.	CCP-TP-106	CCP Headspace Gas Sampling Batch Data Report Preparation
55.	CCP-TP-113	CCP Standard Contact-Handled Waste Visual Examination
56.	CCP-TP-120	CCP Container Management
57.	CCP-TP-136	CCP Standardized Prohibited Item Remediation
58.	CCP-TP-138	CCP Execution of Long-Term Objective for the Unified Flammable Gas Test Procedure
59.	CCP-TP-139	CCP In Situ Object Counting System Nondestructive Assay Operating Procedure
60.	CCP-TP-145	CCP RTR #4 Operating Procedure
61.	CCP-TP-162	CCP Random Selection of Containers for Solids and Headspace Gas Sampling and Analysis
62.	CCP-TP-163	CCP Evaluation of Waste Packaging Records for Visual Examination of Records
63.	CCP-TP-180	CCP Analytical Sample Management
64.	CCP-TP-189	CCP Box Segmented Gamma System (BSGS) Operating Procedure
65.	CCP-TP-190	CCP Box Segmented Gamma System (BSGS) Calibration Procedure
66.	CCP-TP-191	CCP Box Neutron Assay System (BNAS) Operating Procedure
67.	CCP-TP-192	CCP Box Neutron Assay System (BNAS) Calibration Procedure
68.	CCP-TP-193	CCP Data Reviewing, Validating, and Reporting Procedure for the Nondestructive Assay Box Counters
69.	CCP-TP-500	CCP Remote-Handled Waste Visual Examination
70.	CCP-TP-504	CCP Dose-to-Curie Survey Procedure for Remote-Handled Transuranic Waste
71.	CCP-TP-505	CCP Removable Lid Canister Loading

CCP SRS Certified Procedures		
#	Procedure #	Procedure Title
72.	CCP-TP-506	CCP Preparation of the RH TRU Waste AK Characterization Reconciliation Report
73.	CCP-TP-507	CCP Shipping of Remote-Handled Transuranic Waste
74.	CCP-TP-509	CCP Remote-Handled Transuranic Container Tracking
75.	CCP-TP-530	CCP RH TRU Waste Certification and WWIS/WDS Data Entry

CCP SRS Deactivated Procedures			
#	Procedure #	Procedure Title	Deactivation Date
1.	CCP-QP-007	CCP Document Control	December 2001
2.	CCP-QP-009	CCP Work Control Process	October 2006
3.	CCP-QP-012	CCP Indoctrination Plan	March 2002
4.	CCP-QP-013	CCP QAPD Matrix	May 2003
5.	CCP-QP-020	CCP Independent Assessments	September 2003
6.	CCP-QP-024	CCP Certification of CCP Audit Personnel	September 2003
7.	CCP-TP-007	CCP Single Sample Manifold Headspace Gas Sampling and Analysis Procedure	January 2008
8.	CCP-TP-009	CCP Single Sample Manifold Data Handling Procedure	January 2008
9.	CCP-TP-011	CCP Radiography Inspection Operating Procedure	May 2007
10.	CCP-TP-022	CCP Mobile IPAN/GEA Maintenance Procedure	November 2007
11.	CCP-TP-023	CCP Mobile IPAN/GEA System Mobilization, Power Up, and Demobilization Procedure	November 2007
12.	CCP-TP-024	CCP Mobile IPAN/GEA Operating and Data Generation Level Validation Procedure	November 2007
13.	CCP-TP-025	CCP Mobile IPAN/GEA Expert Analysis Procedure	November 2007
14.	CCP-TP-026	CCP Mobile IPAN/GEA Calibration Procedure	May 2007
15.	CCP-TP-029	CCP Single Sample Manifold Headspace Gas Sampling and Analysis Methods and Equipment Calibration	January 2008
16.	CCP-TP-032	CCP Single Sample Manifold Data Validation Procedure	January 2008
17.	CCP-TP-046	CCP Mobile IQ3 System Calibration Procedure	July 2009
18.	CCP-TP-047	CCP Mobile IQ3 Gamma Scanner Operation	July 2009
19.	CCP-TP-048	CCP-TP-048, CCP Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure	July 2009
20.	CCP-TP-057	CCP Project Level Data Validation and Verification for Headspace Gas Sampling and Analysis	September 2002
21.	CCP-TP-084	CCP Removal of Prohibited Items Within Transuranic Visual Examination Facility	May 2004
22.	CCP-TP-085	CCP TRU Visual Examination Facility Operations	November 2005
23.	CCP-TP-088	CCP Disposal Program Data Generation Level Review for Visual Examination	November 2005
24.	CCP-TP-089	CCP Mobile Gas Generation Testing Sampling System (MGSS) Sampling Operation	October 2009
25.	CCP-TP-092	CCP Mobile Gas Generation Testing Sampling System (MGSS) Data Calculation	October 2009
26.	CCP-TP-094	GGTP Drum Screening and Batching	October 2009
27.	CCP-TP-160	CCP Random Selection of Containers for Headspace Gas Sampling and Analysis	June 2009
28.	CCP-TP-161	CCP Random Selection of Containers for Solids Sampling and Analysis	June 2009

**Tiering of CH TRU Waste Characterization Processes Implemented by CCP at SRS**  
**(Based on October 31-November 3, 2005 EPA Baseline Inspection No. EPA-SRS-CCP-10.05-8)**  
**DOCKET # A-98-49; II-A4-64**

*(In Italics Based on October 31-November 3, 2009, EPA Inspection of T1 Inspection Adding SCG CH S3000,  
Docket# A-98-49; II-A4-123)*

WC Process Elements	SRS-CCP WC T1 Changes	SRS-CCP WC T2 Changes <sup>a</sup>
AK and Load Management	<i>Implementation of load management for the S3000 Summary Category Group<sup>d</sup></i>	<p>The elements listed as T2 changes below apply to all approved SRS-CCP CH TRU waste streams and waste summary category groups.</p> <p>Notification to EPA upon completion of AK accuracy reports and, upon completion of new versions or updates/substantive changes<sup>b</sup> of the following</p> <ul style="list-style-type: none"> <li>- AK-NDA memoranda</li> <li>- Site AK procedure CCP-TP-005</li> <li>- AK accuracy reports</li> <li>- AK-AK and AK-NDA/NDE Discrepancy Resolution Reports</li> <li>- Attachments 4 and 6 and associated memoranda</li> <li>- WSPFs and AK summaries and related attachments for all new waste streams including change notices.</li> <li>- "Add Container" memoranda.</li> </ul>
NDA	<p>New equipment or physical modifications to approved equipment<sup>c</sup></p> <p>Extension or changes to approved calibration range for approved equipment.</p>	Notification to EPA upon completion of changes to software for approved equipment, operating range(s), and site procedures that require CBFO approval.
RTR	N/A	<p>Notification to EPA upon the following:</p> <ul style="list-style-type: none"> <li>- Implementation of new RTR equipment or substantive changes<sup>c</sup> to approved RTR equipment.</li> <li>- Completion of changes to site RTR procedures requiring CBFO approvals.</li> </ul>
VE and VET	Changes in vendor performing VE and/or VET	Notification to EPA upon completion of changes to site VE/VET procedures that require CBFO approval.
WWIS	N/A	Notification to EPA upon completion of changes to WWIS procedure(s) requiring CBFO approval and other changes including algorithms specific to load management.

<sup>a</sup>T2 changes have been updated from those presented in the baseline inspection report, which addressed only the WSPF and procedural changes, to include new AK requirements as a result of this inspection and other EPA baseline approvals to ensure consistent reporting requirements. SRS-CCP will report all T2 changes to EPA at the end of each fiscal quarter.

<sup>b</sup>"Substantive changes" are changes with the potential to impact the site's waste characterization activities or documentation thereof, excluding changes that are solely related to ES&H, nuclear safety, or RCRA, or that are editorial in nature.

<sup>c</sup>Modifications to approved equipment include all changes with the potential to affect NDA data relative to waste isolation and exclude minor changes, such as the addition of safety-related equipment.

<sup>d</sup>New T1 change specific to the S3000 SCG as discussed in the Tier 1 change report.



**CH AK Tiers**

**Tier 1 AK Changes**-Implementation of load management for the S3000 Summary Category Group

**Tier 2 AK Changes**-The elements listed as T2 changes below apply to all approved SRS-CCP CH TRU waste streams and waste summary category groups.

Notification to EPA upon completion of AK accuracy reports and, upon completion of new versions or updates/substantive changes<sup>b</sup> of the following

- AK-NDA memoranda
- Site AK procedure CCP-TP-005
- AK accuracy reports
- AK-AK and AK-NDA/NDE Discrepancy Resolution Reports
- Attachments 4 and 6 and associated memoranda
- WSPFs and AK summaries and related attachments for all new waste streams including change notices.
- "Add Container" memoranda.

*(In Italics Based on October 31-November 3, 2009, EPA Inspection of T1 Request for Adding SCG CH S3000, Docket# A-98-49; II-A4-123)*

*Based on the results of this T1 evaluation, EPA has revised the T1 and T2 designations assigned to AK during the SRS-CCP baseline approval, as reflected in Table 1 of base report Docket # A-98-49; II-A4-123. There is one new AK T1 change and slight modifications to the AK T2 elements, as indicated in the revised tiering table. As an AK T1 change, EPA approval of load management of solid waste containers is necessary if SRS-CCP considers implementing this option. All of the T2 elements listed under AK in Table 1 for consistency apply to all approved CH TRU waste streams and SCGs at SRS-CCP.*

**CH NDA Tiers**

**Tier 1 NDA changes** that will require EPA review and approval prior to implementation are the following:

- New NDA equipment;<sup>1</sup>
- Physical modifications to approved equipment;<sup>2</sup> and
- Extension or changes of an approved calibration range(s) for approved equipment.

For purposes of clarification, the last bullet above refers to the extension of a system's approved calibration range with respect to determination of disintegration rate (activity) or physical characteristics (matrix) of any of the two NDA systems approved during this

<sup>1</sup> *New NDA equipment* refers to a system or component not previously evaluated by EPA. Specifically, this is defined as a physically distinct or different system or apparatus; an assay system that is reported to be the equivalent of or identical to a previously approved system but which has not been formally inspected and approved by EPA is a new system and must be approved by EPA prior to implementation to characterize WIPP wastes.

<sup>2</sup> Changes to existing NDA equipment include all changes and or modification to approved equipment that have the potential to affect the quality of NDA data used for the purposes of waste characterization and/or waste isolation. This does not include minor changes or safety-related changes (e.g., addition of hand rails) that do not have the potential to affect waste characterization data.

inspection. During an EPA technical inspection, several characteristics of a measurement system are evaluated. A key characteristic is the range of conditions for which the instrument is capable of producing technically defensible data with respect to two aspects:

- Activity – the nuclear disintegration rate of specific radiations types (neutron or gamma), typically Special Nuclear Material or Transuranic radionuclides; units of activity and mass are interchangeable;
- Physical Characteristics – the physical attributes of waste matrices as they relate to a radiometric system, i.e., how the matrix's physical properties interact with the radiations that originate within the sample and affect the system's ability to detect them. Examples include attenuation of photons (gamma), and moderation and absorption of neutrons.

During the T1 evaluation in March 24-26, 2009, the EPA inspection team evaluated the NABC operated by SRS-CCP. It is a bimodal system (neutron [Box Neutron Assay System or BNAS] and gamma [Box Segmented Gamma System or BSGS] operational modes), and it is configured for CH TRU wastes in the container types (geometries); 55-gallon drums, and SWBs, and SLB-2s for assaying CH TRU wastes in the gamma and neutron detection modes for the three measurement configurations consistent with limitations described in the August 2009 report (Docket No: A-98-49; II-A4-114) as summarized below.

The operational range of the gamma mode or BSGS is stated as the system's LLD to 204 grams for  $^{239}\text{Pu}$  and the LLD to 0.44 grams for  $^{238}\text{Pu}$  in terms of (mass) activity. For density-based efficiency, a range of 0.02 g/cm<sup>3</sup> to 1.62 g/cm<sup>3</sup> was established, as summarized in CCP-SRS-SRBC001. Canberra Report No. 40945 describes the details of the BSGS calibration that was performed using mixed gamma sources, and the system's operational range is determined by measurements of weapons grade (WG) and heat source (HS) Pu standards, as described in CCP-SRS-SRBC001. For WG Pu,  $^{239}\text{Pu}$  sources were assayed over a range of <1 gram to approximately 204 grams  $^{239}\text{Pu}$  to produce the stated operational range. For HS Pu, the operational range is the system LLD to 40 grams  $^{238}\text{Pu}$ .

The operational range of the neutron side or BNAS is stated as the system's LLD to 305 g of  $^{239}\text{Pu}$  for WG Pu and the LLD to 40 g for  $^{238}\text{Pu}$ , as summarized in MCS-SRS-NDA-0810, Revision 2. Canberra Report No. A40973 describes the details of the BNAS calibration that was performed using  $^{252}\text{Cf}$  sources and the system's operational range is determined by measurements of WG and HS Pu standards in conjunction with  $^{252}\text{Cf}$  standards to serve as  $^{238}\text{Pu}$  surrogates for neutron emission, as described in MCS-SRS-NDA-0810, Revision 2, Attachment 2.

**CH Tier 2 NDA Changes** that do not require EPA approval prior to implementation but require reporting and submitting documentation discussing changes by SRS-CCP are:

- Changes to software for approved equipment
- Changes to approved operating range(s) of approved NDA systems upon CBFO approval (see discussion, above)
- Changes to procedures that require CBFO approval.

For purposes of clarification, examples of the first bullet above would include:

- Changing a system's operating system, e.g., first use of Canberra NDA 2000
- Identification of a systematic problem with a software package and subsequent modifications to address the problem, e.g., use of an incorrect value for a radionuclide's transition probability in NDA 2000
- Introduction of a new version of an existing software package beyond what is in current use

Regarding the second bullet above, reducing a system's operating range because of performance-related problems or equipment failures would be Tier 2 changes. For example, if, the NDA equipment were to not pass a PDP cycle for a specific matrix or activity range and its use for those were formally restricted by the site or CBFO, this would be a Tier 2 change.

### **CH RTR Tiers**

**There are no applicable Tier 1 RTR changes at this time.**

**Tier 2 RTR changes** that do not require EPA approval prior to implementation but require reporting and submitting documentation discussing changes by SRS-CCP include the following:

- New RTR equipment or changes to approved equipment
- Changes made to RTR procedure(s) that require CBFO approval

### **CH VE and VET Tiers**

**Tier 1 VE or VET changes** that will require EPA review and approval prior to implementation include the following:

- Changes in vendor performing VE and/or VET

**Tier 2 VE and VET changes** that do not require EPA approval prior to implementation but require reporting and submitting documentation include the following:

- Changes made to VE or VET procedure(s) that require CBFO approval.

### **CH WWIS Tiers**

**There are no applicable Tier 1 RTR changes at this time.**

**Tier 2 WWIS changes-** *Notification to EPA upon completion of changes to WWIS procedure(s) requiring CBFO approval and other changes including algorithms specific to load management.*

Tiering of RH TRU Waste Characterization Processes Implemented by CCP at SRS (Based on EPA Baseline Inspection No. EPA-SRS-CCP-RH-07.07-8) DOCKET # A-98-49; II-A4-104		
WC Process Elements	SRS-CCP RH WC Process T1 Changes	SRS-CCP RH WC Process T2 Changes
Acceptable Knowledge (AK)	N/A	N/A
Radiological Characterization using Dose-to-Curie (DTC)	N/A	N/A
Visual Examination (VE)	N/A	N/A
Real-Time Radiography (RTR)	N/A	N/A
WWIS	N/A	N/A

**RH AK Tiers****Tier 1 AK changes**

- Twenty liners of debris waste stored at Hanford

**Tier 2 AK changes**

- Review Waste Stream Profile Form (WSPF) for the six BCL waste streams.

**RH Radiological Characterization Tiers****Tier 1 Radiological Characterization changes**

- None

**Tier 2 Radiological Characterization changes**

- None

**RH VE Tiers****Tier 1 VE changes**

- None

**Tier 2 VE changes**

- None

**RH RTR Tiers****Tier 1 RTR changes**

- None

**Tier 2 RTR changes**

- None

**RH WWIS Tiers****Tier 1 WWIS changes**

- None

**Tier 2 WWIS changes**

- None

(From Page 52 of the SRS RH BCLDP Inspection Report Final Approval dated, August 21, 2008)

The wastes to which this approval applies are discussed in this report and were generated at the BCLDP; the fact that they are stored at SRS has no bearing on characterization activities performed on any other CH or RH TRU materials at SRS or any other DOE site. This report does not list any specific T1 or T2 designations relative to these 87 waste liners and the WC components inspected and approved by EPA at this time. However, should DOE identify additional containers of RH TRU wastes (e.g., solids or soil/gravel) associated with the D&D of the Building JN-1 HCL at the Jefferson North Facility as being eligible for WIPP disposal apart from the 87 liners that are discussed in this report, EPA notification and approval would be necessary as a T1 change. This report does not list specific T1 or Tier 2 (T2) designations relative to these 87 drum liners containing RH TRU debris waste from BCLDP and the WC components approved at this time. SRS-CCP, however, must provide to EPA a copy of the WWIS controlled spreadsheet showing the manual data entries that were downloaded from CCP-AK-SRS-501 upon completion as a one-time T2 change.