

United States Government

# memorandum

Carlsbad Field Office  
Carlsbad, New Mexico 88221

DATE: October 18, 2002

REPLY TO  
ATTN OF: CBFO:QA:DSM:GS:02-1931:UFC 2300.00

SUBJECT: Report of Carlsbad Field Office Audit A-02-15 of the Nevada Test Site, TRU Waste Characterization Activities Using the Services of the Central Characterization Project

TO: Angela Colarusso, NNSA/NV

The Carlsbad Field Office conducted a certification audit on September 23-27, 2002, of the WTS/CCP, TRU waste characterization activities performed under contract to Bechtel Nevada at the Nevada Test Site (NTS). Attached is the report for this audit. The audit team concluded that NTS Central Characterization Project technical and quality assurance procedures and processes were adequate, effective, and were being satisfactorily implemented.

As a result of the audit two Corrective Action Reports (CAR 02-096 and CAR 02-097) were identified and forwarded via separate correspondence. Nine observations and ten recommendations are presented for management action and consideration.

If you have any questions or comments concerning this report, please contact me at (505) 234-7491.



Dennis S. Miehl  
Quality Assurance Specialist

2002

## Attachment

cc w/attachment:  
A. Holland, CBFO  
K. Watson, CBFO  
B. Bennington, CBFO  
D. Winters, DNFSB  
F. Sharif, WTS  
D. Haar, WTS  
A. Fisher, WTS  
S. Zappe, NMED  
S. Holmes, NMED  
R. Joglekar, EPA  
E. Feltcorn, EPA  
M. Eagle, EPA  
S. Webb, EEG  
P. Roush, WTS  
E. Bradford, CTAC  
T. Bowden, CTAC  
CBFO QA File  
CBFO M&RC

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U.S. DEPARTMENT OF ENERGY  
CARLSBAD FIELD OFFICE

AUDIT REPORT  
OF  
NEVADA TEST SITE  
UTILIZING THE  
CENTRAL CHARACTERIZATION PROJECT

Las Vegas, Nevada

AUDIT NUMBER A-02-15

September 23-27, 2002

TRANSURANIC WASTE CHARACTERIZATION AND CERTIFICATION  
PROGRAM



Prepared by:

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Audit Team Leader

Date : 10/9/02

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Date : 10/18/02

## 1.0 EXECUTIVE SUMMARY

The Central Characterization Project (CCP) was developed by Westinghouse TRU Solutions (WTS) to provide TRU waste characterization, certification, and transportation services, including the necessary management and administrative functions to ensure the acceptability of these processes in accordance with regulatory requirements. The CCP provides these services under contract to those waste generator sites that request support or lack the expertise, program infrastructure, or equipment to characterize TRU waste for shipment to and disposal at the Waste Isolation Pilot Plant (WIPP).

Carlsbad Field Office (CBFO) Audit A-02-15 was conducted at the Nevada Test Site (NTS), September 23-27, 2002, to evaluate the CCP characterization and certification activities that were contracted to Bechtel Nevada. This audit was conducted to evaluate the adequacy, implementation, and effectiveness of the CCP TRU waste characterization and certification activities related to Summary Category Group S5000 (debris waste). The audit team assessed the adequacy, implementation, and effectiveness of both technical and quality assurance (QA) activities.

The audit scope included an assessment of the CCP programmatic interfaces established with Bechtel Nevada, the CCP administrative controls needed to manage the characterization activities, and the physical characterization processes and activities being conducted at the NTS. The activities evaluated included characterization with mobile real-time radiography (RTR) equipment, mobile single sample manifold headspace gas (HSG) sampling and analysis equipment, and mobile segmented gamma scanner (SGS), nondestructive assay (NDA) equipment and the NTS visual examination, segregation, and repackaging operations conducted in the NTS Waste Examination Facility (WEF). In addition, the process for developing the Acceptable Knowledge (AK) documentation was evaluated.

The audit team concluded that the CCP technical and QA procedures were adequate relative to the flow down of requirements from the CBFO Quality Assurance Program Document (QAPD), the Waste Analysis Plan (WAP) of the WIPP Hazardous Waste Facility Permit (HWFP), and the WIPP Waste Acceptance Criteria (WAC). The audit team also concluded that the assessed activities were being satisfactorily implemented in accordance with the CCP Quality Assurance Project Plan (QAPjP) and the implementing procedures. The established technical processes and the QA program were determined to be effective. A Summary Table of Audit Results is provided in Attachment 2.

The audit team identified four conditions adverse to quality (CAQs) resulting in the issuance of two CBFO corrective action reports (CARs). The CARs identified an adverse condition concerning a scale for reading measurements for a HSG photo ionization detector and three adverse conditions related to configuration

management of procured software. Two isolated deficiencies requiring only remedial corrective actions were corrected during the audit (CDA). Nine Observations and ten Recommendations were identified and are being offered for management consideration. The CARs, CDAs, Observations, and Recommendations are described in Section 6.

Concurrent with the CCP audit, the Environmental Protection Agency (EPA) inspection personnel observed the CBFO technical evaluations, and conducted an inspection of the CBFO audit process in relation to verification of the CCP QA Program and interface responsibilities defined in the interface documents. In addition, the EPA requested a re-inspection of selected drums that were previously characterized by the CCP processes. This inspection consisted of performing NDA replicate scans of the selected drums and comparing the new data to the original data associated with the selected drums.

## **2.0 SCOPE**

CBFO Audit A-02-15 was conducted to evaluate the adequacy, implementation, and effectiveness of the CCP QA Program and technical processes used to perform TRU waste characterization activities for retrievably stored debris waste located or generated at the NTS. In addition, the audit team witnessed the operation of the trailer-mounted RTR, HSG, and SGS NDA equipment used to characterize the debris waste in accordance with the CCP implementing documents. Also, the audit team evaluated the NTS VE processes being conducted in the NTS WEF and the processes for developing and confirming Acceptable Knowledge (AK) documentation.

The following QA elements were evaluated in accordance with the CBFO QAPD:

- Organization
- QA Program
- Personnel Qualification and Training
- Quality Improvement
- Documents and Records
- Work Processes
- Procurement
- Inspection and Testing
- Grading Program
- Audits/Assessments
- Sample Control
- Software Quality Assurance

The following technical elements were evaluated to verify compliance with the WAP and the WAC:

- Data Validation and Verification (V&V)
- Acceptable Knowledge (AK)
- NDA
- RTR
- VE
- HSG Sampling and Analysis
- Sample Design
- Performance Demonstration Program (PDP)
- Waste Certification activities (e.g., Waste Stream Profile Form)
- WIPP Waste Information System (WWIS)

The evaluation of waste characterization and certification activities and documents was based on current revisions of the following documents:

- *Quality Assurance Program Document (QAPD)*, CAO-94-1012
- *Hazardous Waste Facility Permit Waste Isolation Pilot Plant EPA No. NM4890139088-TSDF*, by the New Mexico Environment Department, dated October 27, 1999, including all applicable modifications
- *Contact-Handled Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant (WAC)*, DOE/WIPP-02-3122

Programmatic and technical checklists were developed from the current revisions of the following documents:

- *CCP Transuranic Waste Quality Assurance Characterization Project Plan (QAPjP)*, CCP-PO-001
- *CCP Transuranic Waste Certification Plan*, CCP-PO-002
- *CCP/NTS Interface Document*, CCP-PO-009
- Related CCP QA and technical implementing procedures (see Attachment 4)

### **3.0 AUDIT TEAM, INSPECTORS, AND OBSERVERS**

#### **AUDITORS/TECHNICAL SPECIALISTS**

Steve Calvert	CTAC QA Manager
Earl Bradford	Audit Team Leader, CTAC
Jack Walsh	Auditor, CTAC
Steve Davis	Auditor, CTAC
Anabelle Axinn	Auditor, CTAC
Pete Rodriguez	Auditor, CTAC

Porf Martinez	Auditor, CTAC
Jim Schuetz	Auditor, CTAC
Chet Wright	Auditor, CTAC
Tom Putnam	Auditor, CTAC
Melissa Rojo	Clerical, CTAC
Dick Blauvelt	Technical Specialist, CTAC
Patrick Kelly	Technical Specialist, CTAC
Dorothy Gill	Technical Specialist, CTAC
Karen Gaydosh	Technical Specialist, CTAC

#### **INSPECTORS/OBSERVERS**

Mike Eagle	EPA Inspector
Rajani Joglekar	EPA Inspector
Ray Wood	EPA Inspector
Jim Oliver	EPA Inspector
Mike Bishop	EPA Inspector
Mark Bamberger	EPA Inspector
Steve Zappe	NMED Observer
Steve Holmes	NMED Observer
Keven Krause	NMED Observer
June Dreith	NMED Observer
Scott Webb	EEG Observer
Beth Bennington	CBFO Observer

#### **4.0 AUDIT PARTICIPANTS**

A pre-audit conference was held in the auditorium of Bechtel Building C-1 in North Las Vegas on September 23, 2002. Daily management briefings were held in Building 111, Room 174 at Mercury, Nevada, with CCP and NTS management to discuss the progress of the audit and potential deficiencies. The audit was concluded with a post-audit conference held in the auditorium of Bechtel Building C-1 on September 27, 2002. CCP and NTS personnel contacted during the course of the audit are identified in Attachment 1.

#### **5.0 SUMMARY OF AUDIT RESULTS**

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

The audit team concluded that the CCP technical and QA procedures adequately reflect the appropriate requirements from the CBFO QAPD, the WIPP HWFP, and the WAC. The audit team concluded that the defined QA Program is being satisfactorily implemented in accordance with the CCP QAPjP and the CCP implementing procedures. The audit team determined that the CCP characterization activities, as described in the associated CCP

implementing procedures, are adequate, satisfactorily implemented, and effective.

A Summary Table of Audit Results is provided in Attachment 2 and a list of CCP procedures evaluated during the audit is shown in Attachment 3.

## **5.2 Quality Assurance Program Audit Activities**

The audit team evaluated the adequacy and implementation of documents describing the CCP QA program. Details of audit activities, including the specific objective evidence reviewed, are contained in the audit checklists, which are maintained as CBFO QA records.

While evaluating the QA program elements, the audit team identified three concerns related to control of procured software that resulted in issuance of a CBFO CAR (CAR 02-097). In addition, the audit team provided a recommendation for improving retrievability of calibration records for the measuring and test equipment (M&TE) control process (Recommendation 5).

The audit team determined that overall, the CCP QA Program and implementing procedures were adequate, satisfactorily implemented, and effective.

## **5.3 Technical Activities**

The following sections describe the technical activities reviewed during the audit.

### **5.3.1 Data Verification and Validation**

The audit team evaluated the data V&V process at both the data generation and project levels: The generation-level data reviews are implemented and are required by the process procedures for NDA, RTR, HSG, and VE. The generation-level reviews were verified during process evaluation. CCP project-level reviews are accomplished in accordance with CCP Procedure CCP-TP-001. The audit team verified that the procedure adequately addresses the requirements of the CCP QAPjP. The audit team reviewed batch data reports generated for the various technical processes and concluded that the data V&V processes are adequate, satisfactorily implemented, and effective. The audit team reviewed HSG, RTR, VE, and NDA batch data reports. The audit team identified a concern related to a condition that, if uncorrected, could lead to a condition adverse to quality. The concern was related to the number of errors identified while reviewing completed batch data reports (Observation 9). The audit team determined that overall, the V&V processes at both the generation and the project levels were adequate, satisfactorily implemented, and effective.

### **5.3.2 Acceptable Knowledge/Reconciliation of Data Quality Objectives (DQOs)/Sample Design**

The audit team evaluated the AK process supporting the certification of the NTS retrievably stored debris waste to assure that activities were performed in compliance with the WAP requirements. The audit team reviewed the process for compilation of the AK record for debris waste. The audit team examined several AK source documents and reviewed the AK Summary Report.

The confirmatory test process was also reviewed and batch data reports were examined for drums that had been processed through confirmatory testing. The audit team examined a waste stream profile form, the characterization information summary (CIS) and the DQO checklist. Also reviewed were the processes for UCL<sub>90</sub> determination, NDE/VE comparison, and determination of lots.

AK procedure, CCP-TP-005, Rev. 8, was issued just prior to the audit and the audit team identified several editorial or adequacy issues that were corrected during the audit (CDA 2). The audit team identified four concerns related to conditions that, if uncorrected, could lead to conditions adverse to quality. The first concern was related to the completeness of an AK summary checklist that was demonstrated during the audit (Observation 2). The second concern identified inconsistencies and issues with the AK summary report (Observation 3). The third concern identified that a procedure attachment being used was not consistent with the attachment provided in the procedure (Observation 4). The fourth concern identified inconsistencies between a narrative supporting the WSPF and the AK summary (Observation 5).

The audit team provided one Recommendation for improvement of the AK record (Recommendation 7). The audit team recommended that the NTS AK container inventory database be added to the AK record.

The audit team determined that the AK documentation procedure and AK Summary Report were adequate, satisfactorily implemented, and the AK development process was effective. The AK confirmation processes for the reconciliation of DQOs, and the sample design and data analysis processes were adequate with respect to the WAP requirements, satisfactorily implemented, and effective in producing the requisite AK information.

### **5.3.3 Nondestructive Assay**

The audit team evaluated the mobile SGS NDA system operated by the CCP. This system is used for assaying TRU wastes packaged in 208-liter (55-gallon) drums. The instrument uses a coaxial germanium detector to quantify the activity of individual radioisotopes present in the drum. Multi-group analysis software and a low-energy germanium detector are used for isotopic analysis.



The audit team reviewed all applicable CCP procedures to ensure they were consistent with the upper level requirements, i.e., the CBFO WAC. The audit team interviewed CCP technical personnel, observed the NDA process, and reviewed completed data packages and records. The audit team evaluated the NDA system and activities for the following:

- Operability and acceptability of equipment
- Instrument calibration and traceability of calibration sources
- Applicability of calibration to waste type and radionuclide content
- Implementation and effectiveness of instrument/measurement controls
- Verification that CCP procedures are satisfactorily implemented
- Review of reports that presented support for compliance with technical criteria
- Review of completed data packages to ensure that data were reported and reviewed as required
- Data storage and retrievability

The audit team identified a concern related to a condition that, if uncorrected, could lead to a condition adverse to quality. The concern was related to an informal method used by independent technical reviewers to ensure the expert review of detected radionuclides greater than 0.5% of the total alpha activity (Observation 1). The audit team made two Recommendations for improvement of the CCP NDA processes. One recommendation addressed improvement of the SGS calibration record (Recommendation 2). The second recommendation addresses the need for ensuring trending of failures of weekly interfering matrix checks (Recommendation 9). Overall, the audit team determined that the CCP NDA process was adequate, satisfactorily implemented, and effective.

#### **5.3.4 Real-Time Radiography (RTR)**

The audit team evaluated the procedures and observed the operation of the mobile RTR system on September 24, 2002. The audit team reviewed four batch data reports, the associated videotapes, and the training files for the RTR operators.

The audit team identified one concern related to a condition that, if uncorrected, could lead to a condition adverse to quality. The NTS RTR operators are using a weight look-up table from a SRS RTR procedure that is not included in the CCP procedure at NTS (Observation 6). In addition, the audit team offered a Recommendation (Recommendation 10) for improvement of the RTR process. The audit team recommended that the RTR procedure be revised to require the operators to identify potential physical hazards and record them clearly on RTR data forms. The audit team determined that the CCP RTR process procedures were adequate, satisfactorily implemented, and effective.

### **5.3.5 Visual Examination**

The audit team evaluated the VE operations being performed by NTS personnel under the umbrella of the CCP. The VE operations were observed on September 25, 2002. In addition, three batch data reports and associated videotapes were reviewed along with the training records for the VE operators and VE experts.

The audit team identified a condition that, if left uncorrected, could result in a condition adverse to quality. This concern (Observation 8) identifies a condition where the VE independent technical reviewer (ITR) does not perform a comparison of logbook data and the data recorded in data sheets to assure the absence of transcription errors. In addition, the audit team provided one Recommendation (Recommendation 8) for improvement of the VE process. While recording the narrative for the VE inspection, the narrator states that each bag removed from the drum is sealed if it has a "horsetail." The narrator also uses the terms "sealed" and "greater than 4 liters" if the bag is larger than 4 liters. The audit team recommended that the VE operators not use these terms unless addressing prohibited items.

The audit team determined that the VE process was adequate, satisfactorily implemented, and effective.

### **5.3.6 Headspace Gas Sampling and Analysis**

The audit team evaluated the sampling and analysis procedures for HGS, as performed by the CCP single sample manifold system. The sampling and analysis processes observed during the audit were drum preparation, HGS sampling and analysis, and filter installation.

The audit team determined that the HSG operations and sampling and analysis processes were well organized and the equipment was compliant with the WIPP WAP. The operators were knowledgeable with regard to their analytical duties, equipment operation, calibration, and were committed to generation of data that meets the quality requirements. Data validation operations were sufficiently comprehensive to meet all WIPP WAP requirements, and were well coordinated.

The audit team identified a concern that resulted in the issuance of a CBFO CAR (CAR 02-096). The instrument range indicating measurements for the photo ionization detector (PID) was not sufficient to ensure that the actual measurement would fall within the specified tolerances. The audit team identified one concern that was corrected during the audit. This concern (CDA 1) identified a failure to monitor the storage temperature of the bromofluorobenzene (BFB) tuning solution.

The audit team also identified a condition that, if left uncorrected, could result in a condition adverse to quality. This concern identifies some inconsistencies between actual practices and HSG procedural requirements (Observation 7). The audit team provided two Recommendations for improvement of the HSG processes. The first recommendation was related to the failure of the HSG data analysis procedure to address review of quantitative identification for volatile organic compounds (VOC), hydrogen, and methane. It was recommended that the review be added to the procedure (Recommendation 1). The second Recommendation was related to an inappropriate method being used to draw standard samples (Recommendation 6). Overall, the audit team determined that the CCP HSG sampling and analysis operations were adequate, satisfactorily implemented, and effective.

### **5.3.7 Performance Demonstration Program (PDP)**

The audit team examined PDP documentation and interviewed CCP personnel. The audit team verified that the CCP processes had successfully demonstrated the capability to pass the current PDP cycles for NDA and HSG. The audit team determined that CCP participation in the PDP was adequate, satisfactorily implemented, and effective.

### **5.3.8 Waste Certification/WWIS Data Entry**

The audit team evaluated the WWIS data entry process and verified that the process and the implementing CCP procedures were in compliance with the requirements of the CCP QAPjP and CCP TRU Waste Certification Plan. The evaluation included a demonstration of the manual data transfer to the WWIS and a QA validation of the entered data. It was demonstrated that data could be successfully input into the WIPP database. It was further demonstrated that the WIPP database accepted and confirmed receipt of data transmitted to the WIPP from the remote location. The generation of record packages was demonstrated including the printed and verified data entry forms and WWIS acceptance reports. The audit team provided two Recommendations for improvement of the overall WWIS data entry process. The first recommendation (Recommendation 3) suggests improvements for documenting training for WWIS data entry personnel. The second Recommendation (Recommendation 4) suggests the use of pull-down menu items for the WWIS data spreadsheet cells to enhance data entry. The audit team concluded that the data entry procedures are adequate, satisfactorily implemented, and the process is effective.

## **6.0 CARs, CDAs, OBSERVATIONS, AND RECOMMENDATIONS**

### **6.1 Corrective Action Reports**

The following two CARs, initiated as a result of Audit A-02-15, have been transmitted to CCP management under separate cover. A brief description of each CAR is provided below.

#### **6.1.1 CBFO CAR 02-096**

HSG Sampling and Analysis implementation:

The PID instrument readout is truncated so that only whole numbers are displayed. The acceptance criteria for PID verification is plus or minus 1 ppm using a 10 ppm standard. It is possible that a reading of 11 could be between 11-11.9 and would be out of compliance.

#### **6.1.2 CBFO CAR 02-097**

Software QA program issues related to procured software:

- Review of life-cycle documentation for Canberra can scanner GENIE-PC, Suite 480 software included comments in the body of the review memorandum. The comments were not forwarded to the vendor and have not been resolved.
- The software quality assurance forms, software requirements checklist (Attachment 13), and software installation and checkout form (Attachment 10), contain blank items on the forms.
- Software QA requirements have not been included in procurement documentation for the Canberra can scanner GENIE-PC, Suite 480 software.

### **6.2 Deficiencies Corrected During the Audit (CDAs)**

The audit team identified two conditions adverse to quality that were considered isolated deficiencies and were corrected during the audit.

CDA 1 – The BFB tuning solution is being stored in a freezer, but the temperature of the freezer is not monitored to show compliance with the SW-846 requirement to store liquid standards below -10 degrees C. The CCP obtained and installed monitoring equipment and corrected the procedure to address verification that the required temperature had been maintained. The audit team verified corrective action for this item.

CDA 2 – CCP-TP-005, Revision 8, contained editorial and adequacy concerns that needed to be corrected. These concerns were as follows:

- Section 4.3.2, Note dealing with attachments 2 and 3 was incorrect.

- The word "Sign" was missing from Section 4.5.L.
- The intent of Section 4.4.20 on the compilation of the AK radionuclide information needed clarification.
- Add a step in 4.5.1(D) concerning reconciliation of an isotopic ratio comparison that exceeds 50%.
- Add a step in Section 4.6 to include radionuclide accuracy in the accuracy report.

The CCP revised the procedure and addressed the adequacy issues and the audit team verified that the procedure adequately addressed all the issues.

### 6.3 Observations

The audit team identified nine conditions that, if left uncorrected, could lead to future conditions adverse to quality. These conditions are reported as Observations, and are being provided to CCP management for consideration.

Observation 1 – CCP-TP-052 does not include direction for ITR personnel to flag any detected radionuclide that is greater 0.5% of the total alpha activity for expert review, nor does it contain specific details regarding how this review is to be performed (i.e. evaluation of the radiological hazard relative to Pu-239).

Observation 2 – The AK confirmation checklist was demonstrated but was incomplete. Specifically, the source of the waste characterization information was not cited in the comments section. In addition, not all prohibited items were listed and the AK radiological information provided in Attachment 2 was incomplete.

Observation 3 – The NTS AK summary report should be revised to address the following issues:

- The maps included are not legible.
- Stable radionuclides are listed on the AK list.
- Relevant radionuclide isotopic information was deleted during revision of the document (Rev. 3).
- Tables 5.2 and 6.2 should list total population.

Observation 4 – Attachment 4 of the AK procedure (CCP-TP-005) is not the same as the version in use. The proper version should be incorporated into the procedure. Note: The attachment being used was from an earlier version of the procedure and contained the appropriate information.

Observation 5 – The narrative supporting the WSPF, NTLLNL-S5400-332.01A, is not consistent with the AK summary report. Different "D" code assignments are noted and the rationale for not assigning D001 and D002, are not the same

between the narrative and the AK summary. Note: The information differences were basically editorial in nature and the documents were in process and being revised.

Observation 6 – The RTR operators were using a weight look-up table from a SRS RTR procedure. The table is not included in the procedure used at NTS. Note: The RTR equipment is the same at both sites and the operators were using the table from the other site as a guide only. There is no impact upon the data being produced.

Observation 7 – HSG sampling and analysis procedure CCP-TP-029, Rev. 8, has some inconsistencies that are considered editorial in nature and should be addressed. Note: The process was being performed properly and the procedure inconsistencies did not affect the data that was generated. These inconsistencies are as follows:

- Hydrogen methane analysis is being performed. Section 2.2.16, "Performance of Hydrogen Methane Analysis," does not include a step to use a CCV gas standard; however, the standard is being used.
- Section 4.4.4[D] provides acceptance criteria for flame ionization detectors and thermal conductivity detectors. This criteria is for VOC target compounds and should be deleted.
- Section 4.9.1 requires verification of relative retention times for qualitative analysis; however, relative retention time is not used per this procedure.

Observation 8 – The VE ITR does not perform a comparison of logbook data with the data in TRU data sheets to assure the absence of transcription errors. There were no apparent errors noted.

Observation 9 – While reviewing batch data reports, the audit team noted the following discrepancies:

BDR NT-VE-0003:

- Inconsistent identification of the BDR.
- Page 6 of the package inventory report had a discrepancy on the presence of a 90 mil liner.
- EPA codes were listed incorrectly.
- There was no entry for packaging for the VE column of the RTR/VE comparison.

BDR NT-RTR-0004:

- All NCRs are not listed on the SQAQO Checklist.

- Inconsistency of procedure revisions used between checklists

BDR NT-02-002:

- Two designations of videotape.

Note: A total of 13 batch data reports were reviewed during the audit and the above listed deficiencies were identified. This indicates a lack of attention to detail when preparing batch data reports.

## 6.4 Recommendations

The audit team made 10 Recommendations for improvement of the CCP processes and procedures. The Recommendations, provided to CCP management for consideration, are shown below.

Recommendation 1 - Procedure CCP-TP-032, Rev. 7, does not require review of quantitative identification for VOCs, hydrogen, and methane. The audit team recommends that this review be added to the procedure.

Recommendation 2 – The CCP report, *Calibration and Validation Report for the MCS Segmented Gamma Scanner at NTS*, MCS-NTS-DDA-1001 does not include the dates of all calibration activities, e.g., calibration confirmation, verification, and pulser reference peak calibration. The audit team recommends this information be included in the report.

Recommendation 3 – CCP should consider a more formal method of documentation of completion of training for WWIS data entry personnel. The audit team recommends a signature of completion/satisfactory status on the on-the-job training (OJT) form and/or sending notification of satisfactory completion to the individual personnel.

Recommendation 4 – The audit team recommends the use of pull-down menu items for the appropriate WWIS data spreadsheet cells as an enhancement to expedite data entry and increase consistency and accuracy for applicable WWIS spreadsheet cells.

Recommendation 5 – The M&TE Log (Master Database of Monitoring & Data Collection List) does not list instrument identification numbers in addition to the serial numbers. The audit team recommends adding the instrument ID numbers to the equipment list. The Bechtel Nevada Calibration Certification documentation and the calibration stickers reflect instrument identification numbers and do not list the instrument serial numbers.

Recommendation 6 – The working solution of 4-bromofluorobenzene is stored in a screw-capped bottle, fitted with a septum. Current practice is to remove the cap from the bottle while withdrawing the required amount of standard solution.

The audit team recommends that the standard solution be withdrawn through the septum without removal of the cap.

Recommendation 7 – The audit team recommends that the NTS AK Container Inventory Database be added to the AK record.

Recommendation 8 – While recording the narrative for the VE inspection, the narrator states that each bag removed from the drum is sealed if it has a "horsetail." The narrator also uses the terms "sealed" and "greater than 4 liters" if the bag is larger than 4 liters. The audit team recommends that the VE operators not use these terms unless addressing prohibited items.

Recommendation 9 – CCP-TP-051, *CCP Mobile SGS Data Reviewing, Validating and Reporting*, does not contain provisions for capturing "out of control limits" or "3 Sigma Limits" for failures of weekly interfering matrix checks and therefore may not be considered for QA trending and analysis. The audit team recommends that clarification be added to the procedure to ensure that these conditions are properly evaluated.

Recommendation 10 – Radiographic procedure CCP-TP-045 does not include steps for the RTR operator to identify potential physical hazards for the VE operators. The audit team recommends that the procedure be revised to require the RTR operators to identify potential physical hazards and record them distinctly on RTR data forms. In addition, it is recommended that the VE personnel be notified of such hazards.

## 7.0 ATTACHMENTS

Attachment 1: Personnel Contacted During the Audit

Attachment 2: Summary Table of Audit Results

Attachment 3: CCP Documents/Procedures Evaluated During the Audit



<b>PERSONNEL CONTACTED DURING THE AUDIT</b>				
<b>NAME</b>	<b>TITLE/ORG</b>	<b>PRE AUDIT MEETING</b>	<b>CONTACTED DURING AUDIT</b>	<b>POST AUDIT MEETING</b>
Anderson, Jonathan	CCP Documents	X	X	
Barnett, Jack	Observer, EPA Region 5	X		X
Becker, David	CCP AK	X		
Bernardi, Richard	CCP Technical Specialist		X	X
Bickerstaff, Sheila	CCP Record Custodian	X	X	X
Billet, R. A.	CCP Site Opp Mgr.		X	
Brown, Beverly	Facility Records Custodian		X	
Burns, Tim	LANL CCP Manager		X	
Chapman, Carl	BN VE Operator		X	
Colarusso, Angela	NNSA/NV TRU Project Manager	X		X
Colby, Charles T.	CCP HSG Operator		X	
Crawford, Beverly	CCP SPM		X	
Davidson, Craig	MCS, NDA Technical Supervisor		X	
DiSansa, E. Frank	NNSA/NV WMD Director	X		
Djordjevic, Sinisa	CCP SQA		X	
Elle, Don	NDEP Supervisor	X		X
Erdmann, Nancy	ANL-E Records	X	X	
Ewing, Steve	CCP NDE	X	X	
Fesmire, Courtland	CCP SPM	X	X	X

<b>PERSONNEL CONTACTED DURING THE AUDIT</b>				
<b>NAME</b>	<b>TITLE/ORG</b>	<b>PRE AUDIT MEETING</b>	<b>CONTACTED DURING AUDIT</b>	<b>POST AUDIT MEETING</b>
Fisher, A. J.	CCP QA Manager	X	X	X
Fleissner, John	Canberra, NDA Specialist		X	
Florez, Patsy	AK Administration		X	
Foster, Bruce	BN Interface	X	X	X
Franco, Joe	CCP Project Manager	X	X	X
Freeze, Deborah	CCP Training Specialist	X	X	
Greenbaum, Paul	BN HP	X		
Gregory, Louis	BN VEE		X	X
Griswold, Lincoln W.	CCP Engineer	X		X
Guerin, David	CCP AK Expert		X	X
Kirkes, Creta	CCP WWIS Data Entry	X	X	
Haar, Dave	CCP Deputy Manager	X	X	X
Lahoud, Russel	BN Program Manager TRS			X
Lee, Yun Ko	BN AK	X		
Little, Bonnie	AK Expert		X	
Melton, Jessie L.	CCP HSG Support		X	
Mooney, Dean	CCP SPQAO		X	
Morris, Wade C.	MCS NDA Operator		X	
Norton, Joni	NNSA/NV TRU Task Manager	X		X
Paradis, Leonil	BN VE Operator		X	

**PERSONNEL CONTACTED DURING THE AUDIT**

<b>NAME</b>	<b>TITLE/ORG</b>	<b>PRE AUDIT MEETING</b>	<b>CONTACTED DURING AUDIT</b>	<b>POST AUDIT MEETING</b>
Parson-DePry, Shannon	BN VE Technical Supervisor		X	
Pennala, Eric	MCS General Manager	X	X	
Peterson, Michael	HSG Support		X	
Pooler, Fred	MCS RTR Operator		X	
Quintana, Doris	CCP SPQAO	X	X	
Remington, Dan	Canberra, NDA Senior Scientist		X	
Shepley, Todd	MCS NDA Operator		X	
Shokes, Tamara	Project Manager		X	
Smith, E. Lee	MCS RTR ITR	X	X	
Stroble, J. R.	CCP WCO/NCT	X		
Tilman, Paul	NNSA/NV TRU Task Manager	X		
Uytioco, Elise	HSG Operator		X	
VanMeigham, Jeff	CCP-VPM	X	X	X
Whitworth, Julia	AK Expert		X	
Wong, John	NDEP	X		X

Summary Table of Audit Results

QA / TECHNICAL ELEMENTS	CARs	CDAs	OBSs	RECs	Program Adequacy	Program Implementation	Program Effectiveness
Acceptable Knowledge		#010	#011 #012 #013	#014	A	S	E
Sample Design / Reconciliation of DQOs			#015		A	S	E
Headspace Gas Sampling and Analysis/Log Books/Container Management	#002	#003	#020	#001 #009	A	S	E
Nondestructive Assay (SGS System)			#004	#005 #023	A	S	E
RTR			#016	#025	A	S	E
Organization / QA Program					A	S	E
e-QA System / Software QA	#017, #018, #022				A	S	E
Procurement					A	S	E
Document Control					A	S	E
Inspection/Test Control/M&TE for Data Collection				#008	A	S	E
Program Interfaces / Statement of Work					A	S	E
CARs / NCRs / Corrective Action					A	S	E
Project Level Data V&V			#024		A	S	E
Visual Examination			#021	#019	A	S	E
Audits & Assessments					A	S	E
WWIS Data Entry				#006 #007	A	S	E
Identification of Items / Handling, Storage, Shipping					A	S	E
Personnel Qualification / Training					A	S	E
QAPD Matrix / Graded Approach / Work Control Processes					A	S	E
Records Management					A	S	E
<b>SUMMARY</b>	4	2	9	10	A	S	E

**LEDGEND:** CARs = Corrective Action Reports; CDAs = Corrected During the Audit; OBSs = Observations; RECs = Recommendations  
**ADEQUACY/EFFECTIVENESS STATEMENTS:** A = Adequate; S = Satisfactory; UNSAT = Unsatisfactory; E = Effective; I = Indeterminate; M = Marginal;

<b>CCP DOCUMENTS/PROCEDURES EVALUATED DURING THE AUDIT</b>		
<b>Number</b>	<b>Procedure Number/Rev</b>	<b>DOCUMENT TITLE</b>
1	CCP-PO-002, Rev. 4	CCP Transuranic Waste Certification Plan
2	CCP-PO-008 Rev. 3	CCP Quality Assurance Administrative Program
3	CCP-PO-009, Rev. 4	CCP/NTS Interface Document
4	Bechtel Nevada/WTS Contract/ Statement of Work	Bechtel Nevada, NTS Statement of Work for Characterization of NTS TRU Waste
5	CCP-QP-001, Rev. 2	CCP Graded Approach
6	CCP-QP-002, Rev. 11	CCP Training and Qualification Plan
7	CCP-QP-004, Rev. 3	CCP Corrective Action Management
8	CCP-QP-005, Rev. 6	CCP TRU Nonconforming Item Reporting and Control
9	CCP-QP-006, Rev. 3	CCP Corrective Action Reporting and Control
10	CCP-QP-008 Rev. 8	CCP Records Management
11	CCP-QP-009, Rev. 3	CCP Work Control Process
12	CCP-QP-010, Rev. 9	CCP Document Preparation and Approval
13	CCP-QP-011, Rev. 3	CCP Notebooks & Logbooks
14	CCP-QP-013, Rev. 1	CCP QAPD Matrix
15	CCP-QP-015, Rev. 5	CCP Procurement
16	CCP-QP-016, Rev. 5	CCP Control of Measuring, Testing, and Data Collection Equipment
17	CCP-QP-017, Rev. 2	CCP Identification and Control of Items
18	CCP-QP-018, Rev. 2	CCP Management Assessments
19	CCP-QP-019, Rev. 1	CCP Quality Assurance Reporting to Management
20	CCP-QP-020, Rev. 2	CCP Independent Assessments
21	CCP-QP-021, Rev. 3	CCP Surveillance Program

<b>CCP DOCUMENTS/PROCEDURES EVALUATED DURING THE AUDIT</b>		
<b>Number</b>	<b>Procedure Number/Rev</b>	<b>DOCUMENT TITLE</b>
22	CCP-QP-022, Rev. 2	CCP TRU Software Quality Assurance
23	CCP-QP-023, Rev. 1	CCP Handling, Storage, and Shipping
24	CCP-QP-024, Rev. 3	CCP Certification of CCP Audit Personnel
25	CCP-QP-026, Rev. 5	CCP Inspection Control
26	CCP-QP-027, Rev. 2	CCP Test Control
27	CCP-QP-028, Rev. 3	CCP Records Filing, Inventorying, Scheduling, and Dispositioning
28	CCP-TP-001, Rev. 6	CCP Project Level Data Validation and Verification
29	CCP-TP-002, Rev. 10	CCP Reconciliation of DQOs and Reporting Characterization Data
30	CCP-TP-003, Rev. 8	CCP Sampling Design and Data Analysis for RCRA Characterization
31	CCP-TP-005, Rev. 7	CCP Acceptable Knowledge Documentation
32	CCP-TP-007 Rev. 13	CCP Single Sample Manifold Headspace Gas Sampling and Analysis Procedure
33	CCP-TP-009 Rev. 9	CCP Single Sample Manifold Data Handling Procedure
34	CCP-TP-028 Rev. 1	CCP Radiographic Test and Training Drum Requirements
35	CCP-TP-029 Rev. 8	CCP Single-Sample Manifold Headspace Gas Sampling and Analysis Methods and Equipment Calibration
36	CCP-TP-030 Rev. 6	CCP WWIS Data Entry and TRU Waste Certification
37	CCP-TP-032 Rev. 7	CCP Single Sample Manifold Data Validation Procedure
38	CCP-TP-045 Rev. 4	CCP RTR #5 Radiography Inspection Operating Procedure
39	CCP-TP-050 Rev. 1	CCP Mobile Segmented Gamma Scanner Calibration Procedure
40	CCP-TP-051 Rev. 4	CCP Mobile Segmented Gamma Scanner Operation
41	CCP-TP-052 Rev. 3	CCP Mobile Segmented Gamma Scanner Data Reviewing, Validating, and Reporting
42	CCP-TP-056 Rev. 1	CCP HSG Performance Demonstration Plan
43	CCP-TP-058 Rev. 1	CCP NDA Performance Demonstration Plan
44	CCP-TP-061 Rev. 4	CCP TRU Waste Container Inspection and Control at NTS

**CCP DOCUMENTS/PROCEDURES EVALUATED DURING THE AUDIT**

Number	Procedure Number/Rev	DOCUMENT TITLE
45	CCP-TP-062 Rev. 7	CCP TRU Waste Examination, Segregation, and Repacking at the NTS WEF